

Annexure 4

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Annexure 4: Annual Rehabilitation Assessment Report



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*T*oeppers
*R*ehabilitation
*E*nvironmental &
*E*cological
*S*ervices P/L

A.C.N. 074 648 712

CALGA SAND QUARRY
Peats Ridge Road, CALGA

ANNUAL REHABILITATION ASSESSMENT REPORT

JUNE 2009

Prepared for



Prepared by

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1. Introduction

Instructions

Rocla Quarry Products has instructed T.R.E.E.S. P/L to review and report on the progress of ongoing rehabilitation strategies implemented at the Calga Sand Quarry at 151 Peats Ridge Road, Calga.

This report should be read in conjunction with previous reports prepared by T.R.E.E.S. P/L with regard to revegetation proposals and progress:

- Hydroseeding recommendations - January 2006
- Annual Environmental Review - January 2007

Scope of Annual Rehabilitation Assessment Report

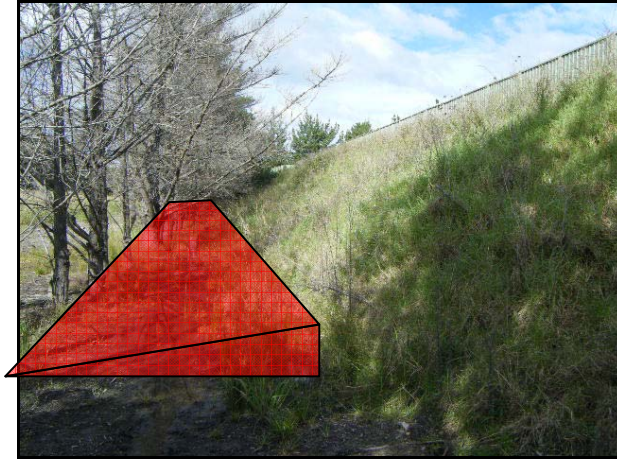
The predominant focus of this report is:

- Sediment containment within the working quarry
- Design and stability of overland drainage structures on the quarry perimeter
- Assessment of the revegetation works on the acoustic bund on the northern perimeter.



2. Site Assessment

Site Entrance and Eastern Acoustic Bund



Since the formation of the bund wall in 2006, run-off from Peats Ridge Road has been diverted by the bund in a northerly direction to the formalised perimeter drain. The low gradient has caused water to pond altering the soil conditions leading to dieback of the previously established Radiata Pine trees. The affected stand of trees are losing branch segments and are exhibiting signs of being unstable, requiring their removal in the near future.

The eastern batter of the bund is heavily colonised by kikuyu, interspersed with several weed species. The bund formation is stable with no visible signs of erosion, scouring or slump. A temporary spill drain has been formed adjacent to the site entrance, allowing road run-on into the quarry grounds. The drain is to be de-commissioned and backfilled to maintain flows in a northerly direction to the existing perimeter drain.

The recommendations for this area are:

- The affected pine trees are to be removed, and following this, a graded amount of fill could be placed from the lower bund wall to the front boundary to prevent road run-off ponding at the base of the bund and saturating soils.(Depicted above)
- The placed soil should be stabilised with surface protection such as forest/tub ground mulch or similiar and selectively planted with moisture tolerant indigenous shrub and tree species. (Species to be determined)

- In the longer term, the bund wall should be selectively planted with vigorous indigenous shrubs to 'shade out' the kikuyu.

North Eastern Acoustic Bund and Perimeter Drain



The bund wall was noted to have areas of slump or scouring in isolated areas from previous severe weather events prior to the establishment of significant canopy species. The perimeter drain was also noted to have several areas of minor wall slumping.

The bund batter is primarily colonised by various grasses interspersed with weed outbreaks.

The top of the bund formation is relatively level and of varying width. The level areas resisted seed/seedling loss during past severe weather events and many areas are heavily colonised with acacia species providing a canopy cover interspersed with healthy indigenous species such as banksia and lomandra. The areas of vigorous growth have 'shaded out' invasive weed and grasses, and indigenous grasses are persisting in these areas.

The recommendations for this area are:

- Remove slumped soils from within the drain to remove impediment to flows and promote maximum drainage from the north-eastern perimeter and site entrance
- Continue to monitor the drain wall at the base of the bund following heavy rainfall events to ensure in the unlikely event of further soil slump, remedial action can be undertaken in a timely manner
- Discourage any unnecessary disturbance of the revegetated areas, particularly the level top portion of the bund.

- Selective weed control is not required at present as the indigenous canopy species are dominating higher areas and should progressively colonise down slope areas.

Northern Acoustic bund and fill area.



