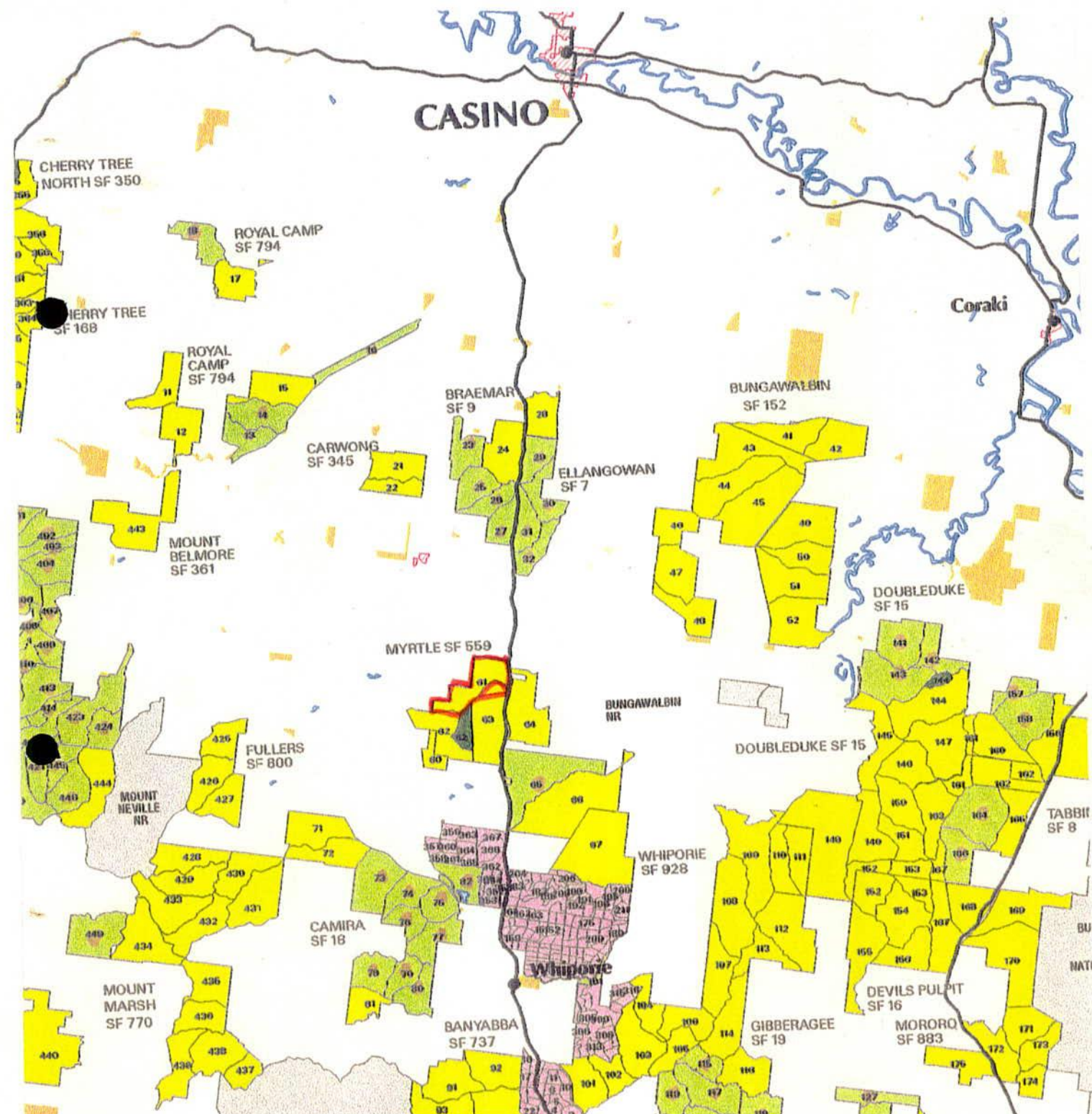


LOCALITY MAP

REGION : NORTHERN RIVERS
 MA: CASINO
 STATE FOREST: Myrtle No. 559
 COMPARTMENT : 61 & 63



MAP REFERENCE : Iterim Forest Assessment Outcome

NORTH ↑

SCALE 1 : 225,000 , (1 cm = 2500 metres)

IDFA CPTs.....



Non IDFA Cpt.....

