Hanson Construction Materials Pty Ltd

Groundwater Contingency Strategy:

Calga Sand Quarry

P1605538JR01V06
August 2020

martens consulting engineers

ENVIRONMENTAL

WATER

WASTEWATER

GEOTECHNICAL

CIVIL

PROJECT MANAGEMENT

Limitations Statement

The sole purpose of this report and the associated services performed by Martens & Associates Pty Ltd is to complete a Groundwater Contingency Strategy in accordance with the scope of services set out in the contract / quotation between Martens & Associates Pty Ltd and Hanson Construction Materials P/L (hereafter known as the Client). That scope of works and services were defined by the requests of the Client, by the time and budgetary constraints imposed by the Client, and by the availability of access to the site.

Martens & Associates Pty Ltd derived the data in this report primarily from a number of sources which may include for example site inspections, correspondence regarding the proposal, examination of records in the public domain, interviews with individuals with information about the site or the project, and field explorations conducted on the dates indicated. The passage of time, manifestation of latent conditions or impacts of future events may require further examination / exploration of the site and subsequent data analyses, together with a re-evaluation of the findings, observations and conclusions expressed in this report.

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The findings, observations and conclusions expressed by Martens & Associates Pty Ltd in this report are not, and should not be considered an opinion concerning the completeness and accuracy of information supplied by others. No warranty or guarantee, whether express or implied, is made with respect to the data reported or to the findings, observations and conclusions expressed in this report. Further, such data, findings and conclusions are based solely upon site conditions, information and drawings supplied by the Client *etc*. in existence at the time of the investigation.

This report has been prepared on behalf of and for the exclusive use of the Client, and is subject to and issued in connection with the provisions of the agreement between Martens & Associates Pty Ltd and the Client. Martens & Associates Pty Ltd accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.

Head Office
Suite 201, 20 George Street
Hornsby, NSW 2077, Australia
ACN 070 240 890 ABN 85 070 240 890
Phone: +61-2-9476-9999
Fax: +61-2-9476-8767
Email: mail@martens.com.au
Web: www.martens.com.au

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1	Client Review	Draft	25.08.2016	1E,1P,1H	1P		
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3	Client Review	Final	1.11.2016	1E,1P,1H	1P		
4	DPI Water Comments	Final	3.10.2017	1E,1P,1H	1P		
5	Client amendments	Final	4.10.2017	1E,1P,1H	1P		
6	Client amendments	Final	20.08.2020	1E,1P,1H	1P		

Distribution Types: F = Fax, H = hard copy, P = PDF document, E = Other electronic format. Digits indicate number of document copies.

All enquiries regarding this project are to be directed to the Project Manager.

Contents

Tables

1 Introduction

1.1 Overview

This Groundwater Contingency Strategy ("**GCS**") has been prepared to address Condition 16 of Schedule 3 of the development consent issued by the (then) NSW Department of Planning on 28 October, 2005 for the Calga Sand Quarry Extension (DA 94-4-2004).

1.2 Scope

This strategy includes:

- Procedures that would be followed in the event of any exceedance of the groundwater impact assessment criteria, or other identified impact on groundwater; and
- Measures to mitigate, remediate and/or compensate any identified impacts to provide an alternative long - term supply of water to the affected land owner that is equivalent to the loss attributed to the development.

1.3 Documents

This GCS should be read in conjunction with:

- Mackie Environmental Research P/L (2004) *Review of Additional Groundwater Modelling of Calga Sand Quarry*.
- Mackie Environmental Research P/L (2005) *Calga Sand Quarry: Amendment to DA 94-4-2004*.
- R.W. Corkery & Co P/L (2020) *Site Water Management Plan for the Calga Sand Quarry*.
- Dundon Consulting P/L (May, 2016a) *Calga Sand Quarry: 2015 Annual Independent Groundwater Audit*.
- Dundon Consulting (May, 2016b) *Calga Quarry: Bore Census*.

1.4 Consultation

Condition 16 of Schedule 3 of the consent requires this GCS be prepared in consultation with DPI Water (then NOW) and landowners within the zone of influence (Section 1.6). Table 1 summarises consultation completed.

