ENVIRONMENTAL ASSESSMENT

VOLUME 2

Appendices

April 2011

Kurnell B Line Upgrade

URS

CALTEX

Appendix A

Director-General's Requirements

Appendix A1

Director-General's Requirements

NSW GOVERNMENT | Planning

Contact: Chris Ritchie
Phone: (02) 9228 6413
Fax: (02) 9228 6466
Email: chris.ritchie@planning.nsw.gov.au

Mr Greg King
Project Manager
Caltex Jet Fuel Pipeline Upgrade Project (Stage 2)
Locked Bag 2000
Taren Point NSW 2229

Cc: Mr Alan Parnell

Dear Mr King,

Director-General's Requirements
Caltex Jet Fuel Pipeline Upgrade Project

The Department has received your application for the Caltex Jet Fuel Pipeline Upgrade Project.

I have attached a copy of the Director General's requirements for the Project. These requirements have been prepared in consultation with the relevant Government authorities, and are based on the information you have provided to date. I have also attached a copy of the government authorities' comments for your information. Please note that the Director-General may alter these requirements at any time.

If your proposal is likely to have a significant impact on matters of National Environmental Significance, it will require an approval under the Commonwealth *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). This approval is in addition to any approvals required under NSW legislation. It is your responsibility to contact the Department of Environment, Water, Heritage and the Arts in Canberra (6274 1111 or http://www.environment.gov.au) to determine if the proposal requires an approval under the EPBC Act. If it is determined that an approval is required under the EPBC Act, please contact me immediately as supplementary Director-General's requirements may need to be issued.

It would be appreciated if you can contact the Department at least two weeks before you propose to submit your Environmental Assessment for the Project. This will enable the Department to determine the:

- applicable fee (see Division 1A, Part 15 of the Environmental Planning and Assessment Regulation 2000);
- consultation and public exhibition arrangements; and
- number of copies (hard-copy and/or CD-ROM) of the Environmental Assessment that will be required for exhibition purposes.

Once the Department receives the Environmental Assessment, it will review it in consultation with the relevant agencies to determine if it adequately addresses the Director-General's requirements, and may require you to revise it prior to public exhibition.

The Department is required to make all the relevant information associated with the project publicly available on its website. Consequently, it would be appreciated if you can ensure all documents submitted to the Department are in a suitable format for the internet.

If you have any enquiries about these requirements, please contact Chris Ritchie on 9228 6413 or chris.ritchie@planning.nsw.gov.au.

Yours sincerely,

18.1.11

Chris Wilson
Executive Director
Major Projects Assessment
As delegate for the Director-General

Director-General's Requirements

Section 75F of the Environmental Planning and Assessment Act 1979

Application Number	MP 11_0004
Project	The Caltex Jet Fuel Pipeline Upgrade Project which includes the replacement of around 1.5km of existing pipes, installation of new pumps at the Refinery Site and Caltex's Banksmeadow Terminal.
Site	Land within the Sutherland Shire and Botany local government areas. The pipeline runs north from the existing refinery at Kurnell, across Botany Bay and then north-east to the terminal at Sydney Airport.
Proponent	Caltex Refineries (NSW) Pty Ltd
Date of Issue	18 January 2011
General Requirements	The Environmental Assessment of the project must include: • an executive summary; • a detailed description of the following within the site and any associated areas: – historical operations/activities; and – existing and approved operations/facilities, including any statutory approvals that apply to these operations and facilities. • a detailed description of the project, including the: – need for the project; – proposed modifications or upgrades to activities or infrastructure; – alternatives considered; – various components and stages of the project; – likely interactions between existing and proposed operations as well as the project and other land uses in the vicinity of the site; and – plans of any proposed building works; • a risk assessment of the potential environmental impacts of the project, identifying the key issues for further assessment; • a detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment (see above), which includes: – a description of the existing environment, using sufficient baseline data; – an assessment of the potential impacts of the project, including any cumulative impacts, taking into consideration any relevant guidelines, policies, plans and statutory provisions (see below); – a description of the measures that would be implemented to avoid, minimise, mitigate, rehabilitate/remediate, monitor and/or offset the potential impacts of the project, including detailed contingency plans for managing any significant risks to the environment; • a statement of commitments, outlining all the proposed environmental management and monitoring measures; • a conclusion justifying the project on economic, social and environmental grounds, taking into consideration whether the project is consistent with the objects of the *Environmental Planning & Assessment Act 1979*; and • a signed statement from the author of the Environmental Assessment, certifying that the information contained within the document is neither false nor misleading.
Key Issues	○ **Project Need** – including: – consideration of the project and an analysis of the need to upgrade the jet fuel pipeline route; and – details of the proposed works clearly describing the relevant location, ownership, land use, and zoning provisions.

	○ **Hazards and Risk** – a Preliminary Hazard Analysis (PHA) prepared in accordance with the Department's guidelines (see attached). The PHA should separately consider changes proposed within the Kurnell Refinery boundary, the upgraded pipeline arrangements between the refinery and wharf, increases in pipeline operating pressures and the modifications within the Caltex Banksmeadow terminal. The analysis should include: – identification of potential hazards associated with the project, to determine the potential for offsite impacts; – an estimate of the consequences and likelihood of significant events; – comparison of the estimated overall risks against the Department's risk criteria; and – proposed safeguards to ensure risks are minimised. ○ **Noise and Vibration** – including: – a noise impact assessment, including an assessment of predicted noise impacts and road traffic noise during both construction and operation; – consideration of vibration impacts from excavation works; and – details of the proposed noise mitigation, monitoring and management measures; ○ **Air Quality**– including a comprehensive air quality assessment of both the construction and operational phases, focusing on dust, odour & vapour (including volatile compounds). ○ **Soil and Water** – including: – a detailed assessment of potential soil, surface and groundwater impacts; potential soil contamination; details of proposed erosion and sedimentation controls (during construction), stormwater management, spill containment and bunding; – consideration of sea level rise and how this would be managed; and – consideration of acid sulfate soils and how they would be managed if detected. ○ **Greenhouse Gas & Energy Efficiency** – including: – a quantitative assessment of the potential greenhouse gas emissions of the project, and qualitative assessment of the potential impacts of these emissions on the environment; and – a detailed description of the measures that would be implemented on site to ensure that the project is energy efficient. ○ **Biodiversity** – including: – Potential impacts on the marine ecology & details of the proposed measures to minimise these impacts; and – the measures taken to reduce the likelihood of fuel spills. ○ **Aboriginal Heritage** – including: – sufficient information and discussion to demonstrate the likely impacts on Aboriginal Heritage values/items and proposed mitigation measures; and – should aboriginal sites be found, an assessment of the aboriginal sites identified should be done. ○ **Traffic and Transportation** – including: – an assessment of the potential for disruption to traffic and increase in traffic movements during the construction and operation phase; and – an assessment of the impacts on any road and proposed measures to mitigate these impacts. ○ **General Environmental Risk Analysis** –including an environmental risk analysis to identify potential environmental impacts (construction and operation), proposed mitigation measures, potentially significant residual environmental impacts after the application of proposed mitigation measures and an appropriately detailed impact assessment of any additional key environmental impacts identified through the risk analysis.
References	The EA should take into account relevant Government technical and policy guidelines, as well as industry guidelines and relevant strategic plans. While not exhaustive, guidelines and plans which may be relevant to the Project are included in the attached lists.

References	The EA should take into account relevant Government technical and policy guidelines, as well as industry guidelines and relevant strategic plans. While not exhaustive, guidelines and plans which may be relevant to the Project are included in the attached lists.
Consultation	During the preparation of the EA, you should consult with the relevant local, State or Commonwealth government authorities, service providers, community groups or affected landowners. In particular, you must consult with: • Commonwealth Government; • Department of Environment, Climate Change and Water; • NSW Industry and Investment; • NSW Office of Water; • NSW Roads and Traffic Authority; • Botany City Council; • Sutherland Shire Council; • relevant local Aboriginal communities and Local Aboriginal Land Councils; and • the local community. The EA must clearly indicate issues raised by stakeholders during consultation, and how those matters have been addressed in the EA.
Deemed refusal period	Under clause 8E(2) of the *Environmental Planning and Assessment Regulation 2000*, the applicable deemed refusal period is 60 days from the end of the proponent's EA period for the Project.

Policies, Guidelines & Plans

Hazards & Risk	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Hazardous Industry Planning Advisory Paper No. 3 – Environmental Risk Impact Assessment Guidelines
	Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
	AS 2885.1-2007 Pipelines - Gas and liquid petroleum
	HB 203: 203:2006 Environmental Risk Management – Principles & Process (Standards Australia)
	Multi-Level Risk Assessment (DUAP)
Noise & Vibration	
	NSW Industrial Noise Policy (DECC)
	Environmental Noise Control Manual (DECC)
	Environmental Noise Management – Assessing Vibration: a technical guide (DEC)
	Environmental Criteria for Road Traffic Noise (NSW EPA)
	Interim Construction Noise Guideline (DECC)
	DIN 4150 Part 3 - Structural Vibration: effects of vibration on structures (ISO, 1999)
Soil & Water	
Surface Water	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC)
	State Water Management Outcomes Plan
	Managing Urban Stormwater: Soils & Construction (Landcom)
	Draft Coastal Risk Management Guide: Incorporating sea level rise benchmarks in flood risk assessments (DECC)
	NSW Coastal Planning Guideline: Adapting to sea level rise (DoP, 2010)
	Floodplain Development Manual (DIPNR)
	Floodplain Risk Management Guideline (DECC)
Groundwater	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	NSW State Groundwater Policy Framework Document (DLWC, 1997)
	NSW State Groundwater Quality Protection Policy (DLWC, 1998)
	NSW State Groundwater Quantity Management Policy (DLWC, 1998)
	Guidelines for the Assessment & Management of Groundwater Contamination (DECC, 2007)
Soil	Acid Sulfate Soil Manual (DLWC, 1998)
Air Quality	
	Protection of the Environment Operations (Clean Air) Regulation 2002
	Approved Methods for the Modelling & Assessment of Air Pollutants in NSW (DEC)
	Approved Methods for the Sampling & Analysis of Air Pollutants in NSW (DEC)

Biodiversity	
	Draft Guidelines for Threatened Species Assessment under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) (DEC)
	Policy & Guidelines - Aquatic Habitat Management and Fish Conservation (NSW Fisheries)
Aboriginal Heritage	
	Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DoP and DEC)
Traffic & Transport	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RTA)

NSW GOVERNMENT | Environment, Climate Change & Water

FILE COPY

Your reference:
Our reference: LIC06/45-22:DOC10/55851:CP
Contact: Craig Patterson, (02) 4224 4100

Department of Planning
(Attention: Chris Ritchie)
GPO Box 39
SYDNEY NSW 2001

Dear Mr Ritchie

ENVIRONMENTAL ASSESSMENT REQUIREMENTS
PROPOSED UPGRADE OF THE CALTEX JET FUEL PIPELINE (LINE B)
2 SOLANDER STREET, KURNELL

I refer to your request for the Department of Environment, Climate Change and Water's (DECCW) requirements for the development of an Environmental Assessment (EA) for the above proposal received by DECCW on 3 December 2010.

Based on the information provided in the Preliminary EA prepared by URS Australia, there are a number of key environmental issues that warrant close investigation as part of the EA process. These issues have been identified in Attachment A and include:

- Licensing requirements
- Noise impacts
- Aboriginal Cultural Heritage
- Water Quality
- Contaminated Sites.

Guidance and supporting documents which may be useful in addressing these issues are included in Attachment B.

Should you have any further enquiries, please contact the above officer.

Yours sincerely

21/12/10

PETER BLOEM
Manager Illawarra
Environment Protection and Regulation

Attachment A – Environmental Assessment Requirements
Attachment B – Guidance Material

For Action/Approval

ORIGINATOR	CP 21/12
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DS	OK 21/12/10
CP	CP 21/12/10

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PO Box 513 Wollongong NSW 2520
Level 3, 84 Crown Street Wollongong NSW
Tel: (02) 4224 4100 Fax: (02) 4224 4110
ABN 30 841 387 271
www.environment.nsw.gov.au

ATTACHMENT A

Environmental Assessment Requirements

The Environmental Assessment (EA) should include but need not necessarily be limited to assessing, quantifying and reporting against the issues listed below. These should be assessed in accordance with the relevant guidelines listed in Attachment B.

The Project
Details are required on the location of the proposed development including the affected environment to place the proposal in its local and regional environmental context including surrounding landuses, planning zonings and potential sensitive receptors.

Describe mitigation and management options that will be used to prevent, control, abate or mitigate identified environmental impacts including any cumulative impacts associated with the project and to reduce risks to human health and prevent the degradation of the environment. Appropriate Best Management Techniques (BMT) should also be outlined. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

Licensing requirements
Both the Kurnell Refinery and the Banksmeadow Terminal are currently regulated by Environment Protection Licences (EPL) issued under the *Protection of the Environment Operations Act 1997.* The Licence numbers are 837 and 6950 respectively. The EA should demonstrate how these Licences will be complied with or identify any need for the EPLs to be varied should consent be granted.

Noise impacts
The environmental outcome of the project should be to minimise adverse impacts due to noise from the project. The EA must include an assessment of the predicted noise impacts associated with the project in accordance with DECCW's Interim Construction Noise Guidelines and Industrial Noise Policy. The assessment should include, but need not be limited to:

- the identification and assessment of all potential noise sources associated with the development and the location of all sensitive receptors
- the proposed hours of operation
- an assessment of compliance with any existing noise limit conditions specified in any relevant EPLs; and
- any proposed noise mitigation, monitoring and management measures which are necessary to achieve the above outcome.

Impacts on Aboriginal Cultural Heritage Values
The EA should address and document the information requirements set out in the draft *Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* involving surveys and consultation with the Aboriginal community.

The EA needs to identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area. An assessment should include all of the area to be effected by the proposed development and associated infrastructure. The EA should also include discussion of the potential for finding Aboriginal burials.

The EA needs to clearly demonstrate that effective community consultation with Aboriginal communities has been undertaken in determining and assessing impacts, developing options and making final recommendations. This will require documentation from the community group/s consulted for the project.

Should Aboriginal sites be found then:

- Undertake an assessment of the Aboriginal sites identified. This must include consideration of both the archaeological values and Aboriginal cultural heritage values and comply with the principles set out in the Burra Charter

- Undertake archaeological excavations to verify the presence of Aboriginal sites in areas assessed as being of archaeological and/or cultural sensitivity. Any archaeological excavations must be undertaken to comply with best practice
- Report all new sites to DECCW to comply with s89A of the *National Parks and Wildlife Act 1974,* using DECCW site card, and three copies (two hard copies and one disc copies) of the final assessment report. Under s89A of the *National Parks and Wildlife Act 1974* (amended 2010) (formerly s91), there is a requirement for sites to be registered 'within a reasonable time after the person first becomes aware of that location'. The site card, once submitted, can be updated as more information comes to light.
- Describe the measures that will be taken to avoid and/or mitigate impacts of the project on Aboriginal cultural heritage values. This should include an assessment of the effectiveness and reliability of any proposed measures and any predicted impacts (direct or indirect) should these measures be implemented.

Water Quality

The environmental outcomes for the project should be to ensure:

- There is no pollution of waters (including surface and groundwater) except in accordance with licence requirements
- Wastewater is collected, treated and beneficially reused, where this is safe and practicable to do so

The EA must clearly outline the proposed mitigation, monitoring and management measures the proponent intends to apply to the project to ensure the above outcomes are satisfied.

The preliminary EA states that the proposed works located beyond the refinery is the replacement of the pipeline through the easement to the wharf as well as works to replace the pipeline on the wharf itself. Given that some of the proposed works will occur over the waters of Botany Bay, the EA must demonstrate how the project will be managed to ensure there is no pollution of waters and identify the practical measures that will be taken to achieve this requirement. The EA should also consider the potential for any product spills from the existing pipeline during its removal from the refinery's easement and any necessary bunding and/or spill management measures that may need to be implemented.

Stormwater management should also be carefully considered in relation to the proposed development. The EA should document the soil and water management controls that will be implemented during the proposed project to minimise any potential impacts on water quality.

Site Contamination

The preliminary EA states that given the sites historic and current uses, the presence of contamination on or close to the proposal cannot be discounted. The EA must undertake an assessment of the project area for any potential site contamination and detail the proposed mitigation, monitoring and management measures which will be implemented in the event that soil contamination is encountered.

