

Infrastructure approval

Section 5.19 of the *Environmental Planning & Assessment Act 1979*

I grant approval to the carrying out of the critical State significant infrastructure (CSSI) referred to in Schedule 1, subject to the conditions in Schedule 2.

Minister for Planning

Sydney

2020

SCHEDULE 1

Application no.:

SSI 7485

Proponent:

Roads and Maritime Services

Approval Authority:

Minister for Planning

Land:

Land in the suburbs of Alexandria, Annandale, Ashfield, Camperdown, Chippendale, Croydon, Drummoyne, Enmore, Erskineville, Five Dock, Haberfield, Leichhardt, Lilyfield, Newtown, Petersham, Pyrmont, Rozelle, St Peters, Stanmore and Surry Hills

**Description of Critical State
Significant Infrastructure**

Development for the purposes of the WestConnex M4-M5 Link project being a new multi-lane road link connecting the M4 East project at Haberfield with the New M5 project at St Peters comprising:

- new twin multi-lane tunnels between Wattle Street at Haberfield and the St Peters Interchange;
- new interchange at Rozelle which includes stub tunnels, ramps and related infrastructure for a potential future Western Harbour Tunnel;
- a twin tunnel connection from the Rozelle Interchange to the Iron Cove Bridge;
- an underground interchange at Leichhardt and Annandale linking the mainline tunnels with the Rozelle Interchange;
- five motorway operations complexes – one at Darley Road, Leichhardt, two within the former Rozelle Rail Yards, one adjacent to Victoria Road between Callan and Springside Streets, Rozelle and one adjacent to Campbell Road, St Peters Interchange;
- construction of three tunnel ventilation facilities – one at the former Rozelle Rail Yards, one associated with the Iron Cove Link and one at the Campbell Road motorway operations complex at St Peters;
- fit out of part of the Parramatta Road ventilation facility at Haberfield (constructed under the M4 East project) for use by the M4-M5 Link;
- emergency smoke extraction facilities at the motorway operations complexes;
- air intake facility at Rozelle West;
- new and upgraded pedestrian and cyclist infrastructure at Lilyfield / Rozelle / Annandale and along Victoria Road at Rozelle;
- landscaping, including the provision of new open space within

the former Rozelle Rail Yards;

- new road works, widening road works and intersection modifications to facilitate connection between surface roads and the Rozelle Interchange, and along Victoria Road to accommodate the Iron Cove Link;
- tunnel support systems and ancillary services including electricity substations, water treatment facilities, fire and emergency systems, and tolling gantries;
- provisions of new and modified noise abatement facilities;
- temporary ancillary construction facilities; and
- utility adjustments, modifications, relocations and/or protection.

**Declaration as Critical State
Significant Infrastructure**

The proposal is critical State significant infrastructure by virtue of Schedule 5, clause 4 of *State Environmental Planning Policy (State and Regional Development) 2011*.

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DEFINITIONS AND TERMS

The definitions and terms below (**Table 1**) apply to terms used in this approval, unless otherwise stated or the context indicates otherwise.

Table 1: Definitions and Terms

Term	Definition
AA	The Acoustics Advisor for the CSSI
Aboriginal object	The same meaning as in the <i>National Parks and Wildlife Act 1974</i>
AHD	Australian Height Datum
Ancillary facility	A temporary facility for construction of the project including an office and amenities compound, construction compound, material crushing and screening plant, materials storage compound, maintenance workshop, testing laboratory, material stockpile area, car parking compound and truck marshalling facility.
Annoying activities	As defined by the <i>Interim Construction Noise Guideline</i> to include: <ul style="list-style-type: none"> (a) use of 'beeper' style reversing or movement alarms, particularly at night-time; (b) use of power saws, such as used for cutting timber, masonry, road pavement or steel work; (c) grinding metal, concrete or masonry; (d) rock drilling; (e) line drilling; (f) bitumen milling or profiling; (g) vibratory rolling; (h) jackhammering, rock hammering or rock breaking; and (i) impact piling.
AQCCC	Air Quality Community Consultative Committee
At-property treatment	As defined in section 7.3 of the <i>Noise Mitigation Guideline</i> (RMS, 2015)
ARI	Average Recurrence Interval: The average, or expected, value of the periods between exceedances of a given rainfall total accumulated over a given duration.
CASA	Civil Aviation Safety Authority
CEMP	Construction Environmental Management Plan
Completion of construction	The date upon which all construction is completed and all requirements of the Secretary (if any) have been met. If construction is staged, completion of construction is the date upon which construction is completed and all requirements of the Secretary (if any) have been met, in respect of all stages of construction.
Conditions of approval	The Minister's conditions of approval for the CSSI.
Consistency assessment	An assessment of whether a proposed activity for the purpose of the CSSI is consistent with the terms of this approval.

Term	Definition
Construction	<p>Includes all physical work required to construct the CSSI, other than the following low impact work:</p> <ul style="list-style-type: none"> (a) survey works including carrying out general alignment survey, installing survey controls (including installation of global positioning system (GPS)), installing repeater stations, carrying out survey of existing and future utilities and building and road dilapidation surveys; (b) investigations including investigative drilling and excavation; (c) the erection or removal of demountable buildings at ancillary facilities in approved locations; (d) treatment of contaminated sites subject to the recommendations of a Site Contamination Report prepared in accordance with Condition E181; (e) clearing of vegetation, as identified in the EIS and Submissions and Preferred Infrastructure Report; (f) installation of mitigation measures including noise (excluding acoustic sheds), erosion and sediment controls and temporary exclusion fencing for sensitive areas; (g) property acquisition adjustment works including installation of property fencing; (h) low impact utility works defined and undertaken, in accordance with the approved Utility Management Strategy required under Condition E140; (i) establishing minor construction ancillary facilities in accordance with Condition C24; (j) archaeological testing under the <i>Code of practice for archaeological investigation of Aboriginal objects in NSW</i> (DECCW, 2010) or archaeological monitoring undertaken in association with [a]-[i] above to ensure that there is no impact on heritage items; (k) other activities determined by the ER to have minimal environmental impact which may include construction of minor access roads, temporary relocation of pedestrian and cycle paths and the provision of property access including access and egress to construction ancillary facilities; and (l) maintenance of existing buildings and structures required to facilitate the carrying out of the CSSI. <p>Where heritage items, or threatened species, or threatened ecological communities (within the meaning of the <i>Biodiversity Conservation Act 2016</i>) are adversely affected or potentially adversely affected by any low impact work as defined in (a) to (l) above, that work is construction, unless otherwise determined by the Secretary in consultation with OEH or DPI Fisheries (in the case of impact upon fish, aquatic invertebrates or marine vegetation).</p> <p>Construction does not include site establishment works where such works are included as part of a Site Establishment Management Plan approved under Condition C22.</p>

Term	Definition
CSSI	The Critical State Significant Infrastructure, as described in Schedule 1, the carrying out of which is approved under the terms of this approval.
Department	NSW Department of Planning, Industry and Environment
DEC	Former Department of Environment and Conservation
DECC	Former NSW Department of Environment and Climate Change
DECCW	Former NSW Department of Environment, Climate Change and Water
DIPNR	Former NSW Department of Infrastructure, Planning and Natural Resources
DIRD	Department of Infrastructure and Regional Development (Commonwealth)
DPI	NSW Department of Primary Industries including DPI Agriculture, DPI Biosecurity and Food Safety, DPI Land and Natural Resources, DPI Water and DPI Fisheries
DRP	Design Review Panel
EIS	The Environmental Impact Statement submitted to the Secretary seeking approval to carry out the project described in it and as revised if required by the Secretary under the EP&A Act.
EMS	Environmental Management System
Environmental Representative Protocol	The document of the same title published by the Department
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence under the POEO Act
ER	The Environmental Representative for the CSSI
FRNSW	Fire and Rescue NSW
Heritage conservation area	An area in which the historical origins and relationships between the various elements create a sense of place and has been listed under one or more of the following registers: the State Heritage Register under the <i>Heritage Act 1997</i> ; a State agency heritage and conservation register under section 170 of the <i>Heritage Act 1977</i> ; and a Local Environmental Plan under the <i>Environmental Planning and Assessment Act 1979</i> .
Heritage Division	The Heritage Division of OEH

Term	Definition
Heritage item	A place, building, structure, work, relic, archaeological site, tree, movable object or precinct of heritage significance, that is listed or may be eligible to be listed under one or more of the following registers: the State Heritage Register under the <i>Heritage Act 1977</i> ; a state agency heritage and conservation register under section 170 of the <i>Heritage Act 1977</i> ; a Local or Regional Environmental Plan under the EP&A Act; the World, National or Commonwealth Heritage lists under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth); and an Aboriginal object or Aboriginal place as defined in section 5 of the <i>National Parks and Wildlife Act 1974</i> .
Highly noise intensive works	Works which are defined as annoying under the ICNG including: (a) use of power saws, such as used for cutting timber, rail lines, masonry, road pavement or steel work; (b) grinding metal, concrete or masonry; (c) rock drilling; (d) line drilling; (e) vibratory rolling; (f) rail tamping and regulating; (g) bitumen milling or profiling; (h) jackhammering, rock hammering or rock breaking; and (i) impact piling.
ICNG	<i>Interim Construction Noise Guideline</i> (DECC, 2009)
Incident	An occurrence or set of circumstances that causes, or threatens to cause, material harm to the environment, community or any member of the community, being actual or potential harm to the health or safety of human beings or to threatened species, endangered ecological communities or ecosystems that is not trivial. <i>Note: "material harm" is defined in this approval.</i>
INP	Industrial Noise Policy (EPA, 2000)
Impact	The result of an action that has, will have, or is likely to have an adverse effect to the environment relevant to the condition controlling the action.
Land	Has the same meaning as in the EP&A Act
Landowner	Has the same meaning as "owner" in the <i>Local Government Act 1993</i> and in relation to a building means the owner of the building.
Material harm	This is harm that: (a) involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial; or (b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).
Minister	NSW Minister for Planning

Term	Definition
Motorist	Includes drivers, passengers and motor bike riders
NCA	Noise catchment area
NEPM	National Environment Protection Measure
Non-compliance	An occurrence, set of circumstances or development that is a breach of this approval but is not an incident.
NSW Heritage Council	Heritage Council of NSW
OEH	NSW Office of Environment and Heritage
OEMP	Operational Environmental Management Plan
Operation	<p>The operation of the CSSI (whether in full or in part) for its intended purpose excluding the following activities carried out during construction:</p> <ul style="list-style-type: none"> (a) commissioning trials of equipment; (b) temporary use of any part of the CSSI; and (c) maintenance works. <p><i>Note: There may be overlap between the carrying out of construction and operation if the phases are staged.</i></p>
ONVR	Operational Noise and Vibration Review
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
Pre-construction	All work prior to, and in respect of the CSSI that is excluded from the definition of construction
Proponent	The person identified as the proponent in Schedule 1 of this approval
Publicly available	Available for inspection by a member of the general public (for example available on an internet site).
QA/QC	Quality Assurance / Quality Control
Relevant council(s)	Any or all as relevant, Inner West or City of Sydney
Relevant roads authority	The same meaning as the roads authority defined in the <i>Roads Act 1993</i> .
Relic	The same meaning as the <i>Heritage Act 1977</i> .
Relocated persons	Any resident or business owner who is displaced or relocated consequent to acquisition of a property for the purposes of the CSSI, or an owner of the property which has been acquired for the purposes of the CSSI.
Residual land	Land owned by the Proponent and used for the purposes of constructing the CSSI that the Proponent considers is no longer required for the construction and/or operation of the CSSI, or any other road project.
RLMP	Residual Land Management Plan
RMS	NSW Roads and Maritime Services

Term	Definition
Secretary	Planning Secretary of the NSW Department of Planning, Industry and Environment or nominee, whether nominated before or after the date on which this approval was granted.
Secretary's approval or agreement or submissions to the Secretary	A written approval from the Secretary (or nominee).
Sensitive receiver	Residence, educational institution (e.g. school, university, TAFE college), health care facility (e.g. nursing home, hospital), religious facility (e.g. church) and children's day care facility.
Sensitive periods	Period of time determined in consultation with affected sensitive receiver.
SES	NSW State Emergency Services
Site establishment works	<p>Activities undertaken to establish a construction ancillary facility so that it is able to be used to support the construction of the CSSI, including demolition of existing structures on the site, erection of site fencing / hoarding, provision of utility services to the site, site levelling, provision of site access, erection of demountable buildings, provision of hardstand areas, and erosion and sedimentation controls.</p> <p>However, site establishment works do not include:</p> <ul style="list-style-type: none"> (a) piling (except for piling required for the erection of noise barriers around construction compounds); or (b) the erection of acoustic sheds at construction compounds including the hardstand area on which it will be erected; or (c) establishing tunnel shafts/dives.
Submissions and Preferred Infrastructure Report (SPIR)	The <i>M4-M5 Link Submissions and Preferred Infrastructure Report</i> dated January 2018, submitted to the Secretary under the EP&A Act, comprising a response to written submissions made during the public exhibition period of the EIS and changes to the design of the proposal since the publication of the EIS.
Surface and sub-surface structures	Underground and above ground structures including, but not limited to, utility services and infrastructure, buildings, roads, rail lines, bridges, car parks, parking areas, parks and swimming pools.
TMC	Transport Management Centre for NSW
Tree	As defined in Australian Standard AS 4970-2009
UDLP	Urban Design and Landscape Plan
Unexpected heritage find	An object or place that is discovered during the carrying out of the CSSI and which may be a heritage item but was not identified in the EIS or SPIR or suspected to be present. An unexpected heritage find does not include human remains.
UrbanGrowth NSW	UrbanGrowth NSW Development Corporation (NSW government agency)

Term	Definition
Ventilation outlet	The location and structure from which air within a tunnel is expelled.
Walking distance	The most direct publicly accessible distance between two points when travelled on land.
Works	All physical activities to construct or facilitate the construction of the CSSI, including environmental management measures and utility works.

Table 2: Further Definitions and Terms

Term	Definition
CO	Carbon monoxide
NATA	National Association of Testing Authorities, Australia
NO	Nitric oxide
NO ₂	Nitrogen dioxide
NO _x	Oxides of nitrogen
PAH	Polycyclic aromatic hydrocarbons
PM ₁₀	Particulate matter (10 micrometres or less in diameter)
PM _{2.5}	Particulate matter (2.5 micrometres or less in diameter)
VOC	Volatile organic compounds

SUMMARY OF REPORTING AND APPROVAL REQUIREMENTS

Reports and notifications that must be provided to the Secretary under the terms of this approval are listed in **Table 3**. Any appointments of persons requiring approval are also listed.

Table 3: Reporting, Notification and Approval Requests that must be submitted to the Secretary

Condition*	Report / Notification / Appointments	Timing ¹	Purpose
Part A - Administrative			
A12	Staging Report	One month prior to commencement of construction (or operation if only staged operation is proposed) of the first of the proposed stage	Information
A18	Approval of Environmental Representative	One month prior to commencement of works	Approval
A21	Environmental Representative Monthly Reports	Within seven days following the end of each month for the duration of the ER's engagement for the CSSI	Information
A24	Acoustic Advisor	One month prior to the commencement of works	Approval
A26(g)(v)	Monthly Noise and Vibration Report	Within seven days following the end of each month for the duration of the construction of the CSSI	Information
A27 / A28	Compliance Tracking Program	One month prior to commencement of works	Information
A30	Pre-Construction Compliance Report	One month prior to commencement of construction	Information
A33	Construction Compliance Reports	6-monthly from the date of the commencement of construction	Information
A34	Pre-Operation Compliance Report	One month prior to commencement of operation	Information
A36	Environmental Audit Program	One month prior to commencement of construction	Information
A39	Environmental Audit Report	Within six weeks of completing the audit	Information
A40	Notification of incident	As early as possible and within 24 hours of the incident	Notification
A42	Notification of Incident notified to the EPA under the POEO Act	Within 24 hours of notifying the Environment Protection Authority (EPA)	Notification
Part B - Communication Information and Reporting			
B1 / B3	Communication Strategy	One month prior to commencement of any pre-construction work	Approval

¹ Where a project is staged, all required approvals must be obtained prior to the commencement of the relevant stage.

Condition*	Report / Notification / Appointments	Timing ¹	Purpose
B8 / B10	Complaints Register	On request during construction and operation	Information
B13	Community Complaints Mediator	One month of the date of this approval	Approval
Part C - Construction Environmental Management			
C1 / C3	CEMP	One month prior to commencement of construction	Approval
C4 / C6	CEMP Sub-plans	One month prior to commencement of construction	Approval
C11	Real-time noise and vibration monitoring data	On request	Information
C9 / C14	Construction Monitoring Programs	One month prior to commencement of construction	Approval
C17	Construction Monitoring Report	As specified in Construction Monitoring Programs	Information
C19	Comparative Analysis Report for Options A and B	One month prior to establishment of construction ancillary facility at Haberfield	Approval
C22	Site Establishment Management Plan	One month prior to the establishment of any construction ancillary facilities	Approval
Part D - Operation Environmental Management			
D1 / D6	OEMP or EMS	One month prior to commencement of operation	Approval
D3 / D6	OEMP Sub-plans	One month prior to commencement of operation	Approval
D12	Groundwater monitoring review	Within two weeks of the groundwater monitoring review	Notification
D8 / D14	Operational Monitoring Programs	One month prior to commencement of operation	Approval
D17	Operational Monitoring Report	As specified in the Operational Monitoring Program	Information
Part E – Key Issues			
E8	Emergency discharges	As soon as reasonably practicable	Notification
E10	Future modification of ventilation system	Prior to finalising detailed design	Information
E13 / E15	Tunnel Ventilation, Traffic Incident Response and Traffic Management Systems Integration Protocol	One month prior to commencement of operation of a tunnel (whether in part or in full)	Information
E17	Independent Reviewer for in-tunnel ventilation and ventilation outlet	Prior to the operation of the CSSI	Approval

Condition*	Report / Notification / Appointments	Timing ¹	Purpose
	design		
E21	In-tunnel monitoring stations methodology and location	Prior to the operation of the CSSI	Approval
E22	Independent person for auditing of monitoring points	Prior to commencing monitoring for compliance	Approval
E25	Establishment and operation of monitoring stations		Approval
E26	Closure or discontinued use of ambient air quality monitoring stations	At least one month prior to the proposed closure or discontinued use of the monitoring stations	Approval
E27	In-tunnel air quality reporting system	Prior to commencing operation	Approval
E29A	Notification of Above-Emission Limit Recording	As soon as possible and within 24 hours of the recording	Information
E30	Above goal in-tunnel air quality recordings	As early as possible and within 24 hours of the recorded event	Notification
E31	Tunnel Air Quality Management Systems Effectiveness Report	Within 20 working days of a request from the Secretary	Information
E31	Independent specialist for review of Tunnel Air Quality Management Systems Effectiveness Report	Prior to submissions of Tunnel Air Quality Management Systems Effectiveness Report to the Secretary	Approval
E32	Ambient Air Quality Goal Protocol	At least 12 months prior to the commencement of operation	Approval
E32	Independent person to prepare Report on Above-Goal Recording	Prior to the preparation of the Report on Above-Goal Recording	Approval
E33	Above goal ambient air quality recordings	As soon as possible and within 24 hours of the recording	Notification
E34	Report on Above-Goal recording	Within 20 days of a notification of an above goal ambient air quality recording	Information
E37 / E38	Independent air quality auditor	Following commencement of operation and before the first audit	Approval
E40	Air quality monitoring audit results	Upon request of the Secretary	Information
E41	Independent QA/QC expert	Prior to commencement of monitoring of air quality and ventilation outlet emissions	Approval
E49	Use of local roads for spoil haulage	Prior to the use of the local roads	Approval

Condition*	Report / Notification / Appointments	Timing ¹	Purpose
E49B(e)	Use of Route A outside of AM and PM peak traffic during peak spoil generation	Prior to use of Route A outside of AM and PM peak traffic during peak spoil generation	Approval
E49D	Report on spoil haulage	Within four months following the commencement of tunnelling at Northcote Street construction ancillary facility and at three-monthly intervals thereafter	Information
E54	Construction Parking and Access Strategy	One month prior to any works that impact on parking	Approval
E56	Road Safety Audits	Upon request of the Secretary	Information
E60	Pedestrian and Cycle Implementation Strategy	One month prior to the construction of permanent built surface works that are the subject of the Urban Design and Landscape Plan or earthworks for the final landscaping of the Rozelle Rail Yards open space	Approval
E63	Road Network Performance Plan	Prior to the operation of the full CSSI	Information
E64	Operational Road Network Performance Review	Within 60 days of completion of the Review	Information
E76	Identification of respite periods	Prior to Out-of-Hours Work commencing	Information
E77	Out-of-Hours Work Protocol	Prior to the commencement of out-of-hours works	Approval
E77	High-risk Out-of-Hours works in accordance with the Out-of-Hours Work Protocol	Prior to the commencement of high risk out-of-hours works	Approval
E89	Noise Insulation Program	At least one month prior to the commencement of works (as part of the Construction Noise and vibration Management Sub-plan)	Approval
E92	Operational Noise and Vibration Review	Prior to the implementation of operational noise mitigation measures	Approval
E94	Report on non-implementation of operational noise mitigation measures	Prior to commencement of works that would impact identified sensitive receivers	Information
E94A	Operational noise monitoring of high voltage regulators and on load tap changers	Within one month of undertaking the monitoring	Information
E95	Operational Noise Compliance Report	Within 60 days of completing the operational monitoring	Information
E96 / E99	Blast Management Strategy	One month prior to the commencement of blasting	information

Condition*	Report / Notification / Appointments	Timing ¹	Purpose
E109	Composition of Independent Property Impact Assessment Panel	Prior to property impacts	Information
E112	Residual Land Management Plan	At least 12 months prior to the commencement of operation	Approval
E125 / E129	Design Review Panel members	During detailed design	Approval
E131	Design Review Panel Terms of Reference	Prior to detailed design	Information
E133 / E135	Urban Design and Landscape Plan	One month prior to the construction of permanent built surface works that are the subject of the Urban Design and Landscape Plan or earthworks for the final surface contouring of the Rozelle Rail Yards open space	Approval
E138	Solar Access and Overshadowing Report	Prior to the commencement of any structures that may cause over shadowing of residential properties	Information
E140	Utilities Management Strategy	At least one month prior to commencement of utility works	Approval
E153	Flood Review Reports	Within one month of finalising the reports	Information
E163	Heritage Archival Recording and Salvage Report	Within 12 months of completing the archival recording	Information
E169(e)	Relic findings	In accordance with the timeframe detailed in the Heritage Archaeological Research Design and Excavation Methodology	Notification
E172	Archaeological Excavation Report	Within 12 months of completing all archaeological investigations	Information
E179	Tree report	One month prior to operation	Information
E183	Site Audit Statement and Site Audit Report	One month prior to commencement of operation	Information
E193	Groundwater Modelling Report	Prior to finalising tunnel design	Information
E194	Updated Groundwater Modelling Report	Once 24 months of construction groundwater monitoring data are available	Information
E198	Water Reuse Strategy	Prior to commencing tunnelling works. Where a separate strategy is prepared for operation this is to be submitted at least six months prior to commencement of operation	Approval
E199 / E200	Sustainability Strategy	Prior to commencement of works	Information

* Where two condition references are listed, the first reference refers to the condition which sets out what is required in the document and the second refers to the condition that indicates the timing and purpose.

