

SCHEDULE 1

Approval granted by the Minister Planning on 3 October 2001 to the Roads and Traffic Authority for the Cross-City Tunnel.

SCHEDULE 2

The following acronyms and abbreviations are used in this section:

Assessment Document	The EIS, Representations Report, Supplementary EIS, the Supplementary Representations Report and the Director General's Report dated December 2002.
Addendum	The Addendum to the Cross-City Tunnel Representations Report dated August 2001
AQCCC	Air Quality Community Consultative Committee
ASS	Acid Sulfate Soils
CBMS	Community Based Monitoring Station
CCS	Council of the City of Sydney
CCT	Cross City Tunnel
CMS	Construction Method Statements
CLG	Community Liaison Group
Department, the	Department of Planning
Director-General, the	Director-General of the Department of Planning or delegate
Director-General's Report	the report of the Director-General of the Department of Urban Affairs and Planning dated September 2001
DLWC	Department of Land and Water Conservation, NSW
DoH	Department of Health, NSW
DoT	Department of Transport, NSW
DUAP	Department of Urban Affairs and Planning, NSW
EIS	<i>The Cross City Tunnel Environmental Impact Statement</i> prepared for the RTA by PPK Environment and Infrastructure Pty Ltd, dated July 2000.
EMP	Environmental Management Plan
EMR	Environmental Management Representative
EP& A Act	Environmental Planning and Assessment Act 1979
EPA	NSW Environment Protection Authority
ESD	Ecologically Sustainable Development
ICLR	Independent Community Liaison Representative
LATM	Local Area Traffic Management
LALC	Local Aboriginal Land Council
L _{Aeq} 9hour	Equivalent continuous (constant) sound level over 9 hour period from 10pm to 7am
L _{Aeq} 15 hour	Equivalent continuous (constant) sound level over 15 hour period from 7am to 10pm
Minister, the	Minister for Planning

NATA	National Association of Testing Authorities
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NPWS	National Parks and Wildlife Service, NSW
PM10	Particulate matter with an aerodynamic diameter of less than or equal to 10 microns
PM 2.5	Particulate matter with an aerodynamic diameter of less than or equal to 2.5 microns
Proponent	Roads and Traffic Authority
PTC	Cross City Tunnel Public Transport Committee
Relevant Councils	Any one or more of the following Councils as applicable: Woollahra, South Sydney City Council, Council of the City of Sydney.
Representations Report	<i>The Cross City Tunnel Representation Report</i> prepared by RTA Operations for the RTA and dated 23 April 2001
RIC	Rail Infrastructure Corporation
SCEGGS	Sydney Church of England Girls Grammar School
SHFA	Sydney Harbour Foreshore Authority
SRA	State Rail Authority
SSCC	South Sydney City Council
STA	State Transit Authority
SWC	Sydney Water Corporation
Supplementary EIS	The Cross City Tunnel Supplementary Environmental Impact Statement prepared for the RTA by PPK Environment & Infrastructure, dated July 2002.
Supplementary Representations Report	The Cross City Tunnel Representations Report for the Supplementary EIS prepared by RTA Operations for the RTA dated October 2002.
UDAS	Department of Urban Affairs and Planning's Urban Design Advisory Service
VOCs	Volatile Organic Compounds

General

1. The proposal shall be carried out in accordance with:

- (a) the proposal contained in the Environmental Impact Statement (EIS), as modified by the Representations Report and as amended by the Addendum, Supplementary EIS and Supplementary Representations Report;
- (b) all identified Sub Plans, safeguards and mitigation measures identified in the EIS and Representations Report as amended by the Addendum Supplementary EIS and Supplementary Representations Report; and
- (c) the Director-General's Report dated September 2001 as amended by the Director-General's report dated December 2002.

Despite the above, in the event of any inconsistency with the proposal as described in the EIS, Representations Report as amended by the Addendum, the Supplementary EIS, Supplementary Representations Report and/or the original conditions of approval granted by the Minister these conditions shall prevail.

These conditions do not relieve the Proponent of the obligation to obtain all other approvals and licences from all relevant authorities required under any other Act. Without affecting the generality of the foregoing, the Proponent shall comply with the terms and conditions of such approvals and licences.

It shall be the ultimate responsibility of the Proponent to ensure compliance with all conditions of approval granted by the Minister.

Compliance

General

2. The Proponent shall comply with, or ensure compliance with, all requirements of the Director-General in respect of the implementation of any measures arising from the conditions of this approval. The Proponent shall bring to the attention of the Director-General any matter that may require further investigation and the issuing of instructions from the Director-General. The Proponent shall ensure that these instructions are implemented to the satisfaction of the Director-General within such time that the Director-General may specify.

Pre-Construction Compliance Report

3. At least one month prior to commencement substantial construction (or within such period as otherwise agreed by the Director-General), the Proponent shall submit to the Director-General a compliance report detailing compliance with all relevant conditions that apply prior to commencement of substantial construction and shall address:
 - (a) the dates of submissions of the various studies and/or requirements of various relevant conditions, and their approval and terms of approval; and
 - (b) action taken and/or proposed to implement the recommendations made in terms of approvals and/or studies.

Pre-Operation Compliance Report

4. At least one month prior to commencement of operation of the tunnel (or discrete sections of the proposal as agreed by the Director-General), the Proponent shall submit to the Director-General a compliance report detailing compliance with all relevant conditions that apply prior to commencement of operation and shall include:
 - (a) results of environmental monitoring required under this Approval including interpretation and discussion by a suitably qualified person;
 - (b) a record of all complaints and the action taken to mitigate all such complaints;
 - (c) recommendations in regard to compliance issues; and
 - (d) action taken and/or proposed to implement the recommendations made in terms of approvals and/or studies.

The period of one month referred to in this condition above may be altered as agreed by the Director-General.

Note:

The Director-General shall provide a response to Conditions 3 and 4 within 1 month of receipt of all relevant information from the Proponent assuming receipt of adequate and sufficient information. If a request is made by the Director-General for additional information, the period of time that elapses between the date on which the Proponent receives the request and the date on which the additional information is provided to the Director-General shall not be taken into account in the 1 month period referred to. Any requests for additional information shall be made by the Director-General within 2 weeks of receipt of all relevant information from the Proponent.

Project Commencement

5. The Proponent shall notify the Director-General and all relevant authorities in writing of the project commencement both in terms of construction and tunnel operation at least 2 weeks prior to the relevant commencement date.

Dispute Resolution

6. The Proponent shall endeavour, as far as possible, to resolve any dispute between relevant public authorities arising out of the implementation of the conditions of this approval. Should this not be possible, the matter shall be referred firstly to the chief executives and directors of the agencies involved. If the matter cannot be resolved then it shall be referred to the Minister for resolution. The Minister's determination of the disagreement shall be final and binding on all parties.

Contact Telephone Number

7. Prior to the commencement of construction, the Proponent shall institute, publicise and list with a telephone company a 24 hour toll-free complaints contact telephone number, which would enable any member of the general public to reach a person who can arrange appropriate response action to the complaint within two hours.

Complaints Register

8. The Proponent shall record details of all complaints received during construction and ensure that at least a verbal response on what action is to be undertaken is provided to the complainant within 2 hours (unless the complainant agrees otherwise) and a detailed written response within seven (7) calendar days. Information on all complaints received and response times shall be made available to the EMR at the end of day and to the Director-General every three months or any other time specified during construction. This information shall be made available to all relevant government agencies on request. The Proponent shall nominate an appropriate person(s) to receive, log, track and respond to complaints within the specified timeframe. The name and contact details of this person(s) shall be provided to the relevant Council(s) and the Director-General upon appointment or upon any changes to that appointment, but at least one week prior to the commencement of substantial construction.

Advertisement of Activities

9. Prior to the commencement of construction, and then at three-monthly intervals, the Proponent shall advertise in relevant local newspapers, the nature of the works proposed for the forthcoming three months, the areas in which these works are proposed to occur, the hours of operation, a contact telephone number and internet site.

The Proponent shall ensure that the local community and businesses are kept informed (by appropriate means such as: local newsletters, leaflets, newspaper advertisements, and community notice boards, etc.) of the progress of the project, including any traffic disruptions and controls, construction of temporary detours and work required outside the nominated working hours, including noisy works, prior to such works being undertaken.

10. The Proponent shall establish a project internet site prior to the commencement of construction and maintain the internet site until 12 months after commencement of operation of the project. This internet site shall contain monthly updates of work progress and consultation activities, including but not limited to:
 - (a) a description of relevant approval authorities and their areas of responsibility;
 - (b) a list of environmental management reports that are publicly available and the executive summaries of those reports;
 - (c) minutes of community liaison group meetings;
 - (d) bi-monthly newsletters;
 - (e) contact names and phone numbers of the project communications staff; and
 - (f) 24 hour toll-free complaints contact telephone number.

Updates of work progress and construction activities shall be provided more frequently where significant changes in the noise impacts are expected.

Community Consultation

Community Liaison Groups

11. The Proponent shall:
 - (a) establish appropriate representative Community Liaison Groups, having considered the *Guidelines for the Establishment of the Community Liaison Groups* (see Attachment 1);
 - (b) ensure that the first meeting is held prior to submission of the Construction Environmental Management Plan required under Condition 17;
 - (c) nominate a chair to be approved by the Director – General;
 - (d) allow the Groups to make comments and recommendations about the implementation of the development and environmental management plans, monitor compliance with conditions of this approval and other matters relevant to the operation of the development during the term of the consent;
 - (e) ensure that the Groups have access to the necessary plans and information for such purposes;
 - (f) consider the recommendations and comments of the Groups and provide a response to the Groups and Director-General;
 - (g) ensure that the Community Liaison Groups and the Air Quality Community Consultative Committee required by the Conditions of Approval shall be appropriately co-ordinated in terms of nominees, issues covered by each committee and updates from the Air Quality

Community Consultative Committee to the Community Liaison Groups;

The Proponent shall bear all costs associated with the establishment and ongoing function of the Groups.

Community Involvement Plan

12. The Proponent shall prepare a Community Involvement Plan for the construction period, which would be in place prior to commencement of construction. The Community Involvement Plan shall set out the community consultation procedures for the project, which shall comply with the obligations under the approval from the Minister, other approvals, licences and permits. The Community Involvement Plan shall also include:
- (a) identification of the local community likely to be affected by the project, including identification of residences, businesses and other sensitive land uses;
 - (b) procedures for the establishment and functioning of the Community Liaison Groups in accordance with Condition 11;
 - (c) procedures for informing users of the affected road network of planned traffic arrangements including temporary traffic switches;
 - (d) procedures for informing the local community of planned investigation and construction operations;
 - (e) provisions for dealing with complaints (particularly night time) and response requirements as specified in Condition 8.
 - (f) provision for the Proponent's attendance and participation in all groups and public meetings forming part of the Community Involvement Plan; and
 - (g) the provision of training for all employees and sub-contractors on the requirements of the Community Involvement Plan.

Independent Community Liaison Representative

13. The Director- General shall approve the appointment of the person nominated to serve as the Independent Community Liaison Representative (ICLR), for the duration of the construction period, to:
- (a) attend local community liaison group meetings;
 - (b) oversee the community consultation obligations;
 - (c) be available for direct contact from the community within reasonable hours; and,
 - (d) to the greatest extent practicable resolve all community complaints.

The ICLR shall:

- (e) be experienced in mediating planning disputes; and
- (f) contact the EMR immediately if, in the opinion of the ICLR, an unacceptable noise or other impact is being generated.

The Proponent shall bear the cost of employment of the ICLR.

Display Centres

14. At least two (2) display centres shall be established, staffed and maintained at or near the William Street and the Harbour Street construction sites, at least up until commencement of operation of

the project. The two (2) display centres shall be established prior to the commencement of substantial construction with at least one display centre being established prior to the commencement of construction. The ICLR shall be based at one of the display centres. The display centres shall be open between 10:00 am and 6:00 pm on business days. Up-to-date photographs, diagrams, samples and other suitable material shall be provided at each display centre, covering at least:

- (a) noise and retaining wall locations, details and finishes;
- (b) landscape concept, cross section treatments, perspective views and details;
- (c) buildings;
- (d) bridges;
- (e) tunnels;
- (f) overall architectural and landscape design theme;
- (g) ventilation technology and ventilation stack design; and
- (h) temporary works affecting businesses, residences, pedestrians and public transport users.

A dedicated PC internet access point to the internet site shall be provided in each display centre. A dedicated phone line shall be provided from one display centre to the centre where the ICLR is based.

Environmental Management

Environmental Management Representative

15. Prior to the commencement of construction, the Director- General shall approve the appointment of the person nominated to serve as the Environmental Management Representative (EMR). In considering the appointment, the Director- General shall take into account:

- (a) the qualifications and experience of the EMR including demonstration of general compliance with the principles of AS/NZS ISO 14012:1996 *Guidelines for Environmental Auditing : Qualification criteria for environmental auditors*;
- (b) the role and responsibility of the EMR; and,
- (c) the authority and independence of the EMR including details of the Proponent's internal reporting structure. This shall include the authority to stop work immediately if, in the view of the EMR, an unacceptable impact is likely to occur or to require other reasonable steps to be taken to avoid or minimise any adverse impacts.

The EMR shall have responsibility for:

- (d) Consideration and advice on matters specified in the conditions of approval;
- (e) Compliance with these conditions; and
- (f) Facilitation of an induction and training program for all persons involved with the construction works.

The EMR shall immediately advise the Proponent and the Director-General of any major issues resulting from the construction of the project that have not been dealt with expediently or adequately by the Proponent.

The EMR shall be available during construction activities at the site and be present on-site during any critical construction activities as defined in the relevant Environmental Management Plan (EMP) or Construction Method Statements (CMSs).

Environmental Management System

16. The Proponent shall ensure the appointment of construction and/or operation head contractors that have an Environmental Management System prepared in accordance with the AS/NZS ISO 14000 series or BS7750-1994 certified by an accredited certifier and/or have a proven environmental management performance record.

Construction Framework Environmental Management Plan

17. Prior to the commencement of construction, a Construction Framework Environmental Management Plan (EMP) shall be prepared, following consultation with the EPA, DoH, DLWC, SHFA, SSCC, CCS and all relevant utility/service providers. The Construction Framework EMP shall be prepared in accordance with the conditions of this approval, all relevant Acts and Regulations and accepted best practice management Sub Plans.

The Construction Framework EMP shall require approval by the Director-General prior to the commencement of substantial construction or within such time as otherwise agreed to by the Director-General. The Construction Framework EMP shall be certified by the EMR as being in accordance with the Conditions of Approval and all undertakings made in the EIS and Representations Report as amended by the Addendum and as updated by the Supplementary EIS and Supplementary Representations Report, prior to seeking approval of the Director-General.

Note:

The Director-General shall provide a response to the Construction Framework EMP within 1 month of receipt of all relevant information from the Proponent assuming receipt of adequate and sufficient information. If a request is made by the Director-General for additional information, the period of time that elapses between the date on which the Proponent receives the request and the date on which the additional information is provided to the Director-General shall not be taken into account in the 1 month period referred to. Any requests for additional information shall be made by the Director-General within 2 weeks of receipt of all relevant information from the Proponent.

The Construction Framework EMP shall include:

- (a) reference and proposed timeframes for all the Sub Plans required under this Approval;
- (b) the role of the EMR;
- (c) details of the community consultation process and identification of the role of the ICLR;
- (d) definition of the role, responsibility, authority, accountability and reporting of personnel relevant to compliance with the Construction Framework EMP;
- (e) a matrix of Construction Method Statements (CMS) required to construct the project, including an assessment of the predicted level of risk and potential level of public interest posed by each CMS and indicative timeframes for completion; and,
- (f) propose a response time-frame for all CMS to be approved by the Director-General.

The Construction Framework EMP shall be made publicly available.

Construction Method Statements

18. The Proponent shall prepare in consultation with the relevant government agencies and the CLGs, Construction Method Statements (CMS) for all construction methods and/or major construction

work sites to be utilised during construction in accordance with the Framework Construction EMP required by Condition 17. The Director-General shall nominate the CMSs that will require approval by the Director-General. Those CMSs not requiring the approval of the Director-General shall require the certification of the EMR as being in accordance with the Conditions of Approval and all undertakings made in the EIS and Representations Report as amended by the Addendum, and as updated by the Supplementary EIS and Supplementary Representations Report. Any CMS to be approved by the Director-General shall be submitted to the Department following certification by the EMR no less than one (1) month prior to the proposed commencement of the relevant construction activities.

Each CMS shall include, but not be limited to:

- (a) construction activities and processes associated with the relevant construction site(s), including staging and timing of the proposed works;
- (b) specific hours of operation for all key elements including off-site movements;
- (c) cover specific environmental management objectives and strategies for the main environmental system elements and include, but not be limited to: noise and vibration; air quality; water quality; erosion and sedimentation; access and traffic; property acquisition and/or adjustments; heritage and archaeology; groundwater; acid sulfate soils, spoil stockpiling and disposal; waste/resource management; weed management; flooding and stormwater control; geotechnical issues; visual screening, landscaping and rehabilitation; hazards and risks; energy use, resource use and recycling; and utilities; and
- (d) address, but not be limited to:
 - (i) identification of the statutory and other obligations which the Proponent is required to fulfil during project construction, including all approvals and consultations/agreements required from other authorities and stakeholders, and key legislation and policies which control the Proponent's construction of the project;
 - (ii) measures to avoid and/or control the occurrence of environmental impacts;
 - (iii) changes to loss of on-street parking;
 - (iv) measures (where practicable and cost effective) to provide positive environmental offsets to unavoidable environmental impacts;
 - (v) definition of the role, responsibility, authority, accountability and reporting of personnel relevant to compliance with the CMS;
 - (vi) site specific environmental management techniques and processes for all construction processes which are important for the quality of the environment in respect of permanent and/or temporary works;
 - (vii) site specific monitoring, inspection and test plans for all activities and environmental qualities which are important to the environmental management of the project, including performance criteria, tests, and protocols (eg. frequency and location);
 - (viii) locational details of important elements such as temporary noise barriers; portable offices and amenities; truck, plant and materials storage; access locations; provision of site hoardings etc;
 - (ix) environmental management instructions for all complex environmental control processes which do not follow common practice or where the absence of such instructions could be potentially detrimental to the environment;
 - (x) steps the Proponent intends to take to ensure that all Plans and Sub Plans are being complied with;
 - (xi) consultation requirements with relevant government agencies; and
 - (xii) community consultation and notification strategy (including local community, businesses, relevant government agencies, and all relevant Councils), and complaint handling procedures.

