



WYONG SHIRE COUNCIL

**WYONG SHIRE COUNCIL
ORDINARY MEETING
ENCLOSURES**

Wednesday, 23 September, 2009

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WYONG SHIRE COUNCIL
ENCLOSURES TO THE
ORDINARY MEETING
TO BE HELD IN THE COUNCIL CHAMBER,
WYONG CIVIC CENTRE, HELY STREET, WYONG
ON WEDNESDAY, 23 SEPTEMBER 2009 ,
COMMENCING AT 5:00:00 PM

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DCP No.

112

Wyong

Public Art

Draft Development Control Plan

This Development Control Plan (DCP) may be amended from time to time by Council. Proposed amendments are required to be advertised and exhibited in draft form and any submissions received must be considered by Council before the amended plan is adopted. People using this DCP should ensure that they have the current copy of the plan, including any amendments. If in doubt, please check with Council's Customer Service Centre.

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| Adopted as per Council Resolution Dated: | |
| Effective: | |
| Certified in accordance with the Environmental Planning and Assessment Act 1979 and Regulations | General Manager: |
| | Dated: |

Date of commencement:

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1.0 INTRODUCTION

1.1 Preamble

Public Art refers to those creative and original works sited in public places, or locations visible from the public domain, and which have the intention of integrating a development into the cultural or environmental context in which it is situated. Public art can encompass a wide range of art forms and mediums including free standing sculpture, custom designed furniture, lighting, interpretive components, kinetic works, gateways, walk-through installations and facade treatments.

Local government is progressively more involved in implementing requirements to ensure major commercial development contributes to the variety of public art work in the public domain. As major commercial development can include significant portions of public domain this type of development has the potential to integrate public art into its design and effectively amalgamate development into the environment in which it is situated.

The redevelopment of The Entrance Main Street, The Entrance Foreshore, Toukley Village Green and Swadling Park are examples of how public art can achieve or contribute to an active and vibrant public domain. Photographic examples are included in appendix A which demonstrate the ways in which public art enriches people's lives and increases their engagement with the arts, and the ability of public art to provide a meaningful contribution to the built environment.

Effective public art will be unique in the way it both reflects and contributes to the distinctive identity of an area. This is achieved through interpretation of the immediate environment and prominent local characteristics.

This DCP Chapter recognises that public art is varied and consists of different forms depending on the multiple identities of an area or community. Wyong Shire Council's Public Art Policy and subsequent DCP Chapter places a high value on public art that is site specific, innovative and integrated into current or future urban design themes.

1.2 Land and development covered by this plan

This plan is called "Development Control Plan 2005, Chapter 112 – Public Art" which may be abbreviated to "DCP Chapter 112".

This plan applies to **major commercial development** as defined in this DCP Chapter. Public art referred to in this plan will generally be located within the curtilage of the site of the major commercial development. Consideration may be given to locating public art within publicly owned land providing the requirements of this plan are satisfied and public liability and ongoing maintenance matters are addressed to the satisfaction of the PAAG and Council Officers.

1.3 Relationship to Section 94 Contribution Fees and other Levies

Developer funds toward the Public Art Budget will not be collected as a section 94 contribution under the *Environmental Planning and Assessment Act, 1979* or other levy. Developer funds toward the Public Art Budget are to be dedicated, as part of the overall development budget, to the engagement by the developer of the artist and public art coordinator or verified project manager to undertake planning, design, development and installation of a public artwork.

1.4 Aims and Objectives

This plan aims to:

- a Provide guidelines to enable major commercial development to contribute to public art within the Shire.
- b Prescribe requirements for the provision of public art within major commercial developments valued at \$5M or more and to ensure that these developments provide financial allocation towards public art.
- c Include public art within major commercial developments so as to better integrate development into the environmental and cultural aspects of a locality and ensure major commercial development contributes positively to the streetscape.
- d Involve public art as an integral part of the development process for major commercial development, and encourage communication between developers, artists and design professionals in order to achieve a multi disciplinary team based approach to the provision of public art.
- e Support economic development and the creation of opportunities for creative industries within the Shire through an improvement of the built environment and public domain.
- f Ensure public art follows design and concept criteria appropriate to the Shire through the provision of conceptual considerations detailed in section 3.1 of this DCP.
- g Provide more possibilities for residents and visitors to the Shire to participate in and view the arts as a part of their lives.
- h Promote the integration of economic, social and ecological sustainability principles into development in order to encourage vibrant and liveable communities, facilitate economic development and prosperity, and provide for the future health of the local environment.

1.5 Application

In accordance with Section 74C of the Environmental Planning and Assessment Act 1979 (the EP&A Act) this Development Control Plan (DCP) Chapter is generally consistent with the provisions of the Wyong Local Environment Plan 1991 (WLEP 1991). It is also generally consistent with the Model Provisions of the EP&A Act.

Where there is an inconsistency between the provisions of this DCP Chapter and any other DCP Chapter, the provisions of this DCP Chapter shall apply.

In certain circumstances, this Chapter will need to be read in conjunction with applicable State Environmental Planning Policies (SEPPs), Regional Environmental Plans (REPs) and other legislation.

This DCP Chapter should be read in conjunction with the relevant supporting documents which include the *Wyong Shire Council Public Art Policy and Implementation Plan, Volume 1 2007* available at http://www.wyong.nsw.gov.au/communities/Public_Art_Policy_160409.pdf and the *Public Art Guidelines* which provide additional information relating to the installation of public art; these are available at Council's Customer Service Centre.

1.6 Definitions

Artist Verification Statement refers to a document signed by the commissioned artist which verifies that the artist is satisfied with the final design concept in regard to the proposed integration of the artwork into the subject site.

Certificate of Completion refers to a document signed by the commissioned artist which verifies that the public artwork has been completed and installed on site.

Commercial Development refers to any building or place used for commercial purposes as defined by the Wyong Local Environmental Plan 1991.

Council refers to Wyong Shire Council.

Development Cost refers to the total financial cost to the applicant of a proposed development excluding the cost of land and associated holding costs. This includes the planning and project management of the development.

Kinetic Works refers to art that utilises movement in that it contains moving parts or depends on motion for its effect.

Major Commercial Development refers to commercial development valued at \$5 Million or greater in terms of total development cost.

Prequalified List refers to a public register of self nominated Public Art Project Managers who have been assessed by Wyong Shire Council to satisfy the public art project manager criteria. The Prequalified Public Art Project Managers List is available from Council's Website.

Public Art means creative and original works sited in public places, or locations visible from the public domain, with the intention of integrating a development into the cultural or environmental context in which it is situated.

Public Art Advisory Group is a group established by Wyong Shire Council as a result of the adopted Public Art Policy and Implementation Plan, who provide reporting and advice to Council on proposed public artworks.

Public Art Budget is the total financial allocation towards a public artwork, which includes any coordination costs, community engagement, artist fees and the cost of materials and construction and excludes the cost of land where upon public art is located.

Public Art Coordinator is a specialist role responsible for the planning, management and reporting of the proposal. This can be selected from Council's prequalified list, or an unregistered coordinator can be utilised who meets the requirements of the role.

Public Art Masterplan is the documentation submitted with the development application which includes the identification of a Public Art Coordinator and Project Artist(s), summarises research, site assessment, art concept development and artwork location(s), reporting of proposed conceptual design including fabrication techniques and materials, consistency with Appendix A, and relevance of the concept to the site and surrounding area.

Public Domain refers to any permanent or temporary space, whether publicly or privately owned, that can be accessed and used by the public and/or is publicly visible.

Site Specific in reference to public art, denotes original art work that is developed and design specifically in response to, and for location in, a particular site. Artwork that is of a generic design and has not been developed in response to the specific site is not considered to comply with this definition.

Verified Project Manager refers to a project manager who has demonstrated skills, experience and ability that enables them to also take the role of a Public Art Coordinator.

1.7 Other Development Controls in Wyong Shire Council Development Control Plan 2005

There are a number of Chapters in Wyong Shire Development Control Plan (DCP) 2005 which apply to specific locations or precincts. Many of those controls will continue to apply to development affected by this DCP Chapter. Specific development provisions in DCP 2005 will continue to apply, in particular, Chapter 7 – Wyong Town Centre, Chapter 50 – Advertising Signs, Chapter 67 – Engineering Requirements for Development, Chapter 76 – Conservation of the Built Environment and Chapter 99 – Building Lines. Council's DCP 2005 is available at: www.wyongsc.nsw.gov.au/development/dcp_index.htm

2.0 PUBLIC ART DEVELOPMENT REQUIREMENTS

Public art provides scope for integration between major commercial developments and the community, culture and environment in which they are constructed, as well as for major commercial developments to enhance their distinctiveness through a unique and quality design interface. The procedure below sets out the application process and the information required by Council for the public art component of major commercial development.

2.1 Commercial Development Requirements

2.1.1 Major Commercial Development

- a Major commercial developments valued at \$5M or greater must implement public art as part of the development with a *minimum* of 1% of the total cost of the development to be designated to the public art budget. Funds toward the Public Art Budget remain part of the Proponents overall development budget for the engagement by the developer of the artist and public art coordinator or verified project manager to undertake planning, design, development and management of a public artwork. Developments valued at \$5M or more will therefore require a minimum of \$50,000 to be utilised for public artwork.
- b The public artwork is to be generally located within the curtilage of the development site proposed for the major commercial development except where the developer has entered into a mutual agreement with Council to provide the public artwork on public land, and where the provision of public art on public land is consistent with the requirements of DCP Chapter 112.
- c Applicants must engage a Public Art Coordinator or verified project manager responsible for the planning, management and reporting of the public art.
- d Consultation and pre-lodgement discussions with Council staff are recommended to ensure that any issues are resolved at the earliest date possible. These pre-lodgement discussions can also assist by verifying the qualifications of the project manager who may not be pre-approved on the Council register for public art coordinators.

2.1.2 Provisions for Mixed-Use Development

Where any commercial portion of a mixed-use development exceeds \$5M the requirements of this DCP Chapter shall apply.

2.1.3 Preliminary Application Requirements

The applicant is encouraged to submit a preliminary application for the public art component of the major commercial development prior to lodgement of a development application. Preliminary applications for major commercial developments should include the following:

- Identification of the public art coordinator or verified project manager.
- Preliminary schematics for the public artwork which can include sketches, montages, digital renditions or other suitable concept schematics
- The anticipated public art budget and necessary quotations.
- A preliminary description of the proposed public artwork including potential materials to be used and a brief explanation as to the intention of the artwork and sensitivity to existing urban design qualities.

2.1.4 Development Application Requirements

- a Development applications for major commercial developments are required to include the following:
- Identification of the public art coordinator or verified project manager.
 - A description of the proposed public artwork including materials to be used.
 - The location of the artwork within the subject site and dimension details (height, width etc).
 - Justification as to how the proposed artwork satisfies section 3.1 of this DCP.
 - A description as to how the proposed artwork integrates into the site and surrounds, the development intention of the artwork and sensitivity to existing urban design qualities.
 - Where development is located in an area of natural, cultural, or economic significance, the applicant must demonstrate how the public artwork is responsive to these attributes.
 - Where development is located within an identified gateway site under Council's DCP 2005 the public artwork should be consistent with the objectives and design themes of the relevant DCP Chapter. The applicant is to demonstrate how this is achieved.
 - Research and consultation documentation undertaken throughout the concept development process for the artwork.
 - The anticipated public art budget and necessary quotations.
 - An Artist Verification Statement which provides evidence that the artist has viewed all documentation to be submitted as part of the development application and is satisfied that the submitted documentation is consistent with the final design concept of the artwork.
- b The design concept along with the Masterplan for the public artwork is to be submitted as part of the development application and referred through the Public Art Advisory Group (PAAG) process – refer to Wyong Shire Council PAAG Operational Framework available on Council's website for a detailed outline of the PAAG process.
- c The final design concept must be approved by the PAAG prior to issue of the initial Construction Certificate for the major commercial development.
- d The public artwork is to be constructed and installed prior to release of an Occupation Certificate for the development.
- e A Certificate of Completion is to be signed by the artist and submitted to Council prior to the release of an Occupation Certificate.

2.1.5 Public Art Budget

- a The Public Art Budget includes the total financial allocation towards a public artwork. This can include all pre-lodgement investigations, design advice, community engagement, coordination costs, artist fees, cost of material, and construction costs but excludes the cost of land where upon the public artwork is located.
- b Public Art can be incorporated into the design features of a building. The finances allocated toward the construction of a building can be included into the public art budget if this component is demonstrated to be public art. The artwork may serve a dual role of providing effective public domain services such as lighting or shading, provided the work is consistent with the objectives and definitions of this DCP Chapter and its appendices. Council will exercise discretion as the determining authority in regards to whether the design concepts proposed as 'public artwork' satisfy the requirements contained within this DCP Chapter.

