East Perth Concrete Plant

Environmental Management Plan

Prepared for
Hanson Construction Materials Pty Ltd
by Strategen

August 2014

STRATEGEN
environmental consultants

East Perth Concrete Plant

Environmental Management Plan

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August 2014

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Environmental conclusions

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Client: Hanson Construction Materials Pty Ltd

Report Version	Revision No.	Purpose	Strategen author/reviewer	Submitted to Client	
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Table of contents

1. Introduction **1**
1.1 Background 1
1.2 Purpose and scope 1
1.3 Related plans 3

2. Roles and responsibilities **5**

3. Environmental Management System **8**
3.1 Training 8
3.2 Internal Quality and Environment Hazard Identification 8
3.3 Integrated Risk Management System (IRMS) 8
3.4 Site meetings 8
3.5 Inspections and audits 8
3.5.1 Independent audit of dust monitoring equipment 8
3.6 Review and reporting 9
3.6.1 Review 9
3.6.2 Reporting 9

4. Incident management **10**
4.1 Incident management and reporting 10
4.2 Incident investigation 10

5. Community relations procedure **11**
5.1 Objectives, targets and indicators for community relations 11
5.2 Management measures for community relations 11

6. Dust management plan **13**
6.1 Air quality guidelines 13
6.2 Potential impacts from dust 13
6.3 Objectives, targets and indicators for dust management 13
6.4 Management actions for dust control 13
6.5 Monitoring actions for dust 15
6.6 Contingency actions for dust management 16

7. Noise management plan **17**
7.1 Potential impact from noise emissions 17
7.2 Objectives, targets and indicators for noise management 17
7.3 Management actions for noise control 17
7.4 Monitoring actions for noise 18
7.5 Contingency actions for noise management 19

8. Traffic management plan **20**
8.1 Potential impacts of traffic 20
8.2 Requirements of DR264/2011 20
8.3 Road use agreement with the City of Vincent 20
8.4 Vehicle flow system 20
8.5 Objectives, targets and indicators for traffic management 21
8.6 Management actions for traffic control 21
8.7 Monitoring actions for traffic 22
8.8 Contingency actions for traffic management 23

9. References **25**

List of tables

Table 1: Requirements addressed within the EMP 1
Table 2: Roles and responsibilities 5
Table 3: Environmental incident level 10

Table 4: Objectives, targets and performance indicators for community relations 11
Table 5: Management measures for community relations 11
Table 6: Air quality guidelines for PM_{10} 13
Table 7: Objectives, targets and indicators for dust management 13
Table 8: Management actions for dust control 13
Table 9: Monitoring actions for dust 15
Table 10: Contingency actions for dust management 16
Table 11: Objectives, targets and indicators for noise management 17
Table 12: Management actions for noise control 17
Table 13: Monitoring actions for noise 18
Table 14: Contingency actions for noise management 19
Table 15: Objectives, targets and indicators for traffic management 21
Table 16: Management actions for traffic control 21
Table 17: Monitoring actions for traffic 22
Table 18: Contingency actions for traffic management 23

List of figures

Figure 1: East Perth Concrete Plant site layout 4
Figure 2: Hanson metro concrete operations organisational structure 7

1. Introduction

1.1 Background

The Hanson East Perth concrete batching plant is located in Edward Street, East Perth. Pre-mixed concrete is batched on the premises, loaded into purpose built agitator trucks and delivered to various construction sites across the Metropolitan area. Incoming raw materials are delivered from local quarries in tipper trucks and cement powder is delivered in purpose built cement tankers. Additives in powder or liquid form are delivered packaged or in bulk and stacked or stored in tanks on-site.

1.2 Purpose and scope

This Environmental Management Plan (EMP) documents the initiatives that will be used on-site at the East Perth Concrete Plant (the Plant) to manage the potential environmental impacts of operations. This EMP supersedes previous versions, which have been updated in response to correspondence (Notice of Determination of Application by Minister) from the Minister for Planning; Culture and the Arts dated 22 May 2012. Previous versions have been provided to the City of Vincent (CoV) as required by condition 4 (Table 1), this version of the EMP is also intended to be submitted to CoV. The current approval term expires on 16 October 2017.

The EMP includes a description of:

- the environmental management system
- the organisational structure of Hanson metropolitan concrete operations
- applicable legislative and licensing requirements
- procedures developed to manage the environmental aspects of the site
- reporting processes
- environmental incident management processes
- complaints handling system
- processes to monitor and evaluate environmental performance.

The EMP will provide a platform for implementation of continual improvement with respect to management of dust, noise and traffic movements on-site.

The EMP has been prepared in accordance with the Notice of Determination of Application by Minister, 22 May 2012 and State Administrative Tribunal Orders DR264/2011 (Table 1).

Management actions included in the EMP have been updated to include changing regulatory and community expectations. Stakeholder and community feedback on the requirements for improved communication and improvements in induction and communication with employees have been included in the EMP.

Table 1: Requirements addressed within the EMP

Item #	Requirement	EMP section
DR 264/2011		
1)	This approval is granted for a term expiring on 16 October 2017.	Section 1.2
2)	This approval limits concrete batching operations and access to the site by trucks and semi-trailers to any time between Monday and Saturday inclusive.	Section 8.2
3)	There is to be no access to the site by trucks and semi-trailers on Sundays or public holidays.	Section 7.2
4)	Within three calendar months of the issue of the approval, the Applicant shall update the Environmental Management Plan dated April 2010 or submit a management plan to the City of Vincent which addresses the following matters:	Section 1.2 and Section 3.6.1