Specific requirements of the main environmental system elements referred to in (c) shall be as required under the conditions of this approval and/or as required under any licence or approval. All CMS shall be made publicly available.

Environmental Monitoring – Construction

19. The Proponent shall submit to the Director-General a report(s) in respect of the environmental performance of the construction works and compliance with the Construction Framework EMP, all relevant CMS and any other relevant conditions of this approval. The reports shall be prepared six months after the start of substantial construction and thereafter at six monthly intervals or at other such periods as requested by the Director-General to ensure adequate environmental performance over the duration of the construction works. The report(s) shall include, but not be limited to, information on:
- a) applications for consents, licences and approvals, and responses from relevant authorities;
 - b) implementation and effectiveness of environmental controls and conditions relating to the work undertaken;
 - c) identification of construction impact predictions made in the EIS and any supplementary studies and details of the extent to which actual impacts reflected the predictions;
 - d) details and analysis of results of environmental monitoring;
 - e) number and details of any complaints, including summary of main areas of complaint, action taken, response given and intended strategies to reduce complaints of a similar nature; and
 - f) any other matter relating to the compliance by the Proponent with the conditions of this approval or as requested by the Director-General.

The report(s) shall be provided to the EPA, DLWC relevant Councils and any other relevant government agency nominated by the Director-General. The report(s) shall also be made publicly available.

20. The Proponent shall ensure that it has an internal audit system and that internal audits are undertaken and certified by the EMR every three (3) months to ensure compliance with the EMP, the conditions of approval and all other relevant licences and approvals. Each audit must be completed within 6 weeks of the end of the 3 month period and be made available to the Director-General upon request.

Operational Environmental Management Plan

21. An Operational Environmental Management Plan (OEMP) shall be prepared prior to the commencement of operation. The Plan shall be prepared in consultation with the EPA, DLWC, DoH, SHFA, SSCC, CCS and any other relevant government agency nominated by the Director-General. The Plan shall be prepared in accordance with the conditions of this approval, all relevant Acts and Regulations and accepted best practice management Sub Plans.

The OEMP shall require approval by the Director-General prior to commissioning or within such time as otherwise agreed to by the Director-General. The EMP shall be certified as being in accordance with the conditions of approval by the EMR prior to seeking approval of the Director-General.

Note:

The Director-General shall provide a response to the Operational EMP within 1 month of receipt of all relevant information from the Proponent, assuming receipt of adequate and sufficient information. If a request is made by the Director-General for additional information the period of time that elapses between the date on which the Proponent receives the request and the date on which the additional information is provided to the Director-General shall not be taken into account in the 1 month period referred to. Any requests for additional information shall be made by the Director-General within 2 weeks of receipt of all relevant information from the Proponent.

The OEMP shall address at least the following issues:

- a) identification of the statutory and other obligations which the Proponent is required to fulfil, including all licences/approvals and consultations/agreements required from authorities and other stakeholders, and key legislation and policies which control the Proponent's operation of the project;
- b) sampling strategies and protocols to ensure the quality of the monitoring program, including the specific requirements of DLWC and EPA;
- c) monitoring, inspection and test plans for all activities and environmental qualities which are important to the environmental performance of the project during its operation, including a description of potential site impacts, performance criteria, specific tests and monitoring requirements, protocols (eg. frequency and location) and procedures to follow;
- d) steps the Proponent intends to take to ensure compliance with all plans and procedures;
- e) consultation requirements, including relevant government agencies, the local community and Council, and complaints handling procedures; and
- f) strategies for the main environmental system elements including, but not limited to: noise; water quality; erosion and sedimentation; access and traffic; groundwater; settlement; waste/resource management/removal/disposal; hydrology and flooding; visual screening, landscaping and rehabilitation; hazards and risks; and energy use, resource use and recycling.

Specific requirements for some of the main environmental system elements referred to in (f) shall be as detailed under the conditions of this approval and/or as required under any licence or approval.

The OEMP shall be made publicly available.

All sampling strategies and protocols undertaken as part of the Operational EMP shall include a quality assurance/quality control plan and shall be approved by the relevant regulatory agencies to ensure the effectiveness and quality of the monitoring program. Only accredited laboratories can be used for laboratory analysis.

Environmental Impact Audit Report

22. An Environmental Impact Audit Report shall be submitted to the Director-General, 2 and 7 years from the start of operations or at any time as requested by the Director-General within the first 10 years of operation. The environmental impact audit report shall be undertaken by an independent person(s) or organisation approved by the Director-General and paid for by the Proponent. The Report shall assess the key impact predictions made in the EIS, Representations Report and as updated by the Supplementary EIS, Supplementary Representations Report and any supplementary studies and detail the extent to which actual impacts reflect the predictions during the first 12 months of operation and any other periods as required. The Report shall provide details on actual versus predicted impacts for all key issues identified in the EIS, Representations Report and as updated by the Supplementary Representations Report and Supplementary EIS. The suitability of implemented mitigation measures and safeguards shall also be assessed. The Report shall also assess compliance with the Operational EMP.

The Report shall discuss results of consultation with the local community in terms of feedback/complaints on the construction and operation phases of the project and any issues of concern raised. The Proponent shall comply with all reasonable requirements of the Director-General, EPA and other relevant authorities with respect to any reasonable measure arising from, or recommendations in, the report.

The Report shall be made publicly available.

Harbour Street Exit

23. The Proponent shall make provision for the installation of electronic toll facilities that will enable charges of higher tolls for vehicles exiting to Harbour Street.
24. The Proponent shall provide a report to the Director-General on traffic using the Harbour Street exit, including a specific assessment of the proportion of traffic with destinations to the east of and including George Street. The traffic assessment shall be undertaken after 12 months of operation, and thereafter, 3 years then 10 years after opening, and shall be provided to the Director-General within 3 months of the end of the required periods. Should the assessment indicate a significant infiltration of traffic from the Harbour Street exit, east of George Street, the Proponent shall prepare a report in consultation with PTC on potential mitigation measures including further traffic management measures and/or a congestion toll. No toll shall be charged to buses providing public transport services (not including those used for commercial hire or ventures) at any time. Any bonus revenue generated by the Harbour Street exit shall be put towards public transport, pedestrian, cyclist, air quality and other amenity improvements as agreed by the PTC. For the purposes of this Condition, if the PTC has ceased, any reference to the PTC shall mean the Director-General.

Public Transport Enhancement Measures

Contingency Funds

25. The Proponent shall set aside the sum of \$5 million to be used for implementing any additional operation stage measures resulting from investigations required as part of these conditions of approval and/or further offset measures including air quality improvement measures (i.e. commercial cooking emission controls, assisting Sydney Buses in converting to less pollution emitting fuel sources), public transport improvement, pedestrian and cyclist improvements and/or for any other measure as required by the Director-General.

Pre-construction Stage

26. The Proponent shall ensure that any construction and/or operation contract arrangement shall not preclude any future public transport developments outside the Tunnel.
27. Prior to commencement of any substantial construction works the Proponent shall establish a Cross-City Tunnel Public Transport Committee (PTC) to be chaired by the DoT. The key role of the PTC shall be to:
 - (a) co-ordinate the concerns and interests of relevant local and state transport agencies relating to the proposal;
 - (b) ensure adverse impacts of the construction and operation of the CCT on public transport are minimised;

- (c) identify opportunities and develop plans and strategies for maximising short and long term public transport opportunities during construction, including but not limited to: education programs for the public and affected businesses; public transport improvements beyond those already identified as part of these conditions of approval including but not limited to: bus only routes, bus signals, bus priority lanes, enhanced bus and rail services; public transport incentives such as free bus and train travel days particularly during peak disturbance periods; giving due consideration to pedestrians and cyclists and other users of the city; and,
- (d) ensure that any plans and strategies are implemented to ensure that potential benefits to public transport are captured and maintained throughout the construction and operational life of the project.

The Proponent shall following consultation with the DoT, submit a detailed set of requirements for constituting and funding the operations of the PTC for approval by the Director-General, within 6 months of this approval.

The PTC shall invite representatives from at least the RTA, NSW Police Service, STA and DoT. The PTC shall also consult with the relevant Council(s) on a regular basis and shall consider any issues, advice and submissions from the relevant Council(s). The PTC shall provide the relevant Council(s) with written advice within a reasonable time-frame on how any issues raised have been addressed.

The Proponent shall provide appropriate funding assistance to ensure appropriate facilities for and resourcing of the PTC.

The PTC shall continue for at least 3 years after opening of the tunnel unless otherwise agreed by the Director-General.

The Proponent shall prepare a bi-annual report to the Director-General on the progress and outcomes of the PTC process, including results of communications with relevant local Council(s) and the application of these conditions of approval (where relevant) and shall make the report publicly available. The PTC shall take into account any comments/requirements raised by the Director-General.

- 28. The Proponent shall, in consultation with the PTC, develop measurable performance indicators for bus efficiencies (including consideration of bus timetables), occurring as a result of the project taking into account the existing performance and predictions made in the EIS, Representations Report and as updated by the Supplementary EIS and Supplementary Representations Report.
- 29. The Proponent shall consult all affected schools in relation to all practicable measures to be taken to avoid undue disruption from altered school bus services during construction.
- 30. The Proponent shall consult with CCS with regard to the final design of kerb realignments for Park Street, between College and Elizabeth Streets.

Construction Stage

- 31. Prior to the commencement of substantial construction, a Construction Stage Public Transport Management Plan(s) shall be prepared as part of the Framework Traffic Management Plan in consultation with the SRA, RIC, CCS, SSCC, STA, Bus and Coach Association, Sydney Light Rail, NSW Taxi Council and monorail operator and to the satisfaction of the PTC. The Plan shall address the potential impact of construction activities on public transport. The objective of the Plan

shall be to achieve, to the greatest degree practicable, at least pre-construction level use of buses and high occupancy vehicles.

Note:

The PTC shall be requested to provide a response to this Condition within 1 month of receipt of all relevant information from the Proponent assuming receipt of adequate and sufficient information. If a request is made by the PTC for additional information, the period of time that elapses between the date on which the Proponent receives the request and the date on which the additional information is provided to the PTC shall not be taken into account in the 1 month period referred to.

32. The Proponent shall, to the satisfaction of the PTC, resolve the need to re-route any bus services and in particular the 311 bus service to Cathedral and Crown Streets for the duration of the closure of Bourke Street.
33. Prior to substantial construction commencement, the Proponent shall develop a Rail Safety Plan to the satisfaction of RIC and SRA. The plan shall address maintenance of safe train operations during construction of the CCT including:
 - (a) the safety and well being of passengers, staff, tenants and others in stations including a specific noise and vibration impact statement for Town Hall Station;
 - (b) methods and means of monitoring construction impacts on rail infrastructure facilities and stations and their operations including the electrical systems for the city underground rail system, including demonstration of how the power supply to the city underground rail lines would not be adversely affected, and,
 - (c) emergency responses including the immediate cessation of construction to address incidents that could affect train operational safety, and passenger and staff safety.

Operation Stage

34. The Proponent shall ensure to the satisfaction of the PTC that the proposal does not prevent or impose significantly greater cost implications for future provision of a light rail system within Sydney CBD.
35. All STA buses and any other buses providing scheduled public transport services shall be exempt from all CCT tolls.
36. The Proponent shall in consultation with the PTC review the bus performance indicators developed in Condition 28 (including bus timetables) at 6 months after opening, then after 1 and 3 years of operation. The Proponent shall initiate, at its own expense and where practicable, any actions as reasonably required by the PTC to achieve the bus performance indicators to the greatest extent practicable.
37. The Proponent shall manage the Sydney Co-ordinated Adaptive Traffic System (SCATS) to optimise public transport traffic flow efficiency through the CBD at all times, including implementation of real-time dynamic bus priority on key CBD approach corridors including William Street, Oxford Street, Parramatta Road and City Road and consideration of any other roads nominated by the PTC. In managing SCATS, the Proponent shall take into account any reasonable issue raised by the PTC and report back to the PTC on such issues.

38. The following bus priority measures, or as otherwise agreed with PTC, shall be developed in consultation with the relevant community groups nominated by the PTC. The bus priority measures are:

- (a) Creation of new bus lanes on:
 - (i) Western Distributor (westbound) between the Druitt Street ramp and the Anzac Bridge (where feasible);
 - (ii) Chalmers Street and Elizabeth Street between Redfern and Foveaux Streets;
 - (iii) Bridge Street (eastbound), between George and Loftus Streets; and,
 - (iv) Liverpool Street (eastbound) between Elizabeth and College Streets.
- (b) Investigate potential for new bus lanes or transit lanes on:
 - (i) Pitt Street between Alfred and Hunter Streets;
 - (ii) Park Street, between Elizabeth and George Streets.
 - (iii) Ocean Street;
 - (iv) New South Head Road between Kings Cross Tunnel and Ocean Street;
 - (v) Victoria Road (outbound) to match inbound transit lane (from Cressy Road Gladesville); and,
 - (vi) Anzac Bridge (outbound).
- (c) Marking of the Castlereagh Street bus lane in red;
- (d) examine the feasibility of making Druitt Street eastbound a bus only lane between Kent Street and George Street or between Clarence Street and George Street;
- (e) Progress the planning, consultation and implementation of measures to prohibit general traffic from using the section of York Street between Market Street and Druitt Street which would continue to operate as a key bus interchange facility;
- (f) If appropriate, identify improvements to the transfer capability of Park Street, including footpath improvements with bus stops and increased capacity for “through” buses to negotiate the traffic;
- (g) Develop a real time congestion monitoring system and associated protocol to facilitate the pre-emptive diversion of buses off key corridors prior to being trapped on congested CBD corridors;
- (h) If agreed by the PTC, include a bus only right hand turn traffic signal at the corner of George and Druitt Streets;
- (i) Develop and fund measures (such as relocation of street furniture, etc) to improve the interface between pedestrians and bus commuters in the zones adjacent to bus stops in William Street, in consultation with the PTC;
- (j) Ensure that changes to existing pedestrian access will be undertaken in consultation with and to the satisfaction of CCS. In particular, the Proponent shall consult with CCS in regard to changes in Druitt Street, Market Street and Sussex Street; and,
- (k) Consult with CCS and DoT with regards to any changes to the signalised scramble crossing at George, Park and Druitt Streets.

39. Subject to outcome of current trials and legislative amendments, the Proponent shall implement digital cameras or such other measures as appropriate, to assist in enforcing appropriate use of bus lanes throughout the CBD and key approach roads.
40. Prior to the operator collecting any toll, the Proponent shall have in place, and to the greatest extent practicable (including agreement on all funding requirements and an implementation program), all the necessary bus priority measures referred to in Condition 38 formulated to the satisfaction of the PTC. The implementation of such measures including any associated construction works shall be completed within 3 months of commencement of toll collection. Any extension of time beyond the 3 month period shall be specifically approved by the Director-General following consultation with the PTC.
41. The Proponent shall, in consultation with the PTC, investigate the feasibility of an electronic based passenger information system to provide arrival information for passengers at key City feeder bus stops impacted by the proposal, including major stops along William Street, Oxford Street and New South Head Road or other streets as agreed by the PTC.
42. The Proponent shall consult with the PTC regarding the dual left turn from Clarence Street to Market Street and the proposed southbound right hand turn bay for buses at George and Druitt Streets with respect to potential impacts on parking, traffic lanes, bus lanes and bus zones and intersection arrangements and shall comply with any reasonable requirement of the PTC.
43. Prior to commencing operation of the CCT, the Proponent shall prepare an Operations Rail Safety Plan to the satisfaction of RIC and SRA. The plan shall address:
 - (a) matters resulting from the operation of the project and incidents in the Tunnel that could affect safe train operations and the safety and well being of passengers and staff in stations and their environs;
 - (b) matters resulting from the operation of rail infrastructure facilities and stations and incidents that could affect safe Tunnel operations;
 - (c) procedures for the notification of incidents and emergencies; and
 - (d) responses to emergencies identified in a risk analysis.
44. The Proponent shall, In consultation with RIC and SRA, conduct regular (at least 6 monthly) testing and review of the Operation Rail Safety Plan's effectiveness, including co-ordination with emergency services, RIC, SRA and the operator of the project. The Proponent shall provide and maintain a communications link between the CCT Control Centre and a train control centre nominated by the SRA.

Construction Stage Traffic Impacts

Pre construction Stage

45. The Proponent shall prepare a Framework Traffic Management Plan for overall traffic arrangements during the full construction period. The Plan shall include, with respect to the project as a whole:
 - (a) cumulative impacts of multiple construction sites;
 - (b) measures to manage traffic flows through and surrounding the project, including regulatory and direction signposting, line marking and variable message signs;
 - (c) management of the Sydney Co-ordinated Adaptive Traffic System (SCATS) to optimise traffic flow efficiency particularly for public transport at all times, particularly during peak periods; and

- (d) identify any regulatory measures to improve the efficiency of traffic conditions.

The Plan shall take into account both local and regional traffic impacts and shall at all stages give priority to public transport and pedestrian movements. The Plan shall be approved by the PTC prior to substantial construction commencement.

Note:

The PTC shall be requested to provide a response to this Condition within 1 month of receipt of all relevant information from the Proponent assuming receipt of adequate and sufficient information. If a request is made by the PTC for additional information, the period of time that elapses between the date on which the Proponent receives the request and the date on which the additional information is provided to the PTC shall not be taken into account in the 1 month period referred to.

