

B & J CATALANO PTY LTD



OFFSET PLANTING

HARD ROCK QUARRY
Lot 501 Coalfields Road, Wellington

Clearing Permit – CPS 7943/3

30 June 2024



Landform Research

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1.0 Background

Approvals

The B & J Catalano Shenton Ridge Hard Rock Quarry was approved on 13 January 2016 by the State Administrative Tribunal on behalf of the Shire of Harvey.

The following Approvals in place for the quarry;

- | | |
|--|---------------------------|
| • Development Approval – | Shire of Harvey |
| • Extractive Industry Licence – | Shire of Harvey |
| • DWER EPA Act 1986 Part IV Licence Category 70 | DWER |
| • Clearing Permit CPS 7043 | DWER |
| • Clearing Approval under EPBC 1999 – EPBC 2017/8085 | Commonwealth of Australia |

Site Summary

Clearing Permit 7043 was approved concurrently with Commonwealth Approval EPBC 2017/8085. During the assessments the Commonwealth reduced the approval area to retain a large marri tree that had been used for nesting.

During excavation, the jointing pattern of the quarry and the blasting has created a dangerous situation with loose rock at and under the tree that can only be rectified by the removal of the tree.

The amendments to the Clearing Approvals are designed to enable the tree to be removed. No additional area of vegetation clearing has been applied for, but rather some vegetation is to be retained to enable the tree to be taken.

As part of an amendment to CPS 7043 an offset was provided to enable the clearing of a tree that has been previously used for nesting, adjacent to the pit.

That offset involves the planting of an area of local native forest and the provision of an additional two artificial black cockatoo nesting hollows.

Studies across the vegetation on site and in the wider area show that there are large tracts of native forest (Jarrah – Marri) which are used by black cockatoos for both feeding and nesting.

The studies also show that there is a surplus of natural nesting hollows of which only a very small proportion are in use or have been used.

Even so the original clearing approvals required the installation of 13 artificial black cockatoo nesting hollows.

Like many trees throughout the local area the tree to which this revegetation plan relates has died in the long dry summer of 2023-2024. Even though the tree is dead it still provides a potential nesting hollow.

Offset Requirements

An area of 3.86 hectares of local native forest is to be planted as an offset to the clearing is offered to be planted, which is in excess of the requirements provided by DWER offset calculations.

Two artificial nesting hollows are also to be installed.

The vegetation clearing to be offset is scattered Marri trees over pasture.

A Conservation Covenant will be provided under *Section 30B of the Soil and Land Conservation Act 1945*, to maintain protection of the vegetation of the offset in perpetuity for the purposes of fauna habitat will be entered into at the commencement of Clearing Permit CPS 7943/3.

2.0 Chosen Offset Site

The offset site has been chosen to maximise the support for local vegetation and conservation values.

The land chosen is steeply sloping and suitable for limited grazing only

It is located in the south of Lot 501, adjacent to local native forest that adjoins the Collie River. The Collie River is protected by a reserve at this location with some adjoining vegetation on Lot 501. The existing vegetation contains Marri and Jarrah trees with known and well used black cockatoo feeding habitat and scattered large trees with suitable nesting hollows.

The offset planting enhances and fills to form a wider buffer and enhances black cockatoo habitat.

The adjoining vegetation on Lot 501 is regrowth Jarrah (*Eucalyptus marginata*) Marri (*Corymbia callophylla*) Forest with scattered Peppermint (*Agonis flexuosa*) over pasture. The reserve vegetation to the Collie River has more understorey vegetation.



Figure 1 Feeding by black cockatoos in the adjoining vegetation



Figure 2 Location of the offset planting



Figure 3 Three dimensional aerial view showing the form of the land (note the vertical exaggeration)



Figure 4 Photo of the regrowth adjoining forest vegetation



Figure 5 Adjoining forest vegetation showing habitat tree with hollows



Figure 6 Current fencing to the reserve along the Collie River and the buffer vegetation

3.0 Current Vegetation and Disturbance

The current vegetation on the proposed offset is regrowth Jarrah (*Eucalyptus marginata*) Marri (*Corymbia callophylla*) Forest with scattered Peppermint (*Agonis flexuosa*) over pasture.

