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M1 Pacific Motorway extension to Raymond Terrace

Environmental impact statement

Transport for NSW | July 2021



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Appendices

Appendix	Appendix name
Appendix A	Secretary's Environmental Assessment Requirements and checklist
Appendix B	Environmental Planning and Assessment Regulation 2000 Checklist
Appendix C	Schedule 4 of the Environment Protection and Biodiversity Conservation Regulations 2000 (Commonwealth) Checklist
Appendix D	Transport Environment and Sustainability Policy
Appendix E	Community Consultation Framework
Appendix F	Environmental Record of Proponent
Appendix G	Traffic and Transport Working Paper
Appendix H	Noise and Vibration Working Paper
Appendix I	Biodiversity Assessment Report
Appendix J	Hydrology and Flooding Working Paper
Appendix K	Surface Water and Groundwater Quality Working Paper
Appendix L	Aboriginal Cultural Heritage Assessment Report
Appendix M	Socio-economic Working Paper
Appendix N	Land Use and Property Working Paper
Appendix O	Urban Design, Landscape Character and Visual Amenity Working Paper
Appendix P	Soils and Contamination Working Paper
Appendix Q	Non-Aboriginal Heritage Working Paper
Appendix R	Air Quality Working Paper
Appendix S	Waste Working Paper
Appendix T	Sustainability Working Paper
Appendix U	Climate Change Risk Working Paper

Certification

Submission of environmental impact statement

Prepared under Division 5.2 of the *Environmental Planning and Assessment Act 1979*

Environmental impact statement prepared by:

Name: Peter Horn
Qualifications: BAppSci – Environmental Science, MAppSci – Environmental Management and Restoration
Address: Jacobs Group (Australia) Pty Ltd
7/177 Pacific Highway, North Sydney, NSW 2060

Responsible person:

Name: Tony Gant, Project Director, M1 Pacific Motorway extension to Raymond Terrace
Transport for NSW
Address: 6 Stewart Avenue
Newcastle West, NSW, 2302

Proposed development:

M1 Pacific Motorway extension to Raymond Terrace

Address of the land on which the infrastructure to which the statement relates:

Land between Black Hill to the west and Raymond Terrace to the east for a distance of about 15 kilometres, within the City of Newcastle and Port Stephens Council local government areas, as described in the environmental impact statement.

Description of the infrastructure to which the statement relates:

Construction and operation of the M1 Pacific Motorway extension to Raymond Terrace, which would connect the existing M1 Pacific Motorway at Black Hill and the Pacific Highway at Raymond Terrace. The project would comprise a 15 kilometre motorway comprised of a four lane divided road, including; four new interchanges at Black Hill, Tarro, Tomago and Raymond Terrace; a 2.6 kilometre viaduct over the Hunter River flood plain including new bridge crossings over the Hunter River, the Main North Rail Line and the New England Highway; bridge structures over local waterways, and connections and modifications to the adjoining local road network.

Environmental impact statement:

An environmental impact statement is attached addressing all matters in accordance with Division 5.2 of the *Environmental Planning and Assessment Act 1979*.

Declaration: I certify that I have prepared the contents of this environmental impact statement in response to the Secretary's environmental assessment requirements dated 20 March 2019 and the relevant provisions of Schedule 2 of the Environmental Planning and Assessment Regulation 2000. To the best of my knowledge the information contained in the environmental impact statement is not false or misleading.

Signature:



Name: Peter Horn
Date: 01 July 2021

Glossary of terms and abbreviations

Term / Abbreviation	Definition
AADT	Average Annual Daily Traffic
ABS	Australian Bureau of Statistics
Abutment	An end support of a bridge.
Access road	A road providing access to a property or another road.
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACHCRP	Aboriginal Cultural Heritage Consultation Requirements for Proponents
ACHMP	Aboriginal Cultural Heritage Management Plan
ACM	Asbestos Containing Material
ACT	Australian Capital Territory
ADSS	All-Dielectric Self-Supporting Fibre Optic
ADWG	Australian Drinking Water Guidelines
AEP	Annual Exceedance Probability The probability of a rainfall or flood event exceeding the nominated level in a year. The 1% AEP is the probability of an event exceeding a nominated level in 100 years.
AFG	Aboriginal Focus Group
Afflux	An increase in water level resulting from a constriction in the flow path.
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AIP	The NSW Aquifer Interference Policy
ALA	Atlas of Living Australia
Alignment	The geometric layout (of a road) in plan (horizontal) and elevation (vertical).
Ancillary facility	A temporary facility for construction of the project. Typically, ancillary facilities would include temporary buildings (including offices, amenities, and first aid facilities), hardstand parking areas, materials laydown and storage areas, perimeter fencing, and workshops.
AOPCR	Area of Potential Contamination Risk
APIC	Aboriginal Participation in Construction
AQIA	Air Quality Impact Assessment
AQMP	Air Quality Management Plan
ARI	Annual Recurrence Interval
ARTC	Australian Rail Track Corporation
ASRIS	Australian Soil Resources Information System
ASS	Acid Sulfate Soil

