Pollution Control Act, 1970.

Licence Number: 004017
File Number: 600000/B01
In Force From: 7 August, 1997
In Force Until: 7 August, 1998

Name and Address of Licensee:
FORESTRY COMMISSION OF NSW T/A STATE FORESTS OF NSW
BUILDING 2, 423 PENNANT HILLS ROAD
PENNANT HILLS NSW 2120

Name and Address of Premises, the subject of this Licence:
FORESTRY COMMISSION OF NSW
LAND IN THE NORTHERN REGION
- NSW 2001

This licence under the Pollution Control Act 1970 ("the Act") is granted to: FORESTRY COMMISSION OF NSW T/A STATE FORESTS OF NSW ("the licensee") in respect of premises situated at: LAND IN THE NORTHERN REGION, - ("the premises") subject to the conditions specified below:

Other than in accordance with section 17B of the Act this licence is not transferable.

The conditions of this licence may be varied or revoked, or new conditions attached, at any time by notice in writing given to the licensee.

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POLLUTION CONTROL LICENCE

POLLUTION CONTROL ACT 1970

Licence in respect of section 17A(b)

In pursuance of section 17D of the Pollution Control Act 1970, the Environment Protection Authority grants the Licence set out below.

Licensee: Forestry Commission of New South Wales trading as State Forests of New South Wales (referred to in this licence as "State Forests")

Activity covered by Licence: Logging operations as defined in this licence.

Land covered by Licence: Land in the Northern Region.

Date of Licence: 8 August 1997

Date Licence expires: 7 August 1998

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DEFINITIONS

"aerial method" means aerial extraction of logs, using either a helicopter or a balloon, thereby providing complete log suspension;

"age class" means a group of compartments in a plantation, in which the trees are approximately the same age;

"authorised officer" has the same meaning as in the Clean Waters Act 1970;

"batter" means an earth slope formed during road construction either by the placing of fill material or by cutting into the natural hillside;

"batter stabilisation" means the provision of adequate vegetative, structural or mechanical measures to control erosion from road batters. Measures include provision of catch drains, topsoiling, seeding, or mulching;

"blading off" means the removal of surface soil from a snig track or road in wet conditions in order to expose a drier or firmer surface for use by machinery;

"borrow pit" means an excavation which does not form part of the road, from which fill material is extracted for road construction;

"bridge" means a structure designed to carry a road over a drainage feature by spanning it;

"buffer strip" means a strip along each side of a drainage depression in which soil disturbance during logging operations must be minimised;

"burning plan" means a plan prepared by State Forests in accordance with this licence which contains site-specific information to be used, and instructions to be followed, by State Forests employees and State Forests licensees when carrying out pre- or post- harvest burning in a compartment or age class;

"bush fire danger rating" means a method of forecasting forest fire behaviour based on the interaction of recent rainfall, drought factor, relative humidity, air temperature and wind speed. Bush fire danger rating is calculated using the McArthur Forest Fire Danger Meter Mk 5;

"cambial damage" means damage to the layer of a tree immediately inside the bark, leading to increased susceptibility to insect

attack and disease;

"causeway" means a natural or manmade crossing which enables vehicles to ford a drainage feature. The pavement of a causeway may consist of timber, gravel, rock, bitumen or concrete, or of a stable natural surface;

"Code of Logging Practice" means:

a) in the case of plantations, "Forest Practices Code - Timber Harvesting in State Forests Plantations", prepared by State Forests, July 1995; and

b) in the case of native forests, the "Code of Logging Practice, Native Forests, State Forests and Other Crown-timber Lands" prepared by State Forests, November 1993;

"compartment" means an area of forest designated for forestry management purposes, principally for the cutting and removal of timber;

"constructed snig tracks" means snig tracks that have had some form of machinery preparation prior to use, ranging from removal of leaf litter to the benching in of tracks around steep groundslopes;

"crossbank" means a hump of earth constructed across an extraction track, snig track, outrow, log dump or road to baulk the flow of water so that it can be diverted effectively;

"crossing structure" means any structure, including bridges, causeways, and culverts, designed to allow the crossing of a drainage feature;

"crown scorch" means damage to tree foliage resulting from radiant heat during a forest fire;

"culvert" means one or more adjacent enclosed conduits for conveying a drainage feature underneath a road formation;

"dispersible soils" means soils which comprise greater than or equal to 10 per cent dispersible soil, as determined using the methodology specified in Part D of Schedule 3 of this licence;

"disturbed area" means an area which is susceptible to erosion because the vegetative soil cover has been removed or altered. The disturbance may be accompanied by the mixing or removal of some soil horizons;

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"dozer/skidder method" means ground based snigging extraction;

"drainage depression" means a level to gently inclined shallow, open depression with a smoothly concave cross-section, rising to moderately inclined hillslopes, that conveys runoff only during or immediately after periods of heavy rainfall. Drainage depressions may be subject to seasonal waterlogging and spring activity, and vegetation type may indicate a wetter micro-environment than the surrounding country;

"drainage feature" means a drainage depression, drainage line, drainage plain, major water storage, watercourse or wetland;

"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 both of the following features which distinguish them from drainage depressions:

a) evidence of active erosion or deposition - e.g., gravel, pebble, rock or sand bed; or
b) an incised channel of more than 30 centimetres depth with clearly defined bed and banks;

"drainage plain" means a longitudinally extensive, level or gently inclined area of sediment, adjacent to a drainage line, built up by alluvial deposition during the current regime of the drainage line. Such areas are subject to periodic overland flow of water, may be subject to seasonal waterlogging and have vegetation types that often indicate a wetter micro-environment than the surrounding country;

"dry forest types" means forests with a single layer, having a continuous canopy with an understorey of sclerophyllous shrubs, grasses or heath, and including woodland with a discontinuous canopy;

"earthworks" means mechanical soil movement, such as snig track construction;

"effective bank height" means the minimum height of a crossbank above the outlet;

"environmental goals" means the environmental goals referred to in condition 1 (Objects of this licence);

"EPA" means the Environment Protection Authority;

"erosion" means wearing away of the land by running water,

rainfall, wind, ice or geological agent at a rate accelerated due to logging operations;

"existing roads" means roads which were in existence at the commencement of a logging operation;

"extraction track" means a track along which forwarding machinery travels;

"filter strip" means a strip of vegetation or groundcover along each side of a watercourse or drainage line retained for the purposes of:

a) retarding the lateral flow of runoff and facilitating its infiltration into the soil, thereby causing deposition and filtration of transported material, and reducing sediment movement into the stream; and

b) retarding sediment movement into the stream by minimising ground disturbance which may reduce infiltration and concentrate water; and

c) reducing the risk of erosion of the channel and bank;

"five metre zone" means the area up to five metres from the top of the bank of the incised channel of a watercourse or drainage line in a filter strip;

"forestry licence" means any licence issued by State Forests under the Forestry Act 1916 or the Forestry Regulation 1994 which authorises the holder to carry out any logging operations covered by this licence;

"forwarder method" means ground-based forwarding extraction;

"forwarding" means the carrying of logs by vehicles from the point of felling to the log dump in such a manner that the logs are fully supported off the ground;

"full supply level" means the maximum level to which water is normally stored, not including any temporary surcharge due to flooding effects;

"gravel pit" means a pit formed by extraction of gravel for the purposes of road construction;

"groundcover" means any material which covers the ground surface and has the effect of reducing erosion. Groundcover may include vegetation, leaf litter, tree debris, gravel, rock, straw, mulch,

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changed. Felling of trees where these trees will be extracted from the next or age class using ground-based harvesting" means a harvesting method where the log extraction method used is either the "dozer/skidder" method or the "forwarder" method;

forwarder or skidder or a winch attached to ...

✓ **"groundslope"** means the angle of inclination of the ground surface expressed in degrees;

gully 730cm is gully.

"harvesting plan" means a plan prepared by State Forests in accordance with this licence which contains site-specific information to be used, and instructions to be followed, by State Forests employees and State Forests licensees when cutting and removing timber from land or when carrying out pre- or post-harvest burning in a compartment or age class;

"hilead method" means ground cable extraction where logs are dragged without suspension;

"land in the Northern Region" means the land designated as at 10 August 1992 by State Forests as being within the Northern Region and as shown on the map entitled "State Forests of New South Wales Regions and Districts";

"log dump" means areas where forest products are assembled for processing and sorting prior to loading onto a truck;

"log extraction method" means the way in which logs are extracted from the forest and includes the dozer/skidder method, the forwarder method, the hilead method, the skyline method, and the aerial method;

"log landing" has the same meaning as "log dump";

"logging operations" means:

a) the cutting and removal of timber from land; or
b) burning associated with the cutting and removal of the timber; or
c) the construction or upgrading of access roads to enable or assist the cutting and removal of the timber; or
d) the maintenance and care of the roads, logged areas, log dumps and snig tracks associated with the cutting and removal of the timber;

"low severity fire" means a fire planned for, and conducted during, fuel and weather conditions which will result in:

a) a controlled reduction in fuel levels, facilitating subsequent fuel management;
b) minimal cambial damage and minimal crown scorch to retained trees;
c) minimal soil exposure on undisturbed areas, generally less than 15 per cent;

"major water storage" means a dam constructed for public irrigation or the supply of town water;

"mitre drain" means a drain used to conduct runoff water from the shoulders of a road to a disposal area away from the road alignment;

"moist forest types" means forests with a scattered understorey of small trees and vines, and with a mesomorphic shrub layer and ground herbs;

"nett logged area" means the portion of the management unit (coupe or compartment) which is available for harvesting, excluding filter strips, other retained areas and roads;

"1994/95 licence" means the licence dated 8 August 1994 issued by the EPA to State Forests in respect of logging operations carried out on land in the Northern Region;

"1994/95 licence period" means the period of the licence from 8 August 1994 to 7 August 1995 inclusive;

"1995/96 licence period" means the period of the licence from 8 August 1995 to 7 August 1996 inclusive;

"1996/97 licence period" means the period of the licence from 8 August 1996 to 7 August 1997 inclusive;

"1997/98 licence period" has the same meaning as "this licence period";

"outlet" means the point at which water discharges from a:

a) river, creek or other flowline; or
b) lake; or
c) tidal basin or drainage depression; or
d) pipe, channel, dam, or other hydrologic structure;

"outrow" means a corridor of trees felled in a plantation in order to allow the passage of processing, snigging or forwarding machinery and vehicles in the performance of their functions;

"peak flow" means the maximum flow which occurs during a flood of a specified average recurrence interval. (Refer to Australian Rainfall and Runoff, A guide to flood estimation, D. H. Pilgrim 1987; and State Forests' Waterway Calculations for Culvert Design in Forest Catchments);

"plantation" means a forest established by the planting of native species or exotic species and managed intensively for timber production;

"pollution" has the same meaning as in the Clean Waters Act 1970;

"~~pre- or~~ post- harvest burning" means burning associated with the cutting and removal of timber and, in relation to post-harvest burning, is burning carried out within 18 months of a logging operation.