2.1.6 Procedure for including Public Artwork within Major Commercial Development

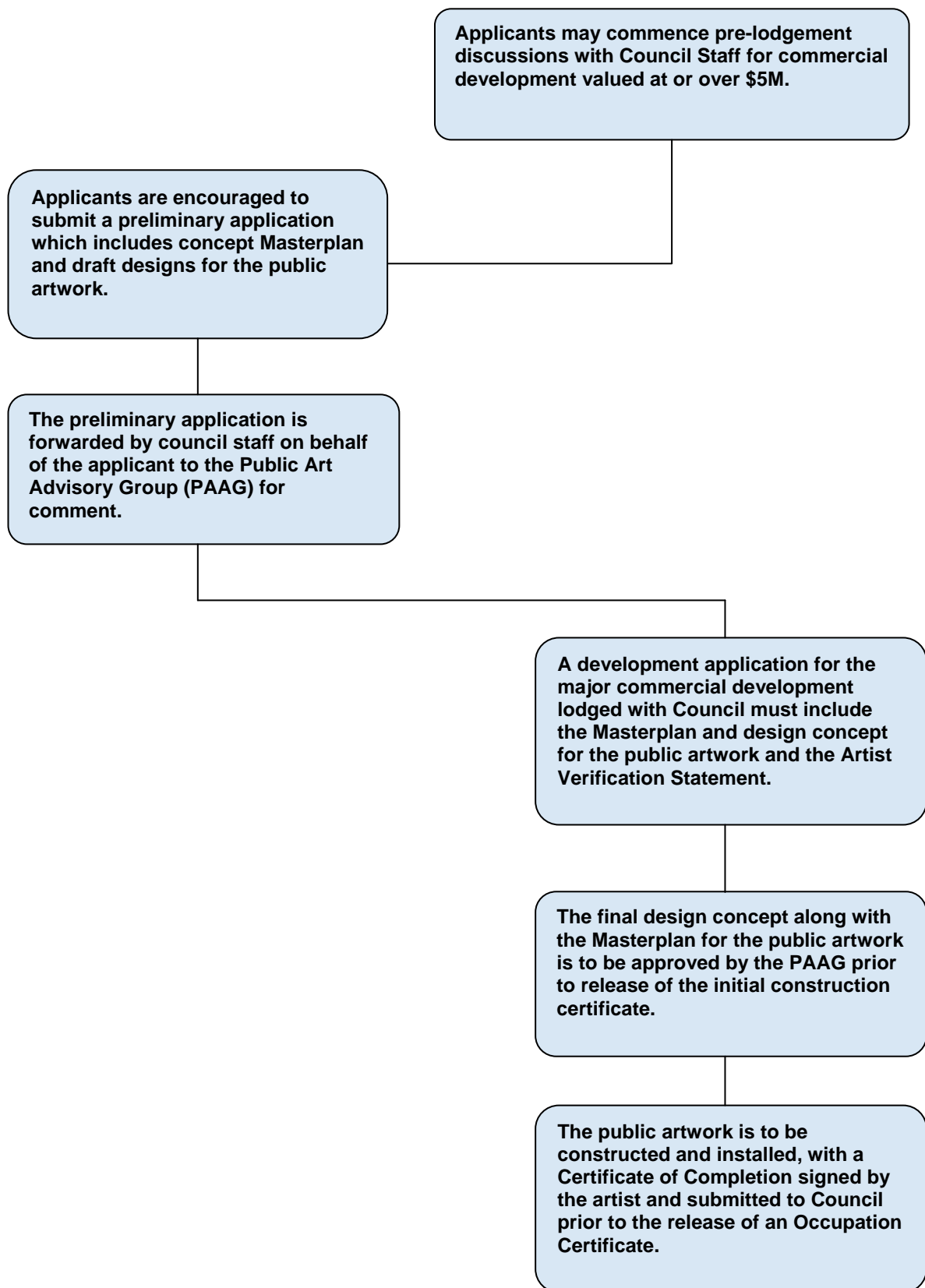


Figure 1: Procedure for installing Public Artwork

3.0 PUBLIC ART CONCEPTUAL CONSIDERATIONS

3.1 Conceptual Relevance to the Wyong Shire

High quality public art has the potential to contribute to the daily experiences of residents and visitors through the interpretation of local culture and heritage, and other social and environmental factors. The conceptual considerations listed below are largely informed by the *Public Art Policy and Implementation Plan 2008*, a policy document which underpins this DCP Chapter.

- a To ensure public art is effectively integrated into its context the concept and design of proposed artworks must consider, where relevant, the following:
- **History** - the many layers of history and contemporary culture which make any location or place within the Shire rich with content.
 - **Culture** - modern society and its wide-ranging impacts on how different social and cultural groups within the Shire understand their place in the world.
 - **Environment** - the qualities of coastal and hinterland landscape, natural light, topography and local flora and fauna within the locality.
 - **Urban Form** - existing urban character and desired future character of the area as well as site specific characteristics.
 - **Sustainability** - the increasing role of government and community in the movement toward a sustainable future.

APPENDICES

A Photographic Examples

The following photographic examples of Public Artworks are indicative of different public art typologies which have been successfully developed in response to a specific site. These examples must be taken as indicative only and are not to be used as exact requirements or reproduced in any way. While the examples provided here do not cover the breadth of artwork potentially available for use within major commercial developments, the following photos demonstrate how effective public art can enhance an area and streetscape.

Multi-media Installation

Commissioning Body: *Museum of Sydney*

Artist: *Fiona Foley and Janet Laurence*

A site-specific piece commissioned for the forecourt of the Museum of Sydney at its opening in 1995. The installation includes 29 sandstone pillars, and wood and steel materials which are arranged as a walk-through installation and entrance statement to the museum.

The pillars symbolise the 29 Aboriginal clans from around Sydney. And include wooden pillars from trees once grown in the area that have been recycled from demolished industrial buildings of Sydney. The work is an example of how public art can provide meaning by connecting modern localities to their cultural heritage.



Figure 2: 'The edge of Trees'



Figure 3: 'The edge of Trees'



Figure 4: 'The edge of Trees'

Ceramic Mural

Commissioning Body: Marrickville City Council

Artist: Luis Geraldes

This mural was commissioned for placement opposite a Petersham café and restaurant strip frequented by many residents of migrant heritage, especially Portuguese.



Figure 5: Ceramic Mural



Figure 6: Ceramic Mural



Figure 7: Shop Front opposite Ceramic Mural



Figure 8: Ceramic Mural

The mural was commissioned to commemorate the visit in 2002 to Marrickville of the Portuguese President and provides a definite identity to the street and is viewable from the shops opposite.

Custom Streetscape Fencing

Commissioning Body: *Unknown*

Artist: *Unknown*

Located along a restaurant and café strip and opposite the beach at Brighton Le-Sands, Sydney, this work sets the theme of food, eating and enjoyment, providing a less formal boundary between the footpath and road for pedestrians and motorists. It marks the area as a unique place and destination and as a place to remember.



Figure 9: Streetscape Custom Fencing



Figure 10: Streetscape Custom Fencing

Integrated Custom Pathway

Commissioning Body: *Wyong Shire Council*

Artist: *Margrete Erling*

Pavement artwork for forecourt area. This artwork provides an example of how public art can be integrated into a site and perform a dual role for the development.



Figure 11: Integrated Custom Pathway

Heritage Installation / Gateway

Commissioning Body: *City of Canterbury*

Artist: *Unknown*



Figure 12: Heritage Installation/ Gateway *Figure 13: Heritage Installation/Gateway*

As part of the City of Canterbury Heritage Program an unknown artist was commissioned to develop public art at Mary McKillop Reserve. The works resulted in the creation of an entranceway and resting place utilising custom designed components and interpretive signage, setting the name and theme for a reserve whilst also being part of a 'heritage walk'.



Figure 14: Heritage Installation/ Gateway

Façade Treatment

Commissioning Body: *Unknown*

Artist: *Unknown*

Façade treatments provide an opportunity to integrate public art as an architectural feature of a development which offers visual interest to a site. Treatments can also function as a street corridor which affords a unique identity to the streetscape and provides diversity in built form.



Figure 15: Façade Treatment

Custom Designed Utilities

Commissioning Body: *Unknown*

Artist: *Unknown*

This bicycle stand at Canterbury Station provides a creative solution to a functional community utility.



Figure 16: Custom Designed Utility

Single Sculpture

Commissioning Body: City of Sydney

Artist: Simeon Nelson

A sculpture located at Chifley Tower Forecourt, constructed in 1997. The work provides an example of how public art can adequately integrate with the character of a locality; the sculpture provides a marker that is representative of the business, commerce and political heritage themes within the area.



Figure 17: Single Sculpture

Interactive Sculpture

Commissioning Body: GPT

Artist: Unknown

An interactive sculptural feature to provide play and an interactive educational experience for visitors and residents. The artwork has been themed on the areas local heritage of market gardens.



Figure 18: Interactive Sculpture

Artist and Resident Collaboration



Figure 19: Artist and Resident Collaboration

Commissioning Body:
Wyong Shire Council

Artist: Vicki Sienczuk
Building frontage markers developed through a collaborative process involving a professional artist and local community members at Woodbury Park Community Centre, Mardi.

Custom Designed Garden-Bed Retainer



Figure 20: Custom Designed Garden-Bed Retainer

Commissioning Body: *GPT*

Artist: Unknown
Mosaic garden-bed retainers located within Rouse Hill Town Centre. These custom designed structures have been integrated into a plaza area to create a distinct sense of place whilst also functioning as space dividers and alternate seating.

Mural Graphic

Commissioning Body: *Unknown*

Artist: *Unknown*

A large scale painted mural on a business premises provides visual interest and graphically communicates the use of the building as a bike enthusiast's café and shop.



Figure 21: Mural Graphic


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Mardi to Mangrove Link Project Determination Report

Wyong Shire Council

3 September 2009
Reference 40530
Revision 1

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Summary

This Determination Report has been prepared to assist Council in its consideration of the proposed Mardi to Mangrove Link, specifically with the purpose of fulfilling the following objectives:

- to provide an overview of the Proposal as described in the Review of Environmental Factors (REF), and to confirm the statutory process applicable to the determination of the Proposal
- to provide consideration of the issues raised in representations (submissions)
- to document and consider additional information which has bearing on the determination of the Proposal
- to develop recommended conditions of approval as considered appropriate for adoption by Council should it determine to proceed with the Proposal.

A number of conditions have been developed to provide additional certainty with respect to the mitigation or management of specific issues. These recommended conditions of approval are provided as follows and in Section 6.2. These are based on Aurecon's consideration of the representations made to Wyong Shire Council from the exhibition of the REF, the REF prepared by GHD (June 2009) and information provided by the applicant during preparation of the Determination Report.

It should be noted that the REF contains information on impact mitigation measures and management strategies to be implemented to ameliorate the impacts of the Proposal. It is intended that the recommended approval conditions be implemented in accordance with those impact mitigation measures and management strategies. This is addressed through Recommended Condition of Approval 1.

Recommended Conditions of Approval

General

1. Except as expressly provided by the conditions below, the Mardi to Mangrove Pipeline Link shall be designed, constructed and operated in accordance with:
 - i) the REF Review of Environmental Factors for the Mardi to Mangrove Link Project, dated June 2009, prepared for Wyong Shire Council by GHD
 - ii) all identified procedures, safeguards and mitigation measures identified in the REF except where amended in this determination report.
2. These conditions do not relieve Council of the obligation to obtain all other necessary approvals, licences or permits required under any other Act. Without affecting the generality of the foregoing, Council shall comply with the terms and conditions of such approvals, licences and permits.

Construction environmental management plan

3. Prior to the commencement of construction works (including site establishment works preceding commencement of substantial construction), Council shall prepare a construction environmental management plan (CEMP). The plan shall be prepared in consultation with relevant government agencies and public authorities, and any other relevant party. The plan shall be prepared in accordance with these approval conditions, the relevant recommended mitigation measures listed in Chapters 5 to 18 inclusive of the REF, all relevant Acts and Regulations, and accepted environmental management best practice.
4. The CEMP shall address, but not be limited to, the following matters:
 - (i) consultation requirements with relevant government agencies, public authorities and other stakeholders;

- (ii) specific environmental management objectives and strategies for the main environmental management elements and include, but not be limited to: water quality; noise and vibration; air quality/odours; erosion and sedimentation; heritage and archaeology; groundwater; contamination; waste/resource management; flora and fauna; weed control; hydrology and flooding; geotechnical issues; visual screening, landscaping and rehabilitation; hazards and risks; energy use, resource use and recycling; and utilities;
 - (iii) identification of the statutory and other obligations which Council is required to fulfil during project construction including all approvals and consultation required from authorities and other stakeholders, and key legislation and policies which control construction of the project;
 - (iv) definition of the role, responsibility, authority, accountability and reporting of personnel relevant to the CEMP;
 - (v) measures to avoid and/or control the occurrence of environmental impacts;
 - (vi) measures (where practicable and cost effective) to provide positive environmental offsets to unavoidable environmental impacts;
 - (vii) environmental management procedures for all construction processes which are important for the quality of the environment in respect of permanent and/or temporary works;
 - (viii) monitoring, inspection, and test plans for activities and environmental qualities which are important to the environmental management of the project including performance criteria, specific tests, protocols (eg frequency and location) and procedures to follow; and
 - (ix) steps Council intends to take to ensure that all plans and procedures are being complied with.
5. The CEMP shall be made publicly available.
6. Site establishment works may commence prior to finalisation of the CEMP provided all matters relating to these works are explicitly identified in the CEMP and implemented strictly in accordance with the management measures specified in the CEMP. Under no circumstances shall substantial construction works commence until the CEMP is finalised.

