



# Aus 10 Rhyolite Pty Limited

ABN: 90 002 325 144



## 2017 Annual Review

for the

## Tinda Creek Quarry



*Prepared by:*

**R.W. CORKERY & CO. PTY. LIMITED**

April 2018

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# Aus 10 Rhyolite Pty Limited

ABN: 90 002 325 144

## 2017 Annual Review

for the

## Tinda Creek Quarry

Period: 1 January 2017 to 31 December 2017

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**Prepared for:**

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Ref No. 980/03

April 2018



R.W. CORKERY & CO. PTY. LIMITED

**Table 1**  
**Title Block**

<b>Name of operation</b>	Tinda Creek Sand Quarry
<b>Name of operator</b>	Aus 10 Rhyolite Pty Limited t/a Hy-Tec Concrete and Aggregates
<b>Development consent / project approval #</b>	SSD_4978
<b>Name of holder of development consent / project approval</b>	Aus 10 Rhyolite Pty Ltd
<b>Mining Lease #</b>	No Mining Lease applicable to site under <i>Mining Act</i> (1992).
<b>Name of holder of mining lease</b>	N/A
<b>Water licence #</b>	WAL 24367 / WAL 24381
<b>Name of holder of water licence</b>	Aus 10 Rhyolite Pty Ltd
<b>MOP/RMP start date</b>	N/A
<b>MOP/RMP end date</b>	N/A
<b>Annual Review start date</b>	1 January 2017
<b>Annual Review end date</b>	31 January 2017
<p><b>I, Darryl Thiedeke, certify that this audit report is a true and accurate record of the compliance status of the Tinda Creek Quarry for the period 1 January 2017 to 31 December 2017 and that I am authorised to make this statement of behalf of Aus 10 Rhyolite Pty Limited.</b></p> <p><i>Note.</i></p> <p>a) <i>The Annual Review is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000.</i></p> <p>b) <i>The Crimes Act 1900 contains other offences relating to false and misleading information: Section 192G (Intention to defraud by false or misleading statement – maximum penalty 5 years imprisonment); Section 307A, 307B and 307C (false or misleading application/information/documents – maximum penalty 2 years imprisonment or \$22,000, or both).</i></p>	
<b>Name of authorised reporting officer</b>	Darryl Thiedeke
<b>Title of authorised reporting officer</b>	National Planning and Development Manager
<b>Signature of authorised reporting officer</b>	
<b>Date</b>	6 April 2018

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## **LIST OF ACRONYMS**

AHD	Australian Height Datum
ARI	Average Recurrence Interval
CCC	Community Consultative Committee
DPE	Department of Planning and Environment
EP&A Act	Environmental Planning and Assessment Act 1979
EPA	Environment Protection Authority
EPL	Environment Protection License
PM	Particulate Matter
RWC	R.W. Corkery and Co. Pty Limited
TSP	Total Suspended Particulates
WAL	Water Access Licence



# 1. STATEMENT OF COMPLIANCE

**Table 2**  
**Statement of Compliance**

Were all conditions of the relevant approval(s) complied with?	Yes / No
DC # SSD_4978	No
EPL # 12007	Yes

**Table 3**  
**Non-compliances**

Page 1 of 2

Relevant Approval	Condition #	Condition Description (summary)	Compliance Status	Comment	Where Addressed in Annual Review
SSD 4978	2 (2)	This condition relates to operation of the Quarry in accordance with the conditions of consent	Administrative	Three non-compliance issues were identified during the reporting period as detailed in this table.	See below
SSD 4978	3 (30)	This condition relates to waste management.	Low (historic)	During a site inspection by officers of DPE on 6 June 2017, it was identified that equipment and other materials stored within the southeast corner of the Quarry Site constituted a breach of Condition 3(30) of SSD_4978 in relation to waste management at the Quarry. The material was subsequently removed by Hy-Tec and the Company entered into a voluntary undertaking with the DPE regarding revegetation in this area.	Section 6.7
SSD 4978	5 (1)	This condition requires Hy-Tec to prepare and implement an Environmental Management Strategy.	Low	During a site inspection in June 2017, DPE noted that the clean water diversion drain had not been constructed and maintained in accordance with the approved condition.	Section 11.4
SSD 4978	5 (10)	This condition relates to the Independent Environmental Audit	Administrative	On 27 October 2017, the DPE sent correspondence about late submission of Hy-Tec's response to the independent environmental audit of the development. On 8 November 2017, Hy-Tec submitted its response to the independent audit.	Section 11.4

**Table 3 (Cont'd)  
Non-compliances**

Page 2 of 2

Relevant Approval	Condition #	Condition Description (summary)	Compliance Status	Comment	Where Addressed in Annual Review
SSD 4978	5 (11)	Hy-Tec must make requested documents available from the Company website. This includes a complaint register, that is to be updated monthly.	Administrative	This non-compliance was raised by DPE in correspondence dated 30 October 2017. The issue related to a complaint received from a member of the community that historic complaints made by this person had not been included in the complaints register. It should be noted that the complaints were not received during the reporting period. Hy-Tec updated the complaints register to record these complaints in January 2018.	Section 11.4

**Compliance Status Key**

Risk level	Colour code	Description
High	Non-compliant	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence.
Medium	Non-compliant	Non-compliance with: <ul style="list-style-type: none"> <li>potential for serious environmental consequences, but is unlikely to occur; or</li> <li>potential for moderate environmental consequences but is likely to occur.</li> </ul>
Low	Non-compliant	Non-compliance with: <ul style="list-style-type: none"> <li>potential for moderate environmental consequences, but is unlikely to occur; or</li> <li>potential for low environmental consequences but is likely to occur.</li> </ul>
Administrative non-compliance	Non-compliant	Only to be applied where the non-compliance does not result in any risk of environmental harm (e.g. submitting a report to government later than required under approval conditions).

## 2. INTRODUCTION

### 2.1 SCOPE AND FORMAT

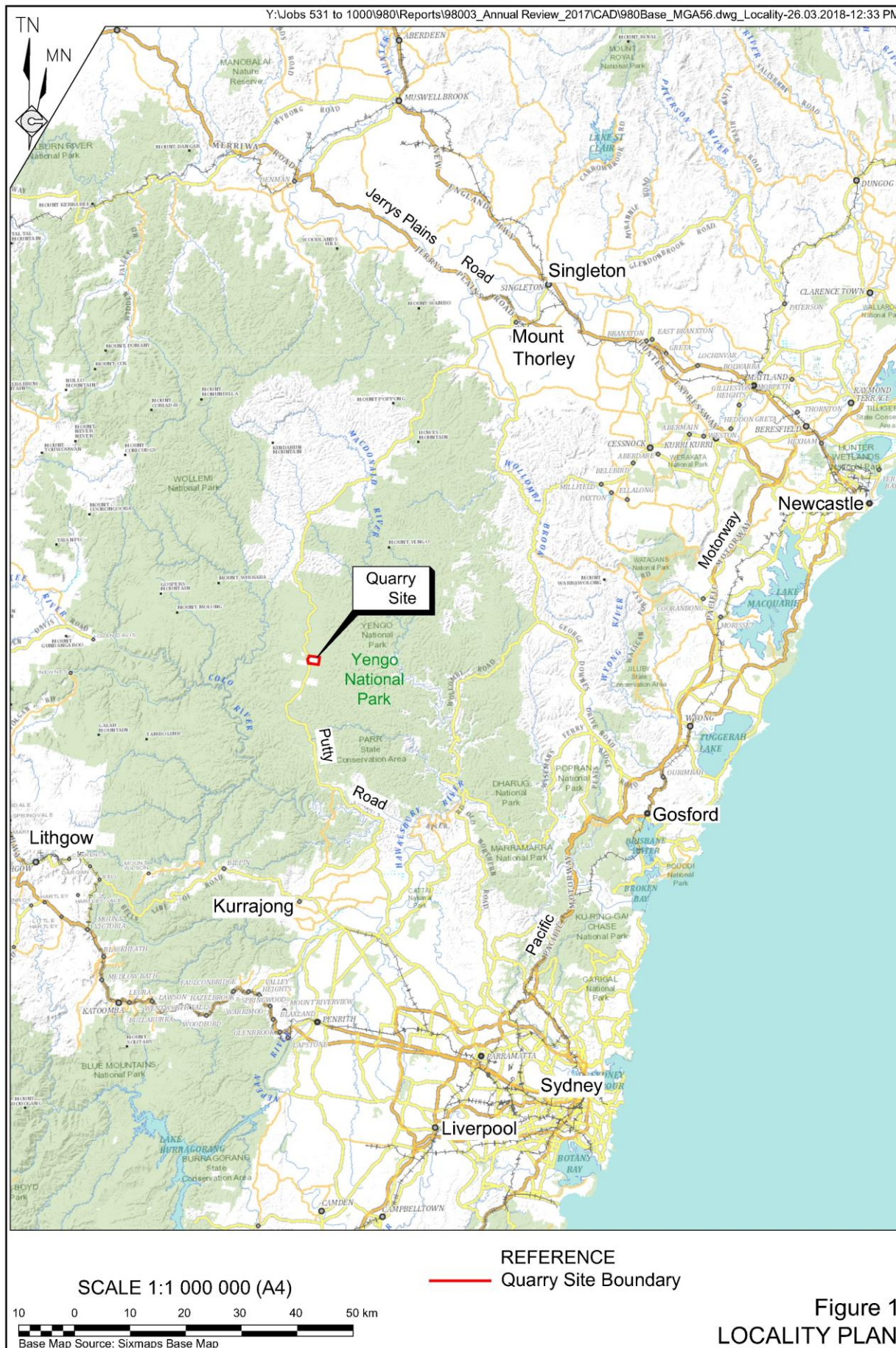
This *Annual Review* has been compiled by R.W. Corkery & Co. Pty Limited (RWC) on behalf of Aus 10 Rhyolite Pty Limited. This report is applicable for the period 1 January 2017 to 31 December 2017 (“the reporting period”). The information presented within this *Annual Review* has been prepared based on information provided by Hy-Tec.