ATTACHMENT B - Guidance Material

Noise and vibration

- NSW Industrial Noise Policy (EPA, 2000)
- Environmental Criteria for Road Traffic Noise (EPA, 1999)
- Assessing Vibration: A Technical Guideline (DECC, 2006)
- Interim Construction Noise Guideline (DECC, 2009)

Water quality

- National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC & ARMCANZ, 2000)
- National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC & ARMCANZ, 2000)
- Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) (NRMMC, EPHC & AHMC, 2006)
- NSW Water Quality and River Flow Objectives (DECCW website)
- Marine Water Quality Objectives for NSW Ocean Waters (DECCW website)
- Using the ANZECC Guidelines and Water Quality Objectives in NSW (DEC, 2006)
- The relevant targets within the State Water Management Outcomes Plan
- EPA technical guidelines *'Bunding and Spill Management'*

Stormwater

- Managing Urban Stormwater: Soils and Construction - Volume 1 - 4th Edition (Landcom, 2004)
- Managing Urban Stormwater: Source Control (EPA 1998)
- Managing Urban Stormwater: Treatment Techniques (EPA 1998)

Groundwater

- NSW State Groundwater Policy Framework Document (DLWC, 1997)
- NSW Groundwater Quality Protection Policy (DLWC, 1998)
- NSW State Groundwater Dependent Ecosystems Policy (DLWC, 2002)
- National Water Quality Management Strategy: Guidelines for Groundwater Protection in Australia (ARMCANZ & ANZECC, 1995)
- Guidelines for the Assessment and Management of Groundwater Contamination (DECC, 2007)

Aboriginal Cultural Heritage

- Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (2005) - Available from Department of Planning
- Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010) - http://www.environment.nsw.gov.au/licences/consultation.htm
- Aboriginal Cultural Heritage Standards and Guidelines Kit www.environment.nsw.gov.au/resources/cultureheritage/aboriginalHeritageGuidelinesKitFinal.pdf
- Operational policy: Protecting Aboriginal Cultural Heritage (DECCW 2009) http://www.environment.nsw.gov.au/resources/cultureheritage/09122ACHOpPolicy.pdf
- The Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW, 2010) - http://www.environment.nsw.gov.au/resources/cultureheritage/ddcop/10798ddcop.pdf
- Aboriginal Heritage Information Management System

Contaminated Sites

- Contaminated Sites - Sampling Design Guidelines (EPA, 1995)
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (Environment Protection and Heritage Council)
- Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)
- Guidelines for the NSW Site Auditor Scheme (2nd edition) (DEC, 2006)
- Guidelines for the Assessment and Management of Groundwater Contamination (DECC, 2007)
- Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997 (DECC, 2009)
- Guidelines for implementing the POEO (Underground Petroleum Storage Systems) Regulation 2008 (DECCW 2009)

----- Forwarded by William Miles/Sydney/URSCorp on 14/02/2011 02:23 p.m. -----

"Wren Suzanne" <Wrens@botanybay.nsw.gov.au>	To	<william_miles@urscorp.com>
	cc	
14/02/2011 02:14 p.m.	Subject	Caltex Refineries Part 3A Proposal - Council heads of consideration for environmental assessment

Dear Mr Miles

I refer to your letter dated 31 January 2011 regarding the Part 3A Proposal for Caltex Refineries Pty Ltd (Caltex). The proposal includes works to Banksmeadow Terminal which is located in the City of Botany Bay LGA.

Council requests that the following heads of consideration be dealt with in the environmental assessment.

- Visual impact of the works on the surrounding locality
- Pollution that may be generated during the construction period and the operations of the terminal when works are completed
- Traffic impacts that may occur on the surrounding road networks due to construction related vehicles accessing the site
- Impact on any vegetation
- Noise impacts that may be generated during the construction period and the operations of the terminal when works are completed
- Contamination and Acid Sulfate Soils on site
- Vibration impacts that may occur due to the works

Council would also like to review and make a formal submission to the proposal during the exhibition period.

Please note, I met you on site and I am Council's contact officer for this matter. My contact details are below.

regards

Suzanne Wren

Strategic & Development Assessment Planner

Botany Bay City Council

www.botanybay.nsw.gov.au

Phone: (02) 93663556

Fax: (02) 93663777

Please consider the environment before printing this email.

Ellie Caldwell - Fwd: Re: Caltex Jet Fuel Pipeline Upgrade - Site Visit - 9am

From: Chris Ritchie
To: Ellie Caldwell
Date: 12/01/2011 12:10 PM
Subject: Fwd: Re: Caltex Jet Fuel Pipeline Upgrade - Site Visit - 9am

>>> Anna Bradley 8/12/2010 11:05 am >>>
Thanks for your email advice Peter.

I will let my manager, Chris Ritchie, know that there won't be anyone from Sutherland Council attending the site visit.

Regards,

Anna Bradley
Planner
Major Project Assessment
Department of Planning NSW

Ph: (02) 9228 6503
Fax: (02) 9228 6466
Email: anna.bradley@planning.nsw.gov.au

>>> <PBarber@ssc.nsw.gov.au> 8/12/2010 10:51 am >>>
Anna

Our Environmental Scientist has reviewed the Preliminary Environmental Assessment. The proposed works are basically replacement of the existing jet fuel pipeline that runs from the refinery to the wharf, and the installation of some new pumps and associated plant within the refinery itself. In the context of the Caltex Refinery, not a particularly large job.

Our position is that the proposal is fairly straight forward and if appropriate controls are used throughout the construction phase, it is unlikely to result in any significant environmental harm. The works are restricted to either the refinery itself or the existing pipeline easement that runs from the refinery to the wharf, so the direct impacts would be associated soil and ground water concerns (Acid Sulfate and/or contamination issues).

The PEA has adequately considered the major environmental impacts associated with the works, which are unlikely to be significant. The issues associated with the proposal could be effectively controlled and we could provide comments as part of the 3A review process. Other issues such as Aboriginal Heritage have been discussed in the PEA and could be commented on as part of our review.

The only other issue may be road related matters associated with the proposal;- for example road opening and restoration. We can pass the DA by our Engineers when it is referred to Council and provide comments at that stage.

Given the comments above, I don't think we need to attend the site visit (staff are very familiar with Caltex's operation).

Regards.

Peter Barber
Manager - Coastal Assessment Team
Sutherland Shire Council

Locked Box 17 Sutherland 1499 Australia
Tel: 61 2 9710 0373
Fax: 61 2 9710 0180
Email: pbarber@ssc.nsw.gov.au
Web: http://www.sutherland.nsw.gov.au

From: "Anna Bradley" <Anna.Bradley@planning.nsw.gov.au>
To: "Cathy McMahon" <mcmahonc@botanybay.nsw.gov.au>, <postillb@botanybay.nsw.gov.au>, <craig.patterson@environment.nsw.gov.au>, "Derek Mullins" <Derek.Mullins@planning.nsw.gov.au>, <jthompson@ssc.nsw.gov.au>, <pbarber@ssc.nsw.gov.au>
Cc: "Helen Bachas" <HelenB@icdasiapacific.com.au>, "Chris Ritchie" <Chris.Ritchie@planning.nsw.gov.au>
Date: 07/12/2010 04:02 PM
Subject: Caltex Jet Fuel Pipeline Upgrade - Site Visit - 9am

Dear All,

Further to my email last week, please see below details for the site visit being undertaken this **Friday 10 December at 9am**.

WHERE (Meeting Point):
The main gatehouse
Caltex Refinery
2 Solander St
Kurnell

WHEN:
Meet at 9am for induction / briefing
Site tour starting at 10am
Mini bus has been arranged

A copy of the Preliminary Environmental Assessment report for the proposed upgrade project is attached below.

The contact person for Caltex is Helen Bachas (mob: 0424 953 814).

Chris Ritchie (mob: 0417 069 728) and Derek Mullins from the Department will be attending.

Kind regards,

Anna Bradley
Planner
Major Project Assessment

Department of Planning NSW

Ph: (02) 9228 6503
Fax: (02) 9228 6466
Email: anna.bradley@planning.nsw.gov.au

Appendix A2

Director-General's Requirements Response Table

CALTEX KURNELL JET FUEL PIPELINE (B-LINE) (KBL) UPGRADE- SUTHERLANDSHIRE AND BOTANY BAY LOCAL GOVERNMENT AREAS

Table A1 Director-General's Requirements: EA Cross-Reference Table

Government Authority	Paraphrased Requirement	Relevant EA Chapter or Appendix
NSW Department of Planning (DoP) (18/01/11)	**General Requirements**	
	The Environmental Assessment of the Project must include:	
	• An Executive Summary	Executive Summary
	• A detailed description of the following areas:	Chapter 1
	— Historical operations and activities on the site	Chapter 6 and Appendix C
	— as well as any existing or approved operations or facilities.	
	• Alternatives considered;	Chapter 2
	• The need for the project;	
	• Upgrades to any infrastructure;	
	• Components and stages of the Project;	Chapter 3
	• Interactions between the Project and the surrounding area; and	
	• Plans of any proposed building work.	
	• A risk assessment of the environmental impacts of the project, identifying the areas for further assessment;	Chapter 19
	• A description of the existing environment using sufficient baseline data;	Chapter 6 - 16
	• An assessment of the potential impacts of the Project, including cumulative impacts.	Chapter 6 - 17
	• A description of the measures that would be implemented to avoid, minimise, mitigate, rehabilitate, monitor and/or offset the potential impacts of the Project, including detailed contingency plans for managing any significant risks to the environment.	Chapter 6 - 19
	• A statement of commitments outlining all the proposed environmental management and monitoring measures	Chapter 18
	• A conclusion justifying the event on economic, environmental and social grounds, taking in to consideration whether the Project is consistent with the aims of the EP&A Act	Chapter 19
	• A signed statement from the author confirming that the information contained within the document is true.	Statement of Validity
	Key Assessment Requirements	
	• **Project Need**, including a consideration of the project and the need to upgrade the jet fuel pipeline.	Chapter 2
	• **Details** of the proposed works, clearly detailing the relevant location, land ownership and zoning provisions.	Chapter 3 and Chapter 4
	• **Hazard and Risk** – A Preliminary Hazard Assessment (PHA) prepared in accordance with the departments guidelines. The PHA should consider each of the areas of the Project separately and include:	
	— Identification of the potential hazards associated with the Project to determine the offsite impacts;	Chapter 14 and Appendix E
	— An estimate of the consequences and the likelihood of significant events;	
	— A comparison of the overall risks against the departments risk criteria; and	
	— Proposed safeguards to ensure that risks are minimised.	

Government Authority	Paraphrased Requirement	Relevant EA Chapter or Appendix
	• **Noise and Vibration** including: — A noise impact assessment including an assessment of predicted noise impacts and road traffic noise both during construction and operation; — A consideration of vibration from excavation works; and — Details of the proposed noise mitigation, monitoring and management measures.	Chapter 12 and Appendix D
	• **Air Quality** – including a comprehensive Air Quality Assessment of both the construction and operational phase focussing on dust odour and vapour (including volatile compounds)	Chapter 13
	• **Soil and Water** including: — A detailed assessment of all soil, surface and ground water impacts; potential soil contamination; details of proposed erosion and sediment controls (during construction), stormwater management, spill containment and bunding; — Consideration of sea-level rise and how this would be managed; and — Consideration of acid suphate soils and how they would be managed if detected.	Chapter 6
	• **Greenhouse Gas and Energy Efficiency** including: — a quantitative assessment of potential greenhouse gas emissions and a qualitative assessment of the impact of these emissions on the environment; and — a detailed description of the measures that would be implemented on site to ensure that the Project is energy efficient.	Chapter 13 (partially addressed following pers comm with DoP (Chris Ritchie 8.02.11)).
	• **Biodiversity** including: — Potential impacts on the marine biology and details of the proposed measures to minimise these impacts; and — The measures taken to minimise the likelihood of fuel spills.	Chapter 8 and Appendix B
	• **Aboriginal Heritage** including: — Sufficient information and discussion to demonstrate the likely impacts on Aboriginal values/items and proposed mitigation measures; and — Should aboriginal sites be found, an assessment of the aboriginal sites identified should be done.	Chapter 9 and Appendix C
	• **Traffic and Transportation** including: — an assessment of the potential disruption to traffic and increase in traffic movements during the construction and operation phase; and — an assessment of the impacts on the road and proposed measures to mitigate these impacts.	Chapter 11
	• **General Environmental Risk Analysis:** including an environmental risk analysis to identify the environmental impacts (construction and operation), proposed mitigation measures, potentially significant residual environmental impacts after the application of proposed mitigation measures and an appropriately detailed impact assessment of any additional key environmental impacts identified through risk analysis.	Chapter 19
NSW Department of Environment, Climate Change and Water (DECCW) (21/12/10)	• **Licensing Requirements** – the EA should outline how the current licences under which the Caltex site currently operates will be adhered to or outline where any variances to the licences would be made should consent be granted.	Chapter 6-16
	• **Noise Impacts** - The EA must include an assessment of the predicted noise impacts associated with the Project in accordance with DECCWs Interim Construction Noise Guidelines and Industrial Noise Policy.	Chapter 12 and Appendix D

Government Authority	Paraphrased Requirement	Relevant EA Chapter or Appendix
	• **Aboriginal Cultural Heritage Values** – the EA needs to identify the nature and extent of impacts on cultural heritage values across the heritage area. The EA should also include the discussion of the potential for finding Aboriginal burials. • **Water Quality** - The Environmental outcome of the project should be to ensure that there is no pollution of water and that wastewater is collected, treated and reused where possible. • **Site Contamination** - the EA needs to consider the possibility of soil contamination and outline suitable mitigation and management measures.	Chapter 9 and Appendix C Chapter 7 Chapter 6
Sutherland Shire LGA	• **Soil –** appropriate measures need to be taken to account for contaminated soil found within the Project site.	Chapter 6
Botany Bay LGA	• **Visual** impact of the works on the surrounding locality • **Pollution** that may be generated during the construction period and the operations of the terminal when works are completed • **Traffic** impacts that may occur on the surrounding road networks due to construction related vehicles accessing the site • **Ecology** - Impact on any vegetation • **Noise** impacts that may be generated during the construction period and the operations of the terminal when works are completed • **Soils** - Contamination and Acid Sulfate Soils on site • **Vibration** impacts that may occur due to the works	Chapter 5 (Section 5.3) Chapter 6 and 13 Chapter 11 Chapter 8 and Appendix B Chapter 12 and Appendix D Chapter 6 Chapter 12 and Appendix D

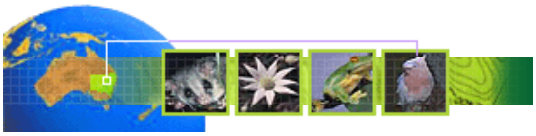
Appendix B

Ecology

B1 NSW Atlas Searches
B2 EPBC Searches
B3 DII Fisheries Searches
B4 Noxious Weeds Declarations
B5 Habitat Assessments
B6 Assessments of Significance
B7 Significant Impact Criteria
B8 Species List (Flora)
B9 Species List (Fauna)

Appendix B1

NSW Atlas Searches



NSW National Parks & Wildlife Service
atlas of nsw wildlife

Search Results

Your selection: Flora, threatened species, recorded since 1980, Selected Area - 151.17172,-34.05165,151.27715,-33.93394 returned a total of 47 records of 6 species.

Report generated on 03/11/2010 - 09:35 (Data valid to 25/04/2010)

view map | search again | clear selection

Choose up to 3 species to map.

** Exotic (non-native) species*

Plants	Map	Scientific Name	Common Name	Legal Status	Count	Info
Asteraceae						
	☐	Senecio spathulatus	Coast Groundsel	E1	1	
Fabaceae (Mimosoideae)						
	☑	Acacia terminalis subsp. terminalis	Sunshine Wattle	E1	39	
Myrtaceae						
	☐	Eucalyptus nicholii	Narrow-leaved Black Peppermint	V	1	
	☑	Syzygium paniculatum	Magenta Lilly Pilly	E1	1	
Orchidaceae						
	☐	Pterostylis sp. Botany Bay	Botany Bay Bearded Orchid	E1	3	
	☑	Thelymitra atronitida	Black-hooded Sun Orchid	E4A	2	

** Exotic (non-native) species*

Choose up to 3 species to map.

DISCLAIMER test: The Atlas of New South Wales Wildlife contains data from a number of sources including government agencies, non-government organisations and private individuals. These data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Find out more about the Atlas.

OUR ENVIRONMENT it's a living thing

NSW National Parks & Wildlife Service
atlas of nsw wildlife

Search Results

Your selection: Fauna, threatened species, recorded since 1980, Selected Area - 151.17172,-34.05165,151.27715,-33.93394 returned a total of 1048 records of 40 species.
Report generated on 03/11/2010 - 09:29 (Data valid to 25/04/2010)

view map | search again | clear selection

Choose up to 3 species to map.

** Exotic (non-native) species*

Amphibia	Map	Scientific Name	Common Name	Legal Status	Count	Info
Hylidae						
	☐	Litoria aurea	Green and Golden Bell Frog	E1	54	
Myobatrachidae						
	☐	Crinia tinnula	Wallum Froglet	V	36	

Aves	Map	Scientific Name	Common Name	Legal Status	Count	Info
Anatidae						
	☐	Oxyura australis	Blue-billed Duck	V	1	
Ardeidae						
	☐	Botaurus poiciloptilus	Australasian Bittern	V	2	
Cacatuidae						
	☐	Calyptorhynchus lathami	Glossy Black-Cockatoo	V	2	
Charadriidae						
	☐	Charadrius leschenaultii	Greater Sand-plover	V	7	
	☐	Charadrius mongolus	Lesser Sand-plover	V	46	
Diomedeidae						
	☐	Diomedea exulans	Wandering Albatross	E1	2	
	☐	Thalassarche melanophris	Black-browed Albatross	V	2	
Estrildidae						
	☐	Neochmia ruficauda	Star Finch	E4	1	
	☐	Stagonopleura guttata	Diamond Firetail	V	2	
Haematopodidae						
	☐	Haematopus fuliginosus	Sooty Oystercatcher	V	111	
	☐	Haematopus longirostris	Pied Oystercatcher	E1	139	
Laridae						
	☐	Gygis alba	White Tern	V	1	
	☐	Procelsterna cerulea	Grey Ternlet	V	1	
	☐	Sterna albifrons	Little Tern	E1	464	
Meliphagidae						
	☐	Epthianura albifrons	White-fronted Chat	V	1	

White-fronted Chat

	Epthianura albifrons	Epthianura albifrons (Jardine & Selby, 1828) in the Sydney Metropolitan Catchment Management Authority area	E2	1	
Procellariidae					
	Macronectes giganteus	Southern Giant Petrel	E1	1	
	Macronectes halli	Northern Giant-Petrel	V	1	
	Pterodroma neglecta neglecta	Kermadec Petrel (west Pacific subspecies)	V	1	
Psittacidae					
	Lathamus discolor	Swift Parrot	E1	1	
	Neophema chrysogaster	Orange-bellied Parrot	E4A	1	
	Pezoporus wallicus wallicus	Eastern Ground Parrot	V	2	
	Polytelis swainsonii	Superb Parrot	V	1	
Scolopacidae					
	Calidris alba	Sanderling	V	15	
	Calidris tenuirostris	Great Knot	V	23	
	Limicola falcinellus	Broad-billed Sandpiper	V	4	
	Limosa limosa	Black-tailed Godwit	V	9	
	Xenus cinereus	Terek Sandpiper	V	9	
Strigidae					
	Ninox strenua	Powerful Owl	V	5	

Mammalia	Map	Scientific Name	Common Name	Legal Status	Count	Info
Balaenidae						
		Eubalaena australis	Southern Right Whale	V	4	
Balaenopteridae						
		Megaptera novaeangliae	Humpback Whale	V	12	
Dugongidae						
		Dugong dugon	Dugong	E1	4	
Emballonuridae						
		Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	1	
Otariidae						
		Arctocephalus pusillus doriferus	Australian Fur-seal	V	1	
Pteropodidae						
		Pteropus poliocephalus	Grey-headed Flying-fox	V	47	
Vespertilionidae						
		Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	V	30	
		Myotis macropus	Southern Myotis	V	2	

Reptilia	Map	Scientific Name	Common Name	Legal Status	Count	Info
Cheloniidae						
		Chelonia mydas	Green Turtle	V	1	

** Exotic (non-native) species*

Choose up to 3 species to map.

