

Aarons Pass Road Vegetation Clearing - Final Report

Zenviron Pty Ltd



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Template 2.8.1

Executive Summary

Eco Logical Australia Pty Ltd (ELA) was engaged by Zenviron Pty Ltd (Zenviron) to undertake pre-clearing surveys and provide ecological supervision for vegetation clearing associated with the widening and re-alignment works of the Aarons Pass Road (APR) upgrade (the works). The works are required to facilitate the movement of turbines, associated infrastructure and access for operation of the Crudine Ridge Wind Farm (CRWF).

Consolidated Development Consent SSD-6697 MOD 1 was issued for the CRWF in June 2019, following approval of a Modification to include impacts along APR for the works. Condition 19 of the Development Consent provides clearing limits of native vegetation, based on detailed ecological surveys and vegetation mapping undertaken for the Modification:

- PCT 277 – Blakely’s Red Gum – Yellow Box grassy woodland of the NSW South Western Slopes Bioregion (0.95 ha permitted to be cleared).
- PCT 290 - Red Stringybark – Red Box - Long-leaved Box-Inland Scribbly Gum tussock grass shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion (5.64 ha permitted to be cleared).

The CRWF Biodiversity Management Plan (BMP; ELA 2019) was amended following approval of the Development Consent to include management and mitigation measures to ensure clearing of native vegetation is undertaken in accordance with the area limits prescribed by the Development Consent.

These included establishing a detailed design, achieved through ecological pre-clearing surveys to clearly delineate the extent of native vegetation, in coordination with a qualified civil survey of the works. Qualified ecological supervision of vegetation clearing, focused on habitat trees to actively manage and minimise impacts to native fauna, was implemented under the BMP.

From August 2019 through to February 2020 ELA ecologists completed pre-clearing surveys with Zenviron contracted surveyors to implement the pre-clearing requirements of the BMP. Methods included:

- detailed survey on foot to mark out the extent of all native vegetation with flagging tape, which was then surveyed in conjunction with the detailed works design footprint
 - installation of demarcation barriers to delineate the civil works area from ‘no-go’ zones
 - marking of habitat trees to inform the clearing supervision requirements
 - marking of priority weeds
- marking of threatened flora within the civil works area and within 2 m of the construction area so that individuals outside the civil works were not inadvertently impacted.

Vegetation clearing was undertaken as a two-phase process:

1. Phase 1 - Following pre-clearing inspections, clearing of understory vegetation and non-habitat trees was completed.

2. Phase 2 – Clearing of habitat trees, and pruning of vegetation which didn't require full clearing. Phase 2 was undertaken under the supervision of ELA qualified personnel to actively manage any impacted fauna.

Clearing was undertaken within the boundaries determined through the pre-clearing inspections, or further minimised where possible. A total of 360 habitat trees were felled resulting in the relocation of 50 individual animals, including 21 *Petaurus breviceps* (Sugar Glider), 17 possums (both *Trichosurus vulpecula* [Common Brushtail Possum] and *Pseudocheirus peregrinus* [Common Ringtail Possum]), birds, and reptiles. No threatened fauna were observed within the works area. Large woody debris was retained where possible in the surrounding road reserve. Each day of clearing supervision was concluded with a walk-down of the area cleared to ensure vegetation clearing was restricted to the marked area.

To track compliance, a Clearance Chainage Table was developed to progressively record pre-clearing and clearing inspections, which was dated and signed daily. Detailed design vegetation mapping was produced by Zenviron's contracted surveyors following completion of Phase 1 and Phase 2 to ensure the amount of vegetation cleared was within the clearing limits.

Prior to the over-size over-mass (OSOM) deliveries commenced on site, it was determined that further detailed pruning and removal of select vegetation was required. Pruning and removal occurred in early June 2020 along APR, where blade sweep had potential to impact vegetation. This clearing was undertaken within the approved vegetation clearing limits and was subject to the management measures prescribed within the BMP. A final ecological inspection of APR was undertaken on the 20 August 2020.

The total area of each vegetation community cleared was as follows:

- PCT 277 – 0.56 ha cleared (of 0.95 ha permitted)
- PCT 290 – 4.86 ha cleared (of 5.64 ha permitted).

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1. Introduction

Eco Logical Australia Pty Ltd (ELA) was engaged by Zenviron Pty Ltd (Zenviron) to undertake pre-clearing surveys and provide ecological supervision for vegetation clearing associated with the widening and re-alignment works of the Aarons Pass Road (APR) upgrade (the works). The works are required to facilitate the movement of wind turbine generators (WTG), associated infrastructure and access for operation of the Crudine Ridge Wind Farm (CRWF).

APR is located approximately 45 km south of Mudgee in Central West NSW, off the Castlereagh Highway. The works will consist of upgrading approximately 20 km of road, which is bounded by a narrow linear strip of native vegetation along both sides of the road, ranging from 5 to 10 m wide in some sections down to only 1 to 2 m wide within the existing road reserve. The works area is adjoined by neighbouring properties that are used for sheep and cattle grazing and have a history of pasture improvement.

The area of vegetation clearing required for the works includes the detailed road design, civil works required for the road construction, and the blade swept path which includes overhang and swing potentially impacting upon vegetation, particularly on corners and bends. Vegetation within the blade swept path requires vegetation to be pruned to be below 3 m, not totally removed. However, these areas were added to the total areas of impact as a conservative measure.

Clearing works were undertaken in two phases:

1. Phase 1 - broad vegetation clearing of understory vegetation and non-habitat trees
2. Phase 2 - clearing of habitat trees, and pruning of vegetation which didn't require full clearing. Phase 2 was undertaken under the supervision of ELA qualified personnel to actively manage any impacted fauna.

Further detailed pruning and removal of select vegetation was undertaken after the over-size over-mass (OSOM) deliveries commenced on site. This occurred at areas along the alignment, particularly where blade sweep has potential to impact on vegetation. The results from these works are included in this report.

APR was subject to previous ecological assessments by ELA in 2013 and 2019 for the CRWF Project Approval (PA; SSD-6697) and the Modification to the PA (SSD-6697 MOD 1). Detailed vegetation mapping, fauna and habitat assessments were completed for the entirety of the works as part of the Biodiversity Development Assessment Report (BDAR, ELA 2019) submitted for the Modification to the PA (SSD-6697 MOD 1). Vegetation mapping identified approximately 6.59 ha of native vegetation assigned to two Plant Community Types (PCT) within the impact area:

1. PCT 277 – *Blakely's Red Gum – Yellow Box grassy woodland of the NSW South Western Slopes Bioregion* (0.95 ha).
2. PCT 290 - *Red Stringybark – Red Box - Long-leaved Box-Inland Scribbly Gum tussock grass shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion* (5.64 ha).

Two threatened plant species were identified and confirmed during the assessments, both listed as Endangered under the NSW *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):

- *Acacia meiantha*
- *Pomaderris cotoneaster* (Cotoneaster Pomaderris).

Three threatened woodland birds were also identified, all listed as vulnerable under the BC Act:

- *Artamus cyanopterus cyanopterus* (Dusky Woodswallow)
- *Daphoenositta chrysoptera* (Varied Sittella)
- *Petroica boodang* (Scarlet Robin).

Suitable potential habitat was determined to be present for koalas, Glossy black cockatoos, Powerful Owls, and Masked Owls due to the presence of large hollows and koala feed tree species. However, no individuals of these species were observed within the construction area. The road upgrade would result in potential impacts through the removal of vegetation and threatened species habitat including the loss of habitat trees.

1.1 Approved clearing limits

Consolidated Development Consent SSD-6697 MOD 1 was issued for the CRWF in June 2019, following approval of a Modification to include impacts along APR for the works. Condition 19 of the Development Consent provides clearing limits of native vegetation, based on the detailed ecological surveys and vegetation mapping undertaken for the Modification:

- PCT 277 – Blakely’s Red Gum – Yellow Box grassy woodland of the NSW South Western Slopes Bioregion (0.95 ha permitted to be cleared).
- PCT 290 - Red Stringybark – Red Box - Long-leaved Box-Inland Scribbly Gum tussock grass shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion (5.64 ha permitted to be cleared).

The CRWF Biodiversity Management Plan (BMP) (ELA 2019a) was amended following approval of the SSD-6697 to include management and mitigation measures to ensure clearing of native vegetation is undertaken in accordance with the area limits prescribed, including:

- identifying vegetation clearance boundaries through detailed design and mapping
- demarcation of the disturbance corridor by a qualified surveyor working with ecologists to mark out vegetation
- pre-clearing inspections to mark out hollow-bearing trees and the locations of threatened flora to be removed or retained
- vegetation clearance protocol to minimise and actively manage impacts to threatened flora and fauna
- daily walkdown to verify clearing activities and completion of a Clearance Chainage Table to progressively record the number of hollow-bearing trees cleared and area of vegetation cleared.