46. The Proponent shall prepare individual Traffic Management Plans (TMPs) for each construction site in accordance with the Framework Construction Traffic Management Plan required by Condition 45, and in consultation with relevant local councils and other agencies, prior to commencement of substantial construction affecting that area. The individual TMPs shall be incorporated into the relevant Construction Method Statements required under Condition 18. The individual TMPs shall include, but not be limited to:
- (a) impacts on all existing traffic (including pedestrians, vehicles, cyclists and disabled persons), including the staging of construction works to minimise road closures and delay or detours to traffic;
 - (b) access to construction sites and site compounds, including minimising the disruption from construction vehicles entering and leaving construction sites and site compounds;
 - (c) any changes to existing number and width of traffic lanes;
 - (d) maximum and average truck volumes and expected hourly distribution;
 - (e) truck ingress and egress routes;
 - (f) entry/exit locations;
 - (g) nature of loads and materials;
 - (h) temporary traffic arrangements, including the identification and promotion of alternative routes;
 - (i) no heavy vehicle queuing on public roads unless otherwise agreed by the relevant Council(s);
 - (j) provision of barriers between working and trafficked areas;
 - (k) the impact on pedestrian and bicycle facilities, including measures to ensure safe pedestrian and cycle routes and access at all times, and the provision of alternative facilities and locations for pedestrians and cyclists;
 - (l) the provision of safe and convenient access to all bus stops;
 - (m) signposting;
 - (n) stormwater drainage;
 - (o) methods for implementing the TMP;
 - (p) access to side streets;
 - (q) access to adjoining properties, which would be maintained at all times wherever practicable;
 - (r) road or lane closures;
 - (s) the use of cranes on public roads;
 - (t) deliveries to construction sites and site compounds;
 - (u) a response plan which sets out the proposed response to any traffic, construction or other incident; and,
 - (v) appropriate review and amendment mechanisms.

The TMP shall be certified by an experienced traffic/transport planner who shall be engaged

throughout the construction stage to advise on implementation issues and amendments and as a key liaison contact for the relevant local Councils.

47. The Proponent shall as part of its construction stage monitoring required under Condition 19, monitor traffic changes during construction on regional and local streets in Paddington, Ultimo, Pyrmont, Glebe, Darlinghurst, East Sydney and Woolloomooloo. Should monitoring indicate traffic intrusion above predicted levels on these streets as a result of the construction of the proposal the Proponent shall also prepare and implement LATM for these areas following consultation with the relevant Council(s).

Construction Management

48. The Proponent shall monitor the performance of all project traffic arrangements during construction, including any impact of bus operations and prepare quarterly reports to the PTC. The report shall be made available to the Director-General upon request.
49. The Proponent shall review the TMPs as required by, and in consultation with, the PTC. The Proponent shall implement any additional public transport management measures as reasonably required by the PTC.
50. The Proponent shall ensure that the proposed traffic arrangements during construction are in accordance with Table 8.1 Section 12.1.5 of the Representations Report as modified by the Supplementary EIS, as modified by the Supplementary Representations Report unless otherwise agreed by the PTC. In the event of any inconsistencies the most recent assessment document as modified by the conditions of Approval shall prevail.
51. The Proponent shall take all reasonable steps to ensure that all heavy vehicles travel to and from all construction sites via State roads and/or the routes specified in the EIS, Representations Report and as updated by the Supplementary EIS and Supplementary Representations Report. In the event of any inconsistency the most recent assessment document as modified by the Conditions of Approval shall prevail.
52. The Proponent shall ensure that access and egress to the additional site compound on Palmer Street is left in/left out or signal controlled unless otherwise agreed by the Traffic Committee of the relevant local Council in whose area the site compound is located.
53. The Proponent shall ensure that all businesses affected by altered traffic arrangements are consulted at least 10 days prior to any affectation and shall endeavour where reasonable and feasible to maintain critical access at all times.
54. For the duration of the project construction, parking shall only be provided for senior site personnel, visitors and delivery vehicles. No construction personnel shall be allowed to park at any construction sites.
55. For the duration of the project, the construction sites, site compounds and surrounding areas shall be maintained in a generally clean and tidy condition.

Regional Traffic

56. The Proponent shall ensure adequate monitoring of the local and regional road network is conducted prior to the opening of the tunnel to provide an appropriate base line for measuring any

future impacts resulting from the construction and/or operation of the tunnel. Key impact prediction shall include traffic volumes on approach and departure routes, key central Sydney streets and local streets. The Proponent shall consult with and take into account comments from the PTC and relevant Council(s) regarding the methodology and timing of the study.

57. As part of the TMP identified in Condition 46, the Proponent shall work with the relevant local councils to ensure that traffic impacts within the regional road network affected by the proposal are consistent with the predictions made in the EIS, Representations Report, Supplementary EIS and Supplementary Representations Report and managed in consultation with the relevant local council(s). In the event of any inconsistency the most recent Assessment Document as modified by the Conditions of Approval shall prevail.
58. The Proponent shall undertake a comprehensive assessment of all roads identified in Table 5.7 of the Director-General's Report, and shall, in consultation with the PTC, develop measures to reduce roadway capacity where practicable.

Local Traffic

Local Area Traffic Management

59. Within 6 months of this approval the Proponent shall in consultation with the PTC, NSW Police, Emergency Services, relevant local Council(s) and community representatives, commence the preparation of the Local Area Traffic Management (LATM) measures for Paddington as defined in Appendix 7 of the Representations Report and shall include as a minimum unless otherwise agreed by the relevant local Council(s) the following:
 - (a) traffic calming on Brown Street/Nield Avenue between Macdonald and Lawson Streets; and,
 - (b) traffic calming on Glenmore Road between New South Head Road and Cascade Street.

The preparation of the LATM shall include a comprehensive consultation process, including the relevant government agencies as well as affected community, business and bicycle groups. The key objective of the LATM shall be to restrict through traffic and ensure that alternative routes for traffic wishing to avoid the toll are relatively unattractive.

The measures listed above shall be installed at full cost to the Proponent as soon as practicable after finalising the LATM consultation process.

60. Prior to the operator collecting any toll, the Proponent shall have in place to the greatest extent practicable and have agreed on all funding requirements and an implementation program for the necessary LATM measures referred to in Condition 59. Despite the above, the implementation of such measures including any associated construction works shall be fully completed within 6 months of commencement of toll collection. Any extension of time for the full implementation of the LATM measures shall be specifically approved by the Director-General following consultation with the relevant local councils.

61. The Proponent shall, as part of its impact verification required under Condition 22, monitor traffic changes on regional and local roads/streets in Paddington, Ultimo, Pyrmont, Glebe (particularly Cowper Street and Bay Street), Darlinghurst, Bellevue Hill, Double Bay, Edgecliff, Rushcutters Bay, Woollahra (Ocean Street), East Sydney, Wollomooloo, Haymarket (Chinatown) and CBD (St Marys Road, Macquarie Street and Hunter Street). Monitoring shall be undertaken for a representative periods at 1 and 3 years after opening. Should monitoring indicate traffic intrusion on these roads/streets reasonably beyond that predicted in the Supplementary Representations Report as a result of the operation of the proposal, the Proponent shall also prepare and implement traffic management measures to mitigate the impacts of intrusive traffic in the affected areas following consultation and agreement with the relevant Council(s) and consultation with the local communities. In the event of any inconsistency the most recent Assessment Document as modified by the Conditions of Approval shall prevail.
62. The Proponent shall review the design and signal phasing of the Harbour Street and Bathurst Street intersection in consultation with the SHFA, CCS and to the satisfaction of the Director-General to ensure that pedestrian green times and intersection performance are appropriately balanced.
63. The Proponent shall ensure that the access/egress between the Domain car park and Sir John Young Crescent is maintained at all times.

Pedestrian and Cyclist Access

64. The Proponent shall maintain safe pedestrian access to the fullest extent possible during construction. In circumstances where pedestrian access is not possible due to construction activities, the Proponent shall ensure that a satisfactory alternate route is provided and sign posted.
65. The Proponent shall in consultation with the PTC develop measurable performance indicators for pedestrian walk times occurring as a result of the proposal. The performance indicators shall be reviewed 1 and 2 years after opening the tunnel. The Proponent shall, at its own expense, implement any measures as reasonably required by the PTC to achieve the indicators to the greatest extent practicable.
66. The Proponent shall ensure that all cycle lanes are 1.5 m wide and marked in accordance with *Austrroads Guide to Traffic Engineering Practice*, Part 14 - Bicycles, 1999 including where appropriate, advanced stop lines.
67. Subject to the ongoing development of the CCS Bike Plan for the CBD, the Proponent shall, in consultation with Bicycle NSW, CCS and SSCC and to the satisfaction of the Director-General, develop and provide funding for the construction of a connection from the William/Park/Druitt Street cycle route to the Pyrmont Bridge and King Street Cycleway.
68. Subject to the ongoing development of the CCS Bike Plan for the CBD, the Proponent shall, in consultation with Bicycle NSW, SSCC and CCS, investigate a cyclist connection between Oxford Street and Darling Drive. In designing this connection, the Proponent shall investigate the provision of a two way cycle route in Liverpool Street between Harbour and Elizabeth Streets; a pedestrian and cyclist crossing at the intersection with Harbour Street; and investigate the establishment of a cycle route along the western footpath of Harbour Street or at the southern side of Pier Street. The Proponent shall submit a Report, prepared by a qualified bicycle planner, on the feasibility of this connection and shall comply with all reasonable requirements of the Director-General.

69. The Proponent shall, in consultation with Bicycle NSW, CCS and SSCC and to the satisfaction of the Director-General, develop a Plan and implement the construction of cycle lanes in William Street, Park Street, Kings Cross Road and Craigend Street. The cycle lane on Kings Cross Road shall include an east bound lane that extends to the Roslyn Street/Hickey Lane footbridge. The cycle lane on Craigend Street shall include a west bound link as shown in Figure 2.12 of the Supplementary EIS. The plan and construction shall be in accordance with the Addendum. Appropriate line marking shall be provided at bus stops, bus bays and intersections.

Business Impacts

70. Prior to construction commencement with the potential to impact on businesses, the Proponent shall prepare a Business Management Strategy in consultation with all businesses affected during the construction stage. The objective of the Strategy shall be to minimise impacts on local businesses through appropriate signage, maintaining vehicular and pedestrian access during business hours, minimising noise and dust impacts and retaining visibility of the business appropriate to its reliance on such. A draft Strategy shall be made available to all businesses, and to the relevant local Council(s) for comment for a period of no less than 21 days. The final Strategy shall indicate how any issues raised on the draft have been considered in the final Strategy. The Strategy shall be made publicly available.

Road Safety Audit

71. The Proponent shall undertake a Road Safety Audit during detailed design of the project and prior to commencement of substantial construction, including but not limited to:
- (a) reassessment of the length of the slip lane at the Bourke Street entry to the Eastern Distributor, in relation to the design speed of the entry to ensure acceleration/deceleration distances comply with the Austroads *Guide to Traffic Engineering Practice* – Part 5, 1998 and/or the RTA *Road Design Guide* (1993);
 - (b) review of the design of bicycle facilities for compliance with the Austroads design criteria;
 - (c) review of the safety implications of the horizontal curves on western approach to the tunnel, and the provision of appropriate sign posting; and
 - (d) weaving/merging/diverging manoeuvres at eastern end between tunnel exit and Neild Avenue.

Darling Harbour Access

72. The Proponent shall provide access to Darling Harbour in accordance with the Addendum.
73. The final design details of the Darling Harbour access identified in the Addendum shall be developed in consultation with the SHFA and shall require approval by the Director-General within 6 months of substantial construction beginning. All pedestrian bridges shall be of high quality in terms of form, finish and materials and shall be designed by an architect with appropriate experience in urban pedestrian bridge design.
74. The Proponent shall ensure that the grade separated pedestrian access between Bathurst Street and the Darling Walk building (Harbour Street crossing), as shown on Figure 5.2 of the Director-General's Report is completed in either a temporary or permanent form and opened to pedestrians prior to construction works affecting this area. Prior to finalising of the permanent access arrangement, the Proponent shall consult with the SHFA to review the design adequacy of the eastern end of the proposed elevated footway, including consideration of extending the footway

over Day Street or other reasonable and feasible options as identified by SHFA. Final design shall require approval by the Director-General within 12 months of this approval.

75. Subject to resolution of the lessee arrangements for the Darling Walk building, the Proponent shall ensure that the permanent grade separated access between the Darling Walk building and the Kiosk, as shown on Figure 5.2 of the Director-General's Report is completed and opened to pedestrians as early in the construction period as practicable and, as a minimum, concurrently with the permanent, Harbour Street pedestrian bridge.
76. The Proponent shall also consult with the SHFA in relation to minimising disruption to:
 - (a) traffic, pedestrian and cycle access to Darling Harbour during the construction period;
 - (b) the operations of the SHFA and its tenants; and,
 - (c) comply with the mitigation measures and strategies identified in Section 2.3 of the Addendum unless inconsistent with the other conditions of this approval.
77. The Proponent shall in consultation with CCS and SHFA provide a new footpath from Druitt Street to Bathurst Street including the western frontage of the Park Royal Hotel. The footpath shall be 3.6 metres wide wherever possible.
78. The Proponent shall also ensure the following specific measures are undertaken unless otherwise agreed by the SHFA:
 - (a) provide safe pedestrian access along Druitt Street to the Darling Park footbridge to Darling Harbour for the duration of construction;
 - (b) provide safe pedestrian access along Bathurst Street to the footbridge to Darling Walk for the duration of construction; and,
 - (c) provide clear signposting of affected pedestrian access between the CBD and Darling Harbour for the duration of construction.

Tolling

79. A tolling system shall be implemented which:
 - (a) is compatible with the existing standard for electronic tolling adopted throughout Sydney and Australia; and,
 - (b) makes adequate provision for casual users.

Air Quality - Operation Stage

Note:

On the basis of ongoing assessment and evaluation of a number of tunnel proposals (including the M5 and Lane Cove Tunnel) a number of major improvements and clarifications have been made to air quality conditions. Subsequently an edited version became too difficult to decipher and a new complete and comprehensive revised set has been developed. Overall the conditions are more stringent than those originally developed. Reference to PM_{2.5} in Condition 91 has been deleted on the basis of advice from the EPA. See Section 6.2 of the Director Generals Report.

Physical Requirements

80. Deleted. (See New Condition 247)

81. Deleted. (See New Condition 248)

82. Deleted. (See New Condition 249)

83. Deleted. (See New Condition 251)

84. Deleted. (See New Condition 252)

Air Quality Community Consultative Committee

85. Deleted. (See New Condition 256)

Portal Emissions

86. Deleted. (See New Condition 250)

87. Deleted. (See New Condition 250)

Monitoring of Ambient Air Quality

88. Deleted. (See New Condition 262)

Air Quality - In-Tunnel Limits

89. Deleted . (See New Conditions 258-259)

Monitoring of In-Tunnel Air Quality

90. Deleted. (See New Condition 257)

Verification of Air Quality Assessment

91. Deleted. (See New Condition 266)

Air Quality Goals – Ambient Air

92. Deleted. (See New Condition 267)

Air quality – Ventilation Stack Limits

93. Deleted. (See New Condition 271)

Exceedance of Limits and/or Goals

94. Deleted. (See New Conditions 262 and 267)

95. Deleted. (See New Condition 268)

Air Quality Monitoring Requirements – Ventilation Stack Emissions

96. Deleted. (See New Condition 270)

Operation Stage Monitoring Stations - Community Based Monitoring Station

97. Deleted. (See New Condition 263)

Operation Stage Monitoring Stations - Residents in High Rise Apartments (Elevated Receptors)

98. Deleted. (See New Condition 264)

Operation Stage Monitoring Stations - IMAX Building

99. Deleted. (See New Condition 264)

Operation Stage Monitoring Stations - Residents Living at Ground Level (Ground Level Receptors)

100. Deleted. (See New Condition 265)

Installation of Pollution Control Systems

101. Deleted. (See New Condition 251)

Public Access to Monitoring Results

102. Deleted. (See New Condition 269)

Local and Sub-Regional Air Quality Improvements

103. Deleted. (See New Condition 274)

104. Deleted. (See New Condition 275)

Air Quality Auditing and Quality Assurance

105. Deleted. (See New Conditions 276 to 279)

106. Deleted. (See New Conditions 277 to 279)

Property Matters

Pre-construction

107. Prior to the commencement of construction, the Proponent shall consult all affected landowners regarding any practicable and cost-effective measures to minimise impacts which may be beneficially implemented prior to the commencement of construction or within such time as agreed with the relevant landowner.
108. Subject to the receipt of permission of the landowner and occupier, building condition surveys shall be completed on the following buildings/structures at least 1 month prior to commencement of excavation construction works and major vibration inducing construction activities in the vicinity of such buildings/structures (including basements):
- (a) all buildings/ structures within a plan distance equal to twice the invert depth from the edge of the tunnel and/or excavation works unless otherwise determined following geotechnical and vibration analysis as certified by a qualified geotechnical engineer as not likely to be adversely affected;
 - (b) all heritage buildings as identified in the Heritage and Archaeology Management Sub Plan required by Condition 175 and other sensitive structures within 100 metres from the edge of the tunnel and/or excavation works unless otherwise determined following geotechnical and vibration analysis as certified by a qualified geotechnical engineer as not likely to be adversely affected;
 - (c) buildings/structures on shallow or unknown footings to 150 metres from the edge of tunnelling works near the Sir John Young Crescent exit or the western portals unless otherwise determined following geotechnical and vibration analysis as certified by a qualified geotechnical engineer as not likely to be adversely affected; and,
 - (d) the sandstone walls around the perimeter of Hyde Park and along Sir John Young Crescent.

109. Geotechnical and vibration analysis shall be undertaken to assess where there is a potential for damage to each of the following buildings:

Town Hall Station, Town Hall House, York Street car park, Genting Centre, Australian Museum, The Citibank Tower/Park Plaza, Eastern Distributor tollway, Terrace Towers (80 William Street), Westfield Towers (100 William Street), Olivetti (140 William Street), Columbus Line (150 -162 William Street), Crown Garden Apartments (Riley Street), Darling Harbour Park Royal Hotel, Darling Park/Nestle Building, Oakford Development, Millennium Towers, and St Andrews Development (51 Druitt Street) Altair (3 Kings Cross Road), Elan (1 Kings Cross Road), Millennium Hotel (2 Kings Cross Road), Maestri Towers, MBF Building, Lobana, 70 William Street, and 52-58 William Street.

