STATE FORESTS
NORTHERN REGION

URBENVILLE MANAGEMENT AREA

NATIVE FOREST HARVESTING PLAN

AREA:	BEAURY STATE FOREST No 2	
LOCATION:	Compartment 71	
OPERATION:	FOREST HARVESTING	
PLAN No.	UMA 97/01	3/2/97

STATE FORESTS

MANAGING - CARING - SUSTAINING

NORTHERN REGION - URBENVILLE DISTRICT

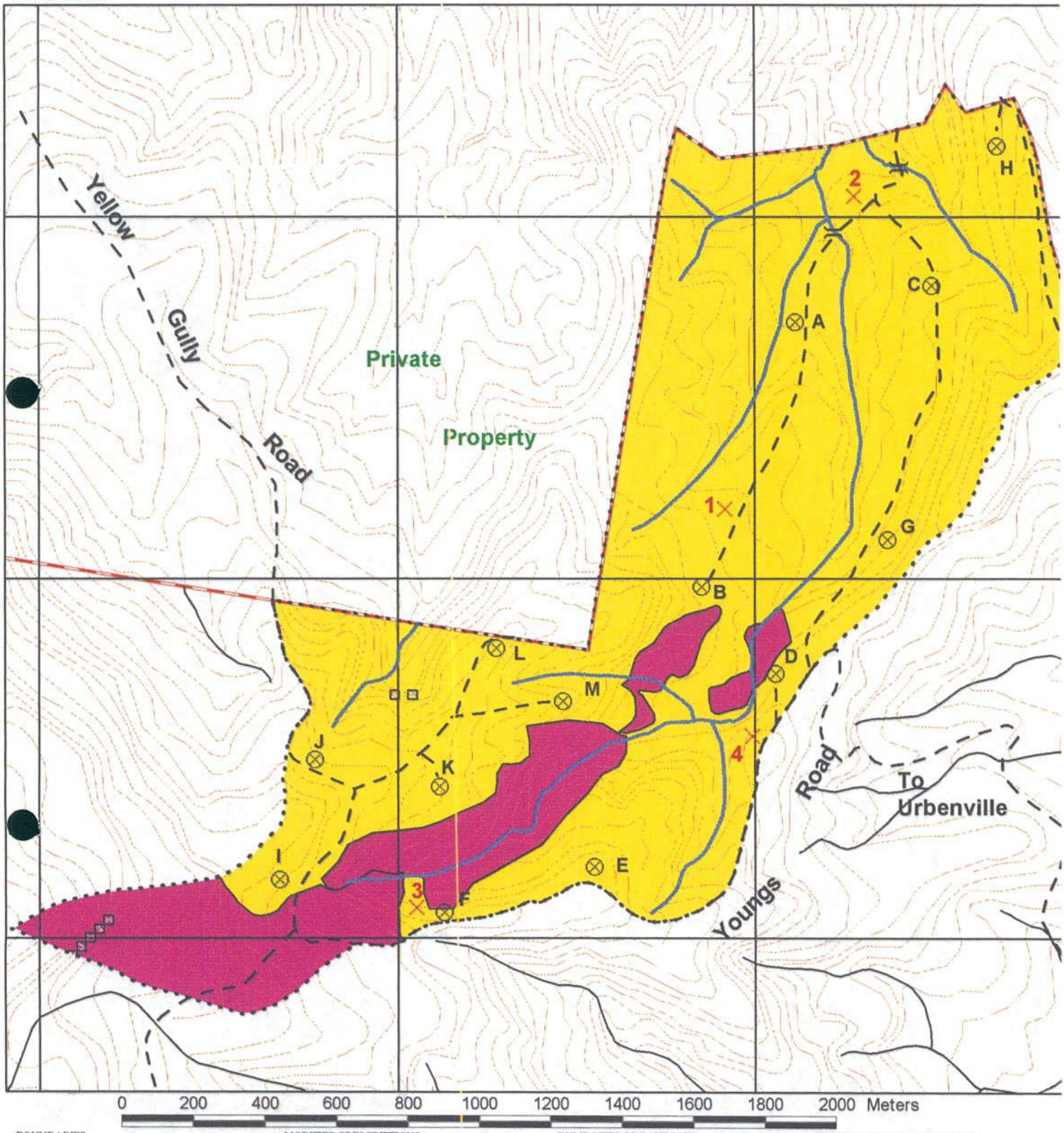
HARVEST PLAN OPERATIONAL MAP

COMPARTMENT 71

BEAURY STATE FOREST

HARVEST PLAN NUMBER 97/01

KOREELAH MAP SHEET
SCALE 1:15000



BOUNDARIES
- State Forest Boundary
- Compartment Boundaries

ROADS (Proposed in Red)
- Natural Surface
- Sealed or Gravelled

NORMAL PRESCRIPTIONS
- Harvestable Area

MODIFIED PRESCRIPTIONS
- Rainforest / Non-Harvestable
- Slopes likely over 30 degrees

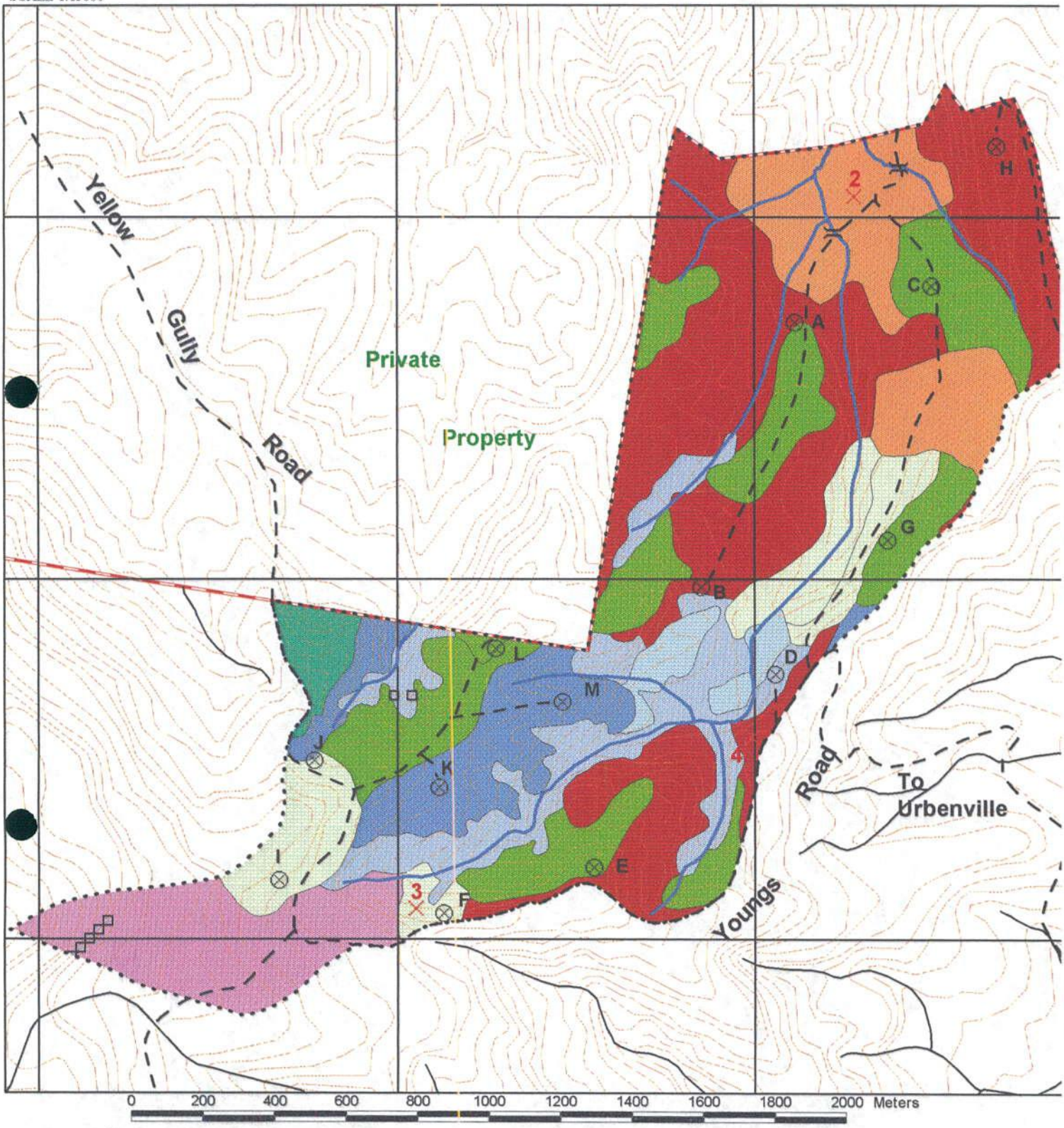
DUMP SITES OR LANDINGS
- Permanent Dry
- Permanent Wet
- Soil Survey Sites

WATERCOURSES & DRAINAGE
- External Drainage
- Internal Drainage
- Approved Crossings

MN

NORTHERN REGION - URBENVILLE DISTRICT
FOREST TYPES MAP
COMPARTMENT 71
BEAURY STATE FOREST
HARVEST PLAN NUMBER 97/01

KOREELAH MAP SHEET
SCALE 1:15000



BOUNDARIES
Compartment Boundaries

FOREST TYPES
Hoop Pine
Myrtle
Sydney Blue Gum
Tallowwood - Sydney Blue Gum

FOREST TYPES
Brush Box
Narrowleaved White Mahogany - Red Mahogany - Grey Ironbark - Grey Gum
Forest Red Gum
New England Blackbutt

FOREST TYPES
Booyong / (Hoop Pine)
Grey Gum - Grey Ironbark - White Mahoga

NSW NATIONAL PARKS AND WILDLIFE SERVICE

Mr Bob Smith
Chief Executive Officer
State Forests of NSW
Locked Bag 23
Pennant Hills NSW 2120
F/207:DM

Attention: The Manager
Forest Planning Branch

Dear Mr Smith,

RE: TEMPORARY SECTION 120 LICENCE TS0005
Compartment 71
Beaury State Forest
Urbenville Management Area

I refer to the Instrument of Variation and the attached section 120 licence for the above compartment, both dated 24 February 1997.

A recent version of the Koala Prescription for North Coast Forest Types was applied to this compartment with the understanding that it had been formally endorsed by both NPWS and SFNSW. Subsequent discussion with SFNSW has revealed that this is not the case and that this version of the coastal Koala prescription will be subject to a further period of review under the terms of a "memorandum of understanding" to be agreed between the NPWS and SFNSW.

Under the terms of the Conservation Protocols, the Koala prescription for North Coast Forest Types will now revert to the previously agreed version. Accordingly, ***"Prescription 18. Koala Prescription for North Coast Forest Types"*** is to be deleted from the licence issued for the above compartment, and replaced with the prescription attached to this letter. **This letter amends the previous letter dated 24 February 1997 (Reference A12857:KD) and therefore the Instrument of Variation for the above compartment (dated 24 February 1997) remains in force.**

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PO Box 1967
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Fax: (02) 585 6555
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Please ensure that your copy of the licence and the Harvesting Plan are suitably amended to incorporate the attached prescription.

Should you require any further information on this matter, please contact Dennis Murray, Threatened Species Officer on 066 598 272.

Yours sincerely

GARY DAVEY
Manager, Threatened Species Unit
Northern Zone
for ROBYN KRUK
Director-General
Date: 01 04.97

4. Varies this licence by inserting the following compartment description, corresponding water pollution hazard categories, special conditions, representative water quality monitoring site, and date of licence variation into Schedule 1:

"Compartment Description

Compartment 71
Beaury State Forest No. 2

Water Pollution Hazard Categories

Water Pollution Hazard Category	Slope Ranges (degrees)
1	Less than or equal to 5.
2	Greater than 5 and less than or equal to 21.
3	Greater than 21 and less than or equal to 30
4	Not applicable.

Proportion of dispersible soils: A horizon less than 10%
B horizon less than 10%

Special Conditions

Special conditions are those conditions contained in the harvesting plan for Compartment 71, Beaury State Forest No. 2, prepared by State Forests of NSW, received by the EPA on 11 February 1997, and as amended by:

1) addendum 1 received by the EPA on 20 February 1997; and
2) addendum 2 received by the EPA on 4 March 1997.

Water Quality Monitoring Site

To be determined

Date of licence variation

5 March 1997."

5. Varies this licence by inserting the following compartment descriptions, corresponding water pollution hazard categories, special conditions, representative water quality monitoring site, and date of licence variation into Schedule 1:

ned.

NSW
NATIONAL
PARKS AND
WILDLIFE
SERVICE

The Managing Director
State Forests of NSW
Locked Bag 23
PENNANT HILLS NSW 2120

F/207: DM

Attention: Manager
Forest Planning Branch

Dear Sir,

RE: TEMPORARY SECTION 120 LICENCE TS0005

Beaury State Forest, Compartment 71

Urbenville Management Area,

I refer to your request for the addition of Compartment 71 to the above licence.

I have granted your request with prescriptions based on the Conservation Protocols for timber harvesting in State Forests which have been agreed to by NPWS and SFNSW (29 November 1996) and are in place for the duration of the IFA decision.

The licence variation includes species specific prescriptions for Red Goshawk, Koala (north coast forest types), threatened frogs (*Philoria spp.*) and threatened bats (*Miniopterus australis*).

The full Instrument of Variation and attached prescriptions will be forwarded to your office shortly by mail.

Yours faithfully,

Gary Davey
Manager Threatened Species Unit
Northern Zone

for **DIRECTOR-GENERAL**

DATE: 24 February 1997

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NSW
NATIONAL
PARKS AND
WILDLIFE
SERVICE

Mr David Brand
Acting Managing Director
State Forests of NSW
Locked Bag 23
Pennant Hills NSW 2120

F/207:DM

Attention: The Manager
Forest Planning Branch

Dear Mr Brand,

RE: TEMPORARY SECTION 120 LICENCE TS0005
Compartment 71
Beaury State Forest,
Urbenville Management Area.

I refer to your request for the addition of Compartment 71 to the above licence.

I have granted your request as per the attached Instrument of Variation, conditional upon the following Threatened Species prescriptions being incorporated into the harvesting plan for this compartment. These prescriptions are based on the Conservation Protocols (29 November 1996) for timber harvesting on State Forests for the duration of the IFA decision, and will apply as stated unless otherwise amended by a later Instrument of Variation.

It should be noted that the original prescriptions on Condition 5 (habitat tree retention, Koala, Yellow-bellied Glider, Glossy Black-Cockatoo) have been replaced by the Conservation Protocols dated 29 November 1996.

The licence includes species prescriptions for Red Goshawk, Koala (prescription for north coast forest types), threatened frogs and threatened bats. The Harvesting Plan contained an outdated prescription for Koala and no prescriptions for the other species. The Harvesting Plan also contained outdated prescriptions for Critical Weight Range species and Frugivores. Under the current Conservation Protocols prescriptions are not required for these species.

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It should also be noted that wording of this licence reflects a draft current at the time of preparation of the licence. If there are any subsequent changes to the licence agreed to between SFNSW and NPWS then this licence will be varied to reflect the revised wording.

The Harvesting Plan (p 5) refers to a record of Koala from the adjoining compartment 72. It is requested that SFNSW forward details of this record to the Manager, Threatened Species Unit, Northern Zone NPWS.

DEFINITIONS

Specified forestry activities: Timber harvesting (including all forms of silviculture), construction and operation of log dumps, collection of firewood, cutting of posts, gravel extraction, harvesting of tea tree oil, road construction (including tracks, fire trails and snig tracks), prescribed burning that is not undertaken in accordance with the provisions of the *Bushfires Act 1949*, grazing that is not undertaken in accordance with the provisions of the *Bushfires Act 1949* (to the extent controlled by SFNSW) and military activities (to the extent controlled by SFNSW).

Critical Weight Range Vertebrates (CWRV): In this licence, CWRV refers to the following threatened species: Albert's Lyrebird, Bush Hen, Bush Thick-knee, Rufous Scrub-bird, Eastern Bristlebird, Black-striped Wallaby, Brush-tailed Phascogale, Common Planigale, Tiger Quoll, Southern Brown Bandicoot, Rufous Bettong, Long-nosed Potoroo, Long-footed Potoroo, Parma Wallaby, Red-legged Pademelon, Brush-tailed Rock Wallaby, Hastings River Mouse, Smoky Mouse and White-footed Dunnart.

Net logging area: The gross area less PMP exclusion areas, riparian buffers and connection corridors, rainforest protocol exclusions, old growth forest protocol exclusions and rare non-commercial forest type exclusions.

Prescribed burning: Any burning in state forests deliberately undertaken according to prescribed procedures pursuant to the *Bushfires Act 1949*.

SEPP 14: State Environment Planning Policy No. 14 - Wetlands

GENERAL THREATENED SPECIES PRESCRIPTIONS

Prescription 1. Rare, Non-Commercial Forest Types Protocol

The Rare Non-Commercial Forest Types Protocol as cited in Section 2 of the Conservation Protocols must be applied if such Forest Types occur in the compartment.

Prescription 2. Old Growth Forest Protocol

The Old Growth Forest Protocol as cited in Section 3 of the Conservation Protocols must be applied in this compartment if appropriate.

Prescription 3. Rainforest Protocol

The Rainforest Protocol as cited in Section 4 of the Conservation Protocols must be applied.

