



Monthly Environmental Monitoring Report

March 2009

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1.0 Monitoring Overview

The monitoring data provided includes all monitoring conducted during the reporting period March 2009.

The monitoring report contains the following monitoring data:

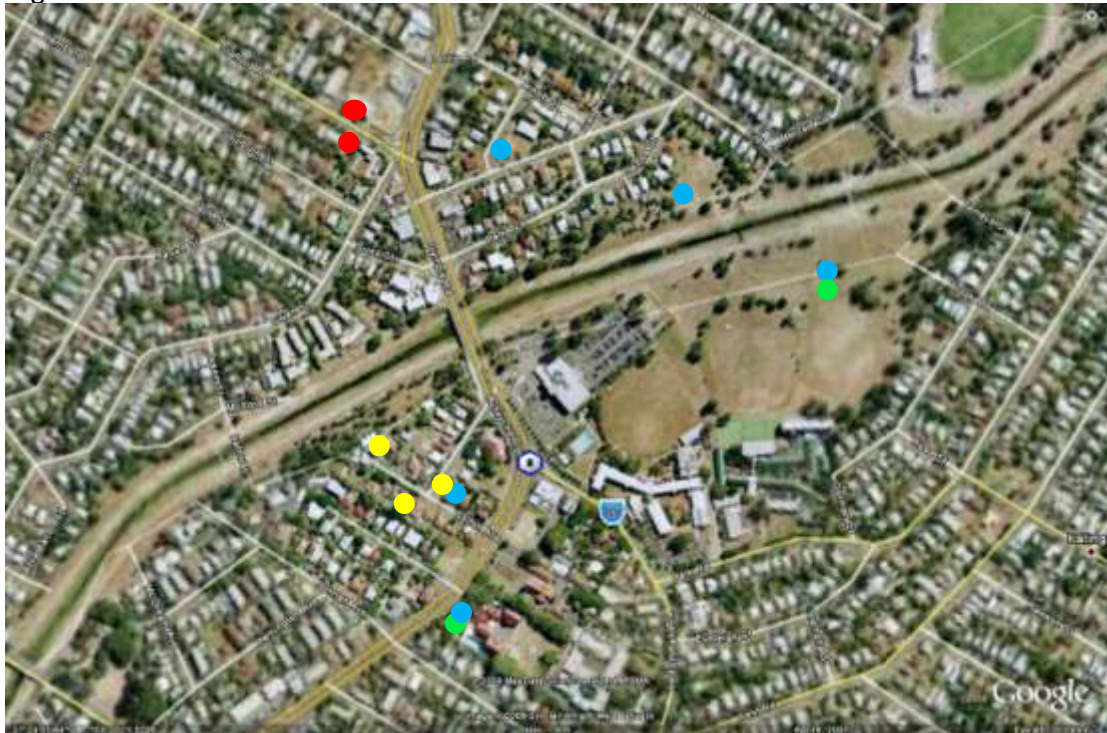
- Noise
- Air Quality
- Vibration

Monitor results have been presented in tabulated form against the Coordinator-General (CoG) reporting requirements. The location points for noise, air and vibration monitoring are provided in Figure 1, 2 and 3.

Please note that any monitoring data absent from this report due to the laboratory results not being finalised at the time of issue, will be included and reissued in an amended report.

2.0 Monitoring Locations

Figure1: Kedron



Legend

- Noise (during construction)
- Noise (preconstruction)

- Air (PM₁₀)
- Air (Dust Fallout)

Note – these locations are indicative only

Figure 2: Toombul



Legend

- Noise (during construction)
- Air (Dust Fallout)

- Air (PM₁₀)
- Note – these locations are indicative only

Figure 3: Bowen Hills



Legend

- Noise (during construction)
- Vibration

- Air (PM₁₀)
- Air (Dust Fallout)

Note – these locations are indicative only

Figure 4: Northern Busway



Legend

- Noise (during construction)

- Air (PM₁₀)

Note – these locations are indicative only

3.0 Noise Monitoring

Noise monitoring (attended) indicates construction levels are both meeting and exceeding goals at various worksites / activities across the project (refer to Table 1).

