



Googong Foreshores Interface Management Strategy

Version 3 – July 2014

Prepared for Googong Township Pty Ltd

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Abbreviations/Definitions

ACT	Australian Capital Territory
ADWG	Australian Drinking Water Guidelines
APZ	Asset Protection Zone
CA Act	NSW <i>Companion Animals Act 1998</i>
CEMP	Construction Environmental Management Plan
Council	Queanbeyan City Council
DA	Development Application
DSEWPaC	Commonwealth Department of Sustainability, Environment, Water, Population and Communities (Department of the Environment from September 2013 onwards)
EEC	Endangered Ecological Community
EPBC Act	Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>
EEP	Environmental Education Program
EP&A Act	NSW <i>Environmental Planning and Assessment Act 1979</i>
GFTI Working Group	the Googong Foreshores – Township Interface Working Group
GFIMS	Googong Foreshores Interface Management Strategy
GFIMS Area	the area to which the GFIMS directly applies
Googong Dam Area	defined as such in the <i>Canberra Water Supply (Googong Dam) Act 1974</i>
Googong DCP	Googong Development Control Plan 2013
Googong Foreshores	equivalent to the Googong Dam Area
Googong Foreshores PoM	Googong Foreshores Plan of Management 2013
Googong LPA	Googong Local Planning Agreement
Googong Reservoir	the body of water impounded by Googong Dam
GTPL	Googong Township Pty Ltd (previously Googong Development Corporation)
LGA	Local Government Area
Management Areas (MAs)	the defined Management Areas that the GFIMS Area is divided into
NSW	New South Wales
NSW LPI	NSW Land and Property Information
NW Act	NSW <i>Noxious Weeds Act 1993</i>
OEH	NSW Office of Environment and Heritage

PTWL	Pink-tailed Worm-lizard (<i>Aprasia parapulchella</i>)
PTWL Conservation Area	the 54 ha area of Googong township dedicated to PTWL conservation
PTWL-P&MP	the Pink-tailed Worm-lizard Protection and Management Plan 2014
Queanbeyan LEP	Queanbeyan Local Environmental Plan 2012
Responsible Party	The party responsible for implementation of this GFIMS
TAMS	ACT Government Territory and Municipal Services Directorate
WoNS	Commonwealth listed Weeds of National Significance

Executive Summary

Located approximately eight kilometres south of Queanbeyan and sixteen kilometres southeast of Parliament House in Canberra, Googong township is a new master-planned community for a population of some 16,000 people, which will be constructed over the next twenty years.

Googong township directly adjoins Googong Foreshores along its entire eastern boundary. Whilst the subdivision works for Googong township will not occur on any part of Googong Foreshores, if not managed effectively, impacts associated with the development and occupation of Googong township have the potential to significantly impact upon the Googong Foreshores values and functions.

The potential implications of an increase of population within close proximity to Googong Foreshores have been a principal consideration throughout the planning and design of Googong township. Such potential implications include potentially contaminating activities during development, increased visitation to Googong Foreshores both legally and illegally, and impacts transmitted to Googong Foreshores and the Googong Reservoir as a result of typical residential occupation (e.g. weeds, feral animals, disposal of aquarium species etc).

Given the potential for the development of Googong township to impact upon 'listed threatened species and ecological communities' and/or 'commonwealth land', in January 2011 Googong township was referred as a proposed 'action' to the Commonwealth Minister for the Environment (the 'Minister'). One of the primary impact mitigation commitments proposed in the referral was to develop and implement a Googong Foreshores Interface Management Strategy (GFIMS). The 'GFIMS Area' (the area to which the GFIMS applies) was proposed to encompass all land within 150 metres of the boundary between Googong township and Googong Foreshores.

The overarching purpose of the GFIMS Area is to provide a buffer zone between Googong township and Googong Foreshores, within which appropriate management will be undertaken to prevent the development and occupation of the Googong township from impacting upon water quality within the Googong Reservoir, listed threatened species, ecological communities and the environment on Commonwealth land.

The Minister approved the development of Googong township in May 2011, subject to a number of Conditions of Approval (CoA). CoA 2 relates to the prevention of impacts associated with the development and occupation of Googong township on listed threatened species, ecological communities and the environment on Commonwealth land (i.e. within Googong Foreshores). In effect, CoA 2 requires GTPL to act upon the commitment proposed in the referral to develop and implement a GFIMS. CoA 3 and CoA 6 set out the requirements for the establishment of a committee to oversee the implementation of the GFIMS and for Googong Township Pty Ltd (GTPL) to periodically report on the GFIMS implementation and compliance.

Prepared in accordance with CoA 2, this GFIMS has been developed to provide an overarching management strategy which details how the GFIMS Area will be managed during the construction and occupation of Googong township. Specifically, this GFIMS provides the following:

- a detailed overview of the background to Googong township and the GFIMS Area;
- a description of the geographical, environmental and planning context and framework for Googong township and the GFIMS Area;

- details pertaining to the GFIMS Area 'concept' (principles, benefits, key potential impacts, spatial design and location, Management Areas and schedule for establishment);
- a description of the restoration (weed removal and revegetation) measures that will be undertaken within the GFIMS Area;
- details pertaining to the protection and maintenance measures that will be implemented to protect the values of both the GFIMS Area and Googong Foreshores;
- the framework for the Environmental Education Program that will be developed by GTPL to educate residents of Googong township and the broader public regarding the importance of protecting the Googong Reservoir catchment and the significant natural and cultural heritage values of the Googong Foreshores and the GFIMS Area; and
- details pertaining to the implementation, annual monitoring and review of this GFIMS and the associated adaptive management of the GFIMS Area.

In accordance with CoA 3, GTPL will maintain the Googong Foreshores-Township Interface Working Group (GFTI Working Group) to oversee the implementation of this GFIMS until all its obligations under this GFIMS have been met and land subdivision and water cycle project works have been completed. The GFTI Working Group, which includes representatives from all the key government and non-government stakeholders, will meet biannually to discuss issues associated with the implementation of this GFIMS and to determine in collaboration if, how and when to act upon them.

The annual GFIMS review will be undertaken to address and/or incorporate the outcomes of the annual monitoring undertaken throughout the GFIMS Area. Required amendments to the GFIMS will be made in consultation with the GFTI Working Group and the revised GFIMS will be implemented. This review process will facilitate adaptive management of the GFIMS Area, providing for continual improvement of the implemented management regime and ensuring that the purpose of this GFIMS and the GFIMS Area is being suitably achieved.

1. Introduction

1.1 Background

1.1.1 Googong township

Located approximately eight kilometres south of Queanbeyan and sixteen kilometres southeast of Parliament House in Canberra, Googong township is a new master-planned community for a population of some 16,000 people, which will be constructed over the next twenty years (refer Figure 1 – Locality Plan). The vision for Googong township is for a new, vibrant and sustainable community with an economic town centre and strong sense of place.

The Googong Township Master Plan broadly sets out the strategic development outcomes for Googong township, including some 5,550 residential homes, small business opportunities, open space and community facilities such as schools, sports fields and local parks. The development of Googong township is required to meet the future demands of residential housing for Queanbeyan and surrounds.

Googong township will encompass approximately 790 ha of land within the Queanbeyan local government area (LGA) that is zoned for urban development in the current 2012 Queanbeyan Local Environment Plan (the 'Queanbeyan LEP') (Queanbeyan City Council 2012).

Googong township will be delivered by Googong Township Pty Ltd (GTPL), a joint venture entity formed by CIC Australia Pty Ltd and Mirvac Pty Ltd.

It is noted however that whilst GTPL currently controls most of the land encompassed by Googong township, as shown in Figure 2, certain areas of Googong township are controlled by other parties at this time and these were excluded from the referral of Googong township under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and subsequent approval. Approval requirements under the EPBC Act are yet to be determined for the excluded areas, however these areas are not included in the area the subject of this Googong Foreshores Interface Management Strategy (GFIMS). As such, the obligations accepted by GTPL as detailed in this GFIMS will not apply to the excluded land.

1.1.2 Googong Foreshores

Googong Foreshores is located in NSW, to the south-east of the ACT and 13 km by road from Queanbeyan. Within Googong Foreshores the waters of the Queanbeyan River and its tributaries are impounded by the Googong Dam to form a linear tapering reservoir. As defined in the Commonwealth *Canberra Water Supply (Googong Dam) Act 1974* as the Googong Dam Area, the Googong Foreshores area encompasses Googong Dam, a short section of the Queanbeyan River below the dam, the reservoir, land either side of the reservoir, and further south, land either side of the Queanbeyan River and Burra Creek (TAMS 2013).

The primary purpose of the Googong reservoir and surrounding Googong Foreshores area is the provision of high quality raw water for the supply of potable water to the Australian Capital Territory and Queanbeyan. Other important values of the area are natural and cultural heritage, recreation, education and research (TAMS 2013). Recreation, in particular, must be carefully managed in the Googong Foreshores and on the Googong reservoir to ensure compatibility with the primary water supply purpose.

The Commonwealth Government acquired the Googong Foreshores area (5,089 ha) from NSW in 1973 for the purpose of constructing Googong dam. Most of the catchment remains under the control of NSW however the ACT Government Territory and Municipal Services Directorate (TAMS) manages the Googong Foreshores area on behalf of the ACT Government, under a formal 150 year lease between the Commonwealth and ACT governments (the Googong Lease). The water supply infrastructure at Googong is owned and managed by ACTEW Corporation which the ACT Government regulates in regard to taking water from the reservoir and the provision of environmental flow releases from the dam.

Paramount to the planning process of Googong township has been the protection of Googong Foreshores and the Googong Reservoir. A fundamental aspect of the Googong township proposal has from the outset been that no material impacts on the water quality of the Googong reservoir would occur as a result of the development or occupation of the township.

1.1.3 Googong township – Googong Foreshores interface

Googong township directly adjoins Googong Foreshores along its entire eastern boundary. Whilst the subdivision works for Googong township will not occur on any part of Googong Foreshores, if not managed effectively, impacts associated with the development and occupation of Googong township have the potential to significantly impact upon the Googong Foreshores values and functions.

As illustrated in on the Queanbeyan LEP and associated mapping (Queanbeyan City Council 2012), a number of legal measures have been put in place to protect Googong Foreshores from negative environmental impacts associated with the development of Googong township. Figure 3 illustrates the land zoning for Googong township, while the Googong Township Master Plan (Figure 4) illustrates the planned development of the township. The Queanbeyan LEP includes two fundamental protection measures put in place to avoid impacts upon Googong Foreshores. These measures were implemented to address both impacts during the development phase and impacts during occupation of Googong township.

Firstly, as illustrated on the Queanbeyan LEP Land Zoning Map - Sheet LZN_007 (refer Figure 3), a strip of land with a minimum width of 50m running along the entire eastern boundary of Googong township has been zoned 'E2-Environmental Conservation'. This zoning has been extended in the southeast corner of the township in order to encompass the small residual area within the Googong township boundary that falls within the Googong reservoir catchment (the overlapping area comprising 39.9 ha, less than 0.05 per cent of the Googong dam catchment). Where the catchment boundary encroaches into Googong township the 50m wide strip extends west from the catchment boundary into the township. The objectives of land zoned 'E2-Environmental Conservation' are:

- (1) *To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.*
- (2) *To prevent development that could destroy, damage or otherwise have an adverse effect on those values.*
- (3) *To protect threatened species and rivers, creeks and gully ecosystems within Queanbeyan.*
- (4) *To identify and protect escarpment areas that enhance the visual amenity of Queanbeyan and possess special aesthetic or conservational value.*
- (5) *To protect water quality by preventing inappropriate development within catchment areas.*

Secondly, as illustrated on the Queanbeyan LEP Googong Map - Sheet GNG_007 (reproduced in Figure 5), a 150m wide 'Googong Foreshore Buffer Area' has been defined along the eastern boundary of Googong township. Where the catchment boundary encroaches into Googong township the Googong Foreshore Buffer Area extends west 150m from the catchment boundary into the

township. The easternmost 50m of the Googong Foreshore Buffer Area comprises the above described 50m wide strip of 'E2-Environmental Conservation' zoned land.

The Queanbeyan LEP contains the following development control clause relating to the Googong Foreshore Buffer Area.

Clause 6.5 – Development near Googong Dam foreshores

- (1) The objective of this clause is to protect Googong Dam water supply catchment from inappropriate development that may compromise water supply and quality.*
- (2) Development consent must not be granted to the erection of a building on land identified as "Googong Foreshore Buffer Area" on the Googong Map unless the consent authority is satisfied that:
 - (a) the building and associated infrastructure envelop identified for each lot will be appropriate, having regard to the land capability and objective of this clause, and*
 - (b) the development will incorporate an appropriate management regime relating to bush fire control, vegetation clearing, access provision, fencing controls, recreational uses, feral animal and weed control, management of grazing, keeping of animals and landscaping with indigenous species.**

The combination of these controls will ensure that no inappropriate development can occur within the Googong reservoir catchment and that any development within 150m of the catchment boundary must meet strict environmental protection consent criteria before development consent will be granted.

1.1.4 Googong Foreshores Interface Management Strategy

During planning for Googong township, CIC Australia established the Googong Township-Foreshores Interface Working Group (the 'GFTI Working Group'). The GFTI Working Group includes representatives from all the key government and non-government stakeholders, being:

- Commonwealth Department of the Environment (previously the Sustainability, Environment, Water, Population and Communities (DSEWPac));
- Commonwealth Department of Finance;
- ACT Government Territory and Municipal Services (TAMS);
- ACTEW Corporation (ACT Energy and Water);
- Queanbeyan City Council; and
- Googong Township Pty Ltd.

The purpose of the GFTI Working Group is to maintain a collaborative relationship between all of the key stakeholders to ensure the efficient and effective protection of Matters of National Environmental Significance and Commonwealth Land and to resolve interface issues that may arise during the development of Googong township.

As determined in consultation with the GFTI Working Group, GTPL (then Googong Development Corporation) proposed to commit to developing a management regime for the land within the 'Googong Foreshore Buffer Area' as shown on the Local Clause Map in the Queanbeyan Local Environmental Plan (Googong) 2009 (Queanbeyan City Council 2009). This management regime was to be consistent with the requirements of Clause 7.4(b) of the Queanbeyan Local Environmental Plan

(Googong) 2009. The wording of Clause 7.4 was carried over to become the above described Clause 6.5 of the current Queanbeyan LEP 2012.

On 27 January 2011 Googong township was referred as a proposed 'action' to the Commonwealth Minister for Sustainability, Environment, Water, Population and Communities (the 'Minister'). One of the primary impact mitigation commitments proposed in the referral was to develop and implement a Googong Foreshores Interface Management Strategy (GFIMS). As presented in Figure 1 of the referral (reproduced as Figure 5 of this GFIMS), the area to which the GFIMS was to apply (the 'GFIMS Area') was proposed to encompass:

- the entire 150m wide 'Googong Foreshore Buffer Area' as illustrated on Queanbeyan LEP Googong Map - Sheet GNG_007 (refer Figure 5); and
- the areas of 'E2-Environmental Conservation' zoned land occurring between the 'Googong Foreshore Buffer Area' and the boundary between Googong township and Googong Foreshores.

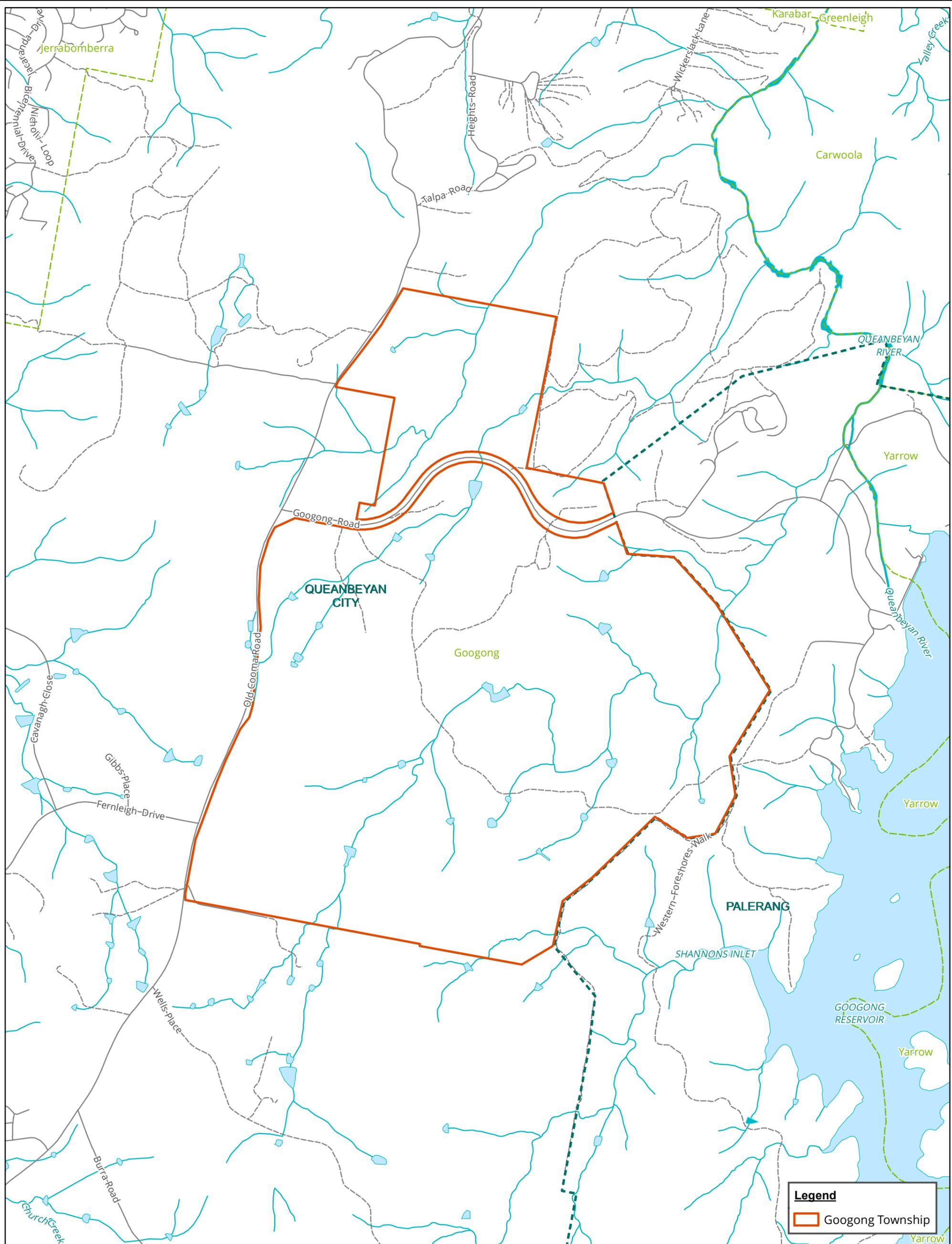


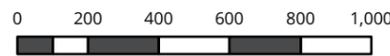
Figure 1: Locality plan



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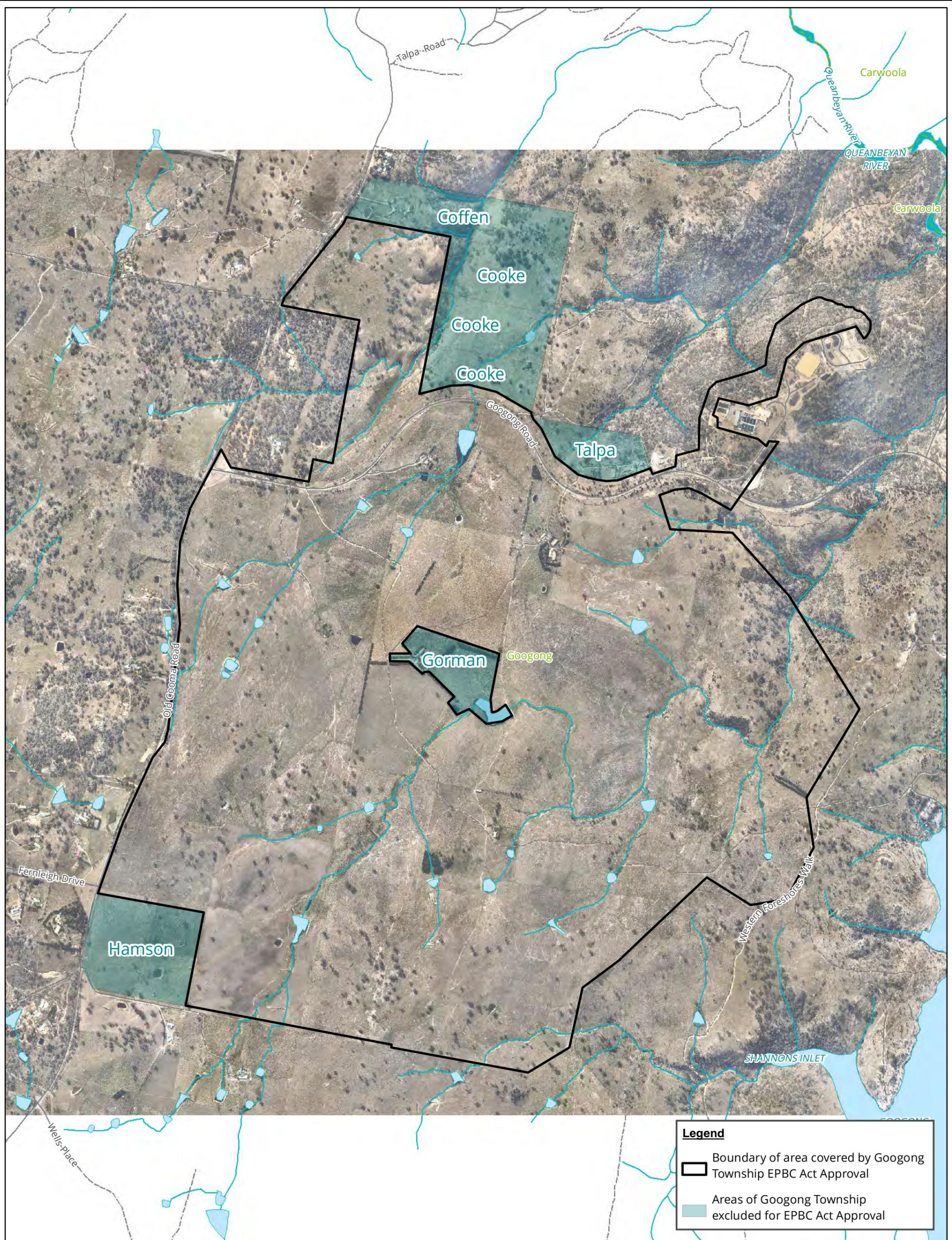
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Metres
 Scale 1:20,000 @ A3
 Coordinate System: GDA 1994 MGA Zone 55





Legend

-  Boundary of area covered by Googong Township EPBC Act Approval
-  Areas of Googong Township excluded for EPBC Act Approval

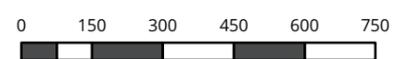
Figure 2: Areas of Googong Township excluded for EPBC Act Approval



