LOCALITY MAP Western Branch - Harvest Plan

GN MN



Management Area: Murray State Forest No: 625

Scale: 1:100,000

State Forest Name: Koondrook
Compartment: 33

WAKOOL Tulla R R VER BOOK T-CREEK KOONDROOK 40 CAMPBELLS ISLAND Crooked Creek Roa 7726-N Six Trail BARHAM Twenty Trail East Barham Road KOONDROOK 20 BARB 19 CREEK 11 Old Spot Road Kilometres Compartment(s) of interest Highway State Forest Roads Locality Major Drainage **Evacuation Points**

NSWTopo

HARVEST PLAN OPERATIONAL MAP

Western Region - Harvest Plan WRhfrt1404

Date:_____

248000

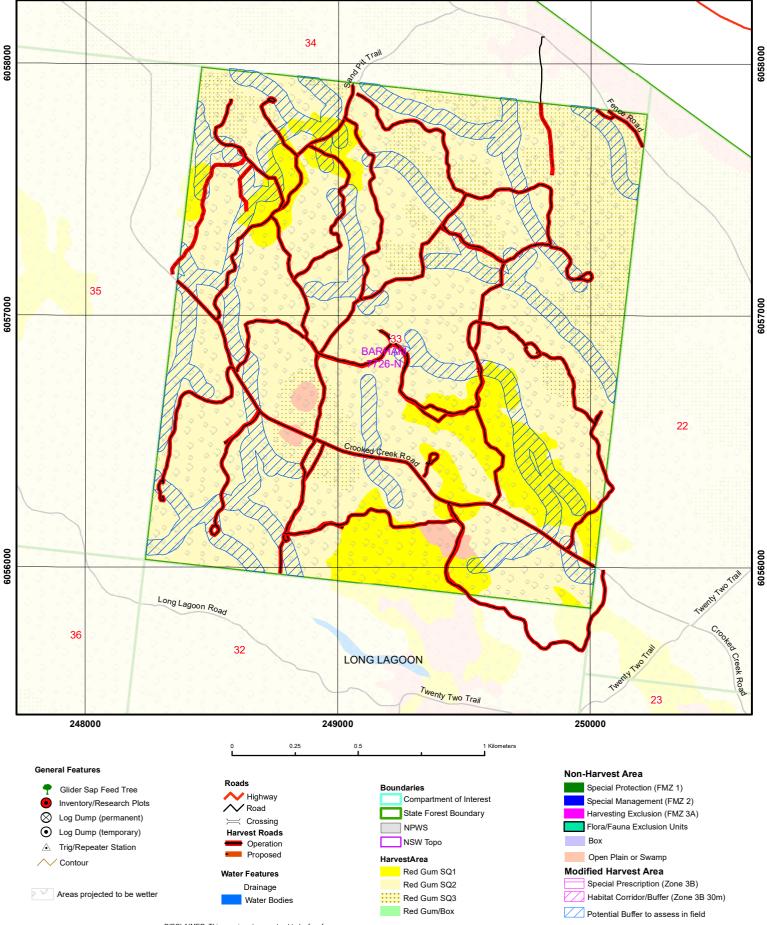
State Forest Koondrook
Compartment 33

249000

Forestry Corporation N
Scale: 1:15,000

250000

Amendment 1. Approved:_____



Plan No: WRhfrt1404

Date Print: 16/11/2017



FORESTRY CORPORATION OF NSW - WESTERN REGION

NATIVE FOREST HARVESTING PLAN WRhfrt1502

Refer: FPC 2010/01

Koondrook State Forest - Compartment 33

Certification

This plan has been prepared in accordance with the Integrated Forestry Operations Approval issued under the Forestry and National Park Estate Act 1998. The Standard Harvest Plan Conditions for Native Forest Operations in Western Region - Riverina Red Gum apply to this operation.

Prepared by	: Kelly Williamson	Endorsed by	Ross	Irvine	Approved b		ew O'Brien
Assistant Dis	strict Manager	Environment Manager	& Resour	rces	A Senior Man	ager	
Signature		Signature			Signature		
Date	23/5/2016	Date	1	/2016	Date	1	/2016

Locality and forest type maps are included for information only and do not form a part of this approval.