Vegetation condition across the offset area is bare pasture and is listed as “Completely Degraded”.

4.0 Potential Environmental Threats to the Offset Planting

A Risk Assessment for the offset planting is provided below.

Environmental Risk	Nature of the Risk	Likelihood	Consequence	Risk	Discussion	Likelihood	Consequence	Risk
Offset Vegetation will be impacted by grazing	Grazing stock may chew the bark of overstorey vegetation, compact the soil beneath the vegetation	Likely	Moderate to Major	High	The southern and western part of the local area to the Collie River reserve is fenced. The proposed offset will be fenced from stock prior to planting.	Rare	Moderate	Medium
Weeds will impact the vegetation	Weeds and naturalised plants may impact the potential for natural regeneration of the native vegetation.	Possible	Minor	Medium	The pasture will be sprayed and or mechanically removed prior to planting. The understorey will remain as pasture as that reduces the competition for light, water and nutrients for the tube plants. With more water and nutrients black cockatoo habitat trees generally produce greater gum nuts and feed than trees enclosed by forest and appear to be preferred food sources to general forest trees. Weeds are currently managed as part of the normal farming operations. Weeds in the offset area will continue to be managed with species likely to become a significant environmental impact, spread to adjoining vegetation or are declared /listed and will be controlled by mechanical or chemical means.	Rare	Minor	Low
Vegetation may be impacted by Dieback	<i>Phytophthora</i> if introduced or spread is likely to lead to decline of the adjoining remnant vegetation and offset planting.	Possible	Moderate	High	The adjoining vegetation appears free from dieback with no obvious tree or vegetation deaths that might be attributed to dieback. Once fenced there will be no vehicle access to the site. All tube plants and seed will be sourced from certified dieback free suppliers and stock. Once fenced there will be no vehicle access to the site.	Rare	Minor	Low

Environmental Risk	Nature of the Risk	Likelihood	Consequence	Risk	Discussion	Likelihood	Consequence	Risk
					Dieback management is in place.			
Threatened fauna may be impacted	Black Cockatoos are dependant on Eucalypts for food resources which may reduce.	Unlikely	Minor	Low	<p>Black cockatoo habitat is being enhanced by enlarging the current patch size of the existing vegetation by 3.96 hectares and placing the offset vegetation adjacent to known black cockatoo feeding habitat and potential black cockatoo breeding habitat.</p> <p>The offset adjoins the water sources of Collie River and is near farm water supplies.</p> <p>The offset adds to the forest adjoining the Collie River and enlarges the buffers and riverine wildlife corridor vegetation.</p> <p>Two additional artificial nest boxes will be added to increase the potential for black cockatoo breeding.</p> <p>Species chosen for the offset planting are feed and habitat species for black cockatoos and are capable of forming nesting hollows and roost trees in the longer term.</p>	Unlikely	Minor	Low
The offset vegetation may not be successful	The tube plants (or seed) proposed to be used may not take or may be impacted.	Possible	Minor	Medium	<p>Ground preparation including weed control is proposed.</p> <p>A system of annual inspections, monitoring and maintenance is proposed.</p> <p>An experienced revegetation contractor will be used to supply and install the tube stock and or seeds.</p> <p>Tubestock will be planted in winter months after the soils become moist from the autumn rains.</p> <p>The offset planting will be fenced.</p> <p>The survival and success of the planting will be monitored and additional plantings made until the completion criteria is achieved.</p> <p>Tube stock that do not survive will be replaced to ensure the completion criteria is achieved.</p> <p>The vegetation will be protected by the Conditions of Clearing Permit 7943.</p>	Rare	Minor	Low