[Atlas of NSW Wildlife Home]
[DECCW Home | Feedback | Copyright | Disclaimer | Privacy]

Appendix B2

EPBC Searches

Australian Government
Department of the Environment, Water, Heritage and the Arts

Protected Matters Search Tool

You are here: Environment Home > EPBC Act > Search

3 November 2010 09:54

EPBC Act Protected Matters Report

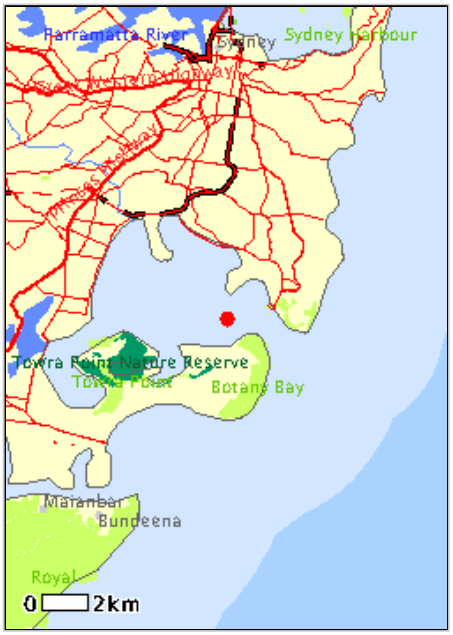
This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at http://www.environment.gov.au/atlas may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

Search Type: Point
Buffer: 10 km
Coordinates: -33.99417,151.2111

Report Contents:



Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html.

World Heritage Properties: None

National Heritage Places:	1
Wetlands of International Significance: (Ramsar Sites)	1
Commonwealth Marine Areas:	Relevant
Threatened Ecological Communities:	2
Threatened Species:	57
Migratory Species:	68

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html.

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.au/epbc/permits/index.html.

Commonwealth Lands:	7
Commonwealth Heritage Places:	3
Places on the RNE:	56
Listed Marine Species:	88
Whales and Other Cetaceans:	13
Critical Habitats:	None
Commonwealth Reserves:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	8
Other Commonwealth Reserves:	None
Regional Forest Agreements:	None

Details

Matters of National Environmental Significance

National Heritage Places [Dataset Information]

Kurnell Peninsula Headland NSW

Wetlands of International Significance [Dataset Information]
(Ramsar Sites)

TOWRA POINT NATURE RESERVE

Commonwealth Marine Areas [Dataset Information]

Approval may be required for a proposed activity that is likely to have a significant impact on the environment in a Commonwealth Marine Area, when the action is outside the Commonwealth Marine Area, or the environment anywhere when the action is taken within the Commonwealth Marine Area. Generally the Commonwealth Marine Area stretches from three nautical miles to two hundred nautical miles from the coast.

EEZ and Territorial Sea

Threatened Ecological Communities [Dataset Information]	Status	Type of Presence
Eastern Suburbs Banksia Scrub of the Sydney Region	Endangered	Community known to occur within area
Littoral Rainforest and Coastal Vine Thickets of Eastern Australia	Critically Endangered	Community likely to occur within area

Threatened Species [Dataset Information]	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater	Endangered	Species or species habitat likely to occur within area
Diomedea exulans (sensu lato) Wandering Albatross	Vulnerable	Species or species habitat may occur within area
Diomedea exulans amsterdamensis Amsterdam Albatross	Endangered	Species or species habitat may occur within area
Diomedea exulans antipodensis Antipodean Albatross	Vulnerable	Species or species habitat may occur within area
Diomedea exulans exulans Tristan Albatross	Endangered	Foraging, feeding or related behaviour may occur within area
Diomedea exulans gibsoni Gibson's Albatross	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot	Endangered	Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel	Vulnerable	Species or species habitat may occur within area
Neophema chrysogaster Orange-bellied Parrot	Critically Endangered	Species or species habitat may occur within area
Pterodroma leucoptera leucoptera Gould's Petrel	Endangered	Species or species habitat may occur within area
Pterodroma neglecta neglecta Kermadec Petrel (western)	Vulnerable	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
Thalassarche bulleri Buller's Albatross	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta cauta Shy Albatross, Tasmanian Shy Albatross	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta salvini	Vulnerable	Species or species habitat may occur within

Salvin's Albatross		area
Thalassarche cauta steadi White-capped Albatross	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris impavida Campbell Albatross	Vulnerable	Species or species habitat may occur within area
Frogs		
Heleioporus australiacus Giant Burrowing Frog	Vulnerable	Species or species habitat likely to occur within area
Litoria aurea Green and Golden Bell Frog	Vulnerable	Species or species habitat likely to occur within area
Litoria littlejohni Littlejohn's Tree Frog, Heath Frog	Vulnerable	Species or species habitat may occur within area
Litoria raniformis Growling Grass Frog, Southern Bell Frog, Green and Golden Frog, Warty Swamp Frog	Vulnerable	Species or species habitat may occur within area
Mammals		
Balaenoptera musculus Blue Whale	Endangered	Species or species habitat may occur within area
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat	Vulnerable	Species or species habitat may occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population)	Endangered	Species or species habitat may occur within area
Eubalaena australis Southern Right Whale	Endangered	Species or species habitat known to occur within area
Isoodon obesulus obesulus Southern Brown Bandicoot	Endangered	Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale	Vulnerable	Species or species habitat known to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby	Vulnerable	Species or species habitat may occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland)	Vulnerable	Species or species habitat may occur within area
Pseudomys novaehollandiae New Holland Mouse	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Ray-finned fishes		
Prototroctes maraena Australian Grayling	Vulnerable	Species or species habitat likely to occur within area
Reptiles		
Caretta caretta Loggerhead Turtle	Endangered	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth	Endangered	Species or species habitat likely to occur within area

Eretmochelys imbricata Hawksbill Turtle	Vulnerable	Species or species habitat likely to occur within area
Hoplocephalus bungaroides Broad-headed Snake	Vulnerable	Species or species habitat likely to occur within area
Natator depressus Flatback Turtle	Vulnerable	Species or species habitat likely to occur within area
Sharks		
Carcharias taurus (east coast population) Grey Nurse Shark (east coast population)	Critically Endangered	Congregation or aggregation known to occur within area
Carcharodon carcharias Great White Shark	Vulnerable	Species or species habitat may occur within area
Galeorhinus galeus School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark	Conservation Dependent	Species or species habitat may occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish	Vulnerable	Species or species habitat may occur within area
Rhincodon typus Whale Shark	Vulnerable	Species or species habitat may occur within area
Plants		
Acacia terminalis subsp. terminalis Sunshine Wattle	Endangered	Species or species habitat likely to occur within area
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs	Vulnerable	Species or species habitat likely to occur within area
Cryptostylis hunteriana Leafless Tongue-orchid	Vulnerable	Species or species habitat may occur within area
Hypsela sessiliflora	Extinct	Species or species habitat may occur within area
Melaleuca biconvexa Biconvex Paperbark	Vulnerable	Species or species habitat may occur within area
Pimelea curviflora var. curviflora	Vulnerable	Species or species habitat may occur within area
Prostanthera densa Villous Mintbush	Vulnerable	Species or species habitat likely to occur within area
Pterostylis saxicola Sydney Plains Greenhood	Endangered	Species or species habitat likely to occur within area
Pterostylis sp. Botany Bay (A.Bishop J221/1-13) Botany Bay Bearded Greenhood	Endangered	Species or species habitat likely to occur within area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Pocket-less Brush Cherry, Scrub Cherry, Creek Lilly Pilly, Brush Cherry	Vulnerable	Species or species habitat likely to occur within area
Thelymitra sp. Kangaloon (D.L.Jones 18108) Kangaloon Sun-orchid	Critically Endangered	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax	Vulnerable	Species or species habitat likely to occur within area
Migratory Species [Dataset Information]	Status	Type of Presence
Migratory Terrestrial Species		
Birds		
Haliaeetus leucogaster White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
Hirundapus caudacutus	Migratory	Species or species habitat may occur within

White-throated Needletail		area
Merops ornatus Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Migratory	Breeding may occur within area
Myiagra cyanoleuca Satin Flycatcher	Migratory	Breeding likely to occur within area
Neophema chrysogaster Orange-bellied Parrot	Migratory	Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail	Migratory	Breeding may occur within area
Xanthomyza phrygia Regent Honeyeater	Migratory	Species or species habitat likely to occur within area
Migratory Wetland Species		
Birds		
Actitis hypoleucos Common Sandpiper	Migratory	Roosting known to occur within area
Ardea alba Great Egret, White Egret	Migratory	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Migratory	Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone	Migratory	Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper	Migratory	Roosting known to occur within area
Calidris alba Sanderling	Migratory	Roosting known to occur within area
Calidris canutus Red Knot, Knot	Migratory	Roosting known to occur within area
Calidris ferruginea Curlew Sandpiper	Migratory	Roosting known to occur within area
Calidris ruficollis Red-necked Stint	Migratory	Roosting known to occur within area
Calidris tenuirostris Great Knot	Migratory	Roosting known to occur within area
Charadrius bicinctus Double-banded Plover	Migratory	Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover	Migratory	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover	Migratory	Roosting known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel	Migratory	Roosting known to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Migratory	Roosting may occur within area
Heteroscelus brevipes Grey-tailed Tattler	Migratory	Roosting known to occur within area
Limicola falcinellus Broad-billed Sandpiper	Migratory	Roosting known to occur within area
Limosa lapponica	Migratory	Roosting known to occur within area

Bar-tailed Godwit		
Limosa limosa Black-tailed Godwit	Migratory	Roosting known to occur within area
Numenius madagascariensis Eastern Curlew	Migratory	Roosting known to occur within area
Numenius minutus Little Curlew, Little Whimbrel	Migratory	Roosting likely to occur within area
Numenius phaeopus Whimbrel	Migratory	Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover	Migratory	Roosting known to occur within area
Pluvialis squatarola Grey Plover	Migratory	Roosting known to occur within area
Rostratula benghalensis s. lat. Painted Snipe	Migratory	Species or species habitat may occur within area
Xenus cinereus Terek Sandpiper	Migratory	Roosting known to occur within area
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift	Migratory	Species or species habitat may occur within area
Ardea alba Great Egret, White Egret	Migratory	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Migratory	Species or species habitat may occur within area
Calonectris leucomelas Streaked Shearwater	Migratory	Species or species habitat may occur within area
Diomedea amsterdamensis Amsterdam Albatross	Migratory	Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross	Migratory	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross	Migratory	Foraging, feeding or related behaviour may occur within area
Diomedea exulans (sensu lato) Wandering Albatross	Migratory	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross	Migratory	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel	Migratory	Species or species habitat may occur within area
Macronectes halli Northern Giant-Petrel	Migratory	Species or species habitat may occur within area
Pterodroma leucoptera leucoptera Gould's Petrel	Migratory	Species or species habitat may occur within area
Puffinus leucomelas Streaked Shearwater	Migratory	Species or species habitat may occur within area
Sterna albifrons Little Tern	Migratory	Breeding likely to occur within area
Thalassarche bulleri Buller's Albatross	Migratory	Species or species habitat may occur within area
Thalassarche cauta (sensu stricto) Shy Albatross, Tasmanian Shy Albatross	Migratory	Species or species habitat may occur within area

Thalassarche impavida Campbell Albatross	Migratory	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross	Migratory	Species or species habitat may occur within area
Thalassarche salvini Salvin's Albatross	Migratory	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross	Migratory	Species or species habitat may occur within area
Migratory Marine Species		
Mammals		
Balaenoptera edeni Bryde's Whale	Migratory	Species or species habitat may occur within area
Balaenoptera musculus Blue Whale	Migratory	Species or species habitat may occur within area
Caperea marginata Pygmy Right Whale	Migratory	Species or species habitat may occur within area
Eubalaena australis Southern Right Whale	Migratory	Species or species habitat known to occur within area
Lagenorhynchus obscurus Dusky Dolphin	Migratory	Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale	Migratory	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca	Migratory	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle	Migratory	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle	Migratory	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth	Migratory	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle	Migratory	Species or species habitat likely to occur within area
Natator depressus Flatback Turtle	Migratory	Species or species habitat likely to occur within area
Sharks		
Carcharodon carcharias Great White Shark	Migratory	Species or species habitat may occur within area
Rhincodon typus Whale Shark	Migratory	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species [Dataset Information]	Status	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper	Listed	Roosting known to occur within area
Apus pacificus Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area

Ardea alba Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
Ardea ibis Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
Arenaria interpres Ruddy Turnstone	Listed	Roosting known to occur within area
Calidris acuminata Sharp-tailed Sandpiper	Listed	Roosting known to occur within area
Calidris alba Sanderling	Listed	Roosting known to occur within area
Calidris canutus Red Knot, Knot	Listed - overfly marine area	Roosting known to occur within area
Calidris ferruginea Curlew Sandpiper	Listed - overfly marine area	Roosting known to occur within area
Calidris ruficollis Red-necked Stint	Listed - overfly marine area	Roosting known to occur within area
Calidris subminuta Long-toed Stint	Listed - overfly marine area	Roosting known to occur within area
Calidris tenuirostris Great Knot	Listed - overfly marine area	Roosting known to occur within area
Calonectris leucomelas Streaked Shearwater	Listed	Species or species habitat may occur within area
Catharacta skua Great Skua	Listed	Species or species habitat may occur within area
Charadrius bicinctus Double-banded Plover	Listed - overfly marine area	Roosting known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover	Listed	Roosting known to occur within area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover	Listed	Roosting known to occur within area
Charadrius ruficapillus Red-capped Plover	Listed - overfly marine area	Roosting known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel	Listed - overfly marine area	Roosting known to occur within area

Diomedea amsterdamensis Amsterdam Albatross	Listed	Species or species habitat may occur within area
Diomedea antipodensis Antipodean Albatross	Listed	Species or species habitat may occur within area
Diomedea dabbenena Tristan Albatross	Listed	Foraging, feeding or related behaviour may occur within area
Diomedea exulans (sensu lato) Wandering Albatross	Listed	Species or species habitat may occur within area
Diomedea gibsoni Gibson's Albatross	Listed	Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe	Listed - overfly marine area	Roosting may occur within area
Gallinago megala Swinhoe's Snipe	Listed - overfly marine area	Roosting likely to occur within area
Gallinago stenura Pin-tailed Snipe	Listed - overfly marine area	Roosting likely to occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
Heteroscelus brevipes Grey-tailed Tattler	Listed	Roosting known to occur within area
Heteroscelus incanus Wandering Tattler	Listed	Roosting known to occur within area
Himantopus himantopus Black-winged Stilt	Listed - overfly marine area	Roosting known to occur within area
Hirundapus caudacutus White-throated Needletail	Listed - overfly marine area	Species or species habitat may occur within area
Lathamus discolor Swift Parrot	Listed - overfly marine area	Species or species habitat likely to occur within area
Limicola falcinellus Broad-billed Sandpiper	Listed - overfly marine area	Roosting known to occur within area
Limosa lapponica Bar-tailed Godwit	Listed	Roosting known to occur within area
Limosa limosa Black-tailed Godwit	Listed - overfly marine area	Roosting known to occur within area
Macronectes giganteus Southern Giant-Petrel	Listed	Species or species habitat may occur within area
Macronectes halli	Listed	Species or species habitat may occur within

Northern Giant-Petrel		area
Merops ornatus Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch	Listed - overfly marine area	Breeding may occur within area
Myiagra cyanoleuca Satin Flycatcher	Listed - overfly marine area	Breeding likely to occur within area
Neophema chrysogaster Orange-bellied Parrot	Listed - overfly marine area	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew	Listed	Roosting known to occur within area
Numenius minutus Little Curlew, Little Whimbrel	Listed - overfly marine area	Roosting likely to occur within area
Numenius phaeopus Whimbrel	Listed	Roosting known to occur within area
Pluvialis fulva Pacific Golden Plover	Listed	Roosting known to occur within area
Pluvialis squatarola Grey Plover	Listed - overfly marine area	Roosting known to occur within area
Recurvirostra novaehollandiae Red-necked Avocet	Listed - overfly marine area	Roosting known to occur within area
Rhipidura rufifrons Rufous Fantail	Listed - overfly marine area	Breeding may occur within area
Rostratula benghalensis s. lat. Painted Snipe	Listed - overfly marine area	Species or species habitat may occur within area
Sterna albifrons Little Tern	Listed	Breeding likely to occur within area
Thalassarche bulleri Buller's Albatross	Listed	Species or species habitat may occur within area
Thalassarche cauta (sensu stricto) Shy Albatross, Tasmanian Shy Albatross	Listed	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross	Listed	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross	Listed	Species or species habitat may occur within area

