Report

Environmental Audit - Forest Audit Program

Module 5 - Harvesting and Closure

25 MARCH 2011

Prepared for

Department of Sustainability and Environment

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Melbourne
Victoria

42807504

URS

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Abbreviations

Abbreviation	Description
ARR	Absolute Risk Rating
CIS	Coupe Information System
Code	*Code of Practice for Timber Production 2007*
DSE or the Department	Department of Sustainability and Environment
EIA	Environmental Impact Assessment
EPA	Environment Protection Authority
FAP	Forest Audit Program
FCP	Forest Coupe Plan
FFG Act	Flora and Fauna Guarantee Act 1988
FMA	Forest Management Area
FMP	Forest Management Plan
GMZ	General Management Zone
HSE	Health, Safety and Environment
Management Procedures	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests 2007*
NGO	Non Government Organisation
SMZ	Special Management Zone
SPZ	Special Protection Zone
TRP	Timber Release Plan

Executive Summary

This report documents the methodology and findings of an environmental audit of timber production on public land in Victoria for the 2008-09 financial year. The objective of the audit is to assess and report on compliance of timber harvesting operations, undertaken during the 2008-09 financial year, with all relevant legislation, regulations and government policies aimed at achieving sustainable forest management. The audit was undertaken in accordance with the scope and methodology developed by the Department of Sustainability and Environment (DSE or the Department) through its *Forest Audit Program* (FAP).

Table 1 Summary information in accordance with EPA Publication 1147

Summary information required	
EPA file reference no.	68515-1
Auditor	Jodie Mason
Auditor term of appointment	14 July 2008 - 14 July 2012
Name of person requesting audit	Stephen Colquitt, Project Manager, Department of Sustainability and Environment (DSE)
Relationship to premises/location	DSE is the regulator of commercial timber harvesting activities on public land in Victoria
Date of request	27-Sep-10
Date EPA notified of audit	30-Sep-10
Completion date of the audit	25-Feb-11
Reason for audit	Required by the DSE Forest Audit Program
Description of activity	Preparation and implementation of Forest Coupe Plans, including elements of planning, timber harvesting, road construction and post-harvest rehabilitation (excludes regeneration activities and outcomes).
EPA region	State wide
Dominant — Lot on plan	N/A - State Forest
Additional — Lot on plan(s)	N/A - State Forest
Site/premises name	27 coupes across Victoria
o Building/complex sub-unit No.	N/A - State Forest
o Street/Lot — Lower No.	N/A - State Forest
o Street/Lot — Upper No.	N/A - State Forest
o Street Name	N/A - State Forest
o Street type (road, court, etc)	N/A - State Forest
o Street suffix (North, South etc)	N/A - State Forest
o Suburb	N/A - State Forest
o Postcode	N/A - State Forest
GIS coordinate of site centroid7	N/A
o Latitude (GDA94)	N/A
o Longitude (GDA94)	N/A

0 Introduction

Summary information required	
Members and categories of support team utilised	Andrew Hill (Terrestrial Ecology - flora)
Outcome of the audit	Audit report with recommendations
Further work or requirements	Four (4) recommendations were made, relating to control of noxious weeds; fire salvage machinery cleaning protocols; closure of roads no longer needed; and disposal of excess bark when not undertaking regeneration burning.
Groundwater segment	N/A
Surrounding land use	Surrounding land includes State forest, State park and national park managed for multiple uses including timber harvesting, recreation, biodiversity conservation and water storage and management.

The audit assessed 27 coupes across Victoria, 25 of which are managed by VicForests and two of which are managed by DSE. Twenty-five coupes were selected according to a risk-based approach that considered risk of environmental impact arising from harvesting activities by scoring each coupe according to its attributes of slope, soil erosion hazard, silviculture, the presence of rainforest and proximity to other protected values. The weighted selection process favoured the selection of coupes with a relatively higher risk of environmental impact, with 60%, 25% and 15% of the coupes selected from the High, Medium and Low risk categories, respectively. The selected VicForests coupes were spread across the High, Medium and Low risk categories, while the selected DSE coupes were both from the Low risk category.

Two of the 27 coupes were selected on the basis that they occur within water supply catchments managed by Melbourne Water.

The audited coupes included five fire salvage coupes and one thinnings coupe. The scope of the audit excluded practices associated with production and collection of domestic forest produce such as firewood.

The Department managed stakeholder consultation relating to the development of the FAP and the audit. Interest by stakeholders resulted in the management of rainforest being a focus of coupe selection for this audit. Two community observation days were held following the audit where the audit process could be observed and findings discussed.

The audit was undertaken during November and December 2010, with the field component completed in November. There were no harvesting activities current in the selected coupes at the time of the audit. Compliance or non-compliance was noted for defined audit criteria within six Compliance Element groups. Where a non-compliance was identified, the actual or potential environmental impact was determined in accordance with the Environmental Impact Assessment (EIA) tool, as defined in the FAP, to provide an EIA risk rating of Severe, Major, Moderate, Minor or Negligible. During reporting of audit findings, a sixth category of impact was added to the EIA tool, termed ‘No impact’ to more accurately reflect that some identified non-compliances resulted in no environmental impact.

The differences in forest types, the landscape within which they occur and the harvest intensity between the audited coupes managed by VicForests and those managed by DSE are expected to result in differences in risk of environmental impact. Attributes that contribute to a higher risk of

environmental impact include steep slopes, higher soil erosion hazard, silvicultural systems requiring more intensive harvesting, and proximity to other special values. In general, VicForests coupes were on steeper topography, had coupes with higher soil erosion hazard, had more intensive harvesting systems and were proximal to a higher proportion of other special values than were the DSE coupes. Due to these differences, it is not appropriate for the reader to draw direct comparisons between the level of compliance or environmental impact of DSE-managed coupes and those managed by VicForests. Further, due to differences in audit criteria, it is not appropriate for the reader to draw direct comparisons between compliance scores presented in this first audit report against the new FAP and those reported for the annual audit process managed by EPA Victoria in the period from 2003 to 2007.

The audit identified a number of individual examples of good practice, including instances of conservative delineation of rainforest boundaries; minimisation of snig tracks; good examples of snig track rehabilitation on a steep slope; minimisation of vegetation clearance widths for road construction; reuse of existing landings and road alignments and effective use of natural outslope drainage where possible.

Table 2 summarises the audit findings for DSE and Vicforests, including EIA risk ratings.

Table 2 Summary of audit findings for DSE and VicForests

Agency	Coupes audited	Compliances (% compliance)	Non-compliances	Environmental Impact Assessment Tool rating					
				No impact	Negligible	Minor	Moderate	Major	Severe
VicForests	**25**	1934 (93%)	139	31	47	28	31	2	0
DSE	2	71 (87%)	11	9	2	0	0	0	0
TOTAL	**27**	2,005 (93%)	150	**40**	**49**	**28**	**31**	**2**	**0**

Figure 1 summarises compliance and EIA risk ratings for each Compliance Element.

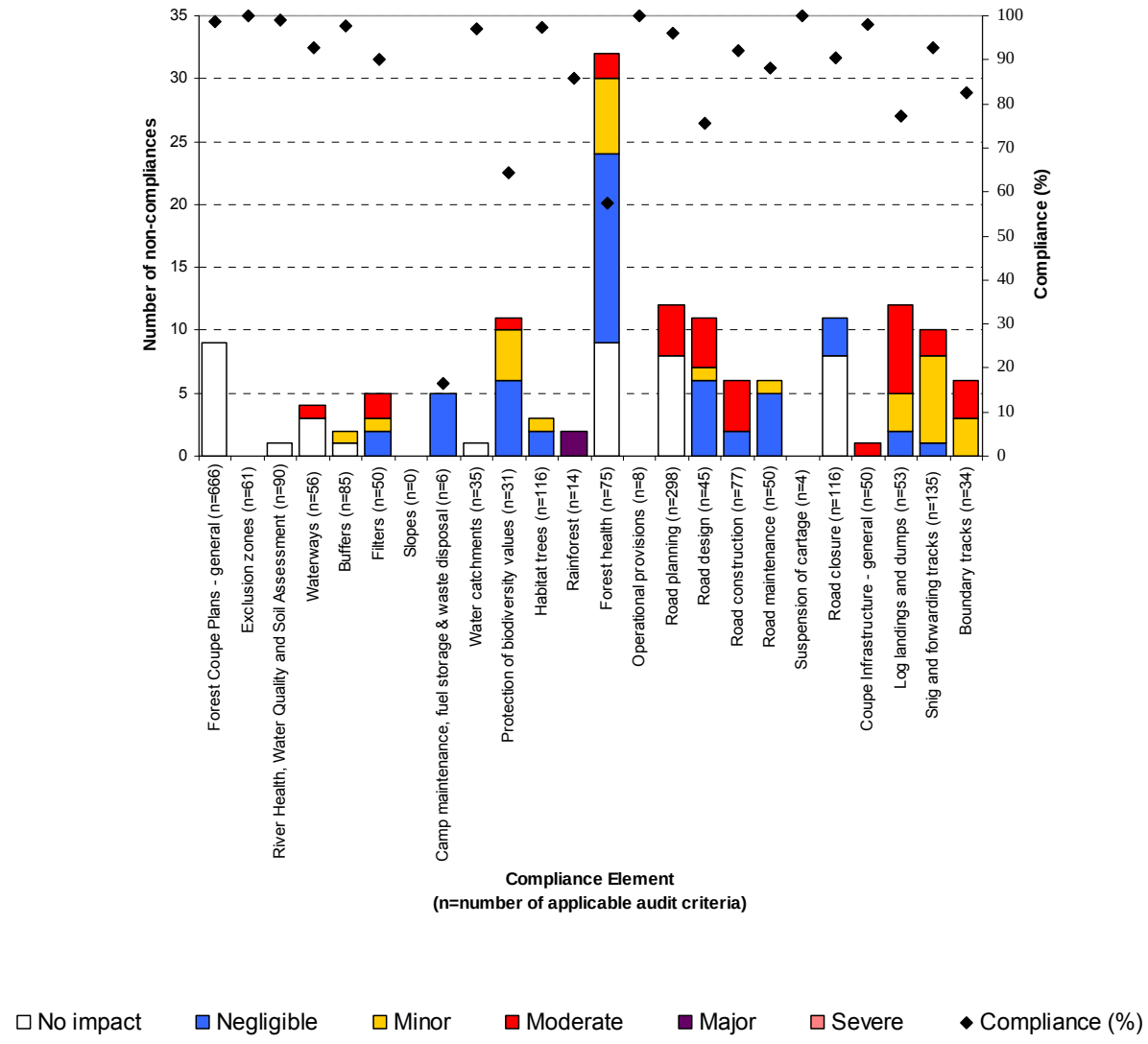

Figure 1 Summary of compliance for each Compliance Element

A total of 139 non-compliances were identified across the 25 VicForests coupes and 11 across the two DSE coupes.

The *Forest Coupe Plans* Compliance Element group (*Forest Coupe Plans – general*; and *Exclusion zones* Compliance Elements), which addressed the development of Forest Coupe Plans and planning for exclusion zones, had the greatest number of criteria and the second highest proportion of criteria in compliance of the six groups. The main areas of non-compliance identified in the *Forest Coupe Plans* Compliance Element group related to planning for the control of noxious weeds, with two minor errors also identified in labelling of species habitat on maps. The *Operational Provisions* Compliance

Element group (*Operational provisions* Compliance Element), which had only eight applicable audit criteria, had all criteria assessed as being in compliance. A large proportion of the criteria in the *Operational Provisions* Compliance Element group, such as suspension of operations in wet conditions, were unable to be assessed due to there being no harvesting current during the audit.

Of the six groups, the *Biodiversity Conservation* Compliance Element group (*Protection of biodiversity values; Habitat trees; Rainforest;* and *Forest health* Compliance Elements) had the lowest level of compliance, with around 75 percent of the applicable criteria assessed as compliant. Areas of non-compliance included systemic weaknesses identified with monitoring and control of noxious weeds. In general, the areas identified for protection of significant habitat and rainforest had been marked appropriately and harvesting activities excluded. Notable exceptions to this were machine entry into two areas of rainforest and their buffers. Both of the rainforest buffers had been identified in Forest Coupe Plans and maps and harvesting had been excluded, with entry in each case appearing to have been by an individual bulldozer or excavator, in one case apparently during firebreak construction. These non-compliances were assessed as having Major EIA risk ratings.

The *River Health, Water Quality and Soil Assessment* Compliance Element group (*River Health, Water Quality and Soil Assessment; Waterways; Buffers; Filters; Slopes; Camp maintenance, fuel storage and waste disposal;* and *Water catchments* Compliance Elements*)* addressed classification and exclusion of waterways from harvesting activities, slope and special water catchment restrictions, and management of in-coupe machinery maintenance areas. The Compliance Element group was assessed as having been managed appropriately, with a small number of non-compliances identified, including failure to classify streams adjacent to three coupes, machinery or harvest debris entering filters on four coupes and instances of litter on coupes.

The *Roading* Compliance Element group (*Road planning; Road design; Road construction; Road maintenance; Suspension of cartage;* and *Road closure* Compliance Elements) addressed the planning, construction and temporary and permanent closure of roads used during timber harvesting. In the majority of cases, roads were assessed as planned and designed to minimise impacts, with some deficiencies identified, mainly on steeper slopes. Management of stockpiled soil was also assessed on several coupes as being non-compliant, in one case resulting in a Moderate EIA risk rating due to its location within a rainforest buffer. Retaining access to roads that are no longer needed was also identified as non-compliant in several instances for both VicForests- and DSE-managed roads.

The *Coupe Infrastructure* Compliance Element group (*Coupe infrastructure – general; Log landings and dumps; Snig and forwarding tracks;* and *Boundary tracks* Compliance Elements) addressed landings, snig tracks and boundary tracks. Infrastructure was assessed as being generally minimised and rehabilitated appropriately. Issues identified included inadequate respreading of topsoil on some landings, retention of excess bark around some landings due to reduced regeneration burning, and inadequate drainage of sections of snig tracks and boundary tracks, mainly on steeper slopes in the case of boundary tracks.

No non-compliances with Severe EIA risk ratings were identified in any coupes during the audit.

Two non-compliances with an EIA risk rating of Major were identified, both resulting from machine entry into rainforest buffers and associated rainforest.

Thirty-one non-compliances with Moderate EIA risk ratings and 28 non-compliances with Minor EIA risk ratings were also identified, mainly in the following areas:

- Topsoil respreading and retention of bark at landings;
- Noxious weed assessments and control;
- Inadequate or inappropriate drainage of sections of roads, snig tracks and boundary tracks;
- Management of cut and fill on roads;
- Road construction on steeper slopes than prescribed for the soil type;
- Crossing of drainage lines without approval;
- Instances of debris pushed or rolled into exclusion zones;
- Trees felled into buffers and pulled out without adequate documentation;
- An instance of soil stockpiled in a rainforest buffer for road rehabilitation without documented and approved plans; and
- Instances of failure to classify streams adjacent to coupes.

The majority of non-compliances identified (59%) were determined as having EIA risk ratings of No impact or Negligible.

This audit report includes four recommendations for improvement where current systems are not considered adequate to meet the relevant requirements of the *Code of practice for timber production 2007,* Management Procedures or *Fire salvage harvesting prescriptions* as incorporated into the FAP. The recommendations relate to weed control; fire salvage machinery cleaning protocols; closure of roads no longer needed; and disposal of excess bark when not undertaking regeneration burning. All recommendations apply to VicForests operations and two also apply to DSE.

Introduction

This report documents the methodology and findings of an environmental audit of timber production on State forests in Victoria for the 2008-09 financial year. The Department of Sustainability and Environment (DSE or the Department) engaged URS Australia Pty Ltd (URS) to undertake the audit. Jodie Mason (the Auditor) of URS led the audit in her capacity as an environmental auditor appointed pursuant to the *Environment Protection Act 1970*.

The objective of the audit is to assess and report on compliance of timber harvesting operations, undertaken in the 2008-09 financial year on public land, with all relevant legislation, regulations and government policies aimed at achieving sustainable forest management, in accordance with the scope of work developed by DSE.

Between 2003 and 2007, EPA Victoria managed a program of annual external, independent audits of compliance with the *Code of forest practices for timber production, 1996*. In 2007, EPA Victoria commissioned a review of the suite of audits undertaken across the timber production cycle by all parties with a view to improving the audit program. In response to the findings and recommendations of the review, the Minister for Environment and Climate Change requested that DSE, as the regulator of timber harvesting activities on public land, develop a new Forest Audit Program.

In 2010, DSE finalised its *Forest Audit Program* (FAP), a series of seven audit modules intended to assess, in an open and transparent manner, the environmental impacts of activities associated with timber harvesting conducted in State forests. The seven modules, including two procedural modules, address activities throughout the planning, roading, harvesting, regeneration, monitoring and finalisation stages of the forest harvesting cycle. This audit was undertaken in accordance with the scope and methodology specified in two procedural modules of the FAP, *Module 1 Overview* and *Module 2 Audit Process* as well as *FAP Module 5 Harvesting and Closure*, provided by DSE. These documents are attached as Appendices A, B and C, respectively.

This report presents the findings of the first audit against the new FAP. Due to differences in audit criteria, it is not appropriate for the reader to draw direct comparisons between compliance scores presented in this report and those reported for the annual audit process managed by EPA Victoria in the period from 2003 to 2007.

VicForests is responsible for planning and managing commercial timber harvesting and the sale of timber products from State forest in the east of the state; and DSE is responsible for management of commercial timber harvesting and sale in State forests in the west, as depicted in Figure 1-1.

1 Introduction

Figure 1-1 Map of Forest Management Areas and responsibilities across Victoria

Source: *Forest Audit Program Module 1 Overview*

All commercial timber harvesting in Victoria's State forests is subject to the *Sustainable Forests (Timber) Act 2004*, which requires compliance with the *Code of Practice for Timber Production* (the Code). The Code is the key regulatory instrument applicable to commercial timber harvesting and is developed under the *Conservation, Forests and Lands Act 1987*. It prescribes the minimum standards to which timber harvesting in Victoria must comply. The Code requires that Forest Management Plans are developed for State forests in all Forest Management Areas in Victoria.

The *Management Procedures for timber harvesting operations and associated activities in Victoria's State forests* (Management Procedures), developed by DSE, provide additional guidance to VicForests and DSE in meeting the requirements of the Code, as well as further environmental and operational requirements. The Management Procedures apply to all commercial timber harvesting undertaken by VicForests and DSE.

VicForests and DSE have developed subordinate procedural documents intended to assist staff and contractors in the implementation of Code and Management Procedure requirements, including *Utilisation Procedures* (VicForests) and *Timber Harvesting Operator's Procedures* (DSE). *Fire salvage harvesting prescriptions* are supplementary prescriptions, which apply to salvage harvesting operations in wildfire-affected areas for a period of time following the fire event, with the aim of further minimising negative impacts on an already disturbed environment.

The audit is intended to benefit DSE as the environmental regulator, the Victorian forestry industry, catchment managers and the community by providing an independent and objective assessment of the environmental performance of timber harvesting operations, and assist VicForests and DSE in

their objectives of continual improvement. Public reporting of findings will help inform the public and contribute to transparency.

The methodology used to undertake this audit is outlined in Section 3 of this report, *Audit Approach,* and findings and recommendations are reported in Section 4, with conclusions in Section 5.

The audit was undertaken to assess compliance of timber harvesting activities with the specified components of the existing regulatory framework. The audit did not directly assess the efficacy of the framework and associated systems and documents. Recommendations have been provided in a small number of cases where the Auditor considers, based on audit findings, that documented procedures or practices do not adequately address the intent of the Code or other mandatory requirements and the recommendation can add value in continuing to improve environmental outcomes.

2

Audit scope

This section outlines the objectives, scope and time period addressed by the audit, the segment and elements of the environment audited, the beneficial uses considered, audit criteria, excluded elements, and the Auditor's support team.

2.1 Objectives, scope and period of audit

The objective of the audit is to assess and report on compliance of commercial timber harvesting operations, undertaken in the 2008-09 financial year in Victorian State forests, with all relevant legislation, regulations and government policies aimed at achieving sustainable forest management.

The scope of the audit is activities included in the *FAP Module 5 Harvesting and Closure* component of the FAP and compliance elements included in *Module 5* workbooks. It includes commercial timber harvesting operations undertaken by VicForests in eastern Victoria and by DSE in the west of the State. The *FAP Module 5 Harvesting and closure* workbooks are attached as Appendix D.

The work that was carried out is described in the *FAP Module 1 Overview, FAP Module 2 Audit Process* and *FAP Module 5 Harvesting and closure* and is summarised as follows:

- Selection of the coupes for audit based on a prescribed risk-based approach;
- Office-based review and field assessments, accompanied by auditees, of the management of the selected coupes;
- Preparation of this environmental audit report which considers auditees comments on factual matters on a draft report; and
- Participation in community observation days managed by DSE.

Audit field inspections were conducted in November 2010 and the community observation days were held in February 2011.

2.2 Segments and elements audited

The segment of the environment covered by this audit is defined as that portion of Victoria in which timber is harvested from public land including adjacent rivers, streams and communities directly affected by that harvesting.

The following elements of the environment (as defined in the *Environment Protection Act 1970*) have been considered in conducting the audit:

- Land;
- Surface water;
- Groundwater;
- Vegetation;
- Aesthetics;
- Wildlife; and
- Fish.

The *FAP Module 1 Overview* also includes climate as an element relevant to the audit program, however the Auditor did not consider it relevant to this audit.

2.3 Beneficial uses

In assessing the risk of harm or detriment to the environment, the following beneficial uses are considered broadly relevant to the audit:

- Life, health and wellbeing of humans;
- Life, health and wellbeing of other forms of life, including the protection of ecosystems and biodiversity; and
- Local amenity and aesthetic enjoyment.

2.4 Audit criteria

The audit criteria used in this audit were compiled by consultants to DSE during the development of the *FAP Module 5 Harvesting and closure* and collated into the six associated audit workbooks:

- Workbook 5A: Forest Coupe Plan;
- Workbook 5B: Water Quality, River Health and Soil Protection;
- Workbook 5C: Biodiversity Conservation;
- Workbook 5D: Operational Provisions;
- Workbook 5E: Roading; and
- Workbook 5F: Coupe Infrastructure.

The workbooks address the following six Compliance Element groups:

- Forest Coupe Plans, including an Exclusion Zones Compliance Element;
- Operational Provisions, (i.e. weather-related and seasonal provisions);
- Water Quality, River Health and Soil Protection, including:
    - Waterways
    - Buffers
    - Filters
    - Slopes
    - Camp Maintenance, Fuel Storage & Waste Disposal
    - Water Catchments
- Biodiversity Conservation including:
    - Habitat Trees
    - Rainforest
    - Forest Health
- Roading including:
    - Road Planning
    - Road Design
    - Road Construction
    - Road Maintenance
    - Suspension of Cartage
    - Road Closure
- Coupe Infrastructure Provisions, including:
    - Log Landings and Dumps
    - Snig and Forwarding Tracks
    - Boundary Trails.

URS undertook a limited review of these workbooks and provided comment to DSE regarding the organisation of criteria and alternate indicators for some criteria, but did not undertake a full verification of workbooks to ensure that all relevant criteria within the regulatory framework were included. To this extent, the Auditor relied on the criteria as contained in the workbooks. However, nothing has come to the attention of the Auditor that indicates that it was not reasonable to rely on the workbooks to achieve the intended scope of the selected Compliance Elements.

The workbooks contain criteria limited to those selected from the Code, Management Procedures, and *Fire salvage harvesting prescriptions.*

2.4.1 Excluded elements

The *FAP Module 5 Harvesting and closure* lists elements that are specifically excluded from the scope of the audit:

- Audit of the strategic planning and development phase of the Allocation Order by DSE under the *Sustainable Forests (Timber) Act 2004* (as amended);
- Compliance with rules, regulations or guidelines that relate to Occupational Health and Safety matters;
- Timber harvesting practices undertaken in plantations or other non-State forest;
- Roading practices conducted in State forests that are not associated with timber production;
- Practices associated with production and collection of domestic forest produce (including firewood) on all land tenures;
- Recreational activities undertaken in State forests;
- Livestock grazing activities undertaken in State forests;
- Apiary activities undertaken in State forests; and
- Fire suppression and management practices undertaken in State forests (e.g. fuel reduction burning and habitat enhancement burning), with the noted exception of post harvest burning undertaken in State forests.

2.4.2 Support team

In completing this audit, the following personnel provided support to the Auditor:

- Andrew Hill (Principal Ecologist, Ecology Partners);
- Maria van der Geest (Senior Forestry Consultant, URS);
- Richard Kaser (Principal Geotechnical Engineer, URS);
- Peter O'Hara (Senior Engineering Geologist, URS);
- Andrew Piper (Forestry Consultant, URS);
- Stephen Haack (Administration Support and HSE Manager, URS);
- Andrew Morton (Vice President, URS Forestry); and
- Ashley Lang (Senior Principal, URS).

Audit Approach

3.1 Audit overview

The audit was undertaken according to DSE *FAP Modules 1, 2* and *5* and as outlined in this report. Field inspections were conducted over a three week period from 8 to 26 November 2010, with document review continuing into the weeks following.

The Auditor held a short briefing meeting with VicForests and DSE auditees at the start of the field program in each region or district to introduce the audit team, outline the audit process and confirm logistical arrangements. The audit team assessed between one to three coupes each day in the field and at the completion of each assessment reviewed the findings with operational staff on site. A debriefing session with auditees was also held at the conclusion of the field program at each region or district, which provided a preliminary assessment of compliance for each coupe for discussion with operational staff and management, and identified any issues where further evidence or clarification was required.

3.2 Target selection

The *FAP Module 2 Audit Process* prescribes the process to be used for selecting coupes for inclusion in the audit. DSE specified that 27 coupes would be audited – 25 selected according to a risk-based methodology, and two additional coupes selected from those located within Melbourne Water catchments.

The Department compiled and provided to the Auditor a Master Coupe List of 379 coupes, intended to represent all coupes that underwent harvesting during the 2008-09 financial year (excluding firewood coupes). The Auditor then selected coupes for audit from the Master Coupe List using a risk-based approach that considered the following factors to determine an Absolute Risk Rating (ARR) for each coupe:

- Slope (S);
- Soil erosion hazard (SE);
- Silvicultural system (SS);
- Special land protection requirements (PR); and
- Compliance Themes (CT).

The ARR is determined by the following formula:

ARR (coupe) = S x SE + SS + PR + Σ(CT)

- where Σ means the sum of

Compliance Themes are intended to allow for an adjustment of the focus of audits year to year by increasing the likelihood of selecting coupes that are relevant to the chosen Compliance Theme. DSE advised the Auditor that the Compliance Theme for the audit, based on stakeholder feedback, would be the management of rainforest.

Once ARRs were assigned to all coupes, coupes were allocated accordingly into High, Moderate and Low risk categories. The 25 coupes were selected at random from the Master Coupe List to fit the following risk distribution prescribed by the *FAP Module 2 Audit Process*:

- 60% from the High risk group;
- 25% from the Moderate risk group; and
- 15% from the Low risk group.

The two Melbourne Water coupes were selected based on their location within Melbourne Water catchments and the presence of rainforest. However, due to changes that were later made for logistical reasons, only one of the Melbourne Water coupes contained rainforest.

Some changes were made to the list of selected coupes for logistical reasons. Changes included substitution of a small number of coupes that were geographically isolated from other selected coupes; and where wet conditions prevented access.

More detail about the target selection process, including changes made to the selection, is presented in Appendix E of this report.

3.3 Coupe assessment

The audit was undertaken during November and December 2010, using a combination of document review, site inspections and interviews with relevant personnel. Representatives of the auditee organisations accompanied the audit team on all coupes during site inspections.

Copies of Forest Coupe Plans and coupe diaries for each audited coupe were provided by the relevant managing agency, VicForests or DSE, forming a major part of the document review. The Auditor did not undertake independent verification of the contents of the copies of Forest Coupe Plans or coupe diaries.

Of the total of 27 coupes that were assessed, there was no harvesting current at the time of the audit.

3.3.1 Audit workbooks

During site inspections, audit workbooks were completed for each coupe according to the evidence identified. Where the audit team found that an indicator provided in a workbook did not adequately reflect the audit criterion, the audit criterion alone was used. The Auditor has provided feedback to DSE regarding this issue with the objective of continual improvement of the audit program.

Non-compliance was recorded against a criterion if insufficient evidence was available to demonstrate that an audit criterion had been appropriately implemented. Where the Auditor identified a deficiency that the auditee had already addressed, it was not recorded as a non-compliance, except in cases where it had not been addressed adequately and had an Environmental Impact Assessment (EIA) risk rating of Moderate, Major or Severe. The Auditor reviewed coupe diaries for issues identified by auditees and actions taken, and provided opportunities for auditees to discuss issues and present additional information. The issues that the Auditor found to have already been identified and adequately addressed most commonly related to trees having been accidentally felled across boundaries.

3.3.2 Field assessments

During site inspections of audited coupes, measurements of key parameters were taken in accordance with *FAP Module 3 Harvesting and Closure*, and recorded in coupe workbooks. Observations and photographs were taken of site conditions to aid in assessment of compliance. Parameters that were subject to measurement included the following:

- Roads;
- Snig and forwarding tracks;
- Boundary tracks;

- Log landings and dumps;
- Buffers (streamside, landscape, significant habitat);
- Filters; and
- Habitat trees.

Further details on measurements, taken from *FAP Module 5 Harvesting and Closure* are included in Annex A of Appendix C of this report.

The Auditor undertook soil assessments at all VicForests-managed coupes for comparison with results obtained by VicForests field staff during coupe reconnaissance. The Auditor adopted the same methodology as used by VicForests, which is described in the VicForests Instruction, *Soil Assessment, April 2010.* Similar assessments were not undertaken on the DSE coupes. The need for formal soil assessments in the DSE coupes was mitigated due to the low gradient slopes and that and soil disturbance arising from harvesting activities was negligible.

3.4 Environmental impact assessment

For each non-compliance identified, except in relation to coupe and exclusion area planning, the Auditor made a qualitative assessment of actual or potential environmental impact using the Environmental Impact Assessment (EIA) tool prescribed in the *FAP Module 2 Audit Process*.

The EIA tool is a useful mechanism for assessing the significance of a non-compliance and provides additional context to findings. It seeks to assess the significance objectively as a No impact, Negligible, Minor, Moderate, Major or Severe actual or potential environmental impact. It should be noted that the tool does not provide an absolute measure of environmental impact, such as a parts per million sedimentation concentration impact on water quality, for example.

The EIA risk rating is based on the following factors:

- Extent of impact or disturbance;
- Duration of impact; and
- Environmental asset value.

Details of the EIA tool are presented in Annex B of the *FAP Module 2 Audit Process*, which is attached in Appendix B of this report.

In the case of non-compliances in the areas of coupe and exclusion area planning, a simplified classification was used, in accordance with the *FAP Module 2 Audit Process*:

- Severe - poses a severe threat to human life, or irreversible or extensive impact to the environment;
- Major - poses a potential threat to human life, or significant impact to the environment;
- Moderate - poses a moderate impact to the environment;
- Minor - poses a minor impact to the environment, however further risk reduction opportunities exist;
- Negligible - poses no impact to the environment and/or provides for continuous improvement; and
- No impact – during the audit, a new EIA category of ‘No impact’ was added to the EIA tool for those issues where it was assessed that there is no actual environmental impact as a result of a non-compliance, to distinguish them from non-compliances that result in a negligible actual or potential environmental impact.

3.5 DSE stakeholder consultation

Identification of stakeholders with an interest in the audit and subsequent consultation was managed by DSE.

Audit compliance theme

Based on consultation with stakeholders, DSE advised the Auditor that community interest in management of rainforests was high. In response to this level of interest, DSE nominated rainforest management as a key compliance theme for the audit. This meant that coupes identified as containing rainforest would have a higher likelihood of being selected for audit, as discussed in the target selection process in Section 3.2 of this report.

Community observation days

On advice from DSE, community observation days, where stakeholders could attend a specific coupe and observe the audit in progress, were not able to be undertaken at the time of the audit. DSE subsequently arranged for field days to be held at two of the audited coupes, one in East Gippsland and one in the Central Highlands, where interested stakeholders could gain an overview of the audit process from DSE, VicForests and the Auditor, including seeing examples of assessment of compliance elements and discuss findings.

DSE advised that the following broad types of groups were advised of the planned community observation days and invited to express interest in attending:

- Environmental non-government organisations;
- Forestry and timber industry groups;
- Local councils;
- Community, including indigenous groups;
- Catchment Management Authorities; and
- Relevant government departments and bodies.

The community observation days were held on 3 and 4 February 2011 and were attended by 27 stakeholders.

3.6 Reporting of audit findings

At the conclusion of the field inspections, findings were transferred from workbooks to a spreadsheet to facilitate the summarisation and presentation of data and the formulation of opinions, conclusions and recommendations presented in this audit report. Compliance findings and EIA risk ratings for each coupe are presented in Appendix F and field measurement summaries are presented in Appendix G.

At the conclusion of the field inspections in each operational area or region, a debrief meeting was held with relevant VicForests or DSE staff to present preliminary findings and provide opportunity for the discussion of issues and provision of further relevant information.

Audit findings and recommendations are presented in Section 4 of this report and include findings at a coupe level. For the purposes of this report, each audited coupe has been allocated a unique identifier from C1 to C27 and auditees have been provided with a matching list of coupe names to facilitate their response to findings. Where the Auditor considered that there was duplication between

audit criteria in workbooks, for example between a criterion from the Code and a criterion from the Management Procedures, or duplication between Compliance Elements, compliance or non-compliance has been recorded against one only, to avoid 'double-counting'.

Recommendations have been provided in a small number of cases where the Auditor considers, based on audit findings, that documented procedures or practices do not adequately address the audit criteria and the recommendation can add value in continuing to improve environmental outcomes.

Forest Coupe Plans and diaries for each audited coupe, provided by the respective managing agency, VicForests or DSE, were reviewed during the audit. Other documents reviewed are listed in Appendix H.

A draft of this report was provided to VicForests and DSE for comment on factual matters and comments received were considered for incorporation into this report. Auditee responses are presented in Appendix I.

4

Audit Findings

This section provides a summary of the audit findings as well as detailed findings for each Compliance Element. A summary of findings for all audit criteria for each coupe is contained in Appendix F.

4.1 Harvesting practices

The audited VicForests coupes were generally either clear-fell or seed tree retention operations, with the exception of one thinnings coupe. Five coupes were fire salvage harvesting operations in areas affected by fires that occurred between 2006 and 2009. In most cases, felling was mechanised, with a small number of coupes manually felled. Log extraction was generally undertaken using skidders or bulldozers and processing of logs on the landings by excavators.

Of the two DSE coupes audited, both were harvested using single tree selection methodologies, using manual falling of individual trees marked by DSE. Log extraction to the roadside was done using a farm tractor in one case, and a bobcat in the other. Low harvest volumes resulted in low intensity traffic and minimal soil disturbance. Due to the flat terrain and low intensity harvest, there was no soil excavation on either coupe and no road, track or landing construction.

The differences in forest types, the landscape within which they occur and the harvest intensity between the audited coupes managed by VicForests and those managed by DSE are expected to result in differences in risk of environmental impact. This difference is partially illustrated in that both DSE coupes were in the Low risk category of the FAP Absolute Risk Rating, whereas the 25 VicForests coupes were from the High, Medium and Low risk categories. Attributes that contribute to a higher risk rating include steep slopes, higher soil erosion hazard, silvicultural systems requiring more intensive harvesting, and proximity to other special values. In general, VicForests coupes were on steeper topography, had coupes with higher soil erosion hazard, had more intensive harvesting systems and were proximal to a higher proportion of other special values than were the DSE coupes. Due to these differences, it is not appropriate for the reader to draw direct comparisons between the level of compliance or environmental impact of DSE-managed coupes and those managed by VicForests.

4.2 Level of compliance

Overall, audited coupes were assessed as generally being in compliance with the audited criteria.

Table 4-1 shows the number of compliances, non-compliances, percentage compliance and the number of coupes audited for each of VicForests and DSE.

Table 4-1 Level of compliance for VicForests and DSE

Agency	Coupes audited	Compliances	Non-compliances	Compliance (%)
VicForests	25	1934	139	93
DSE	2	71	11	87
TOTAL	**27**	**2,005**	**150**	**93**

4.2.1 Environmental impact assessment findings

The Forest Audit Program EIA tool was used to assess the actual or potential environmental impact for each instance where a non-compliance was identified during the audit.

A summary of EIA risk ratings for each of VicForests and DSE is provided in Table 4-2.

Table 4-2 Summary of EIA risk ratings for non-compliances identified for VicForests and DSE coupes

Agency	Coupes audited	EIA risk ratings					
		No impact	Negligible	Minor	Moderate	Major	Severe
VicForests	25	31	47	28	31	2	0
DSE	2	9	2	0	0	0	0
TOTAL	**27**	**40**	**49**	**28**	**31**	**2**	**0**

Figure 4-1 graphically summarises the level of compliance and EIA risk ratings for non-compliances identified for each Compliance Element (VicForests and DSE combined).

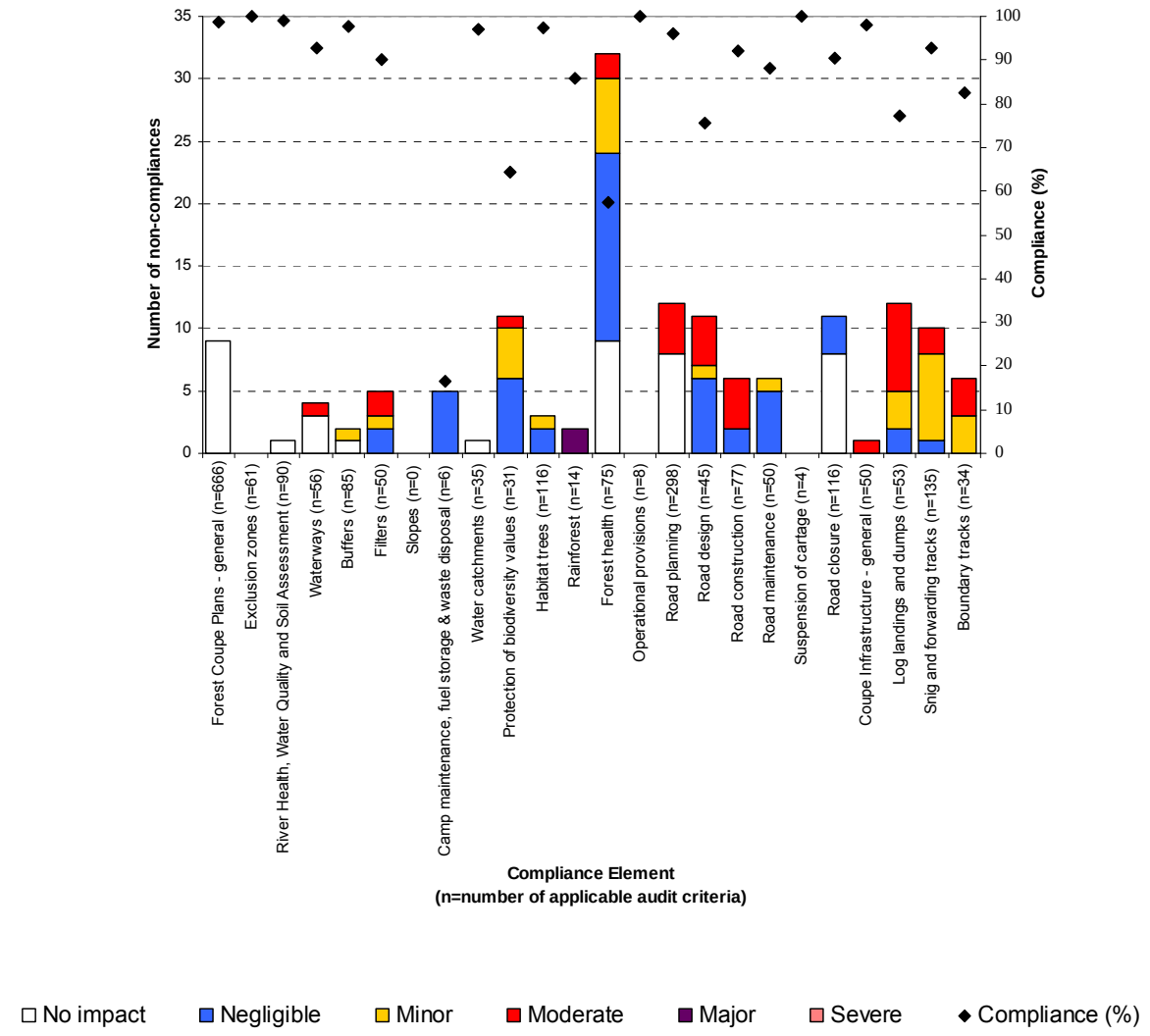

Figure 4-1 Compliance levels and EIA risk ratings for identified non-compliances for each Compliance Element

EIA risk ratings are discussed for each Compliance Element in Sections 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6, and 4.2.7 of this report. Below is a summary of the EIA findings:

Severe

No non-compliances with EIA risk ratings of Severe were recorded during the audit.

Major

Two non-compliances with EIA risk ratings of Major were determined for VicForests coupes. Both involved machinery entry to rainforest buffers and rainforest (C10 and C12). These issues are discussed in further detail in the *Rainforest* findings sections of this report.

Moderate

Thirty-one non-compliances with EIA risk ratings of Moderate were determined for VicForests coupes, including those related to inadequate topsoil and retention of excess bark at landings; lack of noxious weed assessments and control; inadequate or inappropriate drainage of sections of roads, snig tracks and boundary tracks; inadequate management of cut and fill on roads; road construction on steeper slopes than prescribed for the soil type; crossing of drainage lines without approval; failure to classify a stream adjacent to a coupe; and an instance of stockpiling of soil for road rehabilitation in a rainforest buffer without documented and approved plans.

Minor

Twenty-eight non-compliances with EIA risk ratings of Minor were determined for VicForests coupes, including those related to inadequate ripping and retention of bark at landings; lack of noxious weed assessments and control; inadequate drainage of sections of roads, snig tracks and boundary tracks; instances of debris pushed or rolled into exclusion zones; and trees having been felled into buffers and pulled out without adequate documentation.

Negligible

A total of 49 non-compliances with EIA risk ratings of Negligible were determined during the audit, spread across most of the Compliance Elements. For VicForests coupes, these non-compliances included instances of litter found on coupes, lack of noxious weed assessments and control, a root ball having rolled into a habitat area, harvest debris having been pushed up around a designated habitat tree, failure to close roads and instances of inadequate drainage or rehabilitation of sections of roads, landings, snig tracks and boundary tracks,

Two non-compliances identified for DSE coupes were determined as having Negligible EIA risk ratings related to incorrect location and marking of a filter on a temporary stream.

No impact

A total of 40 non-compliances with EIA risk ratings of No impact were determined during the audit, generally spread across Compliance Elements concerned with planning, but also related to failure to close roads no longer in use and undertake noxious weed assessments. For VicForests coupes, these non-compliances related to not having planned for noxious weed control, some waterways not having been classified, use of the wrong tape colour to delineate a buffer, failure to close roads no longer in use, and vegetation clearance widths not meeting minimum requirements,

For the DSE coupes, non-compliances with No impact risk ratings included not having documented approvals to temporarily close roads during harvesting, not having assessed soil characteristics for one coupe, not having undertaken pre-harvest weed assessments and not having considered noxious weed control in coupe planning.

The *Forest Coupe Plans* Compliance Element group (*Forest Coupe Plans – general*; and *Exclusion zones* Compliance Elements), which addressed the development of Forest Coupe Plans and planning for exclusion zones, had the greatest number of criteria and the second highest proportion of criteria in compliance of the six groups. The main areas of non-compliance identified in the *Forest Coupe Plans* Compliance Element group related to planning for the control of noxious weeds, with two minor errors also identified in labelling of species habitat on maps. The *Operational Provisions* Compliance Element group (*Operational provisions* Compliance Element), which had only eight applicable audit criteria, had all criteria assessed as being in compliance. A large proportion of the criteria in the *Operational Provisions* Compliance Element group, such as suspension of operations in wet conditions, were unable to be assessed due to there being no harvesting current during the audit.

Of the six groups, the *Biodiversity Conservation* Compliance Element group (*Protection of biodiversity values; Habitat trees; Rainforest;* and *Forest health* Compliance Elements) had the lowest level of compliance, with around 75 percent of the applicable criteria assessed as compliant. Areas of non-compliance included systemic weaknesses identified with monitoring and control of noxious weeds. In general, the areas identified for protection of significant habitat and rainforest had been marked appropriately and harvesting activities excluded. Notable exceptions to this were machine entry into two areas of rainforest and their buffers. Both of the rainforest buffers had been identified in Forest Coupe Plans and maps and harvesting had been excluded, with entry in each case appearing to have been by an individual bulldozer or excavator, in one case apparently during firebreak construction. These non-compliances were assessed as having Major EIA risk ratings.

The *River Health, Water Quality and Soil Assessment* Compliance Element group (*River Health, Water Quality and Soil Assessment; Waterways; Buffers; Filters; Slopes; Camp maintenance, fuel storage and waste disposal;* and *Water catchments* Compliance Elements*)* addressed classification and exclusion of waterways from harvesting activities, slope and special water catchment restrictions, and management of in-coupe machinery maintenance areas. The Compliance Element group was assessed as having been managed appropriately, with a small number of non-compliances identified, including failure to classify streams adjacent to three coupes, machinery or harvest debris entering filters on four coupes and instances of litter on coupes.

The *Roading* Compliance Element group (*Road planning; Road design; Road construction; Road maintenance; Suspension of cartage;* and *Road closure* Compliance Elements) addressed the planning, construction and temporary and permanent closure of roads used during timber harvesting. In the majority of cases, roads were assessed as planned and designed to minimise impacts, with some deficiencies identified, mainly on steeper slopes. Management of stockpiled soil was also assessed on several coupes as being non-compliant, in one case resulting in a Moderate EIA risk rating due to its location within a rainforest buffer. Retaining access to roads that are no longer needed was also identified as non-compliant in several instances for both VicForests- and DSE-managed roads.

The *Coupe Infrastructure* Compliance Element group (*Coupe infrastructure – general; Log landings and dumps; Snig and forwarding tracks;* and *Boundary tracks* Compliance Elements) addressed landings, snig tracks and boundary tracks. Infrastructure was assessed as being generally minimised and rehabilitated appropriately. Issues identified included inadequate respreading of topsoil on some landings, retention of excess bark around some landings due to reduced regeneration burning, and inadequate drainage of sections of snig tracks and boundary tracks, mainly on steeper slopes in the case of boundary tracks.

Details of audit findings are discussed in the following sections.

4.2.2 Forest Coupe Plans

General

Forest Coupe Plans were generally assessed as having been prepared and managed appropriately overall. This Compliance Element addressed general planning aspects of developing Forest Coupe Plans and marking coupe features in the field.

The Auditor noted several examples of the thorough use of coupe diaries to record operational activities such as removal of stag trees from around landings in a thinnings coupe and ceasing operations for wet weather (C3, C11 and C17). The audit found that Forest Coupe Plan maps were generally clear and legible, having been generated in colour using a geographic information system (GIS). However, several non-compliances were identified regarding the quality of detail provided on some maps, as discussed further in this section of the report.

All coupes that were audited were completed coupes. Therefore, one Code requirement, pertaining to the availability of Forest Coupe Plans and supporting documents on site while operations are in progress, could not be assessed (Section 2.1.3 of the Code).

The Forest Coupe Plans for each of the 27 audited coupes were assessed, 19 of which were found to be compliant with all of the FAP requirements for the Forest Coupe Plans Compliance Element. Of the eight coupes where non-compliances were recorded, all of the non-compliances were assessed as having a No impact EIA rating.

Table 4-3 summarises the compliance findings for the *Forest Coupe Plans* Compliance Element.

Table 4-3 Summary of compliance findings for the Forest Coupe Plan Compliance Element

Compliance Element	Forest Coupe Plans
Total compliance	657
Total non-compliance	9
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	0
Negligible	0
No impact	9

Seven of the instances of non-compliance (C8, C12, C13, C17, C21, C26 and C27) related to the lack of consideration of weed and pest management in developing the Forest Coupe Plans in the context of the presence of a small number of noxious weeds observed within the coupes.

The two remaining non-compliances were associated with insufficient or incorrect detail on Forest Coupe Plan maps regarding areas to be excluded from harvesting. In one case (C19), the Forest Coupe Plan map showed the location of Barred Galaxias (G*alaxias fuscus*) habitat and its buffer of 40 metres, however, the map did not show that rainforest had also been identified along the same waterway. The Forest Coupe Plan recognised the presence of rainforest in the text and the buffer was assessed as being adequate in the field, therefore the EIA risk rating was determined as No impact. On one of the coupes (C21), one of the streams marked as Barred Galaxias habitat was outside the mapped area where protection is required. The protection afforded to this stream is considered conservative, however, it suggests there may be weaknesses in planning or mapping processes.

Exclusions zones

All 27 Forest Coupe Plans were assessed as complying with the requirements pertaining to protection of forest harvest exclusion zones. Within the audited coupes, exclusion zones were created to protect a range of values, including fauna, water quality and landscape. Two of the audited coupes bounded national park or State park and the integrity of these boundaries was assessed, with the sampled length of boundary found to be intact. Landscape buffers were also found to be appropriately protected on all four coupes where they existed.

In several instances, the audit identified non-compliances related to widths or mapping of exclusion zones, however these issues have been addressed in other sections of this report, so as not to 'double-count' non-compliances.

Table 4-4 summarises the compliance findings for the *Forest Coupe Plans – Exclusion zones* Compliance Element.

Table 4-4 Summary of compliance findings for the Forest Coupe Plans – Exclusion zones Compliance Element

Compliance Element	Forest Coupe Plans - Exclusion zones
Total compliance	61
Total non-compliance	0
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	0
Negligible	0
No impact	0

4.2.3 River health, water quality and soil protection

General

Water quality, river health and soil protection were assessed as having been well planned within the audited coupes overall. Of the 27 coupes assessed, the audit identified one non-compliance on a DSE coupe (C26), which was assessed as having a No impact EIA risk rating.

Table 4-5 summarises the compliance findings for the *River health, water quality and soil protection – General* Compliance Element.

Table 4-5 Summary of compliance findings for the River health, water quality and soil protection – General Compliance Element

Compliance Element	River Health, Water Quality and Soil Assessment
Total compliance	89
Total non-compliance	1
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	0
Negligible	0
No impact	1

The identified non-compliance was associated with the absence of an assessment of the soil type and topography during the planning stages of the harvesting operation. The EIA risk rating was determined as No impact due to the low intensity of operations, minimal soil disturbance and that no excavations had been made for roads, tracks or landings (Refer to Appendix K, Photograph 1).

Waterways

Classification of waterways occurring within and immediately adjacent to coupes and management of waterway crossings were assessed as being generally managed appropriately in the coupes audited. Disturbance of waterways was assessed as minimal, with only three coupes requiring machinery to cross waterways. Of the 24 coupes for which these particular requirements were relevant, 18 coupes were assessed as being compliant.