Monitoring of noise goals will need to be done internally to align with the Coordinator-General's requirements. The project has experienced difficulty in gaining access to properties to undertake internal noise monitoring. External and unattended monitoring has also been undertaken however because noise sources cannot be identified (unattended) or the noise monitoring is undertaken outside (different from goal requirement), the data collected in these instances only serves as general information.

Ongoing consultation with the community will be undertaken to facilitate additional access to private property / sensitive receptors.

3.1 Mitigation Measures

Generally the main strategies adopted in order to mitigate noise during construction works have included the following:

1. Undertake noise modelling for sections of works adjacent to sensitive receptors. Noise modelling has been undertaken for the following work locations:
 - a. Tunnelling works at Truro Street
 - b. Surface works between Chalk and Perry Streets
 - c. Surface works between the Kedron Brook and Leckie / Stafford Roads
 - d. Cut and cover structures CC210, CC211 and CC212
 - e. Nudgee Road spoil transfer site
2. Reasonable and practical mitigation measures that have been implemented to date include the following:
 - a. Temporary noise barrier (sea container and ply walls) installation at:
 - i. Kalinga Park
 - ii. Perry Street
 - iii. Gympie and Lutwyche Road
 - iv. Truro Street
 - v. Federation Street

- b. Ongoing attended (internal where access is granted) and unattended noise monitoring
- c. Advanced consultation with property owners prior to commencing works
- d. Consultation with property owners during construction phases
- e. Investigating the early installation of permanent noise barriers at early stages of works
- f. Investigation of alternative plant and equipment.
- g. Acoustic shielding of various plant
- h. Trial of temporary acoustic treatment (eg. sound curtains)
- i. Spoil disposal shed design at portal locations

3.2 Monitoring Results

Table 1: Noise Monitoring Results

Location	Monitoring Period	L _{Aeq} (15 min) (dBA)	L _{A10} (15 min) (dBA)	Mitigation	Comments
Kedron					
29 Colton Ave (external attended)	24/02/09	54.7	56.1	N/A	External result
29 Colton Ave (internal attended)	24/02/09	41.9	42.9	Container noise wall installed	Meets goals
29 Colton Ave (internal attended)	27/02/09	44.5	42.9	Container noise wall installed	Meets goals
29 Colton Ave (internal attended)	12/03/09	41.1	41.6	Container noise wall installed	Meets goals
29 Colton Ave (internal attended)	12/03/09	41.6	42.5	Container noise wall installed	Meets goals
29 Colton Ave (internal attended)	12/03/09	44.6	45.2	Container noise wall installed	Meets goals
29 Colton Ave (internal attended)	12/03/09	45.3	46	Container noise wall installed	Meets goals
29 Colton Ave (internal attended)	12/03/09	43.5	43.4	Container noise wall installed	Meets goals
29 Colton Ave (internal attended)	12/03/09	44.2	45.9	Container noise wall installed	Meets goals
17 Stafford Rd (internal preconstruction)	27/02/09–04/03/09	54.9	57.2	N/A	Pre-construction data collection
18 Colton Ave (internal attended)	04/03/09	48.3	49	Community team reviewing mitigation options with resident	Community team reviewing mitigation options
18 Colton Ave (internal attended)	04/03/09	46	46.3	Community team reviewing mitigation options with resident	Ongoing attended monitoring to occur if required
18 Colton Ave (internal attended)	04/03/09	46.7	46.2	Community team reviewing mitigation options with resident	Ongoing attended monitoring to occur if required
18 Stafford Rd (internal preconstruction)	04/03/09–11/03/09	53.3	53.6	N/A	Pre-construction data collection
Cnr Colton & Perry St (external night works)	02/03/09–03/03/09	58.6	57.1	N/A	Undertaking comparisons with pre-construction data on the effects of night works at KBB site

