

**ROOTY HILL REGIONAL DISTRIBUTION CENTRE
MONTHLY ENVIRONMENTAL MONITORING REPORT**

Aspect	Air Quality, Construction Noise and Meteorology
Date	October 2014

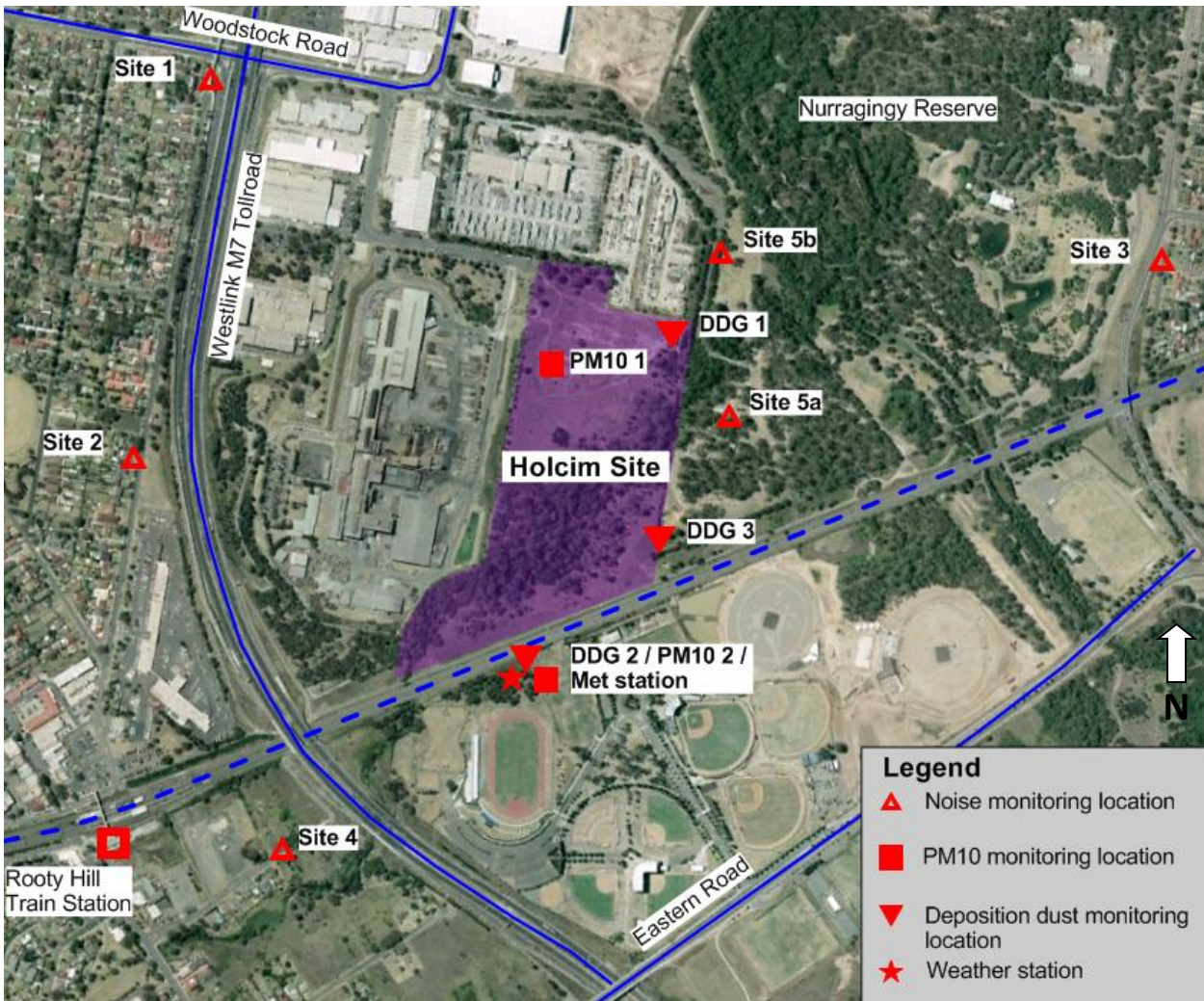
SUMMARY

Monitoring period	1 October to 31 October 2014
Parameters monitored in period	Dust (PM ₁₀) / TSP Depositional Dust Construction Noise Local Meteorology
Exceedance summary	<ul style="list-style-type: none"> ▪ Two exceedances of PM₁₀ criteria were recorded during October 2014 (both on 27 October). ▪ One instance where depositional dust levels were recorded above 4 g/m²/month, although annual averages at all three monitoring sites remain below criteria. ▪ No attributable exceedances of the construction noise management levels were recorded in October 2014.
Action required	None

