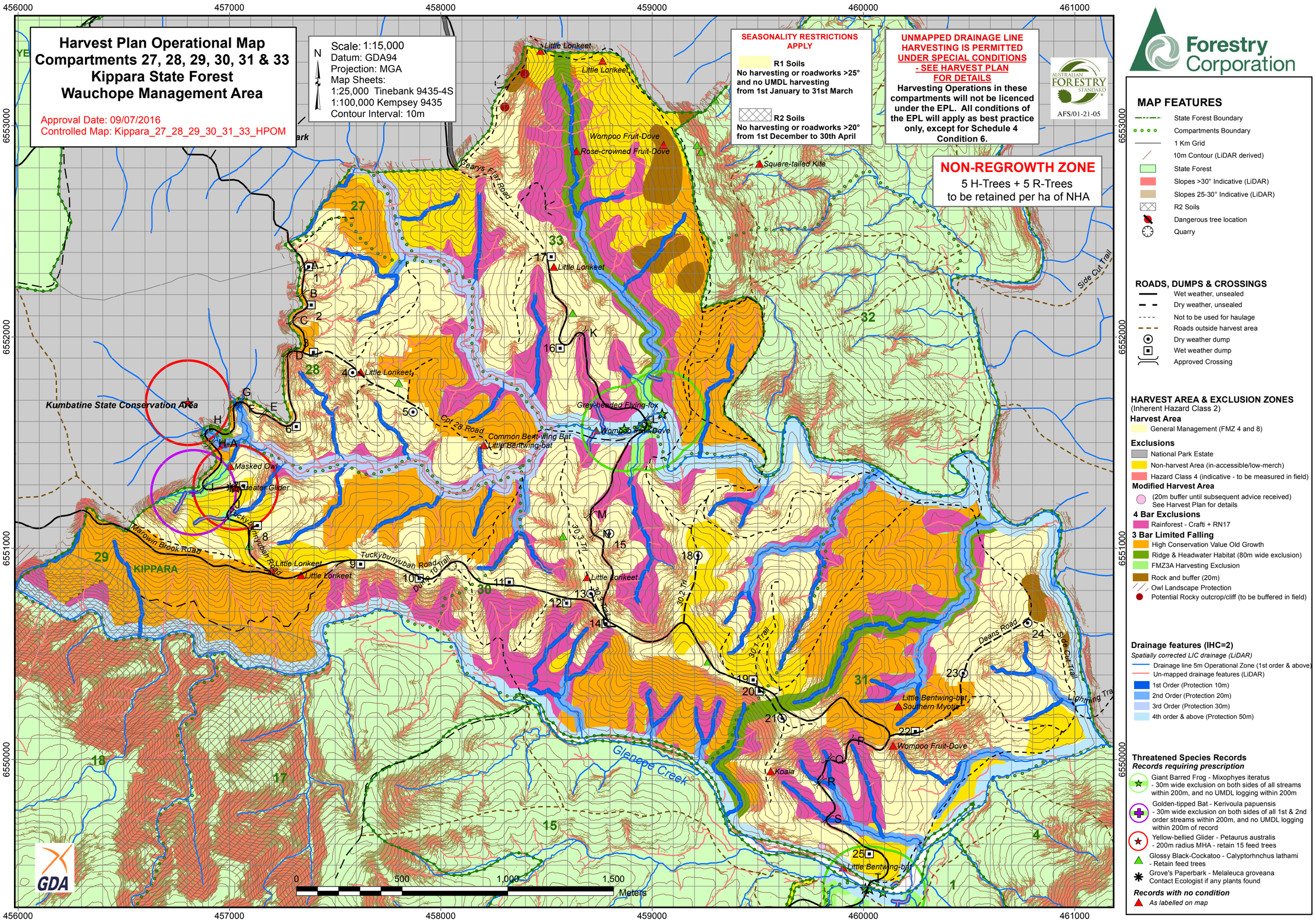


Harvest Plan Operational Map
Compartments 27, 28, 29, 30, 31 & 33
Kippara State Forest
Wauchope Management Area
Approval Date: 09/07/2016
Controlled Map: Kippara_27_28_29_30_31_33_HPOM
Scale: 1:15,000
Datum: GDA94
Projection: MGA
Map Sheets:
1:25,000 Tinebank 9435-4S
1:100,000 Kempsey 9435
Contour Interval: 10m
SEASONALITY RESTRICTIONS APPLY
R1 Soils
No harvesting or roadworks >25° and no UMDL harvesting from 1st January to 31st March
R2 Soils
No harvesting or roadworks >20° from 1st December to 30th April
UNMAPPED DRAINAGE LINE HARVESTING IS PERMITTED UNDER SPECIAL CONDITIONS - SEE HARVEST PLAN FOR DETAILS
Harvesting Operations in these compartments will not be licenced under the EPL. All conditions of the EPL will apply as best practice only, except for Schedule 4 Condition 6.
AUSTRALIAN FORESTRY STANDARD
AFS/01-21-05
NON-REGROWTH ZONE
5 H-Trees + 5 R-Trees
to be retained per ha of NHA
Forestry Corporation
MAP FEATURES
State Forest Boundary
Compartments Boundary
1 Km Grid
10m Contour (LiDAR derived)
State Forest
Slopes >30° Indicative (LiDAR)
Slopes 25-30° Indicative (LiDAR)
R2 Soils
Dangerous tree location
Quarry
ROADS, DUMPS & CROSSINGS
Wet weather, unsealed
Dry weather, unsealed
Not to be used for haulage
Roads outside harvest area
Dry weather dump
Wet weather dump
Approved Crossing
HARVEST AREA & EXCLUSION ZONES
(Inherent Hazard Class 2)
Harvest Area
General Management (FMZ 4 and 8)
Exclusions
National Park Estate
Non-harvest Area (in-accessible/low-merch)
Hazard Class 4 (indicative - to be measured in field)
Modified Harvest Area
(20m buffer until subsequent advice received)
See Harvest Plan for details
4 Bar Exclusions