Location	Monitoring Period	L _{Aeq} (15 min) (dBA)	L _{A10} (15 min) (dBA)	Mitigation	Comments
Cnr Colton & Perry St (external night works)	04/03/09-9/03/09	58.9	60.5	N/A	Undertaking comparisons with pre-construction data on the effects of night works at KBB Site
Toombul					
Wongara Street (internal unattended)	24/2/09–3/3/09	53.83	47.43	Exceedance cannot be verified	Await community consultation to pursue attended monitoring
32 Lewis Street (internal unattended)	24/2/09–27/2/09	54.47	52.41	Exceedance cannot be verified	Await community consultation to pursue attended monitoring.
44 Lewis Street (internal unattended)	19/2/09–24/2/09	47.69	47.91	Exceedance cannot be verified	Await community consultation to pursue attended monitoring
44 Lewis Street (internal unattended)	28/2/09–5/3/09	45.15	44.64	Exceedance cannot be verified	Await community consultation to pursue attended monitoring
44 Lewis Street (internal unattended)	5/3/09–10/3/09	41.34	40.8	Exceedance cannot be verified	Await community consultation to pursue attended monitoring
Parkside Apartments, Parkside Street Nundah (internal unattended)	9/3/09–16/3/09	34.5	33.1	N/A	Meets goals
Bowen Hills					
18 Federation St (unattended internal)	19/2/09-17/3/09	52.3	53.3	Exceedance cannot be verified	Attended internal monitoring scheduled for April to determine source of elevated noise levels
20 Federation St (unattended internal)	11/3/09/09-23/03/09	48.7	49.9	Exceedance cannot be verified	Attended internal monitoring scheduled for April to determine source of elevated noise levels
22 Federation St (unattended internal)	21/3/09-23/3/09	50.2	48.4	Exceedance cannot be verified	Attended internal monitoring scheduled for April to determine source of elevated noise levels
Formule 1 Motel (unattended internal)	3/3/09-19/3/09	54.4	54.9	Exceedance cannot be verified	Attended internal monitoring scheduled for April to determine source of elevated noise levels
20 Gallway St (unattended external)	19/2/09-5/3/09	55.4	54.8	Exceedance cannot be verified	Attended internal monitoring scheduled for April to determine source of elevated noise levels

Northern Busway					
35 Lamington Ave (unattended external)	3/3/09-10/3/09	54.4	57	N/A – external results	Attended internal monitoring scheduled for April to determine source of elevated noise levels
35 Lamington Ave (unattended external)	20/3/09-23/3/09	56.3	59	N/A– external results	Attended internal monitoring scheduled for April to determine source of elevated noise levels

Red font = result greater than the internal L_{Aeq} CoG Goal of 45 dBA

Blue font = result greater than the internal L_{A10} CoG Goal of 55 dBA

4.0 Air Quality Monitoring

Air quality sampling is currently undertaken at a number of locations across the project (Refer to Figures 1, 2, 3 and 4). Monitoring consists of both dust deposition monitoring (TSP) and real time monitoring (PM10). Monitoring has been supplemented further by the additional monitoring of TSP in real time.

To date for both TSP and PM10 are meeting dust criteria set by the Coordinator-General's Report (refer to Table 2 and 3).

4.1 Mitigation Measures

The key strategies adopted to mitigate dust and air quality impacts during construction works have included the following:

1. Continual use of water carts for the following areas/activities:
 - a. Demolition
 - b. Bulk earthworks
 - c. Haul roads
 - d. Car parks
2. Dust suppressants in water carts
3. Investigation of appropriate soil binders (Water and Aeolian erosion prevention techniques)
4. Covering of haul vehicle loads
5. Stabilisation of cleared areas with hardstand materials such as crushed rock
6. Hydro-mulching of batters
7. Reduction of cleared / exposed soils with concrete paving and geo-fabric installation
8. Ongoing dust monitoring at permanent locations and temporary locations
9. Road sweepers
10. Design and future construction of enclosed spoil handling facilities at tunnel portals

4.2 Depositional Dust Fallout Results (TSP)

Dust deposition gauges have been installed to monitor dust fallout at a variety of locations across the project (refer to figure 1, 2 and 3). The dust deposition gauges provide a result for total dust, as required under Table 2 of the Coordinator-General's Report.