SCHEDULE 2

PART A

ADMINISTRATIVE CONDITIONS

GENERAL

- A1 The CSSI must be carried out in accordance with the terms of this approval and generally in accordance with the description of the CSSI in the *WestConnex M4-M5 Link Environmental Impact Statement – Volumes 1A-C and 2A-J* (dated August 2017) (the EIS) as amended by:
- (a) the *WestConnex M4-M5 Link Submissions and Preferred Infrastructure Report* (dated January 2018) (the SPIR);
 - (b) the *WestConnex M4-M5 Link Mainline Tunnel Modification Report* (dated September 2018) (Modification 1 Report) as amended by the *WestConnex M4-M5 Link Mainline Tunnel Modification Response to Submissions* (dated November 2018) (Modification 1 RtS); and
 - (c) the *WestConnex M4-M5 Link Rozelle Interchange Iron Cove Ventilation Underground Modification Report* (dated November 2019) as amended by the *WestConnex M4-M5 Link Rozelle Interchange Iron Cove Ventilation Underground Modification Response to Submissions Report* (dated March 2020).
- A2 The CSSI must be carried out in accordance with all procedures, commitments, preventative actions, performance criteria and mitigation measures set out in the documents listed in Condition A1 unless otherwise specified in, or required under, this approval.
- A3 In the event of an inconsistency between the documents listed in Condition A1 or any other document required under this approval, and a term of this approval, the term of this approval prevails to the extent of the inconsistency.
- Note: For the purpose of this condition, there will be an inconsistency between a term of this approval and any document if it is not possible to comply with both the term and the document.*
- A4 The Proponent must comply with all requirements of the Secretary in relation to:
- (a) the environmental performance of the CSSI;
 - (b) any document or correspondence under the terms of this approval in relation to the CSSI;
 - (c) any notification given to the Secretary under the terms of this approval;
 - (d) any audit of the construction or operation of the CSSI;
 - (e) compliance with the terms of this approval (including anything required to be done under this approval);
 - (f) the carrying out of any additional monitoring or mitigation measures; and
 - (g) in respect of ongoing monitoring and management obligations, compliance with an updated or revised version of a guideline, protocol, Australian Standard or policy required to be complied with under this approval.
- A5 In the event that there are differing interpretations of the terms of this approval, including in relation to a condition of this approval, the Secretary's interpretation is final.

- A6 Where the terms of this approval require a document or monitoring program to be prepared or a review to be undertaken in consultation with identified parties, evidence of the consultation undertaken must be submitted to the Secretary with the document. The evidence must include:
- (a) documentation of the engagement with the party(s) identified in the condition of approval that has occurred prior to submitting the document for approval;
 - (b) log of the points of engagement or attempted engagement with the identified party(s) and a summary of the issues raised by them;
 - (c) documentation of the follow-up with the identified party(s) where feedback has not been provided to confirm that they have none or have failed to provide feedback after repeated requests;
 - (d) outline of the issues raised by the identified party(s) and how they have been addressed; and
 - (e) a description of the outstanding issues raised by the identified party(s) and the reasons why they have not been addressed.
- A7 Where the terms of approval provide for Secretarial discretion (for example in relation to the timing of an action), the Proponent must provide supporting evidence so that the Secretary can consider the need, environmental impacts and consistency of any request.
- Note: Inaction and/or expedience will not be supported as justifications for need unless it can be demonstrated that there is beneficial environmental impacts associated with the request.*
- A8 Where a condition of this approval requires the Proponent to submit a document or notification to the Secretary or obtain an approval from the Secretary within a specified time period, the Proponent may make a written request to the Secretary seeking an alternative timeframe. Any request must be made at least one (1) month prior to the submission timeframe stipulated in the condition of approval relating to the variation request.
- A9 Without limitation, all strategies, plans, programs, reviews, audits, report recommendations, protocols and the like required by the terms of this approval must be implemented by the Proponent in accordance with all requirements issued by the Secretary from time to time in respect of them.
- A10 This approval lapses five (5) years after the date on which it is granted, unless works for the purpose of the CSSI are physically commenced on or before that date.
- A11 The Proponent is responsible for any breaches of the conditions of this approval resulting from the actions of all persons that it invites onto any site, including contractors, sub-contractors and visitors.

STAGING

- A12 The CSSI may be constructed and operated in stages. Where staged construction or operation is proposed, a **Staging Report** (for either or both construction and operation as the case requires) must be prepared, **then endorsed by the ER and then** submitted to the Secretary for information. The **Staging Report** must be submitted to the Secretary no later than one (1) month prior to the commencement of construction of the first of the proposed stages of

construction (or if only staged operation is proposed, one (1) month prior to the commencement of operation of the first of the proposed stages of operation).

A13 The **Staging Report** must:

- (a) if staged construction is proposed, set out how the construction of the whole of the CSSI will be staged, including details of work and other activities to be carried out in each stage and the general timing of when construction of each stage will commence and finish;
- (b) if staged operation is proposed, set out how the operation of the whole of the CSSI will be staged, including general details of work and other activities to be carried out in each stage and the general timing of when operation of each stage will commence and finish (if relevant);
- (c) specify the relevant conditions of approval that apply to each stage and how compliance with those conditions will be achieved across and between each of the stages of the CSSI; and
- (d) set out mechanisms for managing any cumulative impacts arising from the proposed staging.

A14 The CSSI must be staged in accordance with the **Staging Report**, as submitted to the Secretary.

A15 Where staging is proposed, the terms of this approval that apply or are relevant to the works or activities to be carried out in a specific stage must be complied with at the relevant time for that stage.

A16 Where changes are proposed to the staging of construction or operation, a revised Staging Report must be prepared and submitted to the Secretary for information no later than one (1) month prior to the proposed change in the staging.

ENVIRONMENTAL REPRESENTATIVE

A17 Works must not commence until an **Environmental Representative (ER)** has been approved by the Secretary and engaged by the Proponent.

A18 The Secretary's approval of an **ER** must be sought no later than one (1) month prior to the commencement of works.

A19 The proposed **ER** must be a suitably qualified and experienced person who was not involved in the preparation of the EIS or SPIR, and is independent from the design and construction personnel for the CSSI.

A20 The Proponent may engage more than one **ER** for the CSSI, in which case the functions to be exercised by an **ER** under the terms of this approval may be carried out by any **ER** that is approved by the Secretary for the purposes of the CSSI.

A21 For the duration of the works until the completion of construction, the approved **ER** must:

- (a) receive and respond to communication from the Secretary in relation to the environmental performance of the CSSI;
- (b) consider and inform the Secretary on matters specified in the terms of this approval;

- (c) consider and recommend to the Proponent any improvements that may be made to work practices to avoid or minimise adverse impact to the environment and to the community;
 - (d) review documents identified in **Conditions C1, C4 and C9** and any other documents that are identified by the Secretary, to ensure they are consistent with requirements in or under this approval and if so:
 - (i) make a written statement to this effect before submission of such documents to the Secretary (if those documents are required to be approved by the Secretary), or
 - (ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Secretary / Department for information or are not required to be submitted to the Secretary / Department);
 - (e) regularly monitor the implementation of the documents listed in **Conditions C1, C4 and C9** to ensure implementation is being carried out in accordance with the document and the terms of this approval;
 - (f) as may be requested by the Secretary, help plan, attend or undertake audits of the development commissioned by the Department including scoping audits, programming audits, briefings and site visits, but not independent environmental audits required under **Condition A36** of this approval;
 - (g) as may be requested by the Secretary, assist the Department in the resolution of community complaints;
 - (h) assess the impacts of minor ancillary facilities comprising lunch sheds, office sheds and portable toilet facilities as required by **Condition C24** of this approval;
 - (i) consider any minor amendments to be made to the CEMP, CEMP Sub-plans, [Site Establishment Management Plan\(s\)](#) and monitoring programs that comprise updating or are of an administrative nature, and are consistent with the terms of this approval and the CEMP, CEMP Sub-plans and monitoring programs approved by the Secretary and, if satisfied such amendment is necessary, approve the amendment. This does not include any modifications to the terms of this approval; and
 - (j) prepare and submit to the Secretary and other relevant regulatory agencies, for information, an **Environmental Representative Monthly Report** providing the information set out in the *Environmental Representative Protocol* under the heading "Environmental Representative Monthly Reports." The **Environmental Representative Monthly Report** must be submitted within seven (7) calendar days following the end of each month for the duration of the **ER's** engagement for the CSSI, or as otherwise agreed with the Secretary.
- A22 The Proponent must provide the **ER** with all documentation requested by the **ER** in order for the **ER** to perform their functions specified in **Condition A21** (including preparation of the **Environmental Representative Monthly Report**), as well as:
- (a) the complaints register (to be provided on a daily basis); and
 - (b) a copy of any assessment carried out by the Proponent of whether proposed work is consistent with the approval (which must be provided to the **ER** before the commencement of the subject work).
- A23 The Secretary may at any time commission an audit of an **ER's** exercise of its functions under **Condition A21**. The Proponent must:
- (a) facilitate and assist the Secretary in any such audit; and
 - (b) make it a term of their engagement of an **ER**, that the **ER** facilitate and assist the Secretary in any such audit.

ACOUSTICS ADVISOR

- A24 A suitably qualified and experienced **Acoustics Advisor (AA)**, who is independent of the design and construction personnel, must be nominated by the Proponent and engaged for the duration of works and for no less than six (6) months following completion of construction of the CSSI.

The details of the nominated **AA** must be submitted to the Secretary for approval no later than one (1) month before commencement of works.

The Proponent must cooperate with the **AA** by:

- (a) providing access to noise and vibration monitoring activities as they take place;
- (b) providing for review of noise and vibration plans, assessments, monitoring reports, data and analyses undertaken; and
- (c) considering any recommendations to improve practices and demonstrating, to the satisfaction of the **AA**, why any recommendation is not adopted.

- A25 Any activities generating noise in excess of the 'Noise affected' Noise Management Levels derived from the *Interim Construction Noise Guideline* must not commence until an **AA**, nominated under **Condition A24** of this approval, has been approved by the Secretary.

- A26 The approved **AA** must:

- (a) receive and respond to communication from the Secretary in relation to the performance of the CSSI in relation to noise and vibration;
- (b) consider and inform the Secretary on matters specified in the terms of this approval relating to noise and vibration;
- (c) consider and recommend, to the Proponent, improvements that may be made to avoid or minimise adverse noise and vibration impacts;
- (d) review all noise and vibration documents required to be prepared under the terms of this approval and, should they be consistent with the terms of this approval, endorse them before submission to the Secretary (if required to be submitted to the Secretary) or before implementation (if not required to be submitted to the Secretary);
- (e) regularly monitor the implementation of all noise and vibration documents required to be prepared under the terms of this approval to ensure implementation is in accordance with what is stated in the document and the terms of this approval;
- (f) notify the Secretary of noise and vibration incidents in accordance with **Condition A40** of this approval;
- (g) in conjunction with the **ER**, the **AA** must:
 - (i) as may be requested by the Secretary or **Community Complaints Mediator** (required by **Condition B13**), help plan, attend or undertake audits of noise and vibration management of the CSSI including briefings, and site visits,
 - (ii) in the event that conflict arises between the Proponent and the community in relation to the noise and vibration performance of the CSSI, follow the procedure in the **Communication Strategy** approved under **Condition B2** to attempt to resolve the conflict, and if it cannot be resolved, notify the Secretary,
 - (iii) consider relevant minor amendments made to the CEMP, relevant sub-plans and noise and vibration monitoring programs that require updating or are of an administrative nature, and are consistent with the terms of this approval and the

management plans and monitoring programs approved by the Secretary and, if satisfied such amendment is necessary, endorse the amendment. This does not include any modifications to the terms of this approval,

- (iv) review the noise impacts of minor construction ancillary facilities, and
- (v) prepare and submit to the Secretary and other relevant regulatory agencies, for information, a **Monthly Noise and Vibration Report** detailing the **AA**s actions and decisions on matters for which the **AA** was responsible in the preceding month. The **Monthly Noise and Vibration Report** must be submitted within seven (7) days following the end of each month for the duration of the **AA**'s engagement for the CSSI, or as otherwise agreed by the Secretary.

COMPLIANCE TRACKING PROGRAM

- A27 A **Compliance Tracking Program** to monitor compliance with the terms of this approval must be prepared, taking into consideration any staging of the CSSI that is proposed in a **Staging Report** submitted in accordance with **Conditions A12** and **A13** of this approval.
- A28 The **Compliance Tracking Program** must be endorsed by the ER and then submitted to the Secretary for information at least one (1) month prior to the commencement of works.
- A29 The **Compliance Tracking Program** in the form required under **Condition A28** of this approval must be implemented for the duration of works and for a minimum of one (1) year following commencement of operation, or for a longer period as determined by the Secretary based on the outcomes of independent environmental audits, **Environmental Representative Monthly Reports** and regular compliance reviews submitted through **Compliance Reports**. If staged operation is proposed, or operation is commenced of part of the CSSI, the **Compliance Tracking Program** must be implemented for the relevant period for each stage or part of the CSSI.

CONSTRUCTION COMPLIANCE REPORTING

- A30 A **Pre-Construction Compliance Report** must be prepared and submitted to the Secretary for information no later than one (1) month prior to the commencement of construction (or each stage of construction identified in the Staging Report).
- A31 The **Pre-Construction Compliance Report** must include:
- (a) details of how the terms of this approval that must be addressed before the commencement of construction have been complied with; and
 - (b) the proposed commencement date for construction.
- A32 Construction must not commence until the **Pre-Construction Compliance Report** has been submitted to the Secretary.
- A33 **Construction Compliance Reports** must be prepared and submitted to the Secretary for information every six (6) months from the date of the commencement of construction for the duration of construction. The **Construction Compliance Reports** must include:
- (a) a results summary and analysis of environmental monitoring;

- (b) the number of any complaints received, including a summary of main areas of complaint, action taken, response given and proposed strategies for reducing the recurrence of such complaints;
- (c) details of any review of, and minor amendments made to, the **CEMP** as a result of construction carried out during the reporting period;
- (d) a register of any consistency assessments undertaken and their status;
- (e) results of any independent environmental audits and details of any actions taken in response to the recommendations of an audit;
- (f) a summary of all incidents notified in accordance with **Conditions A40** and **A42** of this approval; and
- (g) any other matter relating to compliance with the terms of this approval or as requested by the Secretary.

PRE-OPERATION COMPLIANCE REPORT

A34 A **Pre-Operation Compliance Report** must be prepared and submitted to the Secretary for information no later than one (1) month prior to the commencement of operation. The **Pre-Operation Compliance Report** must include:

- (a) details of how the terms of this approval that must be addressed before the commencement of operation have been complied with; and
- (b) the commencement date for operation.

A35 Operation must not commence until the **Pre-Operation Compliance Report** has been submitted for information to the Secretary.

AUDITING

A36 An **Environmental Audit Program** for annual independent environmental auditing against the terms of this approval must be prepared in accordance with *AS/NZS ISO 19011:2014 - Guidelines for Auditing Management Systems* and submitted to the Secretary for information no later than one (1) month prior to the commencement of construction.

A37 The **Environmental Audit Program**, as submitted to the Secretary, must be implemented and complied with for the duration of construction and operation.

A38 All independent environmental audits of the CSSI must be conducted by a suitably qualified, experienced and independent team of experts in auditing and be documented in an **Environmental Audit Report** which:

- (a) assesses the environmental performance of the CSSI, and its effects on the surrounding environment;
- (b) assesses whether the project is complying with the terms of this approval; and
- (c) recommends measures or actions to improve the environmental performance of the CSSI.

A39 The Proponent must submit a copy of the **Environmental Audit Report** to the Secretary for information, with a response to any recommendations contained in the audit report within six (6) weeks of completing the audit.

INCIDENT NOTIFICATION AND REPORTING

- A40 The Secretary must be notified as soon as possible and in any event within 24 hours of any incident.
- A41 Notification of an incident under **Condition A40** of this approval must include the time and date of the incident, details of the incident and must identify any consequent non-compliance with this approval.
- A42 All written requirements of the Secretary or relevant public authority, which may be given at any point in time, to address the cause or impact of an incident must be complied with, within any timeframe specified by the Secretary or relevant public authority.
- A43 If statutory notification is given to the EPA as required under the POEO Act in relation to the CSSI, such notification must also be provided to the Secretary within 24 hours after the notification was given to the EPA.

IDENTIFICATION OF WORKFORCE AND COMPOUNDS

- A44 All construction spoil haulage vehicles must be clearly marked as being for WestConnex M4-M5 Link (including CSSI application number) in such a manner to enable immediate identification within at least 50 metres of the vehicles.
- A45 Signage on hoardings surrounding construction ancillary facilities must include the CSSI name and application number.

PART B

COMMUNITY INFORMATION AND REPORTING

COMMUNITY INFORMATION, CONSULTATION AND INVOLVEMENT

Communication Strategy

- B1 A **Communication Strategy** must be prepared to facilitate communication between the Proponent, and the community (including relevant councils, government authorities, adjoining affected landowners and businesses, and others directly impacted by the CSSI).
- B2 The **Communication Strategy** must:
- (a) identify people and organisations to be consulted during the design and work phases;
 - (b) set out procedures and mechanisms for the regular distribution of accessible information about or relevant to the CSSI;
 - (c) identify opportunities to provide accessible information regarding regularly updated site construction activities, schedules and milestones at each construction site including use of construction hoardings to provide information regarding construction specific to the location;
 - (d) identify opportunities for the community to visit construction sites (taking into consideration on-site activities and workplace, health and safety requirements);
 - (e) detail the measures for advising the community in advance of upcoming utility works;
 - (f) provide for the formation of issue or location-based community forums that focus on key environmental management issues of concern to the relevant community(s) for the CSSI;
 - (g) set out procedures and mechanisms for consulting with relevant council(s) and government authorities/agencies, as required under the terms of this approval, including procedures for repeated requests and nil responses;
 - (h) detail the roles and responsibilities of the Public Liaison Officer(s) engaged under **Condition B6**;
 - (i) set out procedures and mechanisms:
 - (i) through which the community can discuss or provide feedback to the Proponent,
 - (ii) through which the Proponent will respond to enquiries or feedback from the community, and
 - (iii) to resolve any issues and mediate any disputes that may arise in relation to environmental management and delivery of the CSSI.
- B3 The **Communication Strategy** must be submitted to the Secretary for approval no later than one (1) month prior to the commencement of any work.
- B4 Work for the purposes of the CSSI must not commence until the **Communication Strategy** has been approved by the Secretary.
- B5 The **Communication Strategy**, as approved by the Secretary, must be implemented for the duration of the works and for 12 months following the completion of construction.

Public Liaison Officer

- B6 A **Public Liaison Officer(s)** must be appointed for construction ancillary facility(s) and for utility works to assist the public with questions and complaints they may have at any time during construction. The **Public Liaison Officer(s)** must be available at all times that works are occurring.

WestConnex Acquisition Assistance Line

- B7 Prior to the commencement of works, the Proponent must maintain and operate a toll-free **WestConnex Acquisition Assistance Line** for a period of up to six (6) months following completion of the final acquisition required for the CSSI, unless otherwise agreed by the Secretary. The **WestConnex Acquisition Assistance Line** must provide an ongoing dispute resolution, counselling program and contact information to relevant services for all relocated persons. The **WestConnex Acquisition Assistance Line** must also provide first language support for relocated persons with English as a second language.

The management of the assistance line is to be outlined within the **Communication Strategy** as required by **Condition B1** and is to be maintained and operated separately from the standard complaints and enquiries procedure.

The Proponent must provide all relevant contact details for the **WestConnex Acquisition Assistance Line** to relocated persons prior to the commencement of works.

Nothing in this condition prevents the Proponent from utilising the existing toll-free **WestConnex Acquisition Assistance Line** established for the WestConnex M4 East and New M5 projects.

COMPLAINTS MANAGEMENT SYSTEM

- B8 A **Complaints Management System** must be prepared prior to the commencement of any works in respect of the CSSI and be implemented and maintained for the duration of construction and for a minimum for 12 months following completion of construction of the CSSI.
- B9 The **Complaints Management System** must include a **Complaints Register** to be maintained recording information on all complaints received about the CSSI during the carrying out of any works associated with the CSSI and for a minimum of 12 months following the completion of construction of the CSSI. The **Complaints Register** must record the:
- (a) number of complaints received;
 - (b) number of people affected in relation to a complaint; and
 - (c) nature of the complaint and means by which the complaint was addressed and whether resolution was reached, with or without mediation.
- B10 The **Complaints Register** must be provided to the Secretary upon request, within the timeframe stated in the request.
- B11 The following must be available within one (1) month prior to the commencement of works and for 12 months following the completion of construction of the CSSI and appropriately broadcast to manage community enquiries and complaints:
- (a) a 24 hour toll-free telephone number for the registration of complaints and enquiries about the CSSI;

- (b) a postal address to which written complaints and enquires may be sent;
 - (c) an email address to which electronic complaints and enquiries may be transmitted;
 - (d) a mediation system for complaints unable to be resolved; and
 - (e) a mechanism for community members to make enquiries in common community languages of the area.
- B12 The telephone number, postal address and email address required under **Condition B11** of this approval must be published in a newspaper circulating in the local area and on-site hoarding at each construction site before commencement of works and published in the same way again prior to the commencement of operation. This information must also be provided on the website required under **Condition B17** of this approval.
- B13 A **Community Complaints Mediator** that is independent of the design and construction personnel must be nominated by the Proponent, approved by the Secretary and engaged during all works associated with the CSSI. The request nominating the **Community Complaints Mediator** must be submitted to the Secretary for approval within one (1) month of the date of this approval.
- B14 The role of the **Community Complaints Mediator** is to address any complaint where a member of the public is not satisfied by the Proponent's response. Any member of the public that has lodged a complaint which is registered in the Complaints Management System identified in **Condition B8** may ask the **Community Complaints Mediator** to review the Proponent's response. The application must be submitted in writing and the **Community Complaints Mediator** must respond within 28 days of the request being made or other specified timeframe agreed between the **Community Complaints Mediator** and the member of the public.
- B15 The **Community Complaints Mediator** will:
- (a) review the Proponent's unresolved disputes between the project and members of the public if the procedures and mechanisms under **Condition B2(i)(iii)** do not satisfactorily address complaints; and
 - (b) make recommendations to the Proponent to satisfactorily address complaints, resolve disputes or mitigate against the occurrence of future complaints or disputes.
- B16 The **Community Complaints Mediator** will not act before the Proponent has provided an initial response to a complaint and will not consider issues such as property acquisition where other dispute processes are provided for in this approval, or clear government policy and resolution processes are available, or matters which are not within the scope of the CSSI.

