Champions Quarry Expansion

AIR QUALITY MANAGEMENT PLAN

Final Report

Version 2.2 (October 2017)

Champions Quarry
"Working with the Environment"

REVISION HISTORY AND APPROVAL OF THE AIR QUALITY MANAGEMENT PLAN

Version	Date	Description	By	Review
1.0 (July 2013)	July 2013	Final Report Air Quality Management Plan	Champions Quarry	Jeff Champion Completed
1.0 (July 2013)	September 2013	Final Report Air Quality Management Plan	EPA	Completed
1.0 (July 2013)	October 2013	Final Report Air Quality Management Plan	DP & I	Amendments requested
1.1 (October 2013)	January 2014	Final Report Air Quality Management Plan	DP & I	Amendments requested
1.1 (October 2013)	February 2014	Final Report Air Quality Management Plan	DP & I	Completed
2.0 (January 2017)	January 2017	Final Report Air Quality Management Plan	Champions Quarry	Jeff Champion
			DP & E	Comments
2.1 (March 2017)	March 2017	Final Report Air Quality Management Plan	Champions Quarry	Jeff Champion
			DP & E	Approved
2.2 (October 2017)	October 2017	Final Report Air Quality Management Plan	Champions Quarry	Jeff Champion
			DP & E	Approved

This Management Plan has been prepared after due consideration of the Guidelines from DP & E which seek to ensure that this is an effective and user friendly Plan. It is not a prescriptive or detailed document but provides a broad framework and direction.

This Management Plan is considered a dynamic document and will be reviewed where necessary as part of the annual review process (see Section 8 of the EMS). This Management Plan and any subsequent revisions must be approved by Champions Quarry Management and DP & E. The Management Plan must be prepared in consultation with the NSW Environmental Protection Authority and then submitted to the Secretary (or a nominee) of DP & E for approval in accordance with the Project Approval.

A copy of the revised Management plan will be available on the Proponent's website.

REVISION HISTORY AND APPROVAL OF PROJECT APPROVAL (CONDITIONS OF APPROVAL)

Date	Description	By	Review
30 August 2012	Project Approval	Champions Quarry	Jeff Champion
		DP & I	
29 October 2013	Notice of Modification (09_0080 MOD 1)	Champions Quarry	Jeff Champion
		DP & I	
16 September 2016	Notice of Modification (09_0080 MOD 2)	Champions Quarry	Jeff Champion
		DP & E	
9 August 2017	Notice of Modification (09_0080 MOD 3)	Champions Quarry	Jeff Champion
		D P & E	

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GLOSSARY

Biodiversity Offset Strategy	The conservation and enhancement strategy described in the documents listed in condition 2(a) of Schedule 2, and shown in the figure in appendix 6 of the Project Approval
CoA	Planning and Assessment Commission of NSW Conditions of Approval dated August 30, 2012 (incorporating the Statement of Commitments (SoC)) as amended from time to time
Contractor	Contractor engaged by the Proponent to undertake activities associated with the Project (and includes Subcontractors)
Department	Department of Planning and Environment
DECCW	Department of Environment, Climate Change and Water
DoP	Department of Planning
DP & I	Department of Planning and Infrastructure (previously known as DoP)
DP & E	Department of Planning and Environment (previously known as DP & I)
DPI (Agriculture)	Department of Primary Industries - Agriculture
DPI (Water)	Department of Primary Industries - Water
DRG	Division of Resources and Geoscience within the NSW Department of Planning and Environment
Environment	Surroundings in which the Project operates within including: air, water, land, natural resources, flora, fauna, humans, heritage and their interrelation
Environmental Aspect	Element of organisational activities or products that can interact with the environment
Environmental Impact	Any changes to the environment, whether adverse or beneficial, wholly or partially resulting from an organisational aspect
Extraction Areas	The Central and Southern Extraction Areas, shown on Figure 9 in Appendix 6 of the Project Approval
EA	Champions Quarry Expansion, Environmental Assessment Report prepared by ERM Pty Limited and dated February 2010
EA (MOD 1)	Modification Application MP 09_0080 MOD 1 dated April 2013
EA (MOD 2)	Modification Application MP 09_0080 MOD 2 dated February 2016, the accompanying annexures A and B and the response to submissions dated April 2016
EA (MOD 3)	Modification Application MP 09_0080 MOD 3 dated February 2017, titled Annexure A – Application pursuant to Section 75W of the Environmental Planning and

	Assessment Act 1979, and the response to submissions dated July 2017
EMP	Environmental management practices
EMS	Environmental Management Strategy prepared in accordance with Schedule 5 Condition 1 of the Project Approval
EPA	NSW Environmental Protection Authority
ERM	Environmental Resources Management Australia
EP & A Act	*Environmental Planning and Assessment Act 1979 (NSW)*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environmental Protection Licence under the POEO Act
Guidelines	The Guidelines for Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2004) and Approved Methods and Guidelines for the Modelling and Assessment of Air Pollutants in New South Wales, NSW DEC, August 2005
Incident	A set of circumstances that: • cause or threaten to cause, material harm to the environment; and/or • breaches or exceeds the limits or performance measures/criteria in the Project Approval
LCC	Lismore City Council
Management Plan	Refers to this Air Quality Management Plan
Minister	Minister for Planning, or delegate
OEH	Office of Environment and Heritage
PM_{10}	Particulate Matter less than 10 microns
POEO Act	*Protection and Environment Operations Act 1997*
Preferred Project Report (PPR)	Champions Quarry Expansion, Preferred Project Report prepared by ERM Pty Limited and dated December 2011
Project Approval	Project Approval issued by Planning and Assessment Commission of New South Wales containing the CoA dated 30 August 2012 as amended from time to time
Proponent	Reavill Farm Pty Ltd and Tucki Hills Pty Ltd and any other entity or person who seeks to carry out the development approved under the Project Approval
Response to Submissions (RTS)	Champions Quarry Response to Submissions, prepared by ERM Pty Limited and dated September 2010 and containing the Proposed Quarry Management Plan
RMS	Roads and Maritime Services

