

# Southern Sydney Freight Line

## Dust Management Sub Plan

January 2009

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# 1. Introduction

## 1.1 Purpose and objectives

This Dust Management Sub-Plan (DMSP) forms part of the Construction Environmental Management Plan (CEMP) for the Southern Sydney Freight Line Project (SSFL). This Sub-Plan specifically addresses CoA 59, Soc 57 (iv), SoC 59, SoC 60 and SoC 62.

This Sub-Plan provides practical measures and actions that will be put in place in order to minimise any detrimental impact on the surrounding environment resulting from dust generation and other emissions that may arise, during pre-construction, construction and post-construction phases of the project.

The objectives of this Dust Management Sub-Plan are to identify:

- a) potential sources of dust;
- b) dust management objectives consistent with DEC guidelines;
- c) a monitoring program to assess compliance with the identified objectives. Monitoring for dust deposition and particulate concentration will be undertaken according to the DEC Guideline “Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales”;
- d) mitigation measures to be implemented, including measures during weather conditions where high level dust episodes are probable (such as strong winds in dry weather) and the mitigation measures and safeguards contained in Section 13.3.4 of Volume 1 of the Environmental Assessment; and
- e) a progressive rehabilitation strategy for exposed surfaces with the aim of minimising exposed surfaces.

## 1.2 Relationship with other plans

This Dust Management Sub-Plan (DMSP) forms part of the Master CEMP for the SSFL Project. Related sub-Plans that should be read in conjunction with this plan include:

- 1) Soil and Water Management Sub-Plan
- 2) Erosion and Sediment Control Sub-plan
- 3) Spoil and Fill Management Sub-Plan
- 4) Construction Traffic Management Sub-Plan
- 5) Waste Management Sub-Plan
- 6) Construction Noise and Vibration Management Sub-Plan

The relationship between the CEMP sub-plans is shown on **Figure 1**.