Prescription 4. Tree Retention

(I) Hollow-bearing tree retention

a) A minimum of ten hollow-bearing trees must be retained per two hectares. Where this density is not available, ten trees must be selected from trees with diameters within the largest 30% of the stand.

b) Retained, hollow-bearing trees must be selected from trees with diameters within the largest 30% of the stand and be live trees with good crown development.

c) Retained hollow-bearing trees should represent the range of species that occurs in the area.

d) Trees retained outside the net logging area (see definition at end of licence) must not be counted as hollow-bearing trees.

e) Hollow-bearing trees must be scattered throughout the net logging area.

f) Hollow-bearing trees must be marked for retention.

(ii) Recruitment tree retention

a) A minimum of ten recruitment trees must be retained per two hectares.

b) Retained recruitment trees must show potential for developing into hollow-bearing trees with good crown development. Trees in the mature and intermediate growth stages should be retained as recruitment trees.

c) Retained recruitment trees should represent the range of species that occurs in the area.

d) Trees retained outside the net logging area must not be counted as recruitment trees.

e) Recruitment trees must be scattered throughout the net logging area.

f) Recruitment trees must be marked for retention.

(iii) "Regrowth zone" habitat and recruitment tree retention

a) The term "regrowth zone" used above is as mapped on Maps 2, 3 and 4 of the Conservation Protocols.

b) Within the "regrowth zone", Prescription 4(i) and (ii) must be applied if there are sufficient existing hollow bearing trees available.

c) Where there are not sufficient hollow bearing trees available to comply with Prescription 4(i)(a), then those hollow bearing trees present must be retained.

d) For each hollow bearing tree retained for Prescription 4(iii)(c), a recruitment tree as defined in Prescription 4(ii) must be retained.

e) In the "regrowth zone", where there are less than 10 hollow bearing trees per two hectares, there is no requirement to retain additional trees as otherwise required in section 4(i)(a).

f) The application of section 4(iii) of Prescription 4 must be identified in compartment history maps.

(iv) Protection of hollow bearing trees, recruitment trees and dead stags

a) Specified forestry activities and post-logging burning must aim to minimise damage to hollow-bearing trees, recruitment trees and dead stags. The potential for damage should be minimised by techniques of directional felling. Felled heads must be flattened or removed from 5m of stems retained to meet this prescription.

(v) Dead stag retention

a) Dead stags must be retained in areas outside the net harvesting area, visual protection strips, and elsewhere where it is safe to do so.

b) Dead stags must not be counted as hollow-bearing trees or recruitment trees.

Prescription 5. Significant Food Resources

a) Stands where *Allocasuarina* spp. dominate the canopy should be protected from specified forestry activities. Where more than 30 crushed cones have been found beneath individuals of *Allocasuarina* spp., indicating intensive use by the Glossy Black Cockatoo, the tree must be protected.

b) At least 4 mature (>40cm dbh) winter-flowering eucalypt species per two hectares must be retained where they occur. Where retained hollow-bearing or recruitment trees meet these requirements, the hollow-bearing and recruitment trees can be counted as food trees.

c) Damage to mature banksias and *Xanthorrhoea* spp. should be avoided during forestry operations.

d) All trees with "V-notch" incisions or other incisions made by Yellow-bellied Gliders must be retained. Where retained hollow-bearing or recruitment trees meet these requirements, the hollow-bearing and recruitment trees can be counted as food trees.

e) Specified forestry activities and post-logging burning must aim to minimise damage to retained food trees. The potential for damage should be minimised by techniques of directional felling. Felled heads must be flattened or removed from 5m of stems retained to meet this prescription.

Prescription 6. Riparian Buffers

a) Riparian buffers must be at least 10m wide on each side of all first order streams, and at least 20m wide on each side of all second order streams. For at least 80% of third and higher order streams in a Management Area, riparian buffers must be at least 40m wide on each side of the stream. The remaining 20% will have a buffer of 20m or greater on each side.

b) Streams are as shown on the relevant topographic map as published by the Central Mapping Authority at a scale of 1:25 000. A first order stream is defined as that part of a stream between its point of origin and the first junction with another stream, whereupon it becomes a second or higher order stream. A third order stream commences at the junction of two second order streams.

c) These buffers must be mapped and clearly recorded in Harvesting Plans.

d) Specified forestry activities, with the exception of road construction and road maintenance where there is no other practical means of access, must be excluded from riparian buffers. Road construction and road maintenance through riparian buffers should avoid sites where threatened species have been recorded.

e) All practical precautions should be taken to avoid felling trees into riparian buffer zones.

Prescription 7. Connection corridors

a) Each 500ha of State Forest must include a minimum of two connection corridors at least 40m wide (connecting second order streams) AND/OR one connection corridor at least 80m wide (connecting third order streams), which establish links between different drainage systems. The option is to be chosen by SFNSW. These connection corridors should not be cut by roads if possible.

b) Specified forestry activities must be excluded from connection corridors, with the exception of road construction and road maintenance where there is no other practical means of access.

c) All practical precautions should be taken to avoid felling trees into these corridors.

d) Connection corridors relevant to the compartment must be mapped and clearly recorded in the Harvesting Plan. Connection corridors should also be mapped on the 1:25,000 topographic map sheets and archived by SFNSW.

Prescription 8. Wetlands

a) Wetlands are defined as areas that form a shallow waterbody when inundated cyclically, intermittently or permanently with fresh, brackish or salt water, and where the inundation determines the type and productivity of the soils and the plant and animal communities.

b) A buffer zone at least 10m wide must be established around all wetlands and swamps more than 0.1ha and less than 0.5ha surface area.

c) A buffer zone at least 40m wide must be established around all wetlands and swamps greater that 0.5ha surface area and all SEPP 14 wetlands.

d) The buffer zone must be measured from the outer edge of the vegetation communities dominated by wetland species.

e) Specified forestry activities must be excluded from wetlands and their buffers. All precautions should be taken to avoid felling trees into this buffer zone.

f) Wetlands and wetland buffers must be mapped and clearly recorded in Harvesting Plans.

Prescription 9. Heath

a) Heath is defined as areas dominated by woody shrubs generally less than 2m tall at maturity, with xeromorphic leaves.

b) A buffer zone at least 20m wide must be established around all heath more than 0.2ha and less than 0.5ha surface area.

c) A buffer zone at least 40m wide must be established around all heath greater than 0.5ha surface area.

d) Specified forestry activities must be excluded from heath and their buffers. All precautions should be taken to avoid felling trees into this buffer zone.

e) Heath and heath buffer zones must be mapped and clearly recorded in Harvesting Plans.

Prescription 10. Rocky Outcrops

a) Rocky outcrops are defined as areas characterised by a high proportion of exposed rock or boulders relative to the surrounding area, OR, areas with skeletal soils, supporting heath or shrub communities (sometimes with occasional emergent trees). These sites can occur where the geology varies from the surrounding area (eg. rhyolite outcrops).

b) A buffer zone at least 20m wide must be established around all rocky outcrops more than 0.1ha and less than 0.5ha surface area.

c) A buffer zone at least 40m wide must be established around all rocky outcrops greater than 0.5ha surface area.

d) Specified forestry activities must be excluded from within the buffer. All precautions should be taken to avoid felling trees into this buffer zone.

e) Rocky outcrops must be mapped and clearly recorded in Harvesting Plans.

Prescription 11. Caves, tunnels and disused mineshafts

a) All caves, tunnels and disused mineshafts (with the exclusion of open pits of less than 3m in depth) must be protected by a buffer zone at least 50m wide. Where the NPWS is satisfied that adequate surveys for threatened cave-dependent bats have been undertaken and no Schedule 1 or 2 cave-dependant bats or evidence of

Schedule 1 or 2 cave-dependant bats have been recorded, these buffer zones may be reduced to 10m radius. Specified forestry activities must be excluded from these buffer zones.

b) All known threatened microchiropteran bat maternity and hibernation sites must be protected by a 50m buffer zone. Specified forestry activities must not be conducted within this buffer zone. Within 50 to 100m of the site a maximum of 50% canopy reduction can occur.

c) Caves, tunnels and disused mineshafts and their buffer zones must be mapped and clearly recorded in Harvesting Plans. If the compartment contains more than 10 of these features SFNSW must contact the NPWS and arrange for appropriate mapping and management.

Prescription 12. Burning

When fulfilling their responsibilities under the *Bushfires Act 1949*, SFNSW should take account of the following principles.

a) Prescribed burning regimes should take account of wildfire history and reflect the ecological requirements of any threatened species, or their habitat, known or likely to occur in the area. Burning should be varied by season, intensity and interval.

b) Prescribed burning should be conducted in a manner which promotes and maintains an understorey mosaic which includes significant areas of dense understorey vegetation, particularly within the habitat of CWRV vertebrates.

c) In areas where intervals between fires are less than 5 years, prescribed burning should be conducted in a manner that minimises the impact on understorey vegetation and large fallen logs (>40cm dbh and 5m in length).

Prescription 13. Pre-logging site inspections

a) Persons conducting pre-logging and pre-roading site inspections must search for and record the following threatened species habitat features:

- nest, den and roost sites (especially raptor and owl nests and roosts, and nests and dens of threatened hollow-dependent species);
- owl pellets, distinctive scats (eg. Tiger Quoll, Koala and Brush-tailed Rock Wallaby scats), a sample of predator scats and distinctive tracks (such as Tiger Quoll);
- latrine and den sites of the Tiger Quoll;
- crushed cones beneath *Allocasuarina* spp.;
- Yellow-bellied Glider "v-notch" trees and trees with other incisions made by Yellow-bellied Gliders;
- skeletal remains;
- caves, tunnels and disused mineshafts;
- diggings made by potoroos and bandicoots.

b) Records of these features must be provided to NPWS.

Prescription 14. Ground Habitat Protection

SFNSW should take reasonable measures to protect ground habitat (understorey, ground cover, large logs on the forest floor) from specified forestry activities.

THREATENED FAUNA PRESCRIPTIONS

Prescription 15: Threatened Frogs

The NPWS database has one record of *Philoria kundagungan* within 5 km of the compartments, the closest being approximately 4.3 km south-west of compartment 71 (AMG447400E 6855500N).

The following general frog protection measures must be applied throughout the net logging area.

a) A 10m buffer must be established around all ponds and dams (as separate from streams and wetlands detailed in other prescriptions). No trees must be felled within this buffer. All practical precautions should be taken to avoid felling trees into this buffer. Machinery must not enter this buffer.

b) Grazing and associated burning should be excluded from swamps and ephemeral wetlands.

c) Any burning should be conducted in a manner which precludes its encroachment into any buffer zones established under this condition; OR in a manner consistent with continued wetland management.

d) Where more than 10 male threatened frogs per hectare are detected, stream crossings should be bridged if possible. This principle is to be applied within 500m of the perimeter of the concentration of frogs.

e) In addition to the above the following species specific prescriptions must be applied.

⇒ *Philoria spp.*

i) Where a record exists in the riparian buffer zone (established under Prescription 6 of this licence) along first or second order streams, planners should place connection corridors (established under Prescription 7 of this licence) on this stream.

ii) Where recorded elsewhere, a 50m radius buffer must be established around the record. Specified forestry activities must be excluded from this buffer.

Prescription 16: Threatened Bats

The NPWS database has one record of *Miniopterus australis* within 5 km of the compartments, the closest being approximately 3.4 km south-west of compartment 71 (AMG 447200E 6856900N). Within 5km of records of threatened bat species, the following must apply.

a) Likely multiple bat roost trees should be inspected prior to operations commencing within 100m of such trees. Likely roost trees are dead stags greater than 100cm dbh; OR large trees with accessible base hollows.

b) The area covered by fuel reduction burning should not exceed 75% of the net logging area in any one compartment where threatened bats have been detected.

c) Post-logging burning should plan for no more than 75% coverage of the gross harvesting area in areas where threatened bats have been detected.

d) In addition to the above the following species specific prescriptions must be applied.

⇒ *Miniopterus australis*

i) SFNSW and the NPWS must develop a management strategy for forests around known maternity and hibernation sites of these species.

f) Where 10 roost exclusion sites for a particular threatened bat species, separated by 2km or more are accumulated within a two year period, SFNSW can apply to the NPWS for review of this prescription.

Prescription 17: Red Goshawk

The NPWS database has a record for this species 3.6 km west of the compartment (AMG 447100E 6860900N). In the current Conservation Protocols this species is listed as one requiring site specific protection. Given the location of the record the following prescription is required for this compartment.

a) SFNSW staff carrying our harvesting planning inspections and compartment markup should be alert for any signs of this species.

b) As an interim measure SFNSW must protect all large raptor nests until the species using the nest site can be confirmed by a raptor expert as not being that of a threatened species.

c) Those trees containing a raptor nest must not be felled and all reasonable measures should be taken to avoid falling trees onto them.

d) Should a sighting, roost site or nest site of this species be recorded then the Manager, Threatened Species Unit, Northern Zone NPWS must be advised by writing , a facsimile message is suitable , within 24 hours of the sighting being made.

e) Following advice of a record of this species, or of a roost or nest site of the species, then NPWS-SFNSW will conduct a site inspection and a site specific prescription will be developed.

Prescription 18: Koala Prescription for North Coast Forest Types

The Harvesting Plan (p 5) refers to a record of Koala from the adjoining compartment 72.

1.0 Application

1.1 Areas Requiring Assessment

This prescription applies to logging areas north of Sydney where the forest types listed below occur.

- Rainforest Group: (Forest types 1-7, 10-15 and 21-26).
- Maritime, Blackbutt, Sydney Blue Gum and Spotted Gum Leagues: (Forest types 30-33, 36-42, 45-54 and 70-76 respectively).
- Grey Gum - Grey Ironbark, Grey Box-Ironbark and Red Gum Leagues: (Forest types 60-68, 80-88 and 92-93).
- Eucalypt Plantations only where there are more than twenty stems per hectare of primary browse species greater than fifteen centimetres dbhob.

1.2 Areas Requiring Survey

Pre-Harvest Plan Survey

Where those forest types listed in 1.1 above are present within the net logging area of a compartment, a linear survey is required in the pre-harvesting plan stage, with the exception of the following areas *only*:

Table 1: Areas where linear survey is not required in the pre-harvest planning stage

Casino Management Area	Royal Camp, Myrtle and Whiporie State Forests.
Glenn Innes Management Area	Whole of coastal forest types in Management Area except Gilgury State Forest.
Coffs Harbour Management Area	Conglomerate State Forest excluded.
Grafton Management Area	Spotted Gum League < 30m in height.
Morisset Management Area	Cessnock, Aberdare, Heaton, Watagan, Wyong, Ourimbah, that part of Olney State Forest outside Wollombi Brook catchment and

	Awaba State Forest.

The above areas are excluded on the basis that koalas are considered unlikely to occur. Areas may be removed from or added to this list by NPWS where additional information is made available.

For the areas listed as exceptions above, a survey must be undertaken (in areas not previously surveyed) if:

- there is a reliable koala record within 2 km of the compartment boundary;
- local and historical knowledge indicates koalas are likely to be present;
- evidence of koalas is found in the compartment during planning or logging.

General Survey Requirements

During all stages of logging operations where those forest types listed in 1.1 above are present within the net logging area of a compartment a star survey shall be required where:

- a mother and joey koala is observed in an area that has not previously been found to be a high use area;
- more than twenty scats are found below a tree that is not within a high use area; or
- where less than twenty scats of two markedly disparate sizes (medium plus about half sized) are found.

These signs indicate a high use area may be present.

1.3 Timing

Logging shall not commence in compartments requiring pre-logging koala surveys before all such surveys are complete.

2.0 Survey Method

2.1 Survey Site Selection

Areas most likely to support koalas within the compartment shall be selected using:
1) a forest type map of the compartment;
2) a visual inspection of the compartment by vehicle where existing roads are accessible; and
3) information held by District indicating the local distribution of koalas.

Transects shall be placed in areas selected for survey using the following guidelines:

- Transects shall be placed at a minimum rate of one kilometre length for each 100 ha of net logging area.
- Within the most suitable koala habitat, transects should sample a range of topographies, forest types and disturbance histories where such a range is available and accessible.
- Transects may contain infrequent bends and may be broken into segments
- The transect may cross small patches or narrow linear strips of non-logging area or unlikely habitat but blocks greater than 10 ha which shall not be logged shall be excluded from sampling.

Sampling must not be undertaken within one month following fire events.

Survey site selection shall be justified in written form on the results report.

2.2 Linear Survey Procedure

- The transect shall be walked and five trees judged most likely to be the preferred feed trees within 20 m either side of the centre line on each fifty metre segment of the transect shall be sampled.
- The following guidelines should be used to select trees for sampling. Where such trees are not available, trees which are available should be sampled.

⇒ Primary browse species, preferably averaging 50 cm dbh are to be targeted. Where these are unavailable smaller primary browse trees down to 25cm, then secondary, then other species should be targeted in that priority

⇒ Trees with healthy crowns should be selected.

- The area within 2m of the base of the tree is to be searched for koala scats for approximately one minute for trees less than 80cm dbh or 2 minutes for trees greater than 80 cm dbh. Ground cover and leaf litter should be searched through.
- the tree shall be cursorily searched for koala scratches (eg runway trees and definitive scratches) and individual koalas. The results shall be recorded on the data sheet.
- Scats shall be left *in situ*, other than small samples taken for identification or other analyses. Scats must not be painted.

Isolated areas of suitable forest types greater than 10 ha but which have not been subject to previous surveys must be sampled at a rate of at least 100 m per 10 ha of net logging area.

2.3 Additional Survey Requirements and Results Interpretation.

The results of the linear survey shall be assessed according to the following:

- Where any three trees out of any ten consecutive trees sampled are found to have one or more scat or where a possible high use area is identified (see Section 1.2) a star transect shall be conducted (see Section 2.4).
- Where two trees out of any ten consecutive trees are found to have one or more scats, the compartment shall be designated an intermediate use area (see Section 4).
- Where less than two trees out of any ten consecutive trees are found with scats no further survey needs to be conducted at this stage.