"prescribed stream" means a river, creek, effluent or lake within the meaning of section 21B(1) of the Soil Conservation Act, 1938;

"pulplog" means logs suitable for the manufacture of reconstituted products including paper and panel board;

"rainfall erosivity" means a measure of the ability of rainfall to cause erosion. Rainfall erosivity is calculated by multiplying rainfall energy and the maximum 30 minute intensity for each storm, as described in Rosewell and Turner, 1992 (Rainfall erosivity in NSW, CaLM Technical Report No. 20ISSN 1038-2629);

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"rehabilitate" means to return an area of land or a road or track surface to a stable condition. This may involve reshaping the land, spreading topsoil, constructing banks, revegetating or employing a combination of these;

"relief pipe" means a pipe used to direct water from a table drain and under the road;

"revegetate" means to establish an effective vegetative groundcover by either natural regeneration or sowing with a seed and fertiliser mixture, in order to prevent soil erosion;

"rill" means a form of erosion that is characterised by small channels which have cut into the surface of a slope;

"road" means any route used for the vehicular access to, and the transport of logs from, the point of loading within the compartment or age class;

"road drainage" means any structure designed to direct water

along, across or underneath a road, and includes catch drains, mitre drains, relief pipes, rollover banks, spoon drains, and table drains;

"road ~~formation~~ prism" means that part of the road intended for use by traffic. This includes the road shoulders but does not include table drains, if present, or batters;

"roading area" means land which is disturbed by the construction of access roads necessary to enable or assist the cutting and removal of timber;

"roading plan" means a plan prepared by State Forests in accordance with this licence which contains site-specific information to be used, and instructions to be followed, by State Forests employees and State Forests licensees when constructing roads in a roading area;

"rollover crossbank" means a crossbank constructed with a smooth cross-section and gentle batters, and which is well compacted to allow permanent vehicular trafficability;

"rollover drain" has the same meaning as "rollover crossbank";

"runoff" means that portion of the precipitation falling on a catchment area that flows from the catchment past a specified point;

"sawlog" means logs suitable for processing through a sawmill into solid timber products;

"sediment trap" means a structure or device designed to collect soil sediment that is being transported by runoff;

"SEMGL" means the "Standard Erosion Mitigation Guidelines for Logging in New South Wales" prepared by the Department of Conservation and Land Management, 5 March 1993 version;

"skyline method" means suspended cable extraction where at least partial log suspension is achieved;

"slash" means tree debris resulting from a logging operation;

"snig track" means a track along which snigging equipment travels;

"snigging" means the pulling of logs, either wholly on the ground or partly supported from the point of felling to the log dump. Wheeled or tracked vehicles are mostly used for this purpose;

"soil erodibility" means the susceptibility of a soil to erosion due to rainfall and the surface runoff of water;

"spoil" means excess soil, rock or other material excavated during logging operations;

"spoon drain" means a drain with a semi-circular cross-section and which has no associated ridge of soil. Its capacity is solely defined by the excavated channel dimensions;

"stable" describes the physical condition of a parcel of land or flowline which experiences no appreciable soil erosion, or sedimentation which is likely to affect water quality, and is thus adequately protected from erosive agents. The term is also used to describe a soil conservation or hydraulic structure which is functioning effectively and is not adversely affected by erosive agents;

"stable outlet" means an outlet which is adequately protected from erosion and is stable under current conditions;

"stabilisation" means the provision of adequate vegetative, structural or mechanical measures to prevent or control erosion;

"State Forests licensee" means the holder of any licence issued by State Forests under the Forestry Act 1916 of the Forestry Regulation 1994 which authorises the holder to carry out any logging operation covered by this licence;

"substantial debris" means logging debris greater than 100 millimetres in diameter and three metres in length;

"supervising forest officer" means a State Forests employee who is authorised by State Forests to supervise logging operations;

"swamp" means a vegetated depression with a seasonal or permanent water table at or slightly above the floor of the depression;

"table drain" means the side drain of a road adjacent to the shoulders of the road;

"this licence" means the licence dated 8 August 1997 issued by the EPA to State Forests in respects of logging operations carried out on land in the Northern Region;

"this licence period" means the period of the licence from 8 August 1997 to 7 August 1998 inclusive;

"timber" means sawlog or pulplog;

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"track drainage structure" means any structure designed to direct water across an extraction track or snig track surface, including crossbanks, hay bales, sand bags, and slash;

"trackscavator" means a self-propelled, tracked tractor, commonly fitted with log forks, used for snigging and loading logs;

"tree" means a perennial plant with a self-supporting woody main stem or trunk which usually develops woody branches, and includes a sapling, shrub or scrub;

"tree debris" means logs, branches or crowns of trees generated by the felling of those trees for road construction and maintenance.

"walk-over" means timber extraction or snigging without removing or unduly disturbing the existing natural groundcover; that is, where no snig track construction or blading is required;

"water pollution hazard" means the potential for water pollution to occur in an area as a result of logging operations, and takes into account rainfall erosivity, soil erodibility (and dispersibility), slope, groundcover and intensity of operations;

"watercourse" means a channel, having a distinct bed and banks, down which surface water flows on a permanent or semi-permanent basis or, at least, for a substantial time under natural conditions after periods of heavy rainfall within its catchment;

"wetland" means a vegetated depression with a seasonal or permanent water table at or slightly above the floor of the depression. The vegetation type in a wetland typically indicates a wetter micro-environment than the surrounding country;

"windthrow" means trees blown over by wind. Windthrow occurs naturally in both native forests and plantations, but often follows harvesting operations which open up the forest, allowing more wind to penetrate.

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PART 1 - INTRODUCTION

Objects of this licence

1. The primary object of this licence is to require practical measures to be taken to protect the aquatic environment from water pollution caused by logging operations.

   In formulating this licence, the environmental goals that have been adopted by the EPA for all forests in NSW are protection of aquatic ecosystems and primary contact recreation.

   These goals are defined in the "Australian Water Quality Guidelines for Fresh and Marine Waters" (Australian and New Zealand Environment and Conservation Council, 1992). The goals were identified as applying to all forested catchments in Australia by the Joint Australian and New Zealand Environment and Conservation Council - Ministerial Council for Forestry Fisheries and Aquaculture National Forest Policy Statement Implementation Sub-Committee.

   For areas where the quality of water extracted for agricultural water supply or for drinking water supply may be affected by logging operations upstream, the EPA has adopted these environmental values as additional goals for protection.

   The secondary object of this licence is to require monitoring of the effectiveness of the licence conditions in achieving the relevant environmental goals.

Pollution not regulated by this licence

2. Nothing in this licence authorises the pollution of waters unless the pollution occurs:

   a) as a result of the carrying out of logging operations; and
   b) as a result of and despite compliance with a condition of this licence.

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PART 2 - OPERATING CONDITIONS THAT APPLY TO LOGGING OPERATIONS COMMENCED PRIOR TO 11 APRIL 1995

Division 1

Application of Part

3. The conditions of this Part apply to logging operations commenced prior to 11 April 1995.

Conditions for use with harvesting plans or roading plans

4. State Forests must carry out logging operations in accordance with the "Conditions For Use With Harvesting Plans, Based on SEMGL (1993)", July 1993, complied by State Forests.

Site-specific conditions

5. State Forests must comply with any special site-specific conditions specified in writing by the EPA concerning additional water pollution control measures to be implemented in carrying out logging operations.

Compliance with Code of Logging Practice

6. Logging operations must be carried out in accordance with the relevant provisions of the Code of Logging Practice. The relevant provisions of the Code of Logging Practice are those which will prevent or minimise the pollution of waters.

Logging operations on protected lands

7. Any tree which is located on land that is situated within, or within 20 metres of, the bed or bank of any part of a river or lake proclaimed under Section 21 AB (i)(b) of the Soil Conservation Act 1938 or otherwise shown in some distinctive manner on any map of protected land, must not be destroyed, lopped or topped without prior written authority of the EPA and the Commissioner of Soil Conservation.

Storage and handling of fuels

8.1. Fuels oils must be stored and handled in compliance with the requirements of AS1940 - "The storage and

handling of flammable and combustible liquids.".

8.2. Mobile fuel tanks must not be located within, or within 10 metres of, a filter strip or protection strip.

8.3. The transportation and storage of fuel and the refuelling of equipment must be carried out in a manner which prevents the pollution of waters.

Storage and handling of chemicals

9. Chemicals and hazardous substances must be stored and handled in compliance with the requirements of the Control of Workplace Hazardous Substances - National Model Regulation and National Code of Practice, June 1991, published by Worksafe Australia.

Handling of plant and equipment, other substances etc

10. Plant and equipment and other substances and materials on the site of logging operations must be handled, operated, moved, maintained and stored in a manner which prevents the pollution of surface and ground waters.

Servicing and repairs

11. All servicing and repairs of plant and equipment must be carried out in a manner which prevents the pollution of surface and ground waters.

Waste disposal (other than forest debris)

12.1. Litter must not be buried or otherwise unlawfully deposited in a compartment, age class or area to be roaded.

12.2. The general work area must be kept free of waste generated during logging operations.

12.3. Waste must be properly and efficiently stored until it can be removed from the forest.

12.4. Waste stored for removal must be removed within seven days after completion of logging operations in the compartment, age class or roading area.

12.5. Waste must be removed from the forest and disposed of in a proper and efficient manner at an

appropriate facility.

12.6. In this condition, "waste" includes tyres, drums, wire rope, sump oil and litter, but does not include forest debris.

Burning

13.1. Pre- or post-harvest burning must be carried out in a manner that to the greatest extent practicable:

(a) avoids burning of filter and protection strips; and
(b) minimises burning of sensitive drainage depression areas; and
(c) maximises the retention of ground cover.

13.2. Deliberate or negligent burning of filter and protection strips must not occur.

Bark

14.1. Bark removal operations must not be carried out within, or within 10 metres of, any filter strip or protection strip.

14.2. Bark must be dispersed away from the log dump to prevent significant accumulations.

14.3. Stripped bark must not be placed within any filter strip or protection strip.

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PART 3 - OPERATING CONDITIONS THAT APPLY TO LOGGING OPERATIONS COMMENCED ON OR AFTER 10 APRIL 1995

Division 1 - Conditions that apply

Application of Part

15. Condition 16 applies to logging operations commenced during the period of this licence.

No logging until licence varied

16. Logging operations may only commence after both the following have occurred:

a) in accordance with condition 17, State Forests has prepared a harvesting plan or roading plan which assigns one or more water pollution hazard category to the relevant compartment, age class or roading area, determines the proportion of dispersible soil present, and includes any necessary special conditions; and

b) in accordance with condition 21, the EPA has varied this licence by inserting in Schedule 1 a description of the compartment, age class or roading area, the corresponding water pollution hazard categories, the proportion of dispersible soil, any special conditions applicable to the logging operation, the representative water quality monitoring site, and the date of the licence variation.

Division 2 - Method for obtaining a licence variation to commence logging operations

Application of Division

16A. The conditions in this Division apply to all logging operations commenced during this licence period

Preparation of harvesting plans and roading plans

17.1. State Forests must prepare a harvesting plan and, if applicable, a burning plan, for every

compartment or age class and a roading plan for every roading area in which it proposes to commence logging operations.

17.2. Each plan must include information relating to the prevention of soil erosion and water pollution, including the information specified in Schedule 2.

Identifying water pollution hazard categories and any special conditions

18.1. In the harvesting plan or roading plan, State Forests must specify the water pollution hazard categories, proportion of dispersible soil present, and any special conditions that will apply in accordance with this condition.

18.2. The water pollution hazard categories and proportion of dispersible soil must be identified using the methodologies contained in Schedule 3. The conditions associated with the identified categories and soil types must then be adopted and complied with. These conditions are contained in Schedule 4.

18.3. In identifying the categories and determining the proportion of dispersible soil, State Forests must consider whether, in relation to that compartment, age class or roading area, the conditions associated with those categories or dispersible soils will be capable of achieving the objects of this licence.

18.4. If the conditions are not capable of achieving the objects of this licence, State Forests must formulate special site-specific conditions aimed at achieving them.

18.5. All calculations used in determining the categories and detecting dispersible soils must be held on file in the district office of State Forests and produced on request to an authorised officer.

18.6. The harvesting plan or roading plan must also indicate the water quality monitoring site that is representative of the logging operation to be carried out.

Guidance notes to support water pollution hazard conditions

19. Moved to condition 25A.

Submission of harvesting plan or roading plan to EPA

20. State Forests must forward to the EPA for its consideration three copies of the harvesting plan or roading plan, so that they are received by the EPA at least 41 days prior to the proposed commencement date of logging operations, or within such shorter period as the EPA may agree to in writing.

Variation of licence

21. If after its consideration of the harvesting plan or roading plan, the EPA is satisfied with the water pollution hazard categories, proportion of dispersible soil, any special conditions and the water quality monitoring site noted in the harvesting plan or roading plan, the EPA may issue a written notice to State Forests under section 17D(3) of the Pollution Control Act 1970 varying this licence by inserting into Schedule 1:

a) a description of the compartment, age class or roading area; and
b) the corresponding water pollution hazard categories; and
c) the proportion of dispersible soil; and
d) any special conditions; and
e) the representative water quality monitoring site; and
f) the date of the licence variation.

Division 2A - Logging operations approved before, but commenced after, 8 August 1996

21A. Condition 21B applies to logging operations commenced during the period of this licence but in relation to which, the licence was varied before 8 August 1996, ie. prior to the date of this the EPA has varied the 1995/96 licence pursuant to condition 16(b) of the 1995/96 licence by inserting into Schedule 1 of the 1995/96 licence a description of a compartment, age class or roading area.

21B. Within 7 days of the commencement of those logging operations, State Forests must submit to the EPA amendments to the harvesting plan or roading plan for those operations, which reflect the requirements of Schedules 3 and 4 of this licence.

Pollution Control Act, 1970.

Licence Number: 004017 **In Force Until:** 7 August, 1998

Division 3 - Miscellaneous

Application of Division

22. The conditions of this Division apply to logging operations commenced on or after 11 April 1995 and carried out during the period of this licence.

Compliance with conditions

22A. In carrying out logging operations in the compartment, age class or roading area, State Forests must comply with:

(a) if logging operations were commenced on or after 11 April 1995 and before the date of the 1995/96 licence pursuant to a variation under condition 11(3)e of the 1994/95 licence and the relevant conditions of Schedule 4 of this licence.

(b) if logging operations commenced before the date of this licence pursuant to a variation under condition 16 (b) of the 1995/96 licence, the relevant conditions of Schedule 1 of the 1995/96 licence and the relevant conditions of Schedule 4 of this licence.