Table 1: Consultation

Contact	Consultation Process		
	Telephone	**Email**	**Post**
NSW DPI Water	Yes Former officer (F. Hancock) has moved on. DPI Water Newcastle instructed document should be sent to referrals team for appropriate allocation for review (B. Mee, 30.08.2016).	Yes Document emailed to referrals team (Attachment E) by Martens. Comments received (Attachment E) and integrated in report (November, 2016) and clarified via email.	No
Landowner Power	No Phone contact disconnected.	No No email contact provided	Yes Document posted to home address by Operator.
Landowner Rozmanec	Yes (30.08.2016) Preferred to receive document by post.	No Preferred hard copy.	Yes Document posted to home address by Operator.
Landowner White	Yes (30.08.2016) Preferred to receive document by email.	Yes Emailed to property owner (30.08.2016) by Martens.	No Preferred to receive document by email.
Landowner Kashouli	No Could not be reached (30.08.2016).	No No email contact provided	Yes Document posted to home address by Operator
Landowner King	No No phone contact.	No No email contact provided	Yes Document posted to home address by Operator.
Landowner Glenworth Valley Pastoral Company	No No phone contact.	Yes Emailed to property owner (30.08.2016) by Operator.	No Document sent by email (30.08.2016).

1.5 Subject Site

The site is located on Peats Ridge Road, Calga, NSW (Lot 2 DP 229889) and is used for sand extraction and processing.

Details regarding site and surrounding conditions have previously been provided to the Department as part of the development application.

1.6 Groundwater Bore Network

In accordance with the recommendations of Mackie Environmental (2005), and as reflected in Condition 15 and 16 of DA 94-4-2004, a groundwater bore monitoring network has been established that includes all privately owned bores within a 500 m radius of the Quarry and a series of piezometers constructed for the Calga Sand Quarry. Monitoring of privately owned bores is subject to landowners permission and access conditions.

The monitoring network has taken into account the recent groundwater bore census (Dundon, 2016). As described in the approved Site Water Management Plan (Corkery, 2020):

- The groundwater bore monitoring network includes:
  - 14 piezometers (two on-site, 12 off-site)
  - 7 privately owned, offsite, bores within potential zone of influence (Figure 1).
- Several privately - owned bores located within the zone of influence (as identified by the SWMP) have since been destroyed or decommissioned (Dundon, 2016a).
- Monitoring of piezometers located on land to the south of the quarry has ceased following refusal of the Southern Extention Project.

Table 2 and Figure 1 (Attachment A) provide bore identifications and locations.

Table 2: Monitoring bores.

Bore ID	Location [1]
CP1[2]	Offsite 'Glenworth Valley Pastoral Company'. North west of quarry.
CP4	Offsite 'Kashouli'property stock and domestic bores. North of quarry.
CP5	
CP6	
CP7	
CQ13	
CP8	Offsite 'Rozmanec' property water supply bore. East of quarry.
CP13[5]	Offsite 'White' property. North of quarry.
CP14[5]	Offsite 'King' property. North of quarry.
CP15[5]	Offsite 'Townsend' property. North of quarry.
CQ3, CQ4, CQ10, MW7, MW9, MW10, MW13, MW16	Onsite.
CP2[2], CQ5, CQ6[3], CQ7, CQ8, CQ9, CQ11S, CQ11D, CQ12,	Offsite 'Power' property. North of quarry.

Notes:

[1] See Figure 1, Attachment A.

[2] Not currently monitored, permission not granted for monitoring.

[3] Not currently monitored, access issues as a result of erosion.

[4] Onsite bores outside the 500 m zone of influence.

[5] Additional water supply bore identified through a recently completed groundwater census (Dundon, 2016b, Attachment B).

2 Impact Assessment

2.1 Monitoring Requirements

2.1.1 Groundwater Levels

Monitoring of groundwater levels is to continue in all monitoring bores identified in Table 2 as directed by the most up to date and approved SWMP (currently Corkery & Co, 2017), pending landowner approval and safe access.

Automatic data loggers have been installed in 10 piezometers and record water levels at 6 - hourly intervals (Dundon, 2016a) (Attachment C). All bores are monitored manually every second month.

2.1.2 Groundwater Quality

In accordance with the SWMP (2017):

- On - site determination of pH and electrical conductivity (EC) by collecting water samples from all on and offsite monitoring bores shall occur quarterly, subject to landowner's consent.
- A comprehensive laboratory analysis of major cations, anions and dissolved metals shall be completed from samples taken from all on and offsite monitoring bores annually.

Attachment D provides a summary of groundwater quality testing to be completed.

2.1.3 Rainfall and Evaporation

Monthly rainfall and evaporation are to be recorded by an automatic weather station located within the quarry site.