Item #	Requirement	EMP section
	a. The identification of the noise attenuation measures contained in the development application;	Section 7
	b. Dust and cement waste management including regular washing down of trucks before exiting the site, dust control on-site and the contribution of half the cost of the City sweeping dust from Edward Street once a week;	Section 6
	c. A traffic management plan for all vehicles entering and exiting the site, including driver education in regard to truck routes, vehicle speeds, and operations to minimise disturbance and public safety concerns;	Section 8
	d. Permanent and fixed dust monitoring equipment shall be installed on the perimeter of the site and independently audited to the satisfaction of the City of Vincent;	Section 6
	e. The implementation of a complaint handling system which provides" I. A manned 24 hour telephone number and email address to log complaints and enquiries; and II. A record of complaints and enquiries logged, and the applicant's response, shall be provided on a bi-annual basis to the City for its monitoring information; and	Section 5
	f. A review of the management plan after the first 12 months from the date of submission;	Section 3.6.1
	g. The use of Iveco trucks during the night/early morning operations;	Section 8
	h. The provision to the City of an updated training register;	Section 3.1
	i. No water spray from sprinklers in vegetated areas being permitted beyond the boundary of the site; and	Section 5.2
	j. Engaging in any discussions with the City regarding repairs to roads which have been potentially damaged by Hanson's trucks.	Section 8.3
5)	The development must be carried out in accordance with the recommendations of the SVT Engineering Consultants Environmental Noise Assessment for the East Perth Concrete Batching Plant dated 21 April 2011, or other Noise Management Plan endorsed by the City, including in particular, but without limitation:	Section 8
	a) Control/ reduction of noise emitted from the site and activities associated with the site;	
	b) Maintenance of plant/ mechanical equipment and application of inspection schedules to ensure optimal, quiet working order;	
	c) Selection of equipment for on-site operations including both prospective equipment, and retrofitting of existing equipment, to minimise individual and accumulative noise impacts from the site;	
	d) Induction and training of workforce to promote complaint operation, in accordance with the noise management plan;	
	e) Detail the methods of on-going self-monitoring, including testing equipment, locations, frequency, technical parameters, interpretation of results, and periodic evaluation of the monitoring method (to account for further encroachment of residential development and changes to surrounding built environment over time);	
	f) Complaint response methods, including short and long term abatement measures and record keeping; and	Section 5 and Section 8.8
	g) Details of staff members accountable to overseeing compliance with the noise management plan.	Section 2
8)	Compliance with the requirements of the Environmental Protection (Noise) Regulations 1997 (WA) by ensuring that during the period: a) 0700 hours to 2200 hours Monday to Saturday two trucks are not simultaneously idling or moving between the filling and slumping stations for a period exceeding 24 minutes in any four hour period; and b) 2200 hours and 0700 hours Monday to Saturday only one truck is ever idling or moving between the filling and slumping stations at any one time and that such idling or movement does not exceed 24 minutes in any four hour period.	Section 8

1.3 Related plans

This EMP should be implemented in conjunction with the Hanson Integrated Risk Management System (IRMS); Environmental Risk Reporting Process; Crisis Management Plan; Preventative Maintenance Checklist and the Landscaping and Reticulation Plan.

