



DOC17/503496

SSI 7485

Ms Naomi Moss
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Transport Assessments
Department of Planning and Environment
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SYDNEY NSW 2000

Attention Naomi Moss

Dear Ms Moss

EIS for WestConnex M4-M5 Link SSI 7485 - Request for EPA Comment

I refer to the request from the Department of Planning and Environment (DPE) to the NSW Environment Protection Authority (EPA) dated 14 August 2017 to undertake a review of the Environmental Impact Statement (EIS) for the proposed WestConnex M4-M5 Link Motorway project SSI 7485. Construction of the M4-M5 Link appears to trigger the need for an Environment Protection Licence (EPL) under the Schedule 1 of the *Protection of the Environment Operations Act 1997*.

The EPA has reviewed the EIS and has a number of concerns in relation to the environmental assessment. The EPA notes that as site selection and design forms for tunnelling support locations have not been finalised, the EIS defers the characterisation of environmental impacts to the detailed design stage and, instead, presents an assessment based on conceptual construction methodology and alignment. As a result, the EPA considers that the impacts of the project have not been fully quantified and the EPA cannot determine whether the mitigation measures proposed are appropriate.

Two broader areas of concern are:

1. The EPA is concerned about the significant and ongoing nature of construction impacts experienced by the communities at Haberfield and St Peters, particularly in relation to noise and vibration. Whilst the EIS acknowledges that certain communities along the alignment will be subject to consecutive construction impacts from the stages of the WestConnex project, there is minimal evidence to suggest that this has shaped the approach to mitigation in the

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assessment; the EIS makes repeated references to 'short-term' impacts from the construction work. The EPA considers that the ongoing impacts on the communities at Haberfield and St Peters need to be quantified and assessed in detail in the EIS, rather than being addressed under a post-approval management plan, if the project is approved as proposed.

2. In relation to noise and vibration impacts, the proponent has incorporated an assessment for works that will occur outside of standard construction hours. Justification for this scenario has not been provided. For works subject to an EPL, strong justification (other than scheduling) is necessary to support any application to work outside of standard construction hours. It should not be assumed that there will be provisions made within an EPL for works to occur outside standard construction hours; the justifications are essential for the EPA to make this assessment.

The EPA's detailed comments are at Attachment 1 and recommended conditions of consent at Attachment 2. If you have any questions regarding this letter, please contact Jacinta Hanemann, Manager Metropolitan Infrastructure on 9995 6867 or at Jacinta.hanemann@epa.nsw.gov.au.

Yours sincerely,

 16/10/17

GISELLE HOWARD
Regional Director Metropolitan
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Enclosure

Attachment 1

1.0 Water

1.1 Water Quality Impact Assessment

- 1.1.1 The EIS states the relevant Water Quality Objectives (protection of aquatic ecosystems, visual amenity, secondary contact recreation, primary contact recreation and aquatic foods cooked) and most of the indicators and trigger values for the receiving waters' environmental values, listing both the lowland rivers and estuarine values. The EIS anticipates that the discharge water quality requirements for the construction phase would be consistent with the 90% species protection level for toxicants in accordance with the ANZECC Guidelines (2000).

While the EPA accepts that the proposed works are in proximity to highly disturbed waterways, the ANZECC Guidelines recommend that *"guideline trigger values for slightly–moderately disturbed systems also be applied to highly disturbed ecosystems wherever possible"*. The Guidelines also state: *"the aim is to eventually restore highly disturbed systems to a slightly to moderately disturbed condition"*, and that: *"It is not acceptable to allow poor environmental performance or water pollution, simply because a water way is degraded"*. Consistent with this, the policy in NSW is that the level of protection applied to most waterways is the one suggested for 'slightly to moderately disturbed' ecosystems. In a highly disturbed waterway, a reduced level of protection may be appropriate as a pragmatic short-term goal, with the aim of eventually restoring it to the status of 'slightly to moderately disturbed'. The construction phase however is projected to be close to 4 years (for each stage), which the EPA does not consider to be 'short-term, particularly given the consecutive nature of the WestConnex Project at certain areas along the alignment.

Recommendation: The receiving waterways require an appropriate level protection level relevant to the duration of the project. The proponent should demonstrate that any discharge water quality is consistent with at least the 95% protection level for the appropriate receiving environment i.e. freshwater and/or marine ecosystems.

