

Calga Sand Quarry

Environmental Monitoring Program

Prepared by:



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Environmental Monitoring Program

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1 INTRODUCTION

It is recognised that the operation of the Calga Sand Quarry ("the quarry") has the potential to impact on various aspects of the local environment on and beyond the boundaries of the quarry. In order to manage these potential impacts, and in compliance with *Condition 5(2)* of Development Consent 94-4-2004 ("the Consent"), an Environmental Monitoring Program (EMonP) was prepared and approved (by the Director-General of the Department of Planning) for the quarry in March 2006. The EMonP represents a consolidated summary of all monitoring activity to be undertaken for the life of the quarry.

An independent audit of the quarry was completed in June 2009 by Umweltdt (Australia) Pty Ltd and in accordance with *Condition 5(3)* of the Consent, the Environmental Monitoring Program has been updated.

2 CONSENT REQUIREMENTS

PA 05_0065 includes one condition relating to the EMonP. This condition is presented in full in **Box 1**.

ENVIRONMENTAL MONITORING PROGRAM

2. Within 3 months of the date of this consent, the Applicant shall prepare an Environmental Monitoring Program for the development, to the satisfaction of the Director-General. This program must consolidate the various monitoring requirements in schedule 3 of this consent into a single document.
3. Within 3 months of the completion of each Independent Environmental Audit (see below), the Applicant shall review, and if necessary update, the Environmental Monitoring Program to the satisfaction of the Director-General.

Box 1

EMonP - related Consent Conditions

3 ENVIRONMENTAL MONITORING PROGRAM

Presented in tabular form, the following program consolidates monitoring commitments made in the following documents:

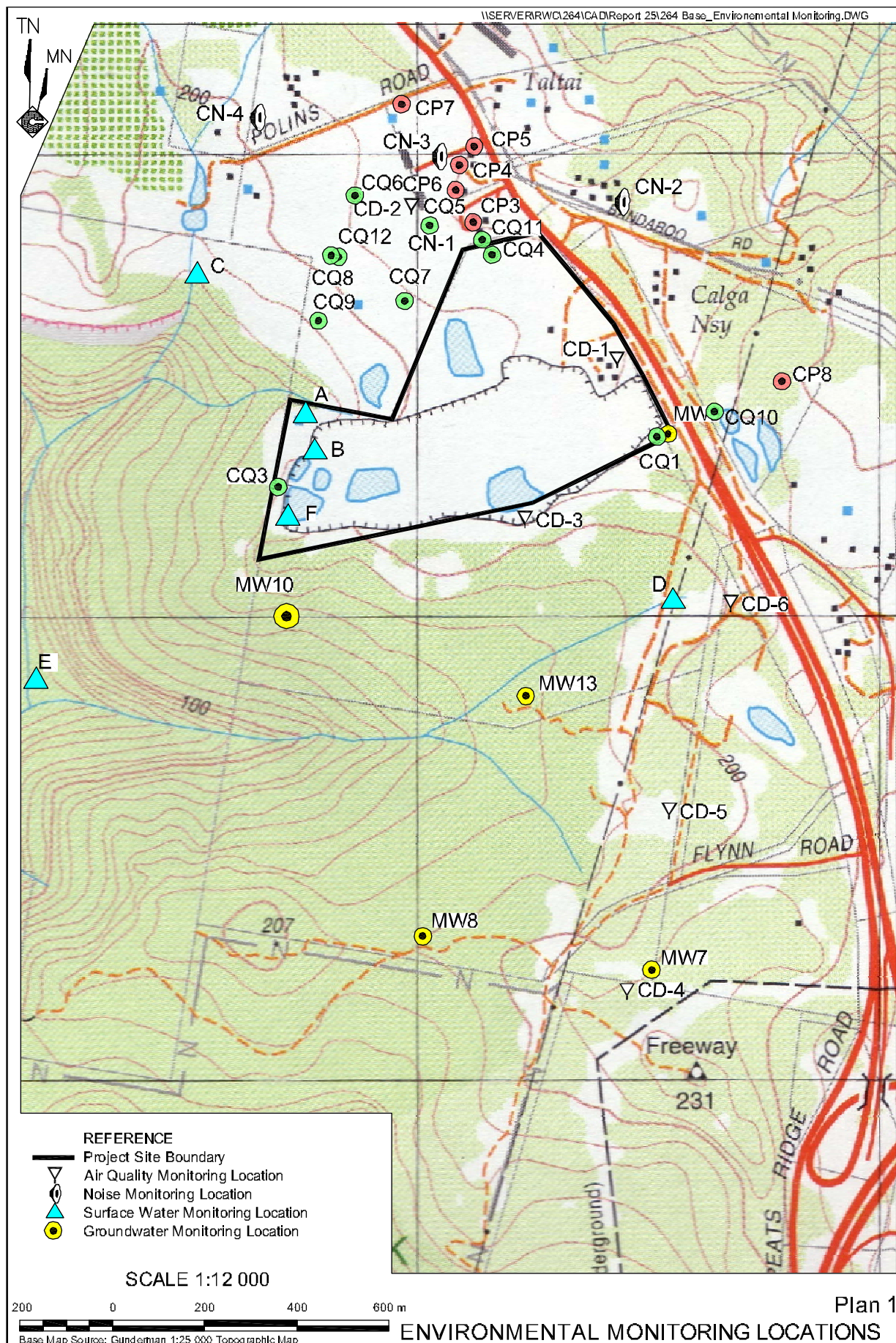
- Site Water Management Plan (Rocla document 264/26a).
- Noise Monitoring Program (Rocla document 264/26b).
- Air Quality Management Program (Rocla document 264/32).