Where the analysis indicates impacts may occur, building surveys shall be undertaken subject to receipt of permission of the landowner and occupier.

Note:

This condition does not exempt the listed buildings from the requirements in Condition 108.

110. The Proponent shall advise all property owners of buildings to be surveyed, as defined in Condition 108, what the survey will entail and of the process for making a claim regarding property damage prior the commencement of building condition surveys. A copy of the survey shall be given to each affected owner. A register of all properties surveyed shall be maintained by the Proponent and provided to the Director-General upon request.
111. The Proponent shall ensure that the acquisition of any land shall be in a responsive and sensitive manner and in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*. The Proponent shall consult affected landowners prior to and during the property acquisition process. Where compensation is payable the Proponent shall pay for independent valuation and legal advice if so requested.

Construction

112. Prior to substantial construction commencement, the Proponent shall establish an Independent Property Impact Assessment Panel to be approved by the Director-General. Either the affected property owner or the Proponent may refer any unresolved disputes arising from potential and/or actual property impacts to the Panel for resolution. All costs incurred in establishing and implementing the Panel shall be borne by the Proponent.
113. Prior to the placement of appropriate permanent rock anchors, the Proponent shall notify the owners of all affected properties outside the existing boundary identified in relevant LEPs requiring developments to be referred to the RTA (as of the date of the EIS exhibition), of the need for placement of permanent rock anchors. The Proponent shall provide sufficient detail to each owner to enable the precise location of such anchors relative to existing buildings to be determined. The Proponent shall ensure if necessary, adjustments to construction methods, at no cost to the property owner, to ensure that the placement of any rock anchors or other such construction stage measure does not impose any restrictions on potential development of the affected property unless otherwise agreed by the landowner or where acquisition of easement(s) is undertaken in accordance with the *Land Acquisition (Just Terms) Compensation Act 1991*.

114. Prior to the placement of appropriate temporary soil anchors the Proponent shall notify all affected property owners of the need for placement of temporary soil anchors and shall provide sufficient detail to determine the precise location of such anchors relative to existing buildings. The Proponent shall instigate, if necessary, adjustments to construction methods at no cost to the property owner, to ensure that the placement of any temporary soil anchors or other such construction stage measure does not impose any restrictions on development (existing or proposed) unless otherwise agreed to by the landowner.
115. Once tunnel construction is complete all temporary soil anchors shall be disconnected and made obsolete and no restrictions shall be placed on the use of the land.
116. The Proponent shall notify the owner of any property that is to be adjusted, acquired or from which an easement is to be obtained. This notice shall contain sufficient details to identify the land of interest being adjusted/acquired and is to include dimensions, location with respect to boundaries and any other information necessary to enable the identification of the land in relation to the development. This notification shall be given in adequate advanced time prior to access for construction purposes.
117. Any temporary access road(s) shall be removed and any affected areas reinstated to the reasonable satisfaction of the relevant council and/or landowner when no longer required.
118. Any damage to buildings, structures, lawns, trees, sheds, gardens etc.) shall be fully rectified by the Proponent at no cost to the owner(s). Construction activities undertaken within private property shall be sympathetic to the specific needs of individual property owners particularly in terms of requirements for temporary facilities such as fencing, access to footpaths/driveways/garages etc.
119. The Proponent shall ensure that the demolition of any structures is carried out only by specialist employees and/or contractors who hold any necessary licences to carry out such works.

Operation

120. The Proponent shall consult with all local councils in whose areas the works are to be carried out regarding amendments to statutory planning controls to ensure an appropriate notification process is placed on future buildings and development modifications (as defined under Section 96(2) of the EP&A Act) in the zone of influence of the tunnel consistent with the provisions of State Environmental Planning Policy (SEPP) No 63 - Major Transport Projects. The Proponent and the relevant Councils shall agree on criteria for establishing those properties that have a claim for a development right prior to the gazettal of SEPP 63. These criteria may include: lodgement or approval of a development application, preparation of development plans or prospectus' or other evidence of development plans which were evident prior to the gazettal of SEPP 63. Those properties that meet this criteria shall be considered for acquisition of easements in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*.

Noise and Vibration

Construction Noise and Vibration Management Sub Plan

121. A detailed Construction Noise and Vibration Management Sub Plan shall be prepared as part of the Construction Framework EMP in consultation with the relevant government agencies, Council(s) and the CLGs. The Sub Plan shall provide details of noise and vibration control measures to be undertaken during the construction and operation stages, sufficient to address the technical requirements for any EPA approvals/licences. The Sub Plan shall include, but not be limited to:

- (a) tests for ascertaining acoustic parameters;
- (b) identification of sensitive receivers particularly residents and sensitive equipment.
- (c) identification of all noise and vibration generating tasks, duration and predicted airborne noise and vibration levels;
- (d) impacts from site compounds/construction depots;
- (e) location, type and timing of erection of temporary and permanent noise barriers and/or other noise and vibration mitigation measures;
- (f) specific physical and managerial measures for controlling noise and vibration demonstrating how activities would be managed so that relevant EPA guidelines and the conditions of approval are complied with;
- (g) a pro-active and reactive strategy for dealing with complaints including compliance with Condition 8, particularly with regard to verbal and written responses;
- (h) the need for respite periods;
- (i) noise and vibration monitoring, reporting and response procedures;
- (j) internal audits of compliance of all plant and equipment
- (k) construction timetabling, in particular works outside standard hours, to minimise noise impacts;
- (l) procedures for notifying residents of construction activities likely to affect their noise and vibration amenity;
- (m) contingency plans to be implemented in the event of non-compliances and/or noise complaints; and
- (n) the urban design issues relating to noise and vibration control measures.

With respect to d) above, the Proponent shall consider the use of a range of structural and non-structural measures during construction including barriers, acoustic treatment of residences, scheduling of construction activities to minimise impacts and temporary relocation of affected residents.

Note: The reference to operational noise relates only to those measures to be erected in accordance with condition 132.

Construction Hours

122. All construction activities, including transportation of spoil, shall be restricted to the hours of 7:00 am to 6:00 pm (Monday to Friday); 8:00 am to 1:00 pm (Saturday) and at no time on Sundays and public holidays.

Works outside these hours that may be permitted include:

- (a) any works which do not cause noise emissions to be audible at any nearby residential property;
- (b) the delivery of materials which is required outside these hours as requested by Police or other authorities for safety reasons;
- (c) emergency work to avoid the loss of lives, property and/or to prevent environmental harm;
- (d) tunnel excavation and other sub-surface activities providing the criteria in Conditions 123 and 125 can be met;
- (e) transport of spoil between the hours of 6:00pm and 10:00pm Monday to Friday, 1:00pm and 6:00pm Saturday the construction area located on the northern side of William Street and bounded by William Street/Palmer Street/Bourke Street provided the noise criteria of background level plus 5dB(A) ($L_{A10, 15min}$) at any residence or other sensitive receiver can be met.. Trucks must exit the site directly into the Eastern Distributor and must not exceed more than 10 truck movements to and from the site per hour. Trucks entering the site must use the William Street out ramp from the Eastern Distributor, cross William Street turn into Bourke Street to enter the site. All trucks to be loaded underground during this period;
- (f) any other work as agreed by the EPA through the Construction Noise and Vibration Management Sub Plan Process provided local residents are informed of the timing and duration at least 48 hours prior to commencement of the work; and
- (g) hoisting to the surface and stockpiling of spoil provided this at the Bourke Street site (compound I) provided this work is carried out within an acoustically treated building and the noise criteria of background level plus 5dB(A) ($L_{A10, 15min}$) at any residence or other sensitive receiver can be met.

Construction Noise Criteria

123. The Proponent shall ensure that noise from construction activities is limited to the L_{10} level measured over a period of not less than 15 minutes not exceeding the background level by more than 5dB(A) at any residence or other sensitive receiver unless specified in the Construction Noise Impact Statement prepared in accordance with Condition 124.

For the purposes of the noise criteria for this condition, 5dB(A) must be added to the measured level if the noise from the activity is substantially tonal or impulsive in nature in accordance with Chapter 4 of the *NSW Industrial Noise Policy*.

Construction Noise Impact Statements

124. Specific Construction Noise Impact Statements shall be prepared in consultation with relevant government agencies, relevant Councils, CLGs for specific stages of construction consistent with the Construction Noise and Vibration Management Sub Plan and the relevant CMS and shall specifically address each of the major construction sites. The statements shall include:

- (a) a description of the proposed processes and activities;
- (b) assessment of potential noise from the proposed construction methods including noise from construction vehicles and noise impacts from required traffic diversions;
- (c) examination of alternative methods that would potentially reduce noise if the potential noise exceeds the relevant criteria;
- (d) description and commitment to work practices which limit noise;
- (e) description of specific noise mitigation treatments and time restrictions including respite periods, duration, and frequency (where possible programming of night works over consecutive nights in the same locality shall be avoided);
- (f) justification for any activities outside the normal hours specified in Condition 122;

- (g) extent of noise monitoring;
- (h) internal noise audit systems including recording of daily hours of construction, progressive impact assessments as the work proceeds, conducting informal checks by the EMR, providing active and continuous communication links to relevant Councils, residents etc; ,
- (i) community consultation and notification;
- (j) all reasonable and feasible measures including adopting the least noisy available construction methods, systems and equipment;
- (k) assessment and examination of potential reasonable and feasible offsite mitigation measures for traffic noise; and,
- (l) additional noise mitigation measures as successfully negotiated with affected residents and other sensitive receptors.

Regenerated Noise Criteria

125. Regenerated noise from construction works shall not exceed the following criteria as measured at the nearest residential building (sleeping area(s):

- (a) 40 dBA ($L_{eq} - 15$ minutes) between the hours of 6:00 pm and 10:00 pm; and
- (b) 35 dBA ($L_{eq} - 15$ minutes) between the hours of 10:00 pm and 7:00 am.

Construction Noise Management

126. The Proponent shall where reasonable and feasible apply best practice innovative noise mitigation measures including:

- (a) maximising the offset distance between noisy plant items and nearby noise sensitive receivers;
- (b) avoiding the co-incidence of noisy plant working simultaneously close together and adjacent to sensitive receivers;
- (c) minimising consecutive night time works in the same locality;
- (d) orienting equipment away from sensitive areas;
- (e) carrying out loading and unloading away from noise sensitive areas; and,
- (f) selecting site access points and roads as far as possible away from sensitive receivers.

127. Construction noise levels shall be monitored to verify compliance with the Construction Noise and Vibration Management Sub Plan. Should monitoring indicate exceedances of the Construction Noise and Vibration Management Sub Plan, the Proponent shall consult with the EPA and implement best available additional mitigation measures to the satisfaction of the EPA.

128. The Proponent shall ensure that rock breaking, rock hammering, sheet piling and any other activities at or near ground level which result in impulsive or tonal noise generation are only scheduled between the following hours unless otherwise permitted under the EPA environment protection licence:

- (a) 8 am to 12 pm, Monday to Saturday; and
- (b) 2 pm to 5 pm Monday to Friday.

Where these activities are undertaken for a continuous three hour periods and are audible to noise sensitive receptors, a minimum respite period of at least one hour shall be scheduled before activities re-commence.

129. The Proponent shall consult with SCEGGS and other affected schools and ensure that noise generating construction works in the vicinity of affected school buildings are not time tabled during examination periods, unless other arrangements acceptable to the affected schools are made at no cost to the affected schools.
130. The Proponent shall consult with the Australian Museum and develop appropriate noise and vibration criteria in consultation with the EPA and to the satisfaction of the Director-General, to ensure that noise, vibration and regenerated noise works in the vicinity of the Australian Museum do not result in any adverse impacts on its collection or sensitive scientific equipment.
131. The Proponent shall ensure that no public address systems are used at any construction sites outside the standard working hours detailed in Condition 122. Any public address system shall be designed and installed with their pointing axis directed away from residential buildings and sensitive receptors unless otherwise specified in the Construction Noise Impact Statement referred to in Condition 124.
132. In order to minimise noise impacts during construction, the Proponent shall consult with relevant Council(s) and where reasonable and feasible, erect operational noise mitigation measures prior to the commencement of construction.
133. Prior to the commencement of use of the southern Palmer Street Site compound (site 4 as identified in Figure 7.3.23 in the Representations Report) for construction, the Proponent shall in consultation with the Department of Housing and South Sydney City Council erect a permanent masonry wall for noise mitigation on the southern boundary of 169 Bourke Street, at least up to the height of the gutter line of the terrace housing unless otherwise agreed by the Department of Housing.
134. The additional Palmer Street site compounds (sites H and J as identified in Figure 2.17b in the Supplementary EIS) shall only be used for light activities (including administration/office purposes etc) with minimal night time activities. Use of sites I and J as a workshop for maintenance is allowed if the maintenance is carried out within the confines of the building and only within the hours of 7.00 am to 6.00 pm (Monday to Friday); 8.00 am to 1.00 pm (Saturday) and at no time on Sundays and Public Holidays.
135. The Proponent shall use only dampened rock hammers and/or "city" rock hammers to minimise the impacts associated with rock-breaking works.
136. The Proponent shall not undertake any excavation using rock hammers below ground during the night time (10pm to 7am).
137. The Proponent shall investigate and apply all reasonable and feasible noise source controls to reduce noise from all plant and equipment including bulldozers, cranes, graders, excavators and trucks. Examples of appropriate noise source controls could include efficient silencers, low noise mufflers and alternatives to reversing alarms.
138. The Proponent shall ensure that all entry and departure of heavy vehicles to and from the site are restricted to the standard daytime construction hours unless otherwise allowed under the provisions of Condition 122.
139. The Proponent shall ensure that the noisiest activities associated with night time works are scheduled wherever possible to be completed before midnight.

Blasting

140. Should blasting be required, the Proponent shall prepare a Blast Management Strategy in consultation with the EPA and incorporate this Strategy into the Construction Noise and Vibration Management Sub Plan. The Strategy shall be prepared with an aim to demonstrate that all blasting and associated activities will be undertaken in a manner that will not generate unacceptable noise and vibration impacts or pose a significant risk impact to residences and sensitive receptors. The Strategy shall also address the principles outlined in the Department's publications *Hazardous Industry Planning Advisory Paper No.6 - Guidelines for Hazard Analysis* and *Multi-Level Risk Assessment* for the handling and storage of hazardous materials. Issues to be considered in the Strategy shall include, but not necessarily be limited to:

- (a) details of blasting to be performed, including location, method and justification of the need to blast;
- (b) identification of any potentially affected noise and vibration sensitive sites including heritage buildings and utilities;
- (c) establishment of appropriate criteria for blast overpressure and ground vibration levels at each category of noise sensitive site;
- (d) details of the storage and handling arrangements for explosive materials and the proposed transport of those materials to the construction site;
- (e) identification of hazardous situations that may arise from the storage and handling of explosives, the blasting process and recovery of the blast site after detonation of the explosives;
- (f) determination of potential noise and vibration and risk impacts from blasting and appropriate best management practices;
- (g) community consultation procedure including consultation with the Australian Museum, Rail Infrastructure Corporation

141. The vibration level due to blasting activities, including both above ground and underground work, shall meet the requirements of the EPA as specified in its Licence.

The guideline entitled "*Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration*" prepared by the Australian and New Zealand Environment and Conservation Council (ANZECC) shall be applicable.

142. Blasting shall only be undertaken between the hours of 10:00 am and 3:00 pm (Monday to Friday) and 10:00 am to 1:00 pm on Saturdays and at no time on Sundays or Public Holidays, unless otherwise agreed by the EPA through the Construction Noise and Vibration Management Sub Plan Process.

143. Blasts shall be limited to one single detonation in any one day, unless otherwise agreed by the EPA through the Construction Noise and Vibration Management Sub Plan Process.

144. For any section of the tunnel construction where blasting is proposed, a series of initial trials at reduced scale must be conducted prior to production blasting to determine site-specific blast response characteristics and to define allowable blast sizes to meet ANZECC guidelines.

145. Air blast control doors shall be erected at tunnel portals to reduce air blast emissions from blasting in the tunnels, until tunnel construction has advanced to a stage where emission levels without the doors comply with ANZECC limits.

Vibration Criteria

146. The Proponent shall ensure that vibration resulting from construction of the project is limited to:

- (a) German Standard DIN 4150 and BS 7385: Part 2 – 1993 for structural damage vibration; and,
- (b) British Standard BS 6472 and AS2670 for human exposure to vibration.

Where there is an inconsistency between these standards, the more stringent criteria shall apply.

147. Unless otherwise agreed by the Director-General, following consultation with the EPA, vibration levels shall not exceed 3 mm/s at the building foundation of heritage buildings and sensitive structures.

148. Prior to commencement of construction activities likely to result in high vibration levels, the Proponent shall identify potential highly sensitive facilities, including scientific equipment, measuring equipment, printing press and the like where the criteria in Condition 147 may not be adequate. Should such cases arise the Proponent shall consult with the potentially affected owners and develop appropriate mitigation measures to ensure impacts are acceptable.

Vibration Management

149. The Proponent shall ensure that wherever practical, piling activities are completed using bored piles. If driven piles are required they shall only be installed as agreed through the environment protection licensing process with the EPA.

Operational Noise Management Sub Plan

150. A detailed Operational Noise Management Sub Plan shall be prepared as part of the Operational EMP, to the satisfaction of the Director-General. The Sub Plan shall provide details of noise and vibration control measures to be undertaken during the operation stages, sufficient to address the technical requirements of the EPA, and generally in accordance with the NSW's *Environmental Criteria for Road Traffic Noise*, RTA's *Environmental Noise Management Manual* and the NSW *Industrial Noise Policy*. The Sub Plan shall include, but not be limited to:

- (a) tests for ascertaining acoustic parameters;
- (b) predicted noise levels;
- (c) location, type and timing of erection of permanent noise barriers and/or other noise mitigation measures demonstrating best practice including silencers and building treatments for associated plant rooms and enclosures for exposed plant;
- (d) specific physical and managerial measures for controlling noise;
- (e) noise monitoring, reporting and response procedures including the monitoring on surrounding roads which experience significantly increased traffic volumes as a result of the CCT; and
- (f) the urban design issues relating to noise control measures.