Rainforest - Crafti + RN17
3 Bar Limited Falling
High Conservation Value Old Growth
Ridge & Headwater Habitat (80m wide exclusion)
FMZ3A Harvesting Exclusion
Rock and buffer (20m)
Owl Landscape Protection
Potential Rocky outcrop/cliff (to be buffered in field)
Drainage features (IHC=2)
Spatially corrected LIC drainage (LiDAR)
Drainage line 5m Operational Zone (1st order & above)
Un-mapped drainage features (LiDAR)
1st Order (Protection 10m)
2nd Order (Protection 20m)
3rd Order (Protection 30m)
4th order & above (Protection 50m)
Threatened Species Records
Records requiring prescription
Giant Barred Frog - Mixophyes iteratus - 30m wide exclusion on both sides of all streams within 200m, and no UMDL logging within 200m
Golden-tipped Bat - Kerivoula papuensis - 30m wide exclusion on both sides of all 1st & 2nd order streams within 200m, and no UMDL logging within 200m of record
Yellow-bellied Glider - Petaurus australis - 200m radius MHA - retain 15 feed trees
Glossy Black-Cockatoo - Calyptorhnchus lathami - Retain feed trees
Grove's Paperbark - Melaleuca groveana Contact Ecologist if any plants found
Records with no condition
As labelled on map
Kumbatine State Conservation Area
KIPPARA
Little Lorikeet
Wompoo Fruit-Dove
Rose-crowned Fruit-Dove
Square-tailed Kite
Gearys Flat Road
Cpt 28 Road
Common Bent-wing Bat
Little Bentwing-bat
Grey-headed Flying-fox
Masked Owl
Greater Glider
Marowin Brook Road
Tuckybunyubah Road
Dump 10 Trail
30.3 Trail
30.2 Trail
30.1 Trail
Deans Road
Side Cut Trail
Lightning Trail
Glencoe Creek
Little Bentwing-bat
Southern Myotis
Koala
0
500
1,000
1,500
Meters
GDA
456000
457000
458000
459000
460000
461000
6553000
6552000
6551000
6550000