Following the formation of the bund wall in 2006, run-off from upslope areas tended to pond due to the low gradient of the area. The issue was addressed to minimise nuisance to the adjoining private property. A further quantity of topsoil fill was imported to backfill the low lying area and the perimeter drain was reformed to improve drainage and reduce soil saturation.

The backfilled area has been subsequently been lightly timber mulched and hydroseeded with a similar blend of cover crops and indigenous species. The cover crop appears to have had poor germination rates and establishment is patchy.

Established indigenous seedlings were observed at a consistent density with smaller unidentifiable native growth evident. A larger variety of germinated indigenous species was noted when compared to the eastern areas. In time, the area should be predominantly colonised by indigenous species, and particularly the Acacia species initially.

The recommendations for this area are:

- Discourage any unnecessary disturbance of the stabilised areas
- Selective weed control could be undertaken to reduce competition between native seedlings and exotic species. (The level of weed infestation is low and presents an opportunity to frustrate their establishment in this area. Note the adjoining private property is infested with weed and invasive grasses at the boundary with the area) Care should be taken to only treat identified weeds and refrain from spraying any growth not adequately identified.

Western Acoustic bund and perimeter drain

The western bund wall was noted to have areas of slump or scouring in isolated areas from previous severe weather events prior to the establishment of significant canopy species. The perimeter drain was also noted to have scoured at the base to the underlying sandstone with several areas of minor wall slumping observed.

The area has a westerly aspect and is generally subjected to harsher climatic conditions such as dry winds and afternoon sun. The conditions are less favourable for seedling establishment and overall growth rates than for the eastern areas.

The bund batter is primarily colonised by various exotic grasses interspersed with weed outbreaks. The adjoining private property has uncontrolled areas of weed and pasture grasses (Crofton Weed, Pampas Grass, Stinky Roger, Whisky Grass, Kikuyu, etc) providing an ongoing opportunity for vectors to infest this area, making weed suppression difficult. The batter areas are at a significant disadvantage compared to other areas with regard to micro-climate and weed control.

Comparative views looking South - West



January 2007

June 2009



Western Acoustic bund and perimeter drain - Continued

The top of the bund formation is relatively level, of varying width, with a gentle grade in a south-westerly direction. The area is colonising in places with indigenous species providing an intermittent canopy cover interspersed with occasional indigenous species such as banksia and lomandra. The areas of vigorous growth are beginning to 'shade out' invasive weed and grasses, and indigenous grasses are establishing.

Comparative view looking North - East



January 2007

June 2009

The recommendations for this area are:

- Continue to monitor the drain wall at the base of the bund following heavy rainfall events to ensure in the event of any further soil slumping, remedial action can be undertaken in a timely manner
- Discourage any unnecessary disturbance of the revegetated areas, particularly the level top of the bund.



- Selective weed control could be applied in a broadscale manner on areas immediately adjoining the quarry boundary near the perimeter drain to minimise the ingress of weeds from the adjoining property.

View of batters looking Northerly and Southerly direction - June 2009



Inner Acoustic Bund batter

The inner bund wall was noted to have resisted erosion or scouring generally. The vegetation growth is dominated by Kikuyu, interspersed with Acacia at irregular intervals. The present diversity of indigenous species is poor. The rapid establishment of Kikuyu may have prevented germination or establishment of some species.

Further rehabilitation in regards to vegetation diversity in the area should be addressed at the cessation of extractive activities in this sector of the quarry.



View of inner western bund.

Lower Containment/Treatment Dams



Alternate views of lower containment dam and surrounds

The surrounds of the main water containment/treatment dams remain subject to potential disturbance from quarry activities. The dam surrounds and lower perimeter are generally colonised by a variety of indigenous species with greater diversity than other quarry sectors. Weed outbreaks are scarce and well contained.

The visual appearance of water quality in the dams was good and turbidity was low, despite recent ongoing wet weather. The drainage lines from the existing quarry workings have scoured to the shallow underlying sandstone, however, further scouring will be minimal due to the erosion resistance from the stone.

Other formalised drainage lines and detention structures in the area were inspected and found to be well maintained with small amounts of deposited sediment observed.



Views of lower drainage lines and sediment detention structure.



Conclusion

The rehabilitation progress review confirms the revegetation and stabilisation strategy for the northern acoustic bund area has been challenged in some areas from damage sustained from past extreme rainfall events in 2007/08, due to soil slumping and seed/seedling loss.

Despite the unfavourable climate and conditions for seedling establishment, the hardy indigenous species are now well established with a healthy appearance. The slower germination and growth rates of other native species lessens their visual presence, but at the density observed should ensure a diverse understory when the Acacia mature and thin out.

Weed suppression is not required in the established bund wall areas as indigenous growth is effectively 'shading out' weeds and exotic grasses as the Acacia canopy extends down slope. Selective weed spraying in the areas identified may be more effective if undertaken soon, during the remaining winter months.