PROVISION OF ELECTRONIC INFORMATION

- B17 A website providing information in relation to the CSSI must be established before commencement of works and maintained for the duration of works, and for a minimum of 24 months following the completion of construction of the CSSI. The following up-to-date information (excluding confidential, private and commercial information) must be published prior to works commencing and maintained on the website or dedicated pages:
- (a) information on the current implementation status of the CSSI;

- (b) a copy of the documents listed in **Condition A1** of this approval, and any documentation relating to any modifications made to the CSSI or the terms of this approval;
- (c) a copy of this approval in its original form, a current consolidated copy of this approval (that is, including any approved modifications to its terms), and copies of any approval granted by the Minister to a modification of the terms of this approval; and
- (d) a copy of each licence or permit required and obtained in relation to the CSSI.

Where a condition(s) of this approval requires a document(s) be prepared prior to a work or construction or operational activity being undertaken, a current copy of the relevant document(s) must also be published on the website before the work / activity is undertaken.

PART C

CONSTRUCTION ENVIRONMENTAL MANAGEMENT

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

- C1 A **Construction Environmental Management Plan (CEMP)** must be prepared in accordance with the Department's *Guideline for the Preparation of Environmental Management Plans* (DIPNR, 2004) to detail how the performance outcomes, commitments and mitigation measures specified in the documents listed in **Condition A1** will be implemented and achieved during all stages of construction.
- C2 The **CEMP** must provide:
- (a) a description of activities to be undertaken during construction (including the scheduling of construction [and figures depicting the site layouts of the construction ancillary facilities](#));
 - (b) details of environmental policies, guidelines and principles to be followed in the construction of the CSSI;
 - (c) a schedule for compliance auditing;
 - (d) a program for ongoing analysis of the key environmental risks arising from the activities described in subsection (a) of this condition, including an initial risk assessment undertaken before the commencement of construction of the CSSI;
 - (e) details of how the activities described in subsection (a) of this condition will be carried out to:
 - (i) meet the performance outcomes stated in the documents listed in **Condition A1**, and
 - (ii) manage the risks identified in the risk analysis undertaken in subsection (d) of this condition;
 - (f) an inspection program detailing the activities to be inspected and frequency of inspections;
 - (g) a protocol for managing and reporting any:
 - (i) incidents, and
 - (ii) non-compliances with this approval and with statutory requirements;
 - (h) procedures for rectifying any non-compliance with this approval identified during compliance auditing, incident management or at any time during construction;
 - (i) a list of all the **CEMP Sub-plans** required in respect of construction, as set out in **Condition C4**. Where staged construction of the CSSI is proposed, the **CEMP** must also identify which **CEMP Sub-plan** applies to each of the proposed stages of construction;
 - (j) a description of the roles and environmental responsibilities for relevant employees and their relationship with the **ER**;
 - (k) an outline of the training and induction for employees, including contractors and sub-contractors, in relation to environmental and compliance obligations under the terms of this approval; and
 - (l) the process for periodic review and update of the **CEMP** and all associated plans and programs.
- C3 The **CEMP** must be endorsed by the **ER** and then submitted to the Secretary for approval no later than one (1) month prior to the commencement of construction, or where construction is staged no later than one (1) month prior to the commencement of that stage.

- C4 The following **CEMP Sub-plans** must be prepared in consultation with the relevant authorities identified for each **CEMP Sub-plan** and be consistent with the **CEMP** referred to in the EIS.

	Required CEMP Sub-plan	Relevant authority(s) and council(s) to be consulted for each CEMP Sub-plan
(a)	Traffic and transport and access	Port Authority of NSW*, Sydney Coordination Office and relevant council(s)
(b)	Noise and vibration	EPA and relevant council(s)
(c)	Flora and fauna	OEH and relevant council(s)
(d)	Air quality	EPA and relevant council(s)
(e)	Soil and surface water	DPI Water; OEH; EPA; Sydney Water; and relevant council(s)
(f)	Groundwater	DPI Water
(g)	Non-Aboriginal heritage	Heritage Council of NSW; Heritage Division; and relevant council(s)
(h)	Aboriginal cultural heritage	OEH
(i)	Waste management	N/A

* Port Authority of NSW to be consulted when considering impacts on port land.

- C5 The **CEMP Sub-plans** must state how:
- (a) the environmental performance outcomes identified in the documents listed in **Condition A1** as modified by these conditions will be achieved;
 - (b) the mitigation measures identified in the documents listed in **Condition A1** as modified by these conditions will be implemented;
 - (c) the relevant terms of this approval will be complied with; and
 - (d) issues requiring management during construction (including cumulative impacts), as identified through ongoing environmental risk analysis, will be managed.
- C6 The **CEMP Sub-plans** must be endorsed by the **ER** and then submitted to the Secretary for approval no later than one (1) month prior to the commencement of the construction activities to which they apply.
- C7 Any of the **CEMP Sub-plans** may be submitted to the Secretary along with, or subsequent to, the submission of the **CEMP**.
- C8 Construction must not commence until the **CEMP** and all **CEMP Sub-plans** have been approved by the Secretary. The **CEMP** and **CEMP Sub-plans**, as approved by the Secretary, including any minor amendments approved by the **ER**, must be implemented for the duration of construction. Where the CSSI is being staged, construction of that stage is not to commence until the relevant **CEMP** and **CEMP sub-plans** have been endorsed by the **ER** and approved by the Secretary.

CONSTRUCTION MONITORING PROGRAMS

- C9 The following **Construction Monitoring Programs** must be prepared in consultation with the relevant authorities identified for each **Construction Monitoring Program** to compare actual performance of construction of the CSSI against predicted performance.

	Required Construction Monitoring Programs	Relevant authority(s) and council(s) to be consulted for each Construction Monitoring Program
(a)	Surface Water Quality Monitoring Program	DPI Water, Sydney Water and relevant council(s)
(b)	Groundwater Monitoring Program	DPI Water, Sydney Water and relevant council(s)
(c)	Noise and Vibration Monitoring Program	Relevant council(s), NSW Health
(d)	Blast Monitoring Program	EPA
(e)	Dust Deposition Monitoring Program	EPA

- C10 Each **Construction Monitoring Program** must provide:

- details of baseline data available;
- details of baseline data to be obtained and when;
- details of all monitoring of the project to be undertaken;
- the parameters of the project to be monitored;
- the frequency of monitoring to be undertaken;
- the location of monitoring;
- the reporting of monitoring and analysis results against relevant criteria;
- details of the methods that will be used to analyse the monitoring data;
- procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory; and
- any consultation to be undertaken in relation to the monitoring programs.

- C11 The **Noise and Vibration Monitoring Program** must include:

- noise monitoring at agreed representative sensitive receiver locations adjacent to the Parramatta Road East and West construction ancillary facilities in Bland and Alt Streets to confirm that construction noise levels do not exceed the 'Noise affected' Noise Management Levels as identified in the ICNG;
- noise monitoring associated with **Condition E88** and Appendix E at agreed representative sensitive residential receiver locations alongside those properties bordering the Northcote Street construction ancillary facility that have been identified as eligible for construction noise treatment in Appendix E and in Paige Avenue and/or Earle Avenue located immediately outside, and to the east and west of the nominated boundary in Appendix E;
- for the purposes of (a) and (b), noise monitoring during the day, evening and night-time periods must be undertaken within the first month of operation of the construction ancillary

- facilities and must cover the range of activities (excluding activities associated with site establishment) being undertaken at the sites; and
- (d) provision of real time noise and vibration monitoring data. The data must be readily available to the construction team, Proponent, **ER** and **AA**. The Department and EPA must be provided with access to the real-time monitoring data, on request.

C12 The Groundwater Monitoring Program must include:

- (a) daily measurement of the amount of water discharged from the water treatment plants;
- (b) water quality testing of the water discharged from the water treatment plants;
- (c) monitoring of groundwater pore pressures in the Hawkesbury Sandstone aquifers adjacent to the tunnel alignment, in consultation with DPI Water;
- (d) monitoring of groundwater electrical conductivity in key locations between saline water bodies and the tunnel as identified by the project groundwater model including:
 - (i) in the Haberfield / Lilyfield area to the south of Iron Cove,
 - (ii) in the Rozelle area to the north of Rozelle Bay,
 - (iii) in the Annandale area to the west of Rozelle Bay,
 - (iv) in the Rozelle area to the south east of Iron Cove, and
 - (v) in the St Peters area to the north west of Alexandra Canal,
 with a minimum of two (2) groundwater monitoring wells to be provided in each key location in consultation with DPI Water;
- (e) measures to record or otherwise estimate and report groundwater inflows into the tunnels during their construction;
- (f) a method for providing the data collected in (a) and (b) to Sydney Water every three (3) months to demonstrate the project's compliance with the discharge criteria and, if applicable, the Proponent's trade waste licence;
- (g) a method for providing the groundwater monitoring data to DPI Water every three (3) months during construction; and
- (h) the installation of a minimum of two (2) groundwater open hole monitoring wells in the north Rozelle / Lilyfield area to the west of the ventilation tunnel at Iron Cove to monitor groundwater quality and groundwater levels, in consultation with DPI Water.

C13 The Construction Monitoring Programs must be developed in consultation with the relevant authorities as identified in **Condition C9**.

C14 The Construction Monitoring Programs must be endorsed by the **ER** and then submitted to the Secretary for approval at least one (1) month prior to commencement of construction.

C15 Construction must not commence until the Secretary has approved all of the required **Construction Monitoring Programs** relevant to that activity and all the necessary baseline data for the required monitoring programs has been collected, to which the CEMP relates.

C16 The Construction Monitoring Programs, as approved by the Secretary, including any minor amendments approved by the **ER**, must be implemented for the duration of construction and for any longer period set out in the monitoring program or specified by the Secretary, whichever is the greater.

- C17 The results of the **Construction Monitoring Programs** must be submitted to the Secretary, and relevant regulatory authorities, for information in the form of a **Construction Monitoring Report** at the frequency identified in the relevant **Construction Monitoring Program**.
- C18 Where a relevant **CEMP Sub-plan** exists, the relevant **Construction Monitoring Program** may be incorporated into that **CEMP Sub-plan**.

CONSTRUCTION ANCILLARY FACILITIES

Options A and B, Haberfield

- C19 The Parramatta Road East and Parramatta Road West civil sites are to be used for parking and other works that do not exceed the 'Noise affected' Noise Management Levels as identified in the ICNG.
- C20 The Parramatta Road East and Parramatta Road West civil sites must not be used for spoil truck marshalling.
- C21 Deleted.

SITE ESTABLISHMENT WORKS

Site Establishment Management Plan

- C22 Before establishment of any construction ancillary facility as identified in the documents listed in **Condition A1** (and excluding minor construction ancillary facilities established under **Condition C24**), the Proponent must prepare a **Site Establishment Management Plan** which outlines the environmental management practices and procedures to be implemented for the establishment of the construction ancillary facilities. The **Site Establishment Management Plan** must be prepared in consultation with the relevant council(s) and government authorities. The Plan must be submitted to the Secretary for approval one (1) month prior to establishment of any construction ancillary facilities. The **Site Establishment Management Plan** must detail the management of the construction ancillary facilities and include:
- (a) a description of activities to be undertaken during establishment of the construction ancillary facility (including scheduling and duration of works to be undertaken at the site);
 - (b) figures illustrating the proposed site layout(s);
 - (c) a program for ongoing analysis of the key environmental risks arising from the site establishment activities described in subsection (a) of this condition, including an initial risk assessment undertaken prior to the commencement of site establishment works;
 - (d) details of how the site establishment activities described in subsection (a) of this condition will be carried out to:
 - (i) meet the performance outcomes stated in the documents listed in the EIS and SPIR,
 - (ii) to address the traffic and pedestrian impact assessment required by **Condition E51**, and
 - (iii) manage the risks identified in the risk analysis undertaken in subsection (c) of this condition; and
 - (e) a program for monitoring the performance outcomes, including a program for construction noise monitoring consistent with the requirements of **Conditions C9** and **C10**.

Nothing in this condition prevents the Proponent from preparing individual **Site Establishment Management Plans** for each construction ancillary facility.

Operation of Construction Ancillary Facilities

C23 The operation of a construction ancillary facility must not commence until the **CEMP** required by **Condition C1**, relevant **CEMP Sub-plans** required by **Condition C4** and relevant **Construction Monitoring Programs** required by **Condition C9** have been approved by the Secretary.

Minor Construction Ancillary Facilities

C24 Lunch sheds, office sheds, and portable toilet facilities, that are not identified as a construction ancillary facility in the documents listed in **Condition A1** can be established, where they satisfy the following criteria:

- (a) have no greater environmental and amenity impacts than those that can be managed through the implementation of environmental measures detailed in the **Site Establishment Management Plan** required under **Condition C22** of this approval; and
- (b) are located within the project boundary; and
- (c) have been assessed by the **ER** to have -
 - (i) minimal amenity impacts to surrounding residences and businesses, after consideration of matters such as compliance with the *Interim Construction Noise Guideline* (DECC, 2009), traffic and access impacts, dust and odour impacts, and visual (including light spill) impacts,
 - (ii) minimal environmental impact with respect to waste management and flooding, and
 - (iii) no impacts on biodiversity, soil and water, and heritage items beyond those already approved under other terms of this approval.

Boundary Fencing and Screening

C25 Boundary fencing that incorporates screening must be erected around all construction ancillary facilities that are adjacent to sensitive receivers for the duration of site establishment and construction unless otherwise agreed with relevant council(s), and affected residents, business operators or landowners.

C26 Boundary fencing required under **Condition C25** of this approval must minimise visual, noise and air quality impacts on adjacent sensitive receivers.

PART D

OPERATIONAL ENVIRONMENTAL MANAGEMENT

OPERATIONAL ENVIRONMENTAL MANAGEMENT

- D1 An **Operational Environmental Management Plan (OEMP)** must be prepared in accordance with the *Guideline for the Preparation of Environmental Management Plans* (DIPNR, 2004) to detail how the performance outcomes, commitments and mitigation measures made and identified in the [documents listed in Condition A1](#) will be implemented and achieved during operation. This condition (**Condition D1**) does not apply if **Condition D2** of this approval applies.
- D2 An **OEMP** is not required for the CSSI if the Proponent has an **Environmental Management System (EMS)** or equivalent as agreed with the Secretary, and can demonstrate, to the written satisfaction of the Secretary, that through the **EMS**:
- (a) the performance outcomes, commitments and mitigation measures, detailed in the [documents listed in Condition A1](#), and specified relevant terms of this approval, can be achieved;
 - (b) issues identified through ongoing risk analysis can be managed; and
 - (c) procedures are in place for rectifying any non-compliance with this approval identified during compliance auditing, incident management or any other time during operation.
- D3 Where an **OEMP** is required, the Proponent must include the following **OEMP Sub-plans** in the **OEMP**:

	Required OEMP Sub-plan	Relevant authority(s) to be consulted for each OEMP Sub-plan
(a)	Groundwater management	DPI Water and Sydney Water

- D4 Each of the **OEMP Sub-plans** must include the information set out in **Condition D2 (a), (b) and (c)**.
- The **OEMP Sub-plans** must be developed in consultation with relevant authorities as identified in **Condition D3**.
- D5 The **OEMP Sub-plans** must be submitted to the Secretary as part of the **OEMP**.
- D6 The **OEMP** or **EMS** or equivalent as agreed with the Secretary, must be submitted to the Secretary for information no later than one (1) month prior the commencement of operation.
- D7 The **OEMP** or **EMS** or equivalent as agreed with the Secretary, as submitted to the Secretary and amended from time to time, must be implemented for the duration of operation and the **OEMP** or **EMS** must be made publicly available prior to the commencement of operation.

OPERATIONAL MONITORING PROGRAM

- D8 The following **Operational Monitoring Programs** must be prepared in consultation with the relevant authorities identified for each **Operational Monitoring Program** to compare actual operational performance against predicted performance.

	Required Operational Monitoring Programs	Relevant authority(s) and council(s) to be consulted for each Operational Monitoring Program
(a)	Surface Water Quality Plan & Monitoring Program	EPA; DPI Water; OEH; Sydney Water; and relevant council(s)
(b)	Groundwater Monitoring Program	DPI Water, relevant council(s), EPA and Sydney Water

- D9 Each operational monitoring program must include:

- (a) details of baseline data;
- (b) details of all monitoring of the project to be undertaken;
- (c) the parameters of the project to be monitored;
- (d) the frequency of monitoring to be undertaken;
- (e) the location of monitoring;
- (f) the reporting of monitoring and analysis results against relevant criteria;
- (g) details of the methods that will be employed to analyse the monitoring data;
- (h) procedures to identify and implement additional mitigation measures where results of monitoring are unsatisfactory; and
- (i) any consultation to be undertaken in relation to the monitoring programs.

- D10 The **Operational Surface Water Quality Plan and Monitoring Program** must address wetland and mosquito management.

- D11 The **Operational Groundwater Monitoring Program** must include:

- (a) daily measurement of the amount of water discharged from all water treatment plants;
- (b) water quality testing results of the water discharged from all water treatment plants;
- (c) monitoring of groundwater pore pressures in the Hawkesbury Sandstone aquifers adjacent to the tunnel alignment, in consultation with DPI Water;
- (d) monitoring of groundwater electrical conductivity in key locations between saline water bodies and the tunnel as identified by the project groundwater model including:
 - (i) in the Haberfield / Lilyfield area to the south of Iron Cove,
 - (ii) in the Rozelle area to the north of Rozelle Bay,
 - (iii) in the Annandale area to the west of Rozelle Bay,
 - (iv) in the Rozelle area to the south east of Iron Cove, and
 - (v) in the St Peters area to the north west of Alexandra Canal,
 with a minimum of two (2) groundwater monitoring wells provided in each key location in consultation with DPI Water;
- (e) measures to record or otherwise estimate and report groundwater inflows into the tunnels;

- (f) a method for providing the data collected in (a) and (b) to Sydney Water every three (3) months to demonstrate the project's compliance with the discharge criteria and, if applicable, the Proponent's trade waste licence;
 - (g) a process for annually forwarding data on the monthly volume of groundwater discharged from each water treatment plant to DPI Water for a minimum period of five (5) years, consistent with **Condition D12**; and
 - (h) the installation of a minimum of two (2) groundwater open hole monitoring wells in the north Rozelle / Lilyfield area to the west of the ventilation tunnel at Iron Cove to monitor groundwater quality and groundwater levels, in consultation with DPI Water.
- D12 Groundwater monitoring must continue for a period of at least five (5) years following the completion of construction of the Rozelle Interchange (and commence once the mainline tunnels are operational). At least one (1) month prior to the end of the five (5) year monitoring period, the Proponent must undertake a review of future monitoring requirements in consultation with DPI Water. The review must determine if additional monitoring is required, and the time period for continued monitoring. The Proponent must notify the Secretary within two (2) weeks of the review as to the outcomes of the review and any requirements for future monitoring.
- D13 The **Operational Monitoring Programs** must be developed in consultation with relevant authorities as identified in **Condition D8** of this approval.
- D14 The **Operational Monitoring Programs** must be submitted to the Secretary for approval at least one (1) month prior to the commencement of operation.
- D15 Operation must not commence until the Secretary has approved all of the required **Operational Monitoring Programs**, and all relevant baseline data has been collected.
- D16 The **Operational Monitoring Programs**, as approved by the Secretary, must be implemented for the duration identified in the relevant **Operational Monitoring Program** or specified by the Secretary, whichever is the greater.
- D17 The results of the **Operational Monitoring Programs** must be submitted to the Secretary, and relevant regulatory authorities, for information in the form of an **Operational Monitoring Report** at the frequency identified in the relevant **Operational Monitoring Program**.
- D18 Where a relevant **OEMP Sub-plan** exists, the relevant **Operational Monitoring Program** may be incorporated into that **OEMP Sub-plan**.

PART E

KEY ISSUE CONDITIONS

AIR QUALITY

- E1 In addition to the performance outcomes, commitments and mitigation measures specified in the documents listed in **Condition A1**, all reasonably practicable measures must be implemented to minimise the emission of dust and other air pollutants during the construction and operation of the CSSI.

Air Quality Community Consultative Committee

- E2 Prior to finalising the detailed design of the CSSI and establishing the ambient air quality monitoring stations required under **Condition E24**, the Proponent must establish an **Air Quality Community Consultative Committee (AQCCC)** to provide advice prior to and during the operation of the CSSI. The **AQCCC** must:

- (a) be comprised of -
 - (i) two representatives from the Proponent and tunnel operator,
 - (ii) one representative from each of the relevant councils, whose attendance is only required when considering matters relevant to their respective local government area,
 - (iii) three representatives from each local community adjacent to each ventilation facility whose attendance is only required when considering matters relevant to their respective local area, and whose appointment has been approved by an expression of interest process conducted by the Proponent in consultation with the Secretary, and
 - (iv) a Chair who is an independent from the design and construction of the CSSI put forward by the Proponent and approved by the Secretary;
- (b) meet at least four (4) times a year, or as otherwise agreed by the Chair and the Secretary;
- (c) review and provide advice on the location of the air quality monitoring stations required under **Condition E24**, operation environmental management plans and other operation stage documents, compliance tracking reporting, audit reports, or complaints as they relate to air quality; and
- (d) provide advice on the dissemination of monitoring results and other information on air quality issues.

The **AQCCC** may comprise the same members of the **AQCCC** established under CSSI approvals for the WestConnex M4 East and New M5 projects (SSI 6307 and SSI 6788) in relation to the ventilation outlets located in Haberfield and St Peters.

The **AQCCC** must operate for up to two (2) years after commencement of operation, or as otherwise approved or directed by the Secretary, in consultation with the Chair.

Ventilation Outlet Emission Limits

- E2A The concentration of a pollutant discharged from the ventilation outlets must not exceed the respective limits specified for that pollutant in Table 3A.