Community notification

7. Throughout the construction phase, Council shall keep the local community informed of the progress of the project including any traffic disruptions and controls, construction of temporary detours, changes to local access, and any work required outside normal construction hours.

Contact telephone number and complaints register

8. Prior to the commencement of construction works, Council shall establish and publicly advertise a contact telephone number to operate for the duration of the construction period, to allow any member of the public to make a complaint or comment, or to seek information about the construction works. The contact telephone number shall be staffed during normal business hours. An initial response to any complaints received shall be provided within two working days and, where required, a more detailed response within 10 working days.
9. Details of any complaints received in relation to the proposed augmentation shall be recorded on Council's complaints register.

Flood risk and soils

10. As part of the CEMP, Council shall prepare a comprehensive soil and water management plan in accordance with the Department of Housing (and others) guideline Managing Urban Stormwater–Soils and Construction. The plan shall be prepared in consultation with relevant stakeholders, provide full details of all pollution control measures to be undertaken during construction, and satisfy all requirements for all necessary pollution control approvals and/or licences. The plan shall provide justification for the adopted level of flood protection with respect to the identified management controls.
11. Relevant information from the report Mangrove Rising Main. Concept Design Report. Report RP-045, prepared by GHD for Wyong Shire Council and dated March 2009, shall be taken into consideration in development of the erosion and sediment control plan
12. During construction, regular inspections of erosion and sedimentation control devices shall be undertaken to ensure that the most appropriate controls are being implemented and that they are being maintained in an efficient condition at all times.

Flora and fauna

13. Information relating to the incorporation of areas into the Streambank Rehabilitation Program should be made publicly available and subject to regular review at a minimum interval of 12 months.
14. No construction activities that could affect stands of *Melaleuca biconvexa* shall commence until the management plan or CEMP are finalised.
15. The issue of adequate consideration of offsetting shall be further investigated in accordance with the DECC offsetting principles. This shall include appropriate consultation with DECCW and be completed within 12 months of the date of Council's determination of the Proposal.
16. The assessment of potential impacts of the amended pipeline route shall be updated in accordance with the EPBC Act Significant Impact Guidelines and the information made publicly available.

Mangrove Creek Dam

17. The operational EMP (or its equivalent) shall provide specific details addressing management of the risk of inter-basin transfer of flora and fauna pest species. Development of the management strategy shall include appropriate consultation with relevant stakeholders.

Noise

18. Council shall prepare a construction noise management plan for inclusion in the CEMP which identifies practical and cost-effective noise abatement measures to be implemented. As far as practicable, the plan shall be consistent with the Interim Construction Noise Guideline.
19. During detailed design, a review of operational noise impacts shall be undertaken based on the final design of the facility to assess compliance with the applicable INP criteria for daytime, evening and night time noise levels.
20. Where construction work is required to be undertaken outside of the recommended hours, Council shall, where practicable, provide prior notification to affected residents. In the event of emergencies where this is not possible, notification shall be provided as soon as practicable.

Utilities and services

21. Management of potential impacts on utilities shall be addressed explicitly in the CEMP.

Aboriginal heritage

22. Management of potential impacts on Aboriginal heritage shall address all the matters identified in Attachment A to the DECCW letter to Council, dated 11 August 2009.

Explanation of acronyms and terms are used in recommended conditions of approval:

| | |
|----------|---|
| CEMP | construction environmental management plan |
| Council | Wyong Shire Council (or its authorised agent) |
| DECC | (former)Department of Environment and Climate Change |
| DECCW | Department of Environment, Climate Change and Water |
| INP | Industrial Noise Policy |
| Proposal | Mardi to Mangrove Link Project |

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Glossary

| Acronym | Definition |
|--------------------|--|
| DECCW ¹ | NSW Department of Environment, Climate Change and Water |
| DEWHA | Commonwealth Department of Water, Environment, Heritage and the Arts |
| EMP | Environmental management plan |
| EPBC Act | <i>Environment Protection and Biodiversity Conservation Act 1999</i> |
| EP&A Act | <i>Environmental Planning and Assessment Act 1979</i> |
| LEP | Local Environmental Plan |
| LGA | Local Government Area |
| NES | (Matter of) National Environmental Significance (under the EPBC Act) |
| POEO Act | <i>Protection of the Environment Operations Act 1997</i> |
| REF | Review of Environmental Factors |
| REP | Regional Environmental Plan |
| SEPP | State Environmental Planning Policies |
| SIS | Species Impact Statement |

- 1 During preparation of this report, the names of a number of NSW Government departments were changed including the Dept of Environment and Climate Change (DECC). Both acronyms may be used in this report and should be take to refer to the DECCW.

1. Introduction

1.1 Background to the Proposal

The Central Coast Water Supply currently supplies a population of 300,000 in the Gosford City and Wyong Shire Local Government Areas (LGAs). The majority of the Central Coast's town water supply comes from harvesting the flows from four major streams: Ourimbah Creek, Wyong River, Mangrove Creek and Mooney Creek.

Mooney and Mangrove Creek Dams are the major water storage facilities on the Central Coast. In particular, Mangrove Creek Dam has played a vital role in providing water during times of drought. Mardi Dam is a smaller dam with limited water storage capacity, however, its catchment benefits from higher rainfall than Mangrove Creek Dam's catchment.

The population growth rate on the Central Coast is increasing and it is predicted that the population will increase to 480,000 by the year 2050. This population pressure would place stress on the already struggling water system.

The purpose of the Mardi to Mangrove Link Proposal is to use Mangrove Creek Dam to store water obtained in periods of higher river flow for return to Mardi Dam when water levels in the storage are low. This would be achieved through:

- improved harvesting of water flows from the Wyong River
- storage of this water in Mardi Dam until its capacity is reached
- transfer of further 'surplus' water to Mangrove Creek Dam for storage
- return the stored water from Mangrove Creek Dam to Mardi Dam under gravity (and onwards to the Mardi Treatment Plant) when needed during drier periods.

The Proposal would help to satisfy the aims of WaterPlan 2050 which seeks to secure the Central Coast's water supply over the next four decades. The Proposal is an initiative of Gosford City and Wyong Shire Councils (which are in a working partnership through the Joint Water Authority). The Proposal has Australian Government Water Smart Program funding.

1.2 Purpose of this report

The Review of Environmental Factors (REF) for the Mardi to Mangrove Link Proposal prepared by GHD (June 2009) indicates that the assessment of the entire proposal falls under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Wyong Shire Council (WSC) is the proponent for the development (the Project) as well as a determining authority (approval body). The REF identifies (Table 2-1) the Department of Water and Energy as a potential determining authority in relation to the requirement for a water licence under Part 5 of the *Water Act 1912* concerning the interception of groundwater by the works.

The REF was placed on public exhibition from 1 July 2009 to 31 July 2009 (31 calendar days). It is noted that unlike an Environmental Impact Statement (EIS), there is no statutory requirement to place an REF on public exhibition. Similarly, there is no statutory obligation upon Council to consider any representations made to the REF exhibition in its determination of the Proposal.

In order to maintain transparency in the determination/approval process, Council engaged Aurecon to undertake an independent determination of the Proposal. This included developing recommended conditions of approval as considered appropriate for the Proposal.

This report has been prepared by Chris Masters and Belinda Crichton. Chris is Aurecon's NSW/ACT Environment Group Leader and has 15 years of professional experience in environmental assessment and environmental management in the public and private sectors, and eight years of professional experience in water resource management. He is the principal author of (or a significant contributor to) the following independent determination reports:

- Brunswick Area Sewerage Augmentation (Dept of Commerce/Byron Shire Council)
- Yamba Sewerage Augmentation (Dept of Commerce/Clarence Valley Council)
- Bangalow STP Augmentation and Effluent Reuse Scheme (Dept of Commerce/Byron Shire Council)
- Evans Head STP Augmentation (Richmond Valley Council)
- Iluka Sewerage Scheme (Dept of Commerce/Maclean Shire Council)
- Bowral Sewage Treatment Plant Augmentation (Wingecarribee Shire Council)
- Byron Sewerage Augmentation Dept of Public Works & Services/Byron Shire Council).

The commissions for the Yamba Sewerage Augmentation and the Byron Sewerage Augmentation also included a peer review of the associated Environmental Impact Statements.

Belinda is an Environmental Scientist located in Aurecon's NSW/ACT Water Group. She has over six years professional experience in the water industry. Belinda has experience in coastal, lake and river systems including environmental and hydraulic investigations, impact assessments, water quality studies, environmental data collection, analysis and interpretation.

This Determination Report will assist Council in its consideration of the Proposal. The report has the following specific objectives:

- to provide an overview of the Proposal as described in the REF, and to confirm the statutory process applicable to the determination of the Proposal
- to provide consideration of the issues raised in representations (submissions)
- to document and consider additional information which has bearing on the determination of the Proposal
- to develop recommended conditions of approval as considered appropriate for adoption by Council should it determine to proceed with the Proposal.

In preparing this report, Aurecon has sought clarification on specific issues raised in representations from the applicant and its technical advisors where it was considered insufficient information had been provided in the REF.

1.3 Structure of this report

This Determination Report has been structured as follows:

- Section 1 provides a discussion on the background and purpose of the Determination Report
- Section 2 reviews the statutory approvals process as described in the REF and makes clarifications and comment as considered appropriate
- Section 3 provides a description of the Proposal as provided in the REF together with consideration of the 'do nothing' option, and sustainability and climate change
- Section 4 provides a discussion of the representations made following the public exhibition of the REF and identifies key issues for consideration in the Determination Report

- Section 5 provides a detailed consideration of the substantive issues associated with the Proposal
- Section 6 provides a conclusion as to the adequacy of the assessment together with recommended conditions of approval arising from the consideration of the assessment undertaken for the Proposal for consideration by Council in its determination of the Proposal.

2. Statutory Approvals Process

As noted in Section 1, the Proposal is considered to fall under Part 5 of the EP&A Act. The statutory requirements relating to the proposed works are discussed in Section 2 of the REF. The following section reviews the statutory approvals process as described in the REF and provides comment where considered appropriate.

A statutory review prepared by Aurecon in March 2009 for Council discusses the requirements for statutory approvals and/or referrals under the EP&A Act and other applicable NSW or Commonwealth legislation. This review concurred with the opinion provided in the REF that the Proposal should be determined under Part 5 of the EP&A Act.

2.1 Local Environmental Plans

2.1.1 Wyong Local Environment Plan

The majority of works associated with the Proposal fall within the area covered by the *Wyong Local Environmental Plan 1991* (Wyong LEP). The REF indicates that the vast majority of the pipeline traverses Zone 1(a) *Rural*. The pipeline and rising main within the area referred to as Sector 1 in the REF would be constructed on land identified as Zone 5(a) *Special Uses*.

The Proposal constitutes 'utility undertakings' as outlined in Appendix A to the REF. Clause 24 of the LEP provides for development carried out by, or under the authority of Council, to require the consent of Council except as provided by clause 24(2) which identifies specific development that may be carried out without development consent. Clause 24(2)(b) is of relevance:

development which, in the opinion of the Council, constitutes minor extensions or improvements or maintenance of existing utility installations or a combination of those

The proposed works could be regarded as an improvement to an existing utility installation and therefore not require development consent.

It is noted that in the event that development consent was required, this would be overridden through the effect of the Infrastructure SEPP (refer Section 2.3.1).

2.1.2 Gosford Local Environmental Plan No. 22

The REF notes that the Boomerang Creek inlet/outlet structure, located in the Boomerang Creek arm of Mangrove Creek, is located within the Gosford LGA and accordingly falls under the *Gosford Local Environmental Plan No.22* (Gosford LEP). The REF notes that these works would be addressed in a separate planning approval process.

The Gosford LEP is therefore, not applicable to the Proposal and is not considered further in this report.

2.2 Regional Environmental Plans

2.2.1 Sydney Regional Environmental Plan No. 8 (Central Coast Plateau Areas)

Section 2.1.2 of the REF notes that the Proposal is located within the region covered by *Sydney Regional Environmental Plan No.8 (Central Coast Plateau Areas)* (Sydney REP8). Sydney REP8 is mainly concerned with development of prime agricultural land, development for the purposes of extractive industries and the clearing of land.

