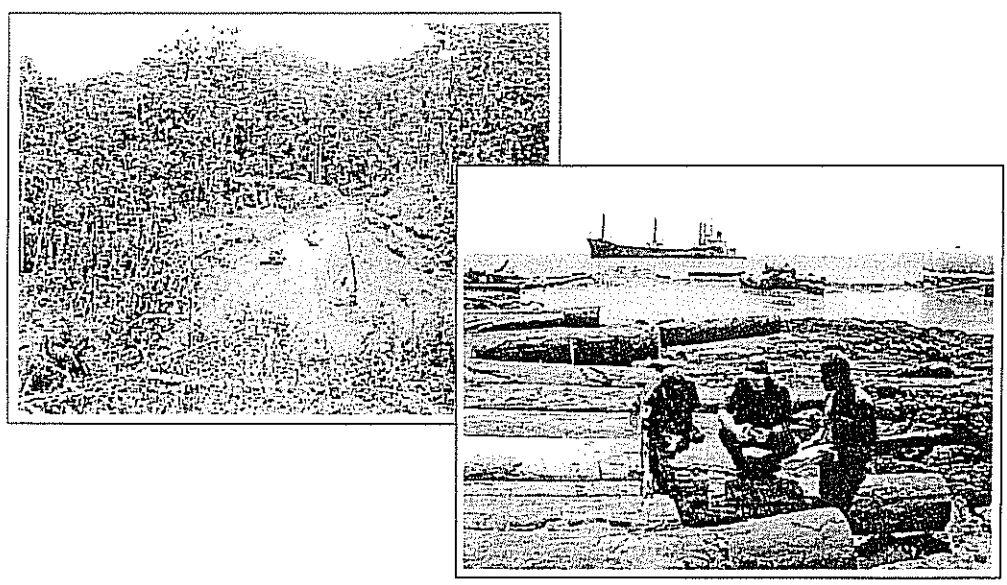
SOLOMON ISLANDS
GOVERNMENT

The Revised Solomon Islands Code of Logging Practice



MINISTRY OF
FORESTS, ENVIRONMENT & CONSERVATION

MAY 2002

SOLOMON ISLANDS
GOVERNMENT

MINISTRY OF FORESTS, ENVIRONMENT & CONSERVATION

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Vision – To manage and use our forest resources in a manner that meets with the needs and aspirations of our people, both now and into the future.

Logging can bring benefits to our people. It can also cause a great many changes. Poor practices can harm our natural and cultural resources, and the welfare of our people. It is therefore essential, that where logging operations occur, they are carried out in a way that minimises damage to water, soil and forest resources.

The Code of Logging Practice is aimed at ensuring that where selection logging takes place, the ecological and cultural functions of the forest, and it's productivity in terms of wood and water production are protected. The Code does not operate alone, but is part of the policy and regulative systems used to manage logging.

This Code applies to all forest harvesting operations in the Solomon Islands. It is a revised version of the 1996 Code that follows the Papua New Guinean model, focusing on key standards. Thirteen key standards have been identified as the highest priority. Once logging companies achieve these key standards, additional standards will be added to further improve the quality of logging operations in the Solomon Islands. The Code also gives guidelines for planning and monitoring of logging operations. It is essential that all parties involved with logging operations embrace both the technical content and the intent of the Code if we are to improve practices in the Solomon Islands.

David Holosivi
Minister for Forests, Environment and Conservation

Gideon Bouro
Commissioner of Forests

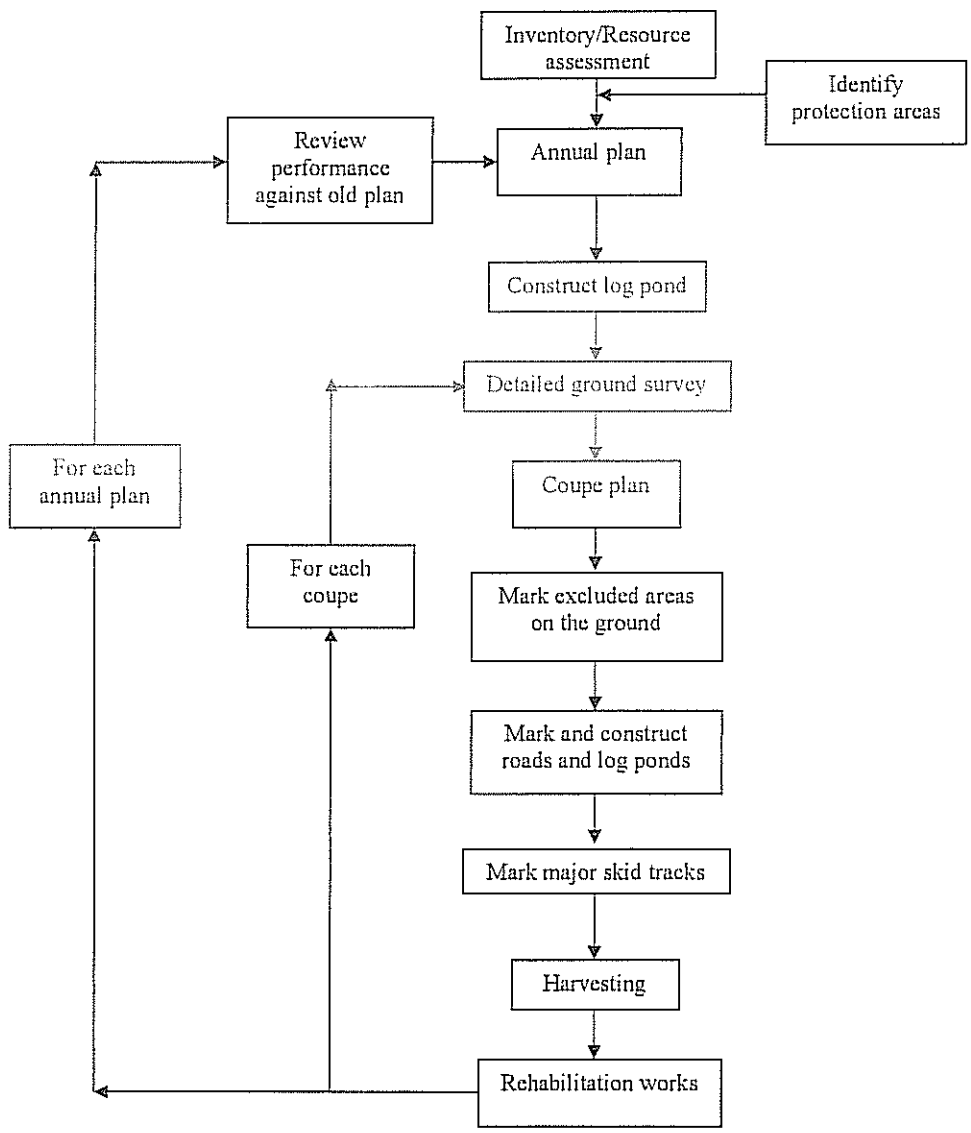
Table of Contents

Guidelines for Harvest Planning

Planning is essential to achieving a cost effective harvesting operation that complies with the Code. Two levels of harvest plans are required and will be checked by the FD before the operation is notified by the FD that it may commence using machinery on site. The two levels of harvest planning are:

1) Annual plans	Cover at least a year of operations and are fairly general. Must be submitted annually in November to the FD.
2) Coupe or setup plans	Cover a specific coupe or setup and are detailed. Must be submitted to the FD prior to commencement of harvesting for approval. No machinery may enter the site without such an approval.

The order of activities for a well planned harvest operation



The expected content of the Annual plan and Coupe plan is shown below.