2.4 STAR Methodology

Where koala evidence is found before operations commence, star surveys (where required) must be completed before logging starts in the compartment.

a) Where 3 out of any ten consecutive trees have been found with scats:
Six additional transects shall be conducted, radiating out from the centre tree of the 3 consecutive trees found with scats. Transects shall follow lines approximately 45 and 90 degrees from the original transect line. These transects shall thus form a star pattern.
b) Where a potential high use area has been found while logging or marking:

- All logging operations shall cease in the compartment pending the following survey.
- Eight transects shall be conducted in the cardinal and sub-cardinal directions, and centred on the observation.

For both a) and b):

- Transects shall be carried out according to the linear survey procedure for at least 100 metres beyond any high use section of transect.
- The high use area boundary must be checked by a walk inspection around the perimeter.
- Where high usage is detected near the boundary (within 50 m) of the proposed logging area, sampling of relevant adjacent habitat by an informal walk - up to 100 m into adjacent State Forest or National Park - shall supplement the walk transect. This sampling shall consist of inspection for koalas, koala dung and koala habitat.
- Where this situation occurs adjacent to private lands a visual assessment from the boundary may be undertaken.
- Where the star survey does not detect any further evidence of koalas, the original 3 trees out of ten which triggered the survey shall be marked for retention.

Where two high use areas are found within the one compartment an additional transect shall be done (so that the compartment is sampled to an overall intensity of 2km per 100 ha) and, if any further high use areas are found, an expert approved by NPWS shall be

consulted. This expert is to spend 2 days in the compartment plus sufficient time to prepare a report. The report should advise on the following:

- whether any extra retention areas or surveys are needed to ensure that all areas of high use have been identified and protected within the logging area; and
- to what extent potential but unoccupied habitat should be protected.

3.0 Results

3.1 Recording Results

- The results of the koala survey must be recorded on the standard format data forms.
- The transect locations, locality of high use areas or trees, or a koala sighting shall be accurately recorded on a 1:25 000 topographic map and justification given for these locations. Sections of this map may be enlarged to enable greater accuracy of recording.
- The results of the survey shall be recorded as a concise narrative on the data sheet and relevant maps. A summary of the results shall be provided in the Harvesting Plan.
- In the case of surveys conducted after the preparation of a Harvesting Plan, the results of the survey shall be attached as an amendment to the Harvesting Plan.
- For the period of prescription review all survey results including data forms and relevant maps shall be promptly forwarded to NPWS (Zone) with the Harvesting Plan, or promptly thereafter if additional survey is initiated after licence issue. State Forests shall be notified by NPWS when this is no longer required.

3.2 Public Input

- Reports of koala evidence from the public shall be welcomed.
- Results of koala surveys shall be made readily available to interested public as soon as surveys are complete in a Harvesting Plan area.
- Community dialogue about koalas should be initiated and maintained during the survey planning stage. This need not be high profile and time consuming, but as a minimum should include contact and exchange of information with neighbours, and local animal welfare groups and conservation groups. Many interest groups, and the general public, have a knowledge of koala populations in their area. In some situations, animal care groups may be notified in case of accidental injury to a koala.

4.0 Reservation of habitat

At the harvest planning stage, reserves and exclusions for high use areas and retention rates for intermediate and low use areas shall be planned and designed according to this section and included in the Harvesting Plan.

4.1 Non Plantation Areas

<u>High Use Areas</u>

Logging operations shall be excluded from within a fifty metre radius zone of the boundary of high use areas. The edge of the high use area is delineated by the last tree which was included in 3 out of ten consecutive trees with scats. Trees retained in the high use area shall not be counted towards the habitat tree retention requirements for the remainder of the compartment.

<u>Low Use Areas</u>

Logging operations shall not occur within 20m of the tree containing a koala until a star survey has shown the area not to be of high or intermediate use, in which case the tree alone shall be retained.

<u>Intermediate Use Areas</u>

In intermediate use areas, the retention rates for low use areas applies with the addition of the following:

1. Ten primary browse trees (or secondary browse species if primary are unavailable) shall be retained per hectare within the net logging area of the compartment. These may

include habitat trees if they meet the browse requirements. Trees selected for retention should be those with leafy, broad crowns in a range of size classes and a minimum of 20cm dbhob unless scat deposits indicate a smaller tree is being used in which case this particular tree shall be retained. Where more than one primary browse species has been identified in a compartment a representative sample of primary browse species should be maintained.

2. Gaps greater than 30 m in diameter for silvicultural purposes shall not be created in the forest types listed in Section 1.1 above.
3. Trees retained as koala habitat shall not be damaged by logging operations. Logging debris shall be removed at least 10 metres from the base of these trees.

4.2 Plantation Areas

Low Use Areas

A tree containing a koala shall not be felled or damaged while a koala remains in the tree. No logging activity shall occur within 20m of the tree containing a koala until the koala vacates the tree.

Intermediate and High Use Areas.

Where an intermediate area is located in a eucalypt plantation, specific management of the area shall be negotiated with NPWS.

4.3 Unconfirmed Records

At the Harvesting Plan finalisation stage, any outstanding scat identification results on suspected koala scats (ie not yet returned from analysis) shall be treated as positive for koala and the appropriate prescription applied.

5.0 Survey During Operations

During tree marking, all primary and all secondary browse trees and trees with obvious scratches should be briefly scanned for koalas, koala scratches and koala scats. If a possible high use area is found a star transect shall be undertaken, (see Section 2.4). Efforts will be made to mark for felling operations least 500m ahead of the logging front.

During all stages of operations, a star survey shall be required where :

- a mother and joey koala is observed in an area that has not previously been found to be a high use area;
- more than twenty scats are found below a tree that is not within a high use area; or
- where less than twenty scats of two markedly disparate sizes (medium plus about half sized) are found.

These signs indicate a high use area may be present.

For areas listed in Table 1 above, and where previous survey has not taken place, a koala survey shall be conducted within the compartment (according to the methods in Sections 2.1 - 2.4 of this prescription) where one or more koala scats are found during marking or logging.

5.1 Compartment Marking

Transect start and end points should be marked clearly so the locations of linear and star transects may be found. Trees retained as koala feed trees shall be marked.

Exclusion zones shall be marked to clearly exclude logging from those areas of compartments where survey results show high use.

6.0 Reporting

All survey results (including data forms and amendments to Harvesting Plans) shall be archived by the District on the compartment history and made available to other agencies and the public on request. All koala sightings shall be incorporated into SFNSW database

with subsequent prompt transfer to NPWS. Survey records shall be reported in the same manner.

7.0 Definitions

Logging operations is defined as including timber harvesting, construction and operation of log dumps, cutting of standing trees for firewood, cutting of trees for posts, gravel extraction, harvesting of tea tree oil, road construction (including tracks and snig tracks) and prescribed burning that is not undertaken in accordance with the provisions of the *Bushfires Act 1949*.

THREATENED FLORA PRESCRIPTIONS

No additional threatened flora prescriptions are required for this compartment.

OTHER CONDITIONS

Bushfires Act

Notwithstanding any of the above conditions, SFNSW may carry out activities necessary for its compliance with the provisions of the *Bushfires Act 1949*.

Notification

Where any of the conditions of this licence requires a matter to be notified to the NPWS, approved by the NPWS, or some other action by the NPWS, then NPWS means the Manager of the relevant NPWS Zone or their delegate.

Cumulative effect

In the event that the cumulative effect of the Prescriptions of this licence leads to more than a 20% reduction in the net logging area in, or significantly compromises the silvicultural objective for this compartment, SFNSW may seek a review of the Prescriptions. The NPWS must consult with the relevant Harvesting Advisory Board, where relevant, prior to completion of any such review.

Should you have any further queries on this matter please contact Dennis Murray, Threatened Species Unit, Northern Zone on 066 598 274.

Yours sincerely,

Gary Davey
for
ROBYN KRUK
Director-General
Date: 24 February 1997

INSTRUMENT OF VARIATION
LICENCE NO. TS0005

Licence No. TS0005 issued to the Forestry Commission of NSW pursuant to Section 120 of the *National Parks and Wildlife Act* 1974, is varied at the request of State Forests of NSW as detailed below.

The following areas are to be included on the Temporary Section 120 Licence No. TS0005 for the activities as detailed in the Harvesting Plan.

"COMPARTMENT 71, BEAURY STATE FOREST."

This variation is issued subject to the following conditions:

i) *that the additional threatened species prescriptions detailed in the letter accompanying this Instrument (dated 24 February 1997, reference F207/DM), and in any subsequent amendments to that letter, are incorporated into the harvesting plan for the above mentioned compartment; and*

ii) *that all threatened species prescriptions detailed in the aforementioned Harvesting Plan, including those incorporated into the harvesting plan as per i) above and those listed in any Condition 5 that has been issued for the General Licence for this Management Area, be implemented and complied with.*

Threatened species prescriptions include those specifically described in the harvesting plan as being for the purposes of the management of threatened animals and plants, and those relating to the retention and management of filter strips, protection strips, wildlife corridors and habitat trees.

Gary Davey
for
ROBYN KRUK
Director-General
DATE: 24 February 1997.

HARVESTING PLAN NO. UMA 97/01

Beaury State Forest No 2 Compartment 71

CONTENTS

Part 2 FOREST MANAGEMENT & ENVIRONMENTAL CONSIDERATIONS

2.1 PHYSICAL FEATURES

Description 1 Physical description of the area

STATE FOREST	Beaury	DISTRICT	Urbenville
REGION	Northern	COMPARTMENT	71

The Compartment is bounded by compartments 74 and 75 to the south, compartment 70 to the east and private grazing properties to the West and North. The Compartment occupies NW aspects and falls from a high of 870m ASL on the Koreelah Range to a low of 570m ASL. The topography is generally undulating/moderate to steep slopes with scattered small very steep areas. Drainage lines are often not very pronounced and feed in a Westerly direction joining either Camp Creek before running into Woodenbong Creek. Woodenbong Creek feeds into the Clarence River about 40 km south west.

Reference Plan Operational Map and Locality Map.

Description 2 Special warning of critical boundaries or non-harvest areas

Boundaries are generally clearly indicated by fence lines and tracks. The boundaries with adjoining compartments will be marked by the SFO with paint during the harvesting, where uncertainty exists. Temporary exclusion boundaries will be marked with flagging tape.

Rapic and EPA comments are addressed in plan. **No snigging over 25 degrees.**

Due to rainforest and rainforest "B" type areas, some 20% of the gross area is exluded from harvesting in this cutting cycle.

2.2 FOREST MANAGEMENT AND SILVICULTURE

Description 3 Area of Plan by Forest Types and vegetation description (hectares)

Compartment 72 Stand condition

Forest Type	1-23	46	47	53	60	62a	62b	65	163	TOTAL
Unlogged	0	0	0	0	0	0	0	0	0	0
Selectively logged	31	24	21	29	83	45	6	30	5	274
Net Harvest Area	**0**	**20**	**21**	**13**	**78**	**45**	**6**	**30**	**5**	**218**
Inaccessible/drainage	0	1	0	3	5	0	0	0	0	9
DFA	0	0	0	0	0	0	0	0	0	0
Non-harvest Rainforest	31	3	0	13	0	0	0	0	0	47
TOTAL	**31**	**24**	**21**	**29**	**83**	**45**	**6**	**30**	**5**	**274**

Description 4 Broad description of Vegetation

(a) Forest types

The dominant forest type (FT) in the Compartment is Moist Mixed Hardwood (FT 60) with lesser amounts of Brush Box (FT 53) and Sydney Blue Gum (FT 46). These are growing on highly productive sites and grade into the drier mixed eucalypts (FT 62ab) on the north facing ridges where soils are shallower and evaporation higher. Brush box (Type 53) is widespread around moister depressions and is typically adjacent to rainforest areas. There is a 30 ha area of Forest Red Gum-Grey Gum/Grey Ironbark-Roughbarked Apple (FT 65) in the north-east of the compartment.

(b) Understorey

The understorey of the forest is primarily native grasses over most of the Compartment with some areas also containing Blady Grass. The shrub layer becomes more defined and mesic in nature in some of the FT47 and FT53. Lantana is found through small areas of the Compartment.

(c) Ground-cover

Ground cover over the Compartment is well developed and provides a high degree of soil protection. Ground cover becomes a well developed forest litter layer in moister areas.

(d) Rare or endangered species

There have been no sightings of any Threatened Species in the compartment during inspections. In adjacent compartments, there are recorded observations of the Glossy Black Cockatoo and Koala (cpt 72).

(e) Rainforest

There is a 25 ha area of Rainforest (FT 1/21) in the south-west of the compartment and 6 ha of Myrtle (FT 23) in the central region of the compartment. There is an additional 16 ha of rainforest "B" type. Total area of rainforest is estimated at 47 ha, all of which has been previously selectively logged in the 1970's. These areas of rainforest will be excluded from harvesting activities and there will be a 20 metre buffer zone around the rainforest "B" type and the existing typed rainforest.

(f) Exotic weeds

Lantana has invaded large areas of the Compartment. Other weeds that were evident included some Cobblers Pegs, Rag Weed and Wild Raspberry.

(g) Regeneration and seral stages

Considerable Eucalypt regeneration is evident especially where disturbance has been high, adjacent to and on dump sites.

Description 5 Forest and crop condition

All of the hardwood areas were logged in 1971-1972 and an average volume of 10 m^3 /Ha removed. Further logging occurred in throughout the 80's. The compartment has been harvested generally for sawlogs and some pole operations. Existing stumps show the Compartment had previously been logged some years before the 1970's. It is aimed to further encourage regeneration and cull non-productive trees not required for habitat and soil protection..

Description 6 Harvesting Conditions to be determined

(a) Silviculture

The silvicultural prescriptions in the Urbenville Management Plan 1986 and the Silvicultural Workshop notes prepared by the Silviculturist, Forest Planning Branch 1994, should be followed in determining silvicultural conditions.

Harvesting should aim at optimising the production of quota and ex-quota sawlogs, poles, piles and girders. The long term timber production potential will be increased as a result of the harvesting operation. In the Forest Types 46, 47, 53, 65 and 62 selective thinning should promote growth on retained sub-merchantable stems.

This will be achieved by:

1. Removing all mature trees suitable for production of hardwood sawlogs.

2. Retaining sufficient trees to meet habitat requirements.

3. Thinning and spacing of regrowth

4. Enrichment planting of sub-optimally stocked areas.

(b) Fire protection

In addition to silvicultural needs, fuel management of logging debris resulting from the harvesting operations is also needed to ensure that forest areas are adequately protected through reduction of fire fuel hazards. State Forests has to meet its obligations under the Bush Fires Act to ensure that forest fuel levels are kept at strategically low levels to allow effective control of wildfire. Pre-harvesting burning is not required but post-harvesting burning is needed to ensure:

(1) Reduction of flash fuel and log debris levels to an acceptable fuel loading throughout the Compartments to make fire control feasible under worst expected seasonal conditions during the Bush Fire Danger Period;

(2) co-ordination of post-harvest burning with other fuel management burning in accord with the **Urbenville District Fuel Management Plan** 1994;

(3) sufficient post-harvest burning of logging slash to allow regeneration, leaving sufficient unburnt litter and slash in other areas to, minimise potential soil erosion and control water pollution, and maintain wildlife ground-cover requirements with minimal damage to retained trees and sensitive habitat;.

(4) protection of the cattle grazing interests and property of the lessees

Mean monthly rainfall erosivity (**Rm**) does not exceed 500 all year, and post-harvest burning can be scheduled satisfactorily at any time.

References

Rosewall C.J. & Turner J. B. *Rainfall Erosivity in New South Wales.* **Technical Handbook No. 11 (1st Edition), Soil Conservation Service of New South Wales(1992)**

Pilgrim D. H. (ed) *Australian Rainfall and Runoff - A guide to flood estimation,* **The Institute of Engineers of Australia,** (1987)

Urbenville Management Plan 1987

Horne. R.H. *Silvicultural Workshop Notes* , **SF NSW Forest Planning Branch** (1994)

Fire Manual **FC NSW** 1992

2.3 FLORA PROTECTION

Description 7 Presence of protected or endangered plant species

See Description 4(d). None present in the area. The rainforest is excluded from harvesting. Readers are referred to the Urbenville Flora Report which is part of the Urbenville Management Area EIS which is now on exhibition.

Description 8 Presence of rainforest

The occurrences of rainforest areas are excluded from logging. There is a 41 ha area of rainforest "B" type in the southern section of the compartment. There is also a small patch of 6 ha of rainforest FT 23. No tree shall be fallen outside the rainforest where there is a likelihood of disturbing the rainforest structure. A 20 metre buffer strips is required around all areas of rainforest.

Reference Briggs, J.H. and Leigh J.H., *Rare And Threatened Australian Plants* **Special Publication 14, Australian National Parks and Wildlife Service,** 1988

2.4 FAUNA PROTECTION

Description 9 Endangered and protected fauna occurrence

(a) General

The following Threatened Species of fauna are known or likely to occur within the Urbenville Management Area.

None were sighted during inspections during planning inspections. There are no recorded observations in the compartment. In an adjacent areas to the north, a Glossy Black Cockatoo has been sighted in the Private Property.

Endangered or Vulnerable Species known or likely to occur in Urbenville Management Area.