Secretary	Secretary of DP & E, or nominee
SoC	Statement of Commitment (Appendix 3 of the Project Approval)
Subcontractor	Any company, body or person who is contracted to the Contractor for the purpose of supplying services or goods.
TSP	Total Suspended Particulates

1 BACKGROUND

1.1 OVERVIEW

The Proponent has been granted Project Approval by the NSW Minister for Planning and Infrastructure under Section 75J of the EP & A Act to expand quarrying operations of the quarry known as Champions Quarry located at Tuckurimba (near Lismore) on the Far North Coast of New South Wales (herein referred to as "the Project").

The approved expansion is to increase the extraction rate from a maximum of 29,000m^3 (approximately 64,000 tonnes) of sandstone material to 250,000 tonnes of extractive materials per calendar year until the year 2038. Activities included as part of the expansion include but are not limited to, those activities required for clearing, top soil and over burden removal, extraction of quarry product, processing, stockpiling, loading and transportation of material.

As outlined in the EMS, the Project has undergone a high level of scrutiny as part of a detailed EA and subsequent investigations to evaluate the extent of impact of the proposed quarry expansion on the environment including air quality.

1.2 SUMMARY OF PREVIOUS AIR QUALITY INVESTIGATIONS

An Air Quality Assessment was carried out by ERM during 2009 for inclusion in the EA. This assessment involved a Level 2 Air Quality Impact Assessment, as described by DECCW (2005) to determine potential impacts from the quarry expansion, being a realistic and comprehensive assessment based on site specific input data.

The main air quality issues as a result of the quarry expansion were considered to be:

- Total Suspended Particulates (TSP); and
- Particulate Matter less than 10 microns (PM_{10}).

No dust deposition monitoring program has been undertaken in the vicinity of the Project site. There is no public information regarding background dust deposition levels in the Lismore region. The Project site is located in a well vegetated agricultural area, as such it is anticipated that background dust deposition levels will be low, and a cumulative assessment of dust deposition has not been undertaken.

It is noted in the Air Quality Assessment that was carried out by ERM during 2009 that the sandstone material at Champions Quarry is not expected to contain significant fines (ie. less than 10 microns) as demonstrated by the laboratory reports set out in Appendix B of the EA. Laboratory reports provided in the material assessment report indicated that generally less than 20% of material passed the 75 micron sieve, hence the size distribution used for modelling purposes and testing in the Air Quality Assessment was conservative.

2 PURPOSE AND OBJECTIVES

2.1 PURPOSE

The primary purpose of this Management Plan is to provide procedures to:

- Describe how the Proponent will manage and control risks associated with air quality during the expansion and operation of the Project;
- Ensure the protection of nearby receivers in accordance with Schedule 3 Condition 10 of the Project Approval when carrying out the Project activities;
- Ensure that the EPA and the Secretary are involved in the formulation of this Management Plan;
- Address the requirements of applicable legislation and any ongoing approvals as they are applicable to the Project;
- Meet the Project Approval; and
- Address the requirements of the EA.

This Management Plan provides procedures and actions that may need to be implemented to monitor impacts of the Project on air quality.

2.2 OBJECTIVES

The air quality management objectives of the operations are to implement appropriate EMP's to minimise air quality impacts. This Management Plan's objectives specifically in relation to the Project are to describe:

- the proposed air quality management system;
- an air quality monitoring program that:
  - is capable of evaluating the performance of the Project;
  - includes a protocol for determining any exceedances of the Project Approval;
  - supports the air quality management system; and
  - evaluates and has a protocol to report on the adequacy of the air quality management system;
- measures to ensure the best management practice is employed;
- measures to ensure air quality impacts of the Project are minimised during adverse meteorological conditions and extraordinary events;
- measures to ensure compliance with the relevant Project Approval; and
- key roles and responsibilities.

Further in accordance with Schedule 5 Condition 3 of the Project Approval, this Management Plan includes the following information (as determined relevant to air quality of the Project):

- baseline data;
- a description of:

  - relevant statutory requirements;
  - relevant limits or performance measures/criteria;
  - relevant performance indicators;

- a description of the measures that would be implemented to comply with relevant statutory requirements, limits, or performance measures /criteria;
- a program to monitor and report on:
  - the impacts and environmental performance of this Project:
  - the effectiveness and management measures;
  - a contingency plan to manage any unpredicted impacts and their consequences;
  - a program to investigate and implement ways to improve the environmental performance of the project over time;
  - a protocol for managing and reporting any incidents, complaints, non-compliance with statutory requirements and exceedances; and
  - A protocol for the periodic review of this Management Plan.

3 AIR QUALITY IMPACTS AND LEGISLATIVE OBLIGATIONS

3.1 ENVIRONMENTAL IMPACTS

The Project activities that are most likely to have the potential to result in impacts to air quality are:

- Bulldozers working on topsoil, overburden and sandstone material;
- Loading unprocessed sandstone to haul and road trucks;
- Transfer of unprocessed material to the washing and screening plant;
- Wheel generated dust from road trucks, onsite haul trucks and mobile equipment; and
- Wind generated dust from exposed areas and stockpiles.