PRE-OPERATIONAL BRIEFING (SUPERVISING FOREST OFFICER ACKNOWLEDGMENT)

I confirm that I have received a copy of the Harvest Plan for the above Compartment. I

have been briefed on the conditions of the Plan. I understand the requirements for supervision and operational control as explained to me by the Forest Manager or his/her delegate. SUPERVISING FOREST OFFICER: Date: Signature: PRE-OPERATIONAL BRIEFING (LICENSEE/CONTRACTOR ACKNOWLEDGMENT) I confirm that I have received a copy of this Harvest Plan and that: I understand the conditions of the Plan, I will inform all relevant people not present at this briefing, prior to them starting operations, of these aspects of the Plan, as explained to me by a Forestry Corporation officer. Signature: Name: Date: Licence No: Position:

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Riverina Red Gum IFOA Harvest Plan	Ver.3 Jun 2014	Page 1		

Principal licensee/contractor/other (explain)

Description of Proposal

High Quality Large sawlogs and green and dry residue logs will be harvested under regulation of the Integrated Forest Operations Approval for Riverina Red Gum (RRG IFOA).

The operation will use mainly mechanical harvesting and processing to produce logs and forward them to dumps. The logs will be removed from the forest by truck.

Natural regeneration is planned. No after-harvest burning or planting is proposed.

Attachment 1: Site Safety Plan prescribes the safety requirements and Medical Emergency Evacuation Plan for this harvesting operation.

No construction, reopening or upgrading of roads or bush tracks is proposed. Prescriptions for maintenance of existing roads and tracks are specified below.

Area Identification and Yield Estimates

State Forest	Compartment number	Region	Management Area	Plan No.
Koondrook	33	Western	Murray	40774

COMPARTMENT	33
Plan Cpt ID	52163
Gross Area (ha)	351
Net Harvest Area (ha)	347
Estimated Yield HQL Sawlog (m³)	855
Estimated Yield Other Sawlog (m³)	955
Estimated Yield Residue (t)	10,373

Silviculture and Harvesting Prescriptions

Intensive Utilisation (IU) was used in Koondrook compartment 33 between the late 1950's and late 1960's, removing sawlogs and sleepers and then ringbarking of senescent over mature trees to encourage new regeneration and growth. Harvesting for sawlog last occurred in 2005, aiming to promote vigorous growth of regeneration by removing the overmature overstorey. This has been successful across the compartment, though there are now areas that require further removal of the overmature overstorey where they couldn't be removed previously, and the advanced regeneration now requires a further thin from the previous smaller diameter thinning operation.

The stand will still show signs of fire damage from previous fires in the compartment; around 60ha was damaged in the south eastern corner of the compartment in 1967, and 200ha of the eastern side of the compartment in 1985, which was subsequently salvage logged.

Silvicultural Planning

Thinning prescriptions will be used to reduce the stocking of overstocked regeneration previously first thinned to ensure a remaining average Basal Area of at least 12 square metres per hectare. The thinning will cut from below, leaving healthy growing stock with an adequate spacing to develop into a healthy mature stand. Returning to these patches in 15-20 years time Single Tree Selection (STS) and Australian Group Selection (AGS) prescriptions would be used to regenerate these areas that will now be receiving their final thin.

STS Release, STS Regeneration and AGS will be used for the remainder and majority of the harvest area, treating the overmature cohorts. STS release will be carried out to remove poor quality mature trees and overmature trees that are dominating the overstorey, taking away the impediment of competition. STS Regeneration will be used where there is no cohort underneath, creating disturbance and space for a regeneration event in the future.

AGS may be applied across any of the harvest area, as all of the compartment falls within the area 'Areas projected to be wetter', as shown on the HPOM. AGS tracts will need to have sufficient clumping of overmature trees as opposed to STS areas, expected to only be a small part of the harvest area. The SFO is to record the boundary of AGS tracts (stands containing AGS), and GPS locations of all gaps. Thinning will be applied between gaps within the AGS tract.

The area of each silvicultural treatment must be mapped and recorded in the Postlogging information section of this plan.

Harvesting Prescription

The following table shows estimated silviculture treatments areas for the planned compartments

Stand type	% of net area	Area (refer to HPOM for details)	Treatment Refer to Standard Harvest Plan Conditions for Native Forest Operations in Western Region. – Riverina Red Gum for more detail.
Mature and over mature cohort	40	Across the cpt	AGS, STS Release, STS Regeneration in the absence of understorey
Densely stocked young cohort	60	Across the compartment, particularly low lying areas/site quality 1	Thinning

The SFO will ensure that all relevant tree retention and silvicultural prescriptions are met during harvesting operations.