The REF indicates the Proposal is not considered to adversely impact prime agricultural land or be inconsistent with the objectives of Sydney REP8.

This interpretation is supported.

2.3 State Environmental Planning Policies

The REF identifies a number of State Environmental Planning Policies (SEPP) applicable to the Proposal. Appendix A to the REF provides a list of SEPPs made under the EP&A Act and considers their relevance to the project. The SEPPs considered relevant are discussed in Section 2.1.3 of the REF.

2.3.1 SEPP (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 ('the Infrastructure SEPP') aims to provide a consistent planning regime under the EP&A Act for the effective delivery of infrastructure.

Section 2.1.3 of the REF states that the Infrastructure SEPP permits development for the purpose of a 'water supply system' to be carried out by or on behalf of a public authority without consent on any land pursuant to clause 125 of the SEPP.

Clause 125(1) provides for development for the purpose of water reticulation systems may be carried out by or on behalf of a public authority without consent on any land. This provides for the Proposal to be assessed under either Part 3A or Part 5 of the EP&A Act. The Proposal does not satisfy the requirements of Sections 75B or 75C of the EP&A Act and therefore does not fall under Part 3A. As such, assessment would proceed under Part 5.

Clause 125(2) provides for development comprising water storage facilities including catchment management works or public recreational facilities associated with a water storage facility, to be carried out on land zoned RU1 Primary Production, RU2 Rural Landscape, SP1 Special Activities, SP2 Infrastructure or an equivalent land use zone, and that would be carried out by or on behalf of a public authority to be carried out without development consent. This is not considered to apply to the Proposal as, being a pipeline, it is not considered to be a 'water storage facility'.

Clause 125(3) provides for development for the purpose of water treatment facilities to be carried out by or on behalf of a public authority without consent on land zoned RU1 Primary Production, RU2 Rural Landscape, RU4 Rural Small Holdings, IN1 General Industrial, IN3 Heavy Industrial, SP1 Special Activities, or SP2 Infrastructure. Clause 6 of the Infrastructure SEPP provides direction on the interpretation of land use zones, referring to Section 33A of the EP&A Act. These zones relate to the Standard LEP which Council is working toward adopting by 2011. As such, this clause is not considered to have effect, in relation to the Proposal, at this point in time.

Clause 125(4) relates provides for development for the purpose of a water supply system to be carried out on land reserved under the *National Parks and Wildlife Act 1974* only if it is authorised by or under that Act. From the information provided to Aurecon, it is understood that the Proposal would not affect any such land.

Clause 125(5) provides clarification as to the types of development that fall under the general definition of 'water supply system' if that development is in connection with the water supply system. These types of development include water intakes, pumping stations and pipelines. The Proposal comprises these types of development.

Clause 125(6) relates to development carried out by or on behalf of the Sydney Catchment Authority. This is not applicable to the Proposal.

In summary, the Proposal is considered a class of development which falls under clause 125 of the Infrastructure SEPP. The Infrastructure SEPP prevails over the Wyong LEP and as noted in the REF constitutes an 'activity' that falls under Part 5 of the EP&A Act.

2.3.2 SEPP 44 – Koala Habitat Protection

Section 2.1.3 of the REF notes that *State Environmental Planning Policy No.44–Habitat Protection* (SEPP 44) is applicable only to developments requiring development consent under Part 4 of the EP&A Act and therefore assessment under SEPP 44 is not required for the project.

The REF indicates that this notwithstanding, for robustness consideration of the potential impact on koalas has been undertaken in the development of the Proposal.

2.3.3 SEPP 71 – Coastal Protection

SEPP 71 aims to protect the NSW coastal zone. Section 2.1.3 of the REF notes that the Lower Wyong River Weir and Fishway are located in the coastal zone. The REF recognises that Council is not required to consider Clause 8 of the SEPP as the Proposal is not a Development Application.

Additionally, the REF notes that the Proposal is considered to be consistent with the aims and objectives of clause 8 of the SEPP.

2.3.4 Assessment under Part 5 of the EP&A Act

Section 5A of the EP&A Act identifies what must be taken into account in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats. The Proposal is considered a Part 5 activity under the EP&A Act as Council is a public authority. Pursuant to Section 111 of the EP&A Act, a determining authority must 'examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity'.

This includes (Section 111(2) considering the effect of an activity on:

- any conservation agreement entered into under the *National Parks and Wildlife Act 1974* and applying to the whole or part of the land to which the activity relates, and
- any plan of management adopted under that Act for the conservation area to which the agreement relates, and
- any joint management agreement entered into under the *Threatened Species Conservation Act 1995*, and
- any biobanking agreement entered into under Part 7A of the *Threatened Species Conservation Act 1995* that applies to the whole or part of the land to which the activity relates.

Table 2-1 of the REF indicates that none of these matters apply to the Proposal.

Section 111(3) Act requires consideration of the effect of an activity on any wilderness area (within the meaning of the *Wilderness Act 1987*) in the locality in which the activity is intended to be carried on. Table 2-1 of the REF indicates that no wilderness areas were identified in the vicinity of the Proposal.

Section 111(4) requires consideration of the effect of an activity on:

- critical habitat, and
- in the case of threatened species, populations and ecological communities, and their habitats, whether there is likely to be a significant effect on those species, populations or ecological communities, or those habitats, and
- any other protected fauna or protected native plants within the meaning of the *National Parks and Wildlife Act 1974*.

The REF assessed the impact of the proposed activity and found that the activity would not have a significant impact on the environment subject to the incorporation of the appropriate mitigation measures. The REF also indicates that there would not be a significant impact on threatened species, ecological communities, populations or their habitats and as such, a species impact statement (SIS) was not required. Consideration of the Section 111(4) matters is provided in Section 5.2 of this report.

Under Section 111 of the EP&A Act, a determining authority must consider the likely significance of impacts associated with the proposed activity. Under Section 112, where impacts would likely be significant, an EIS must be prepared and all the related statutory requirements observed. Guidance on determining the likely level of significance is provided by the Department of Planning's *Best Practice Guidelines for Part 5 of the EP&A Act 1979 – Is an EIS Required?*

The guideline contains three tables that are used to form a view on likely significance. Section 20.2 of the REF provides a completed table with respect to Table 3 from the guideline. It is noted that the information used to populate Tables 1 and 2 of the guideline is very similar to that provided in the REF; accordingly, the omission of these tables from the REF is not considered to be of material importance.

It is considered that the inclusion of Table 20-2 in the REF, together with information provided in the REF and supporting documentation adequately satisfies the intent of the guideline.

Clause 228 of the EP&A Regulation identifies certain matters which a proponent of an activity must take into account when considering the impact of the activity on the environment where no specific guidelines relating to the proposed activity are in force. In preparing this report, reference was made to the Department of Planning's Register of Development Assessment Guidelines. It was noted that there was no specific reference to 'water supply' with respect to the categories listed. It is therefore assumed that the clause 228 matters are applicable.

Section 20.1 of the REF documents consideration of the clause 228 factors. These have been reviewed and considered in conjunction with other information provided in the REF and subsequently in relation to clarification of specific matters including, where relevant, reference to information requested from and provided by the applicant. Reference to this table has been made with regard to forming a view on determination of the Proposal.

As part of the determination process, Council invited public comment on the proposed activity, including its environmental impacts. As has been noted elsewhere in this report, there is no statutory requirement for Council to do this.

It is noted that the REF provides an account of the development of the Proposal including consultation undertaken with stakeholders.

In making its determination (ie its decision on whether to approve the project in terms of its decision-making role under Part 5 of the EP&A Act), it is therefore anticipated that Council would make its decision based on:

- the assessment undertaken in the REF together with the identified impact mitigation measures
- consideration of the substantive issues raised in representations
- the recommended conditions of approval provided in this determination report.

Aurecon's recommendation with respect to determination of the Proposal is provided in Section 6 of this report.

2.4 Commonwealth legislative requirements

Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) specifies that approval from the Commonwealth Minister for the Environment, Water, Heritage and the Arts (DEWHA) is required if a proposal is likely to have a significant effect on a matter of national environmental significance (NES).

The EPBC Act currently identifies six NES matters, namely:

- World Heritage properties
- Ramsar wetlands
- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas
- nuclear actions.

The EPBC Act also provides that approval from the Minister is required for:

- an action on Commonwealth land that has, will have, or is likely to have a significant impact on the environment
- an action outside Commonwealth land that has, will have or is likely to have a significant impact on the environment on Commonwealth land
- an action undertaken by the Commonwealth which has, will have or is likely to have a significant impact on the environment anywhere in the world.

Section 20.3 of the REF considers the requirements of the EPBC Act by way of undertaking a review of NES matters. The REF concludes that the proposed works are unlikely to result in a significant impact on NES matters. As such, approval from the Minister for the Environment, Water, Heritage and the Arts is not required.

It is noted that consideration of effects on NES matters has been undertaken with reference to the Commonwealth's *EPBC Act Significant Impact Guidelines* with documentation provided in Appendix C (terrestrial ecology assessment) to the REF. Appendix D to this assessment documents the assessment of significance against the specified criteria while Appendix E provides the EPBC Protected Matters report.

Appendix D includes reference to *Melaleuca biconvexa* which is listed as a Vulnerable species under the EPBC Act. There is no discussion with regard to the amended pipeline route, however, subsequent information provided by the applicant indicated that many of the stands originally identified as being affected would be avoided by the amended route (refer Section 5.2 of this report). Similarly, consideration of impacts on Magenta Lilly Pilly (*Syzygium paniculatum*), does not reflect the amended route. While, on the basis of the additional information provided, it is accepted that it is likely that impacts would not be significant, it is considered that it would be appropriate to formally document consideration of impacts of the revised route in accordance with the guidelines. A recommendation to this effect is provided in Section 5.2.

In general, and with the exception of the matters noted above, it is considered that the REF has addressed consideration of NES matters in accordance with the *EPBC Act Significant Impact Guidelines*.

Under the EPBC Act, a proponent may, through application of the assessment guidelines, determine that a proposal would not constitute a 'controlled action' requiring referral. It may, however, choose to voluntarily refer it nonetheless. It should be noted that, there is also provision for it to be called in by the Minister for the Environment, Heritage and the Arts or by a Commonwealth agency with responsibilities related to the proposed action. There is no provision for an action to be referred by a member of the public.

3. Description of the Proposal

3.1 Need and objectives

The need for the Proposal as stated in the REF is based upon:

- the expected population growth rate on the Central Coast with the population predicted to increase by 55 per cent by the year 2051
- the fact that the Central Coast has recently experienced the worst drought on record, with 15 years of below average rainfall
- the drier climatic conditions predicted on the Central Coast for the future.

The objectives of the Project as stated in the REF are to:

- improve the security of water supply for the Central Coast, especially during periods of drought, by storing the maximum amount of water practicable in Mardi and Mangrove Creek Dams
- minimise the capital, operating and whole of life costs of the system whilst achieving the above objective.

The Project would improve the capacity to extract water flows from the Wyong River and store excess water in the Mangrove Creek Dam for return to Mardi Dam or the Wyong Treatment Plant in periods of low capacity in the Wyong water supply system.

3.2 Consequences of not proceeding

While the REF does not explicitly address the consequences of not proceeding with the Project, it does make reference to WaterPlan 2050, the long-term management strategy developed by Wyong Shire and Gosford City Councils to manage and secure the Central Coast's water resources for the next four decades.

The options report does not explicitly refer to the 'do nothing' option but it is nonetheless implicit with reference to the need to plan for projected population growth while not compromising the health of the region's rivers and lakes. Reference is also made to the recent drought which was the worst on record and which highlighted need for a clear long-term strategy to ensure a safe, secure and sustainable water supply for the Central Coast.

The key objectives of WaterPlan 2050, as stated in the Strategy are to:

- deliver early benefits by further improving the existing water supply system and gradually easing water restrictions
- continue to change the way people value and use water
- maintain flexibility and opportunities for future generations so they can effectively meet their water needs.

The Strategy notes that no single action, by itself, is considered to be the ideal solution. Rather, it indicates that a mix of actions should be implemented over time to allow timely adaptation and response to circumstances as they continue to change and evolve. The actions were categorised into three key areas:

- enhancing the existing water supply system
- using water efficiently
- accessing additional sources of water.

The Proposal is intended to address the first key area.

During the development of WaterPlan 2050 a number of options were considered to secure the long term sustainable water supply for the region. The selection process included a multi-criteria assessment and analysis methodology, with consideration given to environmental, community and landholder impacts, engineering and constructability, and cost effectiveness. The Mardi-Mangrove Link Project was considered to provide a number of benefits to the Central Coast including the quickest drought recovery time compared to other options.