	COMMON NAME	SCIENTIFIC NAME
V	Koala	*Phascolarctos cinereus*
V	Yellow-bellied Glider	*Petaurus australis*
V	Parma Wallaby	*Macropus parma*
E	Black-Striped Wallaby	*Macropus dorsalis*
V	Tiger Quoll	*Dasyurus maculatus*
V	Brush-tailed Phascogale	*Phascogale tapoatafa*
V	Red-legged Pademelon	*Thylogale stigmatica*
V	Brush tailed Rock Wallaby	*Petrogale pencillata*
V	Rufous Bettong	*Aepyprymnus rufescens*
V	Common Planigale	*Planigale maculata*
V	Long-nosed Potoroo	*Potorous tridactylus*
V	Great Pipistrelle	*Falsistellus tasmaniensis*
V	Eastern Little Mastiff Bat	*Mormopterus norfolkensis*
V	Beccari's Mastiff Bat	*Mormopterus beccarii*
V	Golden-tipped Bat	*Kerivoula papuensis*
V	Large Footed Mouse-eared Bat	*Myotis adversus*
V	Queensland Long-eared Bat	*Nyctophilus bifax*
V	Common Bent-wing Bat	*Miniopterus schreibersii*
V	Glossy Black Cockatoo	*Calyptorhynchus lathami*
V	Red-tailed Black Cockatoo	*Calyptorhynchus magnificus*
E	Red Goshawk	*Erythrotriorchis radiatus*
V	Wompoo Fruit Dove	*Ptilinopus magnificus*
V	Superb Fruit Dove	*Ptilinopus superbus*
V	Rose-crowned Fruit Dove	*Ptilinopus regina*
V	Barred or Yellow-eyed Cuckoo Shrike	*Coracina lineata*
V	Albert's Lyrebird	*Menura alberti*
V	Powerful Owl	*Ninox strenua*
V	Sooty Owl	*Tyto tenebricosa*
V	Masked Owl	*Tyto novaehollandiae*
V	Marbled Frogmouth	*Podargus ocellatus plumiferus*
E	Black-breasted Button Quail	*Turnix melanogaster*
V	White-eared Monarch	*Monarcha leucotis*
V	Loveridge's Frog	*Philoria loveridgei*
V	**Red throated, black groined yellow gutted frog**	***Philoria kundagungan*** **new addition**
V	Giant Barred Frog	*Mixophyes iteratus*
V	Stuttering Frog	*Mixophyes balbus*
V	Fleay's Barred River Frog	*Mixophyes fleayi*
V	Fossirial Skink	*Coeranoscincus reticularis*
V	Stephen's Banded Snake	*Hoplocephalus stephensii*
V	White-crowned Snake	*Cacophis harriettae*
V	Little Bent-wing Bat	*Miniopterus australis*
V	Greater Broad-nosed Bat	*Scoteanax* or *Nycticeius rueppellii*
E	Double-eyed Fig Parrot	*Psittaculirostris diopthalma coxenii*
V	Green Thighed Frog	*Litoria brevipalmata*
V	Squirrel Glider	*Petaurus norfolcensis*

Fauna species that are known or likely to occur in the subject area are documented in the Urbenville Management Plan and more recently in the Urbenville EIS which was placed on exhibition in December 1995 . In respect of Protected species (not listed in Threatened Species of the NPWS Act), the selective logging operation is not expected to impact in any significant way on their habitat or population status in the locality.

The Faunal Impact Statement associated with the Urbenville EIS which was prepared by the Australian Museum was also placed on exhibition in December 1995 and a copy is held by the NPWS.

Fauna protection measures include adoption of other non-harvest areas such as steep areas (slopes generally over 30°) as contributing to wildlife habitat because of minimal disturbance. These inaccessible areas within the Compartment forms a large contiguous area that will be undisturbed by harvesting and therefore constitute an important conservation resource.

It is also necessary to report and record confirmed sightings of Threatened species to the NPWS through the appropriate channels.

(b) Tree retention

(i) Hollow-bearing tree retention

a) A minimum of ten hollow-bearing tree must be retained per two hectares. Where this density is not availabel , ten trees must be selected from trees with diameters within the largest 30% of the stand.
b) Retained , hollow-bearing trees must be selected from trees with diameters within the largest 30% of the stand and be live trees with good crown development.
c) Retained hollow-bearing trees should represent the range of species that occurs in the area.
d) Trees retained outside the net logging area must not be counted as hollow-bearing trees.
e) Hollow-bearing trees must be scattered throughout the net logging area.
f) Hollow-bearing trees must be be marked for retention.

(ii) Recruitment tree retention

a) A minimum of ten recruitment trees must be retained per two hectares.
b) Retained recruitment trees must show potential for developing into hollw-bearing trees with good crown development. Trees in the mature and intermediate growth stages should be retained as recruiment trees.
c) Retained recruitment trees should represent the range of species that occurs in the area.
d) Trees retained outside the net logging area must not be counted as recruitment trees.
e) Recruitment trees must be scattered throughout the net logging area.
f) Recruitment trees must be be marked for retention.

(iii) "Regrowth zone" habitat and recruitment tree retention.

a) This compartment is within the "regrowth zone ".
b) Within that area (i) & (ii) above must be applied if there are sufficient existing hollow bearing trees available.
c) Where there are not sufficient hollow bearing trees available tp comlpy with section 2.4b(i) (a) above , then those hollow bearing trees present must be retained.
d) For each hollow bearing tree retained in 2.4(iii))c) above, a recruitment tree as defined in 2.4 b (ii) must be retained.
e) In the "regrowth zone " where there are less than 10 hollow bearing trees per two hectares, there is no requirement to retain additional trees as otherwise required in section 2.4(i)(a).

(iv) Protection of hollow bearing trees, recruitment trees and dead stags

a) Specified forestry activities and post-logging burning must aim to minimise damage to hollow-bearing trees, recruitment trees and dead stags. The potential for damage should be minimised by techniques of dircetional felling . Felled heads must be flattened or removed from 5m of stems retained to meet this condition.

(v) Dead stag retention

a) Dead stags must be retained in areas outside the net harvesting area , visual protection strips , and elsewhere where it is safe to do so.

b) Dead stags must not be counted as hollow-bearing trees or recruitment trees.

(c) Connection corridors

a) Each 500 ha of State forest must include a minimum of two connection corridors at least 40 m wide (connecting third order streams) , which establish links between different drainage systems. the option is to be chosen by SFNSW. These connection corridors should not be cut by roads if possible.

b) Specified forestry activities must not be xecluded from connection corridaors , with the exception of road construction and road maintenance where thereis no other practical means of access.

c) All practical precautions should be taken to avoid feeling trees into these corridors.

d) These connection corridors must be mapped and clearly recorded in Harvesting Plans.

(d) Riparian Buffers

a) Riparian buffers must be at least 10 m on each side of all first order streams, and at least 20m wide on each of all second order streams. For at least 80% of third and higher order streams , riparian buffers must be at least 40m wide on each side of the stream. the remaining 20% will have a buffer of 20m or greater on each side.

b) A first order stream is defined as that part of a stream between its point of origin anf the first junction with another stream, whereupon it becomes a seocnd or higher order stream. A third order stream commences at the junction of two second order streams.

c) These buffers must be mapped and clearly recorded in Harvesting plans.

d) Specified forestry activities , with the exception of road construction and road maintenance where there is no other practical means of access , must be excluded from riparian buffers . Where threatened species occur in riparian buffers , road construction and road maintenance should avoid areas where they occur.

e) all practical precautions should be taken to avoid felling trees into these riparian buffer zones.

Within coastal forests below 400masl all precautions shall be undertaken to protect mature rainforest trees (including native laurels, figs and palms) within 100m from either side of gully lines which adjoin forest types 47 and 53 exhibiting a well developed rainforest understorey. Prescribed burning will be conducted to the fullest extent practicable in such a way and under fuel and weather conditions that ensure its encroachment into these areas is minimal. These areas of coastal forests do not exist in compartment 71.

SFNSW are to ensure to the fullest extent practicable that any post logging burning is carried out in such a way that encroachment into moist gullies, wet sclerophyll, rainforest is minimised as is the burning of logs greater than 40 cm. Note that the Bush Fire Act And section 41A plans may override this prescription.

(e) Preservation of Critical Weight Range Species

SFNSW are to ensure to he fullest extent practicable that any post-logging burning is carried out in such a manner that encroachment into critical habitat for those species listed below is prevented. This can be achieved by carrying out post-logging burning under weather and fuel conditions which minimise the chances of encroachment into critical habitat and minimise the destruction of large fallen logs (i.e. those logs with a diameter greater than 40cm).

Critical Weight Range species are those small to medium-sized mammals as defined in the conservation Protocol 29th November 1996, which are threatened by predation or competition from feral carnivores. An example of this type of species is the Tiger Quoll which has a critical habitat defined as moist gullies, wet sclerophyll, rainforest and fallen logs with a diameter greater than 40cm.

(f) Frugivores

These species are the wompoo fruit-dove, superb fruit-dove, rose-crowned fruit-dove and the yellow-eyed cuckoo-shrike.

Within coastal forests below 400 metres asl, all precautions shall be undertaken to protect mature rainforest trees (including native laurels, figs and palms) within 100 metres from either side of gully lines which adjoin forest types 47, 48 and 53 exhibiting a well developed rainforest understorey. Prescribed burning shall be conducted, to the fullest extent practicable, in such a way and under fuel and weather conditions that ensure its encroachment into these areas is minimal.

(g) Significant Food Resources

a) Stands where *Allocasuarina* spp. dominate tha canopy should be protected from specified forestry activities. Where more than 30 crushed cones have been found beneath individuals of *Allocasuarina* spp. , indicating intensive use by the Glossy Black Cockatoo, the tree must be protected.

b) At least 4 mature (>40cm dbh) winter-flowering ecucalypt species per two hectares must be retained where they occur. Where retained hollow-bearing or recruitment trees meet these requirements , the hollow-bearing and recruitment trees can be counted as food trees.

c) Damage to mature banksias and *Xanthorrhoea* spp. should be avoided during forestry operations.

d) All trees with "V-notch" incisions or other incisions made by Yellow-bellied Glider must be retained . Where retained hollow-bearing or recruitment trees meet these requirments , the hollow-bearing and recruitment trees can be counted as food trees.

e) Specified forestry activities and post-logging burning must aim to minimise damage to retained food trees . the potential for damage should be minimised by techniques of directional felling. Felled heads must be flattened or removed from 5m of stems retained to meet this condition.

h) Wetlands

a) Wetlands are defined as areas that for ashallow waterbody when inundated cyclically , intermittently or permanently with fresh , brackish or salt water , and where the inumdation determines the type and productivity of the soils and the palnt and animals communities.

b) A buffer zone at least 10 m wide must be established around all wetlands and swamps more than 0.1 ha and less than 0.5 ha surface area.

c) A buffer zone at least 40m wide must be established around all wetlands and swamps greater than 0.5 ha surface area and all SEPP 14 wetlands.

d) The buffer zone must be measured from the outer edge of the vegetation communities dominated by wetland species.

e) Specified forestry activities must be excluded from wetlands and their buffers. All precautions should be taken to avoid felling trees into this zone.

f) Wetlands and wetland buffers must be mapped recorded in Harvesting Plans.

(I) Rocky Outcrops

a) Rocky outcrops are defined as areas characterised by high proportion of exposed rock or boulders relative too the surrounding area, or , areas with skeletal soils, supporting heath or shrub communities (sometimes with occasional emergnet trees). These sites can occur where the geology varies from the surrounding area (eg. rhyolite outcrops).

b) A buffer zone at least 20m wide must be established around all rocky outcrops more than 0.1 ha and less than 0.5 ha surface area.

c) A buffer zone at least 40m wide must be established around all rocky outcrops greater than 0.5 ha surface area.

d) Specified forestry activities must be excluded from within the buffer. All precautions should be taken to avoid felling trees into this zone.

e) Rocky outcrops must be mapped and clearly recorded in Harvesting Plans

Description 11 Species and habitat description

The following is a list of Threatened species (Vulnerable, rare and threatened species) known or likely to be found in the Compartment, and considered to have a range of sensitivities to logging as summarised on page 373 of the Urbenville Fauna Impact Statement. Sighting of any of the listed species should be reported directly to Urbenville Forestry Office. The procedure to be adopted upon identification is defined for each species although some specific protocols have yet to be agreed.

(1) **Koala** - *Phascolarctos cinereus*

Koalas have been recorded in many locations in the Management Area. The Koala evidence has been recorded in the adjacent compartment 72. Where a Koala or recent evidence of a Koala is located the tree shall be retained together with all other trees within a 100 metre radius of the location subject to further survey. Recent evidence of Koala activity is indicated by the presence of dung pellets beneath trees being used by Koalas or by characteristic claw mark scratchings on the trunks of trees used by Koalas. The survey procedure to be adopted is as follows:

(a) The extent of habitat use and preferred food trees within the 100m radius shall be assessed using the modified asterisk technique. Paragraph (b), (c) & (d) below will then apply as appropriate to the outcome of the assessment.

(b) If no further evidence of regular Koala activity is found, forestry operations may resume but a minimum of 5 Koala food trees must be retained within the 100m radius area. If Koala was recorded in a preferred food tree that tree must be included among the retained trees.

(c) If regular Koala activity is detected but less than 20% of trees examined have Koala faecal pellets underneath and no further Koalas are observed, limited forestry operations may resume under the following conditions:

(i) trees with evidence of regular Koala activity shall be retained.

(ii) a minimum of 15 Koala food trees per hectare shall be retained within the 100m radius area.

(iii) if the density of Koala food trees per hectare does not permit the above specified number of trees to be retained, all existing Koala food trees will be retained.

(d) If regular Koala activity is detected and more than one koala is observed or more than 20% of trees examined have Koala faecal pellets underneath, forestry operations including post harvest and hazard reduction burning shall be excluded from the 100m radius area and the Director General of National Parks notified.

The definition of Koala food trees for these purposes are trees with leafy broad crowns and representing the range of sizes greater than 40cm dbh and be selected with preference to Tallowwood, Small-fruited Grey Gum, Grey Gum, Large fruited Grey Gum, Forest Red Gum, Sydney Blue Gum, and White Mahogany. If these species are not present in adequate numbers, food trees should be selected from the following species - Blackbutt, Flooded Gum, and Red Mahogany. Koala food trees may be counted as habitat trees or habitat recruitment trees for the purposes of other conditions.

(2) **Yellow-Bellied Glider** - *Petaurus australis*

Have been recorded in several locations in the Management Area. There have been no sightings of a Yellow Bellied Glider in Cpt 71. Where a Glider feed tree with V-notch markings is located, a 100 metre radius shall be retained around the tree, with the following procedures to be implemented:

- a brief inspection shall be undertaken to determine the tree with the most active V-notch markings;
- this tree shall then become the centre of the 100 metre radius; all trees with V-notch markings shall be retained;
- a minimum of 30 trees (>10cm dbh) of the V-notch tree species shall be retained within the 100 metre radius;
- a minimum of 15 mature gum bark trees, with their bark shedding in long strips, shall be retained if available within the 100 metre radius. Examples of relevant bark shedding species include Flooded Gum, Blue Gum, Grey Gum, Forest Red Gum, and White Gum groups;
- where the density of these tree species does not permit the above specified number of trees to be retained, all existing species appropriate to the above shall be retained.
- If there is more than one V-notch tree within the 100 metre radius the additional V-notched trees can be counted in those feed trees to be retained.

(3) **Parma Wallaby** - *Macropus parma*

The optimum habitat for the Parma Wallaby is wet sclerophyll forest with a thick, shrubby understorey associated with grassy patches. The Parma Wallaby was thought to be extinct in the 19th Century but is now known to be secure in parts of the Great Dividing Range. The retention of vegetation on steep slopes and the abundance and proximity of suitable habitat in surrounding areas should mitigate against impacts to this species. Retention of areas of dense vegetation along water courses will provide habitat continuity if the animal exists in this harvesting area.

(4) **Black-Striped Wallaby** - *Macropus dorsalis*

The preferred habitat for this wallaby is forest with dense shrub layers, including rainforest margins. Care shall be taken to minimise snig track disturbance to the understorey, particularly adjacent to any cleared grassy areas where it may feed.

If during the tree marking or logging operations Black-striped Wallabies are observed, logging is not to start or recommence until a survey is undertaken to determine the extent of the population within the logging area.

(5) **Tiger Quoll** - *Dasyurus maculatus*

The Tiger Quoll has been widely recorded in the Management Area, as well as the north eastern part of the State, in some cases (eg. Dorrigo District) becoming a common inhabitant around camp sites. It uses logs and tree hollows for nesting. Prescriptions for the retention of filter strips, no logging in rainforest and minimisation of disturbance to fallen logs and ground cover are to be adhered to.

(6) **Brush-tailed Phascogale** - *Phascogale tapoatafa*

Known to inhabit a range of forest types. It uses small tree hollows for nesting, feeding in the canopy and ground vegetation. Has been found in numerous locations in the Management Area. Adherence to prescriptions for the retention of habitat trees will mitigate against loss of habitat.

(7) **Red-legged Pademelon** - *Thylogale stigmatica*

Inhabits rainforest to moist sclerophyll forest, and is thought to prefer gully forest, feeding mostly on leaves and berries. The Urbenville FIS summarises the species sensitivity to logging as "low". Exclusion of logging from rainforest, as well as filter strip prescriptions will mitigate against any impact on this species.

(8) **Brush tailed Rock Wallaby** - *Petrogale penicillata*

Inhabits cliffs, steep stony hills, and escarpments in dry forest types. Core habitat area will not be affected due to the steep and rocky nature of the terrain preferred as habitat. Regeneration of the shrub layer following logging disturbance may be beneficial for the food sources of this species.