Internal drainage management is satisfactory, with no evidence of major sediment loss to off-site areas, and drainage structures appear to function adequately.

Please contact the writer if you have any further enquiries.



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Annexure 5

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**Annexure 5: Community Consultative Committee
Meeting Minutes**



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Item 3 Non Compliances

There were none raised.

Item 4 Noise Monitoring

Two attended noise monitoring stations were set up for compliance monitoring in January 2008 and March 2008. The results indicated compliance.

Unattended noise monitoring were set up from 28 February 2008 to 6 March 2008, as a result of noise complaint from Walkabout Park about low pitch vibration from Quarry which started before Christmas. Relocation of wash plant may overcome problem. The relocation will occur in the next 12-18 months.

Outcome of monitoring – no results as yet Gerald and Terry will be provided with results when available.

Item 5 Acoustic Bund Wall

Acoustic Bund wall has been rehabilitated after it was damaged by rain. Surface water drain has been reconstructed due to slumping from storm in June. Now works well.

Rehabilitation near gate at exit required due to ponding which has killed trees. Area being mulched. The area on the level northern part of the site near bund wall and along road has to be relevelled to prevent ponding.

Item 6 Annual groundwater review

Underway, should be ready in the next few weeks.



Item 7 Monthly Reports

The Monthly Reports were reviewed by Rocla and nothing was raised – up to date with compliance.

Consent requires quarterly testing and monitoring but testing is being done on a monthly basis to get additional data. Rocla is now monitoring incoming water to benchmark water quality entering site. Will continue monthly monitoring for at least 12 more months.

General Business

Annual Environmental Management report will be completed soon and will be available on Web. Will start first three (3) year Audit at the end of this Annual Report. Auditor has been selected but needs sign off from NSW Planning before work can commence.

NSW Planning Website has a copy of information about Silicosis. In relation to the risk of Silicosis the Quarry is regulated by Occupational Health & Safety Act, Mines Act and POEO Act.

To ensure compliance with these Acts monitoring and testing is carried out on the site and on staff working in the Quarry.

Paul will deal with access for bikes. Gerald requested that bushfire risk from the 5 acre block adjacent to Walkabout Park be addressed. Fire Permit lapsed in October 2007. Needs to resubmit to get permit. Pat and Paul to chase up.

New dozer has been purchased. It is smaller and more efficient.

Meeting Closed at 6.30pm

Next Meeting

Monday, 18 August 2008 at 5pm to be held at Rocla Quarry



Item 2 Non Compliances

One non-compliance raised in relation to quality of stormwater. The elevated level may be caused by runoff from the road. The inflow from the road will be tested in the future to determine if this is the case.

Item 3 Noise Monitoring

There had only been one noise complaint since previous meeting. Pat advised that the low rumbling noise was investigated which has resulted in the reject chute being rubber lined to inhibit the rock fall noise. The investigation indicated that the plant was not operating at time of the complaint. Noise may be coming from work from another site. (Calga Village).

Item 4 Department of Planning Review of Existing Quarries

An expert panel has been engaged by the Department of Planning to investigate and test all affects that quarries have on surrounding areas particularly the groundwater and dust generated from the site and blown to adjacent areas. Dust on the Rocla site has been monitored by three (3) high volume samplers, (1 on back of bulldozer and 2 on dump truck). The results were well below Australian Standard minimum.

Item 5 Annual Environmental Report

Pat advised that the Annual Report for last year should be available on the web next week. He suggested that hard copies of the summary report be distributed with the minutes. Tony Tuxworth to organise copies which will be distributed with Minutes.

The Reports that accompany the main report are available on the web site or can be viewed at the Quarry.

Item 6 Review of Environmental Management Reports

Alex advised that there were some dust readings recorded in June but were disregarded as it was thought that the readings were due to either bird droppings or plant matter contaminating the dust monitors.



Rehabilitation of batters to the north of the extraction area has been completed. The areas that hold water have been filled and replanted with native vegetation to protect the ground.

The relocation of the Wash Plant may not happen for 2 – 3 years due to the reduced demand. A large amount of reject material is being produced from the crusher. Pat advised that the acquisition of a new crusher (jaw-type) to aid in reducing reject material.

Environmental Impact Statement – Sth Extension

Still waiting on the Report from the Consultants made since last meeting - may be completed early in 2009. The Committee will be advised when complete. The EIS will be discussed with all adjoining land owners when complete.

No more additional dust monitoring to be carried out at this stage. People working on site will continue to wear personal dust monitors.

OH & S Regulation relating to quarries coming into effect on 1 September 2008. The Regulation has a lot of new procedures particularly relating to dust monitoring.

Pat stated that no health issues from this type of quarry have been recorded.

Meeting closed 6.45pm

Next Meeting 16 March 2009