Sections of the BMP specifically relating to the management of vegetation along APR are detailed in:

- Section 4.2 Pre-clearance procedures
 - *4.2.2 Pre-clearance procedures Aarons Pass Road*
- Section 4.3 Threatened flora management strategies
 - *Acacia meiantha and Pomaderris cotoneaster*
- Section 4.4 Minimising impacts to fauna
 - *Fauna active management protocols*
 - *Fauna capture and release*
- Section 4.5 Vegetation Clearance Procedures
 - *Section 4.5.1 Vegetation clearance procedures Aarons Pass Road*
- Section 5.1 Construction Environmental Monitoring
 - *Section 5.1.1 Aarons Pass Road Environmental Monitoring*

From July 2019 through to February 2020, ELA ecologists were engaged to work with on-ground Zenviron contracted surveyors and tree clearing contractors to implement the pre-clearing inspection and clearing supervision requirements of the BMP. To achieve this, a four-step field process was implemented:

1. Detailed survey on foot to mark out the extent of native vegetation with flagging tape which was then surveyed in conjunction with the detailed works design footprint. A demarcation barrier was installed to delineate the civil works area from 'no-go' zones.
2. Pre-clearance survey to determine the location of habitat trees (trees with nests or hollows), threatened species, large woody debris and weeds.
3. Phase 1 - Clearing of non-habitat vegetation.
4. Phase 2 - Clearing of habitat trees.

Each step is detailed further in the sections below.

Minor additional select vegetation clearing was required to facilitate passage of the OSOM haulage vehicles, which included lopping of large tree limbs and select vegetation removal. This vegetation clearing was undertaken from June to August 2020 within the approved vegetation clearing limits and was subject to the management measures prescribed within the BMP. An ELA ecologist was present to supervise habitat tree clearing and clearing being undertaken near *Acacia meiantha* and *Pomaderris cotoneaster* to ensure the tree clearing contractors were aware of the location of the threatened species and dropped limbs did not impact upon the species. A final ecological inspection was undertaken on 20 August 2020, with the results of the select vegetation clearing/pruning detailed in **Section 7** of this report.

2. Native vegetation extent

From July 2019 ELA ecologists were engaged to mark out the extent of native vegetation in the APR disturbance corridor using flagging tape, in coordination with a qualified surveyor to accurately map the area of native vegetation to be cleared. Surveyor pegs were placed to mark the boundary of the civil works area, the blade swept path and the native vegetation. A temporary fence made of star posts and tape was erected as a demarcation barrier to delineate the civil works area from the native vegetation “no go zones”. This provided a visual barrier for the machinery operators and clearly established the boundaries to ensure impacts to native vegetation were only confined to that within the civil construction works area.

3. Pre-clearing survey

Following installation of the demarcation barrier, ELA ecologists undertook pre-clearing surveys, traversing the area to be cleared on foot to identify and mark with flagging tape:

- habitat trees
- threatened species
- priority weeds
- large woody debris for retention.

Habitat trees are trees within the landscape that are used by fauna for nesting or roosting sites and either contain hollows, cracks or crevices. It is often difficult to determine whether a hollow exists whilst examining the tree from the ground. Therefore, ELA ecologists used a precautionary approach and all trees that either had hollows or potentially contained hollows within the disturbance corridor were marked with green tape.

Habitat resources that could be salvaged, such as large woody debris, were identified to be retained on site where possible.

Pre-clearing surveys were undertaken in 100 m sections (chainage) of the disturbance corridor between 24 July and 8 October 2019 (Table 1). Pre-clearing inspections, including the number of habitat trees, were recorded in a Clearance Chainage Table (**Appendix A**).

Table 1: Pre-clearing survey dates

Chainage	Date
0-1600	02-Sep-19
1700-1800	19-Sep-19
1800-1900	16-Aug-19
2000-4100	15-Aug-19
4200-5200	19-Aug-19

Chainage	Date
5300-5800	24 July- 19
5900-7700	21-Aug-19
7800-8800	06-Sep-19
8900-10500	10-Sep-19
10600-10700	13-Sep-19
10800-12100	16-Sep-19
12200-12600	23-Sep-19
12700 - 13400	16-Sep-19
13500-15000	15-Aug-19
15100-16500	08-Oct-19
16600- 18100	04-Oct-19
18200 - 20000	02-Oct-19

3.1 Management of threatened flora

Acacia meiantha and *Pomaderris cotoneaster* were identified in the disturbance corridor between chainages 12,800 – 15,600. The BDAR for the works identified 59 *A. meiantha* and one *P. cotoneaster* were likely to be impacted by the works and approved by the Development Consent and associated biodiversity offsets. Individuals of each species were identified and marked within the detailed survey design, including any individuals within 2 m of the construction zone so that tree felling contractors were aware of their location to avoid inadvertent damage.

A translocation plan was prepared and implemented for *A. meiantha* in July 2019, with 47 individuals removed off site and established in a local nursery. In addition, 106 cuttings were taken. Five (5) *A. meiantha* and one *P. cotoneaster* were left in-situ as they were not deemed suitable for translocation as they were already in poor condition prior to vegetation clearing.

During construction, pre-clearing surveys identified a further 40 individuals *Acacia meiantha* within the civil works area. Many of these individuals were juvenile suckers which emerged since the September 2018 targeted flora field surveys. Section 4.3 of the BMP details measures to be implemented for impacts to threatened flora:

- *If the detailed design process identifies potential for unavoidable impacts to threatened species, a Significance Assessment will be undertaken by a qualified ecologist.*
- *If the Significance Assessment identifies a significant impact is likely, management recommendations will be defined and communicated with DPIE to seek authorisation to proceed.*

ELA undertook a significance assessment in accordance with Section 7.3 of the BC Act and the National Environmental Significance – *Significance impact guidelines 1.1* under the EPBC Act. The assessment concluded that significant impacts would not occur to *Acacia meiantha* and the loss of approximately 40 additional individuals will not reduce the long-term survival of the local population. Evidence of new individuals emerging since the targeted flora surveys in September 2018 indicates that the landscape

can support fluctuations in the *A. meiantha* population along APR. Further, early findings on the success of the translocation plan are positive, and there are indications that disturbance activities may provide a benefit to the growth of the species.

As per the *A. meiantha* translocation plan (ELA 2019b) a re-translocation site was selected along APR, near to where the current population of *A. meiantha* is located. This ensured that all biotic and abiotic requirements were similar to the original site. An area near the corner of Perke Road was selected as some of the individuals were collected nearby, the road reserve was wide to reduce impacts of associated edge effects and there are currently individuals still within this area of the road reserve. On 26 May 2020 the 13 surviving plants were collected from the nursery, watered and replanted into the field. Recent rains along APR had created ideal conditions for planting with medium to high subsoil moisture levels. All plants were healthy with abundant new growth. These plants will be monitored over the next 12 months, taking notes of health, flowering, presence of buds, as well as any potential threats.

4. Phase 1 - Broad vegetation clearing

Phase 1 vegetation clearing included the removal of understory (excluding threatened species) and non-habitat trees to encourage fauna that may be using the available habitat to self-relocate (see CRWF BMP section 4.4). To ensure compliance, ELA ecologists conducted walk down inspections of cleared areas to ensure clearing was confined to the detailed design, recorded in the Clearance Chainage Table (**Appendix A**).

5. Phase 2 - Clearing of habitat trees

Phase 2 vegetation clearing involved the felling of habitat trees. Phase 2 clearing was undertaken under the supervision of ELA to ensure impacts to resident fauna were minimised. Prior to felling, habitat trees were examined for signs of fauna occupation, including nests. Where available, a crane lift was used to inspect hollows for signs of occupancy.

Habitat trees were nudged by machinery and then monitored for three minutes to observe for signs of movement. Where possible the trees were slowly pushed to the ground to minimise impact. Trees were inspected on the ground and trunks were broken apart using chainsaws to allow for further inspection. A total of 358 habitat trees were felled within the civil works area and an additional two habitat trees were removed within the blade swept path, after the OSOM haulage vehicles commenced deliveries to the CRWF.

The number of habitat trees felled, and any fauna identified were recorded in the Clearance Chainage Table (**Appendix A**). A short report was prepared by ELA at the end of each week, stating the chainage, number of habitat trees felled, and details of any active fauna management. This is summarised below in Table 2.