(c) if logging operations commenced before the date of this licence pursuant to a variation under condition 16 (b) of the 1996/97 licence, the relevant conditions of Schedule 1 of the 1996/97 licence and relevant conditions of Schedule 4 of this licence.

(d) if the operations were commenced after the date of this licence, with the relevant conditions of Schedules 1 and 4 of this licence.

Conditions to be held at compartment, age class or roading area

23. State Forests must ensure that a copy of each of the relevant Schedules referred to in Condition 22A, and the harvesting plan or roading plan is held at the relevant compartment, age class or roading area during the logging operation.

Variation of harvesting plans or roading plans

24.1. If during a logging operation State Forests considers that any condition of a harvesting plan

or roading plan should be varied, State.Forests must forward a written request to the EPA, providing the following information:

a) the condition in the harvesting plan or roading plan which it is proposed to vary;
b) the physical area within the compartment, age class or roading area in relation to which the condition variation is proposed;
c) the reasons why the condition variation is being proposed; and
d) an explanation as to how the licence variation is expected to maintain or decrease the potential for water pollution.

24.2. If after considering the information supplied in 24.1 the EPA is satisfied that variation of the condition is consistent with Schedule 4 of this licence, it may vary the condition by written notice under section 17D(3) of the Pollution Control Act.

24.3 This condition is subject to condition 24A.

Minor Departures from harvesting plans or roading plans

24A.1 Subject to condition 24A.2, in carrying out any logging operations, State Forests may depart from the requirements of any condition of a harvesting plan or roading plan if the departure from the condition:

(a) is minor; and
(b) is consistent with Schedule 4 of this licence; and
(c) will result in the same or a decreased risk of water pollution than if the departure did not occur; and
(d) does not relate to any drainage feature protection conditions.

24A.2 State Forests may only depart from a condition of a harvesting plan or roading plan if, before departing from the condition, it records the following matters on the plan:

(a) the condition from which State Forests will depart; and
(b) the physical area within the compartment in relation to which the departure will occur; and
(c) the reasons why the departure is necessary; and

(d) the reasons why the departure will be minor; and
(e) how the departure will decrease the risk of water pollution; and
(f) how the departure will be consistent with Schedule 4 of this licence.

24A.3 A copy of the plan on which the matters in condition 24A.2 have been recorded must be:

(a) held at the relevant compartment, age class or roading areas during the logging operation; and

(b) consistent with condition 56 of this licence, made available at the relevant district office for inspection by any person.

24A.4 A copy of the matters required by condition 24A.2 to be recorded must be forwarded to the EPA on the first day of the month following:

(a) the day on which the departure occurred or;
(b) if the departure occurred over a longer period than one day, the day on which State Forests commenced to depart from the condition.

Recording of dates of commencement and completion of logging operations

25. The supervising forest officer must record and retain in the district office the dates of commencement and completion of the following:

(a) logging operations on each log dump, where constructed drainage on snig or extraction tracks servicing that dump is required to comply with conditions 106-108 of Schedule 4 of this licence; and
(b) road construction in accordance with Part F of Schedule 4 of this licence; and
(c) construction of drainage feature crossings; and
(d) pre- or post-harvest burning; and
(e) temporary cessation of logging operations; and
(f) logging operations in the compartment, age class or roading area.

Guidance notes to support water pollution hazard conditions

25A.1. State Forests must consult with the EPA over the continued development of the draft guidance notes

that were submitted to the EPA on 30 April 1995 pursuant to the 1994/95 licence.

25A.2. From the date on which the guidance notes are approved by the EPA in writing, State Forests must use the guidance notes to interpret the conditions contained within Schedule 4 and when preparing harvesting plans and roading plans.

Pollution Control Act, 1970.

Licence Number: 004017 **In Force Until:** 7 August, 1998

PART 4 - GENERAL OPERATING CONDITIONS

Application of Part

26. The conditions in this Part apply to all logging operations carried out during this licence period, irrespective of when they commenced.

Activities must be carried out competently

27. All logging operations to which this licence applies must be carried out in a competent and reasonable manner.

Timber Industry (Interim Protection) Act 1992

28. Nothing in this licence permits logging operations in contravention of the Timber Industry (Interim Protection) Act 1992.

Licences under Forestry Act 1916

29.1. Any licence issued by State Forests under the Forestry Act 1916 of the Forestry Regulation 1994 which authorises the holder to carry out any logging operations covered by this licence must be issued subject to conditions which require the holder of the licence to comply;

(a) for operations commenced prior to 11 April 1995, conditions 4 to 14 inclusive, and 27; and

(b) for operations commenced on or after 11 April 1995, conditions 22 and 27;

in the same way that State Forests must comply with those conditions.

29.2. State Forests must monitor compliance with those conditions.

Relationship of this licence to other documents

30.1. Where there is a conflict between the conditions of this licence and the documents with which this licence requires compliance, the conditions of this licence prevail.

30.2. Where there is a conflict between the conditions of

this licence and the conditions of a licence issued to State Forests under the National Parks and Wildlife Act 1974, State Forests must consult with the EPA and the National Parks and Wildlife Service to resolve the conflict.

30.3. Where there is a conflict between the conditions of this licence and the conditions of a determination of an environmental impact statement issued to State Forests under the Environmental Planning and Assessment Act 1979, State Forests must consult with the EPA and the Department of Urban Affairs and Planning to resolve the conflict.

30.4. Where there is a conflict between the conditions of this licence and the conditions of a decision made by the Regulatory and Public Information Committee (RaPIC) under the Timber Industry (Interim Protection) Amendment Act 1994, State Forests must consult with the EPA and RaPIC to resolve the conflict.

Responsible employees

31.1. State Forests must authorise at least two of its senior employees to:

a) speak on behalf of State Forests; and
b) provide any information or document required under this licence.

31.2. State Forests must authorise those persons, and inform the EPA of the names and telephone numbers of those authorised persons, by 22 August 1997.

31.3. State Forests must inform the EPA of any change in the information provided under this condition within 14 days of the change.

31.4. Any person authorised under this condition by State Forests must be readily contactable on the person's nominated telephone number during regular working hours.

Pollution Control Act, 1970.

Licence Number: 004017 **In Force Until:** 7 August, 1998

PART 5 - TRAINING AND ACCREDITATION

Application of Part

32. The conditions in this Part apply throughout this licence period.

Continuation of training program

33.1. State Forests must continue to develop the training program, development of which commenced during the 1994/95 licence period, to the point where VEETAB accreditation has been obtained.

33.2. The operators' course, supervisors' course and harvest planners' course must be provided on a regular basis by a training organisation approved in writing by the EPA.

33.3. State Forests must advise the EPA in writing of the date on which each course is finalised and is first formally offered by a training organisation.

Pollution Control Act, 1970.

Licence Number: 004017 **In Force Until:** 7 August, 1998

PART 6 - MONITORING AND RESEARCH

Application of Part

34. The conditions in this Part apply throughout this licence period.

Specification of water quality monitoring

35.1. State Forests must monitor water quality in representative areas selected in consultation with the EPA to assess the impacts of proposed logging operations on water quality.

35.2. In the selected representative native forest areas, monitoring must occur before, during and following proposed logging operations.

35.3. State Forests must obtain the written approval of the EPA in relation to the monitoring strategies for monitoring in the selected, representative plantations.

35.4 State Forests must indicate on each harvesting plan or roading plan the water quality monitoring site which is representative of the logging operation in that compartment, age class or roading area.

Water quality monitoring locations

36.1. State Forests must reassess the locations of representative water quality monitoring sites for logging operations in native forests approved by the EPA pursuant to condition 43(2) of the 1994/95 licence.

36.2. State Forests must consult with the EPA when new logging schedules are developed to determine whether additional monitoring sites are required.

36.3. revoked.

36.4. State Forests must not commence any water quality monitoring until it has obtained the written approval of the EPA in relation to the number and locations of monitoring sites.

36.5. State Forests must maintain relevant maps of forest

areas being monitored for water quality.

Water quality monitoring protocols

37.1. Any water quality monitoring required by this licence must be carried out in accordance with protocols approved by the EPA in writing before any monitoring is conducted.

37.2. Parameters which must be monitored are as follows:

(a) turbidity;
(b) conductivity;
(c) pH;
(d) stream height;
(e) rainfall;
(f) temperature;
(g) total nitrogen;
(h) total phosphorus; and
(i) cations.

37.3. State Forests must obtain analyses of the water quality samples collected by using a laboratory which is NATA-registered for the tests being performed.

37.4. State Forests must analyse the water quality data using methodologies approved in writing by the EPA.

37.5. Monitoring results must be evaluated by comparison with all four environmental goals specified in condition 1 of this licence.

Post-operational audits

38.1. State Forests must carry out compliance audits of logging operations undertaken in the representative areas in which water quality monitoring occurs.

38.2. These audits must be performed immediately following the completion of harvesting or roading, then immediately following any post-harvest burn (if applicable).

38.3. The audits must cover compliance with all relevant conditions of the licence, and the effectiveness of the operational controls required by the licence.

38.4 State Forests must also monitor regeneration of

groundcover at six monthly intervals.

Research catchments

39.1. State Forests must notify the EPA if it is proposed to cease conducting research in any of State Forests' existing research catchments within the land to which this licence relates.

39.2. State Forests must provide the EPA with a copy of any publications generated during this licence period as a result of the research conducted.

Research to support water pollution hazard assessment process

40. State Forests must consult with the EPA over State Forests' continued development of the research program to validate and refine the "cover factor" values and compartment recovery rates used in Part A of Schedule 3 of this licence.

Conditions aimed at devising a process for managing filter and protection strips in plantations

41.1. State Forests must continue to consult with the EPA in the further development of the guidelines for managing filter strips, submitted to the EPA on 17 January 1996 pursuant to 1995/96 licence.

41.2. revoked.

41.3. revoked.

41.4. revoked.

41.5. revoked.

41.6. If the guidelines are approved by the EPA, they must be implemented by State Forests from the date on which they are approved by the EPA.

Licence Number: 004017 **In Force Until:** 7 August, 1998

PART 7 - REPORTING

Application of Part

42. The conditions in this Part apply throughout this licence period.

Records

43.1. All records or registers required to be kept by this licence must be kept in a legible form.

43.2. The records must be kept for at least three years after the monitoring or event to which they relate took place.

43.3. The records must be produced in a legible form to any officer of the EPA who asks to see them.

Notification of commencement of logging

44. State Forests must advise the EPA, by the first day of each month during this licence period, of all logging operations which are underway at that date or which are proposed to commence within that month.

Water quality monitoring

45.1. Data collected as a result of water quality monitoring required by this licence must be submitted to the EPA in a standardised format approved by the EPA, including summaries of the data as required by the EPA.

45.2. Three stand-alone reports must be submitted to the EPA as follows, in a standardised format approved by the EPA:

(a) at the end of the monitoring carried out prior to the logging operation commencing (that is, the "pre-operational monitoring period"), a report containing an interpretation of all the "pre-operational" data;

(b) at the end of the monitoring carried out during the logging operation (that is, the "operational monitoring period"), a report containing an interpretation of all the "operational" data, and a comparison to the "pre-operational" data; and

(c) at the end of the monitoring carried out after the logging operation (that is, the "post-operational monitoring period"), a report containing an interpretation of all the "post-operational" data, and an analysis of the entire monitoring operation at that site. This analysis must contain an assessment of the effectiveness of the licence conditions in minimising water pollution, and in achieving the environmental goals specified in condition 1 of this licence.

45.3. revoked.

45.4. An audit report must be prepared after each audit required under condition 38 of this licence, and submitted to the EPA within 30 days of the audit being carried out. The report must be presented in a standardised format agreed to by the EPA that highlights any areas of non-compliance with the licence conditions.

Cover factor research

46. From the date on which the cover factor research program referred to in condition 40 is approved by the EPA in writing, State Forests must implement the program and provide the EPA with the results of the program according to an agreed reporting protocol.

Immediate reporting of pollution incidents

47.1. State Forests must notify the EPA if it becomes aware of any water pollution which may have been caused by logging operations, and makes, or is likely to make those waters:

a) noxious or poisonous; or
b) harmful or potentially harmful to the health, welfare, safety or property of human beings; or
c) poisonous, harmful or potentially harmful to animals, birds, wildlife, fish or other aquatic life; or
d) poisonous, harmful, or potentially harmful to plants or other vegetation.

47.2 State Forests must notify the EPA as soon as practicable and, in any event, within 24 hours, of becoming aware of the pollution.

47.3. The pollution event must be reported by telephoning:

a) the relevant regional EPA office on the telephone numbers specified in Schedule 5 of this licence, if the event is reported during office hours;
b) the Waters and Catchments Branch of the EPA on the telephone number specified in Schedule 5 of this licence if the event is reported during office hours but the regional office is closed or unattended; or
c) the EPA's Pollution Line on the telephone number specified in Schedule 5 of this licence, in the event that an EPA officer cannot be contacted at either of those numbers.