(9) **Rufous Bettong** - *Aepyprymnus rufescens*

A common (Strahan 1983) Rat-kangaroo with a head and body length of 380 mm and tail length of 360 mm. Distinguishable from other macropods of comparable size by reddish-brown fur and hairy muzzle. Watch for nests in shallow excavations at the base of tussocks. Habitat thought to be encouraged by not burning long grass.

(10) **Common Planigale** - *Planigale maculata*

Occupies a wide variety of habitats, including Rainforest and Sclerophyll forests, sheltering under rocks, logs and utilising burrows. Given its very wide ecological range it is not expected that the operation will have a significant effect on the species. Retention of filter strips, no logging in rainforest and minimisation of disturbance to fallen logs and ground cover will mitigate against loss of habitat.

(11) **Long-nosed Potaroo** - *Potorous tridactylus*

A major habitat requirement of the long nosed Potoroo is relatively thick ground cover with light sandy soils. It digs small holes in the ground and eats roots, tubers, fungi, insects and soft bodied animals in the soil. It is recognisable by its long tapering nose.

(12) **Great Pipistrelle** - *Falsistellus tasmaniensis*

A large insectivorous bat occurring in both wet and dry sclerophyll forest, using tree hollows (and caves and buildings) for roosts. Tree retention and filter strip prescriptions shall be adhered to.

(13) **Eastern Little Mastiff Bat** - *Mormopterus norfolkensis*
Beccari's Mastiff Bat - *Mormopterus beccarii*

Neither of these bats have been recorded in the immediate area, the former having been recorded in the Dome Mountain area (12 km S), although they are known to inhabit similar forest on the north coast. Both have requirements for hollows, and adherence to the tree retention and the Connection Corridor will mitigate against loss of habitat.

(14) **Greater Broad-nosed Bat** - *Nycticeius rueppellii*

Has not been recorded in the immediate locality, although there are records for dry hardwood forests in the District. It utilises hollows for roosting and is known to favour watercourses and wet gullies for foraging for insects. Adherence to the tree retention and filter strip prescriptions will help mitigate against disturbance to its habitat and food sources.

(15) **Golden-tipped Bat** - *Kerivoula papuensis*

The habitat of this bat ranges from eucalypt to sub-tropical rainforest, and it has been found in Beaury State Forest. Exclusion of logging from rainforest will be beneficial. Adherence to filter strip and tree retention prescriptions are important.

(16) **Large Footed Myotis** - *Myotis adversus*

Usually found in caves, buildings and under bridges, but occasionally roosting in dense foliage. They use nearby permanent water bodies for feeding. Adherence to prescriptions for rainforest, tree retention and filter strips are important mitigative measures.

(17) **Queensland Long-eared Bat** - *Nyctophilus bifax*

Has not been recorded in the Urbenville Management Area and generally occurs North of the tropic of Capricorn in a range of habitats. Nests in hollow trees.

If the bat exists in the harvest area the species will be protected by habitat tree prescriptions, and the system of undisturbed retained vegetation along drainage lines.

(18) **Glossy Black Cockatoo** - *Calyptorhynchus lathami*

This bird nests in tree hollows and feeds almost exclusively on Casuarina. There have been recorded sightings of these to the north of the compartment in the Private Property. All practical attempts shall be made to minimise disturbance to mature seeding forest oaks throughout the logging area. On location of a nest tree the NPWS Forest Conservation Unit Manager is to be informed and logging in the immediate area (within a 100 metre radius) is to cease pending delineation of an appropriate buffer by a joint NPWS/SFNSW inspection.

(19) **Red-tailed Black Cockatoo** - *Calyptorhynchus magnificus*

Found in a variety of habitats, from coastal forests to the arid woodlands. Nests in large hollows, feeding on seeds of eucalypts, grasses and casuarinas. Covers a very large area, and is unlikely to require the Urbenville forests for critical habitat. Adherence to tree retention prescriptions is important, as well as retention of at least three surrounding buffer trees if a nest tree is identified. All practical attempts shall be made to minimise disturbance to mature seeding forest oak throughout the logging area.

(20) **Red Goshawk** - *Erythrotriorchis radiatus*

Not recorded for the District and is thought to be extremely rare. Any nest sites should be reported to a forest officer and a buffer of 250 metre radius immediately placed around the tree pending confirmation of the sighting.

(21) **Wompoo Fruit Dove** - *Ptilinopus magnificus*

Has been widely recorded throughout the District. This bird has low sensitivity to logging and will not be impacted upon by the operation as its principal habitat is rainforest. These forests are above 400 ASL.

(22) **Superb Fruit Dove** - *Ptilinopus superbus*

A relatively common inhabitant of rainforests, and is known to forage in eucalypt forest. This bird has low sensitivity to logging and will not be impacted upon by the operation. These forests are above 400 ASL.

(23) **Rose-Crowned Fruit Dove** - *Ptilinopus regina*

Common red-crowned pigeon. Inhabits rainforest, wet sclerophyll forests and occasionally open forests.. This bird has low sensitivity to logging and will not be impacted upon by the operation as its principal habitat is rainforest. These forests are above 400 ASL.. Given this species preferred habitat in rainforest the operation is unlikely to impact on the species.

(24) **Barred or Yellow-eyed Cuckoo Shrike** - *Coracina lineata*

A dark grey bird with yellow eyes and boldly barred abdomen. Preferred habitat is open forest and rainforest particularly where there are native figs and fruit.

(25) **Alberts Lyrebird** - *Menura alberti*

Has been recorded in several areas of the District. Because of its preferred habitat of viney scrub/rainforest the mitigative prescriptions in this Plan in respect of protection of rainforest will protect its habitat.

(26) **Powerful Owl** - *Ninox strenua*
Sooty Owl - *Tyto tenebricosa*
Masked Owl - *Tyto novaehollandiae*

These owls have a wide ranging habitat in NSW, distributed throughout the Great Dividing Range as well as the coastal and escarpment forests. However, despite this wide range they are listed as rare

Prescriptions relating to tree retention, filter strips, and in the case of the Sooty and Masked Owls retention of rainforest, are to be adhered to. Nesting or roost sites, if located, are to be preserved together with application of the Protocol detailed in the FIS and EIS. The location is to be immediately reported to the Foreman or Forester.

(27) **Marbled Frogmouth** - *Podargus ocellatus plumiferus*

This bird has been recorded in Yabbra and Toonumbar State Forests. In general, as a rainforest inhabitant, it's habitat will be protected through adherence to the prescriptions excluding logging from rainforest. Meggs (1993) in a study of the species found (with one exception) no individuals greater than 50 metres from flowing water and therefore standard drainage line protection aids in the health of the species in moist hardwood forest.

(28) **Black-breasted Button Quail** - *Turnix melanogaster*

Supervising Foreman and logging contractors have been informed of how to identify Black-breasted Button Quail, their nesting characteristics and their feed scrapings. If any of these are observed during marking or harvesting the National Parks & Wildlife Services Northern Regional Manager is to be informed. Operations within 250 metres of this location are to cease until the level and extent of Black-breasted Button Quail is assessed. A common habitat is reported to be on the fringe between tall moist forest and lantana thicket, although none have ever been confirmed in the Management Area.

(29) **White-eared Monarch** - *Monarcha leucotis*

Has been recorded Yabbra State Forest some 10km SE of the Compartment. Requires canopy, preferably dense foliage for nesting, and in these types of forests it is most likely to occupy the ecotone area between hardwood and rainforest. Adherence to tree retention prescriptions, and no logging of rainforest will mitigate against significant disturbance to its habitat.

(30) **Loveridge's Frog** - *Philonia loveridgei*

Boggy seepage areas may indicate preferred habitat for this frog. Avoidance of ground disturbance in such areas and adherence to filter strip provisions as well as the creek corridor will minimise the disturbance to habitat.

(31) **Barred Frog** - *Mixophyes iteratus*
Stuttering Frog - *Mixophyes balbus*

Neither of these frogs have been recorded in the Management Area. They are terrestrial inhabitants of rainforest and wet sclerophyll forest, requiring water for breeding. Adherence to prescriptions excluding logging from rainforest and prescriptions for filter strips are important.

(32) **Fleay's Barred River Frog** - *Mixophyes fleayi*

This frog has been recorded in Yabbra SF some 10km SE. The filter strip prescriptions are to be strictly adhered to in order to protect habitat and water quality, and truck roads shall only cross such gullies in the designated locations.

(33) **Fossirial Skink** - *Coeranoscincus reticulatus*

An inhabitant mainly of rainforests and sometimes moist hardwood, living under leaf litter and rotting logs. This species has been sighted approximately 18 km (in Cpt 130) to the SE of the Compartment. Adherence to tree retention, filter strip prescriptions, and excluding logging from rainforest will assist in reducing habitat loss.

(34) **Stephen's Banded Snake** - *Hopiocephalus stephensii*

There are three records of this snake in Yabbra State Forest some 20 km to the SE of the Compartment. It is a nocturnal partly arboreal snake known to shelter in tree hollows. Tree retention prescriptions, exclusion of logging from rainforest and prescriptions for filter strips are important.

(35) **White-crowned Snake** - *Cacophis harriettae*

A secretive nocturnal dark grey snake to 40 cm long that has a yellowish band at least partially circling the top of its head between the eyes (Cogger 1975 p636). Shelters in leaf litter and fallen timber. Venomous but not dangerous. Eats small lizards.

(36) **Little Bent-wing Bat** - *Minopterus australis*

This species occurs over a range of well timbered habitats where it occupies tunnels and caves during the day (often in association with the Common Bent-wing Bat) and at night forages for small insects beneath the forest canopy. Prescriptions for tree retention, filter strips and other areas excluded from logging are mitigative measures.

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2.5 SOIL EROSION AND WATER POLLUTION CONTROL

Description 11 Site soil and water data and other information

(a) **Location** See Map

(b) **Climate**

Rainfall **Average annual rainfall** 1000 mm

Average rainfall erosivity $R = 89.31 \times 6.5^{1.74} = 2319$

Monthly rainfall erosivity

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
441	394	278	93	46	70	46	46	139	162	255	348

Average annual rainfall for Urbenville (10 km SE of the Compartments) is 1082 mm p.a. with a summer rainfall pattern common to the North Coast and Northern Tablelands. There is an average of 130 raindays per year. Average annual rainfall in the Management Area varies from 1400mm in the Richmond catchment to less than 1000mm in the Western Clarence Catchment sector of the area. The rainfall isohyet map (App. 2a UMP) indicates rainfall in Cpt 71 of approximately 1000 mm/pa. January-March are the wettest months and May-August the driest. Based on 12 hour duration (ARR) the 2 year Recurrence Interval Intensity is estimated as **6.5 mm/hr** from design rainfall isopleths (ref. below). The heaviest rainfall events are known to occur in January and February and this accounts for 36% of annual rainfall in zone 2.

Temperature

Urbenville (10 km SE of the Compartments) is characterised by maxima temperatures ranging from 17° to 29° (July to January) and minima temperatures ranging from 3° to 16°. This combination of reasonably frost free conditions and good ambient temperatures during the wetter periods of the year facilitate the good continuous growth of ground-cover and an expectation of full recovery from disturbance on most sites.

Generally weather conditions will allow harvesting operations to continue throughout the year subject to normal wet weather restrictions. Occasionally operations may be stopped altogether by periods of high rainfall which are likely to occur in January to March..

References

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UMA Urbenville Management Plan. **State Forests of NSW.**

(c) Geology

The Compartment is located on Tertiary volcanics such as basalt, dolerite, trachyte and rhyolite as well as being situated on the Walloon Coal Measures.

Bedding planes
There are no obvious bedding and fracture planes in the area. Similarly this geology is now very stable with no porous rocks or other strata overlying impermeable layers. The geology of the area presents no problems in relation to road maintenance or upgrading.

References 1:250,000 Geological Survey (Map & Commentary) Warwick Sheet.
NSW Dept Minerals & Energy 1972

(d) Soils

Soil Landscape Map		Soils Report Urbenville E.I.S. 1993 Unit B occurs in 50% of the area and Unit C occurs in 50% of the area.
Map scale		1:125000
Map source		Veness & Associates 1993 (for reference purposes only)
Soil types		
Texture class	A horizon	loam
	B horizon	clay sand
Method of determination		field texture
Comment:		performed by Justin Claridge (Soil Scientist)
K value	A horizon	.040
	B horizon	.025
Method of determination		from field texture
Comment:		Adopt 0.04 as the maximum K value found
% Clay	A horizon	
	B horizon	
Method of determination		
Comment:		
EAT class	A horizon	Commonly 8. Not dispersive (4 samples from positions shown)
	B horizon	Commonly 8.Not dispersive. (4 samples from positions shown)
Method of determination		D2 and D3
Comment:		Conducted by qualified soil scientist under laboratory conditions.
Dispersion %	A horizon	
	B horizon	
Method of determination:		
Comment:		Not dispersible

Depth to subsoils and bedrock
Topsoil depth: 0-20 cm. Depth to bedrock: 40+ cm
Field survey through observation of road batters and from the soil samples showed the predominant depth of the topsoil to be 10-15 cm.

Inherent fertility

Whilst theses soils are of low to moderate fertility, the predominantly NW aspect is the major factor effecting vegetative growth. Ground cover establishment will be rapid on moister Eastern and Southern slopes, and particularly dependent on the soil moisture regime following harvesting on the Northern and Western aspects. Post harvest establishment of 70% ground-cover is expected within 12 months

Existing erosion

No areas of active or accelerated erosion were evident.

Reference

Charman, P.E.V. and Murphy, B.E." Soils - Their Properties and Management", Sydney University Press.

Qualified soil scientist

Justin Claridge (B Sc. Hons (Soils), EPA Approved Soil Scientist) performed dispersibility tests on 4 topsoil and 4 subsoil samples on samples collected out in the field. Soil samples locations are marked on the Harvesting Plan map. They were collected from a range of terrain positions during the harvest pre planning phase.

(e) Landform

Slope

Slopes are generally waxing from the ridge tops down to the limits of the net harvest area in the drainage systems. Initial slopes from the ridgeline or peaks are generally steep (25° to 30°+). This gives way to more gentle slopes which are 10^{o}- 20^{o} except where they fall into drainage lines. Areas over 30° cover approx 5% of the gross area, and are indicatively marked on the Operational Map.

Terrain

The net harvestable area of the Compartment is predominantly upper-ridgelines and middle slopes. The area is dominated by the Koreelah Range with Woodenbong Peak 900 m high located south-west of the compartment.

Drainage line condition

Drainage lines are well defined, and appear stable.

Aspect

The general aspect of the Compartment is North West with other areas such as the slopes around gullies taking their own small localised aspects within the general trend.

Rockiness

The Compartment has only a small amount of rock which is both exposed to the surface and through the soil profile. Exposed rock occurs particularly on the upper steep slopes and in areas of lower site quality.

(f) Hydrology

The Compartment is in the Koreelah Creek Catchment which drains into the Clarence River some 35km SSW of the Compartment. The compartment drains NW into Woodenbong Creek. Camp Creek which is fed by a system of unnamed gullies and drainage lines. The Woodenbong Creek then flows into Koreelah Creek. Drainage lines initiate as drainage depressions from the main ridgelines and upper slopes. Water was not present in drainage lines at the time of inspection. No prescribed streams, swamps or wetlands are found within the net harvest area. The area is not within 100 metres of a water storage.

Representative water quality monitoring site

Yet to be determined.

Reference Forest Planning Branch *Water quality monitoring program* SF NSW 1994

Previous harvesting and proposed harvesting

The compartment was harvested in 1971-72 and again in the 80's with the exception of the steep areas and rainforest areas.. It is proposed that the Compartment be harvested for quota logs and small logs with the aim of silviculturally treating the area to promote growing stock and ensure adequate regeneration. Low impact operations such as small poles and fence post cutting may be used to thin and space superior growing stock in conjunction with the main operation, if the stand structure in specific areas is found to warrant such treatment.

Upstream catchment water use

Forestry. The compartment is at the top of the catchment.

Downstream catchment water use

Forestry and grazing for 35 km. This area is not within 100 m of a water storage.

Domestic water use

Camp Creek travels only a few kilometres before entering the Woodenbong Creek. While many people use the water from these streams for domestic and stock water supplies, human consumption is typically based on rainwater.

(g) Vegetation and ground-cover

Effect on ground-cover during Operations

Harvesting operations are expected to have the potential to temporarily remove less than 40% overall ground-cover and post-harvest burning slash disposal will only remove a further 10%. Ground-cover currently comprises 63% live ground cover, 35% forest litter and 2% natural cover provided by surface rock and stone. Present surface litter in Compartment 71 is estimated at 5-10 tonnes per hectare.

Harvest practices will aim at overall retention of 50% of ground-cover immediately after harvesting, and retention of 40% ground-cover after post-harvest burning.

Recovery time

Live ground-cover recovery of grasses, shrubs and tree seedlings would be expected within 12 months over 90% of the area under normal seasonal rainfall conditions.

(h) Proposed operation system [See Condition 4. 7(b)]

Use of existing roads

Log haulage will be predominantly NW for short distances along Yellow Gully and Youngs feeder roads to the bitumened Mt. Lindesay Highway. Trucks carrying poles, piles logs and girders will take this road to Woodenbong and Urbenville. A small number of truck movements will take poles and durable girders to Coffs Harbour via the Summerland Way and Pacific Highways. All these roads are permanently maintained roads and will require no upgrading or major maintenance. Only existing tracks and roads will be used. Understorey vegetation will be required to be cleared along many of the tracks.