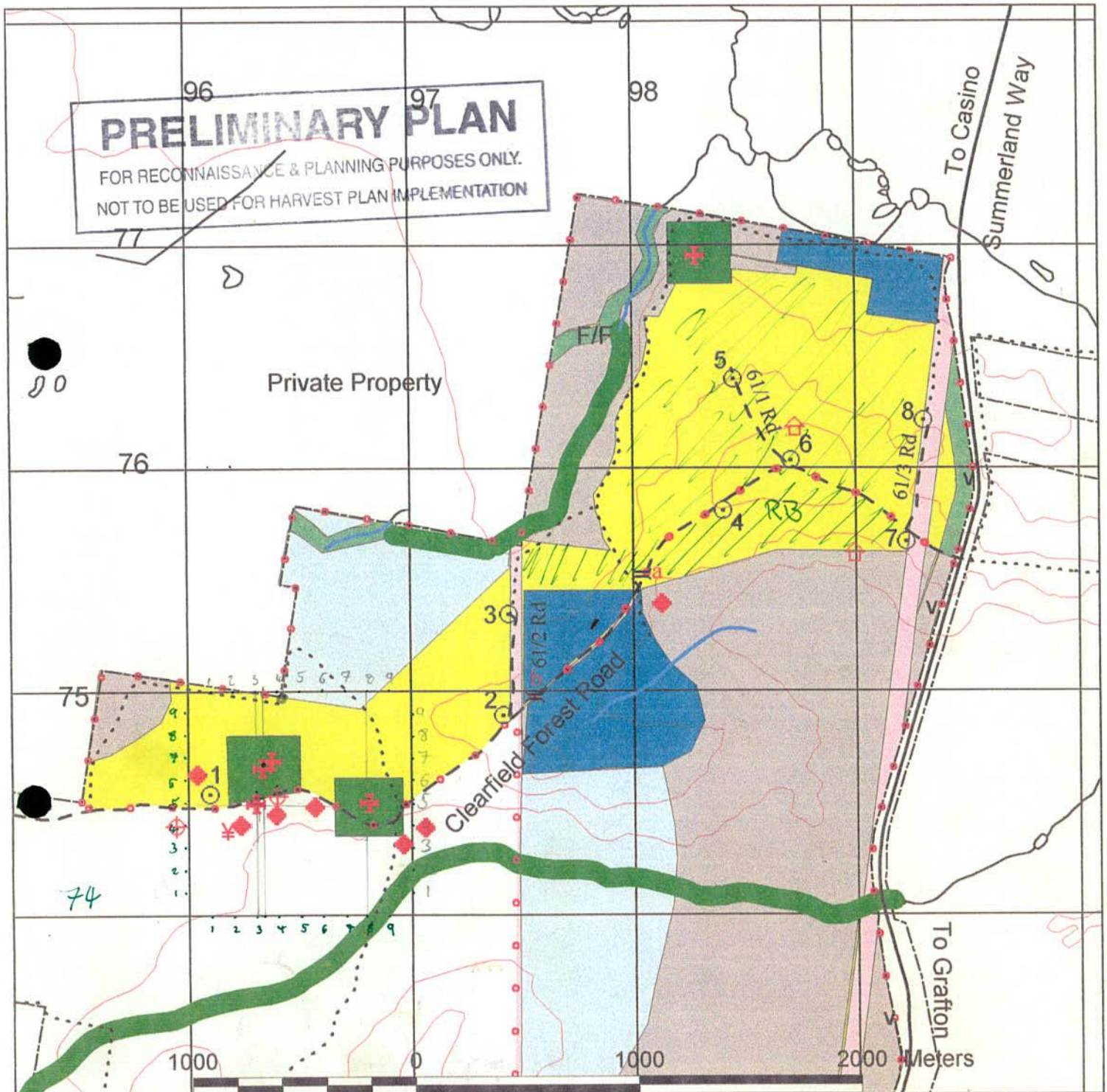


OPERATIONAL MAP

COMPARTMENTS 61, Part 63

MYRTLE STATE FOREST
CLEARFIELD MAP SHEET

SCALE 1:25000 10/08/1998



- | | | | |
|---|--|---|---|
| BOUNDARIES
--- State Forest Boundary
. Compartment Boundaries
ROADS (Proposed in Red)
--- Natural Surface
--- Sealed or Gravelled
- - - - - Fire Trail closed
NORMAL PRESCRIPTIONS
Yellow Harvestable Area | NON HARVEST AREAS
Green Flora and Fauna Protect
Brown Unviable areas
Pink Powerlines
Blue E. glaucina >50% of population
Light Blue Owl Reserve
Green 8ha Squirrel Glider Res
MODIFIED PRESCRIPTIONS
Green Visual Resource Protect | FEATURES
Yellow-bellied Glider
Powerful Owl
Masked Owl
Rufous Bettong
Squirrel Glider | DUMP SITES OR LANDINGS
Temporary Dry
WATERCOURSES & DRAINAGE
80m Connection corridor
1st Order 10m either side
Approved Crossings
External Drainage |
|---|--|---|---|