The Tinda Creek Sand Quarry (the Quarry) is owned and operated by Aus 10 Rhyolite Pty Ltd trading as Hy-Tec Concrete and Aggregates hereafter referred to as Hy-Tec. The Quarry Site is located approximately 67km north of Windsor along Putty Road, NSW (see **Figure 1**). Development Consent SSD\_4978 (SSD\_4978) was granted on 10 April 2015 to permit the extraction and despatch of up to 300 000 tonnes of sand from the Quarry each year for the duration of the Project. SSD\_4978 is reproduced in full in **Appendix 1**. **Figure 2** displays the layout of the Quarry.

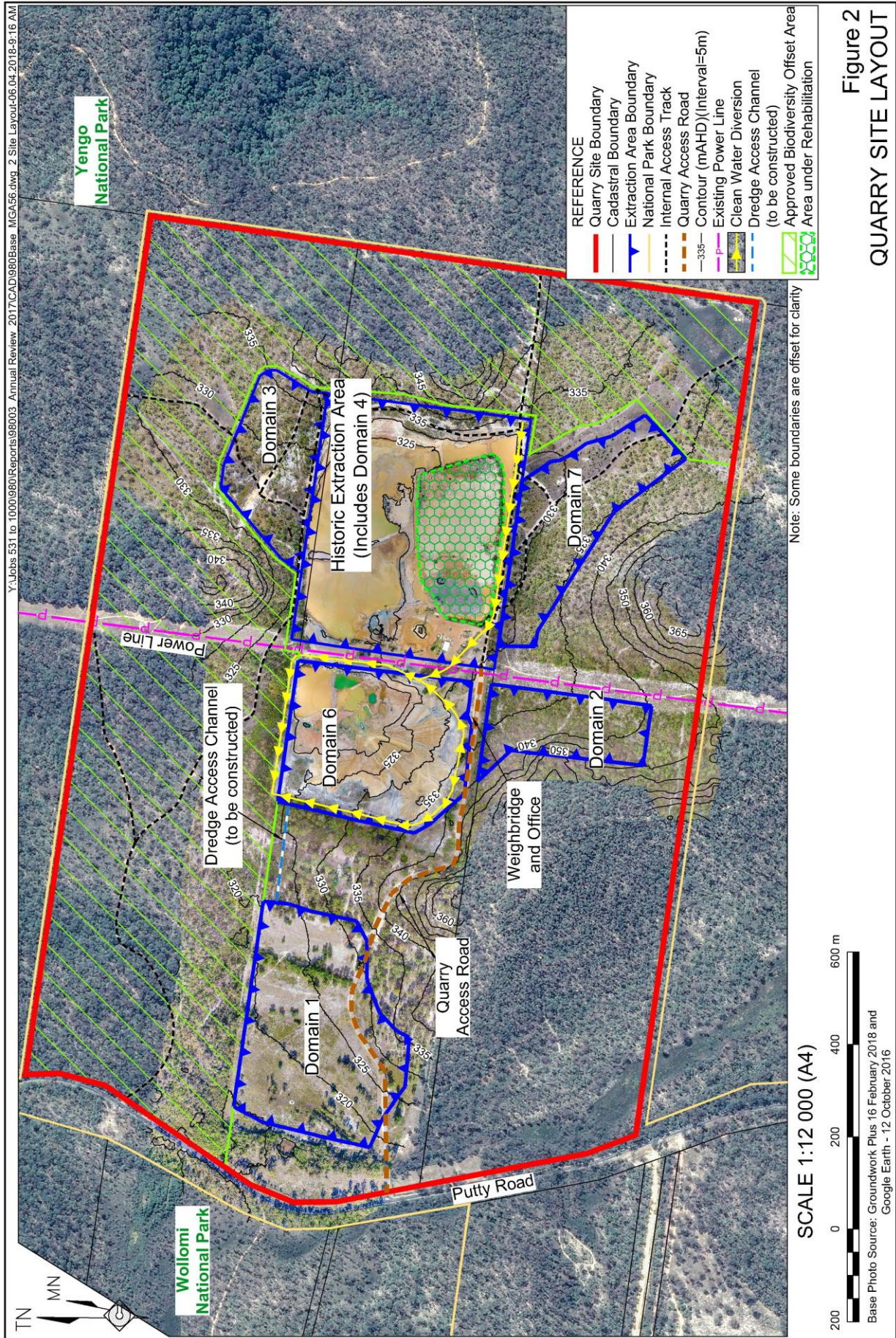
This *Annual Review* has been prepared in accordance with *Condition 5(4)* of Development Consent SSD\_4978 to record the activities and environmental monitoring undertaken at the Quarry during the reporting period and to outline the activities and environmental monitoring planned throughout the next reporting period (1 January 2018 to 31 December 2018). *Condition 5(4)* requires the preparation of a report which must:

- a) *describe the development (including rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year (Sections 4, 8 and 12);*
- b) *include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against (Sections 6 and 9):*
  - *the relevant statutory requirements, limits or performance measures/criteria;*
  - *the monitoring results of previous years; and*
  - *the relevant prediction in the EIS;*
- c) *identify any non-compliance over the last year, and describes what actions were (or are being) taken to ensure compliance (Section 11);*
- d) *identify any trends in the monitoring data over the life of the development (Section 6);*
- e) *identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and (Section 6)*
- f) *describe what measures will be implemented over the current calendar year to improve the environmental performance of the development (Sections 7 and 12).*











## **2.2 KEY PERSONNEL CONTACT DETAILS**

The key personnel contact names, position and phone numbers are as follows.

<b>Name</b>	<b>Position</b>	<b>24 Hour Contact</b>
Michael Walton	Quarry Manager	0447 391 964

### 3. APPROVALS

Hy-Tec is required to operate the Tinda Creek Quarry in accordance with a development consent and three licenses, listed in **Table 4**.

**Table 4**  
**Tinda Creek Sand Quarry – Approvals and Licences**

Consent/Lease/Licence	Issue Date	Expiry Date	Details / Comments
Development Consent SSD_4978	10/4/2015	31/12/2045	Issued by Department of Planning and Environment
Environment Protection Licence No 12007	11/5/2005	12 May <sup>+</sup>	Issued by Environment Protection Authority
Water Access License 24381	1/9/2014	Continuing	Water Supply Works (Excavation) approval number 10WA112523 issued on 1/7/2011. Valid until 8/11/2025
Water Access License 24367	2/2/2012	Continuing	Water Supply Works (Bore) approval number 10WA112531 issued on 1/7/2011. Valid until 13/4/2025
<sup>+</sup> Anniversary Date			

No modifications or variations to the development consent or licenses outlined in **Table 4** were sought within the reporting period.

SSD 4978 was granted in accordance with Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) by the Minister for Planning on 10 April 2015 to extract and transport no more than 300 000 tonnes of sand products from the Quarry Site each calendar year until 31 December 2045. Relevant conditions within SSD\_4978 which nominate specific environmental criteria are provided in **Appendix 2**.

SSD\_4978 superseded DA 134/95 to allow for the expansion of extraction beyond the previously approved extraction area boundary. Sand extraction within the new approved extraction area commenced in September 2015. DA 134/95 was formally surrendered on 10 December 2015.

Hy-Tec also operates the Tinda Creek Quarry in accordance with Environment Protection Licence (EPL) 12007. This licence incorporates standard conditions for extractive industries and includes limits for noise emissions from the Quarry Site. A copy of EPL 12007 is included as **Appendix 3**.

Water Access Licence (WAL) 24381 (40ML) and WAL24367 (15ML) were issued to permit extraction of water from the Sydney Basin North Groundwater Source. Water within this source is managed through the water sharing plan for the *Greater Metropolitan Region Groundwater Sources 2011*. The WALs permit extraction of groundwater in accordance with the conditions provided in the licences. Two Water Supply Works approvals were issued to Hy-Tec on 1 July 2011 by the then Department of Primary Industries (now the Department of Industry – Crown Lands and Water) to permit extraction of groundwater.

## 4. OPERATIONS SUMMARY

### 4.1 INTRODUCTION

The following subsections provide a summary of activities undertaken during the reporting period. Activities were generally consistent with those described in previous environmental management reporting. **Plates 1 to 6** display a series of photographs of the Tinda Creek Quarry taken in December 2017 that are representative of existing conditions at the Quarry.

### 4.2 EXTRACTION OPERATIONS

Extraction and processing during the reporting period occurred entirely within Domain 6 (see **Figure 2**). The total volume of sand extracted and processed was 183 714t which is within the limits specified in Condition 6 of Schedule 2 of SSD 4978. Sand was extracted using a cutter-suction dredge throughout the reporting period (refer **Plate 3**). This process involves the removal of water, sand, silt and clay in the form of a slurry which is then pumped to the processing area and stockpiled prior to transportation (refer **Plate 4**).

Sand transported from site during the reporting period and forecasted for the 2018 reporting period is displayed in **Table 5**. During the reporting period, the reported sand transported from site was 190 642t which is below the 300 000tpa limit approved within the development consent. Sand processing increased between the 2016 and 2017 reporting periods due to upgrades to the plant and an increased demand from clients. It is expected that sand processing and transportation from site during the 2018 reporting period will be similar to 2017.

A copy of the return for extractive industries that was provided to the Division of Resources and Geoscience for the period from July 2016 to June 2017 is provided at **Appendix 7**.