2.1.4 Ongoing Monitoring

Ongoing monitoring requirements shall reflect the most recently approved SWMP. Monitoring criteria may be modified over the life of the project as a result of changes in site conditions, development form and updated SWMP requirements. In the event that SWMP criterion change from the current approved 2017 document, this GCS shall be updated to reflect this and submitted to DPI Water for consultation

2.2 Impact Assessment Criteria

Adopted (SWMP, 2017) groundwater impact assessment criteria are as follows:

Groundwater Levels:

- If at any annual independent audit review, there is a declining trend in groundwater levels which is not attributable to climatic conditions or other factors not related to the sand extraction activities, and if the groundwater level decline at monitoring bores CQ10 or CQ11 deemed due to sand extraction impacts exceeds 1.0 m, then the landholders within the identified zone of influence will be approached to arrange re - testing of their existing production bore(s). The test results will be compared to pre - extraction tests, and if it is determined that any bore has suffered a reduction in its pumping yield of greater than 10% (in accordance with Condition 3(10) of the Consent) and that the decline in yield is caused by the quarry operations, then arrangements will be made with the affected landholder to restore water supply potential in accordance with Schedule 3, Condition 10 of the Consent (see Section 3).

- If at any other time, a landholder's bore within 500 m of the quarry suffers a reported loss of yield >10% due to declining groundwater levels, the loss of yield would be notified to both the Secretary and the affected landholders (in accordance with Condition 4(1) of the Consent).

  The site operator would also commission a hydrogeologist to conduct an investigation of the loss of yield. The investigation would include a review of all monitoring data, and if necessary re - testing of the bore to allow comparison of performance with previous tests. If the investigation reveals that the loss of yield is attributable to the quarry activities, arrangements would be made with the landholder to restore the supply by one of the means described in Schedule 3, Condition 10 of the Consent (see Section 3).

Note that monitoring bores CQ10 and CQ11 were installed as intermediate monitoring bores between the quarry site and production bores located on adjoining landholder properties within the identified zone of influence. Monitoring of these bores may result in early detection of groundwater impacts and subsequently reduce impacts on surrounding landholders.

In an assessment undertaken by Mackie Environmental Research (2004) as part of the development application for extension of the Calga

Quarry, it was concluded that groundwater level reductions of less than 1 m would not result in a loss of groundwater yield that exceeds 10%. This was therefore adopted in the SWMP (2017) as appropriate trigger criteria.

Groundwater Quality:

- If any private bore within 500 m of the quarry experiences a salinity increase (20% increase in EC or TDS), the following response actions would be implemented:
    - Resample bore to confirm water quality.
    - If salinity increase is confirmed, immediately notify the Secretary and affected landowner and refer data to an independent hydrogeologist for investigation.
    - If investigation confirms sand extraction activities as the likely cause, then arrangements are to be made with the landowner to restore supply of water by one of the means as detailed in Section 3. Suitability of option may be limited if water quality impacts are widespread on the offsite property.

These impact assessment criteria are to be maintained for future monitoring of groundwater.

3 Contingency Strategy

3.1 Overview

The following sections outline measures to compensate and provide an alternative long - term supply of water to affected landowners in the event an unacceptable negative impact on quality or quantity of available groundwater occurs as a result of site quarrying activities.

3.2 Remediation and Mitigation Requirements

Groundwater Level Impacts

Predictive modelling suggests expansion of quarrying activities and subsequent lowering of pit depths, as approved by the Consent, will lead to changes in groundwater levels that may or may not affect landholders within the identified zone of influence. As such, mitigation and remedial measures shall focus on early detection of offsite impacts and actioning of compensatory measures (Section 3.3). Ongoing monitoring may assist in minimising the impacts of these changes on landholders through efficient implementation of compensatory measures as outlined in Section 3.3.

Groundwater Quality Impacts

It is not expected that quarrying activities will lead to adverse groundwater quality impacts. Further, given the local groundwater gradient shall be towards the pit as it deepens, offsite migration of any impacted groundwater or groundwater contamination is unlikely. No remediation or mitigation measures for groundwater quality impacts are therefore required.

In the unlikely or rare event that adverse water quality impacts are detected, which are likely to compromise landholders within the zone of influence, these would be assessed and managed on a case by case basis.

3.3 Compensatory Water Supply

Schedule 3 Condition 10 requires the Applicant (i.e. the operator) to provide compensatory water supply in accordance with this GCS only if the exceedance of impact assessment criteria results in a reduction in bore yield of >10% and is attributable to the quarry operations.