47.4. State Forests is taken to be aware of the pollution if an employee of State Forests at or above the rank of supervising forest officer is aware of the pollution.

Written report of pollution

48.1. The EPA may direct that State Forests prepare a written report of any water pollution event required by condition 47 to be notified to the EPA.

48.2. Should the EPA request a written report, State Forests must make all reasonable inquiries in relation to the event and supply the report to the EPA within 21 days of the request, or within such shorter time as may be specified in the request.

48.3. The EPA may require the report to include full details known to State Forests (or those details that may be discovered after reasonable inquiry undertaken by State Forests) of the following:

a) cause, time, location and duration of the event;
b) the time at which State Forests became aware of the pollution incident;
c) how State Forests became aware of the pollution incident;
d) the name, address and telephone number of every employee of State Forests who witnessed the event;
e) the name, address and telephone number of every other person (of whom State Forests is aware) who witnessed the event;
f) the type, volume and concentration of pollutants;

g) any remedial action taken by State Forests or any other person in relation to the event;

h) any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and

i) any other details that the EPA may require.

48.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by State Forests. State Forests must provide such further details to the EPA within the time specified in the request.

Other written reports

48.5A. The EPA may direct State Forests to provide a written report on any matter relating to State Forests' compliance with any condition of this licence.

48.5B. Should the EPA request such written report, State Forests must supply the report to the EPA within 21 days of the request, or within such shorter time as may be specified in the request.

48.5C. The EPA may make a written request for further details in relation to any such report if it is not satisfied with the report provided by State Forests. State Forests must provide such a further report to the EPA within the time specified in the request.

Pollution register

49.1. Each State Forests district office must keep a legible register of all water pollution required to be notified to the EPA under this licence.

49.2. The register must contain details of each instance of water pollution and action taken by State Forests in response to that pollution, including the items of information listed in condition 48.3.

49.3. Each register must be retained at the relevant State Forests district office for at least 3 years from the date of the last entry in the register and must be produced on request by an authorised officer.

Complaints register

50.1. Each State Forests district office must keep a legible register of all complaints received by State Forests alleging water pollution which may have been caused by logging operations within that district, or alleging licence breaches which may have occurred during logging operations within that district.

50.2. The register must include details of the:

a) date and time of the complaint;
b) method by which the complaint was lodged (telephone, letter, etc.);
c) name, address, and telephone number of the complainant and/or a further contact person;
d) name of the person receiving the complaint;
e) precise location of the alleged pollution incident and/or licence breach;
f) waters said to be polluted or potentially polluted;
g) substance causing pollution or potential pollution and the amount in which it was present (if known); and
h) action taken by State Forests in relation to the complaint, including any follow-up contact with the complainant.

50.3. The register must be retained at the relevant State Forests district office for at least three years from the date of the last entry in the register and must be produced on request to an authorised officer.

Fortnightly reporting

51. Supervising forest officers must monitor and provide to district foresters written fortnightly reports in relation to:

(a) discretionary variations made by authorised State Forests officers during a logging operation that are allowed under a harvesting plan or roading plan and that are likely to impact upon water quality; and
(b) remedial action taken in response to the pollution events required to be notified to the EPA under

condition 47 and any measures taken or to be taken to prevent or mitigate against recurrence of such events.

Annual reporting for 1997/98 licence period

52.1. State Forests must produce to the EPA an annual report for the 1997/98 licence period, in relation to land to which the 1997/98 licence applied.

52.2. The annual report must be forwarded to the relevant EPA Regional Office and to the Waters and Catchments Branch in Bankstown no later than 30 days after the expiry of the period covered by this licence.

52.3. The annual report must relate to this licence period and contain summaries of all:

(a) entries made in the pollution registers and complaints registers required by conditions 49 and 50;
(b) fortnightly reports required by condition 51;
(c) water quality monitoring and results analysis required by conditions 35, 37 and 45, including evaluation against the environmental goals specified in condition 1;
(d) post-operational audits required by condition 38; and
(e) improvements to or developments in best management practice employed in logging operations carried out under this licence.

52.4. The annual report must also examine and discuss the efficacy of the conditions of this licence in protecting water quality.

Annual reporting for 1996/97 licence period

53.1. State Forests must produce to the EPA an annual report for the 1996/97 licence period, in relation to land to which the 1996/97 licence applies.

53.2. The annual report must be forwarded to the relevant EPA Regional Office and to the Waters and Catchments Policy Section in Bankstown no later than 8 September 1997.

53.3. The annual report must relate to the 1996/97

licence period and contain summaries of all:

(a) entries made in the pollution registers and complaints registers required by conditions 49 and 50;
(b) fortnightly reports required by condition 51;
(c) water quality monitoring and results analysis required by conditions 35, 37 and 45, including evaluation against the environmental goals specified in condition 1;
(d) post-operational audits required by condition 38; and
(e) improvements to or developments in best management practice employed in logging operations carried out under the 1996/97 licence.

53.4. The annual report must also examine and discuss the efficacy of the conditions of the 1996/97 licence in protecting water quality.

Certificate of compliance for the 1997/98 licence period

54. The annual report for the 1997/98 licence period required by this licence must be accompanied by a certificate approved by the EPA and signed by an employee of State Forests, not below the rank of Regional General Manager or General Manager Research Division, certifying:

Monitoring conditions

(a) whether all monitoring required by this licence has been carried out;
(b) if all the monitoring has not been carried out, what monitoring has not been carried out and the reasons why the monitoring has not been carried out;
(c) whether all the monitoring data required to be reported to the EPA by this licence have been reported to the EPA;
(d) whether all the monitoring data were reported within the time specified by this licence;
(e) if all the monitoring data have not been reported to the EPA, or have not been reported within the time specified, the reasons why the monitoring data were not so reported;
(f) whether all the monitoring data reported to the EPA were derived from monitoring carried out in accordance with this licence;
(g) if any of the monitoring data reported to the EPA

were not derived from monitoring carried out in accordance with this licence, what monitoring data were not so derived and the reasons why the monitoring data were not so derived;

Pollution event reporting conditions

(h) whether all pollution incidents required to be reported under this licence have been reported;
(i) whether all those pollution events were reported within the time specified by this licence;
(j) if all the pollution events have not been reported to the EPA, or have not been reported within the time specified, the reasons why the pollution events have not been so reported;
(k) whether the contents of any report concerning a pollution event are correct and are consistent with the requirements of this licence;
(l) if the contents of the report to the EPA are not correct or are not consistent with the requirements of this licence, what parts of the contents are not correct or are not consistent and the reasons why the incorrectness or inconsistency occurred;

Compliance conditions

(m) whether every condition of this licence has been complied with; and
(n) if one or more conditions have not been complied with, in relation to each such condition:

(i) the nature of the non-compliance; and
(ii) the reasons for the non-compliance; and
(iii) any action taken to prevent, control or mitigate the non-compliance; and
(iv) any action that has been or will be taken to prevent a recurrence of the non-compliance.

Certificate of compliance for the 1996/97 licence period

55. The annual report for the 1996/97 licence period required by this licence must be accompanied by a certificate approved by the EPA and signed by an employee of State Forests, not below the rank of Regional General Manager or General Manager Research Division, certifying:

Monitoring conditions

(a) whether all monitoring required by the 1996/97

licence has been carried out;

(b) if all the monitoring has not been carried out, what monitoring has not been carried out and the reasons why the monitoring has not been carried out;

(c) whether all the monitoring data required to be reported to the EPA by the 1996/97 licence have been reported to the EPA;

(d) whether all the monitoring data were reported within the time specified by the 1996/97 licence;

(e) if all the monitoring data have not been reported to the EPA, or have not been reported within the time specified, the reasons why the monitoring data were not so reported;

(f) whether all the monitoring data reported to the EPA were derived from monitoring carried out in accordance with the 1996/97 licence;

(g) if any of the monitoring data reported to the EPA were not derived from monitoring carried out in accordance with the 1996/97 licence, what monitoring data were not so derived and the reasons why the monitoring data were not so derived;

Pollution event reporting conditions

(h) whether all pollution incidents required to be reported under the 1996/97 licence have been reported;

(i) whether all those pollution events were reported within the time specified by the 1996/97 licence;

(j) if all the pollution events have not been reported to the EPA, or have not been reported within the time specified, the reasons why the pollution events have not been so reported;

(k) whether the contents of any report concerning a pollution event are correct and are consistent with the requirements of the 1996/97 licence;

(l) if the contents of the report to the EPA are not correct or are not consistent with the requirements of the 1996/97 licence, what parts of the contents are not correct or are not consistent and the reasons why the incorrectness or inconsistency occurred;

Compliance conditions

(m) whether every condition of the 1996/97 licence has been complied with; and

(n) if one or more conditions have not been complied

with, in relation to each such condition:

(i) the nature of the non-compliance; and
(ii) the reasons for the non-compliance; and
(iii) any action taken to prevent, control or mitigate the non-compliance; and
(iv) any action that has been or will be taken to prevent a recurrence of the non-compliance.

Public inspection of documents

56. Copies of the following documents must be made available for inspection by any person at each State Forests district office within the land to which this licence applies:

(a) this licence;
(b) the Code of Logging Practice;
(c) the "Conditions For Use With Harvesting Plans, Based on SEMGL (1993)", July 1993, compiled by State Forests;
(d) all harvesting plans and roading plans for logging operations which are the responsibility of the district office; and
(e) the annual report for 1996/97 required by this licence once it has been submitted to the EPA.

56.2. Copies of all harvesting plans or roading plans for logging operations which are the responsibility of the district office must be made available for photocopying at a reasonable cost, at each State Forests district office within the land to which this licence applies.

Pollution Control Act, 1970.

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SCHEDULE 1

(Conditions 16; 21; 22; 23)

Compartments, age classes and roading areas where logging operations are permitted, water pollution hazard categories that apply, proportion of dispersible soils present, special conditions that apply, representative water quality monitoring sites, and dates of licence variations.

Pollution Control Act, 1970.

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SCHEDULE 2

(Condition 17)

Information to be contained within a harvesting plan or roading plan

The following information must be contained within harvesting plans and roading plans.

Climate

- rainfall characteristics, including average annual distribution, annual rainfall erosivity and intensity.
- temperature, including maxima and minima
- monthly rainfall erosivity values

Geology

- dominant rock types (occurrence and distribution)
- angle of bedding planes (where relevant)

Soils

- distribution of soil types
- soil erodibility
- texture
- structure
- permeability
- organic matter content
- depth of A horizon and B horizon where present or of uniform profile otherwise
- nutrient status
- distribution of dispersible soil
- existing erosion
- water pollution hazard, including the values of the coefficients used in applying the Universal Soil Loss Equation, in accordance with Schedule 3.

Landform

- slope
- landform elements
- aspects
- rockiness
- mass movement

Pollution Control Act, 1970.

