NSBT Project
Construction EMP
February EMP Report

This document reports on performance against the construction environmental management plan ("CEMP") for the NSBT project in February 2009. This report also considers complaints received and how those complaints have been addressed. LBB manages the receipt and tracking of complaints/issues using a formal computer based tracking system. A 24-hour toll-free contact telephone number operates to respond to complaints, concerns or enquiries from the general public. A verbal response is provided within two hours unless the person requests otherwise. Some complaints are received via the community relations email address, in which case, if no telephone or mailing address details are provided, responses are provided electronically.

This report comprises four sections:

1.0 Noise Monitoring;

2.0 Vibration Monitoring;

3.0 Air Quality Monitoring;

4.0 Complaints.

1. NOISE MONITORING

The target for daytime noise level measured externally to a building is the greater of the preconstruction (2006) traffic noise in the area or 60 dB(A) after applying a 5 dB(A) correction to the 55 dB(A) goal which is based on measuring internal to a building.

LBB has established a continuous noise monitoring station near each of the four NSBT main work sites. These stations are located external to buildings at the addresses in the table below which also shows the average noise levels during normal surface hours (6:30am to 6:30pm Mondays to Saturdays) recorded in February at each location.

Worksite	Location of Monitoring	Average Levels in February 2009 ($L_{A10(15min)}$ dBA)
Shafston Avenue	40 Connor Street	51
O'Connell Terrace	Mews Apartments	58
Pacific Motorway	71 Abingdon Street	64
Gibbon Street	19 Gibbon Street	58

Noise levels were compliant with the 60dB(A) goal except for the Abingdon Street location. Noise levels at the Abingdon Street monitor were above the 60dB(A) target. This result is associated with intensified works to finalise the pedestrian paths, lighting and landscaping in the area immediately adjacent (between Abingdon and Lockhart Streets). These works will be complete in early March, completing construction in the area. Noise mitigation controls in place include restriction on plant start times to 7am and temporary noise walls. Local residents have been notified of the nature and duration of works.

The main strategies implemented (or continued) to mitigate noise include:

- Abingdon to Lockhart Street embankment works: restriction on plant start times to 7am and temporary noise walls;
- tunnel enclosure buildings at O'Connell Terrace, Shafston Avenue, Gibbon Street and Tunnel Boring Machine ("TBM") rock handling area north of Enoggera Creek;
- acoustic enclosure around conveyors for TBM rock handling at O'Connell Terrace;
- temporary noise walls in place along the Pacific Motorway;
- installation of final noise walls along Pacific Motorway completed;
- consult with affected property owners continues in advance of tunnelling operations to agree mitigation measures suitable to each particular owner's circumstances in relation to regenerated noise arising from the roadheader and tunnel boring machines which in most cases lasts for a relatively short period of time.

2. VIBRATION MONITORING

Ongoing monitoring of tunnelling vibration confirms TBM and cross-passage vibration levels remain consistent with CEMP predictions and within assessment guide values for minimal risk of cosmetic damage as specified in the Coordinator General's conditions.

3. AIR QUALITY MONITORING

The primary measure of air quality is the quantity of dust deposited locally in a given area over a given period. Dust deposition monitoring is carried out in accordance with AS 3580.10.1 (1991) at 13 permanent measuring stations set up across the project at the locations designated on the maps enclosed behind this report to provide representative samples. This form of measuring captures a sample over a nominal 30 day period and the sample is then laboratory tested which provides a measurement in the unit of grams per square metre per month commonly abbreviated to g/m2/mth. The goal for residential locations is 4 g/m2/mth and the results at each station for the actual period between 19 January 2009 and 18 February are shown below.

D1	Rosemount Hospital	1.3
D2	ICB	1.5
D3	Tufton St	3.4
D4	Quinton St	1.9
D5	Hawthorne St	1.3
D6	Armstrong Holden	2.6
D7	Ross St	1.8
D9	Regent St	1.3
D10	Bris Strikers	1.6
D11	Park -Dibley	2.5
D13	Mews	2.9
D14	Jurgen St	1.4
D15	Faversham St	1.7

All dust deposition results complied with the 4 g/m2/mth goal.

A secondary management tool applied to air quality is to measure the composition of the air adjacent to active worksites which provides an indicative trend over the life of the project going from the pre-existing condition to an active worksite and then reducing over time as the job completes and conditions become permanently stabilised. This measure of the particulates in the air is more widely used as an indicator of air quality in very large regions over quite a long period of time however it does have some value as a supplement to the primary dust deposition measure as an indicator of the local trends in air composition.

Measurement of the regional composition of air is done in accordance with AS 2922 of the total suspended particulate (referred to as TSP monitoring) and particulate matter less than 10um (referred to as PM10 monitoring). Because these measurements are targeted at long term overall air quality in a region generally over a period of several years they require a reasonable history of readings to determine compliance with the annual average goals of 90 µg/m3 for TSP monitoring and 50 µg/m3 for PM10 monitoring. In addition the CEMP requires that short term measurements of PM10 taken over a minimum 24hour period be less than 150 µg/m3.

Measurements of air composition were carried out in February in the vicinity of the five (5) locations indicated on the maps enclosed at the back of this report and the results are shown in the table below. All of the 24 hour measures of PM10 were less than 150 µg/m3.