	Annual Plans (Indicative planning)	Coupe or Setup Plans (Detailed block plans)
What is needed to prepare the plan?	1:50 000 scale base map with topography and watercourses Land ownership boundaries	Annual plan Most detailed map scale available with contours and watercourses Land ownership boundaries Information from ground inspection
What are the inspection requirements?	Low intensity eg. aerial inspection, ground inspection of key points	Detailed ground inspection essential to locate excluded areas, road and log landing locations
What details are shown on the map? (**also marked on the ground)	Boundary of licence Land ownership boundaries Protected areas Coupe locations and boundaries Broad roading plan Major log landings Log ponds Areas previously cut	Boundary of coupe** Excluded Areas/watercourses by class** Log pond locations** Detailed roading plan** All landing locations** Major skid tracks and snig direction** Minor skid track pattern and direction Watercourse crossings (permanent + temporary)**
What details are submitted in the written plan?	Corporate background Operating authority Operational summary for previous year Inventory estimate of timber yields (SOLFRIS data is accepted at the annual plan level) Machinery summary Staff summary How needs of the local villagers are being met Post logging development	Clear identification of the coupe number and location against the annual plan Corporate background Operating authority Inventory results based on actual ground survey How environmental requirements will be met including: ▫ excluded areas ▫ earthworks ▫ roading/log ponds ▫ bridges/culverts and temporary crossings ▫ post logging rehabilitation Any site specific issues
When is the plan submitted?	By November each year unless has been submitted and approved earlier in the year.	At least 1 month should be allowed for the FD to approve the plan before operations start in the coupe. Operations cannot start without approval
Who sees the plans?	Landowners Forestry Division (Honiara and Province) Provincial Government Camp Manager Production Manager Surveyors	Landowners Forestry Division (Honiara and Province) Camp manager Production manager Surveyors Other staff responsible for implementation of the plan
Who approves the Plan?	Commissioner of Forests through the Operations Branch, Honiara.	The Provincial FD Officer in Charge will randomly inspect some coupe plans and will give verbal advice directly to the camp manager and follow up in writing to the camp manager, FD Honiara and Company headquarters. Where no inspection takes place the Provincial FD Officer in Charge will give written authorisation to proceed to the camp manager, FD Honiara and Company headquarters.
When can operations commence?	Operations can only commence after approval is received in writing from the FD, Honiara.	Operations can only commence after written approval is received from the Provincial FD Officer in Charge. Field operators must know exactly what is required before work commences.
What if the plan changes?	The Provincial FD officer must be notified in writing and give approval for the change. This may require field inspection or may be possible without an inspection. The camp manager, company headquarters and FD headquarters will be advised in writing.	

Key Standard Number 1 – Protected and Exclusion areas

There are two types of areas where logging may not occur. They are:

1) Protected areas Areas that must be identified at the planning phase and removed from the area licenced under a logging licence. They are areas:-

- Declared as Conservation Areas under legislation.
- That have ecological or scientific importance including outer reef and lagoon islands, swamps, wetlands and mangroves which are vital to the protection of important marine resources.
- That exceed 400m above sea level unless approved for logging by the Commissioner of Forests.
- That landowners do not wish to log for any reason.

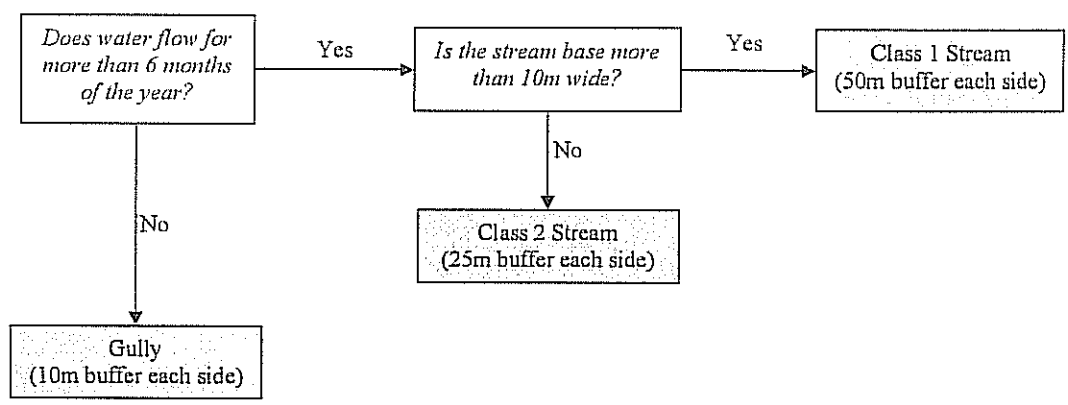
2) Excluded areas Areas within a concession that are excluded from logging. They must be marked prior to logging commencing. There are 5 types of excluded area. These are shown in the table below.

Types of excluded areas and minimum buffers

Type of Excluded Area	Minimum Buffer	Comments
Cultural areas	Tambu areas – 30m Garden areas – 30m Villages – 200m or as decided by the community	The local community must be given the chance to decide on these buffer widths. If different from the minimum identified then the FD must be notified in writing and may check that the decision is agreed to by all parties.
Ocean/Lakes/Lagoons	100m except for a log pond which may be 50m	Buffer starts from high water mark
Landslip areas	The area of the slip and the area where the soil ends up	
Streams (Flows for more than 6 months of the year)	Class 1 (Bed more than 10m wide) - 50m each side Class 2 (Bed less than 10m wide) – 25m each side	Use the flowchart below to determine the class of stream or gully. Buffer starts from edge of vegetation.
Gully (Flows for less than 6 months of the year)	10m each side	Use the flowchart below to determine the class of stream or gully. Buffer starts from edge of vegetation.

Note – Any exception to the described buffers must be approved in writing by the Provincial FD Officer in Charge

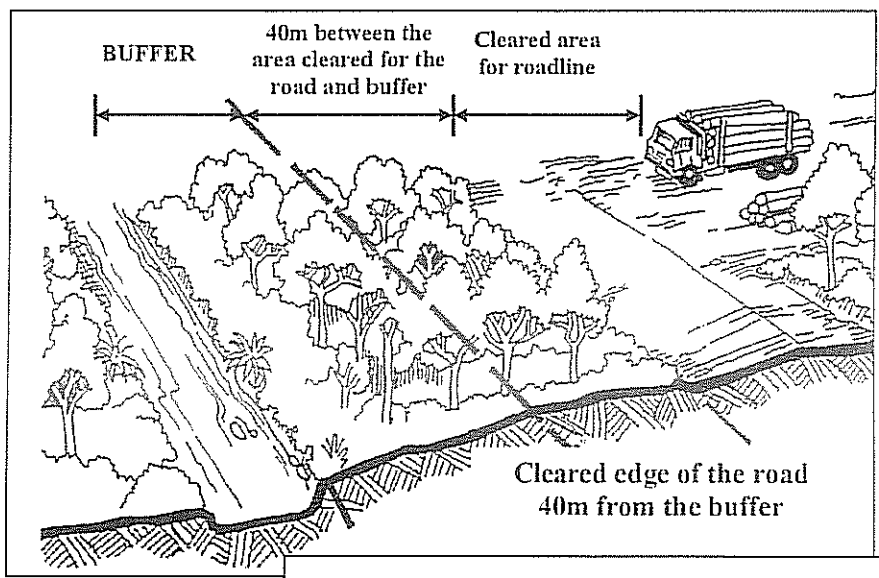
Watercourse flowchart – Ask these questions

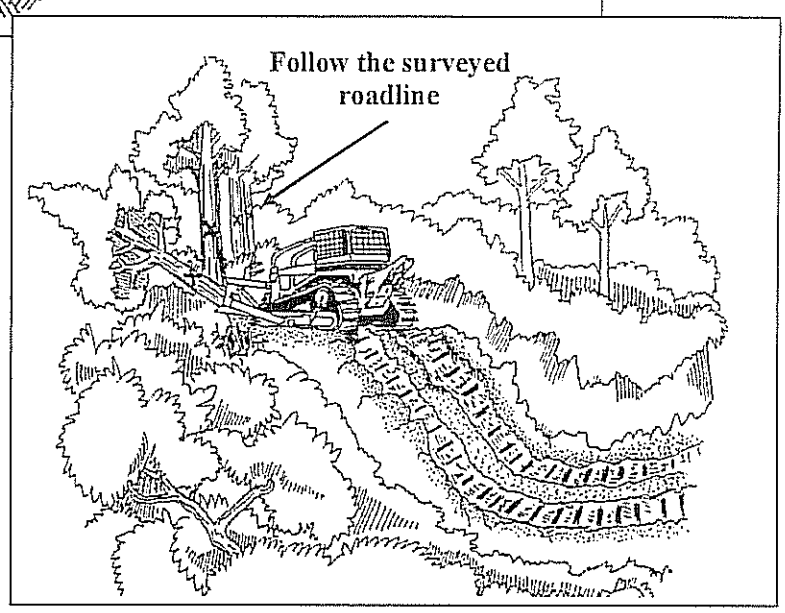


Key Standard Number 2 – Location of Roads and Landings

Roads must be constructed by following the pre-determined survey line. The survey line will be marked using the following guidelines:-

- The cleared edge of the road or landing must be located at least 40m from the edge of a buffer. Buffered and protected areas must be avoided. A FD Officer must approve any variation to this guideline in writing to the camp manager, FD headquarters and the company headquarters.
- Minimise watercourse crossings.
- Locate survey line on high ground.
- Try to always follow ridgelines.
- Avoid side slope that needs side cutting or benching.
- Balance cut and fill.

