



Forest Practices Code Part1

Timber harvesting and haulage in Forestry Corporation of NSW softwood plantations

forestrycorporation.com.au

Forest practices code, part 1

Timber Harvesting and haulage in Forestry Corporation of NSW softwood plantations

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Acknowledgement of Country.

Forestry Corporation of NSW acknowledges the traditional custodians of the land on which we live and work, and pay our respects to Elders past, present and future.

We recognise the connection to their land, their waters and surrounding communities and acknowledge their history here on this land.

We also acknowledge our Aboriginal and Torres Strait Islander employees who are an integral part of our diverse workforce and recognise the knowledge embedded forever in Aboriginal and Torres Strait Islander custodianship of Country and culture.

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1.0 Introduction

Forestry Corporation of NSW (Forestry Corporation) manages approximately 225,000 hectares of softwood timber plantations across New South Wales. This Forest Practices Code ensures that the environment is protected and provides a framework to support the safe management of harvesting and haulage operations, while safeguarding and maximising the value of the crop.

The Forest Practices Code replaces the 2005 version and is a result of extensive consultation between Forestry Corporation, contractors, industry and other stakeholders.

Definitions – see section 12.0.

Links to other documents can be found using a [hyperlink](#) or by using the QR Code where supplied.

Scope –The Forest Practices Code applies to all Forestry Corporation softwood plantation harvesting operations (including haulage) and associated key roading requirements.

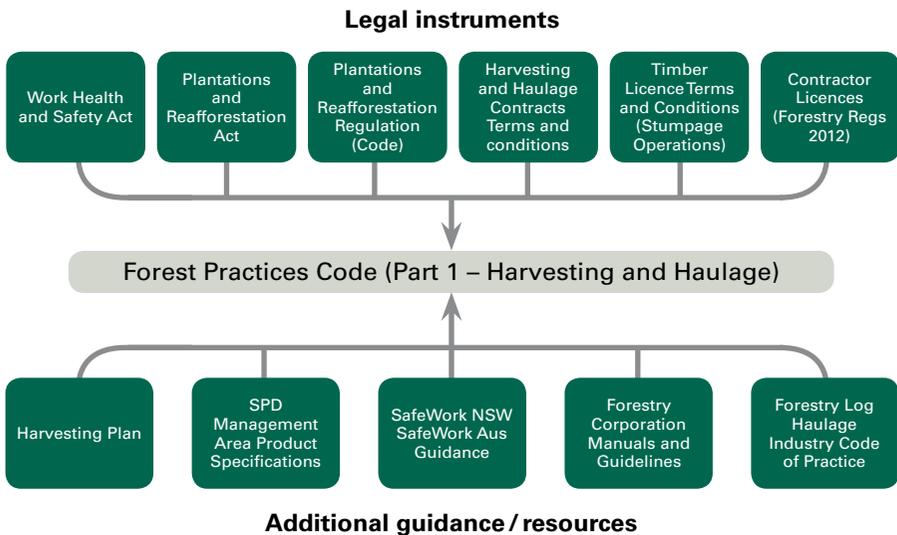
Additional roading conditions may be found in the *Forest Practices Code Part IV – Forest Roads and Fire Trails*.

[Forest Practices Code Part IV- Forest Roads and Fire Trails](#)



Context – The Forest Practices Code includes all the relevant conditions of the Plantation and Reafforestation Code (P&R Code) that relate to harvesting and haulage. Compliance with the Forest Practices Code is a condition of harvest and haul contracts, timber and contractor licences. Information in the Forest Practices Code is drawn from numerous other guidance documents that are referenced below.

* Note that the *Forestry Log Haulage Industry Code of Practice* is still draft as of April 2022. It is to be registered under the Heavy Vehicle National Law and is a key instrument in regulating log transport in the industry.



Who is this for?

- Operators of harvest and haulage equipment, their supervisors, contractors, timber licencees and mill operators can use the Forest Practices Code to help understand the rules that apply to operations on Forestry Corporation plantations
- Forestry Corporation staff who manage and supervise harvest and haulage operations.

How should it be used?

This Code applies to all softwood timber plantation harvesting and haulage operations managed by Forestry Corporation. It outlines to Forestry Corporation staff what is being asked of the contractors and operators.

Forestry Corporation will prepare Operational Plans for each individual operation to ensure compliance with the relevant legislation and compliance with the Operational Plan is paramount. This code supports the correct development and application of each Operational Plan

Any plantations Forestry Corporation works in are independently authorised following a rigorous assessment process in collaboration with the regulator to correctly identify the plantation area in line with the plantation definition in the *Plantations and Reafforestation Act 1999*. The Operational Plan ensures plantation operations are confined to the authorised plantation area.

There are two types of information in the Forest Practices Code:

- i. Instructions that are backed by legislation. These are non-negotiable
- ii. Guidelines that Forestry Corporation believe are best practice – operations may be permitted to vary from these guidelines only with Forestry Corporation's approval.

'should' = a recommended course of action

'may' = an optional course of action

'must', 'requires' or 'mandatory' = a legal or Forestry Corporation requirement which must be complied with.

Forestry Corporation welcomes the adoption of these standards on privately owned forests and land.

The version number and date of the Forest Practices Code is on page two of this document. The Forest Practices Code may be updated from time to time to ensure consistency with changing legislation and standards. It is the responsibility of staff and forest operators to ensure they have the current version.

2.0 Keeping safe

Safe and Skilled – AFPA’s Life Saving Commitments

Forestry Corporation endorses the life saving commitments released by the Australian Forest Products Association (AFPA) in September 2018. Forestry Corporation also recognises the Safe & Skilled training as a minimum standard for forest workers (*see Section 11.3*).



The forest can be a dangerous place to work. Everyone has a responsibility to themselves, their workers and other forest users to identify and manage risks within the forest workplace.

PCBU – Person Conducting a Business or Undertaking

The Forest Practices Code contains references to the PCBU. A ‘person conducting a business or undertaking’ (PCBU) is a broad term used throughout Work Health and Safety (WHS) legislation to describe all forms of modern working arrangements, which are referred to as businesses.

A person who performs work for a PCBU is considered a worker. Types of PCBUs can include public and private companies, partnerships, sole traders and self-employed people, government departments and authorities.

For the purpose of this Forest Practices Code and related forestry operations PCBU’s include:

- landowners and forest managers who engage contractors to harvest and transport forest products
- contractors
- timber business owners that harvest, process and transport forest products (including Timber Licencees).

PCBUs must ensure, so far as is reasonably practicable, that workers and other people are not exposed to health and safety risks arising from the business or undertaking.

Further information can be found at the [Safe Work NSW website](#)

[Safe Work NSW - PCBU](#)



2.1 Reporting of incidents and injuries

All incidents must be reported to Forestry Corporation within 24 hours including hazards, near misses, injuries, illnesses and dangerous incidents.

WHS legislation in NSW requires all work-related notifiable incidents that involve workers, contractors or members of the public be reported to the regulator immediately after becoming aware it has happened.

Further information can be found at the [Safe Work NSW website](#)

[Notify Safe Work NSW](#)



A 'notifiable incident' is one that involves:

- fatality
- immediate treatment as an in-patient in a hospital
- medical treatment within 48 hours following exposure to a substance
- dangerous incidents including:
 - » the collapse or partial collapse of a building or structure
 - » an uncontrolled escape, spillage or leakage of a substance
 - » an uncontrolled implosion, explosion or fire
 - » an uncontrolled fire on mobile plant in operation
 - » objects or substances falling from a height
 - » the collapse, overturning, failure or malfunction of, or damage to, items of plant required to be licensed or registered.

Safe Work NSW may request a written notification that needs to be made within 48 hours, and the incident site may need to be preserved until an inspector arrives or directs otherwise.

2.2 Consult, cooperate and coordinate

A harvest site is often a shared work site with more than one PCBU working as part of the operation (for example a harvesting contractor and a haulage contractor). Even if they work separately, what they do – and the risks their work creates – can affect other businesses at the site.

Because more than one PCBU can have control and influence over activities, it's important to remember that all PCBUs have a responsibility to ensure safety in that harvest site. Where this happens, the WHS Act says that businesses must consult¹ each other about shared risks to coordinate work in cooperative manner that minimizes the potential for harm.

Examples of sharing responsibilities:

- Forestry Corporation will prepare roads that can be used safely and provide information to contractors about known hazards
- harvesting and haulage contractors take into account site hazards, and exchange information about loading procedures, road closures and traffic management
- Forestry Corporation and contractors ensure that signage is appropriately displayed
- emergency plans and communication systems are developed together to ensure they are coordinated
- these matters are documented in the site safety plan.

To make sure this consultation and cooperation works, Forestry Corporation will prepare an operational plan as detailed in Sections 6.1 and 8.2 and induct harvest contractors into the operational plan. Harvesting contractors will then develop their own site safety plan in consultation with other contractors who will be working on the site.

1 S 46 *Work Health and Safety Act 2011*

2.3 Duty of care

Every worker has a responsibility to take reasonable care for their own safety, and make sure that their actions don't adversely affect the health and safety of other persons in the workplace.



PCBUs, generally the employer, have the main responsibility for the health and safety of everyone in the workplace, including visitors. A PCBU must ensure, far as is reasonably practicable, the health and safety of workers at work and others visiting the business or undertaking². This is known as the primary duty of care.

Safety responsibilities shift and overlap through the supply chain because many businesses are involved in getting the logs to market.

2.3.1 Forestry Corporation duty of care

Forestry Corporation must:

- participate in and encourage constructive consultation between PCBUs involved in operations
- provide information relevant to the site
- provide emergency evacuation information
- maintain records
- develop a site-specific work plan (known as an operational plan), including hazards identified during the planning process
- induct harvesting contractors into the operational plan and obtain signoff from contractors as acknowledgement that they have been properly inducted.

Forestry Corporation is responsible for:

- ensuring the road access is designed, constructed and maintained for the purpose for which it is intended
- ensuring that forest users are reasonably informed about any restrictions or conditions related to road use or forest entry – this might include emergency instructions, speed restrictions or radio communication protocols

- closing or restricting access to the forest if extreme conditions such as wind, snow or fire impose a significant risk to forest workers and visitors
 - warning road users about any road maintenance
 - communicating with relevant parties about hazards that are identified during the planning process and during the harvest and haul operation
 - liaising with local councils and Transport NSW in relation to closure of roads under their control
 - organising the traffic management on council and state roads when felling trees within two tree lengths of these roads
 - ensuring risks are eliminated or controlled as far as reasonably practical.
-

Handover of a site

Forestry Corporation will hand over control of a worksite to a PCBU (in this case the harvesting or haulage contractor) through the site induction and signing of an operational plan. The PCBU then has management or control of the workplace and must ensure, so far as is reasonably practicable, that the workplace and the means of entering and exiting the workplace are without risks to the health and safety of any person.

A typical handover will involve:

- i. Forestry Corporation hand over control of a harvesting area to a harvesting contractor via induction of the harvesting contractor to an operational plan. The site safety plan is completed by the harvest contractor in consultation with Forestry Corporation, and any other potential independent haulage and loading contractors.
 - ii. The harvesting contractor finishes harvesting (either temporarily such as overnight, or permanently). The haulage contractor assumes control of the worksite until haulage operations are completed or harvesting resumes. They retain the site safety plan and are responsible for managing access and egress and site inductions.
 - iii. Haulage operations are completed, and the site is handed back to Forestry Corporation.
-

2.3.2 Contractors

Given that harvest sites are often shared sites, and that one operator's actions (or lack of) may impact on another's, it is important that all workers understand who, at any given time is managing a harvest site.

All contractors must ensure that they:

- maintain and implement a process to identify and manage the worksite risks
- ensure employees have access to appropriate safety equipment to reduce risks to the health, safety and wellbeing of operators undertaking site activities
- make sure work is conducted with minimal risk to workers' health and safety
- identify training required for an activity, ensuring workers undertake appropriate and specific training and are competent.

Harvesting contractors must:

- undergo an induction and implement the operational plan
- develop and implement a site safety plan, in consultation with Forestry Corporation and workers, including consideration of the known hazards as identified in the Operational plan (*refer to section 2.4*)
- consult, cooperate and coordinate with other PCBUs (Forestry Corporation and other contractors) as described in Section 2.2
- induct all workers and visitors into the site safety plan.

The harvesting contractors are responsible for:

- managing access to the worksite
- preventing access and egress where tree felling or extraction operations are occurring near a road (see Section 2.4.5)
- ensuring workers and visitors are at least 70 metres away from a working harvester/processor or to manufacturer's specified safe working distance, whichever is greater.
- determining effective means of communications e.g. UHF
- identifying, establishing and communicating a safe area for truck drivers e.g. a designated space at the front of the truck clear of hazardous trees
- establishing safe parking areas for their staff and visitors

- consulting with operators to ensure products are loaded so they comply with all mass, dimension and load restraint laws.
- ensuring logs can be safely loaded in accordance with stack height specifications (*see Section 7.1.1*)
- when harvesting and loading are occurring simultaneously, ensuring log truck drivers:
 - » are inducted to site and know what risks to expect and can communicate with them throughout the loading process
 - » know to follow the instructions of the loader operator
 - » follow any specific safety requirements outlined in the site safety plan (e.g. chain up area)
 - » agree to and stays in the safe area while loading is occurring
 - » know to ask permission from the loader operator if they need to leave the agreed safe area
- ensuring that firefighting equipment meets the requirements under section 10.8.

Forestry Corporation, harvest and haulage contractors all have additional obligations through the Chain of Responsibility legislation that regulates transport operations. *Refer to section 8.1.*

Haulage contractors are responsible for:

- ensuring that where harvesting operations have ceased (either temporarily or permanently) that control of the worksite is clearly assigned to the haulage contractor and that this is understood by all workers on site
- ensuring a copy of the site safety plan is available during loading and haulage operations, and all workers have been inducted into the site safety plan
- managing access to the worksite and preventing access and egress when loading is occurring independently of harvesting
- having systems in place to ensure drivers have appropriate and current skills, knowledge, competencies and licenses
- ensuring trucks are fit to drive on the roads, and meet mandatory contract requirements
- consulting, cooperating and coordinating with other PCBUs as described in Section 2.2
- making sure drivers know the rules about being on a harvesting work site

- making sure drivers know about specific safety requirements set by Forestry Corporation.
- when loading is occurring independently, ensuring log truck drivers:
 - » are inducted to site, know what risks to expect and can communicate with other workers on site throughout the loading process
 - » know to follow the instructions of the loader operator
 - » follow any specific safety requirements outlined in the site safety plan (e.g. chain up area)
 - » agree to and stay in the safe area while loading is occurring
 - » know to ask permission from the loader operator if they need to leave the agreed safe area
- making sure that drivers comply with the site induction and/ or site access requirements of the delivery points (mill log yards etc).

Log truck drivers are responsible for:

- consulting with loader operator on the loading process and any specific safety risks
- following all reasonable instructions from the harvest or haulage contractor
- staying in the agreed safety area – and asking permission before leaving (See *Safe Work Australia Guide*)
- making sure the load is loaded and secured according to industry standards (as specified in the *Log Haulage Code of Practice*).



2.3.3 Workers

Everyone must:

- take reasonable care of their own health and safety. This includes wearing the required Personal Protective Equipment (PPE) and following reasonable procedures and instruction
- make sure that what you are doing doesn't harm the health and safety of others.

Workers have a right to stop or refuse to do unsafe work and must cooperate to identify, implement and maintain risk controls.

2.4 Site safety management

2.4.1 Site safety plans

Site safety plans are used to assist in the development and communication of work health and safety arrangements on a specific worksite for a specific job.

Forestry Corporation will prepare an operational plan and induct harvest contractors into the operational plan. It will include hazards identified during the planning phase and a *Medical Emergency Evacuation Plan*. Harvest Contractors must develop and implement a Site Safety Plan, in consultation with Forestry Corporation and workers, including consideration of the “known hazards” as identified in the Operational Plan. In doing so, each contractor must consult with each other to make sure that any risks that they create, or hazards they identify are managed to minimise the potential for harm to all workers and visitors.

Risks should be controlled using the concept of the ‘Hierarchy of Controls’.

Control measures include elimination, substitution, isolation, engineering, administration and PPE in order of priority, or hierarchy.

See more at [SafeWork NSW](#).



Each operational area must have a site safety plan prior to work commencing.

All workers and visitors must be inducted into the operational and each site safety plan prior to entering the site.