Environmental Risk	Nature of the Risk	Likelihood	Consequence	Risk	Discussion	Likelihood	Consequence	Risk
Pasture species will suppress overstorey viability	Pasture understorey and ground cover may impact the revegetation.	Likely	Moderate	High	Pasture will be removed by spraying with grass specific herbicide prior to revegetation and maintenance planting. The soils of the pasture will be mechanically softened to minimise pasture impact.	Unlikely	Minor	Low
Fire Frequency	Fire may impact the offset planting.	Possible	Minor	Medium	Fire breaks are currently in place and will be maintained. The fire risk will be no greater than any other local forest vegetation. Normal rural fire management will be maintained. If fire impacts the offset planting the planting will be replaced until the completion criteria is achieved.	Unlikely	Medium	Low

LIKELIHOOD DISCRIPTORS

Descriptor	Frequency	Probability
Almost Certain	Twice or more per year	Event will occur during the Project / period under review.
		High number of known incidents.
Likely	Once per year	Event likely to occur during the Project / period under review.
		Regular incidents known.
Possible	Once in 5 years	Event may occur in some instances during the Project / period under review.
		Occasional incidents known.
Unlikely	Once in 10 years	Event is not likely to occur during the Project / period under review.
		Some occurrences known.
Rare	Once in 20 years	Event will occur in exceptional circumstances during the Project / period under review.
		Very few or no known occurrences.

CONSEQUENCE DESCRIPTORS

Factor	Insignificant	Minor	Moderate	Major	Severe
Biodiversity	Alteration or disturbance to an isolated area with no overall effect on offset planting .	Alteration or disturbance to <10% of a offset planting ecosystem but still compliant with the completion criteria.	Alteration or disturbance to 10 - 20% of a offset planting resulting in a recoverable impact but potential for requirement for additional and maintenance planting.	Alteration or disturbance to 20 – 40% of offset vegetation resulting in a recoverable impact within 2 years.	Alteration or disturbance to >40% of offset planting, requiring significant revegetation and maintenance planting.

RISK MATRIX

			Effect / Consequence				
			1	2	3	4	5
Type			Insignificant	Minor	Moderate	Major	Severe
Likelihood	A Almost Certain	Likely that the unwanted event could occur often (once per week).	Medium 11	High 16	High 20	Very High 23	Very High 25
	B Likely	Likely that the unwanted event could occur several times per year.	Medium 7	Medium 12	High 17	High 21	Very High 24
	C Possible	Likely that the unwanted event could occur sometime (once per year).	Low 4	Medium 8	High 13	High 18	High 22
	D Unlikely	Unlikely, but possible for the unwanted event to occur once in five years	Low 2	Low 5	Medium 9	High 14	High 19
	E Rare	Highly unlikely that the unwanted event could ever occur in the life of the mining operations.	Low 1	Low 3	Medium 6	Medium 10	High 15

5.0 Closure and Revegetation

5.1 Final Landform of Excavation

There are no changes to the landform of the offset planting area.

5.2 Responsibilities

This Revegetation Plan has been prepared by Landform Research whose contact details are at the front of the document.

All Approvals will be held by the landholders who will be responsible for contracting the offset planting, fencing and protection.

A Conservation Covenant will be provided under *Section 30B of the Soil and Land Conservation Act 1945*, to maintain protection of the vegetation of the offset in perpetuity for the purposes of fauna habitat will be entered into at the commencement of Clearing Permit CPS 7943/3.

5.3 Completion Criteria

- *Completion Criteria is 800 additional trees per hectare sustainable for a 5 year period.*
- *Installation of two artificial nesting hollows.*

5.4 Offset Vegetation

Steps in Closure and Revegetation	Activity - Specifications	By Whom	Timing
Timing	Offset planting is to occur in Winter 2025		
Stakeholders	DWER will be informed by the annual reporting of the progress of the offset planting in the Clearing Permit reporting.	Catalano	Annually
Site Clearance and Preparation	Treatment of the pasture by mechanical removal and spraying to remove pasture composition. Installation of fencing to exclude stock. Weed control as required.	Catalano	Autumn 2025
Surface and Soil Preparation	Soil Reconstruction The form of the land surface will not change. The pasture soils will be mechanically softened if the soils are compacted and deep ripped as necessary to provide an effective planting substrate. The soils are rich loam soils of high fertility and good water holding capability. They are slightly gravelly in the surface loams grading to lighter coloured loam and loam clay in the subsoils. The natural	Catalano	Prior to planting Autumn 2025