A detailed Air Quality Assessment was undertaken by ERM as part of the EA for the expansion of Champions Quarry. By way of overview, it was concluded from the air quality assessment that the proposed expansion operations even when conservatively modelled would meet the NSW DECCW air quality impact criteria for the PM_{10} and TSP short and long term averages and dust deposition. Further, the proposed increased throughput and extraction area of the quarry is not anticipated to have a significant impact on local air quality.

3.2 LEGISLATION AND POLICIES

The applicable legal and other requirements related to air quality and environmental management for the Project are outlined in Table 3.1 below

Table 3.1 – Legal and other requirements for Environmental Management

Legislation and Policies
Environmental Protection and Biodiversity Conservation Act 1999
Environmental Planning and Assessment Act 1979
Environmental Planning and Assessment Regulation 2000
Protection of the Environment and Operations Act 1997
Protection of the Environment Operations (Clean Air) Regulation 2010
North Coast Regional Environmental Plan 1988 (NCREP)
Lismore Local Environmental Plan 2012 (Lismore LEP)

3.3 MINISTERS CONDITIONS OF APPROVAL

Pursuant to section 75B(1) of the EP & A Act, the Project was declared to be a project under Part 3A of the Act and project approval has been received from the Minister for Planning.

The primary conditions relevant to air quality in relation to the Project are contained within Conditions 10, 11 and 12 of Schedule 3 of the Project Approval. These Conditions and other additional clauses that are relevant to air quality impacts of the quarry are outlined below.

3.3.1 CONDITION 20 (COMPLIANCE) OF SCHEDULE 2 OF THE PROJECT APPROVAL

Condition 20 of Schedule 2 of the Project Approval states:

"The Proponent must ensure that all employees, contractors and sub-contractors are aware of, and comply with, the conditions of this approval relevant to their respective activities".

3.3.2 CONDITION 10 OF SCHEDULE 3 OF THE PROJECT APPROVAL

Condition 10 of Schedule 3 of the Project Approval states:

> "The Proponent must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated on site do not exceed the criteria in Tables 4 to 6 at any residence on privately-owned land, or on more than 25% of any privately-owned land".

Table 4 – Long Term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging Period	Criterion
Total Suspended Particulates (TSP)	Annual	90µg/m^3
Particulate Matter < 10 µm (PM_{10})	Annual	30µg/m^3

Table 5 – Short Term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging Period	Criterion
Particulate Matter < 10 µm (PM_{10})	24 hour	50µg/m^3

Table 6 – Long Term Impact Assessment Criteria for Deposited Dust

Pollutant	Averaging Period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m^2/month	4 g/m^2/month

Table 3.2 below presents a summary of the maximum predicted incremental ground level concentrations for the modelled receiver where highest concentrations were recorded. Receiver's locations were selected from those identified in Figure 3.1 as Receivers 1, 2, 3 and 4.

Table 3.2 – Maximum Incremental Ground Level Concentrations

(Extracted from Champions Quarry Air Quality Assessment Draft Risk Assessment performed by ERM forming part of the Environmental Assessment Report dated 25 February 2010 (Appendix E))

Pollutant[2]	Maximum Increment[1]	Background[4]	Cumulative	Criteria[3]	% of Criteria
PM_{10} – 24 Hour (µg/m^3)	23.8	24.9	48.7	50	97.4%
PM_{10} – 24 Hour (µg/m^3)[5]	1.39	42.5	43.9	50	87.8%
PM_{10} – Annual (µg/m^3)	1.75	20.7	22.45	30	74.8%
TSP – Annual (µg/m^3)	8.88	52.9	61.78	90	68.6%
Dust Deposition – Annual (g/m^2/month)	0.128	N/A	N/A	2	6.4%

1. Maximum increment has been estimated based on dispersion modelling.
2. Modelling results are presented for the receivers identified as experiencing the highest levels of each contaminant.
3. Criteria are sourced from DECCW (2005) "Approved Methods for the Modelling and Assessment of Air Pollutants in NSW".
4. Background data was derived from DECCW Tamworth TEOM monitoring data.
5. Predicted concentration on day of maximum background.

3.3.3 CONDITION 11 AND 12 OF SCHEDULE 3 OF THE PROJECT APPROVAL

Condition 11 of Schedule 3 of the Project Approval states:

"The Proponent must:

(a) implement best management practice to minimise the dust emissions of the project;

(a1) carry out regular air quality monitoring to determine whether the project is complying with the relevant conditions of this approval;

(b) regularly assess air quality monitoring data and relocate, modify, and/or stop operations on site as may be required to ensure compliance with relevant conditions of this approval;

(c) minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events;

(d) minimise any visible off-site air pollution; and

(e) minimise surface disturbance of the site, other than as permitted by this approval.

Condition 12 of Schedule 3 of the Project Approval states:

"The Proponent must prepare and implement an Air Quality Management Plan for the project to the satisfaction of the Secretary. The plan must:

(a) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to the construction of Bund A and/or Bund D;

(b) describes the measures that would be implemented to ensure:

- best management practice is employed;
- the air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events; and
- compliance with the relevant conditions of this approval;

(c) describes the proposed air quality management system; and

(d) includes an air quality monitoring program that:

- is capable of evaluating the performance of the project;
- includes a protocol for determining any exceedances of the relevant conditions of approval;
- adequately supports the air quality management system; and
- evaluates and reports on the adequacy of the air quality management system.

The Proponent must implement the approved management plan as approved from time to time by the Secretary."