Table 2: Location and number of Habitat trees cleared

Date of Phase 2 clearing	Chainage	No. of habitat trees	Comments
30 Aug 2019	2200-2800	3	No fauna
06 Sept	3100-5500	37	1 Brushtail possum. 1 Peron's tree-frog
13 Sept	200-1300	10	No fauna
13 Sept	4600-4900	3	1 Sugar glider; 1 tree skink
20 Sept	1400-1500	1	1 Barn owl
18 Oct	19,400-20,200	23	2 Brushtail possums; 5 Sugar gliders
25-Oct	18900-19400	7	No fauna
25-Oct	15900-16600	27	No fauna
01-Nov	5700-6300	15	No fauna
01-Nov	16800-16900	3	1 Ringtail possum. 1 microbat
01-Nov	17700-18900	13	1 Galah
08-Nov	6500-7100	12	2 Ringtail possums. 4 microbats. 1 Brushtail possum. 3 Sugar gliders
08-Nov	12300-15500	54	1 Peron's tree-frog. 2 Ringtail possums. 2 Sugar gliders
22-Nov	7400-8700	69	4 Brushtail possums. 10 Sugar gliders. 1 tree skink.
06-Dec	8700-9600	20	1 Owlet nightjar. 1 Ringtail possum.
13-Dec	10000-10300	9	1 Ringtail possum.
20-Dec	10300-10600	8	No fauna
10-Jan 2020	10600-11600	20	1 Brushtail possum.
17-Jan	11700-12150	19	1 Ringtail possum.
14-Feb	12800-13600	5	No fauna
10 th June	3700-3800	1	No fauna
11 th June	10750-10800	1	No fauna
TOTAL		360	50 animals

Within the 360 habitat trees felled a total of 50 individual fauna were identified, consisting of four species of mammals, three species of birds and two reptiles, all of which were successfully relocated. No threatened fauna species were encountered. Where individuals were found within a hollow, the section of tree was cut so that the entire hollow was relocated into adjacent similar habitat.

One bird, *Eolophus roseicapillus* (Galah), was injured during tree felling, requiring veterinary attention and ongoing care from an approved wildlife carer. One Common Brushtail Possum and one Common Ringtail Possum were observed self-relocating into the surrounding vegetation during felling. There is potential that these animals may have been injured but were unable to be captured. Active fauna management undertaken during phase 2 clearing is detailed below in Table 3.

Table 3: Active fauna management during phase 2 habitat tree clearing

Scientific Name	Common Name	Number of individuals	Outcome
<i>Tyto alba</i>	Barn Owl	1	Self-relocated
<i>Aegotheles chrisoptus</i>	Owlet Night Jar	1	Relocated to surrounding area
<i>Eolophus roseicapilla</i>	Galah	1	Wildlife carer
<i>Egernia sp</i>	Tree Skink	2	Relocated to surrounding area
<i>Litoria peronii</i>	Peron's Tree Frog	2	Relocated to surrounding area
<i>Trichosurus vulpecula</i>	Brushtail Possum	9	Relocated or self-relocated to surrounding area
<i>Pseudocheirus peregrinus</i>	Ringtail Possum	8	Relocated or self-relocated to surrounding area
<i>Petaurus breviceps</i>	Sugar Gliders	21	Relocated to surrounding areas
Microbats	Microbats	5	Self-relocated

The majority of arboreal mammals were found between Chainage 5,000 – 12,500 and between 16,500 – 19,500. One individual male koala was opportunistically identified well outside of the works area on the roadside near Pyramul Road. This individual was observed to be in poor condition, potentially due to the ongoing drought at the time, and was taken into care by an approved wildlife carer.

6. Clearing extent

Minor additional select vegetation clearing, including lopping of large tree limbs, was required to facilitate passage of the OSOM haulage vehicles. This vegetation clearing was undertaken within the approved vegetation clearing limits and was subject to the management measures prescribed within the BMP. The additional clearing was recorded in the Clearance Chainage Table (**Appendix B**). Clearing/pruning was undertaken within 26 chainages (Table 4).

Table 4: Location of final blade swept pruning/select removal

Chainage	Comments
3750-3900	small trees, 1 large and 1 habitat tree supervised on felling
4,000-4,100	small trees
4,100-4,200	small trees
7,500-7,600	small trees

Chainage	Comments
7,700-7,800	1 medium tree
7,900-8,000	small trees
8,000-8,100	small trees
8,200-8,300	small trees
8,800-8,900	small trees
9,500-9,600	Large Woody Debris on side
10,000-10,100	Small trees. 1 large tree.
10,500-10,600	1 medium tree
10,700-10,800	1 habitat tree supervised on felling.
11100-11150	1 Large tree
11,200-11,300	Pushed batter back towards adjacent paddock
11,400-11,500	small trees
12,100-12,200	small trees
13,500-13,600	3 large trees cleared around <i>Pomaderris cotoneaster</i> . Large Woody Debris
14,100-14,200	Small and 1 medium tree cleared around <i>Acacia meiantha</i>
14,300-14,400	1 medium and 1 large tree cleared around <i>A. meiantha</i>
14,500-14,600	Small trees cleared around <i>A. meiantha</i>
15,000-15,100	Small trees
15,700-15,800	2 Trees, 1 HBT supervised on felling (within civil works)
16,000-16,100	Small trees
16,200-16,300	Small trees
16,700-16,800	Pruned overhanging branch

Detailed design vegetation mapping was produced by Zenviron's contracted surveyors and was used at the completion of clearing to ensure the amount of vegetation cleared was within the clearing limits. The total area of each vegetation community cleared was as follows:

- PCT 277 – 0.56 ha
- PCT 290 – 4.86 ha.

These figures are well within the Development Consent approved clearing limits (PCT 277 – 0.95; PCT 290 – 5.64). The savings may be attributable to several factors, including improved accuracy of mapping from the survey, avoidance of vegetation through changes to the design and micro-siting of civil works such as turnout drains and culverts.

7. Final ecological inspection

A final ecological inspection was undertaken on 20 August 2020 by ELA Senior Ecologist Dr Cheryl O'Dwyer. The final inspection involved a walkdown of all areas subject to vegetation clearing, to confirm the final cleared limits and sign off on completion of the clearing.

8. Conclusion

Vegetation clearing to facilitate the works on APR has been undertaken in accordance with the CRWF BMP to ensure compliance with the conditions of the Development Consent.

In summary:

- A Clearance Chainage Table was developed to progressively record pre-clearing and clearing inspections which was dated and signed daily.
- Detailed design vegetation mapping was produced through detailed marking out of vegetation by ELA ecologists working in coordination with a qualified surveyor to ensure the amount of clearing was within the Development Consent clearing limits.
- The detailed design determined that 0.56 ha of PCT 277 and 4.86 ha of PCT 290 were removed from the civil works and within the blade swept path along APR. This is under the area approved in the Development Consent.
- A total of 380 potential habitat trees were marked within the civil works area and blade swept path.
- A total 360 habitat trees were removed from APR and 50 individual animals from 9 species were relocated or self-relocated as per the BMP (2019), none of which are listed as threatened.
- A total of 47 *Acacia meiantha* were translocated from site and 45 individuals (including 40 new suckers that had emerged during autumn 2020) were left in-situ and impacted by the works.
- An Assessment of Significance was undertaken for the additional recently emerged *A. meiantha* along APR and it was determined that no significant impact was likely.
- One *Pomaderris cotoneaster* was impacted by the works.
- Further vegetation pruning or clearing was required for OSOM haulage vehicle passage. Clearing was undertaken within 26 chainages and was within the approved clearing limits.

References

Eco Logical Australia 2020. *Aarons Pass Road Vegetation Clearing Interim Report*. Prepared for Zenviron Pty Ltd.

Eco Logical Australia 2019a. *Crudine Ridge Wind Farm Biodiversity Management Plan 2019*. Prepared for CWP Renewables Pty Ltd.

Eco Logical Australia 2019b. *Translocation Plan Acacia meiantha – Wattle (Fabaceae)*. Prepared for CWP Renewables Pty Ltd.