**Table 5**  
**Sand Transportation from Site**

Material	Approved annual limit (SSD_4978)	2016 reporting period	2017 reporting period	2018 reporting period (forecast)
Sand	300 000 t	154 764t	190 642t	180 000t

#### 4.2.1 Hours of Operation

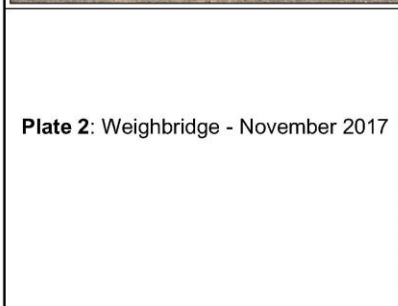
The permissible operating hours as set out in *Condition 3(3)* of SSD\_4978 were adhered to throughout the reporting period. Extended hours for major supply contracts were not required during the reporting period.





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**Plate 1:** Weighbridge Office



**Plate 2:** Weighbridge - November 2017

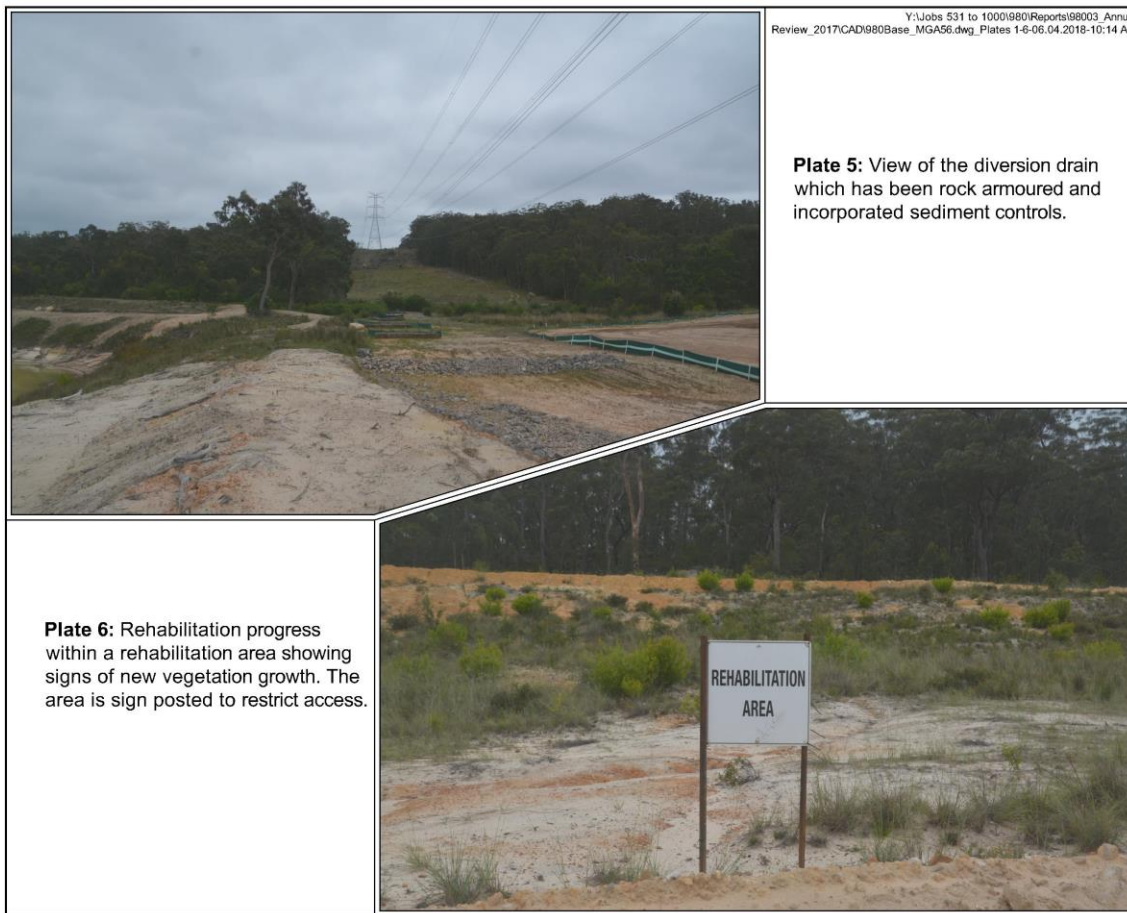


**Plate 3:** Dredge Pond - December 2017  
Sand extraction within the Dredge Pond - Tinda Creek Quarry is a primarily 'wet' operation



**Plate 4:** Sand Stockpile and Plant Infrastructure - November 2017





#### 4.2.2 Transport Levels

SSD\_4978 specifies that haulage activities at Tinda Creek Quarry should not exceed 34 trucks per day, averaged over a calendar month. A total of 5 407 laden loads were despatched from the Quarry during the reporting period. A summary of the vehicle movements at Tinda Creek Quarry is provided from the Hy-Tec website and are summarised in **Table 6**. There were no recorded exceedances of daily vehicle movements within the reporting period.

#### 4.3 CONSTRUCTION ACTIVITIES

Construction was undertaken to extend the diversion drain around the perimeter of Domain 6. No other construction activities were conducted during the reporting period.

#### 4.4 NEXT REPORTING PERIOD

Sand extraction and processing from Domain 6 will continue throughout the 2018 reporting period with extraction unlikely to proceed into Domains 1, 2, 3 or 7.

Processing activities will continue, consistent with historic processing activities. It is anticipated that mean daily laden truck levels will remain within approved limits.

**Table 6**  
**Monthly Laden Truck Movements at Tinda Creek Quarry**

<b>Month</b>	<b>Laden Truck Loads</b>	<b>Mean Daily Laden Truck Loads</b>
January	368	12
February	486	18
March	400	13
April	267	9
May	539	18
June	452	16
July	410	14
August	422	14
September	504	17
October	573	21
November	593	20
December	393	13
<b>Annual Total</b>	<b>5 407</b>	<b>-</b>

Source: Hy-Tec

## 5. ACTIONS REQUIRED FROM PREVIOUS ANNUAL REVIEW

Feedback on the *2016 Annual Review* was provided on 18 August 2017 which confirmed that the report generally satisfied the requirements of SSD\_4978.

The feedback included the following comments for Hy-Tec to address.

- DPE requested that the EIS for the Quarry was not available from the Hy-Tec website. This has been rectified by Hy-Tec and the document is now readily available to the public.
- DPE noted that no air quality monitoring had been undertaken in 2016. Correspondence regarding this matter was provided to Hy-Tec separately on 18 August 2017. This matter is discussed in Section 11.7. Deposited dust monitoring was undertaken throughout 2017 in accordance with the approved Air Quality Management Plan (approved 19 May 2017) with the results presented in Section 6.2.



## 6. ENVIRONMENTAL PERFORMANCE

### 6.1 METEOROLOGICAL MONITORING

Hy-Tec installed a meteorological station in July 2016 in accordance with the requirements of *Condition 3(10)* of SSD\_4978. The meteorological station complies with the requirements in the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* guideline. The location of the meteorological station is shown on **Figure 3**.

#### 6.1.1 Rainfall

A summary of the rainfall data for the reporting period is provided in **Table 7**. A total of 548mm of rain was recorded from 1 January 2017 to 31 December 2017. Total rainfall during 2017 was significantly lower than each of the preceding 10 years, however, rainfall varied between individual months. It is noted that over 30% of annual rainfall in 2017 fell in March.