- 1.1.2 An assessment of the potential impacts on the relevant Water Quality Objectives is not provided. The EIS has not provided any predicted water quality discharge concentrations for the duration of the construction and operational phases. The EIS also does not assess the

nature and degree of impact that discharges may have on the receiving environment, including consideration of all pollutants that pose a risk of non-trivial harm to human health and the environment.

Recommendation: The 99% protection level should be applied for contaminants that bio-accumulate.

1.2 Construction stage water treatment plants

- 1.2.1 Temporary construction water treatment plants are proposed and would be designed to treat wastewater including tunnel groundwater ingress, rainfall runoff in tunnel portals and ventilation outlets, heat and dust suppression water and wash down runoff and then discharge into receiving waters (stormwater and local waterways). The EIS has identified that the water treatment would typically involve: primary settling tanks, pH balance, flocculation. The EIS does not confirm that all identified pollutants of concern will be treated (i.e. no commitment has been made to treat nutrients (including ammonia), heavy metals, hydrocarbons and salinity). The EIS states that type, arrangement and performance of construction water treatment facilities will be developed and finalised during detailed design.

Recommendation: Confirmation that all identified pollutants of concern will be treated by the proposed methods during construction, and where these methods are not suitable, an assessment of additional treatment measures is undertaken.

1.3 Operational stage water treatment plants

- 1.3.1 Operational water treatment plants would be provided for the mainline tunnels at Darley Road, Leichhardt and the Rozelle interchange and Iron Cove Link tunnels at the Rozelle interchange. The EIS states that the preferred option for treated water discharge from the Darley Road water treatment plant would be confirmed during detailed design. Options include direct discharges to either Hawthorne Canal, existing stormwater networks or to the sewer system. Treated flows from the Rozelle plant would drain via a constructed wetland to Rozelle Bay. The EIS provides limited information on the pollutants to be treated and the proposed treatment methods except for Iron and Manganese.

Recommendation: Further assessment of all pollutants is required as well as confirmation that the level of treatment proposed will produce effluent of a suitable quality for discharge to the receiving

environment and that this has been developed in accordance with the ANZECC (2000) and relevant NSW WQOs.

- 1.3.2 The EIS states that the proposed constructed wetland will provide 'polishing' treatment to treated groundwater flows from Rozelle which would likely remove a portion of the nutrient and metal load. No details or modelling has been provided for the proposed constructed wetlands to demonstrate any treatment efficiencies. There is also potential for the constructed wetlands to be impacted by any remaining contaminated soil and/or groundwater onsite.

Recommendation:

- Detailed modelling should be provided to justify the claim that the constructed wetlands will treat groundwater inflows from Rozelle and will not be impacted by residual contaminated material; and
- Further investigation as part of the EIS should be provided into any opportunities to incorporate nutrient treatment (e.g. ion exchange or reverse osmosis) within the water treatment plant at Darley Road.

It is not appropriate for the above assessment to be deferred to the detailed stage (as stated in the EIS) given that there could be impacts to the receiving water body – this should be quantified as part of the impact assessment.

1.4 Work in waterways

- 1.4.1 The EPA is generally supportive of channel naturalisation treatments where potential contamination legacy issues are assessed and addressed. The EIS states that the project would involve works in and around waterways, including Whites Creek and Rozelle Bay during bridge construction works as part of the realignment of The Crescent as well as widening of Whites Creek to manage flooding and drainage. These works may lead to disturbance of contaminated sediments and erosion of exposed banks once the existing channel's concrete lining has been removed (and prior to construction of the naturalised channel treatment). Construction of new stormwater outlets to receiving bays (Rozelle Bay and Iron Cove) would cause localised mobilisation of potentially contaminated sediments. Sediments settled on top of the hard, lined base of Whites Creek would also be disturbed. No detail was provided on the proposed mitigation measures for in-channel sediment disturbance, including measures for protecting water quality associated with construction/modification activities within and adjacent to waterways.

Recommendation: Further assessment of mitigation measures to address in-channel sediment disturbance.

1.5 Water Quality Monitoring Program

1.5.1 The EIS states that a program to monitor potential surface water quality impacts associated with the project will be developed and included in the Construction Soil and Water Management Plan. The program will include the water quality monitoring parameters and the monitoring locations identified in Annexure E of Appendix Q (Technical working paper: Surface water and Flooding). Although ammonia has been identified as a contaminant of concern, it has not been included as a water quality monitoring parameter.

Recommendation: Inclusion of Ammonia as a water quality monitoring parameter.