Note:

Environmental Criteria for Road Traffic Noise and RTA's Environmental Noise Management Manual shall be used to assess road traffic noise. NSW Industrial Noise Policy shall be used to assess noise from the ventilation system.

Operational Noise Management

151. The Proponent shall ensure that noise emanating from the tunnel ventilation system does not exceed the noise limits specified in Table 1 below.

Table 1

Location	Period	Intrusive Noise Criteria L_{Aeq} (15 minute) (dB(A))	Amenity Noise Criteria L_{Aeq} (Period) (dB(A))
Millennium Tower (façade of most affected sensitive receiver)	Day	62	59
	Evening	59	57
	Night	54	53
Park Royal Hotel (façade of most sensitive affected receiver)	Day	62	61
	Evening	59	61
	Night	54	59

Daytime shall be defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays. Evening is defined as the period from 6pm to 10 pm. Nighttime is defined as the period 10pm to 7am Monday to Saturday and 10pm to 8 am Sundays and Public Holidays.

152. Monitoring of operational noise shall be undertaken in accordance with the Operational Noise Management Sub Plan. The Proponent shall, in consultation with the EPA, assess the adequacy of the traffic noise and ventilation noise mitigation measures after three months of opening the tunnel and one year of opening the tunnel with regard to the criteria specified in the Operational Noise Management Sub Plan. Should assessment indicate a clear trend in traffic noise levels on surrounding roads which exceed Operational Noise Management Sub Plan defined noise design goals as approved by the EPA, the Proponent shall implement further reasonable and feasible mitigation measures in consultation with affected landowners and/or occupiers.

Settlement*Settlement Analysis*

153. A detailed geotechnical model of representative geological conditions shall be prepared prior to construction commencement to identify and include significant geological structures. This model shall also include full details of existing and currently proposed excavations near the western portal. The model shall also identify basements and other sub-surface structures which may be impacted by the project. The Proponent shall use this model to assess the predicted settlement and horizontal strain profiles caused by tunnelling, with particular regard to be given to the western portal and Sir John Young Crescent.

154. Should the geotechnical model in Condition 153 indicate that exceedances of the criteria in Table 2 are likely, the Proponent shall implement mitigation measures such as appropriate support and stabilisation structures in consultation with the relevant land and/or infrastructure owners prior to the commencement of construction to ensure where possible that underground services, infrastructure and adjacent buildings will not experience settlements exceeding the criteria in Table 2.

Table 2 Settlement Criteria for Specific Structures

Beneath Structure/Facility	Maximum Settlement	Maximum Angular Distortion
Buildings		
- Low or non sensitive buildings (i.e. ≤ 2 levels and carparks).	30 mm	1 in 350
- High or sensitive buildings (i.e. ≥ 3 levels and heritage buildings).	20 mm	1 in 500
Roads and Parking areas	40 mm	1 in 250
Parks	50 mm	1 in 250
Identified Utilities	to be determined by the relevant authorities	to be determined by the relevant authorities

The above criteria shall not remove any responsibility from the Proponent for the protection of existing structures or for rectifying any damages resulting from the project.

155. Settlement criteria for individual sensitive utility structures including SWC services (i.e. brick sewers), gas, electricity and telecommunication services, shall be determined in consultation with the relevant authorities prior to the commencement of construction.

Management

156. The Proponent shall install and monitor inclinometers and settlement monuments along the tunnel route throughout the construction period and for a period of not less than 6 months after settlement has stabilised with particular reference to risk areas identified in the building condition surveys required by Condition 108 and/or the geotechnical analysis required by Condition 153. If monitoring during construction indicates exceedance of the criteria then all work affecting settlement shall cease immediately and shall not resume until fully rectified or a revised method of work has been established that will ensure protection of affected structures.

Operation

157. The Proponent shall monitor settlement for any period as may be specified through the Independent Property Impact Assessment Panel referred to in Condition 112. The results of this monitoring shall be made available to the Director-General upon request.

Groundwater

Dewatering Analysis

158. A detailed settlement study specific to construction stage dewatering within the alluvium and fill

areas and all areas identified in condition 109 and the heritage items listed in Section 6.1.1 of Table 8.1 in the Representations Report shall be conducted to the satisfaction of the Director-General to determine the potential extent of settlement and whether structures need to be protected through reinjection, grouting etc.

Groundwater Management Sub Plan

159. A detailed Groundwater Management Sub Plan shall be prepared to meet the requirements of DLWC and the EPA and incorporated into the Construction Framework and Operation EMPs. The Sub Plan shall cover the complete proposal and shall provide details of groundwater control measures to be undertaken during both the construction and operation stages respectively and include but not be limited to:

- (a) impacts on nearby structures from potential settlement;
- (b) groundwater inflow control, handling, treatment and disposal of contaminated groundwater;
- (c) pre-construction and construction monitoring in accordance with the NSW EPA *Contaminated Sites: Sampling Design Guidelines* (NSW Environment Protection Authority 1995) to identify elevated concentrations of contaminants;
- (d) auditing; and,
- (e) procedures for mitigation through reinjection, grouting etc identified in the dewatering analysis required by Condition 158, including:
 - (i) detailed community consultation procedures;
 - (ii) identification of sensitive structures requiring reinjection;
 - (iii) identification of borehole spacing, borehole design, injection pipework, monitoring pipework and general system design and redevelopment; and,
 - (iv) a detailed monitoring plan identifying piezometers locations and standards, construction details, monitoring frequency and analysis requirements; and
 - (v) maximum allowable groundwater inflow.

Pre-Construction

160. Pre-construction groundwater quality monitoring shall be undertaken from the 50 mm piezometer network referred to in Condition 161.

Construction Stage Dewatering

161. The groundwater monitoring system shall comprise a mix of standpipe piezometers installed by direct push techniques and 50mm piezometers installed by conventional drilling. Slim piezometers shall also be used to monitor groundwater levels at identified vulnerable structures and a selection of the 50mm piezometers shall be fitted with transducers and data loggers for continuous groundwater level monitoring to the satisfaction of DLWC. Fortnightly monitoring shall take place for the duration of construction.

162. Licensable groundwater works shall only be undertaken by drilling contractors who hold a current Drillers Licence issued by DLWC with appropriate endorsement for the nature of the work required.

163. A conventional spear point system shall be used to the satisfaction of DLWC for areas of the excavation where risks to structures are high and where it is desirable to install the system before excavation begins or desirable to locate the system outside the excavation for other

reasons.

Operation Stage

164. The Proponent shall take practicable measures to limit operational groundwater inflows to 1 litre/second/kilometre unless otherwise agreed by the Director-General, following detailed geotechnical investigations, groundwater modelling and settlement analyses.

Note:

The limit specified in Condition 164 is intended to be a goal aimed at limiting settlement related damage.

165. The Proponent shall ensure that groundwater quality is monitored monthly for a period of at least one year after commissioning of the project or any other such period as required by the Director-General. Seepage, spillages, contaminated water, tunnel washing, fire fighting or other water in the tunnel which contains pollutant levels above the background concentrations of natural discharge points shall be directed into separate sumps with pump out facilities. This water shall not be discharged to the stormwater system.

Urban Design and Landscaping

Urban Design and Landscape Plans

166. A detailed Urban Design and Landscape Plan for the entire proposal shall be prepared in consultation with relevant Councils, SHFA, Sydney Buses, Australian Museum, NSW Heritage Office, Royal Botanic Gardens, the Domain Trust and other relevant authorities and to the satisfaction of the Director-General prior to construction of project elements subject to urban design considerations. The Plan shall be prepared by a suitably qualified urban designer. The Plan shall present an integrated urban design proposal, applying all design principles established in EIS Technical Paper No. 6.

The Plan shall include plans prepared according to appropriate precincts and addressing the entire surface work component of the project. The precincts shall include:

- (a) Kings Cross Tunnel (Ward Avenue) to Rushcutters Bay (Neild Avenue) including the eastern "land bridge";
- (b) Kings Cross tunnel precinct, including the Kings Cross "lid";
- (c) William Street/East Sydney including the Eastern Distributor/Cross City Tunnel loop;
- (d) The Domain;
- (e) Park Street/Hyde Park;
- (f) Park Street/CBD;
- (g) Darling Harbour;
- (h) Sir John Young Crescent; and
- (i) any other precinct requiring urban design consideration.

The Plan shall include, but not be limited to:

- (a) built elements including tunnel portals, bridges and other structures, retaining walls, noise walls, toll infrastructure, control buildings, substations, variable message signs (VMS), air quality monitoring stations;

- (b) motorway and road furniture including safety barriers, kerbs, paving, signage, lighting, medians, emergency phones and breakdown facilities;
- (c) pedestrian and cycle elements including footpaths and paving, pedestrian crossings, street furniture and fixtures (i.e. tree guards, seating, lighting, fencing and signage);
- (d) design guideline for the Eastern "land bridge" for safety and crime prevention with reference to the NSW Police Service "Crime and Safety Management Strategy" and preparation of a "Safer by Design" evaluation based on the guidelines prepared by the NSW Police Service and the Department of Planning;
- (e) landscape elements including proposed treatments, finishes and materials of exposed surfaces (including colour specifications and samples);
- (f) proposals for community art to be integrated into the project;
- (g) timing and staging of works, methodology, monitoring and maintenance;
- (h) impacts on bus stop operations and passenger access;
- (i) identification of the species and location of trees to be planted, which would encourage planting of native species that would have existed in the CBD prior to European settlement or matching of existing species;
- (j) consideration of potential relocation of the Museum entrance to William Street and maximising benefits from possible road narrowing;
- (k) after considering traffic safety implications, include a substantial program of tree planting along the widened footpaths of William Street and landscaping of the following areas:
 - (i) adjacent to tunnel portals;
 - (ii) Park Street between College and Elizabeth Streets;
 - (iii) Harbour Street between the tunnel entry portal and Wheat Road;
 - (iv) corner of Sussex and Druitt Streets;
 - (v) area between Harbour, Day and Bathurst Streets;
 - (vi) Palmer Street between Stanley Street and Robinson Street;
 - (vii) Sir John Young Crescent near the tunnel exit portal;
 - (viii) disturbed areas of the Domain; and
 - (ix) in front of the Park Royal Hotel, following consultation with the Hotel; and
- (l.) consideration of the potential for parking on William and Park Streets and the possible associated removal of the median and adjustments to footpath widths.

The Plan(s) shall consist of a report with accompanying annotated plans, sections and perspective sketches, photo montages and other illustrative material at a scale and level of detail which is adequate to convey the proposal.

167. The final external design, materials and finish of the ventilation stack shall undertaken in consultation with the AQCCC, the CCS and SHFA and approved by the Director-General.

168. The urban design and landscaping strategy for William Street required as part of the Urban Design and Landscape Plan shall be specifically prepared in such a manner as to:

- (a) if adopted by SSCC, give consideration to incorporating the relevant outcomes of the William Street Revitalisation Strategy ;
- (b) undertake further consultation with resident, community and business groups regarding the final design of the Kings Cross "lid".

Specific Urban Design Aspects

169. All construction hoardings, noise walls and fences shall be painted in a consistent colour scheme with bold and informative graphics. The SHFA shall be consulted in relation to the visual impact of hoardings, noise walls and fences on land within and immediately adjacent to the Authority's land.
170. Where practicable, directional signs for the Cross City Tunnel shall be accommodated on existing signage.
171. No advertising shall be permitted within the lease area for the CCT during construction or when in operation.
172. The Proponent shall ensure that all Plane Trees along William Street are retained. Should any be removed they shall be replaced with specimens of equal height where-ever possible or at least 200 litre size or other alternatives as agreed by the relevant local council in whose area the trees are located.
173. The Proponent shall prepare a report for approval by the Director-General for the installation of electronic tolling facilities within or at least flush with the batter above the portal areas or other means to avoid the erection of gantries separate from the tunnel.
174. Prior to implementation, the Proponent shall consult further with the CCS with respect to urban design and amenity issues relating to variable message signs VMS 8, VMS 9 and VMS 10. In the case of any disputes, the matter shall be referred to the Director-General for resolution, following consultation with the PTC.

Indigenous and Non-Indigenous Heritage

Heritage and Archaeology Management Sub Plan

175. As part of the Construction Framework and Operational EMPs, the Proponent shall prepare and Implement a Heritage and Archaeology Management Sub Plan in consultation with the Royal Botanic Gardens and Domain Trust, NSW Heritage Office and relevant Councils to manage heritage items and archaeological resources located within the impact zone of the project. The Sub Plan shall include:
 - (a) identification of all heritage properties including all those listed in Table 8.1 of the Representations Report as updated by Appendix R of the Supplementary EIS and the Supplementary Representations Report plus any additional heritage properties as required by the relevant local council in whose area the properties are located and the Heritage Office at the time of construction commencement;
 - (b) an assessment of the significance of effects on heritage and archaeological items including demolition, relocation, removal, damage and physical intrusion into conservation areas;
 - (c) a Research Design strategy that would evaluate the research potential of archaeological resources and set out in detail the methodology to be used in archaeological excavation;
 - (d) Conservation Management Strategies for all heritage items impacted by the proposal;
 - (e) an Excavation Protocol including provision for detailed archaeological investigations where initial investigations or research identify items of archaeological significance; and
 - (f) a Contingency Protocol to be implemented in the event of discovery of relics including provision for significance assessment, consideration of management options and, where destruction or

removal is proposed documentation and recording for archival purposes in accordance with *How to Prepare Archival Records of Heritage Items* and *Guidelines for Photographic Recording of Heritage Sites, Buildings and Structures* (DUAP/NSW Heritage Council).

- (g) details of works required to widen the existing entrance of the railway maintenance yard at Sir John Young Crescent and other works impacting the Domain and proposed construction management methods.

Management

- 176. The Proponent shall ensure that the requirements of the Heritage and Archaeology Management Sub Plan are co-ordinated with the CMSs required by Condition 18.
- 177. The sandstone wall on the boundary of the Domain shall be retained for the full length of Sir John Young Crescent between Crown and Palmer Streets except as permitted in the Heritage Council Section 60 Approval dated 30 October 2002.
- 178. The gateway and the gate piers in the Domain at the corner of Palmer Street and Sir John Young Crescent shall be retained unless otherwise agreed through the process of preparing the Heritage and Archaeology Management Sub Plan.
- 179. The Proponent shall ensure that all employees and subcontractors are appropriately trained on the obligations for heritage conservation under the NSW Heritage Act.

Unexpected Items

- 180. If during the course of construction the Proponent becomes aware of any heritage items or archaeological material, all work likely to affect the site(s) shall cease immediately and the relevant authorities, including NPWS, NSW Heritage Council and/or the relevant Local Aboriginal Land Council(s) shall be consulted to determine an appropriate course of action prior to the re-commencement of work at that site. Appropriate supporting documentation would need to accompany any application for required permit/consent(s).

Water Management

Construction Water Management Sub Plan

- 181. As part of the Construction Framework EMP, a detailed Construction Water Management Sub Plan shall be prepared in consultation with the EPA, DLWC, and relevant councils. The Sub Plan shall be prepared in accordance with the Department of Housing's guideline *Managing Urban Stormwater - Soils and Construction* to manage the cumulative impacts of the development on the quality and quantity of surface and groundwater, including stormwater in storage, sedimentation dams and flooding impacts. The Sub Plan shall contain, but not be limited to:
 - (a) preparation of a catchment analysis in consultation with the relevant Councils and Sydney Water to determine the capacity of existing drainage systems and capacity, changes resulting from the construction of the proposal and implications of pumping load and detention requirements;
 - (b) details of short and long term measures to be employed to minimise soil erosion and the discharge of sediment to land and/or waters including the exact locations and capacities of sedimentation basins;

- (c) identification of all potential sources of water pollution and a detailed description of the remedial action to be taken or management systems to be implemented to minimise emissions of these pollutants from all sources within the subject site;
- (d) measures to handle and dispose of stormwater; effluent and contaminated water;
- (e) measures for the use of water reclaimed or recycled on-site;
- (f) detailed description of water quality monitoring to be undertaken including base line monitoring, identification of locations where monitoring would be carried out and procedures for analysing the degree of contamination of potentially contaminated water;
- (g) contingency plans to be implemented in the event of fuel spills or turbid water discharge from the site; and,
- (h) program for reporting on the effectiveness of the sediment and erosion control system against performance goals.

182. The Construction Water Management Sub Plan shall incorporate detailed erosion and sedimentation controls which shall be prepared to the satisfaction of DLWC and in consultation with the EPA and sufficient to address the technical requirements for obtaining the relevant EPA licence.

Pre-Construction

183. The Proponent shall ensure that the construction and operational tunnel water management systems are designed and implemented to include the management measures and meet the performance objectives specified in Section 7.1.1, 7.1.2 and 7.3.1 of Table M.1 of Appendix M of the Supplementary EIS, as updated by the Supplementary Representations Report, unless otherwise agreed through the preparation of the Construction Water Management Sub-Plan or Operational Water Management Sub-Plan.

184. Prior to finalisation of detailed drainage design, the Proponent shall undertake the additional hydrological studies recommended in Technical Paper No. 11 and incorporate all required management measures into the final drainage design. As a minimum the tunnel drainage design must provide capacity to deal with at least a 100 year ARI storm for tunnel carriageway and ramp approaches. The Proponent shall also consider in consultation with DLWC the implications of a PMF event in accordance with the *NSW Flood Control Manual*.

185. The Proponent shall undertake pre-construction water quality monitoring included in the Construction Water Management Sub-Plan for a period of at least three months duration prior to substantial construction commencement.

186. The Proponent shall prepare plans for site specific drainage and water quality management measures for the additional site compound on Palmer Street and design changes to the Western Portal detailed in the Representations Report and design changes to the Eastern Portal detailed in the Supplementary EIS, as modified by the Supplementary Representations Report in consultation with the DLWC and incorporate these plans into the relevant Construction Method Statement required by Condition 18.