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Hydrology

- drainage pattern and density
- slope, shape and stability of drainage features
- drainage line occurrence and shape
- catchment size (100 and 40 ha limits) and location
- flow permanence
- logging operations which were carried out in the last two years or are proposed to occur in the next two years in the catchment

Vegetation/Ground cover

- forest type
- percentage of ground cover, including forest litter and logging slash
- condition of vegetation relating to seasonal conditions and recent fires

Operation system

Road Construction

- length of roads to be constructed
- estimated maximum width of running surface
- estimated maximum width of clearing of either side of the running surface
- estimated maximum ground slope of land to be used for road construction
- maximum site specific road grade
- site-specific details on why the road grade must exceed 10 degrees
- length of road which will exceeds 10 degrees
- distance between road drainage structures for roads that exceed 10 degree grade (if applicable)
- type of drainage structures to be used on constructed road
- spacing of drainage structures
- estimated maximum height of cut and fill batters to be constructed
- estimated maximum length of cut and fill batters to be constructed
- type of drop-down structures and dissipators to be used over fill batters
- site-specific design and stabilisation techniques to be used on any roading to be constructed on ground slopes exceeding 30 degrees
- site specific techniques for roads constructed in dispersible soil

- site specific details for the disposal of dispersible spoil materials from road construction
- site-specific stabilisation techniques
- stabilisation assessment intervals
- future plans for the road

Construction of Drainage Feature Crossings

- type of drainage feature crossings to be constructed
- location of drainage feature crossing to be constructed
- estimated maximum width of drainage feature crossing
- site specific techniques to be used to minimise the deposition of spoil material into the drainage feature during construction
- approach reforming to be undertaken
- reshaping of the bed and banks that will be required
- site-specific stabilisation of the bed and banks
- seeding rate (if applicable)
- stabilisation assessment intervals
- permanence of water flow
- method by which culvert will be removed
- stabilisation techniques to be when removing culverts and soil fill

Existing Roads

- evidence of historical/active erosion
- total length of existing roads to be used be used in logging operations
- length of roads to be re-opened (reshaped/reformed)
- length of road to be gravelled
- length of existing road to be maintained
- type of road maintenance
- estimated maximum width of existing running surface
- estimated maximum width of clearing on either side of the running surface
- maximum ground slope
- maximum road grade on existing roads
- type of road drainage structures
- spacing of existing road drainage structures
- estimated maximum height of existing cut and fill batters
- estimated maximum length of existing cut and fill batters
- condition of existing cut and fill batters

- condition of existing drop-down structures
- site-specific stabilisation techniques to be used on any roading to be on existing ground slopes exceeding 30 degrees
- future plans for the road

Existing Drainage Feature Crossings

- type of existing drainage feature crossings
- location of existing drainage feature crossings
- maintenance required on existing drainage feature crossings
- approach reforming to be undertaken
- reshaping of the bed and banks that will be required
- site-specific stabilisation of the bed and banks
- seeding rate (if applicable)
- stabilisation assessment intervals
- permanence of water flow

Borrow Pits and Gravel Pits (in operation)

- location of borrow pits and gravel pits
- site-specific techniques to stabilise borrow pits and gravel pits
- proximity of borrow pits and gravel pits to drainage features
- future plans for borrow pits and gravel pits

Harvesting System

- volume of timber to be removed per hectare
- per cent of canopy retention
- felling method (manual or machine)
- extraction method (crawler tractor, wheeled skidder, forwarded etc)
- areas within the compartment, age class or roading area where snig tracks must not be constructed

Log Dumps

- location of log dumps

Pre- and Post Harvest Burning

- pre-harvest burning
- post harvest burning
- objective of the burn

- method of ignition
- preferred season of burn

The harvesting plan or roading plan must include an assessment of the interaction of the attributes listed above. The interpretation must concentrate on those factors most relevant to mitigating soil erosion and water pollution for the proposed operation. Factors to be considered must include:

- water pollution hazard assessment (the limits of each water pollution hazard category must be identified along with their extent and distribution)
- periods of high rainfall erosivity
- season of poorest ground cover recovery
- rock bedding planes limiting side cut roads or snig tracks
- rock outcrops or rock scarps
- dispersible soil (extent and distribution)
- slopes greater than 30 degrees
- incised drainage feature
- mass movement
- extraction method
- sensitive areas
- soil compaction
- catchment greater than 40 and 100 ha

Conditions specific to the particular compartment, age class or roading area and additional to the water pollution hazard category conditions must be identified following the above assessment and listed in the harvesting plan or roading plan. Conditions that may apply to specific aspects of the operations may deal with:

- crossings
- roading
- ground cover management for erosion control
- filter, protection and buffer strips
- snig or timber extraction tracks
- log dumps
- planting or seeding
- pre and post logging
- burning

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SCHEDULE 3

(Definitions; Conditions 18; 40; Schedule 4)

Method for assigning water pollution hazard categories and determining the proportion of dispersible soil

OBJECTIVES

For the purposes of this licence, "water pollution hazard" is a measure of the potential for water pollution to occur in an area in which logging operations are being, or have been, carried out. Determining the water pollution hazard involves an assessment of the intensity and extent of the factors that contribute to the hazard. These factors include rainfall, soil erodibility, slope and the extent to which soil is exposed to erosive forces. Conditions required to mitigate the hazard must then be applied.

The water pollution hazard of a compartment or age class must be determined using SOILOSS 5.1 (CaLM, 1994). This program is a modified version of the Universal Soil Loss Equation and uses the factors R (rainfall erosivity), K (soil erodibility), L (slope length), S (slope steepness), and C (ground cover).

For the purposes of this licence, "proportion of dispersible soil" is a measure of the amount of soil which is present on the site of logging operations which is also dispersible. The calculation recognises that soils which may not normally pose a significant soil erosion hazard can pose a significant water pollution hazard by virtue of their dispersive nature.

METHOD FOR ASSIGNING WATER POLLUTION HAZARD CATEGORIES

PART A. DETERMINE OR CALCULATE THE WATER POLLUTION FACTORS FOR A COMPARTMENT OR AGE CLASS

1. Rainfall Erosivity (R)
   The rainfall erosivity factor must be taken from the maps, tables and equations in "Rainfall Erosivity in NSW", CaLM Technical Report No.20ISSN 1038-2629 (C. J. Rosewell and J. B. Turner, November 1992).

2. Soil Erodibility (K)
   The soil erodibility factor must be determined using the protocol described in Part B of this schedule.

3. Slope Length (L)

Slope length must be set at 20 metres.

4. Slope Steepness (S)
Slope steepness factor (S) must be determined for the full range of slope units in the compartment or age class. That is, the critical slopes at which the water pollution hazard changes from one category to another must be identified for all four hazard categories and specified in the harvesting plan.

5. Cover (C)
The cover factor must be determined by assessing the amount of bare soil likely to be present at the completion of the harvesting operation and the likely rate of recovery of groundcover. Cover factors for selected harvest intensities, log extraction methods and burning management techniques must be derived from Tables 1 and 2.

The cover factor should be calculated on the worst case in terms of the months in which operations are carried out.

The cover factor may not be manipulated to take into account the effects of seeding except in the following districts until 31 December 1996: Grafton, Urunga, Dorrigo, Kempsey and Wauchope.

In any event, the cover factor may be manipulated on the basis of seeding where the monthly rainfall erosivity is greater than 1100.

Table 1: **Compartment or age class cover factor values for different operation types and extraction methods where pre- or post-harvest burning will not be carried out.**

OPERATION TYPE	EXTRACTION METHOD				
	DOZER SKIDDER	FORWARDER	HILEAD	SKYLINE	AERIAL
Native A	0.132	N.A.	0.083	0.034	0.022
Native B	0.077	N.A.	N.A.	N.A.	0.016
Plantation Clear	0.114	0.034	0.077	0.022	N.A.

Native Thin	0.077	0.022	N.A.	0.022	N.A.
Plantation Thin	0.065	0.022	N.A.	0.022	N.A.

N.A. = Not applicable. Combination of operation type and extraction method does not occur.

KEY

Native A: Harvesting of native forests in which only seed trees, habitat trees or advanced regeneration is retained. As a guide, greater than 50% canopy removal would result in the net logged area.

Native B: Selective harvesting in native forests with anticipated canopy removal in the net logged area being less than 50%.

Native thin: Thinning of regrowth in native forests.

Plantation thin: Thinning of plantations, either pine or eucalypt.

Plantation clear: Plantation clearfall, either pine or eucalypt.

Table 2. Compartment or age class cover factor values for different operation types and extraction methods where low severity pre- or post-harvest burning will be carried out.

OPERATION TYPE	EXTRACTION METHOD				
	DOZER SKIDDER	FORWARDER	HILEAD	SKYLINE	AERIAL
Native A	0.157	N.A.	0.114	0.077	0.053
Native B	0.108	N.A.	N.A.	N.A.	0.047
Plantation Clear	0.138	0.077	0.108	0.065	N.A.
Native Thin	0.108	0.065	N.A.	N.A.	N.A.
Plantation Thin	0.096	0.065	N.A.	N.A.	N.A.

N.A. = Not applicable. Combination of operation type, extraction method and post harvest burn does not exist.

Each harvesting plan must state the values of each water pollution hazard factor, and indicate the source of the values for rainfall erosivity (R), soil erodibility (K) and cover (C). Roading plans must state the range of K and R factors present along the proposed road alignment, even though they are not required for use in SOILOSS.

PART B. SOIL SAMPLING PROTOCOL FOR DETERMINING THE K FACTOR OF A COMPARTMENT, AGE CLASS OR ROADING AREA

Soils information used to determine the K factor and proportion of dispersible soil, as required by this schedule, must be obtained using one of the following four methods. The choice of method will depend upon the amount and type of information already existing in relation to the soils of a particular compartment or age class.

Alternatively, State Forests may decide to undertake a soil survey specifically for the purposes of forest management. Results from such a survey may be used to determine the K factor and the proportion of dispersible soil, provided that the prior written approval of the EPA is obtained.

Method B1

This method can only be used where the compartment or age class is covered by a soil landscape map which has a scale of 1:100 000 or larger.

Locate the compartment or age class in question on the map and use the K factor and per cent clay which is specified in documents accompanying the map as being characteristic of the soil materials within that landscape. The information used should relate to the layer of soil that is likely to be disturbed by the logging operation, either directly through mechanical disturbance, or indirectly through subsequent erosion.

Soil dispersibility must be verified in the field using the procedure for field assessment of aggregate stability described in Part D of this schedule. The field assessment must be undertaken on both the A and B horizons of the landscape map soils.

If the soil landscape map does not specify an appropriate K factor or per cent clay, then either method B3 or B4 must be used.

Method B2

This method can be used where the compartment or age class is covered by a soil map which is at a scale smaller than 1:100 000.

Verify in the field that the compartment or age class is in the landscape class or soil type predicted from the map.

If the field verification shows that the soil corresponds with that predicted from reference to the map, then the K factor and per cent clay which is characteristic of that soil unit and relevant soil layer must be used. If such information is not provided by the map then either method B3 or B4 must be adopted.

If the field verification shows that the soil does not correspond with that on the map, then adjoining mapping unit(s) must be checked. If the soil corresponds with one of the adjoining map units, then soils information from that unit must be used. If such information is not provided by the map, then either method B3 or B4 must be adopted.

If the soil does not correspond with one of the adjoining map units, then either method B3 or B4 must be adopted.

In all cases, soil dispersibility must be verified in the field using the procedure for field assessment of aggregate stability described in Part D of this schedule. The field assessment must be undertaken on both the A and B horizons of the soil types present.

Method B3

Where no soil survey information is available, a field investigation of the compartment or age class must be carried out to determine the distribution of soil types on the compartment or age class. Representative samples from the A and B horizons must be taken from each soil type identified.

Soil texture must be determined on each sample by a qualified soil scientist, using the method specified in Northcote (1979). The appropriate K factor for the soil texture must then be determined by referring to Table 2 ("Estimating USLE K factors from soil texture") in the SOILOSS Handbook (SOILOSS - a program to assist in the selection of management practices to reduce erosion, Technical Handbook No.11, Soil Conservation Service of NSW, Sydney 1988, Rosewell C. J. & Edwards K).

A "qualified soil scientist" is one who was trained in soil science at a relevant institution or has suitable field

experience, or both. The person or persons proposed to carry out field texture assessments must be approved in writing by the EPA prior to the assessments being carried out. The harvesting or roading plan must note the person or persons who actually carried out the assessment.

Where a qualified soil scientist is not available to determine the texture of the soil, then soil samples must be collected for the same soil layers required above, and sent to a NATA-registered laboratory for laboratory determination of the K factor.

In all cases, soil dispersibility must be verified in the field using the procedure for field assessment of aggregate stability described in Part D of this schedule.

Method B4

If methods B1 to B3 are not appropriate or not preferred, a default value of K = 0.06 may be used.

Laboratory Analyses

Where laboratory analyses are required by methods B1 to B4, the following analytical methods must be used. Alternative methods may be used with the prior written agreement of the EPA.

Determination of the moisture content of a soil:
Soil Conservation Service (SCS) method; abbreviated name - MC; test number - P1; test type - A; Version - 1.

Determination of the particle size distribution of a soil:
Soil Conservation Service (SCS) method; abbreviated name - PSA; test number - P7; test type - B; Version - 3.

Determination of the particle size distribution of a soil, non-dispersed:
Soil Conservation Service (SCS) method; abbreviated name - PSA; test number - P7; test type - C; Version - 2.

Determination of the dispersion percentage of a soil:
Soil Conservation Service (SCS) method; abbreviated name - DP; test number - P8; test type - A; Version - 2.

Determination of the Emerson Class number of a soil:
Soil Conservation Service (SCS) method; abbreviated name - EAT; test number - P9; test type - B; Version - 2.

Determination of the organic carbon of a soil:
Soil Conservation Service (SCS) method; abbreviated name - OC;

test number - C6; test type - A; Version - 2.

PART C. CALCULATE THE WATER POLLUTION HAZARD RATING OF A COMPARTMENT OR AGE CLASS

The following formula, as calculated by SOILOSS 5.1, must be used to determine the water pollution hazard rating of a compartment or age class:

WPHR = R x K x L x S x C

PART D. DETERMINE THE PROPORTION OF DISPERSIBLE SOIL PRESENT IN A COMPARTMENT, AGE CLASS OR ROADING AREA

Determine if the proportion of dispersible soil to be exposed is greater than or equal to 10 per cent. The proportion of dispersible soil must be determined by multiplying the dispersion percentage of the soil by the proportion of clay. One of three methods must be used to determine or estimate the dispersion percentage and proportion of clay present. These methods are outlined below, in order of preference. Alternatively, State Forests may assume that the soils are dispersible.