2.0 Contamination

2.1 Site Identification and Characterisation

2.1.1 The EPA notes the presence of former and operational commercial/industrial facilities and service stations surrounding the proposed tunnel alignment. The proposed development traverses various suburbs with areas that have been notified to the NSW EPA under s60 of the *Contaminated Land Management Act 1997* ('CLM Act') or formerly regulated by the NSW EPA under the CLM Act. The EPA also notes presence of former and operational dry cleaning facilities surrounding the proposed tunnel alignment including but not limited to Haberfield civil and tunnel site (C2a) at Haberfield, Parramatta Road East civil site (C3b) at Haberfield, and Pyrmont Bridge Road Tunnel site at Annandale. Considering this, chlorinated hydrocarbons could be present in soil, groundwater and soil vapour.

Recommendations: Chlorinated hydrocarbons should be included as potential contaminants of concern in future investigation works.

2.1.2 Chapter 16 and Appendix R of the EIS reported that there are notified sites under s60 of the CLM Act within 300 metres of the tunnel alignment, or sites formerly regulated by the NSW EPA under the CLM Act. The EPA has reviewed the management status of these sites against its internal records.

Recommendations: The management status of sites listed in Table 16-18, Table 16-19, Table 16-20 and Table 16-21 be updated as follows:

From Table 16-18

- White Bay Power Station Rozelle – *Regulation under CLM Act not required*
- Balmain Power Station (Terry Street Rozelle) – *Formerly regulated under the CLM Act*
- Former Chemplex Factory (35 Terry Street Rozelle) – *Formerly regulated under the CLM Act*
- Caltex Service Station (121 Victoria Road Rozelle) – *Regulation under CLM Act not required*
- 7 Eleven Service Station (178-180 Victoria Road Rozelle) – *Regulation under CLM Act not required*

From Table 16-19

- O'Dea Reserve (Salisbury Lane, Camperdown) – *Formerly regulated under the CLM Act*
- 7 Eleven (Former Mobil) Service Station (198 Parramatta Road Annandale) – *Regulation under CLM Act not required*

From Table 16-20

- Caltex Service Station (26 Enmore Road Newtown) – *Regulation under CLM Act not required*

From Table 16-21

- BP Express Service Station (2 Princes Highway, St Peters) – *Regulation under CLM Act not required*
- Former Tidyburn Facility (53 Barwon Park Road, St Peters) – *Formerly regulated under the CLM Act*
- Camdenville Park (May Street, St Peters) – *Regulation under CLM Act not required*

3.0 Noise

3.1 Impacts and Mitigation

- 3.1.1 The EIS includes discussion of options A and B for tunnelling and support works at Haberfield. This indicates that noise and vibration mitigation is conceptual at this point and that further

review of feasible and reasonable mitigation will need to be undertaken once the contractor has been appointed and during detailed design.

Recommendation: Further assessment of actual impacts and reasonable and feasible mitigation measures is undertaken.

- 3.1.2 With regard to construction noise and vibration, the EPA considers that the proponent has not adequately provided clear justification for out-of-hours works, even though this has been assumed and assessed as part of the proposal.

Recommendation: Construction work be limited to standard construction hours as per the *Interim Construction Noise Guideline* unless the proponent can demonstrate strong justification for out of hours works (other than scheduling) .

3.2 Construction Fatigue and Proposed Mitigation

- 3.2.1 The Noise Impact Assessment (NIA) includes a discussion of construction noise and vibration impacts resulting from consecutive (and concurrent) infrastructure projects. The reasonableness of mitigation should be based on the consecutive (and concurrent) infrastructure project impacts and not on the basis of this project alone. For example at-property treatment is more likely to be considered reasonable with consecutive infrastructure projects than with a standalone project.

Recommendation: The reasonableness of mitigation measures consider the consecutive nature of the WestConnex infrastructure projects.

4.0 Air Quality

4.1 Air Dispersion Modelling

- 4.1.1 The assessment of air toxics (expected and regulatory worst case scenarios) involves comparing the change in the maximum predicted one hour average concentration of each compound to the corresponding impact assessment criterion in the Approved Methods. The justification for comparing the change and not predicted total concentration is that *'the criteria in the Approved Methods cannot be readily applied to complex road projects in urban areas, as they are based on the assumption that a project represents a new source, and not a modification to an existing source.'* It is not appropriate to compare the change in speciated air toxics to the assessment criteria. The EPA impact assessment criteria for air toxics are

incremental, however, this is in recognition of the generally very low levels in 'background' air quality. For this project a comparison of predicted ventilation outlet plus surface road speciated air toxic concentrations against the assessment criteria should be made. Further, the toxic assessment criteria have previously been applied to modifications of existing sources.