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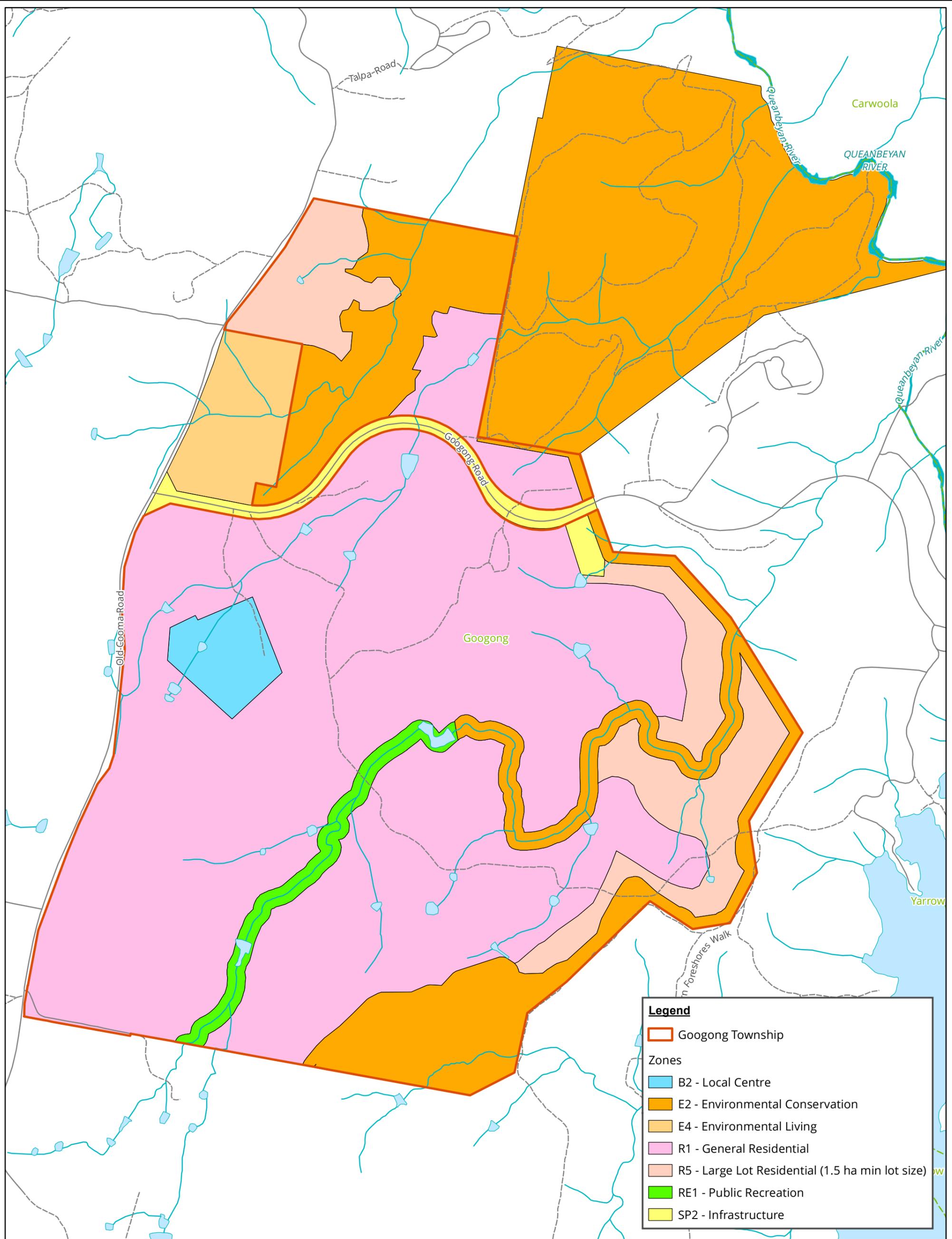


Figure 3: Land Zoning (Queanbeyan LEP 2012)



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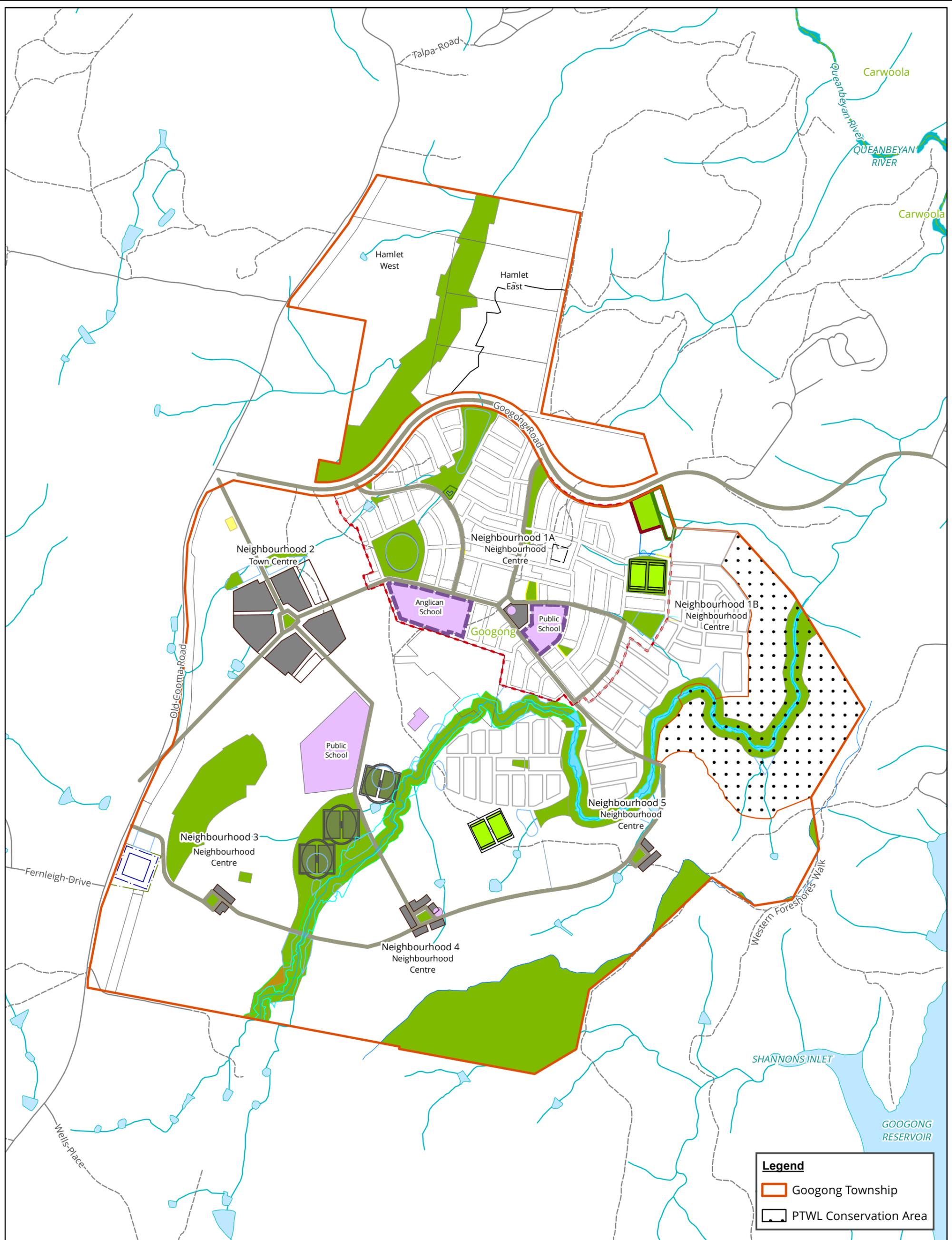
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Metres
 Scale 1:15,000 @ A3
 Coordinate System: GDA 1994 MGA Zone 55





Legend

- Googong Township
- PTWL Conservation Area

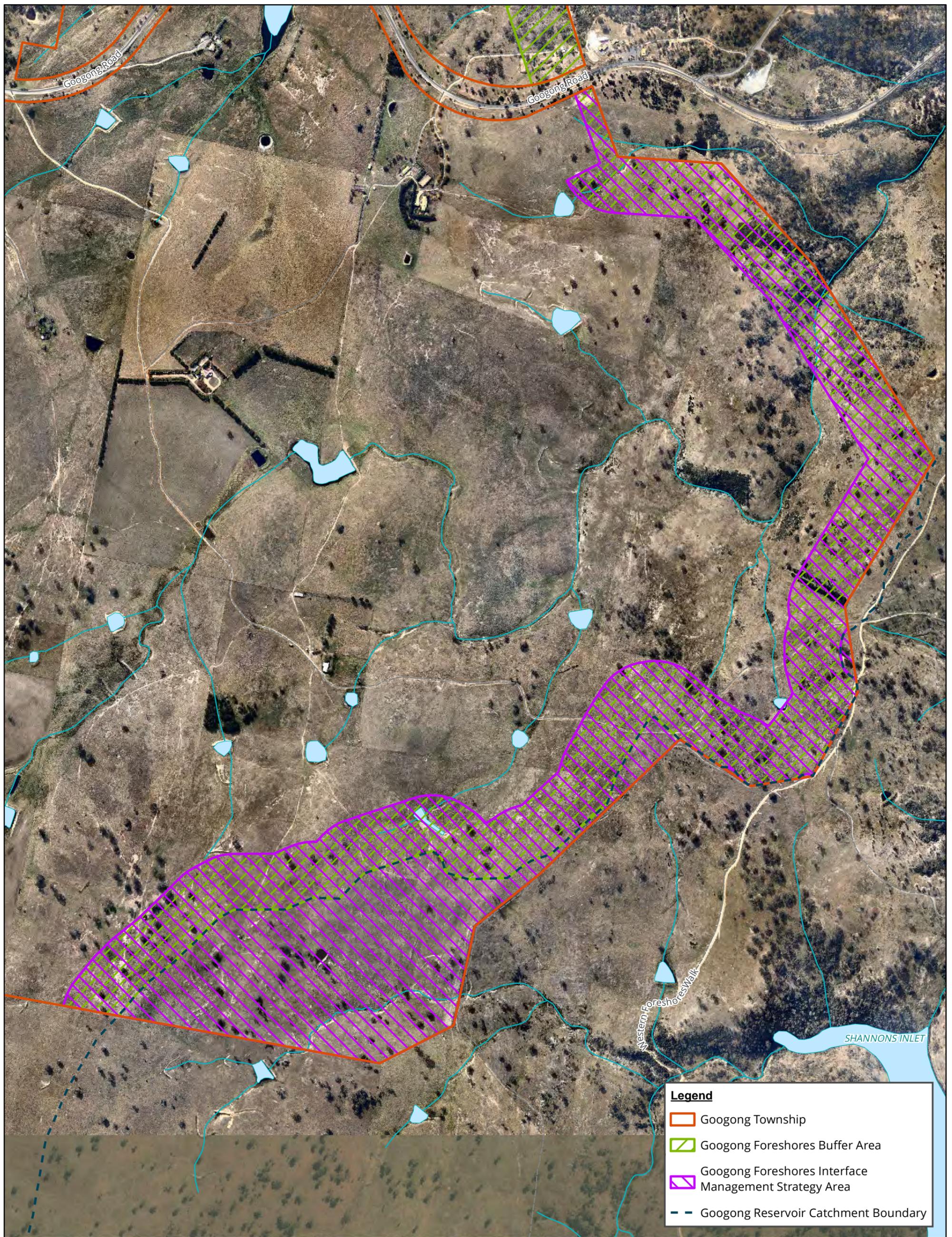
Figure 4: Googong Township Master Plan



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 Masterplan: Roberts Day (2012)
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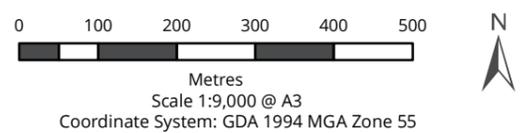
Legend

- Googong Township
- Googong Foreshores Buffer Area
- Googong Foreshores Interface Management Strategy Area
- Googong Reservoir Catchment Boundary

Figure 5: Googong Foreshores Interface Management Strategy Area



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1.2 Purpose

The Commonwealth Minister for the Environment approved the development of Googong township on 19 May 2011, subject to a number of Conditions of Approval (CoA).

CoA 2 relates to the prevention of impacts associated with the development and occupation of Googong township on listed threatened species, ecological communities and the environment on Commonwealth land (i.e. within Googong Foreshores). In effect, CoA 2 requires GTPL to act upon the commitment proposed in the referral to develop and implement a GFIMS. Accordingly CoA 2 has been addressed in this GFIMS in the manner detailed in Table 1 below.

Table 1: Condition of Approval 2

Condition of Approval 2	Sections
<i>To prevent impacts on listed threatened species and ecological communities, and the environment on Commonwealth land, the person taking the action must prepare and submit a Googong Foreshores Interface Management Strategy for the Minister's approval. The strategy must include measures to:</i>	Entire document
<i>(i) Induct construction workers and contractors about requirements to protect threatened species and the environment on Commonwealth Land</i>	5.1.1.2
<i>(ii) Provide indicative environmental management checklists to assist with monitoring the implementation of environmental management obligations during constructions works</i>	5.1.1.3
<i>(iii) The Strategy will commit GTPL to the construction of the fence along the foreshores boundary consistent with Working Group discussions held to date and the details provided in the EPBC Act referral and the Draft Googong Foreshores Township Interface MoU. The Strategy will specify the fence material, height and location and the timing for its staged construction. The Strategy will also commit GTPL to maintain existing rural fences that restrict access to the foreshores until such time as they are required to be removed for development purposes and other means to restrict access to the foreshores are in place.</i>	3.3
<i>(iv) Identify and implement erosion control measures</i>	5.1.1.4
<i>(v) Identify and implement appropriate weed hygiene measures</i>	5.1.1.5 & 5.1.2.2
<i>(vi) Protect and maintain the Googong Foreshores buffer area</i>	4 & 5
<i>(vii) Provide details of financial contributions for the publishing, monitoring and review of the Googong Foreshores Plan of Management</i>	1.3.5
<i>(viii) Provide details of financial contributions for capital and recurrent costs associated with the implementation of the Googong Foreshores Plan of Management</i>	1.3.5
<i>(ix) Manage community and water supply impacts, including measures from the Queanbeyan Local Environmental Plan</i>	4 & 5
<i>(x) Provide details of an environmental education program, which must include information about the protection of water quality in the Googong reservoir</i>	5.1.2.5

Condition of Approval 2	Sections
(xi) <i>Indicate timing and frequency of monitoring to determine impacts and effectiveness of mitigation measures</i>	6.2.5
(xii) <i>Provide performance indicators, specifying outcomes to be achieved and reports of compliance at key milestones</i>	6.2.2
(xiii) <i>Undertake corrective actions if management measures are not achieved</i>	6.2.3
(xiv) <i>Clearly state the person or persons responsible for each management measure</i>	7
(xv) <i>Provide details of how the area to be managed under the Googong Foreshores Interface Management Strategy will be managed in perpetuity</i>	6.1
<i>The area to be managed under the Googong Foreshores Interface Management Strategy is defined by Figure 1 of Appendix 1. This map must be included in the Googong Foreshores Interface Management Strategy.</i>	Figures 5 to 9
<i>The person taking the action must not commence construction of neighbourhoods 1B, 4 or 5, as defined by Figure 8 at Appendix 2, until the Minister has approved the strategy.</i>	2.1
<i>The approved Googong Foreshores Interface Management Strategy must be implemented.</i>	6

CoA 3 details the requirement for GTPL to establish a committee to oversee the implementation of this GFIMS in accordance with CoA 2. The requirements of CoA 3 have been addressed in this GFIMS in the manner detailed in Table 2 below.

Table 2: Condition of Approval 3

Condition of Approval 3	Sections
<p><i>Following approval of the Googong Foreshores Interface Management Strategy and prior to the commencement of construction of neighbourhoods 1B or 5, the person taking the action must establish a committee that would oversee the implementation of the Googong Foreshores Interface Management Strategy and:</i></p> <ul style="list-style-type: none"> <i>i. Invite relevant stakeholders to sit on the committee, including representatives from relevant government agencies;</i> <i>ii. Call committee meeting in May and November of each year to consider and determine responses to issues associated with implementation of the Googong Foreshores Interface Management Strategy until all its obligations under the Googong Foreshores Interface Management Strategy have been met and land subdivision and water cycle project works have been completed;</i> <i>iii. Ensure the committee meets at least once per year;</i> <i>iv. Chair all meetings of the committee and circulate minutes to all representatives and the Minister; and</i> <i>v. Oversee the annual review of the Googong Foreshores Interface Management Strategy as required by condition 6.</i> 	1.1.4 & 6.2

CoA 6 details the requirement for GTPL to report on compliance with the CoA, notably with regard to the implementation of this GFIMS. The requirements of CoA 6 have been addressed in this GFIMS in the manner detailed in Table 3 below.

Table 3: Condition of Approval 6

Condition of Approval 6	Sections
<p><i>Within three months of every 12 month anniversary of the commencement of the action, the person taking the action must publish a report on their website addressing compliance with each of the conditions of approval, including implementation of any management plans and strategies as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with and of the conditions of approval must be provided to the department at the same time as the compliance report is published.</i></p>	6.2.5

1.3 Consistency with other Management Plans and Strategies

The scope and context of this GFIMS is informed by and relates to numerous management plans, some of which have been approved and implemented. Given the complexity of the land management context at Googong, ensuring a consistent and complimentary approach is paramount to successful land management. As such, each of the management plans relevant to Googong township, Googong Foreshores and the interface between them, has been reviewed during the development of this GFIMS. A description of each of the management plans of particular relevance to this GFIMS and the manner in which these documents link with this GFIMS is provided below.

1.3.1 Queanbeyan Local Environment Plan 2012

The Queanbeyan Local Environment Plan 2012 (the 'Queanbeyan LEP'), was made under the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and was adopted pursuant to Section 33A of the EP&A Act on 22 May 2013 by the delegate for the NSW Minister for Planning and Infrastructure. As per Section 1.8 of the Queanbeyan LEP, upon adoption of the Queanbeyan LEP, all local environmental plans and deemed environmental planning instruments applying to the land to which the Queanbeyan LEP applies were repealed. Notably, the adoption of the Queanbeyan LEP resulted in the repeal of the:

- Yarrowlumla Local Environmental Plan 1993; and
- Queanbeyan Local Environmental Plan (Googong) 2009.

Section 1.2 of the Queanbeyan LEP describes the 'aims of the plan' as follows.

- (1) *This Plan aims to make local environmental planning provisions for land in Queanbeyan in accordance with the relevant standard environmental planning instrument under section 33A of the Act.*
- (2) *The particular aims of this Plan are as follows:*
 - (a) *to facilitate the orderly and economic use and development of land in Queanbeyan based on ecological sustainability principles,*
 - (b) *to provide for a diversity of housing throughout Queanbeyan,*
 - (c) *to provide for a hierarchy of retail, commercial and industrial land uses that encourage economic and business development catering for the retail, commercial and service needs of the community,*
 - (d) *to recognise and protect Queanbeyan's natural, cultural and built heritage including environmentally sensitive areas such as Queanbeyan's native grasslands, the Queanbeyan River and Jerrabomberra Creek,*
 - (e) *to protect the scenic quality, views and vistas from main roads and other vantage points within Queanbeyan of the escarpment and Mount Jerrabomberra,*
 - (f) *to maintain the unique identity and country character of Queanbeyan,*

(g) to facilitate the orderly growth of the urban release area in Googong in a staged manner that promotes a high level of residential amenity and the timely provision of physical and social infrastructure through appropriate phasing of the development of land.

The Queanbeyan LEP provides the legal planning framework for the urban subdivision areas of Googong township, including the GFIMS Area. The Queanbeyan LEP specifies the land use zoning for Googong township and the development types and standards that are permitted within each zoning. With specific reference to the GFIMS Area, Clause 6.5 (refer Section 1.1.3) provides additional provisions that apply to the 'Googong Foreshore Buffer Area' (a component of the GFIMS Area, refer Section 3). Accordingly, this GFIMS must ensure that the management regime and specifications provided for the GFIMS Area permit and facilitate the development of the land within to occur in accordance with the Queanbeyan LEP.

1.3.2 Googong Development Control Plan 2013

Adopted by Council at its Planning and Development Review Committee meeting on 12 June 2013, the Googong Development Control Plan 2013 (Googong DCP) supports and supplements the Queanbeyan LEP by providing more detailed development controls for Googong township regarding such aspects as building design, landscaping, car parking and the like. The Googong DCP has been prepared under Section 72 of the EP&A Act and in accordance with the requirements of Clause 6.3 of the Queanbeyan LEP, which requires that Council must not grant consent to the development of land in Googong unless a Development Control Plan has been prepared to provide the detailed objectives and controls for the development of the area.

The Googong DCP provides a framework to guide the future development of Googong township. The Googong DCP specifies natural area and built form controls for the various areas and elements of the township and sets in place urban design guidelines to achieve the vision for Googong township as a vibrant community and as a place to live, work and visit.

The Googong DCP is broadly based on the Googong Township Master Plan, prepared by Queanbeyan City Council based on the CIC Australia Googong Township Master Plan (refer Section 1.3.4).

'Part 3 – The Master Plan' of the Googong DCP provides the framework for the development of Googong township. This is done with the Googong Township Master Plan providing the overarching structure for the township, the Staging Plan then details when the land is to be released for development and the Neighbourhood Structure Plan sets out the detailed layout for each new release area.

'Part 8 – Environmental Management' of the Googong DCP outlines the objectives and development controls relating to general environmental management issues, to apply to development within Googong township. Reference is made to these throughout this GFIMS. Of particular relevance is 'Part 8.13. Development near Googong Dam Foreshores' which reaffirms the requirements set out in Clause 6.5 of the Queanbeyan LEP relating to development on land identified as 'Googong Foreshore Buffer Area' on the Queanbeyan LEP Googong Map - Sheet GNG_007 (reproduced in Figure 5).

1.3.3 Googong Local Planning Agreement

Made in November 2011 under Section 93F of the EP&A Act, the Googong Urban Development Local Planning Agreement (the 'Googong LPA') is a formal agreement between GTPL and Council, pertaining to the development of Googong township (Lindsay Taylor Lawyers 2011). The Googong LPA details the contributions to be made by GTPL, including the irrevocable dedication of land for environmental conservation and various other purposes.

As specified in Schedule 1 – Development Contributions of the Googong LPA, Table 4 below provides the contributions GTPL have committed to making which are of relevance to this GFIMS and the GFIMS Area (i.e. those to 'public open space'). (Note: the components of Item 1.11 which are of no relevance to the GFIMS Area have not been reproduced in Table 4).

