

Variation of Harvesting Plan for IFOA REMAKE TRIAL AREA

LOCATION

Compartment 17, Kiwarrik State Forest

CONDITION TO BE VARIED AND SPECIFIC INSTRUCTIONS

The following conditions are prepared under IFOA REMAKE TRIAL APPROVAL approved by Mark Gifford and dated 29/06/2015. The purpose and methodology of assessing the trial are described in that document. The purpose of this variation is to describe and map the location of the operational treatments in KiwarrikCompartment 17.

Harvest Plan Maps 1 and 2 identify three harvesting treatment areas, these are

- (1) The original IFOA requirements (status quo) (Map 1).
- (2) Option A – the more flexible protection approach (Map 2).
- (3) Option B - the most conservative protection approach (Map 2).

The normal IFOA conditions apply in this treatment are described in the original approved harvest plan. That plan must be used to identify conditions that apply in the status quo area and map shows the location of exclusion zones. The silvicultural prescription in the status quo area is single tree selection.

Map 2 and the following conditions describe the specific requirements to be implemented in the Option A and Option B areas in lieu of current TSL and EPL requirements. The silvicultural prescription for these areas is selective harvesting with TSL tree retention and minimum basal area retention requirements.

Attachments:

HPOM Map 1 and 2

IFOA Remake Trial Approval

IFOA Remake Trial Method

APPROVED BY: Justin Williams - Operations Planning Manager

DATE: 14/07/2015

Managing Environmentally Significant Areas (ESAs)

Operational Boundary Conditions

1. Category 1 ESA

The following are **category 1ESAs** for the purposes of this **approval**:

- 1.1.1 **rainforest**;
- 1.1.2 **class 1 riparian exclusion zones**;
- 1.1.3 **riparian exclusion zones** within the:
 - (a) Regrowth – Intensive Zone;
- 1.1.4 **wetlands, major water storages** and all associated exclusion zones;
- 1.1.5 **heath and scrub** and all associated exclusion zones
- 1.1.6 **rock outcrop and cliff** features;
- 1.1.7 **threatened frog** – General Dam and all associated exclusion zones;
- 1.1.8 bird nest and roosts and all associated exclusion zones;
- 1.1.9 bat roost and camps and all associated exclusion zones;
- 1.1.10 **wildlife habitat clumps**.

2. Category 2 ESA

The following are **category 2ESAs** for the purposes of this **approval**:

- 1.2.1 **high conservation value old growth forest**;
- 1.2.2 **rare forest**;
- 1.2.3 **riparian exclusion zones** other than those specified in condition 1.1.3;
- 1.2.4 **ridge and headwater habitat** (40m and 80m corridors);
- 1.2.5 **rock outcrop and cliff** associated exclusion zones;
- 1.2.6 **brush-tailed phascogale exclusion zones**;
- 1.2.7 **large forest owl exclusion zones**;
- 1.2.8 **areas of forest management zones 2 and 3A**.

3. Forestry operations in a category 1 ESA

The following conditions apply to a **category 1 ESA**:

- 1.3.1 **forestry operations** are prohibited during the IFOA remake trial, unless approved by the EPA.

- 1.3.2 **machinery** entry into the **ESA** is prohibited;
- 1.3.3 trees must not be felled into the **ESA**;
- 1.3.4 **existing roads, tracks** and **drainage feature crossings** may be maintained and used;
- 1.3.5 **construction** or **upgrading** of **roads, tracks** or **drainage feature crossings** in the **ESA** is prohibited unless approved by the EPA. For the trial use the existing schedule 6 process to seek approval from the EPA.
- 1.3.6 any area within the **ESA** that is disturbed by **aforestry operation** must be stabilised and rehabilitated.

4. Forestry operations in a category 2 ESA

The following conditions apply to a **category 2 ESA**:

- 1.4.1 **forestry operations** are prohibited during the IFOA remake trial, unless approved by the EPA.
- 1.4.2 trees must not be felled into the **ESA** unless there is no practical alternative available for felling the tree into the **harvest area**, in which case no more than 6 trees in any 200 metre length of the **ESA** may be felled;
- 1.4.3 **machinery** entry into the **ESA**:
 - (a) is permitted in the outer 5 metres of the **ESA** for the purpose of felling a tree located within the **harvest area**, provided that:
 - (i) the tree cannot safely be felled from within the **harvest area**; and
 - (ii) the tree is felled away from the **ESA**;
- 1.4.4 **existing roads, tracks** and **drainage feature crossings** may be maintained and used in the **ESA**;
- 1.4.5 **construction** or **upgrading** of **roads, tracks** or **drainage feature crossings** in the **ESA** is prohibited unless approved by the EPA. For the trial use the existing schedule 6 process to seek approval from the EPA
- 1.4.6 any area within the **ESA** that is disturbed by a **forestry operation** must be stabilised and rehabilitated.