The operation must, as far as practicable, not damage individual plants of good form regeneration or sapling size red gum, especially where there are few others nearby.

Tree Marking

Unless noted by the SFO in the SFO Notes section of this harvest plan, most of the harvest area will be tree marked for **retention**. The operation must, as far as practicable:

- For the allowed species, fall each tree not marked for retention, unless it clearly does not meet the product standard, and
- Not fall or damage trees marked for retention, or marked as boundary trees.

The SFO may revert to marking for removal in sparse areas where fewer trees will be removed, these areas will be communicated to the operators. The operation must, as far as practicable:

- For the allowed species, fall each tree marked for removal, unless it clearly does not meet the product standard, AND
- Not fall or damage trees not marked for removal. Also must not damage those marked as boundary trees.

Any change in marking technique must be noted in the SFO Notes and these areas annotated on the Operational Map. Boundaries between the different marking strategies must be clearly defined in the field, with the harvest contractors advised of the change in marking strategy.

Special Conditions

Critical boundaries

Compartment 33 is bounded by State Forest on all sides, boundaries between compartments will be marked in line with the tree marking code (Standard Harvest Plan Conditions for Native Forest Operations in Western Region. - Riverina Red Gum).

Leases/OPs

The area is or may be subject to grazing under Grazing Permit. In particular:

- Fences. No fence may be damaged except at places approved by the Supervising Forest Officer, Any damage to a fence by the Contractor must be immediately reported to the Supervising Forest Officer and fixed immediately by the Contractor.
- Roads. Existing roads must not be blocked or damaged. Any damage must be repaired immediately.
- Apiary sites: A 20m buffer must be applied around each bee hive encounter.

Forest Management Zoning Conditions

The compartment is General Management Zone 4, with mapped drainage lines that need assessment for application of buffer strips in the field where they meet the IFOA criteria as described in this harvest plan.

Cultural Heritage Conditions

There have been 11 Aboriginal Cultural Heritage sites recorded within the tract, see the below table. These must be excluded from harvesting with the appropriate exclusion zone.

Aboriginal Cultural Heritage Sites compartment 33, z55

In addition to known sites;

- During pre-harvesting mark up, the SFO must search for sites or artefacts of cultural heritage.
- The harvesting licensee/contractor must inform the SFO of the location of all cultural heritage sites detected during the operation and must not disturb them.

The SFO must record the location of all new cultural heritage sites on the Operational Map, and report to the Supervising Forester.

- An exclusion zone around an Aboriginal scar tree must be a minimum of 20 metres wide.
- An exclusion zone around a midden or artefact must be a minimum of 10 meters wide.
- Harvesting machinery must not operate on sandhills.

Flora and Fauna Conditions

The SFO must search for threatened species and mark-up the block as per the <u>Standard Harvest Plan Conditions for Native Forest Operations in Western Region.</u> – Riverina Red Gum.

Mark-up Conditions

Refer to <u>Standard Harvest Plan Conditions for Native Forest Operations in Western Region. – Riverina Red Gum</u> for prescriptions.

Tree retention Conditions

Refer to <u>Standard Harvest Plan Conditions for Native Forest Operations in Western</u> Region. – Riverina Red Gum for prescriptions.

Site-Specific Conditions, Exclusion Zones & Modified Harvest Areas

There are no known areas of endangered ecological community (EEC) occurring within the net operational area that need additional harvest exclusions or modified harvesting zones implemented.

Contractors and supervisory staff must immediately report any sightings of the following to the Supervising Forester and to apply the appropriate protection level.

Silver wattle

- Native cherry
- Yellow gum
- Endangered Ecological Communities

Refer to <u>Standard Harvest Plan Conditions for Native Forest Operations in Western Region. – Riverina Red Gum</u> for prescriptions.

Species Known or Likely to Occur

There are no known records of Threatened fauna, flora or habitat features present within the planning area that require prescriptions within this plan.

Contractors and supervisory staff must immediately report any sightings of Schedule 1 and 2 species to the Supervising Forester. The Harvesting Plan must then be amended to include additional prescriptions if necessary.

The species and habitat features that could possibly occur in the Koondrook State Forest area are listed in the table below. If species or habitat features are recorded within the compartment or nearby the mark up and harvesting operations, the associated species protection zones are implemented.