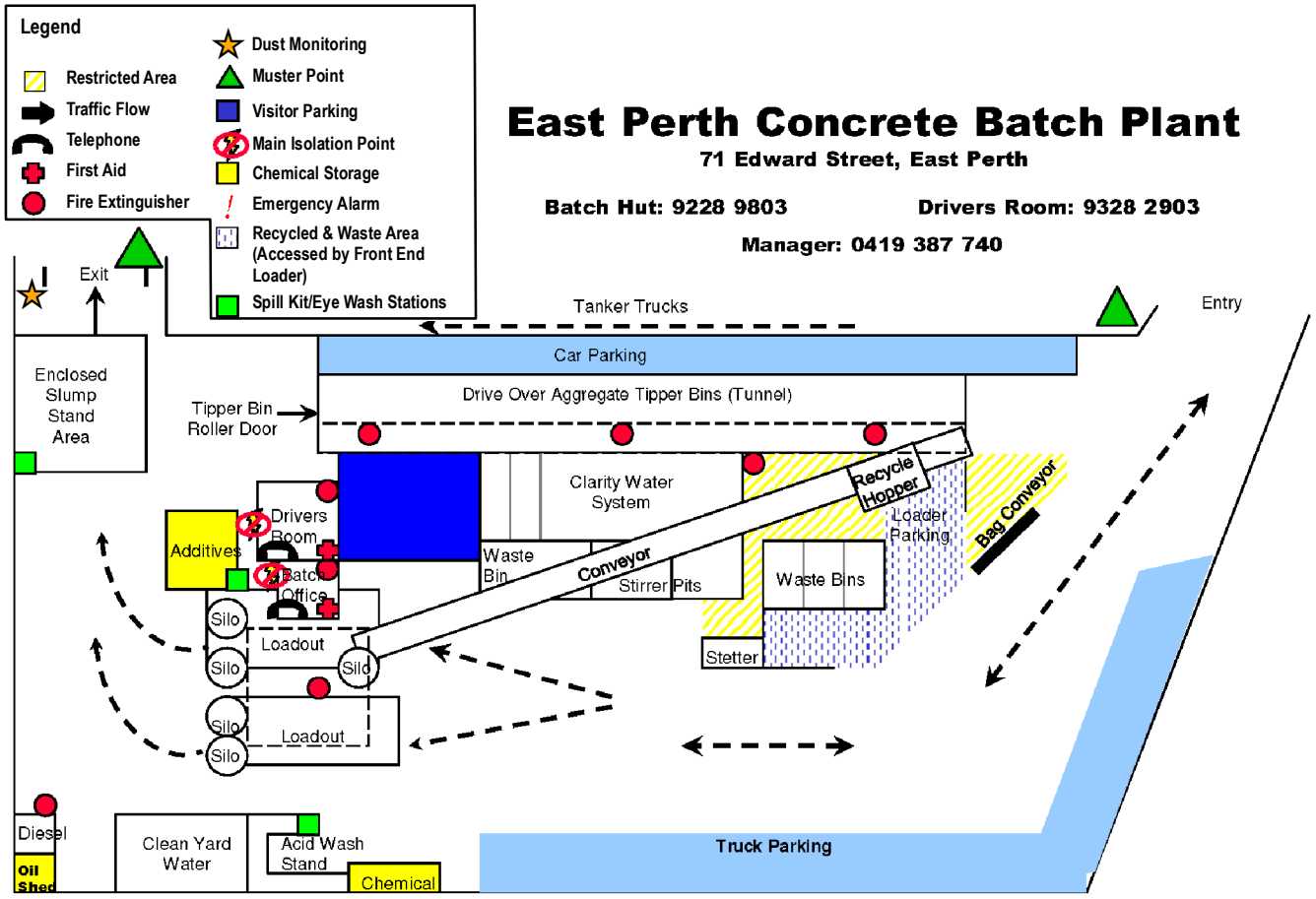

Figure 1: East Perth Concrete Batch Plant

Date: 27/07/2014
Author: JCrute
Source: Hanson East Perth Management Plan - May 2014

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2. Roles and responsibilities

A number of different Hanson personnel have responsibilities applicable to the operation of the East Perth Concrete Plant and implementation of this EMP (Table 2; Figure 2). Personnel assigned the following responsibilities will be held accountable for achieving the various performance targets through the internal performance assessment process.

Table 2: Roles and responsibilities

Role	Acronym	Action
Regional General Manager	RGM	• ensure that business outcomes are achieved • ensure the site operates in accordance with appropriate licences and the *Environmental Protection Act 1986* (EP Act) and Regulations • communicate incidents to regulators.
Risk Manager	RM	• approve and implement the EMP • accountable for implementation of Health, Safety and Environment aspects of the EMP, including the dust, noise and traffic management plans, and implementation of the community relations procedure • develop, implement, monitor and review performance of the Annual Improvement Plan – Health, Safety and Environment • maintain the Risk Reporting system and the Integrated Risk Management System (IRMS) • monitor performance of the EMP, including incident reports and mitigation actions undertaken • direct internal audits of the EMP • facilitate annual independent audit of the dust management plan, including the monitoring program • co-ordinate the annual performance review of the EMP • communicate with regulators • communicate incidents to the RGM.
Metropolitan Operations Manager	MOM	• ensure personnel are aware of their obligations under the EP Act and Regulations • approve and implement the EMP • annual review of the EMP • ensure appropriate resources are available to meet the commitments made in the EMP • provide assistance in community relations activities with respect to external communications • communicate with complainants as per the complaints handling process • communicate summary of complaints and responses to the City of Vincent • communicate incidents to the RGM.

Role	Acronym	Action
Plant Production Manager	PPM	• accountable for implementation of operational aspects of the EMP, including the dust, noise and traffic management plans, and implementation of the community relations procedure • provide resources to ensure employees are trained in the correct use of plant and equipment • ensure that scopes and contracts reflect the requirements of the EMP • communicate the EMP to operations personnel, including site induction on an annual basis • communicate the EMP to maintenance personnel, including site induction on an annual basis • maintain a training register • develop, implement, monitor and review Annual Improvement Plan • undertake annual review of the EMP • provide resources to ensure plant and control equipment is well maintained • establish and maintain an open and transparent relationship with the community • facilitate site meetings with employees and contractors • report all incidents through the IRMS and Risk Reporting systems • approve and monitor the use of contingency measures • prepare summary of complaints and responses • communicate incidents to the RGM.
Customer Service Centre	CSC	• allocation of deliveries • communication with delivery drivers.
Employees	E	• report conditions and/or faulty equipment that may lead to an abnormal event/ incident • report incidents to the PPM • adhere to standard operating procedures as they apply at the time of induction • suggest operational control improvements • attend site meetings.
Sub contractors and suppliers	SC/S	• adhere to the conditions and requirements of scopes and contracts • adhere to standard operating procedures as they apply at the time of induction • suggest operational control improvements • report conditions and/or faulty equipment that may lead to an abnormal event/ incident • report incidents to the PPM • attend site meeting on request.

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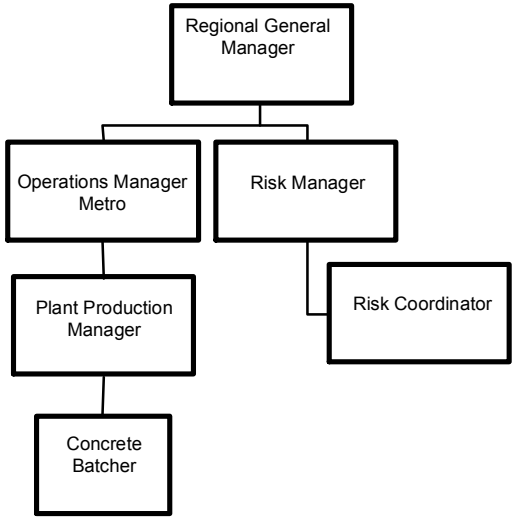

Figure 2: Hanson Metro Concrete Operations

Date: 27/07/2014
Author: JCrute
Source: Hanson East Perth Management Plan - May 2014

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3. Environmental Management System

3.1 Training

A site induction detailing the requirements of the EMP will be provided to all new full time personnel at East Perth Concrete Plant. All plant staff will be inducted to the requirements of the EMP on an annual basis. A training register will be maintained, and provided to the City of Vincent.

3.2 Internal Quality and Environment Hazard Identification

Quality and environmental hazards identified in relation to the operation of the plant are recorded through the internal Risk Reporting Process. This is a tracked, documented process that promotes the involvement of all personnel in a non-confronting, proactive format; a methodology for continuous improvement. The Risk Reporting process enables the storage, processing and analysis of incident trends.

3.3 Integrated Risk Management System (IRMS)

The IRMS details the process for reporting of incidents and escalation to senior management. Safety and environmental incidents are covered by the process. All incidents are logged in the Risk Database as are Risk Reports.