Table 4: Development contributions for Googong township (Public open space)

Item	Manner and extent	Timing	Value
1.02 Dedication of land for open space	<p>Subject to detailed design and final survey, the Developer is to dedicate 123.07 hectares of Open Space Land - Encumbered generally consistent with the open space plan in Schedule 4:</p> <ul style="list-style-type: none"> • Buffer corridor - Old Cooma Road (10.09 ha); • Catchment Dam (34.33ha); • Drainage reserve (E2 Zone) (40.58ha); and • Pink-tailed Worm-lizard Conservation Area (excluding E2 land) (38.07ha). 	To be dedicated progressively in accordance with the timing set out for Item 1.11 and clause 9.3 of this Agreement.	\$2,554,933
1.11 Environmental management - Embellishment of local open space	<p><u>Dam Foreshore Protection</u> Generally consistent with the LOSS. Hard landscaping to include bush track, small shelter with 1 x interpretive signage, wayfinding signage and benches. Soft landscaping to include bushland restoration and general landscaping to meet designation requirements.</p> <p><u>Pink-tailed Worm-lizard Conservation Area</u> Works as described in the Pink-tailed Worm-lizard Impact Assessment report prepared by Biosis dated January 2011 including:</p> <ul style="list-style-type: none"> • removal of exotic woody vegetation; • translocation of rocks into the PTWL Conservation Area; • revegetation with native grasses; and • establishment of a fence around the boundary of the PTWL Conservation Area. 	Embellishments to be provided progressively prior to the issue of a Subdivision Certificate for adjacent development.	TBA

The entirety of the land to be dedicated for public open space as specified in Item 1.02 (i.e. the 'PTWL Conservation Area' and 'Catchment Dam') occurs within the GFIMS Area. As detailed in Section 3.1 of this GFIMS, the PTWL Conservation Area will become Management Area 1 of the GFIMS Area and the Catchment Dam area will become Management Area 2. Accordingly, the establishment, restoration, protection and maintenance measures prescribed in this GFIMS for Management Areas 1 and 2 have been developed to be consistent with the development commitments made by GTPL under Items 1.02 and 1.11.

Following dedication of the above described land to public open space and handover of the associated management to Council, the land will irrevocably become publicly owned land. It will then be the responsibility of Council to classify the land as community land and prepare a plan of management in accordance with the requirements of section 36 of Part 2 of the *Local Government Act 1993*. This will further enable Management Areas 1 and 2 of the GFIMS Area to be protected in perpetuity and provide Council with the authority to manage the land as an asset. This irrevocable dedication of the land to public ownership will ensure that the land cannot be used for another purpose in the future.

1.3.4 Googong Township Master Plan

Googong township is what is known as a masterplanned township, which means it will develop in a planned and strategic manner rather than an ad hoc way. The Googong Township Master Plan creates five distinct but connected neighbourhoods.

The Googong Township Master Plan provides the layout for the development of Googong township, including the location of residential areas, schools, commercial precincts, recreational facilities, parks and land to be reserved for conservation purposes.

Under the Master Plan, each of the five neighbourhoods within Googong township will have its own character while still being linked into the wider township. The overall purpose of the Googong Township Master Plan is to guide orderly and sequential development through the next 20 years, providing the community with information on the facilities and neighbourhoods to be developed.

The Googong Township Master Plan has been developed concurrently with the Queanbeyan LEP 2012 and previously with the Queanbeyan Local Environmental Plan (Googong) 2009. The Queanbeyan LEP provides the legal planning framework for the implementation of the Master Plan whilst the Master Plan sets out how this planning framework will be enacted on the ground. Accordingly, consistency of approach between these two planning documents has been, and will continue to be, paramount to the effective design and development of Googong township.

The area encompassed by the Googong Township Master Plan includes the entire GFIMS Area. As such, the management measures detailed in this GFIMS must be compatible with the design and intentions of the Master Plan.

1.3.5 Googong Foreshores Plan of Management 2013

The Googong Foreshores Plan of Management 2013 (the 'Googong Foreshores PoM') (TAMS 2013) identifies the values of the Googong Foreshores and outlines how they will be protected and enhanced. The Googong Foreshores PoM provides a management framework which aims to ensure that the area's primary purpose of supplying drinking water is safeguarded, as well as protecting other values including natural and cultural heritage. The plan provides guidance to land management agencies and informs the community and visitors about the primary objectives in managing the area (TAMS 2013).

The 'vision' of the Googong Foreshores PoM is:

Googong Foreshores is an attractive and biologically diverse area that provides a source for high quality potable water, protects natural and cultural heritage, and is valued for its recreational opportunities.

The Googong Foreshores area (the land to which the Googong Foreshores PoM applies) directly adjoins Googong township along the township's entire eastern boundary. As such, the GFIMS Area (land to be managed in accordance with this GFIMS) directly adjoins the Googong Foreshores (land to be managed in accordance with the Googong Foreshores PoM). Given this proximity, the

management of the GFIMS Area must be compatible with, and complementary to, the management of the Googong Foreshores.

In recognition of the importance of the Googong Foreshores PoM and the direct link between the effective management of Googong Foreshores and the GFIMS Area, GTPL has made, or has committed to make, the following contributions to the development and implementation of the Googong Foreshores PoM.

Contributions for the publishing, monitoring and review of the Googong Foreshores Plan of Management

(vi) Provide details of financial contributions for the publishing, monitoring and review of the Googong Foreshores Plan of Management.

GTPL has made the following financial contributions to the ACT Government, Parks and Conservation Service for the publishing, monitoring and review of the Googong Foreshores Plan of Management:

1. \$5,000.00 towards the publishing of the Googong Foreshores Plan of Management; and
2. \$20,000.00 towards monitoring patronage.

Contributions for capital and recurrent costs associated with the implementation of the Googong Foreshores Plan of Management

(vii) Provide details of financial contributions for capital and recurrent costs associated with the implementation of the Googong Foreshores Plan of Management.

ACT Government, Parks and Conservation Service has agreed to accept GTPL's financial contributions for the capital and recurrent costs associated with the implementation of the of the Googong Foreshores Plan of Management as set out below:

1. \$25,000.00 to update the Googong Foreshores Plan of Management in 2015-16.
2. \$1,110,000.00 in total towards capital works and/or maintenance and land management programs. This financial contribution comprises:
 - \$322.36 to be paid for each of the first 1033 Final lots within fifteen (15) working days following registration of each plan by NSW Land and Property Information (LPI);
 - \$477.86 to be paid for the subsequent 1626 Final Lots within fifteen (15) working days following registration of each plan by of by NSW LPI.

On request, the ACT Government, Parks and Conservation Service will provide evidence to the Department of the Environment and GTPL that demonstrates that payments made have been appropriately used for the agreed purpose.

1.3.6 Googong Township Integrated Water Cycle – Part 3A Approval

In line with GTPL's vision for Googong township, the township will utilise contemporary environmental and social sustainability processes, including water reuse and savings that will target reductions in potable water use of 60–70 per cent compared to traditional developments. The delivery of an Integrated Water Cycle (IWC) for Googong township will ensure more sustainable urban use of the region's water resources. This will be achieved through reducing potable water demand, maximising water reuse and minimising environmental impacts of the new development.

The Googong township IWC Project was referred to the Commonwealth Minister for the Environment as part of the referral of Googong township. Accordingly, the Googong township IWC

Project was declared a controlled action under the EPBC Act, and subsequently approved on 19 May 2011, subject to conditions.

On 24 November 2011 the NSW Minister for Planning and Infrastructure granted project approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for Stage 1 of the Googong township IWC Project. Stage 1 of the IWC includes:

- the bulk water pumping station;
- the water recycling plant to treat sewage from the Googong township to a standard suitable for non-potable urban re-use and discharge to the environment, and associated pumping station;
- two sewage pumping stations
- reservoirs for recycled and potable water; and
- rising and distribution mains for potable water, recycled water and sewage.

The project will be delivered in stages, which have been linked to the anticipated population growth for Googong township.

Whilst none of the infrastructure for the Googong township IWC Project will be located within the GFIMS Area, as illustrated in Figures 4 and 5, the water recycling plant will be positioned immediately adjoining the GFIMS Area.

1.3.7 Googong Township – Pink-tailed Worm-lizard Protection and Management Plan 2012

Habitat assessments carried out during broader ecological surveys completed by Biosis (formerly Biosis Research, 2009) throughout Googong township identified the potential habitat for the Pink-tailed Worm-lizard (*Aprasia parapulchella*) (PTWL) associated with the lower reaches of Montgomery Creek. This potential habitat (in addition to the previously recognised potential habitat on Reservoir Hill) was surveyed by Biosis Research with two live PTWL and one slough (shed skin) being recorded near Montgomery Creek (Biosis Research & Ecwise Environmental 2009).

In order to more accurately determine the significance of the PTWL population occurring along Montgomery Creek, in spring 2010 GTPL commissioned Biosis Research to conduct intensive targeted surveys and prepare habitat quality mapping throughout the areas of previously identified potential habitat. Approximately 6,200 suitably sized habitat rocks were turned and thirteen live PTWL individuals and three sloughs (shed skins) were recorded.

Owing to the results and observations of the 2010 study and previous studies conducted by Biosis Research (2009) and the Johnstone Centre (2004), the PTWL habitat associated with the lower reaches of Montgomery Creek is considered to constitute the only considerable area of PTWL habitat within the Googong township boundary.

The results of the 2010 surveys and habitat mapping were used to inform the preparation of an EPBC Act Significant Impact Criteria assessment (Commonwealth of Australia 2008) and to make recommendations for the design and ongoing management of a proposed PTWL Conservation Area. In accordance with the recommendations provided, GTPL proposed to establish, rehabilitate and dedicate to public ownership, a 52 ha PTWL Conservation Area within Googong township. The EPBC Act Significant Impact Criteria assessment concluded that a significant impact upon PTWL would be unlikely to occur as a result of the proposed development of Googong township, provided the proposed PTWL Conservation Area is established and appropriately managed in perpetuity.

As such, this approach to the management of the PTWL within Googong township was proposed by GTPL in the submission of an EPBC Act referral of the proposed 'action' to the Commonwealth Minister for the Environment for assessment of Googong township against the provisions of Part 9 of the EPBC Act. Condition of Approval 1 of the EPBC Act approval related to the protection and management of PTWL within Googong township and required that:

The person taking the action must prepare and submit a Pink-tailed Worm-lizard Protection and Management Plan for the Minister's approval for the protection of Pink-tailed Worm-lizard (Aprasia parapulchella).

Accordingly, GTPL commissioned the preparation of a Pink-tailed Worm-lizard Protection and Management Plan (Biosis 2012) (PTWL-P&MP) for Ministerial approval. The final PTWL-P&MP was approved by the Delegate for the Minister for Sustainability, Environment, Water, Population and Communities in July 2012. The PTWL-P&MP has since been revised with the most recent revision (Version 5) submitted for approval by the Delegate for the Minister for the Environment in July 2014 (Biosis 2014).

As detailed in Section 3 and illustrated in Figure 8.2, 20.65 ha of the GFIMS Area overlaps the PTWL Conservation Area. From a management perspective, all GFIMS Area land overlapped by the PTWL Conservation Area is to be managed in accordance with the approved PTWL-P&MP. This is further discussed in Section 3.1.

1.4 Structure of this GFIMS

This GFIMS is structured in the following manner:

Section 2 – Describes the concept of the GFIMS Area:

- Subsection 2.1 explains the management and protection principles for the GFIMS Area;
- Subsection 2.2 describes the environmental benefits that will result from the development of Googong township; and
- Subsection 2.3 lists the key potential impacts and management priorities for the GFIMS Area.

Section 3 describes the design of the GFIMS Area;

- Subsection 3.1 describes the Management Areas that the GFIMS Area will be divided into;
- Subsection 3.2 details the fencing to be installed along the Googong Foreshores interface boundary and within the GFIMS Area; and
- Subsection 3.4 details the proposed schedule of establishment of the GFIMS Area.

Section 4 – Describes the establishment and restoration works that will be implemented within the GFIMS Area.

Section 5 – Details the protection and maintenance measures to be implemented for the GFIMS Area:

- Subsection 5.1 details the protection measures to be implemented within the GFIMS Area; and
- Subsection 5.2 details the maintenance measures to be implemented within the GFIMS Area;

Section 6 – Details the implementation and review of this GFIMS:

- Subsection 6.1 details the relevant legal mechanisms and ongoing implementation of this GFIMS; and
- Subsection 6.2 details monitoring and review to be undertaken in accordance with this GFIMS.

Section 7 – Provides a summary of the management measures prescribed in this GFIMS, the proposed timing and the parties responsible for undertaking these measures.

1.5 Consultation undertaken during the development of this GFIMS

1.5.1 Googong Township Foreshores Interface Working Group

During planning for Googong township, CIC Australia established the GFTI Working Group which includes representatives from all the key government and non-government stakeholders, being:

- Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC), now the Commonwealth Department of the Environment;
- Commonwealth Department of Finance and Deregulation;
- ACT Government Territory and Municipal Services (TAMS);
- ACTEW Corporation (ACT Energy and Water);
- Queanbeyan City Council; and
- Googong Township Pty Ltd.

In accordance with CoA 3, GTPL will maintain the GFTI Working Group to oversee the implementation of this GFIMS until all its obligations under this GFIMS have been met and land subdivision and water cycle project works have been completed. The Department of the Environment has advised that the GFTI Working Group constitutes the 'committee' as referred to in CoA 3.

1.5.2 Consultation process undertaken during 2013

The following consultation has been undertaken during the progressive development of this GFIMS:

1. On 20 March 2013 GTPL convened a meeting GFTI Working Group at Googong to visit the GFIMS Area and to discuss and develop approaches for the development of this GFIMS.
2. The draft GFIMS was prepared subsequent to the 20 March meeting with consultation with the relevant members of the GFTI Working Group and other parties occurring as required during development.
3. Following internal review by Biosis and subsequent review by GTPL, the GFIMS – Draft Version 4 was provided to each member of the GFTI Working Group on 26 August for review and comment.
4. A meeting of the GFTI Working Group was held on 26 September 2013 to discuss the draft GFIMS and obtain feedback for incorporation into the subsequent GFIMS revision.

Prior to this meeting, GTPL and Biosis met with the relevant representatives of DSEWPaC, Council and Actew Water to present and work through the draft GFIMS. Phone discussions were also held with TAMS (ACT Government) to obtain preliminary feedback.

The main outcomes and associated actions from the 26 September meeting were:

- a. Outcome – It was decided to incorporate an edge road along the Googong Foreshores – Township interface. The edge road will separate private property from the Googong Foreshores, provide a substantial bushfire hazard reduction measure and provide access to the interface area for maintenance and monitoring purposes.
Action – This edge road has now been incorporated into the Googong Township Master Plan and is addressed throughout this revised GFIMS (refer Section 3.2).
 - b. Outcome – A decision was made to substantially expand upon the detail and scope provided for the Environmental Education Program (EPP).
Action – The EPP section (Section 5.1.2.5) of this revised GFIMS has been expanded accordingly.
 - c. Outcome – A decision was made to amend the boundaries of the land to be allocated to public ownership to remove the smaller linear parcels of land which would have been difficult for Council to manage and maintain effectively.
Action – A portion of the subject land is now to be encompassed by the road reserve for the edge road, the remainder is now to be included within private lots.
5. A follow-up GFTI Working Group meeting (with additional attendance by Dr Don Fletcher, native herbivore expert, ACT Government) was held on 11 October 2013 to negotiate and resolve the competing priorities regarding the need to restrict human access across the Googong Foreshores – Township interface yet permit free movement of native herbivores between Googong Foreshores and the PTWL Conservation Area.
- Outcome – The main outcome of this meeting was that the 1.8m high exclusion fence (Boundary Type 1, refer Section 3.3) will extend around the boundaries of the PTWL Conservation Area which adjoin Googong township, restricting access to the PTWL Conservation Area and Googong Foreshores directly from Googong township. Legal access to the PTWL Conservation Area will therefore only be made available via Googong Foreshores when open to the public (generally 8am to 5pm).
- Action – The fencing regime described in this revised GFIMS includes the installation of a 1.8m high exclusion fence (Boundary Type 1, refer Section 3.3) around the boundaries of the PTWL Conservation Area which adjoin Googong township (in addition to that to be installed along the Googong Foreshores – Township interface).

1.5.3 Consultation process undertaken during 2014

A meeting of the GFTI Working Group was held on 14 May 2014. In addition to providing the GFTI Working Group with an update of the implementation of this GFIMS (as per CoA 3), the purpose of the meeting was to discuss the proposed adjustments to the PTWL Conservation Area boundary, previously set out in a letter from Biosis and provided to the Working Group ahead of the meeting. Prior to this meeting, GTPL and Biosis met with the relevant representatives of the DoE to discuss the proposed adjustments and obtain advice regarding the DoE's requirements regarding revision of the PTWL-P&MP and this GFIMS.

Outcome – No representatives of the GFTI Working Group raised objection to the proposed boundary adjustments, provided that they make provision for appropriate bushfire hazard management and that they result in a position of equal or higher conservation of the PTWL within Googong township.

Action – The PTWL-P&MP and this GFIMS must be revised to appropriately incorporate the proposed PTWL Conservation Area boundary adjustments and be submitted to the DoE for review and

approval by the Delegate for the Minister of the Environment. Accordingly, Version 5 of the PTWL-P&MP and Version 3 of this GFIMS (this version) have been prepared for submission to the DoE.

2. The GFIMS Area Concept

2.1 Management and protection principles

The potential implications of an increase of population within close proximity to Googong Foreshores have been a principal consideration throughout the planning and design of Googong township. Such potential implications include potentially contaminating activities during development, increased visitation to Googong Foreshores both legally and illegally, and impacts transmitted to Googong Foreshores and the Googong Reservoir as a result of typical residential occupation (e.g. weeds, feral animals, disposal of aquarium species etc).

The overarching purpose of the GFIMS Area is to provide a buffer zone between Googong township and Googong Foreshores, within which appropriate management will be undertaken to prevent the development and occupation of Googong township from impacting upon water quality within the Googong Reservoir, listed threatened species, ecological communities and the environment on Commonwealth land.

The ACT Government and ACTEW Water apply the following risk management principles from the Australian Drinking Water Guidelines (ADWG) (National Health and Medical Research Council 2011) to protect public health in the delivery of water from Googong Reservoir:

- multiple barriers are required to protect drinking water quality;
- the most efficient barrier is protection of source waters rather than reliance on treatment;
- source waters should be protected to the maximum degree practicable;
- water quality should be maintained at the highest practicable quality; and
- water quality should not be degraded even if it is currently of better quality than the minimum required.

These management principles, particularly as they relate to the protection of source waters, form the primary basis for the requirement to establish, protect and maintain the GFIMS Area. While parts of the GFIMS Area will be managed to protect their own environmental values (notably the PTWL Conservation Area and other E2-Environmental Conservation zoned land), the primary purpose of the protection and management of the GFIMS Area is to prevent impacts upon the Googong Foreshores and upon water quality within the Googong Reservoir. It is noted however that this purpose is expected to be generally consistent with the management objectives of the land within the GFIMS Area encompassed by the PTWL Conservation Area and/or zoned as E2-Environmental Conservation.

The following principles have been applied by GTPL in determining the design, establishment and management of the GFIMS Area within Googong township:

- the GFIMS Area is to include all land located within Googong township that occurs within the Googong Reservoir catchment;
- the GFIMS Area is to be of a sufficient width and is to be located in a manner that will permit the effective protection of the adjoining Googong Foreshores;
- the GFIMS Area is to be divided into specific Management Areas (MAs) (refer Section 3.1) which reflect the specific management requirements relevant to the Management Area;

- management and maintenance measures will be implemented within the GFIMS Area as required to protect Googong Foreshores from impacts associated with the development and occupation of Googong township; and
- an adaptive management approach is to be implemented for this GFIMS, involving monitoring of management measures, implementation of corrective actions when required and periodic review of this GFIMS.

These principles have been considered by GTPL as 'objectives' to be met during the design and management of both the development and occupational stages of Googong township in order to ensure that the purpose of the GFIMS Area and this GFIMS is met.

2.2 Environmental benefits from the development of Googong township

As discussed in Section 1.1, Googong township has been designed in a manner that will benefit the existing environment in a number of ways. Notably, these include the following.

- The removal of the impacts of hard-hooved exotic herbivores (primarily sheep and cattle) historically kept throughout the GFIMS Area for grazing purposes. Such impacts include:
 - soil compaction;
 - increased erosion and sedimentation of receiving waterways;
 - high intensity grazing and grazing that targets specific native plant species; and
 - weed introduction from stock or fodder sourced from elsewhere.

The removal of sheep and cattle from the parts of Googong township that occur within the catchment of the Googong Reservoir will be of particular benefit.

- The establishment and ongoing protection and management of the 52 ha PTWL Conservation Area, as per the PTWL-P&MP.
- The establishment and ongoing protection and management of the GFIMS Area in the manner specified in this GFIMS, notably the:
 - provision of a program of natural landscape protection and enhancement works within the parts of the GFIMS Area to be dedicated to Council for environmental conservation purposes (notably Management Areas 1 and 2 as detailed in Section 3.1);
 - establishment of strategically designed and located fences to restrict unauthorised access and to facilitate the program of natural landscape protection and enhancement works and other protection measures;
 - stipulation of environmental management measures that must be implemented for any development works occurring within the GFIMS Area;
 - provision of a Environmental Education Program (refer Section 5.1.2.5) with the objective of educating the public regarding the importance of protecting the Googong Reservoir catchment and the significant natural and cultural values within the Googong Foreshores; and
 - unambiguous allocation of responsibilities for the establishment and ongoing protection and management of the GFIMS Area.

2.3 Key potential impacts and management priorities

A risk management approach has been undertaken with regard to the design and management of the GFIMS Area, particularly with respect to the staging of the establishment of the GFIMS Area (i.e. fencing and other establishment works).

Listed in order of priority, the following impacts associated with the development and/or occupation of Googong township are considered to have the highest potential to adversely impact Googong Foreshores.

- Weed introduction, establishment and proliferation – whilst it is acknowledged that numerous exotic weed species currently occur within the GFIMS Area and Googong Foreshores, the development of Googong township has the potential to result in the introduction and establishment of additional weed species and/or the proliferation of the weed species already present. The introduction, establishment and proliferation of weed species within the GFIMS Area has the potential to degrade the ecological, aesthetic and intrinsic values of the GFIMS Area and the adjoining Googong Foreshores.
- Impacts to water quality flowing to Googong Reservoir – development and maintenance activities occurring within the Googong Reservoir catchment ('Management Area 2 – Googong Reservoir Catchment Area' refer Section 3.1) have the potential to result in sedimentation, nitrification and the addition of harmful chemicals to water flowing to the Googong Reservoir. Such impacts have the potential to reduce water quality within the Googong Reservoir, and thus, the quality of potable water for the Canberra-Queanbeyan community.
- Trail bikes – the use of trail bikes within the GFIMS Area is likely to result in increased erosion and sedimentation, disturbance of native flora and fauna, spread of weeds and irritation to nearby residents.
- Four-wheel-drive vehicles – similar to trail bikes, four-wheel-drive vehicles are likely to result in increased erosion and sedimentation, disturbance of native flora and fauna and spread of weeds. However, due to the steep topography throughout and the linear and exposed nature much of the GFIMS Area, movement within by such vehicles will be limited.
- Unleashed/feral dogs and cats – these animals will predate upon native fauna in the GFIMS Area and will not be able to be entirely prevented from moving from the GFIMS Area into the Googong Foreshores. Unleashed dogs also pose a risk to people using the GFIMS Area (i.e. for walking, bird watching, picnics etc).
- Bush rock removal – bush rock removal is recognised as a key threatening process to the PTWL and other native fauna that occur within parts of the GFIMS Area and the Googong Foreshores (NSW Scientific Committee 1999). Whilst the fencing type and schedule detailed in Section 3.3 will prevent unauthorised pedestrian and vehicular access to Googong Foreshores from the GFIMS Area, the removal of bush rock within the GFIMS Area has the potential to reduce the habitat buffer value that the GFIMS Area provides.
- Waste dumping – 'Management Area 4 – Managed Residential Area' of the GFIMS Area (refer Section 3.1) will support residential development and the remaining Management Areas will be located in close proximity to residential development. In addition, much of the GFIMS Area will become publically owned land to which the public will be provided access for permitted activities. As such, the potential will exist for dumping of rubbish (general refuse, garden waste, construction waste etc) within the GFIMS Area. Rubbish dumped in the GFIMS Area will degrade the values of the area and may impact upon the adjoining Googong

Foreshores. Dumping of garden waste has the potential to introduce weeds to the GFIMS Area which may spread into Googong Foreshores.