As identified in Table 11.1 of the options report, the options considered a base case of interim upgrade works and permanent drought contingency measures. Additional options comprised the base case plus:

- Tillegra Dam
- Upper Wyong River to Mangrove Creek Dam transfer system
- Mangrove Creek Weir to Mangrove Creek Dam transfer system
- Lower Wyong River off-stream storage (Toobys Creek Dam)
- MacDonald River to Mangrove Creek Dam transfer system
- Lower Wyong River to Mangrove Creek Dam transfer system with Gates on Mangrove Creek Dam
- 20 ML/d permanent desalination plant at Toukley wastewater treatment plant
- large scale retrofit of rainwater tanks on existing houses (80,000 tanks)
- environmental flow substitution at lower Wyong River Weir – 10 ML/d or 20 ML/d.

Assessment of augmentation options is documented in Section 12 of the options report. Options were evaluated against the following five primary criteria:

- financial assessment
- environment impact
- social impact
- system operation
- ability to implement the option.

For each primary criterion, there were several secondary criteria addressing issues that were more specific. The secondary criteria for environmental impact included aquatic impacts, terrestrial impacts and air quality (including energy efficiency and greenhouse gas emissions). Social impact considered land matters, construction impacts and loss of amenity.

Section 13 of the options report discusses development of augmentation strategies that could provide a sustainable and affordable water supply able to meet the predicted 2050 water demands on the Central Coast. Comparison of strategies considered four criteria including greenhouse gas production over the 50-year life of the strategy.

Section 14 of the options report reports on the extensive consultation program undertaken to inform, consult and involve the community in a number of critical issues involving the Central Coast water supply scheme.

3.3 Proposed works as described in the REF

The main features of the Project are:

- a new off-take structure (Wyong River Off-Take Structure) with a capacity of 320 ML/d and provision for expansion to 500 ML/d

- a new Wyong River Pumping Station with capacity of 320 ML/d of water from Wyong River to Mardi Dam, and associated works including power supply, telemetry and control
- a new, buried rising main pipeline (Wyong-Mardi Rising Main No. 3) from Wyong Pumping Station to Mardi Dam to augment the current rising main capacity to 320 ML/d
- Wyong-Mardi (Dam) Inlet
- a new pumping station (Mardi-Mangrove Transfer Pumping Station) with a capacity of 120 ML/d (with provision for future expansion to 160 ML/d) to pump water from Mardi Dam to Mangrove Creek Dam; the pumping station will incorporate a facility to screen raw water transferred from Mardi Dam to Mangrove Creek Dam, to restrict the movement of pest species between the two catchments
- a new buried rising main (Mardi-Mangrove Transfer Main), approximately 19 kilometres in length from Mardi Dam to the eastern portal of Boomerang Creek Tunnel, with a capacity of 120 ML/d (with capability for future operation at flow rates up to 160 ML/d); this rising main would also have ability to transfer water from Mardi Dam to Mangrove Creek Dam and back; it will include four Wyong River crossings and 17 smaller tributary crossings, scour valves and air valves
- modification of the existing Boomerang Creek Outlet Structure at Mangrove Creek Dam for increased flow rate and dual function as an inlet/outlet structure (subject to a separate REF)
- an associated work, Lower Wyong River Weir and fish upgrade, incorporates improved flow gauging installation at the weir to enable control of the new Wyong River Pumping Station (approval sought separately under the water extraction licence upgrade for the Wyong River)
- provision for future installation of hydro-electric power generation infrastructure on the Mardi-Mangrove Transfer Main.

3.4 Sustainability and Climate Change

Section 17 of the REF provides a discussion of the Proposal with respect to sustainability and to climate change. Specific reference is made to the four ESD (ecologically sustainable development) principles as defined under NSW legislation. It is noted that there is substantial latitude in presenting a position to demonstrate consideration on how a proposal may address these ESD principles and it is not considered appropriate to provide a firm view on the adequacy of this. In this regard, however, it is clear that the REF does provide consideration of these principles.

The discussion on climate change considers both the possible impact of the Proposal on climate change, principally through the emission of greenhouse gases during construction and operation. Consideration is also provided of the potential effects of climate change on the project. As with consideration of the ESD principles, there is similarly substantial latitude on the extent of discussion that could be undertaken, however, the amount of information provided is considered reasonable.

4. Summary of Representations

4.1 Synopsis of representations received

As noted in Section 1.2, where the environmental assessment undertaken under Part 5 of the EP&A does not take the form of an EIS, there is no statutory obligation for a proponent to publicly exhibit the assessment. While a proponent may invite comment (referred to as representations under Part 5), there is no statutory requirement for a determining authority to take any such comments into consideration when determining a proposed activity. Similarly, there are no specific requirements related to public notification.

Seven representations in total were received; one from a public authority (the Hawkesbury Nepean Catchment Management Authority) and the remainder from individual community members. Of the private representations, two respondents provided two representations each. All representations have been considered in this report.

The identities of the individual community members have not been provided in this report due to privacy legislation requirements.

During preparation of the Determination Report, Council provided Aurecon with a copy of a letter from the Department of Environment, Climate Change and Water¹ (DECCW) which commented on a number of ecology and Aboriginal heritage matters. This was received by Council after the close of the REF exhibition period; as such it has not been treated specifically as a representation. However, the matters raised have been considered in this report.

A further representation from Gosford City Council was provided to Aurecon on 26 August 2009. This has been treated in the same manner as the DECCW letter.

4.2 Issues raised in representations

Each representation has been reviewed closely and individual issues identified. Issues raised in the representations covered seven broad issue types relating to the Project. These are summarised as follows:

- Adequacy of the consideration of matters relating to flood risk
- Ecological impacts, particularly on vegetation
- The effect of construction activities on traffic movements and access
- Operational impacts on Mangrove Creek Dam, particularly in relation to ecology and water quality
- Matters relating to the planning approval process under the EP&A Act and to other legislation such as the NSW *Protection of the Environment Administration Act 1991* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
- Adequacy of the assessment of noise and vibration impacts associated with construction
- Potential impacts of construction activities on utilities and services
- Matters relating to sustainability and climate change.

¹ In July 2009, the Department of Environment and Climate Change (DECC) was renamed the Department of Environment, Climate Change and Water (DECCW). References to DECC in this report should be taken to refer to DECCW.

A detailed assessment of the issues raised in the representations is provided in Section 5 of this report. This is restricted to issues that were considered substantive and does not include matters essentially considered to a general comment or observation on the part of the representation author.

It is acknowledged that there is a degree of subjectivity to the identification of issues but, as far as possible, the wording of the issue in the representation has been restated in Section 5 to avoid the risk of omitting pertinent details.

DECCW correspondence

The DECCW letter made reference to the following issues:

- Threatened species impacts and lack of biodiversity offset/compensatory habitat
- Impacts on *Melaleuca biconvexa* populations
- Insufficient/inappropriate species surveys
- Intention to disturb, damage or destroy Aboriginal Cultural Heritage values within the project boundary requiring an application for a Aboriginal Heritage Impact Permit
- The requirement to survey areas previously unassessed for Aboriginal Cultural Heritage Values.

Subsequently, Aurecon requested the applicant provide a written response to the issues raised as it was considered insufficient information was available in the REF related specifically to these matters. The information provided has been taken into account in forming a view on the adequacy of consideration of the issue in question.

The issues relating to ecological impacts are discussed in Section 5.2. The ecological issues raised by DECCW overlap, to some degree with some of the ecological issues raised in representations and as such are considered together in Section 5.2.

Matters relating to Aboriginal heritage are considered and addressed in Section 5.9. Issues relating to Aboriginal heritage were not raised in any representations.

During preparation of this report, Council advised that the applicant met with DECCW on 24 August to discuss the matters raised in the letter. The purpose of the meeting was to ensure that Council understood DECCW's issues, to assure DECCW that Council was aware of its obligations, and to facilitate improved dialogue between DECCW and Council. It is understood that there was no specific discussion on the issues raised, however Council offered to provide the information provided to Aurecon. This offer was declined with DECCW indicating that the issue of significance was a matter for Council to decide.

A copy of the minutes of the meeting was requested by and provided to Aurecon.

It is understood that DECCW would not have a statutory role in relation to the project except where, as noted in its correspondence, there was a need to obtain permits relating to disturbance of Aboriginal heritage.

Gosford City Council correspondence

Correspondence from Council's Catchment Management Officer/Water and Sewerage Operations was provided to Aurecon during preparation of this report and outside of the REF exhibition period. This has been treated in the same manner as the DECCW correspondence.

Attention was drawn to the need for the REF to include further investigations on the potential impact of the 40 years of proposed inter-basin transfers. Specific reference was also made to the need for further assessment of the social, economic and environmental costs associated with blue-green alga and its long term management. These issues are considered in Section 5.2.

4.3 Other issues

For projects of this nature, it is the residents in immediate proximity to construction works that are required to bear an obvious impact on their general amenity (in relation to noise, dust generation, disruption to access, etc), notwithstanding the implementation of all reasonable and practicable impact mitigation and management measures.

The effective management of these needs to incorporate effective and proactive communication. It is acknowledged that a range of stakeholder activities have been undertaken with regard to consultation, these being documented in Chapter 3 of the REF. In particular it is noted that Section 3.5 identifies a range of ongoing community consultation and liaison activities targeted at a range of stakeholders, and that this identifies landholders and Yarramalong Valley residents.

However, it is considered appropriate that this commitment be reflected explicitly in the conditions of approval and include specific performance requirements. Recommended approval conditions 7, 8 and 9 in Section 6 are intended to address this issue.

5. Assessment of Issues

The following sections provide consideration of the issues raised in the representations received following public exhibition of the REF. This section also considers the comments made by the DECCW.

During preparation of the report, the applicant was requested to provide clarification on specific matters related to flooding, the terrestrial ecology assessment and Aboriginal heritage, where it was considered insufficient information had been provided in the REF. These written responses were considered in this determination report.

Recommendations are also made in the following sections for subsequent addressing of issues where it is considered Council's response or the REF requires strengthening. These are provided at the end of each section and the number following each recommendation is a cross reference to the consolidated list of recommendations provided in Section 6 of this report.

5.1 Flooding

Summary of issues

- The climatic conditions (specifically rainfall) assumed for the project, data from Mangrove Mountain, are inappropriate
- Significant soil erosion will occur along the pipeline during a flood event based soil type (sandy, easily eroded) and the revised buried depth of the pipeline to 800 mm
- The REF does not provide any statistical analysis regarding the frequency and magnitude of a flood event
- The REF does not provide sufficient analysis of the impacts of flooding during construction, nor specify concrete mitigation procedures
- The referral of consideration of the effects of flooding during construction (to the construction contractor) may render determinations under the REF as invalid
- The REF fails to adequately assess the potential impacts of floods on the construction phase of the project; it also fails to provide appreciation of flooding frequency, rate of water level rise, extent of inundation, depth of water, flood water velocity and flood recession
- The flood mitigation measures described in the REF are not applicable for floods of moderate to high magnitude
- The REF lacks total competence in matters relating to flooding in the valley
- There is no risk assessment of the probability of or impacts of flooding or flash flooding

Consideration of issues

At the request of Aurecon, the following additional information was provided by the applicant in relation to this issue:

The potential impact of floods during the construction phase of the project was considered early in the project, during the engineering design of the project. It was considered mainly relevant to the construction of the Mardi-Mangrove Transfer Main. Much of the length of this pipeline will be constructed on private land that is on the floodplain of Wyong River. The land in these areas is predominantly vegetated with grass and turf and used for livestock grazing, or in a few instances for commercial turf farming. In order to minimise impact on the landholders, it was decided very early that a condition of the construction work would be to minimise the amount of clearing ahead of the trenching and pipelaying operations and to require restoration work to be carried out very soon after the completion of trenching and pipelaying operations. This will minimise the area of exposed soil at any given time.

The available flood study data for the valley was analysed as part of the engineering design. These provided data on flood levels and velocities for a range of different event frequencies. Low probability events are rarer events and relate to higher flood levels and higher flood velocities. High probability events are more common events and relate to lower flood levels and lower flood velocities. Analysis of the resistance of grassed surfaces to erosion showed that recently-established grasses will be able to resist soil erosion in the flood velocities predicted for high probability events and that well-established grasses will be able to resist soil erosion in the flood velocities predicted for low probability events. From this it was concluded that the risk of severe soil erosion is low.

As the potential risk related to erosion during floods was already reduced to a low level by routine construction practice it was not considered a potential impact necessary to address specifically in the REF.

The above information is considered to provide sufficient clarification in relation to the nature of flood risk and the associated potential for unconsolidated material to be transferred from construction sites to receiving waters.

Under Section 120 of the *Protection of the Environment Operations Act 1997* (POEO Act) there is a general prohibition on pollution on waters. This includes pollution caused by the runoff containing suspended material from exposed surfaces which invariably occur on construction sites.

Management of this risk is typically addressed through a project-specific erosion and sedimentation control plan which forms part of the overall construction EMP. Section 8.4 of the REF indicates that such a plan would be implemented as part of the construction EMP. The erosion and sedimentation control plan should be prepared in accordance with the most recent edition of the Department of Housing (and others) guideline *Managing Urban Stormwater-Soils and Construction*.