3.4 Site meetings

Regular site meetings are held and all operational matters are an agenda item that enables the ongoing promotion of correct work practices and a platform to table non-conformances and outstanding identified quality and environment hazards. These site meetings will identify suggested amendments to the EMP which will be approved by the Risk Manager and the Metro Operations Manager before inclusion in updated versions of the EMP.

Community relations related issues will be included in on-site meeting agenda.

3.5 Inspections and audits

Informal and formal inspections of work areas, plant and activities on-site will be conducted regularly as per the management and monitoring actions within the dust, noise and traffic management plans (Sections 6, 7 and 8). Records will be kept of these inspections to allow compliance with the EMP to be assessed.

The EMP will be internally audited in advance of the annual review process to ensure compliance is being achieved.

3.5.1 Independent audit of dust monitoring equipment

In accordance with condition 4(d) of State Administrative Tribunal Order DR264/2011 the permanent and fixed dust monitoring equipment installed on the perimeter of the site (Section 6) shall be independently audited to the satisfaction of the City of Vincent.

This will entail an annual assessment against audit criteria relevant to the dust monitoring equipment by a suitably qualified independent auditor. An audit report will be generated and submitted to City of Vincent for endorsement. In the event the City requests, on submission of the report, further detail or assessment this will be undertaken in accordance with the City's request, following a period of consultation if necessary. Other comment and feedback from the City, including amendments to audit criteria, will be incorporated into the following year's audit program as appropriate.

Annual audit reports will be submitted to the City of Vincent by the 12 month anniversary of the date of submission of the first report.

3.6 Review and reporting

3.6.1 Review

The EMP will be reviewed annually in line with Hanson business planning processes.

The annual review will include assessment of:

- Risk Reports
- Contingency responses and their adequacy
- Incident register
- Complaints register
- Site meeting identification of shortfalls of the EMP
- Induction training register
- Currency of licensing and regulation requirements
- Internal or external audit results
- Periodic internal technical reviews of operational control trials and investigations
- Annual external reviews of management practices
- Regulator and City of Vincent communications and feedback.

If it is determined that updates are required to the EMP, an updated version will be submitted to the City of Vincent. The updated plan will then be implemented.

3.6.2 Reporting

The results of the annual review will be provided to internal stakeholders and regulators where required. Trigger levels for external and internal reporting are identified with the management plans for dust, noise and traffic (Sections 6, 7 and 8).

4. Incident management

4.1 Incident management and reporting

Environmental incidents are events or occurrences that result in, or have the potential to result in, unacceptable impacts to the environment in accordance with the provisions of this EMP. Environmental incidents are assigned a level of severity, with the level determined by the PPM (Table 3). This is recorded within the Risk Report. The MOM shall review and if necessary amend the level.

Table 3: Environmental incident level

Level	Description
1	Minor non-adherence to procedures, and/or negligible environmental impact.
2	Minor non-adherence to procedure and minor environmental impact that requires little management to be rectified.
3	Moderate breach of procedure and/or environmental impact that requires management/ mitigation to be rectified.
4	(Serious incident). Extreme breach of procedure and/or environmental impact that could lead to a breach of environmental approval conditions.

All incidents are to be reported to the PPM by the person responsible for the incident, or the first person at the site of an accident. The PPM shall then respond to the incident in accordance with the IRMS. In the event of a major environmental or safety incident the Crisis Management Plan is to be followed.

Measures to limit the impact of Level 4 incidents on the environment shall be implemented as soon as practicable by the Risk Manager or Operations Manager.

4.2 Incident investigation

All incidents and non-conformances are recorded and maintained through the Risk Reporting electronic database. The Risk Reporting database enables the storage, processing and analysis of incident trends.

Incidents and complaints are also reported through the IRMS system.

Corrective measures will be identified as part of the incident report, and implemented where required. The effectiveness of the corrective action(s) will be monitored, with results included in the EMP review process.

Any non-conformance to targets is investigated and the results reported to statutory authorities as required. Trigger levels for reporting are identified with the management plans for dust, noise and traffic (Sections 6,7 and 8).

5. Community relations procedure

The Risk Manager is accountable for the implementation of community relations management plan as detailed below.

5.1 Objectives, targets and indicators for community relations

Objectives, targets and indicators for community relations are detailed in Table 4.

Table 4: Objectives, targets and performance indicators for community relations

Objectives	Targets	Key Performance Indicator
To ensure that Hanson operations do not adversely affect the health, welfare or amenity of people and adjacent land uses.	Minimal impact to community activities from Hanson operational activities.	Complaints register Incident reports

5.2 Management measures for community relations

Management measures for community relations are detailed in Table 5.

Table 5: Management measures for community relations

Parameter	Management Action	Timing	Responsibility
Induction	Induct all employees and contractors to the requirements of the community relations management plan.	Prior to commencing work on-site	MOM PPM
Consultation	Facilitate consultation with the local community through provision of site signage; website information; public notifications and site tours.	On-going	MOM PPM
Site signage	Provide relevant contact details on site signage, including: • a phone number which is available 24 hours per day, 7 days per week • website details • email address for community enquiries.	At all times	RM
Website	Provide information relevant to the East Perth concrete plant, including contact phone numbers and email address for site operations, and include an invitation to community members to participate in site tours on arrangement.	At all times	RM
	Detail the current complaints procedure.	At all times	RM
Site tours	Extend an open invitation to community members to participate in site tours on arrangement.	At all times	MOM
Landscaping	Limit spray from landscape watering to within site boundaries.	At all times	PPM
Community support	Continue to allocate support for local community initiatives.	On-going	RM
Records	Keep records of the following: • visitors to site • support provided to local community initiatives • all complaints received (via IRMS system) • responses to complaints.	On-going	PPM MOM
Reporting	Report the complaints received; enquiries logged and responses provided by Hanson to the City of Vincent	Six monthly	RM
Complaint handling process	Record all complaints in the IRMS and Risk Reporting database.	At all times	PPM
	Report all complaints to the MOM for an assessment of severity.	Immediately on receipt of complaint	All staff