Refer to sections 6.1 and 8.2 for more information.

2.4.2 Active harvesting areas

The active tree felling zone is two tree lengths from the point being harvested. The safety zone is the zone beyond this to allow a safe margin in the case of chain shot from the harvesting head. Workers should be at least 70 metres away from a working harvester/processor or the manufacturer’s specified safe working distance, whichever is greater.

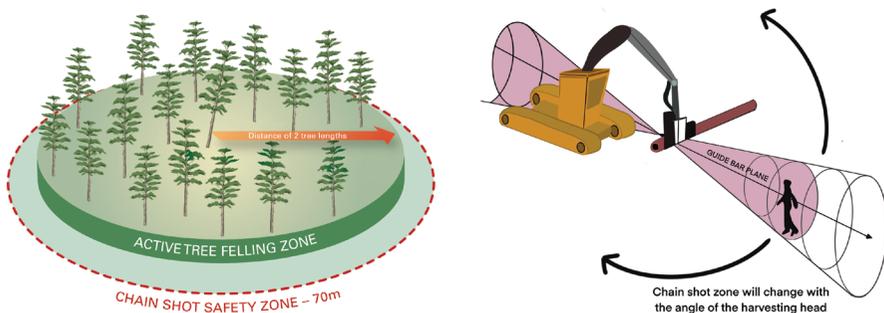


Figure 2.1 Active tree felling zone and chain shot safety zone

The tree feller:

- controls the *Active Tree Felling Zone* (see Figure 2.1) and is the only person who can authorise entry into this zone
- can refuse to fell a tree if the work is beyond their level of competence.

Authorised mobile plant with appropriate protective structures may work closer than two tree lengths (such as forwarders); but not closer than one tree length of felling operations unless they are directly assisting the felling operation and only if a risk assessment and appropriate controls have been established.

Log processing activities must cease when any person or plant comes closer than two tree lengths from the processor except for authorised mobile plant or other protected equipment.

2.4.3 Hazardous trees and overhead risks

Where possible, all identified hazards should be eliminated, however this may not always be practical. Hazardous trees and other overhead risks are to be documented in the operational plan.

site safety plans should include:

- identification and management of hazardous trees and overhead hazards
- a combination of control measures for identified hazards based on the hierarchy of controls.

Workers share the responsibility for identifying, marking and reporting hazardous trees and overhead hazards that have the potential to impact the health and safety of themselves or others at the work site.

Workers need to:

- be aware of hazardous trees and overhead hazard-related risks through visual inspection, participation in hazardous tree assessments and consultation with others
- identify and monitor hazardous tree and overhead hazard-related risks at the work site
- report new or changed hazards to the relevant manager and all other workers in the area taking all reasonable action to eliminate or minimise risk where it is safe to do so.

Forestry Corporation have a procedure for managing hazardous trees and overhead hazards - refer to **WHSMS – management of hazardous trees & overhead hazards**.

2.4.4 Working near powerlines

Contact with energised electric lines by forestry operations equipment or materials can cause death, electric shock or other injury caused directly or indirectly by electricity. An electric shock can also occur without direct contact with overhead electric lines. Contact may occur when travelling near or under powerlines, however there is also the hazard created by falling trees too close to power lines. Forestry Corporation will identify powerlines on the operational plan and risks must be identified and control measures specified in the site safety plan.

Forestry Corporation regional staff are responsible for developing localised prescriptions in consultation with harvesting contractors and energy transmission authorities that will prescribe machinery exclusion zones and controls for tree felling.

Refer to the Forestry Corporation **WHS Procedure 4.8 – Working in the Vicinity of Overhead & Underground Electric Lines**.

2.4.5 Safety signs

Safety signs are used to provide information to workers and visitors warning of possible danger in the area or a change in conditions.

The site safety plan will detail where safety signs should be located. The PCBU in control of a worksite is responsible for supplying, placing and maintaining signs. For shared worksites contractors must work together to ensure signage is appropriately installed and maintained.

Signs must conform to **WHSP - Signage in Forest Areas** legislative requirements and be:

- positioned and erected to be clear and readable, in accordance with Table 2.1 below, generally, between 2 metres and 5 metres from the edge of the road
- properly displayed and securely mounted
- within approaching driver’s sight (consider distances and height above the ground, the likely speed of traffic and roadside obstructions when determining sign placement and size)
- not obscured by vegetation or other obstructions
- be mounted securely, clearly visible and not create a hazard for other road users
- located in proximity of operations that provides adequate warning and with additional signage as required along the route as reminders before reaching the operation
- removed when the information they contain is no longer relevant.

Signs must be placed on all road and track entry points to operational sites to:

- stop people from entering when the road is closed
- give people directions and provide main contact details for the operations crew
- warn those entering of the danger of tree felling or other dangerous activities occurring.

Table 2.1 Distance for signs³

Road environment - speed	Must / may need to stop (m)
< 75 kmh	80–120
75–90 kmh	120–180
> 90 kmh	180–250

Note: signs must be placed no closer than the minimum distance in the must/ may need to stop column of table 2.1.

3 Austroads Guide to Traffic Management Part 10 Transport Control – Types of Devices| Version 3

Forestry Corporation regional staff may issue additional instructions for the use of signs in harvesting and haulage operations.

In general, the following four primary signs must be in place during operations:

Sign 1 – Tree felling

DANGER – Tree Harvesting Operations in Progress – Authorised Persons Only – Radio Ch....

- Sign must be placed on road entry points to the active harvesting area and will delineate the extent of the active harvesting area.
- Signs must be erected before commencement of operations.
- A physical barrier (gate or tape) may be used in addition to this sign.
- When physical barriers (e.g. gate) are used signs must be placed in advance of the barrier to warn approaching motorists / bike riders of the barrier ahead.
- Signs must only be placed on roads maintained by Forestry Corporation. Where a road managed by another authority passes through a harvest area, signs must be placed on the intersections with the Forestry Corporation road.



Sign 2 – Tree felling near roads

NO ENTRY – Road Closed to All Traffic

- May be used in any circumstance where there is an imminent hazard for the road user. Signs must only be placed on roads maintained by Forestry Corporation.
- Each sign must be accompanied by a physical barrier across the road to prevent vehicles passing the road closure point. Safety tape or vehicles are acceptable as a physical closure (barrier). Barriers (such as a log) must not prevent emergency access (such as ambulances or firefighting equipment).

- When physical barriers are used, signs must be placed in advance of the barrier to warn approaching motorists / bike riders of barrier ahead.
- A documented risk assessment process (exception in emergency situations) is required to determine the need for additional controls, such as using lookouts.
- Use stop/slow traffic control when a road cannot be closed or when an active tree felling zone is next to a road that is not controlled by Forestry Corporation (refer to the operational plan). Traffic controllers must hold relevant accreditation (RIIWHS205D - Control traffic with stop-slow bat or equivalent).
- The contractor will provide extra traffic control measures if directed by Forestry Corporation.

Sign 3 – Warning regarding machinery

WARNING - Logging machinery on roads.

- May be used when a site is not closed but there is an active operational site or an identified hazard – loading and haulage. For example, the road is open, but the operation is occurring through site, vehicles may be on the road.
- Signs must be placed in advance of the operational activity or identified hazard.



Sign 4 – Log trucks entering

WARNING Log trucks entering

- The sign is erected and maintained by the haulage contractor at major road intersections (outlined in the operational plan / site safety plan).
- For local and state government roads, Forestry Corporation should consult with the road authority to ensure signage is adequate. Any specific requirements will be documented in the operational plan.



2.4.6 Management of B-doubles and other restricted access vehicles

Legally, all roads on State forest in NSW are classified as Public Streets and so are open to the public, unless Forestry Corporation has closed the road. Any trucks designated as General Access Vehicle (GAV) may operate on the road network within the forest, unless otherwise advised by Forestry Corporation. Restricted Access Vehicles (RAV) can only operate on roads that have either been closed or gazetted to allow the operation of the relevant vehicle type or have a permit to do so.

The B-double or other RAV network may be either classified as Concessional Mass Limits (CML) or Higher Mass Limits (HML) and approved via a closed or gazette notice. Forestry Corporation will endeavour to ensure that the main access roads within the forest network, are appropriately gazetted to minimise the requirement for individual permits or road closures.

Where permits are not in place FCNSW may also obtain a permit for specific routes on behalf of haulage contractors. In such cases haulage contractors must ensure that such permits are appropriate for the route and vehicles being used. Haulage contractors must obtain the appropriate permit from the NHVR (National Heavy Vehicle Regulator) for travel on a road outside of the B-double network if roads are not closed. Only haulage contractors who are accredited under the **National Heavy Vehicle Accreditation Scheme (NHVAS)** may apply for CML or HML permits.

Further information can be found at the National Heavy Vehicle Regulator website.



Sign 5 – No entry for public traffic

DANGER – No Entry

Where roads are not gazetted, or permits received, roads must be closed between the active harvest site and the gazetted or permitted road. This is done using this sign and will be the responsibility of the haulage contractor unless otherwise agreed by Forestry Corporation.

If roads are not closed, nor gazetted as a B-double / RAV route, or appropriate permits held, trucks may be operating illegally.

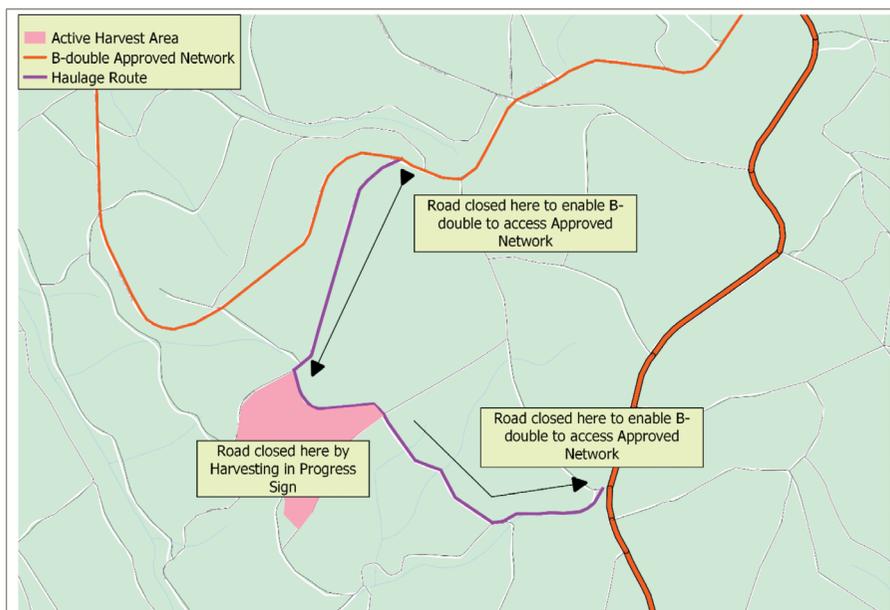


Figure 2.2 Closing roads to enable B-double access where roads from the approved network

2.4.7 Forestry Corporation signs

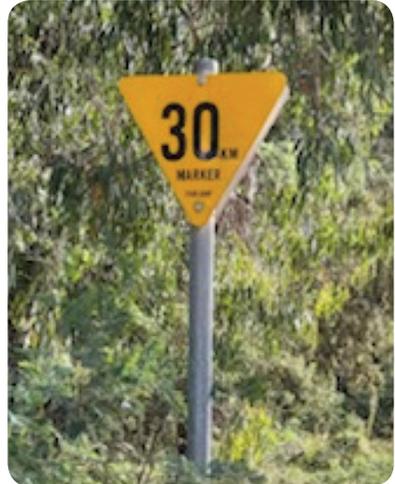
Hunting exclusion zones

- This sign is used to advise hunters that hunting is prohibited in the area. It is the responsibility of Forestry Corporation to install and maintain these signs.
- This signage is not required if the area is not available for hunting or has formally been excluded through the mapping system maintained by DPI Hunting.



Kilometre markings

- These markers can be located on major forest roads, indicating the distance along the road to help users identify where other traffic is located. The calling of position on the road is industry best practice and their use is expected by Forestry Corporation vehicles, log trucks and other contractors to inform other road users of their location.
- Be aware that not all vehicles will call or hear calls made (e.g. members of the public). All persons are to drive as if there is a high likelihood of another vehicle coming in the other direction.



2.5 Machinery Operator Protection (ROPS, FOPS and OPS)

2.5.1 Requirement

Protective structures must be fitted that are appropriate to the machinery used and conditions of use, and compliant with the relevant technical standards. All harvesting equipment must have Rollover Protective Structures (ROPS), Falling Object Protective Structures (FOPS) and Operator Protective Structures (OPS) on plant to be used in the forest. Refer to WHSP 4.1 - Plant, Equipment and Vehicles as updated from time to time.

2.5.2 Standards

See Appendix 1 - Heavy Plant Protective Structure Technical Standards.

3.0 Environmental protection

Forestry Corporation, Timber Licensees and contractors should strive to ensure the sustainability of forest operations through the diligent protection of soil and water, biodiversity and cultural heritage values. This section sets out the regulatory and best practice requirements that must be considered during harvesting and haulage operations.

3.1 Protecting soil and water values

3.1.1 Soil movement

Soil movement must be minimised. There are several techniques to do so, including:

- » establish or maintain slash, litter and other groundcover (living or dead). Slash cover should be established as work progresses, with 70% groundcover
- » utilising walkover extraction techniques
- » elevating logs when extracting via skidding
- » establishment of crossfall drainage and drainage structures.



Figure 3.1 An example that demonstrates the impacts of not controlling soil movement

3.1.2 Drainage features

Protecting drainage features is critical. Drainage features include the following:

- Drainage depression – means a level to gently inclined shallow, open depression, rising to moderately inclined hill slopes, that conveys runoff water only during, or immediately after, periods of heavy rainfall.

- Drainage line – drainage line means a channel down which surface water naturally concentrates and flows, conveying water only during, or immediately after, periods of heavy rainfall. Drainage lines exhibit one or more of the following features which distinguish them from drainage depressions:
 - » evidence of active erosion or deposition
 - » an incised channel more than 300 millimetres deep
 - » first or second order streams with permanent flow
 - » third or higher order streams without permanent flow.
- Wetland – a wetland includes marshes, billabongs, swamps and sedge lands and means any area that is:
 - » covered by a shallow body of water, either seasonally or permanently
 - » vegetated with plant communities adapted for life in saturated soil conditions
- River - river means a third order or higher order stream (as determined according to the **Strahler System**) with a permanent flow (*see Definitions for more details*). Rivers will be clearly marked on the operational plan.



Identifying drainage features

The operational plan includes a map which shows drainage features that have been identified during planning. However, operators are responsible for identifying the drainage feature in the field and applying the right buffer.

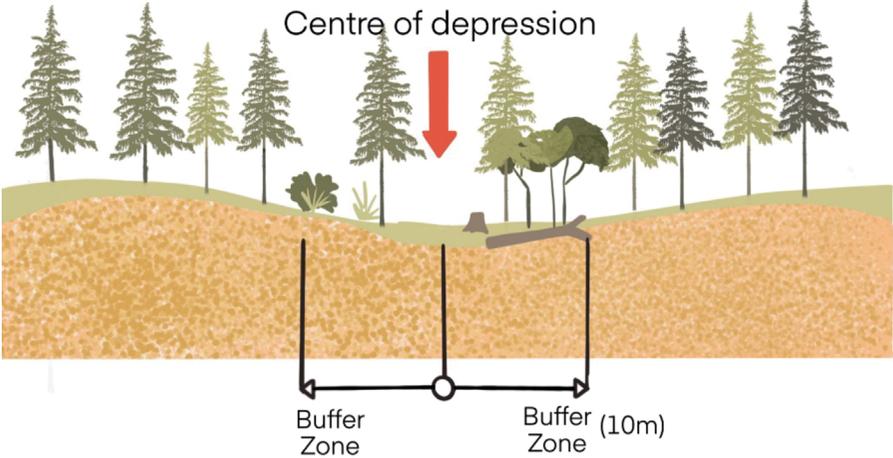
3.1.3 Buffer zones

Buffer zones apply to either side of a drainage feature. Operations are restricted inside buffer zones to protect soil and water values. The width of the buffer zone depends on the type of drainage feature.