**Table 7**  
**Summary of Rainfall Records Since 2007**

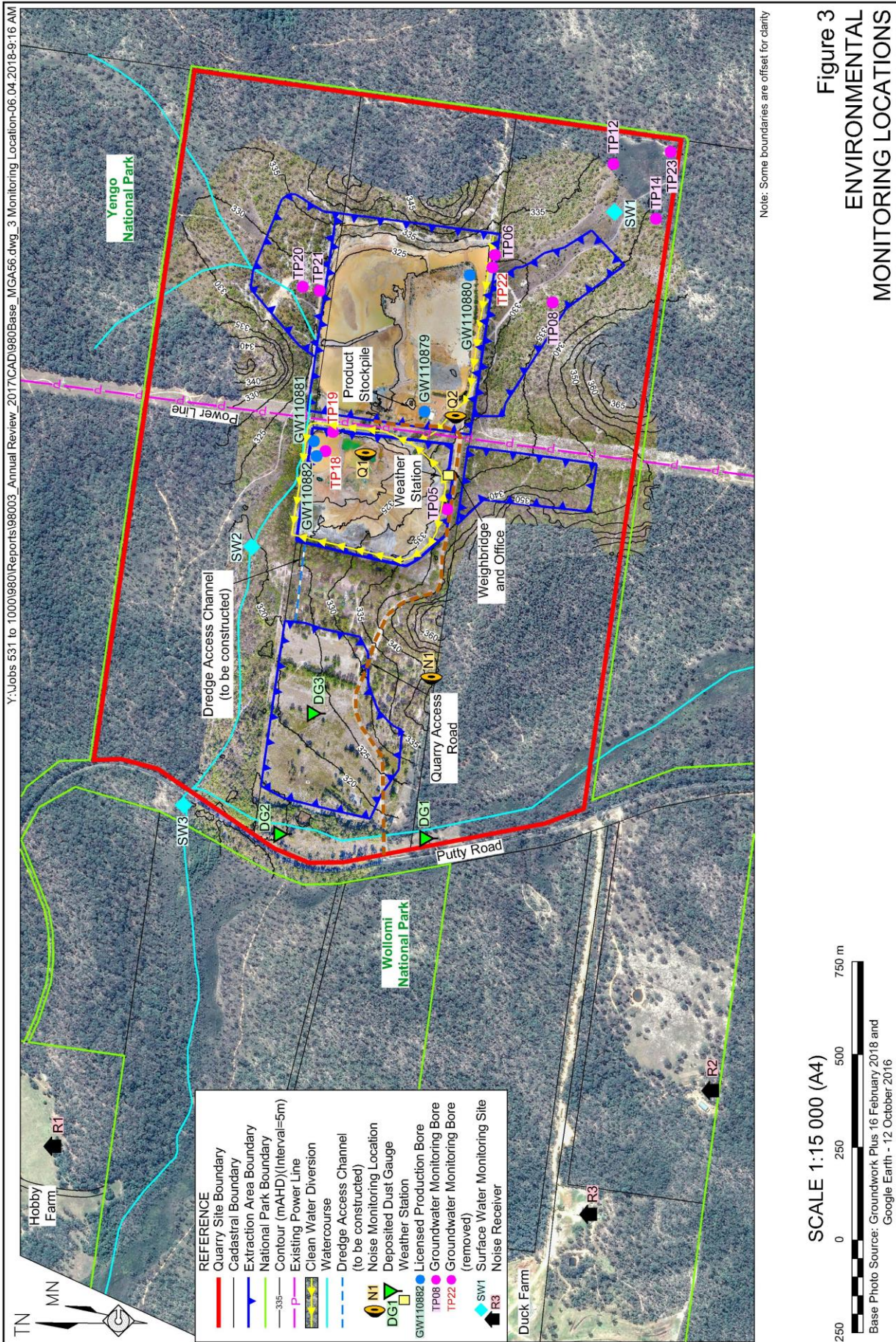
Month	Year										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
January	50.5	95.5	29.0	48.5	66.5	133.0	138.0	8.0	163.0	272.0	36.2*
February	152.0	146.5	137.5	119.5	47.0	179.0	202.0	64.0	46.5	0.0	34.2*
March	80.5	43.0	30.0	85.5	97.0	145.0	103.0	135.2	96.5	0.0	208.0
April	61.5	81.5	117.0	26.0	60.0	64.0	63.5	60.5	285.5	0.0	22.4^
May	29.0	10.5	56.5	59.5	96.0	-	31.0	0.0	56.5	0.0	16.6
June	210.0	94.0	39.5	43.0	85.5	29.0	84.5	29.0	20.5	126.0	54.0
July	13.0	24.5	17.5	38.5	25.5	27.0	18.5	13.0	34.0	55.0	2.6
August	107.0	40.5	4.0	13.5	90.0	4.0	11.0	74.5	26.5	36.5	11.6
September	18.5	58.5	21.0	18.0	69.0	27.5	31.5	29.0	26.5	45.5	0.0
October	22.0	93.5	85.5	85.0	65.5	17.5	26.5	48.0	34.0	40.4	61.6
November	157.5	75.0	31.5	127.5	159.0	70.5	106.5	16.5	141.0	72.2	35.8
December	76.0	71.0	103.5	120.5	72.5	18.5	27.0	150	116.0	69.0	65.0
<b>Totals (mm)</b>	<b>977.5</b>	<b>834.0</b>	<b>672.5</b>	<b>785.0</b>	<b>933.5</b>	<b>715.0</b>	<b>843.0</b>	<b>627.7</b>	<b>1046.5</b>	<b>716.6</b>	<b>548.0</b>
* Estimated from Putty Tea RMS as Quarry weather station out of service.											
^ Data downloaded between 31/3/2017 – 9/4/2017 due to weather station fault											

### 6.2 AIR QUALITY

#### 6.2.1 Introduction

Air quality monitoring is required to be undertaken in accordance with the approved *Air Quality Management Plan*. No previous air quality monitoring has been conducted at the Tinda Creek Quarry.







## 6.2.2 Air Quality Criteria

The air quality criteria for the Quarry are provided in Condition 3(7) of SSD\_4978 and are summarised in **Table 8**. However, deposited dust is currently the only air quality parameter that is required to be monitored as specified in the approved *Air Quality Management Plan*. The level of monitoring is considered appropriate as all extraction and processing is essentially a ‘wet’ process and generates limited dust. Deposited dust levels are used as an indicator of the overall air quality performance of operations.

**Table 8**  
**Air Quality Criteria**

Pollutant	Criterion	Averaging Period
Total suspended particulates (TSP)	90µg/m <sup>3</sup>	Annual mean
Particulate matter <10µm (PM <sub>10</sub> ) <10µm (PM <sub>10</sub> )	30µg/m <sup>3</sup>	Annual mean
Particulate matter <10µm (PM <sub>10</sub> )	50µg/m <sup>3</sup>	24-hour average
Deposited dust	4 g/m <sup>2</sup> /month*	Annual mean
* or 2g/m <sup>2</sup> /month above the annual background level		

## 6.2.3 Air Quality Monitoring Results

Monthly deposited dust monitoring commenced at monitoring locations DG1 and DG2 in January 2017 and commenced at DG3 in July 2017. The location of dust monitoring gauges DG1, DG2 and DG3 are shown on **Figure 3**. **Table 9** presents the results of the deposited dust monitoring program over the reporting period.

**Table 9**  
**Measured Performance – Deposited Dust**

Date	Deposited Dust Level <sup>1</sup>			
	DG1	DG2	DG3	Criterion
January	1.5	0.6	-	-
February	0.4	0.4	-	-
March	6.9 <sup>2</sup>	2.2	-	-
April	17.3 <sup>2</sup>	5.4 <sup>2</sup>	-	-
May	16.3 <sup>2</sup>	9.6 <sup>2</sup>	-	-
June	1.7	1.9	-	-
July	3.9	0.03	3.6	-
August	2.3	2.4	5.9 <sup>2</sup>	-
September	1.5	0.5	1.0	-
October	1.3	1.7	3.9	-
November	3.1	1.7	3.4	-
December	5.0*	0.1	0.1	-
<b>Annual Average</b>	<b>5.1</b>	<b>2.2</b>	<b>3.0</b>	<b>4.0</b>
Note 1: Units – g/m <sup>2</sup> /month				
Note 2: These results are considered contaminated by insects and other organic matter				

## 6.2.4 Analysis of Results

Deposited dust levels were generally well below the trigger value at each dust gauge throughout the reporting period. However, high records for insoluble solids were recorded for the following months and locations.

- DG1 - March, April, May and December.
- DG2 - April and May.
- DG3 - August.

As a result of the high records at DG1, the annual average level is higher than the criteria level for the reporting period.

The samples that returned high insoluble solids levels were sent for further analysis at a laboratory operated by UQ Materials Performance. Samples were examined by stereo and scanning electron microscopy in order to ascertain the composition of the materials present in the samples. High levels of polysaccharide slime and fungi, insect debris, and plant debris were typical in all samples, accounting for up to 70% of the deposited material. It is, therefore, appropriate to consider the samples showing high deposited dust levels as anomalies which do not accurately reflect quarry-generated dust.

All other recorded samples were well below criterion levels throughout the reporting period. Despite the anomalous deposited dust measurements, monitoring results indicate that average annual rates of dust deposition in the vicinity of the Quarry remained below the criterion levels at DG2 and DG3. The particularly high anomalies recorded at DG1 skewed the annual average at this location resulting in a minor exceedance of the criterion value. However, if the anomalous readings are discounted, annual average deposited dust levels for all three sites are well below the criterion as outlined below.

- DG1 – 2.0 g/m<sup>2</sup>/month
- DG2 – 1.3 g/m<sup>2</sup>/month
- DG3 – 2.4 g/m<sup>2</sup>/month

However, it should be noted that the analysis observations provided by ALS Laboratories for each sample indicate that samples are contaminated by insects and other organic matter for most months. It is therefore likely that all results are unnaturally elevated and that the annual average results are higher than the actual dust emitted by Quarry operations.

Baseline data from previous years was not available for comparison as deposited dust monitoring commenced in 2017.



## 6.3 OPERATIONAL NOISE

### 6.3.1 Introduction

Noise monitoring is required to be undertaken in accordance with the conditions listed in the development consent, EPL and approved *Noise Management Plan*. The following subsections provide a brief summary of noise criteria that apply at the Quarry, the results of noise monitoring activities and a discussion of the results recorded during the reporting period.

Following discussions with the DPE in January 2017, it was agreed that the additional monitoring would be undertaken to provide an estimate of the contribution of the Quarry to noise levels at residential locations. The results of this monitoring and assessment are presented in Section 6.3.5 and in **Appendix 6**.

### 6.3.2 Noise Criteria

*Condition 3(4)* of SSD\_4978 is relevant to noise compliance assessment and sets the criteria for noise generated by the development at any residence on privately-owned land as outlined in **Table 10**.

**Table 10**  
**Noise Monitoring Criteria SSD\_4978 (db(A))**

Receiver	Day / Evening	Night	
	LAeq (15 min)	LAeq (15min)	LA1 (max)
All receivers	35	35	45

*Condition L3* of EPL 12007 is relevant to the noise compliance assessment and stipulates the noise criteria at any monitoring point established under the EPL as outlined in **Table 11**.

**Table 11**  
**Noise Monitoring Criteria EPL 12007 (db(A))**

Time Period	Measurement Parameter	Noise level dB(A)
All hours	LAeq (15 minute)	35
All receivers	Lmax OR LA1, 1min	45

### 6.3.3 Noise Monitoring Results

Attended noise monitoring was undertaken by Umwelt (Australia) Pty Limited on 27 March 2017 in accordance with the approved *Noise Management Plan* and correspondence with the DPE. A report prepared by Umwelt (Australia) Pty Limited is included as **Appendix 6**. A summary of the noise monitoring results is provided in **Table 12**.