Term / Abbreviation	Definition
ASSMAC	Acid Sulfate Soil Manual
ASSMP	Acid Sulfate Soil Management Plan
BAM	Biodiversity Assessment Method
BAR	Biodiversity Assessment Report
Batter	A receding slope of a wall, structure or earthwork.
BBCC	BioBanking Credit Calculator
BC Act	<i>Biodiversity Conservation Act 2016</i> (NSW)
BFRMP	Bush Fire Risk Management Plan
Bilateral agreement	The bilateral agreement made under section 45 of the <i>Environment Protection and Biodiversity Conservation Act 1999</i> relating to environmental assessment
BMP	Blast Management Plan
BOM	Australian Bureau of Meteorology
BOS	Biodiversity Offset Strategy
BVT	Biometric Vegetation Type
CCS	Community Communication Strategy
CCTV	Closed Circuit Television
CEMP	Construction Environmental Management Plan
CHL	Commonwealth Heritage List
CLG	Community Liaison Group
CLM Act	<i>NSW Contaminated Land Management Act 1997</i>
CLMP	Contaminated Land Management Plan
CNVG	Construction Noise and Vibration Guideline
CNVMP	Construction Noise and Vibration Management Plan
Construction footprint	The area required to build the project.
CPT	Cone Penetrometer Testing
CPTED	Crime Prevention Through Environmental Design
CSEP	Community and Stakeholder Engagement Plan
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSSI	Critical State Significant Infrastructure
CSWMP	Construction Soils and Water Management Plan
CTGM	Chichester Trunk Gravity Main
Culvert	One or more adjacent enclosed channels for conveying a stream below formation level.
Cut / cutting	Formation resulting from the construction of the road below existing ground level where the material is cut out or excavated.

Term / Abbreviation	Definition
dB / dB(A)	Decibel dB(A) is a weighted scale which corresponds to the hearing threshold of the human ear
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change
DECCW	Department of Environment, Climate Change and Water
Detailed design	The final stage of design for the project. It includes designs, plans and construction drawings for all project elements.
DGV	Default Guideline Value
DIPNR	Department of infrastructure, Planning and Natural Resources
DPE	Department of Planning and Environment
DPI	Department of Primary Industries
DPIE	Department of Planning, Industry and Environment
DSI	Detailed Site Investigation
DUAP	Department of Urban Affairs and Planning
Earthworks	All operations involved in loosening, excavating, placing, shaping and compacting soil or rock.
EC	Electrical Conductivity
EES Group	The Environment, Energy and Science Group of the Department of Planning, Industry and Environment (formerly the NSW Office of Environment and Heritage)
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EL	Exploration Licence
Embankment	An earthen structure where the road (or other infrastructure) subgrade level is above the natural surface.
EMS	Environmental Management System
ENM	Excavated Natural Material
ENMM	Environmental Noise Management Manual
EP&A Act	The <i>Environmental Planning and Assessment Act 1979</i> (NSW)
EP&A Regulation	The Environmental Planning and Assessment Regulations 2000
EPA	Environment Protection Authority
EPBC Act	The <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
EPL	Environmental Protection Licence
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically Sustainable Development
FBA	Framework for Biodiversity Assessment

Term / Abbreviation	Definition
FFMP	Flora and Fauna Management Plan
Fill	The material placed in an embankment.
FM Act	The <i>Fisheries Management Act 1994</i>
FMP	Flood Management Plan
GDE	Groundwater Dependent Ecosystem
GHG	Greenhouse Gas
GIS	Geographic Information System
Grade Separated Interchange	An interchange that is separated vertically (at different heights) involving bridges, underpasses and/or overpasses.
GREP	NSW Government Resource Efficiency Policy
HC	Hydrocarbons
Heritage Act	The <i>Heritage Act 1977</i>
HPV	High Productivity Vehicle Vehicles that can carry more payload than a B-double, such as Performance Based Standards vehicles, road trains, other restricted access vehicles including those operating at Higher Mass Limits and double decker buses.
HRBG	Hunter Region Botanic Gardens
ICNG	Interim Construction Noise Guideline
ICOMOS	International Council on Monuments and Sites
Interchange	A grade-separated junction between roads where a road passes over or under the highway via a bridge or underpass structure with one or more interconnecting roads.
IPCC	Intergovernmental Panel on Climate Change
ISCA	Infrastructure Sustainability Council of Australia
ISO	International Organisation for Standardisation
ITS	Intelligent Traffic System
KFH	Key Fish Habitat
KRAM	Koala Rapid Assessment Method
KTP	Key Threatening Process
LALC	Local Aboriginal Land Council
LCZ	Landscape Character Zone
LEP	Local Environmental Plan
LGA	Local Government Area
LHFC	Lower Hunter Freight Corridor
LOS/LoS	Level of Service
LUCRA	Land Use Conflict Risk Assessment