MN

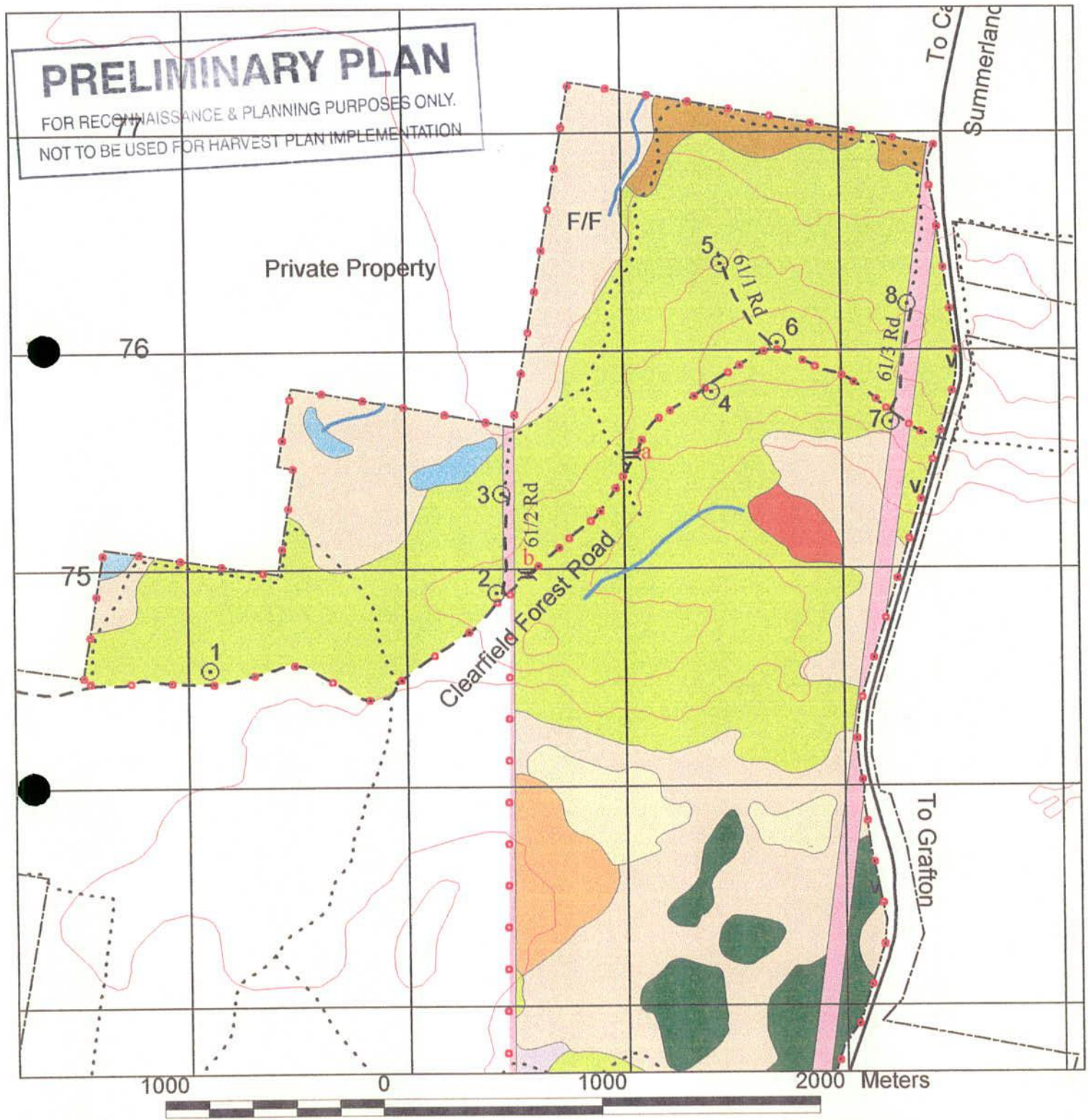
FOREST TYPES MAP

COMPARTMENTS 61 & 63 part

MYRTLE STATE FOREST

CLEARFIELD MAP SHEET

SCALE 1:25000 10/8/98



BOUNDARIES

- • Compartment Boundaries

FOREST TYPES

- Spotted Gum - Grey Box / (Spotted Gum - Ironbark / Grey Gum) 72/74
- Forest Red Gum 65
- Red Bloodwood 130
- Powerlines
- Swamp 231