**Table 12**  
**Summary of Attended Noise Monitoring at Receiver R1**

Monitoring Period	Measure	Cumulative Noise Level	Estimated Quarry Contribution
Day (9:11am – 9:26am)	LA90 (15 min)	26.6	-
	LAeq (15 min)	40.7	Barely Audible, not measurable
	LA1 (1min)	68.5	-
Day (9:27am – 9:42am)	LA90 (15 min)	27.4	-
	LAeq (15 min)	38.6	Not Audible
	LA1 (1min)	64.6	-
Day (9:45am – 10:00am)	LA90 (15 min)	30.1	-
	LAeq (15 min)	40.7	Barely Audible, not measurable
	LA1 (1min)	58.0	-
Day (10:02am – 10:17am)	LA90 (15 min)	28.1	-
	LAeq (15 min)	40.6	Barely Audible, not measurable
	LA1 (1min)	59.4	-

### 6.3.4 Analysis of Results

For the duration of the monitoring, it was determined that the Quarry was either inaudible or barely audible at the nearest sensitive receiver. The overall contribution of the Quarry to ambient noise was found to be less than 20dB(A) at the time of the monitoring which is well within the limits set by both SSD\_4978 and EPL 12007. These results indicate that the Quarry is complying with all relevant noise assessment criteria.

The results of the noise monitoring program are also comparable with historic noise monitoring data from Tinda Creek Quarry. Attended noise monitoring conducted in 2016 estimated Quarry noise contribution to be less than 25dB(A). This indicates that current noise mitigation measures are effective in restricting noise to an acceptable level.

### 6.3.5 Quarry Noise Predictions at Residences

On 20 January 2017, DPE requested that Hy-Tec undertake additional noise monitoring to record existing noise levels (sound power levels) that were being produced at the Quarry and undertake an assessment to predict the noise impact of the Quarry at nearby privately-owned residences.

Sound power levels were measured at locations Q1 and Q2 (see **Figure 3**) and the results of this assessment are presented in **Appendix 4**. In summary, it was concluded that Quarry noise at the relevant residences was likely to vary between 21dB(A) and 22dB(A), which is consistent with monitoring results that estimated the Quarry contribution to total noise at no more than 20dB(A) and well below the criteria nominated in SSD 4978.

Monitoring at locations Q1 and Q2 will be repeated once operations commence in Domain 1, that is, when operations move to an area that is closer to the residences.

## 6.4 ABORIGINAL HERITAGE

No actions or impacts related to Aboriginal heritage occurred during the reporting period.

## 6.5 NON-ABORIGINAL HERITAGE

No actions or impacts related to non-Aboriginal heritage occurred during the reporting period.

## 6.6 LANDSCAPE MANAGEMENT

Landscape management was undertaken generally in accordance with the approved *Landscape Management Plan* which was prepared in accordance with *Condition 3(19)* of SSD\_4978.

The approved *Landscape Management Plan* includes a range of monitoring activities to be undertaken by Hy-Tec at the Quarry to record the relevant conditions at the Quarry so that progress with landscape management can be reviewed against performance criteria. A summary of these activities is provided in **Table 13**.

**Table 13**  
**Ecological Monitoring Requirements at Tinda Creek Quarry**

Page 1 of 2

Type of Monitoring	Location	Parameters Monitored	Frequency	Monitoring Method	Responsibility
Rehabilitation	Rehabilitation Areas	Inspections of drainage lines, water management systems and rehabilitation areas	Monthly	Visual Inspection	Quarry Manager
Long-term rehabilitation	Rehabilitation Areas	Soil conditions, erosion, environmental controls	Six Monthly	Field Survey	Quarry Manager
Habitat Assessment	Biodiversity Offset Areas	Erosion, general health of vegetation, floristic structure and diversity, occurrence of weeds, signs of disturbance by stock or humans, evidence of feral animal, evidence of fire, seedling recruitment, characteristic of ground cover, nectar and fruit resources, water resources, fauna usage	Annually unless otherwise agreed	Field Survey	Quarry Manager
Koala	Biodiversity Offset Areas	Targeted Spot Assessment Technique, Call playback surveys, Spotlight surveys	Annually unless otherwise agreed	Field Survey	Quarry Manager
Aquatic Monitoring	Drainage lines upstream and downstream of site.	Stream width and edge habitat, stream features including substrate, vegetation and organic material, site observation including catchment description and local land use practises, and riparian characteristics	Annually	Field Survey and Photography	Quarry Manager
Nest Boxes	Biodiversity Offset Areas	Condition assessment	Annually for first 5 years	Field inspection and LED camera.	Quarry Manager

**Table 13 (Cont'd)**  
**Ecological Monitoring Requirements at Tinda Creek Quarry**

Page 2 of 2

Type of Monitoring	Location	Parameters Monitored	Frequency	Monitoring Method	Responsibility
Threatened Fauna Species Monitoring		Koala, eastern pygmy possum, squirrel glider, forest owls, threatened micro-bat species, diurnal reptiles/amphibians, introduced species	After first 5 years of operation	Diurnal bird area searches, diurnal reptile/amphibian area searches, nocturnal call playback surveys, remote camera surveys, nocturnal Anabat surveys	Quarry Manager
<i>Grevillea parviflora</i>	Biodiversity Offset Areas	Surveys during known flowering period (July to December), stem counts in permanent plots, photo monitoring, habitat quality	Annually for first 5 years	Field Survey	Quarry Manager

### 6.6.1 *Grevillea parviflora* Monitoring

Monitoring of the condition and persistence of the small flower *Grevillea parviflora* subsp. *parviflora* commenced in March 2018 and is considered to provide an indication of the condition of this species for the reporting period. A report prepared by Niche Environment and Heritage describing the location and condition of monitored plots is provided as **Appendix 6**. A series of nine 10m x 10m plots were established within the approved Biodiversity Offset Area to facilitate annual stem counts of the species. The locations of these plots can be seen on **Figure 4**. The goal of this monitoring program is to assess the ongoing viability and health of the species and to ensure the habitat is maintained or improved over the life of the operations. The monitoring results of the first stem count are included in **Table 14**. A further field survey will be conducted in Spring 2018 during the flowering period for the species.

**Table 14**  
**Ecological Monitoring Requirements at Tinda Creek Quarry**

Plot Number	Stem Count	Notes
G1	18	Significant numbers to south of plot
G2	51	More to the south
G3	33	Heath
G4	47	Larger shrubs
G5	20	Spread evenly spread around plot
G6	16	Sedge heath
G7	11	Dense <i>Angophora bakeri</i> regeneration
G8	14	Mostly very small
G9	2	Diverse heath

Monitoring results to date show abundant *Grevillea parviflora* in the vicinity of the Quarry. This clearly shows that operations have not had a deleterious impact on the health of the species and demonstrates the high ecological value of the Biodiversity Offset Area.

## 6.6.2 Landscape Monitoring

Hy-Tec implemented monthly visual inspections throughout the reporting period to assess rehabilitation progress and the condition of diversion drainage structures. Heavy rain in March 2017 washed out the stabilising groundcover that had been planted. In addition, groundcover vegetation was grazed by kangaroos that frequent the Quarry Site. A range of measures were implemented in June 2017 to reinstate this structure including the following.

- Reshaping of the drain to form a spoon drain.
- Lining of the drain with geofabric and rock armouring.
- Installation of a gabion mattress at the end of the drain to capture sediment and slow the flow of water.
- Installation of four rows of hay bales and silt fencing downstream of the gabion mattress.
- Re-seeding of the drain to establish a suitable ground cover.

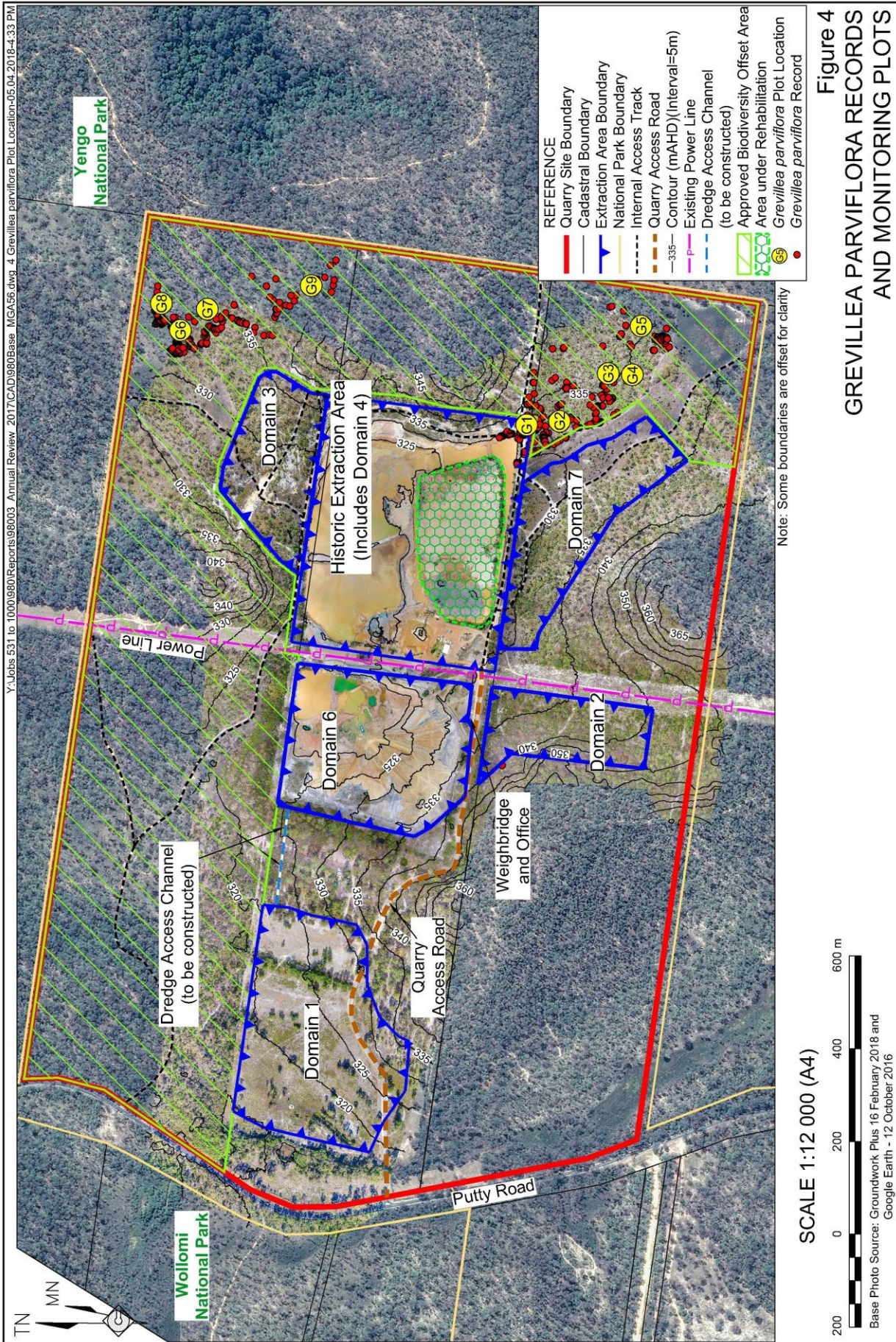
It is proposed that habitat assessment and koala monitoring will commence in spring 2018 and be undertaken by a suitably experienced person such as an ecologist. Spring is considered to be the best time to undertake these activities. Aquatic conditions will also be monitored at this time, where necessary. These activities would continue on an annual basis in accordance with the approved *Landscape Management Plan*.