For each environmental aspect, information is provided on relevant Consent conditions, monitoring locations, responsibility to complete and timing.

Plan 1 presents the various monitoring locations on and surrounding the quarry.

As the monitoring requirements of the quarry may change over time, this document will be reviewed and updated each year in conjunction with the preparation of an Annual Environmental Management Report.





ENVIRONMENTAL MONITORING PROGRAM¹

CALGA SAND QUARRY



ABN: 30 083 169 091

		Location	Conducted by:	Reviewed by:	Reference Document	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NOISE	Quarterly Attended Monitoring	CN-1 to CN-4	Wilkinson Murray	Rocla (Resource Development Manager) ²	Noise Monitoring Program - Section 4.2 (Figure 1)	✓			✓			✓			✓		
	Yearly Unattended Monitoring	CN-1 to CN-4	Wilkinson Murray		Noise Monitoring Program - Section 4.2 (Figure 1)										✓		
AIR	Deposited Dust	Deposited Dust Gauges CD-1 to CD-6	Carbon Based Environmental	Rocla (Resource Development Manager) ²	Air Quality Monitoring Program - Section 4.2 (Figure 1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	PM ₁₀ Monitoring	Not Yet Applicable				To be conducted only if a sustained exceedance occurs in deposited dust levels.											
SURFACE WATER	Monthly Flowing Water	Sites A, B, C, D & F	Carbon Based Environmental	Rocla (Resource Development Manager) ²	Site Water Management Plan - Section 5 (Figure 3)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Following Rainfall Events (>50mm/24hr)	Sites A, C & D	Delegate of Quarry Manager			To be conducted when daily rainfall exceeds 50mm.											
GROUND-WATER	Continuous Water Levels	Bores CQ1, CQ3, CQ4, CQ7, CQ8, CQ10, CQ11S, CQ11D, CQ12, CQ13 & MW7 to MW10	Carbon Based Environmental	Rocla (Resource Development Manager) ²	Site Water Management Plan - Section 6.2.3 (Figure 4)	Automatically recorded but downloaded on a monthly basis.											
						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Monthly Water Levels	Bores CQ5, CQ6, CQ9, CP3 to CP8, MW13 & MW16	Carbon Based Environmental		Site Water Management Plan - Section 6.2.3 (Figure 4)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Groundwater Quality (pH & EC)	Bores CQ1, CQ3 to CQ13, CP3 to CP8, MW7 to MW10, MW13 & MW16	Carbon Based Environmental		Site Water Management Plan - Section 6.2.4 (Figure 4)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Groundwater Quality (Cations & Anions)	Bores CQ1, CQ3 to CQ13, CP3 to CP8, MW7 to MW10, MW13 & MW16	Carbon Based Environmental		Site Water Management Plan - Section 6.2.4 (Figure 4)			✓						✓			
	Private Bore Yield	CP1 to CP8	Independent Hydrogeologist		Site Water Management Plan - Section 6.4.1 (Figure 4)	To be conducted in response to declining trend in groundwater level or request from private landholder.											

Note 1: This program is to be updated annually and included in the relevant AEMR.

Note 2: An annual review of the monitoring results is undertaken by an independent environmental consultant.

Note 3: An annual review of the groundwater monitoring results is undertaken by Aquaterra Pty Ltd.

