ROOTY HILL REGIONAL DISTRIBUTION CENTRE

MONTHLY ENVIRONMENTAL MONITORING REPORT

Aspect	Air Quality, Construction Noise and Meteorology
Date	September 2014

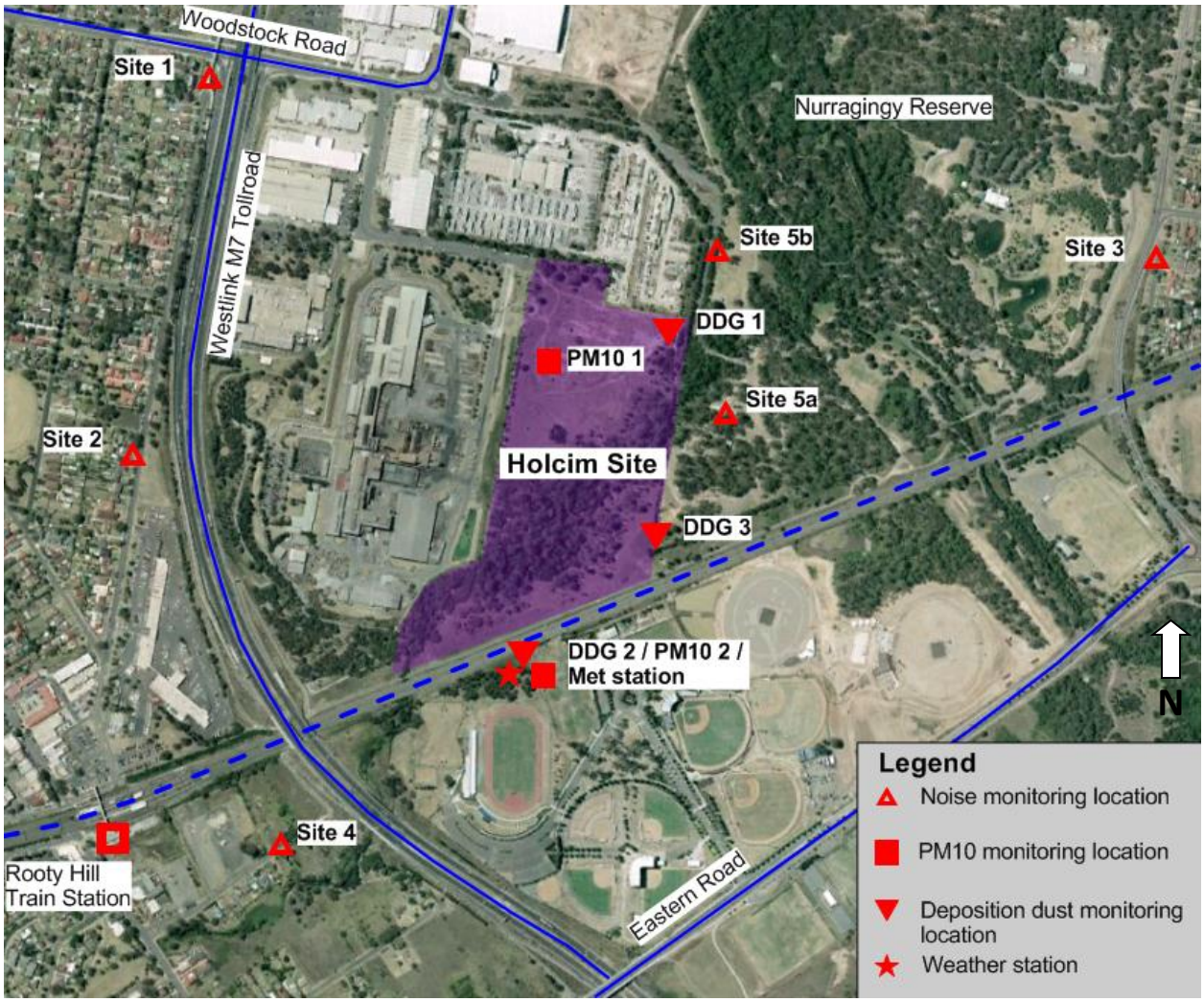
SUMMARY

Monitoring period	1 September to 30 September
Parameters monitored in period	Dust (PM_{10}) / TSP Depositional Dust Construction Noise Local Meteorology
Exceedance summary	▪ One exceedance of PM_{10} criteria was recorded during September 2014. ▪ No exceedances of depositional dust criteria were recorded during September 2014. ▪ No attributable exceedances of the construction noise management levels were recorded in September 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 (PM_{10}): Blacktown International Sportspark (formerly Olympic Park)
  Holcim Site offices
- Dust monitoring (Depositional): Locations 1 to 3
- Noise monitoring: Locations 1 to 5b
- Meteorology: Blacktown International Sportspark (formerly 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 (PM_{10}) 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 or 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 is not directly monitored, but is 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/m^2/month, up to a maximum total depositional dust level of 4g/m^2/month. This criterion assumes a typical existing load of 2g/m^2/month, prior to the start of construction activities.*

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.

Previous monthly monitoring reports have assessed compliance with MCoA 2.3. Jacobs has completed a detailed review of this MCoA alongside the CNMP approved under MCoA 5.3(b) and concluded that MCoA 2.3 is related to the operational phase and does not need to be assessed from a compliance perspective during the construction phase. The NMLs and noise predictions in the CNMP are a more accurate indication of the likely impacts from Stage 2 construction works.

