



1 July 2019

Mr Howard Reed
Director
Resource Assessments
NSW Department of Planning & Environment
Level 22, 320 Pitt Street
SYDNEY NSW 2000

Attention: Ms Melissa Anderson

Dear Howard

Re: Austen Quarry (SSD 6084) Modification 2 – Response to Blue Mountains City Council

Thank you for providing notification of the submissions received following Government agency review of the proposed Modification 2 application for SSD 6084 and the ongoing operation of the Austen Quarry. Hy-Tec notes the concern of Blue Mountains City Council (Council) regarding visual amenity as has been expressed by Council in feedback to applications for the Austen Quarry in the past. The Council comment is provided below.

The Council's only comments refer to the clearing of vegetation. In particular, it is noted that the quarry is located on the outskirts of the Greater Blue Mountains World Heritage Area and is visible from vantage points on the Blue Mountains Escarpment within the Blue Mountains Local Government Area. The reduction of the visual amenity of the landscape is an important aspect that needs to be addressed. With the proposed changes to the boundaries, any changed effects to the visual amenity needs to be considered. The expediting of the revegetation plan is essential.

Given the feedback received from Council in the past and Hy-Tec's commitment to operating in an environmentally responsible manner, Hy-Tec already takes measures to limit views of the Quarry. However, as the proposed modifications would not significantly change the view of the Quarry from any vantage points (especially those between Mount Victoria and Katoomba), it is not proposed that the modification be modified or limited in response.

Measures currently undertaken by Hy-Tec to limit views of the Quarry include the following.

- Retaining the ridge on the northern side of the Quarry to shield operations.
- Applying a bitumen spray on terminal benches to darken the appearance of these from distant viewpoints.
- Prioritising revegetation in areas visible from nearby vantage points.

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The final action relates to Council's comment regarding expediting revegetation. In fact, Hy-Tec completed another round of revegetation activities in April 2019 involving planting of approximately 790 plants. Plants were targeted to terminal benches, the existing overburden emplacement and other rehabilitating areas. A report on the outcomes of this planting is provided as **Attachment 1**. To date, Hy-Tec estimates that in excess of 10 000 plants have been planted in the revegetation program, including 3 000 in the last 12 months. This revegetation has also included more than 4 000 seedlings of the threatened Silver-Leaved Mountain Gum, grown from seed collected on-site.

I trust Hy-Tec's ongoing commitment to progressive revegetation will satisfy the concerns of Council. Please contact myself, Amanda Croker or Darryl Thiedeke with any further questions.

Yours sincerely



Nick Warren
Principal Environmental Consultant

Encls: Attachment 1 – Hy-Tec Austen Quarry Autumn Revegetation 2019 – prepared by Landworks.

Copy: Hy-Tec

Hy-Tec Austen Quarry Autumn Revegetation 2019

Ground work completed in April, May & June of 2019

Scope

Skillset Workforce Land Works were engaged by Hy-Tec Austen Quarry at Hartley to install 790 plants during the 2019 Autumn planting season. All plants were grown at Lithgow District Community Nursery using local provenance seed. The planting plan included the installation of 290 mixed tubestock at the Quarry Sill Highway Site, 80 mixed tubestock at the Screening Area 1, and 420 tubestock at the upper section of the Overburden site. The works were completed adjacent to a previous planting project completed at the lower end in Autumn 2018. An inspection of the previous year's planting noted that the vast majority of plants are still alive and are growing well in the area.

Method

Experienced and qualified bush regeneration and ecology staff implemented revegetation activities to meet the Austen Quarry revegetation requirements. Revegetation using native tube stock was completed in Autumn to ensure that seedlings had enough time to establish before winter with future planting planned to take place in early spring 2019. Revegetation planning should also take into account short and long-term rainfall and temperature forecasts.