Appendix A Clearance Chainage Table



CRWF Aarons Pass Road Upgrade - Forecasted Ground Disturbance Summary

PCT 277 Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
 PCT290 Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion

HBT Hollow Bearing Tree
 Acacia Acacia Meiantha specimen
 Pomaderris Pomaderris Recta specimen

PH1 Comp - Phase 1 - broad vegetation removal within construction alignment (Gungahyup)
 PH2 Comp - Phase 2 - HBT removal, clearing and vegetation fire break
 * SM Sebastian Madden ERM

Chainage (m)	Disturbance (m)				Ecological Inspection of PCT marked zoning	Disturbance Limit Surveyed & Marked	Ecological clearing inspection (PCT areas / HBT / Acacia / Pomaderris)	
	0-100	100-200	200-300	300-400			Signoff / NA	Signoff
0	100	0.00	0.00	0.00	0	0	NO HBT	
100	200	0.00	0.00	0.00	0	0		
200	300	0.00	0.00	0.00	0	0		
300	400	0.00	43.50	0.00	0	0		
400	500	0.00	0.00	0.00	0	0		
500	600	0.00	26.13	0.00	0	0		
600	700	0.00	451.83	0.00	0	0		
700	800	0.00	531.81	0.00	0	19.93		
800	900	0.00	292.26	0.00	0	4.24		
900	1,000	0.00	137.92	0.00	1	57.32		
1,000	1,100	0.00	128.09	0.00	1	13.91		
1,100	1,200	0.00	111.45	0.00	0	0.00		
1,200	1,300	0.00	172.13	0.00	0	0.00		
1,300	1,400	0.00	323.11	0.00	0	0.00		
1,400	1,500	0.00	205.43	0.00	1	0.00		
1,500	1,600	0.00	152.20	0.00	0	0.00		
1,600	1,700	0.00	97.53	0.00	1	0.00		
1,700	1,800	0.00	73.15	0.00	1	0.00		
1,800	1,900	0.00	473.14	0.00	1	4.15		
1,900	2,000	0.00	125.04	0.00	0	0.00		
2,000	2,100	0.00	111.33	0.00	0	0.00		
2,100	2,200	0.00	93.17	0.00	0	14.89		
2,200	2,300	0.00	43.53	0.00	0	0.00		
2,300	2,400	0.00	125.43	0.00	1	3.37		
2,400	2,500	0.00	115.52	0.00	0	4.90		
2,500	2,600	0.00	134.25	0.00	1	153.49		
2,600	2,700	0.00	178.09	0.00	0	2.13		
2,700	2,800	0.00	103.55	0.00	0	1.03		
2,800	2,900	0.00	117.37	0.00	4	4.16		
2,900	3,000	0.00	89.92	0.00	0	18.20		
3,000	3,100	0.00	315.38	0.00	0	0.05		
3,100	3,200	0.00	601.22	0.00	5	3.13		
3,200	3,300	0.00	472.27	0.00	0	11.96		
3,300	3,400	0.00	112.33	0.00	1	0.33		
3,400	3,500	0.00	395.36	0.00	4	0.05		
3,500	3,600	0.00	27.77	0.00	0	0.00		
3,600	3,700	0.00	284.34	0.00	1	0.00		
3,700	3,800	0.00	435.23	0.00	4	29.53		
3,800	3,900	0.00	303.46	0.00	3	0.90		
3,900	4,000	0.00	307.78	0.00	1	1.84		
4,000	4,100	0.00	248.72	0.00	2	33.35		
4,100	4,200	0.00	256.76	0.00	2	0.00		
4,200	4,300	0.00	452.76	0.00	4	0.00		
4,300	4,400	0.00	311.69	0.00	1	0.00		
4,400	4,500	0.00	428.31	0.00	3	0.00		
4,500	4,600	0.00	341.54	0.00	1	0.00		
4,600	4,700	0.00	337.05	0.00	1	0.00		
4,700	4,800	0.00	516.43	0.00	2	0.00		
4,800	4,900	0.00	452.64	0.00	0	2.90		
4,900	5,000	0.00	243.22	0.00	1	0.00		
5,000	5,100	0.00	315.61	0.00	2	0.00		
5,100	5,200	0.00	223.46	0.00	0	0.00		
5,200	5,300	0.00	33.57	0.00	0	0.00		

Document Reference: ZX109-LIS-0269-2(0)

2900 - 5500 phase 1
 Clearing on d 30/04/19



CRWF Aarons Pass Road Upgrade - Forecasted Ground Disturbance Summary

PCT 277 Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
 PCT290 Red Stringybark - Red Box - Long-leaved Box - inland Scribbly Gum tussock grass shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion

HBT Hollow Bearing Tree
 Acacia Acacia Melantha specimen
 Pomaderris Pomaderris Recta specimen

PH 2 completed

Easting	Northing	Area (m²)	Disturbance (m²)	HBT	Acacia	Pomaderris	Other	Yr	Ecological Inspection of PCT marked zoning		Disturbance Limit Surveyed & Marked	Ecological clearing inspection (PCT areas / HBT / Acacia / Pomaderris)	
									Signoff / NA	Signoff		Signoff / NA	Comments
5,300	5,400	0.00	17.47	0.00	1.21	0	2	2019	Blakely	Blakely	06/09	PH 2 completed	
5,400	5,500	0.00	202.96	0.00	0.00	1	1	2019	Blakely	Blakely	06/09	PH 2 completed	
5,500	5,500	0.00	164.21	0.00	0.00	1	0	2019	Blakely	Blakely	06/09	PH 2 completed	
5,600	5,700	0.00	131.15	0.00	0.00	1	0	2019	Blakely	Blakely	06/09	PH 2 completed	
5,700	5,800	0.00	259.31	0.00	0.00	3	1	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	21/10/19	PH 2 completed	
5,800	5,900	0.00	182.05	0.00	0.00	1	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	31/10/19	PH 2 completed	
5,900	6,000	0.00	386.62	0.00	0.00	1	1	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
6,000	6,100	0.00	236.58	0.00	0.00	2	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
6,100	6,200	0.00	455.75	0.00	0.00	0	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
6,200	6,300	0.00	467.15	0.00	0.00	3	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
6,300	6,400	0.00	108.13	0.00	0.00	1	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
6,400	6,500	0.00	273.30	0.00	0.00	0	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
6,500	6,600	0.00	94.63	0.00	0.00	0	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
6,600	6,700	0.00	354.67	0.00	0.00	1	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
6,700	6,800	0.00	426.61	0.00	0.00	0	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
6,800	6,900	0.00	374.25	0.00	0.00	0	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
6,900	7,000	0.00	273.68	0.00	0.00	2	3	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
7,000	7,100	0.00	238.42	0.00	0.00	1	1	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
7,100	7,200	0.00	155.75	0.00	0.00	2	2	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
7,200	7,300	0.00	162.76	0.00	0.00	0	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
7,300	7,400	0.00	25.97	0.00	0.00	0	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
7,400	7,500	0.00	289.93	0.00	32.93	2	2	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
7,500	7,600	0.00	60.47	0.00	10.25	2	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
7,600	7,700	0.00	368.95	0.00	0.00	24	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
7,700	7,800	0.00	352.29	0.00	71.32	4	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
7,800	7,900	0.00	276.19	0.00	0.00	0	0	2019	Cheryl O'Dwyer	Cheryl O'Dwyer	11/11/19	PH 2 completed	
7,900	8,000	0.00	269.92	0.00	365.05	4	5	2019	Tom Kelly	Tom Kelly	18/11/19	PH 2 completed	
8,000	8,100	0.00	213.17	0.00	38.15	1	3	2019	Tom Kelly	Tom Kelly	18/11/19	PH 2 completed	
8,100	8,200	0.00	131.65	0.00	0.00	3	5	2019	Tom Kelly	Tom Kelly	18/11/19	PH 2 completed	
8,200	8,300	0.00	422.52	0.00	0.00	3	1	2019	Tom Kelly	Tom Kelly	18/11/19	PH 2 completed	
8,300	8,400	0.00	742.88	0.00	0.00	5	6	2019	Tom Kelly	Tom Kelly	18/11/19	PH 2 completed	
8,400	8,500	0.00	864.37	0.00	0.00	4	3	2019	Tom Kelly	Tom Kelly	18/11/19	PH 2 completed	
8,500	8,600	0.00	428.58	0.00	105.53	4	4	2019	Tom Kelly	Tom Kelly	18/11/19	PH 2 completed	
8,600	8,700	0.00	257.66	0.00	1.13	3	4	2019	Tom Kelly	Tom Kelly	18/11/19	PH 2 completed	
8,700	8,800	0.00	436.79	0.00	0.00	3	3	2019	Tom Kelly	Tom Kelly	18/11/19	PH 2 completed	
8,800	8,900	0.00	306.44	0.00	65.49	1	0	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
8,900	9,000	0.00	132.54	0.00	35.61	0	2	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
9,000	9,100	0.00	408.54	0.00	0.00	1	1	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
9,100	9,200	0.00	200.91	0.00	1.27	3	1	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
9,200	9,300	0.00	133.12	0.00	0.00	0	0	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
9,300	9,400	0.00	244.80	0.00	18.42	2	1	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
9,400	9,500	0.00	594.00	0.00	18.42	4	6	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
9,500	9,600	0.00	280.47	0.00	0.00	1	2	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
9,600	9,700	0.00	213.75	0.00	40.56	3	0	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
9,700	9,800	0.00	150.26	0.00	0.00	3	0	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
9,800	9,900	0.00	188.86	0.00	0.00	3	0	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
9,900	10,000	0.00	213.81	0.00	0.00	2	0	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
10,000	10,100	0.00	339.14	0.00	63.97	2	2	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
10,100	10,200	0.00	213.24	0.00	0.00	2	2	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
10,200	10,300	0.00	319.38	0.00	0.00	5	0	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
10,300	10,400	0.00	309.42	0.00	0.00	3	0	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
10,400	10,500	0.00	563.97	0.00	0.00	3	3	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	
10,500	10,600	0.00	240.92	0.00	0.00	0	0	2019	Elise Keane	Elise Keane	22/11/19	PH 2 completed	