Thalassarche salvini Salvin's Albatross	Listed	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross	Listed	Species or species habitat may occur within area
Xenus cinereus Terek Sandpiper	Listed - overfly marine area	Roosting known to occur within area
Mammals		
Arctocephalus forsteri New Zealand Fur-seal	Listed	Species or species habitat may occur within area
Arctocephalus pusillus Australian Fur-seal, Australo-African Fur-seal	Listed	Species or species habitat may occur within area
Ray-finned fishes		
Acentronura tentaculata Shortpouch Pygmy Pipehorse	Listed	Species or species habitat may occur within area
Festucalex cinctus Girdled Pipefish	Listed	Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish	Listed	Species or species habitat may occur within area
Heraldia nocturna Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish	Listed	Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish	Listed	Species or species habitat may occur within area
Hippocampus abdominalis Bigbelly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse	Listed	Species or species habitat may occur within area
Hippocampus whitei White's Seahorse, Crowned Seahorse, Sydney Seahorse	Listed	Species or species habitat may occur within area
Histiogamphelus briggsii Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish	Listed	Species or species habitat may occur within area
Lissocampus runa Javelin Pipefish	Listed	Species or species habitat may occur within area
Maroubra perserrata Sawtooth Pipefish	Listed	Species or species habitat may occur within area
Notiocampus ruber Red Pipefish	Listed	Species or species habitat may occur within area
Phyllopteryx taeniolatus Common Seadragon, Weedy Seadragon	Listed	Species or species habitat may occur within area
Solegnathus spinosissimus Spiny Pipehorse, Australian Spiny Pipehorse	Listed	Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish,	Listed	Species or species habitat may occur within area
Solenostomus paegnius Rough-snout Ghost Pipefish	Listed	Species or species habitat may occur within area
Solenostomus paradoxus Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish	Listed	Species or species habitat may occur within area
Stigmatopora argus	Listed	Species or species habitat may occur within

Spotted Pipefish, Gulf Pipefish		area
Stigmatopora nigra Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish	Listed	Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish	Listed	Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish	Listed	Species or species habitat may occur within area
Urocampus carinirostris Hairy Pipefish	Listed	Species or species habitat may occur within area
Vanacampus margaritifer Mother-of-pearl Pipefish	Listed	Species or species habitat may occur within area
Reptiles		
Caretta caretta Loggerhead Turtle	Listed	Species or species habitat likely to occur within area
Chelonia mydas Green Turtle	Listed	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth	Listed	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle	Listed	Species or species habitat likely to occur within area
Natator depressus Flatback Turtle	Listed	Species or species habitat likely to occur within area
Pelamis platurus Yellow-bellied Seasnake	Listed	Species or species habitat may occur within area
Whales and Other Cetaceans [Dataset Information]	Status	Type of Presence
Balaenoptera acutorostrata Minke Whale	Cetacean	Species or species habitat may occur within area
Balaenoptera edeni Bryde's Whale	Cetacean	Species or species habitat may occur within area
Balaenoptera musculus Blue Whale	Cetacean	Species or species habitat may occur within area
Caperea marginata Pygmy Right Whale	Cetacean	Species or species habitat may occur within area
Delphinus delphis Common Dophin, Short-beaked Common Dolphin	Cetacean	Species or species habitat may occur within area
Eubalaena australis Southern Right Whale	Cetacean	Species or species habitat known to occur within area
Grampus griseus Risso's Dolphin, Grampus	Cetacean	Species or species habitat may occur within area
Lagenorhynchus obscurus Dusky Dolphin	Cetacean	Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale	Cetacean	Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca	Cetacean	Species or species habitat may occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin	Cetacean	Species or species habitat may occur within area
Tursiops aduncus	Cetacean	Species or species habitat likely to occur

Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin		within area
Tursiops truncatus s. str. Bottlenose Dolphin	Cetacean	Species or species habitat may occur within area

Commonwealth Lands [Dataset Information]

Commonwealth Trading Bank of Australia

Communications, Information Technology and the Arts - Australian Postal Corporation

Communications, Information Technology and the Arts - Telstra Corporation Limited

Defence

Defence - Defence Housing Authority

Transport and Regional Services - Airservices Australia

Unknown

Commonwealth Heritage Places [Dataset Information]

Cape Baily Lighthouse NSW

Malabar Headland NSW

School of Musketry and Officers Mess, Randwick Army Barracks NSW

Places on the RNE [Dataset Information]
Note that not all Indigenous sites may be listed.

Historic

Avonmore Terrace NSW

Bare Island Fort NSW

Blenheim House NSW

Botany Post Office NSW

Cape Baily Lighthouse NSW

Captain Cooks Landing Place Historic Site NSW

Corona & Hygeia Victorian Terraces NSW

Daceyville Garden Suburb Urban Conservation Area NSW

Essex NSW

Goldring House NSW

Hannans Butcher Shop NSW

High Cross Precinct NSW

House NSW

Kogarah Community Aid and Information Centre NSW

Kogarah School of Arts former NSW

La Perouse Memorial Group NSW

La Perouse Monuments Historic Site NSW

Members Stand Royal Randwick Racecourse NSW

Milford Haven NSW

Newmarket House NSW

Newmarket Precinct NSW

Nugal Hall NSW

Prince Henry Hospital Conservation Area NSW
Prince of Wales Hospital Gates and Fence NSW
Prince of Wales Hospital Group NSW
Prince of Wales Hospital Main Block (former) NSW
Prince of Wales Hospital Outpatients Building (former) NSW
Railway Station Western Platform Building NSW
Randwick Police Station NSW
Randwick Post Office NSW
Randwick Town Hall NSW
Ritz Cinema NSW
Royal Hotel NSW
Sacred Heart Monastry & Chapel excluding 1921 & c1960 additions NSW
School of Musketry and Officers' Mess, Randwick Army Barracks NSW
Sir Joseph Banks Hotel (former) NSW
St Brigids Catholic Church NSW
St Judes Anglican Church & Cemetery NSW
St Judes Anglican Church Group NSW
St Judes Rectory and Curates Residence NSW
St Magdalenes Retreat NSW
St Matthews Anglican Church NSW
St Peters Anglican Church & Graveyard NSW
Statue of Captain James Cook RN NSW
Superintendents Residence (former) NSW
The Big Stable NSW
The Watch Tower NSW
Ventnor NSW

Natural

Cape Banks NSW
Jennifer Street Bushland NSW
Kurnell Peninsula Towra Point Area NSW
Little Bay Geological Site NSW
Long Bay Area NSW
Malabar Headland NSW
St Peters Brickpit Geological Site NSW
Towra Point Aquatic Reserve NSW

Extra Information

State and Territory Reserves [Dataset Information]

Boat Harbour Aquatic Reserve, NSW
Botany Bay National Park, NSW
Bronte-Coogee Aquatic Reserve, NSW
Cape Banks Aquatic Reserve, NSW
Towra Point Aquatic Reserve, NSW

Towra Point Nature Reserve, NSW

Towra Point SZ Stink Pot Bay Aquatic Reserve, NSW

Towra Point SZ Weeny/Quibray Bays Aquatic Reserve, NSW

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the *Environment Protection and Biodiversity Conservation Act 1999*. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the migratory and marine provisions of the Act have been mapped.

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Acknowledgments

This database has been compiled from a range of data sources. The Department acknowledges the following custodians who have contributed valuable data and advice:

- New South Wales National Parks and Wildlife Service
- Department of Sustainability and Environment, Victoria
- Department of Primary Industries, Water and Environment, Tasmania
- Department of Environment and Heritage, South Australia Planning SA
- Parks and Wildlife Commission of the Northern Territory
- Environmental Protection Agency, Queensland
- Birds Australia
- Australian Bird and Bat Banding Scheme
- Australian National Wildlife Collection
- Natural history museums of Australia
- Queensland Herbarium
- National Herbarium of NSW
- Royal Botanic Gardens and National Herbarium of Victoria
- Tasmanian Herbarium
- State Herbarium of South Australia
- Northern Territory Herbarium
- Western Australian Herbarium
- Australian National Herbarium, Atherton and Canberra
- University of New England
- Other groups and individuals

ANUClIM Version 1.8, Centre for Resource and Environmental Studies, Australian National University was used extensively for the production of draft maps of species distribution. Environment Australia is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

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Appendix B3

DII Fisheries Searches

Search results for listings by region

The provisions of the *Fisheries Management Act 1994* cover all fish (freshwater, estuarine and marine), aquatic invertebrates and marine plants. The definition of fish includes any marine, estuarine or freshwater fish or other aquatic animal (e.g., oysters, prawns, sharks, rays, starfish, insects and worms), at any stage of their life history. It does not include whales, mammals, birds, reptiles and amphibians.

Listings found in the Sydney Metro CMA

ScientificName	CommonName	Status	Profile
Carcharius taurus	Grey nurse shark	Critically endangered	profile
Pristis zijsron	Green sawfish	Presumed extinct	profile
Austrocordulia leonardi	Sydney hawk dragonfly	Endangered	profile
Archaeophya adamsi	Adam's emerald dragonfly	Endangered	profile
Carcharadon carcharias	Great white shark	Vulnerable	profile
Epinephelus daemelii	Black cod	Vulnerable	profile

Appendix B4

Noxious Weeds Declarations

Noxious weed declarations

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Noxious weed declarations for The Council of the City of Botany Bay

The following weeds are declared noxious in the control area of The Council of the City of Botany Bay:

Weed	Class	Legal requirements
African feathergrass [Pennisetum macrourum]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
African turnipweed [Sisymbrium runcinatum]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
African turnipweed [Sisymbrium thellungii]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Alligator weed [Alternanthera philoxeroides]	3	The plant must be fully and continuously suppressed and destroyed
Anchored water hyacinth [Eichhornia azurea]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Annual ragweed [Ambrosia artemisiifolia]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Arrowhead [Sagittaria montevidensis]	4	The plant may not be sold, propagated or knowingly distributed. This is an All of NSW declaration
Artichoke thistle [Cynara cardunculus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Athel pine [Tamarix aphylla]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Bear-skin fescue [Festuca gautieri]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Bitou bush [Chrysanthemoides monilifera subspecies rotundata]	3	The plant must be fully and continuously suppressed and destroyed
Black knapweed [Centaurea nigra]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Blackberry [Rubus fruticosus aggregate species] except cultivars Black satin, Chehalem, Chester Thornless, Dirksen Thornless, Loch Ness, Murrindindi, Silvan, Smoothstem, Thornfree	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Boneseed [Chrysanthemoides monilifera subspecies monilifera]	3	The plant must be fully and continuously suppressed and destroyed
Bridal creeper [Asparagus	4	The plant may not be sold, propagated or knowingly distributed.

asparagoides]		This is an All of NSW declaration
Broomrapes [Orobanche species] Includes all Orobanche species except the native O. cernua variety australiana and O. minor	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Burr ragweed [Ambrosia confertiflora]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Cabomba [All Cabomba species except C. furcata]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Castor oil plant [Ricinus communis]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Cayenne snakeweed [Stachytarpheta cayennensis]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Chilean needle grass [Nassella neesiana]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Chinese violet [Asystasia gangetica subspecies micrantha]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Clockweed [Gaura parviflora]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Corn sowthistle [Sonchus arvensis]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Dodder [Cuscuta species] Includes All Cuscuta species except the native species C. australis, C. tasmanica and C. victoriana	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
East Indian hygrophila [Hygrophila polysperma]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Espartillo [Amelichloa brachychaeta, Amelichloa caudata]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Eurasian water milfoil [Myriophyllum spicatum]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Fine-bristled burr grass [Cenchrus brownii]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Fountain grass [Pennisetum setaceum]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Gallon's curse [Cenchrus biflorus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration

Glaucous starthistle [Carthamus glaucus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Golden thistle [Scolymus hispanicus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Green cestrum [Cestrum parqui]	3	The plant must be fully and continuously suppressed and destroyed
Harrisia cactus [Harrisia species]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Hawkweed [Hieracium species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Horsetail [Equisetum species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Hygrophila [Hygrophila costata]	2	The plant must be eradicated from the land and the land must be kept free of the plant
Hymenachne [Hymenachne amplexicaulis]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Karoo thorn [Acacia karroo]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Kochia [Bassia scoparia] except Bassia scoparia subspecies trichophylla	1	except B.scoparia subspecies trichophylla The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Lagarosiphon [Lagarosiphon major]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Lantana [Lantana species]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold or knowingly distributed.
Leafy elodea [Egeria densa]	4	The plant may not be sold, propagated or knowingly distributed. This is an All of NSW declaration
Lippia [Phyla canescens]	4	The plant must not be sold, propagated or knowingly distributed by any person other than a person involved in hay or lucerne production. The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority. This is an All of NSW declaration
Long-leaf willow primrose [Ludwigia longifolia]	3	The plant must be fully and continuously suppressed and destroyed and the plant may not be sold, propagated or knowingly distributed
Ludwigia [Ludwigia peruviana]	3	The plant must be fully and continuously suppressed and destroyed
Mexican feather grass [Nassella tenuissima]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Mexican poppy [Argemone mexicana]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed

		must be complied with This is an All of NSW declaration
Miconia [Miconia species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Mimosa [Mimosa pigra]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Mossman River grass [Cenchrus echinatus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Pampas grass [Cortaderia species]	3	The plant must be fully and continuously suppressed and destroyed
Parthenium weed [Parthenium hysterophorus]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Pellitory [Parietaria judaica]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Pond apple [Annona glabra]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Prickly acacia [Acacia nilotica]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Prickly pear [Cylindropuntia species]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Prickly pear [Opuntia species except O. ficus-indica]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Privet (Broad-leaf) [Ligustrum lucidum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Privet (Narrow-leaf/Chinese) [Ligustrum sinense]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Red rice [Oryza rufipogon]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Rhus tree [Toxicodendron succedaneum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority This is an All of NSW declaration
Rubbervine [Cryptostegia grandiflora]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration

Sagittaria [Sagittaria platyphylla]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Salvinia [Salvinia molesta]	2	The plant must be eradicated from the land and the land must be kept free of the plant
Senegal tea plant [Gymnocoronis spilanthoides]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Serrated tussock [Nassella trichotoma]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Siam weed [Chromolaena odorata]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Smooth-stemmed turnip [Brassica barrelieri subspecies oxyrrhina]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Soldier thistle [Picnomon acarna]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Spotted knapweed [Centaurea stoebe subspecies micranthos]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
St. John's wort [Hypericum perforatum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Texas blueweed [Helianthus ciliaris]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Water caltrop [Trapa species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Water hyacinth [Eichhornia crassipes]	2	Whole of NSW except the local control authorities listed as control class 3 or 4 The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Water lettuce [Pistia stratiotes]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Water soldier [Stratiotes aloides]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Willows [Salix species] Includes all Salix species except S. babylonica, S. x reichardtii, S. x calodendron	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Witchweed [Striga species] Striga species except the native Striga parviflora	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Yellow burrhead [Limnocharis flava]	1	The plant must be eradicated from the land and the land must be kept free of the plant

		This is an All of NSW declaration
Yellow nutgrass [Cyperus esculentus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration

Noxious weed declarations

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Noxious weed declarations for Sutherland Shire Council

The following weeds are declared noxious in the control area of Sutherland Shire Council:

Weed	Class	Legal requirements
African feathergrass [Pennisetum macrourum]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
African olive [Olea europaea subspecies cuspidata]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
African turnipweed [Sisymbrium runcinatum]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
African turnipweed [Sisymbrium thellungii]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Alligator weed [Alternanthera philoxeroides]	3	The plant must be fully and continuously suppressed and destroyed
Anchored water hyacinth [Eichhornia azurea]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Annual ragweed [Ambrosia artemisiifolia]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Arrowhead [Sagittaria montevidensis]	4	The plant may not be sold, propagated or knowingly distributed. This is an All of NSW declaration
Artichoke thistle [Cynara cardunculus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Athel pine [Tamarix aphylla]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Bear-skin fescue [Festuca gautieri]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Bitou bush [Chrysanthemoides monilifera subspecies rotundata]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Black knapweed [Centaurea nigra]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Blackberry [Rubus fruticosus aggregate species] except cultivars Black satin, Chehalem, Chester Thornless, Dirksen Thornless, Loch	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed

Ness, Murrindindi, Silvan, Smoothstem, Thornfree		This is an All of NSW declaration
Boneseed [Chrysanthemoides monilifera subspecies monilifera]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Bridal creeper [Asparagus asparagoides]	4	The plant may not be sold, propagated or knowingly distributed. This is an All of NSW declaration
Broomrapes [Orobanche species] Includes all Orobanche species except the native O. cernua variety australiana and O. minor	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Burr ragweed [Ambrosia confertiflora]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Cabomba [All Cabomba species except C. furcata]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Castor oil plant [Ricinus communis]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Cayenne snakeweed [Stachytarpheta cayennensis]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Chilean needle grass [Nassella neesiana]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Chinese violet [Asystasia gangetica subspecies micrantha]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Clockweed [Gaura parviflora]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Corn sowthistle [Sonchus arvensis]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Dodder [Cuscuta species] Includes All Cuscuta species except the native species C. australis, C. tasmanica and C. victoriana	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
East Indian hygrophila [Hygrophila polysperma]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Espartillo [Amelichloa brachychaeta, Amelichloa caudata]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Eurasian water milfoil [Myriophyllum spicatum]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Fine-bristled burr grass [Cenchrus brownii]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration

Fountain grass [Pennisetum setaceum]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Gallon's curse [Cenchrus biflorus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Glaucous starthistle [Carthamus glaucus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Golden thistle [Scolymus hispanicus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Green cestrum [Cestrum parqui]	3	The plant must be fully and continuously suppressed and destroyed
Harrisia cactus [Harrisia species]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Hawkweed [Hieracium species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Horsetail [Equisetum species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Hygrophila [Hygrophila costata]	2	The plant must be eradicated from the land and the land must be kept free of the plant
Hymenachne [Hymenachne amplexicaulis]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Karoo thorn [Acacia karroo]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Kochia [Bassia scoparia] except Bassia scoparia subspecies trichophylla	1	except B.scoparia subspecies trichophylla The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Lagarosiphon [Lagarosiphon major]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Lantana [Lantana species]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold or knowingly distributed.
Leafy elodea [Egeria densa]	4	The plant may not be sold, propagated or knowingly distributed. This is an All of NSW declaration
Lippia [Phyla canescens]	4	The plant must not be sold, propagated or knowingly distributed by any person other than a person involved in hay or lucerne production. The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority. This is an All of NSW declaration
Long-leaf willow primrose [Ludwigia longifolia]	3	The plant must be fully and continuously suppressed and destroyed and the plant may not be sold, propagated or knowingly distributed

Ludwigia [Ludwigia peruviana]	3	The plant must be fully and continuously suppressed and destroyed
Mexican feather grass [Nassella tenuissima]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Mexican poppy [Argemone mexicana]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Miconia [Miconia species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Mimosa [Mimosa pigra]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Mossman River grass [Cenchrus echinatus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Pampas grass [Cortaderia species]	3	The plant must be fully and continuously suppressed and destroyed
Parthenium weed [Parthenium hysterophorus]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Pellitory [Parietaria judaica]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Pond apple [Annona glabra]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Prickly acacia [Acacia nilotica]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Prickly pear [Cylindropuntia species]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Prickly pear [Opuntia species except O. ficus-indica]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed This is an All of NSW declaration
Privet (Broad-leaf) [Ligustrum lucidum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Privet (Narrow-leaf/Chinese) [Ligustrum sinense]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Red rice [Oryza rufipogon]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Rhus tree [Toxicodendron succedaneum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control

		authority This is an All of NSW declaration
Rubbervine [Cryptostegia grandiflora]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Sagittaria [Sagittaria platyphylla]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Salvinia [Salvinia molesta]	2	The plant must be eradicated from the land and the land must be kept free of the plant
Senegal tea plant [Gymnocoronis spilanthoides]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Serrated tussock [Nassella trichotoma]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority and the plant may not be sold, propagated or knowingly distributed
Siam weed [Chromolaena odorata]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Smooth-stemmed turnip [Brassica barrelieri subspecies oxyrrhina]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Soldier thistle [Picnomon acarna]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Spotted knapweed [Centaurea stoebe subspecies micranthos]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
St. John's wort [Hypericum perforatum]	4	The growth and spread of the plant must be controlled according to the measures specified in a management plan published by the local control authority
Texas blueweed [Helianthus ciliaris]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration
Water caltrop [Trapa species]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Water hyacinth [Eichhornia crassipes]	2	Whole of NSW except the local control authorities listed as control class 3 or 4 The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Water lettuce [Pistia stratiotes]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Water soldier [Stratiotes aloides]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Willows [Salix species] Includes all Salix species except S. babylonica, S. x reichardtii, S. x calodendron	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration

Witchweed [Striga species] Striga species except the native Striga parviflora	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Yellow burrhead [Limnocharis flava]	1	The plant must be eradicated from the land and the land must be kept free of the plant This is an All of NSW declaration
Yellow nutgrass [Cyperus esculentus]	5	The requirements in the Noxious Weeds Act 1993 for a notifiable weed must be complied with This is an All of NSW declaration

Appendix B5

Habitat Assessments

Appendix B-5 FLORA

Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Count	Source	Habitat Requirements	Study Area Distribution and Habitat Suitability	Likelihood based on habitat suitability	Assessment of Significance	Significant Impact Cirteria
Acacia terminalis subsp. terminalis	Sunshine Wattle	Endangered	Endangered	39	Atlas; PMST	Coastal scrub and dry sclerophyll woodland on sandy soils. Habitat is generally sparse and scattered and generally highly modified.	Numerous records of this species occur within the northern section of the study area. Given that this species can tolerate and grow in modified landscapes there is some potential for the species to occur within the area of impact, either in the seed bank or as juvenile plants.	This species is considered **likely** to occur with the study area.	**Required**	**Required**
Caladenia tessellata	Thick-lipped Spider-orchid	Vulnerable	_	Predicted	PMST	Little is known of the precise habitat requirements of *C. tessellata*. In New South Wales, the species is generally found in grassy dry sclerophyll woodland on clay loam or sandy soils, less commonly in heathland on sandy loam soils.	No populations of this species are known to occur in the Sydney Region. The closest population is contained within Morton Bay National Park.	This species is considered **unlikely** to occur with the study area.	Not required	-
Cryptostylis hunteriana	Leafless Tongue Orchid	Vulnerable	Vulnerable	Predicted	PMST	Does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland. The larger populations typically occur in woodland dominated by Scribbly Gum (*Eucalyptus sclerophylla*), Silvertop Ash (*E. sieberi*), Red Bloodwood (*Corymbia gummifera*) and Black Sheoak (*Allocasuarina littoralis*); appears to prefer open areas in the understorey of this community.	This species is not known to occur within relevant sub-regions of the Sydney Metro CMA.	This species is considered **unlikely** to occur with the study area.	Not required	Not required
Hypsela sessiliflora	_	Endangered	Extinct	Predicted	PMST	Known to grow in damp places, on the Cumberland Plain, including freshwater wetland, grassland/alluvial woodland and an alluvial woodland/shale plains woodland (Cumberland Plain Woodland) ecotone. May be an early successional species that benefits from some disturbance.	This species is known from one population in recent years in the Penrith LGA area. No suitable habitat is present within the study area	This species is considered **unlikely** to occur with the study area.	Not required	Not required
Melaleuca biconvexa	Biconvex Paperbark	Vulnerable	Vulnerable	Predicted	PMST	Biconvex Paperbark generally grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects.	This species is not known to occur within relevant sub-regions of the Sydney Metro CMA. No suitable habitat is present within the study area	This species is considered **unlikely** to occur with the study area.	Not required	Not required
Pimela curviflora var. curviflora	_	Vulnerable	Vulnerable	Known	Atlas; PMST	Occurs on shaley/lateritic soils over sandstone and shale/sandstone transition soils on ridgetops and upper slopes amongst woodlands.	This species is known to occur within the Pittwater (part B) sub-region of the Sydney Metro CMA. However, no suitable habitat is present for the species given the disturbed nature of the area.	This species is considered **unlikely** to occur with the study area.	Not required	Not required
Prostanthera densa	Villous Mintbush	Vulnerable	Vulnerable	Predicted	PMST	Villous Mintbush is generally grows in sclerophyll forest and shrubland on coastal headlands and near coastal ranges, chiefly on sandstone, and rocky slopes near the sea.	This species is not known to occur within relevant sub-regions of the Sydney Metro CMA.	This species is considered **unlikely** to occur with the study area.	Not required	Not required
Pterostylis sp. Botany Bay	Botany bay Bearded Orchid	Endangered	Endangered	3	Atlas; PMST	Occupies moist level sites on skeletal sandy soils derived from sandstone. Associated vegetation is coastal heath dominated by *Melaleuca nodosa* and *Baeckea imbricata*. Restricted to the Sydney region where it is known from a small number of sites within Botany Bay National Park on the Kurnell Peninsula.	This species is known to occur in close proximity to the study area within the Botany bay National park. However, no populations are known to occur within the study area or area of impact, itself. Furthermore given the disturbed nature of the study area, no suitable habitat is considered likely to occur.	This species is considered **unlikely** to occur with the study area.	Not required	Not required

Appendix B-5 FLORA

Scientific Name	Common Name	TSC Act Status	EPBC Act Status	Count	Source	Habitat Requirements	Study Area Distribution and Habitat Suitability	Likelihood based on habitat suitability	Assessment of Significance	Significant Impact Cirteria
Pterostylis saxicola	Sydney Plains Greenhood	Endangered	Endangered	Predicted	PMST	Most commonly found growing in small pockets of shallow soil in depressions on sandstone rock shelves above cliff lines. The vegetation communities above the shelves where *Pterostylis saxicola* occurs are sclerophyll forest or woodland on shale/sandstone transition soils or shale soils.	This species is not known to occur within relevant sub-regions of the Sydney Metro CMA. Given the highly modified nature of the area of impact no suitable habitat is likely to be present.	This species is considered **unlikely** to occur with the study area.	Not required	Not required
Senecio spathulatus	Coast Groundsel	Endangered	_	1	Atlas	Coast Groundsel grows on primary dunes. Coast Groundsel occurs in Nadgee Nature Reserve (Cape Howe) and between Kurnell in Sydney and Myall Lakes National Park.	This species is known to occur in close proximity to the study area, near Kurnell. However, no populations are known to occur within the study area or area of impact, itself. No coastal dune habitat occurs within the study area.	This species is considered **unlikely** to occur with the study area.	Not required	-
Syzygium paniculatum	Magenta Lilly Pilly	Endangered	Vulnerable	1	Atlas; PMST	On the central coast Magenta Lilly Pilly occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities.	This species is known to occur within relevant sub-regions of the Sydney Metro CMA. Given the highly modified nature of the area of impact, however no suitable habitat is likely to be present.	This species is considered **unlikely** to occur with the study area.	Not required	Not required
Thelymitra sp. Kangaloon	Kangaloon Sun-orchid	_	Critically Endangered	Predicted	PMST	The Kangaloon Sun-orchid is endemic to New South Wales, and is known from three locations near Robertson in the Southern Highlands. The swamp habitat in which the species occurs has an extent of occurrence of 300 km2 and an area of occupancy of 10 km2. The three swamps are Butlers Swamp (0.125 km2), Stockyard Swamp (once known as Molly Morgan Swamp) (7 km2) and Wildes Meadow Swamp (3 km2), and are all located above what is known as the Kangaloon aquifer. The known areas of habitat occur within the Special Area under the Sydney Water Catchment Management Act 1998 and require permission from the Sydney Catchment Authority for access.	This species is not known to occur within relevant sub-regions of the Sydney Metro CMA. Given the highly modified nature of the area of impact no suitable habitat is likely to be present.	This species is considered **unlikely** to occur with the study area.	Not required	Not required
Thesium australe	Austral Toadflax	Vulnerable	Vulnerable	Predicted	PMST	Occurs in grassland or grassy woodland. Often found in damp sites in association with Kangaroo Grass (*Themeda australis*).	This species is known to occur within relevant sub-regions of the Sydney Metro CMA. Given the highly modified nature of the area of impact, however no suitable habitat is likely to be present.	This species is considered **unlikely** to occur with the study area.	Not required	Not required

Appendix B-5 FAUNA

Scientific Name	Common Name	TSC/ FM Act Status	EPBC Act Status	Count	Source	Habitat Requirements	Study Area Distribution and Habitat Suitability	Likelihood based on habitat suitability	Assessment of Significance	Significant Impact Cirteria
AVES										
Anthochaera phrygia or *Xanthomyza phrygia*	Regent Honeayeater	Endangered	Endangered	Predicted	PMST	Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes. Every few years non-breeding flocks are seen foraging in flowering coastal Swamp Mahogany and Spotted Gum forests, particularly on the central coast and occasionally on the upper north coast.	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Botaurus poiciloptilus	Australasian Bittern	Vulnerable	_	2	Atlas	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (*Typha spp.*) and spikerushes (*Eleoacharis spp.*).	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Calidris alba	Sanderling	Vulnerable	_	15	Atlas	Regular summer migrant from Siberia and other Arctic breeding grounds to most of the Australian coastline. It is uncommon to locally common, arriving from September and leaving by May (some may overwinter in Australia). Sanderlings occur along the NSW coast. Coastal beaches, tidal mudflats, bare open coastal lagoons or inland lakes are the species primary breeding and foraging habitat.	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Calidris tenuirostris	Great Knot	Vulnerable	_	23	Atlas	In NSW, the species has been recorded at scattered sites along the coast to about Narooma. Coastal beaches, tidal mudflats, bare open coastal lagoons or inland lakes are the species primary breeding and foraging habitat.	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Calyptorhynchus lathami	Glossy Black Cockatoo	Vulnerable	Endangered (only the South Australian sub-species)	2	Atlas	Inhabits open forest and woodlands of the coast and the Great Dividing Range up to 1000 m in which stands of she-oak species, particularly Black She-oak (*Allocasuarina littoralis*), Forest She-oak (*A. torulosa*) or Drooping She-oak (*A. verticillata*) occur.	This species is known to occur in the Pittwater (part b) sub-region of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Charadrius leschenaultii	Great Sand-plover	Vulnerable	_	7	Atlas	Almost entirely restricted to coastal areas in NSW, occurring mainly on sheltered sandy, shelly or muddy beaches or estuaries with large intertidal mudflats or sandbanks.	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given ther are no sheltered sandy, shelly or muddy beaches or estuaries	This species is considered **unlikely** to occur within the study area.	Not Required	-
Charadrius mongolus	Lesser Sand-plover	Vulnerable	_	46	Atlas	Almost entirely coastal in NSW, favouring the beaches of sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats; occasionally occurs on sandy beaches, coral reefs and rock platforms.	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given ther are no sheltered sandy, shelly or muddy beaches or estuaries	This species is considered **unlikely** to occur within the study area.	Not Required	-
Diomedea exulans	Wandering Albatross	Endangered	Vulnerable	2	Altas; PMST	Wandering albatross spend the majority of their time in flight, soaring over the southern oceans. They breed on a number of islands just north of the Antarctic Circle: South Georgia Island (belonging to the UK), Prince Edward and Marion Islands (South Africa), Crozet and Kerguelen Islands (French Southern Territories) and Macquarie Island (Australia).	This species is not likely to use the habitat within the study area given they spent the majority of there life at sea, except when breeding.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Diomedea amsterdamensis	Amsterdam Albatross	_	Endangered	Predicted	PMST	Amsterdam Albatrosses have not yet been positively identified within the Australian waters, there is certainly the potential for the occasional vagrant to enter Australian waters. The species breeds in the Amsterdam Islands in the Indian Ocean.	This species is not likely to use the habitat within the study area given they spent the majority of there life at sea, except when breeding.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Diomedea antipodensis	Antipodean Albatross	Vulnerable	Vulnerable	Predicted	PMST	The majority of birds breed on Antipodes Island, with a small number of pairs breeding on Campbell Island. This species regularly occurs in small numbers off the NSW south coast from Green Cape to Newcastle during winter where they feed on cuttlefish.	This species is not likely to use the habitat within the study area given they spent the majority of there life at sea, except when breeding.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required

Appendix B-5 FAUNA

Scientific Name	Common Name	TSC/ FM Act Status	EPBC Act Status	Count	Source	Habitat Requirements	Study Area Distribution and Habitat Suitability	Likelihood based on habitat suitability	Assessment of Significance	Significant Impact Cirteria
Diomedea dabbenena	Tristan Albatross	Vulnerable	Endangered	Predicted	PMST	The at-sea distribution of this newly distinguished species is yet to be defined. Tristan Albatrosses appear to wander widely from their sub-Antarctic breeding islands within the South Atlantic Ocean to 35° S (Marchant and Higgins 1990; del Hoyo et al. 1992). They are rarely observed in the Pacific or Indian Oceans. The only Australian record of this species is from a recapture off Wollongong (NSW) in September 1997.	This species is not likely to use the habitat within the study area given they spent the majority of there life at sea, except when breeding.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Diomedea gibsoni	Gibson's Albatross	Vulnerable	_	Predicted	PMST	This species is known only to breed on the Adams, Disappointment and Auckland Islands in the subantarctic Auckland Island group. This species regularly occurs off the NSW coast from Green Cape to Newcastle.	This species is not likely to use the habitat within the study area given they spent the majority of there life at sea, except when breeding.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Epthianura albifrons, Epthianura albifrons - endangered population	White-fronted Chat, White-fronted Chat Population in the Sydney Metropolitan Catchment Management Authority Area	Vulnerable, Endangered Population	_	1	Atlas	Regularly observed in the saltmarsh of Newington Nature Reserve (with occasional sightings from other parts of Sydney Olympic Park and in grassland on the northern bank of the Parramatta River). Current estimates suggest this population consists of 8 individuals. Regularly observed in the saltmarsh and on the sandy shoreline of a small island of Towra Point Nature Reserve. This population is estimated to comprise 19-50 individuals. The species is gregarious, usually found foraging on bare or grassy ground in wetland areas, singly or in pairs.	This species is known to occur in the Pittwater (part b) sub-region of the Sydney Metro CMA. Given that species is known to forage in modified and weedy grassland areas close to wetlands and shorelines, there is some potential for the species to forage within the study area.	This species is considered **likely** to occur with the study area.	**Required**	**-**
Gygis alba	Campbell's Albatross	Vulnerable	_	1	Atlas	Occurs widely in tropical and subtropical seas and islands. Vagrant birds occur in coastal NSW waters, particularly after storm events. Primary habitat is marine areas.	This species is only known to occur the Sydney marine zone.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Haematopus fuliginosus	Sooty Oystercatcher	Vulnerable	_	111	Atlas	Sooty Oystercatchers are found around the entire Australian coast, including offshore islands, being most common in Bass Strait. Small numbers of the species are evenly distributed along the NSW coast. Favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries.	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. No suitable habitat is available in the study area given they only forage within 50m of shore and prefer rocky intertidal shorelines and they breed on off-shore islands.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Haematopus longirostris	Pied Oystercatcher	Vulnerable	_	139	Atlas	The species is distributed around the entire Australian coastline, although it is most common in coastal Tasmania and parts of Victoria, such as Corner Inlet. In NSW the species is thinly scattered along the entire coast, with fewer than 200 breeding pairs estimated to occur in the State.	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. No suitable habitat is available in the study area given they only forage above high water mark on beaches, or sandbars or margins of estuaries or lagoons.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Lathamus discolor	Swift Parrot	Endangered	Endangered	1	Atlas; PMST	Migrates to the Australian south-east mainland between March and October. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations.	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Limicola falcinellus	Broad-billed Sandpiper	Vulnerable	_	4	Atlas	The eastern form of this species breeds in northern Siberia before migrating southwards in winter to Australia. In Australia, Broad-billed Sandpipers overwinter on the northern coast, particularly in the north-west, with birds located occasionally on the southern coast. In NSW, the main site for the species is the Hunter River estuary, with birds occasionally reaching the Shoalhaven estuary. Broad-billed Sandpipers favour sheltered parts of the coast such as estuarine sandflats and mudflats, harbours, embayments, lagoons, saltmarshes and reefs as feeding and roosting habitat. Occasionally, individuals may be recorded in sewage farms or within shallow freshwater lagoons. Broad-billed Sandpipers roost on banks on sheltered sand, shell or shingle beaches.	The species is known to occur in all of the Pittwater (part a) sub-regions of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	-

