

ROOTY HILL REGIONAL DISTRIBUTION CENTRE  
MONTHLY ENVIRONMENTAL MONITORING REPORT

|        |   |
|--------|---|
| Aspect | Air Quality, Construction Noise and Meteorology |
| Date   | December 2014                                   |

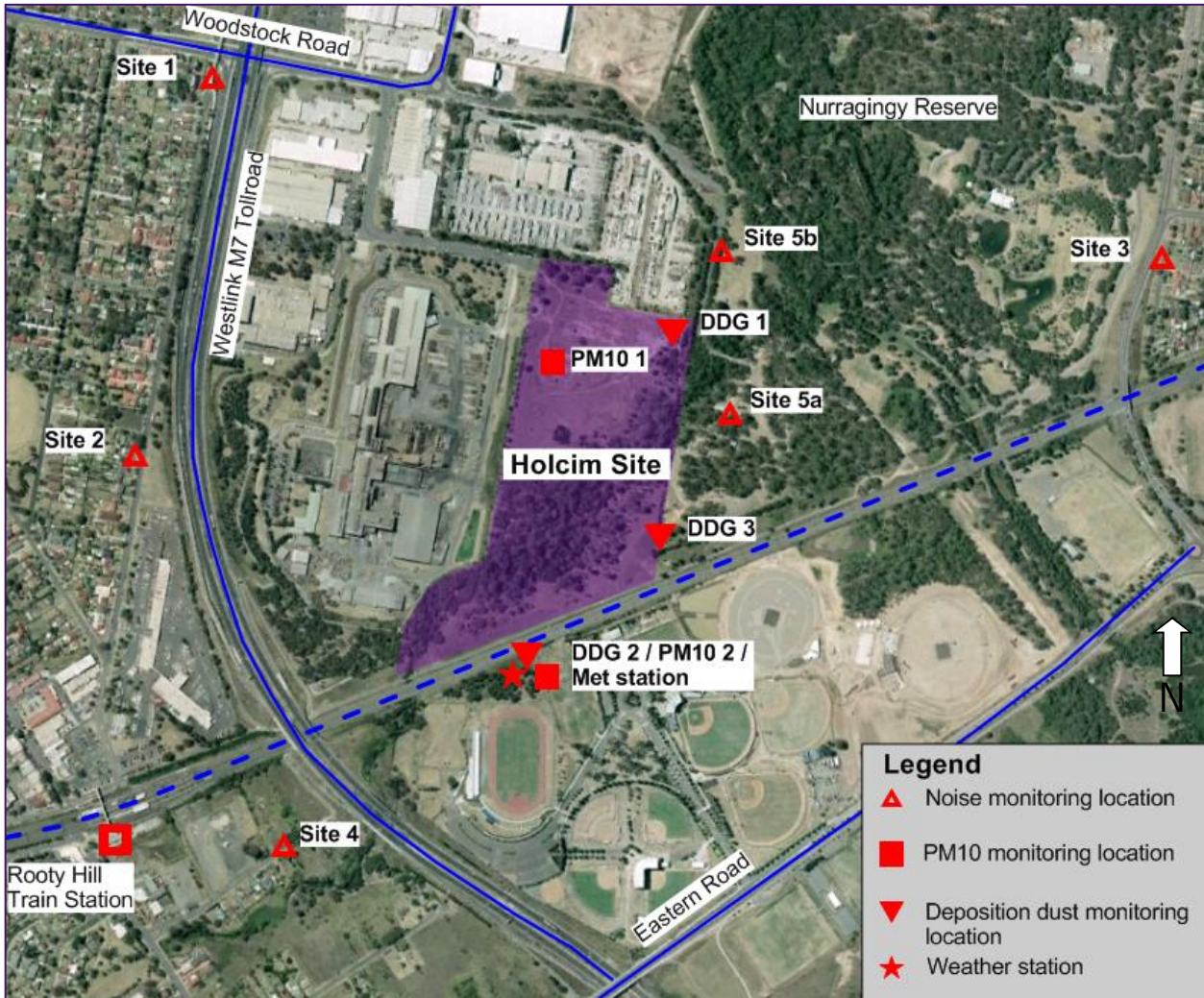
## SUMMARY

|                                |   |
|--------------------------------|---|
| Monitoring period              | 1 December to 31 December 2014  |
| Parameters monitored in period | Dust (PM <sub>10</sub> ) / TSP<br>Depositional Dust<br>Construction Noise<br>Local Meteorology  |
| Exceedance summary             | <ul style="list-style-type: none"> <li>▪ No exceedances of PM<sub>10</sub> criteria were recorded during December 2014.</li> <li>▪ Depositional dust levels at all locations were below 4 g/m<sup>2</sup>/month, and annual averages at all three monitoring sites remain below criteria.</li> <li>▪ No attributable exceedances of the construction noise management levels were recorded in December 2014.</li> </ul> |
| 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<sub>10</sub>): 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 (PM<sub>10</sub>) 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 (PM<sub>10</sub> 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 <sub>10</sub> | 24 hours         | 50ug/m <sup>3</sup>        |
|                  | Annual           | 30ug/m <sup>3</sup>        |
| TSP              | Annual           | 90ug/m <sup>3</sup>        |
| Deposited dust   | Annual           | 4 g/m <sup>2</sup> /month* |