With regard to all the above key potential impacts, it has been identified by the GFTI Working Group that public education and community engagement is of key importance to the management of the GFIMS Area and consequent prevention of impacts to Googong Foreshores. To this effect, Section 5.1.2.5 details the Environmental Education Program that will be implemented.

3. Design of the GFIMS Area

The GFIMS Area has been designed in a manner that, when managed appropriately, will provide for the effective prevention of impacts associated with the development and occupation of Googong township on water quality within the Googong Reservoir, listed threatened species, ecological communities and the environment within the adjoining Googong Foreshores. As discussed in Section 1.1 (refer Figure 6), the GFIMS Area encompasses 104.28 ha, comprising the following.

- The entire 150m wide 'Googong Foreshore Buffer Area' as illustrated on Queanbeyan LEP Googong Map - Sheet GNG_007 (refer Figure 5) (area = 71.68 ha). As shown on the Queanbeyan LEP Land Zoning Map - Sheet LZN_007 (refer Figure 3), this area comprises:
 - 26.38 ha of land zoned 'E2-Environmental Conservation' (part of which will be dedicated to Council with the remaining for sale as private freehold land);
 - 16.68 ha of land zoned 'R1-General Residential' (for sale as private freehold land); and
 - 27.96 ha of land zoned 'R5-Large Lot Residential' (for sale as private freehold land).

As illustrated in Figures 8.1 to 8.3, 20.65 ha of the GFIMS Area overlaps the PTWL Conservation Area. Whilst this area comprises both E2-Environmental Conservation and R5-Large Lot Residential zoned land, from a management perspective all GFIMS Area land overlapped by the PTWL Conservation Area is to be managed in accordance with the approved PTWL-P&MP. This is discussed further in Section 3.1.

- The areas of E2-Environmental Conservation zoned land occurring within the Googong reservoir catchment, between the Googong Foreshore Buffer Area and the boundary between Googong township and the Googong Foreshores (area = 35.92 ha).

The land encompassed by the GFIMS Area would have supported a mosaic of temperate woodland and dry open forest communities prior to European occupation of the land. Remnants of these ecological communities remain within the GFIMS Area and locality, varying in degree of modification from isolated retained mature eucalypts over exotic pasture (refer Plate 1) to relatively intact patches (refer Plate 2).



Plate 1: Retained mature eucalypts over exotic pasture



Plate 2: Relatively intact patch of temperate woodland

3.1 Management Areas

As illustrated in Figures 8.1 to 8.3, the GFIMS Area will be divided into the following four (4) broad Management Areas:

- **MA 1 – PTWL Conservation Area** – comprising all land encompassed by the GFIMS Area overlapped by the approved PTWL Conservation Area;
- **MA 2 – Googong Reservoir Catchment Area** – comprising all E2-Environmental Conservation zoned land occurring within the Googong reservoir catchment;
- **MA 3 – Googong Foreshores Boundary Buffer Area** – comprising all E2-Environmental Conservation zoned land not occurring within MA 1 – PTWL Conservation Area or MA 2 – Googong Reservoir Catchment Area; and
- **MA 4 – Managed Residential Area** – comprising all R1-General Residential and R5-Large Lot Residential zoned land occurring within the GFIMS Area.

Table 5 provides details of the above listed Management Areas including their primary purpose, management objectives and management actions (detailed further in Sections 4 and 5).

Figures 8.1 to 8.3 show the portions of the GFIMS Area encompassed by each of the above listed Management Areas. Figures 8.1 to 8.3 also show the positions of the typical cross sections developed for the GFIMS Area, for each of which a detailed section elevation and section plan is provided. These cross sections provide illustrative snapshots of the indicative Masterplan for Neighbourhoods 1B, 4 and 5 as they relate to the GFIMS Area and constituent Management Areas.

Table 5: GFIMS Area Management Areas

Management Areas	Total Area (ha)	Primary Purpose	Management Actions
MA 1 – PTWL Conservation Area	<p>Approx. 20.65 ha</p> <p>PTWL Conservation Area = approx. 54 ha</p>	<p>Dedication to Council for the protection and management in perpetuity of the PTWL population occurring within.</p>	<p>Managed in accordance with the approved PTWL-P&MP. Management actions include:</p> <ul style="list-style-type: none"> • establishment and fencing of the western boundary; • weed removal, monitoring and management; • physical removal of Radiata Pine (<i>Pinus radiata</i>) and thinning of Burgan (<i>Kunzea ericoides</i>); • importation of habitat rocks; • translocation of PTWL; • monitoring of PTWL abundance and distribution; • re-establishment and encouragement of native grasses; • monitoring of native grass re-establishment; • implementation of cat prohibition, enforced via the provisions of the NSW <i>Companion Animals Act 1998</i> (NSW CA Act) (refer Section 5.1.2.4); and • management of biomass via native herbivore grazing and active intervention if required.

<p>MA 2 – Googong Reservoir Catchment Area</p> <p>Note: The small semicircular polygons of MA 2 land located south of MA 1 (refer Figure 8.2) and the narrow part of the remainder of MA 2 land located in the south of the GFIMS Area will be incorporated into private lots. These area will therefore be managed as MA 3 land. Specific reference to their location within the Googong Reservoir Catchment and associated sensitivities will be made in the covenant placed over the property.</p>	<p>Approx. 36.27 ha</p>	<p>Primarily dedicated to Council for the protection of the quality of water flowing to the Googong Reservoir. Part will be sold as private freehold residential land under a covenant to ensure protection of the quality of water flowing to the Googong Reservoir.</p>	<p>Managed for the protection of the quality of water flowing to the Googong Reservoir. As detailed in Sections 4 and 5, management actions include:</p> <ul style="list-style-type: none"> • establishment and fencing of boundary; • construction of infrastructure to promote compatible low-impact anthropological activities (mountain biking, bush walking, bird watching etc); • weed removal, monitoring and management; • re-establishment and encouragement of native vegetation (groundstorey, midstorey and canopy); • monitoring of native vegetation re-establishment; • implementation of cat prohibition, enforced via the provisions of the NSW CA Act (applying to publically owned land only, refer Section 5.1.2.4); and • management of biomass via native herbivore grazing and active intervention if required.
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<p>MA 3 – Googong Foreshores Boundary Buffer Area</p> <p>Note: In accordance with the Googong Township Master Plan the following two areas of MA 3 will be managed by Council.</p> <ol style="list-style-type: none"> 6. The approx. 150m long strip of MA 3 located between the Water Recycling Plant and Googong Foreshores (refer Figures 4 and 8.1), managed as open space. 7. The approx. 980m long strip of MA3 located in the south eastern corner of Googong township (refer Figures 4 and 9.3). Here the strip of MA3 functions as an open space buffer to the MA2 – Googong Reservoir Catchment Area. 	<p>Approx. 16.57 ha</p>	<p>To be sold as private freehold residential land or to become public roads or open space. Subject to an appropriate covenant requiring management to provide a minimum 50m wide management buffer along the interface between Googong township and Googong Foreshores.</p>	<p>Managed (by the land owner or Council as relevant) in accordance with the objectives for land zoned E2-Environmental Conservation (Queanbeyan LEP) in order to provide a buffer to Googong Foreshores. Management actions include:</p> <ul style="list-style-type: none"> • establishment and fencing of boundary; • weed removal, monitoring and management; • planting of only indigenous plant species; and • management of biomass via native herbivore grazing and active intervention if required.
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MA 4 - Managed Residential Area	Approx. 30.77 ha	To be sold as private freehold land, subject to an appropriate covenant.	<p>Managed by the land owner for residential purposes that are compatible with the objectives of Clause 6.5 of the Queanbeyan LEP (i.e. implementation of an appropriate management regime relating to bush fire control, vegetation clearing, access provision, fencing controls, recreational uses, feral animal and weed control, management of grazing, keeping of animals and landscaping with indigenous species). Management actions include:</p> <ul style="list-style-type: none"> • establishment and fencing of boundary; • weed removal, monitoring and management; • planting of only indigenous plant species; and • management of biomass via native herbivore grazing and active intervention if required (slashing is likely to be required to maintain Asset Protection Zones (APZs) as stipulated in the Bushfire Management Plan prepared and submitted to Council to gain Development Approval).
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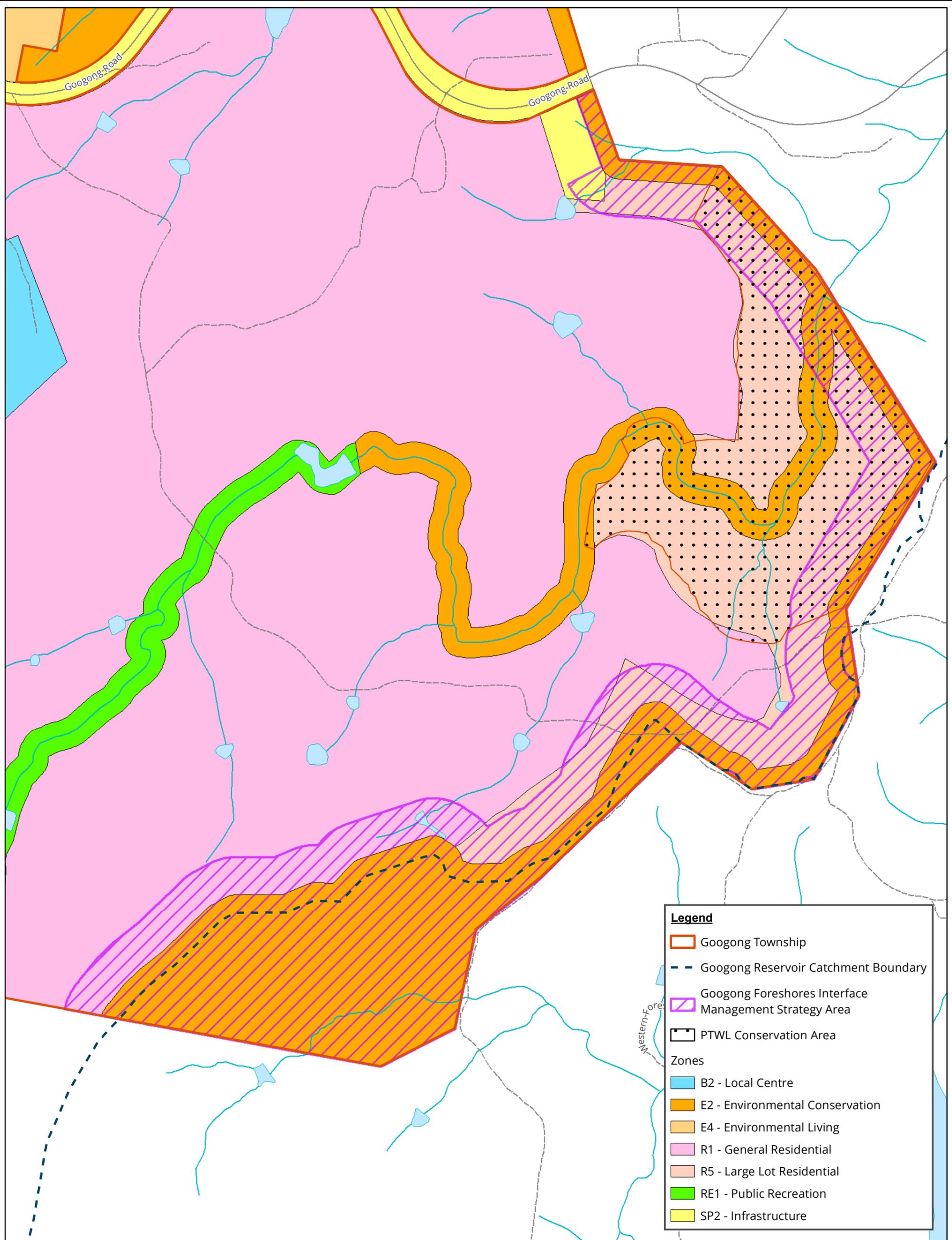


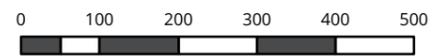
Figure 6: Land Zoning of the Googong Foreshores Interface Management Strategy Area



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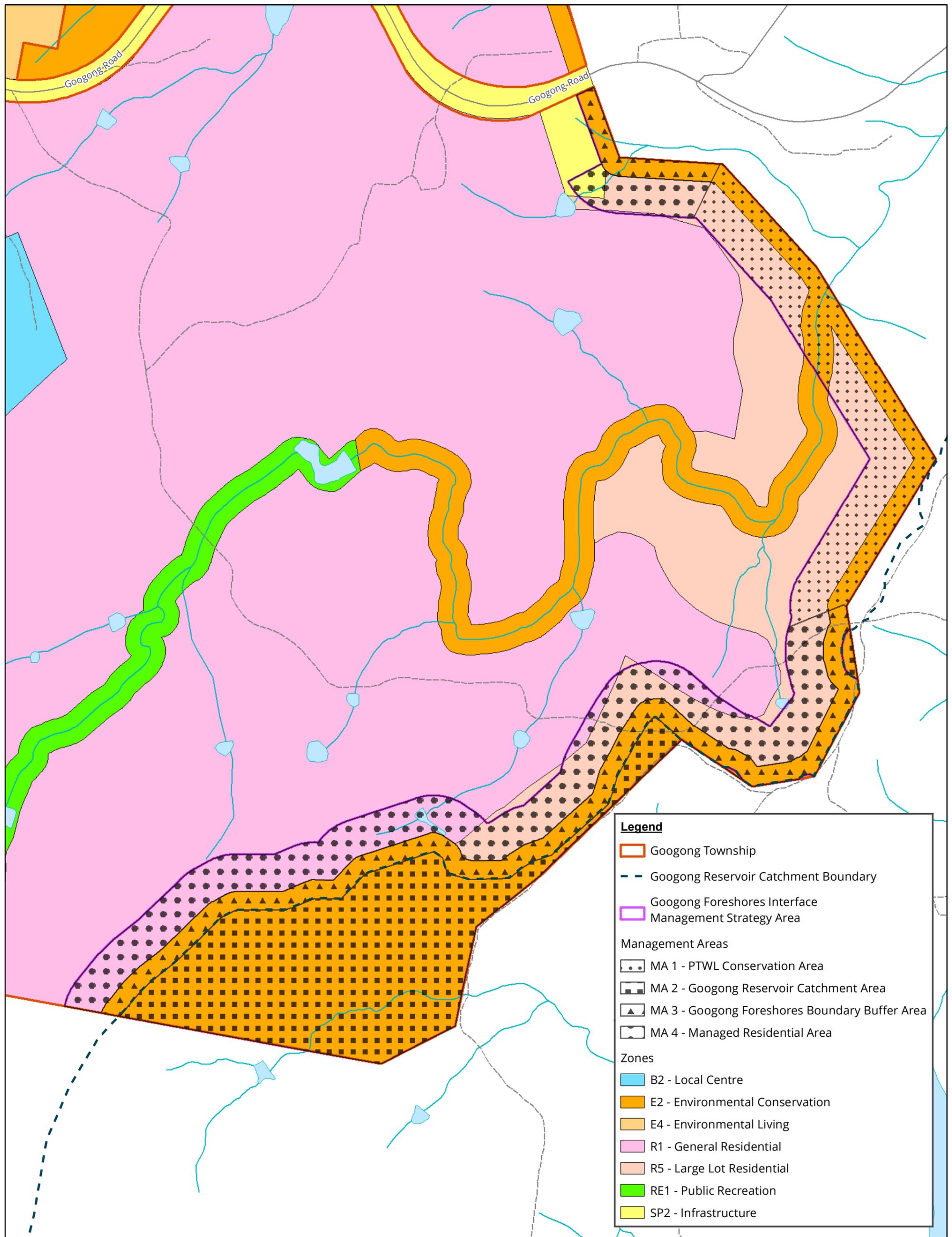
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Metres
 Scale 1:9,000 @ A3
 Coordinate System: GDA 1994 MGA Zone 55





Legend

- Googong Township
- Googong Reservoir Catchment Boundary
- Googong Foreshores Interface Management Strategy Area

Management Areas

- MA 1 - PTWL Conservation Area
- MA 2 - Googong Reservoir Catchment Area
- MA 3 - Googong Foreshores Boundary Buffer Area
- MA 4 - Managed Residential Area

Zones

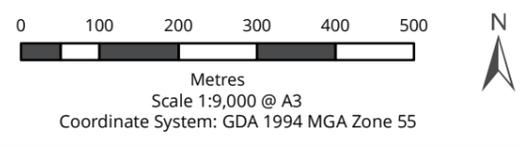
- B2 - Local Centre
- E2 - Environmental Conservation
- E4 - Environmental Living
- R1 - General Residential
- R5 - Large Lot Residential
- RE1 - Public Recreation
- SP2 - Infrastructure

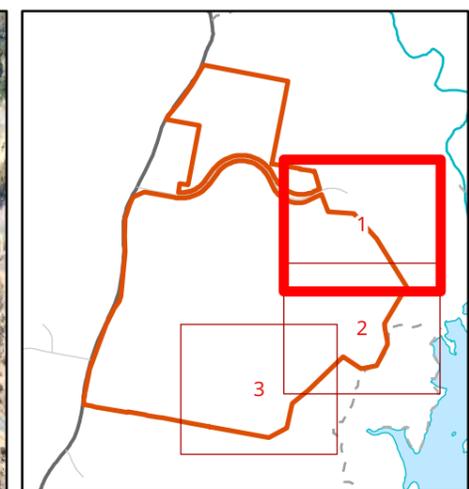
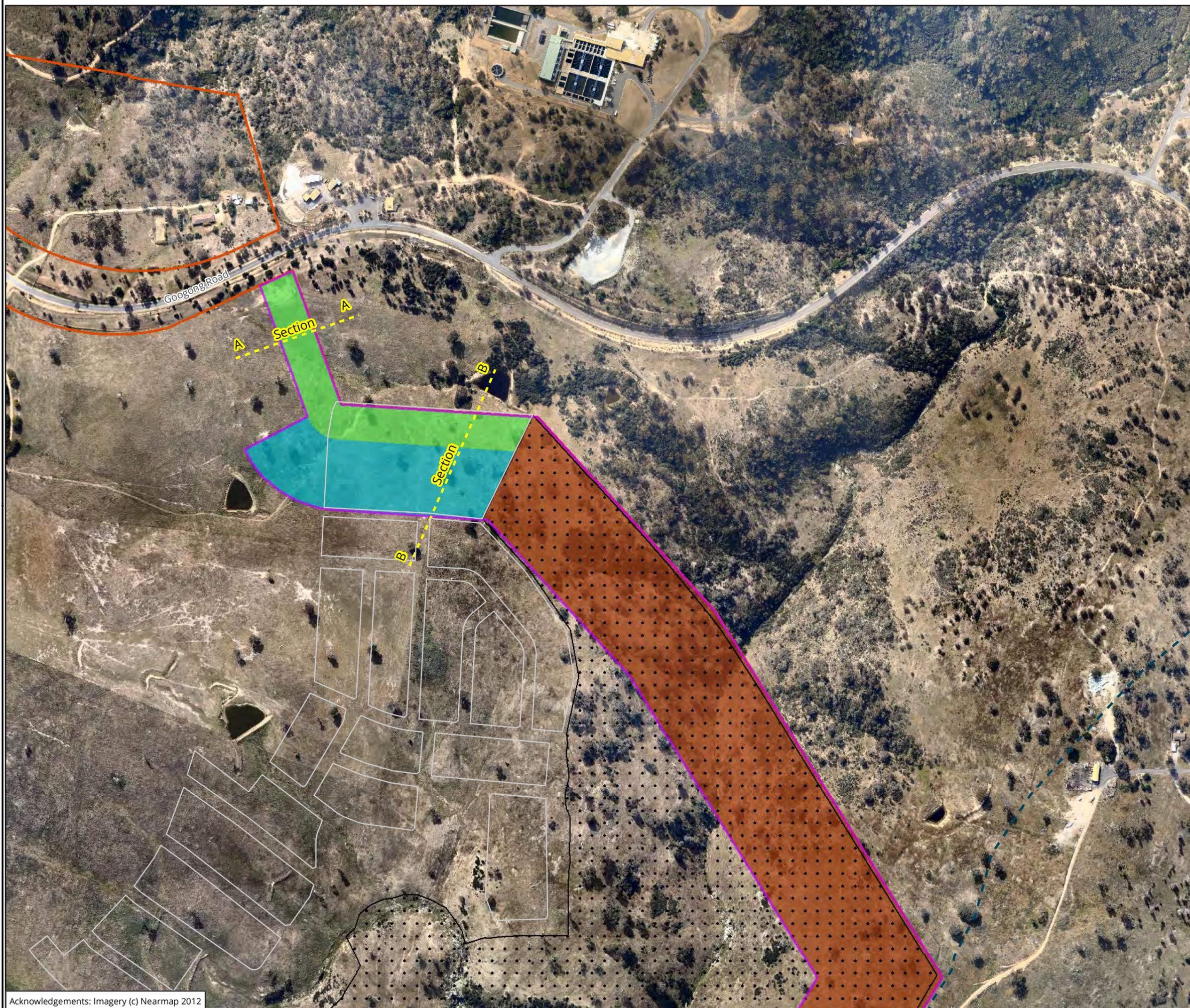
Figure 7: Management Areas on Land Zoning



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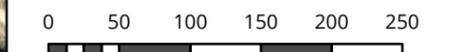


Legend

- Googong Reservoir Catchment Boundary
 - Googong Township
 - Googong Foreshores Interface Management Strategy Area
 - Neighbourhood 1B Planning Structure
 - Typical Cross Sections
- Management Areas**
- MA 1 - PTWL Conservation Area
 - MA 2 - Googong Reservoir Catchment Area
 - MA 3 - Googong Foreshores Boundary Buffer Area
 - MA 4 - Managed Residential Area

Note: Section diagrams are not to scale.