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
- Continuous wind speed and direction

4. Monitoring results

Air Quality

PM_{10} / TSP

One exceedance of PM10, 24-hour criteria on 3 September 2014 at HVAS 2.

Wind direction on the day of the recorded exceedance showed a SSW breeze, blowing from the construction works to HVAS Unit 2. Furthermore, the 24-hour background PM10 concentration from the nearest EPA ambient air quality monitoring station at St Mary's was 9.2 ug/m3. Together, these factors argue that the exceedence was a result of site works.

- **Table 3 HVAS Unit 1 (BSC) September 2014 PM_{10} and TSP Results**

Date	PM_{10} (ug/m^3)		TSP	
	Measured result	Criteria	Calculated result (PM10 x 2.5)	Criteria
03/09/2014	12.5	50	31.3	NA
09/09/2014	20.6	50	51.5	NA
15/09/2014	20.7	50	51.8	NA
21/09/2014	14.1	50	35.3	NA
27/09/2014	11.2	50	28.0	NA
Annual average (to date)	**22.4**		**56.0**	

- **Table 4 HVAS Unit 2 (Site office) September 2014 PM_{10} and TSP Results**

Date	PM_{10} (ug/m^3)		TSP	
	Measured result	Criteria	Calculated result (PM10 x 2.5)	Criteria
03/09/2014	64.5	50	161.3	NA
09/09/2014	28.0	50	70.0	NA
15/09/2014	34.9	50	87.3	NA
21/09/2014	19.8	50	49.5	NA
27/09/2014	19.8	50	49.5	NA
Annual average (to date)	**25.9**		**64.8**	

Depositional Dust

No exceedances of depositional dust criteria were recorded during the month of September 2014.

- **Table 5 Depositional Dust Gauge Results September 2014**

Total Insoluble Matter (g/m^2/month)				Goal (annual average)
Location	1	2	3	
04/09/2014 – 02/10/2014	2.1	3.0	2.3	N/A
Annual average	1.8	2.8	1.6	4 g /m^2/month

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Construction Noise

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

Noise was only audible from the Site at locations 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**