Riparian exclusion zones management for classified drainage lines under the IFOA Harvesting Trial

A. Conditions

1. A **riparian exclusion zone** must be retained on each side, and for the entire length of, each **classified drainage line**, with a minimum width as specified in Table 1;

Table 1 – Minimum riparian exclusion zone widths for classified drainage lines

Drainage class	Minimum exclusion zone width (metres)	ESA Category for Ingalba and Kiwarrik IFOA trial areas
Drainage Line	Width of feature as determined in the field	category 1 ESA
1	5	category 1 ESA
2	20	category 2 ESA
3	30	category 2 ESA
4 (and above)	50	category 2 ESA

2. Ground protection zones on riparian exclusion zones and unmapped drainage depressions

2.1 A **ground protection zone** must be retained along:

- a) the entire length of a **riparian exclusion zone** on each side of a **first ordered drainage feature, class 1 drainage line** and **unmapped drainage line**; and
- b) each side of an **unmapped drainage depression**.

2.2 Each **ground protection zone** must have:

- (a) a minimum width of 10 metres measured from the outer edge of the **riparian exclusion zone**; or
- (b) a minimum width of 5 metres measured from each side of the centreline of an **unmapped drainage depression**.

2.3 **Machinery** must not operate in a **ground protection zone** when the soil is **saturated**.

2.4 Earthworks must not be undertaken within a **ground protection zone** except for the construction of a **drainage feature crossing**.

2.5 **Machinery** operating within a **ground protection zone** must:

- a) operate with blade up at all times except when conducting earthworks to construct a **drainage feature crossing**; and
- b) not **snig** along **unmapped drainage depressions**.

2.6 Areas within the **ground protection zone** that are disturbed by a **forestry operation** must be **stabilised** and **rehabilitated**. (see draft guidance note: Guidance on the Stabilisation and Rehabilitation of Disturbed Areas in the Ground Protection Zones of Class 1 Streams.docx)

B. Riparian exclusion zone conditions – measurement, implementation requirements and guidance

1. Classified Drainage Lines classes are shown on the relevant HPOM.
2. **Riparian exclusion zones** on a **classified drainage line, ordered drainage feature** or **unmapped drainage line** must:
 - 2.1. be measured along the ground surface from:
 - 2.1.1. the **bankfull level** as determined in the field; or
 - 2.1.2. where the **bankfull level** cannot be identified, from the **centreline** as determined in the field.
 - 2.2. Commence from the **channel head** for **Class 1 classified drainage lines**, and **unmapped drainage lines** as determined in the field.
3. the location of **unmapped drainage lines** must be determined in the field.
4. If a segment of a **classified drainage line** below the **channel head** is a **drainage depression**, that segment must be treated as a **classified drainage line** and the relevant **riparian exclusion zone** must be determined and applied in accordance with Table 1.

C. Riparian Condition Definitions

“Bankfull level” means the point at the top of the channel where under high flow conditions, the water level would be even with the top of the banks, or in a floodplain river, at the point just before water would spill over onto the floodplain as defined in the Australian River Assessment System: AusRivAS Physical Assessment Protocol.

“Channel” has the same meaning as a drainage line.

“Channel head” means the furthest upslope location of a drainage line.

“Drainage Depression” means a level to gently inclined shallow, open depression with a smoothly concave cross-section, rising to moderately inclined hill slopes.

“Drainage Line” means a channel down which surface water naturally concentrates and flows.

Drainage lines exhibit one or a combination of the following features which distinguish them from drainage depressions:

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

“Ground protection zone” means a protective area where specified forestry activities may only be conducted if in accordance with relevant conditions.

“Riparian exclusion zone” means a protective area set aside on each side of a classified drainage line, ordered drainage feature and unmapped drainage line where specified forestry activities, unless excepted, are prohibited.

Other Soil and Water Protection Requirements

The conditions above describe the management of riparian exclusion zones and protection on drainage lines, drainage depressions and replace the normal IFOA approved EPA and TSL operating conditions as they apply to those features. For conditions relating to roading and snigging continue to apply the normal conditions of the EPL.

Mark-Up Surveys

Continue to apply condition 5.2 of the TSL (normal mark-up survey requirements). Assessment of alternate broad-area habitat searches will be undertaken during the trial, however these will be conducted in parallel and not replace the mark-up survey requirements for the purpose of the trial.

Site-Specific Threatened Species Conditions

If a threatened species trigger is found that does not have a relevant condition described in this variation, then seek approval from the EPA regarding what condition to apply.

Option A Treatment Area: Forestry Corporation Mark-Up

Table 2. Minimum Tree retention requirements in Regrowth Selective Zone – Kiwarrik and Ingalba SF

<i>Element</i>	<i>Condition</i>
<i>Element</i>	<i>Condition</i>
Minimum Basal Area	Retain a minimum average basal area of 12m²/ha .
<i>Habitat Tree</i>	Retain a minimum of Five (5) habitat trees per hectare of NHA where available. Mark retained habitat trees in field and on MapAPP with H . Where insufficient habitat trees exist to meet the required retention rate, make-up the deficit with additional recruitment trees. Mark these additional trees with an R in the field and on MapAPP.
<i>Recruitment Tree</i>	Retain a minimum of Five (5) recruitment trees per hectare of NHA . Mark retained recruitment trees in field and on MapAPP with R .
<i>Feed Tree</i>	In addition to H and R Trees, retain a minimum of Five (5) feed trees per hectare of NHA. Mark retained recruitment trees in field and on MapAPP with E .
<i>Giant Tree (G)</i>	Retain all Giant trees. Mark retained Giant trees in the field with H if hollow, R if not hollow and on MapAPP with L (Large habitat tree) .
<i>Dead Standing Tree</i>	Do not fall dead standing trees, except as required for safety reasons. Dangerous trees should be marked in the field with ∞ and on Map App with D (dangerous tree).
<i>Koala Feed Trees (K)</i>	Retain a minimum of Five (5) koala feed trees per ha in Kiwarrik. Retained koala feed trees in addition to those marked as H, R or E to be marked in the field and on MapApp with a K . Retain a minimum of Ten (10) koala feed trees per ha in Ingalba. Retained koala feed trees in addition to those marked as H, R or E to be marked in the field and on MapApp with a K .