Table 4-6 summarises the compliance findings for the *River health, water quality and soil protection – Waterways* Compliance Element.

Table 4-6 Summary of compliance findings for the *River health, water quality and soil protection – Waterways* Compliance Element

Compliance Element	River Health, Water Quality and Soil Assessment - Waterways
Total compliance	52
Total non-compliance	4
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	1
Minor	0
Negligible	0
No impact	3

On four of the VicForests-managed coupes, the audit identified non-compliances relating to instances of incorrect waterway classification. On three coupes (C8, C14 and C15), waterways occurring immediately adjacent to the coupes had not been classified using the waterway classification system required by the Code, resulting in No impact EIA risk ratings for two of the coupes where there had been no apparent resultant impact on the waterways. On the third coupe (C8), the Auditor observed evidence of machine entry into a temporary stream, understood from observations and discussions with VicForests staff to have occurred during firebreak construction (Refer to Appendix K, Photograph 2). Vegetation and soil in the stream and along the streamside were also observed to have been disturbed by harvesting activities in a more recent, adjacent coupe, to which the failure to classify the stream in the first coupe may have contributed. This non-compliance was determined as having a Moderate EIA risk rating.

On a fourth coupe (C25), a waterway observed within the coupe during the audit had not been identified on the Forest Coupe Plan. This non-compliance was determined as a No impact EIA risk rating as there was no apparent resultant impact on the waterway or associated habitat.

Buffers

Buffers were generally assessed as having been appropriately retained and managed. However, the audit identified some practices that could be improved to reduce the risk of non-compliance.

All samples of buffers measured were assessed as being at least the minimum width and often wider than specified in the Code and harvesting activity, debris and machinery had been excluded. In most cases, buffers were marked correctly in the field and appropriate measures were taken when removing trees accidently felled into buffers. A total sample length of 3,990 m of buffers was assessed across 12 coupes, with all found to have been retained intact to the minimum prescribed widths. All buffers assessed were in coupes managed by VicForests.

Table 4-7 summarises the compliance findings for the *River health, water quality and soil protection – Buffers* Compliance Element.

Table 4-7 Summary of compliance findings for the *River health, water quality and soil protection – Buffers* Compliance Element

Compliance Element	River Health, Water Quality and Soil Assessment - Buffers
Total compliance	83
Total non-compliance	2
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	1
Negligible	0
No impact	1

One non-compliance, assessed as having a Minor EIA risk rating, related to a number of trees having been felled into a buffer and pulled out, but not all having been documented in the coupe diary. The second non-compliance related to the use of incorrect tape colour to denote buffer boundaries. The Code requires that buffers are clearly identifiable in the field and in this case, the tape colour differed from that described in the Forest Coupe Plan from which the harvesting contractor would take his direction. This non-compliance was assessed as having a No impact EIA risk rating as the prescribed buffer width had been retained intact.

The Audit identified five instances where harvesting impacts were observed along taped boundaries but the buffers were found to have been taped to be wider than prescribed, resulting in no impacts within the prescribed buffer widths. The Auditor considers that while there were no resultant non-compliances in these cases, the culture and practice of sometimes, but not always, increasing buffer widths and accepting that taped boundaries may be crossed during harvesting carries a risk of leading to a non-compliance, and should be reassessed by VicForests.

Buffers were not audited on one VicForests coupe (C13) due to the fact that it was substituted into the field audit schedule at short notice, as a result of heavy rain making the scheduled coupe inaccessible. The Forest Coupe Plan was therefore not available on the day of the field inspections and the presence of a buffer was not identified in the absence of the plan.

Filters

Filters were generally assessed as having been managed appropriately, including in most cases meeting minimum width specifications; having been marked correctly in the field; and soil and understorey disturbance generally having been minimised. A total sample length of 2,810 m of filter was assessed across nine coupes, with 2,587 m found to be compliant. Eight of the coupes on which filters were assessed were managed by VicForests and one was managed by DSE.

Table 4-8 summarises the compliance findings for the *River health, water quality and soil protection – Filters* Compliance Element.

Table 4-8 Summary of compliance findings for the *River health, water quality and soil protection – Filters* Compliance Element

Compliance Element	River Health, Water Quality and Soil Assessment - Filters
Total compliance	45
Total non-compliance	5
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	2
Minor	1
Negligible	2
No impact	0

Of the VicForests coupes, sections of filters were assessed as non-compliant in three coupes (C7, C9 and C15). Non-compliances resulted from machinery observed to have crossed drainage lines in locations not authorised in the Forest Coupe Plan (C7, C15), assessed as Moderate EIA risk ratings; and from harvest debris observed to have been pushed into filter strips (C9), assessed as a Minor EIA risk rating.

Of the 200 m sample of filters assessed in the DSE coupe (C27), the whole length was assessed as being non-compliant, as the filter had been marked by taping the centreline of the drainage line, rather than the boundaries of the ten metre filter on each side of the drainage line. Taping also stopped short of where the Auditor determined the filter to extend upstream and downstream, and field observations suggested machines had entered during harvesting. Ground disturbance was minimal however, resulting in the EIA risk ratings of the two non-compliances being assessed as Negligible (Refer to Appendix K, Photograph 3).

Slopes

Of the 27 coupes audited, none of the provisions for harvesting on steep slopes was assessed as being applicable.

Table 4-9 summarises the compliance findings for the *River health, water quality and soil protection – Slopes* Compliance Element.

Table 4-9 Summary of compliance findings for the *River health, water quality and soil protection – Slopes* Compliance Element

Compliance Element	River Health, Water Quality and Soil Assessment - Slopes
Total compliance	0
Total non-compliance	0
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	0
Negligible	0
No impact	0

Camp maintenance, fuel storage and waste disposal

As there was no harvesting current, most of the audit criteria pertaining to the management of the harvesting contractors' camps, machinery maintenance activities, fuel storage and waste disposal could not be assessed during the audit. The requirements that were unable to be assessed at most of the coupes were the requirement to ensure that storage, use and disposal of petroleum products and machinery servicing must not pollute the environment; that waste oils, drums, discarded machinery parts and all other waste must be disposed of at an approved facility; and that toilet waste must be managed to ensure that it does not enter a waterway.

However, where the Auditor found evidence of compliance or non-compliance, it was recorded.

Table 4-10 summarises the compliance findings for the *River health, water quality and soil protection – Camp maintenance, fuel storage and waste disposal* Compliance Element.

Table 4-10 Summary of compliance findings for the *River health, water quality and soil protection – Camp maintenance, fuel storage and waste disposal* Compliance Element

Compliance Element	River Health, Water Quality and Soil Assessment - Camp maintenance, fuel storage & waste disposal
Total compliance	1
Total non-compliance	5
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	0
Negligible	5
No impact	0

Non-compliances were recorded on five coupes (C2, C7, C20, C21 and C24) where small amounts of litter were observed, including discarded chainsaw chains, empty oil containers, a spray paint can, rags, glass and ropes. These non-compliances were assessed as having Negligible EIA risk ratings.

The Auditor notes that additional litter was also observed at these and other coupes during the audit. The nature of the litter observed and its apparent recent deposition suggested that it was not the direct result of the timber harvesting activities. As such these observations were not recorded as non-compliances.

Water catchments

Water catchments were generally assessed as having been managed appropriately with regards to consideration of Special Area Plans and Heritage River Area management.

Table 4-11 summarises the compliance findings for the *River health, water quality and soil protection – Water catchments* Compliance Element.

Table 4-11 Summary of compliance findings for the *River health, water quality and soil protection – Water catchments* Compliance Element

Compliance Element	River Health, Water Quality and Soil Assessment - Water catchments
Total compliance	34
Total non-compliance	1
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	0
Negligible	0
No impact	1

One non-compliance was identified where coupe planning documents indicated that VicForests did not check whether any designated water catchment requirements applied during planning for one coupe (C21). The EIA risk rating was determined as No impact.

The *Water Catchments* Compliance Element includes a criterion requiring compliance with the *Catchment and Land Protection Act 1994,* which requires landowners to take all reasonable steps to control noxious weeds. The declared noxious weeds recorded in the coupes included blackberry (*Rubus fruticosus*) and spear thistle (*Cirsium vulgare).* These weeds were observed at varying extents and densities across the audited coupes. Non-compliances were not recorded against this Compliance Element, as monitoring of noxious weeds is also a requirement of the Management Procedures, compliance with which is addressed by the *Forest Health* Compliance Element. The control of pests, including noxious weeds, is also assessed as a Code requirement under the *Biodiversity conservation – Protection of biodiversity values* Compliance Element. In order to avoid 'double-counting' of compliances and non-compliances where the same requirement is addressed by more than one Compliance Element, these findings have been recorded against the *Forest Health* and

Biodiversity conservation – Protection of biodiversity values Compliance Elements only, but also mentioned in this section of the report for completeness.

4.2.4 Biodiversity conservation

Protection of biodiversity values

Twenty of the 31 applicable measures intended to protect biodiversity values across the audited coupes were assessed as having been implemented appropriately. These measures included protection of exclusion areas from impacts of prescribed burns; maintaining buffers around significant habitat areas; and compliance with measures to protect threatened species. Among the coupes audited, it was assessed that appropriate buffers had been placed around significant habitat for the threatened species Barred Galaxias (G*alaxias fuscus*) and Leadbeater's Possum (*Gymnobelideus leadbeateri*).

As mentioned previously in the *Coupe planning - General* and *Water catchments* sections of this report, monitoring and management of weeds were identified as areas of systemic weakness. In the context of protection of biodiversity values, the Code requires that pest plants, animals and pathogens be managed to maintain forest health and ecosystem resilience. All of the non-compliances recorded for this Compliance Element related to the control of noxious weeds, which is discussed further in this section.

A total length of 1,522 m of significant habitat buffer was assessed across five VicForests coupes, with all found to be intact. The taped boundary of a three-metre section of buffer (C19) established for the protection of habitat for Barred Galaxias (G*alaxias fuscus*) was observed to have been disturbed by machine entry. This was not recorded as a non-compliance as the prescribed width of buffer remained intact. This issue has been discussed in the *Buffers* Compliance Element.

Table 4-12 summarises the compliance findings for the *Biodiversity conservation – Protection of biodiversity values* Compliance Element.

Table 4-12 Summary of compliance findings for the *Biodiversity conservation – Protection of biodiversity values* Compliance Element

Compliance Element	Biodiversity Conservation - Protection of biodiversity values
Total compliance	20
Total non-compliance	11
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	1
Minor	4
Negligible	6
No impact	0

The audit identified 11 non-compliances across the same number of coupes, all managed by VicForests and all related to a lack of noxious weed control during harvesting operations. No noxious weeds were observed as present on the two audited DSE coupes.

Of the non-compliances, one (C17) was determined as having a Moderate EIA risk rating, due to a heavy and widespread infestation of the noxious weed blackberry (*Rubus fruticosus*). Four were assessed as having Minor EIA risk ratings (C6, C8, C10 and C13) and six were assessed as having Negligible EIA risk ratings (C1, C4, C12, C21, C22 and C25). The risk ratings reflect the relative density and extent of blackberry (*Rubus fruticosus*) and spear thistle (*Cirsium vulgare)* observed on the coupes, with a Negligible risk rating representing individual or few occurrences of noxious weeds and a Minor risk rating representing a higher density and more widespread occurrence throughout the coupes.

The Auditor notes that on an additional six coupes, single plants of noxious weed species were observed, however, non-compliances were not recorded in these instances. In each of these coupes, the weed species were not recorded in the pre-harvest weeds surveys and as such the Auditor was unable to determine if the weeds were present, and therefore could have been controlled, during the timber harvesting operations.

Habitat trees

In general, it was assessed that habitat trees had been retained appropriately, with habitat trees in 24 of the 27 coupes protected from harvesting activities in compliance with specified requirements.

Table 4-13 summarises the compliance findings for the *Biodiversity conservation – Habitat trees* Compliance Element.

Table 4-13 Summary of compliance findings for the *Biodiversity conservation – Habitat trees* Compliance Element

Compliance Element	Biodiversity Conservation - Habitat trees
Total compliance	113
Total non-compliance	3
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	1
Negligible	2
No impact	0

Non-compliances other than documentary issues were identified on three VicForests coupes. On two coupes, root balls had rolled downhill through retained habitat, one resulting in a Minor EIA risk rating, where the habitat was also serving as rainforest buffer (C20); and one resulting in a Negligible EIA risk rating (C5). The third non-compliance related to harvest debris and bark that had been pushed up around a tree marked to be retained for habitat, potentially compromising its long term survival (C6), which was determined as a Negligible EIA risk rating (Refer to Appendix K, Photograph 4).

The audit identified some inconsistencies across ten VicForests coupes, where Forest Coupe Plans stated that habitat trees would be marked in the field, but were observed during the audit not to have been marked. These issues were not recorded as non-compliances, as adequate habitat trees were assessed as having been retained. However, the issue represents an area for improvement in the consistency of information contained in Forest Coupe Plans.

Rainforest

The management of rainforest was assessed as appropriate in most cases, with some good practices noted during the audit. However, the audit also identified several instances of non-compliance both directly with the *Rainforest* Compliance Element and with other Compliance Elements where areas of rainforest were involved, including two non-compliances with Major EIA risk ratings.

The audit found that rainforest had generally been identified appropriately by VicForests and the Auditor noted several examples of good practice in delineating rainforest boundaries for ease of management, in one case using an adjacent ridgeline as a boundary (C10) and in another case, mapping a straight boundary around 'fingers' of rainforest (C20).

Based on field measurements of the sampled sections of rainforest buffer, rainforest was assessed as having been appropriately identified and buffered on six of the eight VicForests coupes where it was identified as occurring in Forest Coupe Plans (C1, C3, C16, C19, C20 and C21). Of the sample of 1,820 m of rainforest buffer measured during the audit, it was found that harvesting activities had been excluded and the specified buffers applied on the whole length. Audit field measurements were unable to be taken for one coupe (C10) due to fading light at the end of the day, although observations were able to be made.

While compliance could not be quantified based on sampled length for this coupe (C10) machinery disturbance of soil and vegetation was observed. On a second coupe (C12), machinery disturbance was observed on a section of rainforest buffer other than the measured sample. On both coupes, the disturbance was observed to be within the rainforest buffer and extended into the rainforest itself. In one instance (C12), the excluded areas appeared to have been impacted during firebreak construction, where a machine was observed to have entered in two locations (Refer to Appendix K, Photograph 5). In the second instance, it appeared that a machine had entered in at least one location. In both instances, the presence of rainforest had been identified in the Forest Coupe Plan and maps and tapes delineating the rainforest buffer edge were observed on one coupe (C12). Both EIA risk ratings were assessed as Major.

Table 4-14 summarises the compliance findings for the *Biodiversity conservation – Rainforest* Compliance Element.

Table 4-14 Summary of compliance findings for the *Biodiversity conservation – Rainforest* Compliance Element

Compliance Element	Biodiversity Conservation - Rainforest
Total compliance	12
Total non-compliance	2
Non-compliance EIA breakdown	
Severe	0
Major	2
Moderate	0
Minor	0
Negligible	0
No impact	0

Other non-compliances, as reported elsewhere in this report are also relevant to the management of rainforest. In two coupes, harvesting debris appeared to have rolled (C20) or been pushed (C19) into small sections of rainforest buffer, but had not directly impacted on the rainforest. These non-compliances, with EIA risk ratings determined as Negligible, are recorded against the *Biodiversity values* and *Buffers* Compliance Elements respectively, due to the other values also protected in the affected buffers. Another non-compliance related to rainforest management has been reported for the *Forest Coupe Plan* Compliance Element. In this instance, the presence of rainforest was not noted on the Forest Coupe Plan map (C19), even though it had been identified in the Forest Coupe Plan.

A further non-compliance reported in the Road Construction section related to the stockpiling of soil for road rehabilitation within a rainforest buffer without documented and authorised plans. This non-compliance was assessed as having a Moderate EIA risk rating.

Rainforest was not identified during the audit at any coupes where it had not previously been identified by VicForests. No rainforest was present on the audited DSE coupes.

Forest health

The audit identified compliance with just under half of the applicable Code requirements relating to maintenance of forest health, including development and partial implementation of forest hygiene procedures. The largest number of non-compliances (32) of all Compliance Elements was identified across all 27 coupes relating to the implementation of the four applicable prescribed forest health provisions.

Table 4-15 summarises the compliance findings for the *Biodiversity conservation – Forest health* Compliance Element.

Table 4-15 Summary of compliance findings for the *Biodiversity conservation – Forest health* Compliance Element

Compliance Element	Biodiversity Conservation - Forest health
Total compliance	43
Total non-compliance	32
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	2
Minor	6
Negligible	15
No impact	9

In a related issue to those discussed under both the *Water catchments* and *Protection of biodiversity values* Compliance Elements sections of this report, failure to undertake at least one of pre-harvest or post-harvest weed assessments on all coupes audited resulted in non-compliances with forest health provisions of the Management Procedures (2007). In total, there were six coupes for which pre-harvest weed assessments were not undertaken (C8, C12, C13, C17, C26 and C27), across both DSE and VicForests coupes and 25 VicForests coupes (all coupes) for which post-harvest weed assessments were not undertaken. Post-harvest weed assessments were not yet required for the DSE coupes as some harvesting was not yet complete. EIA risk ratings for non-compliances ranged from Moderate to No impact depending on the extent and density of noxious weed occurrence observed on each coupe.

The Auditor notes that in some instances pre-harvest weed and pest assessment results provided broad and generalised statements only, where the status of weeds and pests in the general area of the coupe were described. In these instances, assessment was based on limited information and the Auditor considers that documentation of the level of detail of pre- and post-harvest weed assessment results provided in the coupe records is an area for improvement, with the intention that the survey outcomes can be used meaningfully to assist in weed control.

One non-compliance with the *Fire Salvage Harvesting Prescriptions* (2007 and 2008) was identified on a VicForests coupe (C21) where the audit found no documentary evidence of soil having been removed from machinery before floating to or from a fire salvage coupe.

No records of cleaning of machinery for any coupes, other than the monthly *Coupe Monitoring checklist* items ticked, were identified. Therefore, this assessment is based on limited information. The requirement is to clean machinery once only, either before floating to or floating from a salvage coupe, It was not clear to the Auditor how VicForests ensures that all machinery is cleaned between coupes as staff stated that the sequence of coupes undertaken by a contractor is generally not well recorded.

Two Code requirements, relating to notifying Biosecurity Victoria in the event that a new exotic agent is suspected of being introduced; and management of Myrtle Wilt fungus (*Chalara australis*) were assessed as not applicable to any of the audited coupes.

Recommendation 1 – It is recommended that DSE and VicForests ensure that pre- and post- harvest weed assessment results are documented and triggers for subsequent control activities are incorporated into their management systems.

Recommendation 2 – It is recommended that the *Fire Salvage Harvesting Prescriptions* requirement to "*Clean soil from all harvesting machinery (excluding trucks and passenger vehicles) before floating to or from a salvage coupe*" be changed to a requirement that can be more easily recorded or tracked, such as "*Clean soil from all harvesting machinery (excluding trucks and passenger vehicles) before floating to and from a salvage coupe*"; or devise processes to record centrally the cleaning of harvesting machinery.

4.2.5 Operational provisions

The Code requirements pertaining to operational provisions are relevant to coupes where there are current forest harvest activities. As there was no harvesting occurring on the audited coupes at the time of the audit, the majority of the operational provisions were unable to be assessed.

The requirements (from Section 2.5.3 of the Code) that were unable to be assessed included:

- Suspension of landing operations when continuation will result in deterioration of the landing surface;
- Suspension of timber harvesting at the request of a Forest Officer;
- Suspension of harvesting machine traffic when there is a potential of significant rutting (unless actions are taken to reduce the risk such as cording and matting); and
- Suspension of timber harvesting when water begins to flow along tracks threatening water quality or soil values (unless appropriate remedial actions are taken to protect those values).

Where possible, assessment of compliance was made based on coupe diary entries, for example, when the harvesting operation had ceased due to wet weather or when there was a partial operation closure or a road closure recorded in the coupe diary. In these instances, compliance has been recorded and resulted in identification of eight instances of compliance. Otherwise, an assessment of compliance has not been made and as such no non-compliances with the operational provision requirements were recorded.

Table 4-16 summarises the compliance findings for the *Operational provisions* Compliance Element.

Table 4-16 Summary of compliance findings for the *Operational provisions* Compliance Element

Compliance Element	Operational Provisions
Total compliance	8
Total non-compliance	0
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	0
Negligible	0
No impact	0

The Auditor made a general observation, through discussions with operational staff and the lack of site evidence to the contrary, that in some cases the operational provisions had likely been implemented but that recording the event in the coupe diary by either VicForests or DSE staff or the harvesting contractor had not occurred.

4.2.6 Roading

The majority of roads assessed during the audit were generally found to be managed appropriately, with a total of 544 elements assessed as compliant and 46 assessed as non-compliant. The Auditor noted examples of good practice including the reuse of existing road alignments where possible; effective use of natural outslope drainage where possible to minimise flow concentration; reuse of roads constructed for one coupe to access adjacent coupes; and minimisation of vegetation clearance widths.

The sections following in this report discuss audit findings pertaining to road planning, design, construction, maintenance and temporary and permanent closure of roads.

All assessed roads were associated with VicForests coupes. DSE is responsible for the permanent road network throughout State forests while VicForests is responsible for the construction and management of temporary roads and temporarily maintaining permanent roads used as part of the logging operations. Design and construction of roads associated with DSE coupes were not assessed as part of the audit as no new roads have been constructed in the area in recent years.

Table 4-17 summarises the compliance findings for the *Roading* Compliance Element.

Table 4-17 Summary of compliance findings for the *Roading* Compliance Element

Compliance Element	Roading Total
Total compliance	544
Total non-compliance	46
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	12
Minor	2
Negligible	14
No impact	18

A total length of 8,962 m of temporary road was assessed across 21 coupes, with 6,890 m assessed as compliant with regard to drainage requirements and slope limitations. The full sampled length of temporary road was assessed as compliant with regard to these parameters on 16 coupes. However, the audit identified non-compliances on the five remaining coupes (C11, C13, C14, C15 and C18). The identified non-compliances related to drainage structures exceeding the maximum specified spacing (C11, C13, C14, C15 and C18), with EIA risk ratings from Moderate to Negligible and road constructed on steeper slope than permitted for moderate soil erosion hazard classification (C14 and C15).

A non-compliance assessed as having a Moderate EIA risk rating was identified on one section of temporary road, where soil had been stockpiled for road rehabilitation within a rainforest buffer without documented and approved plans (C3). This issue is discussed further in the *Road construction* Compliance Element section of this report.

A total length of 5,275 m of permanent road was assessed across 7 coupes, with 4,067 m assessed as compliant. The full sampled length of permanent road was assessed as compliant on four coupes with regard to drainage requirements and slope limitations, with portions of the remaining three roads (C9, C12 and C21) assessed as non-compliant. The non-compliances identified related to ineffective drainage structures, drainage structures exceeding the maximum specified spacing (C9, C12 and C21) and harvesting debris blocking table drains (C21).

Results from soil assessments and classification undertaken by VicForests were assessed as aligning with or being more conservative than those undertaken by the Auditor in the majority of cases. Across 25 coupes, VicForests' assessment was more conservative in 14 cases for one or both of soil erosion hazard classification or soil permeability. In three instances, VicForests' soil erosion hazard classification was assessed as incorrect, however, it did not affect the final Water Quality Risk rating, which is the measure used to determine buffer and filter widths. A summary of soil assessment results is attached as Appendix J.

Further detail and compliance with requirements based on evidence other than field measurements are also described in the following sections.

Compliance with a number of requirements were unable to be assessed in some instances during the audit based on field inspection or desktop review, due to the stage of the operational activities and availability of records. These requirements included:

- Whether the subgrade was adequately consolidated at the time pavement material was placed during road construction;
- Whether base course material was levelled prior to placement of a wearing course;
- Where significant fill is present on road batters, whether this was placed according to engineer approved methods;
- Whether table drains were created concurrent with road construction;
- Whether erosion and sedimentation control was ongoing over the duration of the construction activity;
- Whether quarry materials used were free of Cinnamon fungus (*Phytophthora cinnamomi)*;
- Whether road construction materials were prevented from spilling into watercourses during construction; and
- Whether roads were temporarily closed to heavy timber harvesting traffic in persistent wet or dry weather or when there was a chance that the roads surface will deteriorate or water courses will be polluted.

Road planning

The majority of planning activities were assessed as having been implemented appropriately across the sampled coupes, including planning of the alignment and timing of construction to minimise risks to a range of environmental values in most instances; and the reuse of existing road alignments where possible.

Table 4-18 summarises the compliance findings for the *Road planning* Compliance Element.

Table 4-18 Summary of compliance findings for the *Road planning* Compliance Element

Compliance Element	Road planning
Total compliance	286
Total non-compliance	12
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	4
Minor	0
Negligible	0
No impact	8

The audit identified twelve non-compliances with road planning, including construction of roads on slopes steeper than permitted, instances of failure to seek engineering advice for roads on steep slopes, and not achieving minimum vegetation clearance widths.

On two coupes (C14 and C15), the audit identified non-compliances where roads had been constructed on slopes exceeding 30 degrees and where there was no evidence that engineering advice had been obtained and used as required by the Code. The resultant EIA risk ratings were determined as Moderate. On these coupes, roads had also been constructed at slopes of 11 degrees or over on soils with Moderate soil erosion hazard classification, which is not permitted by the *Management Procedures*.

Eight of the non-compliances identified were in relation to a somewhat ambiguous requirement of the 2007 *Management Procedures* that places minimum limits on vegetation clearance widths along roads, but also requires that easements are kept to the minimum width necessary. Clearance widths in eight coupes (C9, C10, C14, C20, C21, C22, C24 and C25) were found to have been less than the minimum values specified in the *Management Procedures*. In some cases, the environmental benefit of increasing the clearance width to the specified minimum was not apparent to the Auditor. However, on a small number of coupes, the retained trees would have likely limited the effectiveness of fill compaction during road construction (Refer to Appendix K, Photograph 6). With the exception of instances where narrow clearance widths inhibited construction works, the Auditor considered that the minimisation of widths by VicForests was good practice. The EIA risk ratings for these eight non-compliances were therefore determined as No impact.

The Auditor notes that the clearance width requirements have since been changed in the 2009 *Management Procedures*, which specifies that stated clearance width limits are the maximums allowable rather than minimum values (Section 1.6.3.5), although some ambiguity still exists in Schedule 4 of the *Management Procedures*.

No non-compliances were identified for DSE-managed coupes in relation to road planning.

Road design

Relatively few road design requirements (45) were applicable to the audited coupes. Road design includes the requirements for drainage structure design and spacing, which is discussed in the introductory Roading section of this report (Section 4.2.6).

Table 4-19 summarises the compliance findings for the *Road design* Compliance Element.

Table 4-19 Summary of compliance findings for the *Road design* Compliance Element

Compliance Element	Road design
Total compliance	34
Total non-compliance	11
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	4
Minor	1
Negligible	6
No impact	0

The audit found a number of non-compliances in addition to those related to drainage structure design and spacing. Three non-compliances were identified where drainage was directed over unconsolidated fill, with EIA risk ratings of Moderate (C20) and Negligible (C22 and C24) (Refer to Appendix K, Photograph 7). The Auditor notes that culverts may have been in use in some of these cases during harvesting operations, but if so, they had since been removed. Flow of water over fill slopes was observed to result in erosion and sedimentation, usually contained within vegetation, but in some instances extended close to waterways (C20, C24) (Refer to Appendix K, Photographs 8 and 9).

One instance was also identified where a silt trap had not been installed near a permanent stream, with an EIA risk rating determined as Negligible (C24).

Seven instances of non-compliance with the minimum spacing of drainage outlets along roads were observed, resulting in non-compliances (C11, C12, C13, C14, C15, C18 and C21). Three of the non-compliances (C11, C12 and C18) were assessed as having Negligible EIA ratings, one was assessed as having a Minor EIA rating (C21) and three were assessed as having Moderate EIA ratings, having either a larger length of non-compliant drainage spacing or higher slope and soil erodibility classes (C13, C14 and C15).

Road design was not assessed for DSE-managed coupes as the coupes used the existing road network.

Road construction

The audit found that the majority of applicable requirements relating to road construction had been implemented appropriately, with examples noted by the Auditor of good use of natural drainage (C3) and installation of additional drainage where previously installed drainage was found to be inadequate (C7). However, the audit also identified some weaknesses with regard to management of soil stockpiles and excess fill and treatment of cut and fill slopes to minimise erosion and sedimentation. Six areas of non-compliance were identified.

Table 4-20 summarises the compliance findings for the *Road construction* Compliance Element.

Table 4-20 Summary of compliance findings for the *Road construction* Compliance Element

Compliance Element	Road construction
Total compliance	71
Total non-compliance	6
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	4
Minor	0
Negligible	2
No impact	0

A non-compliance was identified in relation to an apparent uncontrolled disposal of fill (C3). It was observed during the audit that a significant quantity (estimated at approximately five cubic metres) of soil, apparently resulting from the construction of the coupe driveway, had been pushed up around a number of live trees adjacent to the road within a mapped rainforest and streamside buffer and had not been stabilised through revegetation or other means. Erosion of the stockpiles by rainfall was evident at the time of the audit. No records showing that this fill disposal site had been planned were available (Refer to Appendix K, Photograph 10).

A senior DSE officer advised the Auditor that VicForests, at the time of road construction, had discussed options to minimise disturbance to the several wet gullies that the road crosses. According to DSE, it was agreed that the soil should be stockpiled to enable to road to be rehabilitated (including ripping and spreading of topsoil) after completion of harvesting of an adjacent coupe, which also used the road. The DSE officer also advised that the stockpiling of the soil against the trees was agreed as the option of lesser environmental impact compared with increasing the clearing width. The Auditor acknowledges the apparent consideration that was given to various options to minimise environmental impact and that VicForests plans to rehabilitate the road to a higher level than the minimum required. In light of this information, the Auditor considers that the main deficiency appears to be in documenting plans and obtaining approvals for this work, given that the activities have resulted in outcomes not aligned with the Code and Management Procedures (soil stockpiles not appropriately stabilised and soil stockpiled against live trees). The EIA risk rating for this non-compliance was determined as Moderate. The Auditor recommends that, once complete, the rehabilitation of this road, including timeliness of rehabilitation, is reviewed by DSE as the regulator against what was said to have been agreed.

Failure to plan for and stabilise excess fill also resulted in non-compliance on two other coupes (C8 and C13), however, the EIA risk ratings were determined as Negligible due to the small quantity of fill involved and its location away from environmentally sensitive or excluded areas.

Three non-compliances with Moderate EIA risk ratings were identified where fill slopes of roads traversing slopes were not adequately consolidated (C20, C22 and C24). A tension crack was observed in the road surface at one coupe (C20), suggesting potential instability of the road (Refer to Appendix K, Photograph 11) and erosion of fill slopes was evident (Refer to Appendix K, Photographs 7 and 8).

The Auditor also observed unstable cut slopes on several of the steeper coupes, where slumping had occurred, blocking table drains and resulting in sedimentation (Refer to Appendix K, Photograph 12 C20, C24). The Code provides guidance, however it is not mandatory, that engineering advice be used when building roads that traverse steeper slopes (over 20 degrees). No evidence was found that engineering advice had been sought in these instances.

Road construction was not assessed for DSE-managed coupes as the coupes used the existing road network.

Road maintenance

Due to harvesting on the coupes having been completed, the audit was unable to assess the maintenance of roads during the time that harvesting was undertaken. If roads are required to remain open after harvesting is finished, the Code requires that they be adequately maintained to ensure drainage remains effective.

Table 4-21 summarises the compliance findings for the *Road maintenance* Compliance Element.

Table 4-21 Summary of compliance findings for the *Road maintenance* Compliance Element

Compliance Element	Road maintenance
Total compliance	44
Total non-compliance	6
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	1
Negligible	5
No impact	0

Most of the audited roads were assessed as having been adequately maintained at the time of the audit, with six non-compliances identified on four VicForests coupes (C12, C13, C18 and C21). Issues included a damaged culvert and cross drains rendered ineffective through siltation or rollover drains having been washed through. The EIA risk ratings were determined as Minor (C21), where a series of rollover drains had washed through resulting in scouring of the road surface, and Negligible on the other coupes (C12, C13 and C18).

Harvesting debris in drainage structures was also observed to be affecting or potentially affecting road drainage on two coupes (C12 and C18). The EIA risk ratings for these non-compliances were determined as Negligible.

Suspension of cartage

A large proportion of the requirements relating to suspension of cartage in adverse weather conditions could not be assessed as there was no harvesting current in the audited coupes at the time of the audit. Of the few applicable requirements, there were no non-compliances identified during the audit.

Table 4-22 summarises the compliance findings for the *Suspension of cartage* Compliance Element.

Table 4-22 Summary of compliance findings for the *Suspension of cartage* Compliance Element

Compliance Element	Suspension of cartage
Total compliance	4
Total non-compliance	0
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	0
Negligible	0
No impact	0

Road closure

The Code requires that roads are permanently closed if no longer required for timber harvesting or management purposes, and temporarily closed under adverse weather conditions that could compromise the road surface and water quality. Temporary road closures were assessed as being largely managed appropriately, with closures recorded and gazetted in most, but not all cases. Several instances were also identified where roads had not been permanently closed when no longer in use.

Table 4-23 summarises the compliance findings for the *Road closure* Compliance Element.

Table 4-23 Summary of compliance findings for the *Road closure* Compliance Element

Compliance Element	Road closure
Total compliance	105
Total non-compliance	11
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	0
Minor	0
Negligible	3
No impact	8

The audit identified one coupe where a permanent road had not been closed as required (C21). However, the vegetation on the road suggested that traffic did not appear to have been using the road and therefore a No impact EIA risk rating was recorded for this non-compliance. The audit also identified one coupe (C9) where a permanent road had been closed, however, the drainage was found

to be ineffective due to the minimum spacing distances between drainage structures not being met. This non-compliance was assessed as having a Negligible EIA risk rating.

The audit identified that on two coupes (C10 and C18) where temporary roads were closed, an effective barrier was not in place as required resulting in damage by vehicular traffic. These non-compliances were determined as having Negligible EIA risk ratings. The Auditor acknowledges that the use of traffic barriers in some locations has not always deterred entry and is one tool in a suite of approaches needed to effectively close some roads. However, the required documents necessary to close these roads had also not been prepared.

Recommendation 3 – It is recommended that VicForests and DSE review their respective systems to manage the closure of roads to ensure that roads no longer required are permanently closed, as required by the Code.

Evidence of DSE approval for temporary closures of permanent roads was not available for three VicForests coupes (C7, C12, C23), resulting in No impact EIA risk ratings. The Auditor understands that VicForests has now changed its procedure for seeking and recording closure approvals after identifying weaknesses in the procedure previously in place.

The audit identified non-compliances on both DSE coupes where DSE permission to temporarily close permanent roads during harvesting had not been recorded and written closure plans or traffic management plans had not been developed. These non-compliances resulted in two No impact EIA risk ratings for each of the two coupes.

4.2.7 Coupe infrastructure

General

The term ‘coupe infrastructure’ is used in this report to collectively describe log landings and dumps, snig tracks and boundary tracks. Areas occupied by coupe infrastructure were observed to have been generally minimised, as required by the Code. Landings established at a previous time or on adjacent coupes were reused for harvesting four of the audited coupes (C14, C19, C20 and C23 (loading bays)) and the appropriate siting of a landing minimised the need for soil excavation (C20) (Refer to Appendix K, Photograph 13). The Auditor also noted a particularly good example of the minimisation of the area and impact of snig tracks (C12) and also observed an instance when rehabilitation of a landing had been halted by VicForests when soil conditions became too wet (C24).

Table 4-24 summarises the compliance findings for the *Coupe Infrastructure - General* Compliance Element.

Table 4-24 Summary of compliance findings for the *Coupe Infrastructure - General* Compliance Element

Compliance Element	Coupe Infrastructure
Total compliance	49
Total non-compliance	1
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	1
Minor	0
Negligible	0
No impact	0

Rehabilitation of coupe infrastructure was observed to have been undertaken on all coupes. However, a number of non-compliances with the required standards of rehabilitation were identified, as discussed in the following sections of this report (*Log landings and dumps*; *Snig and forwarding tracks*; and *Boundary tracks*).

In almost all cases, whether rehabilitation of landings and tracks had been progressive during harvesting was unable to be assessed, as harvesting was completed. However in these coupes, the Auditor did not note anything to suggest that this had not occurred. The audit identified a non-compliance on one coupe (C20) where harvesting had ceased due to the Black Saturday fires and snig tracks had not been rehabilitated, resulting in sediment movement along and off the track. At the time of the audit, the contractor had not yet returned to the coupe, however, there had been opportunity since February 2009 for VicForests to undertake this work. The EIA risk rating for this non-compliance was determined as Moderate (Refer to Appendix K, Photograph 14).

Landings, snig tracks and boundary tracks were not used and are not considered to have been required by the Auditor on the two DSE coupes audited, due to the low intensity of the harvesting operations.

Log landings and dumps

The management of landings was generally assessed as appropriate, with some exceptions mainly regarding rehabilitation standards and bark disposal.

In total, 31 landings were assessed during the audit, all of which were found to comply with the relevant maximum dimension limits. The average size of landings assessed was 0.12 hectare, compared with the limits of 0.5 hectare for Ash coupes and 0.3 hectare for other forest types. The maximum landing size was measured at 0.35 ha on an Ash coupe (C2).

Table 4-25 summarises the compliance findings for the *Coupe Infrastructure – Log landings and dumps* Compliance Element.

Table 4-25 Summary of compliance findings for the *Coupe Infrastructure – Log landings and dumps* Compliance Element

Compliance Element	Coupe Infrastructure - Log landings and dumps
Total compliance	41
Total non-compliance	12
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	7
Minor	3
Negligible	2
No impact	0

Guidance documented in the *Fire Salvage Harvesting Prescriptions 2008* about the siting of landings in fire affected coupes was assessed as having been followed where relevant.

Landings on all coupes were assessed as being located appropriately, with one exception, where a landing was located outside of the Timber Release Plan (TRP) area without the required documented approvals (C15). The EIA risk rating for this non-compliance was determined as Negligible.

The audit identified a further 11 non-compliances across 11 VicForests-managed coupes relating to landing rehabilitation. Little topsoil was present on landings at five coupes. On four of these coupes (C2, C3, C4 and C5), topsoil had been replaced before landings were ripped. The relevant procedural documents recommend that topsoil be spread after ripping, but there is provision for the Forest Officer to vary this practice. VicForests staff stated that the decision to spread topsoil before ripping on these coupes was taken in response to landing compaction believed to result from spreading topsoil before ripping. The Auditor considers that the practice of ripping after topsoil replacement is likely to have contributed to the lack of topsoil on the rehabilitated landings, but acknowledges the operational challenges of achieving both alleviation of compaction and replacement of topsoil, particularly on soils where there is a naturally thin layer of topsoil. On the fifth coupe (C10), the presence of stockpiles of bark mixed with topsoil suggested poor topsoil segregation leaving little to redistribute during rehabilitation (Refer to Appendix K, Photograph 15). One of the coupes (C4) also had bark heaps in excess of the allowed four cubic metres at the landing and the ripping appeared to have been undertaken while the soil was wet. The EIA risk ratings for these five non-compliances were determined as Moderate.

A sixth non-compliance with a Moderate EIA risk rating was identified on one coupe (C6) due to an area of a landing not having been ripped and the retention of more than the prescribed allowable quantity of bark and harvest debris in heaps at the landing. A seventh non-compliance with a Moderate EIA risk rating was identified for the retention of large quantities of bark around two landings and poor topsoil segregation (C15) (Refer to Appendix K, Photograph 16). Two non-compliances with Minor EIA risk ratings were identified on other coupes for the retention of smaller quantities of bark and slash (C16 and C24) and topsoil not having been spread or noted in the temporary clearance documentation given to the contractor (C24).

VicForests stated that large quantities of bark had been left on some landings due to the usual practice of undertaking regeneration burns, during which the bark heaps would be burnt. However, in order to reduce the incidence of burning, VicForests has initiated assessment of regeneration, and if regeneration is adequate, do not undertake the burn. As a result, bark heaps have remained unburnt and in the cases identified in the audit, exceed the prescribed bark volume limits.

Recommendation 4 – It is recommended that VicForests builds into its systems a process for ensuring that excess bark is not retained around landings in the absence of regeneration burning.

Failure to fill in a trench dug to store logs on one coupe (C21) and rip lines being spaced wider than the maximum prescribed (C11) resulted in non-compliances with EIA risk ratings of Minor and Negligible respectively.

Whether topsoil had been stockpiled appropriately during landing construction was unable to be assessed during the audit on 11 coupes, due to the stage of the operations and the natural or fire induced paucity of topsoil at some of these locations. Whether the required depth of ripping had been achieved was unable to be determined at five coupes, as while the depth was assessed as less than required at the time of the audit, it had been up to two years since ripping had been undertaken and some degree of natural compaction would be expected during that time.

The audit was unable to assess whether the landing on one coupe (C8) had been appropriately rehabilitated, as it was observed to have been excavated, according to VicForests staff, to provide fill for construction of another road. Assessment of this activity was outside the scope of this audit.

Snig and forwarding tracks

Snig and forwarding tracks were generally assessed as having been managed appropriately, with some issues identified with rehabilitation. The Auditor noted a good example of the minimisation of snig tracks and their impact (C12) and particularly good examples of rollover drains with effective outlet channels on a relatively steep slope (C14), constructed using an excavator (Refer to Appendix K, Photograph 17).

Generally, rehabilitation of snig tracks after harvesting was assessed as being well managed, with appropriate spacing of effective drainage structures. A total length of 5,894 m of snig tracks was assessed across 23 coupes, with 4,773 m assessed as compliant. The sampled length of snig track was assessed as compliant on 15 coupes. In some of these compliant coupes, potential for improvement in the design of drainage structures was noted, but due to the soil type and/or topography, were considered adequate. In most of the compliant coupes, rollover drains had been constructed to a high quality, with effective outlets to channel water away from the track.

Table 4-26 summarises the compliance findings for the *Coupe Infrastructure – Snig and forwarding tracks* Compliance Element.

Table 4-26 Summary of compliance findings for the *Coupe Infrastructure – Snig and forwarding tracks* Compliance Element

Compliance Element	Coupe Infrastructure - Snig and forwarding tracks
Total compliance	125
Total non-compliance	10
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	2
Minor	7
Negligible	1
No impact	0

Ten non-compliances were identified across eight coupes relating to rehabilitation of snig tracks. Reasons for non-compliances were that outlets on some drainage structures were not constructed to be effective in carrying surface water off tracks (C1, C4, C9, C10, C23 and C24); and distances between drainage structures were further than the maximum specified in the Management Procedures (C8, C9, C13 and C24). Non-compliant drainage structures were usually found to affect only a small proportion of the sample of track assessed on each coupe, with the exception of three coupes, where substantial proportions of the sampled track length were assessed as non-compliant (C4, C9 and C24) (Refer to Appendix K, Photographs 18 and 19). EIA risk ratings relating to these non-compliances were determined as Moderate (C9 and C24), Minor (C1, C8, C10, C13 and 23) (Refer to Appendix K, Photograph 20) and Negligible (C4), the latter due to the gently sloping topography.

Two additional non-compliances relating to snig tracks identified by the audit included that bark was observed to have been laid on a section of snig track (C3) (Refer to Appendix K, Photograph 21) and that a minor quantity of soil and harvest debris had not been removed from a drainage line crossing (C15). Both non-compliances were assessed as having Minor EIA risk ratings.

Boundary tracks

Boundary tracks were assessed as having been constructed appropriately and in compliance with the few applicable requirements in the majority of cases. However, a lower proportion of track was assessed as complaint, at around two-thirds of the length of assessed track, than was the case for snig tracks, likely reflecting the difficult terrain more often encountered by boundary tracks than by snig tracks. A total length of 2,905m of boundary tracks was assessed across 12 coupes, with 1,951m assessed as compliant. The sampled length of boundary track was assessed as compliant on 5 coupes. The Auditor noted that the good practice of using the natural outsloping of the track to assist with drainage was used where possible.

Table 4-27 summarises the compliance findings for the *Coupe Infrastructure – Boundary tracks* Compliance Element.

Table 4-27 Summary of compliance findings for the *Coupe Infrastructure – Boundary tracks* Compliance Element

Compliance Element	Coupe Infrastructure - Boundary tracks
Total compliance	28
Total non-compliance	6
Non-compliance EIA breakdown	
Severe	0
Major	0
Moderate	3
Minor	3
Negligible	0
No impact	0

All of the non-compliances were identified where drainage structures had been constructed without outlets to carry surface water off tracks (C1, C8, C9, C10, C12, and C14), resulting in siltation and overflowing of drains and rilling of track surfaces on some of the coupes. On others, the rocky or porous nature of the soil appeared to have allowed water to infiltrate quickly rather than continue to flow along the surface and offer some protection against erosion and sedimentation. In most instances the absence of outlets occurred on steep areas where rollover drains had been constructed by bulldozers, which have limited manoeuvrability to create outlet channels. EIA risk ratings were determined as Moderate (C1, C9 and C10) and Minor (C8, C12 and C14).

In one case, a boundary track had been constructed through a filter without documentation of approval (C7), as discussed in the *Filters* section of this report; and on one coupe (C12) a boundary track had entered rainforest and rainforest buffer at two locations, as discussed in the *Rainforests* section of this report. These two non-compliances were recorded against the *Filters* and *Rainforests* Compliance Elements respectively, to avoid 'double-counting' of non-compliances.

4.3 Summary of recommendations

This section of the report lists the recommendations that are contained within the findings sections for each Compliance Element.

Recommendation 1 – It is recommended that DSE and VicForests ensure that pre- and post- harvest weed assessment results are documented and triggers for subsequent control activities are incorporated into their management systems.

Recommendation 2 – It is recommended that the Fire Salvage Harvesting Prescriptions requirement to "*Clean soil from all harvesting machinery (excluding trucks and passenger vehicles) before floating to or from a salvage coupe*" be changed to a requirement that can be more easily recorded or tracked, such as "*Clean soil from all harvesting machinery (excluding trucks and passenger vehicles) before floating to and from a salvage coupe*"; or devise processes to record centrally the cleaning of harvesting machinery.

Recommendation 3 – It is recommended that VicForests and DSE review their respective systems to manage the closure of roads to ensure that roads no longer required are permanently closed, as required by the Code.

Recommendation 4 – It is recommended that VicForests builds into its systems a process for ensuring that excess bark is not retained around landings in the absence of regeneration burning.

5

Conclusions

5.1 Overall assessment of compliance

The audit included assessment of 27 coupes, including five fire salvage coupes and one thinnings coupe, selected to be representative of harvesting undertaken in the 2008-09 financial year, with the exception of domestic firewood coupes.

Overall, the audit identified a high level of compliance across most Compliance Element groups, with moderate compliance in the *Biodiversity Conservation* group, mainly due to the absence of monitoring and control of noxious weeds.

The Auditor noted a number of individual examples of good practice, including instances of:

- Conservative delineation of rainforest boundaries for ease of management;
- Particularly good examples of snig track rollover drains on a relatively steep slope;
- Reuse of existing landings and road alignments and effective use of natural outslope drainage where possible;
- Minimisation of vegetation clearance widths for road construction; and
- Minimisation of the area and impact of snig tracks.

No non-compliances with Severe EIA risk rating were identified. Two non-compliances with an EIA risk rating of Major were identified, both being instances of machine entry into rainforest buffer and associated rainforest.

The majority (59%) of non-compliances identified were determined as having EIA risk ratings of Negligible or No impact, with 49 of the total of 150 non-compliances being assessed as Negligible and 40 assessed as No impact. Thirty-one Moderate and 28 Minor non-compliances were also identified, mainly in the following areas:

- One instance of soil stockpiling within a rainforest buffer for road rehabilitation without documented and approved plans;
- Insufficient topsoil and retention of excess bark at landings;
- Lack of noxious weed assessments and control;
- Inadequate or inappropriate drainage of sections of roads, snig tracks and boundary tracks;
- Inadequate management of cut and fill on some sections of roads;
- Instances of road construction on steeper slopes than prescribed for the soil type;
- Crossing of drainage lines without approval;
- Instances of debris pushed or rolled into exclusion zones;
- Inadequate evidence that authorisation was given to remove trees felled into buffers; and
- Instances of failure to classify streams adjacent to coupes.

This audit report includes four recommendations for improvement where current systems are not considered adequate to meet the relevant audit criteria. They relate to weed control; fire salvage machinery cleaning protocols; closure of roads no longer needed; and disposal of excess bark when not undertaking regeneration burning. All recommendations apply to VicForests operations and two also apply to DSE.

5.2 Risks to beneficial uses

The audit did not identify any imminent environmental hazards or unacceptable risks to the beneficial uses listed in Section 2.3 of this report. The assessment of imminent environmental hazards was based on site observations and EIA risk rating assessments of identified non-compliances, using the

experience and expertise of the audit team members. The assessment of risk to the listed beneficial uses is based on non-compliances identified and their respective EIA risk ratings at the coupe level and the Auditor's judgement, backed by the experience and expertise of the audit team members, as to the significance of audit findings at a landscape level.

Life, health and wellbeing of humans

The Audit did not identify any non-compliances that presented an unacceptable environmental risk to the life, health and wellbeing of humans.

Life, health and wellbeing of other forms of life, including the protection of ecosystems and biodiversity

The Audit did not identify any non-compliances with an EIA risk rating of Severe. Two non-compliances with an EIA risk rating of Major were identified, as discussed in Section 5.1. Both are considered isolated instances, with examples of compliant management found elsewhere on other audited coupes.

Thirty-one non-compliances with Moderate EIA risk ratings were identified across a range of Compliance Elements. With the exception of the identified non-compliances that are considered to be the result of systemic deficiencies within VicForests' management systems (monitoring and management of noxious weeds) all are considered to be isolated instances. Of the systemic issues identified, only one instance of noxious weed infestation resulted in an EIA risk rating of Moderate. All others were Minor, Negligible or No impact.

Based on these audit findings the audited activities are not considered to present an unacceptable risk to life, health and wellbeing of other forms of life, including the protection of ecosystems and biodiversity, within the context of approved timber harvesting on Victorian public land.

Local amenity and aesthetic enjoyment

The landscape buffers contained within the four audited coupes where they existed were assessed as being appropriately protected, with no non-compliances identified.

Glossary

Auditee

An auditee is a person or organisation being audited. DSE administers audits of organisations or individuals whose activities relate to Victorian timber harvesting in State forest. Relevant timber harvesting operations include those managed by VicForests in eastern-Victoria, as well as those managed by DSE in other parts of the State

Auditor

A highly qualified and skilled individual with extensive experience in environmental science and or engineering, as well as environmental auditing appointed pursuant to the EP Act to conduct an independent and objective assessment of the nature and extent of harm (or risk of harm) to the environment posed by a process or activity, waste, substance or noise.

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.

Compliance Element

The subject, activity or operational component being assessed for compliance against the regulatory framework. Generally referred to as ‘focus areas’ in the former audit program operated under EPA.