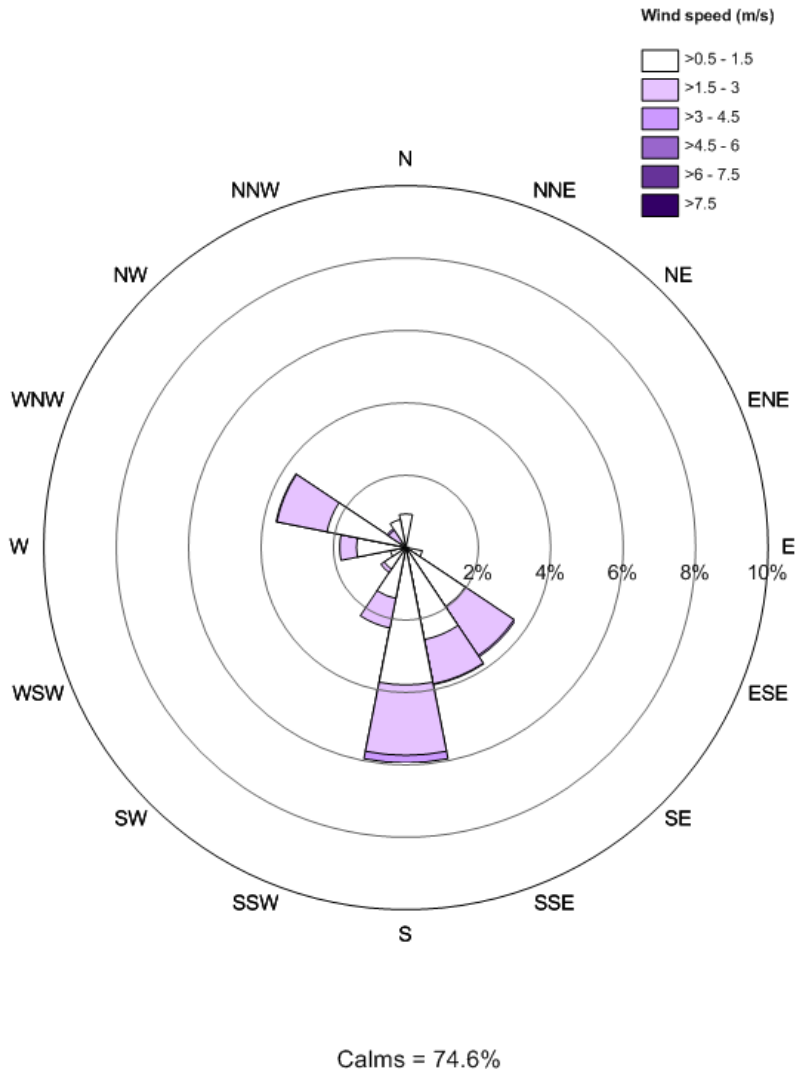
Location	Start	Construction contribution L_{Aeq}	L_{Aeq}	L_{A10}	L_{A90}	NML $L_{Aeq,15\ min}$ / dB(A)	Notes
1 (132 Station St)	13:15	IA	59	61	55	58	Holcim inaudible. M7 / M7 off-ramp (57-64 dB(A)] and local traffic [63-64 dB(A)] dominant noise sources.
2 (54 Station St)	12:55	IA	55	58	51	58	Holcim inaudible. Traffic along M7 [51-53 dB(A) LV's, 55-58 dB(A) HV's], local traffic on Station St [57-62 dB(A)] and birds.
3 (63 Coghlan St)	10:55	IA	63	66	55	58	Holcim inaudible. Key noise source traffic along Knox Road [65 db(A) typical, 53 dB(A) light traffic, 73 dB(A) HV passbys].
4 (16 Mavis St)	12:20	IA	53	55	48	63	Holcim inaudible. M7 [50-55 dB(A) Lv's, 55-60 dB(A) HV's], birds and passenger trains key noise sources.
5a (Lomandra Shelter Shed [Nurragingy Reserve])	10:20	56	58	59	55	60	Noise from Holcim consistently 55-58 dB(A) [hammering, vehicle movements, excavator]. BSC crowd noise, local traffic, wind in trees and passenger trains other key sources.
5b (Boronia Shelter Shed [Nurragingy Reserve])	10:00	52	53	54	48	60	Holcim generally inaudible except short-term engine and unloading noises [50-54 dB(A)]. Key noise sources other industrial noise [up to 57 dB(A)], local traffic [up to 67dB(A)], crowd noise from BSC [53 dB(A)] and birds [up to 60 dB(A)].

*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 September 2014 Windrose, Blacktown International Sportspark Meteorological station**