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 PCT290 Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum
 tussock grass shrub low open forest on hills in the southern part of
 the NSW South Western Slopes Bioregion

HBT Hollow Bearing Tree
 Acacia Acacia Meliantha specimen
 Pomaderris Pomaderris Recta specimen

Vegetation clearance signoff definitions
 Phase 1 - Broad vegetation removal
 Phase 2 - HBT removal and final vegetation pruning/fine tuning

CHAINAGE (m)		Civil Disturbance (sqm)		Blade Sweep (sqm)		Specimen Translocation / Removal (non-removal within blade sweep)			Ecological Inspection of PCT marked zoning	Disturbance Limit Surveyed & Marked	Ecological clearing inspection (PCT areas / HBT / Acacia / Pomaderris)		Structural/root zone inspection	Comments
From	To	PCT 277	PCT 290	PCT 277	PCT 290	HBT	Acacia	Pomaderris	Signoff / NA	Signoff	Phase 1 progress / NA	Phase 2 Signoff / NA	Sign / NA	
10,600	10,700	0.00	214.83	0.00	11.47	3	0	0	Elise Keane	clark 13/9	Elise Keane			PH1 completed
10,700	10,800	0.00	358.26	0.00	93.14	4	0	0	Elise Keane	clark 16/9	Elise Keane			
10,800	10,900	0.00	299.31	0.00	0.00	1	5	0	Elise Keane	clark 16/9	Elise Keane			
10,900	11,000	0.00	207.25	0.00	73.66	2	4	0	Cheryl O'Day	clark 19/9	Cheryl O'Day			
11,000	11,100	0.00	219.60	0.00	198.63	8	2	0	Cheryl O'Day	clark 19/9	Cheryl O'Day			PH2 commenced 11,060 - 11,100
11,100	11,200	0.00	457.47	0.00	23.66	2	4	0	Cheryl O'Day	clark 19/9	Cheryl O'Day			PH2 completed 2/10
11,200	11,300	0.00	594.69	0.00	142.21	2	1	0	Cheryl O'Day	clark 19/9	Cheryl O'Day			4 HBT marked
11,300	11,400	0.00	234.22	0.00	90.16	1	0	0	Cheryl O'Day	clark 19/9	Cheryl O'Day			1 Brushtail possum - relocated self
11,400	11,500	0.00	113.05	0.00	27.87	2	0	0	Cheryl O'Day	clark 19/9	Cheryl O'Day			2 HBT
11,500	11,600	0.00	216.00	0.00	0.00	2	4	0	Elise Keane	clark 20/9	Elise Keane			
11,600	11,700	0.00	399.84	0.00	0.00	0	3	0	Elise Keane	clark 20/9	Elise Keane			
11,700	11,800	0.00	183.64	0.00	0.00	0	4	0	Elise Keane	clark 20/9	Elise Keane			
11,800	11,900	0.00	71.09	0.00	0.00	1	0	0	Elise Keane	clark 20/9	Elise Keane			2 HBT marked
11,900	12,000	0.00	244.35	0.00	0.00	2	0	0	Elise Keane	clark 20/9	Elise Keane			5 HBT marked
12,000	12,100	0.00	244.71	0.00	0.20	2	0	0	Elise Keane	clark 20/9	Elise Keane			8 HBT marked
12,100	12,200	0.00	37.60	0.00	0.00	2	0	0	Elise Keane	clark 20/9	Elise Keane			1 Acacia meliantha marked within disturbance boundary
12,200	12,300	0.00	426.77	0.00	0.00	3	0	0	TKELLY	Kelly 23/09	TKELLY			
12,300	12,400	0.00	409.91	0.00	69.94	0	0	0	TKELLY	Kelly 23/09	TKELLY			
12,400	12,500	0.00	575.75	0.00	80.44	1	0	0	TKELLY	Kelly 23/09	TKELLY			
12,500	12,600	0.00	190.90	0.00	0.00	4	0	0	TKELLY	Kelly 23/09	TKELLY			33 HBT marked on Elise inspection where not marked
12,600	12,700	0.00	52.61	0.00	0.00	8	0	0	TKELLY	Kelly 23/09	TKELLY			54 HBT marked
12,700	12,800	0.00	119.52	0.00	0.00	2	0	0	TKELLY	Kelly 23/09	TKELLY			87 HBT marked
12,800	12,900	0.00	218.32	0.00	0.00	2	0	0	TKELLY	Kelly 23/09	TKELLY			2 x Kingtail released
12,900	13,000	0.00	165.20	0.00	0.00	1	0	0	TKELLY	Kelly 23/09	TKELLY			2 x Egons released
13,000	13,100	0.00	146.28	0.00	0.00	2	0	0	TKELLY	Kelly 23/09	TKELLY			
13,100	13,200	0.00	272.39	0.00	0.00	2	0	0	TKELLY	Kelly 23/09	TKELLY			
13,200	13,300	0.00	288.02	0.00	0.00	3	0	0	TKELLY	Kelly 23/09	TKELLY			
13,300	13,400	0.00	239.03	0.00	26.47	2	0	0	TKELLY	Kelly 23/09	TKELLY			
13,400	13,500	0.00	466.81	0.00	0.03	1	0	0	TKELLY	Kelly 23/09	TKELLY			
13,500	13,600	0.00	182.28	0.00	279.75	1	0	1 [3]	TKELLY	Kelly 23/09	TKELLY			3 HBT marked
13,600	13,700	0.00	1188.82	0.00	18.18	1	0	0	TKELLY	Kelly 23/09	TKELLY			HBT marked - Acacia marked
13,700	13,800	0.00	488.41	0.00	0.00	0	0	0	TKELLY	Kelly 23/09	TKELLY			
13,800	13,900	0.00	211.33	0.00	0.00	2	0	0	TKELLY	Kelly 23/09	TKELLY			
13,900	14,000	0.00	180.10	0.00	0.00	4	0	0	TKELLY	Kelly 23/09	TKELLY			
14,000	14,100	0.00	284.59	0.00	0.00	3	0	0	TKELLY	Kelly 23/09	TKELLY			2 x Acacia meliantha in disturbance boundary
14,100	14,200	0.00	203.71	0.00	15.00	1	2 [0]	0	TKELLY	Kelly 23/09	TKELLY			
14,200	14,300	0.00	209.50	0.00	0.00	2	28 [0]	0	TKELLY	Kelly 23/09	TKELLY			
14,300	14,400	0.00	58.90	0.00	0.00	0	6 [0]	0	TKELLY	Kelly 23/09	TKELLY			
14,400	14,500	0.00	122.97	0.00	0.00	2	0	0	TKELLY	Kelly 23/09	TKELLY			
14,500	14,600	0.00	183.57	0.00	0.00	0	2 [0]	0	TKELLY	Kelly 23/09	TKELLY			
14,600	14,700	0.00	223.46	0.00	0.00	1	4 [0]	0	TKELLY	Kelly 23/09	TKELLY			
14,700	14,800	0.00	104.22	0.00	0.00	2	4 [0]	0	TKELLY	Kelly 23/09	TKELLY			
14,800	14,900	0.00	357.88	0.00	0.00	3	0	0	TKELLY	Kelly 23/09	TKELLY			
14,900	15,000	0.00	508.83	0.00	0.00	1	0	0	TKELLY	Kelly 23/09	TKELLY			
15,000	15,100	0.00	202.17	0.00	66.84	0	0	0	TKELLY	Kelly 23/09	TKELLY			
15,100	15,200	0.00	590.13	0.00	0.00	0	1 [0]	0	TKELLY	Kelly 23/09	TKELLY			
15,200	15,300	0.00	470.66	0.00	0.00	0	0	0	TKELLY	Kelly 23/09	TKELLY			
15,300	15,400	0.00	306.65	0.00	0.00	0	0	0	TKELLY	Kelly 23/09	TKELLY			
15,400	15,500	0.00	363.90	0.00	0.00	4	0	0	TKELLY	Kelly 23/09	TKELLY			
15,500	15,600	0.00	271.88	0.00	0.00	4	0	0	TKELLY	Kelly 23/09	TKELLY			
15,600	15,700	0.00	285.14	0.00	33.49	4	0	0	TKELLY	Kelly 23/09	TKELLY			
15,700	15,800	0.00	403.20	0.00	203.88	6	0	0	TKELLY	Kelly 23/09	TKELLY			
15,800	15,900	0.00	362.71	0.00	0.00	1	0	0	TKELLY	Kelly 23/09	TKELLY			



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HBT Hollow Bearing Tree
 Acacia Acacia Meintha specimen
 Pomaderris Pomaderris Recta specimen

Vegetation clearance signoff definitions
 Phase 1 - Broad vegetation removal
 Phase 2 - HBT removal and final vegetation pruning/fine tuning

