



## **NEW ACLAND COAL MINE**

# **CONSERVATION ZONE MONITORING AND REHABILITATION MONTHLY REPORT**

**OCTOBER 2023**

**Prepared for  
New Hope Group Pty Ltd**

**Biodiversity Assessment and Management Pty Ltd  
PO Box 1376  
CLEVELAND 4163  
November 2023**

**Specialised ecological knowledge that reduces your risk**

1 December 2023

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Dear Marnie,

**RE: Conservation Zone Monitoring and Rehabilitation Monthly Report – October 2023**

BAAM was commissioned by New Hope Group to monitor rehabilitation progress and undertake maintenance works in the Bottle Tree Hill and Lagoon Creek conservation zones at New Acland Coal Mine from June to December 2023. The following report describes the monitoring and rehabilitation activities undertaken during the October 2023 monitoring event, 30<sup>th</sup>-31<sup>st</sup> October.



Works during this period focused on the planting at Bottle Tree Hill and the completion of a drone survey over the Lagoon Creek corridor to inform on-going rehabilitation works.

Please do not hesitate to contact BAAM if you require further information.

Yours sincerely,



Emma Green  
**Project Ecologist**  
**Biodiversity Assessment and Management Pty Ltd**

File No	Author	Reviewer
0412-005f		

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## 1.0 CONSERVATION ZONE MONITORING

No monitoring was conducted at the NAC conservation zones in September as there had been no rehabilitation works undertaken during this period.

Monitoring during the October visit was limited to what was recorded at Bottle Tree Hill during planting works and roadside observations of stem injected *Opuntia* at the northern end of Lagoon Creek.

## 2.0 REHABILITATION AND MAINTENANCE WORKS UNDERTAKEN

### 2.1 WEED TREATMENT AT BOTTLE TREE HILL

Additional weed treatment works have been undertaken around the proposed planting site at the demolished houseblock on Bottle Tree Hill since the last visit in August. The non-native Thuja pines and Peppercorn trees have been felled and removed from site and previously sprayed shrubby weeds (of African Boxthorn, Cape Honeysuckle, Tecoma) have been mulched to ground-level (**Photo 1**). All weeds around the perimeter of the planting site appear to have been successfully killed.

### 2.2 LAGOON CREEK PRICKLY PEAR TREATMENT

On the 30<sup>th</sup> and 31<sup>st</sup> of August, BAAM commenced stem injection treatment of mature Prickly/Tree Pear along Lagoon Creek. Some treated individuals at the northern end of the Lagoon Creek conservation zone were observed whilst travelling to and from the NAC site and were noted to be in a state of distress, with the ends of the pads yellowing and beginning to decay, indicating that there has been successful uptake of herbicide. Additional follow-up monitoring will be required to determine if complete death is achieved.

### 2.3 CATTLE EXCLUSION FENCING

A surveyor has commenced pegging out the proposed cattle fencing alignment in the northern section of Lagoon Creek.

### 2.4 KOALA FENCING AROUND LAGOON CREEK CROSSING

Koala exclusion fencing has been installed around the at-grade haul road crossing to be constructed across Lagoon Creek near Acland-Silverleigh Road. The fencing is consistent with the recommended design described in the Koala Species Management Plan, which is to choreograph Koala movement towards the designated crossing point, and includes traditional chain-wire fencing with a strip of sheet metal attached on the non-road side of the fence and timber poles at 50m spacings to facilitate movement outside of the exclusion area (see **Photos 2 and 3**).



**Photo 1 Bottle Tree Hill planting area with woody weeds removed and planting beds.**



**Photo 2 Koala exclusion fencing near future haul road crossing**



**Photo 3 Koala exclusion fencing showing timber exit pole**

## 2.5 BOTTLE TREE HILL REVEGETATION

In early October, Murph Works was contracted by NAC to prepare the bare house pad at Bottle Tree Hill for planting. The works undertaken included the cultivation of longitudinal planting beds that were overlaid with barley straw. The estimated total area prepared for planting was determined to be about 345m<sup>2</sup>.