FOREST TYPES

- Paperbark / (Forest Red Gum) 31/92
- Paperbark 31
- Grey Ironbark - Grey Box 80
- Grey Box 82
- Grey Box Ironbark 83

MN



STATE FORESTS OF NEW SOUTH WALES NORTHERN RIVERS REGION HARVESTING PLAN

1. AREA IDENTIFICATION

Region	Northern Rivers
Management Area	Casino
State Forest	Myrtle
Compartment/s	61, part 63
Pricing area	Casino Coastal
Gross area	1070 ha
Net area	259 ha
(Refer to Operational Map)	

2. DESCRIPTION OF PROPOSAL

A. Integrated harvesting of regrowth native forest:

1. Thin highly stocked regrowth stands from below.
2. 50% canopy retention across the net logging area.
3. No trees above 1 metre diameter to be removed.
4. No gapping (ie. canopy openings no larger than 20-30 metres diameter).

B. Post harvesting burning and enrichment planting.

1. Post harvesting burning to reduce fine fuel loads and create suitable seedbeds may be carried out under prescribed conditions. A separate Burning Plan may be prepared.
2. Enrichment planting may be undertaken where required if resources are available, to achieve regeneration consistent with the existing forest types.

3. LEGAL CONDITIONS

Legislation relating to the operations on State Forests & Other Crown-timber Lands is detailed in Forest Practices Code, Part 2, Timber Harvesting In Native Forests (1995). In addition this operation must specifically comply with:

- Licence Conditions issued by State Forests under the Forestry Act (1916)
- Forest Practices Code, Part 2, Timber Harvesting In Native Forests (1995)
- Conditions For Use With Harvesting Plans Based on SEMGL (1993)
- Pollution Control Licence number 4017 issued by the Environmental Protection Authority
- NPWS Section 120 licence number TS006, Threatened Species Conservation Act (1995) and National Parks and Wildlife Act (1974)
- Regulatory and Public Information Committee Determinations (RaPIC).

4. SPECIAL REQUIREMENTS

PMP - Visual Protection : Summerland Way

1. 50% canopy retention.
2. No tree felling within two tree lengths of the bitumen road.

5. FLORA AND FAUNA CONDITIONS

5.1 Pre-harvesting surveys

During the pre-harvest mark up the SFO must search for and record threatened species habitat features consistent with Prescription 10 of the NPWS s120 licence. This includes nest, den and roost sites, pellets and scats, latrine and den sites, crushed Oak cones, "v-notch" trees, skeletal remains, caves, tunnels and disused mineshafts and animal diggings.

5.2 Tree Retention

Regrowth Zone

Habitat trees: retain a minimum of 10 hollow bearing trees per 2 hectares where present.

Recruit trees: for each hollow bearing tree retained a recruitment tree must be retained.

(Prescription 1 of the NPWS Licence must apply)

Significant food resources: Stands dominated by Forest Oak should be protected from specified forestry activities, and Forest Oaks with more than 30 crushed cones beneath them must be retained. At least 4 mature (>40 cm dbh) winter-flowering eucalypt species per two hectares must be retained where they occur. Damage to mature banksias and grasstrees should be avoided during forestry operations. "V-notch" trees must be retained.

Felled heads must be flattened or removed from 5 metres of dead stags, retained habitat, recruit and food resource trees where safe to do so.

5.3 General non-harvest areas

Rare, Non-Commercial Forest Types: harvesting must be excluded. Existing roads through these Forest Type areas may be used. (Prescription 35 of the NPWS Licence must apply).

Riparian buffers and Filter strips occur on all mapped drainage features. Trees must not be felled into or out of these areas, and machine access is prohibited except at authorised crossings. Where a tree is accidentally felled into these areas, then no part of that tree can be removed from the filter strip. (See also section 7.2 below.) (Prescription 3 of the NPWS s120 licence must apply)

Connection corridors Trees must not be felled into or out of these areas, and machine access is prohibited except at authorised crossings. (Prescription 4 of the NPWS s120 licence must apply).

No areas of Wetlands, Heath, Rocky Outcrops, caves, tunnels and disused mineshafts have been found in the net harvestable area. If any of these features are detected, prescriptions 5-8 of the NPWS s120 Licence must apply respectively.

5.4 Ground habitat protection

Reasonable measures should be taken to protect ground habitat during harvesting. (Prescription 11 of the NPWS s120 licence must apply).

5.5 Species-specific Threatened Fauna Prescriptions

Contractors and supervisory staff must immediately report any sightings of Schedule 1 and 2 species to the Regional Forest Planner, Northern Rivers Region. The Harvesting Plan must be amended to include additional prescriptions if necessary.