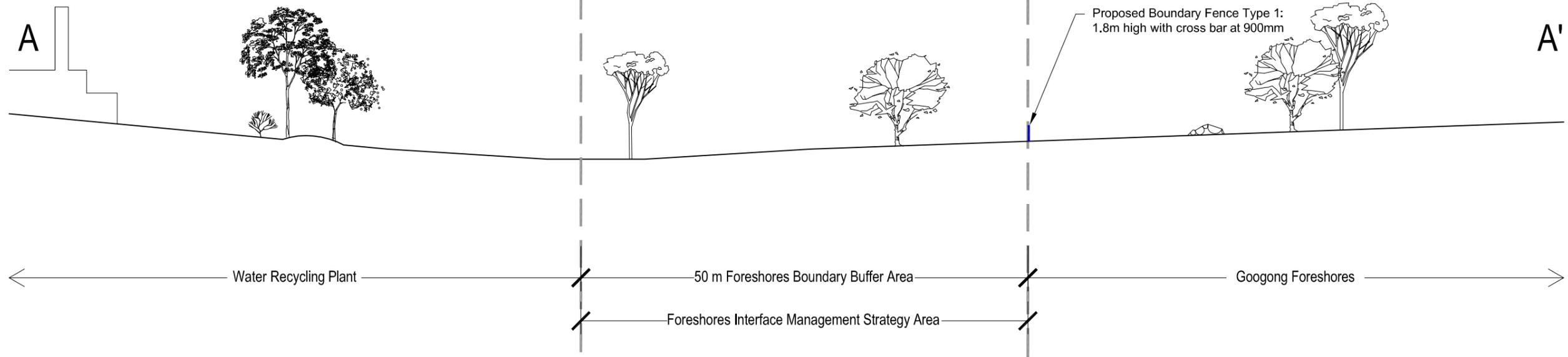
Figure 8.1: Management Areas



Scale: 1:5,000 @ A3
 Coordinate System: GDA 1994 MGA Zone 55



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SECTION A-A' ELEVATION

Scale: 1:250@A1 1:500@A3



SECTION A-A' PLAN

Scale: 1:250@A1 1:500@A3

LEGEND

- EXISTING TREES / TREE GROUP
- SURVEYED ACTPLA BOUNDARY
- GOOGONG TOWNSHIP BOUNDARY
- GOOGONG RESERVOIR CATCHMENT AREA
- FORESHORES INTERFACE MANAGEMENT STRATEGY BOUNDARY
- SURVEYED CONTOURS
- PROPOSED BOUNDARY FENCE TYPE 1: 1.8m HIGH WITH CROSS BAR AT 900mm
- PROPOSED BOUNDARY FENCE TYPE 2: BOLLARDS AT 1.8m SPACING
- YEAR 0 TRIGGER LINE Pink-tailed Worm-lizard Protection and Management Plan (Biosis July 2012)
- PINK-TAILED WORM-LIZARD (PTWL) CONSERVATION AREA

- MANAGEMENT AREAS (Biosis 2013)**
- MA 1 - PTWL CONSERVATION AREA
 - MA 2 - GOOGONG RESERVOIR CATCHMENT AREA
 - MA 3 - GOOGONG FORESHORES BOUNDARY BUFFER AREA
 - MA 4 - MANAGED RESIDENTIAL AREA

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PROJECT

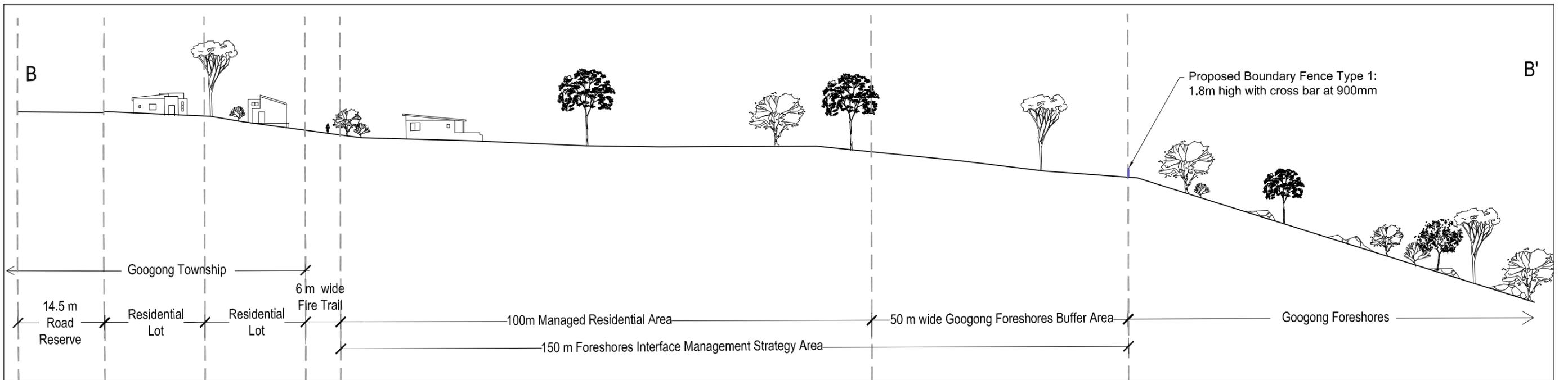
GOOGONG NEIGHBOURHOOD 1B, 4 & 5

DRAWING

FORESHORES INTERFACE PLAN SHEET 2

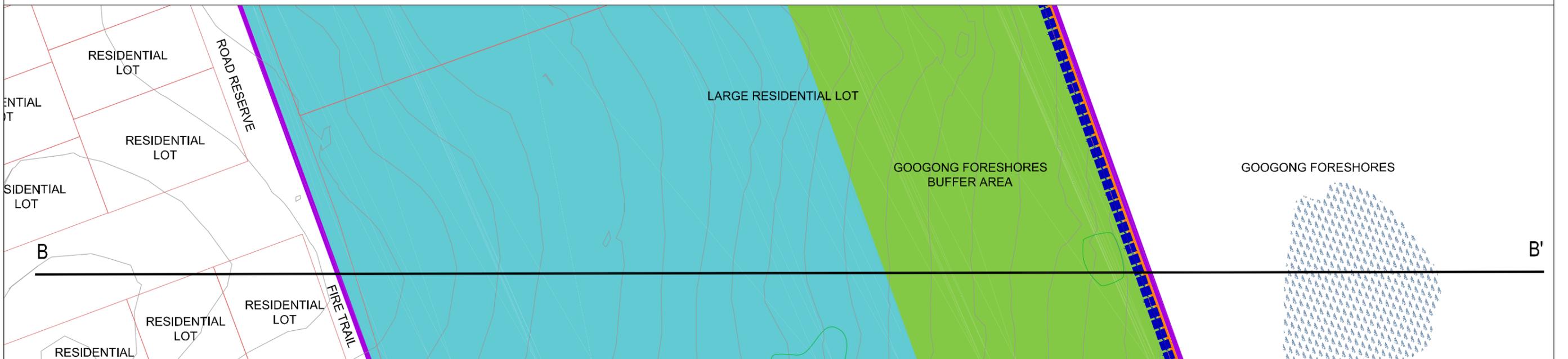
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SECTION B-B' ELEVATION

Scale: 1:400@A1 1:800@A3



SECTION B-B' PLAN

Scale: 1:400@A1 1:800@A3

LEGEND



EXISTING TREES / TREE GROUP



SURVEYED CONTOURS



PINK-TAILED WORM-LIZARD (PTWL) CONSERVATION AREA



GOOGONG TOWNSHIP BOUNDARY



PROPOSED BOUNDARY FENCE TYPE 1:
1.8m HIGH WITH CROSS BAR AT 900mm



PRELIMINARY SEWER LAYOUT - Brown Consulting



GOOGONG RESERVOIR CATCHMENT AREA



PROPOSED BOUNDARY FENCE TYPE 2:
BOLLARDS AT 1.8m SPACING



PRELIMINARY PROPOSED SEWER RISING MAIN
FROM SEWER PUMPING STATION (SPS No. 2)



FORESHORES INTERFACE MANAGEMENT
STRATEGY BOUNDARY



YEAR 0 TRIGGER LINE
Pink-tailed Worm-lizard Protection and Management Plan
(Biosis July 2012)

MANAGEMENT AREAS (Biosis 2013)



MA 1 - PTWL CONSERVATION AREA



MA 2 - GOOGONG RESERVOIR CATCHMENT AREA



MA 3 - GOOGONG FORESHORES BOUNDARY BUFFER AREA



MA 4 - MANAGED RESIDENTIAL AREA

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C	DA ISSUE FOR STRUCTURE PLAN APPROVAL	23/05/2014	AJ	AJ	JE	JE
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PROJECT

GOOGONG
NEIGHBOURHOOD
1B, 4 & 5

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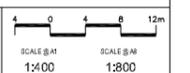
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PROJECT No
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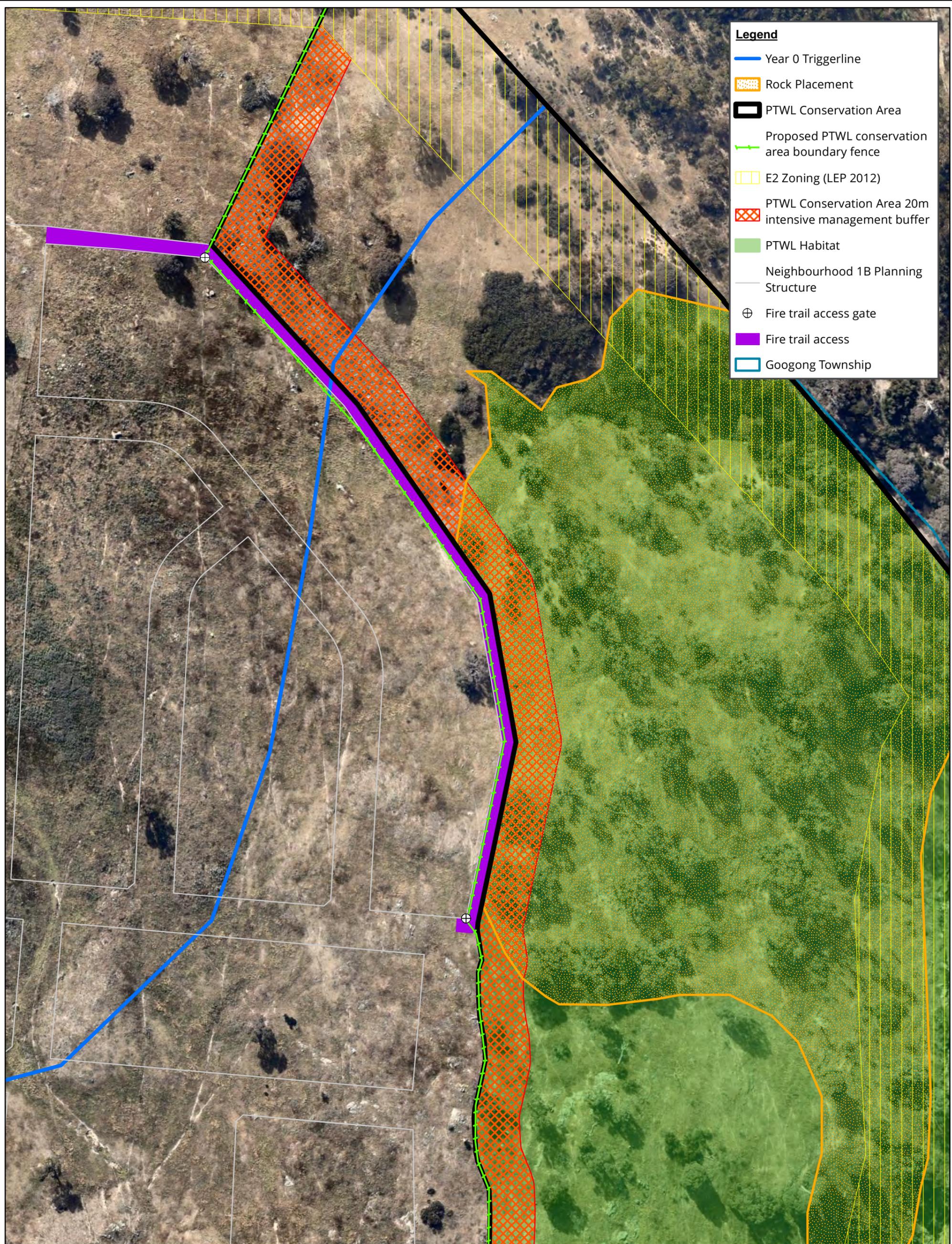


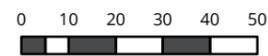
Figure 8.1(inset): Boundary Portion Detail - PTWL Conservation Area / Fire Trail



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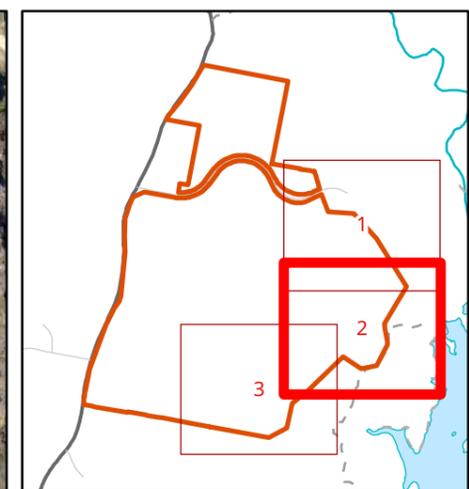
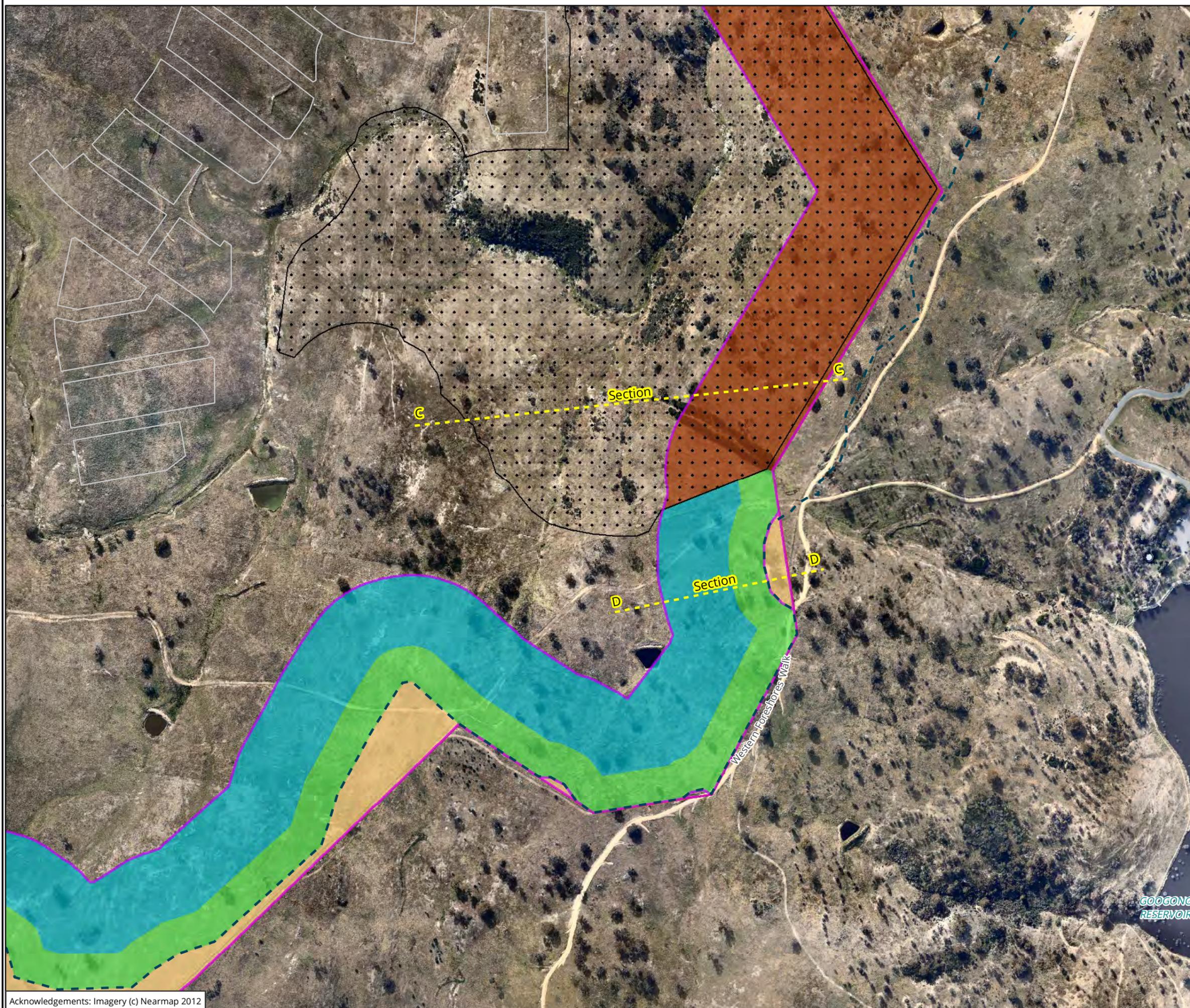
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Metres
Scale 1:1,500 @ A3
Coordinate System: GDA 1994 MGA Zone 55





- Legend**
- - - Googong Reservoir Catchment Boundary
 - Googong Township
 - Googong Foreshores Interface Management Strategy Area
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 - MA 4 - Managed Residential Area
- Note: Section diagrams are not to scale.

Figure 8.2: Management Areas

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Metres

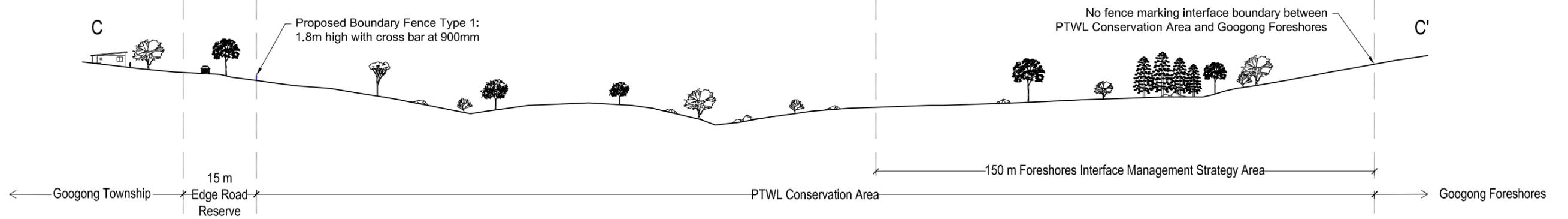
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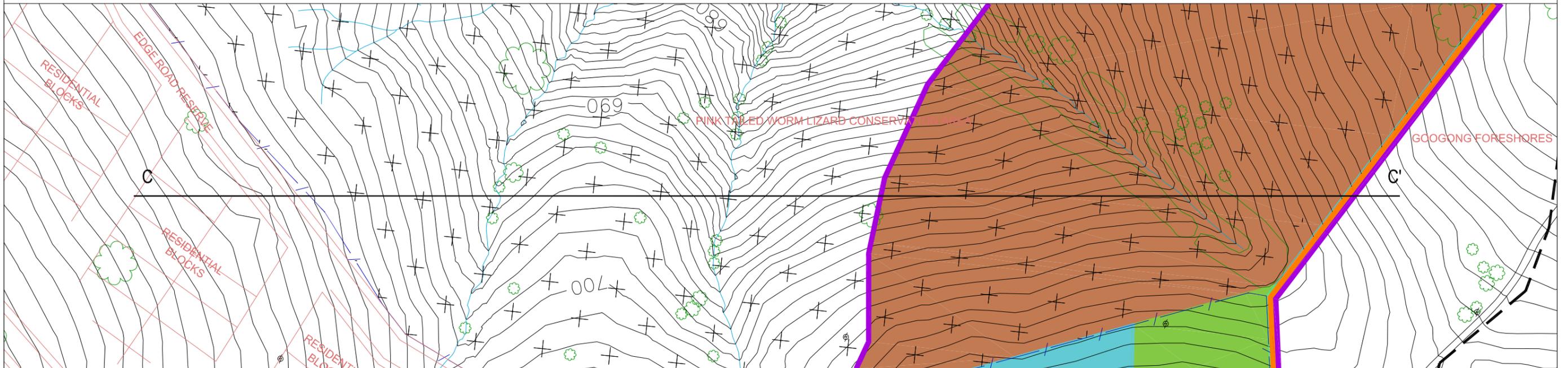
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SECTION C-C' ELEVATION



SECTION C-C' PLAN

Scale: 1:750@A1 1:1500@A3

LEGEND

- EXISTING TREES / TREE GROUP
- SURVEYED ACTPLA BOUNDARY
- GOOGONG TOWNSHIP BOUNDARY
- GOOGONG RESERVOIR CATCHMENT AREA
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MANAGEMENT AREAS (Biosis 2013)

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- MA 3 - GOOGONG FORESHORES BOUNDARY BUFFER AREA
- MA 4 - MANAGED RESIDENTIAL AREA

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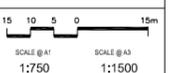
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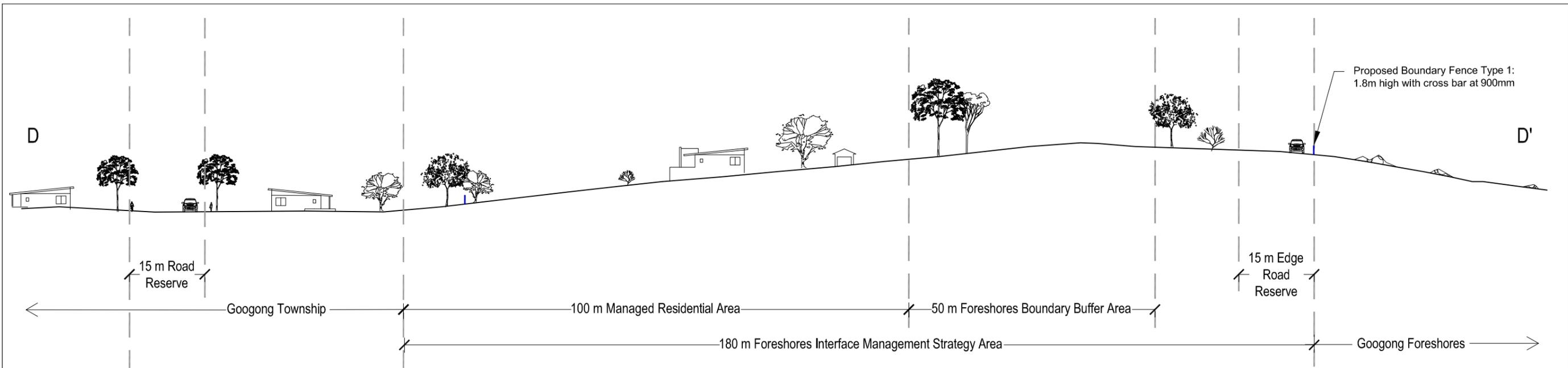