Parameter	Management Action	Timing	Responsibility
	Respond to all complaints.	Within 48 hours for minor complaints Immediately for major complaints	MOM PPM
	Noise complaints only- Monitor informally the noise emissions of plant operations to allow short term abatement of complaints.	Immediately upon receipt of complaint	PPM
	Identify the source of noise emission which may be responsible for the noise complaint, to allow short term abatement.	As soon as practicable upon receipt of complaint	PPM
	Noise complaints only- Make arrangements to monitor noise emissions relevant to the complaint, to allow short term abatement.	During complaint handling process	PPM MOM
	Noise complaints only- Ensure the noise management plan is being implemented, including contingency measures within the noise management plan (section 7.5).	Following complaint investigation	PPM
	Ensure the Risk Report process is followed to close out all complaints in a timely manner.	Following complaint investigation	MOM
	Communicate outcomes of complaints at sites meetings to allow for long term abatement of complaints.	Site meetings	PPM

6. Dust management plan

6.1 Air quality guidelines

The National Environment Protection Measures (NEPMs) are broad framework-setting statutory instruments defined in the *National Environment Protection Council (NEPC) Act 1994*. National objectives for protecting and managing particular environmental aspects are outlined in NEPMs. The Ambient Air Quality NEPM includes a maximum concentration for particulate matter which is used as a measure for dust. Particulate matter, or PM_{10}, means particulate matter with an equivalent aerodynamic diameter of 10 micrometres or less (COAG 2014). The air quality guidelines for PM_{10} are indicated in Table 6. The location of dust monitors is provided in Figure 1.

Table 6: Air quality guidelines for PM_{10}

Pollutant	Averaging Period	Maximum concentration	Goal within 10 years Maximum allowable exceedences	Source
PM_{10}	1 day	50 µg/m3	5 days a year	Ambient Air Quality NEPM

6.2 Potential impacts from dust

Dust may be generated from operational activities at the site, particularly during dry, windy conditions. Excessive dust may be detrimental to human health, reduce visual amenity, smother vegetation and interfere with fauna.

6.3 Objectives, targets and indicators for dust management

Objectives, targets and indicators for dust management are detailed in Table 7.

Table 7: Objectives, targets and indicators for dust management

Objective	Target	Key Performance Indicator
To implement all reasonable and practicable measures to ensure the prevention or minimisation of dust from all operation activities.	No sustained visual dust observed beyond the immediate boundaries of the plant during operation.	Visual monitoring of dust movement during site inspections.
To ensure that dust emissions do not adversely affect environmental values or the health, welfare or amenity of people and adjacent land uses.	No signs of excessive dust deposition outside the site. No public complaint of excessive dust during operations.	Monitoring of site boundaries. Number of public complaints related to dust.
Ensure compliance with dust emission levels standards.	Dust generated does not exceed NEPM and DER standards and guidance. Monitored dust levels do not exceed 50 µg/m3 averaged over 1 day.	Dust monitoring at boundaries. Dust management plan conformance.

6.4 Management actions for dust control

Table 8 details the management actions for dust control.

Table 8: Management actions for dust control

Parameter	Management Action	Timing	Responsibility
Induction	Induct all employees and contractors to the requirements of the dust management plan.	Prior to commencing work on-site	MOM PPM

Parameter	Management Action	Timing	Responsibility
Aggregate preparation	Condition aggregates at the source.	At all times	PPM
Delivery	Cover fine aggregates.	At all times during transport and delivery	PPM
	Enclose cement in purpose built enclosed tankers.	At all times during delivery	PPM
Engineering dust control measures	Include high level alarms and cut off valves in delivery lines.	Construction and operation	PPM
	Install and operate dust extraction equipment on silos and weigh hoppers.	Construction and operation	PPM
	Install filters and overpressure valves (valves to be ducted to ground).	Construction	PPM
	Include flexible enclosed joints in cement air slides to mixer.	Construction	PPM
	Enclose loading bays	Construction	PPM
Tipping	Apply water sprays in tipper bin tunnel.	During operation	PPM
	Engage tipper bin door during tipping	During tipping	PPM
	Ensure truck and trailer requirements match bin specifications	During tipping	PPM
Loading	Ensure loading bay doors are in the closed position prior to loading being commenced.	During loading - prior to commencement of loading.	PPM
General maintenance	Sweep and wash the yard to remove residual build up of dust.	Weekly	PPM
	Handle cement products in a clean and dust free manner.	At all times	PPM
	Clean slumping bays with water.	Daily	PPM
	Clean exit driveway.	Daily	PPM
	Clean delivery trucks with water.	Prior to exiting the site	PPM
	Clean pits	When monitoring indicates cleaning is required	PPM
	Clean recycled and waste storage area following pit cleans.	Following pit cleans	PPM
	Clean the recycled and waste storage area daily prior to closing.	Daily prior to closing	PPM
Stockpiles	Wet down stockpiles to reduce dust lift off.	Daily	PPM
Maintenance of equipment and plant	Maintain filter media regularly.	As per maintenance schedule	PPM
	Maintain and operate all plant to manufacturer's specification or other relevant standard (e.g. DER guidance/licence).	At all times	PPM
	Prepare and implement a preventative maintenance checklist in line with manufacturer's specification or other relevant standard (e.g. DER guidance/licence).	At all times	PPM
	Conduct routine inspections of all dust control equipment – as per preventative maintenance checklist.	As per maintenance checklist	PPM
	Review preventative maintenance checklist for existing dust control equipment, including frequency and appropriateness of preventative maintenance.	Annual	PPM
	Modify preventative maintenance checklist in line with review findings.	On completion of review	PPM