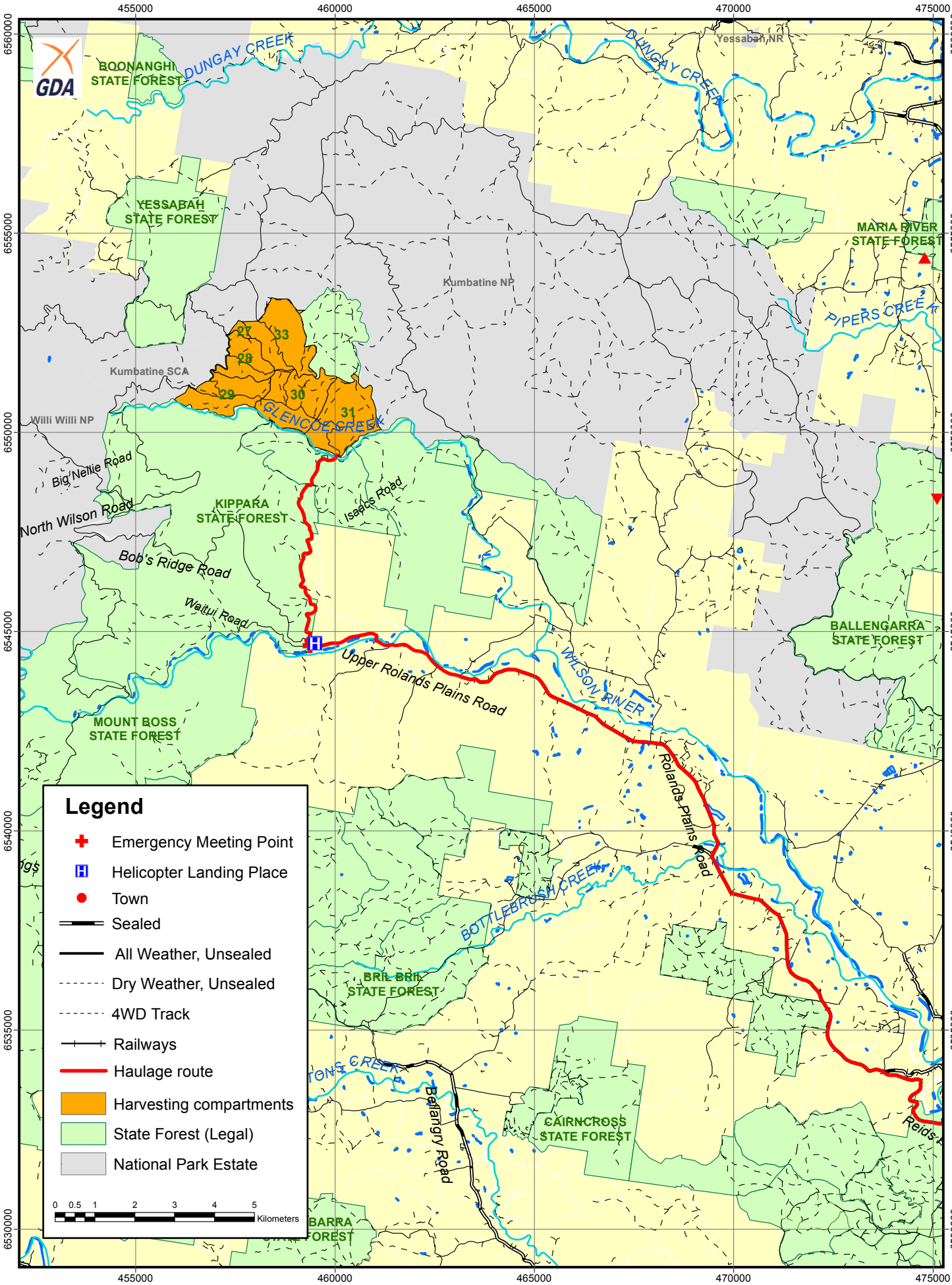
N

Scale 1:125,000
Datum: GDA94
Map Sheets
1:25,000; Tinebank 9435-4S
1:100,000; Kempsey 9435

Hardwood Forests - Locality Map
Wauchope MA
Compartments 27, 28, 29, 30, 31 & 33
Kippara State Forest

Forestry Corporation

Prepared by: Sarah Gormley
Date: June 2016



Emergency Telephone 000 / 112 Forestry Corporation of NSW (02) 6585 3744

Hardwood Forests Division

Harvest and Haul Plan

State Forest	Kippara	Compartments	27, 28, 29, 30, 31 & 33
Management Area	Wauchope	IFOA Region	Lower North East
Harvest Plan No.	44781	Supply / Price Zone	Coastal South / Wauchope Foothills
Legal Conditions	Native Forest Harvesting in accordance with IFOA conditions. To implement this plan you must hold a current Contractors Licence. Standard Harvest Plan Conditions and Operating Procedures apply. Survey expiry date for this plan is 3/11/2021.		
Certification	Timber products removed from the plan area are within the Defined Forest Area covered by Australian Forestry Standard and ISO14001 Certificate 13761		
Prepared by	Planner: Sarah Gormley		Date: 6/7/2016
Approved by	Planning Supervisor: Brent Bailey		Date: 9/7/2016
Abbreviations	FT = Forest Technician, HC = Harvesting Coordinator, PtS= Protection Supervisor, HS = Harvesting Supervisor, RC = Roading Coordinator, Crew = Harvest Contractor/Forest Operators, IFOA = Integrated Forestry Operations Approval, TSL = Threatened Species Licence, EPL = Environment Protection Licence, FL = Fisheries Licence, CH = Cultural Heritage, SOP = Standard Operating Procedure.		