Construction

187. The Proponent shall ensure that all appropriate soil and erosion and sediment control works are completed and in place prior to the commencement of any works that may have the potential to generate soil erosion or sediment. Erosion and sediment protection measures shall also be in place before the commencement of any stockpiling activities.

188. All surface water flows from construction sites shall be detained through appropriate measures to ensure that there is no exacerbation of existing flooding to the satisfaction of DLWC. Agreement shall be reached with the relevant Councils on appropriate and specific measures to be implemented at various locations.
189. All water collected during construction, including water drained from tunnel excavations (portal entry, groundwater influx) and from dewatering of major cuts, which is likely to be contaminated shall be tested, treated, handled and disposed of to the satisfaction of the EPA.
190. No disposal of water shall be allowed to the sewer or the storm-water system without prior agreement from Sydney Water and the relevant Council(s) as applicable.

Acid Sulfate Soils

191. The Proponent shall ensure that tests are carried out in advance of excavation to test for the presence of acid sulfate soils in all areas to be disturbed by the proposal. Such tests shall be undertaken in accordance with a strategy prepared to the satisfaction of DLWC and in consultation with the EPA.
192. A detailed Acid Sulfate Soil Management Sub Plan shall be prepared in consultation with EPA and to the satisfaction of the DLWC and incorporated into the Construction Framework EMP. The Sub Plan shall include reference to the water quality monitoring program contained in the Construction Water Management Sub Plan. The ASS Sub Plan shall be prepared in accordance with the Acid Sulfate Soils Manual (ASSMC, 1998). As part of the ASS Sub Plan, a Contingency Plan to deal with the unexpected discovery of actual or potential acid sulfate soils shall be prepared.

Operational Storm Water Management

193. As part of the Operation EMP a detailed Operational Stormwater Management Sub Plan shall be prepared in consultation with EPA, DLWC, SWC, SHFA and the relevant Councils to the satisfaction of the Director-General. The Sub Plan shall provide details on catchment analysis (including localised flooding as recognised by the relevant local Councils), existing drainage systems and capacity, drainage changes resulting from the proposal and implications for the system including total pumping load to drainage systems, detention requirements, possible reuse of wastewater, and the associated environmental impacts.
194. All operational stormwater and wastewater systems of the proposal shall be designed, constructed, operated and maintained to meet the requirements of the relevant authorities including EPA, SWC and relevant Councils.
195. Provision shall be made for retention and treatment of fire water in accordance with the Government's Best Practice Guidelines for Contaminated Water Retention and Treatment Systems.

Spoil and Waste Management

Spoil Disposal

196. As part of the Construction Framework EMP, the Proponent shall prepare a Spoil Management Sub Plan in consultation with the EPA, SHFA and relevant Council(s). This Sub Plan shall identify how spoil would be handled, stockpiled, reused and disposed. The Sub Plan shall be prepared before the commencement of construction at relevant sites and address issues of dust mitigation, drainage, disturbance and contaminated material (including procedures for dealing with the unanticipated discovery of contaminated material during the course of construction), noise and local amenity. The Proponent shall ensure that this Sub Plan is fully integrated with the Transport Management Plans.

As part of the Sub Plan the Proponent shall investigate options for the barging of spoil in consultation with relevant industry and relevant waterway authorities.

197. Prior to excavation, the Proponent shall undertake a detailed geotechnical/soil analysis assessment to ascertain the potential of excavated material to be used for construction or other such higher value purpose. The Proponent shall encourage and maximise the beneficial use of all excavated material where reasonable and feasible.

198. Prior to commencement of construction at various relevant sites where spoil is to be generated the Proponent shall ensure that the EPA and any other relevant authority is provided with the details of the locations where spoil will be disposed. The Proponent shall also assess the environmental impacts of the disposal in accordance with the EP&A Act and obtain any necessary approvals.

199. The Proponent shall ensure that all clean and/or treated spoil shall be reused or recycled where possible. In particular the EMR shall certify that:

- (a) use of spoil generated from construction activities is maximised in preference to any import of fill; and
- (b) where reasonable and feasible all clean excavated natural material is either reused on the project or otherwise made available for reuse elsewhere in preference to disposal to landfill.

Contamination

200. The Proponent shall prepare a Contamination Investigation Report to the satisfaction of the EPA as part of the Spoil Management Sub Plan to determine the nature, extent and degree of contamination. The Report shall detail the results of site investigations and the assessment of potential risks posed by contaminants to health and the environment and indicate whether remediation is required.

201. Should the Contamination Investigation Report required by Condition 200 indicate that remediation is necessary to reduce or remove risks posed by contaminants in particular locations, then the Proponent shall remediate the land in accordance with a Remedial Action Plan which shall be incorporated into the relevant CMS(s) required by Condition 18. The Plan(s) shall be prepared in consultation with relevant Council(s) and to the satisfaction of the EPA.

202. In the event of discovery of previously unidentified area(s) of potentially contaminated material, the Proponent shall cease work in the vicinity of the discovery and not commence work until the extent of contamination has been assessed and if necessary a Remedial Action Plan has been prepared and implemented in accordance with Condition 201.

203. Disposal of any contaminated material shall only be to a landfill approved by the EPA.

204. Dilution of contaminated spoil with clean spoil shall not be undertaken, unless otherwise approved by an EPA accredited contaminated site auditor.

205. The Proponent shall ensure that the cost of treatment of any contaminated spoil on-site for reuse is investigated, and if cost effective, implemented to the satisfaction of an EPA accredited contaminated site auditor, prior to commencement of spoil disposal.

Waste Management and Recycling

206. As part of the Construction Framework and Operational EMPs and as relevant, a detailed Waste Management and Reuse Sub Plan shall be prepared in consultation with the EPA. The Sub Plan shall address the management of wastes during the construction and operation stages respectively. It shall be prepared prior to construction, and shall identify requirements for:

- (a) waste avoidance;
- (b) reduction;
- (c) reuse; and
- (d) recycling,

and provide details of requirements for:

- (e) handling;
- (f) stockpiling;
- (g) disposal of wastes: specifically contaminated soil or water, concrete, demolition material, cleared vegetation, oils, grease, lubricants, sanitary wastes, timber, glass, metal, etc.; and
- (h) identifying any site for final disposal of any material and any remedial works required at the disposal site before accepting the material.

This Sub Plan shall include but not be limited to:

- (i) methods of management of all waste generated as part of the project;
- (ii) an outline of comprehensive plans of action for key waste streams;
- (iii) implementation of the waste hierarchy by seeking to avoid waste generation as a priority, the reuse, recycling or reprocessing of waste and, as a last resort, disposal of waste;
- (iv) the need for environmental safeguards and the adoption of environmentally sensitive work practices to minimise waste and advance the values of ecologically sustainable development;
- (v) arrangements for waste which cannot be re-used, recycled or reprocessed to be disposed of at a licensed waste disposal facility;
- (vi) procedures for separating excavation and demolition waste and for identifying destinations for the material;
- (vii) procedures for classifying waste in accordance with the EPA's Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes;
- (viii) installation of segregated bins for recyclable materials and provision for material to be reused or recycled wherever possible;
- (ix) except where a sewer is available, the discharge of sewerage from site amenities to holding tanks for removal by tankers;

- (x) the provision of rubbish skips at all construction sites and site compounds and their regular removal or emptying;
- (xi) ensuring that local roads affected by construction remain intact to reduce the need for new paving materials;
- (xii) erecting signs within construction sites and site compounds encouraging employees to reduce, re-use, or recycle wherever possible;
- (xiii) the disposal of chemical, fuel and lubricant containers and solid and liquid wastes in accordance with the requirements of the EPA;
- (xiv) appropriate induction and training of all employees and sub-contractors in the waste hierarchy and the requirements of this Waste Management and Reuse Sub Plan;
- (xv) undertaking regular audits of waste management; and
- (xvi) keeping of a waste management register of all significant waste collected from construction sites and site compounds for disposal, including amounts, date and time and details and locations of disposal.

As part of the Sub Plan, an Action Plan shall be prepared to promote the use of recycled materials, including construction and landscape materials. The Plan shall detail how the proposal gives consideration and support to the Government's *Waste Reduction and Purchasing Policy*. The Plan shall also include details on measures to implement energy conservation best practice.

207. The demand for water for construction purposes shall be kept to a minimum. The project shall incorporate water use reduction initiatives including reuse of water and recycling to the maximum extent practicably possible.

Hazards and Risks

Dangerous Goods

208. The Proponent shall not store or handle a quantity of goods defined as dangerous under the Australian Dangerous Goods Code, at any location associated with the CCT, whether during the construction or the operation of the CCT. This Condition does not include explosive materials for blasting and diesel fuel, to which Conditions 140 and 210 apply. This condition does not apply to sodium hydroxide and poly aluminium chloride (PAC) or any other chemical as agreed to by the Director-General as necessary for the water treatment process subject to meeting the requirements specified in Condition 289.

Pre-Construction

209. An Emergency Response Sub Plan shall be prepared as part of the Construction Framework EMP. The Sub Plan shall include, but not be limited to:

- (a) the provision of adequate emergency procedures and equipment for the response to and management of any environmental pollution events;
- (b) a program for training of all staff;
- (c) a protocol for notifying the appropriate authorities in the case of an emergency;
- (d) procedures to ensure compliance with all legislative and industry standard requirements for safe handling and storage of hazardous substances; and,
- (e) undertaking hazardous activities such as washing out of concrete delivery vehicles, washing down of construction plant etc. only at appropriate locations that have appropriate environmental protection controls.

Construction Hazards

210. The Proponent may seek the approval of the Director-General for the temporary storage of diesel fuel to permit continuous operation of equipment during the construction of the CCT. In seeking the Director-General's approval, the Proponent shall provide:

- (a) details of the location(s), stored volume(s) and storage method(s) for the diesel fuel;
- (b) the maximum length of time diesel storage will be required;
- (c) assessment of the potential environmental and risk impacts associated with the storage of diesel at the locations required; and
- (d) details of the mitigation measures proposed to address potential environmental and risk impacts from diesel storage including bunding of storage area(s).

The Proponent shall not locate any quantity of diesel fuel at any location associated with the CCT without the prior written approval of the Director-General. The Proponent shall implement all measures required by the Director-General to mitigate environmental and risk impacts identified through the information listed from (a) to (d) above, within such period as the Director-General may agree.

Note: Diesel fuel is a combustible liquid and not defined as a dangerous good under the Australian Dangerous Goods Code.

211. The Proponent shall prepare and implement a Construction Safety Study for the approval of the Director-General prior to the commencement of construction of the CCT. The Study shall address all safety-related matters relevant to the construction of the CCT and shall be generally in accordance with the principals outlined in the Department's publication *Hazardous Industry Planning Advisory Paper No. 7 - Construction Safety Study Guidelines*.

Operational Hazards

212. The Proponent shall not permit any vehicle carrying a quantity of goods defined as dangerous under the Australian Dangerous Goods Code, to enter the tunnels forming part of the proposal. Prior to the operation of the CCT, the Proponent shall provide, to the Director-General, details of how this condition will be managed and enforced, including measures such as signage and monitoring via closed-circuit television.

213. At least six months prior to the opening of the tunnel, the Proponent shall prepare an Emergency Response Plan for the CCT, in consultation with the NSW Fire Brigades, the Police Service and State Emergency Services. The Plan shall include, but not necessarily be limited to:

- (a) protocols and procedures to be followed during emergency situations associated with the operation of the CCT including vehicle collisions, fires and explosions;
- (b) details of traffic management measures to be implemented during emergencies, where appropriate, to minimise the potential for escalation of the emergency;
- (c) management and infrastructure measures to address the potential environmental impacts of an emergency situation, including measures for containment of contaminated firefighting water, fuel spills and gaseous combustion products; and
- (d) a training and testing program to ensure that all operational staff are familiar with the Plan and coordination with the Fire Brigades, Police and Emergency Services is regularly rehearsed.

The Emergency Response Plan shall be submitted for the approval of the Director-General prior to the operation of the CCT. A rehearsed emergency response in accordance with the approved Emergency Response Plan, including the Proponent, Fire Brigades and Emergency Services, shall be undertaken on at least one occasion prior to the operation of the CCT.

214. Prior to opening the tunnel, the Proponent shall provide the Director-General with details of design and operational measures to be incorporated into the CCT to minimise the likelihood and impact of vehicular accidents within the CCT. The Proponent shall provide the Director-General with written certification that all design and operational measures have been implemented prior to the operation of the CCT.

215. For the first five years of operation, the Proponent shall undertake an annual Hazard Review of the CCT and hazardous incidents that have occurred during the preceding twelve-month period, with the first Review to be undertaken no later than twelve months after the commencement of operation of the CCT. A report outlining the results of the Hazard Review, and any proposed additional safety measures to be implemented in response to the findings of the Review, shall be submitted to the Director-General within one month of completion of the Review. The Proponent shall meet the Director-General's requirements in relation to the findings of the Review, within such time as the Director-General may agree. The Proponent shall undertake further Hazard Review if directed by the Director-General following any major incident in the tunnel.

Security and Crime

216. The Proponent shall prepare and implement two Security and Crime Management Strategies, one for each construction and operation. The aim of the Strategies shall be to prevent unauthorised public ingress to the CCT and to minimise the potential for crime in the vicinity of CCT infrastructure (eg vandalism, loitering, illegal dumping etc). The Strategy shall be generally in accordance with the principles outlined in the joint Department and Police Service publication *Crime Prevention and the Assessment of Development Applications*, and be developed in consultation with the NSW Police Service and relevant councils. The Strategy shall include, but not necessarily be limited to:

- (a) details of security arrangements to prevent unauthorised access to the CCT, including physical exclusion measures, detection devices and management mechanisms;
- (b) policies and procedures for addressing security issues, should they arise;
- (c) specific design features of the CCT intended to discourage the incidence of crime at and in the immediate vicinity of CCT access points;
- (d) lighting considerations, including light intensity, direction and hours of operation at and in the immediate vicinity of CCT access points, with the aim of minimising areas that may encourage crime;
- (e) policies and procedures for the management and removal of graffiti, amelioration of vandalism, should it occur at or on any component of the CCT; and
- (f) policies and procedures for the management and removal of illegal or inappropriate bill-posting and illegally dumped materials, should it occur at or on any component of the CCT.

The Security and Crime Management Strategy shall be submitted for the approval of the Director-General no later than one month prior to the commencement of substantial construction or opening of the tunnel as applicable, or within such period as otherwise agreed by the Director-General.

Utilities and Services

Pre-Construction

217. Prior to the commencement of construction the Proponent shall identify the services potentially affected by construction activities to determine requirements for diversion, protection and/or support. This shall be undertaken in consultation with the relevant service provider(s).
218. The Proponent shall prepare dilapidation surveys and reports (including movement prediction studies on the condition of the rail infrastructure facilities, adjacent tunnels and utilities within the vicinity of the construction area) to the satisfaction of the RIC, SRA and all other relevant infrastructure/service providers. The Proponent shall carry out rectification work at the Proponent's expense and to the satisfaction of the owners.
219. The Proponent shall ensure that, in consultation with the RIC and SRA, during the design process, sufficient provision is made for the future construction of the MetroWest and Metropitt rail links, including the necessary station concourses.

Construction

220. Any alterations to utilities and services shall be carried out to the satisfaction of the relevant service provider(s), and unless otherwise agreed to, at no cost to the service/utility provider(s).
221. The Proponent shall ensure that disruption to any utilities are minimised and shall be responsible for advising local residents and businesses affected prior to any disruption of service.
222. The Proponent shall ensure that emergency access from Sir John Young Crescent to the SRA property adjacent to the Eastern Suburbs rail line is maintained at all times.

Greenhouse Gases

Construction Stage

223. The Proponent shall promote the reduction of greenhouse gases by adopting energy efficient work practices including, but not limited to:
- (a) developing and implementing procedures to minimise energy waste in accordance with Conditions 206 to 207;
 - (b) conducting awareness programs as part of induction for all site personnel regarding energy conservation methods; and,
 - (c) conducting regular energy audits during the project to identify and address energy wastage.
224. No rainforest timbers shall be used in any construction activities.

Sustainable Energy

225. Green power shall be purchased for the supply of at least 6 percent of the energy requirements for the construction and operation of the project.

Air Quality - Construction Stage

Pre-Construction

226. A detailed Dust Management Sub Plan shall be prepared in consultation with the EPA and incorporated into the Construction Framework EMP. This Sub Plan shall detail the implementation and management of measures and procedures to ensure that dust emissions from the project are either prevented or minimised. This Sub Plan shall include, but not be limited to:

- (a) identification of potential sources of dust deposition;
- (b) monitoring (by sampling and obtaining results by analysis) the pollutants specified in Column 1 of Table 3 at nearby sensitive receptors. The Proponent must use the sampling method, units of measure, and sample at the frequency, specified in the other columns.
- (c) details of mitigation measures to be implemented during normal operations and during periods of extreme climatic conditions where high level dust episodes are likely to occur;
- (d) establishment of a protocol for handling dust complaints that includes recording, reporting and acting on complaints; and
- (e) a reactive management program detailing how and when operations are to be modified to minimise the potential for dust emissions, should emission levels exceed the criteria.

Table 3

Pollutant	Units of measure	Averaging Period	Frequency	Method ¹
Dust	g/m ² /month	annual	Continuous	AM-19
Other	Units of measure	Averaging Period	Frequency	Method ¹
Siting	NA	NA	NA	AM-1 & AM-4

Note: ¹NSW EPA, 2001, Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales.

Construction

227. The Proponent shall undertake a regular dust monitoring program at all locations in close proximity to the public in accordance with the Dust Management Sub Plan.

228. All construction activities shall be carried out in a manner that minimises or prevents the emission of dust.

229. The Proponent shall ensure that trucks entering and leaving all construction sites that are carrying loads of potentially dust generating material are covered.