Steps in Closure and Revegetation	Activity - Specifications	By Whom	Timing
	<p>vegetation is Jarrah Marri Forest which is being replaced.</p> <p>Water Erosion</p> <p>Water erosion on the steeper slopes will be mitigated by the use of contour ripping as necessary by leaving the surface soft, rough and undulating, with the undulations running along contour to allow for rainwater penetration and to minimise surface water runoff.</p> <p>Wind Erosion</p> <p>Wind erosion does not occur in these loam soils.</p>		
	<p>Weed Control</p> <p>See the Weed Management.</p> <p>In May, or after significant rainfall events such as the first autumn rains, check for weed germination.</p> <p>Spray or mechanically remove weeds and pasture that is interfering with revegetation or impacting adjoining vegetation. Any weeds likely to significantly impact on the rehabilitation will be sprayed with Roundup or other herbicide or grubbed out, depending on the species involved.</p> <p>Fusilade will be used where grasses present an impediment to rehabilitation.</p>	Catalano Farm Manager or Contractor	Prior to planting Autumn 2025
Revegetation	<p>Plant and seed stock will be sourced from a certified nursery or grown on by a contractor and supplied by a contractor.</p> <p>Completion Criteria</p> <p>800 Cockatoo habitat trees per hectare of Marri, Jarrah and Bull <i>Banksia</i>.</p> <p>Use of Tube Stock</p> <p>Tube stock will be planted into previously prepared ground that has been softened to provide root penetration and lack of competition from pasture.</p> <p>4,000 tube plants will be purchased and installed by an experienced contractor. Tube plants will be installed at the rate of 1000 per hectare.</p> <p>Tree guards will not be used because they have been found to impact the plants through condensation and falling over. Experience shows that it is more efficient to plant additional tube stock than to use tree guards.</p> <p>Alternative Establishment of Vegetation through Seeding</p> <p>Alternatively depending on the contractor assessment, seeding will be used for revegetation. The seed will be sourced and spread by an experienced contractor. Very successful revegetation has been undertaken by contractor using seed at gravel pit revegetation in similar soils on the Darling Scarp at Wagerup and locally.</p> <p>Seed will be scarified as necessary and sourced by the contractor from an approved seed supplier or locally collected and supplied by the contractor.</p> <p>All species used in rehabilitation are to be local provenance species suited to local soils.</p> <p>Seeding rates are minimum of 200 g <i>Eucalyptus marginata</i> and</p>	Experienced Revegetation Supplier and Contractor	<p>Tube Planting winter 2025</p> <p>Seed spreading Autumn 2005</p>