Threatened species and habitat feature	IFOA Clause	Site-specific prescription / Buffer radius
Superb parrot nest	198	100m
Regent parrot nest	198	100m
Square-tailed kite nest or roost	198	200m
Little eagle nest or roost	198	200m
Any threatened owl nest or roost	198	200m
Spotted harrier nest or roost	198	200m
Bush stone curlew nest	198	100m
Gilbert's Whistler nest	198	20m
Gilbert's Whistler record	210	300m no 'dry' residue harvest
Microchiropteran bat roost tree	199	30m
Koala in tree	200 (1,c)	30m
Koala high-use area	200 (1,b)	100m
Koala scat tree	183	Not fell the tree
Glider sap feed tree	181	Not fell the tree
Raptor nest tree	182	Not fell the tree
Nests (other than mud nests) of any species of protected bird	185 (2)	Not fell tree, avoid damage to nest and tree

Fisheries Licence Conditions

Applicable Fisheries Licence conditions are detailed in the Riverina Red Gum IFOA. Refer to <u>Standard Harvest Plan Conditions for Native Forest Operations in Western Region. – Riverina Red Gum</u> for prescriptions.

Soil and Water Protection Conditions

Applicable Environmental Protection Licence conditions are detailed in the Riverina Red Gum IFOA. Refer to <u>Standard Harvest Plan Conditions for Native Forest Operations in</u> Western Region. – Riverina Red Gum for prescriptions.

Site-specific EPL conditions – The following features occur within the planned area. Refer to operational map for more detail.

Elements	Conditions
Mapped drainage depression	30 m Buffer strip
Unmapped drainage depression or wetland depression (>400 m²)	30 m Buffer strip

A drainage depression constitutes any channel where natural surface water concentrates and flows, averages 5m width or greater, 0.5m deep and 500m in length, and does not contain any live trees greater than 150mm dbhob within its banks.

A wetland depression constitutes any visible (average 0.5m deep at at least one point compared to general ground level) shallow, open depression of at least 400m² where there are no live trees over 150mm dbhob. They may or may not be connected to other drainage features or fed by a seasonal, permanent or intermittent water table at or slightly above the floor of the depression.

It is the responsibility of the SFO to identify any exclusion areas which will need to be crossed during harvesting. The SFO should then contact the Planning Forester to obtain the necessary approval.

Road Works Conditions

Only existing roads and causeways will be used during operations and maintained for wear and tear. Any new proposed road, bush track or up-grade works necessary during the life of the operations will need to be approved by the Senior Manager via a HPOM amendment prior to their construction.

Legal Conditions

This operation may only proceed while this operational plan, the relevant site safety plan and the <u>Standard Harvest Plan Conditions for Native Forest Operations in Western</u> Region. – Riverina Red Gum are held on site.

This operation must comply with the following:

□ Standard Harvest Plan Conditions for Native Forest Operations in Western Region. – Riverina Red Gum

_	Act (2012).
	Forest Practices Code, Part 2, Timber Harvesting In Native Forests (4 th edition 1999).
	Forest Practices Code, Part 4, Forest Roads and Fire Trails (1999).
	Integrated Forestry Operations Approval issued under Part 4 of the Forestry and National Parks Estate Act 1998 (IFOA) as amended July 2013 including associated licences:

- Threatened Species Conservation Licence (TSCL) issued under the Threatened Species Conservation Act 1995
- Fisheries Management Licence issued under Part 7 (Div 3) Fisheries Management Act 1994
- Environmental Protection Licence (EPL) issued under the Protection of the Environment Operations Act 1997.