Table 2: TSP Results

Location	Monitoring Period	Dust Fallout (g/m ² /mth)	Mitigation	Comments
Kedron				
Wooloowin State School	10/02/09 - 11/03/09	1.4	Ongoing water cart use	Within CoG Goals
Kedron DES Site	11/2/09 – 11/3/09	1.6	Ongoing water cart use	Within CoG Goals
Toombul				
68 Kalinga St	12/1/09 – 13/2/09	9	Remainder of 6m high barriers around Kalinga Pk Site being installed	Due to the unusually high result this gauge was possibly spiked. The PM ₁₀ results in the same area do not indicate excessive dust is being generated by the project. The security of the gauge is being investigated.
Bowen Hills				
22 Federation St	13/1/09-13/2/09	2.1	Water carts, blasting mats, street sweepers	Within CoG Goals

Red font = result greater than CoG Goal of 4g/m²/mth

4.3 Respirable Dust Monitoring Results (PM10)

Respirable dust is that material capable of being inhaled into the lungs. Monitoring devices have been set up at a number of locations in (refer to figure 1, 2 and 3). The respirable dust monitoring (Dustrak and Thompson Units) for PM10 are monitored as required under Table 2 of the Coordinator-General's Report. The results are as indicated in Table 3.

Table 3: PM10 Results

Location	Monitoring Period	PM10 ($\mu\text{g}/\text{m}^3$)	Mitigation	Comments
Kedron				
Cnr Perry Street & Colton Avenue	27/02/09 - 28/02/09	13	Water carts, street sweepers	Within CoG Goals
Cnr Perry Street & Colton Avenue	02/03/09 -05/03/09	14	Water carts, street sweepers	Within CoG Goals
Cnr Perry Street & Colton Avenue	05/03/09 – 06/03/09	14	Water carts, street sweepers	Within CoG Goals
SETLOW Compound (north of Brook)	06/03/09 – 09/03/09	10	Water carts, street sweepers	Within CoG Goals
Woolloowin State School	10/03/09 – 19/03/09	24.1	Water carts, street sweepers	Within CoG Goals
20 Erskine St	19/03/09	15.6	Water carts, street sweepers	Within CoG Goals
KBB Site (adjacent to Kedron SHS)	7/3/09	12.45	Water carts, street sweepers	Within CoG Goals
Toombul				
68 Kalinga St	7/3/09 – 11/3/09	22.6	Water carts, street sweepers	Within CoG Goals

Location	Monitoring Period	PM10 ($\mu\text{g}/\text{m}^3$)	Mitigation	Comments
Parkside Apartments	9/3/09	21	Water carts, street sweepers	Within CoG Goals
Wongara St	24/2/09 – 26/2/09	12	Water carts, street sweepers	Within CoG Goals
Kalinga Pk (adjacent to Alma Rd)	10/3/09 – 18/3/09	11.9	Water carts, street sweepers	Within CoG Goals – wet weather period
Parkside Apartments	16/3/09 – 18/3/09	11.99	Water carts, street sweepers	Within CoG Goals- – wet weather period
Bowen Hills				
22 Federation St	4/3/09-11/3/09	34.8	Water carts, blasting mats, street sweepers	Within CoG Goals
43 Gallway St	27/2/09-28/2/09	22.66	Water carts, blasting mats, street sweepers	Within CoG Goals
43 Gallway St	5/3/09-13/3/09	21.85	Water carts, blasting mats, street sweepers	Within CoG Goals
Northern Busway				
35 Lamington Ave	26/2/09	16	Water carts, street sweepers	Within CoG Goals
35 Lamington Ave	2/3/09-9/3/09	19.8	Water carts, street sweepers	Within CoG Goals
35 Lamington Ave	20/3/09-23/3/09	36.5	Water carts, street sweepers	Within CoG Goals

