PART E

OPERATIONAL ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

AIR QUALITY

E1 The provision, operation and maintenance (including all auditing and validation of data) of all air quality monitoring and reporting must be funded by the Proponent.

In-Tunnel Air Quality

E2 The Proponent must monitor (by sampling and obtaining results by analysis) the pollutants, within the tunnel using the methodologies and frequency specified in **Table 4** throughout the operation of the SSI. Monitoring must commence on the first day of operation of the SSI.

Table 4 – In-Tunnel monitoring methodology

Pollutant/parameter	Units of measure	Frequency	Method[1]
CO	ppm	Continuous	Special Method 1[1]
NO_2	ppm	Continuous	Special Method 1[1]
Visibility	m^{-1}	Continuous	Special Method 1[1]

Note:

1. *Special Method 1 means a method approved by the Secretary in consultation with the EPA.*

E3 The number and location of the monitoring stations inside the tunnel must be determined to permit an accurate calculation, per the requirements of conditions E4, E5 and E6, and be independently verified in accordance with a methodology approved by the Secretary in consultation with the EPA, at least six months prior to the operation of the SSI. As a minimum, monitoring stations must be installed at the entry portals, the base of the ventilation outlets, tunnel and ramp junctions and at the emergency smoke extraction facility.

All sampling points and visibility monitoring points established under this condition must be audited at least two months prior commencing monitoring, for compliance with the requirements set out in **Table 4**. Verification and compliance auditing is to be undertaken by an independent person(s) or organisation(s) whose appointment has been approved by the Secretary.

Air quality data is to be made available in as close to real time as possible, under the website reporting requirements of condition E24.

In-Tunnel Air Quality — Limits

E4 The Proponent must ensure that the average concentrations of CO and NO_2, calculated along the length of the tunnel, do not exceed the concentration limit specified for that pollutant in **Table 5**.

Table 5 – In-tunnel average limits along length of tunnel

Pollutant	Concentration Limit	Units of measurement	Averaging period
CO	87	ppm	Rolling 15-minute
CO	50	ppm	Rolling 30-minute
NO_2	0.5	ppm	Rolling 15-minute

E5 The Proponent must ensure that the concentration of CO as measured at any single point in the tunnel must not exceed the concentration limit specified for that pollutant in **Table 6** under all conditions (including congested conditions).

Table 6 – In-tunnel single point exposure limits

Pollutant	Concentration Limit	Units of measurement	Averaging period
CO	200	ppm	Rolling 3–minute

E6 The tunnel ventilation system must be designed and operated so that the visibility in the tunnel does not exceed the level specified in **Table 7**.

Table 7 — In-tunnel visibility limits along length of tunnel

Parameter	Average extinction co-efficient Limit	Units of measurement	Averaging period
Visibility	0.005	m^{-1}	Rolling 15–minute

In-Tunnel Air Quality — Limits — Optimisation

E7 Prior to commencing operation, an independent person or organisation whose appointment has been approved by the Secretary must:

(a) verify that compliance with in-tunnel limits detailed in **Table 5**, **Table 6** and **Table 7**, will:
  (i) supplement/not preclude compliance with the predicted air quality outcomes presented in the documents referred to in condition A2, and
  (ii) not result in air quality impacts greater than predicted in the documents referred to in condition A2;
(b) assess how the ventilation system has been optimised, taking into consideration energy requirements and air quality impacts for tunnel users; and
(c) validate recorded monitoring data and certify compliance with the in-tunnel air quality limits.

The information required in this condition will be made available to the Secretary on request.

In-Tunnel Air Quality — Notification and Reporting

E8 In addition to the general reporting requirements specified in condition E23, the Proponent must notify the Secretary, EPA and NSW Health of any recordings above the limits specified in conditions E4, E5 and E6 within 24 hours of the recorded event. The notification must detail the nature of the event, the concentration or visibility levels that occurred, the duration of the event, and the measures employed to minimise the concentration levels and/or improve the visibility levels.

This notification must provide details of the circumstances of the event, including:
(a) the nature and location of the event, including any details relating to the cause;
(b) the duration of the event;
(c) the extent and severity of the event;
(d) the measures employed to minimise the concentration levels, and measures to improve visibility levels in the event that visibility levels were above the specified limit; and
(e) the frequency of the event, including whether an event with the same or similar circumstances has occurred previously.

Based on consideration of the circumstances of the event, the Secretary may request the Proponent to prepare a Tunnel Air Quality Management Systems Effectiveness Report, in accordance with condition E9.