Table 3.1 Width of buffer zones

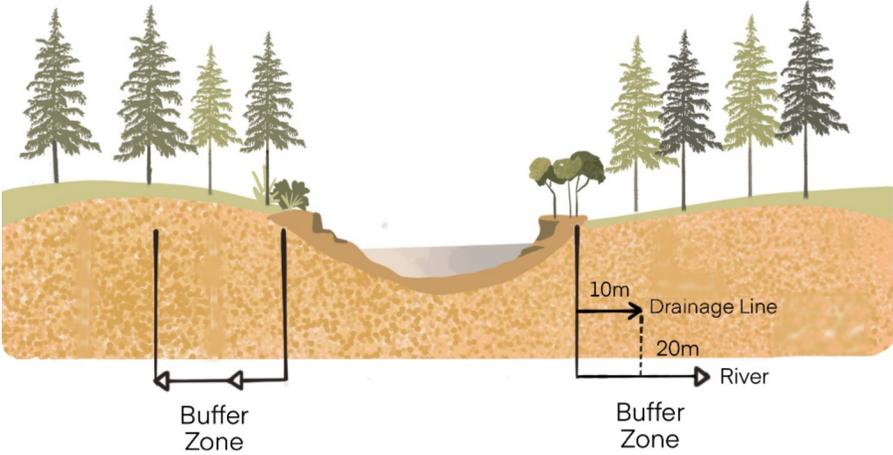
Drainage feature	Buffer zone (m)	Measuring the width of a buffer zone
Drainage depression on soil classed as Regolith Class 4	10 m	From the centre of the depression
A wetland greater than 0.1ha	20 m	From the wetland’s edge
River	20 m	From the top edge of its banks
Drainage line	10 m	From the top edge of its banks

Drainage Depression (R4 soils)



(measured from centre of depression)

Drainage Line and River



Width of buffer zone will vary, as indicated on the harvest plan.
Min. width will be: Drainage line.....10m. River.....20m

Figure 3.2: Drainage Feature Protection

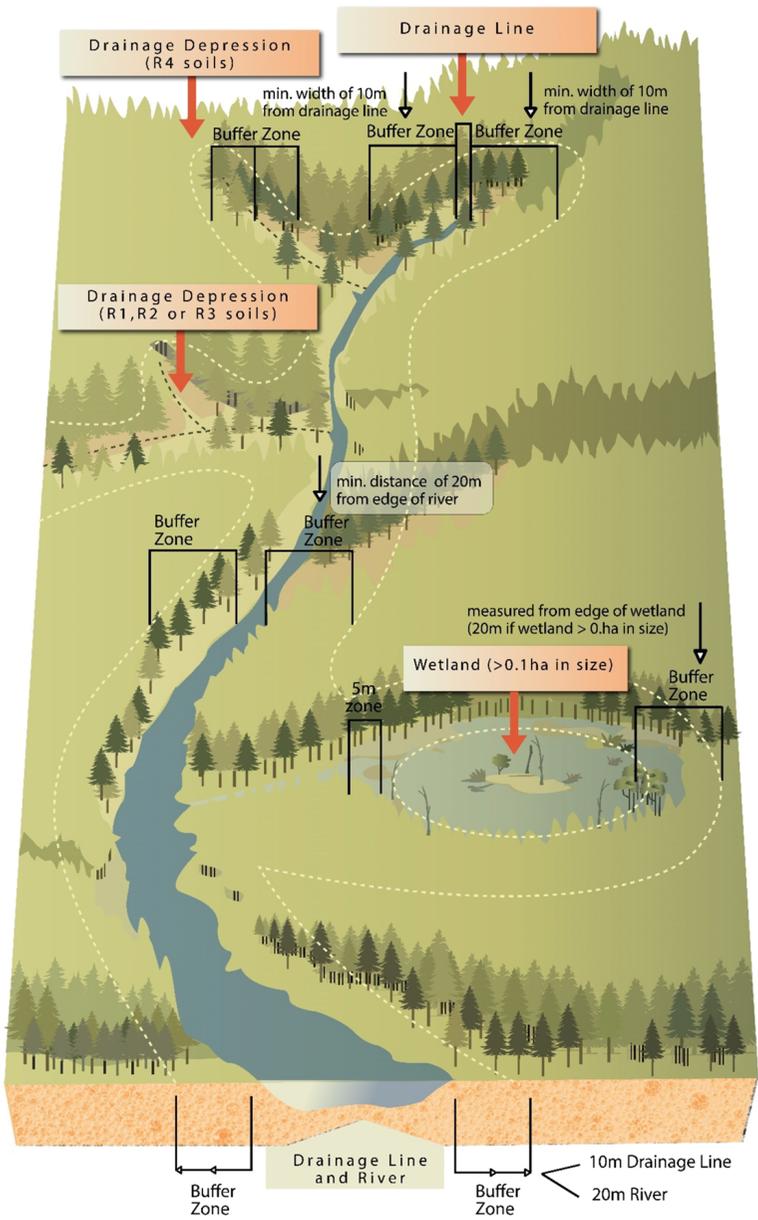


Figure 3.3: Drainage Feature Protection

Operating in buffer zones is subject to mandatory conditions. Forestry Corporation may also implement best practice requirements on a case-by-case basis. Operators should:

- prevent the creation of water channels
- prevent skewing of machinery tracks
- not snig along drainage depressions (note snigging means pulling logs, wholly or partly supported on the ground, from the stump to the log dump or landing)
- not conduct earthworks except where there is an approved crossing.

3.1.4 Mandatory conditions that apply in buffer zones

Harvesting in the buffer zone of a wetland or river

No harvesting is allowed in the buffer zone, unless one-off harvesting permission has been granted. This will be specified in the operational plan.

Harvesting in the buffer zone of other drainage features can occur if:

- i. the top 200 millimetres of soil is dry enough to avoid erosion to the edge of the drainage feature.
- ii. harvesting and extraction machinery does not enter within 5 metres of:
 - » the edge of a drainage line or
 - » the centre of drainage depression occurring in soil classed R4 unless crossing the drainage feature (*see figure 3.4 on page 32*), or the operational plan indicates that entering this 5-metre zone will create less disturbance than using an alternative route.
- iii. directional felling is used to avoid felling trees into the defined channel of a wetland, river, or drainage line.

If directional felling cannot be used, or if trees are accidentally felled into the defined channel of a wetland, river or drainage line, the tree must be removed from the channel. If removal will cause more than minimal disturbance to the bed and banks of the channel, the tree may remain. This decision is to be documented in the operational plan notes by Forestry Corporation.

If logs are removed from a buffer area:

- disturbed areas must be restored to 70% groundcover within 7 days of the removal of the logs
- any furrow created by the removal of the logs must be filled or drained to prevent concentrated water flow direct to the drainage feature.

Crossings

Wetlands must not be crossed.

Rivers and drainage lines: approval for the location and type of crossing required to cross a drainage line or river must be granted by Forestry Corporation prior to any work commencing. The site will be marked on the operational plan (if prior approval is granted) or in field before work commences.

Drainage lines and drainage depressions: machinery may cross through any drainage depression or drainage line (in the case of drainage lines, subject to approval) if:

- i. the part of the drainage depression or drainage line where the crossing is to occur is shallow and dry
- ii. machines do not go up and down drainage depression and cause channelised flow
- iii. the soil in the area surrounding the drainage depression or drainage line is dry
- iv. measures are taken to prevent water from the approaches used by the machinery from running into the drainage depression or drainage line in the event of wet weather
- v. no earthworks are required to enable the machinery to cross through the drainage depression or drainage line
- vi. harvesting machinery may cross drainage lines or drainage depressions by using slash crossings, if there is no water flowing in the channel / depression.



Figure 3.4 Drainage feature crossing must be approved and appropriately constructed

Temporary crossings of drainage features must be removed within five days of the completion of harvesting and log extraction. Removal must prevent disturbance to the bed and banks as much as is reasonably practicable.

If the bed and banks are in an unstable condition after the removal of a temporary crossing, the bed and banks must be reshaped to provide for a stable cross section where water flow is not impeded.

3.2 Plants, animals, cultural heritage and weed management

3.2.1 Biosecurity

Pests and disease can be introduced to areas via soil and debris left on machinery and trucks. Operators must wash down harvesting equipment and log trucks of soil and by-products before inter-plantation zone and inter-state transfers. Exemptions are made by the Regional Manager.

Machinery must also be washed down prior to entering or leaving a forest where there is a need to minimise the transfer of weeds or other pests. The operational plan will contain instructions including the location of the washdown bays.

Contractors are responsible for washing down all equipment where stated in the operational plan and should ensure:

- the removal of cover plates and other items that are quickly and easily removed and replaced
- no clods of dirt or loose soil are present after wash-down
- radiator, grills and the interior of vehicles are free of accumulations of seed and other plant material.

3.2.2 Flora and fauna

The Operational plan will contain required site-specific measures for fauna and flora.

If an operator becomes aware of the presence of any threatened flora or fauna, they must ensure any work does not impact on the species and notify Forestry Corporation's Supervisor.

3.2.3 Cultural and environmental heritage

Items of cultural heritage (such as and Aboriginal object or Aboriginal place), and environmental heritage (such as a gravesite) within the plantation are protected by a buffer zone.

- The extent of the buffer will be denoted in the operational plan along with any other site-specific requirements
- There can be no harvesting activity (including felling into, or the construction of loading bays or log stockpiles) within this buffer.

If an operator becomes aware of the presence of any sites or artefacts, ensure work does not impact on the site and notify Forestry Corporation's harvesting supervisor. (*see Section 11.3 outlining training and accreditation requirements*).

4.0 Wet weather controls

Wet weather conditions may result in additional controls to harvesting and haulage operations designed to minimise soil disturbance, water turbidity, and damage to roads and tracks. These controls can be either automatic closures (without notification) and notified closures (partial or total). The operational plan may specify additional controls.

4.1 Automatic closure

Contractors and operators apply an automatic closure as soon as the conditions dictate – there is no prior notice. If an operator is unsure whether working will cause damage, they must cease work and consult Forestry Corporation's harvesting supervisor.

4.1.1 Ground based harvesting

- An automatic closure applies to harvesters if there is surface run-off, and skidders or forwarders if water is running in extraction tracks
- Machinery can only operate on saturated soils if the machinery is supported by a bed of slash, walkover extraction techniques are used, and rutting doesn't exceed the depths specified (*refer to figure 4.1*)
- Harvesting in drainage feature protection areas can continue if the top 200mm of soil is dry enough to avoid soil erosion.

4.1.2 Cable yarding

Cable yarding can continue if machinery is stable on landings, and subject to notified closure requirements.

4.1.3 Forwarders

An automatic closure applies as follows:

- loaded forwarders and skidders: when water is running in the extraction tracks
- forwarding on natural surface roads: when there is runoff from the road.

If forwarding between bitumen or gravel roads and log stockpiles has been approved, work can continue in wet conditions if:

- forwarders are not fitted with chains, tracks or variants that will damage the road
- rutting stays within allowable limits (*refer to section 4.3*)
- use of the forwarder does not allow water to bypass road drainage structures
- forwarders do not damage drainage structures when travelling from the road verge to the table drain.

Loaded forwarders can only build roadside stockpiles in wet weather by unloading at the end or rear of stockpiles. They should only be on the road when loading trucks (*see to section 5.1.1*).

Subject to Section 4.3, forwarders can carry slash from the forest to loading sites during automatic closures when extra slash is needed to meet the conditions above.

4.1.4 Loading and use of loading sites

An automatic closure applies to the use of mobile wheeled loaders and tracked loaders when there is runoff from the landing surface (note this does not refer to gravelled loading bays). Forwarders, excavators and truck-mounted loaders can be used as stationary loaders in wet conditions, subject to notified closure requirements and maximum allowable soil disturbance limits.

Best practice is to minimise rutting using slash and debris in high traffic areas.

When being loaded from a verge or road junction, haulage vehicles must park on the road pavement to avoid damaging drainage structures.

Loading sites may be closed by Forestry Corporation's harvesting supervisor if traffic or activities are damaging the site or extraction routes.

4.1.5 Haulage

An automatic closure applies to the use of natural surface roads for haulage when there is runoff from the road.

Haulage over bitumen and gravel roads can continue during wet conditions subject to notified closure requirements (Section 4.2).

4.2 Notified closures

Notified closures apply when prolonged wet conditions mean that re-starting work after an automatic closure could cause significant soil disturbance or damage to roads and extra time is required for drying and drainage.

Notified closures may be pre-emptively activated prior to an event that requires an automatic closure to occur. Notified closures may be partial or total.

Note that closures may also apply in the case of extreme weather events such as wind or fire risk.

4.2.1 Partial closure

May be declared by Forestry Corporation's Harvesting Supervisor for specific operations or parts of operations when extra drying time is needed.

4.2.2 Total closure

Under a total closure, all work stops, generally across all plantations within a region or management area. They are implemented when operating in such conditions would result in significant environmental and financial cost, or risks to safety. Forestry Corporation will provide written confirmation to contractors and Licencees when total closures are invoked and when operations can resume.

Contractors are responsible for notifying operators. However, Forestry Corporation's harvesting supervisor may notify an operator directly if substantial rain occurs or other factors prevent normal communication. Formal notification will follow as soon as possible.

4.3 Maximum allowable soil disturbance

Subject to automatic and notified closure conditions, harvesting machinery may operate in wet conditions provided damage is minimised and is within the limits in Table 4.1 Maximum allowable rutting depths.

Table 4.1 Maximum allowable rutting depths

Where	Rutting depth below the natural surface	Maximum allowable distance
Along road verge (within 10m of any road)	150 mm	Any 10m section of track
Within 30m of a log dump/ or on major extraction tracks	250 mm	Over any 10m section of track
Within compartments	100 mm	Over any 10m section of track
Along roads	150 mm (and subject to drainage structures still working)	For any distance exceeding 20m

If the use of an extraction track would exceed the limits, operators, in conjunction with the relevant Forestry Corporation supervisor, should consider other harvesting options – for example, moving to more stable ground.

If rutting from previous harvesting is greater than these limits, work can proceed providing the depth of rutting remains the same.

Where ground disturbance occurs beyond these limits, restoration and drainage works must be implemented, in accordance with Section 64B or the Plantations and Reafforestation Regulation. Tracks must be drained in accordance with Table 6.1.

Work is also subject to automatic and notified closure requirements.

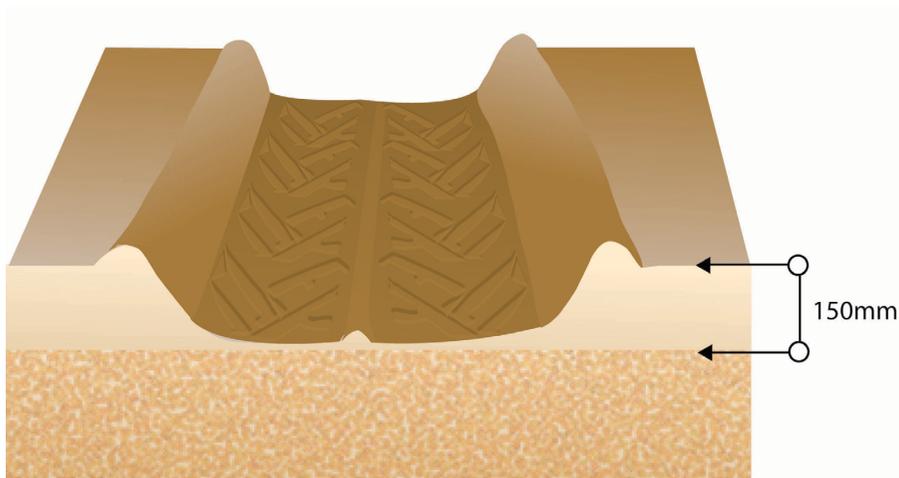


Figure 4.1 Measurement of rutting

4.4 Blading off roads

Tracks: Blading-off of extraction tracks is not allowed.

Roads: use of a machine to sweep drifts of loose bark, mud, slush, or soil from the surface of the road to provide temporary access following wet weather should be avoided wherever possible.

If it is necessary to blade off a road the following conditions apply:

- i. approval from Forestry Corporation's harvesting or haulage supervisor must occur prior to the event. This approval must be documented in the operational plan
- ii. Forestry Corporation must notify the Plantation Regulation Unit of the Department of Primary Industries of the blading off within two days of it having occurred
- iii. blading-off can only be carried out once on any section of road per harvesting event where it is deemed necessary to provide short-term road access to a log loading site
- iv. stockpile bladed-off material in a recoverable position where it cannot wash into a river, drainage line or drainage depression and respread as soon as is practicable
- v. drain and stabilise the bladed-off section of road as soon as practicable after the blading-off has occurred.