It is noted that a full consideration of flood risk issues is provided in the report *Mangrove Rising Main. Concept Design Report*. Report RP-045, prepared by GHD for Wyong Shire Council and dated March 2009. Relevant information from this report should be taken into consideration in development of the erosion and sediment control plan.

The implementation of the plan should include regular inspections and maintenance to ensure that controls are performing to the adopted design standard at all times during construction.

Recommend approval conditions

- As part of the CEMP, Council shall prepare a comprehensive soil and water management plan in accordance with the Department of Housing (and others) guideline *Managing Urban Stormwater-Soils and Construction*. The plan shall be prepared in consultation with relevant stakeholders, provide full details of all pollution control measures to be undertaken during construction, and satisfy all requirements for all necessary pollution control approvals and/or licences. The plan shall provide justification for the adopted level of flood protection with respect to the identified management controls.
- Relevant information from the report *Mangrove Rising Main. Concept Design Report*. Report RP-045, prepared by GHD for Wyong Shire Council and dated March 2009, shall be taken into consideration in development of the erosion and sediment control plan.
- During construction, regular inspections of erosion and sedimentation control devices shall be undertaken to ensure that the most appropriate controls are being implemented and that they are being maintained in an efficient condition at all times

5.2 Ecological impacts

Summary of issues

- The REF fails to review and assess the pipeline route as determined in May 2009
- The assessment of maximum vegetation clearance widths negotiated between GHD pipeline engineers and a senior ecologist is not an independent assessment of this project
- The REF lacks total competence in matters relating to the ecological impact on natural vegetation and wildlife
- The REF fails to consider the environmental impact of water extraction from Wyong River will have on the flora and fauna species of Tuggerah Lakes. The lake is of international importance under the Ramsar Convention and is home to numerous migratory bird species listed under JAMBA and CAMBA.
- No consideration has been given to the impact of the Proposal on Property 17 which contains *Biconvexa* and other important flora.

Additionally, the DECCW letter raised the following issues relating to ecological impacts:

- Threatened species impacts and lack of biodiversity offset/compensatory habitat
- Impacts on *Melaleuca biconvexa* populations
- Insufficient/inappropriate species surveys.

Both sets of issues are addressed in the following section.

Consideration of issues

Assessment of incorrect pipeline route

Aurecon sought specific clarification on the issue relating to the apparent inconsistency between the Terrestrial Ecology Assessment and the REF. The following response was provided by the applicant.

Changes to the pipeline route that were subsequent to finalisation of the WP12 – Terrestrial Ecology Assessment, RP-055, Rev 0 (Appendix C of the REF), dated June 2009, were considered less of an environmental impact than the route assessed in said document. Accordingly, it was deemed appropriate, and agreed to by the Project Team, to detail the changed route and its investigated impact assessment in the main text of the REF – as it related to terrestrial ecology. This is acceptable practice. Further, this course of action significantly reduced the amount of time and work required to finalise the REF document in readiness for exhibition. It is important to note however, that should changes to the route have increased the potential impacts, then updating the report would probably have been required.

Further information in the form of an extract from the report *Evaluation of Cost Reduction Options Stage 3a Investigations Report* was provided which included specific consideration of the key environmental issues together with a synopsis of positive and negative impacts. This information was reviewed and it is considered satisfactory consideration has been given to the revised route.

The position taken in regard to the apparent inconsistency of the Terrestrial Ecology Assessment and the REF is not considered unreasonable. With the benefit of hindsight it perhaps would have been of benefit for the applicant to have provided an addendum to the REF with the additional detail but it is accepted that this would have been a subjective decision.

No specific conditions of approval are considered necessary in relation to this issue.

Water abstraction and Tuggerah Lake

With regard to water abstraction and the potential impact on Tuggerah Lake, the REF notes (page iii of the Executive Summary, first bullet point and Section 4.4.4) that a separate REF has been prepared to accompany an application to the Department of Water and Energy (DWE) with respect to an application for upgrade licences associated with construction and operation of the Wyong River Water Supply Works. There is no information provided, however, of the timing of this application nor its status.

It was assumed that the issue of additional abstraction and the potential impact on Tuggerah Lake (such as in relation to EPBC listed migratory species) would have been appropriately considered in this REF. As part of its determination process, and fulfilment of its obligations under relevant legislation including the EP&A Act, DWE would have considered the likely and potential impacts of abstraction and the associate reduction in the volume of water delivered to Tuggerah Lake.

Council would not be able to operate the water supply works at the increased capacity until it had obtained the upgraded licence from DWE.

In order to clarify this issue further, at Aurecon's request, a copy of the REF titled *Wyong River to Mardi Dam Pipeline* prepared by Andrews Neil Pty Ltd, dated October 2006 was provided for review. Appendix 1 to the REF was also provided. This contained an expert opinion prepared by Bio-Analysis Pty Ltd on the likely and potential effects of the increased abstraction with regard to several factors including ecological matters.

Correspondence from the Department of Commerce to Council regarding a number of issues in this REF was also sighted during preparation of this report. This confirmed that the issue was considered (by the then Department of Natural resources) respect to determination of the licence variation application.

It is noted that while Tuggerah Lake is listed as a wetland of national importance, it is not a Ramsar listed site.

No specific conditions of approval are considered necessary in relation to this issue.

Impacts on Melaleuca biconvexa

At the request of Aurecon, the following additional information was provided by the applicant in relation to this issue:

As outlined in Appendix C of the terrestrial ecological assessment, *Melaleuca biconvexa* disturbed/cleared by the Project include Stands 1, 3, 4 and 5. Stands 2, 6, 7, 8, 9, 10, 11 and 12 would not be impacted for the Project. The stands to be retained include dense mix-aged stands within 500 m of the stands to be cleared. The results of the terrestrial ecological assessment indicate that 'The Farm' subpopulation is more extensive than previously thought within the Ecotone (1999) report.

During the terrestrial ecological surveys in 2008 (on route options not included in the final route), over 2000 *Melaleuca biconvexa* were recorded on Land ID WR8 adjacent to the powerline easement, and several more thousand along Deep Creek (Land ID WR8), adjacent to where the majority of impacts on the species would occur. These results were not displayed on figures in the terrestrial ecological assessment as these areas concerned outdated routes, and areas that would no longer be impacted. However, this information was considered within the seven part test, and as several thousand *Melaleuca biconvexa* occur adjacent to the Project within 500 m and would not be impacted, the conclusion was reached that a significant impact on a local population of the species was considered unlikely.

Several hundred *Melaleuca biconvexa* were observed on Land ID WR8 regenerating under powerline easements. The species also showed good regenerative potential within road reserves and rural paddocks. For this reason it was considered that conservation and replacement of the rootstock or slabbing the root stock would assist in regeneration of the species, but this was not the main reason leading to the conclusion that a significant impact was unlikely. The main reason leading to this conclusion was that several thousand individuals occur within 500 m of the impacted areas that would not be impacted by the Project.

The idea of conserving the root stock of *Melaleuca biconvexa* was intended as mitigation measure during construction to reduce the impact on the species, further details regarding revegetation using *Melaleuca biconvexa* are being detailed in the Construction Environmental Management Plan for the project.

The above information is considered to provide adequate clarification of this issue. This notwithstanding, management of potential construction impacts on *Melaleuca biconvexa* should be addressed through either a separate management plan linked to the construction EMP or through a specific section of the construction EMP. This should be developed in consultation with DECCW.

No construction activities that could affect stands of *Melaleuca biconvexa* should commence until the management plan or construction EMP have been finalised.

Biodiversity offset/compensatory habitat

In its letter to Council, DECCW indicated that regardless of whether or not the Proposal would significantly impact on a threatened species, given that the Proposal would result in some loss of an Endangered Ecological Community (EEC), DECCW policy is that mitigation measures should include appropriate offsets/compensatory habitat or adequate justification as to why offsets are not necessary.

At the request of Aurecon, the following additional information was provided by the applicant in relation to this issue:

As stated in Section 6.4 of the REF, the provision of "Compensatory Habitat" on Council land and/or private land was raised as a potential mitigation measure within the terrestrial ecological assessment. Further study for the REF revealed that "Compensatory Habitat" is not required as a mitigation measure. However, through the process of refining the pipeline route, liaison between the Project Team and relevant WSC staff is continuing to identify opportunities to develop synergistic projects that would benefit both the project and Council's Streambank Rehabilitation Program. It was considered that the input into WSC's Streambank Rehabilitation Program would result in an adequate 'offset'. Further details regarding the offset measures would most likely be detailed in the Construction Environmental Management Plan for the project.

This response was not considered to adequately address the issue as per the acceptable methodologies identified in the DECCW letter. Subsequently, the following information was made available to Aurecon:

As stated in Section 6.4 of the REF, the provision of 'compensatory habitat' on Council land and/or private land was raised as a potential mitigation measure within the terrestrial ecological assessment. Further study for the REF revealed that 'compensatory habitat' is not required as a mitigation measure. However, through the process of refining the pipeline route, liaison between the Project Team and relevant WSC staff is continuing to identify opportunities to develop synergistic projects that would benefit both the project and Council's Streambank Rehabilitation Program. It was considered that the input into WSC's Streambank Rehabilitation Program would result in an adequate 'offset'. Further details would most likely be detailed in the Construction Environmental Management Plan for the project.

On the basis of the information provided to Aurecon, it is considered that this issue has received adequate consideration. It is, however, considered that a reasonable level of certainty needs to be provided with respect to the total area of habitat that would be incorporated into the Streambank Rehabilitation Program and that this be in the context of the area affected by the Proposal. It is accepted that the timing of this may be uncertain and influenced by other factors.

The Construction EMP is not considered to be the appropriate location for these details given the longer term nature of not just establishment of the 'offsets' but also their ongoing maintenance. The information should instead be provided separately and be publicly available. There should also be a review process to address subsequent opportunities that may be identified.

*Incomplete/insufficient species surveys regarding *Syzygium paniculatum**

At the request of Aurecon, the following additional information was provided by the applicant in relation to this issue:

The ecological surveys were undertaken in April-May 2008 and September 2008. The terrestrial ecological report was finalised on 5 June 2009. The REF was finalised on 30 June 2009, and as described in Section 6.1 of the REF, the route in the terrestrial ecological report had been changed in several areas, with the final route described in the REF designed to further minimise ecological impacts.

As noted in the REF, not all areas of potential habitat for *Syzygium paniculatum* were surveyed during the species fruiting period (May) during the terrestrial ecology fieldwork in 2008, thereby making positive identification of the species impossible at that time. However, as described in Section 4.2.3 of the Terrestrial Ecological Assessment, a senior ecologist was present during the site walkover with the Route Design Team, for the purpose of refining the final route in order to minimise ecological impacts. The senior ecologist returned to the site and examined all areas of potential habitat within the preferred route for *Syzygium paniculatum* during May 2009. The species does not occur within the final route described in the REF.

The mitigation measures in the terrestrial ecological assessment required surveys for *Syzygium paniculatum* within the species fruiting season within suitable habitat across the study area. This mitigation measure was excluded from the terrestrial ecology mitigation measures outlined in the REF as these surveys had already occurred as part of the site walkover with the route design team. As no *Syzygium paniculatum* occur within the study area, and impacts on potential habitat for the species have been minimised by underboring gallery rainforest adjacent to Wyong River crossings, the conclusion was reached that a significant impact on a local population of the species was considered unlikely.

The above information is considered to demonstrate adequate consideration has been given to this particular issue. No specific recommendations are considered necessary in relation to this issue.

Application of EPBC Act Significant Impact Guidelines

As noted in Section 2.4, the consideration of the effects of the Proposal with respect to NES matters had not been updated to reflect the amended pipeline route. On the basis of the information provided to Aurecon, it is accepted that it is likely that impacts would be lesser in magnitude, however, it is considered this should be formally documented in accordance with the guidelines and made publicly available

Recommend approval conditions

- Information relating to the incorporation of areas into the Streambank Rehabilitation Program should be made publicly available and subject to regular review at a minimum interval of 12 months.
- Management of potential construction impacts on *Melaleuca biconvexa* shall be addressed through either a separate management plan linked to the construction EMP or through a specific section of the construction EMP. This shall be developed in consultation with DECCW.
- No construction activities that could affect stands of *Melaleuca biconvexa* shall commence until the management plan or construction EMP are finalised.
- The issue of adequate consideration of offsetting shall be further investigated in accordance with the DECC offsetting principles. This shall include appropriate consultation with DECCW and be completed within 12 months of the date of Council's determination of the Proposal.

- The assessment of potential impacts of the amended pipeline route shall be updated in accordance with the EPBC Act Significant Impact Guidelines and the information made publicly available.

