

# Brandy Hill Quarry Expansion Targeted threatened flora survey

FINAL REPORT

Prepared for Hanson Construction Materials Pty Ltd

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- R W Corkery: Nick Warren
- NSW DPIE: Paul Hillier.

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- Sarah Allison (assistance in the field)
- Anne Murray (mapping)

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# 1 Introduction

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## 1.1 Background

Biosis Pty Ltd was commissioned to undertake a biodiversity assessment and prepare a Biodiversity Assessment Report (BAR) for the Brandy Hill Quarry (BHQ) Expansion project (the Project), to support the Project's Environmental Impact Statement (EIS). The Director General's Requirements (DGRs) (SSD 5899) for the Project were issued by the NSW Department of Planning, Infrastructure and Environment (DPIE) (Formerly the Department of Planning and Environment) on 9 July 2015.

The development has been declared a Controlled Action, following Referral to the Commonwealth Department of Environment and Energy, and as such the Project is also being assessed in accordance with the Bilateral Agreement between the NSW State government and the Commonwealth under section 45 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In October 2018, additional information regarding impacts to Commonwealth Matters of National Environmental Significance (MNES) was requested by DPIE and Biodiversity Conservation Division (BCD). These updates to the BAR, coincided with the inclusion of an additional 6.08 hectares of impacts by the Project, located along the southern boundary of the BHQ expansion area. An addendum to the BAR was written by Biosis in 2019, to assess this ecological impact of this additional area of expansion.

A Bilateral Assessment of EPBC Act threatened species was conducted by the Biodiversity and Conservation Division (BCD) of DPIE. As a result of the assessment, recommendations were made for the completion of additional targeted surveys for three species with the potential to occur within the BHQ expansion area reported in the final BAR addendum. These species include:

- Rusty Greenhood *Pterostylis chaetophora* (Vulnerable BC Act)
- Scrub Turpentine *Rhodamnia rubescens* (Critically Endangered BC Act).
- Native Guava *Rhodomyrtus psidioides* (Critically Endangered BC Act).

Targeted survey was undertaken for Rusty Greenhood throughout the original BHQ expansion area by Biosis in 2017, and as such only the additional area of impact (6.08 hectares) was subject to further targeted surveys for the species. The additional two species flagged within the Bilateral Assessment, Scrub Turpentine and Native Guava, are newly listed Critically Endangered species under the BC Act and were not included in the original impact assessment and targeted survey. At the time of issue (November 2016) neither species were listed under the BC Act.

Biosis Pty Ltd was commissioned by Hanson Construction Materials Pty Ltd (Hanson) to undertake the additional targeted surveys as required across either the entire BHQ expansion area (Scrub Turpentine and Native Guava), or solely within the expansion area (Rusty Greenhood).

## 1.2 Method

### 1.2.1 Database and literature review

Prior to completing the field investigation, information provided by Hanson as well as other key information was reviewed, including:

- BioNet Atlas of NSW Wildlife, for local populations and associated plant community types (PCT) for Rusty Greenhood, Scrub Turpentine and Native Guava (EES 2019).
- OEH profile for Rusty Greenhood, Scrub Turpentine and Native Guava including information related to flowering time and survey period for all species (OEH 2019).
- Saving our Species conservation project profile for Rusty Greenhood, in particular information related to Columbey National Park key management site (OEH 2015).
- NSW Guide to Surveying Threatened Plants (OEH 2016).
- Other field guides and published literature relating to the target species.

### 1.2.2 Liaison with agencies

Rusty Greenhood was listed as vulnerable under the BC Act in 2014, and little is known about its biology and ecology. To better inform the targeted surveys for this species Biosis contacted Paul Hillier (Senior Project Officer -Saving our Species, within BCD of the DPIE) for access to local population data, habitat requirements and information regarding biological diagnostic features. On the 14 October 2019 Tobias Scheid and Sarah Allison, accompanied Paul Hillier, visited a known local population of Rusty Greenhood within Columbey National Park which supported habitats similar to those present within the BHQ expansion area. This population was in peak flowering period and flowering individuals supporting habitat and key diagnostic features were observed in detail. This reference population survey ensured the targeted survey at BHQ expansion area could be conducted accurately and confirmed optimum flowering period for the species.

### 1.2.3 Survey design

Associated PCTs for Scrub Turpentine and Native Guava were extracted from BioNet data and mapped according to ground truthed vegetation mapping prepared in the consolidated BAR (Biosis 2019). These PCTs were subject to targeted survey in accordance with NSW Guidelines for Surveying Threatened Plants (OEH 2016), details are provided in below.