E9 Within 20 working days of any request by the Secretary under condition E8, the Proponent must prepare and submit to the Secretary a **Tunnel Air Quality Management Systems Effectiveness Report** on the overall system performance and cause and major contributor of any exceedances, including:

(a) the overall performance and concentration levels in the tunnel for the preceding six month period (or since commencement of operation, where the SSI has operated for under six months), including average and maximum levels and time periods;
(b) details of any instances throughout the operation of the SSI where pollutant concentration levels in the tunnel have exceeded the limits specified in conditions E4, E5 and E6; and
(c) consideration of improvements to the tunnel air quality management system.

The Tunnel Air Quality Management Systems Effectiveness Report is to be prepared by the Proponent and reviewed by a suitably qualified and experienced independent specialist(s) whose appointment has been approved by the Secretary.

The Proponent must comply with any requirements arising from the Secretary's review of the Tunnel Air Quality Management Systems Effectiveness Report.

Ambient Air Quality — Monitoring

E10 The Proponent must monitor (by sampling and obtaining results by analysis) the pollutants and parameters specified in **Table 8** at the following locations as a minimum:

(a) two ground level receptors near the Kingsgrove ventilation outlet, at locations suitable for detecting any impact on air quality from the outlet;
(b) two ground level receptors near the Arncliffe ventilation outlet, at locations suitable for detecting any impact on air quality from the outlet;
(c) two ground level receptors near the St Peters ventilation outlet, at locations suitable for detecting any impact on air quality from the outlet;
(d) one location within the vicinity of the St Peters Interchange, as a location suitable for detecting any impact on air quality within the surrounding residential receptors; and
(e) one location, away from any of the locations at (a) to (d), suitable for providing background ambient air quality reference data for the project area.

The Proponent must use the sampling method, units of measure, and sampling frequency specified in **Table 8.**

Table 8 — Ambient Air Quality Monitoring Methodologies

Pollutant	**Units of measurement**	**Averaging Period**	**Frequency**	**Method**[1]
NO	pphm	1-hour	Continuous	AM-12
NO_2	pphm	1-hour	Continuous	AM-12
NO_x	pphm	1-hour	Continuous	AM-12
PM_{10}	$\mu g/m^3$	24-hour	Continuous	AS3580.9.8-2008[2]
$PM_{2.5}$[5]	$\mu g/m^3$	24-hour	Continuous	AS3580.9.13-2013[3] or as otherwise agreed by the Secretary in consultation with the EPA
CO	ppm	1-hour,8-hour	Continuous	AM-6
Parameter[4]	**Units of measurement**	**Averaging Period**	**Frequency**	**Method**[1]
Wind Speed @ 10 m	m/s	1-hour	Continuous	AM-2 & AM-4
Wind Direction @ 10 m	°	1-hour	Continuous	AM-2 & AM-4
Sigma Theta @ 10 m	°	1-hour	Continuous	AM-2 & AM-4
Temperature @ 2m	K	1-hour	Continuous	AM-4
Temperature @ 10 m	K	1-hour	Continuous	AM-4
Other	**Units of measurement**	**Averaging Period**	**Frequency**	**Method**[1]
Siting	NA	NA	NA	AM-1 & AM-4

Notes:

1. *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (EPA, 2007) or as otherwise agreed to in writing by the Secretary in consultation with the EPA.*
2. *AS3580.9.8-2008, Methods for the Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM_{10} Continuous Direct Mass Method using Tapered Element Oscillating Microbalance Analyser* (Standards Australia, 2008).

3. *AS 3580.9.13-2013, Methods for the Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – $PM_{2.5}$ Continuous Direct Mass Method using a Tapered Element Oscillating Microbalance Analyser* (Standards Australia, 2013).
4. *TBD - location for meteorological monitoring station(s) to be representative of weather conditions likely to occur in the vicinity of the Kingsgrove, Arncliffe and St Peters ventilation outlets.*
5. *Appropriately modified to include size selective inlet for $PM_{2.5}$ or as otherwise approved by the Secretary.*

E11 The monitoring locations must be selected with the objective of achieving like-to-like comparison of monitoring results with available pre-construction data. The locations must also allow for the independent team of experts to review the accuracy of predicted environmental outcomes discussed in the documents referred to in conditions A2(b) and A2(c) as part of the environmental audit required under condition E51.

All monitoring stations must be established in locations agreed to by the AQCCC and subject to the land owner's and occupier's agreement.