Under such circumstances, arrangements will be made with the affected landholder to restore water supply potential by one of the following means:

1. Supply of an equivalent water supply by pumping from an alternative supply within the quarry site such as an onsite bore or dam. Depending on the location of the affected property owner, water shall be delivered via pump and pipe. If this option is not considered feasible (due to location of the affected property owner or otherwise) one of the other 3 options below will be used preferentially.

2. Deepening of the affected bore (if feasible) and any necessary pump upgrades.

3. Drilling of a replacement bore and any necessary pump upgrades.

4. Another mutually acceptable arrangement.

In accordance with DPI Water comments (B. Mee, 6/10/2016) the equivalent water supply shall be provided (at least on an interim basis) within 24 hours any water supply loss, resulting from quarrying activities (in accordance with Section 2.2), being confirmed.

3.4 Additional Requirements

In accordance with Schedule 4 of the Consent Conditions, the following should be undertaken and if the exceedance is found to have caused an adverse impact on the yield of a privately - owned bore, which is attributable to the quarry operations in an effort to mitigate, remediate and/or compensate affected landowners:

- In the event that impact assessment criteria are exceeded, the operator shall notify the Secretary and affected landowner and provide quarterly monitoring results until results demonstrate the development is complying with Section 2.2 of this GCS.

- If supported by the Secretary, the operator must, at the request of a landowner, have an independent review of impacts of the development undertaken. If the review confirms any non-compliance is occurring and is the result of quarrying activities, then the operator shall follow the response actions outlined in the consent.

- In the event of an incident occurring, the operator shall notify the Secretary and other relevant agencies as soon as practical and provide a detailed report within 7 days.

- In the event of an incident, an independent review, an audit or a modification of consent conditions, this GCS shall be revised and updated accordingly and to the satisfaction of the Secretary.

4 References

Development Consent (DA 94-4-2004) issued by NSW Department of Planning on 28 October, 2005 as modified June 2017.

Dundon Consulting P/L (May, 2016a) *Calga Sand Quarry: 2015 Annual Independent Groundwater Audit.*

Dundon Consulting (May, 2016b) *Calga Quarry: Bore Census.*

Mackie Environmental Research P/L (2004) *Review of Additional Groundwater Modelling of Calga Sand Quarry.*

Mackie Environmental Research P/L (2005) *Calga Sand Quarry: Amendment to DA 94-4-2004.*

R.W. Corkery & Co P/L (2020) *Site Water Management Plan for the Calga Sand Quarry.*