230. To ensure that any vehicles which leave construction site(s) do not track materials on public roads the Proponent shall construct and maintain wheel wash facilities or equivalent to be utilised by all departing trucks and machinery which have been used in unsealed areas.

231. When conditions are excessively dusty and the dust emissions from operations cannot be maintained within the dust goal specified in Condition 226, then all dust generating activities shall cease until dust suppression can be adequately carried out.

232. In accordance with the *Protection of Environment Operations (Control of Burning) Regulation 2000*, no open burning or incineration shall be permitted at any construction sites.

Flora and Fauna

Pre-Construction

233. The Proponent shall prepare a detailed Tree Protection Plan to manage construction impacts on existing trees. This plan shall identify any significant trees which may be affected during construction and detail appropriate management measures in accordance with Appendix Z of the Supplementary Representations Report.

Construction

234. A suitably qualified tree surgeon or arborist shall be present for the duration of excavation works within the vicinity of any significant trees as identified in the Tree Protection Plan required under Condition 233 that are not to be removed or relocated and to undertake any root pruning required. The Proponent shall ensure that the condition of any trees affected are monitored throughout the construction period and for 18 months after opening of the tunnel. Any measures necessary to ensure the survival of the trees (e.g. fencing, watering, fertilising) shall be undertaken by a suitably qualified person to the satisfaction of the Director-General.
235. Maintenance of all landscaping works provided under the Urban Design and Landscape Plan referred to in Condition 166 (including the health of all trees) shall be provided for at least two years from the date of opening of the tunnel unless maintenance responsibility is accepted by Council or other agency.
236. Any trees lost during construction shall be replaced with specimens of a similar maturity unless otherwise agree with the relevant Council(s).
237. If, during the course of construction any threatened flora or fauna species are encountered, the Director-General of the NPWS shall be advised immediately. No activity, which places any of these species at risk, shall be undertaken until advice has been received from the NPWS. All recommendations by the NPWS shall be complied with prior to any works likely to affect any threatened species.

Social

238. The Proponent shall co-operate with the local Steering Group on Street Prostitution and other relevant groups to develop measures to mitigate the potential displacement of sex-industry workers from William Street to nearby local streets.

Cumulative Impacts

239. As part of the Construction Framework and Operational EMPs the Proponent shall identify parameters to be monitored during construction and operation which have the potential for cumulative effects to occur. The Proponent shall also define the time period for which the identified parameters would be monitored.

240. Prior to the commencement of construction, the Proponent shall negotiate an agreement with the Airport Motorway Limited dealing with mitigation of the impact of the construction, operation and maintenance of the project on the Eastern Distributor

NEW CONDITIONS GENERATED AS A RESULTS OF THE PROPOSED MODIFICATION TO THE APPROVED ACTIVITY

Fire Safety

241. Prior to the opening of the Project to traffic, a full audit of the fire safety system as defined by the scope of works shall be undertaken by an independent person(s)/organisation to be approved by the Director-General to be paid for by the Proponent. The objective of the audit shall be to ensure that all design and operational measures outlined in the scope of works have been installed and are operational and achieves the required design criteria. The results of the safety audit shall be made available to the NSW Fire Brigade and the Director-General for review prior to opening of the Project to traffic. The Proponent shall rectify any issues identified by the audit to the satisfaction of the Director-General in consultation with the NSW Fire Brigade.
242. Fire simulation and smoke testing shall be undertaken as part of the rehearsed emergency response to be staged prior to opening of the Project to traffic.
243. A maintenance testing program outlining the methods of testing fire safety facilities and schedule for implementation shall be developed to the satisfaction of the NSW Fire Brigade prior to opening of the Project to traffic. Maintenance testing of fire safety facilities shall be undertaken at least annually or any other interval as required by the NSW Fire Brigade. Results of maintenance testing shall be made available to the NSW Fire Brigade for review and the Proponent shall comply with any requirements to ensure the fire safety systems operate adequately.
244. The Proponent shall develop a community education program for the general public and bus operators regarding the potential implications of incidents and emergencies in the Cross City Tunnel prior to opening of the Project to traffic. The program shall outline the actions that should be taken by drivers and passengers in the tunnel during such incidents/emergencies to minimise the potential for serious injury or loss of life.
- The Proponent shall consider implementation of the education program by methods such as pamphlets to be disseminated with licence/registration renewals, inclusion in the Learner Driver Handbook and test and/or any other appropriate method.
- The program shall be prepared in consultation with the relevant NSW emergency services, NSW Health and DoP.
245. A Tunnel Evaluation Committee is to be established with a representative from RTA, NSW Fire Brigade, NSW Police, State Emergency Services and Planning NSW. For the first five years of operation, the Committee shall undertake an annual review of the fire safety systems and incidents that have occurred during the preceding twelve-month period. Reviews beyond the first five years of operation are to occur on the request of the Director-General. The first review is to be undertaken no later than three months before the commencement of the operation of the project. The review must consider current national and international standards and best practice in the field of fire safety in tunnels and must be in line with current NSW government

standards. A report outlining the results of the review and any recommended modifications in response to findings of the review, shall be submitted to the Director-General and made publicly available upon request. The Proponent shall rectify any issues identified in the Committee's report to the satisfaction of the Director-General in a time frame required by the Director-General.

246. The Proponent shall develop a Fire and Smoke Management Plan to address fire safety in the tunnel during congested conditions. The Plan shall outline fire protection systems and other tunnel equipment and operational protocols required for fire and smoke management. The plan shall demonstrate that the design and operational measures minimise the potential for and impact of fire in the tunnel. The Plan shall be developed in consultation with and to the satisfaction of the NSW Fire Brigades

Air Quality

Physical Requirements

247. Unless otherwise approved under condition 248, the ventilation stack shall be constructed at the location shown on Figure 5.1 of the Director-General's Report (dated September 2001) with the top of the ventilation stack at a height of 65 metres AHD unless otherwise approved by the Director-General.
248. Prior to finalising the ventilation stack design, the Proponent shall in consultation with SHFA and CCS, demonstrate to the satisfaction of the Director-General, that potential opportunities that arise to incorporate the ventilation shaft within an existing, proposed or newly constructed building have been appropriately considered through the selected tendering and final design process. The allowable degree of relocation shall be no greater than 100 metres from the EIS location or at a distance further evaluated in the Report in Appendix F. Any change in location of the ventilation stack shall require provision of Condition 249.
249. Any change to the location and/or height of the ventilation stack as a result of Condition 248 shall be approved by the Director-General following consultation with the EPA and DoH and shall require the Proponent to undertake a comprehensive air quality assessment to the requirements of the Director-General in consultation with the EPA, to demonstrate that the predicted air quality impacts are no greater at sensitive receptors than those predicted for the proposed location shown on Figure 5.1 of the Director- Generals Report (dated September 2001). The assessment must be independently verified to the satisfaction of the Director-General.
250. The tunnel ventilation system shall be designed, constructed and operated to avoid, to the greatest extent practical, tunnel air emissions from the portals. Portal emissions are not permitted except in the following circumstances:
- a) emergency situations and/or where emergency personnel are involved,
 - b) accidents and genuine breakdowns inside the tunnel;
 - c) maintenance which involves maintenance of the ventilation system and where it can be shown that the in-tunnel CO requirements specified in Tables 5 and 6 cannot be met; and
 - d) any other situation approved by the Director-General in consultation with the DoH, EPA and the AQCCC.

If portal emissions are required as a result of any of the above events occurring, all practicable measures shall be taken to minimise air quality impacts and the period of portal emissions shall be limited to that necessary until normal traffic operations resume.

251. The tunnel shall be designed and constructed so as to make provision for future installation of an appropriate pollution control system to treat air emissions from the tunnel as may be required by the Director-General. The Proponent shall provide evidence to this effect during the design and construction phases to the satisfaction of the Director-General.
252. All plant and equipment associated with the ventilation stack including possible pollution control systems shall be located below the existing surface level unless incorporated into an existing, proposed or newly constructed building as identified in Condition of Approval No. 248 or otherwise agreed by the Director-General following consultation with the relevant local Councils.
253. The Proponent shall install stack emission sampling points and associated safe access thereto, during construction of the ventilation stack. The sampling points shall be designed and located in accordance with TM-1 of the EPA's *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW, 2001*.
254. The Proponent shall develop a Pre-commissioning Tunnel Ventilation, Incident Response and Traffic Management Systems Integration Protocol (TMSIP) to the satisfaction of the Director-General and in consultation with the RTA's Traffic Management Centre. The TMSIP must be reviewed by an appropriate experienced person/firm to confirm to the satisfaction of the Director-General, before the tunnel is open to traffic, that the systems would operate together to ensure that the primary objective of satisfying Conditions 258 and 259 is achieved. The TMSIP should include a pre-commissioning procedure to be completed before the tunnel is opened to traffic.

Note: Tunnel ventilation design and operation, incident response triggers and procedures, and traffic management, should be fully integrated in accordance with the primary objective of ensuring the safety of tunnel users, tunnel workers and emergency services personnel under all conditions.

255. The Proponent shall install appropriate traffic management devices upstream of the tunnel entrances to regulate traffic flow in the tunnel in addition to the ventilation system, as required to ensure compliance with air quality goals. Traffic management devices shall include ramp metering and/or tunnel closure devices as appropriate. Monitoring devices to measure traffic speeds inside the tunnel shall be installed and operated.

Unless otherwise agreed by the Director-General, the tunnel management system must provide for the automatic closure and subsequent re-opening of one or more of the tunnel entry lanes using sequenced and automatically controlled infrastructure, including stop signs, variable message signs, in-pavements lights and boom gates incorporated into the overall traffic management systems for the route on which the tunnel is located. Where practical this shall also enable tunnel users to be diverted to other routes well before the entrance. The variable message signs must have the ability to inform users of reasons for the closure.

Air Quality Community Consultative Committee

256. An Air Quality Community Consultative Committee (AQCCC) shall be established by the

Proponent. Representatives from CCS, SCCC, SHFA, DoH and local community representatives with interests in tunnel ventilation shall be invited to participate on the Committee. The AQCCC must be established prior to the commencement of substantial construction and shall operate for a minimum of 3 years after opening of the tunnel or as otherwise agreed by the Director-General. The Committee's role shall be defined in a detailed terms of reference document to be submitted for approval by the Director-General before commencement of construction or within any other time as agreed by the Director-General. The terms of reference shall include providing community feedback on air quality monitoring and reporting during the design, construction and operational phases of the project, accessing and disseminating monitoring results and other information on air quality issues. The functions and conduct of the AQCCC shall be in accordance with the terms of reference approved by the Director-General.

Air Quality – In-Tunnel

♦ Monitoring of In-Tunnel Air Quality

257. Within the Tunnel, the Proponent must monitor (by sampling and obtaining results by analysis) the pollutants, specified in Table 4. The Proponent must use the sampling method, units of measurement and sample at the frequency specified opposite in the other columns. The siting of the monitoring stations inside the tunnel must be independently verified to the satisfaction of the Director-General. The number of the monitoring stations must be independently verified to the satisfaction of the Director-General, at a minimum there should be monitoring stations at the portals, ramp junctions and cross-overs and exhaust intakes ducts. Each sampling point established under this condition shall be audited prior to its commencement of 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) approved by the Director-General and paid for by the Proponent.

Table 4 – In-Tunnel CO Monitoring Methodology

Pollutant	Units of measure	Frequency	Method ¹
CO	ppm	Continuous	AM-6

Note: ¹NSW EPA, 2001, Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales

♦ In-Tunnel Air Quality Limits

258. The tunnel ventilation system must be operated so that the concentration of carbon-monoxide (CO) for exposure to any motorist inside the Tunnel must not exceed the concentration limits specified for that pollutant in Table 5 under all conditions (including fully congested conditions).

Table 5 – In-Tunnel CO Individual Exposure Limits

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

For the purposes of interpreting compliance with the rolling average periods specified in Table 5, the Proponent shall install appropriate real time systems to the satisfaction of the Director-General in consultation with NSW Health and the EPA, to enable as accurate as possible estimate of time spent inside the tunnel by motorists and corresponding CO levels. The Proponent must justify that the measuring points present an accurate representation of the CO profile and shall provide data/evidence including appropriate modelling to support that

justification. The pollution concentrations outside the vehicle cabin shall be assumed to be equivalent to the pollution concentration within the cabin for the purposes of interpreting compliance. Emergency services, Proponent or Company personnel shall be dealt with under occupational health and safety procedures.

259. The tunnel ventilation system must be operated so that the concentration of carbon-monoxide (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 fully congested conditions).

Table 6 – In-Tunnel CO Single Point Limits

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

◆ Notification of In-Tunnel Air Quality

260. In addition to the general reporting requirements specified in Condition 276, the Proponent shall notify the Director-General, EPA and DoH of rolling average carbon monoxide monitoring in accordance with a Rolling Average Carbon Monoxide Monitoring Protocol and within 24 hours of the Proponent becoming aware of any single monitoring point for CO recording above the limits of 87 ppm (15 minute averaging period) and 200 ppm (3 minute averaging period). A Rolling Average Carbon Monoxide Monitoring Protocol shall be developed to the satisfaction of the Director General at least 3 months prior to opening.

Note: The requirement to report on any single point recording above the limits for Condition 260 is for information and reporting purposes only.

◆ Air Quality Compliance

261. If the air quality limits specified in Conditions 258 and/or 259 are exceeded, the Director-General may direct the Proponent to expend an amount, which is to be calculated as the aggregate of \$50,000 (CPI adjusted) for each day on which any one (1) or more of the air quality limits specified in Conditions 258 and/or 259 are exceeded, for the implementation of the strategy as referred to in this condition.

In the event that the Proponent is directed to expend any amount as required under this condition, it shall, within 3 months, prepare a Strategy in consultation with the AQCCC and approved by the Director-General, on how any money shall be spent, including options of improvements to in-tunnel and external air quality in the area affected by the Project. The Strategy shall be implemented to the satisfaction of the Director-General.

Nothing in this condition shall prevent, limit or restrict any statutory requirements under any legislation, nor shall it limit any action being taken under the EP&A Act.

Ambient Air Quality

♦ Monitoring of Ambient Air Quality

262. The Proponent shall monitor (by sampling and obtaining results by analysis) the pollutants and parameters specified in Column 1 of Table 7 at the following three (3) locations as a minimum:

- (a) One (1) ground level receptor; and
- (b) Two (2) elevated receptors.

All monitoring stations shall be established subject to the owners and occupiers agreement. The Proponent must use the sampling method, units of measure, and sampling frequency specified in Table 7. The Proponent shall commence monitoring within 18 months of this approval or ensure monitoring occurs for at least 12 continuous months prior to opening of the tunnel. 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 Director-General. The quality of the monitoring results shall be assured through a NATA accredited process prior to the data being considered as a basis for compliance/auditing purposes.

Table 7 – 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	µg/m ³	24-hour	Continuous	AM-18 ¹ or AS3580.9.8-2001 ²
PM _{2.5}	ug/m ³	24-hour	Continuous	AM-18 ^{1, 4} or AS3580.9.8-2001 ² or any method approved by the Director General in consultation with the EPA
CO	ppm	1-hour, 8-hour	Continuous	AM-6
Parameter ³	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 @ 2 m	K	1-hour	Continuous	AM-4
Temperature @ 10 m	K	1-hour	Continuous	AM-4
Total Solar Radiation @ 10 m	W/m ²	1-hour	Continuous	AM-4
Other	Units of measurement	Averaging Period	Frequency	Method ¹
Siting ³	NA	NA	NA	AM-1 & AM-4

Note: ¹NSW EPA, 2001, Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales

² Standards Australia, 2001, AS3580.9.8-2001, Methods for the Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM₁₀ Continuous Direct Mass Method using Tapered Element Oscillating Microbalance Analyser.

³ Location for meteorological monitoring at IMAX station to be at the top of the building or otherwise approved by the Director-General.

⁴. Appropriately modified to include size selective inlet for PM_{2.5} or as otherwise approved by the Director-General.

♦ Community Based Monitoring Station

263. The Proponent shall establish one (1) community based monitoring station (CBMS) associated with the ventilation stack to monitor ambient air quality consistent with the requirements in Table 7, the locations to be agreed to by the AQCCC, at least two (2) years prior to the opening of the Project to traffic. The Proponent shall meet all operating costs associated with the stations.

The CBMS shall be operated independently of the Proponent and all other authorities and its establishment and operation shall be overseen by the AQCCC on behalf of the community. The establishment and operation of the stations is to be undertaken in accordance with recognised Australian standards and undertaken by a consultant accredited by NATA for this purpose. The quality of the monitoring results shall be assured through a NATA accredited process prior to the data being considered as a basis for compliance/auditing purposes.

Monitoring results shall be made publicly available and shall be subject to audit at 6 monthly intervals or at a longer interval if approved by the Director-General by an independent auditor agreed by the AQCCC, whose report shall be directly provided to the Proponent and the AQCCC.

The Proponent, following consultation with the AQCCC, shall review the need for the continuation of the CBMS after a period of three (3) years after the Project is opened to traffic. Any recommendation to close the CBMS shall require the approval of the Director-General in consultation with the EPA. The Director-General shall approve the independent auditor.

♦ Operation Stage Monitoring Stations – Residents in High Rise Apartments (Elevated Receptors)

264. Subject to the agreement of the owners and occupiers, the Proponent shall install two (2) monitoring station at the top or most affected point at the nearest residential high rise apartment buildings to the ventilation stack and unless otherwise agreed by the Director-General following consultation with the EPA, in accordance with Condition of Approval No. 262 to monitor for pollutants identified in Table 7. Monitoring shall be undertaken over a period of at least 12 months from opening of the Project to traffic to correlate and verify impacts with the air quality modelling predictions. The results of the monitoring program shall be made available to the Body Corporate and owners of the apartments as applicable and the AQCCC.

♦ Operation Stage Monitoring Stations –Ground level Receptors

265. The Proponent shall install two (2) ground level monitoring stations (including the CBMS), in accordance with Condition 262 to assess ambient ground level impacts. The location of the stations and pollutants to be monitored shall be developed in consultation with the AQCCC and be approved by the Director-General and shall include the pollutants specified in Table 7 unless otherwise agreed by the Director-General in consultation with the EPA. The location of the ground level monitoring stations shall meet the siting requirements for a background ambient monitoring station in accordance with AS2922-1987.