The establishment and operation of the stations is to be undertaken in accordance with recognised Australian standards and undertaken by an organisation accredited by NATA for this purpose and approved by the Secretary in consultation with the EPA and the AQCCC. The quality of the monitoring results must be assured through a NATA accredited process prior to the data being considered as a basis for compliance/auditing purposes.

E12 Monitoring results must be made publicly available and must be subject to an independent audit at six-monthly intervals (or at a longer interval, if approved by the Secretary). The auditor must be approved by the Secretary in consultation with the EPA and the AQCCC, and the auditor's report must be directly provided to the Proponent and the AQCCC.

E13 The Proponent must commence monitoring for at least twelve continuous months prior to operation and continue monitoring for at least two years following the commencement of operation. At the conclusion of the two year operational monitoring period, the Proponent must review the need for the commencement of the continuation of the ambient monitoring stations in consultation with the AQCCC. Any recommendation to close any or all of the stations will require the approval of the Secretary in consultation with the EPA.

Ambient Air Quality — Goals

E14 Should ambient monitoring of air pollutants exceed the following goals, the provisions of conditions E15, E16 and E17 will apply:

(a) CO – 8 hour rolling average of 9.0 ppm (NEPM);
(b) NO_2 – One hour average of 0.12 ppm (245 µg/m3) (NEPM);
(c) PM_{10} – 24 hour average of 50 $\mu g/m^3$ (NEPM);
(d) $PM_{2.5}$ – 24 hour average of 25 $\mu g/m^3$ (NEPM);
(e) PM_{10} – annual average of 25 $\mu g/m^3$ (NEPM); and
(f) $PM_{2.5}$ – annual average of 8 $\mu g/m^3$ (NEPM).

Ambient Air Quality — Notification and Reporting

E15 In addition to the general reporting requirements specified in condition E23, the Proponent must prepare an **Ambient Air Quality Goal Protocol** for the evaluation of a potential measurement that exceeds the goals. The Ambient Air Quality Goal Protocol must be developed by the Proponent in consultation with the AQCCC and submitted to the Secretary for approval at least 12 months prior to the commencement of operation of the SSI.

The Ambient Air Quality Goal Protocol must include:

(a) the form of and process for providing a Notification of Above-Goal Recording, subject to condition E16;
(b) the form and contents of a Report on Above-Goal Recording, subject to condition E17; and
(c) a process for appointing an independent person/organisation to prepare the Report on Above-Goal Recording. The process must include -
    (i) approval of the independent person/organisation by the Secretary prior to preparation of the report, and

(ii) the appointment of the independent person/organisation at least one month prior to the commencement of operation, or at some other time prior to preparation of the report with the agreement of the Secretary.

E16 The Ambient Air Quality Goal Protocol must provide a **Notification of Above-Goal Recording** if ambient monitoring of air pollutants records an exceedance of the goals in condition E14. The Notification of Above-Goal Recording is to be submitted within 24 hours of the recording, to the Secretary, EPA and NSW Health. The Notification of Above-Goal Recording must detail:

(a) the nature of the event;
(b) the concentration or visibility levels that occurred;
(c) the duration of the event;
(d) the measures employed to minimise the concentration levels and/or improve the visibility levels; and
(e) the Proponent's commitment to prepare and submit a Report on Above-Goal Recording in accordance with condition E17.

E17 Within 20 working days of any Notification of Above-Goal Recording, the Proponent must prepare and submit to the Secretary a **Report on Above-Goal Recording** that details the cause and major contributor of the exceedance and the options available to prevent recurrence.

Where the operation of the tunnel is identified to be a significant contributor to the recorded above-goal reading, the Report on Above-Goal Recording must include consideration of improvements to the tunnel air quality management system so as to achieve compliance with the ambient air quality goals, including but not limited to installation of the additional ventilation management facilities allowed for under condition B5, and discussion of whether those improvements are feasible and reasonable.

The Proponent must comply with any requirements arising from the Secretary's review of the Report on Above-Goal Recording.

Ventilation Outlets — Monitoring

E18 The Proponent must install monitoring equipment to monitor pollutants from the ventilation outlets. Pollutant monitoring from the ventilation outlets (by sampling and obtaining results by analysis) must be in accordance with the methods and frequencies for the pollutants and parameters specified in **Table 9** and be undertaken at commencement of and throughout the operation of the SSI.

The monitoring equipment must be independently audited prior to the commencement of monitoring for compliance with the requirements set out in **Table 9**. The independent person(s) or organisation(s) must be approved by the Secretary and paid for by the Proponent.