PROJECT
GOOGONG NEIGHBOURHOOD 1B, 4 & 5

DRAWING
FORESHORES INTERFACE PLAN SHEET 4

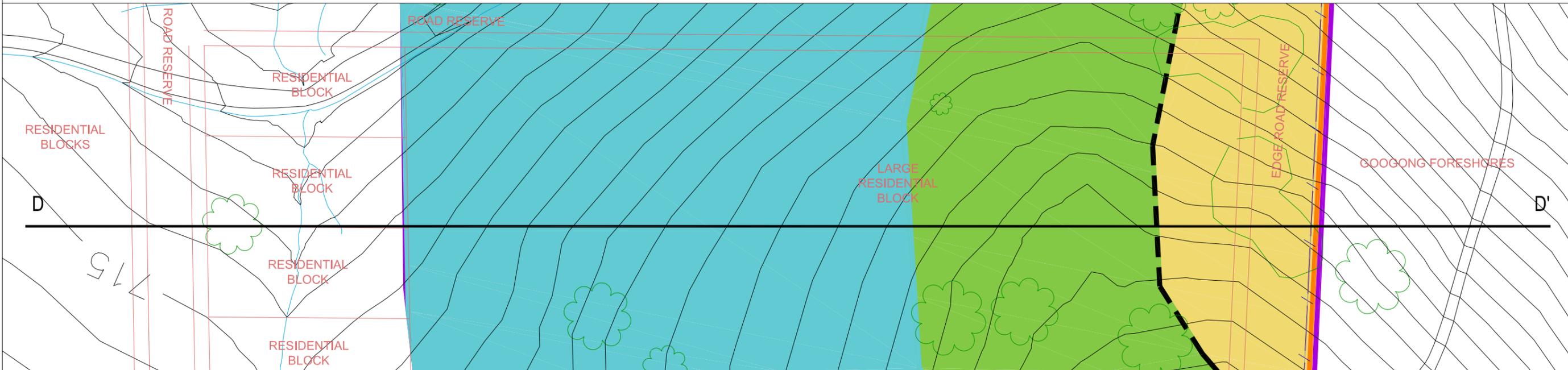
PROJECT No 13/1024	DRAWING No L101.3	ISSUE DA	REVISION A
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SECTION D-D' ELEVATION

Scale: 1:400@A1 1:800@A3



SECTION D-D' PLAN

Scale: 1:400@A1 1:800@A3

LEGEND

- EXISTING TREES / TREE GROUP
- SURVEYED ACTPLA BOUNDARY
- GOOGONG TOWNSHIP BOUNDARY
- GOOGONG RESERVOIR CATCHMENT AREA
- FORESHORES INTERFACE MANAGEMENT STRATEGY BOUNDARY
- SURVEYED CONTOURS
- PROPOSED BOUNDARY FENCE TYPE 1: 1.8m HIGH WITH CROSS BAR AT 900mm
- PROPOSED BOUNDARY FENCE TYPE 2: BOLLARDS AT 1.8m SPACING
- YEAR 0 TRIGGER LINE Pink-tailed Worm-lizard Protection and Management Plan (Biosis July 2012)
- PINK-TAILED WORM-LIZARD (PTWL) CONSERVATION AREA

- MANAGEMENT AREAS (Biosis 2013)**
- MA 1 - PTWL CONSERVATION AREA
 - MA 2 - GOOGONG RESERVOIR CATCHMENT AREA
 - MA 3 - GOOGONG FORESHORES BOUNDARY BUFFER AREA
 - MA 4 - MANAGED RESIDENTIAL AREA

NOTE
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A	FIRST ISSUE FOR APPROVAL	20/11/2013	AJ	AJ	JE	JE

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PROJECT

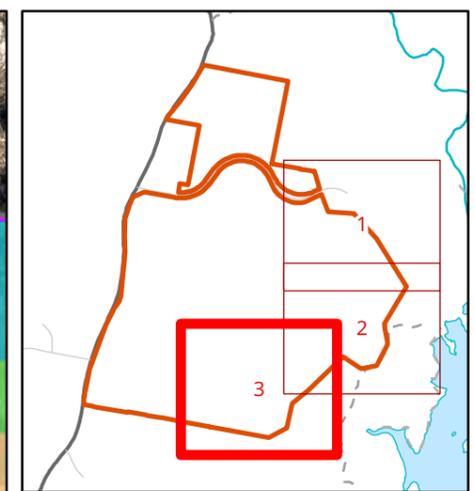
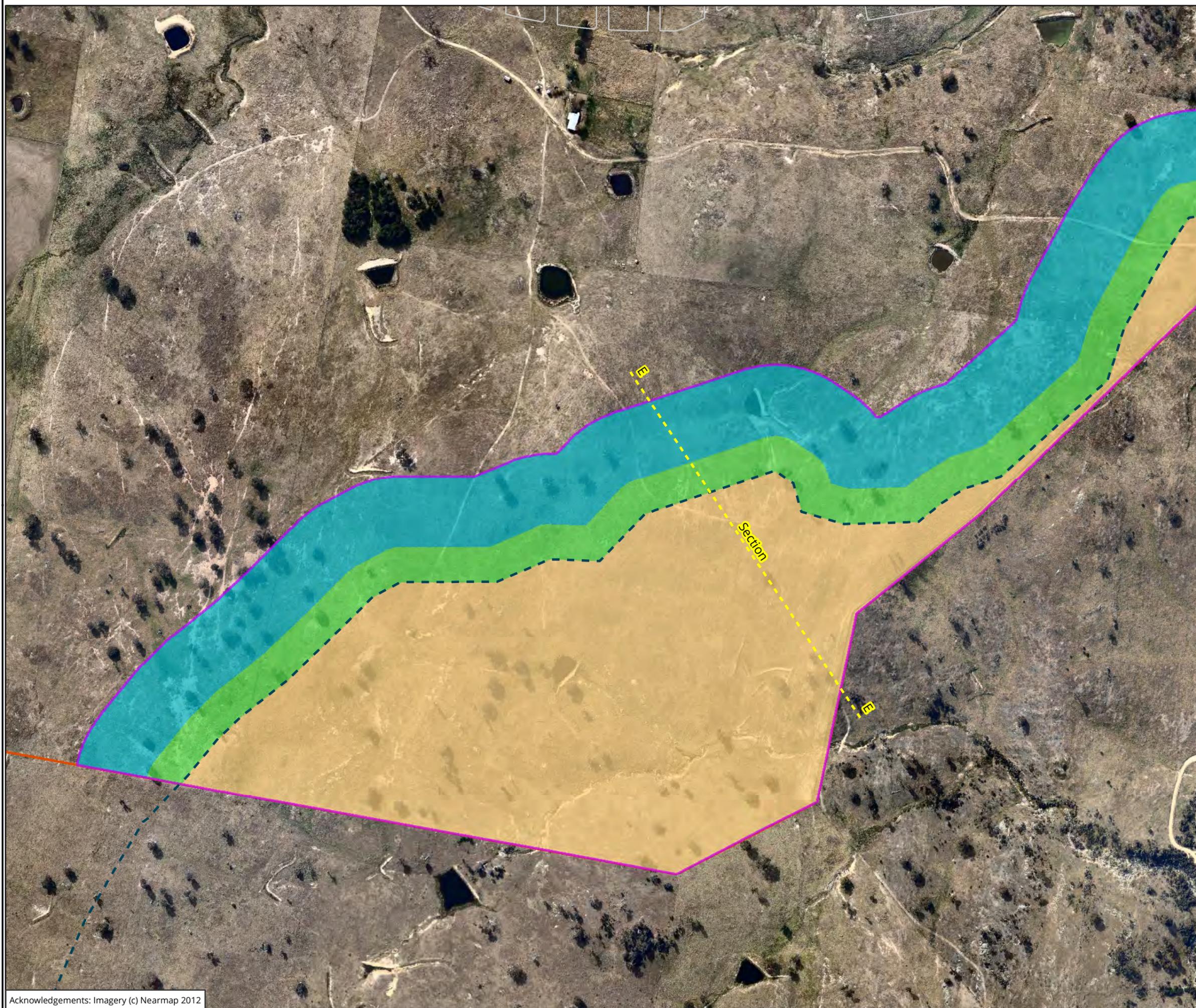
GOOGONG NEIGHBOURHOOD 1B, 4 & 5

DRAWING

FORESHORES INTERFACE PLAN SHEET 5

PROJECT No: 13/1024 DRAWING No: L101,4 ISSUE: DA REVISION: A

SCALE @ A1: 1:400 SCALE @ A3: 1:800



- Legend**
- Googong Reservoir Catchment Boundary
 - Googong Township
 - Googong Foreshores Interface Management Strategy Area
 - Neighbourhood 1B Planning Structure
 - Typical Cross Sections
- Management Areas**
- MA 1 - PTWL Conservation Area
 - MA 2 - Googong Reservoir Catchment Area
 - MA 3 - Googong Foreshores Boundary Buffer Area
 - MA 4 - Managed Residential Area
- Note: Section diagrams are not to scale.

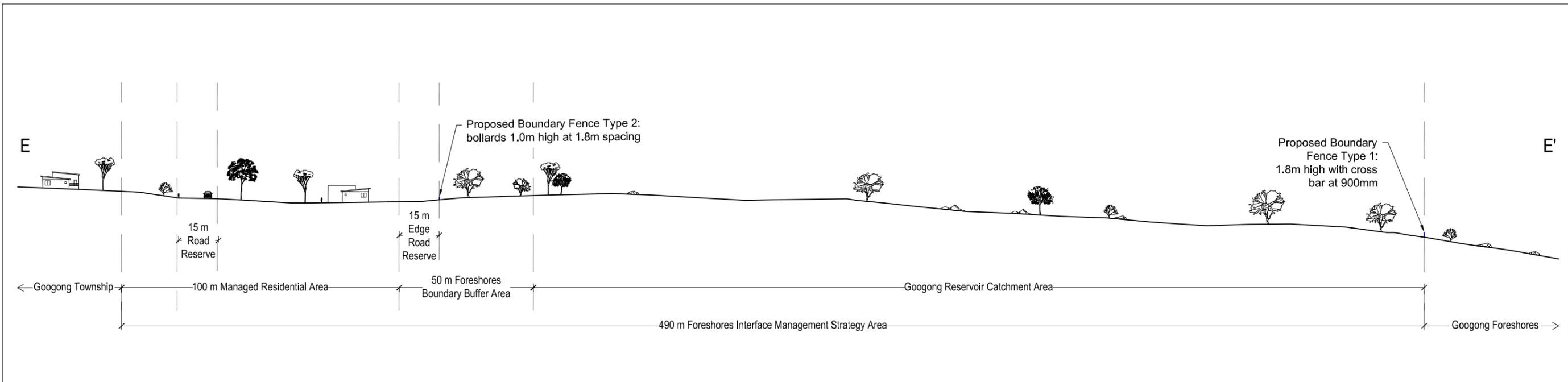
Figure 8.3: Management Areas

0 50 100 150 200 250
Metres

Scale: 1:5,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

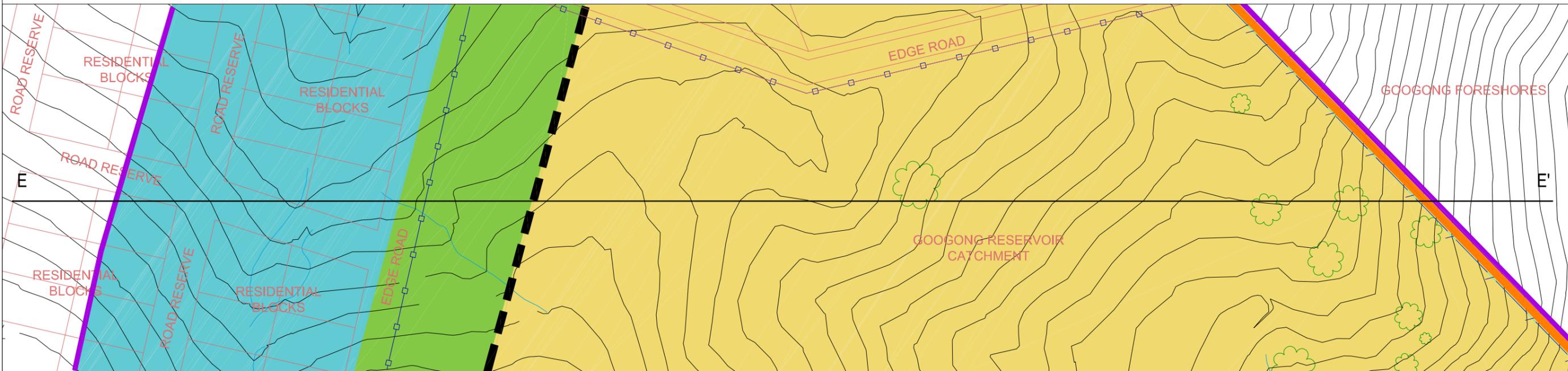
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SECTION E-E' ELEVATION

Scale: 1:400@A1 1:800@A3



SECTION E-E' PLAN

Scale: 1:400@A1 1:800@A3

LEGEND

- EXISTING TREES / TREE GROUP
- SURVEYED ACTPLA BOUNDARY
- GOOGONG TOWNSHIP BOUNDARY
- GOOGONG RESERVOIR CATCHMENT AREA
- FORESHORES INTERFACE MANAGEMENT STRATEGY BOUNDARY
- SURVEYED CONTOURS
- PROPOSED BOUNDARY FENCE TYPE 1: 1.8m HIGH WITH CROSS BAR AT 900mm
- PROPOSED BOUNDARY FENCE TYPE 2: BOLLARDS AT 1.8m SPACING
- YEAR 0 TRIGGER LINE Pink-tailed Worm-lizard Protection and Management Plan (Biosis July 2012)
- PINK-TAILED WORM-LIZARD (PTWL) CONSERVATION AREA

MANAGEMENT AREAS (Biosis 2013)

- MA 1 - PTWL CONSERVATION AREA
- MA 2 - GOOGONG RESERVOIR CATCHMENT AREA
- MA 3 - GOOGONG FORESHORES BOUNDARY BUFFER AREA
- MA 4 - MANAGED RESIDENTIAL AREA

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	ISSUE	REASON FOR ISSUE	DATE	DESIGN	DRAWN	CHECKED	APPROVED FOR ISSUE	DRAWING STATUS Warning unless there is an authorised JEA signature in the approved for issue column, this drawing is not approved for issue. COPYRIGHT This drawing remains the property of J Easthope and Associates Pty Ltd. It may be used for the purpose for which it was commissioned & in accordance with the terms of engagement for that commission. Unauthorised use of the drawing is prohibited.	CLIENT 	CONSULTANTS JEA + Associates Pty Ltd 1/110 Southport Road Southport QLD 4215 Ph: 07 5521 0000 Fax: 07 5521 0001 www.jea.com.au	PROJECT GOOGONG NEIGHBOURHOOD 1B, 4 & 5	DRAWING FORESHORES INTERFACE PLAN SHEET 6	SCALE @ A1: 1:750 SCALE @ A3: 1:1500
	A	FIRST ISSUE FOR APPROVAL	20/11/2013	AJ	AJ	JE	JE						

3.2 Googong Foreshores Interface Edge Road

The section elevations and section plans above provide illustrative snapshots of the indicative Masterplan for Neighbourhoods 1B, 4 and 5 as they relate to the GFIMS Area. As shown in these elevations and plans, a 15 metre wide road reserve will be established along the majority of the eastern periphery of the urban portions of Googong township. The only exception to this will be the rear boundaries of the two large lots located within the GFIMS Area between the Googong WRP site and Management Area 1 – PTWL Conservation Area. As indicated as Section B-B shown on Figure 8.1, Figure 8.1 (inset) and the corresponding section elevation and section plan, no road will be constructed along this section of the interface. Within this road reserve the Googong Foreshores interface edge road will be constructed consisting of a two lane (i.e. a single lane for each direction) sealed road. The establishment of the edge road will:

1. Provide a substantial and consistent bushfire hazard reduction measure (i.e. biomass within the road reserve can be effectively maintained so as to act as an Outer Asset Protection Zone).
2. Provide reliable and unobstructed access along the entire length of the interface between the urban areas of Googong township and land designated for conservation and/or open space purposes (i.e. Googong Foreshores, Management Area 1 and the publically owned portions of Management Area 2). Such access is beneficial as it:
 - a. provides ready entry and egress for residents and emergency services during bushfire events;
 - b. permits effective and efficient monitoring and maintenance of the Googong Foreshores – Township interface boundary fence and other infrastructure; and
 - c. permits effective and efficient monitoring and control of weeds by Council and others.
3. Provide a separation between private properties and land designated for conservation and/or open space purposes (i.e. Googong Foreshores, Management Area 1 and the publically owned portions of Management Area 2). Among the numerous other land management related benefits, this separation will reduce the risk of weed introduction within conservation areas occurring from dumping of garden waste etc over the back fence.
4. Substantially increase public surveillance along the Googong Foreshores – Township interface. Increased public surveillance will reduce the incidence of illegal activities and increase the likelihood of reporting of such activities.
5. Simplify the administration and works required to appropriately maintain the fence constructed along the interface with Googong Foreshores and the PTWL Conservation Area. The location of a band of publically owned land along the majority of the interface will result in fence maintenance along the majority of the interface being the joint responsibility of only two parties (i.e. Council and TAMS).

With regard to the above, given the topography of the area, the delivery of a full edge road is not practicable along a section of the boundary of the northern part of the GFIMS Area (traversed by Section B-B as shown on Figure 8.1 and the corresponding section elevation and section plan). As such, as illustrated in Figure 8.1 (inset), a six (6) metre wide fire trail will be established along this section between the GFIMS Area and the adjacent residential lots. This fire trail will be locked at either end and will provide access to authorised parties only, primarily for bushfire management, land maintenance and to monitor the interface.

3.3 GFIMS Area Fencing

(iii) *The Strategy will commit GTPL to the construction of the fence along the foreshores boundary consistent with Working Group discussions held to date and the details provided in the EPBC Act referral and the Draft Googong Foreshores Township Interface MoU.*

The Strategy will specify the fence material, height and location and the timing for its staged construction.

The Strategy will also commit GTPL to maintain existing rural fences that restrict access to the foreshores until such time as they are required to be removed for development purposes and other means to restrict access to the foreshores are in place.

Commencement of establishment works for the GFIMS Area is not expected to occur for a number of years (refer Section 3.4). As detailed under Item 1.11 of Schedule 1 – Development Contributions of the Googong LPA, embellishments are to be provided progressively prior to the issue of a Subdivision Certificate for adjacent development. Accordingly, the adjoining segment of the GFIMS Area will be established prior to the issue of the Subdivision Certificate for the subject Neighbourhood of Googong township. This will ensure that the fencing required for the adjoining section of the GFIMS Area will be constructed well prior to the population of homes in the adjacent neighbourhood of Googong township.

The current land use and management regime (i.e. for agricultural purposes, notably sheep grazing) has been in place throughout the GFIMS Area and surrounds for an extended period. The continuation of this land use and management regime until development occurs is proposed as it will best allow for the maintenance of the GFIMS Area and prevention of impacts upon the adjoining Googong Foreshores. The existing stock fencing within the GFIMS Area and immediate vicinity will also remain without substantial alteration until removal is required for development purposes (Note: this does not preclude routine maintenance or replacement of the existing fences, if required). The continuation of the current land use and the retention of the existing stock fencing will also preclude public access to the GFIMS Area prior to its formal establishment.

3.3.1 Googong Foreshores interface boundary fencing

The relevant section of the boundary between the GFIMS Area and the Googong Foreshores will be defined and fenced prior to any other development works commencing within the adjoining portion of the GFIMS Area. Fencing will be constructed in stages, generally as per the diagrammatic representation provided in Figures 9.1 to 9.3.

The boundary fencing between the GFIMS Area and the adjoining Googong Foreshores will be approximately 1.8m in height, shown as 'Boundary Type 1' in Diagram 1. To respond to the highest priority potential impacts discussed in Section 2.3, the fence will be constructed of chain mesh using galvanised posts and rails at the top and at approximately 0.9m. This fence type is considered to be the most appropriate as it will:

- not create a visually unappealing barrier between the GFIMS Area and the adjoining Googong Foreshores;
- be effective in preventing unauthorised pedestrian and/or vehicular access from the GFIMS Area into the Googong Foreshores (entry without a key would require the cutting of steel rails or chain-locked gates); and
- provide some deterrent to domestic cats and dogs which may escape or roam from the surrounding future residential areas.

Gates with a six metre wide opening will be installed in the fence at a number of locations along Boundary Type 1, strategically chosen in order to provide emergency and other authorised access between the GFIMS Area and Googong Foreshores. The type and form of these gates will be consistent with that of the adjoining fence and they will be constructed in a manner that does not result in them becoming a weak point in the fence.

The existing rural fencing between Management Area 1 (the area of the GFIMS Area occurring within the PTWL Conservation Area) and the adjoining Googong Foreshores will be removed to allow for the free movement of native fauna (notably kangaroos, wallabies and wombats) between the PTWL Conservation Area and Googong Foreshores. As discussed in the PTWL-P&MP, an appropriate level of grazing by native herbivores (primarily Eastern Grey Kangaroos *Macropus giganteus*) will greatly assist in reducing fuel loads and maintaining the grassland habitat desirable to the PTWL.

The existing rural fences within the GFIMS Area will be maintained until their removal is required for development and/or land management purposes.

Maintaining and monitoring the fence along the boundary between the GFIMS Area and Googong Foreshores (and around the PTWL Conservation Area) will prevent unauthorised pedestrian and/or vehicular access into the Googong Foreshores or the PTWL Conservation Area. Upon construction of the adjacent residential properties, community surveillance of the GFIMS Area will provide a considerable deterrent to people wishing to enter the PTWL Conservation Area and/or the Googong Foreshores illegally (i.e. by climbing over or cutting holes in the 1.8m boundary fence).

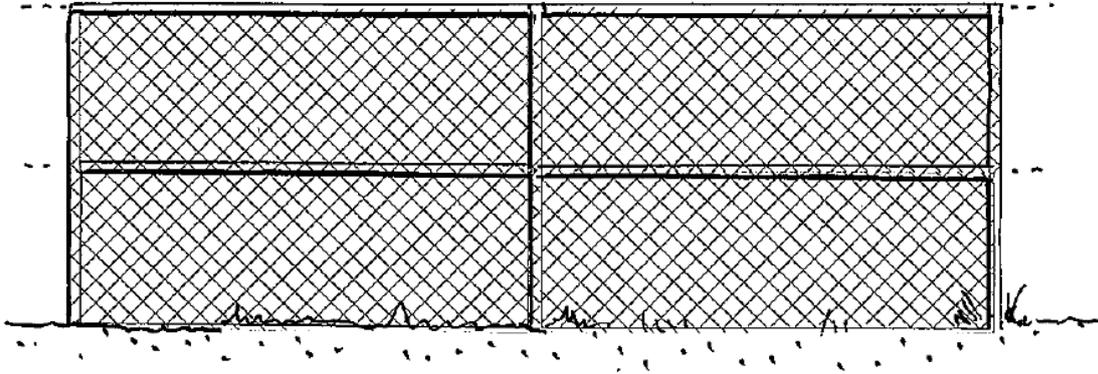
3.3.2 GFIMS Area internal fencing

As detailed in Table 6 below, each Management Area within the GFIMS Area will have its own specifications for internal fencing. These specifications have been determined in order to ensure that the purpose and intent of the Management Area is met whilst permitting landowners to use their land for their desired purposes within the restrictions of the implemented covenant.