Figure 4.2 Use of cording and slash can prevent excessive rutting in wet weather

5.0 Roads

5.1 Road drainage

Drainage structures can include table drains, culverts, rollovers, crossfall and rubber flaps. Some of these are demonstrated in the following diagram.

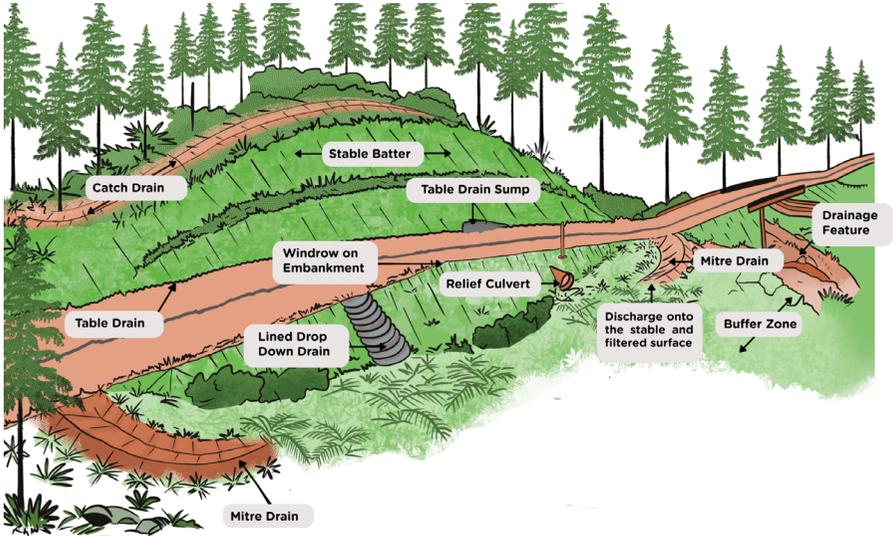


Figure 5.1 Road drainage structures and features

5.1.1 Maintaining roads and road drainage structures

- Machinery and vehicles must not damage roads or road drainage structures or cause drainage structures to become blocked. This includes actions such as screwing machinery around on the road or bringing excessive dirt onto the road surface.
- Roads and road drainage structures must be kept in working order during operations.
- Road drainage must always comply with Table 5.1 below. If water flows on a road surface for distances greater than these, due to failure or damage of a road drainage structure, use available equipment to restore the drainage structure or notify the Forestry Corporation supervisor as soon as possible.
- Where operating on the road verge, any exposed mineral earth must be covered with slash.



Figure 5.2 Cording used to minimise soil disturbance on the road verge

Table 5.1 Road drainage spacing

Slope (degrees)	Spacing (m)	Slope (degrees)	Spacing (m)	Slope (degrees)	Spacing (m)
1	250	11	55	21	28
2	200	12	50	22	26
3	150	13	45	23	24
4	125	14	40	24	22
5	100	15	40	25	20
6	90	16	38	26	19
7	80	17	36	27	18
8	70	18	34	28	17
9	65	19	32	29	16
10	60	20	30	30	15

Refer to section 4.0 for operating conditions in wet weather.

5.2 Log stockpiles, landings, loading bays and log dumps

5.2.1 Safety and operational requirements

When formulating operational plans and site safety plans, harvesting planners, Forestry Corporation Supervisors and harvest and haulage representatives must jointly review site, safety and operational requirements for people working on log landings and dumps. This includes the communication systems that will be used during operations (*refer to section 2.2*).

Forest products must be removed from loading bays and stockpiles in time to maintain log quality and optimise seasonal conditions.

5.2.2 Location

When locating a stockpile, consider the loading and haulage equipment to be used, and road grade and width. Disturbance to roads and drainage structures must be minimised. If road damage is unavoidable, notify the Forestry Corporation Supervisor immediately, and if possible, repair the structure with available equipment. Log stockpiles and associated debris must not block drainage structures.

Loading bays and log dumps that require earthworks must be located outside drainage buffer zones (*See Section 3.1.3*).

Do not locate in retained native vegetation. Do not accumulate logs on sealed or gravelled roads or gravelled loading bays unless approved by a Forestry Corporation Supervisor. Stacks must not be built against retained trees.

5.2.3 Draining loading bays and log dumps

Runoff from loading bays and log dumps must be dispersed onto stable surfaces and not discharged directly into drainage features or extraction and snig tracks. Keep water discharge points away from bare soil. Drainage structures must be kept in working order.

5.3 Cleaning roads and loading areas

Debris which could cause a safety hazard or block the flow of water must be removed from the road and from road drainage structures at the end of each day, unless otherwise approved by the Forestry Corporation Supervisor.

6.0 Harvesting

6.1 Operational plans

- Forestry Corporation is responsible for providing an operational plan (can also be known as the harvest plan but the term operational plan is used throughout this Code to avoid confusion), with details of how the site is to be managed.
- It will include conditions and site-specific instructions for harvesting and will also include a Haulage Management Section (see Section 8.2).
- Harvesting must not start without an approved operational plan and a site safety plan. A copy of these plans must be kept on site while the operation is active.
- Failure to comply with the operational plan is a breach of this Code, Forestry Regulations and harvesting and haulage contracts. Any breaches must be reported to Forestry Corporation.
- Only Forestry Corporation may amend the Operational plan.

6.1.1 Inductions

By signing (or otherwise acknowledging receipt of) the operational plan, the contractor, Timber Licencee or delegated representatives indicate they have received a copy of the operational plan and:

- understand the conditions in the Plan and take responsibility for them as they apply
- have been inducted into, and consulted in relation to, the operational plan by Forestry Corporation
- declare that employees and subcontractors can meet the requirements of the operational plan through proper supervision, training, licensing and accreditation
- have responsibility for inducting all relevant personnel to the operational plan, focusing on relevant sections of the plan, as required for operations relevant to their business.

The contractor is also responsible for inducting people into the site safety plan. If harvesting operations have been completed, site inductions are the responsibility of the PCBU that retains control of the worksite (*refer Section 2.3 Duty of Care and 2.4 site safety plan*).

6.2 Operations

6.2.1 Moving operations

Approval from a Forestry Corporation supervisor is required before:

- moving from an area of one seasonal harvesting capability to another within the harvest area
- moving from one harvest plan area to another
- starting operations in a new harvest plan area.

Approval is granted when work within the current operational area is assessed by Forestry Corporation as having been completed to the required standard, and the harvest completion checklist is completed and signed off by Forestry Corporation harvest supervisor.

6.2.2 Access to the harvest area

Subject to safety considerations, the harvest area must remain accessible to people with a legal right of way, including neighbours. Any requirements will be specified in the operational plan. Where there is a right of way through an area covered by an operational plan, the affected people must be inducted into the relevant operational plan and site safety plan, including any communication requirements.

6.3 Extraction / Tracking

Log extraction includes forwarding, skidding, snigging and shovel logging.

Extraction track means a track used for extraction. (Extraction tracks include snig tracks, along which logs are dragged, either wholly on the ground or supported at one end, using wheeled or tracked vehicles.)

Harvesting operations must be designed to minimise water runoff from the harvest areas by ensuring that wherever possible uphill snigging and walkover techniques are used. Logs must be moved from the forest to the roadside in time to maintain log quality and optimise seasonal conditions. Where skidding is necessary, the leading edge of the logs must be elevated before skidding starts.



Figure 6.1 Effective use of slash (walkover) on site to mitigate soil disturbance

6.3.1 Construction of extraction tracks

Operations using forwarders must minimise extraction track construction by utilising walkover techniques on a bed of slash. Construction of extraction tracks is allowable if:

- the Operational plan specifies, or it is approved by Forestry Corporation supervisor first
- there is minimal topsoil disturbance
- extraction tracks are on elevated ground, such as ridges
- the grade of constructed extraction tracks does not exceed 25 degrees.

6.3.2 Thinning Operations

i. Tracking patterns

Thinning operations, including tracking must be undertaken in accordance with Forestry Corporation procedures (*refer to SPD Management of Softwood Plantation Thinning Operations*) or relevant standards for hardwood plantations). The tracking pattern selected and used must:

- minimise the number of tracks constructed
- allow access to all trees in the stand, while minimising crossing of drainage features
- minimise damage to retained trees (minimal side slope, appropriate width)
- minimise soil disturbance and environmental impact
- Feed into and make the most of gravel roads and gravel loading bays.

Tracks follow the planted row where possible (row tracking).

For areas where row tracking will lead to excessive side slope, or there is need for logs to be stacked on a gravel road, feeder (follows the ridge), cross or herringbone track patterns should be used.

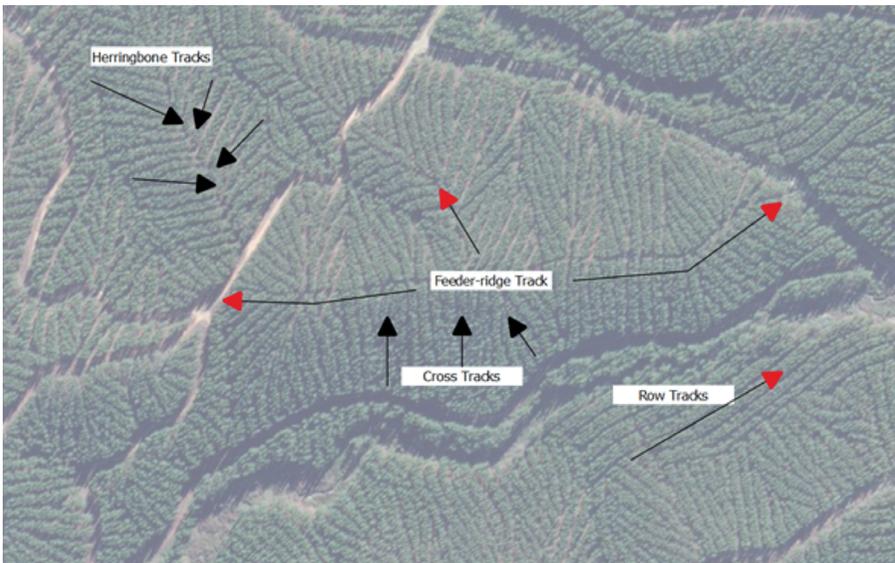


Figure 6.2 Recently thinned plantation highlighting various tracking patterns

Running tracks run parallel to the road and are used to move harvesting and extraction machines between areas and/ or when moving between tracks and loading bays to avoid taking harvest/ extraction machinery on roads. They should be used wherever the terrain is suitable.

The placement of running tracks i.e., internal to the block or paralleled to the road, is dependent on various operational circumstances such as opening up road for haulage access and drying, removing poorer form edge trees, protecting road drainage structures or retaining more stable edge trees as part of a windthrow mitigation strategy.

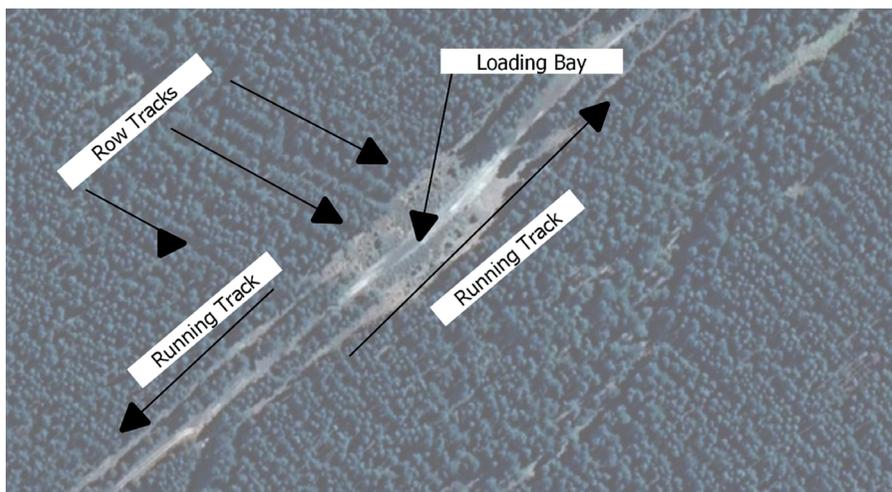


Figure 6.3 Illustration of running tracks servicing a loading bay

Forestry Corporation may ask for a map of the general tracking pattern with drainage feature crossings and general extraction track direction (or GPS data if available).

ii. Extraction track width

Tracks should:

- be as straight as practicable, with parallel edges. This reduces the number of turns a machine needs to make (minimising soil disturbance and the potential for damage to the retained stand)
- major feeder tracks should be less than 5.5m wide
- all other tracks should be less than 5.0m wide
- widen at junctions, to minimise damage to trees.

Tracks need to be wide enough to get the machines through without damaging the retained trees however if tracks become too wide there will be a loss of site occupancy and potentially fewer trees left in the block for future harvest. They are measured from the edge of the bay (see the picture below) and the limiting track grade will be determined by:

- safe work procedures
- the type of harvesting system
- the ground and slope conditions
- silvicultural prescription as may be identified in the operational plan.

iii. Extraction track spacing

Tracks must be spaced to allow access to trees in the bay, with a target bay width of 15 metres (See Figure 6.4 and Figure 6.5 below). Where ground conditions provide for row tracking (5th row-outrow thinning), bays less than 15 metres wide may eventuate. However, where stands are thinned using cross tracking, 15 metre bays must be targeted.

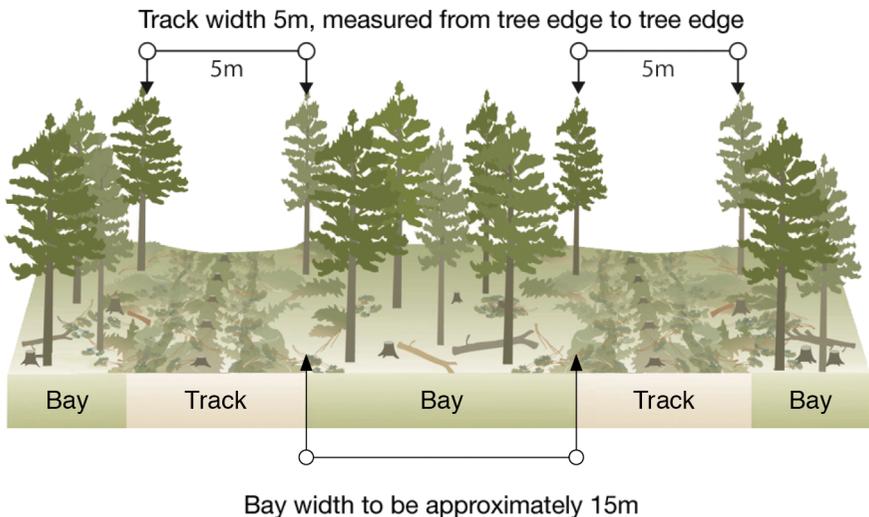


Figure 6.4: Measurement of track and bay width

	Bay Width (m)			Cross Track Width (m)	
Acceptable minimum	13.0	 better	Acceptable minimum	4.0	better 
Target	15.0		Target	5.0	
Acceptable Maximum	17.0		Acceptable Maximum	6.0	

Figure 6.5: Target bay and track width specifications

6.3.3 Extraction track grade and slope limits

The limiting slope for harvesting is determined by the harvesting system, ground conditions and documented safe systems of work. Tracks must be safe for use by all harvesting machinery. As a general guide, the maximum slope guidelines for ground-based harvesting machinery:

- uphill extraction is 18 degrees
- downhill extraction is 22 degrees.

For further information on managing the risks of extracting timber on steep slopes see [Safe Work Australia Guidance Material](#).



6.3.4 Extraction track side slope

Side slope on the track should be minimised to ensure operator safety and to decrease the potential for damage to retained trees when timber is moved to roadside. As a general guide, side slope should be no more than:

- wet weather: 3 degrees
- dry weather: 5 degrees
- where the grade of the track exceeds 10 degrees, side slope should be no more than 2 degrees.

Extraction track drainage

Track construction must be minimised by using walkover techniques on a bed of slash. Minimise soil erosion / movement by:

- retaining existing ground cover
- using slash and leaf litter. Distribute the slash evenly across the track
- utilising natural cross fall drainage.