General Tree Retention Requirements in Option A Trial Areas

1. **Habitat trees** and **recruitment trees** must be permanently retained and marked as described in Table 2 or 3.
2. Habitat, recruitment, feed trees and giant trees must be protected from forestry activities.
3. Hollow bearing trees can be retained as a recruitment tree where the habitat tree retention rates are exceeded.
4. Retention rates must be calculated and implemented for logical mark-up areas up to a maximum of 25 ha in size. These areas are to be identified and recorded during mark-up.
5. Retained trees should be a combination of scattered and aggregated within these logical mark-up areas.

6. Trees retained within wildlife habitat clumps can count towards trees retained under these tree retention conditions.
7. Accidentally fell or dangerous trees removed must be recorded during harvesting.
8. Glider sap feed trees must be retained.
9. Allocasurina trees with evidence of distinctive Glossy Black-cockatoo crushed cones feeding must be retained.

Option A: Retained Tree Definitions

Habitat Tree: Live tree with apparent hollows. Select the largest available habitat trees first.

Recruitment Tree: Live mature or late-mature tree with good potential for long-term survival. Must be selected from trees > 50 cm dbhob.

Feed Tree: Any associate tree species > 30 cm dbhob, or cone-bearing *Allocasurina* or mature *Bankisa* > 15 cm dbhob.

Giant Tree: Any tree with a DBHOB of > 160 cm.

Dead Standing Tree; A dead tree greater than 300mm diameter at breast height and greater than 3 metres in height.

Koala Feed Tree. A tree > 20 cm dbhob, with a healthy crown, from the following list of Koala primary browse species; Tallowwood, Grey Gum, Sydney Blue Gum, Swamp Mahogany, Coastal Grey Box, Forest Red Gum and any other red gum species, Cabbage Gum.

NHA – Net Harvest Area, being the portion of operational area available for logging and forest products operations. The net harvestable area does not include any exclusion areas within the operational area.

Tree Selection Guidance – Option A Areas

Habitat Trees

A habitat tree has apparent hollows when;

There is evidence of hollows, meaning hollows, holes and cavities that have formed as a result of decay, injury or other damage as trees age. Such hollows may not be visible from the ground; but may be apparent from the presence of deformities such as burls, protuberances or broken limbs.

Note: typically it is the combination of these deformities, in conjunction with the assessment of later mature growth stages that create sufficient evidence that a tree is likely to be hollow even when the hollows are not clearly visible.

Recruitment Trees

Recruitment tree selection should aim to deliver a range of species and a mixture of aggregated and scattered retention. Trees should be located to facilitate both good habitat development and also silvicultural and production outcomes.

Feed Tree Retention

Associate tree species are any species other than the dominant overstorey species that are typically being retained as Habitat and Recruitment trees. In stands with few associate species, additional dominant species may be retained. Selection should consider the feed tree preferences of locally occurring threatened species, for example gum-barked species for Gliders, rough barked species for Brush-tailed Phascogale, fruiting Allocasurina for Glossy-black cockatoos, winter flowering species for Swift Parrots.

Koala Feed Trees

Aim to select trees with healthy crowns. Aggregated retention of multiple koala feed trees in close proximity is encouraged and may provide a good habitat outcome.

B. Option B Treatment Area: EPA Mark-Up Tree Retention Requirements

Table 3. Minimum Tree retention requirements in Regrowth Intensive Zone – Queens Lake and Lansdowne SF

<i>Element</i>	<i>Condition</i>
Minimum Basal Area	Retain a minimum average basal area of 16m ² /ha.
Habitat Tree	Retain a minimum of Five (5) habitat trees in every hectare of NHA where available. Mark retained habitat trees in field and on MapAPP with H. Where insufficient habitat trees exist to meet the required retention rate, make-up the deficit with additional recruitment trees. Mark these additional trees with an R in the field and on MapApp.
Recruitment Tree	Retain a minimum of Five (5) recruitment trees in every hectare of NHA. Mark retained recruitment trees in field and on MapAPP with R.
Feed Tree	In addition to H and R Trees, retain a minimum of Five (5) feed trees in every hectare of NHA. Mark retained recruitment trees in field and on MapAPP with E.
Giant Tree (G)	Retain all Giant trees. Mark retained Giant trees in the field with H if hollow, R if not hollow and on MapAPP with L (Large habitat tree).
Dead Standing Tree	Do not fall dead standing trees, except as required for safety reasons. Dangerous trees should be marked in the field with ☹ and on Map App with D (dangerous tree).
Koala Feed Trees (K)	Retain a minimum of Ten (10) koala feed trees per ha in Kiwarrik. Retained koala feed trees in addition to those marked as H, R or E to be marked in the field and on MapApp with a K. Retain a minimum of Twenty (20) koala feed trees per ha in Ingalba. Retained koala feed trees in addition to those marked as H, R or E to be marked in the field and on MapApp with a K.