1. Monitoring Locations

The monitoring locations at the Rooty Hill Regional Distribution Centre (RDC) for air quality, construction noise and meteorology are shown in **Figure 1** and consist of:

- Dust monitoring (PM₁₀): Blacktown International Sportspark (formally Olympic Park)
Holcim Site offices
- Dust monitoring (Depositional): Locations 1 to 3
- Noise monitoring: Locations 1 to 5b
- Meteorology: Blacktown International Sportspark (formally Olympic Park)



■ **Figure 1 Monitoring locations**

2. Monitoring Methodology

Dust

Air quality (dust) monitoring was undertaken using two Ecotech High Volume Air Samplers (HVAS) 3000 with a Particulate Matter - 10µm (PM₁₀) sampling heads. The HVASs were operated on one-day-in-six in accordance with *AS/NZS 3580.9.6:2003 Methods for sampling and analysis of ambient air, Method 9.6: Determination of suspended particulate matter (PM10) – High volume sampler with size selective inlet - Gravimetric method*.

Calibration of the unit is checked on a monthly basis, in accordance with operating instructions for the unit and *AS/NZS 3580.9.6:2003*.

TSP will not be directly monitored, and instead will be calculated by application of a conversion factor (PM₁₀ x 2.5 = TSP), in accordance with the site Operational Monitoring Plan.

Depositional dust was monitored in accordance with *AS/NZS 3580.10.1:2003 Methods for sampling and analysis of ambient air Method 10.1: Determination of particulate matter – Deposited matter – Gravimetric method*.

Construction Noise

Construction noise was monitored for 15 minute attended periods in accordance with the requirements set out in the EPA (2000) Industrial Noise Policy and the DECC (2009) Interim Construction Noise Guidelines (ICNG). Monitoring was carried out using a SVAN 858 Type 1 Sound Level Meter by appropriately qualified personnel. Calibration of the unit was checked before and after each monitoring period, and the drift was below 0.5dB.

Local Meteorology

Meteorological conditions were monitored using a Davis Vantage Pro2 Plus monitoring unit. This unit was positioned in accordance with *AS2923-1987 Ambient air – Guide for measurement of horizontal wind for air quality applications*.

The Davis Vantage Pro2 plus meteorological station does not satisfy the accuracy requirements of AS 3580.14-2011 for wind speed and direction measurements. However, no monitoring standards are specified in the Project Approval and the accuracy of the proposed unit is considered sufficient for the purposes of construction impact management.

The integrity of the meteorological monitoring station is checked every six days.

3. Guidelines

Air Quality

Air quality (dust) criteria within the Project Conditions of Approval, specifically Statement of Commitment (SoC) 4.1 and the Construction Dust Management Plan (CDMP) mirror those in the NSW EPA document *Approved methods for the modelling and assessment of air pollutants in New South Wales* (DEC 2005). The air quality assessment criteria are outlined in **Table 1**, which apply cumulatively (that is, due to all sources of emissions and not just the contribution from the project).

■ Table 1 Air Quality Criteria

Pollutant	Averaging period	Concentration
PM ₁₀	24 hours	50ug/m ³
	Annual	30ug/m ³
TSP	Annual	90ug/m ³
Deposited dust	Annual	4 g/m ² /month*

* *Depositional dust criteria contained in the NSW EPA methods specify a maximum contribution of 2g/m²/month, up to a maximum total depositional dust level of 4g/m²/month. This criterion assumes a typical existing load of 2g/m²/month, prior to the start of construction activities.*

TSP will not be directly monitored, and instead will be calculated by application of a conversion factor (PM₁₀ x 2.5 = TSP), in accordance with the site Operational Environmental Monitoring Plan.