Compliance Theme

Topics and/or issues deemed to overlap a number of compliance elements and/or auditing modules that may require additional focus on a recurring basis. Themes can be seasonal or regional, associated with biodiversity, coupe or forest type and/or other special prescriptions.

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 forest of variable size, shape and orientation from which logs for sawmilling or other industrial processing are harvested. Erosion risk The likelihood of erosion occurring due to soil erodibility, rainfall erosivity, slope and soil disturbance.

Forest Coupe Plan

A plan that must be prepared for each harvesting operation in public native forest and will contain 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 Area (FMA)

Basic units for forest planning and management in Victoria. Currently Victoria is divided into 15 Forest Management Areas as defined in the Forests Act 1958.

Forest Management Plan (FMP)

Forest Management Plans are produced by DSE to address the full range of values and uses in FMAs, which have been designated as the units for planning forest management activities.

General Management Zone (GMZ)

A zone within a State forest defined as an area of land that will be managed for the sustainable production of timber and other forest products.

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 that are suitable shelter and/or nesting sites for animals such as possums and parrots.

Regeneration

The renewal or re-establishment of native forest flora by natural or artificial means following disturbance such as timber harvesting or fire.

Rehabilitation

The restoration and revegetation of a site of disturbance usually associated with landings and other within-coupe infrastructure.

Regulator

A government agency, typically a statutory authority. In the context of the FAP, DSE as the regulator is responsible for ensuring that commercial timber harvesting activities Victoria's State forests are compliant with Victoria's regulatory framework. This includes compliance with relevant legislation, regulations and guidelines, including those specified in the Code of Practice for Timber Production 2007.

River health

An ecologically healthy river is one where the major natural features, biodiversity and/or functions of the river are still present and will continue into the future. Some change from the natural state may have occurred to provide for human use.

Special Management Zone (SMZ)

A zone within a State forest defined as a zone which will be managed to conserve specific features, while catering for timber production under certain conditions. Areas included cover a range of natural or cultural values, the protection or enhancement of which require modification to timber harvesting or other land-use practices rather than their exclusion. The zone contributes substantially to the conservation of important species, particularly fauna.

Special Protection Zone (SPZ)

A zone within a State forest defined as a zone which will be managed for conservation, and timber harvesting will be excluded.

Special Water Supply Catchment

A catchment that has been officially declared under Schedule 5 of the Catchment and Land Protection Act 1994.

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.

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 Release Plan (TRP)

The Timber Release Plan (TRP) is prepared by VicForests in accordance with Part 5 of the Sustainable Forests (Timber) Act 2004. The TRP provides a schedule of coupes selected for timber harvesting and associated access road requirements; identifies the location and approximate timing of timber harvesting in the proposed coupes; and identifies the location of any associated access roads. It includes coupe details and maps. VicForests prepares TRPs that cover a rolling five-year period.

Water supply catchment

A catchment from which water is used for domestic water supply purposes.

Waterway

A permanent stream, temporary stream, drainage line, pool or wetland as defined in the Code of Practice for Timber Production 2007 (as amended).

Wood Utilisation Plan (WUP)

A Wood Utilisation Plan (WUP) is prepared by DSE to detail the type and quantity of wood to be produced in the state and to allocate wood to processors in western Victoria. The plan is prepared annually and covers a rolling three-year period, with detailed specifications for the first year and indicative specifications for the following two years.

A WUP may also apply to some coupes managed by VicForests in the east of the state.

Limitations

Jodie Mason (the Auditor) along with her support team from URS Australia Pty Ltd (URS) and Ecology Partners has prepared this report for the use of the Department of Sustainability and Environment in accordance with the usual care and thoroughness of the consulting profession. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal dated 10 June 2010.

The methodology adopted and sources of information used by Jodie Mason and the support team are outlined in this report. Jodie Mason and the support team have made no independent verification of this information beyond the agreed scope of works and we assume no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to Jodie Mason and the expert support team was false.

This report was prepared based on documents reviewed, interviews conducted and activities observed at the audited sites during visits between 8 and 26 November 2010 and is based on the conditions encountered and information reviewed at the time of preparation. Jodie Mason and the support team disclaim responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

This investigation is limited to visual observation of conditions at the audited sites, interviews with personnel and other selected stakeholders and a review of records and procedural documents. Opinions and recommendations contained in this report are based upon data provided by representatives of the Department of Sustainability and Environment and VicForests, information gained during site inspections and interviews with personnel and other selected stakeholders. This approach reflects current professional practice for environmental audits. No warranty or guarantee of property conditions is given or intended.

URS cannot be responsible for changes in conditions that occur after the date of this report, whether they are hazardous or otherwise.

A

Appendix A Forest Audit Program Module 1 - Overview

Forest Audit Program Toolbox

Module

Overview

CONTENTS

Document and Version Control

Title	**Forest Audit Program Toolbox – Module 1**
Owner	DSE Forest Branch - Forestry Standards and Compliance Unit
Registry File	FS/18/3059
Scope of document	For use by Environmental Auditors appointed to conduct audits under the DSE Forest Audit Program. May involve or impact on some DSE and VicForests staff
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Note	Printed copies of this document are uncontrolled. The latest version is available in the DSE Forests and Fire Document Management System (DMS), or by contacting the DSE Forestry Standards and Compliance Unit.

Revision History

Date	Reviewer	Summary of changes	Replaces
-	-	-	-

FOREST AUDIT PROGRAM TOOLBOX

Module 1
Overview

Module 2
Audit Process

Module 3
Tactical Planning

Module 4
Operational Planning

Module 5
Harvesting and Closure

Module 6
Harvesting Performance

Module 7
Regeneration and Finalisation

1 MODULE 1 – OVERVIEW

1.1 BACKGROUND

The Department of Sustainability and Environment (DSE) is the regulator of timber harvesting operations on public land in Victoria. VicForests is responsible for the management of commercial harvest and sale of timber from State forest within the east of the State, while other parts of the State are overseen and managed by DSE, see *Figure 1.1*. Timber harvesting operations and associated activities conducted in State forest must be undertaken in accordance with the *Sustainable Forests (Timber) Act 2004* (the Act). The Act includes requirements that these operations comply with the *Code of Practice for Timber Production 2007* (the Code).

Following a review of the previous forest auditing programs that was administered by the Environment Protection Authority (EPA), the Minister for Environment and Climate Change announced that a new Forest Audit Program would be established by DSE and would ensure that timber harvesting practices in State forests are open and transparent. The Minister also directed DSE to ensure that the new Forest Audit Program (FAP) retained key features from the previous program, including the statutory environmental audit framework, stakeholder consultation and public reporting. These compulsory requirements have been included in the design of the new FAP.

The FAP will apply to commercial timber harvesting conducted in State forests. The audits will provide an objective and independent assessment of risk of harm to the environment, status of compliance with the relevant regulatory framework, and assist DSE and VicForests to pursue their objectives for continual improvement. Audit reports detailing compliance with the regulatory framework will assist in informing members of the community about harvesting performance.

The aim of the new FAP can be summarised in three points:

- To assess the performance of timber harvesting operations against the compliance framework,
- To review the effectiveness of the regulator.
- To review the effectiveness of the regulatory framework.

Environmental Resource Management Australia (ERM) was commissioned by DSE to assist in designing the new audit program.

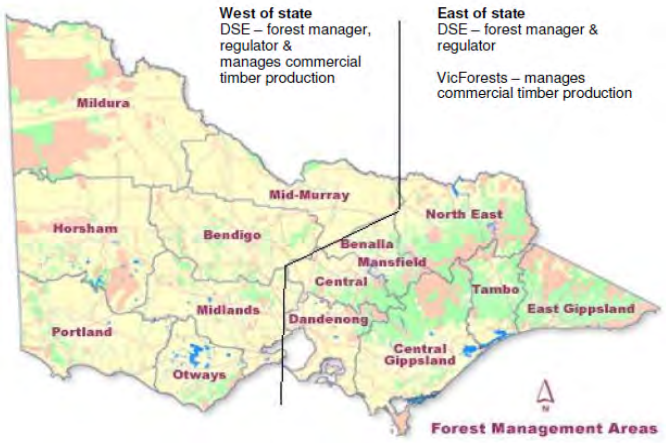

Figure 1.1 DSE/VicForests management roles in Victoria's State forests (DSE 2008)

1.2 OVERVIEW OF VICTORIA'S ENVIRONMENTAL AUDIT SYSTEM

The *Environment Protection Act 1970* provides for the statutory appointment of environmental auditors and their responsibilities to ensure that high quality, rigorous environmental audits are conducted by appropriately qualified professionals. The Environmental Audit System currently has three well-established applications that cover contaminated land, industrial facilities and natural resources.

The *Environment Protection Act 1970* defines two forms of environmental audit. Section 53V provides for environmental audits that are carried out on risk of harm to the environment caused by industrial processes or activity, waste, substance or noise (EPA, 2007) and section 53X provides for audits of a segment of the environment.

Audits conducted as part of the FAP are conducted under section 53V of the *Environment Protection Act 1970* .

An environmental audit is an assessment of the nature and extent of harm (or risk of harm) to the environment posed by an industrial process or activity, waste, substance or noise. An environmental audit must be able to deliver authoritative advice, upon which individuals and organisations are able to rely in making decisions which affect the future of the community.

An environmental audit therefore must be:

- Independent;
- Objective;
- Credible; and
- Transparent.

1.3 INTENDED USERS

It is intended that the FAP Toolkit and supporting Modules will be used by Auditors appointed pursuant to the *Environment Protection Act 1970*, and their supporting staff, engaged by DSE to implement the annual FAP.

2 OBJECTIVES AND SCOPE OF THE FOREST AUDIT PROGRAM

2.1 AUDIT PROGRAM OBJECTIVES

It is intended that the FAP will support continual improvement in sustainable timber production processes over time. This will be driven by the primary objective of the FAP, in assessing and monitoring compliance of timber harvesting operations with the relevant environmental legislation and regulatory framework (as updated over time).

The framework relating to sustainable timber production in Victoria's State forest is summarised below.

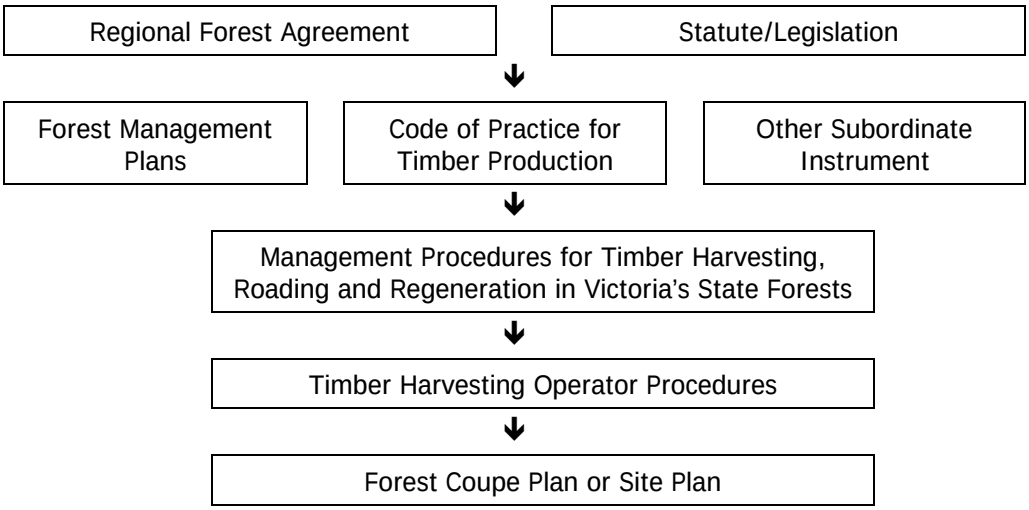

Figure 2.1 Regulatory Hierarchy (generalised)

Additional objectives include the following elements:

- Assessing the consistency of the planning framework for sustainable timber production with the regulatory and legislative environment;
- Assessing the compliance of operational timber harvesting planning with the tactical planning framework provided by the Allocation Order, Timber Release Plans and/or Wood Utilisation Plans; and
- Assessing the performance of timber harvesting conducted in State forest.

The outcomes of the FAP are intended to benefit DSE as the environmental regulator, the Victorian forestry industry, catchment managers and the community. The public reporting of audit findings will inform members of the community and improve transparency.

2.2 AUDIT PROGRAM SCOPE

The audit program applies to the management of forests for timber production on State forests across all of Victoria. This includes commercial timber harvesting operations undertaken by VicForests in eastern Victoria and by DSE in other parts of the State.

The scope of the FAP is built upon the forest harvesting lifecycle and includes:

- Forest planning and reconnaissance;
- Coupe planning;
- Harvesting and closure; and
- Regeneration, monitoring and finalisation.

Figure 2.2 below represents the forest harvesting lifecycle.

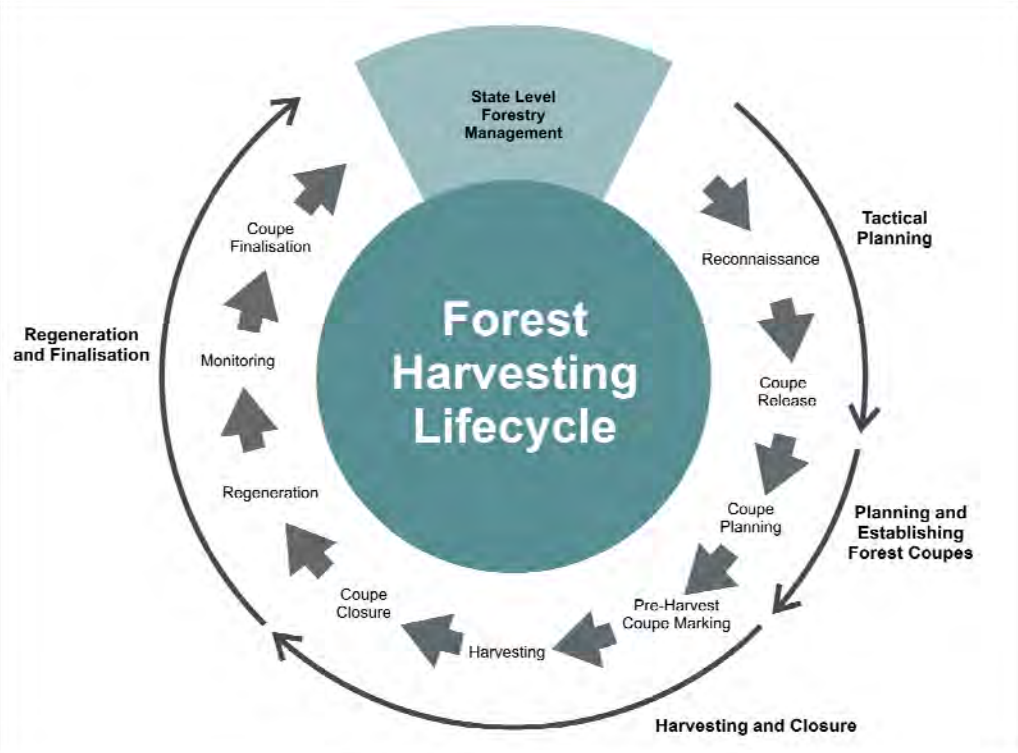

Figure 2.2 Forest Harvesting Lifecycle

2.2.1 Out of scope elements

The following elements have been defined as beyond the scope of the FAP:

- Compliance with rules, regulations or guidelines that relate to Occupational Health and Safety (OH+S) matters;

- Timber harvesting practices undertaken in plantations or on non-State forest;
- Roading activities conducted in State forests that are not associated with timber production;
- Silvicultural practices conducted in State forests that are not associated with commercial timber production (i.e. fire recovery silviculture and ecological thinning);
- Land use decisions and associated "forest policy";
- The forest management planning processes (such as the establishment of forest management plans), this exclusion does not relate to the assessment of compliance against relevant prescriptions contained in such planning documents (e.g. those relating to forest operational planning, roading, harvesting and regeneration practices);
- Assessing methods used in the development of the Allocation Order;
- Practices associated with production and collection of domestic forest produce (including firewood) on all land tenures;
- Recreational activities undertaken in State forests;
- Livestock grazing activities undertaken in State forests;
- Apiary activities undertaken in State forests; and
- Fire suppression and management practices undertaken in State forests (e.g. fuel reduction burning and habitat enhancement burning), with the noted exception of post harvest burning undertaken in State forests.

2.2.2 Selecting targets for the Forest Audit Program

Section 2.3.1 of this module outlines how the FAP toolbox has been divided into different audit modules based on groups of related management and harvesting activities that are aligned with different stages of the forest lifecycle (see Figure 2.2). It is important to consider this modular approach in the selection of audit targets across the FAP, given that audit methods change for different audit modules.

The selection of audit targets across the FAP can potentially span the majority of the lifecycle of Victoria's State forests. This is a large and complex process and will need to take into consideration commercial factors (such as the cost of engaging independent environmental auditors) and the resources that are available to DSE in any given year.

The modular design of the FAP will allow for greater flexibility in the selection of audit targets, based on annual priorities. DSE has identified priority areas that are likely to be included as recurrent audit targets. Other factors have also been highlighted that may be considered in determining annual audit priorities, and may be considered in target selection.

Priority areas include:

- Allocation Order and Timber Release Plans;
- Wood Utilisation Plans;
- Planning of timber harvesting operations;
- The performance of timber harvesting operations against the Code and other relevant regulatory requirements;
- Regeneration and coupe finalisation.

Other factors that may also need to be considered in selecting audit targets include:

- Geographical regions;
- Forest types;
- Site specific issues, such as:
    - Flora values (eg rainforest);
    - Fauna values (eg threatened species);
    - Fire salvage operations;
    - Catchments; and
    - Cultural values.

There may also be times, when it is appropriate under the statutory environmental audit framework for environmental auditors to investigate activities and/or events or conditions outside the scope of the audit that present an imminent hazard to the environment or impacts on beneficial uses. Auditors are expected to pursue such investigations where professional judgement leads to the conclusion that to do so complies with their obligations as an appointed auditor under the *Environment Protection Act 1970* and would likely provide a materially enhanced understanding of the management of the forest.

2.2.3 Environmental Values

In assessing the risk of harm or detriment to the environment, the following beneficial uses are considered broadly relevant to the FAP:

- Life, health and wellbeing of humans;
- Life, health and wellbeing of other forms of life, including the protection of ecosystems and biodiversity; and
- Local amenity and aesthetic enjoyment.

2.2.4 Segments and Elements of the Environment Covered by the FAP

The segment of the environment covered by the FAP are defined as that portion of Victoria in which timber is harvested from State forest. The following elements of the environment (as defined in the *Environment Protection Act 1970*) are relevant to the audit program scope:

- Land;
- Surface water;
- Groundwater;
- Vegetation;
- Aesthetics;
- Wildlife;
- Climate; and
- Fish.

2.3 FOREST AUDIT PROGRAM TOOLBOX

2.3.1 Toolbox Modules

The FAP Toolbox comprises seven modules that are based around the forest harvesting lifecycle. This association of the modules is illustrated in Figure 2.3.

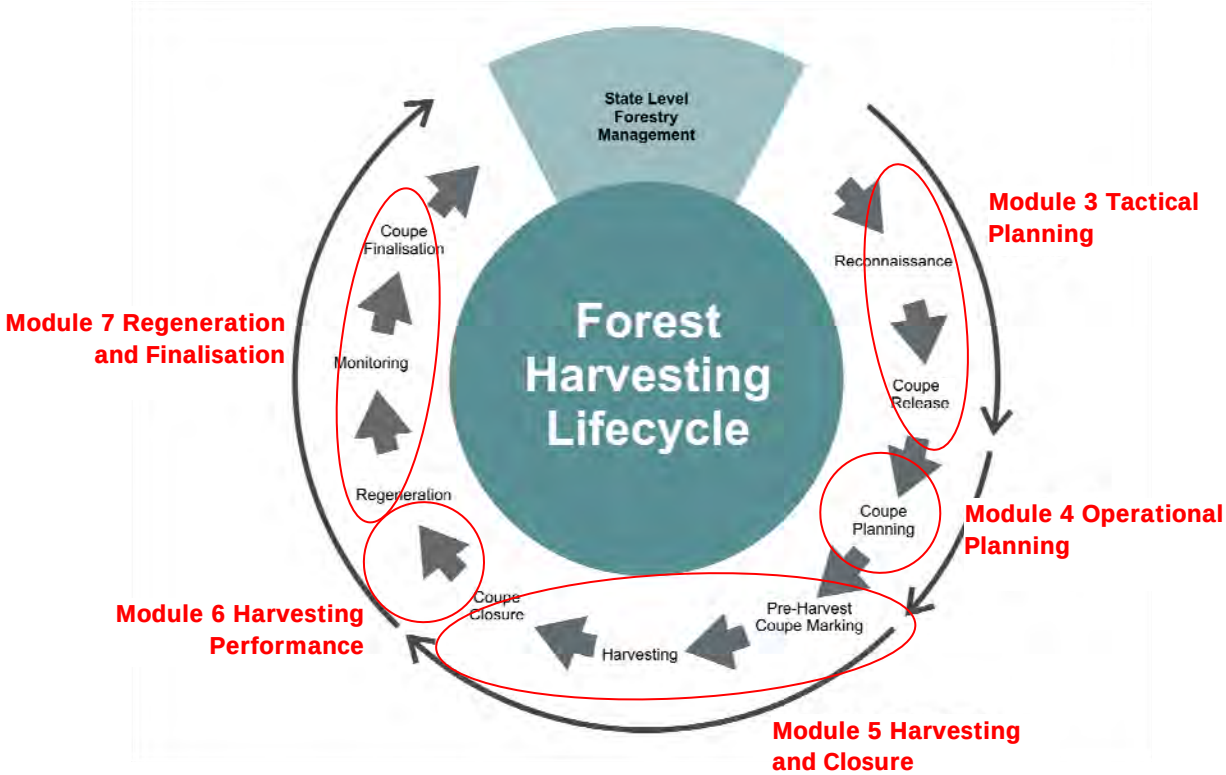

Figure 2.3 Audit Program Modules

An overview of each module is provided as follows:

Module 1 Overview *(this module)*

Module 1 provides an outline of the Forest Audit Program, its objectives, scope and statutory obligations.

Module 2 Audit Process

Module 2 provides a description of the audit process including the procurement and selection of auditors, selection of audit targets and other considerations for auditors.

Module 3 Tactical Planning

Module 3 outlines the scope and preferred method for assessing compliance with the tactical planning compliance elements and associated criteria, including the guidelines and approval process for Timber Release Plans (TRPs) and Wood Utilisation Plans (WUPs).

Module 4 Operational Planning

Module 4 outlines the scope and preferred method for assessing compliance related to management processes implemented to identify, assess and manage environment and sustainability risks during coupe establishment.

Module 5 Harvesting and Closure

Module 5 outlines the scope and preferred method for assessing compliance related to harvesting and closure. It includes assessment of roading and environmental values as part of harvesting operations including closure.

Module 6 Harvesting Performance

Module 6 outlines the scope and preferred method for assessing compliance related to monitoring of annual harvest performance and compliance with the Allocation Order (AO), TRPs and WUPs.

Module 7 Regeneration and Finalisation

Module 7 outlines the scope and preferred method for assessing compliance related to regeneration and finalisation. This includes regeneration, stocking, tending and general forest health.

2.3.2 Module Compliance Elements

Audits should include assessment against applicable criteria that have been identified in the audit workbooks in Modules 3 – 7 of this toolbox. Compliance with the applicable criteria and procedures will determine whether the principles of forest sustainability are being met.

The workbooks included in the modules correspond to the assessment of defined compliance elements as follows:

Module 3 – Tactical Planning

- TRP/WUP development and approval process

Module 4 - Operational Planning

- No specific compliance element exists, however this module includes a process audit to review linkages between TRP/WUP approvals and operational planning systems (including, but not limited to, consideration of heritage, exclusion zones, silviculture, hazard identification, soil erosivity).

Module 5 – Harvesting and Closure

- Forest Coupe Plans, including a sub element on Exclusion Zones
- Operational Provisions, (ie. weather, seasonal provisions)
- Water Quality, River Health and Soil Protection, including sub-elements:
    - Waterways
    - Buffers
    - Filters
    - Slopes
    - Camp Maintenance, Fuel Storage & Waste Disposal
    - Water Catchments
- Biodiversity Conservation including sub-elements:
    - Habitat Trees
    - Rainforest
    - Forest Health

- Roading including sub-elements:
  - Road Planning
  - Road Design
  - Road Construction
  - Road Maintenance
  - Suspension of Cartage
  - Road Closure
- Coupe Infrastructure Provisions, including sub-elements:
  - Log Landings and Dumps
  - Snig and Forwarding Tracks
  - Boundary Trails

Module 6 – Harvesting Performance

- Compliance with Wood Utilisation Plans (WUPs)
- Compliance with the Allocation (including thinning) Order
- Compliance with Timber Release Plans (TRPs)
- Cumulative harvest limits in Melbourne's water catchments
- Cumulative harvest limits in Special Management Zones.

Module 7 – Regeneration and Finalisation

- Coupe Regeneration Provisions
- Stocking Assessment Provisions (ie. species diversity and forest density)
- Tending and Forest Health Provisions including pest control, seed crop monitoring and coupe maintenance.

3 STATUTORY OVERVIEW

The following key legislation is considered relevant to the Forest Audit Program. It is important to note that the regulatory publications employed to assess compliance of timber harvesting operations must be relevant to the date of harvest. A number of coupes may have been harvested or regenerated under old prescriptions.

A comprehensive list of legislation, guidelines and other general references considered applicable to auditing of the compliance elements within each module (modules 3–7), are listed in Section 4 of the relevant module booklet. Additional legislation, policy and guidance notes relevant to forest management for timber production are also listed in Appendix A and Appendix B of the Code of Practice for Timber Production 2007.

3.1 SUSTAINABLE FORESTS (TIMBER) ACT 2004

The *Sustainable Forests (Timber) Act 2004* (the Act) is the overarching legislative document for the management of commercial timber harvesting within Victoria. The Act describes the obligations for persons undertaking timber harvesting in State forest, including complying with the Code. The Act establishes a framework for the sustainable management of Victoria's State forests and provides for the development of a Sustainability Charter to establish criteria and indicators to monitor and report on performance. The Sustainability Charter was subsequently published by DSE (2006) and specifies objectives around maintaining items such as biodiversity, ecosystems, and managing disturbance.

The Act enables the allocation of timber resources to VicForests for commercial forestry operations. It also defines VicForests' reporting and performance obligations. Section 96 of the Act provides for the development of regulations governing the licensing of commercial timber harvesting operations. This includes establishment of a Timber Harvesting Operator Licence system and prescribes an enforcement and penalty regime for breaches of specified environmental requirements.

3.1.1 Sustainability Charter

The Act provides for the development of a Sustainability Charter. The Act states that the Sustainability Charter must set out objectives, consistent with the National Principles of Ecologically Sustainable Development, for both the sustainability of forests and the sustainability of the timber harvesting industry.

The Charter sets the direction for sustainable forest management in Victoria. It commits DSE and VicForests to support the objectives set out in the Charter. VicForests will respond to the Government's sustainability agenda by developing initiatives and targets to progress the objectives of the Charter. It will include these in its statement of corporate intent and report on the outcomes of these initiatives as part of its normal business reporting. Subsequently, both DSE and VicForests are working to achieve sustainable forest management.

3.2 ENVIRONMENT PROTECTION ACT 1970

The *Environment Protection Act 1970* (the EP Act) seeks to prevent pollution and environmental damage by setting environmental quality objectives and establishing programs to meet them. The EP Act has been amended over time to reflect the growing interest in best practice in environment protection regulation and to meet the needs of the community.

Key aims of the EP Act include sustainable use and holistic management of the environment, ensuring consultative processes are adopted so that community input is a key driver of environment protection goals and programs and encouraging a co-operative approach to environment protection.

It is under Section 53S of the EP Act, that the EPA appoints environmental auditors to undertake environmental audits, including audits commissioned under this FAP.

3.2.1 EPA Environmental Auditor Guidelines

Whilst DSE will commission environmental audits under the FAP, the EPA administers Victoria's environmental audit system. The following guidelines provide important standards that apply to the conduct of independent environmental audits undertaken in accordance with Part IXD of the EP Act.

- Publication No. 865.7: Appointment and Conduct, October 2008 - these guidelines also set out the processes followed by EPA when making, suspending and revoking appointments as environmental auditors.

- Publication No. 953.2: Conducting Environmental Audits, August 2007 - these guidelines have been issued primarily to assist environmental auditors to conduct environmental audits. The guidelines may also be useful for audit clients, auditees and the community.

- Publication No. 1147: Provision of Environmental Audit Reports, Certificates and Statements, September 2007 - these guidelines provide guidance on the provision of paper and electronic versions of completed environmental audit reports, statements and certificates to the EPA.

- Publication No. 952.2: Preparation of Environmental Audit Reports on Risk to the Environment, August 2007 - these guidelines provide guidance on the provision of paper and electronic versions of completed environmental audit reports on risk to the environment to the EPA.

3.3 CATCHMENT AND LAND PROTECTION ACT 1994

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*. Further, this Act requires all landholders to control pest animals and noxious weeds on their property.

3.4 FLORA AND FAUNA GUARANTEE ACT 1988

*The Flora and Fauna Guarantee Act 1988 (*the FFG Act*)* provides for the listing of Victoria's threatened plant and animal species, ecological communities and potentially threatening processes.

Action Statements are prepared for threatened plant and animal species under Section 19 of the FFG Act. These documents may contain prescriptions relating to the planning and conduct of harvesting operations that are relevant to the FAP.

3.5 SUSTAINABLE FORESTS (TIMBER HARVESTING) REGULATIONS 2006

The *Sustainable Forest (Timber Harvesting) Regulations 2006* (the Regulations) provide further detail on the Timber Harvesting Operator Licence system and the enforcement rules for individual timber harvesting operators. Under the Regulations, penalties may apply to individuals if their conduct is not compliant with the Code.

3.6 ALLOCATION ORDER

Resource allocation to VicForests is made through an Allocation Order (AO), which is prepared by DSE. The AO identifies the area available in particular forest stands for each of three five-year periods, together with the full extent of those forest stands. Section 9 of the Act, requires that VicForests monitor and report on operations authorised under this Act.

The conditions of the Allocation Order to which VicForests must comply are included in the following documents:

- Sustainability Charter for Victoria's State forests;
- Code of Practice for Timber Production 2007 (supersedes the 1996 code);
- Code of Practice for Fire Management on Public Land 2006, (supersedes the 1995 code);
- Various management guidelines as specified in Forest Management Plans relevant to the Allocation Order;
- Management procedures for timber harvesting and associated activities in State forests in Victoria; and
- Fire Salvage Harvesting Prescriptions.

3.7 CODE OF PRACTICE FOR TIMBER PRODUCTION 2007 (AS AMENDED)

The Code of Practice for Timber Production 2007 (the Code) is a key regulatory instrument that applies to commercial timber production in both public and private native forests and plantations in Victoria. It is a statutory document prepared under Part 5 of the *Conservation, Forests and Lands Act 1987*. Compliance with the Code is required under the Act, and this is achieved through its incorporation into the Victoria Planning Provisions.

The Code lays down state wide goals and guidelines that apply to timber harvesting, timber extraction, roads, regeneration, and reforestation in native forests as well as to the planning, establishment and management of softwood and hardwood plantations.

The purpose of the Code is to provide direction and guidance to forest managers and operators to deliver sound environmental performance when undertaking commercial timber growing and harvesting operations, that:

- Permits an economically viable, internationally competitive, sustainable timber industry;
- Is compatible with the conservation of the wide range of environmental, social and cultural values associated with timber production forests;
- Provides for the ecologically sustainable management of native forests proposed for continuous timber production; and
- Enhances public confidence in the management of Victoria's forests and plantations for timber production.

Subsequently, the Code establishes goals and guidelines in environmental care for all commercial timber production activities in the state.

The Code provides some key state-wide requirements for timber harvesting operations conducted on public land (for example, width of streamside buffers and grades of roads), which act as minimum allowable local standards. The additional requirements are documented within a range of subordinate prescriptions, management plans and procedures of which some are summarized below. These requirements are tailored at a local level for the specific characteristics of forests and harvesting conditions that vary within each region across the State.

3.7.1 Fire Salvage Harvesting Prescriptions 2009 (as amended)

The Fire Salvage Harvesting Prescriptions 2009 (Salvage Prescriptions) apply to timber harvesting operations conducted within bushfire affected areas. Timber harvesting operations conducted in burnt environments (salvage operations) require different management to conventional harvesting operations to ensure timber recovery is expedited and that salvage operations, as a second major disturbance to a forest in a short period, do not necessarily compound any environmental impacts caused by the bushfire. Salvage operations have the potential to adversely impact on the ecosystem following bushfire, through removal of habitat refuges and structures, damage to regenerating plants, distribution of weeds, and sedimentation.

The Fire Salvage Harvesting Prescriptions apply to burnt areas up to 3 years after a fire event. Conditions applied to approved coupes, in conjunction with the Fire Salvage Harvesting Prescriptions 2009 constitute the 'Special Plans' required by the Code.

The 2009 prescriptions were issued on the 6 October 2009 and commenced on 6 October 2009. The prescriptions replace the Fire Salvage Harvesting Prescriptions, Revision 2.0, previously issued 3 March 2008. Additional revision history can be found in Appendix 2 of the current prescriptions.

3.7.2 Management Procedures for Timber Harvesting, Roading and Regeneration in Victoria's State Forests 2009 (as amended)

The Management Procedures provide additional guidance to DSE and VicForests staff in meeting the requirements of the Code, and specify environmental and operational requirements additional to those of the Code.

The objectives of the Management Procedures are to:

- Standardise, where appropriate, the management of timber harvesting operations and associated activities in all Victorian State forests;
- Provide instruction on operational and administrative procedures;
- Form part of the regulatory framework for timber harvesting operations and associated activities;
- Provide a framework for consistent administrative arrangements between DSE and VicForests at an operation level; and
- Provide a framework for VicForests and DSE to prepare subsidiary operational procedures for staff, contractors and timber harvesting operators.

The 2009 procedures were issued on the 12 October 2009 and commenced on 19 October 2009. The procedures replace the Management Procedures for timber harvesting operations and associated activities in State forests in Victoria, previously issued October 2007.

3.7.3 Coupe Finalisation Procedures

The Coupe Finalisation Procedures (CFPs) describe the process by which DSE will resume full management responsibility of coupes following the completion of timber harvesting operations, rehabilitation and regeneration activities. The CFPs are only relevant to coupes harvested by VicForests.

The CFPs set out:

- Minimum regeneration and rehabilitation standards for even aged and uneven aged coupes harvested after 31 July 2004 and thinned coupes of ash or mixed species;

- Timelines and responsibilities for VicForests with respect to the regeneration of standard coupes, salvage coupes and road line coupes; and

- Required action, responsibilities and completion dates for the review of coupes nominated for finalisation including desktop and field based verification of stocking levels and data accuracy.

The 2008 procedures were issued on the 2 October 2008 and commenced on 6 October 2008. The procedures replace the Coupe Finalisation Procedures previously issued August 2007.

3.7.4 Native Forest Silviculture Guideline Series

Reference should also be made to the Native Forest Silviculture Guideline (NFSG) series (1993-2006), as amended, which provide standards and guidance around silvicultural and regeneration activities.

4 GLOSSARY

Auditee	An auditee is a person or organisation being audited. DSE administers audits of organisations or individuals whose activities relate to Victorian timber harvesting in State forest. Relevant timber harvesting operations include those managed by VicForests in eastern-Victoria, as well as those managed by DSE in other parts of the State
Auditor	A highly qualified and skilled individual with extensive experience in environmental science and or engineering, as well as environmental auditing appointed pursuant to the EP Act to conduct an independent and objective assessment of the nature and extent of harm (or risk of harm) to the environment posed by a process or activity, waste, substance or noise.
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.
Compliance Element	The subject, activity or operational component being assessed for compliance against the regulatory framework. Generally referred to as 'focus areas' in the former audit program operated under EPA.
Compliance Theme	Topics and/or issues deemed to overlap a number of compliance elements and/or auditing modules that may require additional focus on a recurring basis. Themes can be seasonal or regional, associated with biodiversity, coupe or forest type and/or other special prescriptions.
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 forest of variable size, shape and orientation from which logs for sawmilling or other industrial processing are harvested.
Erosion risk	The likelihood of erosion occurring due to soil erodibility, rainfall erosivity, slope and soil disturbance.
Forest Coupe Plan	A plan that must be prepared for each harvesting operation in public native forest and will contain 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 Area (FMA)	Basic units for forest planning and management in Victoria. Currently Victoria is divided into 15 Forest Management Areas as defined in the Forests Act 1958.

Forest Management Plan (FMP)	Forest Management Plans are produced by DSE to address the full range of values and uses in FMAs, which have been designated as the units for planning forest management activities.
General Management Zone (GMZ)	A zone within a State forest defined as an area of land that will be managed for the sustainable production of timber and other forest products.
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 that are suitable shelter and/or nesting sites for animals such as possums and parrots.
Regeneration	The renewal or re-establishment of native forest flora by natural or artificial means following disturbance such as timber harvesting or fire.
Rehabilitation	The restoration and revegetation of a site of disturbance usually associated with landings and other within-coupe infrastructure.
Regulator	A government agency, typically a statutory authority. In the context of the FAP, DSE as the regulator is responsible for ensuring that commercial timber harvesting activities Victoria's State forests are compliant with Victoria's regulatory framework. This includes compliance with relevant legislation, regulations and guidelines, including those specified in the Code of Practice for Timber Production 2007.
River health	An ecologically healthy river is one where the major natural features, biodiversity and/or functions of the river are still present and will continue into the future. Some change from the natural state may have occurred to provide for human use.
Special Management Zone (SMZ)	A zone within a State forest defined as a zone which will be managed to conserve specific features, while catering for timber production under certain conditions. Areas included cover a range of natural or cultural values, the protection or enhancement of which require modification to timber harvesting or other land-use practices rather than their exclusion. The zone contributes substantially to the conservation of important species, particularly fauna.
Special Protection Zone (SPZ)	A zone within a State forest defined as a zone which will be managed for conservation, and timber harvesting will be excluded.
Special Water Supply Catchment	A catchment that has been officially declared under Schedule 5 of the *Catchment and Land Protection Act 1994*.

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.
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 Release Plan (TRP)	The Timber Release Plan (TRP) is prepared by VicForests in accordance with Part 5 of the *Sustainable Forests (Timber) Act 2004*. The TRP provides a schedule of coupes selected for timber harvesting and associated access road requirements; identifies the location and approximate timing of timber harvesting in the proposed coupes; and identifies the location of any associated access roads. It includes coupe details and maps. VicForests prepares TRPs that cover a rolling five-year period.
Water supply catchment	A catchment from which water is used for domestic water supply purposes.
Waterway	A permanent stream, temporary stream, drainage line, pool or wetland as defined in the Code of Practice for Timber Production 2007 (as amended).
Wood Utilisation Plan (WUP)	A Wood Utilisation Plan (WUP) is prepared by DSE to detail the type and quantity of wood to be produced in the state and to allocate wood to processors in western Victoria. The plan is prepared annually and covers a rolling three-year period, with detailed specifications for the first year and indicative specifications for the following two years. A WUP may also apply to some coupes managed by VicForests in the east of the state.

Further definitions relevant to harvesting and regeneration activities are available in the Code of Practice for Timber Production 2007 (as amended).

5 ACCRONYMS

AO	Allocation to VicForests Order 2004 (as amended) – generally referred to as the "Allocation Order"
ARR	Absolute Risk Rating
CAP	Corrective Action Plan
CFP	Coupe Finalisation Procedures
CIS	Coupe Information System
DSE	Department of Sustainability and Environment
EIA	Environmental Impact Assessment
EIAP	Environmental Independent Advisory Panel
EMS	Environmental Management System
EPA	Environment Protection Authority
FAP	Forest Audit Program
FCP	Forest Coupe Plan
FFG Act	*Flora and Fauna Guarantee Act 1988*
FMA	Forest Management Area
FMP	Forest Management Plan
FMZ	Forest Management Zone
FRU	Forest Reporting Unit
FTE	Full-Time Equivalent
GMZ	General Management Zone
GPS	Global Positioning System
HSE	Health, Safety and Environment
JSA	Job Safety Analysis
LHV	Logging History Verification
MRU	Monitoring and Reporting Unit
NFSG	National Forest Silviculture Guideline

NGO	Non Government Organisation
OA	Operations Area (term used by VicForests)
SAP	Special Area Plan
SFMS	Sustainable Forests Management System
SFRI	State-wide Forest Resource Inventory
SMZ	Special Management Zone
SOP	Standard Operating Procedure
SPZ	Special Protection Zone
STRP	Sustainable Timber Resource Planners
SWSC	Special Water Supply Catchment Area
TRP	Timber Release Plan
WUP	Wood Utilisation Plan
The Act	*The Sustainable Forests (Timber) Act 2004*
The EP Act	*The Environment Protection Act 1970*

Annex A

Electronic Toolbox CD

Prepared by Environmental Resources Management Australia Pty Ltd in collaboration with the Victorian Government Department of Sustainability and Environment Melbourne, April 2010

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Appendix B Forest Audit Program Module 2 - Audit Process

Forest Audit Program Toolbox

Module 2

Audit Process

CONTENTS

Document and Version Control

Title	**Forest Audit Program Toolbox – Module 2**
Owner	DSE Forest Branch - Forestry Standards and Compliance Unit
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Revision History

Date	Reviewer	Summary of changes	Replaces
-	-	-	-

FOREST AUDIT PROGRAM TOOLBOX

Module 1
Overview

Module 2
Audit Process

Module 3
Tactical Planning

Module 4
Operational Planning

Module 5
Harvesting and Closure

Module 6
Harvesting Performance

Module 7
Regeneration and Finalisation

1 MODULE 2 - AUDIT PROCESS

1.1 OVERVIEW

To summarise the information provided in *Module 1*, the Forest Audit Program (FAP) has been designed to allow objective and independent assessment of timber harvesting operation's compliance with relevant forestry legislation and the associated regulatory framework.

Public reporting of audit results will inform members of the community and assist the Department of Sustainability and Environment (DSE) and VicForests to pursue their objectives of continual improvement.

The FAP incorporates:

- An audit process meeting the statutory requirements of Section 53V of the *Environment Protection Act 1970*;
- A assessment scope that includes the forest planning, harvesting, regeneration and finalisation elements of the forest harvesting lifecycle;
- Audit compliance elements that are intended to be assessed over time;
- A robust process for conducting independent audits;
- Provision for Special Purpose Audits to be conducted as either statutory or non-statutory audits, that can be initiated by DSE on a needs basis to examine problematic issues or alleged serious breaches of the regulatory framework; and
- Scope for the participation of interested community members as observers in the conduct of audits.

1.2 METHODOLOGY FOR CONDUCTING THE AUDIT

1.2.1 Schedule of Activities

An indicative schedule for the annual audit cycle is provided herein, and will be pursued by DSE in the implementation of the FAP. Under the proposed schedule, DSE will aim to have audit reports completed and ready for publication as soon as possible following the completion of contracted audits.

Specific timeframes set out in the following schedule may vary from year to year, however the overall timing and sequencing of these steps is expected to remain consistent.

For timber harvesting conducted during any given financial year:

Relevant logging history data provided	October
Relevant coupe finalisation data provided	October
Logging history verified by DSE	January (following year)
DSE issue request for proposal	January (following year)
Receive and evaluate proposals	February (following year)
Selection of Auditor(s)	February (following year)
Auditor orientation	March (following year)
Preparation of Audit Plan	March (following year)
Desktop Audits	March – August (following year)
Field Audits	April – July (following year)
Draft Audit Report	September (following year)
Final Audit Report	October (following year)
Publication	As soon as possible after finalisation

It is envisaged that DSE and/or VicForests will then develop a response to Audit Report findings and recommendations. This may include the preparation of corrective action plans, as deemed appropriate, so that they can be implemented as soon as practicable in the following harvest year.

1.2.2 Preparing for an Audit

Orientation

The DSE will, as necessary, hold annual Auditor orientation sessions. A general overview of what is required in the FAP will be outlined in the orientation sessions. Audit team members conducting audits should also attend the Auditor orientation session.

Information Gathering

DSE will provide contracted Auditors with all available data that is required to perform the requested audit.

When required, contracted Auditors will also be provided with electronic access to the DSE/VicForests Coupe Information System (CIS) to enable analysis of coupe-specific information.

The Auditor will contact the auditee(s) after being awarded a contract by DSE, and will clarify specific documentation needs for audit sites, and anticipated project timelines.

If requested by an Auditor, an information package will be prepared by the auditee containing information on forest management activities which have been planned and/or carried out, the history of operations on the site, survey records, relevant maps, identified hazards, procedures, inspection reports and records of silvicultural treatments. This will provide the audit team with a practical reference source for each selected audit target.

During audits, Auditors are to gather additional information through interviews, examination of documents and observation of activities and conditions in the field. Indications of non-conformity to the audit criteria should be recorded.

Information gathered through interviews should be verified by the Auditor, by acquiring supporting information from independent sources where possible, such as observations, records and results of existing measurements.

Information collected by the Auditor should relate to and cover the specified audit period specified in the contract.

The following non-exhaustive list outlines audit information that may be requested (as applicable), during an audit process:

- Contacts list (auditees, NGOs, Aboriginal communities etc);
- Organisational charts;
- Forest coupe plans;
- Copies of coupe diaries;
- Monitoring records;
- Public notices;
- Key maps and aerial photographs;
- Harvest records;
- Fire occurrences;
- Reports (pesticide/herbicide application reports, environmental surveys etc); and
- Relevant intra- and inter- agency correspondence.

Health and Safety

Auditors undertaking audits on behalf of DSE will be working as contractors. Auditors contracted to undertake audits will, as a minimum, be expected to comply with DSE occupational health and safety standards.

Auditors will need to become familiar with DSE OHS policy and procedures and how they apply to the work being performed by the Auditor including:

- DSE OH&S *SafeTCare* Policy;
- DSE OH&S Risk Management Procedures; and
- DSE Job Safety Analysis (JSA) Procedures.

Before undertaking audit activities, the Auditor will be required to provide DSE with a copy of their Health, Safety and Environment Plan (HSE Plan). This information should also form part of the Audit Plan (see below for more information). In preparing the HSE Plan, the Auditor should address the following matters:

- Indicative audit schedule and scope of works;
- Competency of personnel and supervision of audit team members;
- Information, instruction and training procedures;
- Assessment and engagement of suitable contractors/sub-contractors and the management of their HSE performance;
- Personnel protective equipment (PPE) requirements, first aid equipment, and any other safety equipment requirements;
- Risk/hazard procedures, including assessment, control and specific safe working method statements (or equivalent) including:
    - Identification of hazards and available controls;
    - Consideration of coupe and office based activities;
    - Travel to/from field locations, including vehicle operation and safety guidelines; and
    - Guidelines around the abandonment of field visits (i.e. Weather conditions such as high winds, snow);
- Incident reporting responsibilities and procedures, including procedures to report relevant incidents or claims to DSE; and
- Emergency response management.

Auditors will be expected to use documented systems of work, plant and equipment that are safe and that do not pose unacceptable risks to health. Auditors must employ

safety systems in which there has been adequate information, instruction, training, and supervision in the key health, safety and environmental aspects of the proposed work.

The Auditor will be responsible for making the ultimate judgement on when to abandon site visits (i.e. for safety concerns) for members of the audit team.

In coupes where active harvesting is occurring, the Auditor will need to be aware of and meet the specific requirements for entry and induction by the harvesting contractor.

Audit Plan

An audit plan must be developed by the Auditor in consultation with DSE and relevant auditees. The plan should be flexible enough to permit changes in emphasis based on information gathered during the audit, and to permit effective use of resources.

The plan must include:

- Outline of target compliance elements.
- Audit schedule:
    - The dates and places where audits are to be conducted;
    - The expected time and duration for major field audit activities;
    - The schedule, location and format of key meetings;
    - Expected date of issue and distribution of the draft and final audit reports.
- A HSE Plan, outlining the health, safety and environmental procedures and requirements.
- Identification of audit team members and their roles. Each audit team member will be assigned specific areas to audit and be instructed on the audit procedure to follow. Such assignments are made by the Auditor in consultation with the audit team members concerned. During the audit, the Auditor may make changes to the work assignment to ensure the optimal achievement of the audit objectives.
- Contact information for the audit team, and key contacts in the DSE, auditee organisations plus other relevant parties.
- Methodology for public consultation (refer to Section 2.4.7 herein).
- Identification of the functions and/or individuals within the auditee's organisations having significant direct responsibilities regarding the subject matter of the audit.
- Identification of electives of the auditee's systems or activities that will be reviewed for that year.

- Confirmation that the audit report will be prepared, distributed and reviewed in accordance with the FAP and EPA Victoria requirements.

- Planned sampling intensities and evidence-gathering methodologies (in accordance with this toolbox) and the proposed field site inspection plan.

A draft of the audit plan will be discussed and reviewed with DSE prior at the pre-audit meeting.

1.2.3 Pre-Audit Meeting

After receiving the audit plan, DSE will meet with the appointed Auditor. The purpose of this meeting is to:

- Provide an overview of the FAP and associated Toolbox of audit process and protocols;

- Review the audit plan, and make necessary adjustments;

- Review the HSE plan and hazards associated with any required field work;

- Review the status of any relevant Corrective Action Plans prepared in response to previous audits;

- Discuss relevant compliance issues raised by auditees;

- Discuss issues identified by members of the public relating to audit element priorities and audit targets; and

- Discuss the process and plan for public participation in the field component of Module 5 (also refer to Section 2.4.7).

1.2.4 Conducting Audits

Desk-based Assessment

Audits conducted under Modules 3 – 7 may require a desk-based assessment of tactical, operational and coupe planning; harvesting performance; regeneration; and coupe finalisation. Such audits should comprise a review of documentary evidence and records, and interviews with representatives from auditees .

The procedures for the desk-based audit will be determined by the Auditor, but would typically include:

- Review of relevant legislation;

- Examination of compliance elements, and familiarisation with review of management prescriptions and procedures relating to the audit period;

- Review of documentation relating to compliance with relevant procedures and processes;
- Review of relevant intra- and inter- agency correspondence;
- Assessment of data relating to compliance elements;
- Review of previous auditee incidents relating to the compliance audits being assessed;
- Interviews, where appropriate, with DSE and VicForests managerial and technical staff.

Field Assessment

Field assessment will be required for audits conducted under Modules 5 and 7, and may also be required as part of any Special Purpose Audits.

The procedures for the field assessment will be determined by the Auditor, but the following guidance is provided as a preferred process.

Before commencing the field visits, the Auditor would hold an opening meeting in each region being audited. The aim of this meeting would be to:

- Introduce the members of the audit team to the auditee's key personnel;
- Review the scope, objectives, audit plan and confirm the audit timetable;
- Provide a short summary of the methods and procedures to be used to conduct the audit;
- Ensure that the communication links between the audit team and the auditee are established;
- Confirm that the resources and facilities needed by the audit team are available;
- Confirm the times and dates for the interim end-of-day meetings and the closing meeting;
- Promote active participation by the auditee; and
- Allow the auditee to invite the relevant forest operator/contractor to observe field assessments undertaken at sites that they have harvested;
- Induct the audit team with reqard to site specific health, safety and emergency procedures.