3.3.4 CONDITION 1 OF SCHEDULE 4 OF THE PROJECT APPROVAL

Condition 1 of Schedule 4 of the Project Approval states the following in relation to notification of landowners:

> "As soon as practicable after obtaining monitoring results showing an:
>
> (a) exceedance of any relevant criteria in Schedule 3, the Proponent must notify affected landowners in writing of the exceedance, and provide regular monitoring results to each of affected landowner until the project is again complying with the relevant criteria; and
>
> (b) an exceedance of the relevant air quality criteria in Schedule 3, the proponent must send a copy of the NSW Health fact sheet titled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants on land which is quarry-owned)."

3.3.5 CONDITION 2 AND 3 OF SCHEDULE 4 OF THE PROJECT APPROVAL

Condition 2 of Schedule 4 of the Project Approval states the following in relation to independent review:

> "If an owner of privately owned land considers the project to be exceeding the relevant criteria in schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the project on his/her land.
>
> If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision the Proponent must:
>
> (a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Secretary, to:
>
> - consult with the landowner to determine his/her concerns;
> - conduct monitoring to determine whether the project is complying with the relevant criteria in schedule 3; and
> - if the project is not complying with these criteria, then identify measures that could be implemented to ensure compliance with the relevant criteria; and
>
> (b) give the Secretary and landowner a copy of the independent review.

Condition 3 of Schedule 4 of the Project Approval states the following in relation to independent review:

> "If the independent review determines that the project is complying with the relevant criteria in schedule 3, then the Proponent must:
>
> (a) implement all reasonable and feasible mitigation measures, in consultation with the landowner and appointed independent expert, and conduct further monitoring until the project complies with the relevant criteria;
>
> (b) secure a written agreement with the landowner to allow exceedances of the relevant criteria,
>
> to the satisfaction of the Secretary."

3.3.6 CONDITION 2 OF SCHEDULE 5 OF THE PROJECT APPROVAL

Condition 2 of Schedule 5 of the Project Approval more broadly states the following in relation to adaptive management:

> "The Proponent must assess and manage project related risks to ensure that there are no exceedances of the criteria and/or performance measures in schedule 3…
>
> Where any exceedance of these criteria and/or performance measures has occurred, the Proponent must, at the earliest opportunity:
>
> (a) take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur;
>
> (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and
>
> (c) implement remediation measures as directed by the Secretary,
>
> to the satisfaction of the Secretary."

3.3.7 CONDITION 3 OF SCHEDULE 5 OF THE PROJECT APPROVAL

Condition 3 of Schedule 5 of the Project Approval more broadly states the following in relation to the preparation of management plans:

> "The Proponent must ensure that the Management Plans required under this approval are prepared in accordance with any relevant guidelines, and include:
>
> (a) detailed baseline data;
>
> (b) a description of:
>
> - the relevant statutory requirements (including any relevant approval, licence or lease conditions);
> - any relevant limits or performance measures/criteria; and
> - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;
>
> (c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;
>
> (d) a program to monitor and report on the:
>
> - impacts and environmental performance of the project; and
> - effectiveness of any management measures (see (c) above);
>
> (e) a contingency plan to manage any unpredicted impacts and their consequences;
>
> (f) a program to investigate and implement ways to improve the environmental performance of the project over time;
>
> (g) a protocol for managing and reporting any:

- incidents;
- complaints;
- non-compliance with statutory requirement; and
- exceedances of the impact assessment criteria and/or performance criteria; and

(h) a protocol for periodic review of the plan.

Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans."

3.3.8 CONDITION 7 OF SCHEDULE 5 OF THE PROJECT APPROVAL

Condition 7 of Schedule 5 of the Project Approval states:

"The Proponent must immediately notify the Secretary and any other relevant agencies of any Incident. Within 7 days of the Incident, the Proponent must provide the Secretary and relevant agencies with a detailed report on the Incident, and such further reports as may be requested."

3.4 ENVIRONMENTAL PROTECTION LICENCE (EPL) CONDITIONS

An Environmental Protection Licence has been obtained for the operations – EPL 20562.

3.5 RELATED MANAGEMENT PLANS

This Management Plan forms part of an overarching environmental management system for the Project. Where relevant reference should be made to the other plans for the Project listed in Table3.3.

Table 3.3 – Environmental Management Plan Requirements

Number	Environmental Plan	Condition[1]
EMP 1	Noise Management Plan	9
EMP 3	Water Management Plan	17
EMP 4	Transport Management Plan	31
EMP 5	Waste Management Plan	33
EMP 6	Heritage Management Plan	36
EMP 7	Landscape Management Plan	45

3.6 STANDARDS, POLICIES, GUIDELINES AND MODELLING

The standards, policies, guidelines and modelling that have been used in the preparation of this Management Plan and that relate to the Project are listed in Table 3.4.

[1] Environmental Performance Conditions, Schedule 3 of the Project Approval

Table 3.4 – Environmental Standards, Policies, Guidelines and Modelling

Environmental Risk Issue	Standards, Policies, Guidelines and Modelling
Air Quality	AS/NZS 3580.10.1:2003 Methods for sampling and analysis of ambient air: Determination of particulate matter – Deposited matter – Gravimetric method
	AS NZS 3580.1.1:2007 Methods for Sampling and analysis of Ambient Air – Guide to Siting Air Monitoring Equipment
	National Environment Protection Measure (Ambient Air) (Amendment 2003)
	DECCW (2005) - Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW
	Commonwealth Government (1998) - National Environment Protection Measure (Ambient Air Quality)
	Australian National Pollutant Inventory (NPI) (2000) – Emission Estimation Technique manual for Mining and Processing of Non-metallic Materials
	US EPA AP42 – Compilation of Air Pollutant Emission Factors
	NSW DECC Impact Assessment Criteria
	AUSPLUME Modelling v6.0