1. **Habitat trees** and **recruitment trees** must be permanently retained.
2. Habitat, recruitment, feed trees and giant trees must be protected from forestry activities.

3. Hollow bearing trees can be retained as a recruitment tree where the habitat tree retention rates are exceeded.
4. The location of each retained habitat, recruitment trees feed trees and giant trees must be recorded on GPS.
5. Retention rates must be calculated and implemented in 0.2ha plots. This would involve walking every 50m and within a person's line of sight (around 20m) a pro-rata rate of trees be selected.
6. Retained trees should be a combination of scattered and aggregated within these 0.2ha areas.
7. Trees retained within wildlife habitat clumps can count towards trees retained under these tree retention conditions.
8. Glider sap feed trees must be retained.
9. Allocasurina trees with evidence of distinctive Glossy Black-cockatoo crushed cones feeding must be retained.

General Tree Retention Requirements in Option B Trial Areas

Habitat Tree: Live tree with apparent hollows. Select the largest available habitat trees first.

Recruitment Tree: Live mature or late-mature tree with good potential for long-term survival. Must be selected from one (1) of the (2) largest trees in any 0.2ha area

Feed Tree: Any associate tree species > 30 cm dbhob, or cone-bearing *Allocasurina* or mature *Bankisa* > 15 cm dbhob.

Giant Tree: Any tree with a DBHOB of > 150 cm.

Dead Standing Tree; A dead tree greater than 300mm diameter at breast height and greater than 3 metres in height.

Koala Feed Tree. A tree > 30 cm dbhob, with a healthy crown, from the following list of Koala primary browse species; Tallowwood, Grey Gum, Sydney Blue Gum, Swamp Mahogany, Coastal Grey Box, Forest Red Gum and any other red gum species, Cabbage Gum.

NHA – Net Harvest Area, being the portion of operational area available for logging and forest products operations. The net harvestable area does not include any exclusion areas within the operational area.

Managing Basal Area Retention Limits in Selective Harvesting Areas

1. Apply Basal Area retention limits in a manner consistent with the Silvicultural Guidelines for the Code of Practice for Private Native Forestry, noting that there is a single BA limit for each treatment area. For the purpose of the trial each
2. BA must be measured using the angle count sampling method (standard fixed point sweep)
3. All effort must be made to enable harvesting at or above the minimum BA limit for each sample sites BUT
 - a. Not expected that every location is above the BA limit
 - b. How you mark for BA retention will still need to account for stand variability

4. The PNF method will be used – it assess compliance based on an average across the stand (ie no more than half the sampling lots can be below the minimum limits)
5. The location of sampling plots will be random
6. Offsetting of BA is prohibited
7. BA sample plots do not include ESAs, or areas yet to be harvested
8. To ensure BA limits are achieved, where required, mark additional trees for retention with a **single ring** for retention.

Wildlife Habitat Clumps

The following area of net harvestable area must be established as a wildlife habitat clump exclusion zone:

Table 4. Area requiring clumps and habitat priorities for wildlife habitat clumps.

Treatment Area	Area of clumps required (ha)	Target Number of clumps required	ESA Boundary Type	Habitat Features
Option A	0.2	1	1	Brush-tailed Phascogale, Koala feed trees, hollow-bearing trees and stags
Option B	0.25	1	1	

1. For each 100 ha of clumpable area, 3.2 percent of the area must be protected as habitat clumps. Minimum area of clumps for each site is shown in Table 4.
2. Each wildlife habitat clump must be: larger than 0.1 hectares in size; and
3. Wildlife habitat clumps must be dispersed across the net harvest area, including along ridgelines, mid-slopes and gullies.
4. For each wildlife habitat clump selected for protection, at least one environmental feature used to select the clump must be recorded that describes the reason for its establishment.

Wildlife Habitat Clump Guidance:

- 1. Features that clumps and 20% biodiversity offsets are designed to protect:**
 - a) **Habitat** for threatened species such as Koala, Spotted-tailed Quolls, Squirrel Gliders, Brush-tailed Phascogales, Glossy Black-cockatoos, Black-striped wallaby.
 - b) **Habitat elements such as areas** of dense understory; fruiting and flowering banksias or grass-trees; areas with high-densities of coarse woody debris; previously unmapped rocky outcrops, wetlands, heath and scrub; individual giant trees or other large hollow-bearing trees; groups of multiple hollow-bearing trees or mature forest; groups of sap feed trees; stands of Allocasurina; nest, den or roost sites; and threatened plant records.
 - c) **Habitat connectivity** – helping improve landscape connecting between other retained patches of vegetation or as habitat islands within a large cutover area.

2. **Clump size:**

- a) The design of clump size must consider the extent of the feature being protected.
- b) Small sized clumps (0.1-0.2 ha) are suitable for small features such as individual trees or small habitat patches;
- c) Larger clumps, 0.5 ha and above are suited to larger habitat patches and habitat islands.