The DSE contract manager will reserve the right to attend any field audits undertaken under the FAP to monitor the performance of the audit team with respect to quality control and health and safety elements outlined in the audit plan.

The procedures for field activities should include:

- Examination in the field of operations that have been planned and carried out over the period that is the focus of the audit. The target sites sampled should be the same as those identified at the time of the pre-audit meeting. It may be necessary to sample additional sites as a result of operational issues, or in following up findings at the pre-selected sites, but any such field operations should first be discussed with the auditee.

- Follow-up examination (as required) related to observations or queries.

- Review of information made available to the audit team at the field audit stage.

Observations of conditions noted during the site visits should be documented by the Auditor at the time of field assessment, and will form the support for the conclusions of the audit. Auditors will be required to store and maintain copies of such records.

Auditors should discuss any notable items that they observe during the field assessment with the auditee's representative. This should be undertaken at the closing meeting, but may be conducted by telephone if it is not possible to undertake this discussion at the time of audit.

If time and resources allow, Auditors may also hold on-site meetings with the auditee's representative(s) to discuss audit findings and non-conformance issues, and to review plans for the remainder of the relevant audit activities. However, such meetings are not compulsory if time and resources are limited.

Auditors should also observe the forest when travelling between audit locations noting whether or not the observed conditions are reflected in maps or other documents. Inconsistencies, or observations suggesting negative impacts should be noted and may be followed up in subsequent investigations.

Auditors are expected to provide necessary vehicles to transport the audit team during the field work. Vehicles used in audit field work must be capable of travel on forest roads, as outlined in the HSE Plan. Auditee personnel participating in the audit process may travel with the audit team if feasible, but will be responsible for providing their own transportation during site visits.

Where logistical issues limit the numbers of people that can be transported on site to take part in the field assessments, the Auditor should ensure that highest priority is given to the audit team members and the auditee personnel that are most relevant to the sites being examined. Other individuals will be accommodated where possible, to the extent that space allows.

After completion of the field assessments within each region, the audit team will hold a closing meeting with the auditee and DSE. The main purpose of these meetings is to present preliminary audit findings in such a manner as to ensure that the factual basis of the findings is clearly understood.

Disagreements on factual information presented at these meetings should be resolved (if possible). It is preferable that any resolution occur before the Auditor issues the

draft Audit Report. Final decisions on the descriptions and significance of findings ultimately rest with the Auditor. Auditees will have the ability to prepare a response to such findings to present alternative points of view.

1.2.5 Audit Reports

Audit Findings and Draft Report

The focal point of the audit is the process through which the audit team investigates, analyses, assesses and reassembles the facts, and finally reaches a decision on the findings to be reported. Depending on the scope of work commissioned by DSE, separate audits made under Modules 3 - 7 (and therefore audit reports) may be prepared in any given year.

The Auditor will prepare a complete draft Audit Report consistent with the requirements of EPA Publication No. 952.2 (2007) *Environmental Auditor Guidelines for Preparation of Environmental Audit Reports on Risk to the Environment*. Reporting requirements are discussed further in Section 5 herein.

The audit report should identify both positive and negative findings, and all non-compliances that are detected during the audit process. Findings of non-compliance should be reviewed with the auditee prior to the production of the draft report to ensure that the Auditor has obtained all the relevant evidence, and with a view to obtaining acknowledgment of such findings.

The audit team should ensure that findings are documented in a clear, concise manner with significant findings supported by substantive evidence. The supporting evidence must also be documented in the audit report. In situations where field sampling is involved in the audit, the Auditor should also include documentation of the associated sampling results in relation to significant audit findings.

The report conclusion will need to capture the nature and extent of any harm or detriment caused to, or the risk of any possible harm or detriment which may be caused to, any beneficial use made of any segment of the environment.

Review Draft Audit Report

After receiving a draft audit report, the DSE Forests Branch will be responsible for circulating the draft Audit Report to relevant auditees for a period of comment, and a review of matters of fact.

The Auditor will also attend a meeting with DSE Forest Branch and the auditees to discuss the draft Audit Report. This meeting should be included in the audit plan. The purpose of the meeting is to present the audit findings and to discuss factual matters with the auditees. Written comments from the auditees on the draft report should be provided to the Auditor prior to the meeting.

Final Audit Report

The Auditor will submit the final audit report including all charts, graphs, photographs and appendices, in hard and electronic copy to DSE Forest Branch and EPA Victoria within 7 days of completion. The electronic version should be provided in universal file format (a pdf file).

Environmental audit reports are deemed to be public documents, and therefore will be made available by DSE to the general community.

Corrective Action Plans

The auditee will be given the opportunity to prepare a formal response to an audit report. Findings related to regulatory, regional and corporate responsibility will be addressed in the DSE response.

If required, auditees will prepare Corrective Action Plans (CAPs) to address the findings relating to compliance issues and environmental impact provided in the final audit report. This will be prepared with input and review from the DSE Director Forests or a nominated representative.

The development and management of CAPs will be administered by DSE and is outside the scope and responsibility of the Auditor. The CAPs must be submitted to the DSE Director, Forests for final approval within two months of receipt of the final audit report. In the interest of transparency and accountability, approved CAPs will be published on DSE's public website, alongside corresponding audit reports.

2 ROLES, RESPONSIBILITIES AND CREDIBILITY OF FOREST AUDITS

2.1 AUDIT INDEPENDENCE AND MANAGING CONFLICTS OF INTEREST

It is important for the credibility of the audit process, that the Auditor is seen to be independent of the organisation being audited. To ensure objectivity of the process and its findings, Auditor independence will be maintained through the Statutory Audit provisions specified under the Victorian EPA environmental audit system. The FAP will use Auditors appointed pursuant to the *Environment Protection Act 1970* in the Natural Resources category.

Members of the audit team must also be objective and free from bias and conflict of interest throughout the process. To avoid or manage any real or perceived conflict of interest, all audit team members will be required to make declarations regarding potential conflicts of interest before engaging in the audit program.

During the audit, The Auditor will be responsible for managing any perceived conflict of interest in this regard.

DSE staff participation in audit teams would be at the discretion of the Auditor and the Auditor may consult with DSE and/or EPA Victoria on the use of DSE data collection capabilities during the audit of VicForest operations. Where DSE provides data and/or data collection services that will be used by the audit team to reach or support audit findings, the Auditor should ensure he/she is satisfied with the independence and reliability of the data.

2.2 DUE PROFESSIONAL CARE

In the execution of audits commissioned under the FAP, the Auditor must use the care, diligence, skill and professional judgement expected of an Auditor appointed pursuant to the *Environment Protection Act 1970.* Auditors will comply with all applicable legislation and State government policies in the conduct of the audit.

The relationship between the Auditor, auditee and DSE (the regulator and commissioning authority) will be one of respect, with preservation of an appropriate level of confidentiality and discretion.

2.3 COMPETENCE OF AUDITORS

In order for the environmental audit to be accepted as credible, it is necessary that those who undertake the assessment are seen to be competent in their field.

Audit team qualifications shall include:

Auditor

- Must be an Environmental Auditor appointed pursuant to the *Environment Protection Act 1970* in the Natural Resources category;
- Must carry out his/her role in compliance with the provisions of applicable forest management legislation and policy, including the *Code of Practice for Timber Production 2007*; and
- Must have highly-developed project management and leadership qualities, to ensure ability to execute the HSE plan, and the efficient operation and coordination of the audit program.
- The Auditor may also need to seek advice from members of his/her expert support team, nominated to, and approved by, EPA as part of his/her Auditor appointment.

Audit Team

- All audits must be conducted by a core team, including the appointed Auditor;
- Membership of the core team would typically meet the following requirements:
    - Minimum of five years of forestry, timber harvesting, ecological or other relevant field experience, acquired in the past ten years; and/or
    - A tertiary biological, ecological or forest science qualification, relevant to the forest issues being audited; and/or
    - Operational experience in forest management and planning, comprising the inter-related activities of resources access, harvest, renewal, maintenance, planning, monitoring and reporting that are outlined in the *Code of Practice for Timber Production 2007* (as amended); and/or
    - Other high-level or suitably qualified experience that is of benefit to the specific issues being audited, such as social and economic impacts, public consultation processes in the context of forest management, cultural heritage, etc.
- Audit teams may also have supplementary team members (as required) and these members may possess lesser skills and experience than members of the core team. If such skills and experience do not meet the core team requirements, team members should only conduct less complex audit tasks, which are within their abilities, and this should be performed under direct supervision from core team members.

2.4 ROLES AND RESPONSIBILITIES

2.4.1 Auditor

Environmental Auditors are appointed pursuant to, and for the purposes of, the *Environment Protection Act 1970*. In exercising their functions and duties pursuant to the *Environment Protection Act 1970*, Auditors owe a primary duty of care to the environment and to the people of Victoria above all others (including to DSE as the commissioning authority).

Appointed environmental Auditors must lead the audit in accordance with the requirements of EPA Victoria Environmental Auditor Guidelines for Conducting Environmental Audits Publication No. 953.2 August 2007.

The Auditor's responsibilities and activities should cover:

- Forming the audit team, giving consideration to potential conflicts of interest, and seeking agreement on its composition with DSE;
- Directing the activities of the audit team;
- Preparing the audit plan;
- Executing the HSE Plan for the audit team, and monitoring adherence of the audit team members to this plan.
- Coordinating required communications with appropriate parties;
- Obtaining relevant background information;
- Scheduling audit activities and meetings as necessary;
- Determining the appropriate level of involvement of the auditee(s);
- Selecting audit target sites for examination in field audits;
- Coordinating the preparation of working documents and detailed procedures and briefing the audit team;
- Seeking to resolve any problems that arise during the audit;
- Recognising when audit objectives appear to become unattainable and reporting the reasons to DSE and the auditee;
- Representing the audit team in discussions with the auditee prior to, during and after the audit;
- Notifying the auditee of observations of non-conformities without delay;
- Reporting on the audit clearly and conclusively within the required time frames;

- Making findings available to the auditee to allow for improvements in its operations in areas of non-conformance with audit criteria;
- Reaching a conclusion on risk of harm to the environment;
- Preparing and issuing the draft Audit Report and scheduling a meeting with the specified parties to review the report; and
- Issuing and authorising the final Audit Report.

2.4.2 Audit Team Members

The audit team members are generally responsible for conducting the audit in accordance with this FAP Toolbox. Selection of the audit team will be undertaken by the Auditor.

The team members' responsibilities and activities include:

- Following the directions of, and supporting the Auditor;
- Acting in accordance with the health and safety requirements outlined in the HSE plan;
- Planning and carrying out the assigned task objectively, effectively and efficiently within the scope of the audit;
- Collecting, recording and analysing relevant and sufficient evidence to allow findings to be made and conclusions to be drawn regarding the audited criteria;
- Safeguarding documents pertaining to the audit and returning such documents to the Auditor as required; and
- Assisting in writing of the draft and final audit reports.

2.4.3 Department of Sustainability and Environment

The DSE has the overall responsibility for administering the FAP including ensuring that forest audits are carried out in accordance with the direction of the Minister.

Where required, DSE will utilise the design, structures and standards that are defined under Victoria's statutory environmental audit system (administered by the EPA), but retains overall control of the FAP.

Responsibilities and activities of DSE representatives leading the FAP include:

- Designing and periodically revising, the FAP;
- Promoting general awareness and managing overall communications about the FAP;

- Providing relevant information pertaining to selecting audit targets in accordance with the approved methodology;
- Issuing the Request for Proposal and selecting Auditor(s);
- On selection of audit targets, notifying auditees that are to be audited;
- Reviewing the audit plan including the HSE Plan;
- Contacting stakeholders including members of the public who may provide input to the audit process;
- Coordinating health and safety issues for community members who attend the Community Open Days;
- Organising information/orientation sessions for auditees and Auditors;
- Responding to inquiries from stakeholders regarding the FAP;
- Participating in audit meetings and activities, and attending field assessments where required to offer guidance to the audit team and auditee, discuss issues, and facilitate the consistent application of the audit process;
- Receiving and coordinating the review of the draft Audit Report;
- Distributing, as appropriate, the final Audit Report; and
- Facilitating the completion of audit CAPs and status reports (where applicable).

2.4.4 Environment Protection Authority

EPA Victoria administers and maintains the ongoing integrity of the environmental audit system by:

- Setting standards for environmental Auditors;
- Maintaining a list of suitable Auditors;
- Receiving, holding and reviewing final environmental audit reports prepared under the system.

A range of guidance relating to the conduct and reporting of statutory environmental audits has been prepared by the EPA and is available on their website www.epa.vic.gov.au.

2.4.5 Melbourne Water

Timber harvesting that occurs within four of Melbourne Water's catchments: Thomson, Tarago, the Yarra Tributaries and Bunyip is of special interest to Melbourne

Water. As the process of timber harvesting has the potential to impact water quality and supply, harvesting limits are set to prevent these situations occurring. Further, Melbourne Water conducts its own annual audits of coupes in catchment areas as part of its governance procedures.

Melbourne Water therefore has a vested interest in the scope, conduct and outcomes of the FAP and will liaise with DSE on its design as it relates to the relevant catchments. There is scope under the FAP for Melbourne Water to contribute additional support to the FAP in any given year to ensure that sufficient field assessments are undertaken in catchment-related coupes.

2.4.6 Auditee

The auditee is generally responsible for:

- Informing employees about the objectives and scope of the audit as necessary;
- Attending, as necessary, auditee information sessions regarding the FAP process;
- Participating in the FAP process as described in this toolbox;
- Providing the facilities needed for the audit team in order to ensure an effective and efficient audit process;
- Appointing responsible and competent staff to accompany members of the audit team, to act as guides during the field components of the audits and to ensure that Auditors are aware of health, safety and other appropriate requirements;
- Providing access to the applicable forest, personnel and relevant evidential material as requested and as required to carry out the audit;
- Reviewing matters of fact issues in the draft Audit Report; and
- Developing and implementing CAPs in response to audit findings, and providing DSE with CAP status reports.

2.4.7 Community Engagement

Parties that are not mentioned in the above sections (2.4.1 – 2.4.6) are considered external to the audit process, and are therefore will not participate within the defined roles of regulator, Auditor, auditee or audit team member.

The general community will be given the opportunity to learn about and participate in the audit process, with the mutual agreement of the Auditor, DSE and the auditee.

It is envisaged that this will comprise:

- Being advised by DSE of the nature and scope of any audits being conducted under Modules 3 - 7.

- Participating in Community Open Days as part of the field component of Module 5, which will allow community representatives to observe the audit of a coupe and engage with the audit team during the field inspection.

- Receiving and reviewing the outcomes of the audits undertaken through access to Audit Reports published by DSE, and any subsequent follow up presentations delivered to interest groups (as determined by DSE).

Each Community Open Day will comprise the following:

- Pre Site Briefing: to be held at a central location to be determined by DSE, to inform the participants on: health and safety requirements while on the coupe; the role of the Auditor; the skills of the audit team; and allocation of community representatives to an audit team member for the duration of the site visit.

- Site Visit: including travel to the relevant coupe where participants will be able to *observe* the audit process and direct questions to their designated audit team representative; and

- Debrief: to enable the Auditor to provide participants with feedback on coupe compliance and field observations; and to allow participants to direct any further questions toward the Auditor and/or audit team.

Participants may be required to sign a record of attendance at the commencement and end of the Open Day. DSE will coordinate health and safety issues for community members who attend the open day.

DSE will determine the location and attendance limits for each Community Open Day through consideration of health and safety, accessibility of the coupe and the level of community interest in the area to be audited. The number of Community Open Days held within any audit period will be at the discretion of DSE and will depend largely on which FMAs are included in the audit, the availability of resources and the harvesting lifecycle stage being audited. Community representatives will not be able to visit 'active' harvesting coupes for health and safety reasons.

DSE will select community representatives on a first-come, first-served basis, after making information available about the timing and location of such Community Open Days on the Department's website and any direct mailing made to stakeholders who have registered an interest in such events.

3 SELECTION OF AUDITOR(S)

The Environment Protection Authority (EPA) appoints environmental Auditors pursuant to Section 53S of the *Environment Protection Act 1970*. Environmental Auditors are appointed to carry out statutory duties pursuant to this Act (and other Acts), which may include audits on segments of the environment or conducting environmental audits of the risk to the beneficial uses of the environment associated with industrial processes or activities.

DSE is responsible for administering the FAP and will engage environmental Auditors to conduct specific audits as required.

Generally, environmental Auditors will be expected to bid for the Auditor role through a commercial, fee-for-service arrangement with DSE.

This will be done on the basis of:

- Written proposal submitted in response to a request for proposal issued by DSE;
- Presentation(s) or interviews; and
- Any clarifications submitted by the firm concerning the above.

Performance of bidders against the selection criteria will be assed by DSE in consideration of value for money (including consideration of technical ability and quoted price).

3.1 GOVERNMENT PROCUREMENT PROCESS

In accordance with the Victorian Government's Procurement Procedures, DSE will issue a Request for Proposal (RFP) for the provision of audit services. Assessment criteria that may be considered by DSE in selecting service providers may include:

- Demonstrated ability to deliver projects and milestones on time and budget;
- Demonstrated understanding, identification and resoluation of issues in previous environmental audit processes, and recognition of the importance of consultation;
- The Auditor's technical skills and relevance of auditing competency to forestry operations, and experience in stakeholder consultation;
- Demonstrated independence and integrity, and ability to ensure that audits are conducted in a manner consistent with the *Environment Protection Act 1970*;

- The technical skills and experience of the proposed audit team members, in relation to the following:
    - Forestry, Forest Science, Natural Resource Management or a related discipline;
    - Ecology and Victorian vascular and non-vascular flora;
    - Soils and Erosion;
- Conflicts of interest (actual or perceived); and
- Value for money.

3.2 AUDITOR ENGAGEMENT

Once an environmental Auditor is engaged by DSE to conduct the audit program pursuant to section 53V of the *Environment Protection Act 1970*, the Auditor is required to notify the EPA's Manager Environmental Audit within seven days of receiving the appointment.

Notification of a request to prepare an environmental audit report can be made using the notification form available from the forms section of the EPA website (www.epa.vic.gov.au/Forms).

4 SELECTION OF AUDIT TARGETS

4.1 PRIORITY ELEMENTS FOR THE FOREST AUDIT PROGRAM

The FAP includes gathering and examining data relating to the planning and conduct of timber harvesting operations.

As noted in Module 1, the selection process is to include consideration of 'priority' elements and 'other factors' which DSE may elect to focus on during a specified audit period.

At a whole-of-FAP level (that is looking at the whole forest life cycle explained in Module 1), DSE believes that there is a need to ensure that audits are undertaken annually on the following audit priority elements:

- Compliance with the Allocation Order;
- Timber harvesting operations' performance against the Code and other relevant regulatory requirements; and
- Regeneration and Coupe Finalisation.

Some of these elements require quite different levels of examination, including requirements for both desktop and field based investigations.

It may not be feasible to audit all available timber harvesting operations conducted in Victoria during an audit period, especially for audits that have a high field based investigation requirement. In light of this, the FAP will be undertaken on a sample basis, to allow the Auditors to draw conclusions on the compliance of such operations against the regulatory framework in addition to risk of harm to the environment.

The specified audit priority elements correspond to Modules 3-7 and Auditors will be selected by DSE to undertake the required tasks. Depending on Auditor availability and other commercial matters, it may be appropriate for DSE to contract multiple Auditors to undertake different audit elements in any given year, but this will be a decision made by DSE based on responses to any Request for Proposal.

4.2 TARGET SELECTION

4.2.1 Target Selection for Module 3 and Module 6

A specific target selection process is not required under Modules 3 and 6. There is an expectation for the Auditor to undertake an assessment at a broad or strategic level which may involve scrutiny at a Forest Management Area (FMA) or VicForests Operational Area (OA) level.

DSE will provide advice to the Auditors on the areas that are to be scrutinised for audits required under these modules.

A target selection methodology may be adopted for these modules for the purposes of selecting auditing case studies or to select particular coupes to review procedural matters.

This will be determined when required in negotiation between DSE and the selected Auditor.

4.2.2 Target selection for Module 4

DSE will provide advice to the Auditors on the areas that are to be scrutinised for audits required under this module.

A target selection methodology may be adopted for the purposes of selecting auditing case studies or to select particular coupes to review procedural matters.

This will be determined, when required, in negotiation between DSE and the selected Auditor.

4.2.3 Target selection for Module 5

Auditors engaged to undertake audits for Module 5 will select audit targets with consideration for pre-defined environmental risk factors and to maintain randomness. The selection process is intended to be efficient, repeatable, and transparent, whilst the incorporation of environmental risk factors meets the intent of statutory environmental auditing to assess the risk of any possible harm or detriment to a segment of the environment.

It is planned to have a mix of active and completed coupes forming the targets for the Module 5 field assessments with the final ratio determined by the Auditor in consultation with DSE.

To assist the Auditors, DSE will supply an unfiltered list of all forest coupes available for assessment during the audit period. This list will be referred to as the Master Coupe List and will correspond to the position in the forest life cycle of the coupes, to

ensure they are suitable for the type of audit that has been requested. The generated list would try to ensure that relevant activities had occurred during the period of time that was relevant to the audit period. For example, it would not be appropriate to conduct a Module 5 audit at coupes where harvesting has not yet commenced.

Sampling Intensity

In order to apply appropriate rigour to the audit process, DSE will try to achieve a sampling intensity to allow meaningful conclusions to be drawn on the success of operations against the management objectives. In any given year, this will be reliant on available resources.

Auditors will receive advice from DSE about the type of audits required and the number of coupes to be selected for audit. This advice will be based on consideration of the total resources available to the FAP and the anticipated cost per coupe figures provided by the Auditor during the Request For Proposal process. The Auditor and DSE will need to reach agreement on the adequacy of sample size prior to finalisation of any commercial contract.

Absolute Risk Rating

The Auditor will determine an absolute risk rating (ARR) for all potential audit targets based on the following environmental risk parameters for the Module 5 audits:

- Slope (S);
- Soil erosion hazard (SE);
- Silvicultural system (SS);
- Special land protection requirements (PR); and
- Compliance theme(s) (CT).

Details of these risk parameters are discussed in Annex A.

Each coupe in the Master Coupe List should be assigned an absolute risk rating (ARR) by multiplying the risk values obtained for each variable element as follows:

$$ARR\ (coupe) = S \times SE + SS + PR + \Sigma(CT)$$

The ARR derived for each coupe is used to place the coupe into one of three relative risk groups (RRGs) as follows:

Low Risk	Moderate Risk	High Risk
< 9	9-14	>14

The total number of coupes to be assessed will be selected at random from across the State in accordance with an overall risk distribution as follows:

- 60% from the high RRG;
- 25% from the moderate RRG; and
- 15% from the low RRG.

The selection process places some bias towards selecting a larger number of targets from the high RRG. The incorporation of environmental risk parameters is intended as an interpretive exercise for identifying coupes with a higher potential for activities to impact the environment. For this reason, the results are not intended to represent a statistical analysis.

Within a three year cycle of the FAP, all Forest Management Areas within the state (where timber harvesting occurs) should have been included in the audit program, and additional target selection criteria may be stipulated at the discretion of DSE to achieve this goal.

Replacement of audit targets in consideration of geographic coverage, safety and resource use

Auditees should be given the opportunity to comment on issues (safety, availability, currency, access etc) regarding the coupes selected prior to starting the field activities. Issues raised will be addressed on a case by case basis.

Auditors will also be able to discuss the location of the audit targets with DSE to address issues of geographical coverage and situations where low number of target coupes may occur in remote and difficult to access areas. DSE will give consideration to excluding audit targets that represent a disproportionately large level of resource use, to ensure the efficient allocation of available audit resources across the FAP. It is not intended that this process will be used to achieve the most commercially-attractive mixture of coupes for Auditors, but rather DSE will only allow for one-off exclusions of the most isolated, and difficult to access coupes. To ensure transparency, decisions to replace copes in the target selection process should be documented in the audit report.

Audit targets removed for any reasons should be replaced with an additional target, also selected at random.

DSE reserves the right to review the selection process after the first round of audits.

4.2.4 Target selection for Module 7

Target selection for Module 7 will be carried out in accordance with the directions provided in Section 5.2 of the DSE *Coupe Finalisation Procedures*, October 2008 and includes the following.

Regenerated coupes

Within each FMA the audit team must assess in the field, a minimum of:

- Ten percent of the regenerated coupes nominated by VicForests for finalisation where 50 or more coupes have been nominated; or
- Five coupes nominated by VicForests for finalisation, where between 5 and 50 coupes are nominated; or
- All coupes nominated by VicForests for finalisation, if less than 5 coupes are nominated.

Thinned coupes

Within each FMA the Audit Team must assess in the field, a minimum of:

- Ten percent of the thinned coupes nominated by VicForests for removal from the TRP where 50 or more coupes have been nominated; or
- Five coupes nominated by VicForests for removal from the TRP, where between 5 and 50 coupes are nominated; or
- All coupes nominated by VicForests for removal from the TRP, if less than 5 coupes are nominated.

Coupes selected for field assessment should:

- Proportionally represent the forest types of, and silvicultural systems used to harvest, the coupes nominated by VicForests for finalisation or removal from the TRP.
- Generally be greater than 10 hectares in area; and
- Otherwise be randomly selected.

4.2.5 Special Target Selection for Water Catchments

Based on discussions between DSE and Melbourne Water, it is likely that Module 5 (and possibly Module 7) audits will require a selection of coupes to be audited that are located within all or some of the catchments that supply water to Melbourne. Melbourne Water may elect to contribute additional resources to the FAP to ensure selection of additional audit targets within catchment areas.

Although additional coupes in water catchments may be selected on a different basis from other audit targets, once identified, these coupes should be treated and reported on in the same manner as other coupes assessed under Module 5.

5 PRESENTATION OF AUDIT FINDINGS

5.1 REPORTING REQUIREMENTS

The Auditor will prepare a complete audit report consistent with the requirements of EPA (2007) Publication No. 952.2 *Environmental Auditor Guidelines for Preparation of Environmental Audit Reports on Risk to the Environment*. The results of the report should identify both positive and negative findings and/or conclusions and report on the actual or potential risk of harm to beneficial uses of the segment concerned.

For the purpose of consistency between Auditors and audit years, all audit reports should include at least the following major headings:

- Executive Summary;
- Introduction;
- Audit Scope, including objectives, scope and period of the audit and audit criteria;
- Audit Approach, including target selection, documentation reviewed, site visits undertaken and risk assessment approach;
- Audit Findings presented by compliance element, including reference to evidence used to assess the audit criteria, data collected and evaluated, compliance/non-compliance and risk assessment evaluation;
- Conclusions/Recommendations; and
- Annexes, including charts, graphs, photographs and supporting documentation.

It is expected that the report will also make appropriate distinction between:

- Operations supervised by VicForests and DSE;
- Desktop and field-based assessment;
- Compliance elements and sub-elements nominated within each module being assessed; and
- Audit module, where more than one module is audited by the same Auditor.

The audit of each module will assess the compliance elements for potential non-compliance, and where identified, a risk assessment will be carried out on individual non-compliances or a group of similar non-compliance issues, in accordance with Section 5.2 herein.

The presentation of findings for each compliance element should aim to summarise the total number of non-compliances and the environmental impact risk levels identified during the audit. An example of a summary of compliance and risk impact for each compliance element is provided in Table 5.1.

Table 5.1 Example Summary of Compliance and EIA Risk by Compliance Element

Compliance Element	*Buffers*
Total Non-compliance	12
Total Compliance	29
Non-compliance EIA breakdown	
Severe	1
Major	1
Moderate	3
Minor	2
Negligible	5

5.2 RISK ASSESSMENT

Where an environmental audit of a complex activity such as forest harvesting is to be conducted, a risk assessment process can be adopted to assist in focusing the audit.

Risk assessment can be used within an environmental audit to:

- refine the scope to focus on issues of concern, and/or
- assess the risk of harm to beneficial uses.

Generally this would involve a process of hazard identification, analysis of risks and categorisation of the risks. During the audit of compliance themes and compliance elements within the modules, a risk assessment process should be adopted in line with the methodology proposed below.

5.2.1 Module 5

When considering a non compliance relating to the workbook compliance elements, its impact on the environment should be assessed using an environmental impact assessment method. The impact assessment is a two-step process based on the non-compliance observed at the time of audit. This process enables the impact to be qualitatively determined through consideration of the following factors:

- extent of impact or disturbance within the audit target;
- duration of impact or expected time for recovery; and
- environmental asset value.

These factors are described in more detail in Annex B.

It should be noted that the FAP is not intended to substitute for controlling individual harvester performance. This is provided for under the existing Timber Harvesting Operator Licence System, established under the Act and the subordinate regulations.

5.2.2 Modules 3, 4, 6 and 7

It should be noted that the methodology outlined above does not directly correspond with the remaining modules given the risk assessment will be at a broad or strategic level. The Environmental Impact Assessment tool discussed in Section 5.2.1 is not designed to assess the extent, duration or context of planning breaches addressed in the coupe planning, wood utilisation planning or planning of area exclusions and boundaries for flora and fauna focus areas of the audit.

In this situation, where a potential non-compliance has been identified, assessment of risk may also adopt the following classification strategy:

- Severe: poses a severe threat to human life, or irreversible or extensive impact to the environment.
- Major: poses a potential threat to human life, or significant impact to the environment.
- Moderate: poses a moderate impact to the environment.
- Minor: poses a minor impact to the environment, however further risk reduction opportunities exist.
- Negligible: poses no impact to the environment and/or provides for continuous improvement.

Annex A

Absolute Risk Rating Methodology

Absolute Risk Rating Methodology

Slope and soil erosion hazard carries an inherent risk to the stability of soils within the coupe. Steep slopes are more susceptible to erosion which could potentially affect water quality and road networks. Soils with a high erosion hazard are more likely to erode affecting potential for regeneration, water quality, stream flow and the road network. Management procedures and controls are enhanced for sites with greater slope or higher erosion potential.

Slope Risk (S)

Slope risk (S) values should be assigned as outlined in Table A.1.

Table A.1 Slope Risk Value by Class

Slope Class*	Slope Risk Value
<11º	1
11º – 18º	2
18º – 27º	3
>27º	4
* An average of all slope values	

Soil Erosion Hazard (SE)

The assessment of soil erosion hazard should be carried out on each coupe assessed during the Module 5 field assessment.

The hazard assessment is the product of two processes; soil erodibility and soil permeability. Reference should be made to the *Soil Erosion Hazard and Soil Permeability Assessment and Classification*, Forest Management Branch Forests Service, Department of Natural Resources and Environment, March 1999. The assessment within this reference uses a categorical point score system to determine a soil erosion classification of low, medium, high or very high.

The soil erosion hazard falls into the three classes: low, medium and high (including very high). These are assigned a soil erosion risk (SE) value of 1, 2 and 3 respectively.

Table A.2 Soil Erosion Hazard

Soil Erosion Hazard	Soil Risk Value
Low	1
Medium	2
High	3

Silvicultural System (SS)

Clear felling and thinning from above and below are the most common silvicultural systems employed in Victoria. Clear felling (including seed tree silvicultural systems) due to its nature is more likely to affect the environment and biodiversity. Coupes that have been clear felled are assigned a silvicultural system (SS) value of 2. Coupes where non-clear felling silvicultural systems have been employed are assigned an SS value of 1.

Special Land Protection Requirements (PR)

State forests are zoned according to sensitivity. The majority of forest harvesting takes place in the General Management Zone (GMZ), the zone with the lowest sensitivity. Coupes in the GMZ are assigned a protection risk (PR) value of 1.

Special Protection Zones (SPZ) and Special Management Zones (SMZ) are more sensitive, although some harvesting is allowed in SMZ zones. To recognise this sensitivity coupes that are affected by SPZ or SMZ are assigned a PR value of 2. Water supply catchments are also more sensitive and coupes that fall within specified catchment zones should also be assigned a PR value of 2.

If there is no reliable information regarding SPZ, SMZ or water catchments for a particular coupe is available, a default PR of 2 should be assigned.

Compliance Themes (CT)

In addition, the audit target selection may also incorporate compliance themes into the selection methodology. Compliance themes selected for audit focus will be determined by DSE annually. For each year of audit, one or more compliance themes may be adopted, typically from the following:

- Forest type;
- Coupe type (ie. roadline, commercial firewood);
- Special prescriptions (eg: salvage harvesting);
- Harvest season;
- Flora values (ie. rainforest, habitat trees);
- Fauna values (ie. threatened species, eg. leadbeater possum);
- District.

The compliance themes selected for inclusion in the applicable audit period are allocated a CT value of 1 with all other compliance themes assigned a default CT value of 0. More than one compliance theme can be selected during an audit period with the total number of compliance themes agreed upon by DSE and the Auditor.

Annex B

Environmental Impact Assessment Tool

Environmental Impact Assessment Tool

The objective of this annex is to describe the approach that should be adopted by the environmental Auditor during assessment of the environmental impact of non-compliance identified during the audit of Module 5.

When considering a compliance or noncompliance associated with the workbooks, the impact on the environment must be assessed using the Environmental Impact Assessment method as a guide.

The environmental impact is based on the following factors:

- Extent of impact or disturbance;
- Duration of impact; and
- Environmental asset value.

Extent of Impact or Disturbance (E)

The extent of the impact is measured as a relative percentage of the sampled area or length and defined as one of the following four categories:

- 0 – 10%
- 11 – 25%
- 26 – 50%
- >50%

A fifth category is used when the impact or disturbance results in a significant offsite effect where an area outside of the coupe boundary is adversely affected.

Duration of Impact or expected time to recover (t)

The duration of the impact is defined as the period in which the area will recover to pre-impacted levels. The impact period is defined by three levels as follows:

- Short Term, 0 – 12 months;
- Medium Term, 12 – 36 months; and
- Long Term, > 3 years.

The *Extent of Impact (E)* and *Duration of Impact (t)* form a risk matrix to determine an *Et* rating.

Table B.1 Determining the Extent / Duration of the impact

	Duration of Impact (t)		
Extent (E)	**Short Term**	**Medium Term**	**Long Term**
0 - 10%	A	C	F
11 - 25%	B	E	H
26 - 50%	C	F	I
> 50%	D	G	J
offsite	E	H	K

Environmental Asset Value (z)

The environmental asset value of the impacted area is defined by the relative resilience and resistance of the area affected, and the significance of the environmental value of the area, which may be characterised by its protection status within the Forest Management Zoning system or the Code of Forest Practice. The environmental asset value is divided into four categories;

- General environmental value;
- Filter or drainage line;
- Representative SMZ or SPZ, i.e. habitat corridors, landscape buffers and some linear buffers; and
- Specific SMZ or SPZ, i.e. for specific flora and fauna, rainforest buffers and riparian or streamside reserve buffers.

The *Et* rating and Environmental Asset Value (z) are applied in an additional risk matrix to determine an environmental impact assessment level for the non-compliance. The impact is categorised into five nominal levels as follows:

- Negligible (including areas of no impact) – impacts typically within marked harvest areas with a short duration of impact.
- Minor – impacts typically within marked harvest areas or filter strip with a short to medium duration of impact
- Moderate – impacts typically within marked harvest areas with a medium to long term duration of impact or impacts within filter strips, buffers or reserves with a short to medium term impact
- Major – impacts typically within marked harvest areas leading to a long term off-site impact or impacts within filter strips, buffers or reserves with a medium to long term on-site or off-site impact
- Severe – impact within buffers or reserves with a long term on-site or off-site impact.

Table B.2 Level of Environmental Impact

	Environmental Asset Value (z)			
Et Value	**General**	**Filter**	**rSPZ / LR / LB**	**sSPZ / RB / RF**
A	Negligible	Negligible	Minor	Minor
B	Negligible	Minor	Moderate	Moderate
C	Negligible	Minor	Moderate	Moderate
D	Negligible	Moderate	Moderate	Moderate
E	Minor	Moderate	Moderate	Major
F	Minor	Moderate	Major	Major
G	Moderate	Moderate	Major	Major
H	Moderate	Major	Major	Major
I	Moderate	Major	Major	Severe
J	Moderate	Major	Severe	Severe
K	Major	Major	Severe	Severe

Note:
LR – Linear Reserve
LB – Landscape Buffer
RB – Riparian Buffer
RF – Rainforest Buffer
rSPZ – Representative Special Protection Zone
sSPZ – Specific Special Protection Zone

To assess the consistency of the Environmental Impact Assessment tool, the 2006 Audit reviewed the capacity of the model to evaluate a range of past and potential breaches. A range of examples were reviewed for a range of compliance elements or sub-elements and are shown in Table B.3.

Table B.3 Hypothetical noncompliance by compliance element.

Compliance Element / Sub-element	Breach	Extent	Duration	Asset value	Assessed impact
Coupe planning	Not applicable				
Wood utilization planning (WUP)	Not applicable				
Landscape values	No landscape buffer along a major tourist route	Offsite	> 3 years	Landscape buffer	Severe
Water yield protection	Harvesting in a small proportion of coupe occurred outside the prescribed period	0-10%	0-12 months	Riparian buffer	Minor
Log landings and dumps	Ripping depth <0.4m and erosion	Offsite	> 3 years	Filter	Major
Camp maintenance areas	Hydrocarbon spill	26-50%	> 3 years	General	Moderate
Litter removal	Esky left on site	0-10%	> 3 years	General	Minor
Habitat trees	Insufficient numbers protected	> 50%	> 3 years	General	Major
Management of exclusion areas and boundaries – flora and fauna	Example 1: Fire damage outside the prescribed burn area	> 50%	> 3 years	sSPZ	Severe
	Example 2: Fire damage outside the prescribed burn area	26-50%	12-36 months	Filter	Moderate
	Example 3: Fire damage outside the prescribed burn area	Offsite	0-12 months	General	Minor
Reserved area protection - buffers	Section of buffer insufficient width	11-25%	> 3 years	Riparian buffer	Major
Reserved area protection - filters	Machinery entry into filter strip	0-10%	0-12 months	Filter	Negligible
Rainforest	Rainforest not marked on coupe plan but not harvested	0-10%	0-12 months	Rainforest buffer	Minor
Snig and forwarding tracks	Poor drainage & blading off	11-25%	12-36 months	General	Minor
Boundary tracks	Inadequate drainage	26-50%	> 3 years	General	Moderate
Roading	Roads damaged due to use during wet weather	11-25%	> 3 years	General	Moderate

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ERM

C

Appendix C Forest Audit Program Module 5 - Harvesting and Closure

Forest Audit Program Toolbox

Module 5

Harvesting and Closure

CONTENTS

Document and Version Control

Title	**Forest Audit Program Toolbox – Module 5**
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Date	Reviewer	Summary of changes	Replaces
-	-	-	-

FOREST AUDIT PROGRAM TOOLBOX

Module 1
Overview

Module 2
Audit Process

Module 3
Tactical Planning

Module 4
Operational Planning

Module 5
Harvesting and Closure

Module 6
Harvesting Performance

Module 7
Regeneration and Finalisation

1 MODULE 5 – HARVESTING AND CLOSURE

1.1 INTRODUCTION

The planning and management of forest operations for timber harvesting are critical elements in achieving the environmental outcomes encompassed by the Victorian regulatory framework.

Appropriate standards for the management of timber harvesting operations conducted in State forests ensures that operations are undertaken within sound ecological limits, and maintain a sustainable long-term path for the timber production industry.

A number of standards have been established under Victoria's regulatory framework, including the *Sustainable Forests (Timber) Act 2004* (the Act) and subordinate regulatory instruments such as the Code of Practice for Timber Production 2007 (the Code), as outlined in Module 1.

1.1.1 Objective of Module 5

The objective of this module is to assess whether timber harvesting operations, undertaken in a specified period, were conducted in accordance with all relevant legislation, regulations and government policies to achieve sustainable forest management.

1.1.2 Scope of Module 5

The module aims to provide the necessary information and tools to enable audit of timber harvesting operations that occur within the following portions of the forest harvesting lifecycle:

- Pre-Harvest Coupe Marking and Planning;
- Harvesting; and
- Coupe Closure.

Specifically excluded from the scope of Module 5 – Harvesting and Closure is:

- Audit of the strategic planning and development phase of the Allocation Order by Department of Sustainability and Environment (DSE) under the *Sustainable Forests (Timber) Act 2004* (as amended);
- Compliance with rules, regulations or guidelines that relate to Occupational Health and Safety matters;
- Timber harvesting practices undertaken in plantations or other non-State forest;

- Roading practices conducted in State forests that are not associated with timber production;
- Practices associated with production and collection of domestic forest produce (including firewood) on all land tenures;
- Recreational activities undertaken in State forests;
- Livestock grazing activities undertaken in State forests;
- Apiary activities undertaken in State forests; and
- Fire suppression and management practices undertaken in State forests (e.g. fuel reduction burning and habitat enhancement burning), with the noted exception of post harvest burning undertaken in State forests.

1.2 STRUCTURE OF MODULE

Module 5 – Harvesting and Closure includes:

- *Chapter 1 Introduction*: provides an introduction to the scope, objectives and structure of the audit module as part of the Forest Audit Program;
- *Chapter 2 Compliance Elements*: provide a list of elements or focus areas suitable for inclusion in the annual Forest Audit Program as part of Harvesting and Closure;
- *Chapter 3 Audit Approach and Tools*: provides a preferred audit approach and methodology and supporting tools including the following Audit Workbooks; and
- *Chapter 4 References*: provides a description of the key regulatory documents supporting each of the Workbooks.

2 COMPLIANCE ELEMENTS

The relevant compliance elements associated with Module 5 – Harvesting and Closure include:

- Forest Coupe Plans, including a sub element on Exclusion Zones
- Operational Provisions, (ie. weather, seasonal provisions)
- Water Quality, River Health and Soil Protection, including sub-elements:
    - Waterways
    - Buffers
    - Filters
    - Slopes
    - Camp Maintenance, Fuel Storage & Waste Disposal
    - Water Catchments
- Biodiversity Conservation including sub-elements:
    - Habitat Trees
    - Rainforest
    - Forest Health
- Roading including sub-elements:
    - Road Planning
    - Road Design
    - Road Construction
    - Road Maintenance
    - Suspension of Cartage
    - Road Closure
- Coupe Infrastructure Provisions, including sub-elements:
    - Log Landings and Dumps
    - Snig and Forwarding Tracks
    - Boundary Trails

Each of these compliance elements are discussed in greater detail below.

2.1 FOREST COUPE PLANS

Forest Coupe Plans (FCPs) are prepared for each timber harvesting operation identified in Wood Utilisation Plans (WUPs) or Timber Release Plans (TRPs). The audit of FCPs within Module 5 will focus at the coupe level of those particular operations identified through the target selection process. Strategic coupe planning activities, procedures and processes will be audited under Module 4 Operational Planning.

A FCP must be prepared in accordance with the Code and the Management Procedures. It must account for the relevant Forest Management Plan and any other relevant prescriptions or procedures.

The FCP will address such issues as:

- Coupe boundaries;
- Harvesting exclusion areas;
- Cultural heritage issues (Aboriginal and non-Aboriginal);
- Coupe infrastructure;
- Map identifying area, area to be harvested and other relevant information (such as adjacent exclusion zones; and
- Schedule incorporating the specifications and conditions under which the operation is to be administered and controlled.

2.2 WATER QUALITY, RIVER HEALTH AND SOIL PROTECTION

The Code defines three classes of waterway relevant to forest operations in Victoria. These waterways are:

- Permanent rivers and streams, pools and wetlands;
- Temporary streams; and
- Drainage lines.

The classification of a waterway is based on its characteristics prior to harvesting, noting that stream flow may change following harvesting. Definitions and aids to the identification of each class of waterway are provided in the Code and Management Procedures.

Relevant issues that the audit will need to address include:

- Identification of waterways and associated exclusion requirements;
- Categorisation of slope class and soil erosivity applicable to the coupe;
- Marking of buffers and filters;
- Harvesting activities that may have impacted buffers, filters and waterways;
- Catchment specific requirements relevant to the coupe; and
- Waterway crossings and operational restrictions.

Methods such as the effective implementation of buffers, filters, slope management,

2.3 BIODIVERSITY CONSERVATION

Timber harvesting planning and operations in native forests must include provision for the conservation of biodiversity and associated ecological values, and consider relevant scientific knowledge. These are outlined in legislation and other subordinate documentation including relevant Flora and Fauna Guarantee Action Statements and Flora and Fauna Guarantee Orders.

Action Statements are prepared for threatened plant and animal species under Section 19 of the Flora and Fauna Guarantee Act. These documents may contain prescriptions relating to the planning and conduct of harvesting operations that are relevant to the FAP.

Key items of biodiversity include preservation of rainforest and retention of habitat trees. Rainforest communities in Victoria must not be harvested and should be protected from the impacts of harvesting through the use of appropriate buffers. Habitat trees should be retained at an appropriate density, and allow for the provision and replacement of old hollow-bearing trees within or around coupes. Consideration is also 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.

2.4 OPERATIONAL RESTRICTIONS

Operational restrictions may apply during harvesting operations in certain conditions where soil, water and other values, including biodiversity and cultural heritage are likely to be compromised. For example, timber harvesting operations must be suspended when water begins to flow along tracks, threatening stream water quality or soil values.

The Code lists operational restrictions relating to equipment use and seasonal impacts.

2.5 ROADING

Roads built in State forests for timber harvesting operations have the potential to create environmental impacts, particularly on water quality and river health.

The Code aims to protect a range of environmental values while allowing safe and economic roading for timber production by ensuring that the planning and management of permanent and temporary roads for timber cartage and machinery transport is fit for purpose, protects environmental and cultural values, and the safety of all road users.

The audit will need to assess the following:

- Road Planning, to ensure the location and construction of new and upgraded roads minimise risks to environmental values;
- Road Design, to minimise construction and maintenance costs, reduce environmental risk such as impacts to water quality, improve efficiency of haulage operations, and ensure public safety is maintained;
- Road Construction is conducted in a manner consistent with plans and designed to ensure fitness for use, public safety, the protection of water quality and river health, Aboriginal and other significant cultural heritage and biodiversity conservation values;
- Road Maintenance minimises erosion and to protect water quality;
- Suspension of Cartage, to ensure wet weather or other adverse conditions don't affect the road surface and drainage doesn't compromise water quality and public safety; and
- Road Closures are permanent and effectively drained.

2.6 COUPE INFRASTRUCTURE

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

The area of coupe infrastructure required to meet timber production needs must be minimized without compromising safety. In-coupe infrastructure must be located, constructed and maintained to minimise potential adverse impacts on soil and water quality, and Aboriginal cultural heritage.

At the conclusion of harvesting operations all coupe infrastructure must be rehabilitated to standards specified in the Code, The Management Procedures for Timber Harvesting, Roading and Regeneration in Victoria's State Forests, 2009 (the Management Procedures) and the relevant Forest Management Plan (FMP).

3 AUDIT APPROACH AND TOOLS

An audit of harvesting and closure compliance elements will require:

- Sourcing of relevant information and evidence;
- Desktop assessment;
- Field assessment; and
- Completion of Audit Workbooks.

3.1 SUPPORTING DOCUMENTATION

Module 1 – Overview, and Module 2 – Audit Process should be read in conjunction with this module. Module 2 outlines a method for selecting audit targets, and guidelines for preparing an audit report.

3.2 SOURCING INFORMATION

Information should be collected through interviews, an examination of documents and observation of harvesting and closure activities and outcomes. Instances of non-conformity against the specified audit criteria should be recorded.

Information gathered through interviews should be verified by acquiring supporting information from independent sources where possible, such as observations, records and results of existing activities or measurements.

The following list outlines information that may be requested in order to complete an audit under Module 5:

- Forest Couple Plan for each coupe selected for audit;
- Complete and current records of harvesting progress made in CIS;
- Copies of coupe diaries;
- Monitoring records;
- Public notices;
- Key maps and aerial photographs;
- Harvest records;
- Fire occurrences;

- Reports (pesticide/herbicide application reports, environmental surveys etc); and
- Relevant intra- and inter- agency correspondence.

3.3 DESKTOP ASSESSMENT

The desk-based component of the audit program includes the assessment of planning related operations, review of documentary evidence and records, the Coupe Information System and interviews.

The procedures for the desk-based audit should include:

- Examination and review of legislative requirements, special management plans, management prescriptions, and procedures relating to the conduct of planning activities as they relate to the compliance elements;
- Review of relevant spatial and other databases;
- Review of information contained in the Coupe Information System (as relevant);
- Interviews, where appropriate, with DSE and VicForests managerial and technical staff.

3.4 FIELD ASSESSMENT

The field-based component of the audit program includes the assessment of operations in completed and active coupes. Auditing completed coupes is considered preferable, because some elements of the Code cannot be accurately assessed while harvesting operations are still active. However it is anticipated that the target selection method outlined in Module 2 will include a combination of active and completed coupes.

Activities to be undertaken during the field assessment should include:

- A short briefing in each FMA/OA at the start of the field program to introduce the audit team and outline the audit process to the auditee's representatives and other interested forestry staff from the district;
- On-ground assessments of the nominated coupes by the audit team;
- Record assessments in the relevant audit workbooks;
- Soil assessments adopting the same methodology used by field staff during coupe reconnaissance;
- Review the content of Forest Coupe Plans, coupe diaries and other coupe specific documentation;

- Interviews, where appropriate, with DSE, VicForests and operator managerial and technical staff;

- A debriefing session with the operational staff at the conclusion of the field program in each FMA/OA, to provide a preliminary assessment of coupe compliance and summarise any identified issues.

The auditor should typically be able to assess between two and three coupes each day in the field. Typical requirements for field measurements at each coupe are listed in Annex A.

3.5 CONSIDERATION OF COMPLIANCE TO INCLUDE ENVIRONMENTAL IMPACT

Identification of potential non–compliance should be evaluated using the environment impact assessment tool outlined in Section 5.2.1 of Module 2 – Audit Process. Environment impact assessment levels should be determined for each prescription where a non-compliance is determined, with an overall risk level summary for each compliance element documented in the audit findings.

3.6 AUDIT WORKBOOKS

This module is supported by six (6) audit workbooks for each compliance element, which are included as Annexures B to G. The Audit Workbooks outline the audit criteria, relevant legislative prescription(s), and provide detailed instruction on audit protocol guides.

Workbooks provided in Module 5 include:

- Workbook 5A: Forest Coupe Plan;

- Workbook 5B: Water Quality, River Health and Soil Protection;

- Workbook 5C: Biodiversity Conservation;

- Workbook 5D: Operational Provisions;

- Workbook 5E: Roading; and

- Workbook 5F: Coupe Infrastructure.

Auditors should record audit information and findings in the audit workbooks along with supporting evidence and information. Audit findings should then be collated and presented in the audit report prepared in accordance with the requirements outlined in Module 2.

4 REFERENCES

Relevant references to this module include the following.

Legislation

Catchment and Land Protection Act 1994, 1994.

Code of Forest Practice for Timber Production, Department of Natural Resources and Environment, 2007.

Code of Practice for Fire Management on Public Land, Department of Sustainability and Environment, 2006.

Conservation, Forest and Lands Act 1987, 1987.

Environmental Protection Act 1970, Version 161, 2007.

Flora and Fauna Guarantee Act 1988 (FFG Act), Version 036, 2010.