Table 3A: Ventilation Outlet Mass Pollutant Concentrations

Pollutant	100 percentile limit	Units of measurements	Averaging period	Reference conditions
Solid particles	1.1	mg/m ³	1 hour, or the minimum sampling period specified in the relevant test method, whichever is the greater	Dry, 273K, 101.3kPa
NO ₂ or NO or both, as NO ₂ equivalent	20	mg/m ³	1 hour block	Dry, 273K, 101.3kPa
NO ₂	2.0	mg/m ³	1 hour block	Dry, 273K, 101.3kPa
CO	40	mg/m ³	1 hour rolling	Dry, 273K, 101.3kPa
VOC (as propane)	4.0	mg/m ³	1 hour rolling	Dry, 273K, 101.3kPa

Air Quality Goals

In-Tunnel Air Quality Limits

- E3 The tunnel ventilation system must be designed and operated so that the average concentrations of CO and NO₂, calculated along the length of the tunnel, do not exceed the concentration limit specified for that pollutant in **Table 4**.

Table 4: In-tunnel average limits along length of tunnel

Pollutant	Concentration Limit	Units of measurement	Averaging period
CO	87	ppm	Rolling 15-minute
CO	50	ppm	Rolling 30-minute
NO ₂	0.5	ppm	Rolling 15-minute

- E4 The concentration of CO as measured at any single point in the tunnel must not exceed the concentration limit specified for that pollutant in **Table 5** under all traffic scenarios.

Table 5: In-tunnel single point exposure limits

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

- E5 The tunnel ventilation system must be designed and operated so that the visibility in the tunnel does not exceed the level specified in **Table 6**.

Table 6: In-tunnel visibility limits along length of tunnel

Parameter	Average extinction co-efficient Limit	Units of measurement	Averaging period
Visibility	0.005	m ⁻¹	Rolling 15-minute

Ambient Air Quality Goals

E6 Should ambient monitoring of air pollutants exceed the following goals, the provisions of **Conditions E32, E33 and E34** will 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);
- (c) PM₁₀ – 24 hour average of 50 µg/m³ (NEPM);
- (d) PM_{2.5} – 24 hour average of 25 µg/m³ (NEPM);
- (e) PM₁₀ – annual average of 25 µg/m³ (NEPM); and
- (f) PM_{2.5} – annual average of 8 µg/m³ (NEPM).

*Note: The notification and reporting obligations under **Conditions E32, E33 and E34** relating to ambient monitoring will begin at the commencement of operation of the CSSI. The first annual average concentrations for PM₁₀ and PM_{2.5} must be calculated on the first day the project has been in operation for 12 months and on a rolling basis thereafter.*

Emergency Discharge

E7 **Conditions E2A, E3, E4, E5, and E6** do not apply in an emergency, as defined in the OEMP required by **Condition D1**.

E8 The Proponent must, as soon as reasonably practicable, notify the Secretary and the EPA of any discharge during an emergency.

Air Quality Design Objectives

Tunnel Ventilation

E9 The tunnel ventilation systems must be designed, constructed and operated so as to only release emissions from ventilation outlets and not from the portals or the tunnel support facilities as identified in the documents listed in **Condition A1**, except for emergency smoke management purposes in the event of a fire in a tunnel or periodic testing of the system as defined in the OEMP required by **Condition D1**.

E10 *All tunnels must be designed and constructed so as to allow for future modification of the ventilation system if required.* The Proponent must submit a report to the Secretary demonstrating how this will be allowed for prior to finalising detailed design.

E11 The tunnel ventilation outlets must be constructed at the locations specified in **Appendices A, B and C**.

E12 The ventilation outlets must be constructed to tip heights within the following ranges:

Location	Outlet Reference	Outlet Elevation (m AHD)
City West Link, Rozelle	H – Western Harbour Tunnel	39.2 – 42.2
	I – M4-M5 Link/Iron Cove Link	40 - 43
	J – M4-M5 Link/ Iron Cove Link	39.5 – 42.5
Campbell Road, St Peters (K – M4-M5 Link)	SPI-5	32.9 – 35.9
	SPI-6	32.9 – 35.9
	SPI-7	32.8 – 35.8
	SPI-8	32.6 – 35.6
Victoria Road, Rozelle	L – Iron Cove Link	43.2 – 46.2

Air Quality Design Optimisation

E13 A **Tunnel Ventilation, Traffic Incident Response and Traffic Management Systems Integration Protocol** (Protocol) must be prepared in consultation with the TMC. The Protocol must be reviewed and endorsed by a suitably qualified and experienced independent ventilation specialist. The Protocol must demonstrate that the ventilation and traffic management systems would operate together to ensure conditions of this approval are met.

E14 The **Tunnel Ventilation, Traffic Incident Response and Traffic Management Systems Integration Protocol** must include a commissioning procedure that is to be carried out before a tunnel (or any part of it) is opened to traffic.

E15 *The **Tunnel Ventilation, Traffic Incident Response and Traffic Management Systems Integration Protocol** must be submitted to the Secretary for information no later than one (1) month prior to commencement of operation of a tunnel (whether in full or in part).*

E16 The **Tunnel Ventilation, Traffic Incident Response and Traffic Management Systems Integration Protocol**, must be implemented for the duration of operation.

E17 Prior to commencing operation, a person or organisation, who is independent from the design and construction of the CSSI, whose appointment has been approved by the Secretary, must review the in-tunnel ventilation and ventilation outlet design of the project and the **Tunnel Ventilation, Traffic Incident Response and Traffic Management Systems Integration Protocol** prepared in accordance with **Condition E13** to verify that:

- the final design achieves the in-tunnel and ventilation outlet limits for all traffic conditions including congestion (as described by the regulatory worst-case scenario in Chapter 9 of the EIS);
- the predicted impacts of the final design are no greater than predicted in the documents listed in **Condition A1** for the equivalent operating conditions; and
- the ventilation system has been optimised to achieve effective and responsive treatment of in-tunnel air quality and efficient energy consumption.

The operating scenarios used to model the final design should be the same as those used in the documents listed in **Condition A1**. Should the design review adopt a modelling program different to that used in the EIS, the EIS predictions shall be re-modelled using the model adopted for the design review, to establish the predicted outcomes under part (b).

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

Tunnel Air Quality Management

E18 Prior to operation, permanent signage must be installed at each surface tunnel entrance and variable messaging signage provided at regular intervals throughout the tunnel to instruct tunnel users to close windows and turn on recirculated air.

Relevant information about this instruction is to be provided on a website, operated by the Proponent, which is maintained throughout operation of the CSSI.

E19 Prior to operation, the Proponent must investigate, in consultation with the EPA, the measures for smoky vehicle enforcement in the tunnels. The effectiveness of the smoky vehicle enforcement measures must be documented in the Independent Environmental Audit required under **Condition A36**.

Ventilation Outlet Emissions Monitoring

E19A The Proponent must install monitoring equipment to monitor pollutants from the ventilation outlets. Pollutant monitoring from the ventilation outlets (by sampling and obtaining results by analysis) must be in accordance with the methods and frequencies for the pollutant parameters specified in **Table 6A** and be undertaken at commencement of and throughout operation.

The monitoring equipment must be verified by an independent auditor who is expert in tunnel ventilation outlet design prior to the commencement of monitoring for compliance with the requirements set out in **Table 6A**.

Table 6A: Ventilation Outlet Emission Monitoring Methodologies

Pollutant	Units of measure	Frequency	Method ¹
Solid particles	mg/m ³	Continuous	Special Method 1 ⁴
Solid particles	mg/m ³	Quarterly	TM-15
PM ₁₀	mg/m ³	Quarterly	OM-5
PM _{2.5}	mg/m ³	Quarterly	OM-5
NO ₂ or NO or both, as NO ₂ equivalent	mg/m ³	Continuous	CEM-2
NO ₂	mg/m ³	Continuous	CEM-2
CO	mg/m ³	Continuous	CEM-4
VOC ²	mg/m ³	Continuous	CEM-8
Speciated VOC	mg/m ³	Annual	TM-34
Speciated PAH ³	µg/m ³	Annual	OM-6
Parameter	Units of measure	Frequency	Method ¹
Velocity	m/s	Continuous	CEM-6
Volumetric flow rate	m ³ /s	Continuous	CEM-6
Moisture	%	Continuous	TM-22
Temperature	°C	Continuous	TM-2
Other	Units of measure	Frequency	Method ¹
Selection of sampling locations	N/A	N/A	TM-1

Notes:

1. Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (EPA 2007) or an alternative method approved by the Secretary in consultation with the EPA.
2. Must include, but not be limited to: Benzene, Toluene, Xylenes, 1,3-Butadiene, Formaldehyde and Acetaldehyde.

3. Must include, but not limited to; 16 USEPA priority PAHs, namely; Naphthalene, Phenanthrene, Benz(a)anthracene, Benzo(a)pyrene, 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.
4. Special Method 1 means a method approved by the Secretary in consultation with the EPA.

In-tunnel Air Quality Monitoring

E20 The Proponent must continuously monitor (by sampling and obtaining results from analysis) the pollutants within the tunnel specified in **Table 7**, using the methods approved by the Secretary. Monitoring must commence on the first day of operation of the CSSI and continue throughout the operation of the CSSI.

Table 7: In-Tunnel monitoring methodology

Pollutant/parameter	Units of measure
CO	ppm
NO ₂	ppm
Visibility	m ⁻¹

- E21 The number and location of the monitoring stations inside the tunnel must be determined to permit an accurate calculation, per the requirements of **Conditions E3, E4 and E5**, and be independently verified in accordance with a methodology developed in consultation with the EPA and approved by the Secretary prior to the operation of the CSSI. As a minimum, monitoring stations must be installed near intakes to the ventilation outlets, at the entry portals and at tunnel and ramp junctions.
- E22 All sampling points and visibility monitoring points must be audited prior to commencing monitoring, for compliance with the requirements set out in **Conditions E3, E4, E5 and E20**. Verification and compliance auditing is to be undertaken by an independent person(s) or organisation(s) whose appointment has been approved by the Secretary. The independent person(s) must be a Chartered Professional Engineer (either Mechanical, Chemical or Control Systems engineer).
- E23 Air quality monitoring data is to be made available in as close to real time as possible, under the website reporting requirements of **Condition E28**.

Ambient Air Quality — Monitoring

- E24 The Proponent must monitor (by sampling and obtaining results by analysis) the pollutants and parameters specified in **Table 8** using the sampling method, units of measure, and sampling frequency specified in the table. Monitoring must be undertaken at the following locations as a minimum:
- (a) two ground level receptors near the Rozelle ventilation outlet, at locations suitable for detecting any impact on air quality from the outlet;
 - (b) two ground level receptors near the Victoria Road ventilation outlet, at locations suitable for detecting any impact on air quality from the outlet;

- (c) two ground level receptors near the Campbell Road ventilation outlet, at locations suitable for detecting any impact on air quality from the outlet with one in a location different to that established under SSI 6788; and
- (d) two ground level receptors near the Haberfield ventilation outlet, at location suitable for detecting any impact on air quality from the outlet (these may be the same as those established under SSI 6307).

Table 8: Ambient Air Quality Monitoring Methodologies

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

Notes:

1. *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (EPA, 2007) or as otherwise agreed by EPA.*
2. *AS3580.9.8-2008, 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 (Standards Australia, 2008).*
3. *AS 3580.9.13-2013, Methods for the Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM_{2.5} Continuous Direct Mass Method using a Tapered Element Oscillating Microbalance Analyser (Standards Australia, 2013).*

4. *TBD - location for meteorological monitoring station(s) to be representative of weather conditions likely to occur in the vicinity of the Haberfield, Rozelle (including the Rozelle Rail Yards and Victoria Road) and Campbell Road ventilation outlets.*
5. *Appropriately modified to include size selective inlet for PM_{2.5} or as otherwise approved by the EPA.*

E25 The monitoring locations must be selected with the objective of achieving like-to-like comparison of monitoring results with available pre-construction data. The locations must also allow for the review of the accuracy of predicted environmental outcomes discussed in the documents referred to in **Condition A1** against monitored air quality as part of the environmental audit required under **Condition A36**.

The location of the monitoring stations must be agreed to by the **AQCCC** and subject to landowner's and occupier's agreement.

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

E26 The Proponent must commence monitoring for at least 12 continuous months prior to operation and continue monitoring for at least two (2) years following the commencement of operation. At the conclusion of the two (2) year operational monitoring period, the Proponent must review the need for the continued use of ambient monitoring stations in consultation with the **AQCCC** and EPA. Closure or discontinued use of an ambient monitoring station will require the approval of the Secretary.

Notification and Reporting

Air Quality — General Reporting

E27 The Proponent must develop and implement a reporting system for [ventilation outlet](#), in-tunnel and ambient limits. The reporting system must be approved by the Secretary and fully implemented and operational prior to operation. Minimum analytical reporting requirements for air pollution monitoring stations must be as specified in the [Approved Methods for the Sampling and Analysis of Air Pollutants in NSW](#) (EPA, 2007, or as updated).

Air Quality — Public Access to Monitoring Results

E28 Results of hourly updated real-time monitoring and relevant meteorological data must be provided on a website in an easy to interpret format. This data must be preliminary until a quality assurance check has been undertaken by a person or organisation, who is accredited by NATA for this purpose.

E29 The availability of monitoring data must be conveyed to the local community by way of newsletter (including translation into common community languages in the area) and newspaper advertisement at least one month prior to the commencement of operation.

Ventilation Outlet Emissions Notification and Reporting

E29A The Proponent must notify the Secretary, EPA and Ministry of Health of any recordings above the emission limits (**Above-Emission Limit Recording**) in **Condition E2A** as soon as possible and within 24 hours of the recording.

This notification must provide details of the circumstances of the event, including:

- (a) the nature of the event;
- (b) the concentration levels that occurred;
- (c) the timing and duration of the event; and
- (d) the measures employed to minimise the concentration levels.

E29B Within one (1) month of any notification of **Above-Emission Limit Recording**, the Proponent must prepare and submit to the EPA for information a **Report on Above-Emission Limit Recording** that details the cause of the exceedance, the effectiveness of any action(s) taken in response to the exceedance and the options available to prevent recurrence.

The **Report on Above-Emission Limit Recording** must include consideration of improvements to the tunnel air quality management system so as to achieve compliance with the ventilation outlet emission limits.

Tunnel Air Quality Notification and Reporting

E30 In addition to the general reporting requirements specified in **Condition E27**, the Proponent must notify the Secretary, EPA and Ministry of Health of any recordings above the limits specified in **Conditions E3, E4 and E5** as early as possible and within 24 hours of the recorded event.

This notification must provide details of the circumstances of the event, including:

- (a) the nature and location of the event, including details relating to the cause;
- (b) the timing and duration of the event;
- (c) the extent and severity of the event;
- (d) the measures employed to minimise the concentration levels, and measures to improve visibility levels in the event that visibility levels were above the specified limit;
- (e) the frequency of the event, including whether an event with the same or similar circumstances has occurred previously; and
- (f) the date when the Proponent will submit a **Tunnel Air Quality Management Systems Effectiveness Report** in accordance with **Condition E31**.

E31 Within 20 working days of a request by the Secretary, the Proponent must prepare and submit to the Secretary for information a **Tunnel Air Quality Management Systems Effectiveness Report** on the overall system performance and cause and major contributor of any exceedances, including:

- (a) the overall performance and concentration levels in the tunnel for the preceding six (6) month period (or since commencement of operation, where the CSSI has operated for under six (6) months), including average and maximum levels and time periods;
- (b) details of any instances throughout the operation of the CSSI where pollutant concentration levels in the tunnel have exceeded the limits specified in **Conditions E3, E4 and E5**; and
- (c) consideration of improvements to the tunnel air quality management system.

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

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

Ambient Air Quality Notification and Reporting

E32 The Proponent must prepare an **Ambient Air Quality Goal Protocol** for evaluating a potential measurement that exceeds the goals in **Condition E6**. The **Ambient Air Quality Goal Protocol** must be developed by the Proponent in consultation with the **AQCCC** and submitted to the Secretary for approval at least 12 months prior to the commencement of operation of the CSSI.

The **Ambient Air Quality Goal Protocol** must include:

- (a) a process for notification of a recording above the ambient air quality goals in **Condition E6**, subject to **Condition E33**;
- (b) the template that would be used for the **Report on Above-Goal Recording**, required by **Condition E34**; and
- (c) a process for appointing an independent person/organisation to prepare the **Report on Above-Goal Recording**. The process must include -
 - (i) approval of the independent person (independent of the environmental assessment, design and construction of the CSSI) by the Secretary prior to preparation of the report, and
 - (ii) the appointment of the independent person/organisation at least one (1) month prior to the commencement of operation, or at some other time prior to preparation of the report with the agreement of the Secretary.

E33 In addition to the general reporting requirements specified in **Condition E27**, the Proponent must notify the Secretary, EPA and Ministry of Health of any recordings above the goals in **Condition E6** as soon as possible and within 24 hours of the recording.

This notification must provide details of the circumstances of the event, including:

- (a) the nature of the event;
- (b) the concentration levels that occurred;
- (c) the timing and duration of the event;
- (d) the measures employed to minimise the concentration levels; and
- (e) the date when the Proponent will submit a **Report on Above-Goal Recording** in accordance with **Condition E34**.

E34 Within 20 working days of any Notification of Above-Goal Recording, the Proponent must prepare and submit to the Secretary for information a **Report on Above-Goal Recording** that details the cause and major contributor of the exceedance, the effectiveness of any action(s) taken in response to the exceedance and the options available to prevent recurrence.

Where the operation of the tunnel is identified to be a significant contributor to the recorded above-goal reading, the **Report on Above-Goal Recording** must include consideration of improvements to the tunnel air quality management system so as to achieve compliance with the ambient air quality goals, including but not limited to installation of the additional ventilation management facilities allowed for under **Condition E10**.

Air Quality Auditing and Quality Assurance

E35 The provision, operation and maintenance (including all auditing and validation of data) of all air quality monitoring and reporting must be funded by the Proponent.

E36 All continuous emissions monitoring systems installed and operated as a requirement of **Condition E21** must undergo relative accuracy test audits at an interval not exceeding 12 months, or within another timeframe agreed with the Secretary.

- E37 The Proponent must engage a person independent from the design and construction of the CSSI, to audit the air quality monitoring (in-tunnel and ambient) for the CSSI at six (6) monthly intervals following commencement of operation of the CSSI, or at any longer interval if approved by the Secretary.
- E38 The Proponent must consult with the EPA and **AQCCC** before nominating the proposed auditor to the Secretary. Operation of the CSSI must not commence until the auditor's appointment is approved by the Secretary. ~~The auditor may be the same person(s) appointed under Condition E27.~~
- E39 The auditor must ensure that the operating procedures and equipment to acquire air monitoring, meteorological data and emission monitoring data and monitoring reporting comply with NATA (or equivalent) requirements and sound laboratory practice.
- E40 The Proponent must document the results of the audit and make available all audit data for inspection by the Secretary upon request. A copy of the audit report must also be issued to the Proponent and **AQCCC**.
- E41 The Proponent must undertake appropriate quality assurance (QA) and quality control (QC) measures for air quality and ventilation outlet emission monitoring data. This must include, but not be limited to: accreditation/quality systems; staff qualifications and training; auditing; monitoring procedure; service and maintenance; equipment or system malfunction; and records/reporting. The QA/QC measures must be approved by an expert independent from the design and construction of the CSSI. The independent expert must be approved by the Secretary prior to monitoring of air quality and ventilation outlet emissions, as appropriate.

Local and Sub-Regional Air Quality

- E42 The Proponent must assist the relevant planning authority(s) in developing an air quality assessment process for inclusion in a Development Control Plan or other appropriate planning instrument, in considering planning and building approvals for new development in areas adjacent to the ventilation outlets which would be within a potential three-dimensional zone of affection (buffer volume).

This process must include procedures for identifying the width and height of buildings that are likely to be either affected by the plume from the ventilation outlet or affect the dispersion of the plume from the ventilation outlet through building wake effects. A part of this process, the Proponent must provide data detailing the results of modelling of pollution concentrations at various heights and distances from the ventilation outlets. This information must be provided within 18 months following the date of this approval. The Proponent must meet all reasonable costs for the development of this process and any necessary amendments to the planning instrument(s) required to implement the process.

TRAFFIC, TRANSPORT AND ACCESS

- E43 During construction, where bus stops are required to be temporarily closed or relocated, such closure must not occur until relocated bus stops are functioning, have similar capacity and are relocated within a 400 metre walking distance of the existing bus stop. Closures and relocation of bus stops during construction must be undertaken in consultation with Transport for NSW and relevant council(s). Wayfinding signage must be provided directing commuters to adjacent or relocated bus stops. Footpaths must be provided to any relocated bus stops such that accessibility standards are met.

- E44 Prior to the commencement of operation of the CSSI, all bus stops temporarily closed or relocated must be reinstated in a manner that provides equal or improved capacity and accessibility (including footpaths) in consultation with Transport for NSW and relevant council(s).
- E45 Access to Light Rail stops must be maintained at all times.
- E46 Access to all utilities and properties must be maintained during construction, where practicable, unless otherwise agreed with the relevant utility owner, landowner or occupier.
- E47 Any property access physically affected by the CSSI must be reinstated to at least an equivalent standard, unless otherwise agreed by the landowner or occupier.
- E48 Bignell Lane, Camperdown, must be reinstated to its preimpact alignment and length prior to operation, unless otherwise approved by the Secretary following consultation with the relevant council.
- E49 Spoil haulage vehicles associated with the construction of the CSSI are not permitted to use local roads within one (1) kilometre of construction works and construction ancillary facilities, unless otherwise approved by the Secretary.
- E49A Use of Route A as the primary route for spoil haulage from the Northcote Street construction ancillary facility is limited to the first two (2) months of spoil haulage commencing at the Northcote Street facility or once the G-Loop is operational, whichever is the sooner, unless an alternative time period is agreed to by the Planning Secretary. During this time period, spoil haulage vehicles are permitted to use Route A only between the hours of 7:00 am and 7:00 pm.
- E49B Once the G-Loop is operational, use of Route A by spoil haulage vehicles is limited to the following circumstances:
- (a) during the hours of 7:00 am to 9:00 am and 4:00 pm to 6:00 pm Monday to Friday (excluding public holidays) and 8:00 am to 9:00 am and 4:00 pm to 6:00 pm on Saturdays;
 - (b) during periods of maintenance and/or unserviceability of the G-Loop (such as repairs, signal failure, unauthorised standing of vehicles);
 - (c) in the event that there is an incident or maintenance works on the road network in the vicinity of the Northcote Street construction ancillary facility and the G-Loop that prevents spoil haulage vehicles from accessing or travelling on Route B;
 - (d) in the event that there is insufficient capacity for a spoil haulage vehicle to enter the Northcote Street construction ancillary facility and it must bypass the access gate; and
 - (e) in peak spoil generating period(s) of no greater than six months approved by the Planning Secretary.
- Notwithstanding the above, the use of Route A is restricted to 7:00 am to 7:00 pm daily.
- E49C The Proponent must submit to the Planning Secretary the following information when seeking the approval of the Planning Secretary under **Condition E49B(e)**:
- (a) the estimated dates and duration of the peak spoil generating period;
 - (b) the estimated hourly number of spoil haulage vehicle trips on Route A both during and outside the hours specified in **Condition E49B(a)** each day during the peak spoil generating period;
 - (c) at least six months of data as specified in **Condition E49D(a)** and **(b)**; and

- (d) analysis of the operational performance of the G-Loop, including the need to restrict the use of the G-Loop during the hours identified in **Condition E49B(a)**.