SFO FEATURE USAGE RECORD - LOG DUMPS

Dates of commencement and cessation of logging

Date of commencement of logging:
Date of cessation of logging:
DUMP USAGE RECORD

Record the commencement and completion of harvesting at each dump

Dump number	Start date	Finish date	Easting*	Northing*	Comment

Dump number	Start date	Finish date	Easting*	Northing*	Comment

^{*} GPS coordinates in MGA 1994 Zone: 55

Riverina Red Gum IFOA Harvest Plan

Supervising Forest Officer's Notes

Date (dd/mm/yy)	Authorisation given / hazard identified / instruction made / comments	Licensee/contractor acknowledgment
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Certificate Of Clearance To Move F	rom Current Compartment(s)	
To:	, Supervising F	Forest Officer.
I request approval to move my logging crew State Forest to Code Part 2 Timber Harvesting In Native Fore	to the next area in accordance with Sec	
I certify that:		
all permanent roads, trails and mitre	drains have been cleared of harvest	ing debris;
butt damage to retained trees has be		
all trees marked for removal have be	een felled;	
utilisation limits have been satisfacto	orily met;	
stump heights conform to requirement	nts;	
all hanging trees have been brought	down;	
all log dump sites have been satisfac	ctorily restored as required;	
harvesting debris is not accumulated	d around retained trees;	
all accumulated litter has been dispo	osed of properly;	
all modified harvesting conditions ha	ve been complied with;	
all snig track and road drainage has has been completed;	been installed satisfactorily and other	er required rehabilitation work
all necessary repairs to damaged roa	ads, signs, fences and other structure	es have been carried out.
all machinery has been washed dow	n (if required) to prevent the spread	of noxious weeds or pests.
I believe that I have met all my obligations to completed and any N&PW Act Licence that a		
Signature	Contractor/Licence No:	Date
As a result of inspections of the logging operato the best of my knowledge, the harvest satisfactorily completed all work. Approval is the area/commence operations in another ha Compartment(s): This clearance does not release the licens deficiencies, found during any inspections of inspection, are shown to have resulted from its Date of last inspection of the area by the Sup	ting licensee/contractor responsible for given for her/him to remove her/his mac resting plan area, being: , in	this harvesting operation has chinery and equipment and leave State Forest. Undertake any remedial work if the date of this post-harvestinging operation.
Supervising Forest OfficerSignature		date:

HARVEST PLAN AMENDMENT RECORD

Amendm			Date Prepared	Amendment Details	All Copies Amended	Signature
Number	Major	Minor				
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Note: The purpose of this log is to track amendments to the Harvest Plan from time of first approval. All maps, Harvest Plans etc. are to be clearly identified with a version # and date so that changes to the Plan may be clearly identifiable. The Harvest Planner is responsible for ensuring all amendments are implemented, recorded and filed

Supervising Forest Officer's Hand-Over Acknowledgment

I confirm that I have received a copy of the Harvest Plan for the above Compartment. I have been briefed on the conditions of the Plan and the progress of the operation. I understand the requirements for supervision and operational control, as explained to me by the current SUPERVISING FOREST OFFICER.

Signature:		Date:	
Position:	Incoming Supervising Forest Officer		
Signature:		Date:	
	Incoming Supervising Forest Officer		
Signature:		Date:	
	Incoming Supervising Forest Officer		
Signature:		Date:	
Position:	Incoming Supervising Forest Officer		
Signature:		Date:	
Position:	Incoming Supervising Forest Officer		
Signature:		Date:	
	Incoming Supervising Forest Officer		

RECORD OF INCIDENTAL THREATENED PLANT OR THREATENED FAUNA FEATURE SIGHTING

- For each occurrence/population sighted/identified, a separate form 5 must be filled out and provided to the Region Ecologist as soon as practicable. The details must also be recorded on this form in the Supervising Forest Officer's copy of the operational plan, with the date the separate form 5 went to the Ecologist.
- Some features or species require no further prescription but should still be recorded while other features or species require an immediate prescription and/or further survey before logging may continue in the vicinity.
- Locations of species/features recorded on this form should be noted on the operational map.

 IR form = incidental record form 5. ECO = Regional Ecologist

Species or features detected (include type, number, etc.)	Map datu	m AGD66 IG reference)	Action taken	Date IR form
(include type, number, etc.)	Easting	Northing		given to ECO
	(6-digit)	(7-digit)		LOO

Supervising Forest Officer's Post-Harvesting Notes

Record significant circumstances about harvesting this area. Draw or attach an annotated operational scale map.

ACTUAL AREA HARVESTED (by silvicultural treatment)

Treatment	code on	Area (ha)	REGE	N QUAL	ITY	REGEN	N DENS	ΙΤΥ	
	map	treated	Good	Fair	Poor	Dense	Fair	sparse	COMMENTS
THINNED	T1								
	T2								
RELEASED	R1								
	R2								
SALVAGE	S1								
	S2								
Not	NH1								
Harvested	NN2								
	NH3								