Sustainability Charter for Victoria's State Forests, Department of Sustainability and Environment, 2007.

Sustainable Forests (Timber Harvesting) Regulations 2006.

Sustainable Forests (Timber) Act 2004.

Guidelines

Cording and Matting Harvest Guidelines, Department of Sustainability and Environment, Victoria, 2003.

Differential species approach - A field guide to rainforest identification in Victoria: differential species keys for the delineation of rainforest boundaries, Department of Sustainability and Environment, Victoria, 2009.

Field guide to marking sawlog and firewood in Box Ironbark forests of the Bendigo FMA, Department of Sustainability and Environment, Victoria, 2008.

Fire Management Manual, Department of Natural Resources and Environment, 2005.

Management Procedures for Timber Harvesting, Reading and Regeneration in Victoria's State Forests, Department of Sustainability and Environment, Victoria, 2009.

NFSG #6 - Native Forest Silviculture Guideline No.6, Site Preparation, Department of Natural Resources and Environment, 1998.

NFSG #11 - Native Forest Silviculture Guideline No.11, Management of Landings, Bark and Extraction Tracks, Department of Sustainability and Environment, Victoria, 2004.

NFSG #12 - Native Forest Silviculture Guideline No.12, Treatment of Non-Merchantable Trees, Department of Natural Resources and Environment, Victoria, 1999.

NFSG #13 – Native Forest Silviculture Guideline No.13, Thinning of Ash Eucalypt Regrowth, Department of Sustainability and Environment, Victoria, 2006.

NFSG #14 - Native Forest Silviculture Guideline No.14, Thinning of Mixed Species Reg, Department of Natural Resources and Environment, Victoria, 1997.

NFSG #15 - Native Forest Silviculture Guideline No.15, Thinning of Box-Ironbark Forests, Department of Sustainability and Environment, Victoria, 2008.

NFSG #16 - Native Forest Silviculture Guideline No.16, Thinning of River Red Gum Forests, Department of Sustainability and Environment, Victoria, 2009.

Soil Erosion Hazard and Soil Permeability Assessment and Classification, Department of Natural Resources and Environment, 1999.

Management plans and prescriptions

Fire Salvage Harvesting Prescriptions 2009, Department of Sustainability and Environment, Victoria, 2009.

Forest Management Plan for the Central Highlands, Department of Natural Resources and Environment, 1998.

Forest Management Plan for East Gippsland, Department of Natural Resources and Environment, 1995.

Forest Management Plan for the Floodplain State Forests of the Mildura Forest Management Area, Department of Sustainability and Environment, Victoria, 2004.

Forest Management Plan for Gippsland, Department of Sustainability and Environment, Victoria, 2004.

Forest Management Plan for the Mid-Murray Forest Management Area, Department of Natural Resources and Environment, Victoria, 2002.

Forest Management Plan for the Midlands Forest Management Area, Department of Natural
Resources and Environment, Victoria, 1996.

Forest Management Plan for the North East Forest Management Area, Department of Natural Resources and Environment, Victoria, 2001.

Forest Management Plan for the Otway Forest Management Area, Department of Conservation and Environment, Victoria, 1992.

Gippsland Forests Apiary Plan, Department of Sustainability and Environment, Victoria,
2004.

Management Prescriptions for Timber Production and Other Forest Uses, Gippsland Region, Department of Natural Resources and Environment, Victoria, 1998.

Management Procedures for Timber Harvesting and Associated Activities in State Forests in Victoria, Department of Sustainability and Environment, Victoria, 2009.

Prescriptions For the Management of Harvesting and Regeneration in Native Forests, Central Forest Management Area, Department of Sustainability and Environment, Victoria, 2002.

Salvage Harvesting Prescriptions for the 2003 Eastern Victorian Fires Salvage Operations, Department of Sustainability and Environment, Victoria, 2003.

References

Action Statements for Communities of Flora and Fauna

Action Statements for Potentially Threatening Processes

Catchment Timber Substitution Study - Prepared for Water Resources Strategy Committee for Melbourne Area, 2002.

Rainforests and Cool Temperate Mixed Forests of Victoria, Flora and Fauna Programme, 1999.

Road Management Agreement, Department of Sustainability and Environment, Victoria, 2008

Silviculture Reference Manual No. 1 - Mountain Ash in Victoria's State Forests,Department of Sustainability and Environment, Victoria, 2007.

Silviculture Reference Manual No. 2 - High Elevation Mixed Species in Victoria's State Forests, Department of Sustainability and Environment, Victoria,2009.

Silviculture Reference Manual No. 3 - Low Elevation Mixed Species in Victoria's State Forests, Department of Sustainability and Environment, Victoria,2010.

SOP: Coupe Commencement, Operations and Completion.

Annex A

Compliance Element Parameter Measurement

Compliance Element Parameter Measurement

Guidance for compliance element measurements are described herein.

Completed Coupes

Roading

- Assess at least 500 m of road where present. Measure and record distance and slope between drainage structures. Record situations (and distances) where drainage spacing does not comply with prescriptions or where drainage is ineffective.

- Assess up to 500 m permanent roadline where present. Assess clearing widths against prescriptive requirements and, where present, measure clearing width at two points along the 500 m section. Record results and comments on compliance with relevant prescriptions.

Snig and Forwarding Tracks

- Inspect as much snig track as possible (at least 200 m) during coupe inspection. Record measured distance of snig track inspected and assess whether drainage structures are within prescriptive requirements.

Reserved Area Protection

- Assess at least two 200 m lengths of buffer strip. Measure widths for at least 2 and up to 4 points along the two strips. Record results and comments on compliance with relevant prescriptions.

- Assess rainforest buffer as much as possible during coupe inspection. Measure widths for at least 2 and up to 4 points along two 200 m strips. Record results and comments on compliance with relevant prescriptions.

- Assess special habitat or landscape buffers. Measure widths for at least 2 and up to 4 points along two 200 m strips. Record results and comments on compliance with relevant prescriptions.

- Note a maximum of 800 m of buffer is to be measured at each coupe comprising a combination of streamside reserve, special habitat, landscape or rainforest.

- Assess filter strip as much as possible during coupe inspection. Measure widths for at least 2 and up to 4 points along one 200 m strip where necessary to determine compliance to relevant prescriptions. Record results and comments on compliance with relevant prescriptions

Habitat Trees

Assess coupe for retention of prescribed numbers of habitat trees. Record number inspected and where harvesting operations have damaged retained trees and/or where debris is accumulated around the tree base and does not comply with prescriptions. Record general comments on selection and protection of retained trees.

Log Landings and Dumps

- Check coupe plan and map, note locations and record number of landings. Locate and inspect at least 1 and up to 2 landings. Record approximate landing size and assess against prescriptive limits for relevant forest type (Utilisation Procedures s. 8, p. 14). Note location of landing(s) and approximate distance from permanent and temporary streams, drainage lines and wetlands against prescriptive requirements (20/40 m).

- Check coupe plan and map, note locations and record number of landings. Locate and inspect at least 1 and up to 2 landings. Where rehabilitation works have occurred, record rip depth and spacing against prescriptive requirements (Utilisation Procedure s. 8, p. 14). Record results and comments on compliance with relevant prescriptions.

Boundary Tracks

- Inspect as much boundary track as possible (at least 200 m) during coupe inspection. Record measured distance of boundary track inspected and assess whether drainage structures are within prescriptive requirements

Active Coupes

Roading

- Assess at least 200 m of road where present. Measure and record distance and slope between drainage structures. Record situations (and distances) where drainage spacing does not comply with prescriptions or where drainage is ineffective.

- Assess up to 200 m permanent roadline where present. Assess clearing widths against prescriptive requirements and where present, measure clearing width at two points along the 200 m section. Record results and comments on compliance with relevant prescriptions.

Snig and Forwarding Tracks

- Inspect as much snig track as possible (at least 200 m) during coupe inspection. Record measured distance of snig track inspected and assess whether drainage structures are within prescriptive requirements.

Reserved Area Protection

- Assess at least two 200 m lengths of buffer strip. Measure widths for at least 2 and up to 4 points along the two strips. Record results and comments on compliance with relevant prescriptions.

- Assess rainforest buffer as much as possible during coupe inspection. Measure widths for at least 2 and up to 4 points along one 200 m strip. Record results and comments on compliance with relevant prescriptions.

- Assess special habitat or landscape buffers. Measure widths for at least 2 and up to 4 points along one 200 m strip. Record results and comments on compliance with relevant prescriptions.

- Note a maximum of 400 m of buffer is measured at each coupe comprising a combination of streamside reserve, special habitat, landscape or rainforest.

- Assess filter strip as much as possible during coupe inspection. Measure widths for at least 2 and up to 4 points along one 100 m strip where necessary to determine compliance to relevant prescriptions. Record results and comments on compliance with relevant prescriptions.

Habitat Trees

- Assess coupe for retention of prescribed numbers of habitat trees. Record number inspected and where harvesting operations have damaged retained trees and/or where debris is accumulated around the tree base and does not comply with prescriptions. Record general comments on selection and protection of retained trees.

Boundary Tracks

- Inspect as much boundary track as possible (at least 100 m) during coupe inspection. Record measured distance of boundary track inspected and assess whether drainage structures are within prescriptive requirements.

Annexures B – G

Electronic CD

Annex B

Workbook 5A: Forest Coupe Plan

Annex C

Workbook 5B: Water Quality, River Health and Soil Assessment

Annex D

Workbook 5C: Biodiversity Conservation

Annex E

Workbook 5D: Operational Provisions

Annex F

Workbook 5E: Roading

Annex G

Workbook 5F: Coupe Infrastructure

Prepared by Environmental Resources Management Australia Pty Ltd in collaboration with the Victorian Government Department of Sustainability and Environment Melbourne, April 2010

Authorised by the Victorian Government,
8 Nicholson Street, East Melbourne.

For more information contact the
DSE Customer Service Centre 136 186

www.dse.vic.gov.au

ERM

D

Appendix D Forest Audit Program Module 5 - Harvesting and closure – Audit workbooks

ENVIRONMENTAL AUDIT
FOREST AUDIT PROGRAM
TIMBER PRODUCTION IN STATE FORESTS

«FMA» FMA

COUPE: *«CoupeName»*
«Recce_allCoupe»

Module 5 Harvesting and Closure
Workbook 5A: Forest Coupe Plans

Summary Page

Positive Observations:	Non-compliances identified and acted on by DSE / VicForests in their supervisor capacity (include contractor penalties allocated)
• • • • •	• • • • •

Elements of Non-Compliance:

Compliance Sub-element	Finding	EIA

Areas for Improvement:	Further evidence required:
• • • • • •	• • • • • •

Previous Key Audit Findings

What key findings were observed during the previous environmental audit?
The auditor will require an understanding of previous key findings in order to provide commentary on current practices and improvements over time. Comments:

Forest Audit – Coupe Information

Coupe number:	*«Recce_allCoupe»*	**Coupe name:**	*«CoupeName»*						
District:	«DistrictName»	**Coupe area:**	«MaxOfProposedNetArea» ha -						
Elevation (m): ASL):	«Elevation» m	**Stand Description / Vol:**	e.g. Mature	«MaxOfLogVolume» m3					
General aspect:	e.g. SE	**Forest type:**	«ForestType»						
Supervisor (FO):	Supervisor – «LastOfSupervisor» Team Leader – «LastOfTeamLeader»	**Endorsement Categories:**	Flora & Fauna	Catchment	Parks	Forest Mgt	Forestry Victoria	Fire Mgt	DSE Region
Contractor:	«LastOfContractor»		«FloraFauna»	«Water»	«Parks»	«Forest Mgmt»	«VicForests»	«FireMgmt»	«RegMgmt»
Silvicultural system:	«SilvicultureSystem»	**SEH topsoil / subsoil:**	«TopsoilErosion»/ «SubsoilErosion»						
Machinery used:	Skidder / Hand Fallen / Mechanical Harvest	**Soil Permeability:**							
Coupe Operation:	«MinOfStartDate» to «MaxOfFinishDate»	**Grid Reference:**	E: «EastingADG66»N«NorthingADG66»						
Comments:	Flora: **«FloraValues»** Fauna: **«FaunaValues»**	**Absolute Risk Rating:**	«Abs_risk»						
		Selection Values: Slope Class – Soil Erosion Hazard – Silvicultural System, Property Restrictions	Slope – «Slope_risk»Soil erosion – «Soil_erosion_risk»Silviculture – «Silv_risk»and Protection – «Protection_risk»						
Special (salvage) plan?	«Type»	**Slope (º) Low-High:**	«SlopeMin»- «SlopeMax»						
Are there SPZ / SMZs?	«ManagementZone»	**Season of operation:**	«HarvestSeason»						
People Present:	Auditor and Audit Team: EPA representative: District / other staff (name): Observer(s):		**Audit date:**						

AA = Alpine Ash, BG = Blue Gum, CT = Cut Tail, CY = Mountain Grey Gum, DA = Mountain Gum, MA = Mountain Ash, MM = Messmate, OS = Other Species, PM = Peppermint Spp, SG = Shinning Gum, ST = Silvertop Ash, VM = Manna Gum, WS = White Stringybark

Forest Audit – Coupe Map

Include coupe map from harvest plan, note on map:

- Location and identification of roads, buffers, landings and skid tracks audited
- Any other relevant information

General comments and observations on the coupe

General notes:

Local prescriptions and Management Procedures:

Where the code or audit criteria refer to the Management Procedures or Salvage Prescriptions, the relevant document(s) will depend on when the operation started.

Interpretation of 'should' vs 'must':

The use of the term 'should' within the code is interpreted within the context of this audit as being a specific requirement of the code. DSE comments on the interpretation of 'should' vs 'must', have been reviewed for reference included in the 'comments' column of the workbook, where appropriate. Where the Code states" .....should....., where necessary,.... ," this is taken to mean that this is a requirement in certain circumstances, but not all the time.

GPS use: *With to regard to GPS measurements, the auditor will review the data and adopt a practical approach to specific situations and localities. Where GPS data is relied upon or referred to, the datum and coordinate system used should be noted*

Forest Coupe Plans

Operational Goal: A Forest Coupe Plan, which specifies operational requirements, is prepared in accordance with the Code prior to the commencement of each timber harvesting operation.

Forest Coupe Plans - Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5A1	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	Mandatory Action; A Forest Coupe Plan must be prepared in accordance with this Code of Practice, the relevant Forest Management Plan and any other relevant prescriptions or procedures, prior to the commencement of a timber harvesting operation.	FCP was completed prior to the commencement of timber harvesting.						
5A2	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	Coupe boundaries must take advantage of topographic and artificial features where possible, with due regard to safety, operational requirements, landscape and environmental values.	Coupe boundaries take advantage of topographic and artificial features.						
5A3	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	Where coupe boundaries do not follow obvious natural or artificial features, they must be clearly marked on site.	Coupe boundaries are clearly marked onsite if they don't follow obvious natural or artificial features.						
5A4	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	Where the coupe boundary is determined by buffers to protect environmental values, such as waterways or rainforests, these must be marked on the plan and on-site.	Markers to protect environmental values are on-site and within the plan.						

Forest Coupe Plans - Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5A5	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	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.	FCP has been provided to and discussed with the HTL.						
5A6	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The Plan and supporting documents must be available on site while operations are in progress.	FCP and supporting documents are available on-site.						
5A7	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	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.	Coupe boundaries have been checked through field observations and specified in the FCP. Adjacent exclusion areas with the potential to be affected by harvesting operations have been identified in the FCP.						
5A8	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The size of clear-felled, seed tree or shelterwood one coupes must not exceed 40 hectares net harvested area.	Coupe size does not exceed the harvest limit.						

Forest Coupe Plans - Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5A9	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	Where appropriate, such coupes may be aggregated up to 120 hectares net harvested area over a period of up to five years. Aggregated coupes must not be contiguous (forming a coupe greater than 120 hectares within a five year period).	Coupe size does not exceed the harvest limit.						
5A10	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	Single tree selection coupes may be of any size, where landscape or environmental values are not affected.	If a single tree selection coupe, it does not affect landscape or environmental values.						
5A11	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	A thinning coupe must not exceed 120 hectares net harvested area.	Net harvested area does not exceed limit.						
5A12	*Fire Salvage Harvesting Prescriptions 2009*	1.1 Fire Salvage Priority	Salvage harvesting operations must be undertaken in State forest areas designated as fire severity classes 1, 2 or 3 before being undertaken in fire severity classes 4 or 5. Appendix 1 describes the Fire Severity Classification system	Salvage harvesting has been undertaken in accordance with the hierarchy of severity classes						
5A13	*Fire Salvage Harvesting Prescriptions 2009*	2.1 Coupe size and aggregation	Salvage coupe size in fire affected Alpine or Mountain Ash dominated forest may be up to 120ha gross area.	Coupe size does not exceed the area limit.						

Forest Coupe Plans - Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
			No size restrictions apply to aggregates of Ash fire salvage coupes.							
5A14	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	Salvage coupes harvested under special salvage plans may exceed standard area limits.	Salvage area limits are defined in the coupe plan						
5A15	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	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)*.	Salvage operations consider the requirements of a rehabilitation plan.						
5A16	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must include a map on which the area to be harvested and adjacent exclusion zones are shown and labelled.	The FCP includes a map with the harvest area and exclusion zones delineated and labelled.						
5A17	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must identify conditions applying to operations on the coupe.	Conditions applying to operations are identified.						
5A18	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must show the coupe location and cutting area boundaries	Coupe location and cutting boundaries are provided.						

Forest Coupe Plans - Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5A19	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must document any authorisations, such as the removal of tree(s) from buffers for safety purposes	Authorisations for removal are documented.						
5A20	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must state the area that is planned to be harvested	Area to be harvested is stated.						
5A21	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must include and specify where necessary the period during which operations are to occur.	Period of operations are provided. *Harvest Season: «HarvestSeason»*						
5A22	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must identify the silvicultural systems to be employed	Silvicultural systems are specified.						
5A23	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must map the soil erosion hazard class (or classes) and slope of the coupe area and associated operational restrictions.	Soil erosion hazard class, slope and restrictions are mapped.						
5A24	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must identify requirements for the location, design, construction, maintenance and closure of temporary roads.	Requirements for location, design, construction, maintenance and closure of log extraction roads are identified.						

Forest Coupe Plans - Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5A25	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must 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.	Requirement for design, siting, construction, use and rehabilitation of log landings, dumps and where necessary siting and rehabilitation measures for major snig tracks are identified.						
5A26	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must include and specify the regeneration procedures to be applied.	Regeneration procedures are specified.						
5A27	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must 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) detailing any special conditions or prescriptions appropriate to protecting those sites.	Area and special conditions are specified. *Flora Notes: «FloraValues»* *Fauna Notes: «FaunaValues»* *F&F Endorsement: «FloraFauna»*						

Forest Coupe Plans - Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5A28	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must describe any particular measures employed to protect biodiversity (such as habitat tree retention).	Measure(s) to protect biodiversity are specified.						
5A29	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan must describe measures to be employed to protect and rehabilitate soils and to maintain water quality.	Measure(s) to protect and rehabilitate soil and maintain water quality are specified.						
5A30	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	At the coupe planning level, the retention of habitat trees or patches and long-lived understorey elements in appropriate numbers and configurations, and provision for the continuity and replacement of old hollow-bearing trees within the harvestable area, must be allowed for.	Habitat trees or patches and long-lived understorey elements in appropriate numbers and configurations have been allowed for in the couple planning.						
5A31	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	To facilitate the protection of biodiversity values, providing appropriate undisturbed buffer areas around significant habitats; must be addressed when developing and reviewing plans.	Appropriate undisturbed buffer areas have been provided around significant habitats and described/stated in the FCP.						

Forest Coupe Plans - Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5A32	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	To facilitate the protection of biodiversity values, maintaining forest health and ecosystem resilience by managing pest plants, pest animals and pathogens must be addressed when developing and reviewing plans.	Pest plant and pest animal and pathogen management has been provided and are adequate to facilitate the protection of the biodiversity values.						
5A33	*Code of Practice for Timber Production 2007*	2.5.1 Coupe Planning	Known Aboriginal cultural heritage places must be properly identified in the field and appropriately marked and buffered from disturbance, in accordance with any cultural heritage management plans prepared under the *Aboriginal Heritage Act 2006.*	Known Aboriginal cultural heritage places are properly identified and buffered from disturbance, in accordance with any cultural heritage management plans.						
5A34	*Code of Practice for Timber Production 2007*	2.5.1 Coupe Planning	In the event of any Aboriginal object, place or human remains being discovered in the course of works, the person in charge of those works must report the discovery in accordance with the *Aboriginal Heritage Act 2006.*	A reporting procedure is stated for Aboriginal finds and if found during the course of the operation was properly reported.						

Forest Coupe Plans - Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Comments:

Forest Coupe Plans - Guidance

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5A35	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan should include and specify where necessary the methods of marking.	Methods of marking areas are specified.						
5A36	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan should include and specify where necessary the expected timber volumes to be removed.	Volumes and grades are specified. *Volume extracted: «MaxOfLogVolume» m^3*						
5A37	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan includes and specifies where necessary seasonal restrictions.	Wet weather and season restrictions are specified. *Harvest Season: «HarvestSeason»*						
5A38	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan should include and specify where necessary the fire protection restrictions.	Fire protection restrictions are specified. *Fire Mgt Endorsement: «FireMgmt»*						
5A39	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan should include and specify where necessary the procedures for approving amendments to be plan.	Approvals and procedures for amendments to the FCP are specified.						
5A40	*Code of Practice for Timber Production 2007*	2.5.1 Coupe Planning	Consideration should be given to the EPA publication Interim Guidelines for Control of Noise from Industry in Country Victoria (or any subsequent document).	Guidelines have been considered in areas where operations may pose a noise risk.						*This is actually Guidance, not a Mandatory Action. See 2.5.1, page 33.*

Forest Coupe Plans - Guidance

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Comments:

Forest Coupe Plans

Exclusion Zones – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5A41	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	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.	Exclusion areas are protected from timber harvesting operations in accordance with relevant prescriptions.						
5A42	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.4.4 Protection of Excluded Areas	With the exception of the above, harvesting operations are not permitted in 1. SPZs and SMZs. 2. Areas created in accordance with the requirements of an Action Statement 3. Within 40m from the high bank of the Gunbower, Parnee-Milloo and Walpolla Creeks and the Ovens River; 4. Within 60m of the high bank of the Murray River; 5. Within 40m of developed recreation facilities; 6. In any White Cypress Pine, Buloke, Grey Box, Yellow Box and Grey Box vegetation communities in the Mid-Murray FMA	Harvesting of exclusion zones has not occurred.						

Forest Coupe Plans

Exclusion Zones – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
			and Mildura FMA; 7. Within 10m of vertical or near vertical sided gullies with a depth of half a metre or more that are actively eroding; 8. Within 50m of a silvicultural system project treatment site(s) at which long term ecological monitoring is being conducted within the Central FMA.							
5A43	*Fire Salvage Harvesting Prescriptions 2009*	8 Ash Exclusion Areas	Identification and marking of exclusion zones in fire affected forest stands are referred to in the Fire Salvage Harvesting Prescriptions.	Exclusion zones are in accordance with the Prescriptions. *Refer to Workbook B for Barred Galaxias Management Prescriptions* *Refer to Workbook C for Habitat Tree Exclusion Areas*						
5A44	*Fire Salvage Harvesting Prescriptions 2009*	8.2.1 Green Patch Exclusion Areas	Areas of fire severity class 4 or 5 must be at least 40m wide to be a green patch	Green patches are identified adequately in accordance with the Prescriptions *Refer to Fire Salvage Harvesting Prescriptions: Appendix 1, Green patch retention by compartment to determine the application of the prescriptions.*						

Forest Coupe Plans

Exclusion Zones – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5A45	*Fire Salvage Harvesting Prescriptions 2009*	8.2.2 Green Patch Exclusion Areas	Where less than 15% of Ash dominated forest within a compartment is classified as fire severity class of 4 or 5, retain all green patches greater than 0.5ha in area.	Green patches have been maintained in accordance with the Prescriptions and meet the area specifications.						
5A46	*Fire Salvage Harvesting Prescriptions 2009*	8.2.3 Green Patch Exclusion Areas	Where more than 15% and less than 40% of Ash dominated forest within a compartment is classified as fire severity class 4 or 5, retain, in exclusion areas, all green patches greater than 5ha in area.	Green patches have been maintained in accordance with the Prescriptions and meet the area specifications.						
5A47	*Fire Salvage Harvesting Prescriptions 2009*	8.2.4 Green Patch Exclusion Areas	Green patches may be harvested where, within a compartment, more than 40% Ash dominated forest is classified as fire severity class 4 or 5. The total area of fire severity class 4 or 5 Ash within a salvage coupe must not exceed 40ha.	Percentage of Ash is larger than 40% if green patches have been harvested. Total area of fire salvage does not exceed 40ha.						

Forest Coupe Plans

Exclusion Zones – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Comments:

Forest Audit – Measurement Guide

Environmental Impact Assessment

When considering a code breach relating to the workbook elements, the impact of the breach on the environment must be assessed using the environmental impact assessment method as a guide. The impact assessment is to be based on the non-compliance observed at the time of audit and must be conducted in consultation with a forest officer.

The environmental impact assessment is based on the following factors:

- ***Extent of Impact or Disturbance within* sample (E)**
  - The extent of the impact, measure as a relative percentage of the sampled area or length. Defined into 4 categories.
    - 0 – 10%
    - 11 – 25%
    - 26 – 50%
    - >50%
  - A fifth category is used when the impact or disturbance results in an offsite effect, that is an area outside of the coupe boundary is affected.
- ***Duration of impact or expected time to recover (t)***
  - The duration of the impact is defined as the period in which the area will recover to pre-impacted levels. The impact period is defined by three levels,
    - Short Term 0 – 12 months
    - Medium Term 12 – 36 months
    - Long Term > 3 years
- ***Environmental Asset Value (z)***
  - The environmental asset value of the impacted area is defined by the relative resilience and resistance of the area affected, and the value of the area as defined by is protection endorsed within the Code of Forest Practice. The environmental asset value is divided into four categories;
    - General environmental value
    - Filter or drainage line
    - Representative SPZ, i.e. habitat corridors, landscape buffers and some linear buffers.
    - Specific SPZ, i.e. for specific flora and fauna, rainforest buffers and riparian or streamside reserve buffers.

Environmental Impact Assessment Rating

	Duration of Impact (t)		
Extent (E)	Short Term	Medium Term	Long Term
0 - 10%	A	C	F
11 - 25%	B	E	H
26 - 50%	C	F	I
> 50%	D	G	J
offsite	E	H	K

	Environmental Asset Value (z)			
Et Value	**General**	**Filter**	**rSPZ / LR / LB**	**sSPZ / RB / RF**
A	Negligible	Negligible	Minor	Minor
B	Negligible	Minor	Moderate	Moderate
C	Negligible	Minor	Moderate	Moderate
D	Negligible	Moderate	Moderate	Moderate
E	Minor	Moderate	Moderate	Major
F	Minor	Moderate	Major	Major
G	Moderate	Moderate	Major	Major
H	Moderate	Major	Major	Major
I	Moderate	Major	Major	Severe
J	Moderate	Major	Severe	Severe
K	Major	Major	Severe	Severe

ENVIRONMENTAL AUDIT
FOREST AUDIT PROGRAM
TIMBER PRODUCTION IN STATE FORESTS

«FMA» FMA

COUPE: *«CoupeName»*
«Recce_allCoupe»

Module 5 Harvesting and Closure

Workbook 5B: River Health, Water Quality and Soil Assessment

Summary Page

Positive Observations:	Non-compliances identified and acted on by DSE / VicForests in their supervisor capacity (include contractor penalties allocated)
• • • • •	• • • • •

Elements of Non-Compliance:

Compliance Sub-element	Finding	EIA

Areas for Improvement:	Further evidence required:
• • • • • •	• • • • • •

Previous Key Audit Findings

What key findings were observed during the previous environmental audit?
The auditor will require an understanding of previous key findings in order to provide commentary on current practices and improvements over time. Comments:

Forest Audit – Coupe Information

Coupe number:	*«Recce_allCoupe»*	**Coupe name:**	*«CoupeName»*						
District:	«DistrictName»	**Coupe area:**	«MaxOfProposedNetArea» ha -						
Elevation (m): ASL):	«Elevation» m	**Stand Description / Vol:**	e.g. Mature	«MaxOfLogVolume» m3					
General aspect:	e.g. SE	**Forest type:**	«ForestType»						
Supervisor (FO):	Supervisor – «LastOfSupervisor» Team Leader – «LastOfTeamLeader»	**Endorsement Categories:**	Flora & Fauna	Catchment	Parks	Forest Mgt	Forestry Victoria	Fire Mgt	DSE Region
Contractor:	«LastOfContractor»		«FloraFauna»	«Water»	«Parks»	«Forest Mgmt»	«VicForests»	«FireMgmt»	«RegMgmt»
Silvicultural system:	«SilvicultureSystem»	**SEH topsoil / subsoil:**	«TopsoilErosion»/ «SubsoilErosion»						
Machinery used:	Skidder / Hand Fallen / Mechanical Harvest	**Soil Permeability:**							
Coupe Operation:	«MinOfStartDate» to «MaxOfFinishDate»	**Grid Reference:**	E: «EastingADG66»N«NorthingADG66»						
Comments:	Flora: **«FloraValues»** Fauna: **«FaunaValues»**	**Absolute Risk Rating:**	«Abs_risk»						
		Selection Values: Slope Class – Soil Erosion Hazard – Silvicultural System, Property Restrictions	Slope – «Slope_risk»Soil erosion – «Soil_erosion_risk»Silviculture – «Silv_risk»and Protection – «Protection_risk»						
Special (salvage) plan?	«Type»	**Slope (º) Low-High:**	«SlopeMin»- «SlopeMax»						
Are there SPZ / SMZs?	«ManagementZone»	**Season of operation:**	«HarvestSeason»						
People Present:	Auditor and Audit Team: Auditees:		**Audit date:**						

AA = Alpine Ash, BG = Blue Gum, CT = Cut Tail, CY = Mountain Grey Gum, DA = Mountain Gum, MA = Mountain Ash, MM = Messmate, OS = Other Species, PM = Peppermint Spp, SG = Shinning Gum, ST = Silvertop Ash, VM = Manna Gum, WS = White Stringybark

Forest Audit – Coupe Map

Include coupe map from harvest plan, note on map:

- Location and identification of roads, buffers, landings and skid tracks audited
- Any other relevant information

General comments and observations on the coupe

General notes:

Local prescriptions and Management Procedures:

Where the code or audit criteria refer to the Management Procedures or Salvage Prescriptions, the relevant document(s) will depend on when the operation started.

Interpretation of 'should' vs 'must':

The use of the term 'should' within the code is interpreted within the context of this audit as being a specific requirement of the code. DSE comments on the interpretation of 'should' vs 'must', have been reviewed for reference included in the 'comments' column of the workbook, where appropriate. Where the Code states" .....should....., where necessary,.... ," this is taken to mean that this is a requirement in certain circumstances, but not all the time.

GPS use: *With to regard to GPS measurements, the auditor will review the data and adopt a practical approach to specific situations and localities. Where GPS data is relied upon or referred to, the datum and coordinate system used should be noted*

Water Quality, River Health and Soil Protection

Operational Goal: Water quality and river health are maintained or improved by protecting waterways from disturbance.
Soil erosion and water pollution are minimised by avoiding harvesting in inappropriate areas or slopes and undertaking necessary preventive measures.

Water Quality, River Health and Soil Protection — Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B1	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	The potential risk to water quality is determined through consideration of: ▪ soil erodibility; ▪ soil permeability; ▪ rainfall erosivity; ▪ topography; and ▪ location of coupe infrastructure.	The coupe plan must describe any particular measures employed to protect water quality. *Fauna Notes: «FaunaValues»* *SEH Topsoil: SEH Subsoil:* *Slope Range: «SlopeMin»-«SlopeMax»* *Soil Erosion Hazard* *Topsoil: «TopsoilErosion»* *Subsoil: «SubsoilErosion»*						
5B2	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Additional measures to protect water quality and aquatic habitat must be adopted within coupes where there is a high local risk due to local topography.	Evidence that additional protection measures have been implemented. *F&F Endorsement Category: «FloraFauna»* *Flora Notes: «FloraValues»*						
5B3	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Additional measures to protect water quality and aquatic habitat must be adopted within coupes where there is a high local risk due to the intensity and magnitude of the harvesting operation.	Evidence that additional protection measures have been implemented.						

Water Quality, River Health and Soil Protection — Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B4	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Additional measures to protect water quality and aquatic habitat must be adopted within coupes where there is a high local risk due to the location of the operation in a declared Special Water Supply Catchment area or water supply protection area.	Evidence that additional protection measures have been implemented. SWSC requirements are detailed in Schedule 6 of the Mgmt Procedures. *Water Catchment = «Catchment»* *CAS Endorsement = «WaterCatchment»*						
5B5	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Outcomes of risk assessments, buffers and filter strips must be specified on the basis of field assessments, and subsequently identified on the Forest Coupe Plan.	Evidence of field assessments are documented with outcomes identified in the coupe plan.						
5B6	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Areas within the coupe that are to be excluded from harvesting, or to which special prescriptions apply, must be marked on the coupe plan.	Exclusion areas are marked on the coupe plan.						

Water Quality, River Health and Soil Protection

Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Comments:

Water Quality, River Health and Soil Protection

Waterways – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B7	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Crossing of waterways must be minimised.	The number of crossings has been minimised.						
5B8	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Where crossings involve the use of log culverts, these must be removed when harvesting (including any regeneration activities) is completed.	Log culverts have been removed.						
5B9	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	When removing crossings, techniques that minimises soil disturbance must be used.	Soil disturbance is minimal.						
5B10	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Waterways within and immediately adjacent to each coupe must be classified using the waterway classification system. The classification of a waterway is based on its characteristics prior to harvesting, noting that stream flow may change following harvesting.	Evidence of adequate waterway classification.						

Water Quality, River Health and Soil Protection — Waterways – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B11	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Buffers and filter strips must be applied to each waterway class regardless of the origins of the channelling.	Buffers and filters have been applied.						

Comments:

Waterway Classification

The classification of a waterway is based on its characteristics prior to harvesting, noting that stream flow may change following harvesting.

Source: Code, Section 2.2.1 pg19 and Glossary pg 74-81.

1. Pools, permanent streams and wetlands (Pools of still water at least 4 metres in diameter within or adjacent to the main channel of a permanent or temporary stream. Permanent spring, swampy ground, wetland or other body of standing water. Rivers and streams that flow throughout the year however may stop flowing or dry out in extremely dry years. Support distinctive riparian vegetation)

2. Temporary streams (clearly defined stream bed or continuous channel, obvious incision, distinctive riparian veg, flow during certain seasonal periods of the year)

3. Drainage lines (depressions that have visible evidence of periodically flowing water that feed into temporary or permanent streams. A defined channel may or may not be present. Visible water flow would be expected after storm events or briefly in the wettest times of the year. Riparian veg may or may not be present)

Water Quality, River Health and Soil Protection — Buffers – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B12	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Water quality and river health must be protected by maintaining buffers and/or filter strips (to each side of the waterway)	Buffers must not be less than the widths specified in Table 2 of the code. *REFER TO MEASUREMENTS* *Fauna Notes: «FaunaValues»* *SEH Topsoil: SEH Subsoil:* *Slope Range: «SlopeMin»-«SlopeMax»*						
5B13	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	The location of buffers and filter strips must be easily distinguishable in the field, either through the use of geographic features or marking.	Buffer shown on coupe plan and identified in field. *REFER TO MEASUREMENTS*						
5B14	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Trees must not be felled from within buffer areas unless the selective removal of trees for safety is approved by an authorised officer and documented in the Forest Coupe Plan.	Tree(s) have not been felled from within buffer strips.						
				Any removals must be approved and noted on the Forest Coupe Plan.						
				If removed, trees knocked into the buffer by accident should be noted on the Forest Coupe Plan.						

Water Quality, River Health and Soil Protection

Buffers – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B15	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Trees accidentally felled into buffers may be removed only where authorised and only if significant damage and disturbance of soil and vegetation within the buffer can be avoided.	Removal of trees felled into the buffer zones have been approved and tree(s) felled into buffer strips are removed without causing significant damage and disturbance to retained vegetation and soil.						
5B16	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Buffers must be protected from damage caused by trees felled in adjacent areas.	Buffer is intact.						
5B17	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Machinery must not enter a buffer area except for the construction and use of stream crossings as specified in the approved Forest Coupe Plan.	Machinery has not entered buffer strip in a non-approved stream crossing.						
5B18	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	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.	Fill or harvesting debris has not been pushed into buffer and drain structures have not been created.						

Water Quality, River Health and Soil Protection

Buffers – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B19	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Buffer and filter strips must be increased beyond the measures listed whenever appropriate to take account of topography.	Buffer widths increased if required. *Slope Range: «SlopeMin»-«SlopeMax»*						
5B20	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Buffer and filter strips must be increased beyond the measures listed whenever appropriate to take account of intensity and magnitude of the harvesting operation.	Buffer widths increased if required.						
5B21	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Buffer must be increased beyond the measures listed whenever appropriate to take into account the location of a water supply 'take-off' point.	Buffer widths increased if required. *Water Supply: «Catchment»*						
5B22	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Buffer and filter strips must be increased beyond the measures listed whenever appropriate to take account of any other requirements set out in Special Area Plans under the *Catchment and Land Protection Act 1994*.	Buffer widths increased if required.						

Water Quality, River Health and Soil Protection — Buffers – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B23	*Fire Salvage Harvest Prescriptions 2009*	4.4 Water Quality	During harvesting of fire salvage, the buffer and filter prescriptions must be increased beyond the measures listed for site with high or very high water quality risk.							
5B24	*Fire Salvage Harvest Prescriptions 2009*	9.1 Barred Galaxias Management Prescription	During harvesting of fire salvage, minimum stream buffer and filter strip widths must be applied upstream of Barred Galaxias populations (all soils). see below	Buffer widths comply.						

Comments:

Minimum stream buffer and filter width strips for Barred Galaxias

Source: Section 9.1, Salvage Prescriptions

Stream class	***Slope 0-20° ****	***Slope 21-30°***
Permanent	40m B + 10m F	50m B + 10m F
Temporary	20m B + 20m F	30m B+ 20m F
Drainage Lines	10m F	15m F
Wetlands	40m B	50m B

*Slope should be regarded as the average slope of the coupe area in the vicinity of the water body and within the catchment

* The width of buffer and filter strips must be measured from the edge of the saturated zone (at time of harvesting) or channel (whichever is greater), on each side of the waterway.

* The width of buffer and filter strips must be measured in the horizontal plane.

Water Quality, River Health and Soil Protection — Filters – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B25	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Water quality and river health must be protected by maintaining buffers and/or filter strips (to each side of the waterway).	Filters must not be less than the widths specified in Table 2 of the Code. *Fauna Notes: «FaunaValues»* *SEH Topsoil: SEH Subsoil:* *Slope Range: «SlopeMin»-«SlopeMax»*						
5B26	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	The location of buffers and filter strips must be easily distinguishable in the field, either through the use of geographic features or marking	Evidence of filter strips in the field. *REFER TO MEASUREMENTS*						
5B27	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Trees may be felled from within filter strips. The felling of trees into filter strips must be avoided where possible.	Code guidelines followed.						
5B28	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Disturbance to soil and understorey vegetation from harvesting operations in filter strips must be minimised. Directing trees to fall out of filter strips may reduce soil disturbance.	Code guidelines followed.						

Water Quality, River Health and Soil Protection

Filters – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B29	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Machinery must not enter a filter strip, except at stream crossings as specified in the approved Forest Coupe Plan.	Machinery entered filter strip in agreed points only.						
5B30	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Pushing of fill or harvesting debris into a filter strip is not permitted except for the construction of an approved stream crossing.	Code guidelines followed.						
5B31	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Buffer and filter strips must be increased beyond the measures listed whenever appropriate to take account of topography.	Filter strip widths increased if required. *Slope Range: «SlopeMin»-«SlopeMax»*						
5B32	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Buffer and filter strips must be increased beyond the measures listed whenever appropriate to take account of intensity and magnitude of the harvesting operation.	Filter strip widths increased if required.						

Water Quality, River Health and Soil Protection

Filters – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B33	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Buffer and filter strips must be increased beyond the measures listed whenever appropriate to take account of any other requirements set out in Special Area Plans under the Catchment and Land Protection Act 1994.	Filter strip widths increased if required.						
5B34	*Fire Salvage Harvest Prescriptions 2009*	9.1 Barred Galaxias Management Prescription	During harvesting of fire salvage, minimum stream buffer and filter strip widths must be applied upstream of Barred Galaxias populations (all soils). see below.	Filter strip widths comply.						

Comments:

Minimum stream buffer and filter width strips for Barred Galaxias

Source: Section 9.1, Salvage Prescriptions

Stream class	***Slope 0-20° ****	***Slope 21-30°***
Permanent	40m B + 10m F	50m B + 10m F
Temporary	20m B + 20m F	30m B+ 20m F
Drainage Lines	10m F	15m F
Wetlands	40m B	50m B

*Slope should be regarded as the average slope of the coupe area in the vicinity of the water body and within the catchment

Water Quality, River Health and Soil Protection

Filters - Guidance

Ref	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5B35	*Fire Salvage Harvest Prescriptions 2009*	9.2 Barred Galaxias Management Prescription	During harvesting of fire salvage, harvesting slash should be retained in filter strips, and aligned parallel to the stream, to slow the flow of water and reduce the potential for sediment to enter the stream or wetland.	Evidence that harvesting slash is retained in filter strips.	

Comments:

Water Quality, River Health and Soil Protection

Slopes – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B36	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Timber harvesting must not occur on slopes where the operation cannot be conducted safely, threatens the stability of the soil or has high potential for adverse off-site effects. The potential for mass soil movement must be assessed and necessary preventative actions undertaken.	Logging techniques employed on site are specifically designed for steep slopes (such as cable logging) to minimise soil movement.						
5B37	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Harvesting operations must be excluded from slopes greater than 30 degrees. The exception to this is where there are small areas within coupes (not greater than 10% of the net harvestable area within one coupe) that are greater than the maximum slope limit and may be harvested where the land is assessed as capable of supporting harvesting activities without risk of mass soil movement.	Harvesting activities have been restricted accordingly. *Slope Range: «SlopeMin» - «SlopeMax»*						

Water Quality, River Health and Soil Protection

Slopes – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B38	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	On slopes with a high soil erosion hazard or where there is an assessed risk of mass soil movement, 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.	Slope restrictions have been followed. Soil and water values are protected by the limitation of harvesting operations on steep slopes or on lesser slopes of unstable soil where erosion hazard is high *Soil Erosion Hazard* *Topsoil: «TopsoilErosion»* *Subsoil: «SubsoilErosion»*						

Comments:

Slope Correction Table

Horizontal distance (LHS), slope (top) and slope distance

m	*4°*	*6°*	*8°*	*10°*	*12°*	*14°*	*16°*	*18°*	*20°*	*22°*	*24°*	*26°*	*28°*	*30°*	*32°*	*34°*	*36°*	*38°*
20	20					21				22			23		24		25	
60	60		61			62		63	64	65	66	67	68	69	71	72	74	76
80	80		81		82		83	84	85	86	88	89	91	92	94	96	99	102
100	100	101		102		103	104	105	106	108	109	111	113	115	118	121	124	127
200	200	201	202	203	204	206	208	210	213	216	219	223	227	231	236	241	247	254

Water Quality, River Health and Soil Protection

Slopes – Guidance

Ref	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5B39	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Slope limits additional to those prescribed by the Code are specified in some FMPs and SAPs. Where these are specified, the greater slope limit should be applied.	Forest Coupe Plan states maximum harvesting slope and the limit is applied in the field. *Also Refer to Schedule 6 of the Mgmt Procedures* *Max Slope: «SlopeMax»*	

Comments:

Water Quality, River Health and Soil Protection

Camp Maintenance, Fuel Storage & Waste Disposal – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B40	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Storage, use and disposal of petroleum products and machinery servicing must not pollute the environment or result in littering.	Evidence that refuelling and/or maintenance is not located close to sensitive sites. No visible signs of pollution or litter.						
5B41	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Waste oil, all empty drums, discarded machinery parts and other waste must be removed from the forest and taken to an approved disposal facility.	Documented evidence of disposal of wastes to an approved disposal facility. No waste on site.						
5B42	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	Toilet wastes must not be allowed to enter a waterway.	Toilet waste has been managed appropriately.						

Comments:

Water Quality, River Health and Soil Protection

Water Catchments – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5B43	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	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*.	Special Area Plans have been considered as part of coupe management						
5B44	*Code of Practice for Timber Production 2007*	2.2.1 Water Quality, River Health and Soil Protection	The *Catchment and Land Protection Act 1994* requires all landholders to control pest animals and noxious weeds on their property.	No apparent pest animals or weeds; or if small numbers present, evidence of an appropriate control and monitoring program having been implemented.						
5B45	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.4.2 (a)	Timber harvesting operations must be excluded from Heritage River Areas and Natural Catchment Areas in accordance with Heritage Rivers Act 1992 (except where permitted in parts of the Goulburn and the Ovens Heritage River Areas).	Boundaries and exclusion areas of Heritage River Areas and Natural Catchment Areas (as defined in the Act) are identified in the field through ground observation and are specified on the Forest Coupe Plan.						

Water Quality, River Health and Soil Protection — Water Catchments – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Comments:

Soil Assessment — Measurement

Measurement Methodology:

Using the 'Field guide and assessment kit - soil erosion hazard assessment and soil permeability assessment and classification' determine the:
i). soil erosion classification; and
ii). soil permeability classification.

Combine the soil erosion and soil hazard classifications to determine an overall soil category

Soil Permeability Classification	**Soil Erosion Classification**			
	Low	Medium	High	Very High
Low	M	M	H	VH
High	L	L	M	M

Use this overall soil category to determine water quality risk.

Overall Soil Category	**Water Quality Risk**
Low	Low Water Quality Risk
M	Moderate Water Quality Risk
H	High Water Quality Risk
VH	Very High Water Quality Risk

Source: *Soil Erosion Hazard and Soil Permeability Assessment and Classification*, Forest Management Branch Forests Service, Department of Natural Resources and Environment, March 1999.

Buffers — Measurement

Measurement Methodology:

If available, assess at least two and up to four 200m sections of buffer and measure widths of buffer strips for at least 2 and up to 4 points along two 200-metre strips where necessary to determine compliance to relevant FMP / Statewide Management Procedures.

Specification source: Code, Section 2.2.1 pg19	**Sites with low or moderate water quality risk**	**Sites with high or very high water quality risk**	
Stream Class /Slope	**0-30 degrees**	**0-20 degrees**	**21-30 degrees**
1. Pools, permanent streams and wetlands	20m Buffer	30m Buffer	40m Buffer
2. Temporary streams	10m Filter	10m Buffer + 10m Filter	20m Buffer
3. Drainage lines	10m Filter	10m Filter	15m Filter
Slope is the average slope of the coupe area in the vicinity of the water body.			

Buffer Strip One

Total Measured length: ……. m
Total Affected / Damaged length: ……. m
Relative percentage intact: ……%

n	Chain (m)	Width (m)	Comments / Details of Breach
1			
2			
3			
4			
5			
6			
7	-		
8	-		
9	-		
Avg			**TOTAL**

Buffer Strip Two

Total Measured length: ……. m
Total Affected / Damaged length: ……. m
Relative percentage intact: ……%

n	Chain (m)	Width (m)	Comments / Details of Breach
1			
2			
3			
4			
5			
6			
7	-		
8	-		
9	-		
Avg			**TOTAL**

Reserved Area Protection – *Significant Habitat Areas - Landscape* — Measurement

Measurement Methodology:

If available, assess at least two and up to four 200m sections of buffer and measure widths of buffer strips for at least 2 and up to 4 points along two 200-metre strips where necessary to determine compliance to relevant FMP / Statewide Management Procedures.

Forest Management Plan prescriptions - Landscape:

Significant Habitat Buffer Strip One

Total Measured length: ……. m
Total Affected / Damaged length: ……. m
Relative percentage intact: ……%

n	Chain (m)	Width (m)	Comments / Details of Breach
1			
2			
3			
4			
5			
6			
7	-		
8	-		
9	-		
Avg			**TOTAL**

Significant Habitat Buffer Strip Two

Total Measured length: ……. m
Total Affected / Damaged length: ……. m
Relative percentage intact: ……%

n	Chain (m)	Width (m)	Comments / Details of Breach
1			
2			
3			
4			
5			
6			
7	-		
8	-		
9	-		
Avg			**TOTAL**

Reserved Area Protection – *Filters* Measurement

Measurement Methodology:

If available, assess at least 200 metres of filter strip during coupe inspection. Measure widths for at least 2 and up to 4 points along one 200-metre strip where necessary to determine compliance to relevant FMP / Statewide Management Procedures.

Source: Code of Forest Practices, 2007.	Sites with low or moderate water quality risk	Sites with high or very high water quality risk	
Slope / stream class	**0-30 degrees**	**0-20 degrees**	**0-30 degrees**
1. Permanent streams	20m Buffer	30m Buffer	20m Buffer
2. Temporary streams	10m Filter	10m Buffer + 10m Filter	10m Filter
3. Drainage lines	10m Filter	10m Filter	10m Filter

Filter Strip One

Total Measured length: ……. m
Total Affected / Damaged length: ……. m
Relative percentage intact: …….%

n	Chain (m)	Width (m)	Comments / Details of Breach
1			
2			
3			
4			
5			
6			
7	-		
8	-		
9	-		
Avg			**TOTAL**

Filter Strip Two

Total Measured length: ……. m
Total Affected / Damaged length: ……. m
Relative percentage intact: …….%

n	Chain (m)	Width (m)	Comments / Details of Breach
1			
2			
3			
4			
5			
6			
7	-		
8	-		
9	-		
Avg			**TOTAL**

Forest Audit – Measurement Guide

Environmental Impact Assessment

When considering a code breach relating to the workbook elements, the impact of the breach on the environment must be assessed using the environmental impact assessment method as a guide. The impact assessment is to be based on the non-compliance observed at the time of audit and must be conducted in consultation with a forest officer.

The environmental impact assessment is based on the following factors:

- ***Extent of Impact or Disturbance within* sample (E)**
  - The extent of the impact, measure as a relative percentage of the sampled area or length. Defined into 4 categories.
    - 0 – 10%
    - 11 – 25%
    - 26 – 50%
    - >50%
  - A fifth category is used when the impact or disturbance results in an offsite effect, that is an area outside of the coupe boundary is affected.
- ***Duration of impact or expected time to recover (t)***
  - The duration of the impact is defined as the period in which the area will recover to pre-impacted levels. The impact period is defined by three levels,
    - Short Term 0 – 12 months
    - Medium Term 12 – 36 months
    - Long Term > 3 years
- ***Environmental Asset Value (z)***
  - The environmental asset value of the impacted area is defined by the relative resilience and resistance of the area affected, and the value of the area as defined by is protection endorsed within the Code of Forest Practice. The environmental asset value is divided into four categories;
    - General environmental value
    - Filter or drainage line
    - Representative SPZ, i.e. habitat corridors, landscape buffers and some linear buffers.
    - Specific SPZ, i.e. for specific flora and fauna, rainforest buffers and riparian or streamside reserve buffers.