Tracks must be drained in accordance with the following table. Where there is bare soil on an extraction track, it must drain to ensure that any surface flow does not exceed the maximum distances in Table 6.1.

Table 6.1: Track drainage requirements where there is bare soil

Track grade	Maximum distance of surface flow (m)
Up to and including 5°	100
More than 5° and up to and including 10°	60
More than 10° and up to and including 15°	40
More than 15° and up to and including 20°	25
More than 20° and up to and including 25°	20

Drainage structures (includes rollovers, crossfall drains, outfall, crossbanks) must be constructed if concentrated water flow occurs for distances exceeding those in the table. Any constructed drainage must be built so it:

- remains stable until ground cover can grow and prevent erosion
- diverts run off to stable areas, or into a structure that can filter run-off water and trap sediment.

Cross banks, if required, must be constructed to:

- divert water flow away from track surface onto a stable surface capable of handling concentrated water flow
- not divert water directly into rivers, drainage lines or onto roads or loading bays
- have a minimum effective height of 35cm unconsolidated or 25 cm consolidated. Generally, they should not be greater than 50cm high.



Figure 6.6 Constructed crossbank and rollover

Drainage structures must be constructed:

- within one week after the completion of harvest operations on the track unless the soil is saturated. Any works must be documented in the Operations Plan
- without the use of flammable materials if a post-harvest or pre-establishment burn is planned.

6.3.6 Timing

- Drain tracks progressively to prevent concentrated water flow (beyond the distances in Table 6.1)
- Drainage must be completed within a two-day period unless soil conditions prevent construction. If a track is temporarily discontinued for more than five days, drainage must be constructed unless the soil is saturated
- Wet weather controls in relation to tracks are specified in Section 4.0.

6.4 Thinning tree selection and marking

Tree selection by the operator is required when conducting thinning operations, unless otherwise stated in the Operational plan. The Operational plan contains site-specific requirements, such as target retained basal area and / or stocking.

Forestry Corporation will monitor the quality of tree selection as part of their normal supervision. Operators who consistently fail to meet tree selection standards may be required to undertake further training or may be stood down. Performance against standards is considered in the contractor's performance as part of regular review processes.

Minimum specifications for tree selection are set out in the Forestry Corporation *Product and Delivery Specification Manuals, SPD Management of Softwood Plantation Thinning Operations* and other procedures as updated from time to time.

6.5 Tree felling

When tree felling, steps must be undertaken to minimise:

- the impact on drainage features (including directional felling)
- damage to the tree being felled and retained trees
- hang ups (*see Section 2.4.3*).

Tree felling should be done in a way that assists with processing and extraction processes.

6.5.1 Monitoring of quality should be for all activities

Tree felling and processing is monitored through Softwood Plantation Division's quality control processes. Value Recovery principles are outlined in the manual for *SPD Harvesting Operations Standards Manual*.

The results of this monitoring feed through to contractor's performance as part of regular review processes.

6.5.2 Stump height

Minimise stump height as far as practical - an average of 120 millimetres must be maintained across an operation, with a maximum of 150 millimetres. Actual allowable minimum height may be varied with approval from Forestry Corporation considering factors such as the harvest head design and prevailing ground conditions.

6.5.3 Damage to infrastructure during felling and processing

- Harvesting/ extraction/ processing must not damage roads/ tracks. This includes the use of tracked machines on roads without prior approval from Forestry Corporation.
- Do not damage drainage structures, including table drains, fences or other infrastructure unless permitted by Forestry Corporation's harvesting supervisor or the operational plan.
- Below ground infrastructure, including drainage pipework and culverts must not be damaged.
- Do not damage warning or advisory signs.
- If damage occurs, repair the damage where safe to do so and notify the Forestry Corporation supervisor as soon as practicable.

6.6 Processing

6.6.1 Log making

Production plans define the product type and quantity required by Forestry Corporation customers. Plans may also include the provision of cutting instructions that must be used to ensure products are cut and prioritised as part of meeting production plan targets and may specify that harvesting must not commence until a site specific Forestry Corporation APT file (often referred to as 'Bucking Files', 'Cutting Lists' or 'Cutting Instructions') or equivalent has been installed.

Products must be processed in accordance with the harvest and production plan specifications to optimise the value of every tree. Forestry Corporation will closely monitor value recovery and progress against the production plan.

Further to this, products should be segregated to facilitate efficient forwarding and minimise the risk of products being intermingled.

Contractors must ensure that logs meet product specifications.



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6.6.2 Collection of forest residue after harvesting

If by-products such as limbs, in-field chipper bark, whitewood or peelings are to be extracted, the operational plan will specify details. In all cases, the environmental protection principles specified for timber extraction apply.

6.6.3 Residue management (for in-field chipping operations)

Where harvesting residue is accumulated due to processing, debarking or chipping, it must be distributed:

- along extraction tracks, no deeper than 300mm. The maximum depth of branch slash and by-products is 600mm
- evenly throughout the forest, along and between extraction tracks in a way that minimises damage to retained stems. The maximum combined depth of branch slash and by-products is 100mm
- do not spread by-products and slash within 10m of a drainage feature.

6.6.4 Felling and processing plantation in-growth

Forestry Corporation may require in-growth such as eucalypt regeneration to be felled, processed and extracted. Any requirements and conditions to this will be specified in the operational plan.

6.7 Extraction to roadside

Log extraction (moving the log products from forest to roadside) must occur in time to:

- maintain log quality
- optimise seasonal conditions.

Best practice would be to bring all products to roadside within three days.

Bringing logs out to log stockpiles must not damage either the road pavement or the drainage structures (table drains, culvert pipes, sumps, headwalls etc).

Forwarders should never be loaded over the manufacturer's specifications or loaded above the level of the headboard or stanchions.

For further information on managing the risks of extracting timber see : <https://www.safeworkaustralia.gov.au/system/files/documents/1703/guide-log-extraction.pdf>



6.8 Foreign material

Forestry Corporation and harvest and haulage contractors all have responsibilities for ensuring that foreign material such as rocks, fencing material and other debris is not delivered to processors. This type of contamination may result in significant damage to processing facilities and clearing and repairing damage raises some significant safety issues. There is also a very high risk of material being dropped onto the road network during transport operations, posing a hazard for all road users.

7.0 At roadside

Wherever possible, operators should maintain roads to be passable by traffic, by minimising logs, debris and machinery on roads.

Machinery with tracks or chains must not be used on roads unless required for loading, and then only where approved by the Forestry Corporation supervisor and documented on the operational plan.

Loaded forwarders can only build roadside stockpiles in wet weather by unloading at the end or rear of stockpiles.

Forwarders can be used on roads to load trucks or to travel loaded between loading sites while cleaning-up, subject to the following:

- chains or tracks are not fitted
- wood is carried from the loading site, not the bush. Avoid double handling of wood
- if it appears that the forwarder may damage the road, work must stop until conditions are suitable. Forestry Corporation may approve operations to continue by exception and providing this is documented on the operational plan.

7.1 Log landings and stockpiles

Definitions

Log dump or **log landing** means an area where logs or parts of logs are assembled for sorting and preliminary processing (for example, cross-cutting) before being loaded on to trucks for transport from the plantation. Log dumps or landings do not include areas set aside just for stockpiling logs (*refer to P&R Code*).

Log stockpile means a place where logs are aggregated following sorting. This maybe at a constructed log dump or landing or could be on a natural surface with groundcover retained.

Loading bay or **loading site** means a designated area (that may be constructed or can utilise existing road and verge width) to enable a truck to be loaded efficiently.

7.1.1 Log stockpiles

The location of log stockpiles must be planned and approved and located so that log trucks can be loaded. Consider:

- the loading and haulage equipment to be used
- road grade and width – ensure the truck can use the road while fully loaded
- stockpile height must be no higher than four metres when measured from the pavement where the loader is situated
- use of upright logs to segregate products within a stockpile is allowable where the intermediate beams are placed at a 45 degree angle
- log stockpiles must not be built against retained trees or in exclusion zones.

Bearers must be used where requested by Forestry Corporation to ensure logs are not contaminated with foreign material. This is most likely to apply to pulplogs.



Figure 7.1 Use of bearers for specified products

Temporary log stockpiles

Temporary stockpiling of logs within a drainage depression is allowable where:

- this results in less soil disturbance than alternative locations
- groundcover of at least 70% is maintained over the affected area.

7.1.2 Construction of log landings

Ensure that any landing or loading bay that requires earthworks is not located within:

- the buffer zone of any drainage feature, or other protected areas
- within 10m of the centreline of a drainage depression. Note - if earthworks are not required and 70% ground cover can be retained, temporary stockpiling can be undertaken (*see Section 7.1 above*)
- within any area of native vegetation or other exclusion zones.

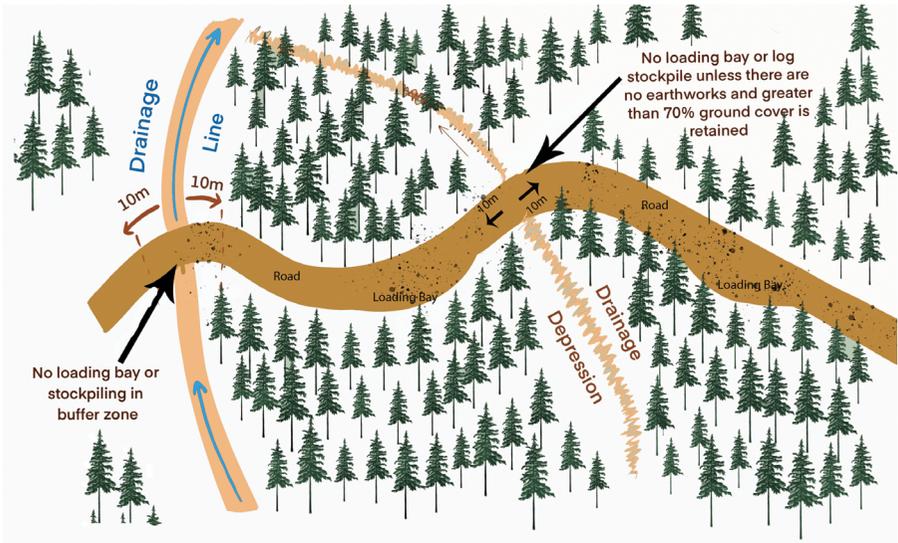


Figure 7.2: Loading bay and stockpile locations

7.2 Draining loading bays and log dumps

Runoff from a log dump/ log landing must discharge onto a stable surface that is capable of filtering runoff water and trapping sediment. It must not discharge directly into a drainage feature or extraction tracks.

Log stockpiles and by-products must not block drainage structures. Drainage structures must be kept in working order. If damaged, they must be repaired if suitable equipment is available and the Forestry Corporation supervisor notified.

7.3 Truck loading / uplift and stock turnover

Logs must be uplifted to:

- maintain log quality by uplifting older material as a priority
- optimise seasonal conditions (i.e. don't take "wet weather" wood unless needed).

Except where alternative loading arrangements have been arranged, all log products including part loads from individual log stockpiles must be removed in each Harvesting Unit before operations are completed.

7.4 Cessation of operations on log dump or landing

If operations on a log dump or log landing are not carried out for more than two weeks at a time, measures to minimise and control soil erosion must be implemented as soon as is reasonably practicable by the harvesting team.

Further guidance on the use of log landings can be found
Safe Work NSW / Safe Work Australia

<https://www.safeworkaustralia.gov.au/system/files/documents/1703/guide-log-landing.pdf>



7.4.1 Completion of harvesting operations

When harvesting operations have been completed, operators (where suitable equipment is available) must restore the log landing, dump or stockpile to facilitate the discharge of surface water onto stable surfaces that are capable of filtering runoff water and trapping sediment. If suitable equipment is not available Forestry Corporation must be notified.

7.5 Measuring, recording and removing timber

7.5.1 Measuring and recording timber

Timber and timber products are measured and recorded according to the Code of Procedure, which can be found in harvesting contracts or attached to Timber Licences. The Code of Procedure specifies measurements and other identification to be used. The main conditions for measuring, marking stacks and recording (docketing) will be documented in Management Area prescriptions such as the *Product and Delivery Specification Manual*, as issued by Forestry Corporation from time to time.

7.5.2 Delivery dockets

Delivery dockets (including electronic dockets such as EDx, paper dockets or other systems as updated from time to time) must be completed (as far as they can be) before removing logs from the area.

Where applicable to their aspect of log delivery operation, an operator must ensure that the Code of Procedure is followed. Truck drivers and other designated operators must complete delivery dockets (or equivalent) before removing the load from the area.

When delivery dockets (or equivalent) are used, they must be available for inspection by Forestry Corporation supervisors and other authorised officials (Transport for NSW inspectors, police).

When delivery dockets (or equivalent) are used, they must be available for inspection by Forestry Corporation's supervisors and authorised officers⁴ and other authorised officials (Transport for NSW inspectors, NHVR inspectors, police etc).

4 As defined by the Act.

8.0 Hauling the logs

8.1 Chain of Responsibility and the Industry Code of Practice

The Chain of Responsibility (CoR) is core to the legislative framework governing the use of heavy vehicles in Australia (under the Heavy Vehicle National Law). This places legal obligations on all parties in the transport and logistics supply chain in terms of complying with:

- mass, dimension, loading and load restraint
- driver fatigue
- speed
- roadworthiness requirements.

Responsibility for compliance is shared on the basis of the extent of influence and control any party has in the supply chain. The onus is placed on each party to ensure they are not unduly influencing another party to break the law. Therefore, as for safety management (*see Section 2.3*), some of the shared responsibilities include:

- Forestry Corporation must ensure that forest roads and infrastructure, and delivery requirements do not increase the risk of transport operators breaking the law
- harvesting contractors and operators have a responsibility to ensure logs can be loaded safely
- loading operators and truck drivers must ensure loads comply with the mass and dimension requirements and can be restrained on the truck.

Parties can demonstrate their compliance with the law by following the Forestry Log Haulage Industry Code of Practice.

More information

<https://www.nhvr.gov.au/consultation/2021/05/28/forestry-log-haulage-industry-code-of-practice>

[WHSP 4.12 Chain of Responsibility](#)



8.2 Operational plans (haulage)

Forestry Corporation is responsible for providing an operational plan (can also be known as the harvest plan but the term operational plan is used throughout this Code to avoid confusion), with details of how the site is to be managed (see *also Section 6.1*). This will include a Haulage Management section, which will address:

- Traffic Management Plans (TMP) for the harvesting site (TMP details will vary depending upon the risk), and any requirements for a Traffic Control Plan
- the haulage route:
 - » identification of approved route, which may include one-way provisions (from the harvest site to the public road network)
 - » gazetted / permitted sections for RAVs (B-doubles etc.) and road closure requirements for non-gazetted / permitted roads
 - » other known risks or relevant information
- reference to other haulage plans that are prepared to identify, communicate and manage possible hazards associated with hauling loads beyond the harvest site to the load destination on a forest or route specific basis.

Final arrangements for managing heavy vehicle traffic are prepared by Forestry Corporation and the haulage company as part of the haulage management plan. A broader *Forest Haulage Management Plan* may be prepared by Forestry Corporation and / or contractors that addresses local risks and procedures at a forest or district level. This document could be referenced in individual operational plans and site safety plans.

For further information

[Transport for NSW Traffic Control at Work Sites \(TCAWS\) 2020](#)



8.3 The site safety plan

See Section 2.2 about sharing worksites.

Each site will have a site safety plan prepared by the harvesting contractor in consultation with the haulage contractor, loading contractor, workers and Forestry Corporation. In preparing this plan, contractors must consult with each other to make sure that any risks that they create or hazards they identify are managed to minimise the potential for harm to all workers and visitors. Truck drivers must be inducted into the harvesting site safety plan. If the site is handed over to the haulage contractor, the site safety plan must be retained and available for that site.

All staff and visitors must be inducted into the Operational and site safety plans prior to entering the site.

Refer to sections 2.4.1 and 6.1 for more information.

8.4 Haulage in wet weather and very dry conditions

Refer to section 4.1.5 for wet weather controls.

The Forestry Corporation supervisor may limit or stop regular travel on natural surface roads by haulage vehicles and other harvesting equipment if severe dusting occurs in dry conditions. Road drainage structures must be kept in working order to minimise dirty runoff from dusted roads. Extra sediment control may also be required.

8.5 Securing loads

Truck drivers must restrain loads in accordance with the Transport for NSW guidelines (including the *Heavy Vehicle Driver's Handbook*) and the company's documented safe work procedures.