Appendix B-5 FAUNA

Scientific Name	Common Name	TSC/ FM Act Status	EPBC Act Status	Count	Source	Habitat Requirements	Study Area Distribution and Habitat Suitability	Likelihood based on habitat suitability	Assessment of Significance	Significant Impact Cirteria
Limosa limosa	Black-tailed Godwit	Vulnerable	_	9	Atlas	The Black-tailed Godwit is a migratory wading bird that breeds in Mongolia and Eastern Siberia (Palaearctic) and flies to Australia for the southern summer, arriving in August and leaving in March. In NSW, the it is most frequently recorded at Kooragang Island (Hunter River estuary), with occasional records elsewhere along the north and south coast. The species is usually found in sheltered bays, estuaries and lagoons with large intertidal mudflats and/or sandflats.	The species is known to occur in all of the Pittwater (part b) sub-regions of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Macronectes giganteus	Southern Giant-petrel	Endangered	Endangered	1	Atlas; PMST	Over summer, the species nests in small colonies amongst open vegetation on Antarctic and subantarctic islands, including Macquarie and Heard Islands and in Australian Antarctic territory. It is an opportunistic scavenger and predator, and scavenges from fishing vessels and animal carcasses on land. It is also an active predator of cephalopods and euphausiids, as well as smaller birds (particularly penguins) both at land and at sea.	This species is only known to occur the Sydney marine zone.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Macronectes halli	Northern Giant-petrel	Vulnerable	Vulnerable	1	Atlas; PMST	Breeding in Australian territory is limited to Macquarie Island and occurs during spring and summer. Adults usually remain near the breeding colonies throughout the year (though some do travel widely) while immature birds make long and poorly known circumpolar and trans-oceanic movements. Hence most birds recorded in NSW coastal waters are immature birds.	This species is only known to occur the Sydney marine zone.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Neochmia ruficauda	Star Finch		Endangered	1	Atlas		No NSW species is listed as an endangered	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Ninox strenua	Powerful Owl	Vulnerable	_	5	Atlas	The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. In NSW, it is widely distributed throughout the eastern forests from the coast inland to tablelands.	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. Suitable forage habitat occurs on the edge of the proposed works in the southern study area where a large patch of vegetation occurs. A number of records have been recorded in this area. This species is unlikely to be impacted by the proposed works, given no trees are likely to be removed.	This species is considered **likely** to occur within the study area, but **not to be impacted** by the proposed works.	Not Required	-
Neophema chrysogaster	Orange-bellied Parrot	Critically Endangered	Critically Endangered	1	Atlas; PMST	On the mainland, the Orange-bellied Parrot spends winter mostly within 3 km of the coast in sheltered coastal habitats including bays, lagoons, estuaries, coastal dunes and saltmarshes. The species also inhabits small islands and peninsulas and occasionally saltworks and golf courses. Birds forage in low samphire herbland or taller coastal shrubland. species can be found foraging in weedy areas associated with these coastal habitats or even in totally modified landscapes such as pastures, seed crops and golf courses.	This species is known to occur in the Pittwater (part b) sub-region of the Sydney Metro CMA. Given that species is known to forage in weedy, modified landscapes there is some potential for the species to forage within the study area.	This species is considered **likely** to occur with the study area.	**Required**	**Required**
Pezoporus wallicus wallicus	Eastern Ground Parrot	Vulnerable		2	Atlas	The eastern subspecies (*wallicus*) inhabits south-eastern Australia from southern Queensland through NSW to western Victoria. In NSW populations have declined and contracted to islands of coastal or subcoastal heathland and sedgeland habitats. The Ground Parrot occurs in high rainfall coastal and near coastal low heathlands and sedgelands, generally below one metre in height and very dense (up to 90% projected foliage cover). These habitats provide a high abundance and diversity of food, adequate cover and suitable roosting and nesting opportunities for the Ground Parrot, which spends most of its time on or near the ground	This species is known to occur in the Pittwater (part b) sub-region of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Pterodroma leucoptera leucoptera	Gould's Petrel	Vulnerable	Endangered	Predicted	PMST	Breeds on both Cabbage Tree Island, 1.4 km offshore from Port Stephens and on nearby Boondelbah island. The range and feeding areas of non-breeding Petrels are unknown.	This species is only known to occur the Sydney marine zone.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required

Appendix B-5 FAUNA

Scientific Name	Common Name	TSC/ FM Act Status	EPBC Act Status	Count	Source	Habitat Requirements	Study Area Distribution and Habitat Suitability	Likelihood based on habitat suitability	Assessment of Significance	Significant Impact Cirteria
Pterodroma neglecta neglecta	Kermadec Petrel	Vulnerable	Vulnerable	1	Altas; PMST	Breeds on islands across the South Pacific. In Australia it breeds on Ball's Pyramid and Phillip Island (near Norfolk Island). Vagrant birds occur in coastal NSW waters, particularly after storm events.	This species is known to occur within the Pittwater (part a) sub-region of the Sydney Metro CMA.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Rostratula australis	Australian Painted Snipe	Endangered	Vulnerable	Predicted	PMST	The Australian Painted Snipe inhabits many different types of shallow, brackish or freshwater terrestrial wetlands, especially temporary ones, which have muddy margins and small, low-lying islands. Suitable wetlands usually support a mosaic of low, patchy vegetation, as well as lignum and canegrass.	No known records of this species occur within the Sydney region. It is unlikely that the study area provides suitable wetland habitat for the species.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Stagonopleura guttata	Diamond Firetail	Vulnerable	_	2	Atlas	The Diamond Firetail is endemic to south-eastern Australia, extending from central Queensland to the Eyre Peninsula in South Australia. Feeds exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season). Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum Eucalyptus pauciflora Woodlands.	The species is known to occur in all of the relevant sub-regions of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Thalassarche bulleri	Buller's Albatross	_	Endangered	Predicted	PMST	During the breeding season, the highest concentrations of Buller's Albatrosses occur over the shelf and slope waters off Southern New Zealand. Individuals have been observed in Australian waters south of Coff's Harbour, around Tasmania, and west to the Eyre Peninsula.	This species is not likely to use the habitat within the study area given they spent the majority of there life at sea, except when breeding.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Thalassarche cauta	Shy Albatross	Vulnerable	Vulnerable	Predicted	PMST	This species is circumpolar in distribution, occurring widely in the southern oceans. Islands off Australia and New Zealand provide breeding habitat. In Australian waters, the Shy Albatross occurs along the east coast from Stradbroke Island in Queensland along the entire south coast of the continent to Carnarvon in Western Australia. Although uncommon north of Sydney, the species is commonly recorded off southeast NSW. The species spends the majority of its time at sea but will occasionally visit continental shelf waters, in bays and harbours.	This species is only known to occur the Sydney marine zone.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Thalassarche salvini, formerly *Diomedea cauta salvini*	Salvin's Albatross	_	Vulnerable	Predicted	PMST	This species is abundant throughout the year on all continental shelf areas around New Zealand. It roams widely in winter, moving eastwards across the South Pacific to the Humboldt Current in the waters off the west coast of South America (Chile and Peru).	This species is not likely to use the habitat within the study area given they spent the majority of there life at sea, except when breeding.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Thalassarche steadi	White-capped Albatross	_	Vulnerable	Predicted	PMST	It is difficult to know the precise distribution of this newly recognised species due to the difficulties of distinguishing it at sea from Shy Albatrosses and the absence of specific banding studies. Nonetheless, White-capped Albatrosses are the most abundant albatross in all New Zealand shelf waters, except on the Chatham Rise and Bounty Platform (displaced by Salvin's Albatross) and the Campbell Shelf (displaced by Campbell Albatross). The adults are present in New Zealand and south-east Australian waters throughout the year whilst immatures are rare in New Zealand waters, being more common off south-east Australia.	This species is not likely to use the habitat within the study area given they spent the majority of there life at sea, except when breeding.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Thalassarche melanophris	Black-browed Albatross	Vulnerable	Vulnerable	Predicted	Altas; PMST	The Black-browed Albatross has a circumpolar range over the southern oceans, and are seen off the southern Australian coast mainly during winter. This species migrates to waters off the continental shelf from approximately May to November and is regularly recorded off the NSW coast during this period.	This species is only known to occur the Sydney marine zone.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Thalassarche impavida	Campbell's Albatross	_	Vulnerable	Predicted	PMST	They breed only on sub-Antarctic Campbell Island, south of New Zealand. Throughout the breeding season, breeding adults are generally found over the shelf waters surrounding New Zealand, whereas non-breeding birds often forage over the continental slopes around Tasmania, Victoria and New South Wales.	This species is not likely to use the habitat within the study area given they spent the majority of there life at sea, except when breeding.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Xenus cinereus	Terek Sandpiper	_	Vulnerable	9	Atlas	A rare migrant to the eastern and southern Australian coasts, being most common in northern Australia, and extending its distribution south to the NSW coast in the east. The two main sites for the species in NSW are the Richmond River estuary and the Hunter River estuary. In Australia, has been recorded on coastal mudflats, lagoons, creeks and estuaries.	This species is known to occur in the relevant sub-region of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Amphibians										

Appendix B-5 FAUNA

Scientific Name	Common Name	TSC/ FM Act Status	EPBC Act Status	Count	Source	Habitat Requirements	Study Area Distribution and Habitat Suitability	Likelihood based on habitat suitability	Assessment of Significance	Significant Impact Cirteria
Crinia tinnula	Wallum Froglet	Vulnerable	_	36	Atlas	Wallum Froglets are found only in acid paperbark swamps and sedge swamps of the coastal 'wallum' country. The species is a late winter breeder. Males call in choruses from within sedge tussocks or at the water edge.	This species is known to occur in the relevant sub-region of the Sydney Metro CMA. However the known populations are restricted to Kurnell Peninsula within Botany Bay National Park and the margins of Botany Bay on northern side of the harbour. No suitable habitat occurs directly within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Heleioporus australiacus	Giant Burrowing Frog	Vulnerable	Vulnerable	Predicted	PMST	The Giant Burrowing Frog is distributed in south eastern NSW and Victoria, and appears to exist as two distinct populations: a northern population largely confined to the sandstone geology of the Sydney Basin and extending as far south as Ulladulla. Breeding habitat of this species is generally soaks or pools within first or second order streams. They are also commonly recorded from 'hanging swamp' seepage lines and where small pools form from the collected water.	This species is known to occur within the Pittwater (part b) sub-region of the Sydney Metro CMA. No suitable foraging habitat occurs within the study area given the highly modified and cleared nature of the area.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Litoria aurea	Green and Golden Bell Frog	Endangered	Vulnerable	54	Altas; PMST	Since 1990 there have been approximately 50 recorded locations in NSW, most of which are small, coastal, or near coastal populations. These locations occur over the species' former range, however they are widely separated and isolated. Large populations in NSW are located around the metropolitan areas of Sydney. Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (*Typha spp.*) or spikerushes (*Eleocharis spp.*). Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (*Gambusia holbrooki*), have a grassy area nearby and diurnal sheltering sites available. Some sites, particularly in the Greater Sydney region occur in highly disturbed areas.The species will forage amongst emergent aquatic or riparian vegetation and amongst vegetation, fallen timber adjacent to and within 500m of breeding habitat, including grassland, cropland and modified pastures.	This species is known to occur in the relevant sub-region of the Sydney Metro CMA. Numerous records of this species occur in and around the southern study area. Given that species will forage in modified pastures up to 500m from breeding habitat, there is some potential for this species to use the areas of impact along the pipeline upgrade.	This species is considered **likely** to occur with the study area.	**Required**	**Required**
Litoria littlejohni	Little John's Treefrog	Vulnerable	Vulnerable	Predicted	PMST	The majority of records are from within the Sydney Basin Bioregion with only scattered records south to the Victorian border. This species breeds in the upper reaches of permanent streams and in perched swamps. Non-breeding habitat is heath based forests and woodlands where it shelters under leaf litter and low vegetation, and hunts for invertebrate prey either in shrubs or on the ground.	This species is not known to occur within the relevant sub-regions of the Sydney Metro CMA.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Litoria raniformis	Growling Grass Frog	Endangered	Vulnerable	Predicted	PMST	This species is found mostly amongst emergent vegetation including *Typha* sp. (bullrush), *Phragmites* sp. (reeds) and *Eleocharis* sp. (sedges), in or at the edges of still or slow-flowing water bodies such as lagoons, swamps, lakes, ponds and farm dams. The closest population was the southern and central tablelands, however the species is thought to be extinct in these areas now.	This species is not known to occur within the relevant sub-regions of the Sydney Metro CMA.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Mammals										
Chalinolobus dwyeri	Large-eared Pied Bat	Vulnerable	Vulnerable	Predicted	PMST	Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (*Hirundo ariel*), frequenting low to mid-elevation dry open forest and woodland close to these features. Found mainly in areas with extensive cliffs and caves, from Rockhampton in Queensland south to Bungonia in the NSW Southern Highlands	This species is not known to occur within the relevant sub-regions of the Sydney Metro CMA.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Dasyurus maculatus	Spotted-tailed Quoll	Vulnerable	Endangered	Predicted	PMST	The range of the Spotted-tailed Quoll has contracted considerably since European settlement. It is now found on the east coast of NSW. Mostly nocturnal, although will hunt during the day; spends most of the time on the ground, although also an excellent climber and may raid possum and glider dens and prey on roosting birds. Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.	This species is known to occur within the Pittwater (part b) sub-region of the Sydney Metro CMA. Given that the species primary prey includes arboreal fauna, it is unlikely that the species hunting habitat will be impacted by the proposed works.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Miniopterus schreibersii oceanensis	Eastern Bentwing Bat	Vulnerable	_	30	Atlas	Eastern Bent-wing Bats occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures.	This species is known to occur in the relevant sub-region of the Sydney Metro CMA. Given that there will be no trees or structures removed during the proposed works this species is unlikely to be impacted by the proposed works.	This species is **unlikely** to be impacted by the proposed works	Not Required	-