5 Attachment A – Figures

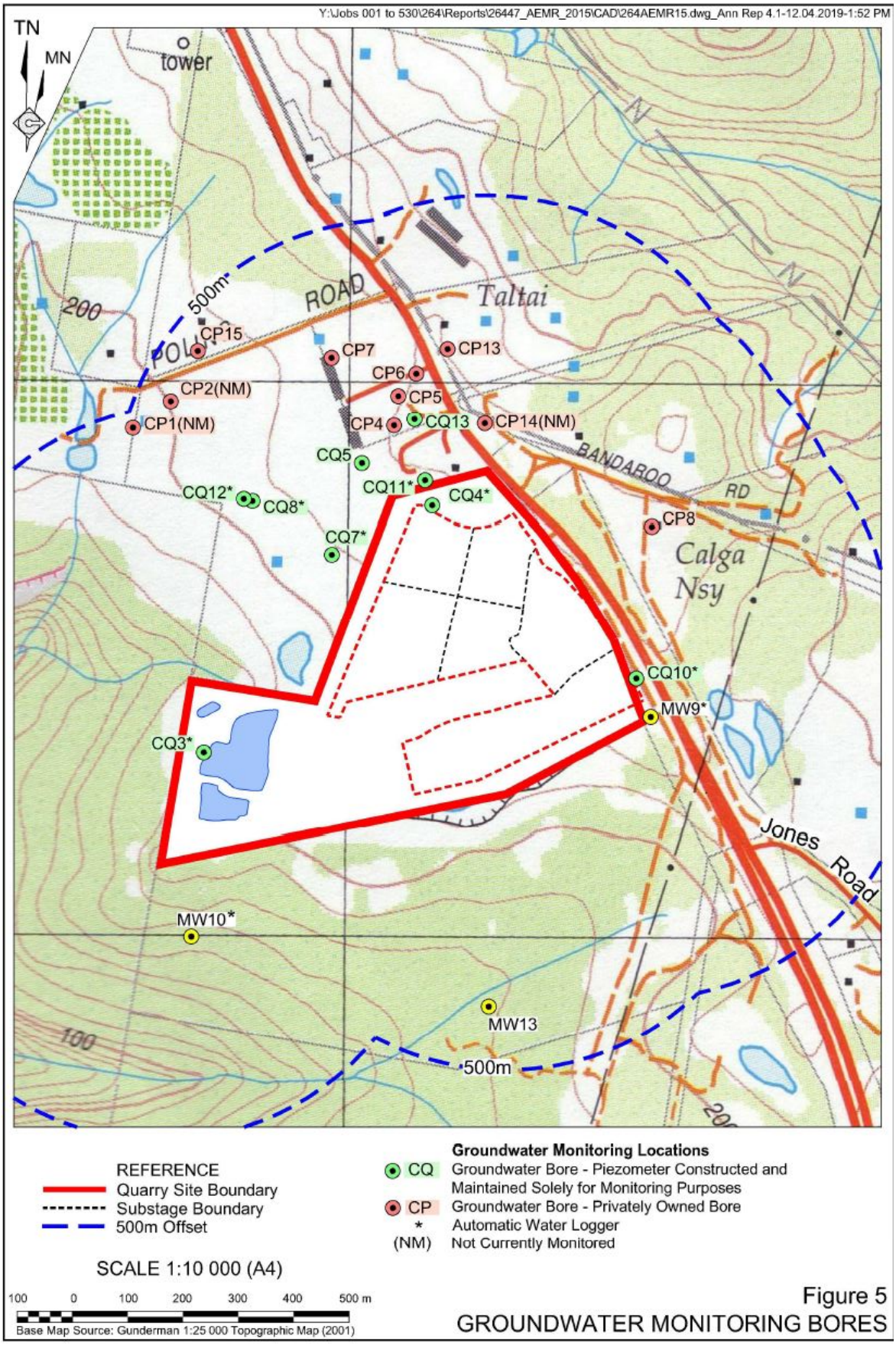


Figure 5
GROUNDWATER MONITORING BORES

Martens & Associates Pty Ltd ABN 85 070 240 890		**Environment | Water | Wastewater | Geotechnical | Civil | Management**	
Drawn:	MK	**Groundwater Bore Location Plan (Provided by Corkery, 2020)**	**FIGURE 1**
Approved:	AN		
Date:	16.10.2020		
Scale:	See figure		Job No: P1605538

6 Attachment B – Bore Census (Dundon Consulting P/L, 2016b)

Dundon Consulting Pty Limited
ACN 083 246 459
ABN 27 083 246 459

PO Box 6219, PYMBLE NSW 2073
telephone: 02-9988 4449
facsimile: none
mobile: 0418 476 799
email: pjdundon@ozemail.com.au

30 May 2016

Hanson Australia Pty Ltd
Level 18, 2-12 Macquarie Street
PARRAMATTA, NSW 2160

Attention: Ms Pip Cox

Dear Pip,

Re: Calga Quarry – Bore Census

Dundon Consulting was commissioned by Rocla Quarry Products to undertake a census of groundwater bores within 500m of the Calga Quarry, to update the census conducted prior to the 2006 Consent. This letter presents our final report on the census which was conducted in stages over the past year or so. The census proved to be difficult to complete quickly as a number of the property owners were difficult to contact.

I have been able to contact all but one of the landholders of properties which lie all or partly within 500m of the perimeter of the existing Calga Sand Quarry. The owner I have not been able to contact is J Hajje, who is the recorded owner of a property on the eastern side of Peats Ridge Road, the south-western portion of which lies within 500m of the quarry. I have been informed by one of the neighbours that the owner does not reside at the property, and there is no listed telephone number. On several visits to the property, which is protected by a locked gate at the roadside, I have not found anyone present at the property.

The results of the census of neighbouring properties, which are all identified on the attached **Figure 1**, are listed below.

Property[1]	**Recorded Owner**	**Current Ownership Status**	**Results of Census**	**Comment**
C (part)	A M & R A Townsend	Recently sold to Glenworth Valley	One unregistered bore located just inside 500m radius from quarry.	The bore was inspected, and the water level was measured at 4m below surface. The depth of the bore could not be determined, due to obstruction around the pump riser. Bore is currently in use for water supply.
D2 (part)	Glenworth Valley Pastoral Company		Owner reports no bores on property	
D3	Power Pastoral Holdings Pty Ltd		Three bores on the property. Bore CP3 (Gazzana domestic bore) was previously being monitored, but was removed by owner in 2015. No trace of CP3 remains.	Permission was never granted to monitor bores CP1 and CP2, which were used for water supply purposes.