Yellow Gully Road (4.5 km) and Youngs Road (5.5 km) are well established and effectively drained by outfall, supplemented by rollover crossbanks to disperse infall table drian water through stable outlets onto undisturbed vegetation. These are permenently maintained roads and will require no upgrading or major maintenance. Only existing tracks and roads will be used. The batters are stable and well vegetated. The maximum width of the existing running surface is approximately 4 metres. The maximum cleared width on either side of the running surface is about 2 metres. The maximum grade of these roads is 8°, and runs for a total length of 100 metres. The maximum height of cut and fill batters is 1.0 metre for a total length of approximately 200 metres.

Dumps A and B are accessed by a 1.0 km track off Youngs Road. Dump D is accessed by a 150 metre track, also off Youngs Road. Dump H is accessed by an 80 metre track off an unamed road in the northern corner of the compartment. A 600 metre track accesses dumps K, L and M which runs off Yellow Gully Road. Dumps C, G, E and F are accessed by Youngs Road, whilst dumps I and J are accessed by Yellow Gully Road.

These will be reopened for use during operations. These are stable roads with litter and grass cover. They are drained by a combination of mitres and outfall drainage and rollovers. All batters are stable and well vegetated. The maximum height of cut and fill batters is 2.0 metres along the roads between dumps C and G. This runs for a total length of approximately 40 metres. The maximum width of existing running surface is 3.0 metres. The maximum cleared width on either side of the running surface is 1.0 metres. Maximum grade on these roads is 7°, which runs for 100 metres.

Any wheel ruts that have formed on the steeper sections of the road will require drainage structures to be constructed on top of these sections. If these sections of the road begin to deform, gravel will be spread along the area.

Reopening of the minor roads will require removal of fallen timber and regrowth from the road pavement, and some brushing of vegetation that may interfere with the movement of logging trucks. Crossfall banks that have been constructed will need to be lowered. This will be done by logging machinery and will cause minimal disturbance to the road pavement. No gravel pit or borrow pit is required witihn this harvesting unit.

Drainage feature crossing

There is a drainage feature crossing on the road that leads to dumps A and B. This is a log bridge crossing and is no longer trafficable. A major reconstructive project os required in order to repair the crossing. Refer to page 39 for instructions on reconstruction.

Youngs Road crosses a drainage line near the northern boundary of the compartment.This crossing is a long established, stable, open, natural surface causeway. The batters are stable and well vegetated. No addititional stabilisation work is required on this crossing, which will only be used in dry weather conditions.

The approaches have very gentle grades and small run lengths for water flow. At the time of recent inpsections there was no water flowing through these crossings Mitre drains will be used to disperse water into undisturbed vegetation before the approaches and on the approaches cross fall drainage will disperse water flow. The surrounding disturbed area must be sown with rye grass at a rate of 20 kg/ha by the SFO or Operations Foreman. After the crossing has been completed it will be inspected by the Assistant Forester to assess its long term stability.

Road construction

Within the Compartment old logging roads will be used. As stated in the above section, crossfall drainage, supplemented by rollover crossbank drainage to disperse infall table drain water through stable outlets onto undisturbed ground cover must be maintained where road pavements are cleared of shrub growth.(Ref. 4.7 (e)).

Harvesting method

The harvesting method proposed for the area is based on currently acceptable operational practices. It comprises:

Selective logging.
Chainsaw felling using directional felling techniques where required;
Snigging of logs using a crawler, bladed tractor up to D8 size and an articulated rubber tyred skidder;
Debarking and loading of logs, poles, piles and girders at dump using the above machines or an excavator fitted with a log clamp.
Transport of logs from the site using a tandem bogie jinker and prime mover.

The crawler tractor is used for road maintenance and snigging from steeper slopes including winching of logs. The rubber-tyred skidder is used on the flatter upper slope terrain and for snigging smaller logs.

Cover factor

The harvesting operations described above result in a cover factor **C = 0.108.**

References *Lacey S.T. USLE factors for categorising Water Pollution Hazard* **SF NSW (1994)** Unpublished report.

Rosewell C.J. *Procedure for deriving C factor values for forest land* **CaLM/SCS (1994)** Unpublished report.

Location of log dumps

See Harvesting Plan Operational Map. Log dump locations have been selected on ridgetops and natural benches to facilitate uphill snigging, effective drainage of snig tracks, and ridge-top loading wherever possible. Down hill snigging will be used on short sections which have gentle grades and which can be adequately drained by outfall drainage and crossbanks, where it is considered that this will minimise erosion hazard potential.

Dumps are situated to facilitate uphill snigging, except in the vicinity of dumsp A to E , G, J, K and M, where snigging distances will be short. Where downhill snigging is proposed, measures to prevent concentration of water flow must be taken by way of crossfall drainage and approaching tracks to direct water flow away from the dump immediately before reaching it. Track drainage techniques to prevent downhill confluence of drainage water will be practised.

Any snigging which is required to cross a road to access a log dump, must be done so that all logs required to take that path, must cross in a confined period of time and all disturbance and damage to the effectible drainage mechanisms must be repaired immediately or at the end of the day, whichever is first.

Loading will be via excavator or crawler tractor.

Post-harvest burning

See Description 6(b).

Post-harvest rehabilitation

Rehabilitation to 70% ground cover within 12 months occurs through natural re-seeding, regeneration, sowing of drains on batters (where necessary) sowing of drainage line crossing approaches (where necessary) and return of logging debris. Supervision by the SFO and fortnightly reports must assess that the provision of cross-fall drainage and installation of drainage structures are adequate to ensure stabilisation within 12 months. District staff must assess the harvest area within the first 12 months after harvesting to ensure that stabilisation is attained.

Description 12 Evaluation of soil and water data

(a) Soil Erosion and Water Pollution Hazard Categories

Soil Erosion and Water Pollution Hazard Ratings (SE/WPHR) have been assessed using SOILOSS 5.1. The rating has then been used to determine Soil Erosion and Water Pollution Hazard (SE/WPC) categories for the net harvest area.

SE/WPH Rating = R x K x LS x C x P (5.1) where

R=2319	**$R = 89.31 \times 6.5^{1.74}$**
K=.04	**B3 field texture assessment**
S=slope	**As factored in SOILOSS 5.1**
L=20 metres	**As agreed with EPA**
C=0.108	**Native forest harvesting "B"**
P=1.0	**Support Practice Factor**

Table 2 Soil Erosion and Water Pollution Categories

Slope Boundaries (degrees)	Water Pollution Hazard Rating	SE/WPH Category	Indicative % of Net Harvest Area	Erosion Hazard Class
0≤5	< 10	1	20	Low
>5 ≤ 21	11 - 49	2	75	Mod
>21≤30	50+	3	5	High
Roads/tracks	High	3	n/a	High

The following factors for rainfall erosivity also apply to road construction.

R = 2319 K = .04

(b) Dispersibility

Proportion dispersible soil	**A horizon**	**<10**
	B horizon	**<10**
Method of determination	**D2 Not under laboratory conditions**	
	D3	

Comment: Not dispersible

(c) Other factors

There are no other EHSCS/PCL factors which need to be considered in relation to the planned harvesting of this Compartment.

References *Standard Erosion Mitigation Guidelines for Logging in New South Wales* **Soil Conservation Service, CaLM, NSW 1993**

Rosewall C.J. *SOILOSS A program to assist in the selection of management practices to reduce erosion* **Soil Conservation Service Technical handbook No. 11 First Edition 1990, 2nd Edition 1993**

2.6 FOREST ZONING AND SPECIAL ATTRIBUTES

Description 13 Forest zoning and Special Attributes

(a) Research plots

There are no research or long-term inventory plots in the Compartment.

(b) Special attributes of the area

The Beaury State Forest is very scenic as a result of its rugged terrain and location in the Koreelah Range near Woodenbong Peak. It provides a mosaic of forest types and associated wildlife. It is highlighted by the Tooloom National Park on its southern border. No special zonings occur within the net harvest area of the Compartment. The new Tooloom National Park is located 1.5 km to the south of the compartment.

Part 3 AUTHORISATION CONDITIONS

Condition 3.1 Compliance

(a) Area identification

Compartment 71 Beaury State Forest No. 2

(b) Third party interests

The are no apiary sites in the area.

The comparrtment is within the area of Occupational Permit Nos 6430 and 11959 held by D. R. Maloney and K.N Young respectively for the purpose of grazing.

(c) Environmental compliance requirements

This Harvesting Plan is prepared by State Forests of New South Wales (State Forests) under the authority of the Forestry Act 1916. This Harvesting Plan is a condition of all Timber, Forest Products, Contractors and Operators Licences issued in connection with the timber harvesting operations described in the Plan.

All operations conducted under the authority of the Timber Licence and other licences and agreements issued for the area covered by this Harvesting Plan must comply with:

Licence conditions issued by State Forests under the Forestry Act 1916;

the **"Code of Logging Practice for Native Forests - State forests and Crown-timber Lands Part 2"** (1995);

the **"Standard Erosion Mitigation Guidelines for Logging in New South Wales" (SEMGL 1993)** issued by the Soil Conservation Service of the Department of Land and Water Conservation (LaWC).

the conditions of Pollution Licence No.4017 issued by the Environment Protection Authority under the Pollution Control Act 1970. Those general conditions which affect licensees are set out in Schedule "A" attached to every Timber, Contractors and Operators Licence.

conditions attached to licences issued by the National Parks and Wildlife Service under the Endangered Fauna (interim Protection) Act 1992 and the National Parks and Wildlife Act 1967 (NPW Act);

conditions resulting from determination of an Environmental Impact Statement;

the regional silvicultural specifications applicable to this operation, Namely, the **"Silvicultural Workshop Notes"** by the Siviculturalist, Forest Planning Branch, November 1994.

the schedule of specifications for the harvesting and utilisation of timber applicable to this operation, in this case, the **"Schedule of compulsory utilisation limits"**

the Code of Procedure for the measurement of timber and other products applicable to this operation, in this case, the **"Code of Procedure for the Measurement of hardwood Logs and other Timber Products-"**

the **"Standing Instructions for Fire Prevention and Control in State Forests-"**

Variations, additions or amendments to the above documents may be made by the responsible authorities at any time, and must be implemented immediately by the State Forest Licensee.

(d) Environmental Planning & Assessment Act requirements

In preparing this Harvesting Plan, the requirements of Part V of the EPA Act (as amended) and Section 92 of the NPW Act have been considered and an Environmental Impact Assessment (EIA) has been prepared.

(e) Breaches and Infringements

Non-compliance with any condition or instruction set out in this Harvesting Plan will be dealt with in accordance with Section 4 of the **"Code of Logging Practice for Native Forests - State forests and Crown-timber Lands"**. Serious breaches may lead to the issue of a Penalty notice, licensee suspension or prosecution.

(f) Variations and amendments to this Harvesting Plan

Conditions and requirements of the Pollution Control Licence cannot be varied in the field without prior written approval from the EPA, other than those areas detailed in condition 5.1 (c) or consistent with variation 24A to the Pollution Control Licence.

Variations and other specified approvals detailed in Condition 5.1(c) or consistent with variation 24A to the Pollution Control Licence, may be made by the Supervising Forest Officer to this Harvesting Plan, subject to the District Forester's counter approval.

Other approvals may only be made by the Supervising Forester and are also subject to the District Forester's counter approval, and where relevant to the Pollution Control Licence, with prior approval from the EPA.

All approvals must be recorded on a variation advice, attached as Section 6 to all operational copies of this Harvesting Plan.

This Plan must not be amended by a licensee or contractor.

(g) Harvesting Plan availability

Copies of this Harvesting Plan must be held available by the contractor or bush supervisor at the site of timber harvesting operations at all times that felling, snigging or environmental work is being undertaken within the area covered

Condition 3.2 Certification

(a) **Plan Preparation** (by Forester, Forest Assistant)

Prepared by K. W. Petty Signature

Title A/Marketing Forester Date 3/2/97

(b) **District Approval** (by District Forester)

I approve the issue of this Harvesting Plan subject to any amendments, endorsements or approval that may be made following submission to the National Parks and Wildlife Service, the Environment Protection Authority and/or the Regulatory and Public Information Committee (constituted under the Timber Industry (Interim Protection) Act, 1992 as amended).

(c) **The date that operations will need to commence is February 1997.**

Signature ..... District Forester. Date 3/2/97.
Paul Sharpe

(d) **Receipt of external authority approvals**

(To be completed by the person who originally prepared the Plan who must attach the relevant approvals to the Plan)

Table 3 External Authority Approvals

Name of authority	Date received	Attached to Plan by
NPWS		
EPA		
RaPIC		
Other authority		

I note approval of this Harvesting Plan from the above-mentioned authorities, together with the amendments they have required to be included in the Plan.

These amendments have been added to the final Plan. This Harvesting Plan comprises the Index (page 1) through to Condition 5.6, Checklist and Clearance Certificate attached and the Operational Map marked and referenced to this Harvesting Plan. This is Harvesting Plan No. UMA 97/01.

Signature ..... District Forester. Date .....
Paul Sharpe

(e) **Date for commencement of operations** .....

Condition 3.3 Distribution

RECIPIENT	PARTS	COPIES (Minimum)
Timber Licensee	1,3,4	1
Contractors	1,3,4	1
Operator(s) (where required)	1,3,4	
Supervising Forest Officer [SFO(s)]	All	1
Supervising Forester(s)	All	1
District Forester	All	
District Office Register	All	
Compartments History File (Office Original)	All	1
Regional Office (optional)	All	
Community Groups (at District Forester's discretion)	All	
Spare copy	All	1
Soil Conservationist (Forestry)	All	1
Forest Planning Branch, Head Office, for distribution to:		
Regulatory and Public Information Committee	All	3
National Parks and Wildlife Service	All	2
Environment Protection Authority	All	3
Department of Conservation & Land Management (for harvesting on areas within other Crown-timber lands)	All	

Condition 3.4 Industry endorsement

I endorse the harvesting plan on behalf of industry and look forward to some logs

Signature ..... Licence No. .....Date .....

Position ..... Company

Condition 3.5 Industry Field Supervisor/Bush Supervisors acknowledgement

I acknowledge that I have received a copy of Harvesting Plan No UMA 97/01 and that I understand the Conditions of the Plan as explained to me by a State Forests officer.

Signature Licence No. Date

Position

Signature Licence No. Date

Position

Part 4 OPERATIONAL CONDITIONS

Condition 4.1 Harvesting Activity Description

Selective harvesting operations in mature native hardwood forest, producing quota and ex-quota quality hardwood sawlogs, poles, piles and girders. Operations are aimed at initiating regeneration of regrowth forest stands where possible and selective harvesting of other areas to promote growth of retained trees.

Condition 4.2 Tree-marking and Harvest Regulation

The Tree-marking Code shown in this Plan must be used to apply other Conditions of this Plan as required. All necessary tree-marking in the field must be carried out before and during the harvesting operation by the SFO.

Marking will generally be for trees to be harvested since the number of trees that remain generally exceeds the number harvested. **This also ensures boundaries, filter and buffer strips and wildlife corridors are protected since the SFO is responsible for each tree felled.** There is **provision** to mark **non-harvest areas** with **blue paint** but this is on a **"needs only" basis at the discretion of the SFO.** Minimisation of spray marking is safer for the SFO, and improves the appearance of the forest following harvesting.

HABITAT trees will be marked only where it is considered by the SFO that the integrity of the tree and its surrounds might be affected or otherwise damaged by the logging or post-harvest burning operations.

TREE-MARKING CODE

RETAINED TREES AND NON-HARVEST AREAS

Marking as required to convey the message to the operator.

Boundary not to be crossed	Blue line
Line not to be crossed or disturbed by fallers or harvesting machinery at any time	Blue line
Private property boundary	Blue line
National Park or Flora Reserve boundary	Blue line
Filter strip [PCL Sch4]	3 Pink h.lines
Drainage depression buffer strip	Not marked
Wildlife refugia/wildlife corridor	Blue line
Other no entry areas for current operation	3 Pink h lines
Areas where disturbance by harvesting is allowed but machinery access is prohibited	Not applicable
Retained tree for wildlife habitat	Pink "H"

TREES TO BE REMOVED

Individual sawlog, pole or girder	Pink dot, "P" or "G"
Directional felling mark	Pink arrow
Tree jacking mark	Pink arrow, plus "J"
Tree to be removed at dump	Pink dot
Tree to be removed during road line/snig track alignment	Pink dot
Cancellation mark	Pink cross

TREES MARKED FOR INFORMATION

Compartments boundary	Blue line
Slope angle indication (for operators guidance)	Pink number
Approved dump sites	Pink "D'
Road line	Orange line or tape
	Inventory plot trees
	White line

Condition 4.3 Order of Working

Harvesting to dumps as directed by the SFO.

Condition 4.4 Silviculture

(a) General

All mature trees suitable for the production of hardwood sawlogs, poles, piles and girders will be marked for removal, unless required for subsequent cutting cycles, promotion of vigorous forest regeneration or to meet flora, fauna and soil prescriptions.

(b) Canopy gaps

Will not be used in this operation.

(c) Harvesting debris

Debris from selective harvesting must be removed from the butts of retained habitat trees and future crop trees to minimise later bark scorch during post-logging burning operations, or in the event of any wildfire. These standard prescriptions may be modified by habitat prescriptions required by other regulatory authorities.

Harvesting debris which is likely to impede the flow of water in road drianage structures must be removed from such structures every 2 days.

Bark and debris produced by the harvesting must be returned to the logging area and dispersed as far as practicable around the net harvest area and/or stacked in small heaps on log dumps.

(d) Directional felling

Directional felling must be carried out where specified by the SFO and in this harvesting plan.

Condition 4.5 Flora Protection

(a) Endangered flora species protection

No endangered or threatened Australian plant species (ROTAPS) are likely to be encountered in the net harvest area.