The air quality goals for PM10 and TSP are based on an annual average. Rolling averages have been determined as below (as at 28 February 2009) for each of the three major work sites for each of PM10 and TSP:

Construction Zone	PM10 (µg/m^3)	TSP (µg/m^3)
Bowen Hills	30	49
Shafston Avenue	44	76
Pacific Motorway	28	44

The rolling averages to 28 February 2009 for each construction zone are within the air quality goals for PM_{10} and TSP. It is important to also note in relation to the foregoing measurements/rolling averages that:

- air monitoring stations are generally located within or immediately adjacent to the work sites and the results therefore represent the highest levels of local particulate generation caused by the project and;
- particulate levels experienced in surrounding areas will be less than those recorded at the monitoring stations due to the decrease in particulate concentrations as the distance from the work sites increases and;
- more permanent form of stabilisation has occurred progressively during 2009 by increasing paved areas, completion of final landscaping and dust control provided by tunnel enclosure buildings, all of which has results in reduced dust generation.

Date	Mews		Queensland Newspapers		Connor Street		Ross Street		Faversham St	
	PM10 (µg/m^3)	TSP (µg/m^3)	PM10 (µg/m^3)	TSP (µg/m^3)	PM10 (µg/m^3)	TSP (µg/m^3)	PM10 (µg/m^3)	TSP (µg/m^3)	PM10 (µg/m^3)	TSP (µg/m^3)
1/02/2009	59.57	89.81			72.83	120.06	35.98	46.39	37.73	53.82
2/02/2009	60.82	95.19			66.11	109.03			35.32	50.75
3/02/2009	38.73	63.36			57.39	104.18			26.99	41.39
4/02/2009	64.29	110.05	9.28	18.24	70.53	120.93	39.26	61.05	40.05	63.89
5/02/2009	61.99	108.65	14.19	27.78	65.8	115.49	42.35	65.27	38.89	64.4
6/02/2009	65.5	115.15	12.64	23.12	80.74	150.46	52.75	96.76	36.57	56.2
7/02/2009	60.6	105.83	27.3	36.96	61.71	105.26	40.79	70.42	31.94	47.71
8/02/2009	53.33	99.87	18.55	32.04	68.94	121.43	34.18	50.11	27.14	40.67
9/02/2009	49.27	84.43	11.21	20.58			43.73	69.29	48.13	88.4
10/02/2009	49.66	83.55	20.47	32.42			29.17	39.07	31.29	49.53
11/02/2009	29	54.49	9.5	15.05			30.91	57.77	18.29	32.64
12/02/2009	43.46	75.95	11.73	16.15			39.24	69.88	27.69	44.26
13/02/2009	34.82	46.7	13.02	15.81			34.58	43.95	26.29	34.35
14/02/2009	21.6	31.83	7.18	9.1			17.99	24.43	17.23	25.5
15/02/2009	18.51	35.33	5.13	8.1			13.75	22.91	13.25	24.69
16/02/2009	28.52	54.69	7.35	11.08	27.46	47.32	21.99	38.1	20.67	40.22
17/02/2009	27.71	49.05	8.33	12.17	27.34	42.32			25.95	50.87
18/02/2009	38.03	86.52	7.8	11.37	13.61	20.94			21.51	38.42
19/02/2009	35.16	68.54	9.6	15.76	43.48	68.24			28.25	56.23
20/02/2009	29.79	58.32	8.42	13.6	23.65	40.11			34.68	71.01
21/02/2009	23.9	41.72	6.58	9.88	21.57	33.55			19.21	35.13
22/02/2009	25.82	43.58	7.28	10.39	17.43	26.36			19.82	33.97
23/02/2009	45.26	76.54	12.18	17.57	26.77	39.23			32.65	56.36
24/02/2009			13.84	20.09	45.66	68.26			34.67	58.29
25/02/2009			12.65	18.34	40.6	60.46	63.63	117.13	33.32	57.82
26/02/2009			11.22	16.33	26.85	40.6	45.89	88.82	29.7	51.1
27/02/2009			13.08	18.16	38.22	56.05	33.09	50.28		
28/02/2009			13.01	19.07	28.08	41.76				

Key mitigation measures implemented (or continued) to reduce dust generation include:

- tunnel enclosure buildings at O'Connell Terrace, Shafston Avenue and Gibbon Street;
- construction of covered conveyor and rock handling enclosure on north bank of Enoggera Creek for TBM spoil management;
- reduce exposed surfaces by temporary infrastructure, permanent works and landscaping;
- continued use of trailer mounted water tanks and water carts;
- continued use of dust suppressants in water carts;
- covering of trucks hauling on public roads;

- continued use of crushed rock and recycled pavement millings to stabilise internal haul roads;
- hydro mulch exposed areas of fill as soon as possible and where practicable;
- property treatments to frontline properties with high exposure to the worksite where physical mitigation measures may not be totally effective are considered on their merits on a case by case basis.

4. COMPLAINTS

In February a total of 20 complaints were raised, all of which were received via the 1800 number. The following table shows the number and nature of the complaints/issues (more than one issue can be raised as part of a complaint event) at each worksite.

Key mitigation measures implemented to respond to the noise and dust issues are described in Sections 1.0 and 3.0 of this report.

Nature of Complaint	Pacific M'way	Gibbon Street	Shafston Avenue	O'Connell Terrace	Other	Total
Dust						0
Noise	1		11	3		15
Traffic						0
Vibration			6			6
Property (access, security, damage)	1			2		3
Other	1					1
Total						**25**