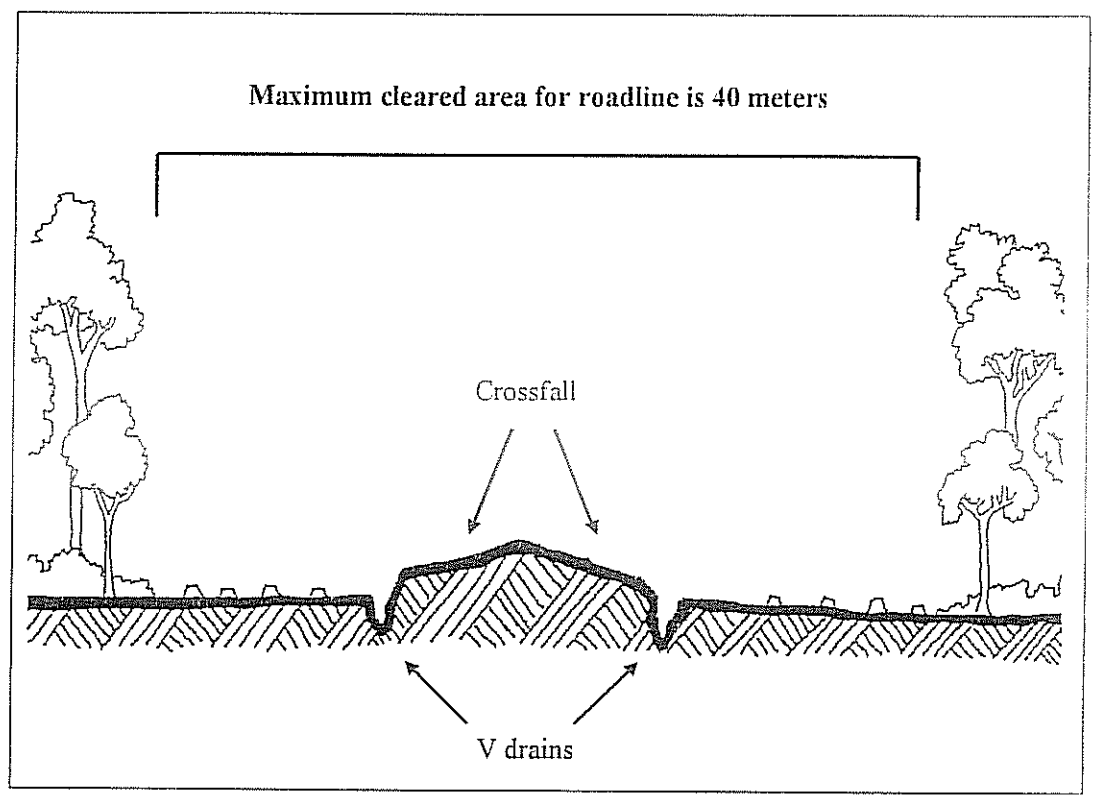




Key Standard Number 3 – Maximum Width of Roadline Clearing 40 Meters

The maximum area that can be cleared for a roadline is 40m. This includes the road and all cleared forest alongside the road ie. from forest edge to forest edge. The only exception to this standard is when a roadside landing is constructed and total width may be 80m for a length of 30m.

If landowners request additional clearing for gardening or other uses, this must be approved by the Provincial FD Officer in Charge before clearing commences. If the area is over 5 hectares it must be approved by the Chief Forest Officer Operations, Honiara.



Key Standard Number 4 – The Three Rules of Roading (Drainage, Drainage + Drainage)

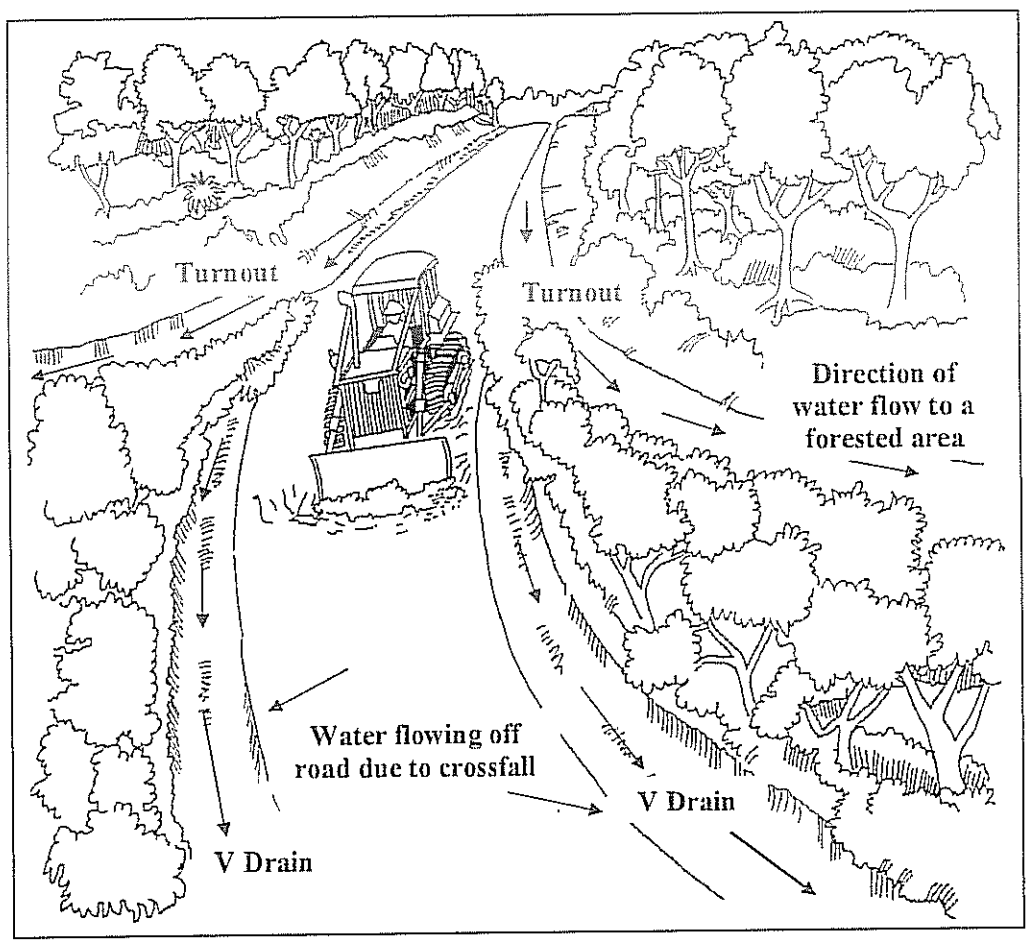
Poor roading design and construction can lead to significant levels of erosion. To prevent this road construction must pay adequate attention to drainage. Drainage must include:

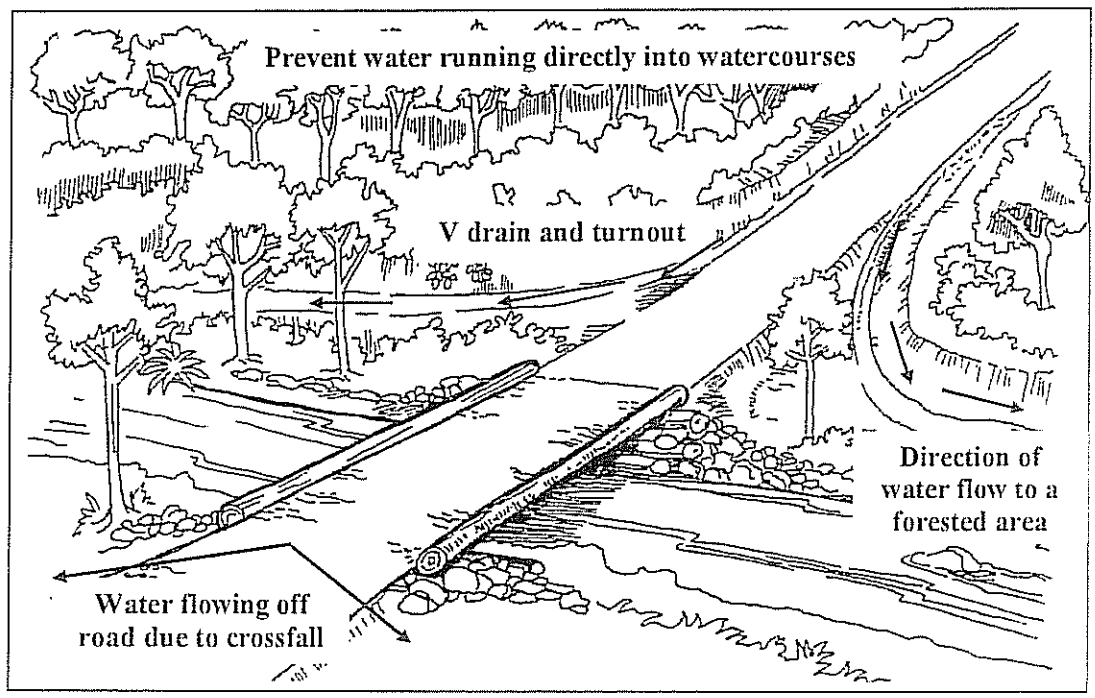
1. Table or V drains to prevent water running onto the road and drain water off the road.
2. Drain turnouts to remove the water from the roadside to the bush.
3. Culverts where water needs to be moved across a road
4. Cross fall from the centre of the road to the edge to prevent water sitting on the road surface