Environmental Impact Assessment Rating

	Duration of Impact (t)		
Extent (E)	Short Term	Medium Term	Long Term
0 - 10%	A	C	F
11 - 25%	B	E	H
26 - 50%	C	F	I
> 50%	D	G	J
offsite	E	H	K

	Environmental Asset Value (z)			
Et Value	**General**	**Filter**	**rSPZ / LR / LB**	**sSPZ / RB / RF**
A	Negligible	Negligible	Minor	Minor
B	Negligible	Minor	Moderate	Moderate
C	Negligible	Minor	Moderate	Moderate
D	Negligible	Moderate	Moderate	Moderate
E	Minor	Moderate	Moderate	Major
F	Minor	Moderate	Major	Major
G	Moderate	Moderate	Major	Major
H	Moderate	Major	Major	Major
I	Moderate	Major	Major	Severe
J	Moderate	Major	Severe	Severe
K	Major	Major	Severe	Severe

ENVIRONMENTAL AUDIT
FOREST AUDIT PROGRAM
TIMBER PRODUCTION IN STATE FORESTS

«FMA» FMA

COUPE: *«CoupeName»*
«Recce_allCoupe»

Module 5 Harvesting and Closure

Workbook 5C: Biodiversity Conservation

Summary Page

Positive Observations:	Non-compliances identified and acted on by DSE / VicForests in their supervisor capacity (include contractor penalties allocated)
• • • • •	• • • • •

Elements of Non-Compliance:

Compliance Sub-Element	Finding	EIA

Areas for Improvement:	Further evidence required:
• • • • • •	• • • • • •

Previous Key Audit Findings

What key findings were observed during the previous environmental audit?
The auditor will require an understanding of previous key findings in order to provide commentary on current practices and improvements over time. Comments:

Forest Audit – Coupe Information

Coupe number:	*«Recce_allCoupe»*	**Coupe name:**	*«CoupeName»*						
District:	«DistrictName»	**Coupe area:**	«MaxOfProposedNetArea» ha -						
Elevation (m): ASL):	«Elevation» m	**Stand Description / Vol:**	e.g. Mature	«MaxOfLogVolume» m3					
General aspect:	e.g. SE	**Forest type:**	«ForestType»						
Supervisor (FO):	Supervisor – «LastOfSupervisor» Team Leader – «LastOfTeamLeader»	**Endorsement Categories:**	Flora & Fauna	Catchment	Parks	Forest Mgt	Forestry Victoria	Fire Mgt	DSE Region
Contractor:	«LastOfContractor»		«FloraFauna»	«Water»	«Parks»	«Forest Mgmt»	«VicForests»	«FireMgmt»	«RegMgmt»
Silvicultural system:	«SilvicultureSystem»	**SEH topsoil / subsoil:**	«TopsoilErosion»/ «SubsoilErosion»						
Machinery used:	Skidder / Hand Fallen / Mechanical Harvest	**Soil Permeability:**							
Coupe Operation:	«MinOfStartDate» to «MaxOfFinishDate»	**Grid Reference:**	E: «EastingADG66»N«NorthingADG66»						
Comments:	Flora: **«FloraValues»** Fauna: **«FaunaValues»**	**Absolute Risk Rating:**	«Abs_risk»						
		Selection Values: Slope Class – Soil Erosion Hazard – Silvicultural System, Property Restrictions	Slope – «Slope_risk»Soil erosion – «Soil_erosion_risk»Silviculture – «Silv_risk»and Protection – «Protection_risk»						
Special (salvage) plan?	«Type»	**Slope (º) Low-High:**	«SlopeMin»- «SlopeMax»						
Are there SPZ / SMZs?	«ManagementZone»	**Season of operation:**	«HarvestSeason»						
People Present:	Auditor and Audit Team: Auditees:		**Audit date:**						

AA = Alpine Ash, BG = Blue Gum, CT = Cut Tail, CY = Mountain Grey Gum, DA = Mountain Gum, MA = Mountain Ash, MM = Messmate, OS = Other Species, PM = Peppermint Spp, SG = Shinning Gum, ST = Silvertop Ash, VM = Manna Gum, WS = White Stringybark

Forest Audit – Coupe Map

Include coupe map from harvest plan, note on map:

- Location and identification of roads, buffers, landings and skid tracks audited
- Any other relevant information

General comments and observations on the coupe

General notes:

Local prescriptions and Management Procedures:

Where the code or audit criteria refer to the Management Procedures or Salvage Prescriptions, the relevant document(s) will depend on when the operation started.

Interpretation of 'should' vs 'must':

The use of the term 'should' within the code is interpreted within the context of this audit as being a specific requirement of the code. DSE comments on the interpretation of 'should' vs 'must', have been reviewed for reference included in the 'comments' column of the workbook, where appropriate. Where the Code states" .....should....., where necessary,.... ," this is taken to mean that this is a requirement in certain circumstances, but not all the time.

GPS use: *With to regard to GPS measurements, the auditor will review the data and adopt a practical approach to specific situations and localities. Where GPS data is relied upon or referred to, the datum and coordinate system used should be noted*

Biodiversity Conservation

Operational Goal: Planning, harvesting and silvicultural operations in native forests specifically address the conservation of biodiversity, in accordance with relevant legislation and regulations, and considering relevant scientific knowledge

Biodiversity Conservation

Protection of Biodiversity Values – Mandatory Action

Ref	Origin	Section	Prescription	Audit Criteria		Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5C1	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	Mandatory Action; Where fire is used in timber production operations, all practicable measures must be taken to protect all areas excluded from harvesting from the impacts of unplanned fire.							
5C2	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	Forestry operations must comply with measures specified in relevant Flora and Fauna Guarantee Action Statements and Flora and Fauna Guarantee Orders.	Areas requiring specific management of flora and fauna conservation should be described in the Forest Coupe Plan and identified in the field. *F&F Endorsement Category: «FloraFauna»* *Flora Notes: «FloraValues»* *Fauna Notes: «FaunaValues»*						
5C3	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	Application of the precautionary principle to the conservation of biodiversity values, consistent with monitoring and research to improve understanding of the effects of forest management on forest ecology and conservation values, must be adhered to during operations.	Precautionary principle has been applied.						

Biodiversity Conservation

Protection of Biodiversity Values – Mandatory Action

Ref	Origin	Section	Prescription	Audit Criteria		Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5C4	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	Consideration of the advice of relevant experts and relevant research in conservation biology and flora and fauna management at all stages of operations must be adhered to.	Expert advice and research has been considered.						
5C5	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	Providing appropriate undisturbed buffer areas around significant habitats must be adhered to during operations.	Buffer widths comply with the Code and are undisturbed.						
5C6	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	Maintaining forest health and ecosystem resilience by managing pest plants, pest animals and pathogens must be adhered to during operations.	Evidence of the management of pest plants, pest animals and pathogens (various aspects of forest health may be monitored and documented in the forest coupe plan and/or coupe diary).						
5C7	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biological Diversity	Flora and fauna: Provide appropriate undisturbed buffer areas around significant habitats.	Buffer widths comply. *F&F Endorsement Category: «FloraFauna»* *Flora Notes: «FloraValues»* *Fauna Notes: «FaunaValues»*						

Biodiversity Conservation

Protection of Biodiversity Values – Mandatory Action

Ref	Origin	Section	Prescription	Audit Criteria		Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Comments:

Biodiversity Conservation

Habitat Trees – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5C8	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	At the coupe harvesting level, the retention of habitat trees or patches and longlived understorey elements in appropriate numbers and configurations must be allowed for.	Habitat trees have been retained in required numbers in accordance with Schedule 2 of the Management Procedures.						
				Habitat trees are adequately selected / marked and / or protected.						
				FCP specifies where buffers or other exclusion areas have been extended for the purpose of habitat retention. *(Mgmt Proc 1.4.5 (b))*						
5C9	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	At the coupe harvesting level, provision for the continuity and replacement of old hollow-bearing trees within the harvestable area, must be allowed for.	Replacement of habitat trees has been considered and selected and marked in accordance with the Code requirements.						

Biodiversity Conservation

Habitat Trees – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5C10	*Code of Practice for Timber Production 2007*	2.5.1 Coupe Planning	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.	Harvesting is excluded from special protection zones except for OHS reasons or construction of roads or stream crossings. Is appropriate documentary evidence of approval to fell trees for protection of public or OHS reasons available in the Coupe diary?						
5C11	*Code of Practice for Timber Production 2007*	2.5.1 Coupe Planning	Timber must only be felled from within the designated boundaries of an approved coupe as indicated on the Forest Coupe Plan and (where required) marked in the field.	Timber is only felled within areas defined in the FCP.						
5C12	*Code of Practice for Timber Production 2007*	2.5.1 Coupe Planning	Timber must not be directed to fall outside the coupe boundary unless the operator is specifically authorised otherwise and the reason for authorisation is documented.	Timber is only felled within areas defined in the FCP unless documented authorisation is provided.						
The following prescriptions also apply for salvage operations within Alpine and Mountain Ash dominated forest only:										

Biodiversity Conservation

Habitat Trees – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5C13	*Fire Salvage Harvesting Prescriptions 2009*	8.1 Habitat Tree Exclusion Areas	Retain an average of at least 5 habitat trees per hectare of net coupe area in exclusion areas of greater than 0.1ha. *Note: Replaces Schedule 2 of the Management Procedures (habitat tree requirements for Ash salvage). Prescriptions protecting trees of pre-1900 origin continue to apply for Central Highlands.*	Appropriate numbers of habitat trees have been protected in exclusion areas of >0.1ha						

Comments:

Biodiversity Conservation — Habitat Trees – Guidance

Ref	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5C14	*Fire Salvage Harvesting Prescriptions 2009*	8.1.2 Habitat Tree Exclusion Areas	Situate habitat tree exclusion areas to maximise retention of high priority habitat trees taking into consideration, the following order of priority: 1. large live hollow trees 2. large live trees without hollows 3. large dead trees 4. small live trees 5. small dead trees	Exclusion areas maximise the retention of habitat trees and have been selected according to the priority listed in the Prescriptions. *Note: Trees greater than 50cm DBHOB are considered to be large.*	
5C15	*Fire Salvage Harvesting Prescriptions 2009*	8.1.3 Habitat Tree Exclusion Areas	Situate habitat tree exclusion areas to maximise retained forest connectivity within the coupe.	Habitat tree retention has maximised forest connectivity within the coupe.	
5C16	*Fire Salvage Harvesting Prescriptions 2009*	8.1.4 Habitat Tree Exclusion Areas	Arrange the shape and location of habitat tree exclusion areas to reduce ongoing operational and weather related damage to habitat trees.	Exclusion areas do not promote damage to habitat trees.	

Comments:

Biodiversity Conservation — Rainforest – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5C17	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	Rainforest communities in Victoria must not be harvested.	Rainforest has been identified and is not harvested. *Mgt Zone: «ManagementZone»*						
5C18	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	Rainforest communities 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.	Buffer widths comply.						

Comments:

Biodiversity Conservation

Rainforest - Guidance

Ref	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5C19	*Code of Practice for Timber Production 2007*	2.2.2 Conservation of Biodiversity	Roads should be located to minimise disturbance to rainforest in areas not associated with approved crossings.	Road locations have been made to minimise disturbance to rainforest.	

Comments:

FOREST AUDIT PROGRAM, AUDIT WORKBOOK 5C – BIODIVERSITY CONSERVATION

Biodiversity Conservation

Forest Health- Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5C20	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.9(c)i Weed Control	Pre-harvest noxious weed assessment must be undertaken to determine the type and extent of weeds on the coupe and on associated access roads.	Pre-harvest weed assessment is documented in the coupe plan or coupe diary.						
5C21	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.9 Weed Control	Post-harvest assessments to determine type and extent of weeds on the coupe and associated access roads must be undertaken the first spring after completion of site preparation and establishment and during the stocking survey.	Evidence of post-harvest weed assessments is documented. *F&F Endorsement Category: «FloraFauna»* *Flora Notes: «FloraValues»* *Fauna Notes: «FaunaValues»*						
5C22	*Code of Practice for Timber Production 2007*	2.3.4 Forest Health	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.	Forest hygiene procedures have been followed to prevent the introduction of weeds during timber harvest.						

Biodiversity Conservation

Forest Health- Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5C23	*Fire Salvage Harvesting Prescriptions 2009*	6.1 Regeneration	Soil must be cleaned from all harvesting machinery (excluding trucks and passenger vehicles) before floating to or from a salvage coupe. *Note: Replaces section 1.3.9(c) i) of the Management Procedures where pre-harvest disease and weed infestations cannot be assessed due to fire effects*	Evidence can be provided that this has occurred.						
5C24	*Code of Practice for Timber Production 2007*	2.3.1 Regeneration	If the introduction of a new or unknown exotic agent is suspected, Biosecurity Victoria must be informed.							
5C25	*Code of Practice for Timber Production 2007*	2.3.1 Regeneration	Where Myrtle Wilt fungus (*Chalara australis*) is known to exist, precautionary measures must be applied to minimise the spread of this pathogen.	Operators have minimised damage to individual Myrtle Beech trees. Myrtle Beech subject to ongoing damage by vehicles has been pruned. Wounds on Myrtle Beech (including pruned trees) have been treated with a commercial, waterproof would sealant. Sterilising with anti-fungal or warm water and soap should be used on equipment prior to movement to a new area.						*See also Mgmt Proc 1.3.10(c)*

Biodiversity Conservation

Forest Health- Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Comments:

Habitat Trees

Measurement

Habitat Tree Prescriptions: See Schedule 2 of Management Procedures for timber harvesting, roadign and regeneration in Victoria's State Forests, 2009.

Net Area Coupe Area: «MaxOfProposedNetArea»

Required No. Retained Habitat Trees:

Approximate number of trees retained:

Number of suitably selected and protected habitat trees:

Number of retained trees excluded due to poor selection or protection:

Measurement Guidelines: Assess coupe for retention of prescribed numbers of habitat. Record the number inspected and where retained trees are damaged by harvesting operations and / or where debris accumulated around the tree base does not comply with prescriptions. Record general comments on selection and protection of retained trees.

FMA/ FMP	Forest Type	Habitat Tree Requirements	Comment
East Gippsland	All	4 – 5 trees per ha	Seed trees currently left should be counted towards habitat tree numbers.
Tambo	Ash/HEMS Mixed Species	4 – 5 trees per ha 4 – 5 trees per ha	Generally consistent with the Central Highlands FMP. Seed trees currently left should be counted towards habitat tree numbers.
Central Gippsland (other than Central Highlands FMP area)	All	4 – 5 tree per ha	Seed tree currently left should be counted towards habitat numbers.
Central Highlands (Central, Dandenong and part of Central Gippsland).	Ash/HEMS Mixed Species	All ash eucalypts originating before 1900 At least 40 trees per 10ha for the length of the rotation in ash forests originating since 1900 and in all mixed-species forests 40+ trees per 10ha	Current prescription agreed in the Central Highlands FMP should be applied.
Benalla/Mansfield	Ash/HEMS Mixed Species	4 – 5 trees per ha 4 – 5 trees per ha	Seed trees currently left should be counted towards habitat tree numbers.
North East (Wangaratta and Wodonga)	Ash/HEMS Mixed Species	4 – 5 trees per ha 4 – 5 trees per ha	Seed trees currently left should be counted towards habitat tree numbers.
Otway	All	5 trees per ha (net coupe area) / 10 trees per ha (gross coupe area)	
Midlands	All	3 trees per ha except Box Ironbark.	Refer below for Box-ironbark prescriptions.
Mid Murray	All	20 trees per 10ha (≥50cm but ≤100 cm DBHOB) Retain all trees (>100cm DBHOB)	
Bendigo	All	See below.	
Horsham	All	10 trees per 10ha 5 potential habitat trees per 10ha 5 dead trees with hollows per 10ha	Any additional trees above the 10 trees per 10ha should be retained in place of potential habitat and dead trees.
Portland	All	Retain habitat trees to a basal area of 2 – 4m²/ha Specific prescriptions for Yellow Bellied Glider.	Group selection.
Mildura	River Red Gum	20 trees per 10ha (≥50cm but ≤100 cm DBHOB) Retain all trees (>100cm DBHOB)	

Notes:

- In all cases except the Otway FMA, habitat tree retention rates apply to the net coupe area.
- The net coupe area is the gross coupe area, less exclusion areas (e.g. streamside buffers, rainforest buffers, and Heritage River Areas). Large and readily identifiable exclusion areas (e.g. Large areas >30°) should be identified prior to the commencement of timber harvesting operations, roading and regeneration. Smaller exclusion areas that are not readily identified until timber harvesting operations and associated activities commence (e.g. small rocky areas, small areas of steep slope, inaccessible areas) may be left unharvested and counted as retained habitat within the net coupe area. Buffers extended beyond the minimum requirements of the *Code* should be included in the net coupe area and counted towards retained habitat.
- This table does not fully represent the detail of current prescriptions. Refer also 1.4.5 of these Procedures and relevant FMP.

Comments:

Rainforest (*and Myrtle Beech)* Measurement

Measurement Methodology:

If available, assess at least two and up to four 200m sections of buffer and measure widths of buffer strips for at least 2 and up to 4 points along two 200-metre strips where necessary to determine compliance to relevant FMP / Management Procedures.

Forest Management Plan prescriptions - Rainforest:

- Section 4.8 of Statewide Management Procedures states rainforest buffers should be measured from the outer extent of the rainforest canopy, not from the trunks of rainforest trees

Rainforest / Myrtle Buffer One

Total Measured length: ……. m
Total Affected / Damaged length: ……. m
Relative percentage intact: ……%

n	Chain (m)	Width (m)	Comments / Details of Breach
1			
2			
3			
4			
5			
6			
7	-		
8	-		
9	-		
Avg			**TOTAL**

Rainforest / Myrtle Buffer Two

Total Measured length: ……. m
Total Affected / Damaged length: ……. m
Relative percentage intact: ……%

n	Chain (m)	Width (m)	Comments / Details of Breach
1			
2			
3			
4			
5			
6			
7	-		
8	-		
9	-		
Avg			**TOTAL**

Forest Audit – Measurement Guide

Environmental Impact Assessment

When considering a code breach relating to the workbook elements, the impact of the breach on the environment must be assessed using the environmental impact assessment method as a guide. The impact assessment is to be based on the non-compliance observed at the time of audit and must be conducted in consultation with a forest officer.

The environmental impact assessment is based on the following factors:

- ***Extent of Impact or Disturbance within* sample (E)**
  - The extent of the impact, measure as a relative percentage of the sampled area or length. Defined into 4 categories.
    - 0 – 10%
    - 11 – 25%
    - 26 – 50%
    - >50%
  - A fifth category is used when the impact or disturbance results in an offsite effect, that is an area outside of the coupe boundary is affected.
- ***Duration of impact or expected time to recover (t)***
  - The duration of the impact is defined as the period in which the area will recover to pre-impacted levels. The impact period is defined by three levels,
    - Short Term 0 – 12 months
    - Medium Term 12 – 36 months
    - Long Term > 3 years
- ***Environmental Asset Value (z)***
  - The environmental asset value of the impacted area is defined by the relative resilience and resistance of the area affected, and the value of the area as defined by is protection endorsed within the Code of Forest Practice. The environmental asset value is divided into four categories;
    - General environmental value
    - Filter or drainage line
    - Representative SPZ, i.e. habitat corridors, landscape buffers and some linear buffers.
    - Specific SPZ, i.e. for specific flora and fauna, rainforest buffers and riparian or streamside reserve buffers.

Environmental Impact Assessment Rating

	Duration of Impact (t)		
Extent (E)	Short Term	Medium Term	Long Term
0 - 10%	A	C	F
11 - 25%	B	E	H
26 - 50%	C	F	I
> 50%	D	G	J
offsite	E	H	K

	Environmental Asset Value (z)			
Et Value	**General**	**Filter**	**rSPZ / LR / LB**	**sSPZ / RB / RF**
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E	Minor	Moderate	Moderate	Major
F	Minor	Moderate	Major	Major
G	Moderate	Moderate	Major	Major
H	Moderate	Major	Major	Major
I	Moderate	Major	Major	Severe
J	Moderate	Major	Severe	Severe
K	Major	Major	Severe	Severe

ENVIRONMENTAL AUDIT
FOREST AUDIT PROGRAM
TIMBER PRODUCTION IN STATE FORESTS

«FMA» FMA

COUPE: *«CoupeName»*
«Recce_allCoupe»

Module 5 Harvesting and Closure
Workbook 5D: Operational Provisions

Summary Page

Positive Observations:	Non-compliances identified and acted on by DSE / VicForests in their supervisor capacity (include contractor penalties allocated)
• • • • •	• • • • •

Elements of Non-Compliance:

Compliance Sub-element	Finding	EIA

Areas for Improvement:	Further evidence required:
• • • • • •	• • • • • •

Previous Key Audit Findings

What key findings were observed during the previous environmental audit?
The auditor will require an understanding of previous key findings in order to provide commentary on current practices and improvements over time. Comments:

Forest Audit – Coupe Information

Coupe number:	*«Recce_allCoupe»*	**Coupe name:**	*«CoupeName»*						
District:	«DistrictName»	**Coupe area:**	«MaxOfProposedNetArea» ha -						
Elevation (m): ASL):	«Elevation» m	**Stand Description / Vol:**	e.g. Mature	«MaxOfLogVolume» m3					
General aspect:	e.g. SE	**Forest type:**	«ForestType»						
Supervisor (FO):	Supervisor – «LastOfSupervisor» Team Leader – «LastOfTeamLeader»	**Endorsement Categories:**	Flora & Fauna	Catchment	Parks	Forest Mgt	Forestry Victoria	Fire Mgt	DSE Region
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Silvicultural system:	«SilvicultureSystem»	**SEH topsoil / subsoil:**	«TopsoilErosion»/ «SubsoilErosion»						
Machinery used:	Skidder / Hand Fallen / Mechanical Harvest	**Soil Permeability:**							
Coupe Operation:	«MinOfStartDate» to «MaxOfFinishDate»	**Grid Reference:**	E: «EastingADG66»N«NorthingADG66»						
Comments:	Flora: **«FloraValues»** Fauna: **«FaunaValues»**	**Absolute Risk Rating:**	«Abs_risk»						
		Selection Values: Slope Class – Soil Erosion Hazard – Silvicultural System, Property Restrictions	Slope – «Slope_risk»Soil erosion – «Soil_erosion_risk»Silviculture – «Silv_risk»and Protection – «Protection_risk»						
Special (salvage) plan?	«Type»	**Slope (º) Low-High:**	«SlopeMin»- «SlopeMax»						
Are there SPZ / SMZs?	«ManagementZone»	**Season of operation:**	«HarvestSeason»						
People Present:	Auditor and Audit Team: Auditees:		**Audit date:**						

AA = Alpine Ash, BG = Blue Gum, CT = Cut Tail, CY = Mountain Grey Gum, DA = Mountain Gum, MA = Mountain Ash, MM = Messmate, OS = Other Species, PM = Peppermint Spp, SG = Shinning Gum, ST = Silvertop Ash, VM = Manna Gum, WS = White Stringybark

Forest Audit – Coupe Map

Include coupe map from harvest plan, note on map:

- Location and identification of roads, buffers, landings and skid tracks audited
- Any other relevant information

General comments and observations on the coupe

General notes:

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Where the code or audit criteria refer to the Management Procedures or Salvage Prescriptions, the relevant document(s) will depend on when the operation started.

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GPS use: *With to regard to GPS measurements, the auditor will review the data and adopt a practical approach to specific situations and localities. Where GPS data is relied upon or referred to, the datum and coordinate system used should be noted*

Operational Restrictions

Operational Goals: During or following wet weather conditions, timber harvesting operations are modified or where necessary suspended to minimise risks to soil and water quality values.

Operational Provisions – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5D1	*Code of Practice for Timber Production 2007*	2.5.3 Operational Restrictions	Landing operations must be suspended when continuation would result in significant deterioration of the landing surface such as soil mixing and compaction.	No evidence of significant deterioration of landing surface. Are notes made in coupe diary where landing operations have been suspended						
5D2	*Code of Practice for Timber Production 2007*	2.5.3 Operational Restrictions	Timber harvesting must be suspended when requested to do so by an Authorised Officer.	Is there any evidence of a request to suspend operations. Are notes made in the coupe diary where harvesting operations have been suspended.						
5D3	*Code of Practice for Timber Production 2007*	2.5.3 Operational Restrictions	Timber harvesting operations that involve machine traffic must be suspended when significant rutting is likely to be caused by machine traffic, unless actions are taken to reduce that risk.	No evidence of significant rutting Are notes made in coupe diary where harvesting operations have been suspended.						

Operational Provisions – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5D4	*Code of Practice for Timber Production 2007*	2.5.3 Operational Restrictions	Timber harvesting operations must be suspended when water begins to flow along tracks, threatening stream water quality or soil values, unless appropriate remedial actions are taken to protect those values.	No evidence of impact to soil values and/or stream water quality. Are notes made in coupe diary where harvesting operations have been suspended.						

Comments:

Operational Provisions – Guidance

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5D5	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan should include and specify where necessary the wet weather and seasonal restrictions.	Wet weather and season restrictions are specified. *Harvest Season: «HarvestSeason»*						
5D6	*Code of Practice for Timber Production 2007*	2.1.3 Forest Coupe Plans	The coupe plan should include and specify where necessary the fire protection restrictions.	Restrictions are specified. *Fire Mgt Endorsement: «FireMgmt»*						
5D7	*Code of Practice for Timber Production 2007*	2.5.3 Operational Restrictions	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 if appropriate remedial actions are not available or not able to be implemented to protect soil and water values.	Coupe harvested outside of specified closure period in WUP/TRP. If required, evidence of remedial action such as the use of cording and matting (or slashing), to reduce the risk of soil erosion and water quality impacts in periods of wet weather.						

Comments:

Forest Audit – Measurement Guide

Environmental Impact Assessment

When considering a code breach relating to the workbook elements, the impact of the breach on the environment must be assessed using the environmental impact assessment method as a guide. The impact assessment is to be based on the non-compliance observed at the time of audit and must be conducted in consultation with a forest officer.

The environmental impact assessment is based on the following factors:

- ***Extent of Impact or Disturbance within* sample (E)**
  - The extent of the impact, measure as a relative percentage of the sampled area or length. Defined into 4 categories.
    - 0 – 10%
    - 11 – 25%
    - 26 – 50%
    - >50%
  - A fifth category is used when the impact or disturbance results in an offsite effect, that is an area outside of the coupe boundary is affected.
- ***Duration of impact or expected time to recover (t)***
  - The duration of the impact is defined as the period in which the area will recover to pre-impacted levels. The impact period is defined by three levels,
    - Short Term 0 – 12 months
    - Medium Term 12 – 36 months
    - Long Term > 3 years
- ***Environmental Asset Value (z)***
  - The environmental asset value of the impacted area is defined by the relative resilience and resistance of the area affected, and the value of the area as defined by is protection endorsed within the Code of Forest Practice. The environmental asset value is divided into four categories;
    - General environmental value
    - Filter or drainage line
    - Representative SPZ, i.e. habitat corridors, landscape buffers and some linear buffers.
    - Specific SPZ, i.e. for specific flora and fauna, rainforest buffers and riparian or streamside reserve buffers.

Environmental Impact Assessment Rating

Duration of Impact (t)

Extent (E)	Short Term	Medium Term	Long Term
0 - 10%	A	C	F
11 - 25%	B	E	H
26 - 50%	C	F	I
> 50%	D	G	J
offsite	E	H	K

	Environmental Asset Value (z)			
Et Value	**General**	**Filter**	**rSPZ / LR / LB**	**sSPZ / RB / RF**
A	Negligible	Negligible	Minor	Minor
B	Negligible	Minor	Moderate	Moderate
C	Negligible	Minor	Moderate	Moderate
D	Negligible	Moderate	Moderate	Moderate
E	Minor	Moderate	Moderate	Major
F	Minor	Moderate	Major	Major
G	Moderate	Moderate	Major	Major
H	Moderate	Major	Major	Major
I	Moderate	Major	Major	Severe
J	Moderate	Major	Severe	Severe
K	Major	Major	Severe	Severe

ENVIRONMENTAL AUDIT
FOREST AUDIT PROGRAM
TIMBER PRODUCTION IN STATE FORESTS

«FMA» FMA

COUPE: *«CoupeName»*
«Recce_allCoupe»

Module 5 Harvesting and Closure

Workbook 5E: Roading

Summary Page

Positive Observations:	Non-compliances identified and acted on by DSE / VicForests in their supervisor capacity (include contractor penalties allocated)
• • • • •	• • • • •

Elements of Non-Compliance:

Compliance Sub-element	Finding	EIA

Areas for Improvement:	Further evidence required:
• • • • • •	• • • • • •

Previous Key Audit Findings

What key findings were observed during the previous environmental audit?
The auditor will require an understanding of previous key findings in order to provide commentary on current practices and improvements over time. Comments:

Forest Audit – Coupe Information

Coupe number:	*«Recce_allCoupe»*	**Coupe name:**	*«CoupeName»*						
District:	«DistrictName»	**Coupe area:**	«MaxOfProposedNetArea» ha -						
Elevation (m): ASL):	«Elevation» m	**Stand Description / Vol:**	e.g. Mature	«MaxOfLogVolume» m3					
General aspect:	e.g. SE	**Forest type:**	«ForestType»						
Supervisor (FO):	Supervisor – «LastOfSupervisor» Team Leader – «LastOfTeamLeader»	**Endorsement Categories:**	Flora & Fauna	Catchment	Parks	Forest Mgt	Forestry Victoria	Fire Mgt	DSE Region
Contractor:	«LastOfContractor»		«FloraFauna»	«Water»	«Parks»	«Forest Mgmt»	«VicForests»	«FireMgmt»	«RegMgmt»
Silvicultural system:	«SilvicultureSystem»	**SEH topsoil / subsoil:**	«TopsoilErosion»/ «SubsoilErosion»						
Machinery used:	Skidder / Hand Fallen / Mechanical Harvest	**Soil Permeability:**							
Coupe Operation:	«MinOfStartDate» to «MaxOfFinishDate»	**Grid Reference:**	E: «EastingADG66»N«NorthingADG66»						
Comments:	Flora: **«FloraValues»** Fauna: **«FaunaValues»**	**Absolute Risk Rating:**	«Abs_risk»						
		Selection Values: Slope Class – Soil Erosion Hazard – Silvicultural System, Property Restrictions	Slope – «Slope_risk»Soil erosion – «Soil_erosion_risk»Silviculture – «Silv_risk»and Protection – «Protection_risk»						
Special (salvage) plan?	«Type»	**Slope (º) Low-High:**	«SlopeMin»- «SlopeMax»						
Are there SPZ / SMZs?	«ManagementZone»	**Season of operation:**	«HarvestSeason»						
People Present:	Auditor and Audit Team: Auditees:		**Audit date:**						

AA = Alpine Ash, BG = Blue Gum, CT = Cut Tail, CY = Mountain Grey Gum, DA = Mountain Gum, MA = Mountain Ash, MM = Messmate, OS = Other Species, PM = Peppermint Spp, SG = Shinning Gum, ST = Silvertop Ash, VM = Manna Gum, WS = White Stringybark

Forest Audit – Coupe Map

Include coupe map from harvest plan, note on map:

- Location and identification of roads, buffers, landings and skid tracks audited
- Any other relevant information

General comments and observations on the coupe

General notes:

Local prescriptions and Management Procedures:

Where the code or audit criteria refer to the Management Procedures or Salvage Prescriptions, the relevant document(s) will depend on when the operation started.

Interpretation of 'should' vs 'must':

The use of the term 'should' within the Code is interpreted within the context of this audit as being a specific requirement of the code. DSE comments on the interpretation of 'should' vs 'must', have been reviewed for reference included in the 'comments' column of the workbook, where appropriate. Where the Code states" .....should....., where necessary,.... ," this is taken to mean that this is a requirement in certain circumstances, but not all the time.

GPS use:

With to regard to GPS measurements, the auditor will review the data and adopt a practical approach to specific situations and localities. Where GPS data is relied upon or referred to, the datum and coordinate system used should be noted.

Roading

Operational Goal: The planning and management of permanent and temporary roads for timber cartage and machinery transport is fit for purpose, protects environmental and cultural values, and the safety of all road users.

Roading – Mandatory Actions					Planning					
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E1	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	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 located appropriately within landscape to minimise environmental impacts and meets standards for the range of uses and users.						
5E2	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Road planning must locate roads so as to minimise risks to environmental values, particularly soil, water quality and river health, during both construction and ongoing road use.	Evidence of road planning based on field reconnaissance and environmental care.						
5E3	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Road planning must locate roads so as to avoid and mitigate impacts on known Aboriginal cultural heritage places.	Road planning has identified designated areas of importance.						
5E4	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Road planning must ensure that the timing of construction activities minimises risks associated with unsuitable weather conditions.	Planning for construction considered weather-related risks such as seasonal ground conditions.						

Roading – Mandatory Actions					Planning					
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E5	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Existing roads must, where practicable, be used for access to a coupe or work site and to haul timber, except where it can be clearly demonstrated that a new or relocated road further minimises or removes existing threats to soil, water quality or biodiversity.	Road planning has incorporated existing roads into haulage routes where feasible and any new roads improve environmental risk management.						
5E6	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Plans for the construction of 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 safety, water quality and other environmental values.	Permanent roads approved prior to harvesting, match use and minimise material movement or environmental damage.						
5E7	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Plans for roads must be based on field surveys to ensure that all environmentally sensitive locations are identified and appropriate design and construction techniques are adopted.	Plans have been based on field surveys.						

Roading – Mandatory Actions					Planning					
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E8	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.2 Forest Roads	Clearing for permanent road construction must not commence until the road alignment has been approved by the Area Manager.	Approval granted prior to clearing and approval granted by officer with appropriate authority.						
5E9	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Road planning must ensure protection of taxa and communities listed under the *Flora and Fauna Guarantee Act 1988* and avoidance or mitigation of listed potentially threatening processes.	Road planning has protected taxa and communities listed under the F&FG Act and road planning has avoided or mitigated listed threatening processes.						
5E10	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Roads must avoid areas declared under the *Reference Areas Act 1978*.	Roads located to avoid designated areas of importance.						
5E11	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	New road construction and significant improvement works on the existing road network must be identified in the Wood Utilisation Plan or Timber Release Plan.	WUP/TRP identifies significant improvement or new road construction works						
5E12	*Code of Practice for Timber Production 2007 and Flora and Fauna Guarantee Act 1988*.	2.4.1 Road Planning	Road planning must comply with relevant Action Statements prepared under the *Flora and Fauna Guarantee Act 1988*.	Where FFG species present, road planning complies with relevant Action Statements.						

Roading – Mandatory Actions					Planning					
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E13	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Roads in State forest must be managed in accordance with the *Road Management Act 2004* by the designated authority.	Documented evidence that the Act has been considered and there is compliance						
5E14	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.2 Forest Roads	Clearing for permanent road construction must not commence until the road alignment has been approved by the Area Manager.	Approval prior to construction.						
5E15	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.2 Forest Roads	A Site Plan must be prepared by the managing authority for a road construction operation or significant road improvement operation. The Site Plan must include: class of road, maximum clearing width, sections subject to easements, FMZs impacted, period of construction, methods/locations of crossings and drainage structures, cultural values and control measures, biodiversity values and control measures, and environmental risks and control measures.	Site Plan has been established for road construction and significant road improvements and contains required content						

Roading – Mandatory Actions					Planning					
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E16	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.5 Forest Roads	Maximum clearing widths for roads must comply with those specified in Schedule 4 of the Management Procedures.	Compliant road widths (see Measurement section).						
5E17	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.5 Forest Roads	Clearing widths on permanent roads must: i). at road junctions be the minimum formation width plus additional width required for the construction of batters; and ii). where a slashed verge is necessary, be sufficiently wide to enable efficient control of unwanted regrowth.	Compliant road widths (see Measurement section).						
5E18	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.5 Forest Roads	Width of cleared easements must: i). be kept to the minimum necessary; and ii). be marked on the ground if varied from the standards specified in Schedule 4 of the Management Procedures.	Compliant road widths (see Measurement section).						

Roading – Mandatory Actions					Planning					
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E19	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.6 Forest Roads	Engineering advice must be sought for road alignments traversing cross slopes of 30 degrees or greater or 25 degrees and greater in areas of high soil erodability.	Evidence that engineering advice was sought when necessary and implemented.						
5E20	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.7 Forest Roads	Fill batters must not cover the base of live trees.	Fill batter does not cover the base of live trees.						
5E21	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009* *Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.7 Forest Roads	Mulch used in rehabilitation works must be clean and weed free.	Evidence that the mulch is clean and weed free.						

Roading – Mandatory Actions					Planning					
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E22	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.7 Forest Roads	Disposal of excess fill must be in a manner that does not have an adverse long-term effect on the environment and water quality.	Evidence that disposal of excess fill has not resulted in adverse long term environmental impacts.						
5E23	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.7 Forest Roads	Engineer approved methods of mechanical consolidation of fill batters must be used.	Evidence of engineer approval of mechanical consolidation methods and implementation of the approved method in consolidation of fill batter.						
5E24	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.8 Forest Roads	Pavement material must not be placed on unconsolidated sub-grades.	Evidence that pavement material was placed on consolidated sub-grades.						
5E25	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.8 Forest Roads	Base course material must be consolidated and levelled prior to the placement of wearing course material.	Evidence that base course material was consolidated and levelled prior to the placement of the wearing course.						

Roading – Mandatory Actions					Planning					
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E26	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.8 Forest Roads	On multiple use forest roads surfacing materials must be appropriate for non-harvesting related uses	Appropriate road surface material has been used for the multiple uses of the forest roads.						

Comment:

Roading – Guidance				Planning	
Ref	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5E27	*Code of Practice for Timber Production 2007 and Aboriginal Heritage Act 2006.*	2.4.1 Road Planning	Where necessary, the development of an Aboriginal cultural heritage management plan, in collaboration with Traditional Owners and any other relevant Aboriginal groups, will assist in identifying and mitigating any impacts from roading on designated cultural heritage values.	Heritage Management Plan, where relevant, has been established in consultation with TOs / relevant Aboriginal groups and followed.	
5E28	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Roads should where possible be located to minimise disturbance to streams, buffer strips, riparian vegetation and rainforest in areas not associated with approved crossings; and restrict the movement of side-cast material into streams or drainage lines.	Road location avoids entry of sidecast material into streams/ drainage lines	
5E29	*Code of Practice for Timber Production 2007.*	2.4.1 Road Planning	New roads should avoid running parallel and in close proximity to streams, and the number of stream crossings should be minimised.	Roads where practical have avoided disturbance to buffers / riparian vegetation and rainforest.	
5E30	*Code of Practice for Timber Production 2007*	2.4.1 Road Planning	Assessing all stream crossings and bridges on planned cartage routes and undertaking necessary upgrades will assist in minimising water quality impacts due to increased traffic volumes while ensuring that timber haulage operations can be undertaken efficiently and safely.	Evidence of assessment of stream crossings and bridges and appropriate upgrades that have minimised the impacts of increased traffic and ensured safe and efficient cartage operations and details captured in the FCP/coupe diary.	

Roading – Guidance				Planning	
Ref	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5E31	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.6 Forest Roads	All merchantable timber removed during road alignments should be utilised.	Evidence that all merchantable timber removed during road alignments was utilised.	
5E32	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.7 Forest Roads	Topsoil should be stockpiled and utilised in the rehabilitation of batter slopes.	Evidence of the stockpiling of topsoil and use in rehabilitation of batters.	
5E33	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.8 Forest Roads	Road formation should be boxed to contain both base and wearing course material.	Evidence that road formation is boxed and contains both base and wearing course material.	

Roading – Guidance				Planning	
Ref	Origin	Section	Prescription	Audit Criteria	Auditor Comments
Comment:					

Roading – Mandatory Actions										Design
Ref	Origin	Section	Prescription	Audit Criterion	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E34	*Code of Practice for Timber Production 2007*	2.4.2 Road Design	Stream crossings must be designed according to traffic requirements and the nature, size and period of flow (both pre and anticipated post harvest) and characteristics of the bed and banks of the stream.	Stream crossings are designed to protect the road from erosion or minimise discharge of turbid water into streams and are appropriate for the traffic requirements and anticipated nature, size and period of flow.						
5E35	*Code of Practice for Timber Production 2007*	2.4.2 Road Design	Spacing of drainage outlets along a road must take into account the soil erodibility, rainfall frequency and intensity, and the proximity of the road to streams.	Drainage structure spacing required to limit discharge onto exposed soils / fill slopes and waterways and manage the soil erosion risks have been identified during the planning phase and installed.						
5E36	*Code of Practice for Timber Production 2007*	2.4.2 Road Design	Energy dissipating structures or silt traps must be used where necessary to reduce water velocity and trap sediment.	Energy dissipating structures, silt traps or other protective measures are in place and functional.						

Roading – Mandatory Actions										Design
Ref	Origin	Section	Prescription	Audit Criterion	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E37	*Code of Practice for Timber Production 2007*	2.4.2 Road Design	Drainage onto exposed erodible soil or over fill slopes must be avoided where possible. Structures and earthworks required to avoid such discharges are to be identified during planning and construction as required.	Structures required to limit discharge onto exposed soils / fill slopes identified during planning phase and installed.						
5E38	*Code of Practice for Timber Production 2007*	2.4.2 Road Design	Stream crossings must be appropriately designed to minimise barriers to the passage of fish and other aquatic fauna.	Crossings minimise the barrier to the passage of fish and other aquatic fauna.						
5E39	*Code of Practice for Timber Production 2007* *Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	2.4.2 Road Design & Mgmt Procedures 1.6.3.9 (g)	Adequate drainage structures must be placed approximately 20 metres from permanent or temporary streams, to allow discharge onto undisturbed vegetation and to maximise the flow distance between the drainage outlet and the waterway.	Adequate drainage is provided. Drainage discharges onto undisturbed vegetation at least 20m wide or a rock spill or some other structure that dissipates velocity.						

Roading – Mandatory Actions										Design
Ref	Origin	Section	Prescription	Audit Criterion	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E40	*Code of Practice for Timber Production 2007*	2.4.2 Road Design	Within 20 metres of a permanent or temporary stream, a road must wherever possible be drained into undisturbed vegetation using crowning or cross fall techniques. Where this is not possible, drainage must not enter directly into a permanent or temporary stream without passing through an appropriate sediment control structure such as a sediment pond or silt trap.	Crowning or cross-fall techniques are adopted where applicable. Drainage does not directly enter a stream without control measures.						
5E41	*Code of Practice for Timber Production 2007*	2.4.2 Road Design	Gravel surfacing with a low sediment generating potential must be applied to the road area on bridge approaches (within 20 metres) and on unsurfaced bridges or culverts, when crossing permanent or temporary streams.	Gravel is in place on the required road area on bridge approaches and on unsurfaced bridges and culverts.						

Roading – Mandatory Actions										Design
Ref	Origin	Section	Prescription	Audit Criterion	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E42	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.9 Forest Roads	Table drains must allow water to flow without ponding.	Table drain is supported by rock where soils have a high erosion hazard.						
5E43	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.9	Table drains must be created by extending the road when it is formed and not by subsequent excavation.	Road drainage systems have been constructed during road formation, not afterwards.						
5E44	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.4 Forest Roads	Bridges must be designed to prevent constriction of any clearly defined channel and include protection from erosion by use of natural groundcover, retaining wall or bulkhead.	Bridge meets requirements.						
Comment:										

Roading – Mandatory Actions										Design
Ref	Origin	Section	Prescription	Audit Criterion	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Roading – Guidance					Design
Ref	Origin	Section	Prescription	Audit Criterion	Auditor Comments
5E45	*Code of Practice for Timber Production 2007*	2.4.2 Road Design	Road design should seek to increase the frequency of road drainage where the risk of soil entering waterways is high, particularly in areas where the road is closest to waterways.	Maximum distances between drainage structures are specified in the Mgmt Procedures, Schedule 4. And road design has allowed for increased drainage structures in response to high soil erosion risk and have been implemented.	
5E46	*Code of Practice for Timber Production 2007*	2.4.2 Road Design	On steep slopes (greater than 20 degrees), engineering advice will assist in minimising risk of road failure.	Documented engineering advice and implementation of advice where possible.	
5E47	*Code of Practice for Timber Production 2007*	2.4.2 Road Design	Where there are extended steep approaches to waterways, extending the length of gravel surfacing may be required.	Gravel used complies with low sediment generating requirement	
Comment:					

Roading – Mandatory Actions										Construction
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E48	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.3 Forest Roads	Temporary roads must be located in GMZ where practicable.	Temporary roads located within GMZ or evidence of approval for construction in a non-GMZ location.						
5E49	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.3 Forest Roads	Approval must be obtained prior to commencing construction of a temporary road in SMZ or SPZ in the field.	Evidence of approval being obtained for temporary road construction within SMZ or SPZ.						
5E50	*Code of Practice for Timber Production 2007*	2.4.3 Road Construction	Road construction must be conducted in a manner consistent with plans and designed to ensure fitness for use, public safety, the protection of water quality and river health, Aboriginal and other significant cultural heritage and biodiversity conservation values.	Road construction complies with plans and Schedule 4 of the Mgmt Procedures.						

Roading – Mandatory Actions										Construction
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E51	*Code of Practice for Timber Production 2007*	2.4.3 Road Construction	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 appropriately stabilised. Where revegetation is used to stabilise fills or embankments, the species must be suitable for the site and where possible indigenous to the area.	Faces / slope / fill / embankments stabilised effectively, or stabilisation considered but not required and where implemented, species used in revegetation are suitable for the site and indigenous to the area.						
5E52	*Code of Practice for Timber Production 2007*	2.4.3 Road Construction (page 30)	Mandatory Action; Erosion and sediment control must be an ongoing activity over the duration of the construction activity, integrated with the works schedule. Road construction sites must have erosion mitigation measures in place and appropriate temporary drainage to ensure that the site is left protected between construction activities.	Erosion mitigation measures in place and evidence of erosion and sediment maintenance works planned and undertaken.						

Roading – Mandatory Actions										Construction
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E53	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.2 Forest Roads	Permanent road construction must not bury stumps, logs or other debris in the formed width of a road; and all debris must be removed from the formed width of the road.	No evidence of the burying of stumps, logs or other debris and surface debris removed from road area.						
5E54	*Code of Practice for Timber Production 2007*	2.4.3 Road Construction	Quarry materials infected with *Phytophthora cinnamomi* must not be used.	Evidence that clean quarry materials have been sourced and used.						
5E55	*Code of Practice for Timber Production 2007*	2.4.3 Road Construction	Road construction operations must ensure that disturbance to stream beds and banks is kept to a minimum.	Evidence of minimal disturbance to stream beds and banks.						
5E56	*Code of Practice for Timber Production 2007*	2.4.3 Road Construction	Road construction operations must ensure that soil and rock fill is not pushed into streams, nor placed into a position where there is a risk that it can erode into a stream.	Materials are not placed where they can enter a stream or wetland.						

Roading – Mandatory Actions										Construction
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E57	*Code of Practice for Timber Production 2007*	2.4.3 Road Construction	Road construction operations must ensure that: cement, raw concrete, soil fill and other road making materials are not spilt into watercourses during any construction.	Materials are not placed where they can enter a stream or wetland.						
Comment:										

Roading – Mandatory Actions										Maintenance
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E58	*Code of Practice for Timber Production 2007*	2.4.4 Road Maintenance	Road maintenance must be undertaken to minimise erosion and to protect water quality.	Roads are maintained in accordance with the requirements.						
5E59	*Code of Practice for Timber Production 2007*	2.4.4 Road Maintenance	Road drainage systems must be maintained to minimise erosion and the discharge of sediment into waterways.	Roads drainage is maintained in accordance with the requirements and there is no evidence of discharge of sediment into waterways.						
5E60	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.5 Forest Roads	Roads and tracks must be maintained so that drainage is kept free of debris.	Road and track drainage is maintained in accordance with the requirements and there is no debris located within drainage structures.						
5E61	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.5 Forest Roads	Roads and tracks must be maintained so that discharge of turbid water into streams or wetlands is minimised.	Roads and tracks are maintained in accordance with the requirements and there is no evidence of discharge of turbid water into waterways or wetlands.						

Roading – Mandatory Actions					Maintenance					
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E62	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.5 Forest Roads	Roads and tracks must be maintained so that any soil windrow erected on the outside of the road is breached at regular intervals, except where windrow protects a fill.	Roads and tracks are maintained in accordance with the requirements.						
5E63	*Code of Practice for Timber Production 2007*	2.4.4 Road Maintenance	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. Blading-off of permanent roads requires approval of the Area Manager and should be noted in the coupe plan or coupe diary site plan. Depth of blading-off is minimised.	Blading-off of permanent roads requires approval of the Area Manager.						
				Blading-off noted in the coupe plan or coupe diary site plan.						
				Measures implemented to prevent potential adverse impacts on water quality and where effective side drainage can be maintained. Depth of blading off has been minimised.						

Roading – Mandatory Actions					Maintenance					
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Comment:

Roading – Mandatory Actions										Suspension of Cartage
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E64	*Code of Practice for Timber Production 2007*	2.4.5 Suspension of Cartage	Roads must be temporarily closed to heavy timber harvesting traffic when persistent wet weather or road stability compromise road drainage and water quality.	Evidence of suspension of cartage or no observed road damage resulting from wet weather cartage.						
5E65	*Code of Practice for Timber Production 2007*	2.4.5 Suspension of Cartage	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.	Evidence of suspension of cartage or no observed road damage resulting from dry weather cartage.						
Comment:										

Roading - Mandatory Actions										Road Closure
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E66	*Code of Practice for Timber Production 2007*	2.4.6 Road Closure	Roads no longer required for timber harvesting or other purposes, such as fire management, must be permanently closed and effectively drained.	Roads no longer required have been closed and drained effectively.						
5E67	*Code of Practice for Timber Production 2007* *Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	2.4.6 Road Closure 1.6.6.1 Forest Roads	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.	Roads closures comply with Section 21a and be by a delegated person.						

Roading - Mandatory Actions										Road Closure
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E68	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.1 Forest Roads	Seasonal and temporary closures of permanent roads must be recorded in accordance with the standards specified in Worksite Traffic Management AS 1742.3 and Code of Practice for Worksite Safety - Traffic Management, issued under the *Road Management Act 2004*.	Seasonal and temporary road closures comply with the Standards and the Code of Practice for Worksite Safety - Traffic Management.						
5E69	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.1 Forest Roads	Seasonal closures of permanent roads must be gazetted annually.	Seasonal closures of permanent road have been Gazetted as required.						
5E70	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.1 Forest Roads	Where VicForests requires a permanent road to be temporarily closed (including erection of bunting barriers), VicForests must submit a completed Road Closure Plan (refer to Schedule 9 of these Procedures) to the Area Manager for approval.	Record of approval made in coupe diary and available for inspection.						