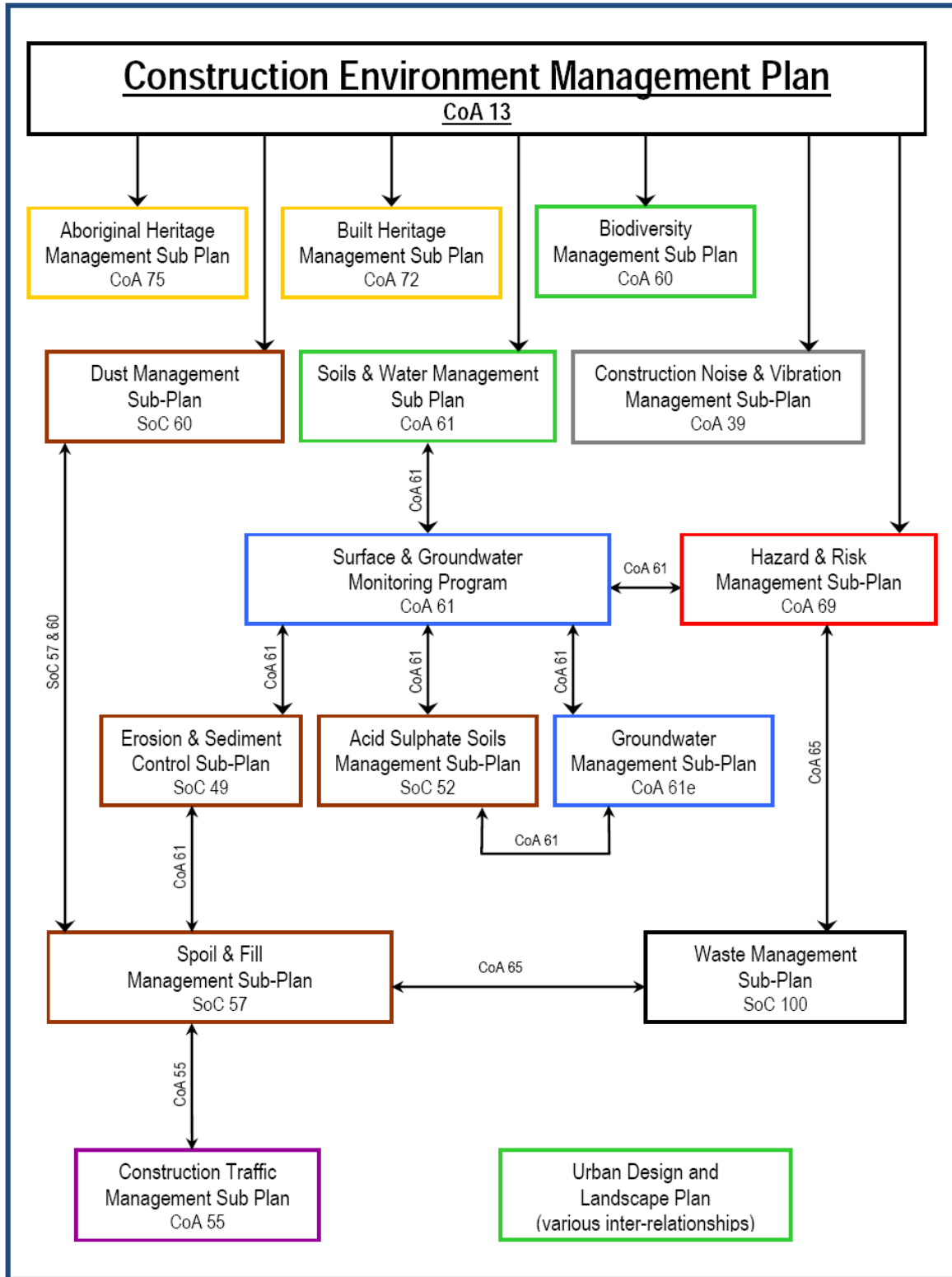


Figure 1: CEMP Structure



## 1.3 Work description

Construction of the SSFL will be undertaken in three phases:

- Phase A: Preparatory Works
- Phase B: Main Civil Works
- Phase C: Trackwork and Commissioning

The principal activities are summarised in **Table 1** below.

**Table 1: Principal construction activities**

| Construction Phase                          | Construction Activities   |
|---|---|
| <i>Phase A: Preparatory Works</i>           | <ul style="list-style-type: none"> <li>▪ Relocation and protection of services and utilities</li> <li>▪ Isolation of the construction zone from the operating rail tracks</li> </ul>  |
| <i>Phase B: Main Civil Works</i>            | <ul style="list-style-type: none"> <li>▪ Earthworks and retaining walls</li> <li>▪ Construction of additional road bridge spans at Bareena Street, Miller Road and Chester Hill Road.</li> <li>▪ Construction of culverts over watercourses.</li> <li>▪ Construction of rail bridges for road or creek crossings.</li> <li>▪ Construction of the flyover near Glenfield.</li> <li>▪ Construction of the SSFL at Liverpool Stabling Yard and Railway Station</li> <li>▪ Construction of the track next to the Georges River north of Liverpool</li> <li>▪ Construction of the SSFL through Cabramatta Railway Station</li> <li>▪ Construction of the SSFL under Sefton Park Junction</li> <li>▪ Station works</li> </ul> |
| <i>Phase C: Trackwork and Commissioning</i> | <ul style="list-style-type: none"> <li>▪ Tracklaying.</li> <li>▪ Signalling and communications facilities.</li> <li>▪ Testing and commissioning.</li> </ul>   |



## 1.4 Existing environment and site specific issues

Construction of the SSFL will be undertaken within the existing rail corridor with small sections of the works on land acquired for the project outside the existing corridor. The majority of construction work will be undertaken in a highly disturbed environment. Unlike building developments, construction of a new rail line is a linear activity that moves along the corridor over time. Therefore, the environmental impacts on sensitive environments / receptors is generally for a short duration of time as construction progresses.