Steps in Closure and Revegetation	Activity - Specifications	By Whom	Timing
	<p><i>Corymbia calophylla</i> plus other species per hectare.</p> <p>Seeds are to be spread, bulked up with moist vermiculite, and smoke treated where possible.</p> <p>Dieback Management</p> <p>Dieback principles will be used in the revegetation in the sourcing of tube stock or seed and in the planting techniques and movement in the offset area. Dieback procedures are to be combined with weed management .</p> <p>Key species for Black Cockatoo Habitat</p> <p>Cockatoo habitat trees are Marri, Jarrah and Bull Banksia.</p> <p><i>Corymbia callophylla</i></p> <p><i>Eucalyptus marginata</i> (Darling Scarp Provenance)</p> <p>Additional minor species</p> <p><i>Agonis flexuosa</i></p> <p><i>Eucalyptus patens</i></p> <p><i>Allocasuarina huegellana</i></p> <p><i>Banksia grandis</i></p>		
Monitoring and Maintenance	<p>Assessment of Vegetation Establishment</p> <p>Assessments of revegetation are by photography, drone photography, species counts of density and richness, weeds with limited permanent plots.</p> <p>In summer an assessment of the success of the vegetation establishment will be completed to enable tube plants to be installed in winter.</p>	Experienced Revegetation Contractor or Environmental Consultant	Summer annually for five years until the Completion Criteria is achieved.
	<p>Weed Control</p> <p>See Weed and Exotic Species Management.</p> <p>In May, or after significant rainfall events such as the first autumn rains, check for weed germination.</p> <p>Spray or mechanically remove weeds and pasture that is interfering with revegetation or impacting adjoining vegetation. Any weeds likely to significantly impact on the rehabilitation will be sprayed with Roundup or other herbicide or grubbed out, depending on the species involved.</p> <p>Fusilade will be used where grasses present an impediment to rehabilitation.</p>	Catalano Farm Manager or Contractor	Autumn and Spring Annually
	<p>Maintenance Planting</p> <p>Generally seeding will not be applicable for maintenance and replanting because the ground will have self compacted, making seed preparation more difficult.</p> <p>Tube stock will be planted into previously prepared ground to replace plants that have been lost.</p> <p>The ground will be mechanically softened to provide root penetration</p>	Experienced Revegetation Contractor and Environmental Consultant	Winter annually for five years until the Completion Criteria is achieved.

Steps in Closure and Revegetation	Activity - Specifications	By Whom	Timing
	<p>and an area of pasture around 2 m² will be treated to removed competition from pasture.</p> <p>The number of tube plants installed will depend on the number to ensure compliance with the completion criteria of 800 additional local native black cockatoo species trees of Marri, Jarrah and Banksia.</p>		
	<p>Erosion</p> <p>Where assessments of stability issues are detected, further earthworks are provided, additional controls are added, such as contour banks, and additional water erosion suppression, small detention basins, additional planting, and seeding,</p>	Catalano or Environmental Consultant	Autumn prior to winter rains
Offset Protection	<p>Conservation Covenant</p> <p>A Conservation Covenant will be provided under <i>Section 30B of the Soil and Land Conservation Act 1945</i>, to maintain protection of the vegetation of the offset in perpetuity for the purposes of fauna habitat will be entered into at the commencement of Clearing Permit CPS 7943/3.</p> <p>On Site Protection</p> <p>On site protection will consist of fencing the land and maintaining the fencing to protect the vegetation against grazing by stock.</p>	Landowners	At the commencement of CPS 7943/3.

6.0 Weed and Dieback Management

6.1 Weed Management Plan

Baseline Weed Status

Weed management is to be used to minimise impact on adjoining remnant vegetation and the offset tube planting as well as maintaining the agricultural capability of the rural lot.

The management of weeds is essentially similar to that for plant diseases. The impact of weeds is really the impact within the local area and the more they are controlled the better. It is desirable that the site does not become a haven for environmental weeds and therefore a management and control program is warranted at all sites.

Weeds can be declared under the *Agriculture and Related Resources Protection Act 1976* which requires that Declared Weeds are eradicated. Other weeds are not Declared but may be classified as Environmental Weeds because they are well known for impacting on vegetation.

The potential sources of weeds are;

- Seeds from exotic plants already on site or nearby.
- Spread of existing weeds and pasture species.
- Weeds from edge effects from access and local roads.
- Gradual creep of weeds along access roads.
- Materials or waste brought to site by employees.
- used in earthworks.
- Wind blown seed from surrounding land.
- Birds and other vectors. This is more common than is often given credit for. eg *Solanum* species.

Weed Management

- Weed Management will integrate with normal farm weed management.
- Inspections are to be conducted to monitor the presence and introduction of Environmental and Declared Weeds on an annual or more frequent basis. On identification, Declared and significant environmental weeds will either be removed, buried, or sprayed with a herbicide.
- Unwanted pasture (grass) weeds likely to significantly impact on the rehabilitation will be sprayed with Roundup or other herbicide or grubbed out, depending on the species involved. Fusilade will be used where grasses present an impediment to rehabilitation.
- All vehicles and equipment to be used during land clearing or land reinstatement, are to be clean and free from soil or plant material when arriving at site.
- No soil and vegetation will be brought to the site apart from that to be used in rehabilitation.
- Tube plants and seed to be used in rehabilitation are to be free from weeds.
- Weeds are to be sprayed with broad spectrum spray prior to planting or seeding in weed affected soils as required.