1. Harvest Area Details

Compartment	27	28	29	30	31	33	Total
Cpt/Event ID	56181	56182	56183	56184	56185	56186	**44781**
Gross Area (ha)	10	110	155	206	224	206	**913**
Planned Available Harvest Area / Total NHA	2	67	46	111	92	95	**413**
Estimated NHA	1	65	32	95	80	50	**323**
Estimated Yield*	23	1495	538	1663	1680	775	**6,173**
Yield/ha*	23	23	16	18	21	16	**20**
Slope (%0-15 degrees)	61	32	26	21	39	29	**29**
Slope (% 0-20 degrees)	39	34	30	35	29	34	**33**
Slope (% 20-25 degrees)	0	25	27	31	19	27	**26**
Slope (% 25-30 degrees)	0	9	17	13	13	10	**12**

**Based on actual area expected to be harvested, i.e. `323ha. Slopes >30° have been removed from NHA*

Contractor must ensure timber removed is allocated to the correct compartment when entered into Electronic Delivery Docket.

2. Management Conditions on Boundaries

Boundary	Conditions
Private Property	There is no private property adjoining these compartments.
SMZ / FMZ	FMZ3A generally occurs, and is shown on HPOM as Rock/HCVOG & Rainforest.
Cultural Heritage	Surveys have been conducted. If any potential heritage sites are identified they should be recorded on FCMapApp, and the ACHO notified immediately. A 20m interim buffer must be observed pending further investigation.
Modified Harvest Areas	One Modified Harvest Area is shown on the HPOM. No logging can commence in the vicinity of this site until HC receives further advice to do so. Immediately prior to harvesting the marking must be checked by the HC.

3. Expected Yields

Product Estimates	Volume (m3)
HQ Large Sawlog (Quota)	700
HQ Small Sawlog	1630
Poles, Piles and Girders	610
LQ Sawlog (Salvage)	2850
Residue	390
Total	6180

Species	Species Mix (Sawlog)
BBT	27%
TWD	4%
BBX	9%
SPG	38%
OTHER	22%

4. Haulage

Haul Route	Haulage will be east along Tuckybunyubah Road, and/or south along Geary's Flat Road→Upper Rolland's Plains Road→Rolland's Plains Road→Reid's Road→Pembrooke Road, then to either Telegraph Point, or Wauchope.
School Bus Routes	Haulage contractor must contact Bus company before haulage commences. Rolland's Plains Upper Public School is adjacent to haulage route. Haulage contractor to ensure drivers are aware of increased risk of interaction with school related traffic during school drop off and pick up times. Haulage contractor to be aware of school buses on Upper Rolland's Plains, and Rolland's Plains Roads. Haulage contractor must apply SSP Appendix 1: Central Region Rural Roads Strategy Communication protocol.
Dust and Mud	All truck drivers must ensure mud is not dragged onto tarred roads during haulage. All vehicle operators are responsible for minimising dust on Upper Rolland's Plains Road and Geary's Flat Road adjacent to homes.
Operating hours	Restrictions apply to haulage contractors, refer to table 5 below.

5. Community

Issue	Detail	Conditions
Notifications Required	Contact planner if details required.	All relevant notifications for harvesting/haulage have been conducted.
Permit to Enter Required	Nil	
Truck Speed Limit Truck Access Limit	40km/hr maximum speed limit No access <5:30am	Past the households from the intersection of Glen Esk Road (Upper Rolland's Plains Road) and Ready Money Creek Road, to the last house along Geary's Flat Road. Trucks are not to travel past these houses prior to 5:30am.
Forest Permits	Apiary permit current cpts 29 & 30	The permittee was notified in June 2016. If hives are encountered, HC is to contact permittee (details available from planner) regarding the moving of hives.