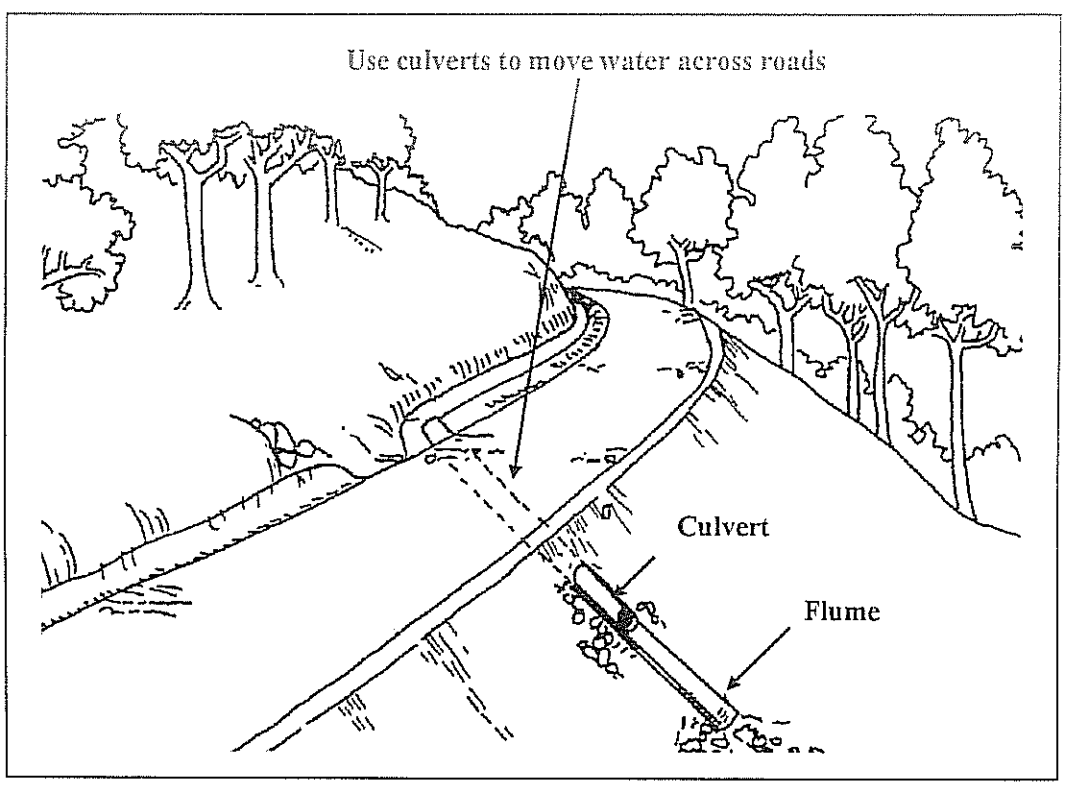
Drains must:

1. Not run directly into watercourses or onto landings
2. Run onto forested areas
3. Where possible run onto flat areas

Compaction of the road surface with rollers, trucks and other heavy equipment will further assist road drainage and extend the time that the road is useable for.

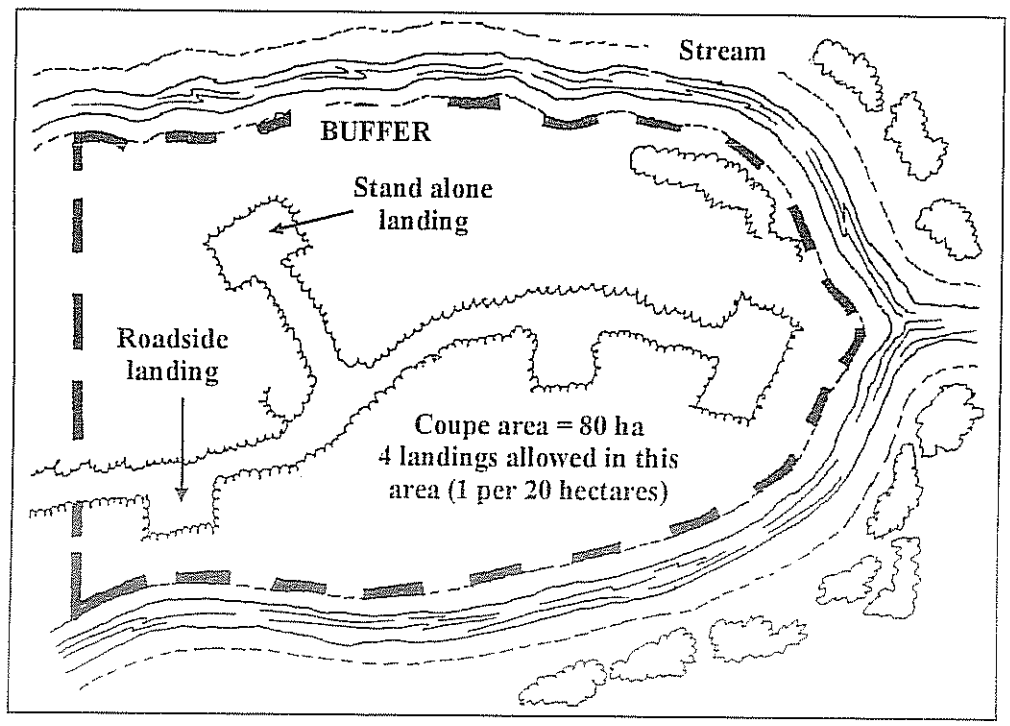


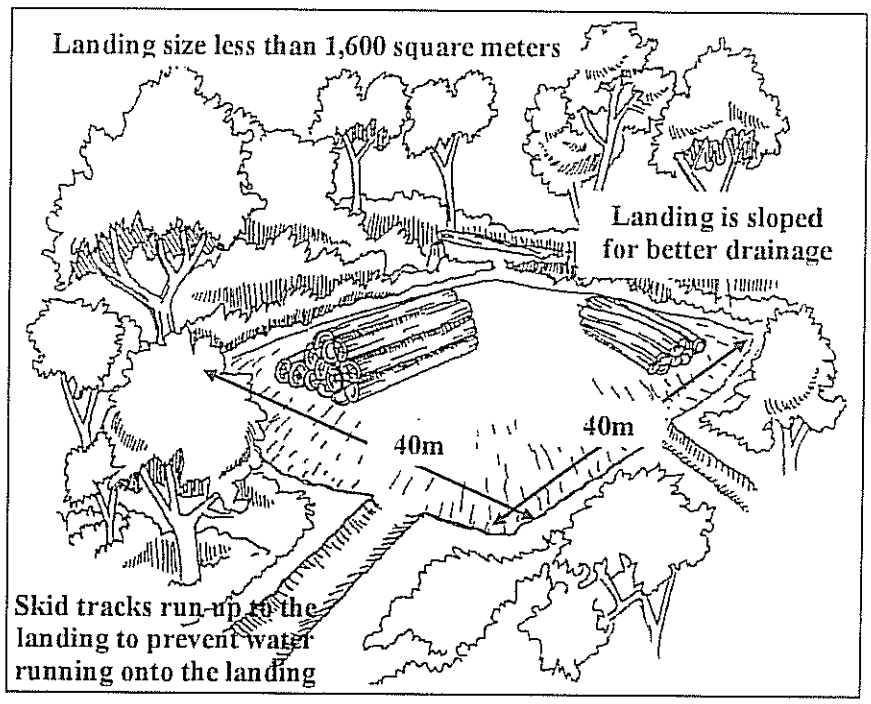

Prevent water running directly into watercourses
V drain and turnout
Direction of water flow to a forested area
Water flowing off road due to crossfall


Use culverts to move water across roads
Culvert
Flume

Key Standard Number 5 – Landing Size and Number

Maximum landing size is 1,600 square meters eg. 40m x 40m. Within an area of 100 hectares there should be no more than 5 landings. Each landing will therefore on average serve no less than 20 hectares of area. Roadside landings will be measured from the road edge and should be no more than 1,600 square meters in addition to the road.