3. **Clump Location:**

- a) Selection of habitat for inclusion in clumps should be considered in a local landscape context, in particular reviewing the environmental features available and priorities for inclusion in protection areas.
- b) Clumps must be dispersed through the range of habitat types and topographic positions that occur within the net harvest area of the planning area.
- c) As clumps are a category 1 ESA the practicality of ensuring forestry operations do not impact on clumps is an important consideration.
- d) Placing clumps adjacent drainage feature protection or other exclusion zones in steeper and/or narrow areas is encouraged as this reduces likelihood of incursions.
- e) In flat areas and areas with few exclusion zones placement of clumps as habitat islands is encouraged.
- f) Individual clumps that protect multiple habitat features are encouraged.

Wetland Protection

2. An exclusion zone must be retained around all **wetlands** and **major water storages** with a minimum width as specified in Table 7. For the purpose of applying Table 7;

- (i) the presence of the **wetland** must be verified in the field;
- (ii) the surface area of a **wetland**, and the associated **wetland** exclusion zone, must be measured from either:

the edge of the **current saturated zone**, or

the outer edge of where the vegetation type indicates a wetter micro-environment than the surrounding country,

whichever results in a larger surface area;

- (iii) the width of the **wetland** exclusion zone must be measured along the ground surface and must be determined in the field; and

3. if a **wetland** exclusion zone for a **major water storage** extends beyond the catchment of the **wetland** it is protecting, the exclusion zone may be terminated at the catchment boundary.