E49D Within four (4) months following the commencement of tunnelling at the Northcote Street construction ancillary facility, and at three (3) monthly intervals thereafter until the completion of tunnelling and backfilling from that site, the Proponent must submit to the Secretary data which details on an hourly basis:

- (a) the total number of spoil haulage vehicle trips associated with tunnelling and backfilling at the Northcote Street construction ancillary facility (inbound and outbound); and
- (b) the number of trips (times) spoil haulage vehicles have used Route A, and Wattle Street / Parramatta Road (instead of the M4 East Motorway tunnels) when exiting the G-Loop, including the dates and times of use as well as the reasons for use of these routes noting the criteria for use specified in **Condition E49B**.

*Notes: For the purposes of **Conditions E49A** and **E49B**:*

1. *Spoil haulage vehicles includes vehicles removing spoil from the Northcote Street construction ancillary facility during tunnelling and delivering spoil to the site to backfill the construction access tunnel;*
2. *Route A from the Northcote Street construction ancillary facility is left turn onto Wattle Street, left turn on Ramsay Street, left turn on Fairlight Street, left turn on Great North Road; and*
3. *Route B from the Northcote Street construction ancillary facility is left turn onto Wattle Street, continue along Wattle Street/Dobroyd Parade and left turn into G-Loop, right-hand turn onto Dobroyd Parade from G-Loop, continue along Dobroyd Parade / Wattle Street into M4 East tunnel or onto Parramatta Road.*

E50 Construction vehicles must not use Robert Street, Rozelle to access the White Bay Civil Site.

E50A All heavy vehicles must only access and exit the Parramatta Road East and Parramatta Road West construction ancillary facilities via Parramatta Road during the operation of the facilities, except for when exiting the Parramatta Road West site and they need to travel east. In these circumstances the site may be exited via Bland Street or as otherwise approved by the Planning Secretary.

E51 All requests to the Secretary for local road usage need to include a traffic and pedestrian impact assessment, and should include a swept path analysis if required. The traffic and pedestrian impact assessment, incorporated in the **Site Establishment Management Plan** or **Traffic and Transport CEMP** as relevant, must:

- (a) demonstrate that the local road usage will not compromise the safety of the public and have minimal amenity impacts;
- (b) provide details as to the date of completion of the road dilapidation surveys for the subject local roads; and
- (c) describe the measures that will be implemented to avoid where practicable the use of local roads past schools, aged care facilities and child care facilities during peak times for operation.

E52 Construction vehicles (including staff vehicles) associated with the CSSI must be managed to:

- (a) minimise parking on public roads;
- (b) minimise idling and queuing on public roads; and
- (c) ensure spoil haulage vehicles must adhere to the nominated haulage routes identified in the **Traffic and Transport CEMP**.

- E53 The locations of all construction spoil haulage vehicles must be able to be monitored in real time and the records of monitoring be made available electronically to the Secretary and the EPA upon request for a period of no less than one year following construction.

*Note: Refer to **Condition A44** in relation to vehicle identification.*

- E54 A **Construction Parking and Access Strategy** must be prepared and implemented to identify and mitigate impacts resulting from on- and off-street parking changes during construction of the CSSI. The Strategy must include, but not necessarily be limited to:
- (a) confirmation and timing of the removal of on- and off-street parking associated with construction of the CSSI;
 - (b) parking surveys of all parking spaces to be removed to determine current demand during peak, off-peak, school drop off and pickup, and weekend periods;
 - (c) consultation with affected stakeholders utilising existing on- and off-street parking stock which will be impacted as a result of construction;
 - (d) assessment of the impacts of changes to on- and off-street parking stock taking into consideration outcomes of consultation with affected stakeholders;
 - (e) identification of mitigation measures to manage impacts to stakeholders as a result of on- and off-street parking changes including, but not necessarily limited to, staged removal and replacement of parking, provision of alternative parking arrangements, managed staff parking arrangements and working with relevant council(s) to introduce parking restrictions adjacent to work sites and compounds;
 - (f) provision of a shuttle bus service(s) to transport workers to site(s) and details of the shuttle bus service(s), including service timing and frequency;
 - (g) mechanisms for monitoring, over appropriate intervals, to determine the effectiveness of implemented mitigation measures;
 - (h) provision of contingency measures should the results of mitigation monitoring indicate implemented measures are ineffective; and
 - (i) provision of reporting of monitoring results to the Secretary and relevant council(s) at three (3) monthly intervals.

The **Construction Parking and Access Strategy** must be submitted to the Secretary for approval at least one (1) month prior to the commencement of any works that impact parking.

Road Safety

- E55 The CSSI (including new or modified local roads, parking, pedestrian and cycle infrastructure) must be designed to meet relevant design, engineering and safety guidelines, including the Austroads Guide to Traffic Management.
- E56 An independent **Road Safety Audit(s)** is to be undertaken by an appropriately qualified and experienced person during detailed design to assess the safety performance of new or modified local road, parking, pedestrian and cycle infrastructure provided as part of the CSSI (including ancillary facilities) to ensure that they meet the requirements of relevant design, engineering and safety guidelines, including Austroads Guide to Traffic Management. Audit findings and recommendations must be actioned prior to construction of the relevant infrastructure and must be made available to the Secretary on request.

Pedestrian and Cyclist Access

E57 Safe pedestrian and cyclist access must be maintained around work sites during construction. In circumstances where pedestrian and cyclist access is restricted or removed due to construction activities, an alternate route which complies with the relevant standards must be provided and signposted prior to the restriction or removal of the relevant pedestrian and cyclist access.

E57A A traffic controller must be present at entry and exit points on the Parramatta Road East and West construction ancillary facilities between the hours of 7:30 am to 9:30 am and 2:30 pm and 4:30 pm during school terms whenever:

- (a) a heavy vehicle is to enter or exit the site via that point; and
- (b) light vehicles are entering and exiting the site at that point during staff shift change over periods.

E58 The Proponent must provide improved connectivity for cyclist and pedestrians between Roberts Street and Springside Street, and incorporate these in the **Pedestrian and Cycle Implementation Strategy** required by **Condition 60**.

Note: This condition does not specifically require work to be undertaken in the Victoria Road reservation, but could include works on the parallel local road network.

E59 Enhanced cycle facilities at the Rozelle Bay light rail stop must be investigated and implemented if possible, in consultation with Transport for NSW and incorporated into the **Pedestrian and Cycle Implementation Strategy** required by **Condition E60**.

E60 A detailed **Pedestrian and Cycle Implementation Strategy** must be included as a component of the **Urban Design and Landscape Plan** required by **Condition E133** and reviewed by the **Design Review Panel**. The Strategy must be prepared in consultation with relevant council(s) and Bicycle NSW. The Strategy must be consistent with the **Active Transport Strategy** in Volume 2F, Appendix N of the EIS and must incorporate the requirements of **Conditions E58** and **E59** and include:

- (a) pedestrian and cycle engineering and safety standards;
- (b) a safety audit of existing and proposed pedestrian and cycle facilities to address the above standards;
- (c) details of selected routes and connections to existing local and regional routes;
- (d) timing and staging of all works;
- (e) infrastructure details, including lighting, safety, security, and standards compliance;
- (f) signage and wayfinding measures; and
- (g) details of associated landscaping works.

All identified works arising from this condition are to be implemented prior to the commencement of project operations, except as permitted by this approval.

Road Dilapidation

E61 A **Road Dilapidation Report** must be prepared by a suitably qualified person, for local roads (and associated infrastructure within the road reserve) proposed to be used by heavy vehicles for works associated with the CSSI, before the commencement of use by such vehicles. Copies of the **Road Dilapidation Report** must be provided to the relevant road authorities within three (3) weeks of completing the surveys and no later than one (1) month before the use of local roads by such vehicles.

E62 If damage to roads occurs as a result of the construction of CSSI, the Proponent must either:

- (a) compensate the relevant road authority for the damage so caused. The amount of compensation may be agreed with the relevant road authority, but compensation must be paid even if no agreement is reached; or
- (b) rectify the damage so as to restore the road to at least the condition it was in pre-construction.

Road Network Performance Plan

E63 Prior to the commencement of operation of the full CSSI (mainline tunnel and Rozelle Interchange), the Proponent must prepare a **Road Network Performance Plan** in consultation with Transport for NSW and the relevant council(s). The Plan should incorporate operational traffic modelling results from the M4 East and New M5 (SSI 6307 and SSI 6788) projects, and include:

- (a) consideration of movement and place analysis and local initiatives, such as local area improvement strategies and potential land use changes, and any traffic changes as a result of other major road projects within the project area;
- (b) an updated analysis, including modelling of traffic impacts to the adjoining road network (including impacts on local roads from rat-running), as a consequence of the CSSI;
- (c) an assessment of the performance of the road network, including potential 'pinch-points' where the merging of tunnel exit traffic and surface traffic would occur at the Haberfield Interchange, the St Peters Interchange and Rozelle Interchange and Iron Cove Link; and
- (d) mitigation measures to manage predicted traffic performance impacts including local area traffic management and bus priority measures as relevant.

The **Road Network Performance Plan** must be submitted to the Secretary and relevant council(s). The implementation of the Plan must have commenced prior to the full operation of the CSSI. The Proponent is responsible for the implementation of the identified measures under **Condition E63(d)**.

Note: Identified mitigation measures may need to be further assessed under the Environmental Planning and Assessment Act, 1979. Works will need to meet relevant design standards and be subject to independent road safety audits.

E64 The Proponent must prepare an **Operational Road Network Performance Review**, within 12 months and five (5) years after the commencement of operation of the full CSSI (of the mainline tunnels and Rozelle Interchange). The Review must address road network performance and review the performance of the CSSI on the adjoining road network. The Review must confirm the adequacy of the mitigation measures identified in the **Road Network Performance Plan** required under **Condition E63**.

The Review must be undertaken in consultation with Transport for NSW and relevant council(s) and be completed within six (6) months of the review timeframes. The Review must be provided to the Secretary within 60 days of its completion.

Further mitigation measures, if required, must be included in the Review. The Proponent is responsible for the implementation of the identified measures.

Note: Identified mitigation measures may need to be further assessed under the Environmental Planning and Assessment Act, 1979. Works will need to meet relevant design standards and to subject to independent road safety audits.

- E65 In the event that the Rozelle Interchange is not open to traffic within 24 months of the opening of the mainline tunnel, an **Operational Road Network Performance Review** must be prepared prior to the operation of the Rozelle Interchange.

NOISE AND VIBRATION

Land Use Survey

- E66 A detailed land use survey must be undertaken to confirm sensitive receivers (including critical working areas such as operating theatres and precision laboratories) potentially exposed to construction noise and vibration, construction ground-borne noise and operational noise. The survey may be undertaken on a progressive basis but must be undertaken in any one area prior to the commencement of works which generate construction or operational noise, vibration or ground-borne noise in that area. The results of the survey must be included in the **Construction Noise and Vibration Management Sub-plan**.

Noise Assessments

- E67 All noise and vibration assessment, management and mitigation required by this approval must consider the cumulative noise impacts of approved CSSI and SSI projects. This includes using ambient and background levels which do not include other WestConnex M4 East and New M5 (SSI 6307 and SSI 6788) projects. This condition applies to all works and operation.

Works Hours

- E68 Works must be undertaken during the following hours:

- (a) 7:00 am to 6:00 pm Mondays to Fridays, inclusive;
- (b) 8:00 am to 1:00 pm Saturdays; and
- (c) at no time on Sundays or public holidays.

- E69 Notwithstanding **Condition E68**, works may be undertaken between 1:00 pm to 6:00 pm on Saturday.

- E70 Notwithstanding **Conditions E68** and **E69** the following works are permitted to be undertaken 24 hours a day, seven days a week:

- (a) tunnelling activities excluding cut and cover tunnelling;
- (b) haulage of spoil, [excluding from the Iron Cove civil site \(C8\) at which haulage is limited to the work hours specified in Conditions E68 and E69](#), and delivery of material;
- (c) works within an acoustic shed; and
- (d) tunnel fit out works.

Other surface works associated with tunnelling must only be undertaken in accordance with the requirements of **Condition E73**.

- E71 **Deleted.**

Highly Noise Intensive Works

- E72 Except as permitted by an EPL, highly noise intensive works that result in an exceedance of the applicable NML at the same receiver must only be undertaken:

- (a) between the hours of 8:00 am to 6:00 pm Monday to Friday;
- (b) between the hours of 8:00 am to 1:00 pm Saturday; and
- (c) in continuous blocks not exceeding three (3) hours each with a minimum respite from those activities and works of not less than one (1) hour between each block.

For the purposes of this condition, 'continuous' includes any period during which there is less than a one (1) hour respite between ceasing and recommencing any of the work that are the subject of this condition.

Variation to Works Hours

E73 Notwithstanding **Conditions E68 to E72** works may be undertaken outside the hours specified under those conditions in the following circumstances:

- (a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or
- (b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or
- (c) where different construction hours are permitted or required under an EPL in force in respect of the CSSI; or
- (d) works approved under an **Out-of-Hours Work Protocol** for works not subject to an EPL as required by **Condition E77**; or
- (e) construction, *excluding spoil haulage from the Iron Cove civil site (C8) at which haulage is limited to the work hours specified in Conditions E68 and E69*, that causes $L_{Aeq}(15 \text{ minute})$ noise levels:
 - (i) no more than 5 dB(A) above the rating background level at any residence in accordance with the *Interim Construction Noise Guideline* (DECC, 2009), and
 - (ii) no more than the 'Noise affected' noise management levels specified in Table 3 of the *Interim Construction Noise Guideline* (DECC, 2009) at other sensitive land uses, and
 - (iii) continuous or impulsive vibration values, measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.2 of *Assessing Vibration: a technical guideline* (DEC, 2006), and
 - (iv) intermittent vibration values measured at the most affected residence are no more than the maximum values for human exposure to vibration, specified in Table 2.4 of *Assessing Vibration: a technical guideline* (DEC, 2006).

*Note: Section 5.24(1)(e) of the EP&A Act requires that an EPL be substantially consistent with this approval. Out-of-hours works considered under **Conditions E73(c) and (d)** must be justified and include an assessment of mitigation measures.*

E74 On becoming aware of the need for emergency works in accordance with **Condition E73(b)**, the Proponent must notify the **AA**, the **ER** and the EPA of the need for that work. The Proponent must use best endeavours to notify all noise and/or vibration affected sensitive receivers of the likely impact and duration of those works.

Out-of-Hours Work Scheduling and Respite

E75 Out-of-hours works that are regulated by an EPL as per **Condition E73(c)** or through the **Out-of-Hours Work Protocol** as per **Condition E77** include:

- (a) works which could result in a high risk to construction personnel or public safety, based on a risk assessment carried out in accordance with AS/NZS ISO 31000:2009 "*Risk Management – Principles and Guidelines*"; or

- (b) where the relevant road network operator has advised the Proponent in writing that carrying out the works and activities could result in a high risk to road network operational performance; or
- (c) where the relevant utility service operator has advised the Proponent in writing that carrying out the works and activities could result in a high risk to the operation and integrity of the utility network; or
- (d) where the TfNSW Transport Management Centre (or other road authority) has advised the Proponent in writing that a road occupancy licence is required and will not be issued for the works or activities during the hours specified in **Condition E68** and **Condition E69**; or
- (e) where Sydney Trains (or other rail authority) has advised the Proponent in writing that a Rail Possession is required.

*Note: Other out-of-hours works can be undertaken with the approval of an EPL, or through the project's **Out-of-Hours Work Protocol** for works not subject to a EPL.*

E76 In order to undertake out-of-hours work described in **Condition E75**, the Proponent must identify appropriate respite periods for the out-of-hours works in consultation with the community at each affected location. This consultation must include (but not be limited to) providing the community with:

- (a) a schedule of likely out-of-hours work for a period no less than three (3) months;
- (b) the potential works, location and duration;
- (c) the noise characteristics and likely noise levels of the works; and
- (d) likely mitigation and management measures.

The outcomes of the community consultation, the identified respite periods and the scheduling of the likely out-of-hour works must be provided to the **AA**, EPA and the Secretary.

Out-of-Hours Work Protocol – Works not subject to an EPL

E77 An **Out-of-Hours Work Protocol** must be prepared to identify a process for the consideration, management and approval of works which are outside the hours defined in **Conditions E68** and **E69**, and that are not subject to an EPL. The Protocol must be approved by the Secretary prior to commencement of the works. The Protocol must be prepared in consultation with the EPA and AA. The Protocol must:

- (a) provide a process for the consideration of out-of-hours works against the relevant noise and vibration criteria, including the determination of low and high-risk activities;
- (b) provide a process for the identification of mitigation measures for residual impacts, including respite periods in consultation with the community at each affected location, consistent with the requirements of **Condition E76**;
- (c) identify procedures to facilitate the coordination of out-of-hours works approved by an EPL to ensure appropriate respite is provided;
- (d) identify an approval process that considers the risk of activities, proposed mitigation, management, and coordination, including where:
 - (i) low risk activities can be approved by the **ER** in consultation with the **AA**, and
 - (ii) high risk activities that are approved by the Secretary; and
- (e) identify Department, EPA and community notification arrangements for approved out of hours works, which maybe detailed in the Communication Strategy.

Out-of-Hours Works – Utility Coordination and Respite

E78 All works undertaken for the delivery of the CSSI, including those undertaken by third parties, must be coordinated to ensure respite periods are provided. The Proponent must:

- (a) reschedule any works to provide respite to impacted noise sensitive receivers so that the respite is achieved in accordance with **Condition E76**; or
- (b) consider the provision of alternative respite or mitigation to impacted noise sensitive receivers; and
- (c) provide documentary evidence to the **AA** in support of any decision made by the Proponent in relation to respite or mitigation.

Construction Noise and Vibration – General

E79 Construction Noise and Vibration Impact Statements must be prepared for construction ancillary facility(s) before any works that result in noise and vibration impacts commence, and include specific mitigation measures identified through consultation with affected sensitive receivers. The Statements must supplement the **Construction Noise and Vibration Management Sub-plan or Site Establishment Management Plan(s)** and are to be implemented for the duration of the works.

The **Construction Noise and Vibration Impact Statement** for the White Bay Civil Site (C11) must be prepared in consultation with the Port Authority of NSW and NSW Heritage Council.

E80 Noise generating works in the vicinity of potentially-affected community, religious, educational institutions and noise and vibration-sensitive businesses and critical working areas (such as theatres, laboratories and operating theatres) resulting in noise levels above the NMLs must not be timetabled within sensitive periods, unless other reasonable arrangements with the affected institutions are made at no cost to the affected institution.

E81 Mitigation measures must be implemented with the aim of achieving the following construction noise management levels and vibration criteria:

- (a) construction 'Noise affected' noise management levels established using the *Interim Construction Noise Guideline* (DECC, 2009);
- (b) vibration criteria established using the *Assessing vibration: a technical guideline* (DEC, 2006) (for human exposure);
- (c) Australian Standard AS 2187.2 - 2006 "*Explosives - Storage and Use - Use of Explosives*";
- (d) BS 7385 Part 2-1993 "*Evaluation and measurement for vibration in buildings Part 2*" as they are "applicable to Australian conditions"; and
- (e) the vibration limits set out in the *German Standard DIN 4150-3: Structural Vibration-effects of vibration on structures* (for structural damage).

Comparison against the criteria must take into account the cumulative noise and vibration levels from concurrent activities associated with the CSSI.

Any works identified as exceeding the noise management levels and/or vibration criteria must be managed in accordance with the **Construction Noise and Vibration Management Sub-plan**. Predicted vibration levels must be used to select the specific management measures to be applied to individual properties during construction.

Note: The Interim Construction Noise Guideline identifies 'particularly annoying' activities that require the addition of 5 dB(A) to the predicted level before comparing to the construction Noise Management Level.

E82 Mitigation measures must be applied when the following residential ground-borne noise levels, including cumulative levels from concurrent activities associated with the CSSI, are exceeded:

- (a) evening (6:00 pm to 10:00 pm) — internal $L_{Aeq(15 \text{ minute})}$: 40 dB(A); and
- (b) night (10:00 pm to 7:00 am) — internal $L_{Aeq(15 \text{ minute})}$: 35 dB(A).

The mitigation measures must be outlined in the **Construction Noise and Vibration Management Sub-plan**, including in any **Out-of-Hours Work Protocol**, required by **Condition E77**. Predicted ground-borne noise levels must be used to select the specific management measures to be applied to individual properties during construction.

- E83 Owners and occupiers of properties at risk of exceeding the screening criteria for cosmetic damage must be notified before works that generate vibration commences in the vicinity of those properties. If the potential exceedance is to occur more than once or extend over a period of 24 hours, owner and occupiers are to be provided a schedule of potential exceedances on a monthly basis for the duration of the potential exceedances, unless otherwise agreed by the owner and occupier. These properties must be identified and considered in the **Construction Noise and Vibration Management Sub-plan**.
- E84 The Proponent must conduct vibration testing before and during vibration generating activities that have the potential to impact on heritage items to identify minimum working distances to prevent cosmetic damage. In the event that the vibration testing and monitoring shows that the preferred values for vibration are likely to be exceeded, the Proponent must review the construction methodology and, if necessary, implement additional mitigation measures.
- E85 The Proponent must seek the advice of a heritage specialist on methods and locations for installing equipment used for vibration, movement and noise monitoring at heritage-listed structures.

Construction Noise Mitigation – Acoustic Sheds

- E86 All acoustic sheds must be erected as soon as site establishment works at the facilities are completed and before undertaking any works which are required to be conducted within the sheds.

E86A Tunnelling and excavation works from the Iron Cove civil site (C8) to construct the ventilation tunnel and caverns must not commence until the chamber beneath the roof of the cut and cover structure has been converted into a temporary acoustic shed and fitted with a roller door.

Out-of-Hours Works – Mitigation

- E87 For out-of-hours work undertaken in accordance with **Condition E75**, at-receiver noise mitigation in the form of at-property treatment must be offered to the land owner for habitable living spaces, or other mitigation or management measures as agreed by the occupier, to properties identified in **Appendix D**. Mitigation must be offered prior to out-of-hours work commencing.