It was decided that an increased planting density of one shrub/tree species and one groundcover species per square metre should be used within the reduced planting space to compensate for potential failures in plant establishment and encourage the spread of native groundcovers into the bare areas between the planted rows.

Between 20-31<sup>st</sup> October, BAAM installed a total of 690 plants into the prepared planting beds, consisting of the following species:

- *Alphitonia excelsa* (tree) x 20.
- *Atalaya hemiglauca* (small tree) x 40.
- *Brachychiton rupestris* (tree) x 25.
- *Bursaria spinosa* (small tree) x 40.
- *Carissa spinarum* (shrub) x 60.
- *Cymbopogon refractus* (grass) x 100.
- *Dianella caerulea* (forb) x 40.
- *Ficus rubiginosa* (tree) x 20.
- *Flindersia australis* (tree) x 40.
- *Geijera parviflora* (large shrub) x 40.
- *Geijera salicifolia* (small tree) x 60.
- *Heteropogon contortus* (grass) x 80.
- *Themeda australis* (grass) x 125.

All plant stock was sourced from Wallum Nurseries and inspected for quality at pick-up. All seedlings appeared to be in excellent condition and adequately developed for planting. Planting was undertaken using speed spades with a granular native fertiliser and pre-soaked water crystals added during the installation to assist establishment. All plants were thoroughly watered-in following planting.

### **3.0 FUTURE REHABILITATION AND MAINTENANCE WORKS**

#### **3.1 BOTTLE TREE HILL REVEGETATION**

Due to the current hot and dry conditions at NAC, regular watering will be required at the Bottle Tree Hill planting to encourage successful plant establishment. The recommended watering schedule is given as follows:

- Week 1: daily.
- Week 2: at least every two days.
- Week 3: at least twice a week.
- Week 4 – 6: at least once per week.
- Week 6 – 8: at least once.
- Week 9 + as required (if desiccation is apparent).

Thorough watering of each plant (at least 1L) is required at each watering event. Dates of watering events and volume of water used should be recorded by NAC.

Plants were spaced as evenly as possible across the prepared rows; however, not enough plants remained at the end of the planting to fill the last row (northernmost row) and, as such, additional planting will be required to fill the remaining space, which may be conducted at the time of other infill planting if determined necessary through on-going monitoring.

Planting into the prepared beds was difficult due to the rocky substrate and the very thick layer (up to 30cm or more) of barley straw which had to be parted to access the soil beneath. There is concern that the current ground conditions and risk of smothering from the surrounding mulch may limit planting success. Should future planting be required between the planted rows, it is recommended that more thorough cultivation is conducted, or a layer of topsoil be installed to a minimum depth of 15cm across the planting area, and the addition of mulch be limited to a depth of 10cm.

In addition to ground-conditions being a concern for plant establishment, some grazing of plants occurred during the planting period. The leaves of some Bottle Tree and Bursaria saplings were chewed down to the stem, presumably by wallabies or hares. It is recommended that tree guards be installed to prevent further plant predation.

Weed maintenance works, requirements for infill planting and other vegetation management works will be determined through monthly monitoring conducted for the following six months.

#### **3.2 WEED AND EROSION CONTROL WORKS**

The on-going weed and erosion control works recommended for Lagoon Creek and Bottle Tree Hill are discussed in the August monitoring report.

### **4.0 DRONE SURVEY**

A drone survey was carried out across the Lagoon Creek conservation zone by BAAM's Chief Remote Pilot Adrian Caneris on the 30<sup>th</sup> – 31<sup>st</sup> October. The survey was undertaken to capture high quality aerial imagery of the Lagoon Creek corridor to determine rehabilitation



management requirements for all areas of the conservation zone. The imagery will allow for updated mapping of rehabilitation management zones which will include areas of previous revegetation, areas which still require revegetation works, and any significant weed infestations to be targeted for control.