Parameter	Management Action	Timing	Responsibility
Waste disposal	Collect all waste water generated through daily cleaning of slumping bays in appropriate waste pits.	At all times	PPM
	Dispose of collected waste material from cleaning of slumping bays in an appropriate waste stream.	On-going	PPM
	Dampen waste materials prior to loading.	Prior to loading	PPM
	Dispose of waste materials in an appropriately licensed facility.	At all times	PPM
Street sweeping	Sweep Edward Street from the eastern most vehicle entrance to Lord Street.	Twice weekly	PPM
	Contribute half the City's costs of weekly street sweeping on Edward Street.	On-going	PPM
Contractors	Ensure all scopes and contracts are in line with the requirements of the dust management plan.	At all times	PPM
Complaints	Address all complaints as per the complaints handling process (Section 5.2).	At all times	PPM
Community consultation	Communicate changes to operations and dust control performance to affected community members as per Section 5.	At all times	PPM
Dust monitoring equipment	Install and maintain permanent and fixed dust monitoring equipment at the perimeter of site.	On-going	PPM
	Engage independent auditor to undertaken audit of dust monitoring equipment (refer to Section 3.5.1).	Annually (as per Section 3.5.1)	MOM
Environmental incident reporting	Report incidents in accordance with Section 4.	At all times	PPM

6.5 Monitoring actions for dust

Monitoring actions for dust are detailed in Table 9.

Table 9: Monitoring actions for dust

Parameter	Frequency	Location	Purpose	Responsibility
Visible dust at the perimeter	Opportunistic	Perimeter of site	To identify incidents of dust crossing the perimeter.	PPM
Equipment maintenance	Daily	Tipper bins and conveyors	Inspect tipper bins and conveyors to ensure good working order.	PPM
	Daily	Tipper bin tunnel	Inspect water sprays in tipper bin tunnel to ensure good working order.	PPM
	Weekly	Silos and weigh hoppers	Inspect dust extraction equipment on silos and weigh hoppers to ensure good working order.	PPM
	Weekly	Cement filtration equipment	Inspect cement filtration equipment utilising plant maintenance checklist.	PPM
Site cleanliness	Daily	Exit driveway	Inspect exit driveway for cleanliness	PPM
	Daily	Yard	Inspect the yard for unusual occurrences of visible dust.	PPM
	Daily	Pit	Inspect the pit for cleanliness	PPM
Dust PM_{10}	Daily	At site perimeter	Monitor air quality against NEPM standards (Table 6)	MOM PPM

6.6 Contingency actions for dust management

Contingency actions for dust management are detailed in Table 10.

Table 10: Contingency actions for dust management

Trigger	Action	Responsibility
Spill incident within the yard	1. Identify source of spill 2. Sweep affected area of the yard 3. Wash affected area of the yard 4. Record incident in the Risk Reporting database	PPM
Spill incident on a public road	1. Spills occurring outside the site will be attended to immediately 2. Identify source of spill 3. Manage any traffic hazard created by the spill in line with relevant standards 4. Make arrangements for material to be cleaned up or isolated until such time as clean up can be completed 5. Ensure that recycling or disposal of materials occurs as appropriate to the incident 6. Record incident in the Risk Reporting database 7. Determine the severity of incident as per Section 4.1 8. Metro Operations Manager to notify City of Vincent and other authorities as appropriate	PPM RM
Failure of dust control plant or equipment	1. Ascertain if dust can be controlled safely by alternative measures while repair is undertaken 2. If control mechanism cannot be replaced, cease use of plant until repair can be completed 3. Complete a maintenance record, including recommendations for actions which may avoid a repeat occurrence	PPM
Exceedance of PM_{10} dust monitoring levels	1. Identify source of dust emissions contributing to exceedance 2. Review the implementation of dust control measures 3. Metropolitan Operations Manager to report exceedance to the City of Vincent and relevant regulators 4. Update the Dust Management Plan to improve dust control measures, if required 5. Provide feedback to all staff via Site meetings or toolbox meetings	PPM RM

7. Noise management plan

7.1 Potential impact from noise emissions

The East Perth concrete plant is located adjacent to inner city residential areas which are potentially sensitive to noise emissions.

7.2 Objectives, targets and indicators for noise management

Objectives, targets and performance indicators for noise are detailed in Table 11.

Table 11: Objectives, targets and indicators for noise management

Objective	Target	Key Performance Indicator
Ensure compliance with Notice of Determination of Application by Minister, 22 May 2012.	No concrete batching operations and access to the site by trucks and semi-trailers on Sundays and public holidays.	Complaints register
Minimise noise emissions.	No public complaints relevant to noise emissions.	Records of noise control equipment down time. Noise monitoring results Noise control equipment maintenance schedule. Noise control equipment inspections. Complaints register.

7.3 Management actions for noise control

Management actions for noise control are detailed in Table 12.

Table 12: Management actions for noise control

Parameter	Management Action	Timing	Responsibility
Induction	Induct all employees and contractors to the requirements of the noise management plan.	Prior to commencing work on-site	PPM
Truck movement	Design the vehicle flow system to minimise the use of any reversing alarm (Figure 1, Section 8.4).	Design phase	PPM
	Install low intensity reversing alarms on all trucks accessing the site.	Prior to commencing work on-site	PPM
	Utilise quieter truck models at the East Perth concrete plant.	At all times	PPM
	Utilise quieter truck models exclusively, for all night/ early morning work.	Night work and early morning work	PPM
	Minimise traffic movement in the yard.	At all times	PPM
	Limit speed to 8 km/hr within the yard.	At all times	PPM
Tipping	Engage tipper bin door.	During tipping	PPM
	Ensure truck and trailer requirements match bin specifications.	During tipping	PPM
Slumping	Lower slumping shed doors.	During high revving slumping activities	PPM
Loading	Enclose truck loading bays.	During loading	PPM
Noise buffer	Install an acoustic barrier (wall) along Lord St fence line.	Completed by December 2012	MOM