[1] As denoted on Land Ownership Plan – Figure 4.4, and accompanying Table 4.2 from the EA for Calga Quarry Southern Extension (Corkery, 2009).

Property[1]	Recorded Owner	Current Ownership Status	Results of Census	Comment
E	B Kashouli		Bores CP4, CP5, CP6 and CP7 are already being monitored.	
H (part)	J Hajje		Unable to contact.	
I (part)	W P White & K M Eaton		Contacted in 2014, one bore identified, has been hydraulically tested. Recommended to be included in monitoring program, but monitoring has not yet commenced.	
J (part)	R D King		Mrs King has one bore, which has never been equipped or used for water supply. Bore is capped and arrangements would need to be made to remove the cap for testing purposes.	Write to Mrs King for permission to replace bore cap, to allow testing and ongoing monitoring.
K (part)	G B & L P Miles		Owner's son reported there are no bores on property.	
L	F & G Rozmanec		CP8 is already being monitored.	
M (part)	S & N E Cauchi		Owner has a spring, which was inspected and sampled. Spring is within 500m of the quarry. Very modest yield.	
O (part)	W White		Owner reported there are no bores on property.	
S (part)	C J Barnard		Owner reported there are no bores on property within 500m of property.	
V (part)	B A & B J Lawler		Owner reported there are no bores on property within 500m of quarry.	

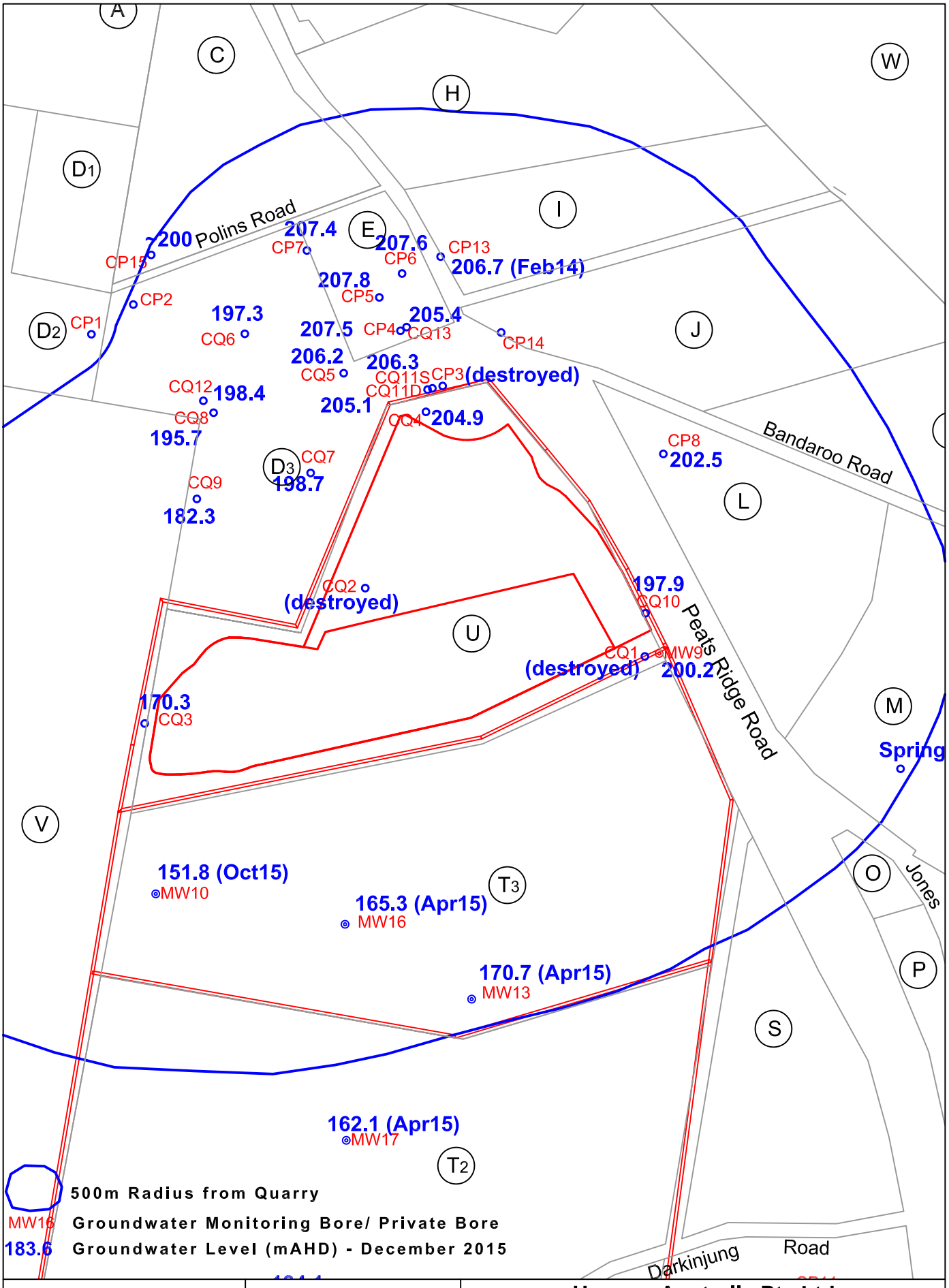
As a result of the updated groundwater census, it is recommended that the bores identified on the Townsend (Glenworth), White and King properties described in the table above be included in the current bi-monthly manual monitoring program (subject to landholder agreement). These three bores have been tentatively called CP13, CP14 and CP15, as a continuation of the current bore numbering system. Bores CP13 and CP14 are located to the north of the quarry on the eastern side of Peats Ridge Road. Bore CP15 is also located north of the quarry, on the northern side of Pollins Road.