Recommendation: the proponent provide predicted impact (ventilation outlet and surface road) at receptors for speciated air toxics for both the expected traffic and regulatory worst case scenarios.

4.1.2 The results for the Regulatory Worst Case scenario are presented at the following receptors:

- 1 hour NO₂: a regulatory worst case receptor at each ventilation facility
- Toxics: most affected RWR receptor
- CO and PM: maximum impacted residential and RWR receptor

The impacts for the Regulatory Worst Case scenario are all presented at different receptors. There is also lack of clarity regarding where the impacts are predicted and whether or not it includes the maximum impacted receptor in the domain, as the maximum impacted receptor in the domain may not necessarily be a RWR receptor.

Recommendation: For the regulatory worst case scenario, the EPA recommends that the proponent demonstrates for each pollutant, that the results include the maximum impacted receptor in the domain *or* provides the results for the maximum impacted receptor in the domain.

4.2 Vehicle Estimation Techniques

4.2.1 Annexure L of Appendix I was reviewed to assess the in-tunnel motor vehicle emission modelling. It is noted that this M4-M5 link EIS assesses the entire WestConnex network including the M4 East and the new M5, and it is stated that this M4-M5 link EIS will effectively supersede the ventilation reports in these previous EIS. Hence issues raised in the EPA's responses to the M4 East and new M5 EIS will also be superseded by those made here.

The motor vehicle emissions have been estimated using the detailed PIARC method, which specifically considers the fuel type mix, age profile, and emission certification standards of the NSW fleet. This is a significant improvement relative to the simple PIARC approach applied in the two previous WestConnex project EIS'.

Notwithstanding the improved methodology, some issues were noted and are listed below. Importantly, the validation of the emission model should be presented in full to demonstrate the level of conservatism of the in-tunnel emissions modelling.

Fleet model

- a) The proportion of total diesel passenger vehicle and total light duty vehicle (light commercial vehicle) predicted in tables 6.12 and 6.13 are a little higher than predicted by the EPA fleet model. However, the higher diesel fuel type estimates in the EIS will generally lead to more conservative (ie. higher) emission estimations.
- b) The assignment of the passenger vehicle fleet to Euro emission standards has assumed the introduction of Euro 6 for light vehicles, however this standard has not been promulgated as an Australian Design Rule as at October 2017. The Commonwealth government emission standard review draft RIS published in December 2016 proposes introduction dates of 2019-2020 for those options that consider Euro 6 for light vehicles and Euro VI for heavy vehicles. Given that nearly 12 months have passed and no announcement has been made, a full implementation of Euro 6 should not be expected until 2020 at the very earliest.
- c) The assignment of passenger cars and light duty vehicles to Euro standards is presented in table 6.15, and shows an assumed implementation of Euro 5 in 2014 and Euro 6 in 2019. These dates are considered too early; ADR79/03 phased in Euro 5 from November 2013 for new model vehicles, but ADR79/04 did not require Euro 5 for all new vehicles until November 2016. As noted in b) above, it is unlikely that Euro 6 will be implemented for all new vehicles until 2020 at the very earliest.

It is noted that the adoption of Euro VI for heavy duty diesel vehicles has not been assumed. This provides for a level of conservatism in the emission estimates if it is assumed that Australia will adopt Euro VI at some time in the future

- d) The percentages of the light vehicle fleet that are assumed to be Euro 6 presented in table 6.12 for the year 2023 are considered too high for a Euro 6 implementation of 2019. EPA estimates that in 2023, that petrol vehicles with year of first registration between 2019 and 2023 will comprise only 18% of the car fleet and 8% for diesel vehicles, versus the 32% and 12% in table 6.12. This will have minimal impact for petrol vehicles but will result in lower

emission estimations for diesel vehicles, particularly for NO_x, as the PIARC emission factors assume a very significant decrease in NO_x for Euro 6 vehicles.

It is suspected that the data in table 6.12 and 6.13 are the percentage of VKT by emission standard class, which would give higher values for the newer emissions classes. However even if this is the case, the petrol Euro 5 and Euro 6 VKT percentages, in particular, appear too high. Overestimation of the proportion of VKT by newer emission certification vehicles will result in lower emission estimates.

Emission Model Validation

Section 6.6.9 of the Ventilation Report states that a validation was performed on the emission model using tunnel measurements from the existing M5 East tunnel. It is stated that this validation found the emissions estimated in the ventilation report are “consistent with in-tunnel measurements”. No detail is presented to support this statement, and the report referenced is not appended to the EIS, and does not appear to be publicly accessible.