The following species have been recorded within or nearby the area and the associated prescriptions must be implemented:

Species	NPWS s120 licence prescription	Comment
Powerful Owl Masked Owl	13, 10	<ul style="list-style-type: none"> Search gully lines and heads of gullies for roost and nest sites. Apply 50m buffer around nest site, and 30m buffer around permanent roost site.
Sooty Owl	14, 10	<ul style="list-style-type: none"> Search gully lines and heads of gullies for roost and nest sites. 50m buffer around nest site, and 30m buffer around permanent roost site.
Squirrel Glider	15	
Yellow-bellied Glider	16, 10	<ul style="list-style-type: none"> Search for "V" notch feed trees and retain all identified. 15 additional feed trees retained within 100m radius of sap feed trees.
Threatened Bats	19, 10	<ul style="list-style-type: none"> Fruit bat roosting camps must be marked on HPOM. Micro bat roost trees to be inspected.
Chalinolobus nigrogriseus,	19(b), 10	<ul style="list-style-type: none"> 50m buffer around roost sites harbouring more than 3 individuals. (3 stripes)
Chalinolobus dwyeri & Vespadelus troglitoni	19(d), 10	<ul style="list-style-type: none"> 50m exclusion buffer around entries to known major subterranean roosting sites. (3 stripes)
Glossy Black Cockatoo	21, 10	<ul style="list-style-type: none"> Search for nest sites. 50m radius buffer around nest sites. Protect trees with >30 crushed cones.

Something about winter flowering trees

5.6 Species-specific Threatened Flora Prescriptions

Contractors and supervisory staff must immediately report any sightings of Schedule 1 and 2 species to the Regional Harvest Planner, Northern Rivers Region. The Harvesting Plan must be amended to include additional prescriptions if necessary.

The following species have been recorded within or nearby the area and the associated prescriptions must be implemented:

Species	NPWS s120 licence prescription	Comment
Eucalyptus glaucina	29	<ul style="list-style-type: none">10m exclusion buffer around 50% of individuals. PLUS 10m modified harvesting with retention of >50% canopy. Note: >50% of individuals have been excluded from harvesting.
Owenia cepiodora	29	<ul style="list-style-type: none">10m exclusion buffer around 50% of individuals. PLUS 10m modified harvesting with retention of >50% canopy. Note: located within 2 or 5 kms of area.

6. SOILS AND WATER

6.1 Inherent Hazard category for each compartment

Two (2)

6.2 Dispersible soil conditions

The soils in the compartments are dispersible.

6.3 Slope limits

Maximum slope for harvesting	30 degrees
Maximum grade for snig track construction	25 degrees

6.4 Mass movement

No mass movement detected.

6.5 Seasonality

No seasonal constraints apply.

7. DRAINAGE FEATURES

7.1 Prescribed streams

There are no prescribed streams.

7.2 Drainage feature protection

The Operational map indicates the known mapped drainage features and protection feature widths. The minimum Filter Strip or Riparian Buffer width for each side of drainage features is described below (the widths include PCL and NPWS requirements).

	Inherent Hazard Level 2
Mapped stream order	Filter Strip or Riparian Buffer width each side of drainage feature (m)
Unmapped	10
First order	15
Second order	20
Third order (or greater)	40

Trees must not be felled into or out of Filter strips or Riparian Buffers, and machine access is prohibited except at authorised crossings. Where a tree is accidentally felled into a filter strip, then no part of that tree can be removed from the filter strip. Conditions 6-14, 18-21 of the Pollution Control Licence must apply (Filter strips).

5m wide buffer strips must be retained along all drainage depressions. Conditions 15,16, 37-39 of the Pollution Control Licence must apply (Buffer strips).

8. ROADS AND CROSSINGS

8.1 Road Construction

No road construction is required.

8.3 Crossing Construction

No crossing construction is required.

8.4 Road Maintenance

Road maintenance details are contained in appendix 1.

Maintenance work to roads 61/1 & 61/2 will be completed by a contractor prior to log haulage. Approval to undertake maintenance must be obtained from the SFO prior to commencement of each job.

Maintenance work to roads Clearfield Forest road will be completed by SFNSW prior to log haulage.

Road drainage must be constructed at the time of road opening and must be maintained during the operation. All crossbanks on minor roads in the compartments must be reconstructed to allow safe movement of loaded log trucks and ensure effective road drainage is maintained.

8.5 Crossing maintenance

Crossing maintenance details are contained in appendix 1.

Maintenance work for crossing 'b' will be completed by SFNSW.

Crossing 'a' is stable and requires no immediate maintenance.

8.6 Wet weather controls

Haulage is not permitted when there is runoff from the road surface. Loaded trucks and partially loaded trucks may complete their journey.