Parameter	Management Action	Timing	Responsibility
	Maintain screening trees/shrubs along site boundaries.	On-going	PPM
General maintenance	Inspect loading and slumping door operations as per maintenance checklist.	As per maintenance checklist	PPM
Maintenance of equipment and plant	Maintain and operate all plant and vehicles to manufacturer's specification or other relevant standard (e.g. noise regulations)..	At all times	PPM
	Prepare and implement a preventative maintenance checklist in line with manufacturer's specification or other relevant standard (e.g. noise regulations).	At all times	PPM
	Review current preventative maintenance program for existing noise control equipment, including the appropriateness of frequency and preventative maintenance schedules.	Annual	PPM
	Modify preventative maintenance schedule in line with review findings.	Following review	PPM
	Conduct routine inspections of all noise control equipment – as per preventative maintenance checklist.	As per maintenance checklist	PPM
Assessment	Engage an appropriately qualified consultant to assess the noise control systems.	Bi-annual	PPM
Reporting	Report the results of noise equipment testing to the MOM and RM.	Bi-annual	PPM
Monitoring	Monitor noise emissions at locations adjacent to the nearest receptors (on the corner of Lord St and Edward St, with additional measurements from Edward St).	Monitoring	Noise monitoring consultant
Contractors	Ensure all scopes and contracts are in line with the requirements of the noise management plan.	At all times	PPM
Complaints	Address all complaints as per the complaints handling process (Section 5.2).	At all times	PPM
Community consultation	Communicate changes to operations and noise emission performance to affected community members as per section 5.	At all times	PPM
Environmental incident reporting	Report incidents in accordance with section 4	At all times	PPM

7.4 Monitoring actions for noise

Monitoring actions for noise management are detailed in Table 13.

Table 13: Monitoring actions for noise

Parameter	Frequency	Location	Purpose	Responsibility
Vehicle speed	Opportunistic	Yard	To ensure that the 8 km/hr limit is adhered to.	PPM
Noise emissions	Quarterly	Corner of Lord St and Edward St, with additional measurements from Edward St	To monitor noise experienced by adjacent sensitive receptors.	PPM Noise monitoring consultant
Noise control equipment	Weekly	Site	Ensure that records of noise control maintenance are being kept.	PPM
Equipment maintenance	As per maintenance schedule	Site	Ensure the maintenance schedule is being applied.	PPM

7.5 Contingency actions for noise management

Contingency actions for noise management are detailed in Table 14.

Table 14: Contingency actions for noise management

Trigger	Action	Responsibility
Unscheduled work occurring outside of licensed hours (Sunday and Public Holidays).	1. Record work as an incident 2. Investigate incident 3. Undertake toolbox or other appropriate training to ensure the workforce understand the limits of site operational times.	PPM
Failure of noise control equipment	1. Ascertain if noise can be controlled safely by alternative measures while repair is undertaken 2. If control mechanism cannot be replaced, cease use of plant until repair can be completed. 3. Complete a maintenance record, including recommendations for actions which may avoid a repeat occurrence.	PPM
Exceedence of speed limit in the yard	1. Record the incident 2. Provide training to the driver concerned to ensure the speed limits of site are understood	PPM
Noise complaint	1. Implement the complaints handling procedure in section 5.2	RM

8. Traffic management plan

8.1 Potential impacts of traffic

Traffic, particularly heavy vehicle traffic, entering and exiting the site may present both a nuisance and a safety risk to workers, residents and onlookers.

8.2 Requirements of DR264/2011

Operational activities necessitate a constant volume of vehicles including trucks, semitrailers, and light vehicles within the site and surrounding areas.

Operation hours are limited by the requirements of the Environmental Protection (Noise) Regulations 1997 (WA) by ensuring that during the period:

1. 0700 hours to 2200 hours Monday to Saturday two trucks are not simultaneously idling or moving between the filling and slumping stations for a period exceeding 24 minutes in any four hour period; and
2. 2200 hours and 0700 hours Monday to Saturday only one truck is ever idling or moving between the filling and slumping stations at any one time and that such idling or movement does not exceed 24 minutes in any four hour period.

8.3 Road use agreement with the City of Vincent

Hanson and the City of Vincent have agreed to inspect and discuss actions regarding repairs to roads which have been potentially damaged by Hanson trucks as required.

8.4 Vehicle flow system

Flow of vehicles entering and exiting the site is managed as detailed in Figure 1. The vehicle flow system is signposted and included in the induction materials of the traffic management plan.

The vehicle flow system is designed to limit the use of reversing alarms and to limit the need for overflow parking outside of the site.

8.5 Objectives, targets and indicators for traffic management

Objectives, targets and indicators are detailed in Table 15.

Table 15: Objectives, targets and indicators for traffic management

Objective	Target	Key Performance Indicator
Minimal disruption to traffic on public roads	No public complaints about operation related traffic.	No adverse publicity Complaints register
No increase to existing traffic safety risk on public roads.	No safety incidents arising from site related traffic.	Number of incidents related to traffic Records of delays in delivery process
Ensure compliance with Environmental Protection (Noise) Regulations 1997 (WA)	1. 0700 hours to 2200 hours Monday to Saturday two trucks are not simultaneously idling or moving between the filling and slumping stations for a period exceeding 24 minutes in any four hour period; and 2. 2200 hours and 0700 hours Monday to Saturday only one truck is ever idling or moving between the filling and slumping stations at any one time and that such idling or movement does not exceed 24 minutes in any four hour period.	Complaints register Incidents reporting exceedences of vehicle movement requirements

8.6 Management actions for traffic control

Management actions for traffic control are detailed in Table 16.