POSSIBLE N	EXT HARVES	Т	Main product type	An	ticipated vo	lume
	C = cypress	H = hardwood	(put C or H in each relevant cell)	High	Medium	Low
			High quality large sawlog			
			High quality small sawlog			
			Low quality sawlog			
			Fencing/posts			
			Vineyard posts (cypress)			
			Residue			
Code on map	Comment		Habitat trees / Non-merchantable			
	☐ 0 to 5 y	ears to next harvest	***************************************			
	☐ 5 to 10 y	ears to next harvest				
	☐ 10 to 20 y	ears to next harvest				
		ears to next harvest				
	30 plus y	ears to next harvest				
. Noxious or en	vironmental we	ed problems; high lev	els of feral animal use.			
2. Sites of soil e	rosion for attenti	on.				
3. Boundary con	npromised; neig	hbour issues resultin	g from logging or haulage.			
d. Operation ma	p errors for atte	ntion (e.g. forest type	e; roads) of appropriate staff (e.g. GIS	, Planner)		
ii.	nments – SUPE	RVISING FOREST C	DFFICER / FA / Forester			

RECORD OF BASAL AREA SWEEPS OF ALL RETAINED STEMS - 10cm dbhob or larger

Date	GPS Location/cpt or map	Before or after	BA of retained trees	Factor used
	reference	harvest		
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BA is measured at 1.3m above the ground, and does not include stems less than 10cm diameter at that point.

Operational plan distribution and amendment control sheet ('DACS')

Date approved by RM	Plan number	See page header	State Forest or Property/County	See page header
Date Environment & Resources Manager review is required			Compartment or Parish/Portion or Lot/DP	See page header

Amendment: Normally the supervising Forester would amend the Office, Forester and SFO copies on explaining the amendment to the SFO, and should annotate the Amendment record (Form 11) in them. The SFO (or Forester as applicable) should amend the bush crew copy/copies when explaining it to the bush operators, and should annotate the Amendment record (Form 11) in it/them.

Plan copy	Name of recipient	Delive	ry to rec	ipient			А	mendm	ent affe	cted in p	lan cop	ies			Plan recall	
		Method	Date	Ву	•	1	:	2	,	3		4		5	Date	Date
		H = hand	done	(initials)	Date	Ву	Date	Ву	Date	Ву	Date	Ву	Date	Ву	received	destroyed
		E = email M = mail			done	(initials)	done	(initials)	done	(initials)	done	(initials)	done	(initials)		
RO																
Ops Centre																
Supervising Forester																
SFO																
Bush crew supervisor																
Contractor																
Customer																

CERTIFICATION OF COMPLETION OF THE OPERATION

This checklist is intended to comprise the top page in the planning documentation folder / wallet

Region:	see page header	State Forest OR	see page header
		County/parish	
Management Area:	see page header	Compartment OR Portion, lot/DP, prop	see page header erty

Tick when added to set	Documentation		Comment	
1. 🗌	Data search results – flora and fauna			
2.	Data search results – indigenous cultur	al heritage		
3. 🗌	Data search results – non-indigenous c	ultural heritage		
4.	Copy (if any) of the flora/fauna survey r the original survey data sheets)	eport(s) (Ecologist retains		
5. 🗌	Copy (if any) of the indigenous cultural and original data	heritage survey report(s)		
6.	Copy (if any) of the non-indigenous report(s) and original data sheets	cultural heritage survey		
7. 🗌	Records of consultation with regulators, consent, concurrence, etc (eg individu Act consent, concurrence from RLPB)			
8.	Records of consultation with lessees ar	d/or permittees		
9.	Records of consultation with stakeholder	ers and the community		
10. 🗌	Copies of notifications sent (eg neighbo	urs, Lands)		
11. 🗌	Environmental impact assessment			
12. 🗌	Due diligence checklist (form 10.1)			
13. 🗌	Quality control checklist (form 10.2)			
14. 🗌	Operational plan with signed approval p	pages		
15. 🗌	The Distribution Control Sheet for the p	lan		
16. 🗌	The Amendment Control Sheet for the p	olan		
17. 🗌	Copies of all revisions of and amendme	nts to the plan		
18. 🗌	Supervising Forest Officer's copy of the (form 4), incidental records (eg forms 5 post-harvest notes (form 6), other notes	, 20, 22), briefing records, dannotations		
19. 🗌	Completed clearance certificate (form 7) – only harvesting		
identified The relev	ontains all documents associated with pl in the table above and is complete for int ant information from them has been trans on's geodatabase has been updated for t	ernal/external audit purpose sferred to the compartment	es; history data set; <i>ai</i>	
Position	· .	Signature		Date
Comment				
Comment				

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PHOTO STANDARD FOR WOODY DEBRIS

(The $\underline{\text{density}}$ and $\underline{\text{nature}}$ of on-ground residue must, at a minimum, $\underline{\text{resemble}}$ these photos after harvesting is complete).