Approximate locations are shown on the attached Figure 1. It is also recommended that each be surveyed for location and level.

Any other bore within 500m of the quarry boundary that may be identified in the future.

Yours faithfully,

Peter Dundon



DATE: 30 May 2016	SCALE: 1:20 000	**Hanson Australia Pty Ltd**
AUTHOR: PD CHECKED: PD	PROJECT NO: 15-0297	CALGA SAND QUARRY GROUNDWATER BORE LOCATION PLAN
DRAWING NO: 0297-001c	REVISION: C	
Dundon Consulting Pty Ltd		Figure 1

7 Attachment C – Bore Census Summary

	Bore ID	Location [1]	Monitoring technique
Inside zone of Influence	CP1[2]	Offsite 'Glenworth Valley Pastoral Company'. North west of quarry.	Manually dipped quarterly
	CP4	Offsite 'Kashouli'property stock and domestic bores. North of quarry.	Manually dipped quarterly
	CP5		Manually dipped quarterly
	CP6		Manually dipped quarterly
	CP7		Manually dipped quarterly
	CQ13		Automatic data logger plus manually quarterly
	CP8	Offsite 'Rozmanec' property water supply bore. East of quarry.	Manually dipped quarterly
	CP13 [5]	Offsite 'White' property. North of quarry.	Not yet being monitored
	CP14 [5]	Offsite 'King' property. North of quarry.	Not yet being monitored
	CP15 [5]	Offsite 'Townsend' property. North of quarry.	Not yet being monitored
	CQ3	Onsite.	Automatic data logger plus manually quarterly
	CQ4		Automatic data logger plus manually quarterly
	CQ10		Automatic data logger plus manually quarterly
	CP2[2]	Offsite 'Power' property. North of quarry.	Manually dipped quarterly
	CQ5		Manually dipped quarterly
	CQ6[3]		Manually dipped quarterly
	CQ7		Automatic data logger plus manually quarterly
	CQ8		Automatic data logger plus manually quarterly
	CQ9		Manually dipped quarterly
	CQ11S		Automatic data logger plus manually quarterly
	CQ11D		Automatic data logger plus manually quarterly
	CQ12		Automatic data logger plus manually quarterly

8 Attachment D – Groundwater Quality Testing Summary

Bore ID	Location	Field testing (quarterly)		Laboratory testing (annually)		
		pH	Electrical Conductivity	Major Anions [2]	Major Cations [3]	Dissolved Metals [4]
CP1[1]	Offsite 'Glenworth Valley Pastoral Company'. North west of quarry.	X	X	X	X	X
CP4[1]	Offsite 'Kashouli'property stock and domestic bores. North of quarry.	X	X	X	X	X
CP5[1]		X	X	X	X	X
CP6[1]		X	X	X	X	X
CP7[1]		X	X	X	X	X
CQ13		X	X	X	X	X
CP8[1]	Offsite 'Rozmanec' property water supply bore. East of quarry.	X	X	X	X	X
CP13[1]	Offsite 'White' property. North of quarry.	X	X	X	X	X
CP14[1]	Offsite 'King' property. North of quarry.	X	X	X	X	X
CP15[1]	Offsite 'Townsend' property. North of quarry.	X	X	X	X	X
CQ3, CQ4, CQ10	Onsite.	X	X	X	X	X
CP2[1], CQ5, CQ6, CQ7, CQ8, CQ9, CQ11S, CQ11D, CQ12,	Offsite 'Power' property. North of quarry.	X	X	X	X	X

Note:

[1] Monitoring and sampling subject to landholders consent.