### 1.1.1 Dust generating activities

During the construction of the Freight line, dust-generating activities that will be monitored and managed include:

- excavations and earthworks
- vehicles entering and leaving the site, and on-site machinery
- uncovered loads
- upgrading of existing access tracks and/or construction of new access tracks
- clearing of vegetation around the work sites, along access tracks and near the site compounds
- use of multiple site compounds during construction
- removal of the existing structures
- vehicle movements on site and on unsealed access tracks
- wind erosion of spoil and/or material stockpiles
- wind erosion of cleared areas with bare earth (prior to rehabilitation).

Progressive rehabilitation of surfaces will ensure that during operation of the SSFL, movement of freight along the rail corridor will not be a dust-generating activity.

Maintenance activities associated with the operational SSFL are likely to include dust-generating activities as listed above. During the operational phase, environmental impacts will be managed in accordance with the ARTC Environmental Management System.

### 1.1.1 Emission generating activities

During construction of the SSFL., emission generating activities will be caused by use of machinery and vehicles for undertaking the work or transporting materials or equipment to the site. Machinery and vehicles must be well-maintained to ensure excessive emissions are avoided.:



### 1.1.2 Sensitive receptors

The sensitive receptors for dust are any property neighbouring the work site that could be affected by dust. As a guide, any property within 50 m of the worksite is considered a sensitive receiver, and dust management measures must ensure that the occurrence of dust at these sites is minimised.



## 2. Legislative requirements and guidelines

The key legislative instruments and guidance documents which are applicable to the project and specifically the Dust Management Sub Plan are :

- *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) (Commonwealth)
- *Environmental Planning and Assessment Act 1979* (EP&A Act) (NSW)
- *Protection of the Environment Operations Act 1997* (PoEO Act) (NSW)

Details of the key legislation relevant to dust management are listed below.

**Table 2: Key legislation and guidelines**

| <b>Relevant key legislation and guidelines<br/>(administering authority)</b>   | <b>Applicable to project</b>   |
|--|--|
| <i>Protection of the Environment Operations Act, 1997</i> (DECC)   | This Act provides for the control of polluting activities in NSW in order to prevent pollution of the environment. Offences exist in relation to activities that cause air pollution.<br><br>Applies to dust and other emissions associated with construction activities which are controlled through the CEMP and other Sub-Plans. The Environment Protection Licence (EPL 12971) for this Project includes requirements for dust management, monitoring and reporting. |
| <i>Environmental Planning and Assessment Act, 1979</i><br><i>(Department of Planning, Campbelltown, Fairfield and Liverpool City Councils)</i> | All works must be undertaken in accordance with the conditions of consent and Statement of Conditions.<br><br>Notify ARTC Project Director if any significant changes to the project are desired. ARTC Project Director to identify any further environmental assessment required.   |
| <i>Protection of the Environment Operations (Clean Air) Regulation, 2002</i> (DECC)  | This regulation provides details and sets maximum limits on air impurities in emissions in relation to motor vehicles, plant, equipment and activities on the construction site.<br><br>Applies to all plant, equipment and vehicles used on the construction site.  |
| <i>National Parks and Wildlife Act, 1974</i><br><i>(Department of Environment and Climate Change)</i>  | Pursuant to section 75U(1) of the <i>Environmental Planning and Approvals Act 1979</i> , proposals determined under Part 3A of that Act do not require separate approvals under sections 87 or 90 of this Act.   |
| <i>Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales, January 2007</i> (DECC)                                | This guideline provides standard approved methods used in monitoring dust deposition and particulates for ambient air quality in NSW, and gives reference to documents containing further details on these methods.<br><br>Applies to dust monitoring to be conducted for the construction activities.   |
| <i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW, August 2005</i> (DECC)  | This guideline provides impact assessment criteria which reflect the environmental outcomes adopted by the NSW Department of Environment and Climate Change.<br><br>These criteria were applied to the assessment of air emissions from construction activities.   |
| <i>National Environment Protection Measure for Ambient Air Quality, 1998</i> (Environment Protection and                                       | Provides uniform standards for ambient air quality (not including indoor air).<br><br>Applies to dust and air emissions from construction.   |



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*Heritage Council)*

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### 3. Performance criteria

The performance criteria for the Dust Management Sub-Plan are to:

- receive no complaints from nearby residences or local road users
- ensure air quality meets the air quality goals as provided below.