Recommendations:

- The proponent should perform a sensitivity analysis to assess the impact on the fleet aggregate emission factors of full implementation of Euro 5 in 2017 rather than 2014, and full implementation of Euro 6 in 2021. The analysis should disaggregate the emission contributions by vehicle type (PC, LDV and HGV) and assess the level of conservatism in the model based on the relative assumptions for light and heavy vehicles.
- The proponent should clarify the data in table 6.12 and 6.13 including its derivation; ie. fleet numbers and assumed VKT as a function of vehicle age.
- The proponent should present full details of the validation to substantiate the claim made in section 6.6.9. The validation report should be made publicly available. Note that this validation conducted in 2015 will only validate the emission model for vehicles conforming with emission standards up to Euro 4 for petrol and diesel light duty vehicles and Euro V for heavy duty vehicles, and will not address the fleet model issues raised above.

Attachment 2

Recommended Conditions of Consent

Water

- (1) Prior to works commencing the Proponent must prepare a Surface Water Management Plan. The Surface Water Management Plan must include but not be limited to:
 - a) address construction monitoring, management and response arrangements
 - b) specifications and design details of the water treatment plants
 - c) specifications and design details of the constructed wetland
 - d) identification and estimation of the quality and quantity of all pollutants that may be introduced into the water cycle by source and discharge point
 - e) an assessment of the potential impact of discharges on receiving waters and human health
 - f) specifications and design details of the mitigation measures for in-channel sediment disturbance associated with construction/modification activities within and adjacent to waterways and contingency actions for risk factors
 - g) the type, location and size of the proposed water sensitive urban design systems
 - h) a Surface Water Quality Monitoring Program (SWQMP)
 - i) a Soil and Water Management Plan (SWMP) to cover soil erosion and sediment control measures for any areas that may be disturbed.
- (2) The identification and estimation of the quality and quantity of all pollutants that may be introduced into the water cycle by source and discharge point must also include consideration of pollutants associated with contaminated land.
- (3) The assessment of the potential impact of discharges on receiving waters should include but not be limited to:
 - a) baseline data on current water quality in any receiving waters that could be affected by the project
 - b) a statement of the ambient Water Quality Objectives (WQOs) and the environmental values for the receiving waters relevant to the proposal
 - c) a statement of the indicators and associated trigger values or criteria for the identified environmental values

- d) assessment of the significance of any identified impacts on surface waters including consideration of the relevant ambient water quality outcomes. Demonstration of how the proposal will be designed and operated to:
 - a. protect the WQOs for receiving waters where they are currently being achieved; and
 - b. contribute towards achievement of the WQOs over time where they are not currently being achieved.
 - e) demonstration that any discharge water quality is consistent with at least the 95% protection level for freshwater and/or marine ecosystems during the construction and operation phases. Contaminants that bio-accumulate should have a 99% protection level.
- (4) The SWQMP should be prepared by a suitably qualified and experienced person and include but not be limited to:
- a) a statement of the ambient Water Quality Objectives and environmental values for the receiving waters relevant to the proposal
 - b) a statement of the indicators and associated trigger values or criteria for the identified environmental values
 - c) trigger values for action and associated actions or mitigation measures if trigger values are exceeded
 - d) a water quality monitoring program with relevant analytes and a sampling distribution and frequency appropriate to the nature and extent of potential pollution and activities being conducted onsite
 - e) location of discharge points and monitoring locations.
- (5) The SWMP should be prepared by a suitably qualified and experienced person and include but not be limited to:
- a. soil erosion and sediment control measures that are consistent with the practices and principles contained in Managing Urban Stormwater – Soils and Construction, Volume 1 (the Blue Book), Volume 2A and 2D
 - b. soil erosion and sediment control measures appropriate for contaminated land that ensure stormwater from contaminated areas are not permitted to contaminate clean areas or cause non-trivial harm to receiving waters
 - c. design calculations and sizing for all clean water diversion bunds and sediment basin(s)

- d. plan drawings showing the locations for soil erosion and sediment control practices for the project
- e. written text detailing the installation, monitoring and maintenance requirements for all of the soil erosion and sediment control practices
- f. drawings of any engineering structures such as sediment basin(s) and clean water diversion structures, including design standards and management regimes to return the system to design capacity following rainfall events.