This requirement does not apply if the sensitive receiver has been provided with noise mitigation under the RMS Noise Abatement Program or the *State Environment Planning Policy (Infrastructure) 2007* (clause 102(3)). The adequacy of at-property treatments will be reviewed where previous treatments have been installed as part of other SSI or CSSI projects.

Note: This condition does not preclude the application of other noise and vibration mitigation and management measures.

Construction Fatigue and Amenity – Mitigation

- E88 At receiver noise mitigation in the form of at-property treatment must be offered to the land owner for habitable living spaces, or other mitigation or management measures as agreed by the occupier, to residential properties identified in **Appendix E**. Mitigation must be offered prior to works commencing.

This requirement does not apply if the sensitive receiver has been provided with noise mitigation under the RMS Noise Abatement Program or the *State Environment Planning Policy (Infrastructure) 2007* (clause 102(3)). The adequacy of at-property treatments will be reviewed where previous treatments have been installed as part of other SSI or CSSI projects.

Note: This condition does not preclude the application of other noise and vibration mitigation and management measures.

Noise Insulation Program

- E89 A **Noise Insulation Program** must be prepared and implemented for the duration of CSSI works for receivers at/to which the requirements of **Conditions E87** and **E88** apply. The Program must be incorporated into the **Construction Noise and Vibration Management Sub-plan**.

The **Noise Insulation Program** must detail the following matters:

- (a) receivers eligible for the scheme;
- (b) the scope of the insulation package;
- (c) responsibility for the noise insulation works;
- (d) procedure and the terms of the noise insulation works;
- (e) program monitoring; and
- (f) program review and amendment.

The **Noise Insulation Program** must be endorsed by the **AA**.

- E90 Receivers which are eligible for receiving treatment under the **Noise Insulation Program** required under **Condition E89** must have treatment implemented within six (6) months following the commencement of construction which would affect the receiver. The implementation of the **Noise Insulation Program** must be prioritised based on the degree and duration of exceedance with high priority exceedances undertaken within three (3) months of the commencement of construction.

Workplace health and safety for nearby workers

- E91 At no time can noise generated by construction exceed the National Standard for exposure to noise in the occupational environment of an eight-hour (8hr) equivalent continuous A-weighted sound pressure level of $L_{Aeq,8h}$ of 85 dB(A) for any employee working at a location near the CSSI.

Noise Mitigation - Operational Noise Mitigation Measures

- E92 The Proponent must prepare an **Operational Noise and Vibration Review (ONVR)** to confirm noise and vibration control measures that would be implemented for the operation of the CSSI. The **ONVR** must be prepared in consultation with the Department, relevant council(s), other relevant stakeholders and the community and must:

- (a) confirm the appropriate operational noise and vibration objectives and levels for adjoining development, including existing sensitive receivers;

- (b) confirm the operational noise predictions based on the final design. Confirmation must be based on an appropriately calibrated noise model (which has incorporated noise monitoring, and concurrent traffic counting, where necessary for calibration purposes). The assessment must specifically include verification of noise levels at all fixed facilities, based on noise monitoring undertaken at appropriately identified noise catchment areas surrounding the facilities;
- (c) confirm the operational noise and vibration impacts at adjoining development based on the final design of the CSSI, including operational daytime $L_{Aeq,15\text{ hour}}$ and night-time $L_{Ae, 9\text{ hour}}$ traffic noise contours;
- (d) review the suitability of the operational noise mitigation measures identified in the documents listed in **Condition A1** and, where necessary, investigate, identify and implement additional noise and vibration mitigation measures required to achieve the noise criteria outlined in the *NSW Road Noise Policy* (DECCW, 2011) and *NSW Industrial Noise Policy* (EPA, 2000), including the timing of implementation;
- (e) include a consultation strategy to seek feedback from directly affected landowners on the noise and vibration mitigation measures; and
- (f) procedures for the management of operational noise and vibration complaints.

The **ONVR** is to be verified by a suitably qualified and experienced noise and vibration expert. The **ONVR** is to be undertaken at the Proponent's expense and submitted to the Secretary for approval prior to the implementation of mitigation measures.

The Proponent must implement the identified noise and vibration control measures and make the **ONVR** publicly available.

E93 Noise mitigation measures as identified in **Condition E92** that will not be physically affected by works, or which have not been implemented in accordance with **Conditions E87** and **E88** must be implemented within six (6) months of the commencement of construction in the vicinity of the impacted receiver to minimise construction noise impacts, and detailed in the **Construction Noise and Vibration Management Sub-plan** for the CSSI.

E94 Where implementation of operational noise mitigation measures are not proposed early in accordance with **Condition E93**, the Proponent must submit to the Secretary a report providing justification as to why, along with details of temporary measures that would be implemented to reduce construction noise impacts, until such time that the operational noise mitigation measures identified in **Condition E92** are implemented. The report must be endorsed by the **AA** and submitted to the Secretary prior to the commencement of construction which would affect the identified sensitive receivers.

E94A Within three months of commencement of operation of the high voltage regulators at Iron Cove, the Proponent must undertake noise monitoring to compare the actual noise level emitted by the regulators to the noise performance at sensitive receivers as predicted in the document *WestConnex M4-M5 Link Rozelle Interchange Iron Cove Ventilation Underground Modification Report* (dated November 2019) and project-specific noise level as determined in accordance with the *NSW Industrial Noise Policy* (EPA, 2000). Monitoring must capture the onload tap changer noise and peak loading. A report detailing the noise monitoring results must be provided to the Secretary for information within one month of undertaking the monitoring.

If the noise level at the nearest sensitive receiver exceeds either the predicted noise level or project-specific noise level, then the Proponent must implement noise reduction measures within six months of when the noise monitoring was undertaken.

- E95 Within 12 months of the commencement of operation of the CSSI, the Proponent must undertake monitoring of operational noise to compare actual noise performance of the CSSI against the noise performance predicted in the review of noise mitigation measures required by **Condition E92**.

The Proponent must prepare an **Operational Noise Compliance Report** to document this monitoring. The Report must include, but not necessarily be limited to:

- (a) noise monitoring to assess compliance with the operational noise levels predicted in the review of operational noise mitigation measures required under **Condition E92**;
- (b) a review of the operational noise levels in terms of criteria and noise goals established in the *NSW Road Noise Policy 2011*;
- (c) methodology, location and frequency of noise monitoring undertaken, including monitoring sites at which CSSI noise levels are ascertained, with specific reference to locations indicative of impacts on sensitive receivers;
- (d) details of any complaints and enquiries received in relation to operational noise generated by the CSSI between the date of commencement of operation and the date the report was prepared;
- (e) any required recalibrations of the noise model taking into consideration factors such as noise monitoring and actual traffic numbers and proportions;
- (f) an assessment of the performance and effectiveness of applied noise mitigation measures together with a review and if necessary, reassessment of mitigation measures; and
- (g) identification of additional measures to those identified in the review of noise mitigation measures required by **Condition E92**, that would be implemented with the objective of meeting the criteria outlined in the *NSW Road Noise Policy* (EPA, 2011) and *Industrial Noise Policy* (EPA, 2000), when these measures would be implemented and how their effectiveness would be measured and reported to the Secretary and the EPA.

The Operational Noise Report must be submitted to the Secretary and the EPA within 60 days of completing the operational noise monitoring and made publicly available.

Blast Management Strategy

- E96 If blasting is proposed a **Blast Management Strategy** must be prepared and must include:

- (a) sequencing and review of trial blasting to inform blasting;
- (b) regularity of blasting;
- (c) intensity of blasting;
- (d) impact mitigation measures including periods of relief; and
- (e) blasting program.

- E97 The **Blast Management Strategy** must be endorsed by a suitably qualified and experienced person and reviewed by an independent specialist.

- E98 The **Blast Management Strategy** must be prepared in accordance with relevant guidelines and in consultation with the EPA to ensure that all blasting and associated activities are carried out so as not to generate unacceptable noise and vibration impacts or pose a significant risk to sensitive receivers.

- E99 The **Blast Management Strategy** must be submitted to the Secretary for information no later than one (1) month prior to the commencement of blasting. The Strategy as submitted to the Secretary, must be implemented for all blasting activities.

E100 Blasting associated with the CSSI must only be undertaken during the following hours:

- (a) 9:00 am to 5:00 pm, Monday to Friday, inclusive;
 - (b) 9:00 am to 1:00 pm, Saturday; and
 - (c) at no time on Sunday or on a public holiday;
- or as authorised through an EPL if blasting is proposed outside of these hours.

This condition does not apply in the event of a direction from police or other relevant authority for safety or emergency reasons to avoid loss of life, property loss and/or to prevent environmental harm.

SOCIO-ECONOMIC, LAND USE AND PROPERTY

E101 A geotechnical model of representative geological and groundwater conditions must be prepared prior to excavation and tunnelling to identify geological structures and groundwater features. The model must include details of proposed excavations and tunnels, construction staging, and identify surface and sub-surface structures, including any specific attributes, which may be impacted by the CSSI. The Proponent must use this model to assess the cumulative predicted settlement, ground movement, stress redistribution and horizontal strain profiles caused by excavation and tunnelling, including groundwater drawdown and associated impacts, on adjacent surface and sub-surface structures.

E102 The Proponent must undertake a review of surface and sub-surface structures at risk from damage to determine appropriate criteria to prevent damage, prior to excavation and tunnelling works that may pose a settlement risk. Criteria for surface and sub-surface structures which are not included in **Condition E103 (Table 9)** must be determined in consultation with the owner(s) of the surface and sub-surface structures prior to commencement of any excavation or tunnelling works potentially affecting the surface and sub-surface structures.

E103 In the case of buildings, roads, parking areas and parks, the appropriate criteria which governs the greatest risk of damage are to be selected from **Table 9** (Maximum Settlement, Maximum Angular Distortion or Limiting Tensile Strain) unless the Proponent has determined more stringent criteria as a result of **Condition E102**.

Table 9: Settlement criteria

Surface and Sub-Surface Structures	Maximum Settlement	Maximum Angular Distortion	Limiting Tensile Strain (percent)*
Buildings – Low or non-sensitive properties (i.e. ≤ 2 levels and car parks)	30 mm	1 in 350	0.1
Buildings and pools – High or sensitive properties (i.e. ≥ 3 levels and heritage items)	20 mm	1 in 500	0.1
Roads and parking areas	40 mm	1 in 250	n/a
Parks	50 mm	1 in 250	n/a

* As defined in Burland et al. 'Building response to tunnelling – Case studies from construction of the Jubilee Link Extension', London, Thomas Telford (2001)

- E104 Should the geotechnical model in **Condition E101** identify exceedances of the relevant criteria established by **Conditions E102** and **E103**, the Proponent must implement an instrumentation and monitoring program to measure settlement, distortion or strain as required. The Proponent must also identify and implement appropriate mitigation measures in consultation with the owner(s) of the relevant surface and sub-surface structures prior to excavation and tunnelling works to ensure where possible that the surface and sub-surface structures will not experience exceedances of the relevant criteria.

The adopted criteria does not remove any responsibility from the Proponent for the protection of existing surface and sub-surface structures or for rectifying any damage to surface and sub-surface structures resulting from the CSSI.

Building Condition Survey

- E105 The Proponent must offer pre-dilapidation surveys and must undertake and prepare pre-dilapidation reports where the offer is accepted, on the current condition of surface and sub-surface structures identified as at risk from settlement or vibration by the geotechnical model described in **Condition E101**. The pre-dilapidation surveys and reports must be prepared by a suitably qualified and experienced person(s) and must be provided to the owners of the surface and sub-surface structures for review prior to the commencement of potentially impacting works.
- E106 Where pre-dilapidation surveys have been undertaken in accordance with **Condition E105**, subsequent post-dilapidation surveys must be undertaken to assess damage to the surface and sub-surface structures that may have resulted from the construction of the CSSI within three (3) months of the completion of construction.
- E107 The results of the surveys must be documented in a **Condition Survey Report** for each surface and sub-surface structure surveyed. Copies of the **Condition Survey Reports** must be provided to the owner(s) of the structures surveyed within three (3) weeks of completing the surveys and no later than four (4) months following the completion of construction.
- E108 Where damage has been determined to occur as a result of the project, the Proponent must carry out rectification at its expense and to the reasonable requirements of the surface and sub-surface structure owner(s) within three (3) months of completion of the post-dilapidation surveys unless another timeframe is agreed with the owner of the affected surface or sub-surface structure.
- E109 The Proponent must establish an **Independent Property Impact Assessment Panel** before works that have the potential to result in property impacts commence. The Panel must comprise geotechnical and engineering experts independent of the design and construction team. The Panel will be responsible for independently reviewing **Condition Survey Reports** undertaken under **Conditions E105** and **E106**, the resolution of property damage disputes, and the establishment of ongoing settlement and vibration monitoring requirements. The Secretary must be informed of the Panel Members prior to property impact.

Either the affected owner or the Proponent may refer unresolved disputes arising from potential and/or actual property impacts to the Panel for resolution. All costs incurred in establishing and implementing the Panel must be borne by the Proponent regardless of which party makes a referral to the Panel.

Property Acquisition Impact Management

E110 The mitigation measures SE3, SE4 and SE5 in Chapter 29 of the EIS must be actioned for at least six (6) months following the final acquisition of residential and business-related properties.

Residual Land

E111 Land considered surplus to needs for the operation of the motorway, as identified in the documents listed in **Condition A1**, as well as the opportunity sites in Rozelle as identified in Appendix L (Volume 2F of the EIS) and land not occupied by operational infrastructure at construction site C7, and that is not retained by the Proponent, is to be considered residual land and managed in accordance with **Condition E112**.

E112 A **Residual Land Management Plan (RLMP)** must be prepared in consultation with the relevant council(s) and government agencies. The **RLMP** must be submitted to the Secretary for approval at least 12 months prior to the commencement of operation of the CSSI. The **RLMP** must identify (and consider), but not be limited to:

- (a) identification and illustration of all residual land following construction of the CSSI, including the physical location, land use characteristics, size and adjacent land uses;
- (b) identification of feasible uses for each piece of residual land guided by relevant environmental planning instruments and -
 - (i) the *Eastern City District Plan* (or where updated),
 - (ii) *The Bays Precinct Urban Transformation Program* (or where updated),
 - (iii) *Parramatta Road Corridor Urban Transformation Strategy*, and
 - (iv) other strategic planning documents applicable to any residual land from the CSSI;
- (c) identification of residual land that does not have feasible development potential; and
- (d) timeframes for implementing the various components of the **RLMP**.

E113 Residual land that is to be used for a public use and/or transferred to a public authority is to be in a condition suitable for end use that does not incur additional cost to the public authority to reasonably rehabilitate the land for the future development identified in the **RLMP**.

E114 All residual land identified for open space uses in accordance with an approved **RLMP** must be made available to the relevant council or public authority within 12 months of the completion of construction.

E115 All residual land is to be managed in accordance with the maintenance requirements of the **UDLP** until such time as it is transferred to a differing owner or authority in accordance with the **RLMP**, unless otherwise agreed with the Secretary (and any relevant authority to own the land).

URBAN DESIGN AND VISUAL AMENITY

Construction Ancillary Facilities

E116 The CSSI must be constructed in a manner that minimises visual impacts of construction sites, including, providing temporary landscaping and vegetative screening of the construction sites, minimising light spill, and incorporating architectural treatment and finishes within key elements of temporary structures that reflect the context within which the construction sites are located.

Operational Ancillary Facilities

E117 The Proponent must investigate, and implement where reasonable, opportunities to consolidate operational ancillary facilities at the Rozelle Rail Yards to maximise the amount of open space across the site.

E117A The façade of the high voltage switch room facing Victoria Road at Iron Cove must be articulated and landscaped to reduce its visual impact, unless otherwise approved in the UDLP.

E117B Façades of operational buildings and walls at Iron Cove that are adjacent to or adjoin residential properties must be designed and have finishes that are sympathetic with the surrounding residential neighbourhood.

E117C The stair access to the underground ventilation facility at Iron Cove must be designed and sited to optimise the extent of useable surplus land along Victoria Road.

Ventilation Facilities – Rozelle and Iron Cove

E118 The ventilation outlets at Rozelle and Iron Cove must incorporate a living vertical garden over their total areas. Notwithstanding, a reduced coverage or an alternative living green design treatment (such as wall climbers or landscape shielding) can be implemented subject to review by the **Design Review Panel**. The green elements are to be an integrated part of the architectural composition in aesthetic balance with the non-green elements and addressing key view corridors.

Iron Cove Link Landscaping

E119 The design of the landscape verge associated with the Iron Cove Link (Area 01, figure 5.24 of Appendix L, Volume 2F of the EIS) must maximise planting opportunities.

Rozelle Rail Yards Pedestrian and Cycling Green Link

E120 A pedestrian and cycling green link, as described in the EIS, to be provided from the Rozelle Rail Yards and spanning City West Link to the park adjacent Chapman Road, must have adequate soil depth to facilitate planting across the bridge of a diverse range of vegetation consistent with the cross section provided at Figure 5.8 of Appendix L, Volume 2F of the EIS. The bridge must be a minimum width of 15 metres, where the pedestrian and cycling green link spans from Rozelle Rail Yards across the City West Link including the slip lane onto The Crescent, unless otherwise agreed by the Secretary.

E121 The connection between the pedestrian and cycling green link and the park adjacent to Chapman Road must be designed to integrate with the open space and active transport infrastructure within the park in a manner that maximise the safe movement of pedestrians and cyclists and provide a contiguous path between the Rozelle Rail Yards open space and the park adjoining Chapman Road.

Lighting and Security

E122 The Proponent must construct and operate the CSSI with the objective of minimising light spillage to residential properties. All lighting associated with the construction and operation of the CSSI must be consistent with the requirements of *Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting* and relevant Australian Standards in the series *AS/NZ 1158 – Lighting for Roads and Public Spaces*. Notwithstanding, the Proponent must provide mitigation measures to manage any residual night lighting impacts to protect properties adjoining or adjacent to the CSSI, in consultation with affected landowners.

E122A The Proponent must implement measures, in consultation with affected residents, to prevent headlights from vehicles exiting the G-Loop spilling onto residences in the vicinity of the intersection of Dobroyd Parade / Wattle Street / Waratah Street.

E123 The Proponent must construct and operate the CSSI with the objective of avoiding adverse or distracting lighting configuration, spillage or intensity to aircraft operations. All lighting associated with the construction and operation of the CSSI must adhere to the *Lighting in the Vicinity of Aerodromes: Advice to Lighting Designer* (CASA, 1999) and *National Airports Safeguarding Framework Guideline E: Managing the Risk of Distractions to Pilots from Lighting in the Vicinity of Airports* (DIRD, 2012). Notwithstanding, the Proponent must provide mitigation measures to manage any residual night lighting impacts to protect aircraft operations, in consultation with CASA and DIRD.

E124 Notwithstanding **Condition E123**, the Proponent must consult with CASA, DIRD and Sydney Airport Operators prior to the commencement of construction to determine the need and potential positioning of aviation hazard lighting on any equipment or built form component associated with the CSSI where such consultation deems it necessary.

Design Review Panel

E125 The Proponent must establish a **Design Review Panel** during detailed design and prior to construction.

E126 During design development of the CSSI, the **Design Review Panel** must review the design (excluding the tunnels between portals) to assess whether it is consistent with the commitments and outcomes made in the documents listed in **Condition A1**.

E127 The **Design Review Panel** must refine the design objectives for place making, public realm and urban and heritage interpretation applicable to the length of the project and provide advice on the application of the objectives to key design elements in relation to place making, architecture, heritage, urban and landscape design and public art and aesthetic aspects of the CSSI. The Panel must also review all **Urban Design and Landscape Plan(s)** prior to these being submitted to the Secretary. Evidence of this review and the Proponent's consideration of the review is to be provided to the Secretary.

E128 The **Design Review Panel** must be comprised of, a suitably qualified, experienced and independent professional in each of the fields of:

- (a) architecture;
- (b) urban design;
- (c) landscape design; and
- (d) Aboriginal cultural heritage and non-Aboriginal heritage.

The NSW Government Architect (or representative) is to be the Chair of the Panel.

The Proponent and its contractor(s) are to be invited onto the Panel as observers only and to provide technical advice. The Proponent is to provide independent secretarial resources to the Panel.

The Design Review Panel may seek specialist advice from UrbanGrowth NSW (when the Panel convenes to discuss matters relating to the Rozelle Rail Yards and its surrounds).

E129 The **Design Review Panel** members must be nominated by the Proponent and approved by the Secretary in accordance with the timeframes in **Condition E125**.

- E130 Nomination and appointments of the Design Review Panel must comply with the Public Service Commission's *Appointment Standards: Boards and Committees in the NSW Public Sector* guideline.
- E131 Once the **Design Review Panel** is composed, and prior to the detailed design of the CSSI, a **Design Review Panel Terms of Reference** is to be developed and endorsed by all panel members. The Terms of Reference must be submitted to the Secretary for information and:
- (a) establish best practice governance and protocols for the operation of the **Design Review Panel**;
 - (b) include a Code of Conduct;
 - (c) outline the agreed frequency of **Design Review Panel** meetings, coordinated with Proponent program requirements, to ensure timely advice and design adjustment; and
 - (d) outline secretariat functions and administration including the recording and storing of meeting agendas, minutes and actions.
- E132 The **Design Review Panel** is to be operated and managed in accordance with the approved **Design Review Panel Terms of Reference** and in accordance with the NSW Government *Boards and Committees Guidelines* (Department of Premier and Cabinet, September 2015).

Urban Design and Landscape Plan

- E133 An **Urban Design and Landscape Plan(s) (UDLP)** must be prepared based on the detailed design, and in accordance with the project objectives, and the commitments made in Chapters 13 and 29 of the EIS and updated in Part E of the SPIR.
- E134 The **Urban Design and Landscape Plan(s)** must be prepared by a suitably qualified and experienced person(s) in consultation with the relevant council(s), UrbanGrowth NSW, the community and affected landowners and businesses. The **UDLP(s)** must include, but not necessarily be limited to:

Objectives, Principles and Standards

- (a) demonstrated consideration of design objectives, principles and standards including:
 - (i) local environmental and heritage values,
 - (ii) urban design context,
 - (iii) sustainable design and maintenance,
 - (iv) community safety, amenity and privacy including 'safer by design' principles where relevant,
 - (v) relevant design standards and guidelines,
 - (vi) prioritising the visual amenity and values of adjoining receivers over the road user experience,
 - (vii) minimising the footprint of the project (including operational facilities), and
 - (viii) the urban design principles outlined in the document referred to in **Condition A1**, and
 - (ix) the urban design principles outlined in *Better Placed* and *Greener Places* by the NSW Government Architect; and
 - (x) **DRP** review.