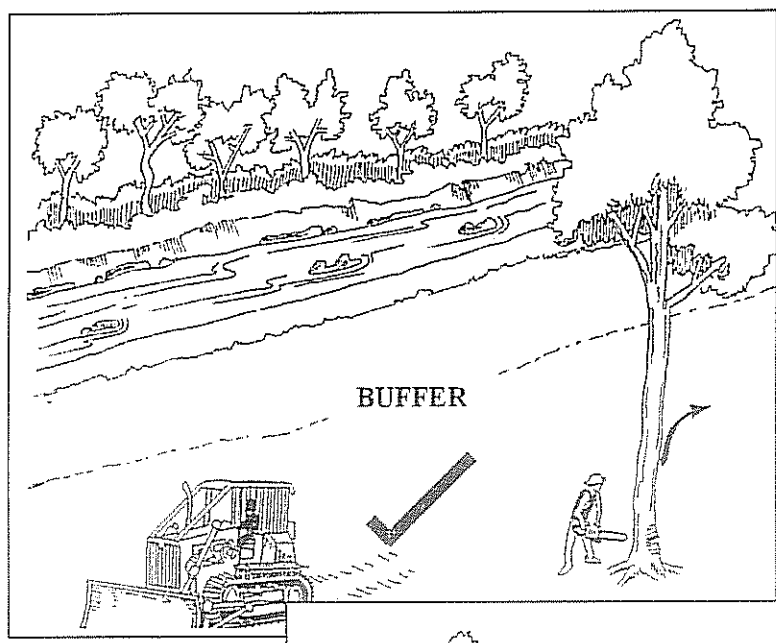


Key Standard Number 6 – No Felling or Skidding Within Buffers

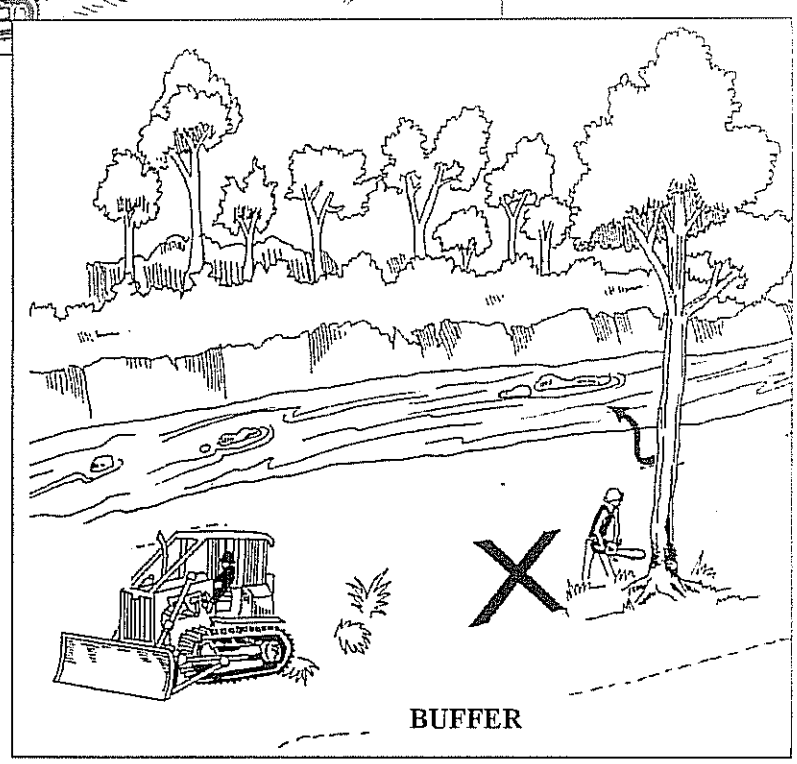
No felling is allowed within buffers or into buffers. If a tree cannot be felled without it entering a buffer then it must be left.

No skidding is allowed within buffers except where water crossing points have been identified and agreed on the coupe plan and marked on the ground.

If landowners request a company to operate within a buffer, this must be approved in writing by the Provincial FD Officer in Charge before the company proceeds.



CORRECT
Fall outside and away from buffers. Skidding machinery must stay outside buffers.

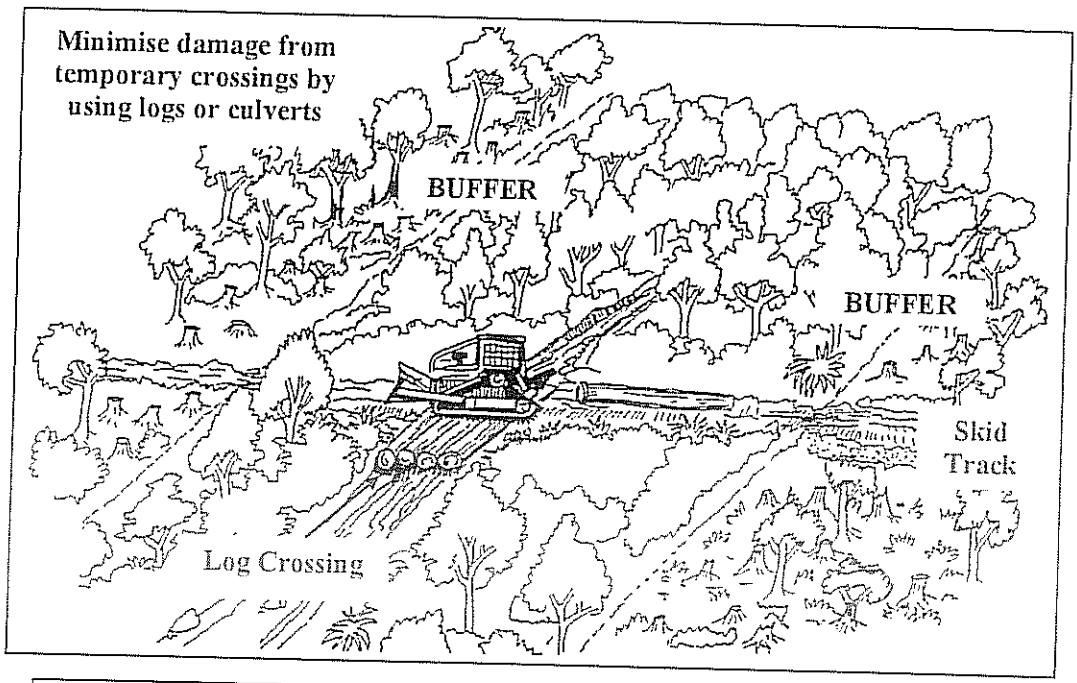


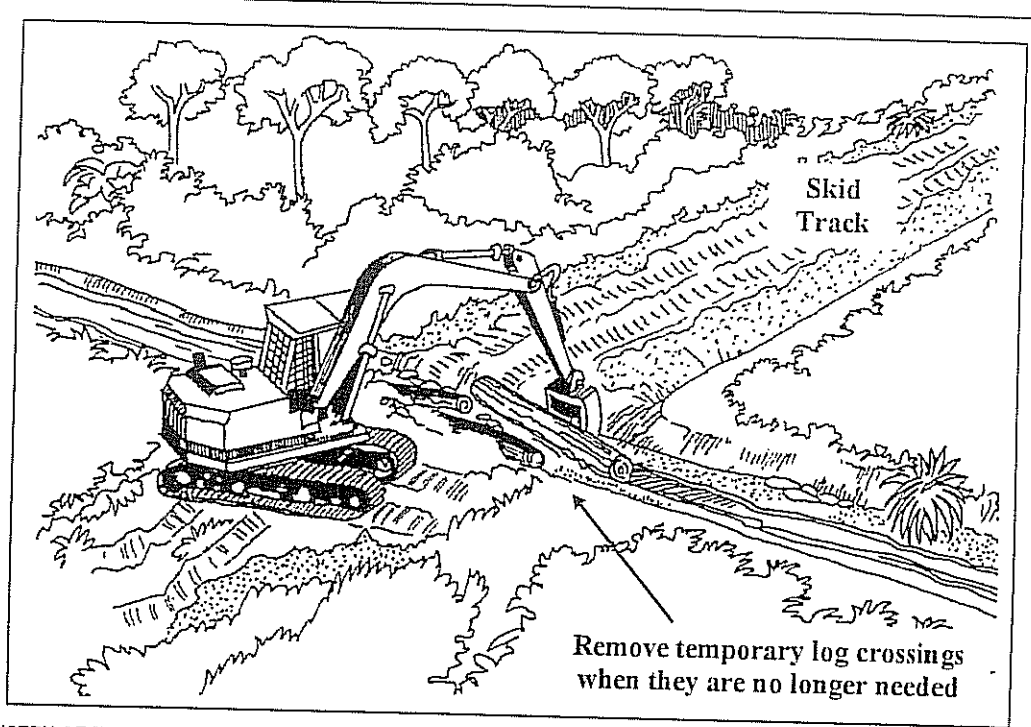
INCORRECT
Do not fall inside buffers or operate machinery inside buffers.