Table 6: GFIMS Area internal fencing

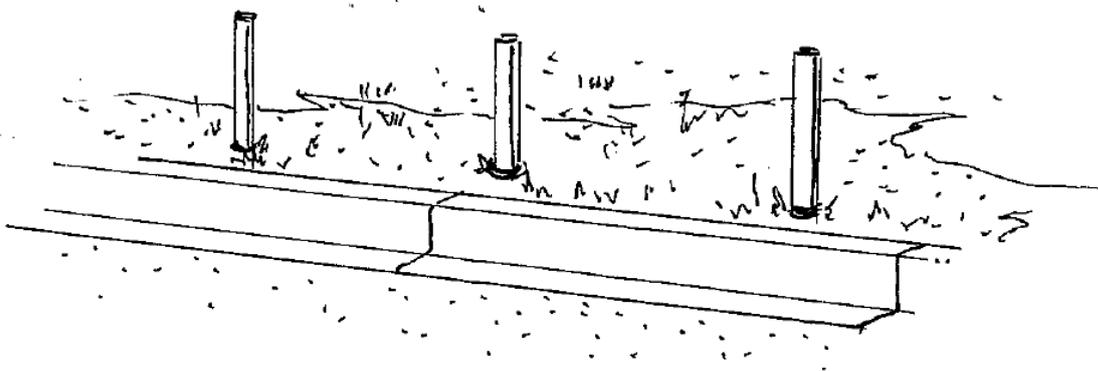
Management Area	Fencing
MA 1 – PTWL Conservation Area	No internal fencing will be constructed within MA 1. The only fencing relating to the PTWL Conservation Area will be the 'Boundary Type 1' fence to be established between the PTWL Conservation Area and the adjacent areas of Googong township.
MA 2 – Googong Reservoir Catchment Area	As illustrated in Figures 9.2 and 9.3, MA 2 adjoins MA 3 within both private lots and on public land. The boundary between these two Management Areas will not be delineated.
MA 3 – Googong Foreshores Boundary Buffer Area	MA 3 occurs as a 50m wide strip running along the western side of the interface between Googong township and Googong Foreshores (or the Googong Reservoir catchment, where it extends into the Township).
Note: In accordance with the Googong Township Master Plan	<p>The majority of the strip of MA 3 land will be divided into segments which will become part of each of the large privately owned residential lots to be established in accordance with the zoning of the land stipulated in the Queanbeyan LEP (refer Figures 4 and 7). The exceptions to this will be the following three areas of MA 3 which will be managed by Council.</p> <ol style="list-style-type: none"> 1. The approx. 150m long strip of MA 3 located between the Water Recycling

Management Area	Fencing
	<p>Plant and Googong Foreshores (refer Figures 4 and 8.1), managed as open space.</p> <ol style="list-style-type: none"> 2. The 15m wide road reserve for the Googong Foreshores interface edge road which will be constructed along the Township side of the interface to partition the privately owned lots from Googong Foreshores, the PTWL Conservation Area or the large area of MA2 land (as relevant, refer Cross Sections B to E on Figures 8.1 to 8.3). 3. The balance 35m wide band of MA3 land, approx. 980m in length, running between the edge road and the large area of MA2 land, managed as open space. Boundary Type 2 (comprising a non-mountable square kerb and a line of permanent concrete or steel bollards at 1.8m spacing), will be constructed within the strip of MA 3, 35m from the MA 2 (refer Cross Section E on Figure 8.3). Boundary Type 2 will be constructed and maintained in this location to restrict unauthorised vehicular access to MA 2. Boundary Type 2 will not restrict pedestrian access between the Management Areas and a number of appropriately located access points will be installed to provide authorised vehicular access. <p>The boundaries of all privately owned lots within the GFIMS Area and any internal fences will be marked by 'Boundary Type 3'. Boundary Type 3 will comprise standard rural stock fences, constructed using steel posts, appropriate mesh and standard non-barbed wires at the top and bottom. Note: the locations of Boundary Type 3 are not shown on Figures 9.1 and 9.2 as these will be determined during future detailed design of lot layout.</p>
MA 4 – Managed Residential Area	<p>MA 4 will contain the balance of the land within the GFIMS Area which is to be divided into roads and privately owned residential lots, established in accordance with the zoning of the land stipulated in the Queanbeyan LEP (refer Figures 4 and 7). As stated above, the boundaries of these lots and any internal fences will be marked by Boundary Type 3.</p>



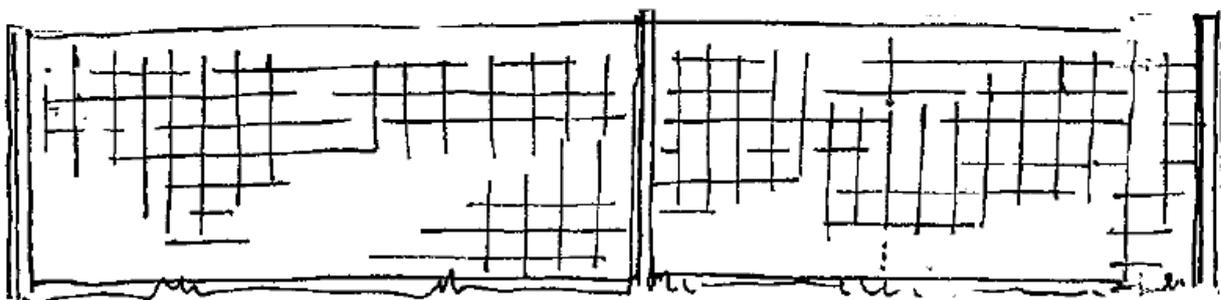
Boundary Type 1

1.8m in height, constructed of chain mesh using galvanised posts and rails at the top and at approximately 0.9m.



Boundary Type 2

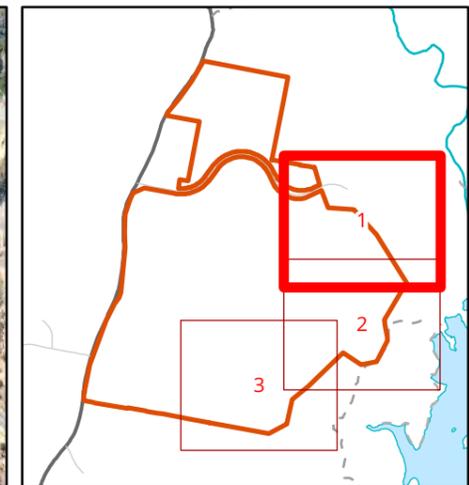
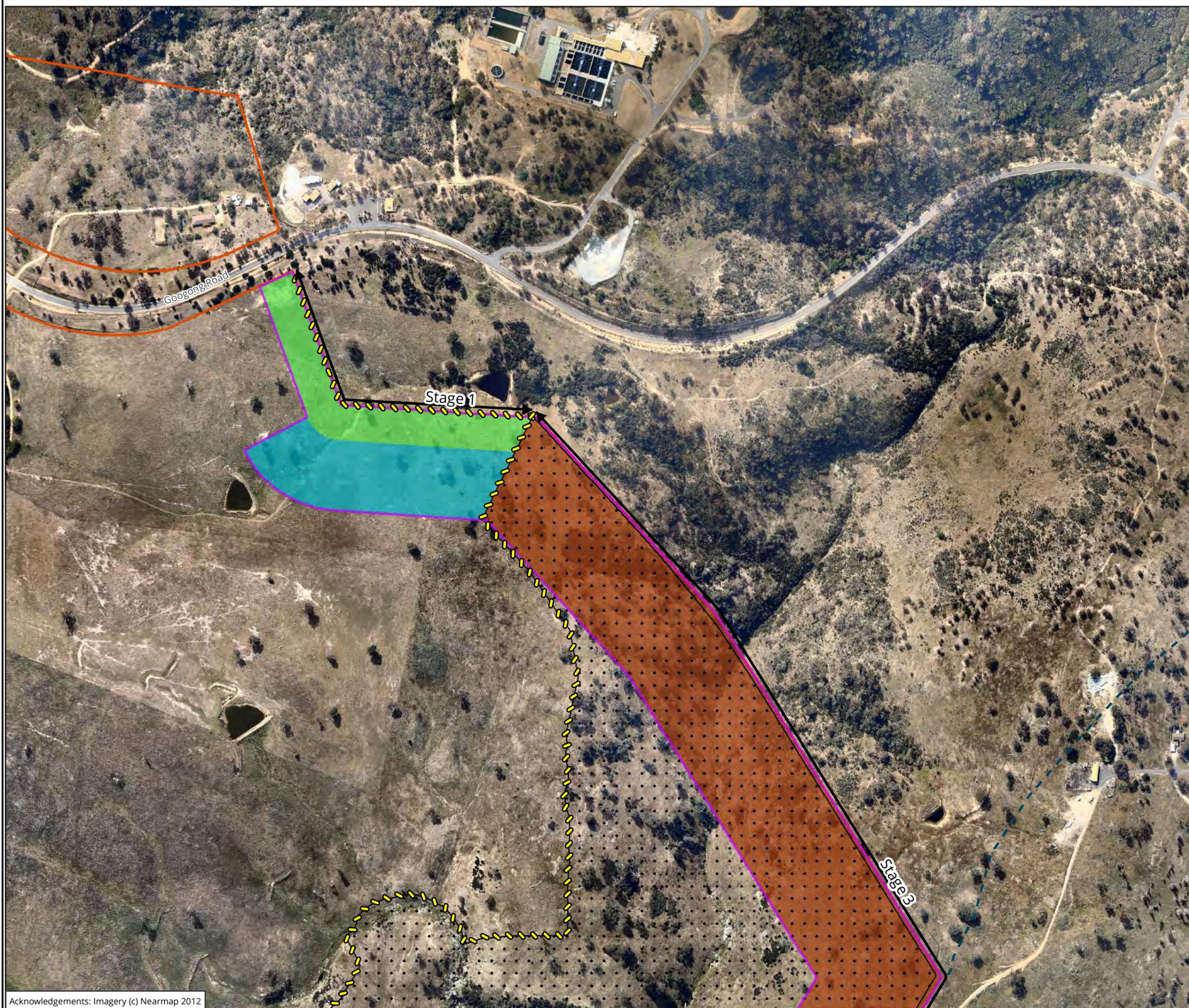
Non-mountable square kerb and a line of permanent concrete or steel bollards at 1.8 m spacing.



Boundary Type 3

Standard 1.2m high rural stock fences, constructing using steel posts, appropriate mesh and standard non-barbed wires at the top and bottom.

Diagram 1: Boundary Types for the GFIMS Area



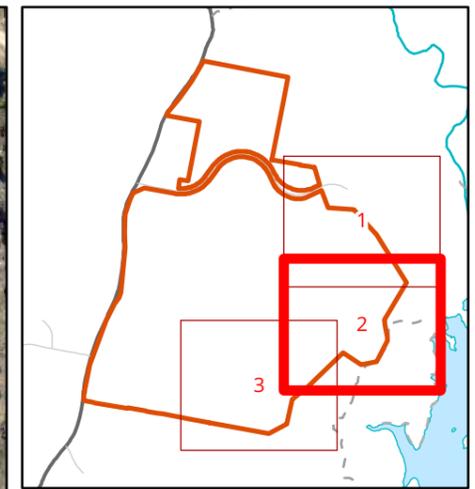
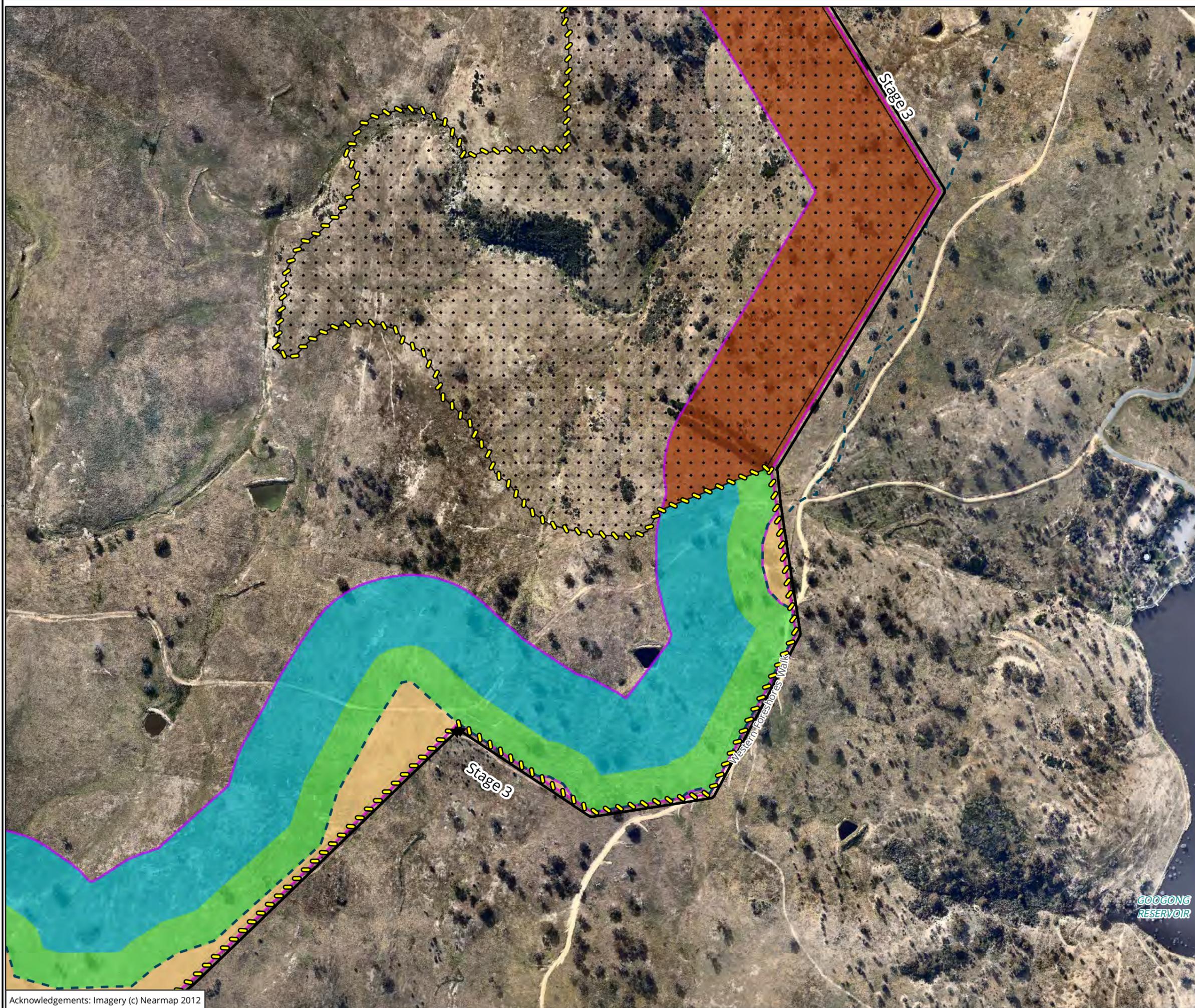
- Legend**
- Googong Reservoir Catchment Boundary
 - Googong Township
 - Googong Foreshores Interface Management Strategy Area
 - PTWL Conservation Area
 - ↔ Googong Foreshores Township Interface Boundary Staging
- Boundary Types**
- - - Type 1 - 1.8m high with cross bar at 900mm
 - ◆ ◆ ◆ Type 2 - Bollards at 1.8m spacing
- Management Areas**
- MA 1 - PTWL Conservation Area
 - MA 2 - Googong Reservoir Catchment Area
 - MA 3 - Googong Foreshores Boundary Buffer Area
 - MA 4 - Managed Residential Area

Figure 9.1: Fencing Plan

0 50 100 150 200 250
Metres
Scale: 1:5,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

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Matter: 18082
Date: 03 June 2014
Checked by: RS, Drawn by: JMS, Last edited by: jshepherd
Location: P:\18000s\18082\Mapping\18082_GFIMS_F9_Fencing



Legend

- Googong Reservoir Catchment Boundary
 - Googong Township
 - Googong Foreshores Interface Management Strategy Area
 - PTWL Conservation Area
 - ↔ Googong Foreshores Township Interface Boundary Staging
- Boundary Types**
- Type 1 - 1.8m high with cross bar at 900mm
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- Management Areas**
- MA 1 - PTWL Conservation Area
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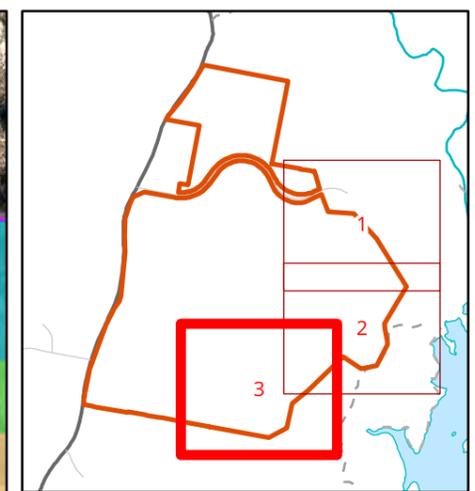
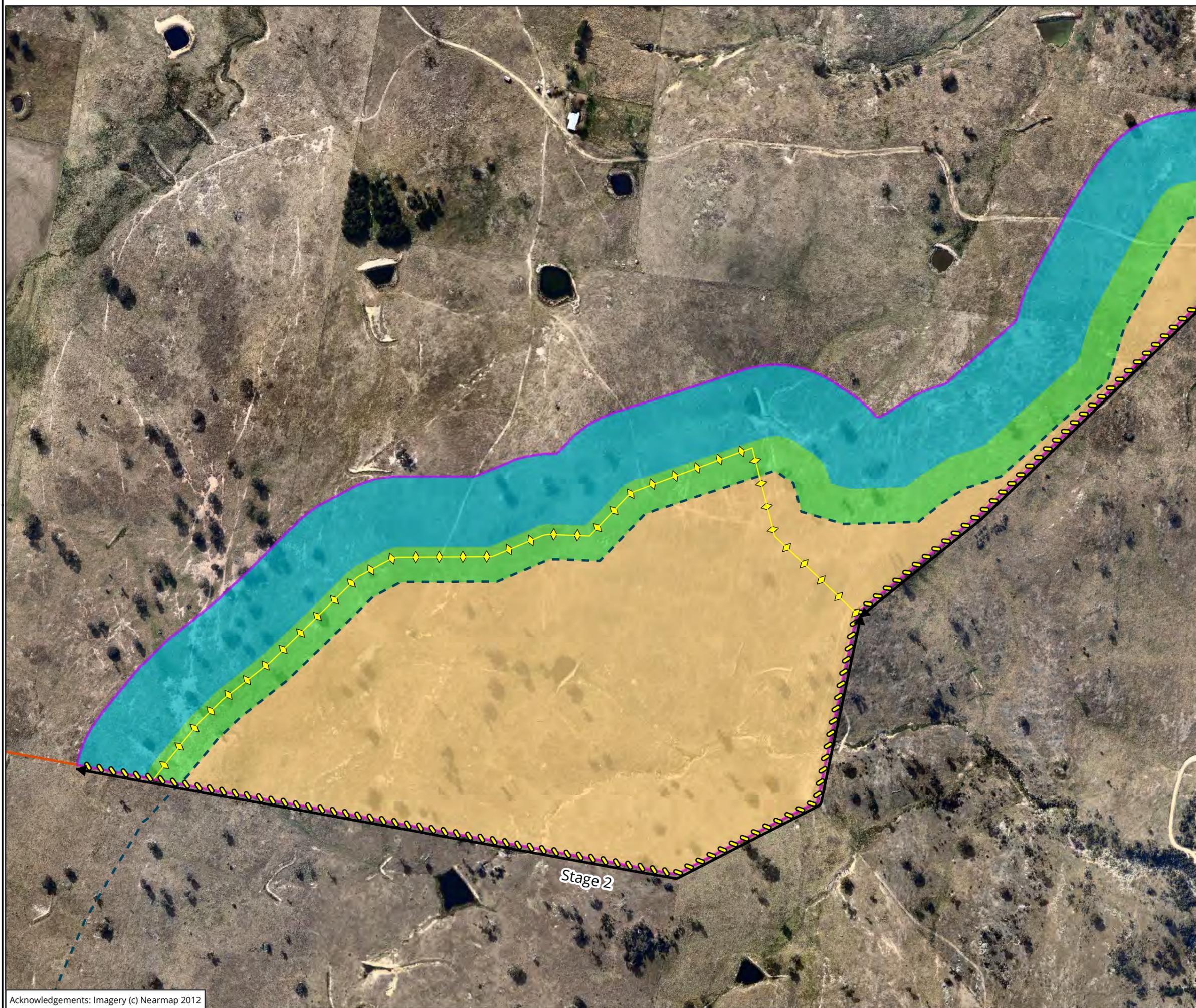
Figure 9.2: Fencing Plan

0 50 100 150 200 250
 Metres
 Scale: 1:5,000 @ A3
 Coordinate System: GDA 1994 MGA Zone 55

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- Legend**
- - - Googong Reservoir Catchment Boundary
 - Googong Township
 - Googong Foreshores Interface Management Strategy Area
 - PTWL Conservation Area
 - Googong Foreshores Township Interface Boundary Staging
- Boundary Types**
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 - MA 4 - Managed Residential Area

Figure 9.3: Fencing Plan

0 50 100 150 200 250
Metres

Scale: 1:5,000 @ A3
Coordinate System: GDA 1994 MGA Zone 55

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Matter: 18082
Date: 03 June 2014
Checked by: RS, Drawn by: JMS, Last edited by: jshepherd
Location: P:\18000s\18082\Mapping\18082_GFIMS_F9_Fencing

3.4 Schedule for establishment of the GFIMS Area

As illustrated in the Googong Township Master Plan (refer Section 1.3.4), the development of Googong township is proposed to proceed in the following sequence, Neighbourhood 1A, Neighbourhood 1B, Neighbourhood 2, Neighbourhood 3, Neighbourhood 4 and Neighbourhood 5.

Commencement of establishment works for the GFIMS Area is not expected to occur for a number of years. As detailed under Item 1.11 of Schedule 1 – Development Contributions of the Googong LPA, embellishments are to be provided progressively prior to the issue of a Subdivision Certificate for adjacent development. Accordingly, the adjoining segment of the GFIMS Area will be established prior to the issue of the Subdivision Certificate for the subject Neighbourhood of Googong township.

Table 7 below provides the indicative schedule for the major components of the establishment of the GFIMS Area.

Table 7: GFIMS establishment indicative schedule

GFIMS Area Major Establishment Component	GFIMS Section	Timing
Construction of Boundary Type 1 – Googong Foreshores/Township interface fence and PTWL Conservation Area/Township boundary fence.	3.3.1	Prior to the issue of a Subdivision Certificate for the creation of residential lots in each adjacent Neighbourhood (i.e. NH1B, NH4 and NH5).
Initial weed removal	4.1	The presence and distribution within the GFIMS Area of each of the GFIMS Area priority weeds will be assessed and mapped prior to the issue of a Subdivision Certificate for the creation of residential lots in each adjacent Neighbourhood. This mapping will be provided to a suitably qualified and experienced weed control contractor who will be engaged to undertake weed control throughout the subject portion of the land prior to its dedication to public ownership or private sale.
Revegetation planting	4.2	Revegetation planting to occur within the PTWL Conservation Area will occur in accordance with the timing stipulated in the approved PTWL-P&MP (refer Section 1.3.6). Following the issue of a Subdivision Certificate for the creation of residential lots in NH4 and NH5, GTPL will undertake a program of native revegetation works throughout MA 2.
Dedication of land to public ownership	1.3.3	As detailed under Item 1.11 of Schedule 1 – Development Contributions of the Googong LPA, embellishments are to be provided progressively prior the creation of residential lots in each adjacent Neighbourhood.
Sale of land to private ownership	1.3.3	The sale of the GFIMS Area to private ownership (i.e. the land not listed as embellishments in the Googong township LPA) will occur following the issue of a Subdivision Certificate for the creation of residential lots in each adjacent Neighbourhood.