Construction Noise

The Noise Management Levels (NML) for construction of the Rooty Hill RDC are provided in **Table 2**. These are based on the requirements of the ICNG, Ministers Condition of Approval (MCoA) 2.2 and the measured background levels.

■ **Table 2 Construction Noise Management Levels**

Receiver		Receiver Type	Approximate Distance and Orientation from RDC boundary	NML LAeq,15min / dB(A)
1	132 Station Street	Residential	650m west	58
2	54 Station Street	Residential	650m west	58
3	63 Coghlan Street	Residential	850m east	58
4	16 Mavis Street	Residential	650m west	63
5a	Lomandra Shelter Shed (Nurragingy Reserve)	Recreational	<100m east	60
5b	Boronia Shelter Shed (Nurragingy Reserve)	Recreational	<100m east	60

A construction noise impact assessment undertaken for the Construction Noise Management Plan (CNMP) predicts no exceedance of the NMLs at residential receivers throughout the construction program. Within the reserve, occasional exceedances are anticipated such as during earthworks; vegetation clearing; and installation of building structures and equipment.

Meteorology

SoC 3.3, 10.4 and 15.3 requires Holcim monitor local meteorological conditions at the site. To comply with the SoC the following parameters must be monitored:

- Daily air temperature
- Solar radiation
- Daylight hours
- Daily rainfall
- Daily evaporation
- Continuous wind speed and direction

4. Monitoring results

Air Quality

PM₁₀ / TSP

Exceedences of PM₁₀, 24-hour criteria on 27 October 2014 at HVAS Units 1 and 2. Ambient air quality results for PM₁₀ from the nearest NSW EPA air quality monitoring stations (St Mary's, Vineyard and Prospect) ranged from 48 to 60 ug/m³. The dominant wind direction on 27 October was the west northwest. Considering these background and meteorological conditions at the time of the recorded exceedences, they were likely to be a result of a combination of site operations and elevated local PM₁₀ levels.

■ Table 3 HVAS Unit 1 (BSC) October 2014 PM₁₀ and TSP Results

Date	PM ₁₀ (ug/m ³)		TSP	
	Measured result	Criteria	Calculated result (PM ₁₀ x 2.5)	Criteria
03/10/2014	24.0	50	60.0	NA
09/10/2014	18.9	50	47.3	NA
15/10/2014	13.2	50	33.0	NA
21/10/2014	14.8	50	37.0	NA
27/10/2014	53.8	50	134.5	NA
Annual average (to date)	22.7		56.7	

■ Table 4 HVAS Unit 2 (Site office) October 2014 PM₁₀ and TSP Results

Date	PM ₁₀ (ug/m ³)		TSP	
	Measured result	Criteria	Calculated result (PM ₁₀ x 2.5)	Criteria
03/10/2014	47.5	50	118.8	NA
09/10/2014	39.0	50	97.5	NA
15/10/2014	23.0	50	59.5	NA
21/10/2014	28.1	50	70.3	NA
27/10/2014	89.3	50	223.3	NA
Annual average (to date)	29.5		73.9	

Depositional Dust

Although depositional dust levels above 4 g/m²/month were recorded at DDG1, annual averages for all three DDG's remain below criteria.

■ Table 5 Depositional Dust Gauge results - October 2014

Location	Total Insoluble Matter (g/m ² /month)			Goal (annual average)
	1	2	3	
02/10/2014 – 03/11/2014	4.6	2.6	2.7	N/A
Annual average	2.1	2.7	1.7	4 g /m ² /month

Construction Noise

No attributable exceedences of construction noise management levels were observed during October 2014 monitoring.

Noise was only audible from the Site at locations 4, 5a and 5b, owing to works being undertaken towards the southern end of the site.

The results of attended construction noise monitoring are presented in **Table 6**.