**Table 1 Threatened flora survey requirements**

| Threatened flora                                  | Associated PCT   | survey area (ha) | Survey requirements                | Survey period      |
|---|------------------|------------------|------------------------------------|--------------------|
| Rusty Greenhood<br><i>Pterostylis chaetophora</i> | 1600             | 6.08             | 10 metre spaced parallel transects | September-November |
| Scrub Turpentine<br><i>Rhodamnia rubescens</i>    | 1584             | 2.16             | 20 metre spaced parallel transects | All year           |
| Native Guava<br><i>Rhodomyrtus psidioides</i>     | 1584, 1598, 1718 | 4.5              | 20 metre spaced parallel transects | All year           |

Vegetation mapping showing PCT delineation is included in Figure 1, survey effort is shown in Figure 2.

#### **1.2.4 Field investigation**

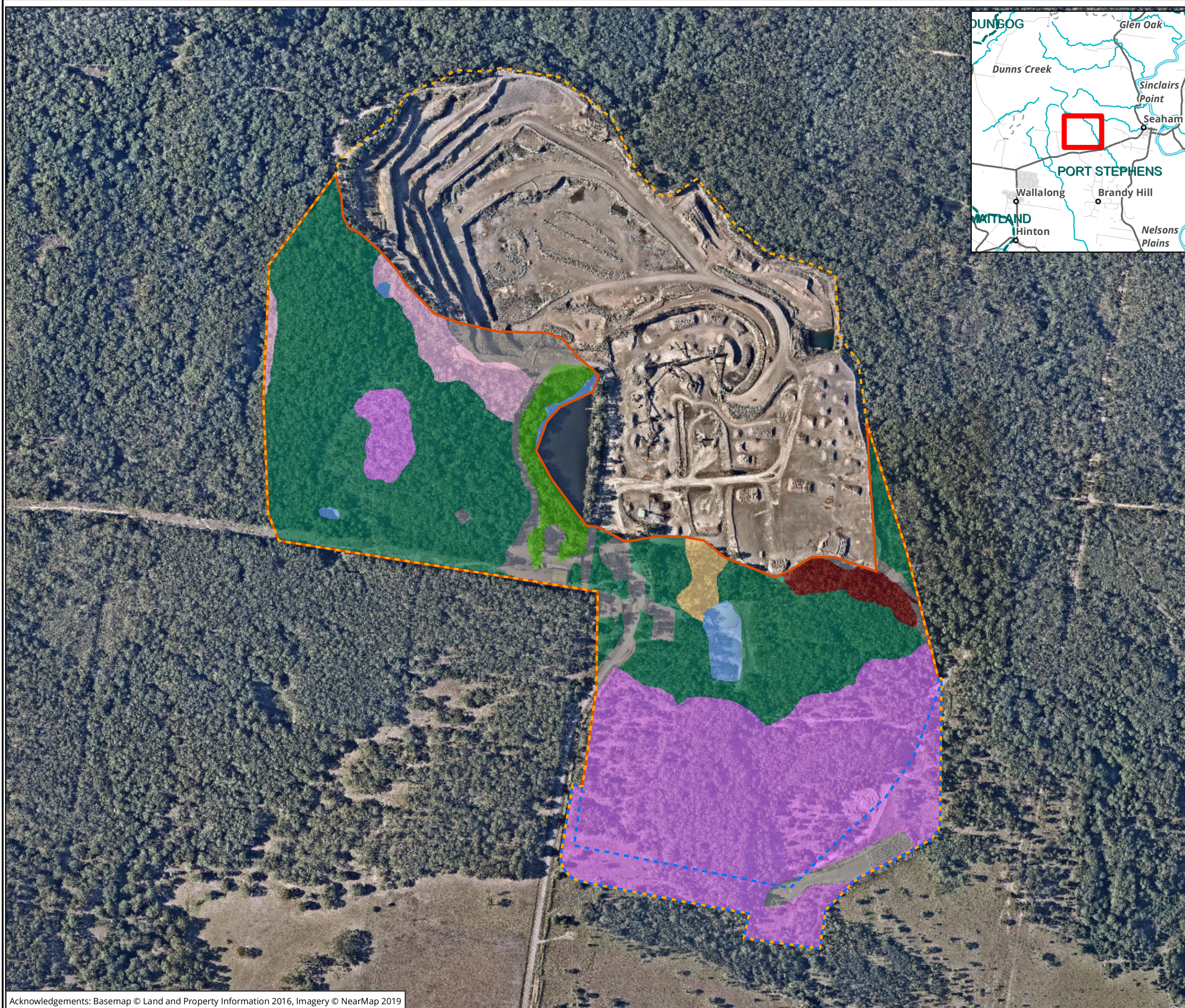
A field investigation was carried out by two experienced and qualified Ecologists on 15 October 2019 over an 8 hour period. Surveys design and implementation was overseen by Rebecca Dwyer (NSW Team Leader-Ecology), the Accredited Assessor of the Consolidated BAR (Biosis 2019). The survey was undertaken on a warm clear day with minimal cloud coverage and visibility for the survey was high.