Method D1

This method can be used if laboratory analysis results for the dispersion percentage and proportion of clay for the soil are already known. Such results must only be used if they are consistent with the soil sampling protocol described in Part B of this schedule.

The proportion of dispersible soil must be determined by multiplying the dispersion percentage (D%) and the proportion of clay (Ritchie, 1963). The particle size analysis must be done on the bulk soil (that is, including the gravel portion of the soil).

Per cent dispersible soil = D% x Clay%

Example

clay	silt	fine sand	coarse sand	gravel	**D%**	EAT
0%	22%	25%	22%	11%	70	2(2)

Therefore percentage dispersible soil = 70% x 20% = 14%

Method D2

This method can be used if laboratory analysis results for an Emerson Aggregate Test (EAT) (Charman, 1978) and a proportion of clay for the soil are available. Such results must only be used if they are consistent with the soil sampling methodology described in Part B of this Schedule.

Emerson Aggregate Classes 1, 2, 3(3) and 3(4) must be taken to indicate dispersible aggregates. The dispersion percentage for these classes must be estimated using the following table:

EAT Class	Dispersion %
1	70
2	65
3 (3) & 3 (4)	50

The proportion of dispersible soil must be determined by multiplying the estimated dispersion percentage (D%) and the proportion of clay (Ritchie, 1963).

Per cent dispersible soil = D% x Clay%

Example

Using the example provided in method D1, where the EAT class was 2(2):

The percentage of dispersible soil **= 65% x 20% = 13%**

Method D3

This method must be used if laboratory analysis results for the dispersion percentage, Emerson Aggregate Class, or proportion of clay are not available, or are available but are not consistent with the soil sampling methodology described in Part B of this schedule. In this case, the following field assessment must be made:

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(i) Field assessment of texture

The field texture of the soil must be determined according to the method described in Northcote (1979) (pp.26-28), by observing the ribboning behaviour of moist soil worked in the hand. The field texture must then be placed into the texture group described on page 29 of Northcote (1979), and the approximate clay content estimated using the following table:

Texture Group	Approximate Clay Content
1. Sands	10 per cent
2. Sandy Loams	20 per cent
3. Loams	25 per cent
4. Clay Loams	35 per cent
5. Light Clays	40 per cent
6. Heavy Clays	50 per cent

(ii) Field assessment of aggregate stability

The aggregate stability of the soil must be determined by a qualified soil scientist using the Emerson Aggregate Test, conducted according to Australian Standard AS1289.C81 (Australian Standards Association, 1980). Emerson Aggregate classes 1, 2, 3(3) and 3(4) must be taken to indicate dispersible aggregates. The dispersion percentage for these classes must be estimated using the table presented in Method D2.

(iii) Calculation of the proportion of dispersible soil

The proportion of dispersible soil must be determined by multiplying the estimated dispersion percentage (D%) and the estimated proportion of clay.

$$70 \times \frac{\text{Approximate Clay Content}}{100} = \% \text{ Dispersible soil}$$

Example

Texture group 3 (loam) and bolus dispersible.

Percent dispersible soil **= 70% x 25%**

= 17.5%

PART E. DETERMINE THE WATER POLLUTION HAZARD CATEGORY OF A COMPARTMENT, AGE CLASS OR ROADING AREA

Using the water pollution hazard rating calculated in Part C of this schedule, determine the water pollution hazard category of a compartment or age class using the following table:

Water Pollution Hazard Rating	Water Pollution Hazard Category
less than 10	1
equal to or more than 10 less than or equal to 50	2
more than 50 less than or equal to 150	3
more than 150	4

The harvesting plan must record the slope boundaries (in whole degrees) at which the water pollution hazard classes change in the compartment, up to the maximum slope present in the compartment, or 30 degrees, whichever is lower. In determining the slope boundaries, State Forests must take a conservative approach.

The water pollution hazard category for all roading areas will be 3.

The conditions applicable to water pollution hazard categories 1, 2 and 3 are detailed in Schedule 4, viz conditions 1-5; 7-82; 85-113; and 117-145.

Where, using the methodology specified in Part D of this schedule, State Forests assesses the soil in a compartment, age class or roading area as being dispersible, conditions 83, 84, 114, 115 and 116 of Schedule 4 will also apply to that compartment, age class or roading area. This requirement will only apply in relation to water pollution hazard categories 1, 2 and 3.

Logging operations must not be conducted on land classified as water pollution hazard category 4 (Schedule 4, condition 6 refers).

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SCHEDULE 4

(Conditions 18; 19; 22; 23; 24; 25; Schedule 3)

Water pollution hazard conditions for use with harvesting, roading and burning plans

The following conditions must be complied with in the carrying out of all logging operations commenced during this licence period and permitted by this licence.

A. SITE-SPECIFIC CONDITIONS

1. If, prior to State Forests' submission to the EPA of its harvesting plan or roading plan, it becomes apparent that the conditions of this licence are not capable of achieving the objects of this licence, State Forests must:

   a) formulate special site-specific conditions aimed at achieving them; and

   b) attach the conditions in (a) to the harvesting plan or roading plan.

2. Logging operations must not commence unless the EPA has varied the licence in accordance with conditions 16 and 21 of Part 3 of this licence.

3. Logging operations must be carried out in accordance with the harvesting plan or roading plan.

4. The supervising forest officer's copy of the harvesting plan or roading plan must be placed on file at the district office at the completion of logging operations, and produced on request to an authorised officer.

B. MAXIMUM SLOPE LIMITS FOR HARVESTING

5. The maximum ground slope on which harvesting may occur must be determined in accordance with Schedule 3. Notwithstanding Schedule 3, no ground based harvesting or pre- or post- harvest burning is permitted where the ground slope exceeds 30 degrees.

6. No logging operations are permitted on land covered by water

pollution hazard category 4.

7. The harvesting plan or roading plan must specify the position of the State Forests' employee responsible for identifying land covered by water pollution hazard category 4 or identifying ground slopes exceeding 30 degrees in the field.

8. The harvesting plan operational map must mark (indicatively) the land covered by water pollution hazard category 4 or where the ground slope exceeds 30 degrees.

C. PROTECTION OF DRAINAGE FEATURES IN NATIVE FORESTS

MINIMUM PROTECTION WIDTHS FOR DRAINAGE FEATURES IN NATIVE FORESTS

9. Drainage lines, prescribed streams, swamps, watercourses and wetlands must be protected by filter strips in accordance with Table 1.

10. All major water storages must be protected by filter strips with a minimum width of 100 metres.

11. All drainage depressions must be protected by buffer strips with a minimum width of five metres.

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Table 1: Minimum protection widths for drainage features in native forests

Type of protection	Water pollution hazard category							
	1		2		3			
					less than * 18 degrees		more than * 18 degrees	
	less than 100ha	more than 100ha	less than 100ha	more than 100ha	less than 40ha	more than 40ha	less than 40ha	more than 40ha
Filter strip	5m	10m	10m	15m	15m	20m	20m	30m

* refers to ground slope within filter strip

MINIMUM PROTECTION WIDTHS

12. (1) Filter strips must be:

a) retained along all watercourses, drainage lines, prescribed streams, wetlands and swamps; and
b) extended beyond the minimum width where necessary to provide adequate function, eg, in rainforest situations where ground cover is minimal; and
c) shown on harvesting and roading plans where they are known at the time of plan preparation.

(2) The width of filter strips and buffer strips must be measured in the horizontal plane.

(3) The width of filter strips on watercourses, prescribed streams and drainage lines must be measured from the top of the bank of the incised channel or, where there is no defined bank, from the edge of the channel.

(4) The width of filter strips on wetlands and swamps must be measured from the edge of the current saturated zone.

(5) The width of buffer strips on drainage depressions must be measured from the apparent centre of the drainage depression.

(6) Harvesting operations are not permitted within 20 metres of the bank of a prescribed stream without the prior written

approval of the Commissioner of Soil Conservation.

13. Where a filter strip extends beyond the boundary of the catchment of the drainage feature that is the subject of the filter strip then the filter strip may be terminated at the catchment boundary.

14. Prescriptions for marking filter strips and buffer strips in the field must be specified within the harvesting plan or roading plan.

OPERATIONS WITHIN NATIVE FOREST FILTER STRIPS

15. Trees located in a filter strip must not be felled, except for the purposes of constructing an approved road, extraction track or snig track crossing.

16. Trees must not be felled into filter strips.

17. Crowns, logs and substantial debris accidentally felled into filter strips must be removed with minimal disturbance to the groundcover and soil in the filter strip. Any disturbance caused must be remedied by reshaping and replacement of cover, so that concentrated water flow does not occur. Instances of trees being accidentally felled into filter strips must be documented on the supervising forest officer's copy of the harvesting plan, including the reasons for the accident and the remedial action taken.

18. Filter strips must be marked in the field by the supervising forest officer prior to the commencement of any logging operation, unless the operation is one where trees are marked for removal.

19. Machinery must not enter a filter strip except for the construction and use of road, extraction track or snig track crossings.

OPERATIONS WITHIN NATIVE FOREST BUFFER STRIPS

20. The position of the person responsible for identifying buffer strips in the field must be nominated in the harvesting plan or roading plan.

21. Machinery must not operate in buffer strips when the soil is saturated.

22. Machinery operating within buffer strips must:

a) minimise soil exposure; and

b) not cause channelised flow.

23. The outcomes specified in condition 22 must be achieved by:

a) the use of walkover techniques wherever possible; and

b) preventing skewing of machinery tracks; and

c) operating with the blade up at all times; and

d) not snigging along drainage depressions.

24. No earthworks can be undertaken within buffer strips except for the construction of road, extraction track or snig track crossings.

25. Techniques for achieving the outcomes required in condition 22 of this schedule must be specified within the harvesting plan or roading plan.

D. PROTECTION OF DRAINAGE FEATURES IN NATIVE PLANTATIONS

MINIMUM PROTECTION WIDTHS FOR DRAINAGE FEATURES IN NATIVE PLANTATIONS

26. Conditions 9 to 14 inclusive of this schedule apply to the protection of drainage features in native plantations.

OPERATIONS WITHIN NATIVE PLANTATION FILTER STRIPS

27. During native plantation thinning operations, planted filter strips may be thinned under the same silvicultural prescription as the rest of the stand. Notwithstanding, only those trees which can be directed out of the filter strip may be felled.

28. Native plantation filter strips must not be clearfelled . A minimum canopy cover of 50 per cent must be retained when the adjacent plantation outside the filter strip is clearfelled. The retained canopy must be evenly spread throughout the strip, with no gaps or clusters of trees.

29. Trees to be felled out of native plantation filter strips

must be marked by the supervising forest officer.

30. Where trees are felled out of filter strips in accordance with condition 27, 28 and 29 of this schedule, State Forests must ensure that:

a) the tree is extracted from the strip in the direction of the line of the log; and

b) any furrows resulting from removal of the tree are diverted at the edge of the filter strip, so that concentrated flow is diverted onto an undisturbed area or onto surfaces capable of handling concentrated flow.

31. Trees may not be felled into filter strips.

32. Machinery must not enter a filter strip except for the construction and use of road, extraction track or snig track crossing structures.

OPERATIONS WITHIN NATIVE PLANTATION BUFFER STRIPS

33. Conditions 20 to 25 inclusive of this schedule apply to operations within buffer strips in native plantations.

E. PROTECTION OF DRAINAGE FEATURES IN SOFTWOOD PLANTATIONS

MINIMUM PROTECTION WIDTHS FOR DRAINAGE FEATURES IN SOFTWOOD PLANTATIONS

34. Conditions 9 to 14 inclusive of this schedule apply to the protection of drainage features in softwood plantations.

OPERATIONS WITHIN SOFTWOOD PLANTATION FILTER STRIPS

35. Trees may be felled within a filter strip where they form part of the plantation and where it is necessary to avoid later windthrow, or where it is necessary for the construction of road, extraction track or snig track crossing structures.

36. Directional felling must be used to minimise the felling of trees into drainage features.

37. Where necessary to avoid later windthrow, trees may be felled into watercourses. In such cases, crowns, logs and substantial debris resulting from logging must be removed with minimal disturbance to the bed and banks, unless removal would result in more damage to the bed and banks than non-removal. Instances

where crowns, logs, or substantial debris are not removed must be documented on the supervising forest officer's copy of the harvesting plan, including the reason for doing so.

38. Where necessary to avoid later windthrow, trees may be felled into drainage lines, wetlands or swamps, in which case crowns and logs of felled trees must be removed with minimal disturbance to the bed and banks, unless removal would result in more damage than non-removal. Instances where crowns and logs are not removed must be documented on the supervising forest officer's copy of the harvesting plan, including the reason for doing so.