6. Infrastructure

Infrastructure	Conditions
Gravel Pits	There is one quarry in these compartments between Dumps 10 & 11 on Tuckybunyubah Road. See Roading Supervisor for Quarry Management Plans.
Tuckybunyubah Road	Sections of this road forms the boundary between SF and PP. There is to be no harvesting on the eastern/NP side of Tuckybunyubah Road.

7. Harvesting Conditions

Silviculture Type	Harvesting Objectives and Condition for each stand condition
STS Light-Medium	Given the broad species mix throughout these compartments, Medium STS Silviculture will undertaken. Across the NHA available in this harvesting event, the objective is to harvest the merchantable component of the mature aged crop and retain vigorous younger age class trees for harvest in 15-20 years. This will be done by cutting to a maximum BA removal limit. Crew to remove all viable stems that would make a product, whilst observing the BA removal limit below. FTs to mark growers for retention where operationally appropriate. HC must ensure that all High Quality timber is removed, (excluding seed trees). The crew must avoid damage to areas of advanced regeneration/pre-merchantable/retained stems where possible. In Blackbutt types, the crew must retain well-formed seed trees at ~40 m spacing (closer if seed trees are sub-dominants, not dominants). Crew to ensure mechanical disturbance creates a suitable seed bed for regeneration. Retained BA can be lower in high-quality BBT stands if suitable offset is used in other areas (Regen STS). Long snig may be required in cpt 30. No more than 30 stems/ha ≥40cm dbhob can be removed across the NHA. No more than 50% of the canopy can be removed across the NHA.

Non-harvest area	As mapped on HPOM. Predominantly made up areas that contain low volumes of merchantable timber, or are inaccessible. These areas are to be retained for future harvesting treatments, and to manage IFOA basal area limits for this harvesting event.
Monitoring	Planning assumptions have been made as below, and therefore the HC must conduct Basal Area Monitoring in areas treated with Medium STS & Regen STS. HC is to monitor BA retention during harvesting using a minimum of 40 BA post-harvest sweeps, randomly located across different stand types to ensure average BA is maintained. Evidence of BA monitoring and the plot location must be documented by HC. Ideally monitoring of BA should occur prior to leaving each dump to ensure any variance to planned outcomes can be rectified. Any changes to treatment and non-harvest areas must be endorsed by the Planning Supervisor.

IFOA Limits	STS Light	STS Medium	Non-harvest	Total
	Mixed age, BBT forest types	Mixed-age dry & moist mixed spp forest types	Poor-quality, mixed aged mixed spp forest	
% of NHA	30	60	10	
STS Tract (ha)	124	248	41	413
Pre-harvest BA/ha	21.4	21.4	21.4	8,838
Planned Removal	40%	40%	0%	36%
Standing BA Post-harv	1,587	3,174	877	5,638
Min Post harvest BA/ha	**12.8**	**12.8**	**21.4**	

8. Tree Retention - refer to TSL booklet for full conditions

Prescription	Condition/Responsibility
Mark-Up – the FT is responsible for marking up the forest ahead of harvesting operations consistent with SOP 2 - Exclusion Zone Boundary Mark Up, and SOP 3 – Forest Mark Up and Tree Retention	
Compartment Mark-Up Survey 5.1, 5.2, & 5.13	Compartment mark-up surveys must be conducted at least 300m in advance of operations. The survey must search for threatened and protected species features listed in conditions 5.1 and 5.2 of the TSL. *Impenetrable Understorey* may occur in this planning unit. The FT must field check and map these areas during mark-up and handover unmarked areas to the HC. No Koala star search triggers were identified during pre-harvest surveys.
Hollow-bearing and Recruitment tree retention (H and R)	**Non-Regrowth Zone** – Conditions 5.6 (b), (c), & (f) apply. Additional H trees for Greater Glider condition does not apply. **FT must select and mark 5 H trees/ha and 5 R trees/ha.**
Significant Food Resources 5.6 (g)	Glossy Black Cockatoo feed trees – 5.6 (g) (iii) apply FT must mark for retention: 6 Eucalypt feed trees/2 ha where they occur, glider sap feed trees, stands of forest oak and forest oak feed trees.