(b) Rainforest protection

Logging activity is excluded from rainforest stands. There is a 41 ha area of rainforest "B" type that has been identified in the southern section of the compartment. There is also a small patch of 6 ha of rainforest FT 23 in the central section of the compartment. A 20 metre buffer zone must be placed around all areas of rainforest in the compartment. Trees outside the rainforest may not be felled where they are likely to damage the rainforest or necessitate entry into the rainforest to facilitate their removal.

Condition 4.6 Fauna Protection

(a) Sightings of fauna

See Description 9 (a), page 7 Fauna Protection Strategy

(b) Habitat Tree retention

See Description 9 (b), page 9 Habitat Tree prescription

(c) Non-harvest and modified harvest areas

Wildlife Corridor

Wildlife movement along gully sides and to the ridges will be facilitated by the filter strip system and other non-harvest areas shown on Map.

Condition 4.7 Soil erosion and water pollution control

(a) Basic Water Pollution Hazard Categories

Table 2 Soil Erosion and Water Pollution Categories

Slope Boundaries (degrees)	Water Pollution Hazard Category	SE/WPH Category	Indicative % of Net Harvest Area
0≤5	LOW	1	20
>5 ≤ 21	MODERATE	2	75
>21≤30	HIGH	3	5
Roads/tracks	HIGH	3	n/a

The SFO is responsible for identifying ground slopes exceeding 30 degrees in the field.

(b) Approved timber harvesting and extraction method

Chainsaw felling using directional wedging/felling techniques where required;

Snigging of logs using a crawler, bull bladed type tractor up to D8 size and/or a rubber tyred wheeled skidder with bull blade, fitted with grapple and/or winch;

Debarking and loading of logs at dump using a tracked excavator tractor.

(c) Marking and location of soil protection and water pollution control measures

The marking of soil protection and water pollution control measures in the field must be in accordance with Condition 4.2. The location of known drainage lines is indicated on the Harvesting Plan Operational Map.

(d) Wet weather controls

Harvesting operations may be conducted throughout the year subject to the application of normal wet weather closure procedures and restriction to wet weather areas as set out in Condition 4.4, page 35. Operations may be stopped altogether for safety reasons for short periods of time because of heavy rainfall. Areas adjacent to the main gravel roads will be retained for wet weather as required.

During wet weather, the controls for road usage and for snigging set out in the Code of Logging Practice must apply. In particular:

1. **Haulage must cease** on natural surface roads where **runoff occurs from a road surface.**

2. **Snig tracks must not be used** where there is **runoff from a snig track** surface.

3. **Snig tracks must not be used** where there is **likelihood of significant rutting leading to turbid runoff** from the track surface.

(e) Existing roads

Maintenance

Where wheel ruts have formed, rollover banks must be constructed on top of these steeper sections of the road to divert water onto undisturbed vegetation.

Where required, gravel must be spread on these steeper sections if the road surface begins to deform.

Clearing of regrowth

Reopening of exisitng roads will involve lowering of crossbanks and the removal of fallen timber and small regrowth from the road pavement and edges. Clearing outside the running surface must be confined to the minimum required to provide safe sight distances and effective drainage, and allow adequate movement of logging trucks. Debris from clearing must not be deposited in the outlets of drainage sructures or within filter or buffer strips.

Road surface drainage

The existing roads utilise outfall crossfall drainage supplemented with rollover crossbanks. Where outfall drainage is not practical following blading off of shrub regrowth, rollover crossbanks must be spaced at maximum intervals as per table 3 below. Cross bank spacing should avoid unnecessary soil disturbance cognisant of the previous calculations.

The banks must have a minimum designed vertical height from spillway to bank top of 25 cm which permits vehicle traffic to pass over.

Table 3: Maximum Spacing of Road Drainage Structures (metres)

Track grade (Degrees)	Water Pollution Hazard Category 3
5	100
10	60
15	40

These spacings are based on Table 2 in Schedule 4 of the PCL.

Rollover crossbanks must drain onto undisturbed vegetation or logging slash wherever possible. Where not immediately accessible to outfall, sediment trap fences must be installed across the outlet. Rollover banks must be operational on roads no longer required.

Where it is necessary to convey runoff water over a fill batter greater than 1 m high, that has been disturbed by the operation or on which soil is exposed, drop down structures constructed of rock or pipes must be installed. Dissipaters must be installed at the bottom of drop down structures.

Road drainage must minimise the flow of unchecked water onto extraction tracks, snig tracks or log dumps. Where this cannot be achieved by outfall drainage, a rollover crossbank must be placed as close as possible to the track or dump, consistent with haulage practicalities, to minimise the catchment area above it.

Prescription for road drainage feature crossing repair by the logging contractor
All work will be supervised by a SFO.

Site A

- Location
  150m off Youngs Rd to Dump A
- Type of drainage feature
  Drainage line
- Estimates approach grade
  < 5° either side
- Type of crossing structure proposed
  Log bridge to have top logs replaced
- Estimated clearing total clearing width through crossing
  None
- Bank and bed reshaping
  N/A. Sill logs to remain in place.
- Comtainment of fill
  Kerb logs
- Approach reforming
  N/A.
- Approach drainage
  Mitre drain 20m on N side and infall drainage running into drainage line above bridge. On N side mitre drains 30m away at the top of a box cut and infall drainage directly into drainage line. Drains and banks are vegetated and stable.
- Any necessary stabilisation of bed and banks
  N/A.
- Sediment control
  SFO will supply sediment sheeting (Jutemaster Thick Mat), to be laid down below the bridge before commencement of repairs. Sediment sheeting must be laid ontop of logs before spoil is replaced.
  The SFO or Operations Forman will place hay bales along drains that flow directly in to drainage line as sediment traps.
- Action after use
  A SFO will sow Grass seed at the rate of 20kg/ha on all disturbed areas
  The sediment sheeting below the bridge must be recovered and returned to State Forests.
  Crossing is to remain in place at the completion of operations.

Revegetation and rehabilitation

Revegetation of minor roads will be through natural regeneration. This will generally provide stabilisation for any disturbed topsoil areas.

On completion of operations, rollovers and crossfall (outfall) drainage must be reinstated. The minor roads are to be closed and must be bedded down on the completion of operations. Crossbanks sufficient to prevent use by vehicles must be constructed at the entrance to these roads.

Road surfaces, batters and drainage feature crossings on all roads must be left in a stable state .

Patch gravelling

Existing natural surfaces are adequate.

Patch gravelling must be done if secions of the road begin to deform.

Borrow pits and gravel pits

Not required in the compartment.

(f) Road Construction

There will be no road consturction for this operation.

(g) Slope limits for the area

Maximum slope for harvesting	30°.
Maximum slope for snig track construction	25°.
Maximum side slope for snig track construction	30°.
Maximum road grade permitted	10°.
Maximum side slope for road construction without engineering design	30°.

(h) Drainage feature protection

Filter strips must be retained along watercourses and drainage lines within the net harvest area of the compartment at minimum widths (measured in the horizontal plane) as stated in Table 6 below. These minimum widths meet or exceed the requirements of the Pollution Control Licence.

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

Table 6 Filter strip widths

		DRAINAGE FEATURE		STRIP WIDTH EITHER SIDE
SE/WPHC	WPHC Slope	Catchment	Slope	Filter
	(degrees)	(hectare size)	(degrees)	(metres)
1	≤ 5	< 40	-	5
2	> 5 to ≤ 21	< 40	-	10
3	> 21 to 30	< 40	< 18	15
3	>21 to 30	< 40	**greater > 18**	20
1-3	0 ≤ 30	**greater >40**	< 18	20
1-3	0 ≤ 30	**greater > 40**	**greater > 18**	30
Buffer strips must be 5m wide on each drainage depression				
NOTE: The widths above equal or exceed the requirements of PCL No 4017				

In addition buffer strips 5 metres wide on either side of drainage depressions must be maintained.

* Refers to the ground slope within the filter strip

It is the responsibility of the contractor to identify and observe these features encountered in the field.

(i) Tree marking rules for filter and buffer strips

Filter strips will only be marked in the field where it is necessary to convey a particular message to an operator which cannot be done verbally or in the tree marking for removal strategy. Where necessary, the Supervising Forest Officer is responsible for marking filter strips in the field progressively and prior to the commencement of operations into that section of the harvest area.

Contractors and operators are responsible for identifying drainage depressions encountered in the field and taking appropriate protective action within the buffer strip area whilst operating or traversing the drainage depression. (See also 5.2.)

(j) Felling and extraction from filter strips

Trees must not be felled into filter strips.

Directional felling must be used to avoid felling of trees into filter strips.

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

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

Crowns, logs and substantial debris (*greater than 100mm in diameter & 3 meters in length*) accidently felled into filter strips must be removed with the minimal disturbance to the bed and banks, unless removal would result in more damage to the bed and banks than non-removal. Any disturbance caused must be remedied by reshaping and replacement of cover , so that concentrated water flow does not occur . Instances where crowns, logs, or substantial debris are not removed must be documented on the SFO's copy of the harvesting plan, including the reason for the accident and the remedial action taken.

(k) Extraction from drainage depression buffer strips

Buffer strips must be provided along all drainage depression within the compartment. Buffer strips must be 5 metres wide each side of the drainage depression.
Machinery must not operate in buffer strips when the soil is saturated.

Machinery operating within buffer strips must :

a) minimise soil exposure ; and
b) not cause channelised flow.

This must be achieved by :

a) the use of walkover techniques wherever possible; and
b) preventing sewing of machinery tracks; and
c) operating with the blade up at all times; and
d) not snigging along drainage depressions.

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

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

It is the contractor's responsibility to identify drainage depressions encountered in the field.

(l) Snig track drainage

Snig tracks must be located on ridges to ensure free crossfall drainage wherever practicable Side cut tracks must have crossfall drainage and no track should be located immediately adjacent to and parallel to a filter strip.

Sections of extraction tracks and snig tracks must be progressively drained at the completion of logging operations around each section of track, using one of 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 7, 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 7 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 7, constructed drainage is not required.

Table 7 : 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
35	25	20	10

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.

Outfall drainage, crossbanks, mitre drains outlets are placed on the contour and directed onto undisturbed vegetated ground or logging slash. Sediment sheeting will also be used to achieve the required outcomes stated above. To minimise unchecked flow into watercourses and drainage lines or onto roads and log dumps drainage structures will be placed above the feature and diverted onto undisturbed ground.

Where crossbanks are used they must be constructed to a minimum unconsolidated effective height of 35cm, or a consoildated effective bank height of 25cm, unless otherwise calculated in accordance with the above.

Crossbanks must be constructed at right angles to the flow of water along a snig track. Crossbanks must not be constructed of bark.

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 2 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 SFO's copy of the harvesting plan, including the reasons why.

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

Drainage must be effected if the use of an extraction track or snig track is to be temporarily discontinued in accordance with Table 8:

Table 8: 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	<900	8
	>900	5
3	<900	5
	>900	3

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

(m) Downhill snigging

Where downhill snigging is proposed, measures to prevent concentrated water flow must be taken. The following techniques must be used by tractor and skidder operators:

1. Crossfall drainage where practicable;
2. Tracks approaching log dumps must be located so as to direct water away from the dump immediately before reaching it.

(n) Snig track drainage line crossings

All crossings must be approved by the SFO before construction. Where natural rock crossings are not available, hollow logs or recoverable steel pipes may be used provided they are of sufficient capacity to allow free flow of drainage water. Crossings must be removed after use, all harvest debris removed from the channel and the crossing point reshaped to its original condition. There must be no snig track drainage feature crossings.

(o) Log dumps

Log dumps must be located as indicated on the Harvesting Plan Operational Map. Drainage of log dumps and stabilisation must include the following:

Field location of log dumps must utilise the most level site available, consistent with the location indicated on the Operational Map.

Before use, sufficient topsoil must be stripped and stockpiled for subsequent respreading at the completion of operations. Topsoil must be stripped to a depth of 10-15cm.

Dumps must be constructed with outfall drainage prior to dump operation to ensure runoff is dispersed onto undisturbed vegetation.

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 a 70% cover of at least 5 cm of topsoil;

b) planting with eucalypt seedlings;

c) seeding the log dump with a cover crop, 20kg/ha.

Drainage

Log dumps must be drained during operations and upon completion of operations, in order to;

minimise the flow of runoff from roads, tracks and other areas above the dumps;

minimise water logging and pooling of water on the dump sites;

minimise runoff from the dump directly onto roads and tracks.

Where runoff cannot be diverted from roads and tracks, the road or track must be drained as soon as practicable below the dump.

(p) Prescribed Burning

Pre-logging burning

There is no pre-logging burning associated with the harvesting of compartment 71.

Post-logging burning

Post-logging burning of compartment 71 must be carried out in accordance with provisions and specifications of the **Urbenville District Fuel Management Plan** 1994.

Condition 4.8 Research and Inventory Plots

There are no research or inventory plots are present in the Compartment.

Condition 4.9 Modified harvest conditions for special emphasis areas

Care to be taken of the rainforest previously mentioned.

Condition 4.10 Specification of type of Hardwood products to be removed

Product 1	Quota sawlogs	Minimum length 2.4 metres See maximum defect levels specified in the "Schedule of compulsory utilisation for Urbenville District."
	Large Thinnings	40 cm cdub minimum 30 cm cdub to 39 cm cdub. Minimum toe 25cm dub, Minimum butt 36 cm dub
Product 2	Ex-quota sawlogs	Logs not meeting above specification
Product 3	Poles, Piles, Girders	Specifications as per Hardwood Pole, Pile and Girder Sales System (1992) and Timber Poles for Overhead Lines (AS2209-1979)
Product 4	Round and Split Posts	Logs not meeting specifications for compulsory sawlogs that have been marked for post utilisation.

Yield information

Product	Volume (cubic metres)
Quota sawlogs (assessed)	900
Thinnings	720

No analysis of volumes by species or size classes is available.

Part 5 CONDITIONS FOR SUPERVISING FOREST OFFICERS (SFOs)

Condition 5.1 SFO authority to supervise harvesting operations

(a) General

The Supervising Forest Officer responsible for the direct field supervision of this harvesting operation, including tree-marking, log measuring and/or log check measurement, safety, implementation of wet weather controls, and monitoring and reporting generally will be a nominated Hardwood Marketing Foreman of the Urbenville District. The intention is that an individual Marketing Foreman will be responsible for the entire operation within the Compartments from commencement to completion.

(b) Relieving SFOs

Relieving SFOs, if required, are Urbenville District staff that operate in the capacity of Marketing Foreman, Forest Assistant (Marketing) or Marketing Forester.

(c) SFOs authority

The SFO has authority to approve:

(1) The blading off of natural surface roads provided that damage will be minimal and the removed material is recoverable for respreading;

(2) Downhill snigging routes where provided for in the Harvesting Plan;

(3) The exact field location of topsoil stockpiles for later recovery and use;

(4) Use of natural surface roads for snig track crossings or as snig tracks or timber extraction tracks to dumps provided restoration of the road for wheeled traffic is undertaken as necessary and use of the road significantly reduces soil disturbance.

(5) The exact location and type of watercourse and drainage line crossings for snig tracks

(6) Specific location of log dumps commensurate with the Operational Map

All approvals must be noted on a Harvesting Plan Variation Form and copies attached to the relevant master copies of the Harvesting Plan.

Condition 5.2 Tree-marking and other harvesting control requirements

(a) Tree marking for forest management and silviculture

Normal District practices for tree-marking will apply. (See also condition 4.2, page 34.)

Marking for Tree retention

Since the SFO is marking for removal, habitat and habitat recruitment trees will only be marked as is necesary to alert a harvesting contractor. Prescription is specified in Description 9 (b), page 9 and is as follows:

(i) Hollow-bearing tree retention

a) A minimum of ten hollow-bearing tree must be retained per two hectares. Where this density is not availabel , ten trees must be selected from trees with diameters within the largest 30% of the stand.

b) Retained , hollow-bearing trees must be selected from trees with diameters within the largest 30% of the stand and be live trees with good crown development.
c) Retained hollow-bearing trees should represent the range of species that occurs in the area.
d) Trees retained outside the net logging area must not be counted as hollow-bearing trees.
e) Hollow-bearing trees must be scattered throughout the net logging area.
f) Hollow-bearing trees must be be marked for retention.

(ii) Recruitment tree retention

a) A minimum of ten recruitment trees must be retained per two hectares.
b) Retained recruitment trees must show potential for developing into hollw-bearing trees with good crown development. Trees in the mature and intermediate growth stages should be retained as recruiment trees.
c) Retained recruitment trees should represent the range of species that occurs in the area.
d) Trees retained outside the net logging area must not be counted as recruitment trees.
e) Recruitment trees must be scattered throughout the net logging area.
f) Recruitment trees must be be marked for retention.

(iii) "Regrowth zone" habitat and recruitment tree retention.

a) This compartment is within the "regrowth zone ".
b) Within that area (i) & (ii) above must be applied if there are sufficient existing hollow bearing trees available.
c) Where there are not sufficient hollow bearing trees available tp comlpy with section 2.4b(i) (a) above , then those hollow bearing trees present must be retained.
d) For each hollow bearing tree retained in 2.4(iii))c) above, a recruitment tree as defined in 2.4 b (ii) must be retained.
e) In the "regrowth zone " where there are less than 10 hollow bearing trees per two hectares, there is no requirement to retain additional trees as otherwise required in section 2.4(i)(a).

(iv) Protection of hollow bearing trees, recruitment trees and dead stags

a) Specified forestry activities and post-logging burning must aim to minimise damage to hollow-bearing trees, recruitment trees and dead stags. The potential for damage should be minimised by techniques of dircetional felling . Felled heads must be flattened or removed from 5m of stems retained to meet this condition.