Red font = result greater than CoG Goal of 50 $\mu\text{g}/\text{m}^3$

5.0 Vibration Monitoring

The only vibration activities undertaken to date are the blasting and rock hammering activities being carried out at the Bowen Hills construction site.

Results indicate that vibration from blasting to date has been within the Environmental Protection Regulation 1998 requirements (refer to Table 4).

5.1 Mitigation Measures

The key strategies adopted to mitigate vibration impacts during construction works have included the following:

1. Ongoing continuous monitoring during vibration activities
2. Blast design and modelling prior to undertaking blasting
3. Re-assessment of vibration data against blast design

5.2 Monitoring Results

Table 4: Vibration results

Location	Monitoring Period	Peak Particle Velocity (mm/s)	Mitigation	Comments
Bowen Hills				
132 Lutwyche Road	March 09	10.2	Blast design, vibration monitoring, community consultation	Within Vibration limit of 25mm per second
40 Federation Street	March 09	5.06	Blast design, vibration monitoring, community consultation	Within Vibration limit of 25mm per second
Formule 1 Motel	March 09	11	Blast design, vibration monitoring, community consultation	Within Vibration limit of 25mm per second
Byrne Street sewer	March 09	12.3	Blast design, vibration monitoring, community consultation	Within Vibration limit of 25mm per second
S18 sewer	March 09	10.8	Blast design, vibration monitoring, community consultation	Within Vibration limit of 25mm per second
28 Federation Street	March 09	24.9	Blast design, vibration monitoring, community consultation	Within Vibration limit of 25mm per second
Formule 1 Hotel	4/3/09-12/3/09	<1	Vibration monitoring and community consultation	Rock hammering, Vibration limit 10mm

Red font = result greater than CoG Goal of 10mm/s

During the reporting period, vibration monitoring during blasting in Bowen Hills was undertaken at the following locations:

- Formule 1 Motel
- 22/28 Federation St
- 40 Federation St
- 132 Lutwyche Rd
- S18 Sewer
- Byrne St Sewer

6.0 Community Enquiries and Complaints

The following tables outline the total number of enquiries and complaints received from 21 February – 20 March, 2009 via the 24-hour hotline, written correspondence or in person. The tables list the number and nature of the enquiries and complaints according to each project precinct (ie. cluster of suburbs).

Complaints and issues are assumed to be of equal importance, and are grouped together in terms of response standards.

The project received 178 calls, letters and emails and in person; 110 of which were registered as enquiries/comments, 68 as complaints.

	Noise and Vibration	General Construction Issues	Property and Business impacts	Traffic	Environment and Culture	Dust	Haulage	*Other	PRECINCT TOTAL MARCH	PRECINCT FEBRUARY	TOTAL March Complaints
Bowen Hills	3	3	3	3	1	10	1	5	29	16	12
Lutwyche /Windsor	12	2	3	6	0	2	2	8	35	49	16
Kedron	10	10	1	4	0	1	2	7	35	20	15
Toombul	6	18	10	4	0	6	10	17	71	58	25
ARU	0	0	0	0	0	0	0	5	5	5	0
Project Wide	0	1	0	1	0	0	0	1	1	5	0
TOTAL	31	34	17	18	1	19	15	43	178	148	68

* Breakdown of "other" category –

- Bowen Hills –Operational issues, project design
- Lutwyche/Windsor –Operational issues, project design, consultation
- Kedron – Operational issues
- Toombul –Site office enquiry, operational issues, consultation
- Project Wide – Operational issues, project design