■ **Table 6 Construction Noise Monitoring Results**

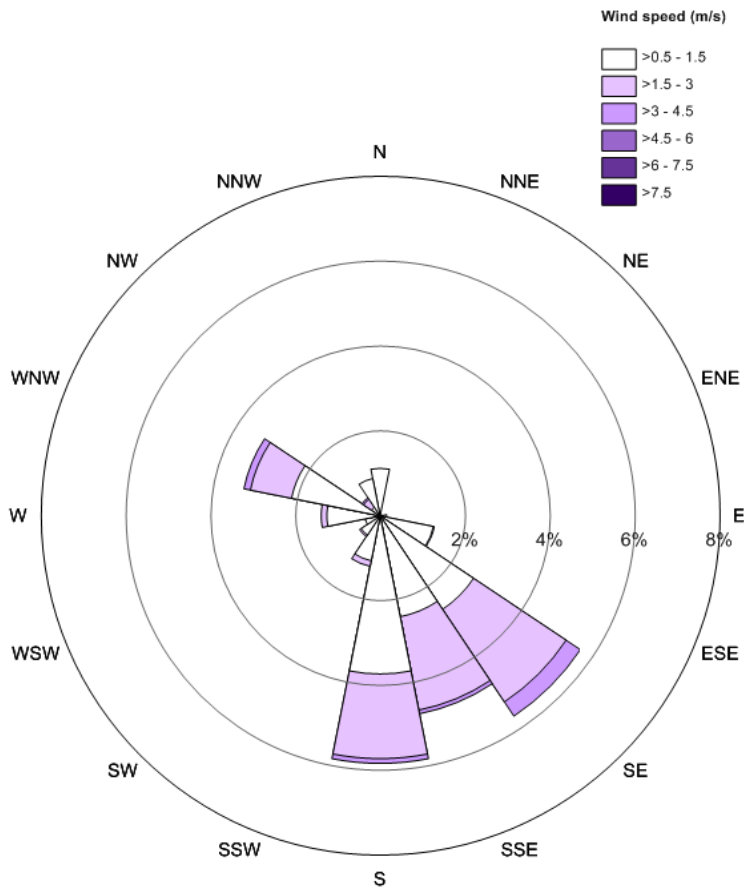
Location	Start	Construction contribution L _{Aeq}	L _{Aeq}	L _{A10}	L _{A90}	NML L _{Aeq,15} min / dB(A)	Notes
1 (132 Station St)	12:38	IA	57	58	51	58	Holcim inaudible. Traffic along M7 and M7 off-ramp dominant noise source [typically 53dB(A), 57 dB(A) and 61 dB(A) during light traffic, heavy traffic and off-ramp braking respectively].
2 (54 Station St)	12:09	IA	54	57	50	58	Holcim inaudible. M7 dominant noise source [typically 54 to 59 dB(A)] and local traffic along Station St [up to 59 dB(A)].
3 (63 Coghlan St)	11:36	IA	61	65	51	58	Holcim inaudible. Traffic along Knox Rd dominant noise source [typically 53, 62 and 70 dB(A) for light, heavy and stopping/starting of traffic respectively].
4 (16 Mavis St)	10:03	47	55	58	48	63	Holcim audible at 52 dB(A) for first 4 minutes, @ 48 dB(A) from 4 to 11 minutes and <42 dB(A) from 11-15 minutes. M7 traffic other dominant noise source.
5a (Lomandra Shelter Shed [Nurragingy Reserve])	9:38	55	55	59	51	60	Holcim audible [bulldozer along haul road at 65 dB(A), Excavator moving materials at 57 dB(A), reverse beepers and other site noise 51 dB(A)].
5b (Boronia Shelter Shed [Nurragingy Reserve])	9:17	51	53	54	46	60	Holcim audible [engine noise, reversing beepers, typically 50-53 dB(A)]. Other industries and local traffic other dominant noise sources.

*IA - Inaudible

Local Meteorology

A wind rose showing the proportion of direction and strength of winds throughout the reporting period is below. A complete data set, including, humidity, temperature and rainfall is provided separately.

The wind rose shows that industrial receivers to the north and northwest of the site were the most likely to be impacted by construction generated dust.



■ **Figure 2 October 2014 Windrose, Blacktown International Sportspark Meteorological station**