3.7 CROSS REFERENCING REQUIREMENTS OF MANAGEMENT PLANS AND RELEVANT CHAPTERS/PARAGRAPH

Table 3.5 – Cross Referencing Requirements of Management Plans and Relevant Chapters/Paragraph

Relevant Condition	Statement of Project Approval	Paragraph/Chapter Dealing with Conditions
Condition 12(b) – Schedule 3	An Air Quality Management Plan that describes the measures that would be implemented to ensure:	N/A
	• best management practice is employed;	Best practices are adopted throughout the Management Plan
	• the air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events; and	Chapter 6
	• compliance with the relevant conditions of this approval	Adopted throughout the Management Plan
Condition 12(c) – Schedule 3	An Air Quality Management Plan that describes the proposed air quality management system.	Chapters 4, 5, 6 and 7
Condition 12(d) – Schedule 3	An Air Quality Management Plan that:	N/A
	• is capable of evaluating the performance of the project;	Chapters 6 and 7
	• includes a protocol for determining any exceedances of the relevant conditions of approval;	Chapter 7
	• adequately supports the air quality management system; and	Adopted throughout the Management Plan
	• evaluates and reports on the adequacy of the air quality management system.	Chapter 7

Figure 3.1 – Receivers Locations

Known as Appendix 2 Project Layout Plans – Figure 2.2 (amended 1 June 2012) extracted from the Planning and Assessment Commission of NSW Conditions of Approval dated 30 August 2012

APPENDIX 2
PROJECT LAYOUT PLANS

***Figure 2**: Project Site and Nearest Residential Receivers*

4 ROLES AND RESPONSIBILITIES

All quarry personnel and Contractors are accountable through conditions of employment or contracts with each individual responsible for ensuring that their work complies with the EMS procedures. An organisational structure for the Project is provided in Section 6 of the EMS.

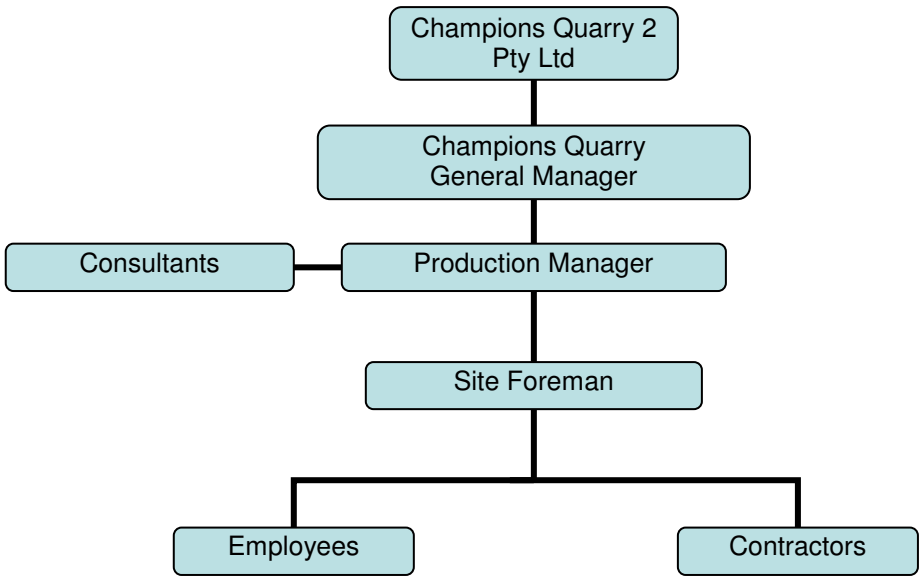
This section of the Strategy designates the responsibilities of the Proponent's personnel and Contractors in implementing this Strategy as it is relevant.

Table 4.1 – Champions Quarry Roles and Responsibilities

PRODUCTION MANAGER		
Action Number	**Responsibility and Authority**	**Timing**
AQMP.PM.01	Ensuring the Project Approval, Project Commitments and any other relevant licences and approvals are adhered to.	At all times
AQMP.PM.02	Prepare the Management Plan in consultation with the EPA and submit the Management Plan to the Secretary for approval.	Prior to the construction of Bund A and Bund D
AQMP.PM.03	Ensure any required air quality monitoring data is obtained and assessed in accordance with the Project Approval and subsequently relocate, modify and/or stop operations on site as may be required to comply with the Project Approval.	When and if required
AQMP.PM.04	Ensure visible offsite air pollution is minimised and instruct the Site Foreman as appropriate.	At all times
AQMP.PM.05	Ensure minimal surface disturbance of the site other than as permitted by the Project Approval.	At all times
AQMP.PM.06	Ensure all staff and Contractors receive appropriate and relevant induction training regarding the air quality management as it applies to their activities and ensuring staff and Contractors are aware of agreed management and mitigation measures as they are applicable to the individuals circumstances.	At all times
AQMP.PM.07	Respond to any complaints from the public that relate to air quality.	When and if required
AQMP.PM.08	Co-ordination of any site investigations in relation to air quality incidents.	When and if required
AQMP.PM.09	Ensuring all monitoring commitments made as part of this Management Plan are executed.	As detailed in this Management Plan
SITE FOREMAN		
Action Number	**Responsibility and Authority**	**Timing**
AQMP.SF.01	Ensuring the Project Approval, Project Commitments and any other relevant licences and approvals are adhered to.	At all times
AQMP.SF.02	Ensure that all quarrying activities are undertaken in a manner that minimises air quality impacts of the Project during adverse metrological conditions and extraordinary events.	At all times
AQMP.SF.03	Should substantial uncontrolled visible dust emissions result from quarry operations, the Site Foreman must identify and implement all practical dust emission measures.	At all times
AQMP.SF.04	Ensure the management actions associated with	At all times

	the risk assessment are implemented to the satisfaction of the Production Manager.	
AQMP.SF.05	Ensure directions associated with the EMS, this Management Plan and approvals (if required) are adhered to the satisfaction of the Production Manager.	At all times
QUARRY EMPLOYEES AND CONTRACTORS		
Action Number	**Responsibility and Authority**	**Timing**
AQMP.EC.01	Employees and Contractors must take reasonable steps to control air pollution from all quarrying activities including implementing the management actions identified in the risk assessment.	At all times
AQMP.EC.02	Employees and Contractors must advise the Site Foreman and/or the Production Manager of any significant air quality incident that may potentially harm the environment or health.	At all times