The monitoring reports must be made available at six (6) monthly intervals from the date the Project commences operation. The reports must be made available to the Director-General, the EPA, relevant Council(s) and the AQCCC, and must be made publicly available. The total duration of the monitoring shall be for at least three (3) years unless otherwise requested by the Director-General. Any closure of the monitoring station shall be approved by the Director-General in consultation with the EPA at least three (3) months prior to closure.

◆ Verification of Air Quality Assessment

266. The Proponent shall validate the ambient air quality assessment undertaken for tunnel ventilation system as assessed in the Proposed Alterations to the Modified Activity as Outlined in the Supplementary Environmental Impact Statement for the Cross City Tunnel (Holmes Air Sciences, undated October 2002) for the Project utilising actual monitoring data recorded by the Proponent following 12 months of operation of the Project. Validation shall be to the satisfaction of the Director-General in consultation with the EPA.

◆ Air Quality Goals – Ambient Air

267. Should ambient monitoring of air pollutants exceed the following goals, the provisions of Condition 268 shall apply:
- (a) CO – 8 hour rolling average of 9.0 ppm (NEPM);
 - (b) NO₂ – One hour average of 0.12 ppm (245 µg/m³)(NEPM); and
 - (c) PM₁₀ – 24 hour average of 50 µg/m³ (NEPM).

Only monitoring station(s) that meet the requirements for ambient monitoring stations in Australian Standard AS2922 – 1987, shall be used for the purposes of assessing compliance with the ambient goals specified in this condition unless otherwise agreed by the Director-General.

268. Should the results of monitoring required under Condition 264 and 265 show that any of the goals specified in Condition 267 have been exceeded for any given event (excluding extraordinary events such as bushfires, dust storms etc as to be defined in a Protocol), the Proponent shall immediately notify the DoP, EPA and NSW Health. The Protocol shall be approved by the Director-General in consultation with the EPA, DoH and the AQCCC. The notification shall be followed up with a detailed report within 10 working days which shall be prepared by an independent person/organisation to the Director-General on the cause and major contributor of the exceedance and the options available to prevent recurrence. The Director-General shall approve the independent person/organisation. This report must include consideration of improvements to the installed systems such as ventilation, and traffic management measures to address ambient air and/or the option of installing pollution control systems. If the Report does not propose the installation of pollution control systems then this recommendation must be justified. The Proponent shall comply with any requirements of the Director-General's review of the Report.

Public Access to Monitoring Results

269. Results of hourly updated real-time ambient monitoring of PM₁₀, PM_{2.5}, NO₂, and CO at the approved ground level monitoring locations, in-tunnel CO and relevant meteorological data shall be provided on the Internet site and made publicly available each month in hard form in an easy to interpret format for five years after the opening of the tunnel or otherwise approved by the Director-General. These data shall be preliminary until a quality assurance check has been undertaken by a person or organisation accredited by NATA for this purpose. The availability of these data shall be conveyed to the local community by way of newsletter (including translation into common non-English speaking languages in the area) and newspaper advertisement at least one (1) month prior to the opening of the Project to traffic.

Ventilation Stack

♦ Monitoring

270. The Proponent shall install monitoring equipment to monitor pollutants inside the ventilation stack. Pollutant monitoring inside the ventilation stack (by sampling and obtaining results by analysis) shall be for the pollutants and parameters specified in Column 1 of Table 8. The Proponent must use the sampling method, units of measures and sample at the frequency specified in the other columns. Monitoring equipment installed under this condition is to be independently audited prior to its commencement of monitoring for compliance with the requirements set out in Table 8. Auditing is to be undertaken by an independent person(s) or organisation(s) approved by the Director-General and paid by the Proponent.

Table 8 – Stack Emission Monitoring Methodologies

Pollutant	Units of measure	Frequency ⁶	Method ¹
NO	mg/m ³	Continuous	CEM-2
NO ₂	mg/m ³	Continuous	CEM-2
NO _x (as NO ₂)	mg/m ³	Continuous	CEM-2
PM ₁₀	µg/m ³	Continuous	AS3580.9.8-2001 ² , AM18 or method approved by Director General ²
PM _{2.5}	µg/m ³	Continuous	AS3580.9.8-2001, AM18 ⁵ or method approved by Director General ²
Solid Particles	µg/m ³	Quarterly	TM15
PM ₁₀	µg/m ³	Quarterly	OM-5
PM _{2.5} ⁵	µg/m ³	Quarterly	OM-5
CO	mg/m ³	Continuous	CEM-4
VOC	mg/m ³	Continuous	CEM-8
Speciated VOC ³	mg/m ³	Annual	OM-2
PAH ⁴	µg/m ³	Annual	OM-6
Parameter	Units of measure	Frequency	Method ¹
Flow rate	M ³ /s	Continuous	CEM-6
Moisture	%	Continuous	TM-22
Temperature	K	Continuous	TM-2
Other	Units of measure	Frequency	Method ¹
Sampling locations	NA	NA	TM-1

- Note:
- ¹ NSW EPA, 2001, Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales
 - ² Standards Australia, 2001, AS3580.9.8-2001, Methods for the Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM₁₀ Continuous Direct Mass Method using Tapered Element Oscillating Microbalance Analyser
 - ³ Must include, but not limited to; Benzene, Toluene, Xylenes, 1,3-Butadiene, Formaldehyde and Acetaldehyde
 - ⁴ Must include, but not limited to; 16 USEPA priority PAHs, namely; Naphthalene, Phenanthrene, Benz(a)anthracene, Benzo(a)pyrene, Acenaphthylene, Anthracene, Chrysene, Indeno(1,2,3-cd)pyrene, Acenaphthene, Fluoranthene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Fluorene, Pyrene, Benzo(k)fluoranthene, Benzo(g,h,i)perylene.
 - ⁵ Appropriately modified to include size selective inlet for PM_{2.5} or as otherwise approved by the Director-General.
 - ⁶ Frequency of monitoring can be varied with approval from the Director-General.

♦ Ventilation Stack Limits

271. The concentration and mass of pollutants discharged from the ventilation stack(s) referred to in Table 9 must not exceed the respective limits specified for that pollutant.

Table 9 – Mass Pollutant Concentrations

	Units of measurement	Averaging period	Total CO	Total NOx	Total PM ₁₀	Total VOC
Concentration limit	mg/m ³	1 hour	109	19	1	11
Annual load limit	t/annum	Annual	781	123	7	78

An independent person or organisation, approved by the Director-General shall:

- (a) verify that compliance with stack limits detailed in Table 9 will not result in air quality impacts greater than predicted in the report of the Director-General's report;
- (b) undertake an appropriate assessment to the satisfaction of the Director General and in consultation with the EPA to indicate how stack discharge velocities have been optimised in consideration of energy requirements and air quality impacts at all sensitive receivers; and,
- (c) validate recorded monitoring data and certify compliance with the stack limits.

The ventilation stack limits detailed in Table 9 shall be reviewed on a five (5) yearly basis and may be lowered (i.e. made more stringent), subject to improvements in vehicle fleet emissions, if the Proponent is directed to do so by the Director-General in consultation with the EPA.

♦ Exceedance of Stack Limits

272. Should the results of monitoring required under Condition 270 show that any of the stack limits specified in Condition 271 have been exceeded, the Proponent shall immediately notify the DoP, EPA and DoH. This notification shall be followed up with a detailed report within 10 working days to be prepared by an independent person/organisation to the Director-General on the cause and major contributor of the exceedance and the options available to ensure the prevention of a recurrence. The report must include consideration of additional traffic management measures to address air quality emissions and also the option of installing pollution control systems. If the Report does not propose the installation of pollution control systems then this recommendation must be justified. The Proponent shall comply with any requirements of the Director-General's review of the Report. Independent verification shall be undertaken by independent person(s) or organisation(s) approved by the Director-General.

◆ Emergency Discharge

273. Conditions 258, 259, 267 and 271 do not apply:

- (a) in an emergency to prevent damage to life or limb other than an emergency arising from a negligent act or omission from the Proponent. The Proponent shall as soon as reasonably practicable, notify the Director-General and the EPA of any such discharge.
- (b) as a result of an incident (not including congestion in the tunnel), which is beyond the control of the Proponent or the tunnel operator and could not have been prevented by taking those steps which a prudent, experienced and competent operator would have taken.

The Proponent shall, as soon as reasonably practicable, notify the Director-General and the EPA of any such discharge.

Note: Any exceedance of the goals or limits in conditions 258, 259, 267 and 271 which result from a negligent act by the Proponent/Company irrespective of potential damage to life or limb is a breach of these Conditions of Approval.

Local and Sub-Regional Air Quality Improvements

274. The Proponent shall assist the relevant Councils 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 the area which would be within a potential three (3) dimensional zone of affectation (buffer volume). This process shall include procedures for identifying the width and height of buildings that are likely to be either affected by the plume from the ventilation stack or affect the dispersion of the plume from the ventilation stack through building wake effects. The Proponent shall meet all costs for the development of this process and any necessary amendments to the planning instrument(s) required to implement the process.
275. Prior to the opening of the Project to traffic, the Proponent shall investigate, in consultation with the EPA the measures for smoky vehicle enforcement in areas surrounding the Project, taking into consideration cost effectiveness. Any measures implemented as a result of investigation recommendations shall be in accordance with the Smoky Vehicle Enforcement Program. The Proponent shall report on the effectiveness of the smoky vehicle enforcement.

General Air Quality Reporting Auditing and Quality Assurance

◆ General Reporting

276. The Proponent must develop and implement a reporting systems for in-tunnel, ambient and ventilation stack limits to the satisfaction of the Director-General in consultation with the EPA. The reporting system must be approved, fully implemented and operational prior to the commencement of tunnel operations. Minimum analytical reporting requirements for air pollution monitoring stations shall be as specified in Section 4 of the EPA's *Approved Methods of Modelling and Assessment of Air Pollutants in NSW, 2001*.

◆ Auditing/Quality Assurance

277. The provision, operation and maintenance (including all auditing and validation of data) of all air quality monitoring and reporting shall be funded by the Proponent.
278. The Proponent shall appoint an external auditor to conduct an audit of the air quality monitoring

(in tunnel and external) at six (6) monthly intervals or at any longer interval if approved by the Director-General. Air quality audits shall commence six (6) months from opening of the Project to traffic. The auditor shall 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 Director-General upon request. A copy of the audit report shall also be issued to the Proponent and AQCCC.

279. The Proponent shall undertake appropriate quality assurance (QA) and quality control (QC) measures for air quality and ventilation stack emission monitoring data. This shall include, but not 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 shall be approved by an independent expert approved by the Director-General prior to monitoring of air quality and ventilation stack emissions as appropriate.

Community Consultation

280. The Proponent shall develop and implement an awareness program for motorists prior to opening of the tunnel on:
- (a) Use of the tunnel;
 - (b) Tunnel features;
 - (c) Electronic tolling; and
 - (d) Engineering facilities.
281. The Proponent shall erect an appropriate sign on each construction compound and work area advertising the toll- free complaints contact number required by Condition 7 and the address of the internet site required by Condition 10.

Construction Traffic

282. The Proponent shall utilise trucks with a capacity to carry nominally 14 to 15 cubic metres or more for removing tunnel spoil from sites unless the use of smaller trucks is certified by the EMR through the CMS verification process to be absolutely necessary.
283. The Proponent shall conduct an audit of the road safety implications of the lane and road closures and traffic diversions specified in the TMPs required by Condition 46, prior to certification of the TMPs by the experienced transport planner.
284. The Proponent shall closely monitor the Bourke Street Compound access arrangements including the performance of the William Street/Palmer Street intersection to the satisfaction of the experienced transport planner required by Condition 46. If required, remedial works shall be implemented and/or the spoil removal during peak period hours shall be limited.
285. The Proponent shall ensure that the following requirements are met during construction.
- (a) closure of the Macquarie Street exit from the Eastern Distributor shall be minimised to the greatest extent possible;
 - (b) a minimum of four lanes (two in each direction) to remain open in the Kings Cross Tunnel and one lane on Bayswater Road, Kings Cross Road and Craigend Street during peak periods (6 am to 10 am and 3 pm to 7 pm) and a minimum two lanes (one in each direction) during off peak periods, with the exception of the situations outlined in (c) and (d);

- (c) if required, full closure of Kings Cross Tunnel shall only occur between 10 pm and 5 am provided that all lanes on Craigend Street, Bayswater Road and Kings Cross Road shall remain open for the duration of the closure;
 - (d) if required, Craigend Street and Bayswater Road may be closed to traffic between the hours of 10 pm and 5 am provided that the Kings Cross Tunnel remains open in accordance with the requirements of (b); and,
 - (e) Neither the northbound nor the southbound tunnel of the Eastern Distributor main tunnel may be closed in its entirety on any given day. Lane closures within the main tunnel will be permitted during the period 11pm and 6am on any weekday. This does not preclude the Eastern Distributor operator and the emergency services from responding to incidents within the Eastern Distributor.
286. The spoil hoisting and stockpiling area proposed at the Bourke Street Compound shall be fully enclosed as proposed in the Wilkinson Murray Pty Ltd Report in Appendix F of the Director-Generals Report.

Operational Traffic

287. The Proponent shall ensure that the design of the Sir John Young Crescent roundabout will adequately cater for future traffic flows in Sir John Young Crescent in consultation with the relevant Council. The Proponent shall consider providing two approach lanes on Sir John Young Crescent and the design of the roundabout shall be approved by the Director-General.
288. The proponent shall submit a report within 18 months from the Approval investigating the feasibility of allowing right-hand turn movements from William Street into Bourke Street. The report shall identify ways of limiting rat-runs using Bourke Street, the option to prohibit right turns at various times of the day (for example during peak periods 6 am to 10 am and 3 pm to 7 pm) and any other required traffic management measures. The findings of the report shall be implemented to the satisfaction of the Director-General.

Hazards and Risks

289. The Proponent shall submit a report within 18 months from the Approval investigating the risk associated with the transport and storage of sodium hydroxide and poly aluminium chloride (PAC) in the tunnel for the use in water treatment. The report shall refer to the Hazardous Industry Planning Advisory Papers No. 4 and No. 6. This report shall:
- (a) provide justification for the location of the water treatment plant underground;
 - (b) detail how the plant is to be appropriately located to minimise impact by fire;
 - (c) identify ameliorative measures to mitigate the risks; and,
 - (d) if the risk of storage is above acceptable levels, the Proponent shall relocate the water treatment plant to an above ground or near surface site.

The finds of the report shall be implemented to the satisfaction of the Director-General.

290. In the event of a water treatment plant being located below the surface, the applicant shall under take all adequate measures to prevent adverse impact on people in the event of a fire in the vicinity of the polyelectrolyte ULTRION 7157 storage area. A program of these measures is to be prepared to the satisfaction of the Director-General prior to the completion of the tunnel.
291. Transportation of sodium hydroxide and poly aluminium chloride (PAC) to an in-tunnel water

treatment plant must only be carried out during a period of tunnel closure.

Flora and Fauna

292. The Proponent shall in consultation with the Royal Botanic Gardens and Domain Trust prepare a Tree Replacement and Environmental Enhancement Plan prior to substantial construction works on the Cahill Expressway. The Plan shall be prepared with reference to the "Master Plan for the Domain" and the "Tree Management Plan" prepared by the Royal Botanic Gardens. The Plan shall include but not be limited to:

- (a) the replacement of the 14 fig trees on the Cahill Expressway median strip;
- (b) a tree replacement program for the Phillip Precinct of the Domain, including at least 10 young fig trees and additional new tree plantings in rows or groves adjacent to Hospital Road;
- (c) mitigation of noise and visual impacts from the Cahill Expressway utilising built or landscaped noise walls with appropriate plantings;
- (d) investigation of new pedestrian links between the Phillip Precinct of the Domain and the Botanic Gardens;
- (e) any measures that will prevent polluted runoff from the Cahill Expressway onto Trust lands or watercourses;
- (f) improving the legibility of the edges to the Domain along the Cahill Expressway through bold boundary plantings and/or appropriate hard details; and
- (g) if possible, the removal of existing redundant structures of little cultural significance.

The Tree Replacement and Environmental Enhancement Plan shall be developed jointly with, and implemented in consultation with, the Royal Botanic Gardens and Domain Trust to the satisfaction of the Director-General.

ATTACHMENT 1

Guidelines for the Establishment of the Community Liaison Group

The proponent shall consider the following when establishing a Community Liaison Group:

1. The Group shall comprise at least two (2) representatives of the Proponent (including the Environmental Management Representative), at least one (1) representative of Council, at least two (2) community representatives and one (1) business representative (where relevant).
2. At its first meeting, the Group shall consider its interrelationship with any existing community liaison/ consultative groups of adjoining or interrelated developments.
3. Representatives from relevant government agencies or other individuals may be invited to attend meetings as required by the Chair.
4. Where determined necessary by the Chair, an independent note taker would be provided by the Chair at the expense of the Proponent.
5. The Proponent shall, at its own expense:
 - ◆ nominate two (2) representatives to attend all meetings of the Committee;
 - ◆ provide to the Group regular information on the progress of work and monitoring results;
 - ◆ promptly provide to the Group such other information as the Chair of the Group may reasonably request concerning the environmental performance of the development;
 - ◆ provide access for site inspections by the Group; and
 - ◆ provide meeting facilities for the Group, and take minutes of Group meetings. These minutes, once endorsed by the Chair, shall be available for public inspection at Council within 14 days of the meeting.
 - ◆ The Proponent shall ensure that minutes from Community Liaison Group meetings, annual reports and other public reports required by this approval, and results and interpretation of monitoring required by this Consent are placed on the Internet for public information within 14 days after they are available. The Internet address is to be made publicly available.
 - ◆ Where reasonably required engage consultants to interpret technical information and tasks of a similar nature.

ATTACHMENT 2

Modified Location of Ventilation Stack (Alternative B)



FIGURE 6.2