Key Standard Number 7 – Temporary Crossings

Temporary crossings for skidding must be identified on the coupe harvesting plan that is signed by the Provincial FD Officer in Charge prior to operations commencing. The crossing must then be marked on the ground during coupe setup.

Crossings should be located in the flattest location possible. It is preferred if culverts are used for the crossing, but they may be constructed with logs or piped logs. Log crossings must not be covered with soil. On completion the logs must be removed.

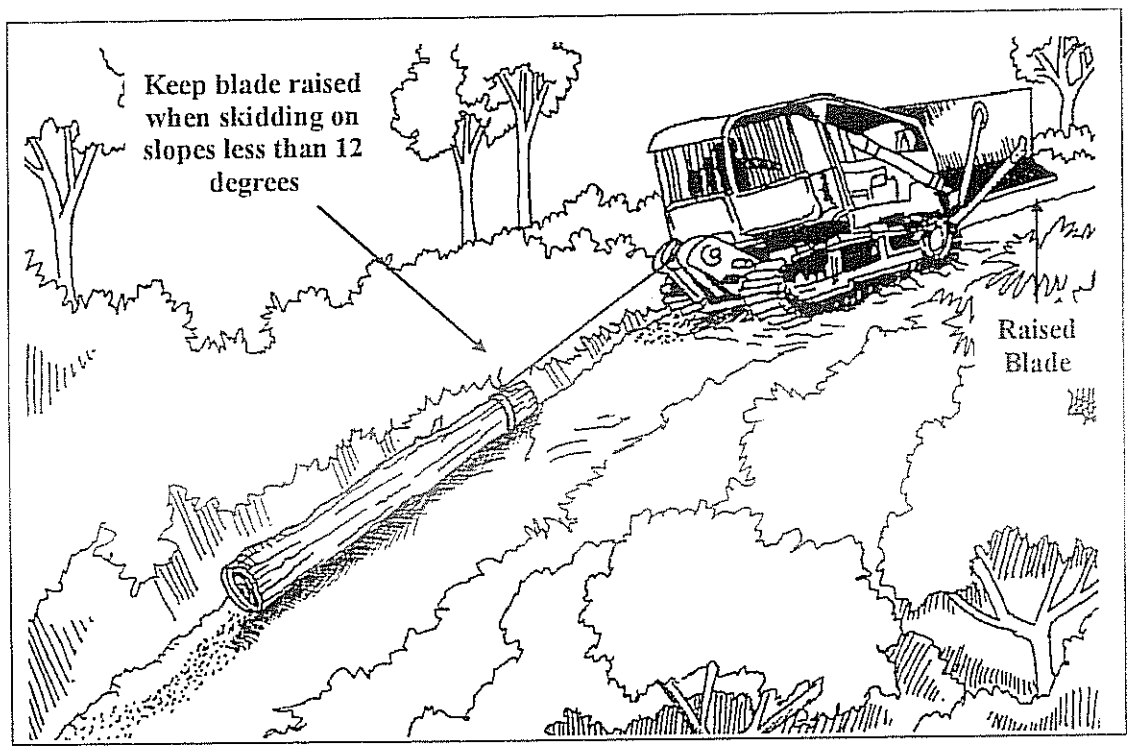




Key Standard Number 8 – Blade Raised when Skidding

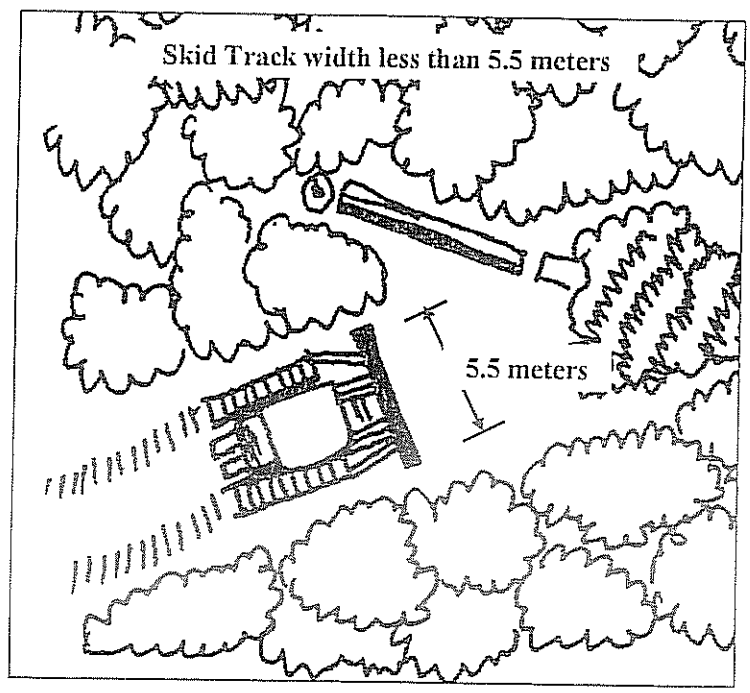
If slope is less than 12 degrees then all skidding must be done with the blade raised. Vegetation will be pushed down onto the skid track by the raised blade and not destroyed by scraping. This will protect soil and reduce erosion. On slopes over 12 degrees some blading may be required. This should be minimised.

Dozer drivers can estimate slope by the ease of operation. At 12 degrees some slipping will be felt in the machine. It is suggested companies give dozer drivers some basic training in recognizing the angle of slopes.



Key Standard Number 9 – Skid Track Width Less than 5.5 Meters

The skidder must run on the same track each time it travels back and forth. This will minimise the area of forest disturbed. The width of the skidder blade should be no more than 4.5 meters. Roading blades are not permitted in the bush. The area disturbed by the skidder passing, will therefore be no greater than 5.5 meters wide (approximate width of the blade). In areas where side cutting is required the area of disturbance should be no more than 7 meters.



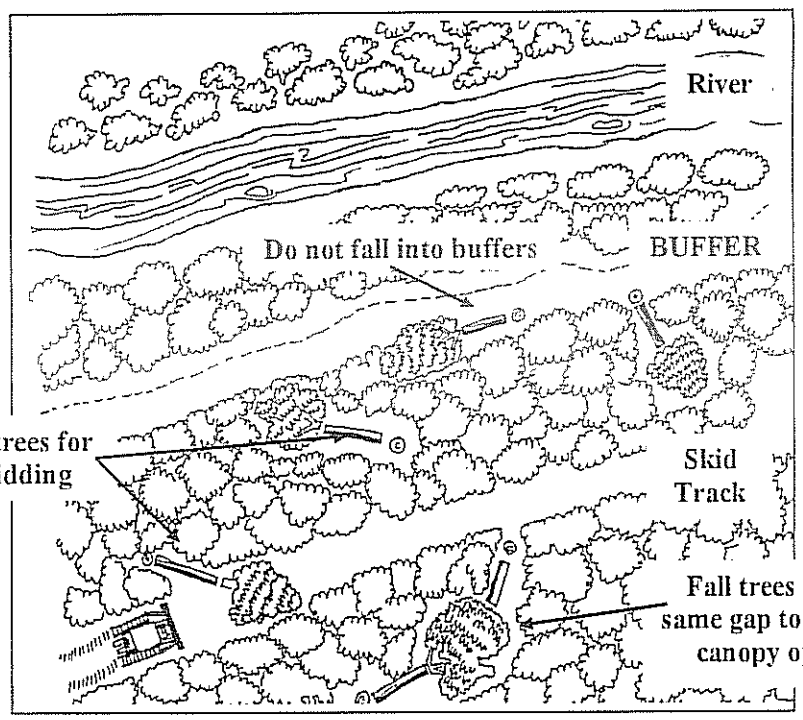
Key Standard Number 10 – Maximise Log Value and Avoid Wastage of Timber