Table 9 — Ventilation Outlet Emission Monitoring Methodologies

Pollutant	**Units of measure**	**Frequency**	**Method**[1]
Solid particles	mg/m^3	Continuous	Special Method 1[4]
Solid particles	mg/m^3	Quarterly	TM-15
PM_{10}	mg/m^3	Quarterly	OM-5
$PM_{2.5}$	mg/m^3	Quarterly	OM-5
NO_2 or NO or both, as NO_2 equivalent	mg/m^3	Continuous	CEM-2
NO_2	mg/m^3	Continuous	CEM-2
CO	mg/m^3	Continuous	CEM-4
VOC[2]	mg/m^3	Continuous	CEM-8
Speciated VOC	mg/m^3	Annual	TM-34
Speciated PAH[3]	$\mu g/m^3$	Annual	OM-6
Parameter	**Units of measure**	**Frequency**	**Method**[1]
Velocity	m/s	Continuous	CEM-6
Volumetric flow rate	m^3/s	Continuous	CEM-6

Moisture	%	Continuous	TM-22
Temperature	°C	Continuous	TM-2
Other	**Units of measure**	**Frequency**	**Method[1]**
Selection of sampling locations	N/A	N/A	TM-1

Notes:

1. *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* (EPA 2007) *or an alternative method approved by the Secretary in consultation with the EPA.*
2. *Must include, but not be limited to: Benzene, Toluene, Xylenes, 1,3-Butadiene, Formaldehyde and Acetaldehyde.*
3. *Must include, but not limited to; 16 USEPA priority PAHs, namely; Naphthalene, Phenanthrene, Benz(a)anthracene, Benzo(a)pyrene, Acenapthylene, Anthracene, Chrysene, Indeno(1,2,3-cd)pyrene, Acenaphthene, Fluoranthene, Benzo(b)fluoranthene, Dibenz(a,h)anthracene, Fluorene, Pyrene, Benzo(k)fluoranhtene, Benzo(g,h,i)perylene.*
4. *Special Method 1 means a method approved by the Secretary in consultation with the EPA.*

Ventilation Outlets — Limits

E19 The concentration of a pollutant discharged from the ventilation outlets must not exceed the respective limits specified for that pollutant in **Table 10**.

Table 10 — Ventilation Outlet Mass Pollutant Concentrations

Pollutant	100 percentile limit	Units of measurement	Averaging period	Reference conditions
Solid particles	1.1	mg/m^3	1 hour, or the minimum sampling period specified in the relevant test method, whichever is the greater	Dry, 273K, 101.3kPa
NO_2 or NO or both, as NO_2 equivalent	20	mg/m^3	1 hour block	Dry, 273K, 101.3kPa
NO_2	2.0	mg/m^3	1 hour block	Dry, 273K, 101.3kPa
CO	40	mg/m^3	1 hour rolling	Dry, 273K, 101.3kPa
VOC (as propane)	4.0	mg/m^3	1 hour rolling	Dry, 273K, 101.3kPa

Ventilation Outlets — Limits — Optimisation

E20 An independent person or organisation approved by the Secretary must:

(a) verify that compliance with ventilation outlet limits detailed in **Table 10** will -
  (i) supplement/not preclude compliance with the predicted air quality outcomes presented in the documents referred to in conditions A2(b) and A2(c), and
  (ii) not result in air quality impacts greater than predicted in the documents referred to in conditions A2(b) and A2(c);

(b) assess how ventilation outlet discharge velocities have been optimised taking into consideration energy requirements and air quality impacts at all sensitive receivers; and,

(c) validate recorded monitoring data and certify compliance with the ventilation outlet limits.

The information required in this condition must be made available to the Secretary on request.

The ventilation outlet limits detailed in **Table 10** must be reviewed on a five-yearly basis following commencement of operation of the SSI and may be lowered (i.e. made more stringent), subject to a sustainability assessment and there being improvements in vehicle fleet emissions, if the Proponent is directed to do so by the Secretary following consultation with the EPA.

Ventilation Outlets — Notification and Reporting

E21 Should the results of monitoring show that any of the ventilation outlet limits specified in condition E19 have been exceeded, the Proponent must notify the Secretary, EPA and NSW Health within 24 hours of the recorded event. The notification must be followed up with a detailed report within 20 working days, which must be prepared by the Proponent, reviewed by a suitably qualified and experienced independent specialist(s), and submitted to the Secretary, on the cause and major contributor of the exceedance and the options available to prevent recurrence. The Secretary must approve the independent person/organisation prior to the commencement of operation, or at some other time prior to preparation of the report.