9. LOG DUMPS

9.1 Location

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

9.2 Treatment

Inherent Hazard Level 2 Conditions 42,43,44,46,47,49 of the PCL must apply (Log Dumps).

10. EXTRACTION TRACKS

10.1 Technique

It is preferable that, wherever practicable, walkover extraction techniques be used in preference to snig track construction. Conditions 54-57 of the Pollution Control Licence must apply (Snig tracks and extraction tracks).

10.2 Snig tracks

Snig tracks must be drained according to the maximum spacings below:

DRAFT

Track Grade (degrees)	Spacing
0 - ≤ 5	100m
>5 - ≤ 10	60m
>10 - ≤ 15	40m
>15 - ≤ 20	25m
>20 - ≤ 25	20m
>25	15m

Conditions 86-96 of the Pollution Control Licence must apply (Drainage of extraction tracks).

10.3 Drainage feature crossings

Temporary snig track drainage line crossings may be required on mapped or un-mapped drainage features.

All crossings must be temporary causeways and authorised by the SFO. Conditions 58-73, 82-84 of the PCL must apply (Snig tracks - crossings).

Due to the presence of dispersible subsoils Condition 85 of the Pollution Control Licence must apply (Dispersible soils - snig tracks).

10.4 Downhill snigging

No downhill snigging is required.

10.5 Wet Weather

All snigging and extraction must cease when it is physically raining or water is running in extraction tracks or they are likely to be significantly rutted. Condition 97 of the Pollution Control Licence must apply (Wet weather-extraction tracks).

11. PRODUCT SPECIFICATIONS AND ACCOUNTING

All timber products must be graded and accounted for prior to their departure from the dump. The documents detailed in the table below specify the relevant procedures which must be followed:

Product Type	Grading Specifications
Sawlogs	Casino Coastal Compulsory Sawlog Specification (Hardwood Sawlog matrix price zone) Utilisation Standards.
Poles	Australian Standard AS2209 - 1979
Girders	Specifications for Girders - Northern Region.
Veneer Logs	Specification for Eucalypt Veneer Logs for Rotary Peeling.

12. YIELD ESTIMATES

Compulsory sawlogs	1800m ³ /ha	7m ³
Thinnings logs	180m ³ /ha	0.7m ³
Salvage sawlogs	90m ³ /ha	0.3m ³
Poles	50m ³ /ha	0.2m ³
Veneer logs	0m ³ /ha	0m ³
TOTAL	2120m ³ /ha	8.2m ³

13. CERTIFICATION

Plan Preparation

Prepared by:

Signature: 
Position: FOREST PLANNER

Date: 11-P-98

Interim Regional Approval

Endorsed by:

Signature: _____
Position: REGIONAL FOREST PLANNER

Date: _____

Approved by:

Signature: _____
Position: REGIONAL MANAGER

Date: _____

Receipt of external authority approvals

Name of Authority	Date Received	Incorporated in to Plan by
RaPIC		
NPWS		
HAB		

Final Regional Approval

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 included in the final Plan.

Signature: _____
Position: REGIONAL MANAGER

Date: _____

14. SFO ACKNOWLEDGEMENT (SFO Plan copy)

I acknowledge that I have received a copy of the Harvesting Plan for State Forest Myrtle Compartment 61 & 63 and that I have been briefed on the conditions of the Plan and understand the supervision and operational control requirements as explained to me by the Forest Planner or his/her delegate.

Signature: _____ Date: _____
Position: Supervising Forest Officer

Signature: _____ Date: _____
Position: Relieving Supervising Forest Officer

15. HARVESTING CONTRACTOR ACKNOWLEDGEMENT (SFO Plan copy)

I acknowledge that I have received a copy of the Harvesting Plan for State Forest Myrtle Compartment 61 & 63 and that I understand the conditions of the Plan as explained to me by a State Forests officer.

Signature: _____

Licence No: _____

Date: _____

Position: _____
Principle Contractor/Other (explain)

Appendix 1 – ROADING PLAN

WORKS REQUIRED

Pavement Work

Before the use of the roads for harvesting commences scattered fallen timber, shrub regrowth and litter must be cleared from the pavements and in places cut by hand off cut batters of minor roads in the compartment. The debris must be swept off the road shoulders, while retaining ground cover, onto lower edge, with minimal disturbance to batters. Debris must not be pushed into filter strips.

Before the use of the roads for harvesting commences rilled pavement sections must be reformed by routine maintenance grading or the logging tractor.

Spreading of imported gravel and/or grading may be required on limited sections of roads to maintain the pavement during the proposed harvesting.