Roading - Mandatory Actions										Road Closure
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E71	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.1 Forest Roads	All roads must be temporarily closed to general traffic, or have traffic control measures implemented in accordance with 1.6.6.3 of the Management Procedures, when timber harvesting operations and associated activities or prescribed burning conducted on or near a road presents a risk to road users.	Records of temporary road closures in response to risks to road users are made in coupe diary and available for inspection.						
5E72	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.1 Forest Roads	All roads must be temporarily closed to the carting of timber resources and forest produce during wet weather, including when snow is lying on the ground, or dry periods if there is a significant chance that: i). the road surface will deteriorate; or ii). watercourses will be polluted.	Record of road closures made in coupe diary and available for inspection and no observed road damage or pollution of a waterway resulting from cartage.						
5E73	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.2 Forest Roads	The approach to any bridge, culvert or log fill crossing that has been removed must be adequately drained to restrict soil movement into a stream or waterway.	Temporary bridges, culverts and crossings have been closed and drained effectively.						

Roading - Mandatory Actions										Road Closure
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E74	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.2 Forest Roads	When timber harvesting operations in a coupe are complete, all temporary roads must be drained to ensure that soil movement is restricted.	Temporary roads effectively closed and rehabilitated as soon as possible after completion of harvesting operation.						
5E75	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.2 Forest Roads	Temporary roads that will not be used to access a coupe for a period of 12 months or more must be closed to all vehicles by an effective barrier.	Temporary roads closed to vehicles with an effective barrier in place.						
5E76	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.2 Forest Roads	Temporary roads that are to remain open after completion of timber harvesting operations and associated activities (for the purposes of accessing another coupe or to become part of the permanent State forest road network) must be identified on the FCP or Site Plan.	Temporary roads that are planned to remain open are identified in the FCP or site plan or coupe diary.						

Roading - Mandatory Actions										Road Closure
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E77	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.3 Forest Roads	Any planned traffic control must: i). have a Traffic Management Plan prepared in accordance with the *Road Management Act 2004* Worksite Safety Traffic Management Code of Practice. ii). be in accordance with a Traffic Management Plan (a template is provided in Schedule 10 of the Management Procedures); and iii). be carried out by an accredited traffic controller, in accordance with Worksite Traffic Management AS 1742, and Code of Practice for 'Worksite Safety - Traffic management, issued under the *Road Management Act 2004*.	Traffic Management Plan prepared and available for inspection and meets requirements of Standards and Worksite Safety Traffic Management Code of Practice. Evidence of accreditation of the traffic controller is noted or available for inspection.						
5E78	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.6.3 Forest Roads	Where VicForests undertakes traffic control, a Traffic Management Plan in accordance with 1.6.6.3(a) of the Management Procedures must be provided to the Forest Management Officer one week prior to implementation of the plan.	Traffic Management Plan prepared and submitted to Forest Management Officer on time and meets requirements of Standards and Worksite Safety Traffic Management Code of Practice.						

Roading - Mandatory Actions										Road Closure
Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5E79	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.6.3.4 Forest Roads	Road construction must not occur during the seasonal closure periods specified in 1.2.4 and Schedule 6 of the Management Procedures.	No evidence that road construction took place during seasonal closures.						

Roading – Guidance					Road Closure
Ref	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5E80	*Code of Practice for Timber Production 2007*	2.4.6 Road Closure	Stabilisation of closed roads can be achieved by measures such as, but not limited to, revegetation and use of erosion control materials.	Stabilisation methods employed to avoid material movement	
Comments:					

Roading

Measurement

Measurement Methodology:

When assessing selected roadline coupes up to 2,000 metres (if available) of roadline will need to be assessed. For normal coupes, inspect as at least 500 metres of road during the coupe inspection. This may be done whilst walking between landings, for instance. Note measured distance of roadline inspected and assess that drainage structures and slope are within FMP / Statewide Management Procedure requirements. Meas points should be taken at drainage structures or changes in slope.

Total Distance of Road Inspected: ……m

Required Drainage structure spacing: ……m

Number of drainage structures inspected: ……(x)

Number of non-effective drainage structures: ……(y)

Effective number of drainage structures: ……(x-y)

Length of non compliance: ……m

Topsoil SEH:

Subsoil SEH:

Maximum Distance between Drainage Structures (2009 Management Procedures)

SEH	1:50 1° 2%	1:25 2° 4%	1:15 3.5° 6%	1:12 4.5° 8%	1:10 6° 10%	1:8 7° 12%	1:7 8° 15%	1:5 11° 20%
Low	250	170	130	115	100	90	60	30
Moderate	200	150	120	105	90	80	50	Not perm.
High	160	130	110	95	80	65	Not perm	Not perm

Drainage and slope

Meas. Point	Chain (m)	Type of drainage structure (RO, CD, Cul)		Distance between drains (m)		Drainage structure effective? (Y / N)	Road slope (degrees)		Comments
		LHS	RHS	LHS	RHS		Forward	Back	
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									

Roading

Measurement

Road Culverts at Stream Crossings

Measurement methodology:

Assess all permanent culverts at stream / drainage line crossing. Assess culvert installation and specifications, where necessary measure the diameter of the drain. (375 mm std. UP s9.6.6a)

n	Culvert Diameter (mm)	Effective	Installation & Alignment	Comments
1				
2				
3				
4				

See Schedules 3 & 4 of 2009 Management Procedures.

Drainage and slope continued…

Meas. Point	Chain (m)	Type of drainage structure (RO, CD, Cul)		Distance between drains (m)		Drainage structure effective? (Y / N)	Road slope (degrees)		Comments
		LHS	RHS	LHS	RHS		Forward	Back	
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									

Roading

Measurement

Batter Slope and Clearing widths

Measurement methodology:

Where present, assess batter slope against prescriptive requirements, where necessary measure batter slope on average at a minimum of 200 intervals. Assess batter catch drain location and height, where necessary measure the height of the catch drain above the top of the batter.

n	Chain (m)	Batter Slope	Height of Drain above batter top (m)	Drain / Table Effective (yes / no)	Clearing width (m)	Formation width (m)	Pavement width (m)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

Clearing Widths (m)
(Schedule 4 of 2009, Management Procedures)

Side Slope		Road Class (FCP =)			
degrees	(%)	5B	5C	5D	5E
0-7.5	0-13	13	7	6	4
7.5-15	13-27	17	11	10	7
15-22.5	27-41	23	17	16	10
22.5-30	41-58	30	24	13	14

Non-Compliance:

- any Code breach not documented in the coupe diary
- any Code breach, even if documented in the coupe diary, that had little or no remediation activity and had an EIA rating of moderate, major or severe

Field Measurement Methodology:

It is acknowledged that the time taken to undertake an audit of an active coupe will be less that that for a completed coupe to reduce the disruption to normal operations.

The following table lists the current and modified measurements for both completed and active coupes.

Element	*Nominal length of measurement required (m)*	*Nominal length of measurement required (m)*
	Completed Coupes (or non-operational active coupes)	**Active Coupes**
Filters	200	100
Riparian Buffers	400	200
Rainforest Buffers	400	200
SPZ Buffers	400	200
Roading	500	200
Snig Tracks	200	200
Boundary Tracks	200	100
Landings	2	1

Measurement targets will be reviewed for each active coupe and may be subject to modification based on specific site conditions and operations. For example, accurate measurement of a buffer or filter width may be required where the auditor believes the width to be non-compliant or where the use of another less accurate measurement device (e.g. a range finder) requires a more precise width to determine compliance.

The determining objective of the active coupe audit will be to review operations and practices that are not able to be reviewed during the audit of a completed coupe.

Forest Audit – Measurement Guide

Environmental Impact Assessment

When considering a code breach relating to the workbook elements, the impact of the breach on the environment must be assessed using the environmental impact assessment method as a guide. The impact assessment is to be based on the non-compliance observed at the time of audit and must be conducted in consultation with a forest officer.

The environmental impact assessment is based on the following factors:

- ***Extent of Impact or Disturbance within* sample (E)**
  - The extent of the impact, measure as a relative percentage of the sampled area or length. Defined into 4 categories.
    - 0 – 10%
    - 11 – 25%
    - 26 – 50%
    - >50%
  - A fifth category is used when the impact or disturbance results in an offsite effect, that is an area outside of the coupe boundary is affected.
- ***Duration of impact or expected time to recover (t)***
  - The duration of the impact is defined as the period in which the area will recover to pre-impacted levels. The impact period is defined by three levels,
    - Short Term 0 – 12 months
    - Medium Term 12 – 36 months
    - Long Term > 3 years
- ***Environmental Asset Value (z)***
  - The environmental asset value of the impacted area is defined by the relative resilience and resistance of the area affected, and the value of the area as defined by is protection endorsed within the Code of Forest Practice. The environmental asset value is divided into four categories;
    - General environmental value
    - Filter or drainage line
    - Representative SPZ, i.e. habitat corridors, landscape buffers and some linear buffers.
    - Specific SPZ, i.e. for specific flora and fauna, rainforest buffers and riparian or streamside reserve buffers.

Environmental Impact Assessment Rating

	Duration of Impact (t)		
Extent (E)	Short Term	Medium Term	Long Term
0 - 10%	A	C	F
11 - 25%	B	E	H
26 - 50%	C	F	I
> 50%	D	G	J
offsite	E	H	K

	Environmental Asset Value (z)			
Et Value	**General**	**Filter**	**rSPZ / LR / LB**	**sSPZ / RB / RF**
A	Negligible	Negligible	Minor	Minor
B	Negligible	Minor	Moderate	Moderate
C	Negligible	Minor	Moderate	Moderate
D	Negligible	Moderate	Moderate	Moderate
E	Minor	Moderate	Moderate	Major
F	Minor	Moderate	Major	Major
G	Moderate	Moderate	Major	Major
H	Moderate	Major	Major	Major
I	Moderate	Major	Major	Severe
J	Moderate	Major	Severe	Severe
K	Major	Major	Severe	Severe

ENVIRONMENTAL AUDIT
FOREST AUDIT PROGRAM
TIMBER PRODUCTION IN STATE FORESTS

«FMA» FMA

COUPE: *«CoupeName»*
«Recce_allCoupe»

Module 5 Harvesting and Closure
Workbook 5F: Coupe Infrastructure

Summary Page

Positive Observations:	Non-compliances identified and acted on by DSE / VicForests in their supervisor capacity (include contractor penalties allocated)
• • • • •	• • • • •

Elements of Non-Compliance:

Compliance Sub-element	Finding	EIA

Areas for Improvement:	Further evidence required:
• • • • •	• • • • •

Previous Key Audit Findings

What key findings were observed during the previous environmental audit?

The auditor will require an understanding of previous key findings in order to provide commentary on current practices and improvements over time.

Comments:

Forest Audit – Coupe Information

Coupe number:	*«Recce_allCoupe»*	**Coupe name:**	*«CoupeName»*						
District:	«DistrictName»	**Coupe area:**	«MaxOfProposedNetArea» ha -						
Elevation (m): ASL):	«Elevation» m	**Stand Description / Vol:**	e.g. Mature	«MaxOfLogVolume» m3					
General aspect:	e.g. SE	**Forest type:**	«ForestType»						
Supervisor (FO):	Supervisor – «LastOfSupervisor» Team Leader – «LastOfTeamLeader»	**Endorsement Categories:**	Flora & Fauna	Catchment	Parks	Forest Mgt	Forestry Victoria	Fire Mgt	DSE Region
Contractor:	«LastOfContractor»		«FloraFauna»	«Water»	«Parks»	«Forest Mgmt»	«VicForests»	«FireMgmt»	«RegMgmt»
Silvicultural system:	«SilvicultureSystem»	**SEH topsoil / subsoil:**	«TopsoilErosion»/ «SubsoilErosion»						
Machinery used:	Skidder / Hand Fallen / Mechanical Harvest	**Soil Permeability:**							
Coupe Operation:	«MinOfStartDate» to «MaxOfFinishDate»	**Grid Reference:**	E: «EastingADG66»N«NorthingADG66»						
Comments:	Flora: **«FloraValues»** Fauna: **«FaunaValues»**	**Absolute Risk Rating:**	«Abs_risk»						
		Selection Values: Slope Class – Soil Erosion Hazard – Silvicultural System, Property Restrictions	Slope – «Slope_risk»Soil erosion – «Soil_erosion_risk»Silviculture – «Silv_risk»and Protection – «Protection_risk»						
Special (salvage) plan?	«Type»	**Slope (º) Low-High:**	«SlopeMin»- «SlopeMax»						
Are there SPZ / SMZs?	«ManagementZone»	**Season of operation:**	«HarvestSeason»						
People Present:	Auditor and Audit Team: Auditees:		**Audit date:**						

AA = Alpine Ash, BG = Blue Gum, CT = Cut Tail, CY = Mountain Grey Gum, DA = Mountain Gum, MA = Mountain Ash, MM = Messmate, OS = Other Species, PM = Peppermint Spp, SG = Shinning Gum, ST = Silvertop Ash, VM = Manna Gum, WS = White Stringybark

Forest Audit – Coupe Map

Include coupe map from harvest plan, note on map:

- Location and identification of roads, buffers, landings and skid tracks audited
- Any other relevant information

General comments and observations on the coupe

General notes:

Local prescriptions and Management Procedures:

Where the code or audit criteria refer to the Management Procedures or Salvage Prescriptions, the relevant document(s) will depend on when the operation started.

Interpretation of 'should' vs 'must':

The use of the term 'should' within the code is interpreted within the context of this audit as being a specific requirement of the code. DSE comments on the interpretation of 'should' vs 'must', have been reviewed for reference included in the 'comments' column of the workbook, where appropriate. Where the Code states" .....should....., where necessary,.... ," this is taken to mean that this is a requirement in certain circumstances, but not all the time.

GPS use: *With to regard to GPS measurements, the auditor will review the data and adopt a practical approach to specific situations and localities. Where GPS data is relied upon or referred to, the datum and coordinate system used should be noted*

Coupe Infrastructure

Operational Goal: Timber harvesting is conducted in a manner appropriate to the site, and manages the impact on soil, water and other values, including biodiversity and cultural heritage.

During or following wet weather conditions, timber harvesting operations are modified or where necessary suspended to minimise risks to soil and water quality values.

Coupe Infrastructure – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5F1	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	The area of coupe infrastructure required to meet timber production needs must be minimised without compromising safety. In-coupe infrastructure must be located, constructed and maintained to minimise potential adverse impacts on soil and water quality, and Aboriginal cultural heritage.	The area of coupe infrastructure has been minimised without compromising safety; and in-coupe infrastructure has been located, constructed and maintained to minimise potential adverse impacts on soil and water quality, and Aboriginal cultural heritage.					Negl Minor Mod Major Severe	
5F2	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	Infrastructure must be rehabilitated on completion of operations, where not required for future operations, using techniques that provide suitable soil conditions for the regeneration and growth of vegetation existing on the site prior to harvesting.	Rehabilitation undertaken of the landing or dump Topsoil respread Bark heaps removed and drained as required.						

Coupe Infrastructure – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5F3	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	Progressive rehabilitation of infrastructure during harvesting operations must be undertaken where operationally possible	Rehabilitating coupe infrastructure at the earliest possible opportunity.						

Comments:

Coupe Infrastructure

Log Landings and Dumps – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5F4	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	Log landings and dumps must not be located within areas excluded from harvesting unless approval from an Authorised Officer is received and noted on the Forest Coupe Plan.	Landings have not been located on areas excluded from harvesting.						
5F5	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	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).	Topsoil is stockpiled or evidence that topsoil was stockpiled and then used for landing rehabilitation.						
5F6	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.4 Snig Tracks and Landings	Landings must be rehabilitated following completion of timber harvesting unless harvesting in adjacent coupes within 3 years or are required for future Shelterwood Two operations.	Rehabilitation meets the requirements. *NFSG #11*						

Coupe Infrastructure

Log Landings and Dumps – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5F7	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.4 Snig Tracks and Landings	Landings that do not require rehabilitation must be identified on the Forest Coupe Plan.	Any landings not to be rehabilitated are noted in the FCP.						
5F8	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.4 Snig Tracks and Landings	Rehabilitation of corded and matted landings must include: i). removal of as much matting as possible from the landing and spread across the coupe; ii). removal of cording; iii). excess bark distributed to allow a receptive seedbed between the heaps; and iv). ripping/cultivation of any area where machinery has compacted the soil or if the landing was benched before cording; and v). topsoil need not be stockpiled and respread on corded and matted landings if cording is placed directly onto the pre-existing ground surface.	Management Procedure requirements have been met.						

Coupe Infrastructure

Log Landings and Dumps – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Comments:

Coupe Infrastructure

Log Landings and Dumps – Guidance

Ref	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5F9	*Fire Salvage Harvesting Prescriptions 2009*	4.1 Water Quality	Where fire salvage harvesting activities occur, log landings should be located, where possible, at least 40m for slopes of 15° or less, or 60m for slopes of greater than 15° from any permanent stream or wetland.	Log landings are located in accordance with the requirements.	
5F10	*Fire Salvage Harvesting Prescriptions 2009*	4.1 Water Quality	Where fire salvage harvesting activities occur log landings should be located, where possible, at least 20m for slopes of 15° or less, or at least 30m for slopes of greater than 15°, from any temporary stream and/or drainage line.	Log landings are located in accordance with the requirements.	
5F11	*Fire Salvage Harvesting Prescriptions 2009*	4.2 Water Quality	Where fire salvage harvesting activities occur in restricted access and Special Water Supply Catchments, landings should be located, where possible, at least 40m from any temporary stream and/or drainage line.	Log landings are located in accordance with the requirements.	
5F12	*Fire Salvage Harvesting Prescriptions 2009*	4.2 Water Quality	Where fire salvage harvesting activities occur in restricted access and Special Water Supply Catchments, landings should be located, where possible, at least 60m for slopes of 15 o or less, or 80m for slopes of greater than 15 o, from any permanent stream or wetland.	Log landings are located in accordance with the requirements.	

Comments:

Coupe Infrastructure

Snig and Forwarding Tracks – Mandatory Actions

	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5F13	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	Snigging and forwarding 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. An Authorised Officer must approve any blading off of snigging and forwarding tracks.	Snig tracks bladed off with specific authorisation or no evidence of blading off.						
5F14	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	Snigging and forwarding track location must minimise the potential for adverse impact on soil and water quality and maintain effective drainage to prevent soil erosion.	Snig and forwarding track locations meet the requirements.						
5F15	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	Snigging and forwarding tracks must be placed at the greatest practicable distance from buffers and filter strips, without compromising operator safety.	Snig and forwarding tracks meet the requirements.						

Coupe Infrastructure

Snig and Forwarding Tracks – Mandatory Actions

	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5F16	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	Cross-drains, where used, must be spaced and angled according to local prescriptions (where these exist) for soil erosion hazard class, to prevent surface run-off and subsequent discharge of turbid water into streams or drainage lines.	Cross-drains meet the requirements. *Refer to measurements*						
5F17	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	Rutting and compaction must be minimised by use of appropriate snigging/ forwarding equipment or by appropriate harvesting methods.	No evidence of significant rutting / compaction. Rutting and compaction may be minimised by use of cording or matting of snig tracks and/or Landings.						
5F18	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.4 Snig Tracks and Landings	Unless corded, bark must not be deliberately placed on snig tracks. Note: *Outrows in thinning operations are exempt from this requirement.*	No bark observed on snig tracks.						

Coupe Infrastructure

Snig and Forwarding Tracks – Mandatory Actions

	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5F19	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.4 Snig Tracks and Landings	Where cording is used, cording must be placed on snig tracks before machinery causes soil damage.	Machinery has not caused soil damage *NFSG #11*						
5F20	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.4 Snig Tracks and Landings	All snig tracks must be rehabilitated to prevent unacceptable movement of soil down or from the track surface and soil movement into streams.	Rehabilitation meets the requirements.						

Coupe Infrastructure

Snig and Forwarding Tracks – Mandatory Actions

	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	

Comments:

Coupe Infrastructure

Snig and Forwarding Tracks – Guidance

	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5F21	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	Location and alignment of snig tracks and forwarding tracks should ensure that they can be effectively cross-drained and out-sloped, where required.	Tracks have drainage structures or outsloping that meet the requirements.	

Coupe Infrastructure

Snig and Forwarding Tracks – Guidance

	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5F22	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	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 Tracks designed with minimal slope and appropriate cross-fall will assist drainage. Preference should be given to uphill snigging using spurs and ridge tops, where possible.	Tracks designed to minimise slope crossfall and assist drainage and where possible are located on spurs and ridge tops.	
5F23	*Fire Salvage Harvesting Prescriptions 2009*	4.7 Water Quality	In Restricted Access and Special Water Supply Catchments, a drainage structure should be established 20 to 40m upslope of where a road or vehicle route crosses any stream or drainage line.	Drainage meets the requirements.	

Comments:

Coupe Infrastructure

Boundary Tracks – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
5F24	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.6 Boundary Trails	A boundary trail must have adequate drainage at all times. *Refer to measurements*	Drainage is adequate.						
5F25	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.6 Boundary Trails	A boundary trail must have the least possible amount of debris outside of the coupe boundary.	Boundary trail has minimal debris pushed outside the coupe boundary.						
5F26	*Management Procedures for timber harvesting, roading and regeneration in Victoria's State forests, 2009*	1.3.6 Boundary Trails	A boundary trail must not be located in an excluded area.	Location is not within an exclusion zone.						

Coupe Infrastructure

Boundary Tracks – Mandatory Actions

Ref	Origin	Section	Prescription	Audit Criteria	Compliance	Environmental Impact Assessment				Auditor Comments
						Extent (E)	Duration (t)	Asset Value (z)	Impact	
Comments:										

Coupe Infrastructure

Boundary Tracks – Guidance

Ref	Origin	Section	Prescription	Audit Criteria	Auditor Comments
5F27	*Code of Practice for Timber Production 2007*	2.5.2 Coupe Infrastructure	Tracks should be designed with minimal slope and appropriate cross-fall to assist drainage.	Design is adequate *Fire Endorsement Category: «FireMgmt»*	
5F28	*Fire Salvage Harvesting Prescriptions 2009*	4.3 Water Quality	Where harvesting in fire salvage coupes, boundary tracks should be located at least 40m from any permanent stream or wetland.	Boundary tracks are located appropriately	
Comments:					

Log Landings and Dumps (post October 2005)

Measurement

Measurement Methodology:

Locate and inspect at least 1 and up to 2 landings. Note the number and location of landing(s) including the approximate distance from permanent and temporary streams, drainage lines and wetlands against Management Procedure requirements. Record approximate landing size (see code definition) and assess against Management Procedure limits for relevant forest type. Where rehabilitation works have occurred, record rip depth and spacing against Management Procedure requirements.

Specification source: Statewide Management procedure, 2005 pg 7/8

Landing One

Location (tick if compliant):

- ❑ located at least 40m from any permanent Class 5A or Class 5B road;
- ❑ located the required distance from any permanent stream, wetland or any permanent Class 5C or lower class of road;
- ❑ located the required distance from temporary stream or drainage line.
- ❑ Where practical, snig tracks are located in ways which avoid them converging downhill to a landing

Rehabilitation Works (tick if compliant):

- ❑ landing is leveled and drained
- ❑ ripping depth of at least 0.4m
- ❑ ripping lines no more than 2m apart
- ❑ re-spreading of sawdust to not> 3 cm depth

Area / Size where significant soil disturbance associated with the landing establishment is present:

Width of landing: ……. m (x)
Length of landing: ……. m (y)
Area of landing: *(0.5ha in Ash / 0.3 ha in other)*…….. ha
Rip Tests (diagonal #1) ..... / ..... / ..... / ..... / ..... /
Rip Tests (diagonal #2) ..... / ..... / ..... / ..... / ..... /
No. rip tests >= 0.4m ..... / 10
Ave rip spacing ..... m

* A rip test is where the depth of a rip is tested using a metal rod or similar.

Landing Two

Location (tick if compliant):

- ❑ located the required distance from any permanent Class 5A or Class 5B road;
- ❑ located the required distance from any permanent stream, wetland or any permanent Class 5C or lower class of road;
- ❑ located the required distance from temporary stream or drainage line.
- ❑ Where practical, snig tracks are located in ways which avoid them converging downhill to a landing

Rehabilitation Works (tick if compliant):

- ❑ landing is leveled and drained
- ❑ ripping depth of at least 0.4m
- ❑ ripping lines no more than 2m apart
- ❑ re-spreading of sawdust to not> 3 cm depth

Area / Size where significant soil disturbance associated with the landing establishment is present:

Width of landing: ……. m (x)
Length of landing: ……. m (y)
Area of landing: *(0.5ha in Ash / 0.3 ha in other)*…….. ha
Rip Tests (diagonal #1) ..... / ..... / ..... / ..... / ..... /
Rip Tests (diagonal #2) ..... / ..... / ..... / ..... / ..... /
No. rip tests >= 0.4m ..... / 10
Ave rip spacing ..... m

* A rip test is where the depth of a rip is tested using a metal rod or similar.

Snig and Forwarding Tracks

Measurement

Measurement Methodology:

Where present, inspect as much snig track as possible (at least 200 metres) during coupe inspection. This may be done whilst walking between landings, for instance. Note measured distance of snig track inspected and assess that drainage structures are within FMP / Statewide Management Procedure requirements.

Total Distance of Snig Track Inspected: ……m
Required Drainage structure spacing: ……m

Number of drainage structures inspected: ……(x)
Number of non-effective drainage structures: ……(y)

Effective number of drainage structures: ……(x-y)
Length of non compliance: ……m

Topsoil SEH: *«TopsoilErosion»*
Subsoil SEH: *«SubsoilErosion»*

Maximum Distance between Cross Drains (VF Utilisation Procedures, July 2006, Schedule 1)

SEH	< 6⁰ or 10%	6-11⁰ or 10-20%	11-18⁰ or 20-33%	18-27⁰ or 33-	>27⁰ or 50%
Low	120 m	90	60	30	15
Medium	90	60	40	20	10
High	60	30	20	10	Not allowed

Maximum Distance between Drainage Structures (October 2005 Management Procedures)

SEH	1:50 1° 2%	1:25 2° 4%	1:15 3.5° 6%	1:12 4.5° 8%	1:10 6° 10%	1:8 7° 12%	1:7 8° 15%	1:5 11° 20%
Low	250	170	130	115	100	90	60	30
Medium	200	150	120	105	90	80	50	Not perm.
High	160	130	110	95	80	65	Not perm	Not perm

n	Chain (m)	Structure	Effective	Spacing	Slope	Comments
1		RO / CD / Cul	Y / N			
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Boundary Tracks — Measurement

Measurement Methodology:

Where present, inspect as much boundary track as possible (at least 200 metres) during coupe inspection. Note measured distance of boundary track inspected and assess that drainage structures are the requirements.

Total Distance of Boundary Track Inspected: ……m
Required Drainage structure spacing: ……m

Number of drainage structures inspected: ……(x)
Number of non-effective drainage structures: ……(y)

Effective number of drainage structures: ……(x-y)
Length of non compliance: ……m

Topsoil SEH: *«TopsoilErosion»*
Subsoil SEH: *«SubsoilErosion»*

Maximum Distance between Cross Drains (VF Utilisation Procedures, July 2006, Schedule 1)

SEH	< 6⁰ or 10%	6-11⁰ or 10-20%	11-18⁰ or 20-33%	18-27⁰ or 33-	>27⁰ or 50%
Low	120 m	90	60	30	15
Medium	90	60	40	20	10
High	60	30	20	10	Not allowed

Maximum Distance between Drainage Structures (October 2005 Management Procedures)

SEH	1:50 1° 2%	1:25 2° 4%	1:15 3.5° 6%	1:12 4.5° 8%	1:10 6° 10%	1:8 7° 12%	1:7 8° 15%	1:5 11° 20%
Low	250	170	130	115	100	90	60	30
Medium	200	150	120	105	90	80	50	Not perm.
High	160	130	110	95	80	65	Not perm	Not perm

n	Chain (m)	Structure	Effective	Spacing	Slope	Comments
1		RO / CD / Cul	Y / N			
2						
3						
4						
5						
6						
7						
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Forest Audit – Measurement Guide

Environmental Impact Assessment

When considering a code breach relating to the workbook elements, the impact of the breach on the environment must be assessed using the environmental impact assessment method as a guide. The impact assessment is to be based on the non-compliance observed at the time of audit and must be conducted in consultation with a forest officer.

The environmental impact assessment is based on the following factors:

- ***Extent of Impact or Disturbance within* sample (E)**
  - The extent of the impact, measure as a relative percentage of the sampled area or length. Defined into 4 categories.
    - 0 – 10%
    - 11 – 25%
    - 26 – 50%
    - >50%
  - A fifth category is used when the impact or disturbance results in an offsite effect, that is an area outside of the coupe boundary is affected.
- ***Duration of impact or expected time to recover (t)***
  - The duration of the impact is defined as the period in which the area will recover to pre-impacted levels. The impact period is defined by three levels,
    - Short Term 0 – 12 months
    - Medium Term 12 – 36 months
    - Long Term > 3 years
- ***Environmental Asset Value (z)***
  - The environmental asset value of the impacted area is defined by the relative resilience and resistance of the area affected, and the value of the area as defined by is protection endorsed within the Code of Forest Practice. The environmental asset value is divided into four categories;
    - General environmental value
    - Filter or drainage line
    - Representative SPZ, i.e. habitat corridors, landscape buffers and some linear buffers.
    - Specific SPZ, i.e. for specific flora and fauna, rainforest buffers and riparian or streamside reserve buffers.

Environmental Impact Assessment Rating

	Duration of Impact (t)		
Extent (E)	Short Term	Medium Term	Long Term
0 - 10%	A	C	F
11 - 25%	B	E	H
26 - 50%	C	F	I
> 50%	D	G	J
offsite	E	H	K

	Environmental Asset Value (z)			
Et Value	**General**	**Filter**	**rSPZ / LR / LB**	**sSPZ / RB / RF**
A	Negligible	Negligible	Minor	Minor
B	Negligible	Minor	Moderate	Moderate
C	Negligible	Minor	Moderate	Moderate
D	Negligible	Moderate	Moderate	Moderate
E	Minor	Moderate	Moderate	Major
F	Minor	Moderate	Major	Major
G	Moderate	Moderate	Major	Major
H	Moderate	Major	Major	Major
I	Moderate	Major	Major	Severe
J	Moderate	Major	Severe	Severe
K	Major	Major	Severe	Severe

Appendix E Coupe selection

E.1 Target coupe selection for Module 5

The coupe selection process was based on a Master Coupe List that was provided by DSE. This list was originally derived from VicForests' Coupe Information System (CIS) and was intended to include all coupes in which harvesting had occurred during the 2008-09 financial year (except firewood coupes). On receipt of the Master Coupe List, URS reviewed the data for consistency and, in conjunction with DSE, made minor changes where it was identified that scores had been assigned incorrectly or where data was missing from individual fields.

For all coupes in the Master Coupe List, scores were calculated by DSE for the environmental risk parameters of: slope (S), soil erosion hazard (SE), silvicultural system (SS), special land protection requirements (PR) and Compliance Theme (CT). The scoring system for each parameter is described below.

Slope (S)

Steep slopes are more susceptible to erosion which could potentially affect water quality and road networks. Slope risk values are assigned as outlined in Table E-1.

Table E-1: Slope Risk Value by Class

Slope Class	Slope Risk Value
<11°	1
11 – 18	2
18 – 27	3
>27	4

Soil erosion hazard (SE)

Soils with a higher erosion hazard are more likely to erode affecting potential for regeneration, water quality, stream flow and the road network. Soil erosion hazard is the product of soil erodibility and soil permeability which are determined according to the *Soil Erosion Hazard and Soil Permeability Assessment and Classification* Forest Management Branch Forests Service, Department of Natural Resources and Environment, March 1999. Using this methodology, the soil erosion hazard is categorised as Low, Medium or High with corresponding Soil Risk Values of one, two and three respectively.

Silvicultural System (SS)

Clear felling and seed tree silvicultural systems are more likely to affect the environment and biodiversity and are assigned a silvicultural system value of two. Coupes where non-clear felling silvicultural systems have been employed are assigned a SS value of one.

Special land protection requirements (PR)

General Management Zones (GMZ) are considered to have the lowest sensitivity to environmental damage and are assigned a protection risk (PR) value of one. Special Protection Zones (SPZ) and Special Management Zones (SMZ) have greater sensitivity to environmental damage and are assigned a PR value of two. Coupes that fall within water supply catchments are also assigned a PR value of two.

Compliance Theme (CT)

These can be incorporated into the selection methodology at the discretion of DSE. One or more Compliance Themes may be adopted for each year of audit. Compliance Themes include:

- Forest type;
- Coupe type (i.e. roadline, commercial firewood);
- Special prescriptions (e.g. salvage harvesting);
- Harvest season;
- Flora values (i.e. rainforest, habitat trees);
- Fauna values (i.e. threatened species, e.g. Leadbeater's possum); and
- District.

Coupes containing the selected Compliance Themes for a given audit are assigned a CT value of one while others are given the default value of zero.

For this audit DSE identified the management of rainforest as a priority Compliance Theme and assigned coupes containing rainforest a CT value of one. However, it became necessary to raise the CT value for rainforest to three in order to give these coupes a higher Absolute Risk Rating (ARR), described below, and so raise the likelihood of these coupes being selected for audit.

Following scoring of the different elements an Absolute Risk Rating (ARR) was calculated which gave a single value to each coupe. This enabled coupes to be ranked in order of the likelihood of environmental impacts occurring. The ARR was calculated as follows:

$$ARR\ (coupe) = S \times SE + SS + PR + \Sigma\ (CT)$$

The ARRs were categorised in High, Moderate and Low relative risk groups (RRGs) using the following procedure:

- The ARR for each coupe was calculated as described above;
- The median ARR value of all coupes was calculated;
- The Moderate risk RRG was then defined as 20 percent above and below the median score; and
- The High and Low RRGs encompassed the ARR values either side of the Moderate RRG.

Coupes to be assessed were then selected at random from across the State in accordance with a risk distribution such that 60 percent of audited coupes were from the High RRG, 25 percent of audited coupes were from the Moderate RRG and 15 percent of audited coupes were from the Low RRG.

Selection of Melbourne Water coupes

DSE advised that at least two coupes from within Melbourne Water catchments should be audited. To ensure this occurred, two coupes were selected independently of the above process. The selection procedure was to identify Melbourne Water coupes that contained rainforest (the nominated Compliance Theme) and from these, two coupes were randomly selected.

E.1.1 Changes to coupe selection

A proposed audit itinerary was provided to VicForests and DSE for comment regarding any logistical or operational issues associated with the selected coupes. This section describes changes to selected coupes as a result of this feedback and other issues that arose during the audit.

It was identified that two coupes were not suitable for audit as one in the Mid Murray FMA was a domestic firewood coupe (outside the scope of the audit) and one in the Dandenong FMA had not yet been harvested. As was the case for "outlier" coupes (coupes that were significantly isolated from other selected coupes), a replacement was selected from within the same FMA and RRG and, as much as possible, with similar coupe element scores. Details of the replaced coupes, using Coupe ID numbers, are below:

- A Mid Murray coupe, Coupe 105-507-0002, was replaced with Coupe 105-505-0007 because Coupe 105-507-0002 was found to be a domestic firewood coupe. Audit of domestic firewood coupes is outside the scope of this Audit. Both coupes were located in the Nathalia district.
- A Dandenong coupe, Coupe 344-510-0001, had not yet been harvested. This coupe was in a Melbourne Water catchment and was replaced with Coupe 345-501-0007, also understood to be in a Melbourne Water catchment.

Further changes became necessary following this selection, these were:

- It was identified that Coupe 345-501-0007 was not in a Melbourne Water Catchment (there was an error in the data), therefore it was replaced with Coupe 480-504-0070 in the Central Gippsland FMA as it was, (1) in a Melbourne Water catchment, (2) in the same risk group and (3) contained rainforest.
- The audit itinerary was such that Coupe 480-504-0070 was isolated by over 100 km from the other coupe, Coupe 350-509-0004, that was to be audited on the same day. Coupe 344-511-0005 in the Dandenong FMA was selected as a replacement based on it being, (1) in a Melbourne Water Catchment, with similar characteristics (all scores were the same with the exception that Coupe 344-511-0005 did not contain rainforest), (2) in a similar risk group (Coupe 344-511-0005 was in the moderate risk group while Coupe 480-504-0070 was in the high risk group) and (3) in a different catchment to Coupe 350-509-0004.
- Access to all coupes in the Mid-Murray FMA was not possible due to recent flooding. The two selected Mid-Murray coupes, Coupe 105-505-0007 and Coupe 105-513-0007 were replaced with coupes from the Bendigo FMA, Coupe 147-017-0014 and Coupe 147-009-0002. The process for these changes was to (1) randomly select a DSE-managed coupe and, to ensure a realistic itinerary, (2) randomly select second coupe from within the same FMA and (3) from the same RRG as those being replaced.
- Coupe 817-511-0003 and Coupe 815-515-0006 were located around 75 km on minor roads from the nearest coupe, Coupe 810-510-0008, however the planned itinerary was such that it would have required travelling from Orbost, over 100 km away. Coupe 817-511-0003 was replaced with Coupe 866-503-0014 while Coupe 815-515-0006 was replaced with Coupe 846-505-0006. These coupes were in the same FMA, had similar characteristics and were in the same RRG as those they replaced.
- The location of Coupe 875-501-0006 required over 1.5 hours travel time from Cann River on the same day as the audit team was to travel from Melbourne. It was replaced with Coupe 842-511-0019, which is in the same FMA and RRG and had similar characteristics to Coupe 875-501-0006, but was closer to other selected coupes.

During the second week of the audit it was necessary to change three coupes in the East Gippsland FMA as wet weather prevented access. These changes were:

- Coupe 886-506-0012 was replaced with Coupe 868-506-0007 which was in the same FMA and RRG.

Appendix E

- Coupe 886-503-0014 was replaced with Coupe 868-508-0006. These coupes were both in the same FMA however Coupe 886-503-0014 was in the High Risk Group while Coupe 868-508-0006 was in the Medium Risk Group. The selection of a coupe from another RRG was necessary because there were no alternative coupes in the High Risk Group at lower altitudes where access was possible.
- Coupe 864-505-0006, which is in the Medium Risk Group, was replaced with Coupe 836-509-0004) which is in the High Risk Group. Both coupes were in the same FMA. This was done to compensate for the replacement of Coupe 886-503-0014 (High Risk) with Coupe 868-508-0006 (Medium Risk).

F

Appendix F Summary of audit findings for each coupe

Ref	C1	EIA	C2	EIA	C3	EIA	C4	EIA	C5	EIA	C6	EIA	C7	EIA	C8	EIA	C9	EIA	C10	EIA	C11	EIA	C12	EIA	C13	EIA	C14	EIA	C15	EIA	C16	EIA	C17	EIA	C18	EIA	C19	EIA	C20	EIA	C21	EIA	C22	EIA	C23	EIA	C24	EIA	C25	EIA	C26	EIA	C27	EIA
Workbook 5A - Forest Coupe Plans																																																						
5A1	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A2	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		na	
5A3	y		cba		na		cba		na		na		y		na		y		y		na		na		y		y		na		y		y		y		y		y		y		y		y		y		y	
5A4	y		y		y		na		y		y		y		na		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		na		y	
5A5	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A6	cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba	
5A7	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A8	y		y		y		y		na		y		y		y		y		y		y		y		y		na		y		y		y		y		y		y		na		y		na		na	
5A9	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		na		na	
5A10	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na	
5A11	na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		na		y		y	
5A12	na		y		na		y		y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na	
5A13	na		y		na		y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na	
5A14	na		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5A15	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5A16	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A17	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A18	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A19	y		na		na		na		na		na		na		na		na		na		y		na		na		na		y		na		y		na		na		cba		na		na		cba		na	
5A20	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A21	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A22	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A23	na		na		na		na		y		na		na		na		na		na		na		na		na		na		y		y		na		na		na		y		y		na		na		na	
5A24	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A25	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A26	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A27	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		n	NI	y		n	NI	y		y		y		na		y	
5A28	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A29	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A30	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		na		y		y		y		y		y		na		y		y	
5A31	y		y		y		na		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		na		y	
5A32	y		y		y		y		y		y		y		n	NI	y		y		y		n	NI	n	NI	y		y		y		n	NI	y		y		y		n	NI	y		y		y		y		n	NI	n	NI
5A33	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		na		na		na		y		na		na		na		na	
5A34	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		na		na		y		y		y	
5A35	y		n		y		y		y		n		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A36	y		y		y		y		na		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A37	y		y		y		y		y		y		y		y		na		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A38	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A39	n		na		n		n		n		n		n		n		n		n		n		n		n		n		n		n		n		n		n		n		n		n		n		n		n		n	
5A40	n		n		n		n		n		n		n		n		n		n		n		n		y		n		n		y		n		n		n		n		n		n		n		n		n		n	
Workbook 5a - Forest Coupe Plans - EXCLUSION ZONES																																																					
5A41	y		na		y		y		na		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5A42	na		na		y		y		y		y		y		y		y		y		y		y		y		y		na		y		y		y		y		y		y		y		y		y	
5A43	na		y		na		y		y		y		y		na		na		na		na		na		na		na		na		na		na		y		na		na		y		na		na		na	
5A44	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na	
5A45	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na	
5A46	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na	
5A47	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na	
Workbook 5b - River Health, Water Quality and Soil Assessment																																																				
5B1	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		n	NI	y	
5B2	y		na		na		na		na		na		y		na		na		na		y		y		na		na		na		na		na		na		na		na		na		y		y		na		na		na	
5B3	na		na		na		na		na		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5B4	y		y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5B5	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5B6	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		na		y	
Workbook 5b - River Health, Water Quality and Soil Assessment - WATERWAYS																																																				
5B7	na		na		na		na		na		na		na		na		na		y		y		na		y		na		y		na		na		na		na		na		na		na		na		na		na	
5B8	na		na		na		na		na		na		na		na		na		y		na		na		y		na		na		na		na		na		na		na		na		na		na		na	
5B9	na		na		na		na		na		na		na		na		na		y		na		na		y		na		y		na		na		na		na		na		na		na		na		na	
5B10	y		y		y		na		y		y		y		n	MOD	y		y		y		y		y		n	NI	n	NI	y		y		y		y		y		y		y		n	NI	na		y	
5B11	y		y		y		na		y		y		y		na		y		y		y		y		y		y		y		y		y		y		y		y		y		y		na		na		y	
Workbook 5b - River Health, Water Quality and Soil Assessment - BUFFERS																																																			
5B12	y		y		y		na		y		y		na		na		na		y		y		cba		cba		na		na		na		y		na		na		y		y		na		na		na		na	
5B13	y		y		y		na		y		y		na		na		na		n	NI	y		cba		cba		na		na		na		y		na		y		y		y		na		na		na	
5B14	y		y		y		na		y		y		na		na		na		y		y		cba		cba		na		na		na		y		na		y		y		y		na		na		na	
5B15	na		y		y		na		na		na		na		na		na		y		na		cba		cba		na		na		na		na		na		na		na		y		na		na		na	
5B16	y		y		y		na		y		y		na		na		na		n	MIN	y		cba		cba		na		na		na		y		na		y		na		y		y		na		na		na	
5B17	y		y		y		na		y		y		na		na		na		y		y		cba		cba		na		na		na		y		na		y		y		y		na		y		na		na	
5B18	y		y		y		na		y		y		na		na		na		y		y		cba		cba		na		na		na		y		na		y		y		y		na		na		na	
5B19	na		na		na		na		na		na		na		na		na		na		na		cba		cba		na		na		na		na		na		na		na		na		na		na		na	
5B20	na		na		na		na		na		na		na		na		na		na		na		cba		cba		na		na		na		na		na		na		na		na		na		na		na	
5B21	na		na		na		na		na		na		na		na		na		na		na		cba		cba		na		na		na		na		na		na		na		na		na		na		na	
5B22	na		na		na		na		na		na		na		na		na		na		na		cba		cba		na		na		na		na		na		na		na		na		na		na		na	
5B23	na		y		na		na		y		y		na		na		na		na		na		cba		cba		na		na		na		na		na		na		na		y		na		na		na	
5B24	na		na		na		na		na		na		na		na		na		na		na		cba		cba		na		na		na		na		na		na		na		y		na		na		na	
Workbook 5b - River Health, Water Quality and Soil Assessment - FILTERS																																																				
5B25	na		na		na		na		na		na		y		na		y		cba		na		cba		y		y		y		y		y		y		na		na		y		na		na		na		n	NEG
5B26	na		na		na		na		na		na		y		na		y		cba		na		cba		y		y		y		y		y		y		na		na		y		na		na		na		n	NEG
5B27	na		na		na		na		na		na		na		na		y		cba		na		cba		y		y		y		y		y		y		na		na		y		na		na		na		y	
5B28	na		na		na		na		na		na		na		na		y		cba		na		cba		y		y		y		y		y		y		na		na		y		na		na		na		y	
5B29	na		na		na		na		na		n	MOD	na		na		y		cba		na		cba		y		na		n	MOD	na		na		na		na		y		na		na		na		na		cba	
5B30	na		na		na		na		na		y		na		na		n	MIN	cba		na		cba		y		na		na		y		y		na		na		y		na		na		na		na	
5B31	na		na		na		na		na		na		na		na		na		na		na		cba		na		na		na		na		na		na		na		na		na		na		na		na	
5B32	na		na		na		na		na		na		na		na		na		na		na		cba		na		na		na		na		na		na		na		na		na		na		na		na	
5B33	na		na		na		na		na		na		na		na		na		na		na		cba		na		na		na		na		na		na		na		na		na		na		na		na	
5B34	na		na		na		na		na		na		na		na		na		na		na		cba		na		na		na		na		na		na		na		na		na		na		na		na	
5B35	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	

Ref	C1	EIA	C2	EIA	C3	EIA	C4	EIA	C5	EIA	C6	EIA	C7	EIA	C8	EIA	C9	EIA	C10	EIA	C11	EIA	C12	EIA	C13	EIA	C14	EIA	C15	EIA	C16	EIA	C17	EIA	C18	EIA	C19	EIA	C20	EIA	C21	EIA	C22	EIA	C23	EIA	C24	EIA	C25	EIA	C26	EIA	C27	EIA
Workbook 5b - River Health, Water Quality and Soil Assessment - SLOPES																																																								
5B36	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		cba		na		na		na		na		na		na		na		na		na	
5B37	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		cba		na		na		na		na		na		na		na		na	
5B38	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5B39	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
Workbook 5b - River Health, Water Quality and Soil Assessment - CAMP MAINTENANCE, FUEL STORAGE & WASTE DISPOSAL																																																							
5B40	cba		y		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		n	NEG	cba		cba		cba		cba		cba		cba		na		na	
5B41	cba		n	NEG	cba		cba		cba		cba		n	NEG	cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		n	NEG	cba		cba		cba		n	NEG	cba		na		na	
5B42	cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		na		na	
Workbook 5b - River Health, Water Quality and Soil Assessment - WATER CATCHMENTS																																																							
5B43	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		n	NI	y		y		y		y		na		na	
5B44	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5B45	y		na		y		na		na		na		y		na		na		y		y		na		y		na		na		na		y		y		na		na		na		na		na		na		na		na	
Workbook 5c -Biodiversity Conservation - PROTECTION OF BIODIVERSITY VALUES																																																						
5C1	y		na		y		na		na		y		y		y		na		y		y		y		y		na		na		na		na		y		na		na		na		na		y		na		na		na	
5C2	y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na	
5C3	y		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5C4	na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5C5	na		na		na		na		y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5C6	n	NEG	na		na		n	NEG	na		n	MIN	na		n	MIN	na		n	MIN	na		n	NEG	n	MIN	na		na		na		n	MOD	na		na		na		n	NEG	n	NEG	na		na		n	NEG	na	
5C7	na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		na		na		na		na		na		y		na		na		na		na		na	
Workbook 5c -Biodiversity Conservation - HABITAT TREES																																																						
5C8	y		y		y		y		y		y		y		y		y		cba		y		y		y		y		y		y		y		y		cba		y		y		y		y		y		y		y	
5C9	y		y		y		y		y		n	NEG	y		y		y		y		y		y		y		y		y		y		y		y		cba		y		y		y		y		y		y	
5C10	y		na		y		na		y		y		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		na		na		na	
5C11	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5C12	y		y		y		n	NEG	y		y		y		y		y		na		y		y		y		y		y		y		y		y		n	MIN	y		y		y		y		y		y	
5C13	na		y		na		y		y		na		y		na		na		na		na		na		na		na		na		na		na		na		na		n	MIN	y		na		y		na		na	
5C14	na		y		na		y		y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		y		na		na	
5C15	na		y		na		y		y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		y		na		na	
5C16	na		y		na		y		y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		y		na		na	
Workbook 5c -Biodiversity Conservation - RAINFOREST																																																						
5C17	y		na		y		na		na		na		na		na		na		y		na		y		na		na		na		na		y		na		na		y		y		na		na		na		na		na	
5C18	y		na		y		na		na		na		na		na		na		n	MAJ	na		n	MAJ	na		na		na		y		na		na		y		y		na		na		na		na		na		na	
5C19	na		na		y		na		na		na		na		na		na		n		na		na		na		na		na		na		na		na		y		y		na		na		na		na		na		na	
Workbook 5c -Biodiversity Conservation - FOREST HEALTH																																																					
5C20	y		y		y		y		y		y		y		n	MIN	y		y		y		n	NEG	n	MIN	y		y		y		n	MOD	y		y		y		na		y		na		y		n	NI	n	NI
5C21	n	NEG	n	NI	n	NI	n	NEG	n	NEG	n	MIN	n	NEG	n	MIN	n	NEG	n	MIN	n	NEG	n	NEG	n	MIN	n	NI	n	NEG	n	NI	n	MOD	n	NEG	n	NI	n	NI	n	NEG	n	NEG	n	NEG	n	NEG	n	NEG	na		na	
5C22	y		y		y		na		na		na		y		y		y		y		y		y		y		y		y		y		na		y		na		na		na		na		y		y		y		y	
5C23	na		na		na		y		y		y		na		na		na		na		na		na		na		na		na		na		na		na		n	NEG	na		y		na		na		na		na	
5C24	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5C25	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
Workbook 5d -Operational Provisions																																																					
5D1	cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		y		cba		cba		cba		y		cba		cba		cba		cba		cba		cba		cba		cba		na		na	
5D2	cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		y		cba		cba		cba		cba		y		cba		cba	
5D3	cba		cba		cba		cba		cba		cba		cba		y		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		y		cba		cba		cba		cba		cba		cba		cba	
5D4	cba		cba		cba		cba		na		cba		cba		cba		cba		cba		na		cba		cba		cba		cba		na		cba		cba		y		cba		na		cba		cba		y		cba		cba		cba	
5D5	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		n		y	
5D6	y		y		n		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		n		y	
5D7	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
Workbook 5e -Roading - PLANNING																																																					
5E1	y		y		y		y		y		y		y		y		y		y		y		y		n	MOD	n	MOD	y		y		y		y		y		y		y		y		na		y		y		na		na	
5E2	y		y		y		y		y		y		y		y		y		y		na		na		y		y		y		y		y		y		y		y		y		y		na		y		y		na		na	
5E3	y		na		na		na		na		na		na		y		y		y		y		y		y		y		y		y		y		y		na		y		y		y		na		y		y		na		na	
5E4	y		y		y		y		y		y		y		y		y		y		y		y		na		y		y		y		na		y		y		y		y		y		na		y		y		na		na	
5E5	y		y		y		y		y		y		y		na		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5E6	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E7	y		y		y		y		y		y		y		y		y		y		na		y		y		y		y		y		y		y		y		y		y		na		y		y		na		na	
5E8	na		na		na		na		y		na		y		y		y		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E9	y		y		y		y		y		na		y		na		y		y		y		y		y		y		y		y		na		y		na		y		y		y		na		y		y		na		na	
5E10	y		y		y		y		y		na		y		y		y		y		y		y		y		y		y		y		na		y		na		y		y		y		na		y		y		na		na	
5E11	na		na		na		y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		y		y		na		na	
5E12	y		na		y		y		y		na		y		na		y		y		y		y		y		y		y		y		y		y		y		y		y		na		y		na		y		y		na		na	
5E13	y		na		y		y		y		na		y		y		y		y		y		y		y		y		y		y		na		y		na		na		y		y		y		y		y		y		y	
5E14	na		na		na		na		na		na		na		y		na		na		na		na		y		na		na		na		na		na		na		na		na		y		na		na		na		na		na	
5E15	na		na		na		na		na		na		y		na		na		na		y		na		na		na		na		na		y		na		na		na		na		na		na		na		na		na		na	
5E16	y		y		na		y		y		y		y		y		n	NI	n	NI	y		y		y		n	NI	y		y		y		y		y		n	NI	n	NI	n	NI	y		n	NI	n	NI	na		na	
5E17	na		na		na		y		y		y		na		y		na		na		na		y		y		na		na		na		na		na		na		na		y		na		na		na		na		na	
5E18	y		y		y		y		y		y		y		y		na		na		y		na		na		na		y		y		na		na		y		na		y		y		y		y		na		na	
5E19	na		na		na		na		na		na		na		na		na		na		na		na		n	MOD	n	MOD	na		na		na		na		na		na		na		na		na		na		na		na		na	
5E20	na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		y		na		na		y		y		na		na	
5E21	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E22	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		y		na		na		y		na		y		na	
5E23	na		cba		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		cba		na		cba		na		cba		na		na	
5E24	na		cba		na		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		na		cba		na		cba		na		na	
5E25	na		na		na		na		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		na		na		na		na		na		na		na		na	
5E26	na		na		na		y		na		na		na		na		y		na		na		y		na		y		y		na		na		na		y		na		na		na		y		na		na		na	
5E27	na		na		na		na		na		na		na		na		na		y		na		na		na		y		na		na		na		na		y		na		na		na		na		na		na		na	
5E28	y		na		na		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		y		y		na		y		na		y		y		na	
5E29	y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		y		na		y		na		y		y		na	
5E30	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E31	y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		y		na		y		na		y		y		na	
5E32	n		n		na		na		n		na		na		n		na		na		na		na		na		na		na		na		na		na		na		n		na		n		na		n		y		na	
5E33	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	