**Table 3: Air quality goals for particulate matter**

| Pollutant                          | Formal averaging period                 | Standard/goal<br>µg/m <sup>3</sup> | Agency                |
|------------------------------------|---|------------------------------------|-----------------------|
| PM <sub>10</sub> a                 | 24 hours                                | 50                                 | NEPM <sub>b</sub>     |
|                                    | Annual                                  | 30                                 | NSW DECC <sub>c</sub> |
|                                    | 24-avergae – five exceedances permitted | 50                                 | NEPM                  |
| Total suspended particulate matter | Annual                                  | 90                                 | NHMRC                 |

Notes: a) PM<sub>10</sub>: Particulate matter less than 10 µm in aerodynamic equivalent diameter

b) NEPM: National Environment Protection Measure

c) NSW DECC: Department of Environment and Climate Change

d) NHMRC: National Health and Medical Research Council of Australia

**Table 4: Criteria for dust fallout**

| Pollutant      | Formal averaging period | Maximum increase in deposited dust level | Maximum total deposited dust level |
|----------------|-------------------------|--|------------------------------------|
| Deposited dust | Annual                  | 2 g/m <sup>2</sup> /month                | 4 g/m <sup>2</sup> /month          |



## 4. Potential impacts

### 1.5 Environmental impacts

The presence of dust is influenced by a variety of factors including prevailing wind direction, temperature, time of day, topography, industrial activities, water treatment, and vehicle emissions.

When planning construction activities and locating dust monitors, the prevailing wind directions for Sydney (as per Table 5 below) will be considered.

**Table 5: Wind direction for Sydney**

| Season | Predominant wind direction |                      |
|--------|----------------------------|----------------------|
|        | 9 am                       | 3 pm                 |
| Autumn | north-west                 | south and north-east |
| Winter | north-west and west        | west and south       |
| Spring | north-west and south       | north-east and south |
| Summer | south                      | north-east           |

The potential impacts of dust emissions from construction activities include:

- Air pollution due to wind generated dust.
- Water pollution due to dust transported by wind.
- Health impacts (i.e. breathing or eye irritation) if elevated PM10 levels persist.
- Reduced visibility due to dust in the air.
- Negative aesthetic impacts due to reduced visibility.
- Poor working conditions due to health implications.
- Additional cleaning effort/costs due to dust transported by wind.
- Damage to personal property due to dust transported by wind damaging property where it lands.
- Loss of soil resources due to dust transported by wind away from original area.



## 5. Mitigation measures

This section outlines the requirements and responsibilities for managing dust during construction of the Southern Sydney Freight Line .