Term / Abbreviation	Definition
M1 Pacific Motorway	A key north-south corridor linking Sydney to the Central Coast, Newcastle and Hunter region. It is a dual carriageway road with two lanes in each direction and a 110km/h speed limit.
Main alignment	The main component of the M1 Pacific Motorway extension to Raymond Terrace. The main alignment would typically consist of two 3.5 metre traffic lanes in each direction with a median that would range from six to 15 metres.
ML	Mining Lease
MLEP	Maitland Local Environmental Plan
MNES	Matters of National Environmental Significance
MPN	Most Probable Number
NAHMP	Non-Aboriginal Heritage Management Plan
NCA	Noise Catchment Area
NCG	Noise Criteria Guideline
NEPC	National Environment Protection Council
NHL	National Heritage List
NLEP	Newcastle Local Environmental Plan
NLTN	National Land Transport Network
NMG	Noise Mitigation Guideline
NML	Noise Management Level
NNTR	National Native Title Register
NNTT	National Native Title Tribunal
NORM	Naturally Occurring Radioactive Material
NPW Act	The <i>National Parks and Wildlife Act 1974 (NSW)</i>
NPWS	National Parks and Wildlife Service
NSW	New South Wales
NTAR	National Trust of Australia (NSW) Register
NTU	Nephelometric Turbidity Units
OEH	The (former) Office of Environment and Heritage
ONVR	Operational Noise and Vibration Review
Operational footprint	Generally includes the M1 Pacific Motorway extension to Raymond Terrace and additional areas required for operation and maintenance of the project
ORP	Oxygen Reduction Potential
OSOM	Oversize overmass
PACHCI	Procedure of Aboriginal Cultural Heritage Consultation and Investigation
PAD	Potential Archaeological Deposit

Term / Abbreviation	Definition
PAH	Polycyclic Aromatic Hydrocarbons
PAS	Potential Archaeological Sensitivity
PASS	Potential Acid Sulfate Soils
PBS	Performance Based Standard
PCT	Plant Community Type
PEI	Preliminary Environmental Investigation
PFAS	Per- and Poly-fluoroalkyl Substances
PIR	Preferred Infrastructure Report
PMF	Probable Maximum Flood
PMST	Protected Matters Search Tool
POEO Act	The <i>Protection of the Environment Operations Act 1997</i> (NSW)
PSI	Preliminary Site Investigation
PSLEP	Post Stephens Local Environmental Plan
RAAF	Royal Australian Air Force
RAP	Registered Aboriginal Party
RBL	Rated Background Level
RCP	Representative Concentration Pathway
Receiver	An environmental modelling term used to describe a map reference point where the impact is predicted. A sensitive receiver is a home, work place, school or other place where people spend some time.
RFS	NSW Rural Fire Service
RL	Reduced Level
RMS	Roads and Maritime Services (now Transport for NSW)
RNE	Register of the National Estate
RNP	Road Noise Policy
ROL	Road Occupancy Licence
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SES	State Emergency Services
SHI	NSW State Heritage Inventory
SHR	NSW State Heritage Register
SIS	State Infrastructure Strategy
SMP	Sustainability Management Plan
SOHI	Statement of Heritage Impact

Term / Abbreviation	Definition
SRE	Sensitive Receiving Environment
SSI	State Significant Infrastructure
SSIA	State Significant Infrastructure Application
STFM	Sydney Traffic Forecasting Model
Stockpile	Temporarily stored materials such as soil, sand, gravel and spoil/waste.
Study area	Describes the area investigated as part of this EIS. References to study area varies according to the specific environmental issue under consideration (e.g. traffic, heritage, visual amenity etc.) and is described within each relevant section of the EIS.
TAGG	Transport Authorities Greenhouse Group
TEC	Threatened Ecological Community
The project	M1 Pacific Motorway extension to Raymond Terrace
TKN	Total Kjeldahl Nitrogen
TMC	Traffic Management Centre
TMP	Traffic Management Plan
TN	Total Nitrogen
TP	Total Phosphorus
Transport	Transport for NSW
TSC Act	The <i>Threatened Species Conservation Act 1995</i> (NSW) (repealed)
TSF	Train Support Facility
TSP	Total Suspended Particles
TSS	Total Suspended Solids
UBD	Universal Business Directory
UDLP	Urban Design and Landscape Plan
VEM	Visual Envelope Map
VENM	Virgin Excavated Natural Material
VKT	Vehicle Kilometres Travelled
VMS	Variable Message Signs
VP	Viewpoint
WHL	World Heritage List
WM Act	The <i>Water Management Act 2000</i>
WMP	Waste Management Plan
WQO	Water Quality Objectives
WSP	Water Sharing Plan