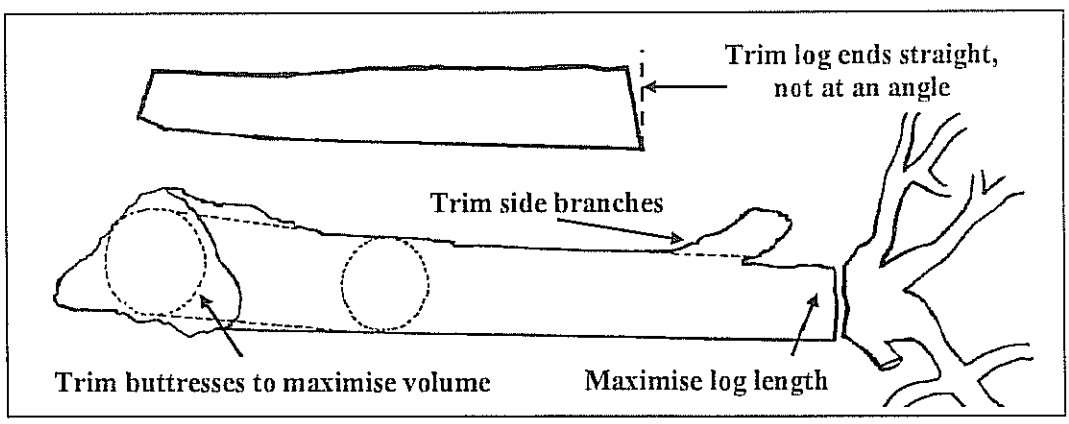
Always maximise log value and avoid wastage of timber. This can be done by:-

1. Directionally felling trees to minimise crown and trunk breakage.
2. Directionally felling trees so they are in position for easy skidding.
3. Directionally fell trees into the same gap to minimise canopy opening.
4. Keeping stumps as low as possible.
5. Ensuring log ends are cut straight, not at an angle.
6. Trimming side branches and buttresses.
7. Maximising the highest value log length before the tree is cross cut.

FD Officers make routine inspections of logged over areas and will charge companies for wasted timber left on site according to the guidelines of the Forests Act.

Note - Safety is always the first priority. A faller should not attempt to directionally fall trees in an unsafe direction. It may be necessary to leave some trees as they cannot be safely felled away from buffers.





Key Standard Number 11 – Weather Restrictions to Logging

When conditions are inappropriate for logging, the risk of personnel injury increases and the level of environmental damage increases. The following table gives guidelines for when operations should start and stop. It is the logging managers role to decide when conditions warrant stopping or restarting logging. Penalties apply for operating in inappropriate conditions. Use your commonsense. The intent of the Code is to minimise damage to the soil, water and forest resources. If this starts to happen due to wet weather, stop.

Guidelines for stopping and starting operations according to weather

Operation	Stop when	Start when
Felling	Wind prevents accurate directional falling The ground inside the forest becomes too slippery for chainsaw operators to move easily and quickly	Wind drops and accurate falling can proceed The ground inside the forest dries allowing chainsaw operators to move without slipping
Skidding or road construction	Water is seen flowing on any length of skid trail or road	When soil is no longer saturated. This can be seen, as the soil surface becomes solid again to walk on and water is no longer sitting on the surface.
Landing construction	Water starts to sit on the surface of the landing	When soil is no longer saturated. This can be seen, as the soil surface becomes solid again to walk on and water is no longer sitting on the surface.
Trucking of logs	When a truck can no longer move along a road unassisted. Note - it is unacceptable to use other machines to move the truck.	When the surface dries enough to allow the truck too freely move along the road.

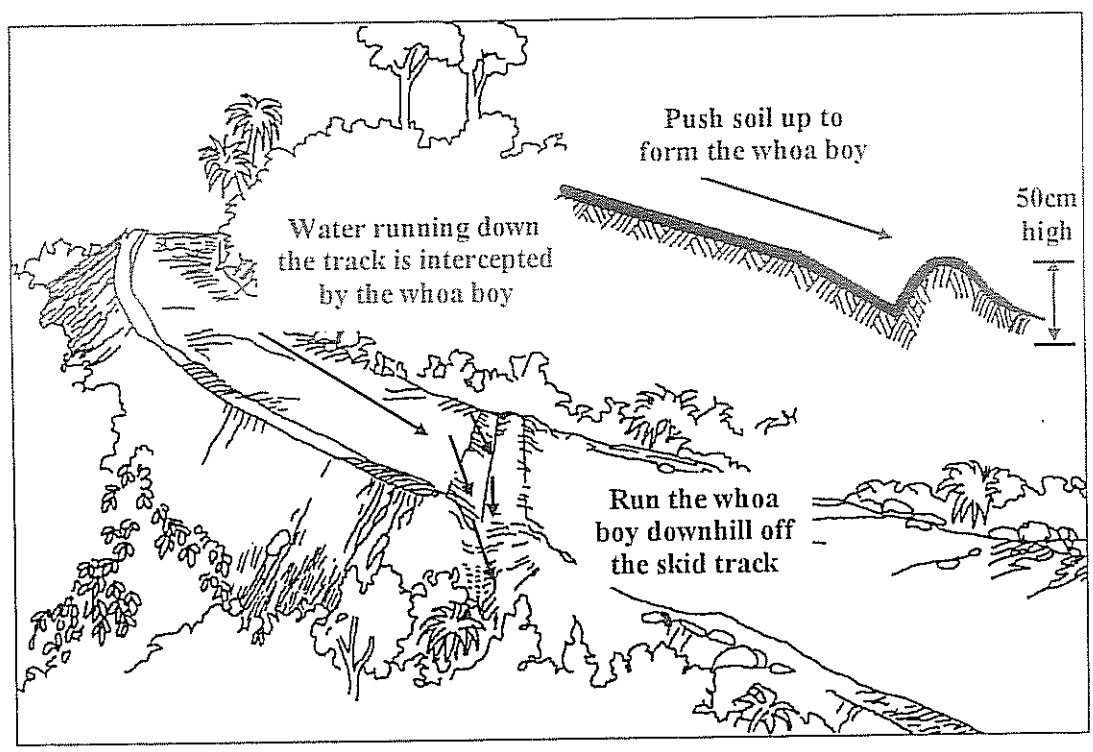
Key Standard Number 12 – Decommissioning Skid Tracks

When a skid track is no longer going to be used it must be decommissioned. This involves constructing a whoa boy. Other names for whoa boys are water bars, barring and cross drains.

The steeper the skid track the more whoa boys are needed. It is suggested that:

- If a slope is less than 10 degrees a water bar should be constructed approximately every 40m.
- If a slope is more than 10 degrees a water bar should be constructed approximately every 20m.
- In addition, it is recommended that a whoa boy is constructed at any change in slope.