5.3 Traffic and access

Summary of issues

- The REF lacks total competence in matters relating to the impact of construction traffic
- No allowance has been made for increased travel times for local traffic due to slow moving heavy vehicles
- The 30 minutes added to travel time at each road reserve is unacceptable
- The road will be blocked for up to 30 minutes in either one or both directions
- What arrangements are proposed to co-ordinate multiple work sites so that only one delay (max 30 min) per trip is experienced?
- What arrangements are proposed to issue schedules regarding road closures so that businesses and people, including visiting tradesman can plan their day?
- There is currently no means to advise any appointment or person of the fact that you are delayed in traffic for up to 30 minutes. What provision is being made to cater for mobile phone communications?
- In the event of a medical emergency, what provision is made for emergency ambulance access and medical assistance?
- There are currently people in the valley who require regular emergency medical access. Who is personally responsible for the management of traffic delays, and for ensuring that emergency access is provided?
- What provision is to be put in place to ensure that the responsible person is informed of an approaching ambulance etc, so they can open the road in time to cater for any emergency?
- The future condition of Yarramalong Road has not been considered:
- Will a quantifiable engineering standard be applied to the road surface and design for any replacement pavement?
- Will this standard be guaranteed for a period without deterioration resulting from weather, vehicle loading and ground shrinking or slumping etc? In other words, can we expect that any pavement will be of an engineering quality sufficient to withstand the various environmental and physical loads applied to it without adversely affecting the road surface quality? What warranty will be requested from the contractor, and for what time period?
- Who will be responsible for the road pavement condition following completion of the construction and rectification?
- Will there be a bond withheld to guarantee the level of quality control and warranty specified in the contract?
- The REF fails to professionally, competently and adequately assess the impact of construction traffic generated by the project on the users of Yarramalong Road.

Consideration of issues

Section 16.4 of the REF details mitigation measures to ensure traffic impacts are minimised during the Project. The REF notes that a Community Information and Awareness Program would be implemented prior to construction to ensure local residents are kept fully informed of construction activities which could affect traffic movements and access. Mitigation measures would be implemented through a Traffic Management Plan.

Potential construction traffic impacts from the Project are considered in Section 16 of the REF. As stated in Section 16.1

the alignment of the route has been designed to minimise the potential impact to the business activities and the existing road activity along Yarramalong Road.

Surveys were carried out in October 2007 and November 2007 at four locations to assess existing traffic volumes. Potential construction traffic impacts are discussed in Section 16.3 which lists disruption to traffic due to road/lane closures and would increase travel time of existing road users as potential issues. It is noted that these would be temporary and that diversion routes would be provided. With adequate advance notice, it is considered the inconvenience to road users would be minimal.

The level of assessment undertaken is considered adequate.

With respect to road pavement matters, it is expected that Council would apply appropriate standards to any required remedial works and that if contracted to a third party (such as the construction contractor or a specialised roading contractor), the terms of the contract would address such issues as durability and rectification of substandard work.

Recommended mitigation measures are detailed in Section 16.4 of the REF which would involve preparation of a Traffic Management Plan. It is considered these would be effective in managing traffic and access impacts and accordingly should be implemented through the Traffic Management Plan. It is noted that it is standard practice to address management of impacts on traffic movements and access through a project-specific Traffic Management Plan which typically forms part of the construction EMP.

Recommend approval conditions

It is considered the information provided in the REF relating to management of impacts associated with traffic and access is adequate. No specific conditions of approval are considered necessary in relation to this issue.

5.4 Mangrove Creek Dam

Summary of issues

The REF does not provide the following information:

- The difference in nutrient levels between the Wyong River Catchment and the Mangrove Creek Catchment is not quantified and the potential risks to Mangrove Creek have not been quantified
- No proposed treatment of Mardi Dam water for pathogens and or nutrient prior to pumping
- Details of safeguards for the protection of Mangrove Creek Dam (eg specific targets for water quality levels in Mardi Dam at which cease to pump will be employed)
- Details regarding the risk management actions associated with pest species screening including cleaning and maintenance regimes, potential fail scenarios, mitigation and contingency actions.
- Details on screen monitoring and reporting.

- Further assessment required into the social, economic and environmental costs associated with the long management of blue-green algae.

Consideration of issues

Section 7 of the REF provides detail on the aquatic ecology assessment component of the project. An assessment of the potential impacts of water transfer between Mangrove Creek Dam and Mardi Dam was undertaken as detailed in Section 7.2 of the REF. The assessment recommends a range of measures to be implemented to reduce the risk of unwanted transfers to Mangrove Creek Dam. Recommendations include a thorough assessment of physio-chemical water quality and nutrient data, water treatment, screens, annual surveillance monitoring. Details of a workshop relating to the inter-basin transfer are provided in Section 4.13 of the REF.

It is also noted that the issue of inter-valley transfers of water acting as a mechanism for the transfer of algae from one catchment to another is acknowledged in the augmentation options report.

Recommended mitigation measures for the inter-basin transfer are detailed in the final paragraph of Section 7.4 of the REF. The REF notes the design has incorporated a screening facility, it notes Council's ongoing chemical and biological monitoring and that water transfer would cease if any previously unidentified pest and weed species were detected.

The above assessment of the inter-basin transfer issue is considered adequate, provided specific details relating to the implementation of mitigation measures are incorporated in the management plan for the transfer.

Recommend approval condition

- The operational EMP (or its equivalent) shall provide specific details addressing management of the risk of inter-basin transfer of flora and fauna pest species. Development of the management strategy shall include appropriate consultation with relevant stakeholders.

5.5 Planning and approvals

Summary of issues

- The Project will significantly affect the environment of the Yarralong Valley and an EIS is required
- The Precautionary Principle under the *Protection of the Environment Administration Act 1991* (PEA Act) has not been considered in regards to the impact of the Project on Tuggerah Lakes
- Under the inter-generational equity of the PEA Act the Project has not been correctly selected from the other nine options presented in WaterPlan 2050 as costs have greatly increased since the assessment. The MML should be reassessed against the other WaterPlan 2050 projects.
- Conservation of biological diversity and ecological integrity under the PEA Act and the *Threatened Species Conservation Act 1995* has not been considered in regards to the impact of the project on the ecosystems of Tuggerah Lakes
- The matters of National Environmental Significance were not correctly assessed in regards to impacts on the Tuggerah Lakes wetland and the Commonwealth listed threatened species/ecological communities and migratory species
- On the basis of size and cost of the project, the environmental impact on Tuggerah Lakes and the endangered and protected species in Tuggerah Lakes, the position within the drinking water catchment of the Central Coast the Project should be considered under Part 3A of the EP&A Act.
- The outcome of the process has been predetermined
- No discussion on the possibility of a decision by Council not to proceed

- The assessment of the project is not impartial given Council is the proponent of the development as well as the determining authority
- The whole thrust of the REF is in favour of approval
- The Mardi-Mangrove Transfer Pumping Station has already been approved and works commenced
- The deferral of significant and environmentally sensitive issues for later consideration, for example restoration and rehabilitation of ECC would be addressed as part of the CEPP.
- Disposal options for groundwater during construction would need to be developed once more data is available on groundwater chemistry

Consideration of issues

To determine whether the Proposal would have a significant impact on the environment, consideration of the matters listed in clause 228 of the EP&A Regulation was undertaken. Documentation of this is provided in Section 20.1 of the REF. Section 20.2 provides the completed Table 3 of the Department of Planning's best practice guidelines for Part 5 of the EP&A Act *Is an EIS Required?*. It was concluded that while the Proposal would produce some adverse impacts, with implementation of the identified mitigation measures, the overall it was not expected that impacts would be significant. On this basis, it was concluded that the Proposal would not significantly affect the environment.

On the basis of the information provided in the REF and supporting documentation, together with additional information provided to Aurecon, it is considered that appropriate consideration has been given to the likely level of significance of the impacts associated with the Proposal – and acknowledging there would be both positive and negative impacts.

It is noted that there may be other determining authorities (such as DECCW in relation to Aboriginal heritage) that will also need to go through this decision-making process in relation to their statutory responsibilities.

The issue of potential effects on Tuggerah Lake has been addressed in Section 5.2 of this report.

Further, it is noted that the above issues have been considered in relation to this REF as follows. Section 17.1 of the REF indicates that the precautionary principle has been considered in the development of the Proposal and that it is consistent with the principles as set down in the *Protection of the Environment Administration Act 1991*. Section 17.2 of the REF considers inter-generational equity of the Proposal and notes that it would have long-term benefits and is supported by WaterPlan 2050. Section 17.3 of the REF notes that the Proposal would conserve the biological diversity and ecological integrity within the Proposal area. Consideration of NES matters under the EPBC Act is provided in Section 20.3 of the REF.

It is not uncommon for public authorities to be both proponent and a determining authority for water supply infrastructure. There is a clear process set down under the EP&A Act and supporting legislation to be followed with respect to the determination process. As indicated in Section 1.2, Council has engaged Aurecon to undertake an independent determination of the Proposal. It should be noted that there is no statutory requirement for this.

As part of preparation of this report, clarification has been sought from the applicant on matters where it was considered insufficient information had been provided in the REF and/or supporting documentation. This included addressing the issue of the perceived deferral of assessment of certain impacts. Where considered appropriate, conditions of approval have been recommended in relation to individual matters. In some cases this includes undertaking additional investigation prior to the start of construction activities that could affect the aspect in question (refer recommended conditions of approval 14 and 15).

Recommend approval conditions

No specific conditions of approval are considered necessary in relation to this issue.

5.6 Noise and vibration

Summary of issues

- The REF fails to understand, professionally assess, calibrate and review the acoustic environment of the project.
- No site specific background noise monitoring was undertaken.
- Rated sound levels are for new equipment.
- No noise level for dewatering equipment.
- No real assessment of impulsive noise from rock breakers or the like.

Consideration of issues

Section 10 of the REF relates to the potential noise and vibration impacts from construction and operation of the Project. No site specific background noise monitoring was undertaken for the project and background noise levels were assumed to be low. This assumption leads to a conservative approach when assessing the impacts of the Project.

In terms of construction noise levels, Section 10.4 of the REF notes there is a risk that construction activities would exceed the noise goals for the project. In terms of operational noise, Section 10.3.2 of the REF states a minimum *Industrial Noise Policy* criterion of 35 dB(A) has been proposed for the Wyong River Off-Take Pump station and the Mangrove Transfer Pumping Station.

Management of noise and vibration impacts usually includes restrictions on hours of construction and/or operation. Section 4.6.13 of the REF identifies the proposed working hours which are consistent with DECCW guidelines. It notes the possibility of some out of hours works for micro-tunnelling and indicates that separate approval would be required.

The REF notes the assessment has been prepared with consideration given to Section 171 of the DECC's Noise Control Guideline (NCG) and the DECC's *Assessing Vibration: A Technical Guideline*. Recommended mitigation measures for both construction and operation are provided in Section 10.4.1 of the REF.

The noise control guideline has been superseded by the recently released *Interim Construction Noise Guideline* (DECC, July 2009) which in turn replaces the *Draft Construction Noise Guideline* which was released in October 2008. It is acknowledged that the noise assessment part of the REF may have been undertaken prior to this date. However, it is considered appropriate that management of construction noise impacts be undertaken to be consistent, as far as practicable, with this guideline, particularly as there is increased emphasis in the guideline on consultation with the directly affected community.

As noted in Section 4.3, it is important that affected members of the community be kept informed of any works required to be undertaken outside of the recommended hours (such as delivery of over-sized plant) that could impact on their amenity. This is consistent with the *Interim Construction Noise Guideline*.

Section 6 contains several broad recommendations (Nos 5-7) relating to keeping the community (particularly directly affected residents) informed of construction activities that could affect their amenity. These are directly relevant to managing construction noise impacts.

Recommend approval conditions

- Council shall prepare a construction noise management plan for inclusion in the CEMP which identifies practical and cost-effective noise abatement measures to be implemented. As far as practicable, the plan shall be consistent with the DECCW's *Interim Construction Noise Guideline*.
- During detailed design a review of operational noise impacts shall be undertaken based on the final design of the facility to assess compliance with the applicable INP criteria for daytime, evening and night time noise levels.
- Where construction work is required to be undertaken outside of the recommended hours, Council shall, where practicable, provide prior notification to affected residents. In the event of emergencies where this is not possible, notification shall be provided as soon as practicable.

5.7 Utilities and services

Summary of issues

- Potential disruption of communication cables which run parallel and close to the proposed pipeline
- In the event of damage to the communications cable, what provision will be in place to ensure emergency calls are able to be made?
- In the event of damage to the communications cable, what provision will be available for businesses and others to maintain communications?
- In the event that a business incurs a loss due to communications failure resulting from the construction works, what provisions will be in place to compensate that business?
- Who will be held responsible for ensuring the compensation, and how would it be evaluated?

Consideration of issues

Section 4.16.11 of the REF identifies utilities that could be affected by the Proposal and provides general details on potential impacts and how these would be managed. The level of detail provided is considered adequate. The REF indicates that there would be further consultation undertaken with the individual utility owners as part of the detailed design process. It is expected that each owner would make specific requirements in relation to any construction activities that could affect their respective assets.