Ref	C1	EIA	C2	EIA	C3	EIA	C4	EIA	C5	EIA	C6	EIA	C7	EIA	C8	EIA	C9	EIA	C10	EIA	C11	EIA	C12	EIA	C13	EIA	C14	EIA	C15	EIA	C16	EIA	C17	EIA	C18	EIA	C19	EIA	C20	EIA	C21	EIA	C22	EIA	C23	EIA	C24	EIA	C25	EIA	C26	EIA	C27	EIA
Workbook 5e -Roading - DESIGN																																																							
5E34	na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na	
5E35	y		y		y		y		y		y		y		y		na		y		n	NEG	n	NEG	n	MOD	n	MOD	n	MOD	y		y		n	NEG	y		y		n	MIN	y		na		y		y		na		na	
5E36	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		n	NEG	na		na	
5E37	na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		n	MOD	na		n	NEG	na		n	NEG	na		na	
5E38	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E39	na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		y		na		na		na		na		na		na		na	
5E40	na		na		na		na		na		na		na		na		na		na		na		y		na		y		na		na		na		y		na		na		na		na		na		na		na	
5E41	na		na		na		na		na		na		na		na		na		na		na		y		na		y		na		na		na		y		na		na		na		na		na		na		na	
5E42	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E43	na		cba		cba		y		na		cba		na		y		na		na		cba		y		cba		cba		y		na		cba		cba		na		na		na		cba		na		na		na		na	
5E44	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E45	na		na		y		y		na		na		na		na		n		y		na		n		n		n		n		y		y		na		na		na		na		na		y		na		na		na	
5E46	na		na		na		na		na		na		na		na		na		n		na		na		na		n		n		na		na		na		na		n		na		na		n		na		na		na	
5E47	na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na	
Workbook 5e -Roading - CONSTRUCTION																																																						
5E48	y		y		y		y		y		y		y		y		y		y		y		na		y		y		y		y		y		y		y		na		na		y		na		y		na		na	
5E49	na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E50	y		y		y		y		y		y		y		y		y		na		na		na		y		na		na		na		y		y		y		na		na		na		y		y		na		na	
5E51	na		y		n	MOD	na		y		na		na		n	NEG	na		na		na		na		n	NEG	na		na		na		na		na		na		n	MOD	na		na		y		n	MOD	na		na		na	
5E52	y		y		y		y		na		y		na		na		na		na		na		y		na		na		na		cba		na		na		y		y		y		na		y		y		na		na	
5E53	na		na		na		na		y		na		na		na		y		na		na		na		y		na		na		na		na		na		y		na		na		na		na		na		na		na	
5E54	na		cba		cba		cba		cba		cba		cba		cba		cba		cba		na		na		na		cba		na		na		na		na		cba		na		na		cba		na		cba		na		na	
5E55	na		na		na		na		na		na		na		na		na		na		na		na		y		y		na		na		na		na		na		y		y		na		na		y		na		na	
5E56	na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		y		y		na		na		y		na		na	
5E57	na		na		na		na		na		na		na		na		na		na		na		na		na		cba		na		na		na		na		y		cba		na		na		y		na		na	
Workbook 5e -Roading - MAINTENANCE																																																						
5E58	y		y		na		y		na		na		na		na		na		na		na		n	NEG	n	NEG	y		na		y		na		n	NEG	y		y		n	MIN	y		y		y		y		na		na	
5E59	y		na		na		y		na		na		na		na		na		na		na		na		na		y		na		na		na		na		y		y		na		na		y		y		na		na	
5E60	y		y		na		y		na		na		na		na		na		na		na		n	NEG	na		y		na		y		na		n	NEG	y		y		y		y		y		y		na		na	
5E61	y		na		na		y		na		na		na		na		na		na		na		na		na		y		na		na		na		na		y		y		na		na		na		y		y		na		na	
5E62	na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		y		na		y		na		na		na		na		y		na		na	
5E63	na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		y		na		na		na		na		na		na		na	
Workbook 5e -Roading - SUSPENSION OF CARTAGE																																																						
5E64	cba		cba		cba		cba		cba		cba		na		cba		na		na		y		y		na		na		cba		cba		y		cba		y		cba		cba		cba		cba		cba		cba		na		na	
5E65	na		na		na		na		na		na		na		cba		na		na		na		na		na		na		cba		cba		na		cba		na		na		na		na		na		na		na		na		na	
Workbook 5e -Roading - ROAD CLOSURE																																																						
5E66	na		na		y		na		y		y		y		na		n	NEG	y		y		na		na		na		y		y		na		y		na		na		n	NI	na		na		na		y		na		na	
5E67	y		y		y		y		na		n	NI	y		na		na		y		n	NI	na		na		y		y		na		na		na		na		na		na		n	NI	y		na		n	NI	n	NI
5E68	y		y		y		y		na		y		y		na		na		y		y		na		na		y		y		na		na		na		na		na		na		na		y		y		na		n	NI	n	NI
5E69	na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E70	y		y		y		y		na		na		y		y		na		na		na		y		na		na		na		y		na		na		na		na		na		na		y		y		na		na	
5E71	y		y		y		y		na		na		y		y		na		na		na		na		na		na		na		y		na		na		na		na		na		na		y		y		na		y	
5E72	cba		cba		cba		cba		cba		cba		na		cba		na		na		y		y		na		cba		na		cba		y		na		cba		na		cba		na		cba		cba		na		na	
5E73	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E74	y		y		y		na		y		y		y		na		y		y		y		na		y		na		y		na		y		y		na		na		na		na		na		na		na	
5E75	na		y		y		na		y		y		y		na		y		n	NEG	y		na		y		na		y		na		y		n	NEG	na		na		na		na		na		na		na		na	
5E76	na		y		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		y		y		na		na		y		na		na	
5E77	y		na		na		na		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5E78	na		na		na		na		na		na		na		y		na		na		y		y		na		y		na		na		na		na		na		na		na		na		y		na		na	
5E79	y		y		y		na		y		na		na		y		na		na		na		na		na		na		na		na		na		na		y		y		y		na		na		na		na	
5E80	na		na		n		na		n		na		na		n		na		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na	
Workbook 5f -Coupe Infrastructure																																																					
5F1	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		y	
5F2	y		y		y		y		y		y		y		y		y		y		y		y		y		y		y		na		y		cba		y		na		na		y		y		na		na	
5F3	y		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		cba		n	MOD	cba		cba		cba		cba		cba		na		na	
Workbook 5f -Coupe Infrastructure - LOG LANDINGS AND DUMPS																																																					
5F4	y		y		y		y		y		y		y		y		y		y		y		n	NEG	y		na		y		y		y		y		y		na		na		y		y		y		na		na	
5F5	cba		cba		y		y		cba		cba		y		y		y		y		y		cba		cba		cba		y		na		cba		cba		y		na		na		cba		na		y		cba		na	
5F6	y		n	MOD	n	MOD	n	MOD	n	MOD	n	MOD	y		cba		cba		n	MOD	n	NEG	y		cba		y		n	MOD	n	MIN	na		y		cba		na		y		cba		na		n	MIN	y		na		na	
5F7	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5F8	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		n	MIN	na		na		n/a		na		na	
5F9	na		y		na		y		y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		y		na		na		na	
5F10	na		y		na		y		y		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		y		na		na		na	
5F11	na		y		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
5F12	na		y		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na	
Workbook 5f -Coupe Infrastructure - SNIG AND FORWARDING TRACKS																																																					
5F13	y		y		y		y		cba		y		y		y		y		y		y		y		cba		y		y		y		na		y		cba		y		y		y		y		y		na		na	
5F14	y		y		y		y		cba		y		y		y		y		y		y		y		y		n	MIN	y		y		na		y		cba		y		y		y		y		y		na		na	
5F15	y		y		y		y		cba		y		y		y		y		y		y		y		y		y		y		y		na		y		y		y		y		y		y		y		na		na	
5F16	n	MIN	y		y		n	NEG	y		y		y		n	MIN	n	MOD	n	MIN	y		y		n	MIN	y		y		y		na		y		cba		na		y		y		n	MIN	n	MOD	y		na		na	
5F17	y		y		y		y		cba		y		y		y		y		y		y		y		y		y		y		y		y		y		cba		y		y		y		y		y		na		na	
5F18	y		y		n	MIN	y		cba		y		na		y		y		y		y		y		y		y		y		na		y		cba		y		y		y		y		y		na		na	
5F19	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		na	
5F20	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		cba		na		na		na		na		na		na	
5F21	y		y		y		y		cba		y		y		y		y		y		y		y		y		y		y		na		y		y		y		y		y		y		y		na		na	
5F22	y		y		y		y		cba		y		y		y		y		y		y		y		y		y		y		na		y		y		y		y		y		y		y		na		na	
5F23	na		na		na		na		na		na		na		na		na		na		na		y		na		na		na		na		na		na		na		na		na		na		na		na		na	
Workbook 5f -Coupe Infrastructure - BOUNDARY TRACKS																																																					
5F24	n	MOD	na		y		na		na		na		y		n	MIN	n	MOD	n	MOD	na		n	MIN	na		n	MIN	y		y		na		y		na		na		na		na		na		y		cba		na		na	
5F25	y		na		y		na		na		na		y		y		y		y		na		y		na		y		y		y		na		y		na		na		na		na		na		y		cba		na		na	
5F26	y		na		y		na		na		na		na		y		y		y		na		na		na		y		y		y		na		y		na		na		na		na		na		y		cba		na		na	
5F27	y		na		y		na		na		na		y		y		y		y		na		y		na		y		y		y		na		y		na		na		na		na		na		y		cba		na		na	
5F28	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		cba		na		na	

G

Appendix G Field measurements

Rehabilitation and location of landings

Agency	Landings assessed	Average size (ha)
VicForests	31	0.12
DSE	0	N/A
TOTAL	**31**	**0**

Snig and forwarding tracks

Agency	Total length assessed (m)	Non-compliant length (m)	Compliant length (m)	No. coupes assessed
VicForests	5,894	1,120	4,773	23
DSE	0	0	0	0
TOTAL	**5,894**	**1,120**	**4,773**	**23**

Boundary tracks

Agency	Total length assessed (m)	Non-compliant length (m)	Compliant length (m)	No. coupes assessed
VicForests	2,905	752	1,951	12
DSE	0	0	0	0
TOTAL	**2,905**	**752**	**1,951**	**12**

Temporary roads

Agency	Total length assessed (m)	Non-compliant length (m)	Compliant length (m)	No. coupes assessed
VicForests	8,962	2,072	6,890	21
DSE	0	0	0	0
TOTAL	**8,962**	**2,072**	**6,890**	**21**

Appendix G

Permanent roads

Agency	Total length assessed (m)	Non-compliant length (m)	Compliant length (m)	No. coupes assessed
VicForests	5,275	1,208	4,067	7
DSE	0	0	0	0
TOTAL	**5,275**	**1,208**	**4,067**	**7**

Buffers

Agency	Total length assessed (m)	Non-compliant length (m)	Compliant length (m)	No. coupes assessed
VicForests	3,990	0	3,990	12
DSE	0	0	0	0
TOTAL	**3,990**	**0**	**3,990**	**12**

Filters

Agency	Total length assessed (m)	Non-compliant length (m)	Compliant length (m)	No. coupes assessed
VicForests	2,610	23	2,587	8
DSE	200	200	0	1
TOTAL	**2,810**	**223**	**2,587**	**9**

Landscape

Agency	Total length assessed (m)	Non-compliant length (m)	Compliant length (m)	No. coupes assessed
VicForests	1,021	0	1,021	4
DSE	0	0	0	0
TOTAL	**1,021**	**0**	**1,021**	**4**

Rainforest

Agency	Total length assessed (m)	Non-compliant length (m)	Compliant length (m)	No. coupes assessed
VicForests	1,820	0	1,820	6
DSE	0	0	0	0
TOTAL	**1,820**	**0**	**1,820**	**6**

Significant habitat

Agency	Total length assessed (m)	Non-compliant length (m)	Compliant length (m)	No. coupes assessed
VicForests	1,522	3	1,519	5
DSE	0	0	0	0
TOTAL	**1,522**	**3**	**1,519**	**5**

National / State Park boundary

Agency	Total length assessed (m)	Non-compliant length (m)	Compliant length (m)	No. coupes assessed
VicForests	200	0	200	1
DSE	170	0	170	1
TOTAL	**370**	**0**	**370**	**2**

H

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Appendix I Auditee responses to matters of fact

VicForests Comments on the Draft Forest Audit Program Report 25/02/11

Comment Ref	Page	Coupe	General Comments	Auditors consideration
1	13	n/a	The level of compliance graph illustrates that our lowest level of compliance is biodiversity conservation. This is largely due to document control and not value protection as the term biodiversity conservation implies. Can the graph be altered to reflect what the findings were, such as weed survey documentation, machine wash down documentation etc?	A new EIA category of "No impact" has been added to the EIA tool for those issues where there it is assessed that there is no actual environmental impact as a result of a non-compliance, to distinguish them from non-compliances that result in a negligible actual or potential environmental impact.
2	13	n/a	This section focuses on crossing the tape line even though the buffers were marked wider than the minimum prescribed width and the minimum with is in no way compromised? The operation has therefore not impacted on the buffer. The audit has focused on the input rather than the outcome of this issue. The objective of the Environmental Assessment tool is to assess environmental impact and in this case there has been none. This 'depth' of audit goes beyond the scope of the audit against the Code and Management Procedures for this element. Coupe reconnaissance and marking cause 19% of VicForests OH&S incidents and 30% of our lost time injuries. The focus on the marked or taped boundary line as being sacrosanct exacerbates this potential for injury when we need to look for other, safer ways of establishing the correct boundary.	In accordance with the FAP methodology, non-compliances are not limited to those areas where environmental impact is noted, but where a Code, MP or salvage prescription requirement is assessed as not having been met. The Auditor considers that there must be no ambiguity about the way that coupe boundaries are managed in terms of which tape lines can be crossed and which can not. Assessment of breached taped boundaries as non-compliances is consistent with the way that assessments have been made in past EPA audits that have been limited to Code compliance. However, the Auditor accepts that crossing of taped boundaries is technically not a non-compliance with Code or Management Procedure requirements if the required buffer remains intact. Therefore, this non-compliance has been removed and text added that the Auditor considers the culture and practice of accepting that taped boundaries may be crossed carries a risk of leading to a non-compliance.
3	15	n/a	Table 4.1 of total non-compliances shows no comparison to the total number of audit elements or total compliance. It also does not identify that the results are for 25 VicForests coupes and only 2 DSE coupes. Please add further context and information to this table.	The number of compliances and total number of coupes for each of VicForests and DSE have been added.
4	17&18	n/a	At the bottom of page 17 it states that there may be a weakness in planning or mapping processes, although the top of page 18 it states that all 27 coupes were assessed as complying with the requirements pertaining to planning. How is it that there is a weakness if planning requirements comply? Can this comment be removed or amended to resolve the inconsistencies especially as there is again no environmental impact.	Sentence about weakness in planning remains. Further clarification that the 'Exclusion Zones' requirements address protection of exclusion zones has been added.
5	21	n/a	If there has been no environmental impact why has incorrect tape colour resulted in a non-compliance? We do not believe this is a non-compliance as the buffers meet the requirement of the Code and Management Procedures.	The Code requires that "the location of buffer and filter strips must be easily distinguishable in the field" and be identified in the Forest Coupe Plan. The FCP states that the buffers are marked with red tape, however they were marked in orange tape. The Auditor considers that there must be no ambiguity in relation to harvest boundaries. In accordance with the FAP methodology, non-compliances are not limited to those areas where environmental impact is noted, but where a Code, MP or salvage prescription requirement is assessed as not having been met. In this instance, the introduction of a new EIA category of "No impact" will enable the actual environmental impact (none) to be reflected.
6	21	n/a	Harvest debris was pushed over the taped boundaries but they were marked wider than the prescribed width. Therefore there was no impact on the buffer or the value being protected. We do not believe this is a non-compliance and goes beyond the scope of the audit against the Code and Management Procedures.	See response to comment #2. Text has been changed accordingly.
7	21	n/a	One buffer was taped at an insufficient width, but there was no harvesting activities in the area between the taped boundary and where the boundary should have been marked. Therefore there has been no environmental impact to the buffer and this goes beyond the scope of the audit against the Code and Management Procedures	See response to comment #2. Text has been changed accordingly.
8	28	n/a	The report states that there was no documentary evidence of soil having been removed from machinery before floating to or from a fire salvage coupe. In the Coupe Monitoring Records there is evidence of machine wash down. If more evidence is preferred, should this be a recommendation for improvement instead of a non-compliance?	Where further information has been provided to the Auditor (CMRs) the audit finding has been reassessed and in all but one instance the non-compliance has been reversed, noting however that this is based on limited information. Text also added at end of paparagraph 'The Auditor notes that this presents an opportunity for improvement in the documentation of machinery wash-down activities'. See the coupe specific comments for results.
9	43	n/a	Can the dot point "trees pulled out of buffer without documentation" be worded better as it sounds like harvesting occurred in the buffer? Trees were felled within the coupe but slid down a hill into a buffer. The contractor removed the trees but there was not sufficient documentation on the incident	Text has been changed to: "*Inadequate evidence that authorisation was given to remove trees felled into buffers*"
10	25	n/a	If there is evidence of weeds prior to harvesting in our records we do not believe we should be issued a non-compliance for weeds located within the coupe post harvest	All non-compliances related to weed management during harvest operations and pre- and post-harvest weed surveys were reassessed based on further information and comments on MOF provided by audittees: 1. Where information on occurrence of weeds before harvest has been provided in the FCP or MIR, no non-compliance for pre-harvest weed surveys has been recorded, noting that at times this was based on limited information; 2. Where a weed species is identified in the pre-harvest surveys and was observed by the Auditor on the coupe, a non-compliance has been recorded for the lack of evidence of management during harvest operations and the lack of post-harvest weed inspections; and 3. Where a weed species is not identified in the pre-harvest surveys and was observed by the Auditor on the coupe, a non-compliance has not been recorded for the lack of evidence of management during harvest operations but a non-compliance has been recorded for the lack of post-harvest weed inspections. The report text has been updated
11	26	n/a	The default field for marking habitat trees states that the variation for marking should be viewed. Foresters can update this field with comments. The coupes listed below have comments in this field detailing what the marking methods were and where the habitat trees are located. If this has been identified in the coupe plan and the correct number of trees have been retained and protected the we do not believe this is non-compliant	Where further information has been provided to the Auditor (Contractor directions) the audit finding has been reassessed and in all but one instance the non-compliance has been reversed. See the coupe specific comments for results. Identified as an area for improvement.

Comment Ref	Page	Coupe	General Comments	Auditors consideration
	Page	Coupe	Coupe Specific Comments	
12	20	C6	This is a temporary stream, not a permanent stream, and therefore the 20m buffer is additional to the requirements. See documentation provided.	The Auditor agrees that this waterway is a temporary stream and therefore does not require a 30m buffer. This non-compliance has been removed.
13	22	C15	The audit found this coupe to have more than 10% of the area greater than 30 degrees. VicForests would like to know how was this value calculated as our GIS data shows that C15 has less than 10% harvested over 30 degrees. Contractor rates are affected by slope and rock and contractors are quick to alert VicForests if a coupe exceeds 30 degrees over any significant area. See documentation provided.	The assessment was based on visual assessment during the coupe inspection. This non-compliance has been removed, based on GIS slope analysis data provided by VicForests.
14	34	C3	Topsoil not road construction fill was stockpiled on the edge of the road for use in rehabilitation of the road. An active coupe is currently using the road and it will be rehabilitated when use of the road is no longer required. There is no evidence of erosion or impact on the rainforest. DSE is aware of the planned rehabilitation activities and that the road will be rehabilitated once access is no longer required. We do not believe this should be a major non-compliance as there are plans in place to use the topsoil to rehabilitate the road	The stockpiled soil appears to be subsoil rather than topsoil, however discussions with a local senior DSE officer with knowledge of the issue, during the 'comments on matters of fact' period advised that it is both topsoil and subsoil. Erosion of the soil stockpiles was visually evident during the site inspection and evident in the photo included in the audit report. The DSE officer advised the Auditor that VicForests, at the time of road construction, had discussed with DSE options to minimise disturbance to the several wet gullies that the road crosses. The DSE officer advised that it was verbally agreed that the best option would be to stockpile topsoil in order to rehabilitate (including ripping and spreading of topsoil) the road after completion of harvesting in an adjacent coupe, which also used the road. He also advised that the stockpiling of the soil against the trees was agreed as the option of least impact, compared with increasing the clearing width. However, these decisions were not documented and plans were not developed and authorised.
14 continued			14 continued from above	Based on this limited information, the Auditor acknowledges the apparent consideration that was given to various options to minimise impact and that VicForests plans to rehabilitate the road to a higher level than the minimum required. In light of this information, the Auditor considers that the main deficiency appears to be in documenting plans and obtaining approvals for this work, given that the activities have resulted in outcomes not aligned with the Code and Management Procedures (soil stockpiles not appropriately stabilised, soil stockpiled against live trees). The Auditor has reviewed the assessment of this issue in light of the apparent planning that has been undertaken with the aim of minimising environmental impact and based on this information, that the impact is likely to be medium term (12-36) months rather than long term (>36 months). Therefore, the EIA has been reduced from Major to Moderate and recommends that, when complete, the rehabilitation of this road, including timeliness of rehabilitation, be reviewed by DSE as the regulator, against what was said to have been agreed.
15	37	C23	The report states that the auditor considers that the loading bays should have been managed as landings and rehabilitated accordingly, but has the loading bay from the thinning operations increased in size? Our prescriptions outline that loading bays require rehabilitation according to landing requirements if they exceed 600 square metres. The non-rehabilitation of these areas is no different, in this clearfall situation, from that of a final cut following a thinning. If the auditors sees this as an area of improvement, it should be a recommendation not a non-compliance.	Agreed that a final cut following a thinning is effectively the same as a clearfall operation in terms of stocking result. Non-compliance has been removed. One loading bay area was larger than 600 square metres (700 square metres), however the area also incorporated a turnaround for trucks.
16	38	C2	The Management Procedures do not state if topsoil should be spread before or after ripping. The Utilisation Procedures states that topsoil should be spread after ripping unless otherwise directed by a VicForests representatives. This was authorised by VicForests staff, on these coupes, as discussed in the field, due to compaction while spreading topsoil	The Utilisation Procedures state that topsoil should be spread after ripping and the Silvicultural Guidelines #11 recommend that topsoil be spread after ripping. The Auditor agrees that the UPs include a statement that this can be varied if directed by a VicForests representative. This direction was not documented, however the Auditor agrees there is no specific requirement that documentation is required. Therefore the reference to respreading topsoil has been altered, however the non-compliances remain in that they are due to the landings having an insufficient cover of topsoil.
	38 continued		Continued from above	Text has been changed to: On four coupes (C2, C3, C4 and C5), topsoil had been replaced before landings were ripped. The relevant procedural documents recommend that topsoil be spread after ripping, but there is provision for the Forest Officer to vary this practice. VicForests staff stated that the decision to spread topsoil before ripping on these coupes was taken in response to landing compaction through ripping after topsoil replacement. The Auditor considers that this practice is likely to have contributed to the lack of topsoil on the rehabilitated landings, but acknowledges the operational challenges of achieving both alleviation of compaction and replacement of topsoil, particularly on soils where there is a naturally thin layer of topsoil.
17	38	C3	The Management Procedures do not state if topsoil should be spread before or after harvesting. The Utilisation Procedures states that topsoil should be spread after ripping unless otherwise directed by a VicForests representatives. This was authorised by VicForests staff, on these coupes, as discussed in the field, due to compaction while spreading topsoil.	as above
18	38	C4	The Management Procedures do not state if topsoil should be spread before or after harvesting. The Utilisation Procedures states that topsoil should be spread after ripping unless otherwise directed by a VicForests representatives. This was authorised by VicForests staff, on these coupes, as discussed in the field, due to compaction while spreading topsoil.	as above
19	38	C5	The Management Procedures do not state if topsoil should be spread before or after harvesting. The Utilisation Procedures states that topsoil should be spread after ripping unless otherwise directed by a VicForests representatives. This was authorised by VicForests staff, on these coupes, as discussed in the field, due to compaction while spreading topsoil. We believe these should not be non-compliances as they comply with our requirements	as above

Comment Ref	Page	Coupe	General Comments	Auditors consideration
	Page	Coupe	Weed Survey Comments	
20	25	C1	CIS entries included presence of weeds in the reconnaissance before the commencement of harvesting. We do not believe we should receive a non-compliance for weeds found in the coupe post harvest. See documentation provided.	The Auditor considers that the *Management Issues Report* shows that the weeds were identified in the pre-harvest weed/pest assessment however no evidence was provided or available within the coupe records to indicate that the blackberry was treated/avoided/DSE notified etc during the harvest operation and the same weed species was observed on the coupe during the audit. As such, this non-compliance shall remain in the final report as described and assessed in the draft report.
21	25	C4	CIS entries included presence of weeds in the reconnaissance before the commencement of harvesting. We do not believe we should receive a non-compliance for weeds found in the coupe post harvest. See documentation provided.	The Auditor considers that the *Management Issues Report* shows that the weeds were identified in the pre-harvest weed/pest assessment however no evidence was provided or available within the coupe records to indicate that the blackberry was treated/avoided/DSE notified etc during the harvest operation and the same weed species was observed on the coupe during the audit. Section 2.2.2 of the Code requires that pest plants, pest animals and pathogens are managed during operations. As such, this non-compliance shall remain in the final report as described and assessed in the draft report.
22	25	C5	CIS entries included presence of weeds in the reconnaissance before the commencement of harvesting. We do not believe we should receive a non-compliance for weeds found in the coupe post harvest. See documentation provided.	The Auditor considers that the *Management Issues Report* shows that the weeds were identified in the pre-harvest weed/pest assessment however no evidence was provided or available within the coupe records to indicate that the blackberry was treated/avoided/DSE notified etc during the harvest operation and the same weed species was observed on the coupe during the audit. Section 2.2.2 of the Code requires that pest plants, pest animals and pathogens are managed during operations. As such, this non-compliance shall remain in the final report as described and assessed in the draft report.
23	25	C6	CIS entries included presence of weeds in the reconnaissance before the commencement of harvesting. We do not believe we should receive a non-compliance for weeds found in the coupe post harvest. See documentation provided.	The Auditor considers that the *Management Issues Report* shows that the weeds were identified in the pre-harvest weed/pest assessment however no evidence was provided or available within the coupe records to indicate that the blackberry was treated/avoided/DSE notified etc during the harvest operation and the same weed species was observed on the coupe during the audit. Section 2.2.2 of the Code requires that pest plants, pest animals and pathogens are managed during operations. As such, this non-compliance shall remain in the final report as described and assessed in the draft report.
24	25	C9	CIS entries included presence of weeds in the reconnaissance before the commencement of harvesting. We do not believe we should receive a non-compliance for weeds found in the coupe post harvest. See documentation provided.	The Auditor considers that the *Management Issues Report* shows that 'blackberries in the surrounding forest' were identified in the pre-harvest weed/pest assessment. However the weeds that were observed by the Auditor (spear thistle) were of a small number and this weed species was not identified in the recce. In this instance the Auditor has reassessed the requirement to maintain weeds during the harvest operations to not be applicable since a few thistle plants (no blackberry) were observed at the time of the audit only. Based on the evidence (no documentation was available) the Auditor is unable to determine if the thistle was present during the harvest operation. This requirement has been changed to not applicable for this coupe.
25	25	C10	CIS entries included presence of weeds in the reconnaissance before the commencement of harvesting. We do not believe we should receive a non-compliance for weeds found in the coupe post harvest. See documentation provided.	The Auditor considers that the *Management Issues Report* shows that the weeds were identified in the pre-harvest weed/pest assessment however no evidence was provided or available within the coupe records to indicate that the blackberry was treated/avoided/DSE notified etc during the harvest operation and the same weed species was observed on the coupe during the audit. Section 2.2.2 of the Code requires that pest plants, pest animals and pathogens are managed during operations. As such, this non-compliance shall remain in the final report as described and assessed in the draft report. Please note also that the non-compliance for the lack of pre-harvest weed assessments was removed for this coupe with the Auditor noting that this was based on limited information / detail in the Management Issues Report.
26	25	C11	CIS entries included presence of weeds in the reconnaissance before the commencement of harvesting. We do not believe we should receive a non-compliance for weeds found in the coupe post harvest. See documentation provided.	The Auditor considers that the *Management Issues Report* shows that 'blackberries in the surrounding forest' were identified in the pre-harvest weed/pest assessment. However the weeds that were observed by the Auditor (spear thistle) were of a small number and this weed species was not identified in the recce. In this instance the Auditor has reassessed the requirement to maintain weeds during the harvest operations to not be applicable since a few thistle plants (no blackberry) were observed at the time of the audit only. Based on the evidence (no documentation was available) the Auditor is unable to determine if the thistle was present during the harvest operation. This requirement has been changed to not applicable for this coupe.
27	25	C15	CIS entries included presence of weeds in the reconnaissance before the commencement of harvesting. We do not believe we should receive a non-compliance for weeds found in the coupe post harvest. See documentation provided.	The Auditor considers that the *Management Issues Report* shows that 'weeds in the surrounding forest' were identified in the pre-harvest weed/pest assessment. However a single weed plant (blackberry on the landing) was observed by the Auditor and this weed species was not specifically identified in the recce. In this instance the Auditor has reassessed the requirement to maintain weeds during the harvest operations to not be applicable since the single blackberry were observed at the time of the audit only. Based on the evidence (no documentation was available) the Auditor is unable to determine if the blackberry was present during the harvest operation. This requirement has been changed to not applicable for this coupe.
28	25	C18	CIS entries included presence of weeds in the reconnaissance before the commencement of harvesting. We do not believe we should receive a non-compliance for weeds found in the coupe post harvest. See documentation provided.	The Auditor considers that the *Management Issues Report* shows that 'blackberries' ('found in the area') were identified in the pre-harvest weed/pest assessment. However the weeds that were observed by the Auditor (spear thistle) were of a small number and this weed species was not identified in the recce. In this instance the Auditor has reassessed the requirement to maintain weeds during the harvest operations to not be applicable since a few thistle plants (no blackberry) were observed at the time of the audit only. Based on the evidence (no documentation was available) the Auditor is unable to determine if the thistle was present during the harvest operation. This requirement has been changed to not applicable for this coupe.

Comment Ref	Page	Coupe	General Comments	Auditors consideration
	Page	Coupe	Weed Survey Comments	
29	28	C9	Weeds noted as present in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include a weed assessment prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of pre- and post-harvest weed surveys. VF provided the *Management Issues Report* which provides some evidence of a pre-harvest weed report however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the non-compliance relating to the pre-harvest weed surveys be removed noting that this is based on limited information for the Auditor to assess compliance and that this is an area for improvement. The non-compliance relating to post-harvest weed surveys shall remain in the final Report as described and assessed in the draft Report.
30	28	C10	Weeds noted as present in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include a weed assessment prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of pre- and post-harvest weed surveys. VF provided the *Management Issues Report* which provides some evidence of a pre-harvest weed report however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the non-compliance relating to the pre-harvest weed surveys be removed noting that this is based on limited information for the Auditor to assess compliance and that this is an area for improvement. The non-compliance relating to post-harvest weed surveys shall remain in the final Report as described and assessed in the draft Report.
31	28	C11	Weeds noted as present in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include a weed assessment prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	Three non-compliances were recorded relating to the lack of pre- and post-harvest weed surveys and weed and pest management planning in the FCP. VF provided the *Management Issues Report* which provides some evidence of a pre-harvest weed report and weed and pest planning however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the two non-compliances relating to the pre-harvest weed surveys and weed and pest planning in the FCP be removed noting that this is based on limited information for the Auditor to assess compliance and that this is an area for improvement. The non-compliance relating to post-harvest weed surveys shall remain in the final Report as described and assessed in the draft Report.
32	28	C12	Weeds noted as "n/a" in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include an entry on weeds prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	Three non-compliances were recorded relating to the lack of pre- and post-harvest weed surveys and weed and pest management planning in the FCP. VF provided the *Management Issues Report.* The Auditor considers that the information in the *Management Issues Report* (specifically an n/a for weeds) does not provide enough information to assess the requirement as compliant. As such the three non-compliances shall remain in the final Report as described and assessed in the draft Report.
33	28	C14	Weeds noted as present in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include a weed assessment prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of pre- and post-harvest weed surveys. VF provided the *Management Issues Report* which provides some evidence of a pre-harvest weed report however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the non-compliance relating to the pre-harvest weed surveys be removed noting that this is based on limited information for the Auditor to assess compliance and that this is an area for improvement. The non-compliance relating to post-harvest weed surveys remains as assessed in the draft Report.
34	28	C15	Weeds noted as present in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include a weed assessment prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of pre- and post-harvest weed surveys. VF provided the *Management Issues Report* which provides some evidence of a pre-harvest weed report however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the non-compliance relating to the pre-harvest weed surveys be removed noting that this is based on limited information for the Auditor to assess compliance and that this is an area for improvement. The non-compliance relating to post-harvest weed surveys remains as assessed in the draft Report.
35	28	C16	Weeds noted as "none" in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include an entry on weeds prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of pre- and post-harvest weed surveys. VF provided the *Management Issues Report* which provides some evidence of a pre-harvest weed report however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the non-compliance relating to the pre-harvest weed surveys be removed. The non-compliance relating to post-harvest weed surveys remains as assessed in the draft Report.
36	28	C18	Weeds noted as present in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include a weed assessment prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	surveys. VF provided the *Management Issues Report* which provides some evidence of a pre-harvest weed report however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the non-compliance relating to the pre-harvest weed surveys be removed. The non-compliance relating to post-harvest weed surveys remains as assessed in the draft Report.
37	28	C19	Weeds noted as present in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include a weed assessment prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	surveys. VF provided the *Management Issues Report* which provides some evidence of a pre-harvest weed report however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the non-compliance relating to the pre-harvest weed surveys be removed. The non-compliance relating to post-harvest weed surveys remains as assessed in the draft Report.
38	17&28	C20	Weeds noted as present in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include a weed assessment prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	Three non-compliances were recorded relating to the lack of pre- and post-harvest weed surveys and weed and pest management planning in the FCP. VF provided the *Management Issues Report* which provides some evidence of a pre-harvest weed report and weed and pest planning however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the two non-compliances relating to the pre-harvest weed surveys and weed and pest planning in the FCP be removed. The non-compliance relating to post-harvest weed surveys remains as assessed in the draft Report.
39	17	C24	Weeds noted as present in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include a weed assessment prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of post-harvest weed surveys and weed and pest management planning in the FCP. VF provided the *Management Issues Report* which provides some evidence of weed and pest planning however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the non-compliance relating to the weed and pest planning in the FCP be removed. The non-compliance relating to post-harvest weed surveys shall remain in the final Report as described and assessed in the draft Report.
40	28	C25	Weeds noted as "none identified" in the recce on CIS. We received a non-compliance for not completing a weed assessment although CIS entries include an entry on weeds prior to harvest. We do not believe this should be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of pre- and post-harvest weed surveys. VF provided the *Management Issues Report* which provides some evidence of a pre-harvest weed report however no post-harvest weed survey records were provided to the Auditor. As such the Auditor considers that the non-compliance relating to the pre-harvest weed surveys be removed. The non-compliance relating to post-harvest weed surveys shall remain in the final Report as described and assessed in the draft Report.

Comment Ref	Page	Coupe	General Comments	Auditors consideration
	Page	**Coupe**	**Marking Habitat Tree Comments**	
41	26	C1	CIS variation for marking procedure states Habitat trees have been retained outside the marked boundry within TRP, Habitat island in middle of coupe. The method of marking has been defined in CIS. We do not believe this should be a non-compliance. See documentation provided.	One non-compliance was recorded relating to the marking of habitat trees not being in accordance with the FCP. VF provided the *Contractor Direction* to the Auditor which provides further detailed information of variations to the habitat selection and marking procedures. The Auditor considers that the non-compliance can be removed based on the information provided. Similar non-compliances for coupes C9, C11, C13, C14, C15, C18, C19, C21, C22, C23 have also been removed due to an agreed change of approach whereby only non-compliances strictly with prescriptions in the FAP workbooks would apply. This is because, in all coupes, adequate numbers of habitat trees were assessed as having been retained.
42	26	C2	CIS does not state that habitat trees will be marked in the field. We do not believe this should be a non-compliance. See documentation provided.	One non-compliance was recorded relating to the marking of habitat trees not being in accordance with the FCP. VF provided the *Contractor Direction* to the Auditor which provides further detailed information of variations to the habitat selection and marking procedures. The Auditor considers that the non-compliance can be removed based on the information provided. Similar non-compliances for coupes C9, C11, C13, C14, C15, C18, C19, C21, C22, C23 have also been removed due to an agreed change of approach whereby only non-compliances strictly with prescriptions in the FAP workbooks would apply. This is because, in all coupes, adequate numbers of habitat trees were assessed as having been retained.
43	26	C12	CIS variation for marking procedure states Selected by the contractor (and therefore not marked in the field or designated on the coupe map). The method of marking has been defined in CIS. We do not believe this should be a non-compliance. See documentation provided.	One non-compliance was recorded relating to the marking of habitat trees not being in accordance with the FCP. VF provided the *Contractor Direction* to the Auditor which provides further detailed information of variations to the habitat selection and marking procedures. The Auditor considers that the non-compliance can be removed based on the information provided. Similar non-compliances for coupes C9, C11, C13, C14, C15, C18, C19, C21, C22, C23 have also been removed due to an agreed change of approach whereby only non-compliances strictly with prescriptions in the FAP workbooks would apply. This is because, in all coupes, adequate numbers of habitat trees were assessed as having been retained.
44	26	C21	CIS variation for marking procedure details what the marking method was. The method of marking has been defined in CIS. We do not believe this should be a non-compliance. See documentation provided.	One non-compliance was recorded relating to the marking of habitat trees not being in accordance with the FCP. VF provided the *Contractor Direction* to the Auditor. The Auditor considers that the Contractor Direction, in this instance, did not differ from the FCP and therefore did not provide any further evidence that the habitat trees were marked in accordance with the FCP. As such, the non-compliance will remain in the final report as assessed and described in the draft Report. Similar non-compliances for coupes C9, C11, C13, C14, C15, C18, C19, C21, C22, C23 have also been removed due to an agreed change of approach whereby only non-compliances strictly with prescriptions in the FAP workbooks would apply. This is because, in all coupes, adequate numbers of habitat trees were assessed as having been retained.
	Page	**Coupe**	**Machine Wash down Comments**	
45	28	C4	Machinery has been washed down as noted in the CMR. The report stated that there was no evidence of machine wash down although it is recorded in our coupe monitoring forms and should not be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of evidence that machine wash-down proecedures were implemented. VF provided the *Coupe Monitoring Records* to the Auditor which indicate that the Forest Officers assessed that the harvest machinery wash-down procedures were being implemented. The Auditor considers that the non-compliances relating to the implemementation of the wash-down procedures be removed noting that this is based on limited information for the Auditor to assess compliance and that documentation of machinery wash-downs is an area for improvement for VicForests.
46	28	C5	Machinery has been washed down as noted in the CMR. The report stated that there was no evidence of machine wash down although it is recorded in our coupe monitoring forms and should not be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of evidence that machine wash-down proecedures were implemented. VF provided the *Coupe Monitoring Records* to the Auditor which indicate that the Forest Officers assessed that the harvest machinery wash-down procedures were being implemented. The Auditor considers that the non-compliances relating to the implemementation of the wash-down procedures be removed noting that this is based on limited information for the Auditor to assess compliance and that documentation of machinery wash-downs is an area for improvement for VicForests.
47	28	C6	Machinery has been washed down as noted in the CMR. The report stated that there was no evidence of machine wash down although it is recorded in our coupe monitoring forms and should not be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of evidence that machine wash-down proecedures were implemented. VF provided the *Coupe Monitoring Records* to the Auditor which indicate that the Forest Officers assessed that the harvest machinery wash-down procedures were being implemented. The Auditor considers that the non-compliances relating to the implemementation of the wash-down procedures be removed noting that this is based on limited information for the Auditor to assess compliance and that documentation of machinery wash-downs is an area for improvement for VicForests.
48	28	C23	Machinery has been washed down as noted in the CMR. The report stated that there was no evidence of machine wash down although it is recorded in our coupe monitoring forms and should not be a non-compliance. See documentation provided.	Two non-compliances were recorded relating to the lack of evidence that machine wash-down proecedures were implemented. VF provided the *Coupe Monitoring Records* to the Auditor which indicate that the Forest Officers assessed that the harvest machinery wash-down procedures were being implemented. The Auditor considers that the non-compliances relating to the implemementation of the wash-down procedures be removed noting that this is based on limited information for the Auditor to assess compliance and that documentation of machinery wash-downs is an area for improvement for VicForests.

DSE Comments on the Draft Forest Audit Program Report 25/02/11

Comment Ref	Page	Section/ Fig/Table	Specific comments	Auditors consideration
1	8	3.3	Line 1 and 2, the master coupe list didn't intend to represent all coupes. Explain the methodology.	On further discussion with DSE it was clarified that this comments relates to the exclusion of firewood coupes. The text has been changed to: *"The Department compiled and provided to the Auditor a Master Coupe List of 379 coupes , intended to represent all coupes that underwent harvesting during the 2008-09 financial year (excluding firewood coupes)* ."
2	25	4.2.4	On page 25 you note that a non-compliance has occurred where soil was pushed into a buffer, however the soil was only pushed into the buffer marked by VF and but was still outside of the prescribe width. Therefore this should not be a non-compliance as it is compliant with the Code. All it is non-compliant with is VF's buffer, and they are likely to have made it wider than the prescribed length to avoid this occurring.	The Auditor considers that there must be no ambiguity about the way that coupe boundaries are managed in terms of which tape lines can be crossed and which can not. Assessment of breached taped boundaries as non-compliances is consistent with the way that assessments have been made in past EPA audits that have been limited to Code compliance. However, the Auditor accepts that crossing of taped boundaries is technically not a non-compliance with Code or Management Procedure requirements if the required buffer remains intact. Therefore, this non-compliance has been removed and text added that the Auditor considers the culture and practice of accepting that taped boundaries may be crossed carries a high risk of leading to a non-compliance.
3	43	5.1	First sentence, outline what the methods for selection were	Changed to exclude domestic firewood coupes

J

Appendix J Soil assessment results

Coupe	Auditor				VicForests / DSE				Findings
	Topsoil		Subsoil		Topsoil		Subsoil		
	Erosion classn	Permeability	Erosion classn	Permeability	Erosion classn	Permeability	Erosion classn	Permeability	
C1	Low	High	Medium	High	Low	High	Medium	High	OK
C2	Low	High	Low	High	Low	High	Medium	High	VicForests more conservative on erosion class
C3	Low	High	Medium	High	Low	High	Low	High	Subsoil erosion class incorrect, but no change in Water Quality Risk
C4	Low	High	-	-	Low	High	Low	High	OK
C5	Low	High	Low	High	Low	High	Medium	High	VicForests more conservative on erosion class
C6	Low	High	Medium	High	Medium	Low	High	Low	VicForests more conservative on erosion class and permeability
C7	Low	High	High	High	High	High	High	High	VicForests more conservative on erosion class
C8	Low	High	Medium	High	Medium	High	Medium	High	VicForests more conservative on erosion class
C9	Low	High	Medium	High	Medium	High	Medium	High	VicForests more conservative on erosion class
C10	Medium	High	Medium	High	Low	High	Medium	High	Subsoil erosion class incorrect, but no change in Water Quality Risk
C11	Low	High	Medium	High	Low	Medium	Medium	Medium	VicForests more conservative on permeability
C12	Medium	High	Low	High	Medium	High	Low	High	OK
C13	Low	High	Medium	High	Medium	High	Medium	High	VicForests more conservative on erosion class
C14	Low	High	Medium	High	Low	High	Medium	High	OK
C15	Low	High	Medium	High	Low	High	Low	High	Subsoil erosion class incorrect, but no change in Water Quality Risk
C16	Low	High	Low	High	Medium	High	Medium	High	VicForests more conservative on erosion class
C17	Low	High	Low	High	Low	High	Low	High	OK
C18	Low	High	Low	High	High	High	High	High	VicForests more conservative on erosion class
C19	Low	High	Low	High	Low	High	High	High	VicForests more conservative on erosion class
C20	Low	High	Medium	High	Low	High	Medium	High	OK
C21	Low	High	Low	High	Low	High	Low	High	OK
C22	Low	High	Low	High	Low	High	Medium	High	VicForests more conservative on erosion class
C23	Low	High	Medium	High	Medium	High	High	High	VicForests more conservative on erosion class
C24	Low	High	Low	High	Medium	High	Medium	High	VicForests more conservative on erosion class
C25	Low	High	Low	High	Low	High	Low	High	OK
C26	-	-	-	-	-	-	-	-	No DSE assessment
C27	-	-	-	-	Low	Low	Low	Low	OK

K

Appendix K Photographs

Photograph 1: Single-tree selection harvesting showing no soil excavation for roads, tracks or landings (C26).

Photograph 4: Bark and harvesting debris pushed up around a marked and retained habitat tree (C6).

Photograph 2: - Machine entry into a filter after failure to classify the stream adjacent to but outside the coupe (C8).

Photograph 5: Soil and vegetation disturbance from machine entry into rainforest and rainforest buffer (C12).

Photograph 3: Incorrect marking of filter on drainage line resulting in machine entry, but minimal soil disturbance (C27).

Photograph 6: Tree stump within minimum clearance width preventing full topsoil stripping and fill compaction (C24).

URS

Appendix K

Photograph 7: Erosion of unconsolidated fill due to water flow (C20).

Photograph 8: Erosion in fill slope below cross drain outlet close to gully (C24).

Photograph 9: Sedimentation below slumped cut slope (C20).

Photograph 10: Unplanned disposal of excess road construction fill within a rainforest buffer and pushed up around live trees (C3).

Photograph 11: Tension crack formed at cut fill line on in coupe road suggesting potential instability (C20).

Photograph 13: Location of landing on ridge to minimise soil excavation. Landing also shared with an adjacent coupe (C20).

Photograph 12: Slumping and sedimentation in cut slope (C24).

Photograph 14: Sediment movement along a snig track that had not been rehabilitated (C20).

Appendix K

Photograph 15: Large area of rehabilitated landing without topsoil, associated with observations of poor topsoil segregation (C10).

Photograph 16: Excess bark retained at a landing (C15).

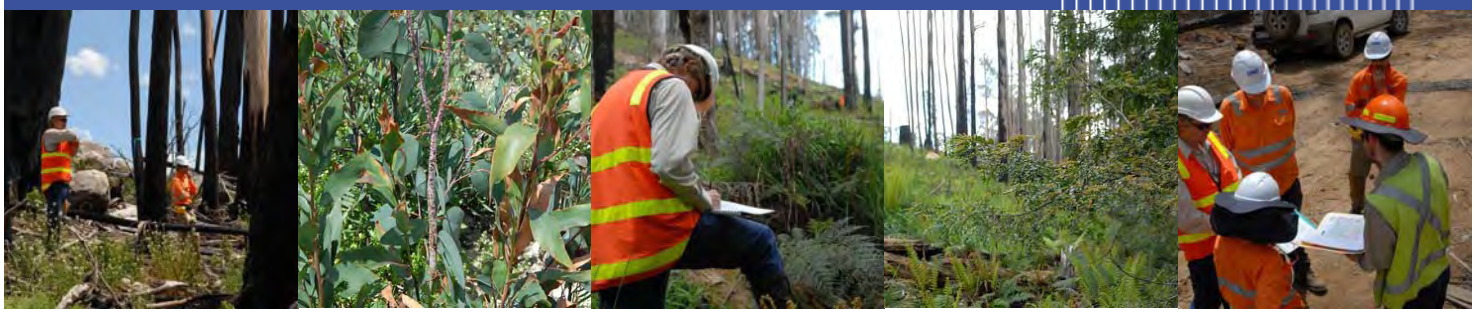
Photograph 17: Example of a well formed and effective snig track cross drain with outlet (C14).

Photograph 18: Erosion of snig track due to inadequate drainage (C24).

Photograph 19: Water flow around a bar due to no outlet channel on snig track drainage (C24).

Photograph 20: Rilling of snig track due to inadequate drainage (C13).

Photograph 21: Bark placed on a snig track (C3).



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