Consultation

- (b) details of where and how recommendations from the **Design Review Panel** have been incorporated into the plan;
- (c) evidence of consultation with the relevant council(s), UrbanGrowth NSW and the community on the proposed urban design and landscape measures, prior to finalisation of

the **UDLP**, and details of how the outcomes of this consultation have informed the development of the **UDLP**;

Context and Form

- (d) an analysis of the built, natural and community context and the urban design objectives, principles and standards for the CSSI;
- (e) detailed consideration of integration and continuity with urban design and landscape outcomes for the M4 East and New M5 projects taking into account the respective **UDLP(s)** for each project;
- (f) landscaping and building design opportunities to mitigate the visual impacts of road infrastructure and operational fixed facilities (including ventilation outlets, tunnel portals, Motorway Operations Complexes, noise walls etc.), including
 - i) building placement, designs and landscaping that are reflective of the local built form,
 - ii) a living vertical garden(s) or alternative treatment for ventilation outlets consistent with the requirements of **Condition E118**,

Access

- (g) the **Pedestrian and Cycle Implementation Strategy** identified in **Condition 60**;
- (h) the following interim park infrastructure must be provided at Rozelle Rail Yards to support passive recreational uses of the land: toilet facilities, seating, bins and bicycle parking;
- (i) details of staging to maximise progressive public access and use of the Rozelle Rail Yards site;

Design

- (j) the design of the project landform and earthworks;
- (k) the design of the CSSI elements including their form, materials and detail (including the City West Link pedestrian and cycling green link identified in **Condition E120**);
- (l) a description of the CSSI design features, including graphics such as sections, perspective views and sketches of key elements of the CSSI;
- (m) visual screening requirements;
- (n) development and delivery of public art opportunities throughout the Rozelle Rail Yards using local artists;
- (o) demonstrated integration of Crime Prevention Through Environmental Design principles into the detailed design process;

Lighting

- (p) an assessment of the location, design and impacts of operational lighting associated with the CSSI and measures proposed to minimise lighting impacts in accordance with **Conditions E122, E123 and E124**;
- (q) development of a **Rozelle Rail Yards Lighting and Wayfinding Strategy** that provides for effective, safe and innovative lighting and wayfinding throughout the Rozelle Rail Yards land and that also explores lighting as a public art opportunity whilst ensuring adherence to **Conditions E122, E123 and E124**;

Heritage

- (r) the location of existing heritage items;
- (s) information on the reuse of heritage items and items of significance to the urban form and landscape character including identification of opportunities for interpretative and innovative reuse of salvaged items from the Rozelle Rail Yards to ensure the character of the land remains connected to previous and surrounding industrial, transport and maritime land uses;

Landscaping

- (t) a description of disturbed areas (including construction ancillary facilities) and details of the strategies to progressively rehabilitate, regenerate and/or revegetate these areas;

- (u) details on the location of existing vegetation and proposed landscaping (including use of endemic and advanced tree stock where appropriate). Details of species to be replanted/revegetated must be provided, including their appropriateness to the areas and habitat for threatened species;
- (v) demonstrated integration of water-sensitive urban design principles into the detailed design process and maximisation of integration of existing and enhanced water features into the open space features of the site including enhancements to Whites Creek and other waterways as well as the constructed wetland;

Implementation and monitoring

- (w) the timing for implementation of access, landscape and open space initiatives; and
- (x) monitoring and maintenance procedures for the built elements, rehabilitated vegetation and landscaping (including weed control) including performance indicators, responsibilities, timing and duration and contingencies where rehabilitation of vegetation and landscaping measures fail.

E135 The **Urban Design and Landscape Plan(s)**, and its sub-plans, must be reviewed by the **Design Review Panel**. The Proponent must respond to the outcomes of the **Design Review Panel's** review and submit the **UDLP** to the Secretary for approval no later than one (1) month prior to the construction of permanent built surface works that are the subject of the **Urban Design and Landscape Plan(s)** (in the area to which the **UDLP** applies) or earth works for the final surface contouring of the Rozelle Rail Yards open space, whichever is the sooner.

E136 Construction of permanent built works or landscaping that are the subject of the **Urban Design and Landscape Plan** must not be commenced (in the area to which the **UDLP** applies) until the **Urban Design and Landscape Plan(s)** has been approved by the Secretary, after taking into consideration advice received from the Design Review Panel.

E137 The **Urban Design and Landscape Plan(s)**, as approved by the Secretary, must be implemented during construction, as required, and operation.

Overshadowing

E138 Existing residential properties (and approved residential developments, at the time of this approval) that are affected by overshadowing from the CSSI (including any noise mitigation measures) are to receive a minimum of three (3) hours of direct sunlight in habitable rooms and in at least 50% of the principal private open space area between 9:00 am and 3:00 pm on 21 June. Such properties must be identified for further consideration by the Proponent in a **Solar Access and Overshadowing Report** which addresses compliance with these requirements.

The **Solar Access and Overshadowing Report** must be reviewed by the **Design Review Panel**. The Proponent must respond to the outcomes of the **Design Review Panel's** review and then submit the Report to the Secretary prior to the commencement of construction of any structures that may cause overshadowing of residential premises, whenever is the sooner and must include:

- (a) identification of potentially affected properties;
- (b) assessment of the detailed design's compliance at each property, informed by –
 - (i) a review of the habitable rooms within structures,
 - (ii) the size and nature of private open spaces, and
 - (iii) shadow diagrams in plan and elevation at hourly intervals between 9:00 am and 3:00 pm on 21 June; and

- (c) a consultation plan to detail how potential impacts and mitigation measures will be discussed and negotiated with potentially affected landowners in the event that compliance with this condition is not achieved.

Where existing residential development currently receives less than the required amount of solar access, existing access to sunlight should not be unreasonably reduced.

Where affected properties include dwellings held under strata or community title, this condition must be interpreted in relation to individual units within those properties.

Operational Maintenance

E139 The ongoing maintenance and operation costs of urban design, open space, landscaping and recreational items and works implemented as part of this approval will remain the Proponent's responsibility until satisfactory arrangements have been put in place for the transfer of the asset to the relevant authority. Prior to the transfer of assets, the Proponent will maintain items and works to at least the design standards established in the **Urban Design and Landscape Plan**, and its sub-plans, required by **Condition E133**.

UTILITIES MANAGEMENT

E140 A **Utilities Management Strategy** must be prepared and implemented for all utility works. The Strategy must identify how utility works will be defined and managed.

The **Utilities Management Strategy** must include:

- (a) a definition of low impact utility work. The definition must consider parameters including, but not limited to, type of works, duration of works, hours of works, noise impacts, and traffic and access impacts;
- (b) the functions of the **Utility Coordination Manager** as required by **Condition E141**;
- (c) a description of all utility works to be undertaken, including low impact utility works and how they meet the definition in subclause (a); and
- (d) the management measures that will be implemented to manage dust, noise, traffic, access and lighting impacts associated with low impact utility works.

The **Utilities Management Strategy** must be submitted to the Secretary for approval at least one (1) month prior to the commencement of low impact utility works.

Note: Utility works that are not low impact are construction and appropriate management measures would be included in the CEMP.

Utility Coordination Manager

E141 A **Utility Coordination Manager** must be appointed for the duration of the CSSI works. The role of the **Utility Coordination Manager** must include, but not be limited to:

- (a) the management and coordination of all utility works associated with the delivery of the CSSI, to ensure respite is provided to the community, as required under **Condition E75**;
- (b) providing advice to the **Public Liaison Officer(s)**, regarding upcoming utility works, including the scope of the works and responsibility for the works; and
- (c) investigating complaints received from the **Community Complaints Mediator** or the **Public Liaison Officer(s)**, relating to utility works, and providing a response to the **Community Complaints Mediator** or **Public Liaison Officer(s)**.

HAZARDS AND RISK

E142 Prior to operation, the Proponent must prepare an **Emergency Response Plan**, in consultation with FRNSW and NSW Police Force.

The **Emergency Response Plan** must include, but not be limited to:

- (a) protocols and procedures to be followed during emergency situations associated with the operation of the project (including fires, explosions and, for the purposes of this condition, vehicle collisions). The protocols and procedures are to take into account the needs of people with a disability or who may experience access problems in emergency situations;
- (b) details of traffic management measures to be implemented during emergencies, where appropriate, to minimise the potential for escalation of the emergency;
- (c) design and management measures for containment of contaminated fire-fighting water, fuel spills and gaseous combustion products;
- (d) details of a training and testing program to ensure that –
 - (i) all operational staff familiar with the Emergency Response Plan, and
 - (ii) coordination with FRNSW and NSW Police is regularly exercised; and
- (e) provision for a simulated emergency response exercise, including the Proponent, FRNSW and NSW Police, to be conducted in accordance with the approved Emergency Response Plan on at least one occasion prior to the opening of the tunnel to traffic. The time for the exercise is to be agreed by the participants.

E143 Fire simulation and hot smoke testing must be undertaken as part of the simulated emergency response exercise to be staged prior to opening of the project to traffic as required in **Condition E142(e)**.

The Proponent must respond in writing to any recommendations made by FRNSW and NSW Police as a result of the exercise.

E144 The Proponent must undertake annual **Hazard Reviews** of the project for the first five (5) years of operation. The **Hazard Review** must detail all hazardous incidents that have occurred during the preceding period, identify safety measures required to rectify those incidents, and address any ongoing issues.

The first **Hazard Review** must be undertaken for the first three (3) months of operation after the opening of the project to traffic. Subsequent **Hazard Reviews** must be undertaken for the following nine (9) months and thereafter at 12 monthly intervals.

FRNSW may also direct the Proponent to undertake a **Hazard Review** following any major incident in the tunnel.

E145 A **Hazard Review Report**, outlining the results of the **Hazard Review**, and any proposed additional safety measure(s) to be implemented in response to the findings of the **Hazard Review**, must be submitted to FRNSW no later than one (1) month after the review period.

The Proponent must respond in writing to any recommendation made by FRNSW in relation to the findings of a **Hazard Review**, within such time as may be agreed to by FRNSW.

E146 The Proponent must develop a **Fire Engineering Brief and Fire Engineering Report** to address fire and life safety in the tunnel, in consultation with FRNSW. The documents must be

prepared prior to finalising the relevant design details for the tunnel. The documents must outline fire protection systems and other tunnel equipment, systems, and operational protocols required for fire and smoke management.

The Proponent must respond in writing to any recommendation made by FRNSW in relation to the **Fire Engineering Brief and Fire Engineering Report**, within such time as may be agreed by FRNSW.

- E147 In developing the **Fire Engineering Brief and Fire Engineering Report**, the Proponent must undertake a detailed **Fire Engineering Study** in accordance with Australian Building Codes Board codes and guides, and Fire Safety Engineering Guidelines. Detailed design of the tunnel must incorporate the design and operational measures developed in the **Fire Engineering Study** to minimise the potential for, and effect of, fire and hazardous material incidents in the tunnel.

The final design of the tunnel in relation to the fire and life safety features must be verified against the **Fire Engineering Study** in consultation with FRNSW by an Accredited Fire Engineer.

- E148 Prior to the opening of the project to traffic, a full audit of the fire and life safety system as defined by the **Fire Engineering Study** required by **Condition E147** must be undertaken by an Accredited Fire Engineer. The objective of the audit must be to ensure that all design and operational measures outlined in the fire engineering study has been installed, are operational, and achieve the required design criteria.

The results of the audit must be submitted to FRNSW prior to opening of the project to traffic. The Proponent must respond in writing to any recommendations resulting from the FRNSW review of the audit.

- E149 A detailed maintenance-testing program outlining the methods of testing the fire and life safety systems and schedule for implementation must be developed in consultation with FRNSW prior to opening of the project to traffic.

The Proponent must respond in writing to any recommendations made by FRNSW.

- E150 Maintenance testing of fire and life safety systems must be undertaken at least annually, or any other interval as required by the design engineer and in consultation of FRNSW.

Results of maintenance testing must be made available to FRNSW for review, and the Proponent must respond in writing to any recommendations from FRNSW to ensure the reliability of the fire and life safety systems.

FLOODING

- E151 The CSSI must be designed so that the following flooding characteristics are not exceeded on adjacent lands / properties:

- (a) a maximum increase in inundation time of one hour in a 1 in 100 year ARI rainfall event;
- (b) a maximum increase of 10 mm in inundation at properties where floor levels are currently exceeded in a 1 in 100 year ARI rainfall event;

- (c) a maximum increase in 50 mm in inundation at properties where floor levels would not be exceeded in a 1 in 100 year ARI rainfall event; and
- (d) no inundation of floor levels which are currently not inundated in a 1 in 100 year ARI rainfall event.

E152 Flood information including flood reports, models and geographic information system outputs, and work as executed information from a registered surveyor certifying finished ground levels and the dimensions and finished levels of all structures within flood prone land, must be provided to the relevant council(s) and the SES. The relevant council(s) and the SES must be notified in writing that the information is available no later than one (1) month following the completion of construction and be provided with that information. Information requested by the relevant council(s) or the SES must be provided no later than six (6) months following the completion of construction or within another timeframe agreed with the relevant council(s) and the SES.

E153 The Proponent must prepare a **Flood Review Report(s)** after the first defined flood event for any of the following flood magnitudes – the 5 year ARI event, 20 year ARI event, 100 year ARI event and probable maximum flood – to assess the actual flood impact against that predicted in the documents referred to in **Condition A1**. The Flood Review Report(s) must be prepared within three (3) months of each flood event. The report(s) must be prepared by an appropriately qualified person(s) and include:

- (a) identification of the properties and infrastructure affected by flooding during the reportable event;
- (b) a comparison of the actual extent, level, velocity and duration of the flooding event against the impacts predicted in the documents referred to in **Condition A1** and the requirements specified in **Condition E151**; and
- (c) where the actual extent and level of flooding exceed the predicted level and / or the requirements specified in **Condition E151**, with the consequent effect of adversely impacting on property(s), structures and infrastructure, identification of the measures to be implemented to reduce future impacts of flooding related to the CSSI works, including the timing and responsibilities for implementation.

Flood mitigation measures must be developed in consultation with the affected property / structure / infrastructure owners and the relevant council(s).

A copy of the **Flood Review Report(s)** must be submitted to the Secretary and relevant council(s) within one (1) months of finalising the report(s).

HERITAGE

E154 The Proponent must not destroy, modify or otherwise physically affect any heritage items, including human remains, outside of the CSSI boundary, or undertake works in or on Alexandra Canal.

E155 The Proponent must not to harm, modify, or otherwise impact human remains uncovered during the construction of the CSSI.

E156 Identified impacts to heritage items and heritage conservation areas must be minimised through both detailed design and construction. The measures for ensuring this are to be detailed in the **Construction Non-Aboriginal Heritage Management Sub-Plan** and

Aboriginal Cultural Heritage Management Sub-Plan required by **Conditions C4(g)** and **(h)**, respectively.

E157 An **Unexpected Heritage Finds Procedure** must be prepared:

- (a) to manage unexpected heritage finds in accordance with any guidelines and standards prepared by the Heritage Council of NSW or OEH; and
- (b) by a suitably qualified and experienced heritage specialist.

The Procedure must be included in the **Construction Non-Aboriginal Heritage Management Sub-plan** and **Aboriginal Cultural Heritage Management Sub-Plan** required by **Conditions C4(g)** and **(h)**.

Note: Human remains that are found unexpectedly during works are under the jurisdiction of the NSW State Coroner and must be reported to the NSW Police immediately.

Non-Aboriginal Heritage

E158 The Proponent must not destroy, modify or otherwise cause direct damage to the following items:

- (a) Southern Penstock associated with White Bay Power Station; and
- (b) 5 Lilyfield Road, Rozelle.

E159 The Proponent must undertake a condition survey of the Southern Penstock and establish and maintain a suitable exclusion zone around the penstock for the duration of construction. The extent of the exclusion zone must be determined in consultation with the Heritage Division of OEH.

E160 The Proponent must investigate the feasibility of retaining Cadden Le Messurier (84 Lilyfield Road), Former Hotel (78 Lilyfield Road) and the facade of the former Bank of NSW building (164 Parramatta Road) during detailed design.

E161 Works on Whites Creek Stormwater Channel No. 95 must be undertaken in consultation with Sydney Water and a suitably qualified and experienced heritage consultant. The consultation process must include consultation on the final design and location of the works. All reasonable steps must be undertaken to ensure that the lateral extent and degree of impact to the canal fabric is minimised.

E162 Prior to conducting acoustic treatment at any heritage item identified in the documents listed in **Condition A1** the advice of a suitably qualified and experienced built heritage expert must be obtained and implemented to ensure any such work minimises any adverse impacts on the heritage significance of the item.

Heritage Archival Recording and Salvage

E163 The Proponent must prepare a **Heritage Archival Recording and Salvage Report**, including photographic recording of heritage items which have been identified for demolition in the documents referred to in **Condition A1** and outline how any salvage or recovery of material will be undertaken from these items.

Archival recording must be undertaken by a suitably qualified heritage specialist and prepared in accordance with NSW Heritage Office's *How to Prepare Archival Records of Heritage Items* (1998) and *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006).

Within 12 months of completing the archival recording, the Proponent must submit the **Heritage Archival Recording and Salvage Report** to the Secretary, relevant council(s), relevant local libraries and local historical societies in the respective local government area(s).

E164 Archival recording as required by **Condition E163** must also be undertaken for the Cadden Le Messurier, former Hotel and the former Bank of NSW building, should these structures be demolished.

E165 Following archival recording as required by **Condition E163**, and prior to demolition, the Proponent must assess options for sympathetic reuse (including integrated heritage displays and interpretation) on the project or other options for conservation, including architectural salvage for re-use in comparable buildings and display.

Where salvage supports good conservation outcomes, the material is to be collected and stored in suitable repository locations established in consultation with relevant council(s). The salvage from any State-listed items or elements must be determined in consultation with the Heritage Division of OEH.

Any residual items and materials are to be made available, through a process to be developed by the Proponent in consultation with the relevant council(s), to landowners within the locality from where the material originated.

E166 The Proponent must investigate options for utilising salvaged rail related infrastructure from the Rozelle Rail Yards into the landscaping of the Rozelle Rail Yards. How the items are to be used is to be detailed in the **Urban Design and Landscape Plan** required by **Condition E133**.

Non-Aboriginal Historical Archaeology

E167 The Proponent must prepare a **Heritage Interpretation Plan**, as committed to in the SPIR (NAH02) which identifies and interprets the key heritage values and stories of heritage items and heritage conservation areas impacted by the CSSI. The Heritage Interpretation Plan must include, but not be limited to:

- (a) a discussion of the key interpretive themes, stories and messages proposed to interpret the history and significance of the affected heritage items and sections of heritage conservation areas; and
- (b) identification of interpretive initiatives implemented to mitigate impacts to archaeological relics, heritage items and conservation areas affected by the CSSI.

E168 Prior to works that have a direct material impact on a Historical Archaeological Management Unit (HAMU), the Proponent must engage a suitably qualified archaeologist whose experience complies with the Heritage Council of NSW's *Criteria for Assessment of Excavation Directors* (July, 2011) (referred to as the Excavation Director) to oversee and advise on matters associated with historic archaeology and to prepare an **Historical Archaeological Research Design and Excavation Methodology**.

E169 The **Historical Archaeological Research Design and Excavation Methodology** must be submitted to the Heritage Council of NSW (or its delegate) for review and comment prior to finalisation. The Historical Archaeological Research Design and Excavation Methodology must:

- (a) be consistent with the *NSW Heritage Council's Archaeological Assessments Guideline (1996)* or as updated;
- (b) provide for the detailed analysis of any heritage items discovered during the investigations;
- (c) include management options for discovered heritage items, whether known or unexpected finds (including options for avoidance, salvage, relocation and display);
- (d) for unexpected finds that are determined to be relics, set out the assessment process that will determine an appropriate archaeological response to managing their significance;
- (e) include procedures for notifying the Heritage Council of NSW (or its delegate) and Secretary of any relic findings; and
- (f) if the findings of the investigations are significant, provide for the preparation and implementation of a **Heritage Interpretation Plan**, as required under **Condition E167**.

E170 Where excavation works are required in the vicinity of potential archaeological sites, the Excavation Director must be consulted to advise on how the works are to be managed and any archaeological impact minimised. The Excavation Director must be given the authority to advise on the duration and extent of oversight required during excavation.

E171 Works within the vicinity of the find must not recommence until the relevant requirements of the **Historical Archaeological Research Design and Excavation Methodology** or advice on unexpected finds from the Excavation Director have been met.

E172 The Proponent must prepare an **Archaeological Excavation Report** containing the findings of any excavations, including artefact analysis and the identification of a final repository of any finds. The report must be submitted to the Secretary within 12 months of completing all archaeological investigations. The **Archaeological Excavation Report** must also be submitted to the Heritage Council of NSW, the local library and the local Historical Society in the relevant local government area(s). A copy of the **Archaeological Excavation Report** must be retained with the relics at all times.

Aboriginal Cultural Heritage

E173 The Proponent must take all reasonable steps so as not to harm, modify or otherwise impact any Aboriginal object associated with the CSSI except as authorised by this approval.

BIODIVERSITY

E174 The clearing of native vegetation must be minimised with the objective of reducing impacts to any threatened species, populations and ecological communities to the greatest extent practicable. Impacted vegetation must be rehabilitated with endemic species (in the first instance) and locally native species to the greatest extent practicable.

Pre-clearing Surveys

E175 Prior to removing/clearing any vegetation, or demolition of structures identified as potential roosting sites for microbats, pre-clearing/demolition inspections for microbats and threatened species must be undertaken. The inspections, and any subsequent relocation of species and associated management/offset measures, must be undertaken under the guidance of a suitably qualified and experienced ecologist. Surveys for the presence of microbat roosting must be undertaken to cover the period of roosting, under guidance of a suitably qualified and experienced. Survey methodologies must be incorporated into the **Construction Flora and**

Fauna Management Sub-plan required under **Condition C4** and **Site Establishment Management Plan** required under **Condition C22**, as relevant.