It is standard construction management practice to confirm the presence of utilities and services such as telecommunications, water and sewerage pipelines, etc prior to any excavation. The Dial Before You Dig service is specifically intended to provide information to assist in the identification of the exact locations of utilities and services that could be affected by construction activities. Subsequently, formal management practices are implemented during construction, typically as part of an overall construction EMP.

The potential impact on business activities through disruption of telecommunications services from construction activities is considered a valid concern. It is noted that this is also an issue of interest to the broader community. The REF does not provide specific details on the nature of this risk, however, it is noted that the majority of environmental assessments similarly do not go down to this level. Typically, where it is identified as an issue, specific details on managing the risk are provided in a management plan – such as the construction EMP.

It is considered that the issue of compensation for business losses sits outside the planning approval process and there are other avenues available in the event that the issue arises.

Recommend approval condition

- Management of potential impacts on utilities shall be addressed explicitly in the contractor's construction EMP.

5.8 Aboriginal heritage

Summary of issues

- There will be a need to submit an application for an Aboriginal Heritage Impact Permit (AHIP) given the Proposal would disturb, damage or destroy Aboriginal Cultural Heritage values
- The requirement to survey areas previously unassessed for Aboriginal Cultural Heritage Values

Consideration of issues

Section 11 of the REF provides consideration of potential impacts on indigenous (Aboriginal) heritage and is supported by a specialist investigation undertaken by South East Archaeology which is provided as Appendix I to the REF. Section 9 of the specialist report discusses mitigation and management strategies while Section 10 makes specific recommendations relating to managing identified and potential impacts on Aboriginal heritage.

There are statutory obligations on Council under the *National Parks and Wildlife Act 1974* relating to Aboriginal heritage. It is noted that implementation of the recommendations made in Section 10 of the specialist Aboriginal heritage investigation would contribute materially to Council meeting its obligations and accordingly these should be addressed in the construction EMP and other applicable management plans.

Recommend approval conditions

- The recommendations made in Section 10 of the report *Mardi to Mangrove Link Project: Aboriginal Heritage Impact Assessment*, prepared by South East Archaeology Pty Ltd, dated May 2009, shall be implemented in their entirety.
- Management of potential impacts on Aboriginal heritage shall address all the matters identified in Attachment A to the DECCW letter to Council, dated 11 August 2009.

5.9 Other issues

Summary of issues

- The REF does not properly describe the drainage systems within the Project area nor the potential impacts on surface and groundwater quantity and quality. Mitigation measures are also inadequate and imprecise.
- The disposal of water and sludge from scour valves is not addressed in specifics
- No specific methods by which adverse impacts on soils will be mitigated
- The long term productivity and viability of the land as a result of the Project has not been considered
- The REF does not adequately address the hazardous substances likely to be used during construction
- The REF does not consider the whole of life cost to the environment for example replacement of pipe
- The impact of climate change on the project has not been adequately assessed.

Consideration of issues

Potential impacts on surface water and groundwater are addressed in a number of sections of the REF (eg Section 8). It is noted that there is a general prohibition on the pollution of waters under

Section 120 of the POEO Act and that Council would be required to abide by this.

Construction-related impacts on soils would be managed through appropriate controls such as those noted in Section 5.1.

The long term productivity of affected land is not considered to be a significant issue. Section 2.1.2 of the REF indicates that

While the 10-12 metre wide easement for the Mardi-Mangrove Transfer Main would place restrictions on the activities that can be undertaken within the easement to protect the pipe from damage and to allow future access, it does not restrict what can happen on land either side of the easement and access across the easement would be available. Any grazing activities currently undertaken within the proposed easement could recommence upon re-instatement of pasture grasses.

While there would be a temporary disruption to land use during construction, this would not necessarily represent a permanent impact on productivity and viability.

Section 7.4 of the REF makes reference to management of hazardous substances and materials in relation to contamination prevention. Section 8.4.1 also acknowledges the potential environmental risk of hazardous substances and materials through specific management recommendations. The level of detail provided is considered adequate. It is noted that management of this risk would be addressed through the construction EMP and would provide additional details in this regard.

Section 4.3 of the REF indicates that the project objectives include minimising whole-of-life costs. It is noted that evaluation of options typically considers both capital and ongoing costs in identifying a preferred option.

Section 17.5. of the REF discusses potential impacts of climate change on the Proposal and vice versa. While it is acknowledged that there is potentially a significant number of issues that could be covered, and there would be potential to examine these in great detail, the level of detail provided is considered adequate for the purposes of the assessment and the nature of the infrastructure proposed.

Recommend approval conditions

No specific conditions of approval are considered necessary in relation to this issue.

6. Conclusion and Recommended Conditions of Approval

6.1 Conclusion

As indicated in Section 1.2, this Determination Report has been prepared to assist Council in its consideration of the Proposal, and with the purpose of fulfilling the following objectives:

- to provide an overview of the Proposal as described in the REF, and to confirm the statutory process applicable to the determination of the Proposal
- to provide consideration of the issues raised in representations (submissions)
- to document and consider additional information which has bearing on the determination of the Proposal
- to develop recommended conditions of approval as considered appropriate for adoption by Council should it determine to proceed with the Proposal.

It is considered these objectives have been met.

With regard to the extent to which impacts need to be considered, Farrier and Stein² note:

When deciding whether to grant approval for an activity; the determining authority is obliged under section 111 to examine all matters that affect or are likely to affect the environment because of the activity. The authority must take these into account 'to the fullest extent possible'.

Although the requirement to consider impact to the 'fullest extent possible' is phrased in broad language, the Court of Appeal has decided that decision-makers are only obliged to consider impact to fullest extent reasonably practicable. (pp232-233)

It is considered that the assessment of impacts has been undertaken to the fullest extent reasonably practicable.

A number of conditions have been developed to provide additional certainty with respect to the mitigation or management of specific issues. These recommended conditions of approval are provided in Section 6.2 and are based on Aurecon's consideration of the representations made to Wyong Shire Council from the exhibition of the REF, the REF prepared by GHD (June 2009) and information provided by the applicant during preparation of this report.

It is noted that the REF contains information on impact mitigation measures and management strategies to be implemented to ameliorate the impacts of the Proposal. It is intended that the recommended approval conditions be implemented in accordance with those impact mitigation measures and management strategies. This is addressed through Recommended Condition of Approval 1.

Accordingly, with regard to:

- the assessment undertaken in the REF together with the identified impact mitigation measures
- consideration of the substantive issues raised in representations
- consideration of additional information provided to Aurecon

it is recommended that the Mardi to Mangrove Link Project be approved subject to implementation of the conditions of approval provided in Section 6.2 of this report.

² Farrier, D & P Stein (2006) *The Environmental Law Handbook*, 4th ed.

6.2 Recommended Conditions of Approval

The following acronyms and terms are used in this section:

| | |
|----------|---|
| CEMP | construction environmental management plan |
| Council | Wyong Shire Council (or its authorised agent) |
| DECC | (former)Department of Environment and Climate Change |
| DECCW | Department of Environment, Climate Change and Water |
| INP | Industrial Noise Policy |
| Proposal | Mardi to Mangrove Link Project |

General

1. Except as expressly provided by the conditions below, the Mardi to Mangrove Pipeline Link shall be designed, constructed and operated in accordance with:
 - i) the REF *Review of Environmental Factors for the Mardi to Mangrove Link Project*, dated June 2009, prepared for Wyong Shire Council by GHD
 - ii) all identified procedures, safeguards and mitigation measures identified in the REF except where amended in this determination report.
2. These conditions do not relieve Council of the obligation to obtain all other necessary approvals, licences or permits required under any other Act. Without affecting the generality of the foregoing, Council shall comply with the terms and conditions of such approvals, licences and permits.

Construction environmental management plan

3. Prior to the commencement of construction works (including site establishment works preceding commencement of substantial construction), Council shall prepare a construction environmental management plan (CEMP). The plan shall be prepared in consultation with relevant government agencies and public authorities, and any other relevant party. The plan shall be prepared in accordance with these approval conditions, the relevant recommended mitigation measures listed in Chapters 5 to 18 inclusive of the REF, all relevant Acts and Regulations, and accepted environmental management best practice.
4. The CEMP shall address, but not be limited to, the following matters:
 - (i) consultation requirements with relevant government agencies, public authorities and other stakeholders;
 - (ii) specific environmental management objectives and strategies for the main environmental management elements and include, but not be limited to: water quality; noise and vibration; air quality/odours; erosion and sedimentation; heritage and archaeology; groundwater; contamination; waste/resource management; flora and fauna; weed control; hydrology and flooding; geotechnical issues; visual screening, landscaping and rehabilitation; hazards and risks; energy use, resource use and recycling; and utilities;
 - (iii) identification of the statutory and other obligations which Council is required to fulfil during project construction including all approvals and consultation required from authorities and other stakeholders, and key legislation and policies which control construction of the project;

- (iv) definition of the role, responsibility, authority, accountability and reporting of personnel relevant to the CEMP;
 - (v) measures to avoid and/or control the occurrence of environmental impacts;
 - (vi) measures (where practicable and cost effective) to provide positive environmental offsets to unavoidable environmental impacts;
 - (vii) environmental management procedures for all construction processes which are important for the quality of the environment in respect of permanent and/or temporary works;
 - (viii) monitoring, inspection, and test plans for activities and environmental qualities which are important to the environmental management of the project including performance criteria, specific tests, protocols (eg frequency and location) and procedures to follow; and
 - (ix) steps Council intends to take to ensure that all plans and procedures are being complied with.
5. The CEMP shall be made publicly available.
6. Site establishment works may commence prior to finalisation of the CEMP provided all matters relating to these works are explicitly identified in the CEMP and implemented strictly in accordance with the management measures specified in the CEMP. Under no circumstances shall substantial construction works commence until the CEMP is finalised.

Community notification

7. Throughout the construction phase, Council shall keep the local community informed of the progress of the project including any traffic disruptions and controls, construction of temporary detours, changes to local access, and any work required outside normal construction hours.

Contact telephone number and complaints register

8. Prior to the commencement of construction works, Council shall establish and publicly advertise a contact telephone number to operate for the duration of the construction period, to allow any member of the public to make a complaint or comment, or to seek information about the construction works. The contact telephone number shall be staffed during normal business hours. An initial response to any complaints received shall be provided within two working days and, where required, a more detailed response within 10 working days.
9. Details of any complaints received in relation to the proposed augmentation shall be recorded on Council's complaints register.

Flood risk and soils

10. As part of the CEMP, Council shall prepare a comprehensive soil and water management plan in accordance with the Department of Housing (and others) guideline *Managing Urban Stormwater-Soils and Construction*. The plan shall be prepared in consultation with relevant stakeholders, provide full details of all pollution control measures to be undertaken during construction, and satisfy all requirements for all necessary pollution control approvals and/or licences. The plan shall provide justification for the adopted level of flood protection with respect to the identified management controls.
11. Relevant information from the report *Mangrove Rising Main. Concept Design Report*. Report RP-045, prepared by GHD for Wyong Shire Council and dated March 2009, shall be taken into consideration in development of the erosion and sediment control plan

12. During construction, regular inspections of erosion and sedimentation control devices shall be undertaken to ensure that the most appropriate controls are being implemented and that they are being maintained in an efficient condition at all times.

Flora and fauna

13. Information relating to the incorporation of areas into the Streambank Rehabilitation Program should be made publicly available and subject to regular review at a minimum interval of 12 months.
14. No construction activities that could affect stands of *Melaleuca biconvexa* shall commence until the management plan or CEMP are finalised.
15. The issue of adequate consideration of offsetting shall be further investigated in accordance with the DECC offsetting principles. This shall include appropriate consultation with DECCW and be completed within 12 months of the date of Council's determination of the Proposal.
16. The assessment of potential impacts of the amended pipeline route shall be updated in accordance with the EPBC Act Significant Impact Guidelines and the information made publicly available.

Mangrove Creek Dam

17. The operational EMP (or its equivalent) shall provide specific details addressing management of the risk of inter-basin transfer of flora and fauna pest species. Development of the management strategy shall include appropriate consultation with relevant stakeholders.

Noise

18. Council shall prepare a construction noise management plan for inclusion in the CEMP which identifies practical and cost-effective noise abatement measures to be implemented. As far as practicable, the plan shall be consistent with the *Interim Construction Noise Guideline*.
19. During detailed design, a review of operational noise impacts shall be undertaken based on the final design of the facility to assess compliance with the applicable INP criteria for daytime, evening and night time noise levels.
20. Where construction work is required to be undertaken outside of the recommended hours, Council shall, where practicable, provide prior notification to affected residents. In the event of emergencies where this is not possible, notification shall be provided as soon as practicable.

Utilities and services

21. Management of potential impacts on utilities shall be addressed explicitly in the CEMP.

Aboriginal heritage

22. Management of potential impacts on Aboriginal heritage shall address all the matters identified in Attachment A to the DECCW letter to Council, dated 11 August 2009.