



HARVESTING

GENERAL

- ◆ If there is any doubt about an environmental issue always contact your **Timberlands Limited (TL) Manager for instructions.**
- ◆ All operations must comply with the **Work Prescription, Environmental Hazard ID Form, Council standards and resource consent conditions** and any other relevant document or instruction from **TL.**
- ◆ **Draining** of sump oil and **dumping** of fuels, oils, and containers is prohibited. All **waste oil** is to be removed from the forest.
- ◆ No chemicals, fuels or oils should be stored or mixed where a spill could enter a **watertable, stream or riparian zone.**
- ◆ **Spill kits** appropriate to the nature and quantity of fuels, oils and chemicals must be on site.
- ◆ Machinery must be clean of dirt and seeds prior to moving to another site.
- ◆ Unless instructed in writing by **TL**, operations are not to be undertaken within or adjacent to **archaeological sites.**
- ◆ If a **new archaeological site** is discovered or suspected, work in the immediate area is to stop and the site reported to **TL.** Work cannot proceed until written permission is received from **TL.**
- ◆ All **environmental incidents** are reported to **TL** as soon as they are discovered.
- ◆ Other environmental issues such as sightings of endangered species, environmental hazards, archaeological sites, etc are **reported to TL.**

Upon completion of the operations the operation manager shall ensure that the following is completed:

- ◆ Removal of all machinery, vehicles, equipment, used parts, wire rope, grease and oil containers, lunch wrappings and general refuse from the area upon completion of the operation and **leave the area in a tidy condition** to the satisfaction of the **TL Operation Manager.**
- ◆ The clean-up complies with **Council standards and resource consent conditions** and waste products and materials disposed of in an only at Council or legally approved landfill or waste disposal sites.

STREAMSIDE AND RIPARIAN MANAGEMENT

- ◆ Ensure the operations do not encroach into **riparian zones or reserve areas.**
- ◆ No vehicle should operate in the riparian zone, unless crossing at a **designated crossing.**
- ◆ Place **debris** where it will not enter riparian zones or destabilise the site.
- ◆ No tree should be **felled** into the riparian zone, unless it is for safety considerations.
- ◆ All stem **butts should be raised** when cable logging through the riparian zone.
- ◆ Harvest **slash and debris** should not be placed in a position where it may enter a waterway.
- ◆ The following streamside management policy is to be followed in all **TL** operations:

KAINGAROA STREAMSIDE MANAGEMENT POLICY - HARVESTING									
<small>Model Summary (permanent Streams)</small>									
	Plateau Streams					Escarpment Streams			
	Horizontal Dist	10m	10m	30m	30m	20m	30m	30m	30m
	Slope Angle	0-15°	STEEP BANK*	ADJACENT SLOPE 16-25°	26°+	0-15°	16-35°	36-45°	46°+
Activity:	Minimum Distance from Stream								
Machine Access	5m	5m*	30m	30m	10m	30m	No machines		
Tracks-Roads-Landings-Earthworks	30m	30m*	30m	30m	30m	30m	No tracks-roads-landings-earthworks		



WATER CONTROL

At the Pre-Operation Induction, existing water/sediment controls are to be defined and machine operators to be instructed not to interfere with them. The following water control guides are to be followed in all TL operations:

Install to “WATER CONTROL SPECIFICATIONS” below:

SLOPE (Degrees)	SPACING OF WATERBAR/CUTOFF (m)	
	Impervious Soils (e.g. Clay)	Pervious Soils (e.g. Pumice)
0 - 5°	40	30
6 - 10°	40	20
11 - 15°	30	10
16 - 20°	20	10
21 - 25°	10	5

SKIDDER TRAILS

- ◆ Adequate **water control** (as above) should be installed, including cutoffs, culverts, fluming, sediment traps and watertables.
- ◆ Water control should be directed onto **stable areas** and runoff directly into waterbodies avoided.
- ◆ **Cut-offs/waterbars** will be installed to at least 0.5m height/depth. Cut-offs will be installed at an angle of 20 to 30° across the track with a minimum gradient of 3%. Water bars will be installed across the complete width of the track.
- ◆ Sources of major **surface runoff controlled**. This includes the construction of sediment traps.
- ◆ Haul tracks should be located to extract trees with the minimum site disturbance.

FELLING AND EXTRACTION

- ◆ Avoid **felling edge trees** into and disturbance of riparian zones, reserve areas, across boundaries and other features such as roads, powerlines, fences, etc.
- ◆ Fell trees in a direction that will cause the **least soil and vegetation disturbance** when extracted.
- ◆ Most trees should be **de-limbed where felled**, except where this is not safe or debris may enter riparian zones.
- ◆ In steep erosion prone areas techniques to **maximise log suspension** should be implemented.
- ◆ Extraction should cease when **weather and site conditions** will result in unmanageable risks to environmental values.
- ◆ Where practical all **bird nests and other debris** should be left in a stable state.
- ◆ If the above is unavoidable the trees should be removed with minimal damage to the feature and the resulting debris cleaned up.