39. Where it is necessary to avoid later windthrow, machinery may enter a filter strip on a watercourse, drainage line, swamps or wetlands to fell or extract felled trees, providing it does not enter the five metre zone and soil disturbance is minimised.

40. The position of the person responsible for identifying the five metre zone referred to in condition 39 of this schedule must be stated in the harvesting plan.

41. During the clearfalling stage of harvesting a plantation, State Forests may use felling machinery inside the five metre zone if:

a) weather and soil conditions are sufficiently dry so that soil disturbance will be minimal; and

b) the use of such machinery is likely to result in less disturbance to the bed and banks of the drainage feature or any retained riparian vegetation than manual felling and subsequent extraction.

42. When falling logs in accordance with condition 41 of this schedule, State Forests must ensure that as many trees as possible are lifted out of the five metre zone before felling machinery enters the five metre zone, and that skewing of machinery tracks is minimised.

43. Machinery other than felling machinery must not enter the five metre zone, except for the construction and use of approved road, extraction track or snig track crossings.

OPERATIONS WITHIN SOFTWOOD PLANTATION BUFFER STRIPS

44. Conditions 20 to 25 inclusive of this schedule apply to logging operations within buffer strips in softwood plantations.

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F. ROADS

ROAD DESIGN, CONSTRUCTION AND MAINTENANCE

45. The design of new roads to be constructed must ensure that road surfaces, batters and drainage structures are stable for the peak flow from a 1:10 year storm event.

46. Road construction must ensure that road surfaces, batters and drainage structures are stable for the peak flow from a 1:10 year storm event.

47. The location of existing and constructed roads to be used during logging operations must be shown on the harvesting plan or roading plan.

48. Road maintenance on existing roads must ensure that road surfaces, batters and drainage structures are stable for the peak flow from a 1:10 year storm event.

49. The techniques to achieve the objectives of 45, 46, 47, and 48 are achieved by conditions 51 and 85 of this schedule.

MAXIMUM SLOPES FOR ROAD CONSTRUCTION

50. Where ground slopes exceed 30 degrees, roads must only be constructed if engineering design and stabilisation techniques will ensure that the road surface, drainage structures and batters are stable for the peak flow from a 1:10 year storm event. Site specific techniques to be used to achieve this outcome must be specified in the harvesting plan or roading plan. The engineering design calculations must be held on file in the district office.

MAXIMUM ROAD GRADES

51. (a) Roads must be constructed and maintained with a maximum grade of 10 degrees, except as provided for in condition 51 (b) of this schedule.

(b) Grades on roads may exceed 10 degrees up to a maximum of 15 degrees to:

(i) negotiate difficult terrain such as rock outcrops, unstable soils or poorly drained soils; or

(ii) take advantage of favourable terrain such as to reach a

geologically-stable bench or saddle or soil which is more suitable for the construction and drainage of the road; or

(iii) take advantage of reducing the catchment area above the road.

c) The length of roads in excess of 10 degrees must be minimised.

ROAD CLEARING

52. Location of roads must be marked in the field prior to construction.

53. Clearing widths for road construction must be minimised and the road formation must not, subject to this condition, exceed 9.5 metres, to ensure road stability in accordance with condition 46 of this schedule. Where State Forests considers that the road formation width should exceed 9.5 metres, State Forests must specify in the harvesting plan or an attachment to it the proposed width of the road formation, the reasons for the width exceeding 9.5 metres, and any special stabilisation measures required.

54. Clearing of areas adjacent to roads must be carried out with minimal disturbance to groundcover and topsoil, and 70 per cent groundcover must be attained as quickly as is practicable and, in any event, within 12 months. The site-specific techniques to be used must be specified in the harvesting plan or roading plan and include, as appropriate:

a) retaining ground cover;

b) retaining slash and logging debris;

c) placing windrows of logging debris along the lower edge of the cleared area; and

d) retaining at least 70% top cover of at least 5 centimetres of top soil to facilitate natural establishment of groundcover.

55. Tree debris from road construction and maintenance must be disposed of:

a) outside drainage features and clear of drainage structures; and

b) outside of filter strips; and

c) where burning will cause only minimal damage to adjacent vegetation; and

d) outside the toe of road fill batter.

Tree debris accidentally felled into drainage features must be removed with minimal disturbance to the drainage feature unless removal will cause greater disturbance. Instances where removal would cause greater disturbance must be documented on the supervising forest officer's copy of the harvesting plan or roading plan, including the reasons why the tree debris was not removed.

BORROW PITS AND GRAVEL PITS

56. Borrow pits and gravel pits must be constructed with stable batters

57. Borrow pits and gravel pits must be left in a stable condition at the completion of their use.

58. Techniques to be used to achieve the outcomes required by condition 56 and 57 of this schedule must be specified in the harvesting plan or roading plan.

ROAD BATTERS

59. Road batters must be constructed and maintained to minimise the risk of erosion and water pollution.

60. Where a stable batter will not result through natural means, batter stabilisation measures must be undertaken at the completion of road construction operations.

61. Batter stabilisation measures to be used must be specified in the harvesting plan or roading plan.

ROAD DRAINAGE

62. Roads must be drained during and upon the completion of logging operations.

63. Road drainage structures must be located, constructed and maintained in such a way that they will:

a) have sufficient capacity to convey the peak flow from a 1:5 year storm event; and

b) minimise the unchecked flow of water from onto extraction tracks, snig tracks or log dumps; and

c) not discharge water from table drains directly into watercourses, drainage lines, wetlands or swamps, by draining the road at the first opportunity from the drainage feature and at least within the spacings of Table 2 for WPHC 3, and Figure 1.

d) divert water onto stable surfaces capable of handling concentrated water flow and which provide for efficient sediment trapping by using one of the following techniques, or a combination thereof:

(i) diverting flow onto undisturbed vegetation;
(ii) diverting flow onto slash and logging debris;
(iii) installing natural or artificial sediment barriers below drainage structures.

64. Where water diverted by a drainage structure discharges onto a batter of greater than one metre in height, a drop down structure and dissipater must be used.

65. Road drainage structures to be used, and the techniques to be used to achieve the outcomes required in conditions 63 and 64 of this schedule must be specified in the harvesting plan or roading plan.

66. Road drainage must be designed and maintained to prevent erosion of the road surface using one of the following techniques, or a combination thereof:

(a) outfall drainage;

(b) relief pipes or mitre drains spaced at intervals according to Figure 1, with a minimum spacing of 20 metres.

(c) cross banks constructed to a minimum unconsolidated effective bank height of 35 cm, or a consolidated bank height of 25 cm, unless otherwise calculated in accordance with condition 63 at maximum spacings in accordance with Table 2 for WPHC 3;

and any other techniques that are required.

67. Windrows must be removed from the shoulders of all roads unless specifically constructed to prevent erosion of fill

batters or where infall drainage is used. Where it is not possible to remove windrows they must be cut through at regular intervals, equivalent to a maximum of two-thirds the distances required for drainage structures.

68. Harvesting debris which is likely to impede the flow of water in road drainage structures must be removed from such structures every two days.

BLADING-OFF ROADS

69. **(1)** Blading-off of roads may be permitted only where damage is minimal and subsequent drainage and repair is possible.

(2) Each blading-off operation must be approved by the supervising forest officer.

(3) Where blading-off occurs, the material removed must be placed in a recoverable position and replaced once the logging operation is completed.

CROSSING OF DRAINAGE FEATURES

70. Drainage features must be crossed using stable structures comprising either causeways, culverts or bridges.

71. Where soil or gravel is used as the pavement for the drainage feature crossing surface on bridges and culverts, State Forests must install structures and/or practices to minimise the deposition of soil or gravel from the crossing surface into the drainage feature. The techniques to be used must be specified in the harvesting plan or roading plan.

72. Drainage feature crossings must be designed, constructed and maintained to wholly contain the peak flow from a 1:5 year storm event. Maintenance must be carried out until the road is closed.

73. Drainage feature crossings must be designed, constructed and maintained to withstand the peak flow from a 1:10 year storm event with minimal structural damage or erosion.

74. The location and type of drainage feature crossings must be stated in the harvesting plan or roading plan and must be marked in the field prior to construction.

75. Clearing and crossing construction must be undertaken at, or as close as practicable to, right angles to the water flow.

76. Drainage feature crossings must be constructed and maintained to:

(a) minimise damage to the bed and banks; and
(b) minimise disturbance to the filter strip; and
(c) result in minimal deposition of spoil within the drainage feature.

77. Sediment control structures and/or practices must be employed and maintained during drainage feature crossing construction to prevent the deposition of spoil into drainage features. Such temporary measures must not substitute for good construction practices.

78. Spoil from crossing construction and maintenance deposited in a drainage feature must be removed with minimal bed and bank disturbance unless removal will cause more damage than non-removal. Instances where removal would cause more damage must documented on the supervising forest officer's copy of the harvesting plan or roading plan, including the reasons why.

79. Spoil from crossing construction and maintenance must not be deposited in filter strips or buffer strips.

80. Stabilisation work at crossing approaches must be completed within five days of crossing construction and maintenance unless soil conditions are unsuitable. Circumstances in which the prevailing soil conditions have prevented stabilisation works being carried out must be documented on the supervising forest officer's copy of the harvesting plan or roading plan. Temporary stabilisation measures may be used where necessary, and permanent measures put in place as soon as practicable.

81. Culvert recovery and associated removal of soil fill must be undertaken with minimum disturbance to the bed and banks of the drainage feature.

OLD ROADS

82. Old roads must be evaluated for their potential to cause water pollution. Upgrading or replacement of such roads must only occur where this would result in a reduced risk of water pollution compared to using the old roads in their existing condition. This condition applies to all old roads, including old roads located inside and running parallel to filter strips.

DISPERSIBLE SOILS

83. Where roads are constructed in dispersible soils:

a) the road surface, batters and table drains within 20 metres of drainage feature crossings must be protected with a stable, non-dispersible surface at the immediate completion of road construction and no more than five days after the completion of road construction; and

b) spoil from dispersible soil must be deposited in a stable manner and must not be deposited within or filter strips.

84. Techniques to be used to protect roads and dispose of spoil in a manner consistent with condition 83 of this schedule must be specified in the harvesting plan or roading plan.

WET WEATHER RESTRICTIONS

85. Where runoff occurs from a road surface, haulage may not occur unless the road is a gravel or sealed road.

G. EXTRACTION TRACKS AND SNIG TRACKS CROSSING OF DRAINAGE FEATURES

86. Conditions 70 to 81 inclusive of this schedule apply to crossings of watercourses by snig tracks and extraction tracks.

87. Conditions 70 to 81 inclusive of this schedule apply to permanent crossings of drainage lines by snig tracks and extraction tracks.

88. Conditions 75 to 81 inclusive of this schedule apply to temporary crossings of drainage features by snig tracks and extraction tracks. In addition:

a) structures must be free draining; and
b) structures must be removed at the completion of logging operations with minimum disturbance to the bed and banks of the drainage line, unless removal would result in greater disturbance. Instances where structures are not removed must be documented on the supervising forest officer's copy of the harvesting plan, including the reasons why; and
c) soil fill must not be used in temporary crossings, except for use in installing culverts.

89. The location and type of drainage line crossings must be approved by the supervising forest officer and must be marked in the field and on the supervising forest officer's copy of the harvesting plan as the logging operation proceeds.

90. Extraction tracks and snig tracks must not cross wetlands or swamps.

WALKOVER EXTRACTION

91. Walkover extraction techniques must be used wherever practicable in preference to snig track construction.

SNIG TRACK CONSTRUCTION

92. Snig tracks must not be located or constructed where they cannot be drained effectively.

93. Topsoil disturbance must be minimised during snig track construction, where sidecut construction is not required.

94. Blading-off on snig tracks is not permitted.

95. Snigging along roads must only occur in order to avoid snig track construction and where approved by the supervising forest officer. Effective road drainage must be re-instated immediately at the completion of the snigging operation.

WET WEATHER RESTRICTIONS

96. Extraction tracks and snig tracks must not be used where:

a) there is run off from the track surface or;

b) there is a likelihood of significant rutting leading to turbid runoff from the track surface.

DRAINAGE OF EXTRACTION TRACKS AND SNIG TRACKS

97. Sections of extraction tracks and snig tracks must be progressively drained at the completion of logging operations around each section of track, using one the following techniques, or a combination thereof:

a) existing ground cover must be retained as far as practicable. Where this prevents concentrated water flow in excess of the distances specified in Table 2, constructed drainage is not required; or

b) slash and logging debris must be retained as far as

practicable. Where retained slash will prevent concentrated water flow in excess of the distances specified in Table 2 and no post logging burning is planned, constructed drainage is not required; or

c) outfall drainage must be used as far as practicable. Where outfall drainage will prevent concentrated flow in excess of the distances in Table 2, constructed drainage is not required.