	White Mahogany, Bloodwood and Ironbark are suitable E tree species present in these compartments.
Harvesting - crew and HC responsibilities	
Protection of Retained Trees 5.6 (h)	Trees marked or selected for retention must not be felled. The crew must minimise damage to H, R and E trees must by using directional felling. Harvesting debris should not accumulate within 5 m of retained trees. Where debris does accumulate the crew must remove or flatten to <1m high. The HC must be notified of any badly damaged retained trees and they must assess and record if a replacement retained tree is required.
Stag Retention (Dead standing trees 5.6 (f))	The crew should retain stags where safe to do so. The crew must record the date, DBH, risk and location of unsafe stags which are removed.
Significant food resources 5.6 (g)	The crew should avoid damaging flowering or fruiting banksias or grass trees.
Elite/Plus Trees	Retain and protect any elite trees (Yellow-band) encountered (whether marked on HPOM or not).
Impenetrable Understorey	In areas mapped by the FT as Impenetrable Understorey procedures for harvesting in un-marked forest must be implemented by the HC and Crew.

9. Site-Specific Flora and Fauna

Condition	Boundary Type	Prescription
Riparian Habitat Protection 5.7 *(The HPOM indicates LIC drainage order correct by Lidar/Geonet)*	2 bars	Implement filter strip (hard) and protection zone (soft) around drainage features as shown on the HPOM. Refer to SOP1. FT must mark the location of UMDL with the "U" symbol and 1st order protection zone boundary with 2 bars. The crew will locate and protect all 2nd order and above streams with GPS.
Ground Habitat Protection 5.17(d)	N/A	Commercial firewood collection is permitted in these compartments.
Rainforest 5.4	Accidental	Mapped exclusion zone to be located by GPS in harvester.
Giant-barred Frog 6.3	Machinery	30m buffer on mapped streams within 200m of a record. Mapped exclusion to be located by GPS in harvester. No UMDL within 200m of record, revert to 10m UMDL protection – to be marked by FT.

Golden Tipped Bat 6.20	Machinery	30m buffer on 1st & 2nd order streams within 200m of record. Mapped exclusion zone to be located by GPS in harvester. No UMDL within 200m of record, revert to 10m UMDL protection – to be marked by FT.
HCVOG 5.3	Limited	Mapped exclusion zone to be located by GPS in harvester.
Ridge & Headwater 5.8	Limited	Mapped exclusion zone to be located by GPS in harvester.
Rocky Outcrop 5.11	Limited	Potential areas identified on HPOM. These, and others located during mark-up are to be assessed, and marked by FT. 20m buffer on outcrops >01.ha, or cliffs >3m high
Owl Landscapes 6.09	Limited	Mapped exclusion – Wilson River Planning Unit. Embedded in HCVOG/Rainforest exclusions. Mapped exclusion zone to be located by GPS in harvester.
Yellow-bellied Glider 6.17 (g) ii	Modified	Tree retention requirements – 15 feed trees retained within 200m radius of heard call detection site
Melaleuca groveana 6.27		FT to search for plant as part of mark-up surveys (plant profile attached). If found during mark-up or harvesting contact Ecologist.
Fish	N/A	No fisheries licence conditions apply.

10. Soil & Water – Refer to EPL Booklet for full conditions

Issue	Assessment	Conditions
EPL Scheduled Activity	No	
Licenced / Unlicenced	Unlicenced	All conditions of the EPL will apply as best practice only, except for Schedule 4 Condition 6
Unmapped Drainage Line Harvesting	Permitted Not permitted	From 1st April-31st December Apply UMDL BMP's (**SOP 1**) From 1st January-31st March
Inherent hazard level	2	**Refer SOP 1** Hazard Class 4 = slopes ≥30° - harvesting exclusion
Dispersible Soils	No	Nil
Mass Movement / Instability	Minor risk	**Harvesting Conditions** Harvesting should be carried out in accordance with the following geotechnical conditions: **a) High Risk areas (slopes in excess of 30° and areas of previous mass movement** These High Risk areas are shown on the HPOM as slopes greater than 30° (using LiDAR) • **No harvesting or snigging** is to be carried out in these areas. Mapped areas are indicative and

slope angles on ground should be confirmed by using a clinometer. Downgrading from High to Medium Risk may be permitted in some areas subject to assessment by a suitably qualified and experienced geotechnical engineer, or engineering geologist.

- No new snig tracks permitted in these areas.

b) Low (slopes between 0-15° and elevated ridge spurs) and Medium Risk Areas (slopes between 15-30°)

- Normal harvesting prescriptions apply.
- Specific conditions for snig track drainage are referred to below.