Table 1 – Minimum exclusion zone widths for wetlands and major water storages

Feature Type	Size of the surface area	Wetland Exclusion Zone (metres)
<i>wetland</i>	Less than 0.5 ha	10
<i>wetland</i>	Between 0.5 to 2.0 ha	20
<i>wetland</i>	Greater than 2.0 ha	40
<i>SEPP 14 wetland</i>	All	40
<i>major water storage</i>	All	100

“Wetland” means:

- a. all areas of SEPP 14 wetlands
- b. any vegetated depression with a seasonal, permanent or intermittent water table at or slightly above the floor of the depression. The vegetation type in a wetland typically indicates a wetter micro-environment than the surrounding country and
- c. soaks, seepages and bogs larger than 0.1 ha.

Bird Roost and Nest Protection

Category 1 ESAs must be applied around the nest, roosts and associated exclusion zones as specified in Table 1:

Table 1 – Nest and Roost Protection

25m radius	50m radius	100m radius
Regent Honeyeater nest	Powerful Owl nest	Bush Stone- Curlew nest
Varied Sittella nest	Masked Owl nest	Albert's Lyrebird nest
Gang-gang Cockatoo nest	Barking Owl nest	
Brown Treecreeper nest	Sooty Owl nest	
Black-chinned Honeyeater (eastern sub-species) nest	Flame Robin nest	
Speckled Warbler nest	Scarlet Robin nest	
Diamond Firetail	Hooded Robin nest	
Grey-crowned babbler	Glossy- black Cockatoo nest	
Powerful Owl roost	All stick nests (greater than 50cm)	
Masked Owl roost		
Barking Owl roost		
Sooty Owl roost		
Turquoise Parrot nest		
Little Lorikeet nest		

Threatened Frogs - General

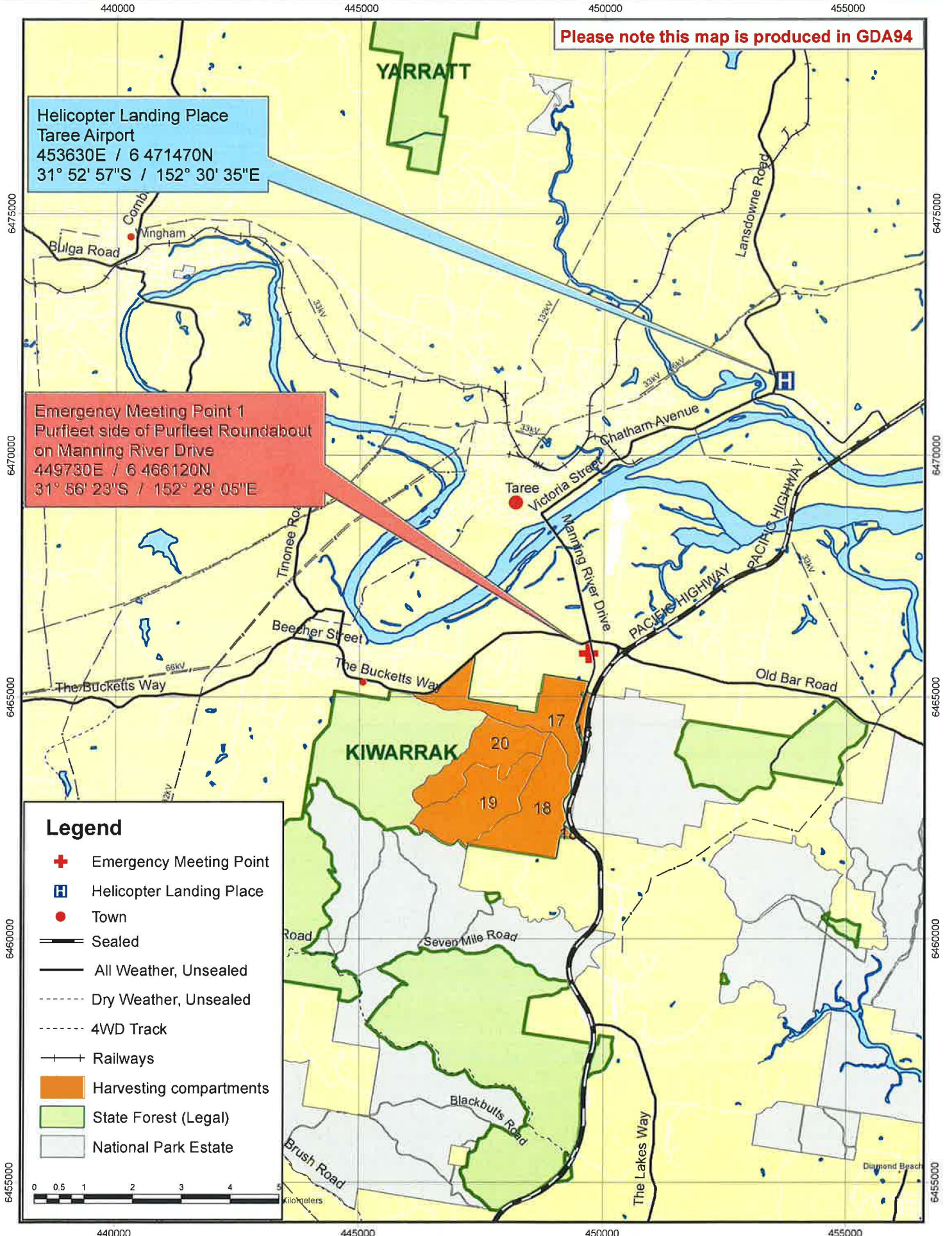
1. A 10 metre wide *exclusion zone* must be applied around all dams.
2. Any *newstream crossing* that is located within 200 metres upstream or downstream of a *stream breedingthreatened frog record* must not alter natural stream flow.