(v) Dead stag retention

a) Dead stags must be retained in areas outside the net harvesting area , visual protection strips , and elsewhere where it is safe to do so.
b) Dead stags must not be counted as hollow-bearing trees or recruitment trees.

In addition, all practical precautions shall be taken to protect identified habitat trees during logging (harvesting) operations. The following shall be adhered to:

1. All practical precaution shall be taken to avoid tree heads landing adjacent to identified habitat trees. In gapping operations tree heads shall be moved to the centre of gaps prior to burning.

2 In forests with a mesic understorey heads of trees within a radius of 10 metres of identified habitat trees are not to be spot burnt.

3. Alternatively, if a ground burn can be carried out in this forest type then burn conditions shall follow those agreed upon for xeromorphic understorey.

4. In forests with a xeromorphic understorey heads of trees will be removed from within approximately a 5 metre radius of identified habitat trees prior to the general ground burn.

5. Tree heads shall be removed with minimum disturbance to understorey vegetation and ground logs.

Canopy gaps for regeneration

Will not be used in this operation.

Tree marking for non-harvest areas and modified harvest areas

Flora and fauna protection
See Flora Protection Strategy, Condition 2; Descriptions 7, 8, 9.10,11 page 7 to 21 and tree marking code.

(b) Soil erosion and water pollution control requirements - marking of filter and protection strips.

Filter strips and drainage depression buffer strips must be retained along all drainage features at the minimum widths as indicated in Table 6 in condition 4.7(h), page 40.

Filter strips will only be marked in the field where it is necessary to convey a particular message to an operator which cannot be done verbally or in the tree marking for removal strategy. Where necessary protection strips and filter strips must be marked in the field progressively and prior to the commencement of operations into that section of the harvest area.

(c) Drainage depression buffer strips

The SFO is responsible for ensuring that contractors and operators are detecting drainage depressions in the field and taking appropriate protective precautions within the buffer strip area whilst operating or transversing the drainage depression. (See also 4.7 (h), page 40)

(d) Rye Grass seeding operations

Not required as general prescription except on batters, but will be used where warranted at 20 kg/ha.

Condition 5.3 Monitoring and reporting

(a) Daily and Fortnightly reporting

The standard Regional procedures for daily and fortnightly reporting on the conduct of operations must be followed.

The SFO must report the following matters and record their location if necessary on their copy of the Plan Map, Breach Report Form, and the recording map attached to the Plan for that purpose:

1. instances where trees and/or crpwns are not removed from watercourses and drainage lines.

2. instances where machinery enter the 5 metre internal filter strip zone other than those specified in the plan.

3. instances where slash crossings are left in situ.

4. instances where the track drainage is not affected within 2 days of completion of operations.

5. instances of non removal of spoil from bed and banks at road or snig/extraction track crossings.

6. instances where roads or snig/extraction track crossing stabilisation has not occured within five days.

(b) Faunal reporting and temporary tree-marking

Reports of sightings of any endangered fauna as required in conditions 4.6(a), page 36 must be made to District Office within 24 hours of the sighting being made. Immediate action should be taken to place tape-marks for retention of Koala, Yellow-bellied Glider, Owl or Black Striped Wallaby habitat if a sighting or evidence of presence is encountered. (See 4.6, page 36.)

(c) Soil erosion and water pollution control conditions

The SFO must report the following matters and record their location if necessary on their copy of the Harvesting Plan Operational Map, or the recording map attached to the Plan for that purpose:

any accidental felling into filter strips and remedial action taken.

any approval to leave spoil from road and track construction in drainage lines or watercourses where attempts at removal would have resulted in excessive damage.

any approval to defer stabilisation works at a drainage feature crossing beyond five days.

any approval to leave a snig track drainage feature crossing structure in place and the reason for it to be left in situ.

any instances where effective cross bank drainage of a snig track is not effected within two days of completion of snigging from the area served by the track.

(d) Sowing of constructed road batters

Where fill batters below crossbanks are unprotected by vegetation following falling and snigging the area must be sown by the SFO. Sowing must be of rye grass at 20kg/ha.

(e) Sowing of crossing approaches during road maintenance and snig track construction

Any crossing approaches will be stable due to the amount of surface rock. Natural regeneration of native grasses, shrubs and trees should be sufficient but where revegetation is considered inadequate by the SFO or the Forest Assistant in compliance checks this is in doubt sowing is to be used. Where rye grass seeding takes place a sowing rate of 20 kg/ha is to be used. The satisfactory completion of stabilisation and/or sowing operations must be recorded in the fortnightly report by the SFO.

Condition 5.4 Pre-and-post-harvest burning

(a) Pre-harvest burning

There will be no pre-harvest burning associated with the harvesting in this area. Top disposal burns were performed in last harvesting operation (1985/6).

(b) Post-harvesting Burning Plan

Objectives

The post-harvesting burning plan for this area has the following objectives:

(a) Integration of this post-logging burning with other priorities set down in the Fuel Management Plan for Urbenville District;
(b) Removal of sufficient fine fuels and debris generated by harvesting to ensure that regeneration and retained stems are not damaged during possible wildfire events;

Fuel reduction will reduce the chances of wildfire spreading through the area and damaging surrounding forest and fauna; increase the chances of effective wildfire control, and promote good seedbed conditions for regeneration.

Ignition

Burning must be undertaken by the lighting of individual heaps of harvesting slash and debris under mild weather conditions. Lighting of debris and flash fuels associated with log dumps and other areas will be carried out to minimise removal of surface litter and damage to habitat trees. The SFO or the Operations Forester and Operations Foreman are responsible for ignition, subject to the fire-safety and other requirements of the District Fuel Management Plan.

Preferred season of burn

March to November depending on fire weather and fuel conditions.

Recording of burning activities

All post-harvesting burning activities must be recorded on the Day of the Burn Checklist on a daily basis and reported on the Post-Burning Checklist.

Condition 5.5 Other instructions

Ensure that the SFO and contractors are aware of any subsequent amendments to the Harvesting Plan that may be imposed by Rapic, NPWS or EPA. These appear as amendments to the Harvesting Plan.

The SFO must ensure the installation of sediment trap fencing on any crossbank outlets which do not drain onto undisturbed vegetation.

The SFO should direct any queries to the Marketing Forester.

There are no other instructions concerning the supervision of harvesting this area.

Condition 5.6 SUPERVISING FOREST OFFICERS ACKNOWLEDGMENT

I acknowledge that I have received a copy of Harvesting Plan for Compartment 71 and that I have been briefed on the Conditions of the Plan and the supervision and operational control requirements as explained to me by the District Marketing Forester.

Signature Date

Position
Forest Officer

Signature Date

Position
Relieving Supervising Forest Officer

HARVESTING PLAN PREPARATION CHECKLIST

FLORA AND FAUNA CONDITION CHECKLIST

None were sighted during inspections during planning inspections. Glossy Black Cockatoos have been sighted to the north of the compartment in Private Property. Koalas have been sighted in an adjacent compartment, cpt 72.

Provision for this is covered in the Fauna Protection Strategy. Any occurrences within the harvest area will be dealt with as required during harvesting.

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry Needed?	Plan Ref.
C 42	Representative water monitoring site	Yes	D12(f)
	Have the Water Pollution Hazard Categories (WHPC)s and the Proportion of Dispersible Soil (PDS) been calculated for the area?	Yes	D13(a) D13(b)
	Method for soil sampling for K factor	Yes	D12(d)
	Field sampling - sites?	Yes	Map
	- lab analysis?	Yes	
	- field analysis?	No	
1b	Site specific conditions	No	D13(b)
4.	Are areas >30° outside net harvest area?	Yes	Map D12(e)
5.	Are areas in WHPC4 outside net harvest area?	Yes	Map D12(e)
6.	Drainage feature protection	Yes	D12(f) D13(a) C4.7(g)
7.	Any major water storage?	No	D12(f)
8.	DDBS conditions included?	Yes	D13(c)
9.1(c)	Filter strip on Map?	Yes	Map
10.	Conditions for marking/ identifying: - filter strips - buffer strips in the field	Yes	C4.2 C4.7(h) C5.2(d)
13.	Reporting accidental felling into filter strips	Yes	C5.3(c)
14.,20.,22.	See 10		
24.	Specify techniques in DDBS	Yes	C4.7(i)

Condition No.	Condition Title/Enquiry	Entry Needed?	Plan Ref.
47.	Road design, etc. for 1:10 yr. storm event: What techniques for 12 month stabilisation?	No	D14(d) C4.7(e)
48.	Are roads shown on Map?	Yes	Map
49.	If road traverses area over 30° what techniques for 1:10 storm event?	No	D12(h)
	What techniques for 6 month stabilisation of road?	No	D12(h)
50.(a),(b)	What is maximum road grade?	Yes	C4.7(f)
51.	Who will mark roads in field?	Yes	C4.7(e)
52.	What is maximum clearing width for road formation?	Yes	C4.7(e)
53.	Is any roadside clearing proposed? If so what techniques for 70% ground-cover within 12 months?	No	D12(h)
57.	Any borrow or gravel pits? If so what batter and stabilisation techniques are required?	No	D12(h) C4.8(e)
60.	What design criteria for stable road batters within 12 months?	Yes	C4.7(e)
63.	Do road drainage techniques specify - peak flow 1:5 year storm capacity? - stable surface water diversion? - minimisation of unchecked flow? - use of sediment traps if necessary?	No	C4.7(e)
64.	What is spacing and type of road drainage structures?	Yes	C4.7(e)
65.	Is an alert condition needed for cutting of roadside waterholding windrows?	No	
66.	Is an alert condition needed to emphasise 2 day removal of debris from drainage structures?	No	
67.	Is an alert condition needed for reporting of blading off approvals?	No	

Condition No.	Condition Title/Enquiry	Entry Needed?	Plan Ref.
71.	Are drainage feature crossing structures for roads specified for location, type and capacity?	Yes	C4.7(e)
74.	Is a report condition included to cover spoil non-removal from drainage features?	Yes	C5.3(c)
76.	Is a report condition included to cover reporting that crossing stabilisation is not completed within five days?	Yes	C5.3 (c),.
77.	Are techniques listed to leave crossing sites stable?	Yes	C4.7(e)
78	Are techniques specified for stabilisation of roads that are no longer required?	Yes	D12(e), C4.7(e)
79.	Have any old roads been evaluated?	Yes	C4.7(e)
80	Are alert conditions required for dispersible soils?	No	D13(b)
81.	Are protection techniques spelt out for roads traversing dispersible soils?	No	D13(e)
82.	Are alert conditions for wet weather restrictions included for roads?	Yes	C4.7(a)
83.	Is a report condition included to cover crossing stabilisation not being completed within 5 days?	Yes	C5.3(c)
84.	Are techniques listed to leave crossings stable?	Yes	C4.7(e) C5.3(e)
85.	Is a report condition needed to cover none removal of temporary crossings?	Yes	C5.3(d)
86.	Are there any crossings of drainage features other than drainage depressions by snig tracks?	Yes	C4.7(m) C5.1(d)
	Are snig track crossing locations type and capacity specified?	Yes	C5.1(c)

Condition No.	Condition Title/Enquiry	Entry Needed?	Plan Ref.
	Is a reporting condition included for SFO approvals for crossings?	Yes	C5.1(c)
	is a report condition included for non-removal of spoil from drainage features?	Yes	C5.3(c)
89.	What conditions are specified for effective snig track drainage?	Yes	C4.7(h)
92.	Is an alert condition needed for snigging along roads?	No	
93	Are alert conditions for wet weather restrictions included for snig tracks?	Yes	C4.7(d)
99	Do specifications for drainage of snig tracks include: - capacity for peak flow in a 1:2 year storm event? - diversion onto stable surfaces? - minimise unchecked flow into drainage features? - divert water at minimum damage to structure?	 No No	 C4.7(k)
103.	Is minimum specification for bank height used?	Yes	C4.7(k)
105.	Is a reporting condition needed for non-drainage of snig tracks over two days after use has ceased?	Yes	C5.3(c)
107.	Is an alert condition for temporary cessation of use drainage condition required?	Yes	C4.7(k)
109.	If downhill snigging is specifed, are specifications for preventing concentrated water flow included?	Yes	C4.7(l)
112	Is snigging being undertaken on dispersible soils?	Yes	D12(d) D13(a)
	If so, have alert conditions have been included?	Yes	
119	Have specifications for log dump location and drainage been included?	Yes	C4.7(m)

Condition No.	Condition Title/Enquiry	Entry Needed?	Plan Ref.
120	Is an alert condition for the use of traxcavators and wheeled loaders in relation to wet weather necessary?	No	
125	If pre- or post-logging burning proposed, have burning conditions been included?	Yes	C5.4(a) C5.4(b)
	What other conditions listed in Sch 2 Div 3 need to be included as alert conditions in this Plan?	None	
	Are any appendices required?	No	

NOTES

CLEARANCE CERTIFICATE

HARVESTING PLAN No. **UMA 97/01**

COMPARTMENT **71 Beaury SF 2**

DISTRICT **URBENVILLE**

To M.....Supervising Forest Officer

I request approval for me to move my logging crew and all associated machinery from the above mentioned area to the next Compartment (Section or Coupe) in accordance with Section 3.5 of the Code of Logging Practice.

I certify that:

(a) all permanent roads, trails and mitre drains have been cleared of harvesting debris;
(b) butt damage to retained trees has been kept to acceptable limits;
(c) all trees marked for removal have been felled;
(d) utilisation limits have been satisfactorily met;
(e) stump heights conform to requirements;
(f) all hanging trees have been felled and brought down;
(g) all log dump sites/landings/log stack sites have been satisfactorily restored as required;
(h) harvesting debris is not accumulated around retained trees;
(I) all accumulated litter has been disposed of properly;
(j) all filter, protection and buffer strip requirements have been complied with;
(k) all snig track, extraction track and temporary logging road drainage has been installed satisfactorily and other required rehabilitation work has been completed;
(l) all necessary repairs to damaged roads, signs, fences and other structures have been carried out.

I believe that I have met all my obligations under the conditions of the Timber Licence, the Pollution Control Licence, and/or any licence issued under Section 120 of the National Parks and Wildlife Act, which apply to the Compartments (Section, Coupe) just completed, as stated in this Harvesting Plan.

Signature.....Licence No.....Date .....
Contractor/licensee

As a result of inspections of the logging operations made in accordance with this Harvesting Plan, I am satisfied that, to the best of my knowledge, the licensee/ contractor responsible for this harvesting operation has satisfactorily completed all work and approval is given for her/him to remove her/his machinery and equipment and leave the area/ commence operations in another Compartments. (Compartments.....).

This clearance does not release the licensee/contractor from any obligation to undertake any remedial work if subsequent deficiencies are shown to result from inadequate practices during the harvesting operation, which are found during any inspections of the area made within 12 months of the date of this post- harvesting inspection.

Last inspection was made on .....(Date)

Signed (Supervising Forest Officer).....(Date).....

Appendix: Erosion Hazard Assessment

Soil Erosion Hazard Ratings have been assessed using SOILOSS high. The rating has then been used to determine Soil Erosion Hazard (SEH)categories for the net harvest area.

SE/WPH Rating = R x K x LS x C x P high where

R=2319	**$R = 89.31 \times 6.5^{1.74}$**
K=.06	**EPA Default value**
S=slope	**As factored in SOILOSS high**
L=10 metres	**As agreed**
C=0.45	**Native forest harvesting "B"**
P=1.0	**Support Practice Factor**

Soil Erosion Categories

Slope Boundaries (degrees)	Erosion Hazard Class	Indicative % of Net Harvest Area
≤6	Low	24
6 > ≤ 26	Mod	73
26 >≤30	High	3
na	extreme	n/a

Over 90% of the area is in low to moderate Erosion Hazard Classes

(b) Special Conditions

No special conditions, other than the following are required as the conditions for use with Harvesting Plans, Schedule 2, Division 3, of the EPA Pollution Control Licence (PCL) for 1994/95, are adequate to address the erosion and pollution risk.

No special conditions, other than the following are required as the conditions for use with Harvesting Plans, Schedule 4, Division 3, of the EPA Pollution Control Licence (PCL) for 1995/96, are adequate to address the erosion and pollution risk.

(a) In areas of high erosion hazard, the grades of snig tracks and extraction tracks must no exceed 25°.

(b) Snigging and extraction of timber from areas with an extreme erosion hazard is not permitted if snig track construction is required. Techniques to reduce erosion hazard to a lower erosion hazard classification may be employed. Snigging and extraction of timber may then be allowed.

(Conditions derived above are to be inserted into the harvesting plan at Condition 4.7, page 37. Soil erosion and pollution control, (d) Wet weather controls- Seasonal operations and safeguards and (k) Extraction tracks and snig tracks when necessary).

Koala Survey Compartment 71

A koala survey of compartment 71 was conducted on the 26th of March 1997. The compartment was found to be an intermediate use area, with no high use areas being identified. The hatched area in the north west corner of the cpt will not be harvested due to low wood volumes and problems with accessibility and hence was excluded from the survey.

The cpt was driven and walked a number of times before transect locations were decided upon. Transects were located to sample forest types with a high proportion of tallowwood trees (primary browse trees) while still sampling the entire cpt and a range of topographic positions. Transect locations can be seen on the map attached.

Scats found were usually quite old and usually only one scat was found per tree. An exception to this were transects 5 and 6 where scats were fairly fresh and more numerous (5-10 under some trees). This may indicate that koalas are presently using the locality.

A/District Forester.