The Forest Log Haulage Registered Code of practice / National Heavy Vehicle Regulator (*see link below*) is expected to become the key standard to which all log transport operators must comply following final registration.

For further information

<https://www.nhvr.gov.au/consultation/2021/05/28/forestry-log-haulage-industry-code-of-practice>

[National Transport Commission Load Restraint Guide](#)

[ForestWorks ISC Log Haulage Manual](#)



[SafeWork Australia Guide to Managing Risks of
Loading, Transporting and Unloading Logs](#)



9.0 Use of fuels and other hazardous chemicals

The contractor is responsible for ensuring fuels and other hazardous chemicals are appropriately stored, preferably in its original labelled container. Where fuel or other hazardous chemicals are stored on site, contractors need to ensure:

- systems are in place to contain any spilled material
- equipment is maintained
- spill kits (including appropriate PPE) are readily available where flammable or combustible liquids are stored or dispensed.

9.1 Safety data sheets (SDS)

A current SDS must be on site and easily accessible for all hazardous chemicals used or stored.

9.2 Spills

Plant, equipment, substances and materials at harvesting sites must be handled and stored in a way that prevents water pollution.

- Spills must be cleaned immediately, and the cleaning materials disposed of appropriately.
- Notify Forestry Corporation of all spills.
- Flammable material must be kept clear of areas where fuel is stored or decanted.
- Controls must be put in place to stop potential spills from reaching a protected area, drainage feature or property boundary. Controls can include using natural ground slope, diversion channels, kerbs or bunds.
- Storage areas must be at least 15 metres from drainage feature buffers and other protected areas, or as prescribed by Forestry Corporation's supervisor or the operational plan.

9.3 Servicing and repairs

Equipment servicing and repairs must not cause water pollution. Oil, fuel or fluids must not be discharged from machinery in a forest. Under no circumstances should these substances enter a drainage feature.

9.4 Reporting pollution

Water pollution with the potential to cause environmental harm must be reported to Forestry Corporation's harvesting supervisor immediately.

Harm to the environment includes actual or potential harm to the health or safety of human beings or to ecosystems.

9.5 Disposal of waste and rubbish

Waste includes tyres, drums, wire rope, oil, fluids, and litter. Worksites must be cleared of waste at the end of each working day and oil and fluids removed using environmentally responsible methods. Notwithstanding the above, all remaining waste must be removed from the forest and disposed of seven days after operations have finished.

10.0 Fire prevention

10.1 Danger periods

10.1.1 Statutory bush fire danger period

The statutory bush fire danger period applies between October 1 and March 31 unless varied by seasonal conditions, as per the *Rural Fires Act 1997* Section 81 and 82.

10.1.2 Plantation fire threat period

The plantation fire threat period is declared by the Regional Manager when additional fire precautions are deemed necessary. The start and end dates are notified in writing.

10.2 Operations in a plantation fire threat period.

Harvesting and haulage contractors working in the forest have an obligation under section 20 of the Forestry Regulation 2012 to:

- prevent unauthorised fire damaging an area
- ensure any fire outbreak is immediately reported to an employee of the Corporation
- extinguish a fire, or if it cannot be extinguished, attempt to prevent the fire from spreading where it is safe to do so.

10.2.1 Firefighting equipment

Contractors must provide firefighting equipment and comply with other requirements as may be specified in contracts, or regional instructions.

10.2.2 Daily inspections

After work each day operators must:

- inspect, and clean if necessary, machinery and firefighting equipment before leaving the worksite
- remain on site for at least 15 minutes to ensure the area is fire safe (e.g. no latent fire ignition source – machinery “cooled down”).

10.2.3 Pre-season inspections

Before the fire threat period is declared, machinery and firefighting equipment supplied and operated by the contractor must be made available for inspection by Forestry Corporation to ensure compliance with fire precaution requirements.

Only machinery that complies with fire standards (*refer to section 10.3*) may be used. Equipment must be maintained throughout the fire season.

10.2.4 Harvesting restrictions

The Regional Manager may restrict harvesting operations, particularly on days of extreme fire danger, during a total fire ban or during a fire. Restrictions may be imposed based on prevailing or forecast fire danger ratings.

Continuing work beyond restriction limits

Approval to operate beyond the limits in Sections 10.9.1 and 10.9.2 can be granted by the Regional Manager following a risk assessment process that account for the factors below.

Approval is time/ date specific, must be sought prior to the conditions being encountered and provide no precedence for approved operation in future situations.

Actual FDI = 30	Weekdays: all operations must cease
Actual FDI = 20	Weekends: all operations must cease

Figure 10.1 FDI limits for all harvest and haulage operations

Responsibilities

Where approval to operate beyond limits is granted, licensees and contractors must provide all extra fire-fighting plant and personnel specified in the approval, unless otherwise negotiated with Forestry Corporation.

For weekend work, licensees must seek approval no later than midday on the preceding Friday; for public holidays, the deadline is midday on the preceding day. Licensees must stockpile enough timber to allow mills and processing plants to operate during adverse fire weather.

Operating guidelines

Low fire risk areas may be nominated, and operations may be restricted to such areas in any Regional Manager approval. Factors to consider when selecting low fire risk worksites include:

- areas with minimum fine fuel accumulation
- loading sites with maximum mineral earth
- worksite must be immediately accessible to Category II fire-fighting plant. If not, the distance from road to worksite must not exceed 50 metres (maximum length of effective fire hose)
- worksite must have a machine capable of constructing a mineral earth firebreak
- only rubber-tyred machines may operate
- cables and chains are prohibited, except saw chains on mechanical harvesters
- trucks must have Category I equipment as per mechanical units (*refer to section 10.8*)
- if haulage occurs in isolation of other operations, operational requirements will be advised with any approval granted.

Note: an isolated loading site must meet Category II requirements.

10.2.5 Smoking

Smoking is:

- permitted in areas that have been cleared of flammable material. However, it is NOT permitted in the open on total fire ban or colour code 'red' days.

10.3 Machinery and equipment

Machinery must be operated and maintained to minimise the risk of the machinery catching fire or starting a fire. Vehicles and machinery can only be operated when:

- secure, spark-free exhausts are fitted
- the fuel, electrical, and braking systems and combustion chambers, manifolds, exhaust pipes and expansion chambers are in good condition (including firmly anchored fuel tanks and fuel lines)
- there is no surplus oil, dust impregnated with oil or organic matter
- the exhaust system of stationary equipment is directed away from flammable material
- fire extinguishers are fitted in all machines.

Defective machinery will be withdrawn from use until the fault is repaired.

Catalytic converters on vehicles using unleaded petrol must not meet dry, flammable material.

10.3.1 Refuelling

A person must not refuel a machine except at a location at which the ground is clear of all flammable matter for a distance of at least 1.5 metres from every other part of the machine.

10.4 Preventing sparks

Equipment that could cause sparks or flames, such as welding or oxyacetylene equipment or angle grinders may only be used if a minimum of 12m has been cleared of flammable material or vegetation around the work area.

Use of equipment that could cause a spark or flames is prohibited on days of total fire ban and/ or colour code red days.

This equipment is also banned when the use of chainsaws and mechanical harvesters is prohibited in a plantation fire threat period. The Forestry Corporation harvesting supervisor may grant an exemption, subject to precautions such as the use of firefighting equipment.

10.5 Lighting fires

Fires for heating, cooking, boiling water or similar purposes can only be lit in a fireplace that has been approved by Forestry Corporations harvesting supervisor. The ground within two metres of the fire must be cleared of flammable material and vegetation.

Do not light a fire within 4.5 metres of a bark heap, log, stump or tree.

The same conditions apply to portable propane gas stoves.

All fires must be extinguished when being left unattended, even temporarily.

Fires are prohibited during a bush fire danger period, plantation fire threat period and on total fire ban days.

10.6 Suspension of work in dangerous conditions

Harvesting may be suspended with or without prior notice if a fire is burning in a plantation or if a plantation is threatened by an approaching fire. The Regional Manager will approve the resumption of work.

10.7 Restrictions on harvesting

The following conditions supplement the conditions above:

- for cable operations do not fell trees more than two weeks before yarding
- haul back systems should be avoided on orange days.

The fire danger index – calculation and notification

Forestry Corporation calculate the fire danger index (FDI) using the Mark V Forest Fire Danger Meter. To determine whether harvesting restrictions are required, a forecast of maximum FDI for plantation areas is made for each working day in the Fire Danger Period.

Licencees will be notified of the forecast FDI before 10am each workday, and by 5pm of the previous business day of weekend and public holidays. Licencees must notify operators. When possible, notice of expected finish times for restrictions will be given by Forestry Corporation.

When harvest or haulage operations are suspended due to fire risk, the operation may resume at midnight when the FDI moderates to 14 or as otherwise advised by Forestry Corporation.

10.8 Fire preparedness categories

10.8.1 Category I

Category I requirements apply to all harvest and haulage operations during the plantation fire threat period:

Worksite

Each worksite (e.g. log landing, personnel transport, vehicle park, field maintenance site) must have available:

- i. One knapsack - minimum capacity 15 litres - filled with water containing wetting agent, or an approved water-based fire extinguisher⁵
- ii. One ABE dry chemical fire extinguisher⁶
- iii. At least one rakehoe.

Equipment must be:

- kept at the landing closest to the operation
- in working condition
- available for immediate use.

If Category II fire preparedness requirements are met, requirement (a) above is redundant.

Manual falling / chokerman (cable)

Each manual feller (or chokerman in cable harvesting operations) must place the following within 40 metres of the worksite

- i. One knapsack, minimum capacity 15 litres, filled with water containing wetting agent, or an approved water-based fire extinguisher or any other means of rapidly extinguishing a class A fire (approved by the Regional Manager)
- ii. One rakehoe.

5 An approved water-based fire extinguisher that complies with AS 1841 Part 2: Specific requirements for water type extinguishers, with at least nine liters capacity. Inspection of fire extinguishers is as per the tag/ label on the fire extinguisher.

6 Approved standard: an ABE dry chemical-type fire extinguisher that meets AS 1841 Part 5: Specific requirements for powder type extinguishers. Minimum 1.25kg capacity, for light vehicles and machinery cabins, with the recommendation of 9kg capacity for attachment to the outside of large harvesting vehicles

Mechanical unit

Each mechanical unit used in harvesting, processing, and loading must be equipped with:

- i. One knapsack, minimum capacity 15 litres, filled with water containing wetting agent, or an approved water-based fire extinguisher
- ii. One ABE dry chemical fire extinguisher of approved standard
- iii. One rakehoe, mounted in a secure and accessible position
- iv. Be fitted with a spark free exhaust
- v. Have fuel tanks and fuel lines of a satisfactory design and firmly anchored
- vi. Be clear of all surplus oil and accumulations of vegetative material around all surfaces that become heated by the motor and its exhaust system
- vii. Have the combustion chambers, manifolds, exhaust pipes, expansion chambers and joints of the motor and exhaust system in good order and condition
- viii. Have the electrical system in good order.

After cessation of any phase of an operation, operators must remain on site for at least 30 minutes and thoroughly inspect machinery, firefighting equipment and the timber harvesting area to ensure that it is fire-safe.

10.8.2 Category II

These requirements apply to harvesting operations during a plantation fire threat period and are additional to Category I requirements.

Operations must be conducted in approved locations only (i.e. away from western boundaries and wind-exposed sites). Each worksite must have immediately available:

- » a two-way radio that is in contact with the radio base or a mobile telephone where reception is adequate. The radio base must be contactable by telephone.
- » a serviceable mobile water unit with:
 - i. minimum capacity 400 litres
 - ii. full tank when harvesting machines are operating
 - iii. pump unit with 2.2 kilowatts (3hp) minimum capacity
 - iv. 60 metres of hose (minimum)
 - v. fill and outlet hoses attached to the pump and nozzle with Storz fittings that meet Forestry Corporation specifications

- vi. nozzle capable of delivering a fog spray and jet stream
- vii. fully fuelled and primed pump motor
- viii. wetting agent (to be added where necessary)
- ix. for trailer-mounted units, a 4WD towing vehicle must be on site; the unit must have ground clearance for a forest track
- x. two operators trained to use fire-fighting equipment and follow fire procedures.

Table 10.1 and Table 10.2 specify operations where Category II requirements must be met.

10.8.3 Category III: Clearfall operations

The following requirements apply in addition to Category I and II requirements during the plantation fire threat period:

- i. machines are fitted with serviceable automatic fire suppression equipment
- ii. operations are located in low fire-risk areas (as determined by the Forestry Corporation)
- iii. operations are prohibited where significant amounts of slash have been cured for more than one week.

Table 10.1 specifies operations where Category III requirements must be met.

10.9 Work restrictions

Includes falling, processing, extraction, loading and haulage.

Times assume Eastern Standard Time, except when daylight savings is in force.

10.9.1 Weekdays

Refer to table 10.1 Workday fire restrictions.

10.9.2 Weekends and public holidays - harvesting and haulage

Refer to table 10.2 Weekend and Public Holiday fire restrictions.

Revision of these tables is anticipated based on a newly developed Australian Fire Danger Rating System. Users of this Code will be inducted into any revisions of fire preparedness and associated work restrictions when finalised.

A supplement covering the amendments to this section of the code will be produced following revision.

Table 10.1 Workday fire restrictions

Colour code ⁷	Time or actual FDI when work restrictions apply	Work restrictions				Haulage
		Chainsaws/mechanical harvesters	Thinning	Clearfall	Cable	
Yellow Forecast FDI 14 or less	Nil unless otherwise advised	Category 1 requirements to be met				
Orange Forecast FDI 15-29	Before 1pm	Notify Forestry Corporation Supervisor of any harvesting operations planned beyond 1pm				
	Actual FDI = 20 or 1pm	Stop using chainsaws and mechanical harvesters with exposed exhausts	Work may continue beyond 1pm if Category II requirements are met	Work may continue beyond an FDI = 20 or 1pm if both Category II and III requirements are met		Haulage from a clearfall operation may continue past an FDI = 20 if Category II requirements are met
		Chainsaws working on approved landings with Category II requirements may continue to work beyond 1pm provided the actual FDI is less than 30				Where the FDI is 20 or more, only approved loading sites (clear of flammable debris) and only those loading and haulage vehicles with vertical exhausts may continue
Red Forecast FDI 30+	Actual FDI = 24				Cable yarding stops	
	Actual FDI = 30	All harvesting and haulage operations stop				
	Actual FDI = 30 or 1pm, whichever is earlier	All orange restrictions to be met plus				
		All harvesting and haulage operations cease				

7 based on forecast FDI

Table 10.2 Weekend and public holiday work restrictions

Colour code ⁸	Time and/or actual FDI when work restrictions apply	Work restrictions		
		Thinning	Harvesting (clearfall and cable)	Haulage
Yellow forecast FDI 14 or less)	4pm the preceding day	Notify Forestry Corporation SUPERVISOR of proposed operations Formal approval to be given before operations commence Minimum Category II restrictions to be complied with.		
Orange Forecast FDI 15-29	Actual FDI = 15 or 1pm, whichever is first	Apply all Yellow restrictions, plus: Stop the use of chainsaws and mechanical harvesters in thinning operations	Apply all Yellow restrictions, plus: Stop all aspects of clearfall operations (including cable yarding)	Haulage may continue if Category II requirements are met
		Actual FDI = 20	Stop all harvesting and haulage operations	
Red Forecast FDI 30+	Actual FDI = 20 or 1pm, whichever occurs first	Meet all Yellow + Orange requirements		
		Stop all harvesting and haulage operations		

8 based on forecast FDI

11.0 Administration

11.1 Monitoring and audit

Forestry Corporation supervise, monitor and audit harvesting and haulage operations and provide compliance reports back to contractors and Timber Licencees. This happens formally as part of the contractor performance review process.

Operations may also be externally audited by the Department of Primary Industry, Responsible Wood and other regulatory authorities as required.

11.2 Legal

11.2.1 Legislation covering timber harvesting

Forestry Act 2012 and Parts 4, 5 of the Forestry Regulation 2012

Under this legislation, Forestry Corporation has authority to control the harvesting of timber and products, to control the use of fire, to regulate and control the use of roads and other matters relevant to managing State forests and other Crown-timber lands.

A Forest Permit may be required for hauling timber from private land across Forestry Corporation roads. This code applies to those permits.