Land Works crews established the project site and marked out planting locations using hardwood stakes and flagging tape. As the site being planted had been pre-ripped, plants were planted in rows rather than random distribution as had been done on other sites on the quarry. Holes were dug using an auger or shovel with a depth such that plants are 50mm below ground level. Any glazing of surrounding soil during the auguring process were broken or disturbed to ensure that plants didn't encounter hard compressed clods of soil. Water crystals, mycorrhiza fungi and 1 native fertiliser tablet were mixed into the soil at the bottom of the hole. Lower branches of the seedling were trimmed or removed if deemed necessary. The plant was gently removed from its container, placed into the hole and backfilled with softer soil; any clods or large rocks were left out of the backfill to avoid the creation of air pockets. Once planted, surrounding soil was smoothed out into a compressed dish shape so that water will pool around the stem of the plant and soak deep into the soil. Tree tonic solution was mixed with 5 litres of water and applied to each plant.

It was noted that planting tubestock in June is later in the season than normally advised. In addition, the area has been experiencing significant drought in recent months which had left the soil in the area very dry. After reviewing the site and considering all variables, it was decided to progress with the planting based on the following rationale: 1) the soil in the planting area was of very high quality and highly suited to the species being planted. 2) the plants going into the site were older, more mature tubestock that are more tolerant to cold weather and frost. 3) previous year's planting in the same location with the same species showed a high level of survival and growth rate. 4) use of water crystals and watering in plants when they are planted ensures tubestock has a high chance of surviving in drought stress conditions (at least until soil moisture improves with winter/spring rains).

Tree guards and weed mats were installed on all tubestock plants. Maintenance and watering of revegetation should be completed monthly if conditions are preferable, during extended dry periods it is advised plants are watered fortnightly. Weeds within and around guards should be controlled to minimise competition and increase seedling growth rate.

Results

Two hundred and ninety (290) mixed species were planted along the Quarry Sill Highwall Site, species included *Eucalyptus pulverulenta*, *Eucalyptus mannifera*, *Eucalyptus dives*, *Eucalyptus bridgesiana*, *Acacia falciformis*, and *Acacia dealbata*. This corridor planting will rehabilitate a previously quarried area with local provenance species providing habitat, soil stabilisation, and nutrient cycling. This planting will also provide a visual screen.



Eighty (80) mixed species were planted along the northern ridge line. species included *Eucalyptus pulverulenta*, *Eucalyptus mannifera*, *Eucalyptus dives*, *Eucalyptus bridgesiana*, *Acacia falciformis*, and *Acacia dealbata*.



Four hundred and twenty (420) *Eucalyptus pulverulenta* were planted on rip lines on the overburden site. The planting will connect existing remnant vegetation while providing structural soil stability.



In addition, this offset planting will provide a host of ecosystem services including but not limited to: flora and fauna habitat, soil stabilisation, nutrient cycling and carbon sequestration. This planting will also help preserve the local *Eucalyptus pulverulenta* threatened species population.



Conclusion

The 2019 Autumn planting session at HyTec was successful with all plants being installed with the Land Works methodology. All tubestock were in good health when planted and with consistent watering, maintenance and monitoring should establish well and provide considerable habitat and ecosystem services. Success of previous year's planting gives a strong indication that planting methodology is appropriate for the local quarry conditions and climate.

A revegetation condition assessment methodology has been developed by Skillset Workforce Land Works to accurately score the health condition of individual plants. This methodology will be implemented at HyTec Austen Quarry Hartley to assess the success of all revegetation sites. The collection of plant condition data will allow Land Works to understand how plants are responding to planting methodology and how to best maintain them. The assessment also picks up specific influences and impacts (browsing, frost, dehydration, nutrient deficiency, and soil composition) that may cause a reduced health/condition score. Plants are rated 3 for healthy, 2 for moderately healthy, 1 for stressed and 0 for dead. This method allows an index calculation for individual species and the entire site which will be tracked over the life of the revegetation contract. It will allow Austen Quarry and Land Works to gain greater understanding of how species and revegetation sites are responding every six months. An assessment of the Autumn 2019 planting can be completed if requested by Austen Quarry.

To date, Land Works have installed 3020 plants for Hy-tec Hartley Quarry as part of their revegetation and rehabilitation program.

Thomas Staff (Manager of Land Works)

B Sci (Hons), BA Land Arch, & B Env Sci

A handwritten signature in black ink, appearing to be 'TS', written over a faint horizontal line.

13/06/2019