[2] Major anions to be monitored = CO_3, HCO_3, SO_4, Cl, F, NO_3.

[3] Major cations to be monitored = Ca, Mg, Na, K.

[4] Dissolved metals to be monitored = Al, Cd, Cr, Cu, Fe, Mn, Ni, Pb, Zn.

9 Attachment E - Consultation

Megan Kovelis

From: Megan Kovelis
Sent: Tuesday, 30 August 2016 2:36 PM
To: water.referrals@dpi.nsw.gov.au
Cc: brendan.mee@dpi.nsw.gov.au; Andrew Norris; Cox, Pip (Parramatta) AUS (pip.cox@hanson.com.au)
Subject: 5538; Calga Sand Quarry - Groundwater Contingency Strategy consultation
Attachments: P1605538JR01V02 160830.pdf

Good Afternoon,

I spoke with Brendan Mee briefly this afternoon in relation to the above project. We have been engaged by Hanson to prepare a Groundwater Contingency Strategy to support approved expansion works. Condition 16 (DA 94-4-2004) requires us to consult with NSW DPI water and land owners as part of preparing this document. I understand that Fergus Hancock (Newcastle Office) was previously the relevant officer, however he has since moved on. Brendan has advised that sending this document to the referrals email is the best course of action and the document will be assigned to someone for review accordingly.

Please advise to confirm that this has been received and whether any additional information is required.

Kind Regards,

Martens & Associates Pty Ltd

Megan Kovelis
Environmental Scientist
BEnvSc (Hons1)

Office Hours: Tues - Thurs

Martens & Associates Pty Ltd
Suite 201, 20 George Street
Hornsby, NSW 2077
P + 61 2 9476 9999
F + 61 2 9476 8767
www.martens.com.au

Megan Kovelis

From: Megan Kovelis
Sent: Tuesday, 1 November 2016 3:48 PM
To: 'Brendan Mee'
Cc: Andrew Norris
Subject: RE: Emailing - OUT16 37171 DPI Water letter response Groundwater Contingency Strategy Calga Sand Quarry Sept 2016.PDF

Afternoon Brendan,

Thank you for sending through DPI Comments on the above site and the Groundwater Contingency Strategy. We are amending our assessment and will forward a revised version shortly. In response to your Point 1 we provide the following information to provide DPI Water with some context and clarification of the requirements for the report.

Hanson acquired Calga Sand quarry end of January 2016, and subsequently the DP&E requested that the Company address the requirement of Schedule 3, Condition 16 of Project Approval (DA 94-4-2004). Previously this condition had been partially met in the Site Water Management Plan, however required further action to meet complete compliance with this condition. Hanson commissioned Martens and Associates to prepare the document and additionally consult with NOW and landowner to satisfy the requirements of the condition.

Please feel free to contact me if you require additional information in this regard.

Kind Regards,

Martens & Associates Pty Ltd

Megan Kovelis
Environmental Scientist
BEnvSc (Hons1)

Office Hours: Tues - Thurs

Martens & Associates Pty Ltd
Suite 201, 20 George Street
Hornsby, NSW 2077
P + 61 2 9476 9999
F + 61 2 9476 8767
www.martens.com.au

-----Original Message-----
From: Brendan Mee [mailto:brendan.mee@dpi.nsw.gov.au]
Sent: Thursday, 6 October 2016 10:52 AM
To: Megan Kovelis
Cc: Landuse Enquiries; Water Referrals
Subject: Emailing - OUT16 37171 DPI Water letter response Groundwater Contingency Strategy Calga Sand Quarry Sept 2016.PDF

Hi Megan,

Please see attached response to the Groundwater Contingency Strategy for Calga Sand Quarry.

Please feel free to contact me if you have any queries in regards to this.

Kind regards,

Brendan Mee | Water Regulation Officer
NSW Department of Primary Industries | Water Level 3 | 26 Honeysuckle Drive | Newcastle NSW 2300 | PO Box 2213, Dangar NSW 2309
T: 02 4904 2524 | F: 02 4904 2503 | E: brendan.mee@dpi.nsw.gov.au
W: www.water.nsw gov.au | www.dpi.nsw.gov.au

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