National Parks and Wildlife Act 1974

Protects Aboriginal objects or declared Aboriginal places and covers management of protected or threatened flora and fauna on plantations not authorised under the Plantations and Reafforestation Act.

Heritage Act 1977

Protects places, buildings, works, relics (including those recovered through archaeology), movable objects and precincts that are of heritage significance. Compliance is managed by Heritage NSW

Work Health and Safety Act 2011 and Work Health and Safety Regulation 2017

All work in State forests must comply with the Act and the Regulation. Employers must ensure the health, safety and welfare of people at the workplace.

Code of practice: Safety in Forest Harvesting Operations

A WorkCover code for achieving legislated safety standards which should be followed unless an alternative method achieves the same or better standard.

Plantations and Reafforestation Act 1999 and Plantations and Reafforestation (Code) Regulation 2001

Provides for the approval of plantation development under the provisions of the Plantations and Reafforestation Code, which governs plantation establishment, maintenance and harvesting. Relevant conditions of the code have been incorporated into this code or are included in operational plans.

Protection of the Environment Operations Act 1997

Provides for licensing of activities that cause air, water and noise pollution.

Road and road transport legislation

Registration of vehicles and licensing of drivers:

Vehicles operating in State forests and Crown timber lands must be registered to comply with roads and road transport legislation and with the provisions in the regulation under this legislation. Drivers must hold a licence for the vehicle being driven.

Load limits:

Vehicles must comply with load limits for public roads and streets, as determined for main roads and highways controlled by Transport for NSW and other public roads controlled by local government.

B-doubles and approved B-double routes:

B-doubles must meet the vehicle and operating conditions specified in the Heavy Vehicle National Law - National Class 2 B-double Authorisation Notice 2020.

Full registration:

Trucks, truck-mounted loading cranes and personal transport vehicles require full registration.

Conditional registration:

Some timber harvesting vehicles (that are likely to operate or travel on State forest roads or loading bays) must have conditional registration, issued by the Transport for NSW. This includes crawler-tractors, wheeled and tracked feller-bunchers, mobile processors, forwarders, skidders, some log-loading plant and modified agricultural tractors.

Third-party injury insurance:

Under the legislation, all areas inside State forests are considered public streets. As such, operators of vehicles and machines are required to comply with registration or permit requirements, so they are covered by third-party insurance for personal injury.

Rural Fires Act 1997

Provides for the prevention, control and suppression of bush fires and regulates the proclamation of the bush fire danger period in NSW and declaration of total fire bans.

Surveying and Spatial Information Act 2002

No unauthorised person may deface or interfere with a survey mark — for example, a survey peg, shield tree, or trigonometric marker.

Biodiversity Conservation Act 2016 and Fisheries Management Act 1994 Part 7A

These two Acts apply to plantations which are not authorised under the Plantations and Reafforestation Act. On a plantation that has been authorised under the Plantations and Reafforestation Act, compliance with the Plantations and Reafforestation Code and any conditions of authorisation will provide exemption from provisions in the Biodiversity Conservation Act and the Fisheries Management Act.

Workplace Injury Management and Workers' Compensation Act 1998 and Workers Compensation Act 1987

Provide for the insurance and rehabilitation of injured workers and prescribe insurer, employer and employee obligations for managing employees who are injured at work. Employers must ensure that employees are adequately covered by workers' compensation.

11.2.2 Licencing and Licencees Responsibilities

Licences, agreements and special purpose permits

Most operations on Forestry Corporation plantations are conducted under a harvesting or haulage contract with Forestry Corporation or directly with Forestry Corporation customers. All contractors must obtain a Contractor's Licence to operate on Forestry Corporation plantations.

Compliance with this code is a condition of every timber, products, and contractor licence, sale agreement, and special purpose permit for hauling privately owned timber on forest roads.

Contractor's licence

Any company that employs operators or supervisors for timber harvesting, and contracts to Forestry Corporation or Forestry Corporation timber customers (Timber Licencee), must hold a contractor's licence. Licencees must ensure that contractors have licences before they begin harvesting or haulage operations.

Forestry Regulation 2012

- contractor licence means a contractor licence issued under clause 35.
- timber harvesting or hauling equipment means any equipment, plant, machinery or vehicle used in the felling, cutting, pushing, pulling, lifting or hauling of timber.

Division 2 Contractor licences

34 Contractor licence required to harvest timber

- (1) A person who is the holder of a relevant licence must ensure that every timber contractor who is engaged to harvest timber for the purpose of the licence is the holder of a contractor licence.

Maximum penalty: 20 penalty units.

- (2) A timber contractor who is engaged:

(a) by the holder of a relevant licence, or

(b) by the Corporation under an agreement to harvest timber

must not harvest timber, or authorise or direct another person to harvest timber, for the purpose of the licence or under the agreement unless the timber contractor is the holder of a contractor licence.

Maximum penalty: 20 penalty units.

- (3) In this clause:

- engaged means engaged under a contract for the performance of services.
- harvest timber means cut, obtain or remove timber, forest products or forest materials.
- relevant licence means a timber licence, forest products licence or forest materials licence.

- timber contractor means a person who operates as a contractor to harvest timber and who engages or employs one or more other persons to perform the work involved.

35 Corporation may issue contractor licences

The Corporation may issue a contractor licence for such period, and subject to such conditions and limitations, as it thinks fit.

36 Suspension and cancellation of contractor licences

The Corporation:

- may suspend a contractor licence if it believes on reasonable grounds that a condition or limitation of the licence has been contravened, and
 - may cancel the licence if, after giving the holder of the licence an opportunity to be heard, it finds that the condition or limitation has been contravened.
-

11.2.3 Workers' compensation and public liability insurance

Principal licensees and contractors must show evidence of workers' compensation and public liability insurance when applying for or renewing licences. Certificates of insurance must be current for the period of the licence.

11.2.4 Supervision

Licensees are responsible for the conduct of their employees and must supervise them to ensure compliance with:

- this Code
- operational plans and site safety plans
- company safety management systems
- instructions issued by Forestry Corporation staff
- the Plantations and Reafforestation Code.

A site supervisor is appointed for each operation.

11.2.5 New equipment and techniques

To ensure that economic and environmental impacts are fully considered, Forestry Corporation and licensees must consult before the purchase and introduction of any new harvesting or haulage equipment. This also applies to proposals that significantly change operational techniques — for example, replacing forwarder extraction with skidder extraction.

Forestry Corporation supports the adoption of equipment, systems and technology that:

- improve safety and environmental management
- reduce forest management, harvest and haulage costs
- extend harvest access in the plantation
- optimise log/product supply considering seasonal and daily factors
- reduces fuel consumption.

For example, Forestry Corporation may consider alternative technology using the following criteria:

- reduces ground pressure and increases traction
- technology that extends the performance of existing equipment is encouraged — flotation tyres, tracks or variants that help achieve environmental objectives and minimise damage to infrastructure
- reduces time between felling and arrival at the mill
- reduces the effects of machine movement e.g. soil compaction or rutting
- creates flexibility in loading e.g. allows vehicles to be loaded without the vehicle being located on the road; reduces disturbance at road edges or around dumps
- minimises the level of, and reliance on, in-forest log stockpiling
- where stockpiling is maintained, extends the volume based on existing infrastructure (roads and frequency, size and design of loading bays) and environmental requirements
- extends the grade (slope) on which equipment (including haulage vehicles) can operate safely.

11.3 Training and Accreditation

Forestry Corporation (and forest industry partners) are committed to ensuring that all workers hold a statement of attainment of approved nationally recognised units of competency when undertaking any task that involves operating heavy plant, chainsaws or driving log trucks.

All workers must hold a statement of attainment for units of competency⁹ equivalent to:

- FWPCOR2210 - Follow workplace health and safety policies and procedures in forest and wood products operations
- FWPCOR2209 - Follow environmental protection procedures in forest and wood products operations
- FWPCOT3324 - Apply cultural heritage protection requirements in forest operations
- FWPCOT3314 Comply with soil and water protection

These are contained in the skill set FWPSS00050 - Plantation Forest Operator Skill Set.

In addition to these general requirements, they must also hold a statement of attainment for a unit of competency related to the hazardous activity they are conducting those listed in the Safe and Skilled Essential Training Standards as published by AFPA and AFCA and updated from time to time.

Contractors must be able to verify the competencies held by workers upon request. This could be through providing evidence of individual training records or through maintaining a training register.

11.3.1 Unqualified or partially trained operators

New workers to the industry when undertaking the above tasks must be supervised whilst undergoing training. All workers must hold the relevant statements of attainments six months after commencing work. For existing workers, pre-existing training against a national competency may be verified by a statement of attainment, or through previously recognised State based industry standards.

11.4 Compliance and performance

11.4.1 Non-compliance

Forestry Corporation may apply sanctions if this code is breached. Serious offences may result in operations being suspended and licences being cancelled. Forestry Corporation can prosecute offenders. Sanctions will depend on the circumstances of each case, considering the following criteria and any other relevant factors:

- whether safety is compromised, and to what degree
- whether the act results in damage to machinery or property
- the extent of environmental damage, including stand damage
- whether remedial action is possible, and the cost
- whether the incident was due to poor judgement, accident, unforeseen circumstances, or whether code conditions were disregarded deliberately
- the history of the offender.

12.0 Definitions

Term	Definition
Active harvesting area	The section of an operational plan area where currently timber is being felled, processed and extracted.
Active tree felling zone and safety zone	An area within two tree lengths of the tree being felled. The distance increases when felling on steep slopes. The Safety Zone is a minimum of 70m from a harvester to protect workers from chain shot.
Automatic fire suppression	Includes fire suppression systems activated by heat, flame or smoke, or systems that can be immediately activated by an operator.
Batter	An earth slope formed during road construction by using fill or cutting into the hillside.
By-product	Particles of timber and branches smaller than slash, such as in-field chipper bark and whitewood or peelings from in-field chipping operations.
Business	In chapter 1, the term “business” is taken to have the same meaning as a Person Conducting a Business or Undertaking (PCBU) in the Work, Health and Safety legislation.
Cable harvesting	A harvesting system used in steep terrain to elevate and extract logs. Components can include a cable hauler (tower and winch assembly), skyline, mainline, haul back line, carriage and a tail hold.
Causeway	A crossing which allows vehicles to ford a drainage feature; surface may be timber, gravel, rock, bitumen, concrete, or a stable natural surface.
Class A fire	A fire that is caused by the combustion of solid materials such as wood, straw, textiles, or coals.
Clearfall	Felling all plantation trees in the operational plan area, usually at the end of a plantation rotation or life cycle or otherwise as deemed necessary by the plantation manager.
Code of procedure	Legal document that contains instructions on how the quantity and value of timber products is determined for each customer.
Contractor (harvesting and haulage)	A person who is contracted to Forestry Corporation or to a principal licensee and employs people in harvesting or haulage (includes sub-contractors).
Dangerous or problem tree	A tree (dead or alive) that poses an unacceptable work risk and requires special expertise to fell.

Term	Definition
Delivery plan / Production Plan	Prepared by Forestry Corporation, indicates the amount of timber to be hauled (delivery) or harvested (cutting), a summary of log specifications, volume and delivery schedules.
Drainage depression	A shallow, open depression that carries runoff during or immediately after heavy rainfall.
Drainage feature	Wetland, drainage line, river, or drainage depression.
Drainage line	A channel that carries water from heavy rainfall. Points of difference from a drainage depression: <ul style="list-style-type: none"> ■ Shows evidence of active erosion or deposition e.g. gravel, pebble, rock or sand bed ■ Has an incised channel more than 30cm deep with clearly defined bed and banks.
Drainage structures	Includes rollovers, crossbanks, crossfall drains, outfall, rubber flap drains, pipes and headwalls, table drains, etc.
Extraction track	A track used to remove timber from the forest.
Environmental heritage	Means those places, buildings, works, relics, moveable objects, and precincts, of State or local heritage significance (Heritage Act 1977).
Fire danger index	A rating of potential fire severity based on recent rainfall, drought factor, relative humidity, air temperature and wind speed. Calculated using the McArthur Forest Fire Danger Meter Mk 5.
Forestry Corporation Supervisor	A Forestry Corporation employee who supervises harvesting and haulage operations.
Falling Object Protective Structure (FOPS)	Engineered structure fitted to heavy plant to provide operators reasonable protection from falling objects (Trees, rocks, etc).
Forwarding	The movement of logs fully supported off the ground from felling site to loading site.
Harvesting	Includes the processes of felling, processing and extracting timber to a designated location within a forest.
Harvesting machinery	Motorised machines or vehicles used in timber harvesting operations.
Harvest/ haul agreement	A contract between Forestry Corporation and a contractor for the harvesting and/ or hauling of timber to a mill.
Harvest plan area	The age class, compartment, or section of forest covered by a operational plan. Haulage Loading logs from the roadside and hauling to a mill.

Term	Definition
Haulage route	The route approved by Forestry Corporation for hauling timber products by the haulage contractor from the harvest plan area to the mill.
Hierarchy of Controls	<p>The hierarchy of control is a step-by-step approach to eliminating or reducing risks and it ranks risk controls from the highest level of protection and reliability through to the lowest and least reliable protection.</p> <p>Eliminating the hazard and risk is the highest level of control in the hierarchy, followed by reducing the risk through substitution, isolation and engineering controls, then reducing the risk through administrative controls. Reducing the risk through the use of protective personal equipment (PPE) is the lowest level of control. Control Measures include elimination, substitution, isolation, engineering, administration and PPE in order of priority or 'hierarchy'.</p>
Incidents	<p>Serious incident: Results or has the potential to result in a fatality or serious injury to an employee or forest user.</p> <p>Incident: Causes harm to people in a workplace or buildings and/or equipment.</p> <p>Near miss: An incident that has the potential to cause an injury or damage.</p>
Integrated operations	Harvesting operations where a contractor or operator produces two or more classes of timber or products for one or more principal licensees.
Licensee	The principal licensee engaging the contractor where harvesting is a stumpage sale; or the contractor, where the timber harvesting operation is a delivered sale.
Loading bay or loading site	Loading Bay or Loading Site – A designated area (that may be constructed or can utilise existing road and verge width) to enable a truck to be loaded efficiently.
Log dump or landing	Log dump or log landing means an area where logs or parts of logs are assembled for sorting and preliminary processing (for example, cross-cutting) before being loaded on to trucks for transport from the plantation. Log dumps or landings do not include areas set aside just for stockpiling logs (refer to P&R Code).
Log stockpile	Log Stockpile – a place where logs are aggregated following sorting. This maybe at a constructed log dump or landing or could be on a natural surface with groundcover retained.

Term	Definition
Medical Emergency Evacuation Plan (MEEP)	Prepared by Forestry Corporation for each operation containing information to provide to emergency services for obtaining assistance to a specific location. Includes map of Helicopter landing and meeting points.
Notifiable incidents	As prescribed in Work Health and Safety Legislation - <i>see Section 2.1.</i>
Operational plan	Prepared by Forestry Corporation containing site-specific information for each harvesting operation.
Operator	A person who performs harvesting work on State forests or transports timber products from the forest.
Operator Protective Structure (OPS)	Engineered structure fitted to heavy plant to minimise the possibility of operator injury from penetrating objects.
PCBU	A 'person conducting a business or undertaking' (PCBU) is a broad term used throughout work health and safety legislation to describe all forms of modern working arrangements, which are referred to as businesses (could be a harvesting or haulage contractor, FCNSW or a processor).
Product Specification	Means the specifications for Log Products detailed in contractual arrangements, as amended by Forestry Corporation from time-to-time following notice to the Contractor.
Pulp log	Logs used for reconstituted products including paper and panel board.
Regolith	Unconsolidated residual or transported material that covers the solid rock on the earth.
Regolith Class	Regolith Class - Classes of regolith stability applied to soils as follows; <ul style="list-style-type: none"> ■ R1 high coherence soils with low potential to deliver sediment, ■ R2 low coherence soils (when wet) with low potential to deliver sediment, ■ R3 high coherence soils with high potential to deliver sediment, ■ R4 low coherence soils (when wet) with high potential to deliver fine sediment.
River	A third-order stream or greater with permanent water.
Road/loading bay classification system	A system that defines road use and/or loading bays, considering seasonal and operating conditions.