Where the operation of the tunnel is identified to be a significant contributor to the recorded exceedance, this report must include consideration of improvements to the tunnel air quality management system so as to achieve compliance with the ambient air quality goals, including but not limited to installation of the additional ventilation management facilities allowed for under condition B5, and discussion of whether those improvements are feasible and reasonable.

The Proponent must comply with any requirements arising from the Secretary's review of the Report.

Emergency Discharge

E22 Conditions E4, E5, E6, E14 and E19 do not apply in an emergency, as defined in the OEMP required by condition E31(g).

The Proponent must, as soon as reasonably practicable, notify the Secretary and the EPA of any such discharge.

Air Quality — General Reporting

E23 The Proponent must develop and implement a reporting system for in-tunnel, ambient and ventilation outlet limits in consultation with the EPA. The reporting system must be approved by the Secretary and fully implemented and operational prior to operation. Minimum analytical reporting requirements for air pollution monitoring stations must be as specified in the *Approved Methods of Modelling and Assessment of Air Pollutants in NSW* (EPA 2007, or as updated).

Air Quality — Public Access to Monitoring Results

E24 Results of hourly updated real-time ambient monitoring of PM_{10}, $PM_{2.5}$, visibility, NO_2, and CO at the approved monitoring stations, in-tunnel CO/NO_2 and ventilation outlet measurements, and relevant meteorological data, must be provided on a website and made publicly available each month in hard copy format in an easy to interpret format. This data must be preliminary until a quality assurance check has been undertaken by a person or organisation accredited by NATA for this purpose. The availability of this data must be conveyed to the local community by way of newsletter (including translation into common community languages in the area) and newspaper advertisement at least one month prior to the commencement of operation.

Air Quality — Auditing and Quality Assurance

E25 The provision, operation and maintenance (including all auditing and validation of data) of all air quality monitoring and reporting must be funded by the Proponent.

E26 All continuous emissions monitoring systems installed and operated as a requirement of condition E18 must undergo relative accuracy test audits at an interval not exceeding 12 months, or as otherwise agreed to by the Secretary in consultation with the EPA.

E27 The Proponent must appoint an external auditor to conduct an audit of the air quality monitoring (in-tunnel and external) at six-monthly intervals or at any longer interval if approved by the Secretary. Air quality audits must commence six months from commencement of operation. The auditor must ensure that the operating procedures and equipment to acquire air monitoring, meteorological data and emission monitoring data and monitoring reporting comply with NATA (or equivalent) requirements and sound laboratory practice. The Proponent must document the results of the audit and make available all audit data for inspection by the

Secretary upon request. A copy of the audit report must also be issued to the Proponent and AQCCC. The auditor must be approved by the Secretary in consultation with the EPA and the AQCCC, and the auditor's report must be directly provided to the Proponent and the AQCCC.

E28 The Proponent must undertake appropriate quality assurance (QA) and quality control (QC) measures for air quality and ventilation outlet emission monitoring data. This must include, but not be limited to: accreditation/quality systems, staff qualifications and training, auditing, monitoring procedures, service and maintenance, equipment or system malfunction and records/reporting. The QA/QC measures must be approved by an independent expert approved by the Secretary prior to monitoring of air quality and ventilation outlet emissions as appropriate.

Local and Sub-Regional Air Quality

E29 The Proponent must assist the relevant council(s) in developing an air quality assessment process for inclusion in a Development Control Plan or other appropriate planning instrument, in considering planning and building approvals for new development in areas adjacent to the ventilation outlets which would be within a potential three-dimensional zone of affectation (buffer volume). This process must include procedures for identifying the width and height of buildings that are likely to be either affected by the plume from the ventilation outlet or affect the dispersion of the plume from the ventilation outlet through building wake effects. A part of this process, the Proponent must provide data detailing the results of modelling of pollution concentrations at various heights and distances from the ventilation outlets. The Proponent must meet all reasonable costs for the development of this process and any necessary amendments to the planning instrument(s) required to implement the process.

E30 Prior to operation, the Proponent must investigate, in consultation with the EPA, the measures for smoky vehicle enforcement in the New M5 tunnels, taking into consideration cost effectiveness. Any measures implemented as a result of investigation recommendations must be in accordance with current RMS smoky vehicle enforcement programs. The effectiveness of the smoky vehicle enforcement measures must be documented in the Independent Environmental Audit required under condition E51.