Contamination

1. The processes outlined in *State Environmental Planning Policy 55 - Remediation of Land (SEPP55)* must be followed in order to assess the suitability of the land and any remediation required in relation to the proposed use.
2. The EPA should be notified under section 60 of the CLM Act for any contamination identified which meets the triggers in the *Guidelines for the Duty to Report Contamination*.
3. The following guidance must be considered, in accordance with the proposal:
 - *Technical Note: Investigation of Service Station Sites*;
 - NSW EPA Sampling Design Guidelines
www.epa.nsw.gov.au/resources/clm/95059samppgdline.pdf
 - Guidelines for the NSW Site Auditor Scheme (2nd edition) 2006
<http://www.epa.nsw.gov.au/resources/clm/auditorglines06121.pdf>
 - Guidelines for Consultants Reporting on Contaminated Sites, 2011
www.epa.nsw.gov.au/resources/clm/20110650consultantsglines.pdf
 - The National Environment Protection (assessment of contamination) Measures 2013 as amended.
4. Consideration should be given to the use of site auditor accredited under the CLM Act to audit the suitability of the land for the proposed use. Furthermore, it is recommended that a site auditor be engaged to review the adequacy of all investigation, remediation and management plans and actions for the proposed development. The EPA then recommends adherence to the operation impacts and mitigation measures summary (*page ix of Appendix R – Contamination Report*) which stated that the following would be undertaken and implemented prior to the operational phase of the project.

- *"A NSW EPA Accredited Site Auditor would be engaged to review all contamination reports and evaluate the suitability of a site for a specified use as part of the project."*
 - *An Operational Environmental Management Plan (OEMP) must be prepared to manage potential impacts on groundwater and surface water during the operational phases of the project.*
5. Preparation and adherence to a construction environmental management plan (CEMP) which must be reviewed and approved by the EPA accredited site auditor. The CEMP must prescribe procedures for the maintenance of the site, and contingency plans for unexpected finds and for unacceptable risks that are detected or encountered.
 6. Appropriate investigation works and management plans be prepared especially in areas where various dry cleaning facilities have been identified. These include (but not limited to) the areas of Haberfield civil and tunnel site (C2a) at Haberfield, Parramatta Road East civil site (C3b) at Haberfield, and Pyrmont Bridge Road Tunnel site at Annandale.
 7. The proponent must ensure that the proposed development does not result in a change of risk in relation to any pre-existing contamination on the site so as to result in significant contamination [note that this would render the proponent the 'person responsible' for the contamination under section 6(2) of CLM Act].

Noise

1. Appointment of an independent Environmental Representative to oversee compliance with the conditions of approval and the environmental performance of the proponent and project, for the Department of Planning and Environment;
2. Appointment of an independent Acoustics Advisor to review and advise on the noise and vibration components of the project for the Department of Planning and Environment;
3. The inclusion of a compliance tracking program and reporting requirements, to monitor compliance with the conditions of approval;
4. The inclusion of an environmental auditing program and reporting requirements, to assess compliance of the project with the conditions of approval;
5. A requirement to notify incidents to the Department of Planning and Environment, in addition to the EPA's notification requirements;

6. Preparation and implementation of a community communication strategy that includes a requirement to consult with the community on preferred options for any justified out-of-hours works that may be required;
7. Preparation and implementation of a complaints management system;
8. Appointment of an independent community complaints commissioner to follow up on complaints not resolved by the proponent to the complainant's satisfaction;
9. Preparation and implementation of a construction environmental management plan detailing how performance outcomes, commitments and mitigation measures will be implemented;
10. Preparation and implementation of a noise and vibration sub-plan, in consultation with relevant local government authorities;
11. Construction noise and vibration impact statements for each construction site, specifying mitigation measures identified through consultation with affected noise sensitive receivers;
12. Implementation of the proponent's construction noise and vibration strategy;
13. Construction noise and vibration monitoring programs;
14. Respite for noise sensitive receivers exposed to specified, high levels of ground-borne noise;
15. An operational environmental management plan, including a noise and vibration sub-plan;
16. An independent ground-borne noise specialist to review design details and predicted impacts before construction;
17. An operational noise and vibration monitoring program to confirm that operational levels meet the road traffic noise criteria;
18. Appointment of an Utility Management Coordination Agency to oversee development and implementation of a Utility Management Strategy to avoid out-of-hours works by utility agencies on nights when the proponent had planned respite, should out-of-hours works be approved.

Air

1. Dust controls will be documented and implemented during construction activities to ensure the potential for off- site impacts are minimised. Additional controls measures that will be implemented as necessary, and the process for determining whether or not additional control measures are necessary, should also be detailed.