**Table 6: Management measures and mitigation strategies**

| Mitigation measures  | Responsibility | Source of requirement |
|--|----------------|-----------------------|
| <ul style="list-style-type: none"> <li>▪ Minimise the amount of vegetation to be cleared (refer to the Biodiversity Management Sub-Plan).</li> </ul>   | CM / CW-PM     | SoC 60 e              |
| <ul style="list-style-type: none"> <li>▪ Stabilise access tracks as soon as they have been cleared.</li> </ul>   | CW-PM          | SoC 60d               |
| <ul style="list-style-type: none"> <li>▪ Develop a works program that minimises the area of exposed surfaces at any one time and stabilise exposed bare earth as far as practicable using mulches, soil stabilisers or dust retardants.</li> </ul>   | CW-PM          | SoC 60                |
| <ul style="list-style-type: none"> <li>▪ The Work package specific EMP must identify mitigation strategies for controlling dust generation on hot, windy days. Mitigation measures should include:               <ul style="list-style-type: none"> <li>▪ Limit vehicle speed limits on unsealed access tracks to 10km/h.</li> <li>▪ Increasing the use of dust control measures (eg water cart).</li> <li>▶ Ceasing dust generating activities until favourable conditions return.</li> </ul> </li> </ul>   | CW-PM          | SoC 60                |
| <ul style="list-style-type: none"> <li>▪ Monitor weather conditions to ensure appropriate planning of daily dust management at the work site</li> </ul>  | CW-PM          | SoC 59 and SoC 60d    |
| <ul style="list-style-type: none"> <li>▪ Develop visual monitoring and reporting protocols on site to ensure that dust does not affect sensitive receivers</li> </ul>  | CW-PM          |                       |
| <ul style="list-style-type: none"> <li>▪ Cover or stabilise stockpiles.</li> </ul>   | CW-PM          | SoC 60                |
| <ul style="list-style-type: none"> <li>▪ The work package specific EMP must identify measures for managing dust related to construction traffic on public roads. Strategies will include:               <ul style="list-style-type: none"> <li>➢ Regular inspections of public roads at access points and compound exits to identify tracking of soil and spills.</li> <li>➢ Regular inspections of construction vehicles leaving the work site to use public roads to ensure that dirt, spoil and dust is not being transported by the undercarriage of the truck,</li> <li>➢ Installation of rumble pads, wash pads (where required) and facilities for washing the undercarriage of vehicles leaving the site.</li> </ul> </li> </ul> | CW-PM          | CoA 59 and SoC 60     |



| Mitigation measures  | Responsibility | Source of requirement |
|--|----------------|-----------------------|
| <ul style="list-style-type: none"> <li>➤ Regular inspections of Construction vehicles to ensure no overloading, loads are properly covered and other appropriate dust suppression methods implemented where required.</li> </ul>   |                |                       |
| <ul style="list-style-type: none"> <li>▪ The Work package specific EMP must identify notification and response protocols for managing spills on public roads</li> </ul>  | CW-PM          | CoA 59 and<br>SoC 60  |
| <ul style="list-style-type: none"> <li>▪ Ensure that measures are implemented to prevent tracking mud, dirt or other material onto a public road or footpath at exit points of all construction compounds and access points</li> <li>▪ Measures that should be considered include:                             <ul style="list-style-type: none"> <li>▶ Ensuring wheels, tracks and body surfaces of plant and vehicles leaving the site are free of mud or sediment.</li> <li>▶ Installing a “rumble pad” or vehicle wash-down at each of the following exit gates (to be agreed by EMR)</li> </ul> </li> </ul> | CW-PM          | CoA 59 and<br>SoC 60  |
| <b>Other emissions</b>   |                |                       |
| <ul style="list-style-type: none"> <li>▪ Identify measures for minimising air emissions resulting from construction works. Measures that could be considered include:                             <ul style="list-style-type: none"> <li>➤ Ensure all plant and equipment is properly operated and maintained</li> <li>➤ Switch off plant and equipment are when not in use.</li> <li>➤ Maintenance records be kept for all plant and equipment</li> <li>➤ No burning is allowed.</li> </ul> </li> </ul>   | CW-PM          | SoC 60                |
| <b>Post-construction</b>   |                |                       |
| <ul style="list-style-type: none"> <li>▪ Develop a works program that includes progressive rehabilitation to ensure all disturbed areas are stabilised progressively.</li> <li>▪ (refer to the Flora and Fauna Management Sub-Plan and UDLP for more details).</li> </ul>  | CW-PM          | SoC 60                |
| <ul style="list-style-type: none"> <li>▪ Dust control measures must continue until surfaces have been stabilised and/or vegetative cover has been established.</li> </ul>  | CW-PM          | n/a                   |

- End of Table -

Note: EMR: Environmental Management Representative  
 PD: ARTC Project Director  
 CM: Construction Manager  
 DM: Design Manager  
 EM: Environment Manager  
 CW-PM: Contractors – Contract Works package Manager  
 CLM: Community Liaison Manager



## 6. Monitoring and reporting

This section documents monitoring and reporting strategies to ensure compliance with legislation (detailed in Section 2) and in line with SoC 59 which requires ARTC to undertake further air quality monitoring and assessment of operation.