Roadside Clearing

Light shrubs on the verges which obstruct the passage of log trucks must be cleared by the blade or slashed. Debris must be deposited on the fill batter except where debris on the top side may interfere with haulage. Debris must not obstruct water through mitre drains. Techniques to help ground cover return to road edges and stabilise batters are to be used:

- Non disturbance of batters and retention of ground cover;
- Retaining logging debris and pushing cleared debris onto lower edge of fill batters.

Road surface drainage

Rollover/spoon drains will be required on some sections of the roads where outfall drainage has not been established and concentrated water flow is likely to exceed the distances of Table 1 overpage.

Where required, crossbanks must be located, constructed and maintained in such a way that they will:

- a) must have a minimum design consolidated vertical height from spillway to bank top of 25 cm; and
- b) minimise the unchecked flow of water from the road onto extraction tracks, snig tracks or log dumps, by constructing a drain that reduces the catchment area onto the site; and
- c) not discharge water from table drains directly into watercourses, drainage lines, wetlands or swamps, by draining the road at the first opportunity from the drainage feature and at least within the spacings of Table 1
- d) divert water onto stable surfaces capable of handling concentrated water flow and which provide for efficient sediment trapping by using one of the following techniques, or combinations thereof:
 - 1) diverting flow onto undisturbed vegetation;
 - 2) diverting flow onto slash and logging debris;
 - 3) installing natural or artificial sediment barriers below drainage structures.

Table 1: Maximum distance of water flow or potential water flow along road surfaces and table drains (metres).

Road grade (degrees)	Maximum Distance (metres)
1	200
2	175
3	150
4	125
5	100
6	90
7	80
8	70
9	65
10	60
11	55
12	50
13	45
14	40
15	40

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

Where required, drop down structures of jute mesh matting must be placed and secured into dished out, smoothed and seeded fill surface.

Dissipaters consisting of rock must be placed at the foot of drop down structures and locked together so as they will not be shifted by high water flow.

Rollover banks must be retained in situ after the roads have been closed.

The SFO must ensure that road drainage is consistent with Table 1.

Revegetation and rehabilitation

Revegetation of the minor roads following harvesting will be through natural regeneration. All spoon drains must be left in working condition and crossfall (outfall) drainage reinstated.

Dispersible soils

The soils in the compartments are dispersible.

DRAFT

Existing roads

Road Name	Clearfield forest road
Months of exclusion	NA
Road traverses zones of mass movement risk?	No
Road traverses dispersible regolith type?	Yes
Road length requiring maintenance	200m
Type of road maintenance	Mitre drains outlets require sediment fence and where channelling is occurring sandbagged or gravel dissipaters. Seeding of mitre drains. Redirection of mitre drains away from road edge. Correct table drain channelling with gravel or rock.
Gravelling required?	Yes
Materials required?	Yes
Work to batter is necessary?	No
Location and/or techniques for either the placement or disposal of any spoil material	NA
Recommended soil stabilisation techniques of disturbed areas to encourage groundcover	Grass seeding at 20kg/ha
Any other recommended soil erosion techniques	NA
Recommended type of new drainage structures	Existing adequate.
Location of drainage structures	As marked in the field
Recommended sediment control techniques for drainage structure outlets (see cond 11 sch5 PCL)	Undisturbed vegetation/sediment fencing
New drop down structures are necessary?	No
New dissipaters necessary at base of drop down	No
Future plans for the road?	Retain
START DATE:	FINISH DATE:

DRAFT

DRAFT

Existing roads

Road Name	61/1 Rd
Months of exclusion	NA
Road traverses zones of mass movement risk?	No
Road traverses dispersible regolith type?	Yes
Road length requiring maintenance	400m
Type of road maintenance	Clear debris, brush road surface with skidder or dozer. Install rollover drains. Seeding and sediment fencing outlets and bare surfaces.
Gravelling required?	No
Materials required?	Yes
Work to batter is necessary?	No
Location and/or techniques for either the placement or disposal of any spoil material	NA
Recommended soil stabilisation techniques of disturbed areas to encourage groundcover	Grass seeding at 20kg/ha
Any other recommended soil erosion techniques	NA
Recommended type of new drainage structures	Rollover drains
Location of drainage structures	As marked in the field
Recommended sediment control techniques for drainage structure outlets (see cond 11 sch5 PCL)	Undisturbed vegetation/sediment fencing
New drop down structures are necessary?	No
New dissipaters necessary at base of drop down	No
Future plans for the road?	Close
START DATE:	FINISH DATE:

DRAFT

DRAFT

Existing roads

Road Name	61/2 Rd
Months of exclusion	NA
Road traverses zones of mass movement risk?	No
Road traverses dispersible regolith type?	No
Road length to be re-opened	450m
Road is trafficable for desired logging use?	Yes
Type of road maintenance	Install mitre/rollover drainage structures at the time of harvest.
Gravelling required?	No
Materials required?	No
Work to batter is necessary?	No
Location and/or techniques for either the placement or disposal of any spoil material	NA
Recommended soil stabilisation techniques of disturbed areas to encourage groundcover	Grass seeding at 20kg/ha
Any other recommended soil erosion techniques	NA
Recommended type of new drainage structures	Mitre/rollover drains .
Location of drainage structures	As marked in the field
Recommended sediment control techniques for drainage structure outlets (see cond 11 sch5 PCL)	Undisturbed vegetation/sediment fencing
New drop down structures are necessary?	No
New dissipaters necessary at base of drop down	No
Future plans for the road?	Retain, powerline access
START DATE:	FINISH DATE:

DRAFT

DRAFT

Existing roads

Road Name	61/3 Rd
Months of exclusion	NA
Road traverses zones of mass movement risk?	No
Road traverses dispersible regolith type?	No
Road length to be re-opened	nil
Road is trafficable for desired logging use?	Yes
Type of road maintenance	Patch gravel if road deforms under log haulage.
Gravelling required?	See above
Materials required?	No
Work to batter is necessary?	No
Location and/or techniques for either the placement or disposal of any spoil material	NA
Recommended soil stabilisation techniques of disturbed areas to encourage groundcover	Grass seeding at 20kg/ha
Any other recommended soil erosion techniques	NA
Recommended type of new drainage structures	Adequately drained
Location of drainage structures	As marked in the field
Recommended sediment control techniques for drainage structure outlets (see cond 11 sch5 PCL)	Undisturbed vegetation/sediment fencing
New drop down structures are necessary?	No
New dissipaters necessary at base of drop down	No
Future plans for the road?	Retain, powerline access
START DATE:	FINISH DATE:

DRAFT

Existing drainage feature crossings – assessment base on expected use during logging

Road Name	Clearfield forest road	
Location recorded on operational map by letter	a	
Type of structure	Raised Causeway	
Months of exclusion	NA	
Crossing in zone of mass movement risk?	No	
Crossing in dispersible regolith type?	Yes	
Repairs or maintenance necessary?	No	
- type of reshaping of the bed and banks required	Nil	
- disturbance outside crossing prism is necessary?	No	
- reason if disturbance beyond crossing prism required > 3 metres	NA	
- type of new pavement material	nil	
- additional materials required	nil	
- recommended soil stabilisation techniques within 20 metres to encourage the return of groundcover	Grass seed where disturbed	
- any other recommended soil erosion and sediment control techniques (eg batter design, bank sediment trap, water flow diversion, silt trap)	SFO to monitor crossing	
- recommended location and/or techniques to dispose of excess spoil	NA	
Existing approach drainage:	West side	East side
- form	Crown	Crown
- type of nearest road drainage structures	Mitre	Mitre
- distance to nearest road drainage structures	10 & 20m	10m
- outlet control of nearest drainage structures	Undisturbed vegetation	Undisturbed vegetation
- table drain checking devices	Grasses	Grasses
START DATE:	FINISH DATE:	

Existing drainage feature crossings – assessment base on expected use during logging

Road Name:	Clearfield forest road	
Location recorded on operational map by letter	b	
Type of structure	Raised Causeway	
Months of exclusion	NA	
Crossing in zone of mass movement risk?	No	
Crossing in dispersible regolith type?	Yes	
Repairs or maintenance necessary?	Yes	
- type of reshaping of the bed and banks required	Nil	
- disturbance outside crossing prism is necessary?	No	
- reason if disturbance beyond crossing prism required > 3 metres	NA	
- type of new pavement material	Gravel	
- additional materials required	Sediment fence	
- recommended soil stabilisation techniques within 20 metres to encourage the return of groundcover	Grass seed where disturbed	
- any other recommended soil erosion and sediment control techniques (eg batter design, bank sediment trap, water flow diversion, silt trap)	SFO to monitor crossing	
- recommended location and/or techniques to dispose of excess spoil	NA	
Approach drainage necessary:	West side	East side
- form	Crown	Crown
- type of nearest road drainage structures	Mitre	Mitre
- distance to nearest road drainage structures	25m	10m
- outlet control of nearest drainage structures	Sediment Fence, undisturbed vegetation	Sediment Fence undisturbed vegetation
- table drain checking devices	Sediment fence	Sediment fence
START DATE:	FINISH DATE:	