CHAINAGE (m)		Total Disturbance (sqm)			HBT SWFT (sqm)			Species and clearance / Removal from removal with a Date SWFT			Ecological inspection of PCT marked zoning	Disturbance Limit Surveyed & Marked	Ecological clearing inspection (PCT areas / HBT / Acacia / Pomaderris)		Structural/root zone inspection	Comments
From	To	PCT 277	PCT 280	PCT 277	PCT 290	HBT	Acacia	Pomaderris	Signoff / NA	Signoff	Phase 1 progress / NA	Phase 2 Signoff / NA	Sign / NA			
15,900	16,000	0.00	261.27	0.00	5.16	10	0	0	Cheng	11/10/19	11/10/19	11/10/19		Acacia melanthra for clear		
16,000	16,100	0.00	480.41	0.00	15.35	0	0	See crane	11/10/19	25/10/19	25/10/19		Completed 26/09 - TK			
16,100	16,200	0.00	294.52	0.00	7.95	0	0									
16,200	16,300	0.00	597.65	0.00	7.41	0	0									
16,300	16,400	0.00	632.26	0.00	0.00	0	0									
16,400	16,500	0.00	435.40	0.00	0.00	0	0									
16,500	16,600	0.00	342.61	0.00	0.00	0	0									
16,600	16,700	121.18	217.07	7.04	27.95	2	0	0								
16,700	16,800	0.00	174.68	0.00	0.00	1	0	0								
16,800	16,900	344.67	0.00	0.00	0.00	2	0	0	Eric Keane 4/10	clear	Cheng	11/10/19		Reclear 16730-16800 4/10		
16,900	17,000	389.24	0.00	0.00	0.00	1	0	0			Cheng	11/10/19		Phase 1 completed 2/10		
17,000	17,100	579.32	0.00	0.00	0.00	0	0	0								
17,100	17,200	168.41	0.00	0.00	0.00	0	0	0								
17,200	17,300	27.81	0.00	0.00	0.00	0	0	0								
17,300	17,400	293.72	0.00	0.00	0.00	0	0	0								
17,400	17,500	0.00	0.00	0.00	0.00	0	0	0								
17,500	17,600	457.52	0.90	0.00	0.00	0	0	0								
17,600	17,700	17.26	0.00	0.00	0.00	0	0	0								
17,700	17,800	309.19	0.00	0.00	0.00	0	0	0								
17,800	17,900	53.33	0.00	0.00	0.00	0	0	0								
17,900	18,000	306.21	0.00	0.00	0.00	0	0	0								
18,000	18,100	295.41	0.00	0.00	0.00	0	0	0								
18,100	18,200	138.95	0.00	0.08	0.00	0	0	0								
18,200	18,300	313.84	0.00	4.08	0.00	0	0	0								
18,300	18,400	332.36	0.00	0.00	0.00	0	0	0	Eric Keane 2/10	clear	Cheng	11/10/19		1x HBT cleared		
18,400	18,500	285.57	0.00	0.00	0.00	0	0	0								
18,500	18,600	558.47	0.00	0.00	0.00	0	0	0								
18,600	18,700	323.73	0.00	0.00	0.00	1	0	0								
18,700	18,800	104.89	0.00	0.00	0.00	0	0	0								
18,800	18,900	218.50	0.00	0.00	0.00	2	0	0								
18,900	19,000	336.78	0.00	0.00	0.00	1	0	0								
19,000	19,100	121.87	0.00	0.00	0.00	1	0	0								
19,100	19,200	361.34	0.00	0.00	0.00	0	0	0								
19,200	19,300	162.22	0.00	0.00	0.00	2	0	0								
19,300	19,400	220.04	0.00	54.49	0.00	3	0	0								
19,400	19,500	289.45	0.00	6.99	0.00	0	0	0								
19,500	19,600	269.10	0.00	0.00	0.00	3	0	0								
19,600	19,700	216.57	0.00	0.00	0.00	0	0	0								
19,700	19,800	65.37	0.00	5.36	0.00	0	0	0								
19,800	19,900	264.99	0.00	5.37	0.00	1	0	0								
19,900	20,000	122.85	0.00	0.57	0.00	1	0	0								
20,000	20,100	196.12	0.00	12.05	0.00	1	0	0								
20,100	20,200	74.84	0.00	0.04	0.00	2	0	0								
20,200	20,300	Vegetation Survey data not available. Designed as to not impact any trees.														
TOTALS		0.906	4.730	0.010	0.3086	302	47	[0]	1	[3]						

Appendix B Final Ecological Inspection Table



CRWF Aarons Pass Road Upgrade - Forecasted Ground Disturbance Summary

PCT 277 Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
 PCT 290 Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion

CHAINAGE (m)		G.H Disturbance (sqm)		Blade Swept (sqm)		Upgrade Completion (PCT 277)			Upgrade Completion (PCT 290)			Specimen Relocation / Removal (non-removal within blade swept)			Blade swept pruning/select removal	Comments
From	To	PCT 277	PCT 290	PCT 277	PCT 290	Forecast	Actual	Delta	Forecast	Actual	Delta	HBT	Acacia	Pomadouris	Ecologist signoff	
0	100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0		
100	200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0		
200	300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.98	0.00	0	0	0		
300	400	0.00	48.60	0.00	5.68	0.00	0.00	0.00	54.28	214.25	0.00	0	0	0		
400	500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.63	0.00	0	0	0		
500	600	0.00	20.19	0.00	0.00	0.00	0.00	0.00	20.19	128.74	0.00	0	0	0		
600	700	0.00	451.83	0.00	0.00	0.00	0.00	0.00	451.83	87.34	0.00	2	0	0		
700	800	0.00	531.81	0.00	29.93	0.00	0.00	0.00	561.74	54.16	0.00	0	0	0		
800	900	0.00	292.26	0.00	4.24	0.00	0.00	0.00	296.50	57.45	0.00	0	0	0		
900	1,000	0.00	237.92	0.00	57.32	0.00	0.00	0.00	295.24	57.87	0.00	1	0	0		
1,000	1,100	0.00	128.09	0.00	19.91	0.00	0.00	0.00	148.00	11.60	0.00	1	0	0		
1,100	1,200	0.00	111.45	0.00	0.00	0.00	0.00	0.00	111.45	89.26	0.00	0	0	0		
1,200	1,300	0.00	272.13	0.00	0.00	0.00	0.00	0.00	272.13	62.28	0.00	2	0	0		
1,300	1,400	0.00	328.11	0.00	0.00	0.00	0.00	0.00	328.11	18.65	0.00	1	0	0		
1,400	1,500	0.00	205.43	0.00	0.00	0.00	0.00	0.00	205.43	54.45	0.00	1	0	0		
1,500	1,600	0.00	152.20	0.00	0.00	0.00	0.00	0.00	152.20	41.62	0.00	0	0	0		
1,600	1,700	0.00	97.58	0.00	0.00	0.00	0.00	0.00	97.58	9.49	0.00	1	0	0		
1,700	1,800	0.00	75.15	0.00	0.00	0.00	0.00	0.00	75.15	10.79	0.00	1	0	0		
1,800	1,900	0.00	478.14	0.00	4.15	0.00	0.00	0.00	482.30	0.00	0.00	0	0	0		
1,900	2,000	0.00	425.94	0.00	0.00	0.00	0.00	0.00	425.94	2.73	0.00	0	0	0		
2,000	2,100	0.00	111.33	0.00	0.00	0.00	0.00	0.00	111.33	10.10	0.00	0	0	0		
2,100	2,200	0.00	99.27	0.00	51.89	0.00	0.00	0.00	151.16	0.18	0.00	0	0	0		
2,200	2,300	0.00	49.56	0.00	0.01	0.00	0.00	0.00	49.57	8.12	0.00	0	0	0		
2,300	2,400	0.00	225.73	0.00	0.37	0.00	0.00	0.00	226.10	87.78	0.00	1	0	0		
2,400	2,500	0.00	115.52	0.00	94.90	0.00	0.00	0.00	210.42	7.79	0.00	2	0	0		
2,500	2,600	0.00	134.25	0.00	156.49	0.00	0.00	0.00	290.74	0.00	0.00	1	0	0		
2,600	2,700	0.00	178.68	0.00	2.18	0.00	0.00	0.00	180.86	0.06	0.00	1	0	0		
2,700	2,800	0.00	203.68	0.00	0.00	0.00	0.00	0.00	203.68	18.77	0.00	2	0	0		
2,800	2,900	0.00	216.67	0.00	44.16	0.00	0.00	0.00	260.83	0.00	0.00	4	0	0		
2,900	3,000	0.00	88.92	0.00	38.20	0.00	0.00	0.00	127.12	0.00	0.00	0	0	0		
3,000	3,100	0.00	215.53	0.00	0.05	0.00	0.00	0.00	215.58	180.95	0.00	0	0	0		
3,100	3,200	0.00	601.23	0.00	3.13	0.00	0.00	0.00	604.36	302.70	0.00	6	0	0		
3,200	3,300	0.00	403.87	0.00	24.06	0.00	0.00	0.00	427.93	226.80	0.00	0	0	0		
3,300	3,400	0.00	212.33	0.00	0.33	0.00	0.00	0.00	212.66	80.91	0.00	1	0	0		
3,400	3,500	0.00	391.36	0.00	0.00	0.00	0.00	0.00	391.36	306.28	0.00	4	0	0		
3,500	3,600	0.00	271.77	0.00	0.00	0.00	0.00	0.00	271.77	153.86	0.00	0	0	0		
3,600	3,700	0.00	234.34	0.00	0.00	0.00	0.00	0.00	234.34	241.18	0.00	1	0	0		
3,700	3,800	0.00	456.23	0.00	29.58	0.00	0.00	0.00	485.81	386.66	0.00	1	0	0		
3,800	3,900	0.00	303.46	0.00	0.60	0.00	0.00	0.00	304.06	356.22	0.00	2	0	0		
3,900	4,000	0.00	307.78	0.00	1.84	0.00	0.00	0.00	309.62	333.89	0.00	1	0	0		
4,000	4,100	0.00	248.72	0.00	83.25	0.00	0.00	0.00	331.97	195.93	0.00	2	0	0		
4,100	4,200	0.00	256.76	0.00	0.00	0.00	0.00	0.00	256.76	272.85	0.00	0	0	0		
4,200	4,300	0.00	462.76	0.00	0.00	0.00	0.00	0.00	462.76	400.99	0.00	4	0	0		
4,300	4,400	0.00	311.63	0.00	0.00	0.00	0.00	0.00	311.63	287.97	0.00	1	0	0		
4,400	4,500	0.00	428.31	0.00	0.00	0.00	0.00	0.00	428.31	392.20	0.00	3	0	0		
4,500	4,600	0.00	341.54	0.00	0.00	0.00	0.00	0.00	341.54	293.15	0.00	1	0	0		
4,600	4,700	0.00	387.05	0.00	0.00	0.00	0.00	0.00	387.05	323.80	0.00	1	0	0		
4,700	4,800	0.00	516.40	0.00	0.00	0.00	0.00	0.00	516.40	378.71	0.00	1	0	0		
4,800	4,900	0.00	452.64	0.00	2.90	0.00	0.00	0.00	455.54	289.92	0.00	0	0	0		
4,900	5,000	0.00	243.22	0.00	0.00	0.00	0.00	0.00	243.22	418.42	0.00	2	0	0		
5,000	5,100	0.00	315.61	0.00	0.00	0.00	0.00	0.00	315.61	409.15	0.00	2	0	0		
5,100	5,200	0.00	223.46	0.00	0.00	0.00	0.00	0.00	223.46	374.13	0.00	0	0	0		
5,200	5,300	0.00	39.67	0.00	0.00	0.00	0.00	0.00	39.67	262.30	0.00	0	0	0		
5,300	5,400	0.00	17.47	0.00	1.21	0.00	0.00	0.00	18.68	344.24	0.00	0	0	0		
5,400	5,500	0.00	208.96	0.00	0.00	0.00	0.00	0.00	208.96	463.34	0.00	1	0	0		
5,500	5,600	0.00	164.21	0.00	0.00	0.00	0.00	0.00	164.21	263.64	0.00	1	0	0		
5,600	5,700	0.00	131.15	0.00	0.00	0.00	0.00	0.00	131.15	320.81	0.00	1	0	0		