Table 16: Management actions for traffic control

Parameter	Management Action	Timing	Responsibility
Induction	Induct all employees and contractors to the requirements of the traffic management plan, including vehicle flow system and communication requirements.	Prior to commencing work on-site	PPM
Site communication meetings	Provide regular communication of vehicle flow system and communication requirements to delivery vehicle drivers at site communication meetings.	On-going	PPM
Vehicle flow	Signpost the approved vehicle flow system (Figure 1).	On-going	PPM
Vehicle operation	Adhere to all public road speed limits.	At all times	All staff and contractors
	Adhere to on-site speed limit of 8 km/hr.	At all times	All staff and contractors
	Follow signposted vehicle flow directions.	At all times	All staff and contractors
	Comply with all traffic calming devices.	At all times	All staff and contractors
Delivery	Manage vehicle movements to ensure that during the hours of 0700 hours to 2200 hours Monday to Saturday two trucks are not simultaneously idling or moving between the filling and slumping stations for a period exceeding 24 minutes in any four hour period.	0700 – 2200, Monday - Saturday	PPM
	Manage vehicle movements to ensure that during the hours of 2200 hours and 0700 hours Monday to Saturday only one truck is ever idling or moving between the filling and slumping stations at any one time and that such idling or movement does not exceed 24 minutes in any four hour period.	2200 – 0700 Monday - Saturday	PPM
	Communicate vehicle movements to the CSC to reduce delays in traffic flow.	Prior to arrival at site.	Delivery vehicle drivers
	Communicate delays in receival process to delivery vehicle drivers.	During delay events	CSC

Parameter	Management Action	Timing	Responsibility
	Park aggregate delivery vehicles in the yard, until cleared to tip in a designated area.	Upon arrival at site	Delivery vehicle driver
	Provide direction in regards to designated areas for tipping.	Upon arrival to site	PPM
	Tip aggregate in designated areas only.	During delivery	Delivery vehicle driver
Incident reporting	Report incidents in accordance with Section 4	At all times	PPM
Contractors	Ensure all scopes and contracts are in line with the requirements of the traffic management plan.	At all times	PPM
Infrastructure	Report all damage to public infrastructure to the City of Vincent	As required	RM
Complaints	Address all complaints as per the complaints handling process (Section 5.2)	At all times	PPM
Community consultation	Communicate changes to traffic management and delivery delay performance to affected community members as per Section 5.	As required	RM

8.7 Monitoring actions for traffic

Monitoring actions for traffic management at the East Perth concrete plant are detailed in Table 17.

Table 17: Monitoring actions for traffic

Parameter	Frequency	Location	Purpose	Responsibility
Infrastructure	Opportunistic	Public infrastructure	To monitor all damage to public infrastructure and inform reporting to the City of Vincent.	PPM
Traffic movement	Opportunistic	Local streets adjacent to the site	To assess truck movements in local streets are in line with the requirements of the traffic management plan.	PPM
Vehicle flow	Daily	Yard	To ensure that vehicle flow directions are followed by all delivery vehicles.	PPM
Delay in delivery process	During delay events	Yard	To record details of delay events.	PPM

8.8 Contingency actions for traffic management

Contingency actions for traffic management are detailed in Table 18.

Table 18: Contingency actions for traffic management

Trigger	Action	Responsibility
Delay events where the following trigger point occurs, constituting an incident requiring incident reporting: • Where delivery vehicles are unable to be accommodated on-site.	1. Communicate with incoming delivery vehicles and reschedule arrival times to allow for the yard to adequately clear 2. Ensure monitoring over movement of vehicles in the yard is undertaken 3. Ensure monitoring of overflow parking locations is undertaken 4. Address any delay in handling of delivered materials to speed up throughput 5. Record the incident 6. Investigate the incident, including assessment of the cause of the delay event and actions undertaken to manage the impact, and recommendations for updates to the traffic management plan or traffic flow system 7. Communicate the outcomes of the investigation at site meetings and to Hanson management team 8. Communicate the incident to the City of Vincent and other authorities as appropriate 9. Communicate a summary of the incident to affected residents, or to complainants in line with section 5.	PPM
Traffic accident involving a Hanson vehicle or delivery vehicle	1. Alert the required authorities and ensure the safety of all involved 2. Secure the site to limit further potential for accidents to occur 3. Make arrangements for the damage to be rectified 4. Record the incident 5. Investigate the incident, including assessment of the cause of the delay event and actions undertaken to manage the impact, and recommendations for updates to the traffic management plan or traffic flow system 6. Communicate the outcomes of the investigation at site meetings and to Hanson management team 7. Communicate the incident to the City of Vincent and other authorities as appropriate 8. Communicate a summary of the incident to affected residents, or to complainants in line with Section 5.	PPM
Delivery vehicle arriving outside of licensed hours.	1. Redirect or park up vehicle until the site is within approved operating hours 2. Record arrival as an incident 3. Investigate incident 4. Undertake toolbox or other appropriate training to ensure the workforce understands the limits of site operational times.	PPM

Trigger	Action	Responsibility
Exceedence of operating requirements: • 0700 hours to 2200 hours Monday to Saturday two trucks are not simultaneously idling or moving between the filling and slumping stations for a period exceeding 24 minutes in any four hour period; and • 2200 hours and 0700 hours Monday to Saturday only one truck is ever idling or moving between the filling and slumping stations at any one time and that such idling or movement does not exceed 24 minutes in any four hour period.	1. Record vehicle movements in excess of the requirements. 2. Review the implementation of the traffic management plan 3. Report exceedences to the City of Vincent 4. Update the Noise Management Plan to improve noise control measures, if required. 5. Provide feedback to all staff via Site meetings or toolbox meetings.	PPM RM

9. References

Council of Australian Governments (COAG) 20 May 2014, National Environment Protection (Ambient Air Quality) Measure [online] Standing Conucil on Environment and Water (incorporating the National Environment Protection Council), available from *http://www.scew.gov.au/nepms/ambient-air-quality* [11 June 2014]