OPERATION ENVIRONMENTAL MANAGEMENT PLAN

E31 Prior to the commencement of operation, or as otherwise agreed by the Secretary, the Proponent must prepare and implement an **Operation Environmental Management Plan (OEMP)** for the SSI. The OEMP must outline the environmental management practices and procedures that are to be followed during operation, and must be prepared in consultation with relevant agencies and in accordance with the *Guideline for the Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources, 2004). The OEMP must include, but not be limited to:

(a) a description of activities to be undertaken during operation of the SSI (including staging and scheduling);
(b) statutory and other obligations that the Proponent is required to fulfil during operation, including approvals, consultations and agreements required from authorities and other stakeholders under key legislation and policies;
(c) overall environmental policies, guidelines and principles to be applied to the operation of the SSI;
(d) a description of the roles and responsibilities for relevant employees involved in the operation of the SSI, including relevant training and induction provisions for ensuring that employees are aware of their environmental and compliance obligations under these conditions of approval;
(e) an environmental risk analysis to identify the key environmental performance issues associated with the operation phase;
(f) details of periodic testing of the tunnel ventilation system;
(g) a definition of emergency as it applies to conditions B4, E22 and E44; and
(h) details of how environmental performance would be managed and monitored to meet acceptable outcomes, including what actions will be taken to address identified potential adverse environmental impacts, including those safeguards and mitigation measures detailed in Section 8 the document referred to in condition A2 (and any impacts arising

from the staging of the construction of the SSI). In particular, the following environmental performance issues must be addressed in the OEMP -

(i) air quality,
(ii) noise and vibration, through preparation of the Operational Noise Management Plan required under condition E34,
(iii) traffic,
(iv) climate change and energy use,
(v) visual amenity and landscaping,
(vi) groundwater level/pressure, inflows, groundwater contamination, treatment and discharge, soil, and subsidence,
(vii) groundwater dependent ecosystems, and
(viii) surface water quality and hydrology, including stormwater management.

The OEMP must be submitted for the approval of the Secretary no later than one month prior to the commencement of operation, or as otherwise agreed by the Secretary. Operation must not commence until written approval of the OEMP has been received from the Secretary.

Note:

- *The approval of an OEMP does not relieve the Proponent of any requirement associated with this SSI approval. If there is an inconsistency with an approved OEMP and the conditions of this SSI approval, the requirements of this SSI approval prevail.*

OPERATIONAL NOISE AND VIBRATION

E32 The SSI must be designed and operated with the objective of meeting the requirements of the *NSW Road Noise Policy* (DECCW, 2011) and must, where feasible and reasonable, include the provision of at-property architectural treatment to all affected sensitive receivers in multi-level dwellings where the project noise criteria are exceeded, unless otherwise agreed to by the owner of the noise-affected residence.

E33 The Proponent must design and operate all fixed facilities, including the motorway operations complexes, tunnel portals; ventilation facilities, substations, pumps and water treatment plants, maintenance facility, workshops, car parking and the emergency smoke extraction outlets with the objective of not exceeding the noise requirements of the *NSW Industrial Noise Policy* (EPA, 2000) and the *Sleep Disturbance Application Note to the NSW Industrial Noise Policy*. The Proponent must apply mitigation at existing receivers where the noise requirements cannot be achieved.

E34 A detailed **Operational Noise Management Plan** must be prepared as part of the Operational Environmental Management Plan required by condition E31 and submitted to the Secretary for approval. The Operational Noise Management Plan must provide details of noise and vibration control measures to be undertaken during the operation stages, and generally in accordance with the *NSW Road Noise Policy* (DECCW, 2011) and the *NSW Industrial Noise Policy* (EPA, 2000).

The Operational Noise Management Plan must include, but not be limited to:

(a) tests for ascertaining acoustic parameters;
(b) predicted noise levels;
(c) noise criteria for operation of the project based on the objectives of the *NSW Road Noise Policy* (DECCW, 2011) and the *NSW Industrial Noise Policy* (EPA, 2000);
(d) location, type and timing of erection of permanent noise barriers and/or other noise mitigation measures (including details of the barrier to replace the existing noise mound at Beverly Grove Park, consistent with the requirements of condition B62(f) demonstrating best practice including silencers and building treatments for associated plant rooms and enclosures for exposed plant;
(e) specific physical and managerial measures for controlling noise;
(f) noise monitoring, reporting and response procedures including the monitoring on surrounding roads which experience significantly increased traffic volumes as a result of the project, and including operational facilities;