1 x tree 10/6 20/8/2020 2 sm
 20/8/2020 2 sm 1 large
 14/3 Blade swept path.
 14/3



CRWF Aarons Pass Road Upgrade - Forecasted Ground Disturbance Summary

PCT 277 Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
 PCT 290 Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion

CHAINAGE (m)		Civil Disturbance (sqm)		Blade Swept (sqm)		Upgrade Completion (PCT 277)			Upgrade Completion (PCT 290)			Species/Relocation/Removal (non-removal within blade swept)			Blade swept pruning/select removal	Comments
From	To	PCT 277	PCT 290	PCT 277	PCT 290	Forecast	Actual	Delta	Forecast	Actual	Delta	HBT	Acacia	Pomaderris	Ecologist signoff	
11,400	11,500	0.00	113.05	0.00	27.87	0.00	0.00	0.00	140.92	195.16	54.24	2	0	0		
11,500	11,600	0.00	216.00	0.00	0.00	0.00	0.00	0.00	216.00	266.43	50.43	1	0	0	Chas 14/3	
11,600	11,700	0.00	399.84	0.00	0.00	0.00	0.00	0.00	399.84	342.62	-57.22	0	0	0		
11,700	11,800	0.00	183.64	0.00	0.00	0.00	0.00	0.00	183.64	107.72	-75.92	0	0	0		
11,800	11,900	0.00	71.09	0.00	0.00	0.00	0.00	0.00	71.09	232.54	161.45	1	0	0		
11,900	12,000	0.00	244.35	0.00	0.00	0.00	0.00	0.00	244.35	240.82	-3.53	2	0	0		
12,000	12,100	0.00	244.71	0.00	0.20	0.00	0.00	0.00	244.91	383.07	138.16	2	0	0		
12,100	12,200	0.00	37.60	0.00	0.00	0.00	0.00	0.00	37.60	326.04	288.44	2	0	0	Chas 14/3/2020 Sm trees	
12,200	12,300	0.00	436.77	0.00	0.00	0.00	0.00	0.00	436.77	336.53	-100.24	3	0	0		
12,300	12,400	0.00	409.91	0.00	69.94	0.00	0.00	0.00	479.85	260.31	-219.54	0	0	0		
12,400	12,500	0.00	575.75	0.00	80.44	0.00	0.00	0.00	656.19	329.50	-326.69	1	0	0		
12,500	12,600	0.00	190.90	0.00	0.00	0.00	0.00	0.00	190.90	215.84	24.94	4	0	0		
12,600	12,700	0.00	52.61	0.00	0.00	0.00	0.00	0.00	52.61	293.72	241.11	8	0	0		
12,700	12,800	0.00	119.52	0.00	0.00	0.00	0.00	0.00	119.52	249.23	129.71	2	0	0		
12,800	12,900	0.00	218.32	0.00	0.00	0.00	0.00	0.00	218.32	395.08	176.76	2	0	0		
12,900	13,000	0.00	165.20	0.00	0.00	0.00	0.00	0.00	165.20	268.47	103.27	1	0	0		
13,000	13,100	0.00	146.28	0.00	0.00	0.00	0.00	0.00	146.28	264.22	117.94	2	0	0		
13,100	13,200	0.00	272.39	0.00	0.00	0.00	0.00	0.00	272.39	177.33	-95.06	2	0	0		
13,200	13,300	0.00	288.02	0.00	0.00	0.00	0.00	0.00	288.02	318.61	30.59	3	0	0		
13,300	13,400	0.00	239.03	0.00	26.47	0.00	0.00	0.00	265.50	457.21	191.71	2	0	0		
13,400	13,500	0.00	466.81	0.00	0.03	0.00	0.00	0.00	466.84	438.46	-28.38	1	0	0	Chas 14/3/2020 Sm trees around Pomaderris	
13,500	13,600	0.00	182.28	0.00	279.75	0.00	0.00	0.00	462.03	249.70	-212.33	1	0	1(3)	X 11/6/2020 No HBT. 3 large trees removed n. stags around Pomaderris	
13,600	13,700	0.00	1188.82	0.00	18.18	0.00	0.00	0.00	1207.00	1051.15	-155.85	1	0	0		
13,700	13,800	0.00	488.41	0.00	0.00	0.00	0.00	0.00	488.41	353.93	-134.48	0	0	0		
13,800	13,900	0.00	211.33	0.00	0.00	0.00	0.00	0.00	211.33	244.22	32.89	2	0	0		
13,900	14,000	0.00	180.10	0.00	0.00	0.00	0.00	0.00	180.10	270.21	90.11	4	0	0		
14,000	14,100	0.00	284.59	0.00	0.00	0.00	0.00	0.00	284.59	442.39	157.80	3	0	0		
14,100	14,200	0.00	203.71	0.00	15.00	0.00	0.00	0.00	218.71	192.24	-26.47	1	0	0	X 11/6/2020 14/3/2020 Chas	
14,200	14,300	0.00	209.50	0.00	0.00	0.00	0.00	0.00	209.50	243.93	34.43	2	18(0)	0		
14,300	14,400	0.00	58.90	0.00	0.00	0.00	0.00	0.00	58.90	154.69	95.79	0	6(0)	0		
14,400	14,500	0.00	122.97	0.00	0.00	0.00	0.00	0.00	122.97	170.81	47.84	2	0	0	15/6/2020 No habitat trees	
14,500	14,600	0.00	183.57	0.00	0.00	0.00	0.00	0.00	183.57	138.48	-45.09	0	2(0)	0		
14,600	14,700	0.00	223.46	0.00	0.00	0.00	0.00	0.00	223.46	123.36	-100.10	1	0	0	Chas 14/3/2020	
14,700	14,800	0.00	104.22	0.00	0.00	0.00	0.00	0.00	104.22	108.72	4.50	2	0	0		
14,800	14,900	0.00	357.88	0.00	0.00	0.00	0.00	0.00	357.88	240.91	-116.97	3	0	0		
14,900	15,000	0.00	508.83	0.00	0.00	0.00	0.00	0.00	508.83	514.60	5.77	1	0	0		
15,000	15,100	0.00	202.17	0.00	66.84	0.00	0.00	0.00	269.01	256.19	-12.82	0	0	0	Chas 14/3/2020	
15,100	15,200	0.00	590.13	0.00	0.00	0.00	0.00	0.00	590.13	523.80	-66.33	0	0	0		
15,200	15,300	0.00	470.66	0.00	0.00	0.00	0.00	0.00	470.66	496.39	25.73	0	0	0		
15,300	15,400	0.00	306.65	0.00	0.00	0.00	0.00	0.00	306.65	438.80	132.15	0	0	0		
15,400	15,500	0.00	363.90	0.00	0.00	0.00	0.00	0.00	363.90	205.32	-158.58	4	0	0		
15,500	15,600	0.00	271.88	0.00	0.00	0.00	0.00	0.00	271.88	155.01	-116.87	4	0	0		
15,600	15,700	0.00	285.14	0.00	33.49	0.00	0.00	0.00	318.63	301.70	-16.93	4	0	0		
15,700	15,800	0.00	403.20	0.00	203.88	0.00	0.00	0.00	607.08	332.36	-274.72	6(1)	0	0	Chas 14/3/2020 2 trees 1 HBT Supervised on filling E civil.	
15,800	15,900	0.00	362.71	0.00	0.00	0.00	0.00	0.00	362.71	289.08	-73.63	1	0	0		
15,900	16,000	0.00	261.27	0.00	5.16	0.00	0.00	0.00	266.43	469.04	202.61	10	0	0		
16,000	16,100	0.00	480.41	0.00	15.35	0.00	0.00	0.00	495.76	494.69	-1.07	2	0	0	Chas 14/3/2020	
16,100	16,200	0.00	294.52	0.00	7.95	0.00	0.00	0.00	302.47	521.12	218.65	2	0	0		
16,200	16,300	0.00	597.65	0.00	7.41	0.00	0.00	0.00	605.06	588.69	-16.37	3	0	0		
16,300	16,400	0.00	632.26	0.00	0.00	0.00	0.00	0.00	632.26	817.35	185.09	1	0	0	Chas 14/3/2020	
16,400	16,500	0.00	435.40	0.00	0.00	0.00	0.00	0.00	435.40	330.40	-105.00	2	0	0		
16,500	16,600	0.00	342.61	0.00	0.00	0.00	0.00	0.00	342.61	246.38	-96.23	1	0	0		
16,600	16,700	121.18	217.07	7.04	27.95	128.22	66.10	-62.12	245.02	39.66	-205.36	2	0	0		
16,700	16,800	174.68	0.00	0.00	0.00	174.68	147.39	-27.29	0.00	0.00	-174.68	1	0	0	Chas 14/3/2020 Pruned overhanging branches	
16,800	16,900	344.67	0.00	0.00	0.00	344.67	293.64	-51.03	0.00	0.00	-344.67	2	0	0		
16,900	17,000	389.24	0.00	0.00	0.00	389.24	215.86	-173.38	0.00	0.00	-389.24	1	0	0		
17,000	17,100	379.32	0.00	0.00	0.00	379.32	320.83	-58.49	0.00	0.00	-379.32	0	0	0		