Appendix B-5 FAUNA

Scientific Name	Common Name	TSC/ FM Act Status	EPBC Act Status	Count	Source	Habitat Requirements	Study Area Distribution and Habitat Suitability	Likelihood based on habitat suitability	Assessment of Significance	Significant Impact Cirteria
Myotis macropus	Southern Myotis, Large-footed Mytois	Vulnerable	_	2	Atlas	The Large-footed Myotis is found in the coastal band from the north-west of Australia, across the top-end and south to western Victoria. Generally roost in groups of 10 - 15 close to water in caves, mine shafts, hollow-bearing trees, storm water channels, buildings, under bridges and in dense foliage. They forage over streams and pools catching insects and small fish by raking their feet across the water surface.	This species is known to occur in the relevant sub-region of the Sydney Metro CMA. Given that there will be no trees or structures removed during the proposed works this species is unlikely to be impacted by the proposed works. Furthermore no streams occur directly within the study area.	This species is considered **unlikely** to occur within the study area.	Not Required	-
Petrogale penicillata	Brush-tailed Rock Wallaby	Endangered	Vulnerable	Predicted	PMST	Occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north.	This species is not known to occur in the Sydney Basin area.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Potorous tridactylus	Long-nosed Potoroo	Vulnerable	Vulnerable	Predicted	PMST	Inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrubs of tea-trees or melaleucas. A sandy loam soil is also a common feature.	This species is not known to occur in the Sydney Basin area.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Pseudomys novaehollandiae	New Holland Mouse	_	Vulnerable	Predicted	PMST	Across the species' range the New Holland Mouse is known to inhabit open heathlands, open woodlands with a heathland understorey and vegetated sand dunes. The New Holland Mouse has a fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. In 2006 there were known to be 6 - 8 metapopulations of the species	This species is not known to occur in the Sydney Basin area.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Pteropus poliocephalus	Grey-headed Flying Fox	Vulnerable	Vulnerable	47	Atlas; PMST	Grey-headed Flying-foxes are found within 200 km of the eastern coast of Australia, from Bundaberg in Queensland to Melbourne in Victoria. Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.	This species is known to occur in the relevant sub-region of the Sydney Metro CMA. Given that there will be no feed trees removed during the proposed works this species is unlikely to be impacted by the proposed works.	This species is **unlikely** to be impacted by the proposed works	Not Required	Not Required
Saccolaimus flaviventris	Yellow-sheath-tailed Bat	Vulnerable	_	1	Atlas	The Yellow-bellied Sheathtail-bat is a wide-ranging species found across northern and eastern Australia. Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country.	This species is known to occur in the relevant sub-region of the Sydney Metro CMA. Given that there will be feed trees removed during the proposed works this species is unlikely to be impacted by the proposed works.	This species is **unlikely** to be impacted by the proposed works	Not Required	-
Reptiles										
Hoplocephalus bungaroides	Broad-headed Snake	Endangered	Vulnerable	Predicted	PMST	The Broad-headed Snake is largely confined to Triassic and Permian sandstones, including the Hawkesbury, Narrabeen and Shoalhaven groups, within the coast and ranges in an area within approximately 250 km of Sydney. Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring.	This species is not known to occur in the relevant sections of the sub-regions of the Sydney Metro CMA. Given that this species is restricted to the northern portion of the Pittwater (part b) sub-region.	This species is considered **unlikely** to occur within the study area.	Not Required	Not Required
Aquatic Invertebrates										
Austrocordulia leonardi	Sydney hawk dragonfly	Endangered (FM Act)	_	_	DII TFAS	The Sydney hawk dragonfly has a very restricted distribution. The known distribution of the species includes three locations in a small area south of Sydney, from Audley to Picton. The species is known from the Hawkesbury-Nepean, Georges River, Port Hacking and Karuah drainages. The Sydney hawk dragonfly has specific habitat requirements, and has only ever been collected from deep and shady riverine pools with cooler water. Larvae are found under rocks where they co-exist with *Austrocordulia refracta*.	This species is known to occur in the sourthern section of the Sydney Metro CMA around Audley and Picton. No suitable habitat is available within the study area.	This species is **unlikely** to be impacted by the proposed works	Not Required	_
Archaeophya adamsi	Adam's emerald dragonfly	Endangered (FM Act)	_	_	DII TFAS	Adam's emerald dragonflies are one of Australia's rarest dragonflies. Only five adults have ever been collected, and the species is only known from a few sites in the greater Sydney region. Larvae have been found in small creeks with gravel or sandy bottoms, in narrow, shaded riffle zones with moss and rich riparian vegetation. Adult dragonflies generally fly away from the water to mature before returning to breed. Males congregate at breeding sites and often guard a territory. Females probably lay their eggs into the water.	This species is known to occur in the the Sydney Metro CMA. No suitable habitat is available within the study area.	This species is **unlikely** to be impacted by the proposed works	Not Required	-

Appendix B6

Assessments of Significance

Appendix B-6 NSW Asessments of Significance (NSW)

	White-fronted Chat (*Epthianura albifrons*)- TS, Pop	Orange-bellied Parrot (*Neophema chrysogaster*)- TS	Green and Golden Bell Frog (*Litoria aurea*)- TS	Sunshine Wattle (*Acacia terminalis subsp. terminalis*)- TS	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions - TEC
How is the Proposal likely to affect the lifecycle of a threatened species and/or population?		This species only breeds in Tasmania, as such the lifecycle of the species is unlikely to be affect by the Project.			
a) displaces or disturbs threatened species and/or populations;	No individuals were observed during survey; neither are they known to occur within the footprint. Therefore the local population is not likely to be displaced or disturbed.	as above.	No individuals were observed during survey; neither are they known to occur within the footprint. Therefore the local population is not likely to be displaced or disturbed.	No specimens were observed during survey; neither are they known to occur within the footprint, the closest records are located approximately 0.5km to the south of the Banksmeadow Terminal. Therefore the local population is not likely to be displaced or disturbed.	N/A
b) disrupts the breeding cycle;	The species nests in 'open-cup' nests built in low vegetation. No mid-storey or canopy will be removed by the Project.	as above.	The species breeds and nests in permanent water bodies. The Project may indirectly impact adjacent wetlands in Marton park through the release of contaminated soils or pollutant run-off during storm events. However the lifecycle of the species is unlikely to be affected by these impacts if the mitigation measures outlined within the EA are adopted.	Given no specimens were observed within the footprint, the species is not likely to persists within the seed bank based on the existing disturbances and that no changes to existing fire and water flow regimes are likely to be created by the Project, the breeding cycle of the species is unlikely to be affected.	N/A
c) disturbs the dormancy period;	N/A	N/A	N/A	The species is not likely to persist within the seed bank based on the existing disturbances.	N/A
d) disrupts roosting behaviour;	Species shelters in low vegetation. The species nests in 'open-cup' nests built in low vegetation. No mid-storey or canopy will be removed by the Project.	as above.	The species inhabits marshes, dams and stream-sides, particularly those containing bullrushes (*Typha* spp.) or spikerushes (*Eleocharis* spp.) This type of habitat will not be impacted by the Project.	N/A	N/A
e) changes foraging behaviour	Foraging patterns are unlikely to be impacted given the species feeds within wetlands and sometimes modified weedy grasslands.	as above.	The species will forage within 500m of breeding habitat, including grassland, cropland and modified pastures. Although the Project will temporary impacted potential foraging habitat within the right of way, however post construction this area would be returned to its original state.	N/A	N/A
f) affects migration and dispersal ability	Species is not known to migrate.	as above.	Existing populations of this species on the Kurnell Peninsula are already isolated from other populations to the north and south. The Project is unlikely to alter or aggravate the current isolation of populations within the ecological study area.	Given the existing disturbances in the ecological study area, the Project is unlikely to affect the species seed dispersal and establishment abilities.	N/A

Appendix B-6 NSW Asessments of Significance (NSW)

	White-fronted Chat (*Epthianura albifrons*)- TS, Pop	Orange-bellied Parrot (*Neophema chrysogaster*)- TS	Green and Golden Bell Frog (*Litoria aurea*)- TS	Sunshine Wattle (*Acacia terminalis subsp. terminalis*)- TS	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions - TEC
g) disrupts pollination cycle;	N/A	N/A	N/A	No specimens were observed within the footprint and the Project is not considered likely to disrupt the pollination cycle of individuals within the locality.	N/A
h) disturbs seed bank;	N/A	N/A	N/A	as above.	N/A
i) disrupts recruitment (i.e. germination and establishment of plants; and	N/A	N/A	N/A	Given the existing disturbances in the ecological study area, the Project is unlikely to affect the species seed dispersal, germination and establishment abilities.	N/A
j) affects the interaction between threatened species and other species in the community (e.g. pollinators, host species, mychorrizal associations).	Species is not associated with any symbiotic relationships with other species and is not known as a keystone species.	Species is not associated with any symbiotic relationships with other species and is not known as a keystone species.	Species is not associated with any symbiotic relationships with other species.	The Project is not likely to affect the interaction of pollinators and local populations of the species.	N/A
How is the proposal likely to affect the habitat of a threatened species, population or ecological community?					
a) disturbs any permanent, semi-permanent or ephermeral water bodies;	The Project may indirectly impact adjacent wetlands in Marton park through the release of contaminated soils or pollutant run-off during storm events. If mitigation measures oulined within this EA are adopted this impact would be ameliorated and this species habitat is unlikely to be affected.	The Project may indirectly impact adjacent wetlands in Marton park through the release of contaminated soils or pollutant run-off during storm events. If mitigation measures outlined within this EA are adopted this impact would be ameliorated and this species foraging habitat is unlikely to be affected.	The Project may indirectly impact adjacent wetlands in Marton park through the release of contaminated soils or pollutant run-off during storm events. If mitigation measures outlined within this EA are adopted this impact would be ameliorated and this species breeding/shelter habitat is unlikely to be affected.	No water bodies are associated with known local populations of the species.	The Project may indirectly impact disturbed remnants of this community within Marton park through the release of contaminated soils or pollutant run-off during storm events. If mitigation measures outlined within this EA are adopted this impact would be ameliorated and available habitat within this TEC would be maintained in its current state.
b) degrades soil quality;	The Project may degrade soil quality if damage occurs to the pipelines that would be removed or through the release of contaminated soils or pollutant run-off during storm events. If mitigation measures outlined within this EA are adopted this impact would be ameliorated and this species habitat is unlikely to be affected.	The Project may degrade soil quality if damage occurs to the pipelines that would be removed or through the release of contaminated soils or pollutant run-off during storm events. If mitigation measures outlined within this EA are adopted this impact would be ameliorated and this species foraging habitat is unlikely to be affected.	The Project may degrade soil quality if damage occurs to the pipelines that would be removed or through the release of contaminated soils or pollutant run-off during storm events. If mitigation measures outlined within this EA are adopted this impact would be ameliorated and this species habitat is unlikely to be affected.	Further decline in soil quality is not expected in the areas close to known specimens around the Banksmeadow Terminal given the proposed works for this area and the existing disturbances in the area.	The Project may degrade soil quality if damage occurs to the pipelines that would be removed or through the release of contaminated soils or pollutant run-off during storm events. If mitigation measures outlined within this EA are adopted this impact would be ameliorated and habitat within this TEC is unlikely to be affected.
c) clears or modifies native vegetation;	The Project would only remove a small amount of ground vegetation in the modified pasture/exotic community. This community is unlikely to be dramatically modified post construction when soils are reinstated and as such is unlikely to affect this species foraging habitat within the locality.	The Project would only remove a small amount of ground vegetation in the modified pasture/exotic community. This community is unlikely to be dramatically modified post construction when soils are reinstated and as such is unlikely to affect potential foraging habitat within the locality.	The Project would only remove a small amount of ground vegetation in the modified pasture/exotic community. This community is unlikely to be dramatically modified post construction when soils are reinstated and as such is unlikely to affect potential foraging habitat within the locality.	No native vegetation will be removed in the footprint within the Banksmeadow Terminal.	No vegetation will be removed from this TEC during Project works.

Appendix B-6 NSW Asessments of Significance (NSW)

	White-fronted Chat (*Epthianura albifrons*)- TS, Pop	Orange-bellied Parrot (*Neophema chrysogaster*)- TS	Green and Golden Bell Frog (*Litoria aurea*)- TS	Sunshine Wattle (*Acacia terminalis subsp. terminalis*)- TS	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions - TEC
d) introduces weeds, vermin or feral species or provides conditions for them to increase and/or spread;	The Project may introduce and/or aggravate weed species within the ecological study area, however, if weed management protocols are adopted this impact will be ameliorated and the species habitat is unlikely to be affected.	The Project may introduce and/or aggravate weed species within the ecological study area, however, if weed management protocols are adopted this impact will be ameliorated and the species habitat is unlikely to be affected.	The Project may introduce and/or aggravate weed species within the ecological study area, however, if weed management protocols are adopted this impact will be ameliorated and the species habitat is unlikely to be affected.	The Project may introduce and/or aggravate weed species within the ecological study area, however, if weed management protocols are adopted this impact will be ameliorated and the species habitat is unlikely to be affected.	The Project may introduce and/or aggravate weed species within the TEC adjacent to the footprint, however, if weed management protocols are adopted this impact will be ameliorated and the community is unlikely to be affected.
e) removes or disturbs key habitat features such as trees with hollows, caves and rock crevices, foraging habitat;	No key habitat features will be removed by the Project.	No key habitat features will be removed by the Project.	No key habitat features will be removed by the Project.	No key habitat features will be removed by the Project.	No key habitat features will be removed by the Project.
f) affects natural revegetation and recolonisation of existing species following disturbances; and	The footprint area in its current state prevents the natural regeneration of the shrub and canopy layer given these areas are maintained for existing works.	The footprint area in its current state prevents the natural regeneration of the shrub and canopy layer given these areas are maintained for existing works.	The footprint area in its current state prevents the natural regeneration of the shrub and canopy layer given these areas are maintained for existing works.	The footprint area in its current state prevents the natural regeneration of the shrub and canopy layer given these areas are maintained for existing works.	This community does not occur within the footprint of the Project.
Does the proposal affect and threatened species or populations that are at the limit of its known distribution?	The Towra point population of the species is isolated from all other populations by over 25km. This isolation already exists and would not be exacerbated by the Project works.	Only a few records of the species have been noted within NSW. It is unknown whether the species historically occurred more regularly within the region. Irrespective, the Project is unlikely to affect current species distribution.	Existing populations of this species on the Kurnell Peninsula are already isolated from other populations to the north and south. The Project is unlikely to alter or aggravate the current isolation of populations within the ecological study area.	This species is only known from the Sydney metro CMA area. Existing records are highly sporadic. The Project is not likely to affect any known specimens.	The Sydney Metro CMA area does not represent the limit of this communities known distribution.
How is the proposal likely to affect current disturbance regimes?					
a) modifies the intensity and frequency of fires; and	The footprint already exists as a modified environment and is unlikely to be impacted by fires given the lack of leaf litter, shrub and canopy layer, coarse woody debris etc. The Project is unlikely to impact natural fire events.	The footprint already exists as a modified environment and is unlikely to be impacted by fires given the lack of leaf litter, shrub and canopy layer, coarse woody debris etc. The Project is unlikely to impact natural fire events.	The footprint already exists as a modified environment and is unlikely to be impacted by fires given the lack of leaf litter, shrub and canopy layer, coarse woody debris etc. The Project is unlikely to impact natural fire events.	The footprint already exists as a modified environment and is unlikely to be impacted by fires given the lack of leaf litter, shrub and canopy layer, coarse woody debris etc. The Project is unlikely to impact natural fire events.	The Project will not affect current fire intensity or frequency of fire within the community given it occurs outside of the footprint.
b) modifies flooding flows.	The ecological study area exists as an artificial or altered flood/flow regime. The Project is unlikely to modify the existing water flow regime.	The ecological study area exists as an artificial or altered flood/flow regime. The Project is unlikely to modify the existing water flow regime.	The ecological study area exists as an artificial or altered flood/flow regime. The Project is unlikely to modify the existing water flow regime.	The ecological study area exists as an artificial or altered flood/flow regime. The Project is unlikely to modify the existing water flow regime.	The ecological study area and sections of this community contain artificial or altered flood/flow regimes. The Project is unlikely to modify the existing water flow regime.
How is the proposal likely to affect habitat connectivity?					
a) creates a barrier to fauna movement;	The Towra point population of the species is isolated from all other populations by over 25km. This isolation already exists and would not be exacerbated by the Project works.	The species is highly mobile and as such fauna movement for this species is unlikely to be impacted by the Project.	Existing populations are already isolated. The Project is unlikely to create further barriers to fauna movement.	N/A	Within the ecological study area this community exists as an isolated remnant given it is surrounded by residential roads and the Kurnell Refinery. This isolation would not be aggravated by the Project.
b) removes remnant vegetation or wildlife corridors; and	No remnant vegetation will be removed	No remnant vegetation will be removed	No remnant vegetation will be removed	No remnant vegetation will be removed	No remnant vegetation will be removed
c) modifies remnant vegetation or wildlife corridors.	as above.	as above.	as above.	as above.	as above.

Appendix B-6 NSW Asessments of Significance (NSW)

	White-fronted Chat (*Epthianura albifrons*)- TS, Pop	Orange-bellied Parrot (*Neophema chrysogaster*)- TS	Green and Golden Bell Frog (*Litoria aurea*)- TS	Sunshine Wattle (*Acacia terminalis subsp. terminalis*)- TS	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions - TEC
How is the proposal likely to affect critical habitat?	No critical habitat is registered for this species, as such these questions are not applicable.	No critical habitat is registered for this species, as such these questions are not applicable.	No critical habitat is registered for this species, as such these questions are not applicable.	No critical habitat is registered for this species, as such these questions are not applicable.	No critical habitat is registered for this species, as such these questions are not applicable.
a) removes or modifies key habitat features;	as above.	as above.	as above.	as above.	as above.
b) affects natural revegetation or recolonisation of existing species following disturbances;	as above.	as above.	as above.	as above.	as above.
c) introduces weeds, vermin or feral species;	as above.	as above.	as above.	as above.	as above.
d) generates or disposes of solid, liquid or gaseous waste; and	as above.	as above.	as above.	as above.	as above.
e) uses pesticides, herbicides, other chemicals.	as above.	as above.	as above.	as above.	as above.