## 6.7 WASTE MANAGEMENT

Waste management practices continued in accordance with the provisions of the *Protection of the Environment Operations (Waste) Regulation 2014* throughout the reporting period. Hy-Tec has engaged licensed waste contractors to recycle and dispose of waste throughout the reporting period. A review of waste management practices was undertaken during the reporting period.

During a site inspection and audit by officers of DPE on 6 June 2017, it was identified that equipment and other materials historically stored within the southeast corner of the Quarry Site constituted a breach of Condition 3(30) of SSD\_4978 in relation to waste management at the Quarry. The material was subsequently removed by Hy-Tec and the Company entered into a voluntary undertaking with the DPE regarding revegetation in this area. This matter is further discussed in Section 11.4.







## 7. WATER MANAGEMENT

### 7.1 GROUNDWATER

#### 7.1.1 Groundwater Quality Monitoring

Groundwater quality monitoring was conducted by Hy-Tec generally in accordance with the approved *Water Management Plan*. Groundwater quality monitoring was undertaken at six-month intervals over the reporting period at the locations shown on **Figure 3**. The groundwater quality assessment trigger values recorded in the approved Water Management Plan are presented in **Table 15**.

**Table 15**  
**Groundwater Quality Trigger Criteria**

Analyte	Historic Minimum Monitored Value	Historic Maximum Monitored Value	Lower Trigger Value	Upper Trigger Value
pH	4.50	6.70	<4.50	>7.00
Conductivity ( $\mu\text{S}/\text{cm}$ )	45.00	1320.00	N/A	900.00
Nitrate (mg/L)	<0.10	9.30	N/A	7.50
Ammonia (mg/L)	<0.10	0.40	N/A	0.20
TPH (C6-C9) ( $\mu\text{g}/\text{L}$ )	<10.00	<50.00	N/A	25.00
TPH (C10-C14) ( $\mu\text{g}/\text{L}$ )	<50.00	<50.00	N/A	25.00
TPH (C15-C28) ( $\mu\text{g}/\text{L}$ )	<100.00	650.00	N/A	100.00
TPH (C29-C36) ( $\mu\text{g}/\text{L}$ )	<50.00	320.00	N/A	100.00

The results of the groundwater quality monitoring data are outlined in **Tables 16** and **17**.

**Table 16**  
**Water Monitoring Results – 25 May 2017**

Bore Hole	pH	EC ( $\mu\text{S}/\text{cm}$ )	Nitrate (mg/L)	Ammonia (mg/L)
TP05	5.20	80.00	<0.10	<0.10
TP06	5.50	70.00	<0.10	<0.10
TP08	5.10	70.00	<0.10	<0.10
TP12	5.20	70.00	<0.10	<0.10
TP14	5.60	50.00	<0.10	<0.10
TP20	5.30	70.00	3.70	<0.10
TP21	5.40	50.00	2.00	<0.10
TP23	5.20	50.00	1.20	<0.10

**Table 17**  
**Water Monitoring Results – 23 November 2017**

Bore Hole	pH	EC ( $\mu\text{S/cm}$ )	Nitrate (mg/L)	Ammonia (mg/L)
TP05	5.30	90.00	0.13	<0.10
TP06	5.90	95.00	<0.10	<0.10
TP08	5.20	80.00	<0.10	<0.10
TP12	5.40	75.00	<0.10	<0.10
TP14	5.60	70.00	<0.10	<0.10
TP20	5.40	65.00	1.20	<0.10
TP21	5.70	50.00	3.60	<0.10
TP23	5.30	50.00	0.71	<0.10

### 7.1.2 Analysis of Groundwater Quality Results

General conclusions that can be drawn from the groundwater quality monitoring data are as follows.

- There have been no exceedances of the relevant criteria throughout the reporting period.
- The slightly acidic pH is consistent with historic data and likely to represent the breakdown of plant material.
- It is highly unlikely that quarrying activities are impacting groundwater quality.
- pH, conductivity, nitrate and ammonia results are consistent with groundwater monitoring data obtained during previous monitoring campaigns. No distinct temporal trends are evident within the measured parameters.

It is noted that bores TP18 and TP19 have been removed as a part of the development of Domain 6. During the reporting period, additional monitoring bores TP44, 45, 46, 47, 48, 49, 50 and 51 as recommended within the proposed water management plan were installed. Monitoring of these bores has not yet commenced. Samples were not taken at bore TP22 due to damage to the standpipe. It is considered that bore TP06 provides a suitable substitute for bore TP22 due to the close proximity of these bores.

It should also be noted that a new *Water Management Plan* was submitted to the DPE in February 2017. Hy-Tec is in the process of addressing the latest comments from the Department of Industry - Crown Lands and Water and expects to have an updated plan submitted by the end of June 2018.

### 7.1.3 Groundwater Level Monitoring

Groundwater level was monitored monthly in accordance with the approved *Water Management Plan*. Groundwater levels in the monitoring bores are used to assess the impacts of Quarry operations on the surrounding aquifers. This analysis involves assessing the risk of Quarry operations impacting on the Greater Blue Mountains Heritage Area. No significant impacts were anticipated to groundwater flow as a result of quarrying activities.



Section 5.3 of the approved *Water Management Plan* identifies the locations and performance criteria to be used in assessing the impacts of Quarry operations on groundwater levels. **Table 18** summarises these criteria. The locations of the monitoring bore holes are shown on **Figure 3**.

**Table 18**  
**Groundwater Investigation Trigger Levels**

Bore Hole	Depth to Water (mbgs)
TP22	5.85
TP06	7.33
TP12	7.73
TP23	7.63
TP14	9.81
TP08	7.45
TP05	8.55
TP18	4.62
TP19	5.43
TP20	6.95
TP21	7.22

The results of the 2017 groundwater levels monitoring are outlined in **Table 19**.

**Table 19**  
**Results of 2017 Groundwater Levels Monitoring Program**

Bore Hole	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Depth to water (mbgs)											
TP22	2.07	2.16	1.43	1.47	1.62	1.60	1.83	1.78	1.76	1.69	1.85	1.87
TP06	3.53	3.64	2.42	2.88	3.11	3.08	3.28	3.28	3.26	3.20	3.33	3.36
TP12	3.30	3.48	2.27	3.04	3.25	3.30	3.49	3.64	3.82	4.07	3.97	3.67
TP23	2.89	3.06	3.01	2.78	2.95	3.02	3.17	3.34	3.40	3.49	3.65	4.27
TP14	5.24	5.84	6.44	5.44	5.64	6.14	5.74	6.04	6.14	5.94	6.04	6.34
TP08	4.39	4.51	4.01	3.76	3.89	3.88	4.11	4.36	4.41	4.44	4.56	4.58
TP05	7.20	6.90	6.40	6.40	6.30	6.40	6.90	7.00	6.10	6.60	7.50	7.40
TP18	-	-	-	-	-	-	-	-	-	-	-	-
TP19	-	-	-	-	-	-	-	-	-	-	-	-
TP20	2.81	2.99	1.60	1.70	2.18	2.17	2.51	2.68	2.84	2.87	3.03	3.13
TP21	2.59	2.70	1.40	1.63	1.97	1.93	2.20	2.32	2.37	2.33	2.56	2.53

#### 7.1.4 Analysis of Groundwater Level Results

No exceedances of the relevant trigger levels were noted during the reporting period.

When compared to historic groundwater level data, including data referenced in the 2015 and 2016 *Annual Reviews*, no temporal or spatial trends are apparent. It is noted that the depth to water (mbgs) fluctuates significantly in response to total rainfall. This is clearly demonstrated by the depth to water in March 2017 which rose to 1.42mbgs during a particularly wet month. It is highly unlikely that quarrying activities impact significantly on groundwater levels.