- E176 The Proponent must prepare a **Microbat Management Strategy** in the case that microbats or evidence of roosting are identified during pre-clearing/demolition surveys. The strategy must detail short- and long-term measures to avoid, minimise and mitigate impacts to these species.
- E177 The CSSI must be designed to retain as many trees as possible. Where trees are to be removed, the Proponent must provide a net increase in the number of replacement trees. Replacement trees must be planted within, and on public land up to 500 metres from the CSSI boundary. Replacement tree plantings can be undertaken beyond 500 metres on public land within the local government areas to which the CSSI approval applies if no more plantings are practicable within and up to 500 metres from the CSSI boundary. The location of the trees must be determined in consultation with the relevant authority(s).
- E178 Replacement trees are to have a minimum pot size of 75 litres except where the plantings are consistent with the pot sizes specified in a relevant authority's plans / programs / strategies for vegetation management, street planting, or open space landscaping, or as agreed by the relevant authority(s).
- E179 The Proponent must submit to the Secretary a report which details the type, size, number and location of replacement trees. The report must demonstrate how any replacement plantings with a pot size less than 75 litres are consistent with the requirements of **Condition E178**. The report must be submitted to the Secretary one (1) month prior to operation.

SOILS

- E180 All reasonably practicable erosion and sediment controls must be installed and appropriately maintained to minimise any water pollution. When implementing such controls, any relevant guidance in the *Managing Urban Stormwater* series must be considered.

Contaminated sites

- E181 A **Site Contamination Report**, documenting the outcomes of Phase 1 and Phase 2 contamination assessments of land upon which the CSSI is to be carried out, that is suspected, or known to be, contaminated must be prepared by a suitably qualified and experienced person in accordance with guidelines made or approved under the *Contaminated Land Management Act 1997* (NSW).
- E182 If a **Site Contamination Report** prepared under **Condition E181** finds such land contains contamination, a site audit is required to determine the suitability of a site for a specified use. If a site audit is required, a **Site Audit Statement** and **Site Audit Report** must be prepared by a NSW EPA Accredited Site Auditor. Contaminated land must not be used for the purpose approved under the terms of this approval until a **Site Audit Statement** is obtained that declares the land is suitable for that purpose and any conditions on the **Site Audit Statement** have been complied with.
- E183 A copy of the **Site Audit Statement** and **Site Audit Report** must be submitted to the Secretary and relevant council for information no later than one (1) month prior to the commencement of operation.

- E184 An **Unexpected Contaminated Land and Asbestos Finds Procedure** must be prepared and must be followed should unexpected contaminated land or asbestos be excavated or otherwise discovered during construction.
- E185 The **Unexpected Contaminated Land and Asbestos Finds Procedure** must be implemented throughout construction.

WATER

- E186 The CSSI construction water treatment plant discharge criteria must comply with the ANZECC (2000) 90 per cent species protection level unless an EPL is in force in respect to the CSSI. Discharge criteria for iron during construction must comply with the ANZECC (2000) recreational water quality criteria.
- E187 The CSSI operational water treatment plant discharge criteria must comply with the ANZECC (2000) 95 per cent species protection level and a 99 per cent protection level for contaminants that bioaccumulate unless other discharge criteria are agreed in consultation with relevant stakeholders including EPA, DPI Water and Sydney Water. Discharge criteria for iron during operation must comply with the ANZECC (2000) recreational water quality criteria.
- E188 Drainage feature crossings (permanent and temporary watercourse crossings and stream diversions) and drainage swales and depressions must be undertaken in accordance with relevant guidelines and designed by a suitably qualified and experienced person.
- E189 Works on waterfront land must be undertaken in accordance with DPI controlled activity guidelines.

Groundwater

- E190 The Proponent must take all practicable measures to limit operational groundwater inflows into each tunnel to no greater than one litre per second across any given kilometre (1L/s/km). Compliance with this condition cannot be determined by averaging groundwater inflows across the length of the tunnel.
- E191 The Proponent must identify and commit to the implementation of 'make good' provisions for groundwater users in the event of a decline in water supply levels, quality and quantity from registered existing bores associated with groundwater changes from either construction and/or ongoing operational dewatering caused by the CSSI.
- E192 The Proponent must undertake further modelling of groundwater drawdown, tunnel inflows and saline water migration (using particle tracking) prior to finalising the design of the tunnels and undertaking any works that would impact on groundwater flows or levels. The modelling must be undertaken in consultation with DPI Water and include the results and hydrogeological analyses of at least 12 continuous months of current baseline groundwater monitoring data from bores identified in the EIS and SPIR. The modelling must also include data from any other existing monitoring bores identified in consultation with DPI Water, as required to supplement baseline data.
- E193 The results of the groundwater modelling must be documented in a **Groundwater Modelling Report**. The **Groundwater Modelling Report** must be finalised in accordance with the *Australian Groundwater Modelling Guidelines* (National Water Commission, 2012) and prepared in consultation with DPI Water. The **Groundwater Modelling Report** must include, but not be limited to:

- (a) justification for layer choice;
- (b) specification and justification of the grid based hydraulic conductivity and storage parameters (specific yield and specific storage) assigned to each layer and/or zone with reference to those values determined from data analyses and the literature;
- (c) an explanation of how groundwater flow was simulated within each model layer with reference to confined, unconfined or variably saturated flow solutions;
- (d) an explanation and justification of the drain-cell conductance term(s) applied to the tunnel boundaries to limit tunnel inflows;
- (e) an explanation and justification of the groundwater recharge values applied across the model domain, including around the modelled specific yield values and the water table fluctuations observed within the monitoring data in response to rainfall-fed groundwater recharge;
- (f) details (including figures) of the expected changes in groundwater flow directions in the vicinity of landfills, groundwater wells and surface water receptors;
- (g) cross-section diagrams of geology showing baseline groundwater levels in the monitoring piezometres, and for the predicted baseline condition groundwater levels in 2030 and 2100;
- (h) statistical evaluation of the model's calibration;
- (i) details of the groundwater monitoring data inputs (levels and quality);
- (j) details of the proposed groundwater model update and validation as additional data is collected;
- (k) assessment of impacts of groundwater drawdown, taking into consideration the *NSW Aquifer Interference Policy* (DPI, 2012), including potential impacts on licensed bores and groundwater dependent ecosystems;
- (l) a comparison of the results with the modelling results detailed in the documents referred to in **Condition A1**; and
- (m) documentation of any additional measures that would be implemented to manage and/or mitigate groundwater impacts not previously identified.

A copy of the **Groundwater Modelling Report** must be submitted to the Secretary prior to finalising the tunnel design. The **Groundwater Modelling Report** must include details of consultation with DPI Water.

E194 The groundwater model must be updated once 24 months of construction groundwater monitoring data are available and the results of the updated modelling provided to the Secretary and DPI Water in an updated **Groundwater Modelling Report**.

Stormwater Drainage

E195 The Proponent must undertake further hydrological and hydraulic modelling based on the detailed design of the CSSI to determine the ability of the receiving drainage systems to effectively convey pavement drainage from the CSSI and include wastewater flows from operational water treatment plants where it is proposed to discharge these flows to the receiving drainage systems. The modelling must be undertaken in consultation with the relevant council(s) and Sydney Water and the outcomes documented in the **Stormwater Drainage Report** required under **Condition E196**.

E196 The **Stormwater Drainage Report** must be prepared at least one (1) month prior to the commencement of any new drainage works, modifications or connections to existing drainage works, construction of hard surfaces that are associated with the operation of the project and would result in runoff to existing stormwater drainage systems, and the discharge of wastewater flows from operational water treatment plants to existing stormwater drainage systems. The **Stormwater Drainage Report** must:

- (a) assess the potential impacts of pavement drainage discharges from the CSSI drainage systems and wastewater flows from operational water treatment plants on the receiving environment and capacity of council or Sydney Water drainage infrastructure;
- (b) identify all mitigation measures to be implemented where pavement drainage from the CSSI drainage systems or wastewater flows from operational water treatment plants are predicted to adversely impact on the receiving environment or capacity of council or Sydney Water drainage infrastructure; and
- (c) set out a clear time frame for the implementation of mitigation measures.

Nothing in this condition prevents the Proponent from preparing separate Stormwater Drainage Reports for pavement discharges or wastewater discharges from operational water treatment plants to the drainage system provided that each report is prepared at least one month prior to the subject works/discharges commencing.

E197 All new or modified drainage systems associated with the CSSI must be designed to:

- (a) meet the capacity constraints of any council's drainage system to receive and convey the proposed flows from the CSSI, or otherwise upgrade council's drainage system at the Proponent's expense, in consultation with the relevant council(s);
- (b) minimise impacts on the receiving environment at the final outflow point resulting from any additional flow volume (including, but not limited to scour, flooding, water quality impacts, and impacts on riparian vegetation, aquatic ecology and property); and
- (c) ensure mitigation measures are implemented where increased flows through cross drainage systems adversely impact on council or Sydney Water drainage infrastructure and the receiving environment.

E198 The Proponent must prepare a **Water Reuse Strategy** which sets out options for the reuse of collected stormwater and groundwater during construction and operation of the CSSI. The Water Reuse Strategy must include, but not be limited to:

- (a) evaluation of reuse options;
- (b) details of the preferred reuse option(s), including volumes of water to be reused, proposed reuse locations and/or activities, proposed treatment (if required), and any additional licences or approvals that may be required; and
- (c) a time frame for the implementation of the preferred reuse option(s).

The Water Reuse Strategy must consider public health risks from water recycling and must be managed to avoid misuse of recycled water as potable water. The Water Reuse Strategy must be undertaken following best practice and advice from sought from relevant agencies as required.

Justification must be provided in the event that it is concluded that no reuse options prevail.

A copy of the Water Reuse Strategy must be submitted to the Secretary for approval prior to commencement of tunnelling works.

Nothing in this condition prevents the Proponent from preparing separate Water Reuse Strategies for the construction and operational phases of the CSSI. Where a separate Strategy is prepared for the operation of the CSSI, this must be submitted to the Secretary for approval at least six (6) months prior to the commencement of operation of the CSSI.

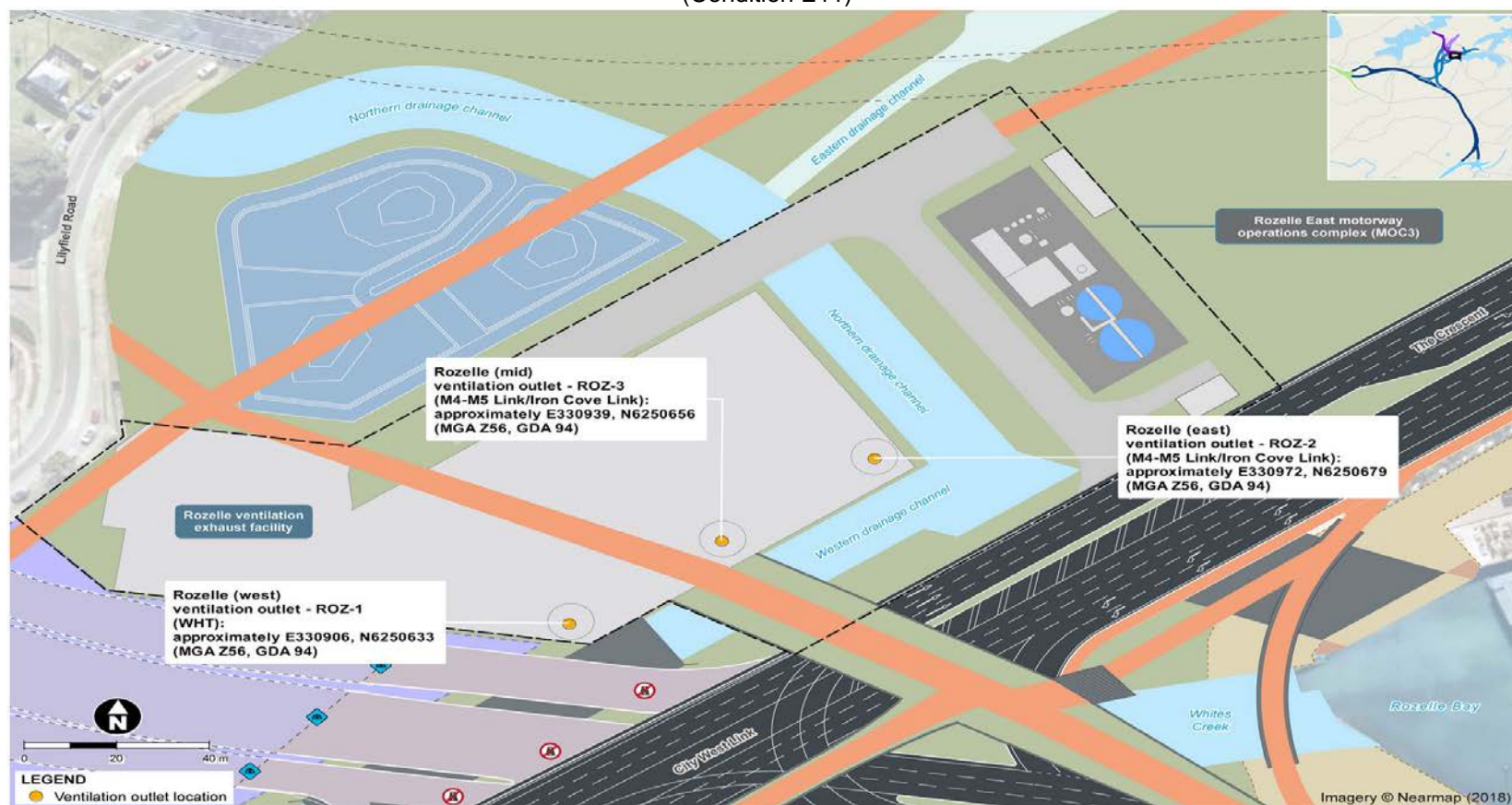
SUSTAINABILITY

- E199 A **Sustainability Strategy** must be prepared to achieve a minimum “Excellent” ‘Design’ and ‘As built’ rating under the Infrastructure Sustainability Council of Australia infrastructure rating tool.
- E200 The **Sustainability Strategy** must be submitted to the Secretary for information prior to the commencement of works, and must be implemented throughout construction and operation.
- E201 Opportunities to reduce operational greenhouse gas emissions must be investigated during detailed design. The sustainability initiatives identified must be implemented, reviewed, updated regularly throughout the design development and construction.

WASTE

- E202 Waste generated during delivery of the CSSI is to be dealt with in accordance with the following priorities:
- (a) waste generation is to be avoided and where avoidance is not reasonably practicable, waste generation is to be reduced;
 - (b) where avoiding or reducing waste is not possible, waste is to be re-used, recycled, or recovered; and
 - (c) where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of at a waste management facility or premise lawfully permitted to accept the materials or in accordance with a Resource Recovery Exemption or Order issued under the *Protection of the Environment Operations (Waste) Regulation 2014*, or to any other place that can lawfully accept such waste.
- E203 Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the *Protection of the Environment Operations Act 1997*, if such a licence is required in relation to that waste.
- E204 All waste generated during construction and operation must be classified in accordance with the EPA's *Waste Classification Guidelines*, with appropriate records and disposal dockets retained for audit purposes.

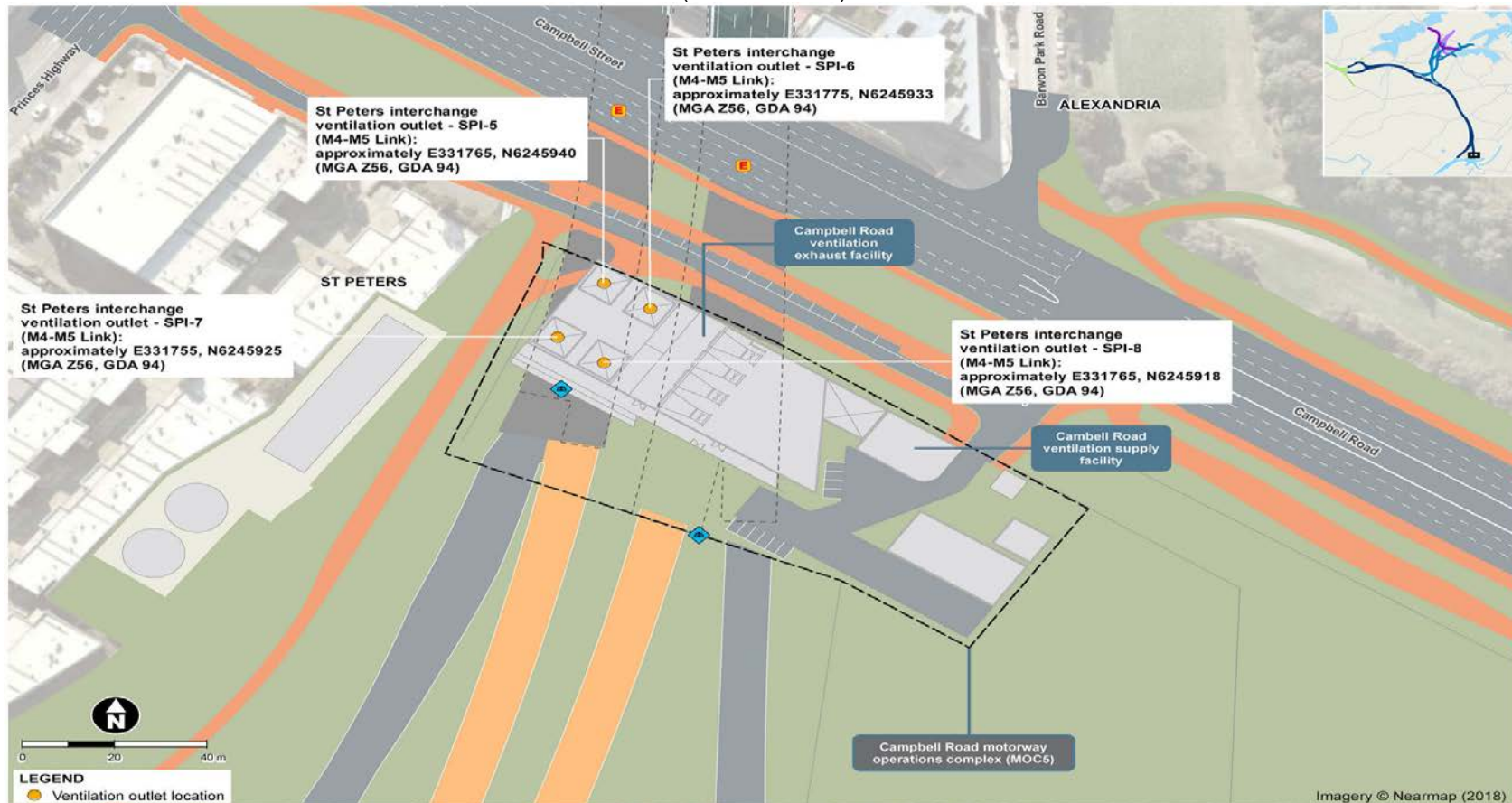
APPENDIX A ROZELLE VENTILATION FACILITY (Condition E11)



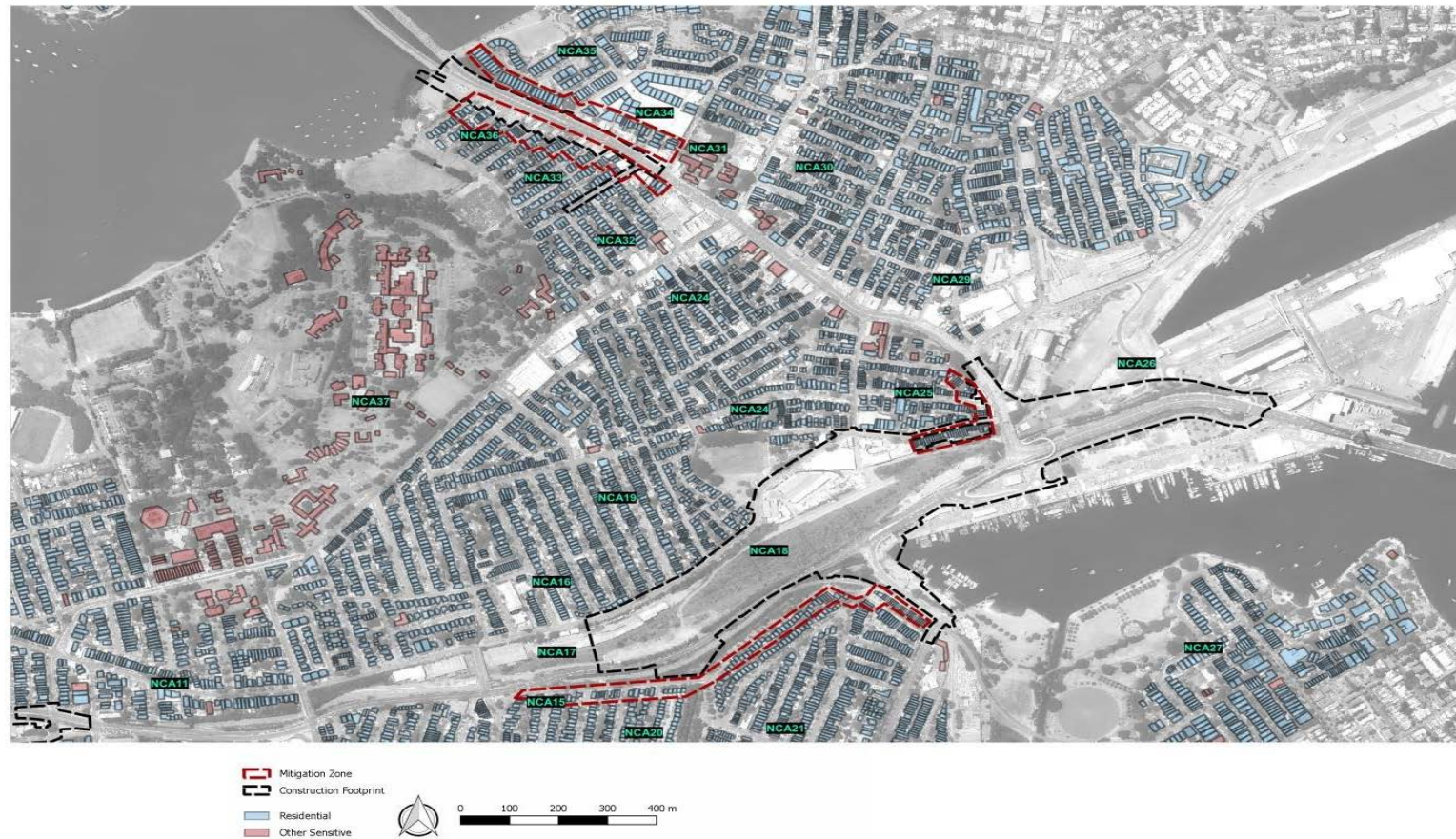
APPENDIX B
 IRON COVE VENTILATION FACILITY
 (Condition E11)



APPENDIX C
 CAMPBELL ROAD, ST PETERS VENTILATION FACILITY
 (Condition E11)



APPENDIX D
OUT-OF-HOURS - MITIGATION
(Condition E87)



APPENDIX E
CONSTRUCTION FATIGUE AND AMENITY - MITIGATION
(Condition E88)