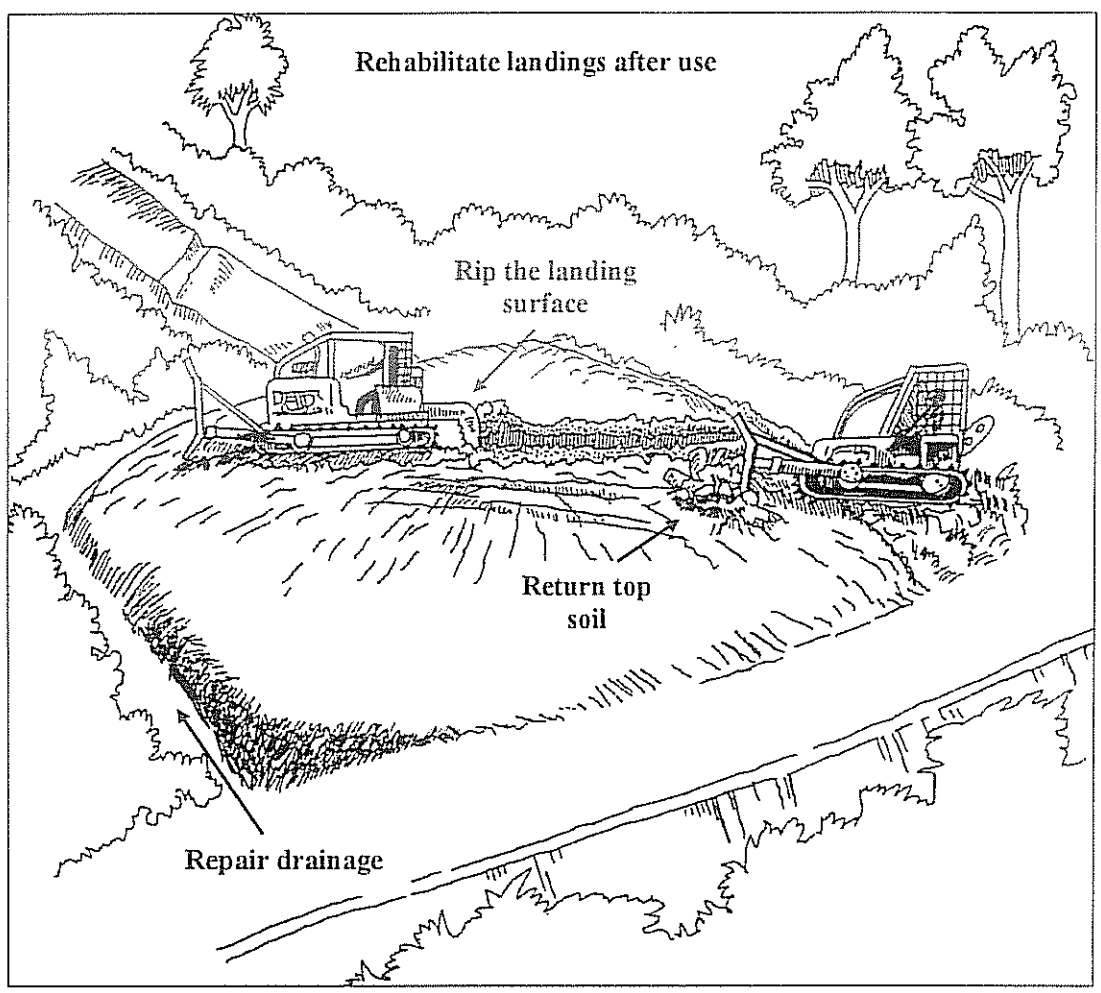
It is important to construct the whoa boy properly. See the picture below. They must be at least 50cm high with a cut into the ground surface above the bar to act as a drain. The bar must run slightly down hill and water must be able to flow off the skid track. Water should flow onto stable forested areas. Be careful not to build a water bar that acts like a dam and then fails.



Key Standard Number 13 – Decommissioning Landings and Log Ponds

When operations on a landing or log pond are completed the following activities must be undertaken:-

1. Remove any excess bark or waste, spreading into the forest adjacent to the log pond or landing.
2. Rip the surface to at least 60cm depth.
3. Return topsoil removed and stockpiled during construction by spreading evenly across the landing after ripping is completed.
4. Ensure that the area is drained effectively.
5. The inspecting FD officer may require some areas to be replanted.



Monitoring of Logging Operations

Monitoring of a logging operation is essential to ensure that compliance with the Code is being achieved. Monitoring must be done internally by companies as they try and self regulate against the Code. Auditing will also be carried out regularly by FD Officers using the auditing form below.

The process for carrying out an inspection is as follows:-

1. Before going into the field, use the coupe plan to randomly select one log pond, three lengths of road, two buffers, one watercourse crossing, three lengths of skid track, two landings and a location that will have fallen trees to inspect.
2. Visit each of these locations with a company and landowner representative and assess against the criteria on the auditing proforma. For example on the log pond, check that oil and other wastes are being properly disposed of. Explain to the company and landowner representatives the process being undertaken and the results so as to educate them in application of the Code.
3. If the company is meeting with the standard described award full points for that check.
4. If the company does not meet the standard described award 0 points.
5. Complete all the required checks and total the score for each section and overall.
6. With the company representative analyse where the problems where, section by section and determine how they can improve.
7. Report to the relevant supervisors and staff on the score and discuss it. For FD this will be Honiara headquarters. For the company this will be on-site staff and company management and for the landowners this will be other members of the community.
8. For FD Officers if a serious breach is identified, then follow up action is required in writing through headquarters.
9. The Commissioner of Forests will from time to time set a minimum mark that must be achieved for each inspection. If this mark is not achieved then follow up action must also be taken. Penalty actions are described elsewhere.

Auditing Proforma for inspection of harvesting operations

Monitoring Proforma for inspection of harvesting operations					
Component of Operation Assessed	Marks for compliance	Check 1	Check 2	Check 3	Total score
Log pond – Check one					
Has a 50m buffer to the ocean (strip of vegetation)	2				
Is adequately drained	2				
Oil or other waste products are being safely disposed of	2				
Sub-total					
Roading – Check two lengths of 100m					
Located as shown on the coupe plan	2				
Clearing is 40m or less	2				
Drainage is acceptable (Table drains, turn outs, cross fall, culverts)	2				
Road clearing edge is located more than 40m from any buffer	2				
Sub-total					

Component of Operation Assessed	Marks for compliance	Check 1	Check 2	Check 3	Total score
Buffers – Check two					
Marked in the field as shown on the coupe plan	2				
Correct buffer width	2				
No unauthorised entry to the buffer (ie. trees fallen into buffer/trees fallen in buffer/machine entry)	2				
Sub-total					
Watercourse crossings – Check one					
Located as shown on the coupe plan	2				
Appropriate type of crossing for the situation ie. culvert, ford or bridge	2				
Drainage around the watercourse crossing does not run into the watercourse	2				
Machines have not operated in the watercourse during construction	2				
There has been no unnecessary cutting of trees in and around the watercourse crossing.	2				
Sub-total					
Landings – Check two					
Located as per coupe harvest plan	2				
At least 40m from the edge of any buffer	2				
Is well drained with no skid tracks running downhill onto the landing	2				
Is less than 1,600 square meters	2				
Sub-total					
Skid track – Check three lengths of 100m					
Major skid track located as per the harvesting plan	2				
Blade not used if skid track less than 12 degrees. If more than 12 degrees then damage minimised.	2				
Track no wider than 5.5 meters at any point	2				
No damage to any buffer zone	2				
Sub-total					
Falling and wastage – Check 4 stumps and give full marks for every stump that meets the standard					
Trees have been fallen using directional falling principles ie. scarf, back cut.	1				
The choice of felling direction was suitable	1				
Stumps are as low as possible	1				
The point of cross cutting is correct and has not left a merchantable amount of timber behind	1				
Sub-total					
		TOTAL ACHIEVED FROM A POSSIBLE 100 POINTS			

Comments

Forest Officer.....Company representative.....Landowner representative.....

Glossary

Annual plan – Broad plan of harvesting for one or more years operations. General and may change at the coupe plan level.

Back cut (also back strap) – The final chainsaw cut used to fell a tree. Must be above the scarf

Bridge – A structure built across a watercourse to allow trucks and machines to move backwards and forwards. Appropriate on large water bodies or where banks are steep and/or flooding is regular..

Buffer strips or Buffer zones – Area of vegetation retained around an environmentally sensitive site. Logging is not allowed in these areas.

Conservation areas – Area protected under national or provincial legislation

Cording – Use of logs, bark or other vegetation to separate machines tracks or tyres from direct contact with the soil.

Coupe – A defined sub-unit of the logging area, usually 40-60 hectares and defined by natural features.

Coupe plan (also setup plan) – A detailed coupe level plan that is prepared before logging commences on the coupe.

Cross cut – A cut through a felled log.

Culvert – A pipe or logs that allow water to flow under a road or skid track without causing erosion. Used when water needs to be moved from one side of the road to the other.

Directional felling – The process of falling a tree in a specific direction.

Flume – Rock or other solid material placed at the end of a culvert to prevent soil erosion by water leaving the culvert.

Ford – A watercourse crossing that involves passing straight through the watercourse i.e. no construction is required. Appropriate on shallow slow flowing streams that have solid gravel bases and gentle banks.

Landing – Area where logs are stored prior to transport to the log pond.

Log pond – Main storage area for logs awaiting shipment.

Potential crop tree or PCT (also Future crop tree)– A commercially usable tree between 20 and 60cm diameter, with form that could produce a log in the future if it is allowed to grow on. These trees should be identified and where ever possible not damaged during logging.

Skid track – Track that logs are pulled along during logging.

Scarf – The first two cuts into a tree when tree falling. Removes a wedge of wood, known as the scarf, that points in the direction of fall.

Swamp – An area that has surface water that is not flowing present for 6 or more months a year

Tambu area – Site of social, cultural, historical, spiritual or archaeological significance.

Turnouts – An area where the V drain or table drain is directed downhill away from the road and onto a stable vegetated area.

V drain (also table drain) – A drain that runs beside a road.

Watercourse – Includes streams and gullies, these are areas that have permanent or periodic water flow along their beds.

Whoa boy (also cross drain or water bar) – Drain constructed across a road or skid track to divert water from the road/skid track and onto a stable forested area.