Scale 1:100,000
 Datum: GDA94
 Map Sheets
 1:25,000; Taree 9334-2-S
 1:100,000; Wingham 9334

Central Region - Taree MA Locality / Site Safety Map Compartments 17, 18, 19, 20 Kiwarrak State Forest

Prepared by: Ken Drew
 Date: 13/07/12



Scale: 1:15,000
 Datum: GDA94 / Projection: MGA
 Map Sheets:
 1:25,000 Taree 9334-2-S
 1:100,000 Wingham 9334
 Contour Interval: 10 m

Harvest Plan Operational Map

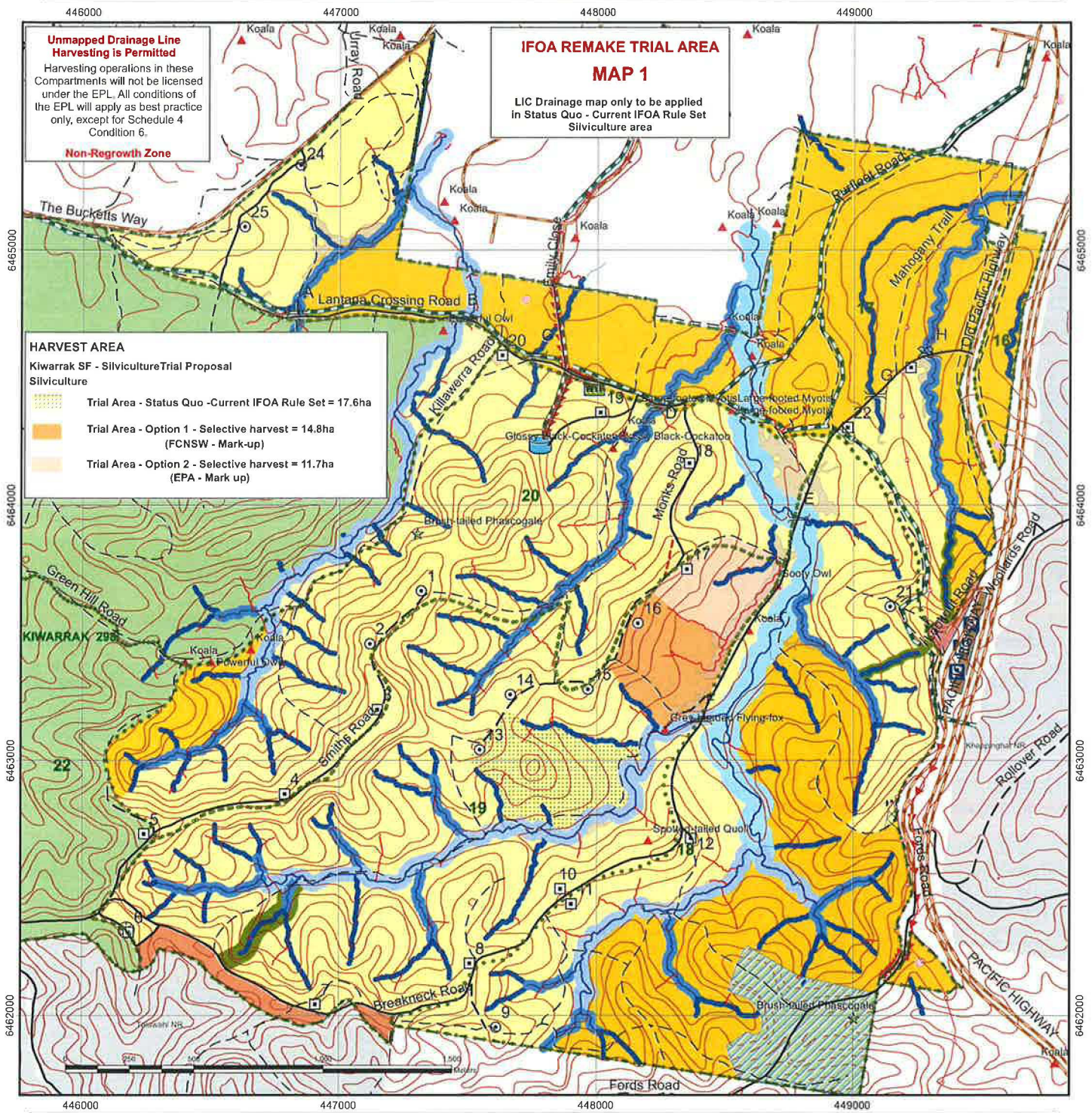
Compartments 16, 17, 18, 19, 20

Kiwarrak State Forest

Central Region - Taree Management Area

APPROVED
 RM Approval Date: 29_08_13
 Amendment Date: 17_08_14
 Controlled Map: Kiwarrak17_19_HWA_Amend_1309_Amend_1406.pdf
 Amendment Date: 7_07_2015
 Controlled Map: Kiwarrak17_19_HWA_Amend_1309_Amend_1406_LIDAR_IFOA_Remake_TWA

GDA
Forestry Corporation
 Prepared by: Ken Drew
 Date: 07/05/2012
 Amended by: B Bailey
 July 2015



MAP FEATURES	OTHER MAP FEATURES	HARVEST AREA & EXCLUSION ZONES	DRAINAGE FEATURES
State Forest Boundary	Rest area Toilets Parking Area	Base Net Area - (IHC 1&2)	Spatially Corrected LIC Drainage (using LIDAR) (5m Operational Zone)
Compartments Boundary	Pump Station	Harvest Area	1st Order (Protection 10m)
10 / 100 m Contour	Reservoir	General Management (FMZ 4 and 8)	2nd Order (Protection 20m)
State Forest	Telstra Tower	Basal Area Offset (not to be logged)	3rd Order (Protection 30m)
Private Property (cadastre)	Pacific Hwy Rest Area	EXCLUSIONS	4th order & above (Protection 50m)
Incorrect Fenced Boundary (refer - HP)	Aboveground Powerline	National Park	LIDAR Unmapped Drainage lines
ROADS, DUMPS & CROSSINGS	Underground Power Line	EEC Exclusion (Alluvial Soils) Indicative	Water Point
Sealed Road	telstra Cable	Talawahl NR Buffer - Logging Excluded	
Gravel Road	MCW_Water Pipe Lines	School Visual Buffer (10m - refer HP)	
Natural Surface Road		4 Bar Exclusions	
Not to be used for haulage		PGP Exclusion (Alluvial Soils) Indicative	
New construction		Talawahl NR Buffer - Logging Excluded	
Temporary Dry		School Visual Buffer (10m - refer HP)	
Temporary Wet		3 Bar Exclusions (Limited Felling)	
Approved Crossing		Harvesting Protection (FMZ 3A)	
Quarry		Ridge & Headwater Habitat (40m/60m exclusion)	
		RTA Acquired Land	
			Threatened Species Records
			Records requiring prescription
			Brush-Tailed Phascogale record
			Brush-Tailed Phascogale Exclusion
			Ecology point site (labelled on map)

Scale: 1:15,000
 Datum: GDA94 / Projection: MGA
 Map Sheets:
 1:25,000 Taree 9334-2-S
 1:100,000 Wingham 9334
 Contour Interval: 10 m