98. Where the techniques in condition 97 of this schedule are not practicable, constructed drainage must be provided in accordance with condition 99 of this schedule.

99. The maximum spacing of extraction track and snig track drainage structures must be designed to limit erosion of the track surface in accordance with Table 2:

Table 2: Maximum Spacing of Extraction/Snig Track Drainage Structures (metres)

Track grade (Degrees)	Water Pollution Hazard Category		
	1	2	3
5	200	150	100
10	150	100	60
15	80	60	40
20	60	40	25
25	40	30	20
30	30	25	15

Table 2 may be interpolated to derive site specific maximum spacings.

100. Where drainage of a section of track in accordance with conditions 97 or 98 of this schedule would preclude the use of the track for other, ongoing operations, the drainage of the track may be delayed until those other operations are complete.

101. Snig track and extraction track drainage structures must be designed to:

a) have sufficient capacity to convey the peak flow from a 1:2 year storm event; and

b) divert water onto stable surfaces; and

c) minimise the unchecked flow of water directly into watercourses and drainage lines or onto roads and log dumps; and

d) divert water at a velocity which minimises damage to the structure.

102. Drainage structures to be used on snig tracks, and the techniques to be used to achieve the outcomes required in condition 101 of this schedule, must be specified in the harvesting plan.

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103. Where a storm event which exceeds the design criteria of track drainage structures occurs within 12 months of the completion of operations, the structures must be assessed and repaired if necessary.

104. Windrows on snig tracks and extraction tracks must be dealt with in accordance with condition 67 of this schedule.

105. Where a post logging burn is planned, flammable materials must not be used in track drainage structures.

106. Where crossbanks are used they must be constructed to a minimum unconsolidated effective bank height of 35 cm, or a consolidated effective bank height of 25 cm, unless otherwise calculated in accordance with condition 101 (a) of this schedule.

107. Crossbanks must not be constructed of bark.

108. Drainage must be effected as soon as practicable at the completion of operations on each extraction track or snig track, and in any event within two days, unless soil conditions preclude construction of effective drains or would lead to increased soil erosion. Instances where the drainage is not effected within two days of the completion of logging operations must be documented on the supervising forest officer's copy of the harvesting plan, including the reasons why.

109. The number of snig tracks or extraction tracks open at any one time must be kept to a minimum.

110. Drainage must be effected if the use of an extraction track or snig track is to be temporarily discontinued in accordance with Table 3:

Table 3: Drainage of Extraction Tracks and Snig Tracks at Temporary Cessation of Operations

Water Pollution Hazard Category	Monthly Rainfall Erosivity Rating	# of days
1	N/A	10
2	more than 900	5
	less than 900	8

3	more than 900	3
	less than 900	5

111. Snigging and timber extraction must occur in an uphill manner unless downhill snigging maintains or decreases the potential for water pollution, or unless physical constraints preclude uphill extraction.

112. Where downhill snigging is proposed, one of the following techniques or a combination thereof must be used:

a) downhill snig tracks must enter the log dump from the side or below;

b) a drainage structure must be in place immediately before a snig track enters the log dump, at the end of each day's operation.

OLD SNIG TRACKS

113. Old snig tracks must be evaluated for their potential to cause water pollution. Upgrading or replacement of such tracks must only occur where this would result in reduced risk of water pollution when compared to using old snig tracks in their existing conditions.

DISPERSIBLE SOILS

114. Where harvesting operations are planned in dispersible soils, either:

a) no more than 30 per cent of the dispersible soil horizon, measured over any 20 metre length of track, may be exposed on extraction tracks or snig tracks. This must be achieved by either or both:

(i) maintaining topsoil cover where the topsoil is non-dispersible; or

(ii) using logging slash and walkover extraction techniques;

or

b) where the maximum allowable disturbance limits in (a) above cannot be achieved, operations must be limited to months with average rainfall erosivity of less than 900,

and measures undertaken to ensure a 70 per cent groundcover within six months of the completion of harvesting or burning operations.

115. Measures to be taken to protect dispersible soils, if present, must be specified in the harvesting plan or roading plan.

116. Crossbank construction, if required, must avoid exposing the dispersible soil horizon wherever practicable.

H. LOG DUMPS

117. Log dumps must be located out of filter strips and buffer strips.

118. Log dump locations or, alternatively, areas excluded from log dumps, must be specified in harvesting plans.

119. Debris from log dump operations must not be placed in, or within 10 metres of, filter strips.

120. Any runoff drainage from log dumps during and upon completion of logging operations must be dispersed onto stable surfaces, and not discharged directly into watercouses or drainage lines or onto extraction tracks or snig tracks.

121. Upon completion of operations the log dump surface must be left in a stable condition by using one of the following techniques or a combination thereof:

a) retaining at least 70% cover of existing vegetation;

b) retaining a 70% cover of logging slash;

c) retaining a 70% cover of at least 5 centimetres of topsoil;

d) seeding the log dump with a cover crop;

e) establishing a non-eroding surface such as gravel.

122. The harvesting plan must specify which technique or combination of techniques specified in conditions 121 that will be used at each log dump to achieve the outcomes specified in condition 120.

WET WEATHER RESTRICTIONS

123. Logging operations by wheeled loaders and trackscavators must cease where there is runoff from the log dump surface.

I. BURNING

124. Pre- or post-harvest burning must aim to achieve a low severity fire.

125. Pre- or post-harvest burning must be carried out in a manner that:

(a) avoids burning of filter strips to the greatest extent practicable. Deliberate or negligent burning of filter strips must not occur; and
(b) minimises burning of sensitive drainage disposal areas to the greatest extent practicable; and
(c) maximises the retention of ground cover to the greatest extent practicable.

126. Pre- or post-harvest burning must only be carried out when the Bush Fire Danger Rating is:

(a) Dry Moist Types BFDR is 5 or less
(b) Moist Forest Types BFDR is 8 or less
(c) Forests above 500 MSL BFDR is 8 or less

127. (a) Pre- or post-harvest burning must not be carried out during or within one month prior to those months of the year with an average rainfall erosivity of greater than 1100 without the prior written approval of the EPA.

(b) Pre- or post- harvest burning carried out during months of the year with an average rainfall erosivity of 900 to 1100 inclusive must use a ground burning (top disposal) method only. A running fire, ignited from either the ground or the air, must not be used.

(c) Where State Forests carries out pre- or post- harvest burning during months of the year when the average rainfall erosivity is 900 to 1100 inclusive, site-specific measures to minimise water pollution must be detailed in the harvesting plan.

128. The harvesting plan for the compartment or age class in which a pre- or post-harvesting burn is proposed must contain key strategic and operational details of the planned burn, including:

a) objective of the burn; and

b) method of ignition; and

c) preferred season of burn.

129. The burning plan of the compartment or age class must be placed on file at the district office. To the extent of any inconsistencies in burning details between the burning plan and the previously-approved harvesting plan, the burning details in the harvesting plan will prevail.

130. The details which must be recorded when a pre- or post-harvest burn is undertaken include:

a) the forecast weather conditions - maximum dry bulb temperature, wind speed and direction, and fire danger rating and minimum relative humidity

b) the weather conditions at the burn site including the time, dry bulb measurement, wet bulb measurement, relative humidity, fire danger rating, wind speed and wind direction at the following times:

(i) prior to commencing the burn
(ii) prior to leaving the burn site
(iii) at any significant change in weather conditions inconsistent with the forecast conditions

c) for each burn, the date and time that:

(i) lighting commenced, and
(ii) lighting ceased

(d) within 14 days of the burn being lit State Forests must assess and document the following:

(i) an estimate of the percentage of undisturbed area burned; and
(ii) whether the integrity of the filter strips was maintained and if not, why not; and
(iii) where a burn intrudes to the banks of a drainage line, prescribed stream, swamp, watercourse or wetland:

and
(iv) whether the burning objectives as stated in the harvest plan were met or not, and if not, why not.

131. Where a pre- or post-harvest burn:

(i) intrudes into a filter strip; and/or

(ii) exposes more than 15 per cent of soil on undisturbed areas; and/or

(iii) the burn has intruded to the banks of the drainage line, prescribed stream, swamp, watercourse or wetland; State Forests must assess the potential for pollution to occur.

132. State Forests must notify the EPA if it becomes aware that a pollution event is likely to occur and put in place appropriate soil erosion and water pollution control measures immediately to prevent the pollution of waters.

133. Where the burn has intruded to the bank of the drainage line, prescribed stream, swamp, watercourse or wetland and where concentrated flow directly to the drainage feature is likely to occur, remedial action must be taken immediately, and recorded on the burning or harvest plan

J. STORAGE AND HANDLING OF HAZARDOUS SUBSTANCES AND WASTE

134. Fuel oils must be stored and handled in compliance with the requirements of AS1940 - "The storage and handling of flammable and combustible liquids".

135. Mobile fuel tanks must not be located within, or within 10 metres of, a filter strip.

136. The transportation and storage of fuel and the refuelling of equipment must be carried out in a manner which prevents the pollution of waters as a result of the escape of fuel.

137. Chemicals must be stored and handled in compliance with the requirements of the Control of Workplace Hazardous Substances - National Model Regulation and National Code of Practice, June 1991, published by Worksafe Australia.

138. Plant and equipment and other substances and materials on the site of logging operations must be handled, operated, moved and stored in a proper and efficient manner for the purposes of preventing the pollution of waters.

139. All servicing and repairs of equipment must be carried out in a manner which prevents the pollution of surface and ground waters.

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140. Litter must not be buried or otherwise deposited in a compartment, age class or area to be roaded.

141. The general work area must be kept free of waste generated during logging operations.

142. Waste must be properly and efficiently stored until it can be removed from the forest.

143. Waste stored for removal must be removed no less than seven days after completion of logging operations in the compartment, age class, or roading area.

144. Waste must be removed from the forest and disposed of in a proper and efficient manner at an appropriate facility.

145. In conditions 141 to 145 of this schedule, "waste" includes tyres, drums, wire rope, sump oil and litter, but does not include forest or logging debris.

Pollution Control Act, 1970.

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SCHEDULE 4

Figure 1 - Spacing of road drainage structures to prevent drain scour

Insert figure 1

Pollution Control Act, 1970.

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SCHEDULE 5

(Condition 47)
Contact numbers and addresses for EPA offices

Regional Offices

Albury

Phone:(060) 41 4963
Fax:(060) 41 4973
Address:PO Box 544
Albury 2640

Armidale

Phone:(067) 73 7133
Fax:(067) 72 2336
Address:PO Box 494
Armidale 2350

Bathurst

Phone:(063) 32 1838
Fax:(063) 32 2387
Address:PO Box 1388
Bathurst 2795

Dubbo

Phone:(068) 81 1390
Fax:(068) 82 9217
Address:Level 2
NSW Government Offices
37-39 Carrington Street
Dubbo 2830

Grafton

Phone:(066) 42 0535
Fax:(066) 42 7743
Address:PO Box 498
Grafton 2460

Newcastle

Phone:(049) 26 9971
Fax:(049) 29 6712

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Address:PO Box 488G
Newcastle 2300

Queanbeyan

Phone:(06) 299 3330
Fax:(06) 299 3525
Address:PO Box 622
Queanbeyan 2620

Wollongong

Phone:(042) 26 8100
Fax:(042) 27 2348
Address:PO Box 513
Wollongong East 2520

District Offices

Gosford

Phone:(043) 23 9875
Fax:(043) 23 9879
Address:Suite 14
William Court
Cnr Paul Lane & William Street
Gosford 2250

Murwillumbah

Phone:(066) 72 6134
Fax:(066) 72 6134
Address:PO Box 723
Murwillumbah 2484

Muswellbrook

Phone:(065) 41 2381
Fax:(065) 41 1634
Address: Suite 1
56 Brook Street
Muswellbrook 2333

Penrith

Phone:(047) 21 3700
Fax:(047) 21 3259
Address: Suite 2

Pollution Control Act, 1970.

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Level 1, Neale Court
311 High Street
Penrith 2750

Wyong

Phone:(043) 52 2762
Fax:(043) 52 2760
Address: Shop 5
64 Pacific Highway
Wyong 2259

Waters and Catchments Branch

Bankstown

Phone:(02) 9795 5000
Fax:(02) 9795 5362

EPA offices are open 8.30am to 5.00pm weekdays, except public holidays.

Pollution Line (24 hours)

Phone:(02) 325 5555 or 131 555

Pollution Control Act, 1970.

Further conditions with respect to the Clean Waters Act 1970
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A total of 1 point(s) of discharge, the locations of which are specified individually hereafter, are authorised by this licence. The licensee may discharge in accordance with the conditions of this licence the volume, concentration or type of pollutants described below.

Location of authorised discharge point:
NORTHERN REGION

Code number of authorised discharge point: 001

Discharge Classification: ANY OTHER TYPE OF DRAIN SITUATION