\* *Depositional dust criteria contained in the NSW EPA methods specify a maximum contribution of 2g/m<sup>2</sup>/month, up to a maximum total depositional dust level of 4g/m<sup>2</sup>/month. This criterion assumes a typical existing load of 2g/m<sup>2</sup>/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 (PM<sub>10</sub> 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.

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
- Daily evaporation
- Continuous wind speed and direction

#### 4. Monitoring results

##### *Air Quality*

##### *PM<sub>10</sub> / TSP*

**No exceedences of PM<sub>10</sub>, 24-hour criteria were detected during December 2014.** During the second half of December the site was closed for the Christmas break, and as such no monitoring was carried out. Monitoring restarted on the 7 January 2015.

##### ■ **Table 3 HVAS Unit 1 (BSC) December 2014 PM<sub>10</sub> and TSP Results**

| Date                     | PM <sub>10</sub> (ug/m <sup>3</sup> ) |          | TSP  |          |
|--------------------------|---------------------------------------|----------|--|----------|
|                          | Measured result                       | Criteria | Calculated result (PM <sub>10</sub> x 2.5) | Criteria |
| 02/12/2014               | 24.6                                  | 50       | 61.5                                       | NA       |
| 08/12/2014               | 9.6                                   | 50       | 24.0                                       | NA       |
| 14/12/2014               | 17.6                                  | 50       | 44.0                                       | NA       |
| 20/12/2014               | Site closed – HVAS did not run        |          |  |          |
| 26/12/2014               | Site closed – HVAS did not run        |          |  |          |
| Annual average (to date) | 22.8                                  |          | 56.9                                       |          |

##### ■ **Table 4 HVAS Unit 2 (Site office) December 2014 PM<sub>10</sub> and TSP Results**

| Date                     | PM <sub>10</sub> (ug/m <sup>3</sup> ) |          | TSP  |          |
|--------------------------|---------------------------------------|----------|--|----------|
|                          | Measured result                       | Criteria | Calculated result (PM <sub>10</sub> x 2.5) | Criteria |
| 02/12/2014               | 22.1                                  | 50       | 55.3                                       | NA       |
| 08/12/2014               | 21.8                                  | 50       | 54.5                                       | NA       |
| 14/12/2014               | 18.8                                  | 50       | 47.0                                       | NA       |
| 20/12/2014               | Site closed – HVAS did not run        |          |  |          |
| 26/12/2014               | Site closed – HVAS did not run        |          |  |          |
| Annual average (to date) | 28.9                                  |          | 72.3                                       |          |

##### *Depositional Dust*

Depositional dust levels at all three locations were below 4 g/m<sup>2</sup>/month, and annual averages for all three DDG's remain below criteria

■ **Table 5 Depositional Dust Gauge Results December 2014**

| Total Insoluble Matter (g/m <sup>2</sup> /month) |     |     |     | Goal<br>(annual average)   |
|--|-----|-----|-----|----------------------------|
| Location   | 1   | 2   | 3   |                            |
| 04/12/2014 – 05/01/2015                          | 1.8 | 1.3 | 0.8 | N/A                        |
| Annual average                                   | 2.1 | 2.5 | 1.7 | 4 g /m <sup>2</sup> /month |

*Construction Noise*

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

Noise was only audible from the Site at locations 5a and 5b, owing to operation of the rail unloading conveyor in the south eastern end of the site and excavator operation at the north eastern end, adjacent to the site boundary.