Figure 4.1 – Environmental Management Strategy Organisational Chart as it applies to Air Quality Management Plan (extracted from the EMS)



5 MANAGEMENT AND MITIGATION STRATEGIES

The principal measure used to control dust will involve the following:

- The sealing of the main access road from the site entrance intersection to the central extraction area of the quarry prior to the expansion of extraction activities commencing on site (in accordance with the SoC 5).

The list of further work practices that will be used to control environmental impacts in relation to air quality during the Project are provided in Table 5.1. This Table provides a summary of the key potential risks to air quality along with appropriate mitigation measures to manage those risks.

Table 5.1 – Air Quality Risk Assessment and Management Actions

Identified Risk	Consequences	Management and Mitigation
Dust emissions as a result of trafficking unsealed haul roads	Potential impact on local receivers (including those identified in Figure 3.1) and exceedences of acceptable criteria identified in the Project Approval	All unsealed quarry haul roads will be watered at the rate of 2L/m2/hour as required.
Dust emissions resulting from material processing and stockpiling		Water sprays will be used on all mobile processing equipment and stockpiles to minimise airborne particulate matter as required.
Transport of materials off site resulting in dust emissions		All trucks leaving the Project site to have covers in place prior to leaving the operational area.
Stockpiles of overburden and topsoil that are to be used in rehabilitation activities being a potential source of fugitive dust		Stockpiles of overburden and topsoil that are to be used in rehabilitation activities be seeded to minimise potential for fugitive dust.
Wind generated/blown dust emission from the quarry source		Water primary source of dust (ie unsealed roads, mobile processing equipment, stockpiles)

5.1 STAKEHOLDER CONSULTATION

This Management Plan was submitted to the EPA in draft format for consultation purposes. The final Management Plan following consultation with the EPA will be submitted to the Secretary for comment and approval prior to construction of Bund A and/or Bund D. A revision history is provided in the prelude to this Management Plan.

5.2 APPROVAL REQUIREMENTS

This Management Plan has been provided to the EPA for consultation purposes as required by the Project Approval.

5.3 TRAINING AND AWARENESS

As part of the general site induction process, all Project employees and Contractors will be made aware of the importance of managing fugitive dust emission to assist in the protection of air quality.

All employees and Contractors (including haulage truck operators) will be made aware of their responsibilities in managing fugitive dust emissions from the site and along haulage routes. This will be undertaken as part of the induction process and will be followed up by toolbox meetings throughout the Project as required.

6 SITE INSPECTIONS, TESTING AND MONITORING

6.1 OBJECTIVES

The broad objective of this Management Plan and monitoring program is to ensure that the operation of Champions Quarry does not adversely impact air quality of nearby receivers. Specific objectives include:

- To ensure best management practice is implemented to minimise dust emissions of the Project;
- Identify triggers for implementation of management response measures;
- Monitor data (where obtained) and then relocate, modify and/or stop operations as appropriate;
- Minimise the air quality impacts of the Project during adverse meteorological conditions and extraordinary events;
- Minimise any off-site air pollution;
- Minimise surface disturbance of the site, other than as permitted under the Project Approval;
- Assess the effectiveness of air quality control measures; and
- Ensure particulate matter emissions do not exceed the criteria set out in the Project Approval.

6.2 SITE INSPECTIONS

Routine quarry inspections of work areas, stockpiles, and onsite haulage routes will be conducted by the Production Manager and/or Site Foreman to monitor work practices and identify non-conforming areas and activities or work practices which could lead to potential negative and unacceptable impacts to air quality.

Where non-compliance with nominated performance goal/s is detected, an incident notice will be raised by the Site Foreman and/or Production Manager in accordance with the EMS.

6.3 AIR QUALITY TESTING

An Air Quality Assessment was carried out by ERM during 2009 for inclusion in the EA. The Assessment covered a range of operational scenarios including realistic initial production rates and worst case operational activities. Modelling of the proposed and cumulative air emissions was also undertaken. The Air Quality Assessment concluded from that the proposed expansion operations even when conservatively modelled would meet the NSW DECCW air quality impact criteria for the PM_{10} and TSP short and long term averages and dust deposition. Further, the type of product and proposed increased throughput and extraction area of the quarry is not anticipated to have a significant impact on local air quality.

Dust deposition gauge/s will be established and a High Volume Air Sampler will be used as set out below.

The Proponent will establish and maintain one dust deposition gauge adjacent to receiver 2 (being the closest receiver likely to be impacted by quarrying activities) which will be monitored for 12 periods of approximately 30 ±2 days.

Further dust deposition gauge/s will be established if regular exceedances (defined as more than 3 monthly exceedances in any rolling 12 month period) of the relevant dust deposition criteria occur.