### **Weather Monitoring:**

ARTC Construction Manager will establish two locations for monitoring weather at the project site. The data to be collected includes:

- Wind velocity and direction; and
- Temperature and humidity from the nearest representative Met Bureau site (Bankstown Airport)

Weather monitoring will be reported under the monthly reporting requirements of the EPL 12971.

### **Dust Monitoring:**

CW-PMs will establish dust monitoring at work sites. Dust monitoring will be undertaken in accordance with the requirements set out in SoC 60 and EPL 12971. Dust monitoring methods will be in accordance with the DEC guideline "Approved Methods for Sampling and Analysis of Air Pollutants in NSW" (attached as Appendix A). Dust monitoring locations will be located in consideration of prevailing wind, proximity of sensitive receptors, and programmed works and will include:

- An indicative background dust deposition monitoring site
- An indicative background hi volume air sampling location

Monthly dust reports will be provided by the CW-PM to the Environmental Manager for inclusion with the monthly monitoring report required under EPL 12971. Dust reports will include the following information:

- Location of dust monitoring stations (located on a map)
- Methods for monitoring
- Monitoring results (background and site monitoring)
- Non-conformances
- Mitigation measures implemented at each site



## 7. Corrective Action

Possible non-conformances with this Sub-Plan include non-compliance with the management measures and mitigation strategies outlined in *Section 5*.

All incidents and non-conformances are to be reported and investigated and corrected in accordance with the CEMP to ensure effective dust management practices at all time. Specific corrective actions for the Dust Management Sub-Plan are provided in Table 7.

This Sub-Plan will be reviewed during the construction period based on results from monitoring, observations, non-conformance or complaints. The review will allow adjustments to occur to the plan if they are found to be beneficial, or if measures need adjusting.

All project staff will be notified of changes made to this Sub-Plan.

**Table 7: Corrective actions for dust non-conformances**

| Trigger  | Action   | Responsibility |
|--|--|----------------|
| Complaints received from nearby resident/s   | <ul style="list-style-type: none"> <li>• Record complaint.</li> <li>• Investigate and verify complaint.</li> <li>• Identify remedial action</li> <li>• Implement mitigation measures.</li> <li>• Document and report to EM</li> </ul>  | CW-PM          |
| Dust from site becomes excessive due to dry or windy conditions (on working or non-working days) | <p>In accordance with the statement of commitment number 60, the following corrective action would be implemented:</p> <ul style="list-style-type: none"> <li>▪ Immediate action such as water spraying will be undertaken.</li> <li>▪ Speed limits on unsealed access tracks will be reduced to 10 km/h (or lower if required) to further limit if dust is travelling to the nearest potential affected receiver.</li> <li>▪ Construction activities that are unable to conform to the acceptable dust levels by watering will cease and will not resume until favourable climatic conditions, including wind direction and velocity return.</li> <li>▪ If the project continues to receive complaints or non-conformances, further dust control measures are to be implemented such as wind fencing, matting, mulching or hydro mulching.</li> </ul> | CW-PM          |



## 8. Document control

The Dust Management Sub-Plan will be reviewed and amended, if required or if the activities change, and all changes approved by the EMR. The Plan will be reissued as soon thereafter as possible.

The Dust Management Sub-Plan will be issued to all Contract Works Package Managers by the Construction Manager.

A register that tracks document revision and issue will be kept by the Environmental Manager.



## **Appendix A**

Approved Methods for Sampling  
and Analysis for Air Pollutants in  
NSW