Harvest Plan Operational Map

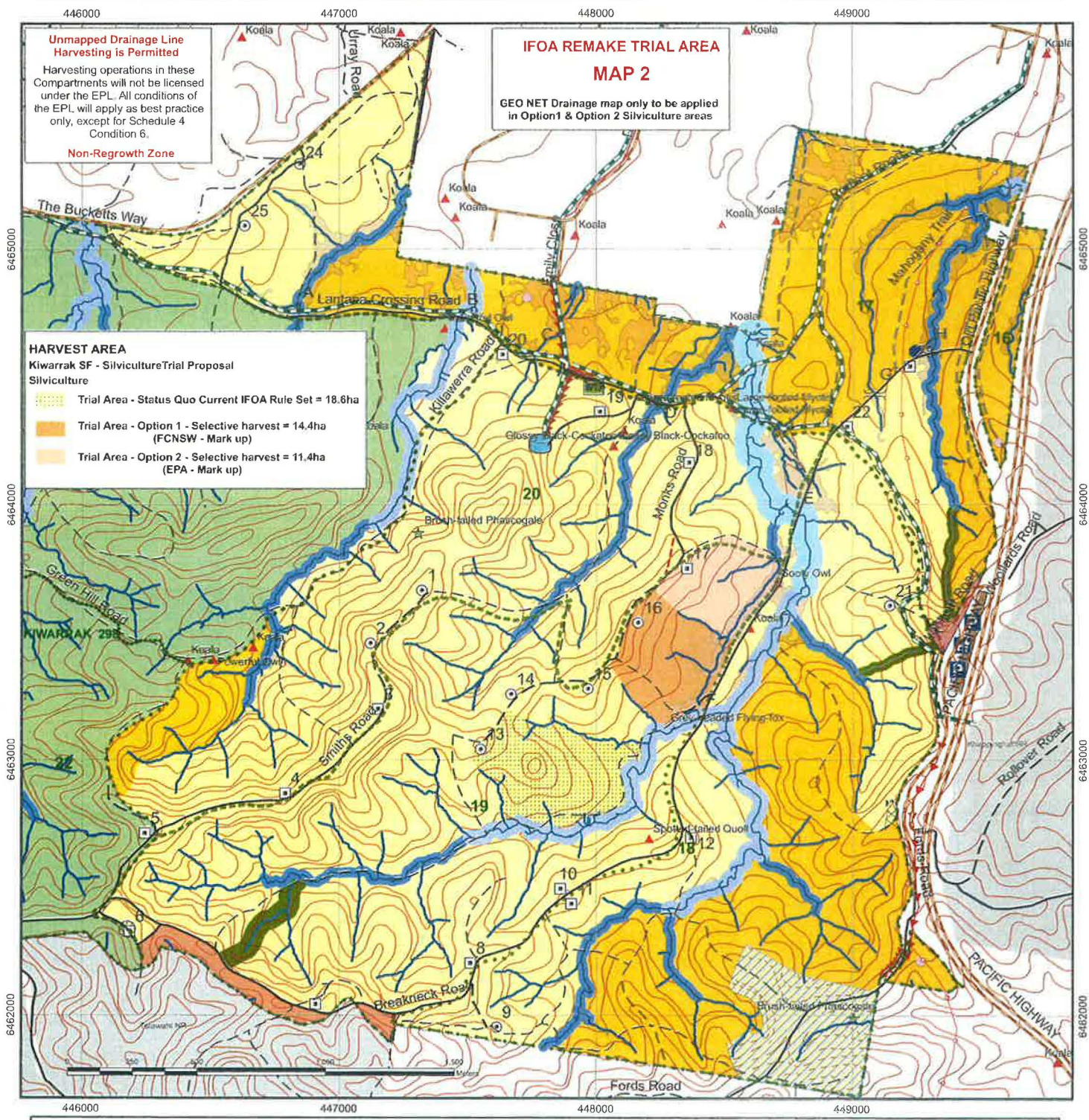
Compartments 16, 17, 18, 19, 20

Kiwarrak State Forest

Central Region - Taree Management Area

APPROVED
 RW Approval Date: 25_08_13
 Amendment Date: 13_08_14
 Consolidated Map: Kiwarrak_17_18_19_20_HPOM_Amend June14.pdf
 Amendment Date: 7_07_2015
 Consolidated Map: Kiwarrak_17_18_19_20_NewArea_9 July2015_Amend2_GEOINET_IFOA_Remake_TMTs

Prepared by: Ken Drew
 Date: 07/06/2012
 Amended by: B Bailey
 July 2015



Unmapped Drainage Line
 Harvesting is Permitted

Harvesting operations in these Compartments will not be licensed under the EPL. All conditions of the EPL will apply as best practice only, except for Schedule 4 Condition 6.

Non-Regrowth Zone

IFOA REMAKE TRIAL AREA
MAP 2

GEO NET Drainage map only to be applied in Option1 & Option 2 Silviculture areas

HARVEST AREA
 Kiwarrak SF - Silviculture Trial Proposal

- Trial Area - Status Quo Current IFOA Rule Set = 18.6ha
- Trial Area - Option 1 - Selective harvest = 14.4ha (FCNSW - Mark up)
- Trial Area - Option 2 - Selective harvest = 11.4ha (EPA - Mark up)

MAP FEATURES	OTHER MAP FEATURES	HARVEST AREA & EXCLUSION ZONES	DRAINAGE FEATURES
State Forest Boundary	Rest area Toilets Parking Area	Base Net Area - (IHC 1&2)	Geonet Drainage Line
Compartments Boundary	Pump Station	Harvest Area	Class 1 (Protection 5m - ESA 1)
10 / 100 m Contour	Reservoir	General Management (FMZ 4 and 8)	Class 2 (Protection 20m - ESA 2)
State Forest	Telstra Tower	Basal Area Offset (not to be logged)	Class 3 (Protection 30m - ESA 2)
Private Property (cadastre)	Pacific Hwy Rest Area	EXCLUSIONS	Class 4 (Protection 50m - ESA 2)
Incorrect Fenced Boundary (refer - HP)	Aboveground Powerline	National Park	Water Point
ROADS, DUMPS & CROSSINGS	Underground Power Line	ESA 1 (Environmentally Significant Area 1)	Threatened Species Records
Sealed	Telstra Cable	EEC Exclusion (Alluvial Soils) Indicative.	Records requiring prescription
Gravel Road	MCW_Water Pipe Lines	Talawahi NR Buffer - Logging Excluded	Brush-Tailed Phascogale record
Natural Surface Road	PGPs (Permanent Growth Plots)	School Visual Buffer (10m - refer HP)	Brush-Tailed Phascogale Exclusion
Not to be used for haulage	Modified Harvest Area	ESA 2 (Environmentally Significant Area 2)	Ecology point site (labelled on map)
New construction	Water body	Harvesting Protection (FMZ 3A)	
Temporary Dry		Ridge & Headwater Habitat (40m/80m exclusion)	
Temporary Wet		RTA Acquired Land	
Approved Crossing			
Quarry			