If regular exceedances of the relevant dust deposition criteria occur in conjunction with either of the following:

- regular observations of offsite dust as a result of quarrying operations as observed by the Proponents employees; or

- regular complaints (defined as more than 3 legitimate complaints in any rolling 12 month period) from a receiver in relation to offsite dust generation (resulting from quarrying operations),

then, the Proponent will use a high volume air sampler (HVAS) to monitor short-term PM_{10} levels (averaged over a 24 hour period) and long-term TSP levels (averaged over a 7 day period).

Note: Where on-site monitoring data, recorded atmospheric conditions or other observations or evidence contradict the complaint, then the Proponent may refer the complaint to the DP & I to determine whether it is legitimate or not.

If the HVAS monitoring shows exeedances of either the PM_{10} or TSP standards in the approval, then further HVAS monitoring will be used until at least 2 consecutive periods of monitoring show no exceedances.

All air quality measurements shall be accompanied by both qualitative description (including cloud cover, approximate wind direction and speed) and quantitative measurements of prevailing local weather conditions throughout the survey period.

For the additional monitoring locations, where access is granted monitoring equipment will be placed at the property of the nearest or worst impacted receiver(s) listed in Table 6.1. Where access is not possible, a location adjacent to the property boundary of the nearest or worst impacted receiver(s) listed in Table 6.1 will be chosen.

Table 6.1 – Receivers Locations for Air Quality Assessment

Receiver Number	Description	AMG Coordinates	Approximate distance from Project area boundary (m)[1]
1	Residence	531089, 6799150	810
2	Residence	531738, 6798473	330
2A	Residence	Adjacent to Receiver 2's location	380
3	Residence	532043, 6798156	510
4	Residence	530867, 6797990	220
5	Residence	Adjacent to Receiver 4's location	450
1. The Project area boundary is depicted by indicative line indicating "Limits of Quarry Operations" in Figure 3.1 (Receivers Locations)			

The proposed receiver's locations were identified as the relevant locations of the possible air quality monitoring devices locations. These sites were selected with consideration of:

- Locations of residents and private properties predicted to experience the highest dust concentrations due to the Project as identified by ERM in the An Air Quality Assessment carried out by ERM during 2009 for inclusion in the EA;

- Geographic and logistical considerations e.g accessibility, security, power supply and set backs from the road and items which could restrict airflow; and

- AS 3580.1.1:2007

6.4 VISUAL AIR POLLUTION

Daily visual inspections will also be carried out by quarry personnel at the commencement of daily operations to identify potential non-conforming areas and activities or work practices which could lead to potential negative and unacceptable impacts to air quality (including evidence of site dust moving beyond the site boundary or the Proponents land) and implement appropriate dust minimisation measures as identified in Table 5.1.

6.5 MAINTENANCE

All environmental monitoring equipment will be calibrated and maintained according to industry standards and/or manufacturers specifications.

7 ANALYSIS OF RESULTS

7.1 DUST DEPOSITION

Any dust deposition testing that does occur will be compared against the Long Term Impact Assessment Criteria for Deposited Dust as set out in Table 7.1 (adopted from the Project Approval).

Table 7.1 – Long Term Impact Assessment Criteria for Deposited Dust

Pollutant	Averaging Period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m^2/month	4 g/m^2/month

The Project Approval does not permit exceedences of these criteria at any residences on privately owned land, or on more than 25 percent of any privately owned land. Any monitoring results will be assessed against previous modelling and ongoing monitoring results to identify changes or trends to dust deposition over time.

7.2 PARTICULATE MATTER CONCENTRATIONS

If particulate matter concentrations are required to be tested, any testing that does occur will be compared against the relevant criteria for Particulate Matter as set out in Table 7.2 and Table 7.3 (adopted from the Project Approval).

Table 7.2 – Long Term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging Period	Criterion
Total Suspended Particulates (TSP)	Annual	90µg/m^3
Particulate Matter < 10 µm (PM_{10})	Annual	30µg/m^3

Table 7.3 – Short Term Impact Assessment Criteria for Particulate Matter

Pollutant	Averaging Period	Criterion
Particulate Matter < 10 µm (PM_{10})	24 hour	50µg/m^3

Particulate matter concentration testing will incorporate a Short Term PM_{10} test (averaged over a 24 hour period and compared to the Short Term PM_{10} Impact Assessment Criteria for particulate matter) and Long Term TSP test (averaged over a 7 day period and compared to the Long Term Impact Assessment Criteria for TSP).

Monitoring results would also be assessed against any previous modelling and dust deposition monitoring results to identify changes or trends to particulate matter concentrations over time.

The Project Approval does not permit exceedances of these criteria at any residences on privately owned land, or on more than 25 percent of any privately owned land. Any monitoring results will be assessed against any previous modelling and ongoing monitoring results to identify changes or trends to dust deposition over time.

7.3 VISUAL AIR POLLUTION

Formal analysis and recording of visual monitoring will not be required. However, daily visual observations of excessive dust generation will feed into site management responses to minimise air quality impacts on privately owned land.

7.4 METEORLOGICAL CONDITIONS

Meteorological data will be reviewed regularly by site personnel to identify triggers for implementing changes to operations (eg high wind speeds). Metrological data can be reviewed in conjunction with any dust monitoring results to identify potential influences on monitoring results obtained

7.5 RECORD KEEPING

Internal Record Keeping

Records of the following will be kept at the Proponents office (being either the onsite or offsite office):

- Complaints including an analysis of why and when the complaint was made, actions (if any) and resolutions (if applicable);
- If the Proponent carries out the air quality monitoring (rather than engaging a third party to do so):
    - Details of inspections of air monitoring equipment, including findings, time and date of inspection, identification of the person/party who undertook the inspection and any follow up actions required (eg maintenance);
    - Details of equipment used;
- Details of any equipment failure occurrences during the testing process;
- Date and details of any visual observations of significant dust volumes moving offsite and action taken to address this;
- A copy of monitoring results, including any laboratory reports, and the following as applicable:
    - Site identification (ie location of testing apparatus);
    - Date and duration of sampling;
    - Operators identification;
    - Comments on factors that could affect dust levels (including metrological conditions, agricultural activities, local unsealed Council roads, local construction activity, fire or dust storms);

The Production Manager is responsible for ensuring all records are kept up to date. Records must be kept for a minimum of 4 years after the event and produced to any authorised personnel who requests to see them.