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

■ **Table 6 Construction Noise Monitoring Results**

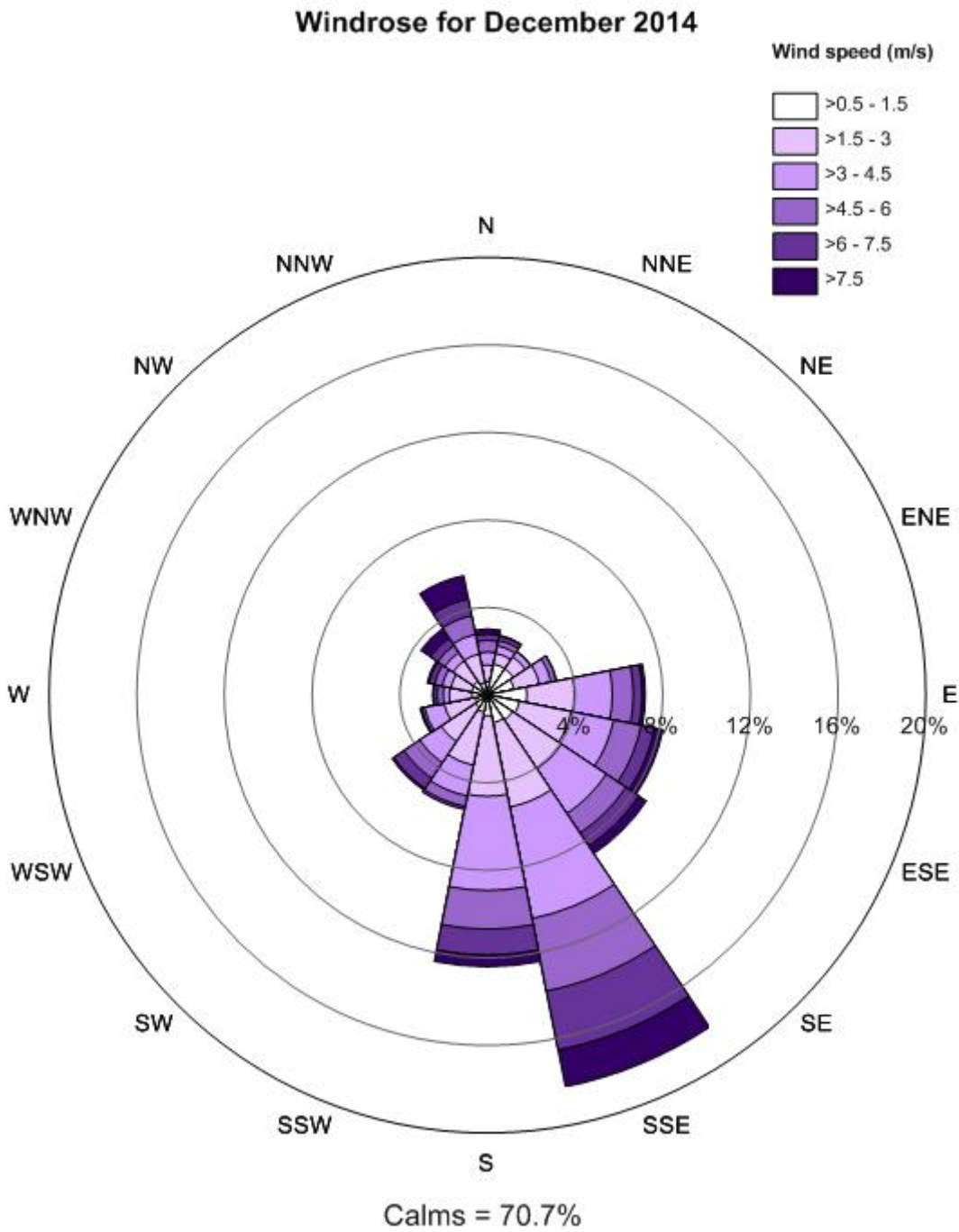
| Location  | Start | Construction contribution<br>L <sub>Aeq</sub> | L <sub>Aeq</sub> | L <sub>A10</sub> | L <sub>A90</sub> | NML<br>L <sub>Aeq,15</sub><br>min /<br>dB(A) | Notes   |
|---|-------|---|------------------|------------------|------------------|--|---|
| 1 (132 Station St)                              | 12:20 | IA*   | 58               | 59               | 53               | 58   | Holcim inaudible. Traffic along M7 and M7 off-ramp dominant noise source [typically 55-60dB(A)].                                    |
| 2 (54 Station St)                               | 12:40 | IA*   | 53               | 54               | 50               | 58   | Holcim inaudible. M7 dominant noise source [typically 50-55dB(A)] and local traffic along Station St [up to 61 dB(A)].              |
| 3 (63 Coghlan St)                               | 13:10 | IA*   | 55               | 58               | 51               | 58   | Holcim inaudible. Traffic along Knox Rd dominant noise source [typically 50-60dB(A)].   |
| 4 (16 Mavis St)                                 | 10:05 | IA*   | 58               | 60               | 54               | 63   | Holcim inaudible. M7 traffic dominant noise source [55-60dBA].  |
| 5a (Lomandra Shelter Shed [Nurragingy Reserve]) | 8:40  | 53  | 54               | 55               | 53               | 60   | Holcim audible [conveyor belt in operation [51], constant engine north of site [50], occasional reversing beeper)                   |
| 5b (Boronia Shelter Shed [Nurragingy Reserve])  | 13:40 | 43  | 44               | 52               | 42               | 60   | Holcim audible [low level constant excavator [44]. Cicadas, birds, 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 November 2014 Windrose, Blacktown International Sportspark Meteorological station