Snig Track Construction & Re-opening:

Recommended guidelines for snig track construction AND the opening up of existing snig tracks:

- Where possible, all snigging should be directed away from watercourses and the preferred option is uphill snigging as it disperses run-off.
- On ground slopes >25° snigging should follow the terrain rather than use a side-cut snig track.
- Side-cutting of new snig tracks should not be carried out on side-slopes nearing the 30° slope maximum for harvesting.
- New snig track construction should not involve side cuts of greater than 2m batter height
- Works should not commence during or after prolonged rainfall periods. The harvesting area should be allowed to dry before commencing any earth works associated with snig tracks.
- Where there are concerns regarding the stability of the slope, the FCNSW Planning Supervisor, should be contacted immediately.

Drainage Guidelines:

Drainage structures are required for all harvesting roads and snig tracks, as it reduces the risk of soil erosion.

- Drains may be constructed as inverts, cross drains or side drains. Side-cut tracks require drainage and should be slightly out-sloping.
- Cross drains where reasonable, should be self-cleaning. Where possible they should be installed at an angle not less than 30° to the centre line of the track. Where steep grades are present in association with steep slopes, consideration can be given to construct the cross drains at a more acute angle to minimise scouring.

No UMDL logging in areas with localised evidence of mass movement/instability

Acid Sulphate Soils	No	Nil
Seasonality Conditions	Yes	R1 Soils: No logging ≥25° from 1st January-31st March R2 Soils: Wholly within HCVOG exclusion
Historical or existing erosion	Yes, minor	Road & drainage structures must remain effective at all times. Drainage works should be implemented immediately following the completion of harvesting.
Ground cover	>70% at time of planning	Soils and groundcover removal should be kept to a minimum during operations
Burning conditions	Yes	No post-harvest burning in January or February. Post-harvest burning in March must use top-disposal method only.
Log Dumps		**SOP 5** - HC is responsible for authorising moving the location of a log dump.
Roading management during harvesting		**SOP 6 -** HC is responsible for monitoring road and crossing drainage during haulage.
Wet Weather and Rutting		**SOP 6 -** Crew is responsible for implementing automatic closures and following notified closures. HC is responsible for ensuring crew notified when notified closure is lifted.
Snigging		**SOP 8** - Crew is responsible for progressive drainage of snig tracks. Works on snig tracks should not commence during or after prolonged rainfall periods. The harvesting area should be allowed to dry before commencing any earth works. Some snigging over/along haulage routes will be required. All roads used for this purpose must be trafficable at the end of each day, and be returned to pre-harvesting condition immediately following use for harvesting.
Snig Track Crossings		**SOP 9** - HC is responsible to ensure snig track crossings are approved prior to use and rehabilitated upon completion.

11. Crossing Approvals

All crossing approvals are shown on the operational map – any other feature crossings must be assessed, recorded below and approved by the Planning Supervisor before use.

Crossing	EPA Approval	Conditions

12. Operational Plan Briefing: A briefing of this operational plan was conducted by:

Person	Role	Nature of Briefing	Date

13. Acknowledgement of Briefing: I acknowledge that I have received a copy of the plan documents and that I have been briefed on the conditions of the Plan. I understand the operational control requirements as outlined in the plan and take responsibility for the implementation of plan conditions relevant to my responsibilities

Name	Role	Signature	Date

14. Standard Operating Procedures: The following SOP's apply to this plan. FCNSW staff and the crew must hold a copy on site whilst operating and comply with the conditions set out in each SOP.

Procedure Number	Title
1	Drainage Feature Protection
2	Exclusion Zone Boundary Management
3	Forest Mark-Up
4	Operating in Inherent Hazard Level 3 Areas
5	Log Dump Operation and Use
6	Road and Crossing Management and Wet Weather Controls
7	Safety Requirements
8	Snigging & Snig Track Construction
9	Tree Felling & Servicing of Logs & Products
10	Fire Precautions and other Miscellaneous Requirements for Harvesting Contractors

Operational Diary:

Date	Issue	Action Required	Action Completed	Initials
Record: Daily activities (e.g. tree marking, dump 2); Condition 5.2 of TSL items - EEC locations, rocky outcrops, koala scats, feed tree identification etc.), discussions with stakeholders/neighbours/ site visitors; areas of impenetrable understorey; unviable areas not marked, non-conformances; harvesting issues identified, twice weekly road and crossing drainage checks				