Publicly Available on Website

Additionally, the following information will be made publicly available on the Proponents website:

- a summary of the monitoring results of the Project within 28 days of receipt of monitoring results by the Proponent;
- a complaints register including an analysis of why and when the complaint was made, actions (if any) and resolutions (if applicable) and updated on a quarterly basis;
- a copy of all annual reviews of this Management Plan over the last 5 years.

7.6 REPORTING

All reporting is to be conducted in accordance with the Project Approval, DECCW (2007) methods and Australian Standards, as applicable.

7.6.1 REPORTING OF LABORATORY ANALYSIS RESULTS

Following any sample analysis the accredited laboratory will provide the Production Manager with an analysis report which includes information required by any relevant Australian Standard, dust deposition rates, and TSP and PM_{10} (if required) concentrations as applicable.

Any report may contain information including the following:

- Name and address of reporting organisation;
- Date of issue of the report;
- Test method used and details of any deviation from that method;
- Period of monitoring (start and end dates and time the instruments were online);
- Location of monitoring points (normal address and Australian Grid Map reference, height above nominal ground level, and a description of the terrain features);
- Air pollutants measured, the monitoring instruments used, and a description of the air sampling system;
- Appropriate statistical information to describe the variability and range of concentrations;
- Any factors that may have affected the monitoring results (eg bushfires, regional dust storms, unusual operating conditions or agricultural activities,);
- The precision of the results (using AS 2706 as a guide); and
- Details of the most recent calibration/maintenance of each instrument used to take measurements.

7.6.2 CRITERIA EXCEEDANCES

Where there is an exceedance of the criteria set out in Chapter 3 of this Management Plan, the Production Manager (or a delegate) must:

(a) notify affected landowners in writing of the exceedance, and provide regular monitoring results to each of affected landowner until the project is again complying with the relevant criteria; and

(b) send a copy of the NSW Health fact sheet titled “Mine Dust and You” (as may be updated from time to time) to the affected landowners and/or existing tenants of the land.”

In accordance with Condition 2 of Schedule 5 of the Project Approval, where there is an exceedance of the criteria set out in Chapter 3, the Proponent must:

- Take all reasonable and feasible measures to ensure that the exceedance ceases and does not recur; and

- Submit a report to DP & I describing the exceedances and any preferred remediation measures or other course of action.

Further in accordance with Condition 7 of Schedule 5 of the Project Approval, the Proponent will:

- immediately to the Secretary and any other relevant agencies of the Incident; and
- within 7 days of the date of the Incident, provide the Secretary and any relevant agencies with a detailed report on the Incident, and such further reports as may be requested.

7.6.3 ANNUAL REPORTING

The Proponent will by the end of March each year (commencing in March 2014) review the environmental performance of the Project to the satisfaction of the Secretary in accordance with Schedule 5 Condition 4 of the Project Approval. The review will:

(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;

(b) Include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against:

- The relevant statutory requirements, limits or performance measures/criteria;
- The monitoring results of the previous year; and
- The relevant predictions of the EA;

(c) Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;

(d) Identify any trends in the monitoring data over the life of the Project;

(e) Identify any discrepancies between the predicted and actual impacts of the Project and analyse the cause of any significant discrepancies; and

(f) Describe what measures will be implemented over the current calendar year to improve the environmental performance of the Project.

Further in accordance with Schedule 5 Condition 5 of the Project Approval within 3 months of the submission of one of the following the Proponent must review and if necessary revise the strategies, plans and programs required under the Project Approval to the satisfaction of the DG:

(a) Annual review under Schedule 5 Condition 4 of the Project Approval;

(b) Incident report under Schedule 5 Condition 7 of the Project Approval;

(c) Audit report Schedule 5 Condition 9 of the Project Approval; and

(d) Any modifications to the Project Approval.

The Proponent in consultation with the Production Manager will implement any changes arising from reviews of the quarry strategies, plans and programs. Records of such reviews will be maintained. Details of any significant changes made to this Strategy and associated monitoring programs and monitoring plans will be forwarded to all relevant project personnel.

REFERENCES

- The Guideline for Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2004);
- Approved Methods and Guidelines for the Modelling and Assessment of Air Pollutants in New South Wales, NSW DEC, August 2005;
- National Environment Protection Measure (Ambient Air) (Amendment 2003);
- EA – Champions Quarry Expansion, Environmental Assessment Report prepared by ERM Pty Limited and dated February 2010;
- Champions Quarry Air Quality Assessment Draft Risk Assessment performed by ERM forming part of the Environmental Assessment Report dated 25 February 2010 (Appendix E);
- Preferred Project Report – Champions Quarry Expansion, Preferred Project Report prepared by ERM Pty Limited and dated December 2011;
- Planning and Assessment Commission of NSW Conditions of Approval dated August 30, 2012;
- Minister for Planning and Infrastructure - Notice of Modification dated October 29, 2013; and
- Minister for Planning - Notice of Modification dated September 16, 2016.