Monitoring and Control

- Review of revegetated areas, annually in Spring – Autumn to determine if there are weeds that are impacting on the success of revegetation.
- Apply additional weed control in the remnant vegetation, which will include more frequent treatment and monitoring until the weeds are controlled.
- In pasture provide weed treatment which will be taken over by normal agricultural practices once the pasture is established
- Ongoing monitoring and treatment twice yearly.
- In addition; monitor prior to revegetation activities and for a minimum of 3 years post revegetation

6.2 Dieback Management Plan

Dieback of vegetation is often attributed to *Phytophthora cinamomi* even though there are other *Phytophthora* species and other diseases such as *Armillaria* that can cause dieback like symptoms. Microscopic soil-borne fungi of the genus *Phytophthora* kill a wide range of native plants and can cause severe damage to many vegetation types, particularly those from the families Proteaceae, Epacridaceae, Xanthorrhoeaceae and Myrtaceae.

The proposed management will be based on the perceived risk as outlined in:

- Dieback Working Group, 2000, *Managing Phytophthora Dieback, Guidelines for Local Government*.
- Department of Parks and Wildlife and Parks and Wildlife 2017, *Phytophthora Dieback Management Manual, FEM079*.
- Department of Biodiversity Conservation and Attractions, 2020, *Phytophthora Dieback Management Manual FEM079*.
- Dieback Working Group, 2021, *Best Practise Guidelines for Management of Phytophthora Dieback in Basic Raw Materials Industries*.
- Department of Climate Change, Energy, Environment and Energy, *Arrive Clean, Leave Clean*.

Phytophthora cinamomi is commonly present in the higher rainfall zones of the south west of WA but occurs in wetter parts of the zone with rainfall of 400 mm or even slightly lower and is certainly present at some locations in the nearby areas. Dieback diseases are more likely to be transported under moist soil conditions

It is unclear whether dieback is present. Some susceptible species on site have died due to the long hot dry summer of 2023 – 2024.

The surrounding vegetation is likely classified as “Not Interpretable” with respect to dieback because of the lack of evidence of dieback infestation, and nature of the parkland pasture. It is likely that the local vegetation is dieback free.

Management of Dieback Risk

DBCA 2017 and Dieback Working Group 2005, Guidelines will be followed.

Vehicles are to be prohibited from entering vegetation ahead of excavation, apart from normal travel along made firebreaks and roads for normal security and maintenance activities.

A split operation will be worked where practicable, where the road transport vehicles only access one side of the stockpile or processing area and excavation vehicles operate on the other side of the stockpiles and processing, reducing the risk of contamination from road transport.

All vehicles and equipment used during land clearing or land reinstatement, will be clean and free from soil or plant material when arriving at site.

When removing topsoil and clearing, vehicles will run around the perimeter and then push inwards where possible.

Remnant vegetation ahead of the stage to be excavated is proposed to be quarantined where possible to minimise vehicles from entering, through reduced tracks, signage, site marking and or fencing as appropriate.

No soil and vegetation is to be brought to the site apart from that to be used in rehabilitation and that which is dieback free.

Plants to be used in rehabilitation are to be certified as from dieback free sources.

Rehabilitated surfaces will be free draining and not contain wet or waterlogged conditions.

Illegally dumped rubbish is to be removed promptly.

When clearing land or firebreaks vehicles are to work from disturbed areas towards the pit; or, in situations where dieback interpretation is not possible, from areas of higher quality vegetation to areas of lower quality vegetation.

Roads are to be maintained as free draining and hard surfaced.

Traffic will be restricted to the designated access roads, pit and stockpile areas apart from clearing land and maintaining fire breaks.