CRWF Aarons Pass Road Upgrade - Forecasted Ground Disturbance Summary

PCT 277 Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
PCT 290 Red Stringybark – Red Box – Long-leaved Box – Inland Scribbly Gum tussock grass shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion

CHAINAGE (m)		Civil Disturbance (sqm)		Blade Swept (sqm)		Upgrade Completion (PCT 277)			Upgrade Completion (PCT 290)			Specimen translocation / removal (non removal within blade swept)			Blade swept pruning/select removal	Comments
From	To	PCT 277	PCT 290	PCT 277	PCT 290	Forecast	Actual	Delta	Forecast	Actual	Delta	HBT	Acacia	Pomaderris	Ecologist signoff	
17,100	17,200	168.41	0.00	0.00	0.00	168.41	95.19	-73.23	0.00	0.00		0	0	0		
17,200	17,300	27.81	0.00	0.00	0.00	27.81	65.33	37.52	0.00	0.00		0	0	0		
17,300	17,400	293.72	0.00	0.00	0.00	293.72	74.61	-219.12	0.00	0.00		0	0	0		
17,400	17,500	798.75	0.00	0.00	0.00	798.75	167.66	-631.09	0.00	0.00		0	0	0		
17,500	17,600	457.52	0.00	0.00	0.00	457.52	27.66	-429.86	0.00	0.00		0	0	0		
17,600	17,700	17.26	0.00	0.00	0.00	17.26	0.00	-17.26	0.00	0.00		0	0	0		
17,700	17,800	209.19	0.00	0.00	0.00	209.19	67.36	-141.84	0.00	0.00		0	0	0		
17,800	17,900	53.18	0.00	0.00	0.00	53.18	25.75	-27.44	0.00	0.00		0	0	0		
17,900	18,000	306.21	0.00	0.00	0.00	306.21	286.20	-20.01	0.00	0.00		0	0	0		
18,000	18,100	295.41	0.00	0.00	0.00	295.41	136.04	-159.37	0.00	0.00		0	0	0		
18,100	18,200	138.95	0.00	0.09	0.00	139.05	102.30	-36.74	0.00	0.00		0	0	0		
18,200	18,300	313.84	0.00	4.08	0.00	317.92	132.43	-185.50	0.00	0.00		0	0	0		
18,300	18,400	332.36	0.00	0.00	0.00	332.36	158.64	-173.72	0.00	0.00		0	0	0		
18,400	18,500	285.57	0.00	0.00	0.00	285.57	101.27	-184.31	0.00	0.00		0	0	0		
18,500	18,600	558.47	0.00	0.00	0.00	558.47	376.50	-181.97	0.00	0.00		0	0	0		
18,600	18,700	323.73	0.00	0.00	0.00	323.73	175.00	-148.73	0.00	0.00		1	0	0		
18,700	18,800	104.89	0.00	0.00	0.00	104.89	109.42	4.52	0.00	0.00		0	0	0		
18,800	18,900	218.50	0.00	0.00	0.00	218.50	268.11	49.61	0.00	0.00		2	0	0		
18,900	19,000	386.78	0.00	0.00	0.00	386.78	293.92	-92.86	0.00	0.00		1	0	0		
19,000	19,100	121.87	0.00	0.00	0.00	121.87	43.74	-78.13	0.00	0.00		1	0	0		
19,100	19,200	361.34	0.00	0.00	0.00	361.34	305.27	-56.06	0.00	0.00		0	0	0		
19,200	19,300	162.22	0.00	0.00	0.00	162.22	174.63	12.41	0.00	0.00		2	0	0		
19,300	19,400	220.04	0.00	54.49	0.00	274.53	218.86	-55.67	0.00	0.00		3	0	0		
19,400	19,500	289.45	0.00	6.99	0.00	296.44	218.89	-77.55	0.00	0.00		0	0	0		
19,500	19,600	269.10	0.00	0.00	0.00	269.10	278.54	9.44	0.00	0.00		3	0	0		
19,600	19,700	216.57	0.00	0.00	0.00	216.57	74.39	-142.18	0.00	0.00		0	0	0		
19,700	19,800	65.37	0.00	5.36	0.00	70.73	28.13	-42.60	0.00	0.00		0	0	0		
19,800	19,900	264.99	0.00	5.37	0.00	270.36	108.86	-161.50	0.00	0.00		1	0	0		
19,900	20,000	122.85	0.00	0.57	0.00	123.42	110.14	-13.28	0.00	0.00		1	0	0		
20,000	20,100	196.12	0.00	12.05	0.00	208.17	54.38	-153.78	0.00	0.00		1	0	0		
20,100	20,200	74.84	0.00	0.04	0.00	74.88	190.08	115.20	0.00	0.00		2	0	0		
20,200	20,300															
20,300	20,400															
TOTALS		0.906	4.730	0.010	0.3086							302	47 [0]	1 [3]		

Vegetation Survey data not available. Designed as to not impact any trees.