Term	Definition
Roll Overprotective Structure (ROPS)	Engineered structure fitted to heavy plant to reduce the possibility of a seat belted operator being crushed in the event of a roll over.
Safety management system	Policies, practices and documentation to ensure workplace safety and compliance with NSW legislation for occupational health, safety and rehabilitation.
Sales agreement	An agreement between Forestry Corporation and an entity where Forestry Corporation supplies timber by delivered sale.
Sale, delivered	A log sale to a mill in which Forestry Corporation engages harvesting and haulage contractors to deliver timber products to an agreed location.
Sale, stumpage	A log sale to an entity in which the entity engages contractors to harvest and haul the timber from State forest.
Sawlog	Logs suitable for processing into solid timber products.
Secondary stockpile	A stockpile outside the immediate harvest area.
Site safety plan	Plan for managing the safety issues at a work site. It should be developed through a process of consultation with all persons involved in the activities at the site. It should address hazards and safety issues related to the site, plant and equipment, the experience and competence of the people involved, presence of other operators at the site, emergency planning and any other matters that might affect safety.
Site supervisor	Contractor's employee who is responsible for implementing health and safety procedures.
Slash	Tree waste left after felling, processing and extraction.
Slash crossing	A temporary crossing formed by the placement of logging slash in the drainage line or drainage depression (generally to prevent damage to the banks of the drainage line or rutting within the depression).
Snigging	Pulling logs, wholly or partly supported on the ground, from the forest to the log landing.
Snig track	A track along which snigging equipment travels.
Soils	<i>See Regolith Class</i>
Special-value flora or fauna	Species that are endangered or extinct, as defined by the Biodiversity Conservation Act or Fisheries Management Act.

Term	Definition
Stream Order and the Strahler System	'Stream order' is used to describe the hierarchy of streams from the top to the bottom of a catchment. <i>See Figure 12.1.</i>
Stockpile	An accumulation of processed logs which may be sorted by criteria such as length, quality, and diameter.
Temporary crossing	A crossing constructed to provide machinery access for only short-term plantation operations such as harvesting.
Thinning	Harvesting selected trees. Thinning improves the growing space, quality and volume of retained trees.
Tracking	The process of identifying extraction tracks
Tree feller	A person employed by a contractor to fall trees manually or mechanically.
Tree selection and marking	Selecting trees for retention or removal and marking them with paint and symbols.
Walkover	Timber extraction or snigging without removing or disturbing the natural groundcover i.e. no snig track construction or blading is required.
Wetland	A vegetated depression with a seasonal or permanent water table.
Workplace supervisor	A person nominated by a contractor who is responsible for managing, potentially multiple sites and representing the contractor's obligations in dealings with Forestry Corporation. May also have health and safety responsibilities (refer site supervisor).
Worksite	<ol style="list-style-type: none"> 1. A temporary place of work with no fixed structures, such as a forest site or a road. 2. An area of activity within a workplace. 3. For contractors, the area between the active harvesting area, the harvest plan area or the haulage route.

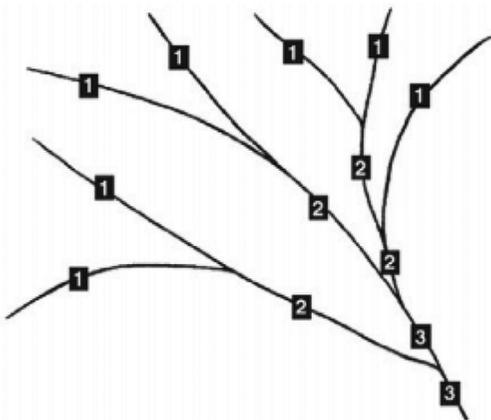


Figure 12.1 How does the Strahler System work?

The Strahler system is based on the confluence (joining) of streams of the same order as shown in *Figure 12.1*.

A first order stream has no other streams flowing into it.

When two streams with different orders join, the resulting stream has the same order as the highest order of the two joining streams. For example, when a first and second order stream join, the resulting stream is second order.

When two streams with the same order join, the resulting stream has the next highest order than the joining streams. For example, when two second order streams join, the resulting stream is third order.

A stream may separate and then converge—this is called a ‘braided stream’. A braided stream retains the same stream order throughout the braid, as though it were a single stream.

A lake may be located on a stream. The occurrence of a lake does not change the stream order of a stream.

This system is illustrated in *Figure 12.1*.

[NSW DPI Factsheet – Strahler System](#)



13.0 Amendments

Version

1	2005 - Original
2	<p>2022</p> <ul style="list-style-type: none"> ■ Change to format. More aligned to the flow of work ■ Safety Section first part of the document ■ Addition of references and further information via QR codes ■ Expansion of section relating to consultation between all parties regarding site safety ■ Requirements expanded for timely reporting of safety incidents ■ Addition of chain shot safety zone ■ Addition of National Heavy Vehicle Regulator (NHVR) information and mass limits ■ Addition of gazettal's re road closures ■ Some sections of text now tabulated ■ Change of wording from Harvest Plan to Operational Plan ■ Alignment with <i>SPD Management of Softwood Plantation Thinning Operations</i>. ■ Bay and track width specifications better defined ■ Addition of illustrations re tracking patterns ■ Expanded section on track drainage ■ Addition of thinning information - Product and <i>Delivery Specification Manuals, SPD Management of Softwood Plantation Thinning Operations</i> ■ Amendment of stump height – 120mm avg – max 150mm ■ Expanded info re processing against specifications ■ Addition of Chain of Responsibility (CoR) & haulage Code of Practice (CoP) ■ Addition of note re Traffic Management and Haulage plans ■ Addition of Appendix 1 - ROPS / FOPS / OPG – Heavy Plant protective structures technical standards ■ Revision of training and accreditation units of competency

Appendix 1 – Heavy Plant Protective Structure Technical Standards

Refer to *Forestry Corporation Procedure – WHSP 4.1 - Plant, Equipment and Vehicles* as updated from time to time.

Note: Protective structures must comply with at least one standard from each column.

Table A1. Preferred Technical Standards for Heavy Plant Protective Structures

Plant Type	Preferred Technical Standard			
	ROPS	FOPS	OPS	Glazing
Harvesting plant (Purpose built harvesters, modified excavators/ earth-moving plant)	ISO 8082-1 ISO 8082-2 ISO 3471	ISO 8083 ISO 3449	ISO 8084 AS 2294.1 Supp 1 ¹⁰	19mm ¹¹
Processing plant with cut-off saw (Purpose built harvesters, modified excavators/ earth-moving plant)	ISO 8082-1 ISO 8082-2 ISO 3471	ISO 8083 ISO 3449	ISO 8084 AS 2294.1 Supp 1 ¹⁰	19mm ¹¹
Log Landing/ Dump Operations (Purpose built log loaders, modified excavators/ earth-moving plant)	ISO 8082-1 ISO 8082-2 ISO 3471	ISO 8083 ISO 3449	ISO 8084 AS 2294.1 Supp 1 ¹⁰	N/A
Truck mounted loaders¹² (Prentice, Tigercat, etc.)	Stabilizer legs	N/A	SAE J1356 ¹³ SAE J2267	N/A
Extraction plant (Skidders, dozers, forwarders, etc.)	ISO 8082-1 ISO 3471	ISO 8083 ISO 3449	ISO 8084 AS 2294.1 ¹⁰	N/A
Site preparation/ clearing plant (Dozers, etc.)	ISO 8082-1 ISO 3471	ISO 8083 ISO 3449	ISO 8084 AS 2294.1 ¹⁰	N/A
Civil road works (Earth moving machinery)	ISO 3471	ISO 3449	N/A	N/A

10 AS 2294.1 Supplement 1 does not comply with this standard unless the operator station is completely enclosed.

11 In the absence of a recognized technical standard, refer to minimum thickness of protective laminated polycarbonate glazing panel.

12 Truck mounted loaders that do not have certified ROPS must engage stabilizer legs when in operation. If the loader can be operated without the stabilizer legs being engaged, a written Safe Work Practice must be in place.

13 Truck mounted loaders do not require FOPS. OPS certified to SAE J1356 are accepted in this instance.

Plant Type	Preferred Technical Standard			
	ROPS	FOPS	OPS	Glazing
Road, track, control line construction and clearing (Earth-moving machinery)	ISO 8082-1 ISO 3471	ISO 8083 ISO 3449	ISO 8084 AS 2294.1 ¹⁰	N/A
Roadside spraying/ slashing (Agricultural tractors, etc.)	ISO 3471	N/A	N/A	N/A
Mine and Quarry operations (Earth moving plant)	ISO 3471	ISO 3449	N/A	N/A

Table A2. Other Accepted Standards for Heavy Plant Protective Structures

Structure	Other Accepted Standard	
	Australian Standard	Other Standard
Roll Over Protective Structure (ROPS)	AS 2294.1 (Supp. 1) AS 2294.2	ISO 12117-2 SAE J1040
Falling Object Protective Structure (FOPS)	AS 2294.1 (Supp. 1) AS 2294.3 AS 4988	ISO 10262 SAE J231
Operator Protective Structure (OPS) <i>Requirements apply to all four sides of the cabin*</i>	AS 4988*	ISO 10262* SAE J1084

Note: Plant plated to these standards will be considered compliant. If a structure needs to be repaired or replaced, the standards in Table A1 must be used.

Appendix 2 – Correspondence between Forest Practices Code (Part 1): 2005 and Forest Practices Code (part 1): 2022

Forest Practices Code (Part 1): 2005		Forest Practices Code (Part 1): 2022	
Clause title	Clause number	Clause number	Clause title
Introduction		1.0	Introduction
Information & Audits	1	2.0	Keeping Safe
Safety and operational information	1.1		
Work plans	1.2	2.2	Consult, cooperate and coordinate
Audits	1.3	11.1	Monitoring and audit
Safety	2	2.0	Keeping safe
Safety obligations	2.1	2.2	Consult, cooperate and coordinate
		2.3	Duty of care
Site safety plan	2.2	2.4	Site safety management
Personal protective equipment	2.3	2.3.2	Contractors
		2.5	Machinery Operator Protection (ROPS, FOPS and OPS)
Reporting accidents and injuries	2.4	2.1	Reporting of incidents and injuries
Harvest plans	3	6.0	Harvesting
Guidelines for use	3.1	6.1	Operational plans
Contents	3.2		
Operations	4		
Moving operations	4.1	6.2	Operations
Damage to trees	4.2		
Access to the harvest area	4.3		
Tree selection, marking and tracking	5	6.4	Thinning tree selection and marking
Tree selection and marking	5.1		
Tracking	5.2	6.3	Extraction / Tracking
Operator selection	5.3	6.4	Thinning tree selection and marking
Tree felling	6	6.0	Harvesting
Active areas	6.1	2.4.2	Active harvesting areas
Felling	6.2		
Damage to infrastructure	6.3	6.5	Tree felling
Hang-ups	6.4		
Pre-bunching	6.5		

Forest Practices Code (Part 1): 2005		Forest Practices Code (Part 1): 2022	
Clause title	Clause number	Clause number	Clause title
Cable harvesting	7	N/A	No reference - removed
Timber extraction	7.1		
Processing	8	6.6	Processing
Integrated operations	8.1	6.8	Foreign material
In-forest chipping and post-peeling	8.2	6.6.3	Residue management
Extraction	9	5.1	Road drainage
Log movement	9.1	6.3	Extraction /Tracking
Track construction	9.2		
Track drainage	9.3	6.3.5	Extraction track drainage
Timing	9.4	6.7	Extraction to roadside
Measuring, recording, and removing timber	10		
Measuring and recording timber	10.1	7.5	Measuring, recording, and removing timber
Delivery dockets	10.2		
Harvesting near drainage features	11		
Specifications for drainage feature protection areas	11.1	3.0	Environmental protection
Operating inside a DFPA	11.2	3.1	Protecting soil and water values
Environmental Protection Licence	11.3	N/A	No reference - removed
Drainage feature crossings	11.4	3.1	Protecting Soil and Water values
Reporting pollution	11.5	9.4	Reporting pollution
Environmental protection — general	12	9.0	Use of fuels and other hazardous chemicals
Storing and handling fuels and other hazardous materials	12.1	9.1	Safety data sheets (SDS)
		9.2	Spills
Servicing and repairs	12.2	9.3	Servicing and repairs
Waste disposal	12.3	9.5	Disposal of waste and rubbish
Noxious weed control	12.4		
Forest diseases, pests, and hygiene	12.5		
Flora, fauna, and cultural heritage management	13	3.2	Plants, animals, cultural heritage and weed management
Flora and fauna	13.1		
Cultural heritage	13.2		
Wet weather controls	14		
Application	14.1	4.0	Wet weather controls
Automatic closures	14.2	4.1	Automatic closure
Notified closures	14.3	4.2	Notified closures

Forest Practices Code (Part 1): 2005		Forest Practices Code (Part 1): 2022	
Clause title	Clause number	Clause number	Clause title
Maximum allowable soil disturbance	14.4	4.3	Maximum allowable soil disturbance
Haulage	14.5	4.4	Blading off roads
Seasonal stockpiling	14.6	7.3	Truck loading / uplift and stock turnover
Fire precautions	15	10.0	Fire prevention
Duties of licensees	15.1		Danger periods
Danger periods	15.2	10.1	Operations in a plantation fire threat period
Operating in a plantation fire threat period	15.3	10.2	
Machinery and equipment	15.4	10.3	Machinery and equipment
Preventing sparks and flames	15.5	10.4	Preventing sparks
Lighting fires	15.6	10.5	Lighting fires
Suspension of work in dangerous conditions	15.7	10.6	Suspension of work in dangerous conditions
Restrictions on cable harvesting	15.8	10.7	Restrictions on harvesting
Fire restrictions	16	10.9	Work restrictions
Work restrictions	16.1		
Calculation and notification of fire danger index	16.2	10.7	Restrictions on harvesting
Category I fire preparedness	16.3	10.8	Fire preparedness categories
Category II fire preparedness	16.4		
Category III requirements: clearfall operations	16.5		
Log stockpiles, landings, loading bays and log dumps	17	5.2	Log stockpiles, landings, loading bays and log dumps
Safety and operational requirements	17.1	7.0	At roadside
Location	17.2	7.1	Log landings and stockpiles
Draining loading bays and log dumps	17.3	7.2	Draining loading bays and log dumps
Cleaning roads and loading sites	17.4	5.3	Cleaning roads and loading areas
Roads — general	18	5.0	Roads
Machinery on roads and verges	18.1		
Maintaining road drainage structures and other road infrastructure	18.2	5.1	Road drainage
Forwarders (loading and clean-up)	18.3		

Forest Practices Code (Part 1): 2005		Forest Practices Code (Part 1): 2022	
Clause title	Clause number	Clause number	Clause title
Road haulage	19		Truck loading / uplift and stock turnover
Maintaining forest roads		7.3	
		7.4	Cessation of operations on log dump or landing
		8.0	Hauling the logs
	19.1	8.1	Chain of Responsibility and the Industry Code of Practice
		8.2	
		8.3	Operational Plans (haulage)
			The Site Safety Plan
Securing loads	19.2	8.5	Securing loads
Dusting during dry conditions	19.3	8.4	Haulage in wet weather and very dry conditions
Warning signs	20		
General requirements	20.1		
Tree felling	20.2		
Felling near tracks or roads	20.3	2.4.5	Safety Signs
Logging machinery on roads	20.4	2.4.6	Management of B-Doubles & other Restricted Access Vehicles
Haulage — general	20.5		
Haulage — B-doubles	20.6		
RTA, shire, and main roads	20.7		
Legal	21		
Legislation covering timber harvesting	21.1		
Licensing and licensee responsibilities	22		
Licences, agreements, and special purpose permits	22.1		
Contractor's licence	22.2		
Workers' compensation and public liability insurance	22.3	11.0	Administration
Operator's licences	22.4	11.2	Legal
Changes to operator information	22.5		
Names and addresses of employees and operators	22.6		
Supervision	22.7		
Employment conditions for operators	22.8		
New equipment and techniques	22.9		

Forest Practices Code (Part 1): 2005		Forest Practices Code (Part 1): 2022	
Clause title	Clause number	Clause number	Clause title
Training and accreditation	23		
Accreditation for operator's licence	23.1	11.3	Training and Accreditation
Unqualified or partially trained operators	23.2		
Compliance and performance	24		
Non-compliance	24.1		
Remedial action	24.2		
Dealing with non-compliance	24.3	11.4	Compliance and performance
Training and reaccreditation	24.4		
Compensation	24.5		
Stand-down	24.6		
Appeals	24.7		
		12.0	Definitions



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