#### 7.1.5 Groundwater Usage

Hy-Tec have the capacity to extract 55 million litres (ML) of water per year under its water access licences and water supply works approvals (see Section 3 and Table 4). Groundwater extracted from the surrounding aquifers was primarily used to fill the dredge pond and for use in dust suppression during extended dry periods.

The approved *Water Management* Plan requires that the quantity of water obtained from production bores is monitored on a monthly basis. **Table 20** presents a summary of the groundwater usage from June 2014 until December 2017.

**Table 20**  
**Groundwater Usage – Meter Reading and Average Monthly Usage**

Date	Meter Reading (KL)	Average Monthly Usage (ML)
January	4643	0.047
February	4661	0.018
March	4695	0.034
April	4727	0.032
May	4752	0.025
June	4766	0.014
July	4832	0.066
August	4941	0.109
September	5377	0.436
October	5435	0.058
November	5461	0.026
December	6005	0.544

A total of 1.409 ML of groundwater was utilised over the reporting period which represents an increase of 0.576 ML compared to 2016. This increase can be attributed to the dry conditions experienced in 2017 and the subsequent need to extract an increased quantity of water for use in the dredging pond and for dust suppression. The total groundwater utilised for quarrying activities remained well below the 55 ML limit prescribed by the water access licenses.

## 7.2 SURFACE WATER

### 7.2.1 Introduction

The Tinda Creek Quarry is situated near the top of the Tinda Creek catchment. Tinda Creek itself typically experiences intermittent, short duration flows immediately following heavy rainfall events. Previous monitoring, conducted in 2008 and 2015, indicates that quarrying activities do not impacted negatively on the Tinda Creek system and the downstream portions of the creek remain consistent with other creek systems in the vicinity of the Quarry.

The Quarry utilises a closed water management system in order to minimise any potential impacts on downstream water quality, flow regimes and habitats. This system has been successfully implemented for the past 30 years and involves a number of pump lines and catch drains.

Clean water diversion drains have been constructed within the Quarry Site in order to prevent clean runoff entering the operations area (refer **Plate 5**). These diversion drains are typically 1m to 1.5m deep and have been designed to divert runoff from a 1 in 100 year Average Recurrence Interval (ARI) 18 hour storm event. The diversion drain system shown on **Figure 3** comprises the following components.

- Southern Diversion
- Southern Diversion Extension
- Existing Diversion.

In 2017, the diversion drain system was extended to encompass of Domain 6 as shown on **Figure 3**.

### 7.2.2 Surface Water Monitoring

Surface water monitoring was conducted generally in accordance with the approved *Water Management Plan* over the reporting period. A summary of the required surface water monitoring is provided in **Table 21**.

**Table 21**  
**Surface Water Monitoring Regime**

Monitoring Type	Location	Parameters Monitored	Frequency of Monitoring	Monitoring Method
Dredge Pond Level	Dredge Pond	Level (depth below ground)	Monthly	Observation or dip
Surface Water Quality	Upstream and downstream of Quarry	pH, EC, turbidity	Monthly if water is present in creek and after more than 50mm of rain in 24 hours	Grab Sample
Drainage Lines and Diversion Drains	Upstream and downstream of quarry	Stability, erosion, and sediment build up	Monthly and event based	Observation and photography
Closed Water Management System	Quarry	Stability, erosion, and sediment build up	Monthly and event based	Observation and photograph

### 7.2.3 Dredge Pond Water Levels

The *Water Management Plan* requires that dredge pond water levels are assessed on a monthly basis over the first three years of operation. The depth to water in any operating dredge pond from the adjoining ground surface is to remain less than 10m to avoid triggering further investigations. Documented Monthly monitoring of dredge pond levels was undertaken by Hy-Tec from June to December 2017. Water levels were recorded as 7mbgs during each survey and no further investigations were required.

### 7.2.4 Surface Water Quality

Insufficient water was available to sample upstream and downstream of the Quarry due to the exceptionally dry conditions experienced throughout the reporting period. On the two occasions that water was recorded within the creek system, it is noted that the water levels were insufficient to allow for reliable samples to be taken. Whilst it is noted that the recorded rainfall for the whole of March 2017 was relatively high, records made by the Quarry Manager at the time (no longer with the Company) indicate that there was no water observed flowing in Tinda Creek during the March period. Whilst rainfall was relatively high for the month, there were no days where rainfall exceeded 50mm, which is a trigger for monitoring.

### 7.2.5 Drainage Lines, Diversion Drains and Water Management System

Condition M2.1 of the EPL 12007 requires that the licensee undertake monthly inspections of the surface water system at the premises. The monthly inspection must:

- be undertaken immediately upstream and downstream of the Quarry disturbance area;
- include visual inspection for litter, oil and grease and sediment within the surface water system, including diversion channels;
- include visual inspection of the physical integrity of the surface water system, including any signs of erosion; and
- include visual inspection of the water level/flow in Tinda Creek.

A summary of the monitoring data as required by EPL 12007 is presented in **Table 22**.

**Table 22**  
**Results of Surface Water Monitoring - 2017**

Observation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Litter	No	No	No	No	No	No	No	No	No	No	No	No
Oil/Grease	No	No	No	No	No	No	No	No	No	No	No	No
Sediment	No	No	No	No	No	No	No	No	No	No	No	No
Erosion	No	No	No	No	No	Yes	No	No	No	No	Yes	No
Water Level/Flow	No	No	No	No	No	Yes	No	No	No	No	Yes	No

Throughout the monitoring period, water was observed in Tinda Creek only in the months of June and November. This is consistent with the intermittent flows typical of this creek system.

## 8. REHABILITATION

### 8.1 REHABILITATION PERFORMANCE DURING THE REPORTING PERIOD

Rehabilitation works continued in the 2ha domain in the south-eastern quadrant of the Quarry Site as shown on **Figure 2**. Rehabilitation works comprised primarily of backfilling the area with overburden, silt and clay material. Backfilled areas were then allowed to dry prior to being covered with top soil, mulch and timber to create a growth medium and habitat areas (refer **Plate 6**). This activity was consistent with the methods and timing presented in the *Landscape Management Plan*.

### 8.2 ACTIONS FOR THE NEXT REPORTING PERIOD

During the 2018 reporting period, Hy-Tec will seek to continue to progressively rehabilitate disturbed areas as per the *Landscape Management Plan*. Monthly visual inspections will continue to be implemented in conjunction with an annual rehabilitation inspection.

## 9. COMMUNITY

### 9.1 COMMUNITY COMPLAINTS

Two community complaints were received in regard to the Tinda Creek Quarry during the reporting period. These complaints were registered by the same community member and queried the development consent conditions. No action was required on behalf of Hy-Tec.

Complaints will continue to be logged within the complaints register and investigated fully when they are received. The complaints register will continue to be kept in the weighbridge office and updated on the Hy-Tec website on a monthly basis.

### 9.2 COMMUNITY LIAISON

The Tinda Creek Quarry Community Consultative Committee (CCC) met twice within the reporting period. Meetings were held on 8 May 2017 and 16 October 2017. Minutes of the meetings are provided in **Appendix 5**. Members of DPE attended the CCC meeting on 16 October 2017.

There were no issues raised during the CCC meetings that were considered to be complaints or required and investigation by Hy-Tec.

Given the remote location of the Quarry, no further community engagement activities occurred within the reporting period.

## 10. INDEPENDENT AUDIT

The first Independent Environmental Audit of the Quarry was undertaken in January 2017, in accordance with *Schedule 5 Condition 9* of Development Consent SSD\_4978. As a result of the audit, ten recommendations were provided. A summary of the issues sighted, proposed actions and responses, and a status update is presented in **Table 23**. A copy of the Independent Audit Report is available on the Hy-Tec website. There were no issues raised in the Independent Environmental Audit or actions to be implemented by Hy-Tec, that were outstanding at the end of the reporting period.

**Table 23**  
**Summary of Independent Audit Actions**

Page 1 of 3

Issue Sighted	Action / Response	Status Update
Environmental monitoring records (noise, water, air) were not available on the company website.	Any required documents not previously available on the Hy-Tec Website have been uploaded to the website – Implemented June 2017.	Documentation continues to be uploaded to the website as required.
The independent environmental audit was not conducted with 12 months of the date of consent for the development.	Due to the ongoing delay of getting the relevant plans approved and ongoing communication with the Department by Umwelt, the Independent audit was not conducted as agreed until there was a meaningful element to audit. Audit conducted January 2017 with submission to DPE May 2017 (due to auditor's illness).	No further action required.
Vegetative cover had not established before use of diversion drains.	As of the time of the audit, the water management plan had not been approved and the site was still operating under the existing strategies, plans or programs for the site that had been approved under DA 0134/95 as per condition 14 of Schedule 2 of SSD 4978. Though the drainage channel was spray grassed at the time, due to heavy rain, most of the grass was washed away and along with the fresh grass being consumed by the local kangaroo population, the site not been able to reapply further seeding due to the weather conditions and remaining seed growth being stunted due to cooling period. For future requirements, if the drainage channels cannot be adequately grassed in time, drainage channels will be redesigned to comply with Blue Book including the use of geotech blanket, mattress rock placement, etc., until if possible, vegetative cover can be established. Implemented June 2017.	<ul style="list-style-type: none"> <li>• Drainage channels were hydromulched on 29/03/2017, 26/06/2017 and 06/08/2017.</li> <li>• Powerline drainage channel was lined with geotextile fabric, gabion rock, silt fence and straw haybales.</li> <li>• Low rainfall has restricted regrowth since the audit.</li> <li>• Adequate sediment controls and growth currently in place.</li> </ul>
Records of monitoring of dredge pond levels were not available.	As of the time of the audit, the water management plan had not been approved and the site was still operating under the existing strategies, plans or programs for the site that had been approved under DA 0134/95 as per condition 14 of Schedule 2 of SSD 4978. Formalized inspection and recording has been undertaken and carried out on a monthly basis. Implemented June 2017.	Inspection reports available upon request.