Magnitude of Impact	Low	Low	Potential	None	Potential
Significance of Impact	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant

Appendix B7

Significant Impact Criteria

Appendix B7 - Significant Impact Criteria

1.1 Fauna

1.1.1 Green and Golden Bell Frog *(Litoria aurea)*

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

a) lead to a long-term decrease in the size of a population

All known populations of *Litoria aurea* (Vulnerable, EPBC Act; Vulnerable, TSC Act) are considered to be 'important populations' (DEWHA 2009a). The Project will require disturbance to land within the known range of *Litoria aurea*, however no works will be undertaken within close proximity to locations in which the species has been recorded previously. All works will be undertaken in areas that may represent potential foraging habitat for the species. Several indirect impacts may influence the known breeding and nesting habitat in Marton Park wetlands. Assuming mitigation measures are adopted, the Project will not lead to a long term decrease in the size of an important population of this species.

b) reduce the area of occupancy of the species

Litoria aurea occurs in coastal lowland areas in New South Wales. Given the low severity of potential impacts, limited size of the Project works and lack of records of this species within the footprint, it is considered unlikely that the Project would reduce the area of occupancy of an important population of this species.

c) fragment an existing population into two or more populations

The Project works will be contained in discreet areas of potential foraging habitat only. All known records are contained within the wetland reserves of Marton Park and Towra Point Reserve to the south and south west. Given that these works will be located outside of the known population's primary habitat, it is considered unlikely that the Project would fragment an existing important population into two or more populations

d) adversely affect habitat critical to the survival of a species

Not applicable. No Critical habitat is listed on the register of Critical Habitat kept by the Director-General, DECCW or DII within the project area. To date, no critical habitat has been declared for this species.

e) disrupt the breeding cycle of a population

Optimum breeding habitat for the species includes water-bodies that are unshaded, and have a grassy area nearby (DEC 2005a). No Project works will be carried out within the Marton Park wetlands which contain the closest known records of the species (Sutherland Shire Council 2009a). All works will be located within potential foraging habitat for the species. As long as the mitigation measures are adopted, no indirect are likely to influence or disrupt the breeding cycle of populations with the adjacent wetlands.

f) modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

Litoria aurea is typically found in water-bodies that are unshaded, and have a grassy area nearby. Water bodies that only contain water periodically (that is, ephemeral water bodies) are

important habitat for the green and golden bell frog, as their flooding can trigger breeding or provide habitat 'stepping stones' for dispersal between periodically disconnected water bodies. Ephemeral water bodies are also less likely to be inhabited by mosquito fish. (DEWHA, 2009). The Project will require the removal of some vegetation that would constitute foraging habitat for the species. However, given the Project will not directly impact optimal breeding, nesting and shelter habitat for the species and assuming mitigation measures are adopted, it is considered unlikely that the Project would result in the modification or removal of habitat to the extent that the species would decline.

g) result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat

DEWHA (2009a) or DEC (2005a) do not list any invasive species known to be harmful to *Litoria aurea*.

h) introduce disease that may cause the species to decline, or

A fungal pathogen known as Frog Chytrid Fungus is known to threaten *Litoria aurea.* This pathogen is also known to occur within the Sydney Metro CMA area. However, as long as wash down protocols that are consistent with the *hygiene protocol for frogs* (DECC, 2008) is adopted the Project is considered unlikely to introduce disease that may cause the decline of the species.

i) interfere with the recovery of the species.

There is a Draft Recovery Plan Green and Golden Bell Frog *Litoria aurea* (DEC 2005). The primary objectives of the recovery plan that are of relevance to the Project include:

- establish hygiene protocols to minimise the inadvertent spread of fungal pathogens from site to site;
- prevent the use of herbicides and other weed-control measures; and
- manage degradation to wetlands through the management of sedimentation and pollutant run-off.

Although the Project will require the removal of some areas of foraging habitat for this species, and may indirectly impact important habitat through indirect impacts (Chapter 8 of the EA), as long as the mitigation measures are adopted (Chapter 8 of the EA) to limit the potential impact the Project is not likely to interfere substantially with the recovery of the species.

Conclusion

The significant impact criteria assessment concludes that the proposal is not likely to significantly impact *Litoria aurea.* As such, a referral to the Minister is not required*.* A number of measures are recommended in **Chapter 8** of the **EA** to ameliorate the degree of impact to ensure that biodiversity values within the Project area are maintained or improved.

References

DEC 2005, *Green and Golden Bell Frog Litoria aurea (Lesson 1829) Recovery Plan*, Department of Environment and Conservation @ http://www.environment.nsw.gov.au/resources/nature/recoveryplanGreenGoldBellFrogDraft.pdf Accessed 07/01/2011

DEC 2005a, *Green and Golden Bell Frog – profile* http://www.threatenedspecies.environment.nsw.gov.au/tsprofile Accessed 07/01/2011.

DECC 2008*, Hygiene Protocol for the Control of Disease in Frogs, Department of Environment and Climate Change @* http://www.environment.nsw.gov.au/resources/nature/hyprfrog.pdf Accessed 07/01/2011

DEWHA 2009, EPBC Act Policy Statement 1.1 Significant Impact Guidelines. Matters of National Environmental Significance. Commonwealth of Australia.

DEWHA 2009a, *Significant impact guidelines for the vulnerable green and golden bell frog (Litoria aurea),* Commonwealth of Australia, http://www.environment.gov.au/epbc/publications/pubs/litoria-aurea-policy.pdf Accessed 07/01/2011

1.1.2 Orange-bellied Parrot (*Neophema chrysogaster)*

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

a) lead to a long-term decrease in the size of a population

One record of the species *Neophema chrysogaster* (Critically Endangered, EPBC Act; Critically Endangered, TSC Act) is located approximately 3.5km to the east of the Banksmeadow Terminal. Given this species is highly mobile and is known to forage in weedy grasslands close to sheltered bays, potential foraging habitat exists within the footprint of the Project (particularly along the right of way for the KBL pipeline). The Project may result in the clearing of small amount of potential foraging habitat. Given the existing condition of the right of way and other grassy areas within the vicinity of the Project as well as the low severity of the potential impacts, it is considered unlikely that the Project will lead to a long-term decrease in the size of a population of *Neophema chrysogaster.*

b) reduce the area of occupancy of the species

Neophema chrysogaster breeds in the south-west of Tasmania and migrates in autumn to spend the winter on the mainland coast of south-eastern South Australia and southern Victoria. There are occasional reports from NSW, with the most recent records from Shellharbour and Maroubra in May 2003 (DEC 2005). Given the existing condition of the weedy grasslands in the footprint, the limited records of the species in NSW, and that the species breeds in Tasmania only it is considered unlikely that works associated with the Project would further reduce the area of occupancy of *Neophema chrysogaster.*

c) fragment an existing population into two or more populations

Given the majority of the species records in NSW are historical and only a few recent records have been made around Sydney, it is unlikely that a large population of the species occurs in the Sydney metro CMA area. Given this, it is considered unlikely that any the Project would result in the fragmentation of an existing population into two or more populations.

d) adversely affect habitat critical to the survival of a species

Not applicable. No Critical habitat is listed on the register of Critical Habitat kept by the Director-General, DECCW or DII within the project area. To date, no critical habitat has been declared for this species within NSW.

e) disrupt the breeding cycle of a population

Given the species breeds in Tasmania only, the Project will not disrupt the breeding cycle of *Neophema chrysogaster* that occur in the Sydney Metro CMA area.

f) modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

Given the existing condition of the weedy grasslands within the footprint, the low severity of the potential impacts to habitat, the limited records of *Neophema chrysogaster,* and the migratory behaviour of the species, it is considered unlikely that works associated with the Project would modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.

g) result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat

The species is known to be threatened by invasive species such as foxes, wild dogs and feral cats. Foxes, feral cats and domestic cats are likely to be present in the ecological study area, however the Project is not likely to aggravate populations of these invasive species. Further, the limited records of the species in the area, it is considered unlikely that the Project would result in invasive species that are harmful to *Neophema chrysogaster* becoming further established in the species habitat.

h) introduce disease that may cause the species to decline, or

Neophema chrysogaster is known to be susceptible to Psittacine Beak and Feather Disease *Psittacine Circoviral* which is an infectious and potentially fatal disease that is common in Australian parrots (DEH, 2005). Whilst the disease is known to spread in the wild, the Project is unlikely to exacerbate the spread of the disease. The Project is considered unlikely to introduce any diseases that may cause *Neophema chrysogaster* to decline.

i) interfere with the recovery of the species.

Orange Bellied Parrot Team (2006) have released a recovery plan which sets out six specific recovery actions for *Neophema chrysogaster*. The following is relevant to the current project:

- Habitat enhancement and protection.

Some potential foraging habitat exists for the species in the footprint. Given the existing disturbances in the footprint and the small discreet nature of the Project works, it is considered unlikely that the Project would have a significant impact on any known populations or their habtiat of *Neophema chrysogaster*.

Conclusion

The significant impact criteria assessment concludes that the Project does not have the potential to significantly impact *Neophema chrysogaster.* As such, a referral to the Minister has not been completed. A number of measures are recommended in **Chapter 8** of the **EA** to ameliorate the degree of impact to ensure that biodiversity values within the ecological study area are maintained or improved.

References

DEC 2005a, *Orange-bellied Parrot– profile* http://www.threatenedspecies.environment.nsw.gov.au/tsprofile Accessed 07/01/2011.

DEH 2005, Threat Abatement Plan for Beak and Feather Disease Affecting Endangered Species, Department of Environment and Heritage, http://www.environment.gov.au/biodiversity/threatened/publications/tap/pubs/beak-feather-tap.pdf Accessed 07/01/11.

DEWHA 2009, EPBC Act Policy Statement 1.1 Significant Impact Guidelines. Matters of National Environmental Significance. Commonwealth of Australia.

Orange-bellied Parrot Recovery Team (2006), National Recovery Plan for the Orange-bellied Parrot (*Neophema chrysogaster),* Department of Primary Industries and Water (DPIW), Hobart.

1.2 Flora

1.2.1 Sunshine Wattle (Acacia terminalis subsp. terminalis)

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

a) lead to a long-term decrease in the size of an important population of a species

A number of records of specimens of *Acacia terminalis subsp. terminalis* (Vulnerable, EPBC Act; Vulnerable, TSC Act) are located to close vicinity to the Banksmeadow Terminal. Although the species is known to occur in disturbed areas, no individuals were identified in areas targeted in and around the footprint areas. Given this, it is unlikely that Project will have an lead to the long-term decrease in the size of important population of the species in the locality.

b) reduce the area of occupancy of an important population

The known locations of this species have been mapped on the Atlas of NSW Wildlife (**Figure 8-2a**). The Project avoids all mapped locations.

Since *A.t.terminalis* was not located during field surveys conducted within the footprint, the proposed action is not considered likely to reduce the overall area of occupancy of an important population as there should not be any clearing of the species.

c) fragment an existing important population into two or more populations

A.t.terminalis is has a very limited distribution, mainly in near-coastal areas from the northern shores of Sydney Harbour to Botany Bay (DEC 2005). Given no specimens of the species were identified during survey and none of these populations are located within the footprint; it is unlikely that the Project will result in any populations being fragmented.

d) adversely affect habitat critical to the survival of a species

Not applicable. No Critical habitat is listed on the register of Critical Habitat kept by the Director-General, DECCW or DII within the project area. To date, no critical habitat has been declared for this species.

e) disrupt the breeding cycle of an important population

Given no specimens were identified during survey and only a small area of potential habitat will be temporarily cleared for the upgrade of the KBL pipeline there should be no disruption to the breeding cycle of the populations of the species in the locality.

f) modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline

As the known locations of *A.t.terminalis* are outside of the footprint and that only a small area of potential habitat will be temporarily cleared for the upgrade of the KBL pipeline, it is considered very unlikely that potential habitat for this species will be removed or modified to the extent that the species is likely to decline.

g) result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat

This species is known to be threatened by weed invasions. However given no specimens were observed within the footprint and a weed management plan will be adopted during the Project works it is unlikely that the Project will result in invasive species that are harmful to the species becoming established in available habitat adjacent to the footprint.

h) introduce disease that may cause the species to decline, or

Infection of native plants with *Phytophthora cinnamomi* has been listed as a Key Threatening Process under State (TSC Act) and Commonwealth legislation (EPBC Act). It is not known whether *A.t.terminalis* is susceptible to *P. cinnamomi*. However, even if it is not susceptible to direct attack, the subspecies will potentially be affected by habitat degradation should the vegetation at a site become infected with the pathogen and experience dieback. *P. cinnamomi* disperses independently through very moist but well aerated soil and can also be dispersed by vehicle movement if infected soils are attached. Given that the known specimens are located is close proximity to the footprint, there is some risk that habitat around the specimens may become infected with the fungus is transported by vehicle movement during the construction phase. However, if wash-down protocols are adopted (as detailed in **Chapter 8** of the **EA**), the Project is unlikely to introduce this infection to cause the decline of this species.

i) interfere substantially with the recovery of the species.

DECCW (2010) have released a draft recovery plan for *A.t.terminalis* with five primary recovery strategies. Of these two are relevant to the Project:

- Continued survey to identify specimens; and
- To identify and minimise the threats operating at sites where *A.t.terminalis* occurs.

Given a targeted field survey for this species was undertaken within the footprint of the Project it is unlikely this species occurs within it. As long as the proposed mitigation measures are adopted no threats are likely to impact the known specimen in close proximity to the Project. As such, the proposed works will not interfere with the recovery of this species, as no known individuals will be impacted, nor will any known habitat.

Conclusion

The significant impact criteria assessment concludes that the Project is not likely to significantly impact *A.t.terminalis.* As such, a referral to the Minister is not required. A number of measures are recommended in **Chapter 8** of the **EA** to ameliorate the degree of impact to ensure that biodiversity values within the Project area are maintained or improved.

References

DECC (2005) *Acacia terminalis subsp. terminalis- profile*, Department of Environment and Conservation, @ http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10028 Accessed 07/01/11.

DECCW (2008) *Acacia terminalis subsp. terminalis* - vulnerable species listing http://www.environment.nsw.gov.au/determinations/AcaciaTerminalisEndSpListing.htm Accessed 07/01/11.

Department of the Environment, Water, Heritage and the Arts (2009). EPBC Act Policy Statement 1.1 Significant Impact Guidelines. Matters of National Environmental Significance. Commonwealth of Australia.

DECCW 2010, *National Recovery Plan Acacia terminalis subsp. terminalis (Sunshine Wattle),* Department of Environment, Climate Change and Water @ http://www.environment.gov.au/biodiversity/threatened/publications/recovery/pubs/acacia-terminalis-terminalis.pdf Accessed 07/01/11.

Appendix B8

Species List (Flora)

Appendix B8 - Species List (Flora)

Common Name	Scientific Name
Q1: WETLAND - Swamp Oak Forest	
Coast Banksia	*Banksia integrifolia*
Lantana	*Lantana camara*
Native Wandering Jew	*Commelina cyanea*
Wandering Jew	*Commelina sp.*
Camphor Laurel	*Cinnamomum camphora*
Giant Reed	*Arundo donax*
Southern Cattail	*Typha domingensis*
Bul Rush	*Typha orientalis*
Tree of Heaven	*Ailanthus altissima*
Sydney Golden Wattle	*Acacia longifolia subsp. sophorae*
Rainbow Fern	*Calochlaena dubia*
Swamp she-oak	*Casuarina glauca*
Blackberry	*Rubus sp.*
Gotu Kola	*Centella asiatica*
Native Hollyhock Tree	*Hibiscus splendens*
Bleeding Heart	*Homalanthus populifolius*
Bracken	*Pteridium esculentum*
Tall Sedge	*Carex appressa*
Green cestrum	*Cestrum parqui*
Australian panic grass	*Entolasia marginata*
Q2: NEW PIPE PUMPING STATION	
Swamp she-oak (dead)	*Casuarina glauca*
Spear grass (dessicated)	*Austrostipa sp.*
Fireweed	*Senecio madagascariensis*
Q3: PIPELINE EASEMENT - Modified Pasture/Exotic	
African Love Grass	*Eragrostis curvula*
Lamb's Tongues, Plantain	*Plantago lanceolata*
	Plantago varia
	Pimelea latifolia
Weeping Grass	*Microlaena stipoides*
Spear Thistle	*Cirsium vulgare*
	Oxalis sp
White Clover	*Trifolium repens*
White Root	*Pratia purpurascens*
Tall Fescue	*Festuca arundinacea*
Sweet Vernal Grass	*Anthoxanthum odoratum*
Field Mustard, Turnip	*Brassica rapa*
St Barnabys Thistle	*Centaurea solstitialis*
Cape Weed	*Arctotheca calendula*
Indian Pennywort, Gotu Cola	*Centella asiatica*
Q4: BEACH FRONT - Coastal Banksia / Acacia Scrib (Planted)	
Swamp she-oak	*Casuarina glauca*
Wild Oats	*Avenua fatua*
Coastal Rosemary	*Westringia fruticosa*
Spiny-headed Mat-rush, Honey Reed	*Lomandra longifolia*
Cape Weed	*Arctotheca calendula*
Yellow Hawkweed	*Tolpis barbata*
Pigface, Iceplant	*Carpobrotus glaucescens*
Bitou Bush, Boneseed	*Chrysanthemoides monilifera*
Coast Banksia	*Banksia integrifolia*
Coast Teatree	*Leptospermum laevigatum*
	Hydrocotyle bonariensis
	Melanthera biflora
Water Hyacinth	*Eichbornia crassipes*
Asparagus Fern	*Asparagus scandens*

Appendix B9

Species List (Fauna)

Appendix 9 - Species List (Fauna)

Common Name	Scientific Name
BIRD TRANSECT 1 - Section 1 (Beach Front)	
Masked Lapwing	*Vanellus miles*
Australian Raven	*Corvus coronoides*
Crested Pigeon	*Ocyphaps (Geophaps) lophotes*
Indian Myna	*Acridotheres tristis*
Silver Gull	*Chroicocephalus novaehollandiae*
Red Wattlebird	*Anthochaera carunculata*
Pee Wee	*Grallina cyanoleuca*
Rainbow Lorikeet	*Trichoglossus haematodus*
Common Koel	*Eudynamys scolopacea*
Yellow-faced Honeyeater	*Lichenostomus chrysops*
Variegated Fairy-wren	*Malurus lamberti*
Little Wattlebird	*Anthochaera chrysoptera*
Welcome Swallow	*Hirundo neoxena*
Noisy Miner	*Manorina melanocephala*
House/Common Sparrow	*Passer domesticus*
BIRD TRANSECT 2 - Section 2 (Pipeline Easement)	
Pied Currawong	*Strepera graculina*
Masked Lapwing	*Vanellus miles*
Australian Magpie	*Gymnorhina tibicen*
House/Common Sparrow	*Passer domesticus*
Rainbow Lorikeet	*Trichoglossus haematodus*
Indian Myna	*Acridotheres tristis*
BIRD TRANSECT 3 - (Wetland)	
Rufus Whistler	*Pachycephala rufiventris*
Eastern Whipbird	*Psophodes olivaceus*
Variegated Fairy-wren	*Malurus lamberti*
Silvery eye	*Zosterops lateralis*
Striated Thornbill	*Acanthiza lineata*
Superb Fairy-wren	*Malurus cyaneus*