As outlined above, surveys were conducted during optimal flowering period for Rusty Greenhood which was confirmed by visiting a nearby reference population in flower the previous day. Due to the conspicuous nature of Scrub Turpentine and Native Guava they are readily detectable all year round and did not require a specific survey period. All areas of potential habitat within the BHQ expansion area were surveyed and detailed in Table 1 and Figure 2.

Parallel transects (Cropper 1993) were utilised to survey the site at a maximum width of 10 metres for Rusty Green Hood and 40 metres for Scrub Turpentine and Native Guava. Due to the presence of stockpiles and deep excavations and variability of the landscape transects were often recorded at closer intervals than required.

Mapping in the field was conducted using hand-held (uncorrected) GPS units (GDA94), mobile tablet computers running Collector for ArcGIS™ and aerial photo interpretation. The accuracy of this mapping is therefore subject to the accuracy of the GPS units (generally  $\pm 7$  metres) and dependent on the limitations of aerial photo rectification and registration. Prior to field investigation, parallel transects were overlaid on top of aerial photography (NearMap dated 3 February 2019) on the ArcGIS Collector project, over the entire area subject to targeted survey.





#### Legend

- Study area
- Project area
- Expansion of quarry

#### Plant Community Types

- VZ1 - HU814 Spotted Gum - Red Ironbark - Narrow-leaved Ironbark - Grey Box shrub-grass open forest of the lower Hunter (PCT 1600)
- VZ2 - HU816 Spotted Gum - Narrow-leaved Ironbark shrub - grass open forest of the central and lower Hunter (PCT 1602)
- VZ3 - HU932 Swamp Mahogany - Flax-leaved Paperbark swamp forest on coastal lowlands of the Central Coast (PCT1718)
- VZ4 - HU806 Spotted Gum - Red Ironbark - Grey Gum shrub - grass open forest of the Lower Hunter (PCT 1592)
- VZ5 - HU812 Forest Red Gum grassy open forest on floodplains of the Lower Hunter (PCT 1598)
- VZ6 - HU798 White Mahogany - Spotted Gum - Grey Myrtle semi-mesic shrubby open forest of the central and lower Hunter Valley (PCT 1584)
- Cleared
- Water

**Figure 1 Ecological features of the study area**

0 100 200 300

Metres

Scale: 1:6,000 @ A3

Coordinate System: GDA 1994 MGA Zone 56

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Matter: 30836  
Date: 31 October 2019,  
Checked by: TPS, Drawn by: AEDM, Last edited by: amurray  
Location: P:\30800s\30836\Mapping\30836\_F1\_Ecofeatures





**Legend**

- Study area
- Project area
- Expansion of quarry
- Survey tracks (15/10/2019)

**Survey**

- Survey for Native Guava
- Survey for Rusty Greenhood
- Survey for Scrub Turpentine and Native Guava

0 100 200 300  
Metres

Scale: 1:6,000 @ A3  
Coordinate System: GDA 1994 MGA Zone 56

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## 2 Results and conclusion

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The threatened species survey is consistent with recommendations made by the BCD, in reference to a review of Amended Response to Submissions – Brandy Hill Expansion Project, (DOC19/870253-4 dated 17 October 2019).

Surveys were comprehensive and covered all area of potential habitat for the targeted species. Surveys were undertaken during the optimal survey period, and no Rusty Greenhood, Scrub Turpentine or Native Guava were recorded within the BHQ expansion area. The Project is therefore not expected to impact on these species. No further assessment will be required to be undertaken for this species.

On the basis of survey outcomes, the offsetting obligations of the Brandy Hill Expansion Project (SSD 5899) will not change.



### 3 References

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