**Table 23 (Cont'd)**  
**Summary of Independent Audit Actions**

Page 2 of 3

Issue Sighted	Action / Response	Status Update
No record to verify weed inspections for the biodiversity offset area, buffer zones, and rehabilitation areas had been conducted.	As of the time of the audit, the Landscape Management Plan had not been approved and the Quarry was still operating under the existing strategies, plans or programs for the site that had been approved under DA 0134/95 as per condition 14 of Schedule 2 of SSD 4978. Formalized inspection and recording process has been undertaken and is carried out on a three monthly basis – Implemented June 2017.	Inspection reports available upon request.
No record to verify feral animal inspections for the biodiversity offset area, buffer zones, and rehabilitation areas had been conducted.	As of the time of the audit, the Landscape management plan had not been approved and the site was still operating under the existing strategies, plans or programs for the site that had been approved under DA 0134/95 as per condition 14 of Schedule 2 of SSD 4978. Formalized inspection and recording process has been undertaken and the site conducts the feral inspections as part of the three monthly checklist. – Implemented June 2017.	Inspection reports available upon request.
While it was reported that extraction depths are physically measured on site with a tape measure – no record maintained to show that the depth of extraction was not beyond 15m below natural ground surface.	Formalised inspection and recording process has been undertaken and will be checked as a minimum of twice a year. Implemented - April 2017.	Inspection reports available upon request.
While requirements are communicated to truck drivers, a process to verify that loads are covered or that they are cleaned of material that may fall on the road had not been implemented.	As of the time of the audit, the Transport management plan had not been approved and the site was still operating under the existing strategies, plans or programs for the site that had been approved under DA 0134/95 as per condition 14 of Schedule 2 of SSD 4978. Random vehicle checks are carried out to verify these requirements. The Random vehicle checklist, though requiring that vehicles are to be checked for operating tarps to ensure load coverage. Additionally, it is to be commented within the random vehicle checklist to verify that loads are leaving site in a covered state. Implemented June 2017.	Inspection reports available upon request.
Noise monitoring report was not submitted within 3 weeks of the noise monitoring being undertaken.	The initial noise monitoring, though commissioned in the required time, was carried out later than expected due to the consultant travelling to Europe at short notice due to illness within his family. As a result the monitoring was done later the report being submitted after the required time period. The second report prepared in April 2017 was submitted within the required timeframe.	No further action required.



**Table 23 (Cont'd)**  
**Summary of Independent Audit Actions**

Page 3 of 3

Issue Sighted	Action / Response	Status Update
<p>While it was reported that, as the area is significantly less than 40 ha, a visual inspection is all that is required, no records of inspections were available.</p>	<p>As of the time of the audit, the Water Management Plan had not been approved and the site was still operating under the existing strategies, plans or programs for the site that had been approved under DA 0134/95 as per condition 14 of Schedule 2 of SSD 4978. While 6 monthly visual inspections are carried out, Hy-Tec has committed to arranging an annual drone flyover to verify overall area of operations. The first flyover (by fixed wing aircraft took place in January 2017).</p> <p>Implemented January 2017 for aerial requirement.</p> <p>Formalised inspection and recording process has been undertaken and will be checked as a minimum of twice a year. Implemented - May 2017.</p>	<p>A further drone fly-over was conducted in March 2018.</p>

## 11. INCIDENTS AND NON-COMPLIANCES DURING THE REPORTING PERIOD

### 11.1 INTRODUCTION

The following subsections outline incidents and non-compliances that occurred during the reporting period. An Independent Environmental Audit was undertaken on 24 January 2017 that addressed compliance up to and including this date. An internal review of compliance with the conditions of SSD 4978 was undertaken by Hy-Tec and RWC and is included at **Appendix 2**. The operation remained generally compliant with development conditions throughout the reporting period with the exception of the non-compliances listed below.

### 11.2 INCIDENTS

There were no incidents that threatened or caused material environmental harm and required notification to DPE or the EPA during the reporting period.

### 11.3 DPE SITE INSPECTION AND AUDIT

On 6 June 2017, DPE undertook a site inspection and audit at the Quarry. During that visit a range of issues were identified that included the following.

- Historical storage of plant, equipment and other items to the east of the Quarry operational areas.
- The condition of the central clean water diversion drain and the possible flow of water from the clean water diversion drain into the dredge pond in Domain 6.
- Possible disturbance outside if the approved boundary of Domain 6.
- Crossings of Tinda Creek constructed potentially without the relevant approvals under the *Water Act 1912* or the *Water Management Act 2000*.
- A breach of the closed water management system in the vicinity of Domain 7.

A response to these issues was provided by Hy-Tec on 10 July 2017. Hy-Tec stated in this correspondence that issues such as the creek crossings and disturbance outside the approved boundary were in fact compliant. Hy-Tec was also able to present the remediation actions and procedures that were implemented immediately following the site inspection. The DPE issued penalty notices and Hy-Tec entered into a voluntary undertaking as a consequence of the matters arising from the site inspection (see Section 11.4).

Hy-Tec will continue to comply with the voluntary undertaking regarding revegetation activities in the southeast corner of the Quarry and will also continue to implement surface water management in accordance with the approved *Water Management Plan*. An updated Water Management Plan is expected to be finalised in the second quarter of 2018 and will present the ongoing management of the closed water management system.

## 11.4 NON-COMPLIANT CONDITIONS (SSD 4978)

### Schedule 5, Condition 1 & Schedule 2, Condition 2(b)

On 17 July 2017, the DPE issued two penalty notices (\$15,000 each) for breaches of development consent conditions requiring implementation of the site's Environmental Management Strategy relating to diversion drains and implementation of a closed water management system. Hy-Tec undertook works to address the issues identified by the DPE.

### Schedule 5, Condition 10

On 27 October 2017, the DPE sent correspondence about late submission of Hy-Tec's response to the independent environmental audit of the development. On 8 November 2017, Hy-Tec submitted its response to the independent audit.

### Schedule 3, Condition 30

On 24 November 2017, the DPE issued a penalty notice (\$15,000) for breach of the development consent condition relating to management of waste on the site. Hy-Tec removed the relevant items from the site in liaison with the DPE and EPA. The DPE also asked Hy-Tec to enter into a voluntary undertaking for the revegetation of the area which has been mapped as containing the *Grevillea parviflora* species. Hy-Tec has entered into the voluntary undertaking. The first report on the progress of revegetation in the area was submitted to DPE in March 2018 and demonstrated that revegetation is occurring in the area and that monitored records of *Grevillea parviflora* have not been impacted by Quarry operations.

### Schedule 5, Condition 11

On 15 December 2017, the DPE issued a warning letter for alleged failure to comply with the development consent condition requiring Hy-Tec to maintain the complaints register on its website. Hy-Tec did not agree there had been any failure to update its complaints register as required under the development consent and confirmed this in writing with the DPE. Hy-Tec updated its complaints register, as required by the DPE, and as confirmed in correspondence to the DPE dated 12 January 2018.

## 11.5 ENVIRONMENT PROTECTION LICENCE

Operations generally complied with the conditions of EPL 12007 during the reporting period.

## 11.6 WATER ACCESS LICENCES

Water extraction and management complied with the condition of WAL 24367 and WAL 24381 during the reporting period.

## 11.7 ADDITIONAL MATTERS RAISED BY DPE

On 20 January 2017, the DPE requested that Hy-Tec undertake additional noise monitoring to record existing noise levels (sound power levels) that were being produced at the Quarry and undertake an assessment to predict the noise impact of the Quarry at nearby privately-owned residences. The results of that assessment are discussed in Section 6.3.5 and detailed results are provided in **Appendix 4**.

On 18 August 2017, the DPE sent a show cause letter to Hy-Tec stating that the DPE was investigating whether there had been a breach of Condition 8 of Schedule 3 with respect to air quality monitoring. Hy-Tec sent a letter to the DPE dated 11 September 2017 explaining why there has not been any non-compliance with the relevant condition. Hy-Tec noted that the Quarry had been operating in accordance with an approved Air Quality Management Plan that did not require deposited dust monitoring. Hy-Tec advised the DPE that air quality monitoring had been undertaken in 2017 (prior to the approval of an updated Air Quality Management Plan on 19 May 2017). The Air Quality Management Plan required one dust deposition gauge to be installed. Hy-Tec originally installed 2 deposition gauges, with a third gauge being installed in June 2017 in Extraction Domain 1 to provide a location for deposited dust monitoring closer to Quarry operations. The results of this monitoring are recorded in Section 6.2.3 and demonstrate that the Quarry continues to comply with the relevant criteria for deposited dust.



## 12. ACTIVITIES TO BE COMPLETED IN THE NEXT REPORTING PERIOD

The following operational activities are planned throughout the 2018 reporting period.

- Extraction will continue within Domain 6.
- The production forecast for 2018 is to extract, process and transport approximately 180 000t of sand product.
- Ongoing monitoring and maintenance of erosion and sediment controls and diversion drains.
- Continuation of progressive rehabilitation as practicable. This will primarily continue within south-eastern rehabilitation area.
- Continuation of water management and dust control measures.
- Waste will continue to be collected by licensed contractors and volumes and dates recorded.
- Continuation of LiDAR Survey and imagery capture of the Quarry Site.
- Continued implementation of all requirements and conditions prescribed under Development Consent SSD\_4978, EPL 12007 and approved management plans.

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