GFIMS Area Major Establishment Component	GFIMS Section	Timing
Construction of Boundary Type 2	3.3.2	The construction of Boundary Type 2 will occur following issue of a Subdivision Certificate for the creation of residential lots in Neighbourhood 4, prior to access being provided to land purchasers or the public.
Construction of Boundary Type 3	3.3.2	The construction of Boundary Type 3 required to establish individual lot boundaries within the GFIMS Area will occur following issue of a Subdivision Certificate for the creation of residential lots in each adjacent Neighbourhood, prior to access being provided to land purchasers or the public.
Erosion and sedimentation control	5.1.1.4	Erosion and sediment control measures are to be put in place prior to the commencement of civil work within the subject portion of the GFIMS Area.

4. Establishment and Restoration of the GFIMS Area

To facilitate the connection of matters and/or measures described in the section to the EPBC approval requirements, throughout Sections 3 to 6 of this GFIMS the relevant component/s of CoA 2 of the EPBC Act approval are provided in italics at the start of the section.

- (vi) *Protect and maintain the Googong Foreshores buffer area*
- (ix) *Manage community and water supply impacts, including measures from the Queanbeyan Local Environmental Plan.*

4.1 Initial weed removal

A high level of disturbance is present throughout much of the GFIMS Area due to the past and current use of the land for agricultural purposes. As a result, numerous invasive plant species now occur within the GFIMS Area, including several species that have been declared Noxious Weeds in the Queanbeyan and Palerang local government areas (LGA) pursuant to the NSW *Noxious Weeds Act 1993* (Ecowise Environmental and Biosis Research 2009). Section 2 of the Queanbeyan City Council 2011-2021 Weed Management Plan (Queanbeyan City Council 2011) provides a list of 'priority weeds' for the Queanbeyan LGA. This list has been compiled from the species listed in the following:

- Regional Weed Strategy – Murrumbidgee Catchment (Ash and Verbeek 2007);
- *Noxious Weeds Act 1993* – Weed Control Order No. 28 – Order Declaring Certain Plants to be Noxious Weeds (NSW DPI 2011); and
- Molonglo Catchment Priority Weeds List (Molonglo Catchment Group 2013).

It is acknowledged that the Queanbeyan LGA list of priority weeds is not exhaustive and additional species will need to be added when identified within the Queanbeyan LGA.

The Queanbeyan LGA list of priority weeds provides the list of species currently considered priority weeds for the Queanbeyan LGA, however as described in the Googong Foreshores PoM (TAMS 2013), only a select few of these are known to currently occur within Googong Foreshores (noting that Googong Foreshores is located within Palerang LGA). Although the presence and distribution of weeds within the GFIMS Area has not been comprehensively assessed to date, as informed by the Googong Foreshores PoM (TAMS 2013) and Biosis' familiarity with the GFIMS Area and vicinity, the species listed in Table 8 are those considered in this GFIMS to be 'priority weeds' for targeted removal and ongoing management within the GFIMS Area. Note: Table 8 includes several noxious weed species not known to currently occur within the GFIMS Area and/or vicinity, however considered to have high potential for introduction to the GFIMS Area and locality. For example, Chilean Needle Grass (*Nassella neesiana*) occurs commonly throughout urban Canberra where it has been spread along nature strips and road verges by slashers and other machinery. This species, whilst not currently known to be present at Googong, is highly likely to be introduced without vigilant weed hygiene and weed monitoring (discussed in detail in Sections 5.1.1.5 and 5.1.2.2).

In addition to the priority weeds, numerous other exotic species occur within the GFIMS Area and locality. Some of these species, including Phalaris (*Phalaris aquatica*), Cocksfoot (*Dactylis glomerata*), Fescues (*Festuca* spp.), Ryegrasses (*Lolium* spp.) and Clovers (*Trifolium* spp.), were intentionally introduced for pasture improvement. However, numerous other species, including Barley Grass (*Hordeum vulgare*), Flatweeds (*Hypochaeris* spp.) and Thistles (*Carthamus lanatus*, *Cirsium vulgare*,

Sonchus spp.), were introduced unintentionally during the management of the land for agricultural purposes. These exotic pastoral species have become very common and widespread (often referred to as 'naturalised') across the pastoral areas of the Southern Tablelands, and as such, their targeted removal and management is not considered feasible nor warranted.

Table 8: GFIMS Area priority weeds

Name	Commonwealth ¹	NSW ²	ACT ³
Currently occurring within the GFIMS Area and/or vicinity			
St John's Wort <i>Hypericum perforatum</i>	-	Class 3	Must be contained
Serrated Tussock <i>Nassella trichotoma</i>	WoNS	Class 4	Must be contained
Patterson's Curse <i>Echium plantagineum</i>	-	Class 4	Must be contained
African Lovegrass <i>Eragrostis curvula</i>	-	Class 4	Must be contained
Blackberry <i>Rubus fruticosus</i>	WONS	Class 4	Must be contained
Willows <i>Salix</i> spp. (except permitted species)	WONS	Class 5	Must be suppressed
Sweet Briar <i>Rosa rubiginosa</i>	-	-	Must be suppressed
Hawthorn <i>Crataegus monogyna</i>	-	-	Must be contained
Horehound <i>Marrubium vulgare</i>	-	Class 4	-
Scotch Thistle <i>Onopordum acanthium</i>	-	Class 4	Must be contained
Saffron Thistle <i>Carthamus lanatus</i>	-	-	Must be contained
Slender Thistle <i>Cardus pycnocephalus</i>	-	-	Must be contained
Slender Thistle <i>Carduus tenuiflorus</i>	-	-	Must be contained
Not known to currently occur within the GFIMS Area and/or vicinity, however potential for introduction is considered high			
African Boxthorn <i>Lycium ferocissimum</i>	WoNS	Class 4	Must be suppressed
Cootamundra wattle <i>Acacia baileyana</i>	-	-	Prohibited

Name	Commonwealth ¹	NSW ²	ACT ³
Fireweed <i>Senecio madagascariensis</i>	WoNS	-	Notifiable
Chilean Needle Grass <i>Nassella neesiana</i>	WoNS	Class 4	Must be contained
Bathurst Burr <i>Xanthium spinosum</i>	-	Class 4	Must be suppressed
Noogoora Burr <i>Xanthium occidentale</i>	-	Class 4	Must be suppressed
Poplars (White & Lombardy) <i>Populus</i> spp.	-	-	Prohibited
Privets (Broad Leaved and Narrow Leaved) <i>Ligustrum</i> spp.	-	-	Prohibited
Nodding Thistle <i>Carduus nutans</i>	-	Class 4	Must be suppressed

Key:

1. Commonwealth: Weeds of National Significance (WoNS)(Australian Weeds Committee 1999) (<<http://www.weeds.org.au/natsig.htm>>). See also Weeds of National Significance. Update 2008 (<http://www.weeds.org.au/docs/WONS_update_2008.pdf>).
2. ACT: *Pest Plants and Animals (Pest Plants) Declaration 2009* (No 1) under the *Pest Plants and Animals Act 2005*.
3. NSW: *Noxious Weeds Act 1993*. Special Supplement, August 2006 (Weed Control Order No. 20). Class 3 = Regionally controlled weeds; Class 4 = Locally controlled weeds; Class 5 = Restricted plants.

The presence and distribution within the GFIMS Area of each of the GFIMS Area priority weeds (as identified in Table 8) will be assessed and mapped prior to commencement of development within the adjoining Neighbourhood of Googong township. This mapping will be provided to a suitably qualified and experienced weed control contractor who will be engaged to undertake weed control throughout the subject portion of the land prior to its sale or dedication. The specific weed control techniques employed will be determined by the weed control contractor at the time of employment, based upon suitability/applicability for the subject species. Weed control works will be timed to maximise the effectiveness of the chosen technique.

All weed removal works will be undertaken by trained and competent personnel using weed management techniques targeted to the species with minimal impact upon non-target species.

Weed control will be repeated until such time as all WoNS species have been eradicated, all other woody weeds have been eradicated and all non-woody weeds have been appropriately suppressed.

4.2 Revegetation planting

As described in Section 3.1, the GFIMS Area has been divided into four broad Management Areas, each with a defined land use purpose and management intent. Accordingly, the requirements for revegetation planting differ substantially between Management Areas. Table 9 details the revegetation works that will be implemented within each Management Area.

Table 9: GFIMS Area revegetation planting

Management Area	Revegetation
<p>MA 1 – PTWL Conservation Area</p>	<p>As stipulated in the approved PTWL-P&MP, a native grass re-establishment and encouragement program will be implemented throughout the PTWL Conservation Area. This program will be aimed at facilitating and encouraging the dominance of native grasses (notably Kangaroo Grass <i>Themeda triandra</i> and Red Grass <i>Bothriochlora macra</i>) within the portions of the PTWL Conservation Area where they are not currently the dominant species.</p> <p>The native grass re-establishment and encouragement program will involve the re-establishment of Kangaroo Grass and Red Grass using stock grown from seed of local provenance (i.e. ACT and surrounds). These grasses will be re-established or boosted via the spreading of fertile Kangaroo Grass and Red Grass seed across the sections of the PTWL Conservation Area where disturbance to the soil surface has occurred during the removal of exotic and native woody species and the importation of habitat rocks.</p> <p>The timing and specifications for revegetation works within MA 1 will be as per those stipulated in the approved PTWL-P&MP.</p>
<p>MA 2 – Googong Reservoir Catchment Area</p> <p>Publicly accessible area</p>	<p>In accordance with the commitments made in the Googong LPA, a large portion of MA 2 will be dedicated to Council as part of the Neighbourhood Structure Plans for Neighbourhoods 4 and 5. Prior to dedication, GTPL will undertake a program of native revegetation works throughout MA 2. The design, layout and other specifications for the MA 2 revegetation program will be developed in collaboration with Council during detailed planning and design of the relevant Neighbourhood Structure Plans. However, the objective of the revegetation program will be to restore the natural botanical values of MA 2 in a manner that is compatible with the other intended uses of the area. In accordance with Clause 6.5 of the Queanbeyan LEP, all revegetation planting and landscaping works will include only indigenous species. To this effect, Appendix A provides the recommended species list for revegetation planting within MA 2 (and for any other planting occurring elsewhere within the GFIMS Area). This species list comprises species indigenous to the temperate woodland and dry forest communities that would have occurred throughout the GFIMS Area prior to European occupation of the land. Remnants of these ecological communities remain within the GFIMS Area and locality, varying in degree of modification from isolated retained mature eucalypts over exotic pasture to relatively intact patches.</p>
<p>MA 3 – Googong Foreshores Boundary Buffer Area</p> <p>and</p> <p>MA 2 – Googong Reservoir Catchment Area – Privately owned areas</p>	<p>MA 3 occurs as a 50m wide strip running along the eastern side of the interface between Googong township and Googong Foreshores. This strip of MA 3 land will become either part of the road reserve for the Googong Foreshores interface edge road or be divided into segments which will become part of one of the large privately owned residential lots.</p> <p>No specific revegetation planting is proposed within MA 3 or the privately owned parts of MA 2. Notwithstanding this, in accordance with Clause 6.5 of the Queanbeyan LEP, any planting and landscaping works within MA 3 may comprise only indigenous species.</p>

Management Area	Revegetation
MA 4 - Managed Residential Area	<p>MA 4 contains the balance of the land within the GFIMS Area which is to be divided into privately owned residential lots.</p> <p>No specific revegetation planting is proposed within MA 4. Notwithstanding this, in accordance with Clause 6.5 of the Queanbeyan LEP, any planting and landscaping works within MA 4 may comprise only indigenous species.</p>

5. Protection and Maintenance of the GFIMS Area

- (vii) *Protect and maintain the Googong Foreshores buffer area.*
- (ix) *Manage community and water supply impacts, including measures from the Queanbeyan Local Environmental Plan.*

5.1 Protection of the GFIMS Area and Googong Foreshores

5.1.1 Protection during development of Googong township

5.1.1.1 Access provision and management

As described in Section 3.4, the relevant stage of the Googong Foreshores Township Interface boundary (refer Figures 9.1 to 9.3) will be established prior to any other works being undertaken within the adjacent portion of the GFIMS Area. Access to the boundary for the purposes of establishing the boundary (i.e. detailed survey, necessary vegetation clearance, fence construction etc) will be provided from Googong township. Once established, the boundary will provide a permanent barrier to pedestrian or vehicular access from Googong township into the Googong Foreshores and/or the PTWL Conservation Area.

Access to the GFIMS Area will be provided only to construction contractors and other authorised parties, engaged by GTPL or one of its representatives for the discrete purpose of undertaking the contracted works. Specifications and particulars relating to on-site access management will be stipulated in the Construction Environmental Management Plan (CEMP) to be prepared, approved by Council and implemented for the relevant stage of works.

5.1.1.2 Contractor and construction worker induction

- (i) *Induct construction workers and contractors about requirements to protect threatened species and the environment on Commonwealth Land.*

All personnel associated with the construction works within the GFIMS Area will undertake environmental awareness and induction training. This training will be undertaken as part of the face to face site induction process and will be delivered by the GTPL Contract Manager administering the contract and/or other authorised representative of GTPL.

Environmental awareness and induction training will cover, but not be limited to:

- a general site induction to familiarise personnel with the GFIMS Area and its surrounds;
- a presentation providing appropriately detailed information regarding the significant ecological values of the GFIMS Area (notably Management Areas 1 and 2) and Googong Foreshores and associated sensitivities;
- a presentation dedicated to the water supply function of the GFIMS Area (notably Management Area 2) and Googong Foreshores area associated sensitivities;
- awareness and induction training into the Construction Environmental Management Plan (CEMP) which will be approved by Council and implemented for all works undertaken within the GFIMS Area;
- site specific training with regard to all relevant environmental controls;

- environmental responsibilities such as general environmental duties and the duty to report and notify;
- environmental emergency response training in the event of flood, bushfire and chemical spills;
- acceptable and unacceptable practices for the GFIMS Area;
- identification of the appropriate person to report to in the event of an environmental issue;
- procedures for unexpected finds such as Aboriginal heritage sites and European heritage sites, providing specific detail relating to responsibilities under the NSW *Heritage Act 1977* and NSW *National Parks and Wildlife Act 1979*;
- specific task training, such as dust mitigation measures for operators, and designated fuelling stations for plant and machinery;
- procedures to be implemented in the event that threatened flora or fauna (notably the PTWL) are identified within the GFIMS Area;
- stop work and notification procedures in the event of unexpected finds and/or the identification of threatened species or important habitat features (i.e. hollow-bearing trees, animals nests, burrows etc);
- significant tree and/or habitat feature locations and the controls to be implemented to preserve these areas; and
- the requirement for all rubbish to be removed from site and disposed of at an appropriately licenced facility – with no rubbish to be burned, buried or otherwise disposed of within the GFIMS Area.

Following review of an incident, noncompliance or public complaint, the appropriate corrective and preventive action will identify the need to assess and retrain the personnel involved.

The corrective and preventative action should also identify changes to the training content and/or structure to ensure continued improvement principles are implemented.

A register of site induction and environmental training will be maintained onsite during all works undertaken within the GFIMS Area, and will include the names of personnel trained, date of training, details of the trainer and the timeframe for review and retraining.

In addition, toolbox talks will typically be held weekly and will be used to maintain awareness regarding the relevant environmental issues and sensitivities (as described above). Toolbox talk attendance is mandatory and attendees of toolbox talks will be required to sign an attendance form. Each attendee will be required to sign off on the toolbox talk to register their understanding, and records of attendance will be maintained.

5.1.1.3 Environmental management checklists

- (ii) *Provide indicative environmental management checklists to assist with monitoring the implementation of environmental management obligations during constructions works.*

Monitoring of all site controls will occur in accordance with the CEMP to be approved by Council and implemented for all works within the GFIMS Area.

The CEMP will include an environmental management and monitoring checklist which will include each specific activity and environmental control listed in the CEMP including but not limited to:

- general site environmental management;
- proposed hours of construction;
- erosion and sediment control (as detailed in Section 5.1.1.4);
- water quality management (specifically with reference to waters flowing to Googong Reservoir, i.e. from Management Area 2);
- air quality;
- noise and vibration;
- waste management;
- native flora and fauna management;
- hazardous materials;
- cultural heritage;
- protection of existing infrastructure; and
- traffic management.

The Environmental Management and Monitoring Checklist will outline who is responsible for the monitoring activities and the frequency at which they must be conducted.

Non-conformance identified through the Environmental Management and Monitoring Checklist process will be addressed and rectified as soon as practically possible by the implementation of corrective action as detailed in this CEMP.

GTPL will review the results of the Environmental Management and Monitoring Checklist process at each fortnightly construction site meeting in conjunction with the Construction Superintendent and other relevant parties. Recommended actions will be discussed to identify areas of continual improvement.

5.1.1.4 Erosion and sedimentation control

(iv) Identify and implement erosion control measures.

The CEMP prepared for the GFIMS Area and approved by Council, will detail the erosion and sedimentation control measures to be implemented during all construction works within the GFIMS Area. Whilst the specific location and design of the erosion and sedimentation control measures to be employed cannot be determined prior to the approval of each Development Approval (DA) in the GFIMS Area, Table 10 below provides an indication of the measures that will be employed.

The 'objective' of these measures will be to minimise the potential for soil erosion and sediment release during construction activities. The 'target' will be to minimise erosion using sediment and erosion control measures and to ensure no sediment leaves site.

Table 10: Sediment and erosion control measures

Management Required	Action
Design Standard	Erosion and sediment controls will be designed in accordance with Managing Urban Stormwater – Soils and Construction Volume 1.
	Two design principals will be incorporated into erosion and sediment controls, firstly to divert stormwater flows from undisturbed areas adjoining the site, and secondly to catch contaminated stormwater from disturbed areas within appropriately located sediment basins.
Sediment Fences and Run-off Control Devices	The construction site shall be clearly delineated and erosion and sediment control measures will be installed before construction commences.
	A sediment basin will be constructed onsite and remain for the duration of the works, or until adequate revegetation has occurred. The sediment pond will collect the stormwater runoff from disturbed areas of the site, preventing sediment from leaving site. Discharging the sediment pond will only be carried out after adequate treatment, and advice from the Environment Protection Authority (EPA) and Council regarding discharge methods.
	Where designed, cut off drains and earth banks will be constructed to divert flows from undisturbed areas.
	Construction activities will not occur outside the designated work area.
	Between completion of works and the establishment of ground cover, erosion and sediment control measures will remain in place, e.g. sediment fences.
	Drainage control and sediment fencing must be maintained in place throughout the construction phase and monitored on a weekly basis and after >25mm rain in a 24 hour period and repaired/replaced as required. All sediment fencing or erosion/sediment control devices will only be removed following rehabilitation or when deemed to be no longer necessary.
	Should monitoring reveal that extra erosion and sediment control measures are required on site, any such additional devices will be compliant with Managing Urban Stormwater – Soils and Construction Volume 1
	Mud and dirt from the site that has been deposited on any adjacent roads shall be removed immediately and an end of day sweep up will also be conducted.
	All sediment collected by silt fencing and other such control devices will be removed and disposed of in an appropriate manner. This may include sifting and stockpiling for later use as topsoil for vegetated areas or removal off site to an appropriate and approved disposal facility.
Revegetation of the resulting disturbed areas to be undertaken as soon as practically possible.	

Management Required	Action
Stockpile Areas	All stockpile areas will be located within the nominated areas. Appropriate erosion and sediment control devices will be installed around the perimeter of any stockpiles.
	Stockpiled soil will be stored in a manner to prevent soil being washed off site.
	Stockpile batters will be maintained at a slope of no greater than 1:1 and the height should be minimised where practical.
	Stockpiles that are required to remain in place for long periods of time will be either grassed or mulched to stabilise.
Vehicular access points	Unless otherwise approved, there shall be one major entry/exit point during construction.
	The designated stabilised entry point/s will be installed prior to construction to minimise the transport of sediment to adjoining public roadways.
	All access points to a public road will require prior <i>S138 Roads Act 1993</i> approval by Council.
Works in catchment areas	Batters should be maintained at a slope of no greater than 1:1.
	Batters that remain bare for extended periods of time will be stabilised by covering with mulch, anchored fabric or grass.
Monitoring	A rainfall gauge should be installed at the site. The rainfall to 9am should be measured each working day and the gauge emptied.
	All construction activities will be monitored daily for compliance with the CEMP.
	All erosion and sediment control devices will be inspected on a weekly basis and also include monitoring: <ul style="list-style-type: none"> • within 24 hours prior to expected rain; and • within 24 hours of a rainfall event exceeding 25mm.
	The road network will be inspected daily for evidence of sediment carted from the site.
	The effectiveness of the erosion and sediment control plan section of the CEMP will be reviewed on a quarterly basis, or as required.
Reporting	Visual daily observations.
	Site Inspection Checklist.
	Monthly Report.

Management Required	Action
	<p>Noncompliance Report.</p> <p>A monthly log of the effectiveness of the erosion and sediment control plan section of the CEMP will be prepared.</p>
Corrective and preventative action	<p>Erosion and sediment control devices will be cleared, repaired or replaced whenever inspections show signs of noncompliance or ineffective capability or capacity.</p> <p>Where erosion and sediment control devices are found to not be in accordance with the erosion and sediment control plan, work in the affected area will cease and corrective action in accordance with the CEMP will be taken prior to recommencing works.</p> <p>Where inspection of the adjoining roadways indicates the presence of sediment from the site, a street sweeper will be employed to clear and clean the affected area immediately.</p> <p>Where site inspections identify scour/erosion, the area will be rehabilitated as soon as practicable.</p> <p>The erosion and sediment control plan will be revised whenever the review of its effectiveness indicates deficiencies.</p>

5.1.1.5 Weed Hygiene Measures

(v) *Identify and implement appropriate weed hygiene measures.*

Management of weed hygiene during all construction occurring within the GFIMS Area will occur in accordance with the CEMP to be approved by Council. The CEMP will include a dedicated weed hygiene section which will include the weed hygiene measures listed below. As described in Section 5.1.1.2, construction personnel will be informed of the importance of these measures during induction and toolbox talks.

As an indication, the weed hygiene measures to be implemented during construction within the GFIMS Area will include but not be limited to the following.

- Earth moving vehicles will, as far as practicable, be cleaned of dirt before entering the GFIMS Area. This is particularly important if vehicles are coming into the GFIMS Area from outside Googong township or from weed infested areas of the township.
- Construction personnel will, as far as possible, clean their boots and clothing of all seed laden material prior to entering the GFIMS Area.
- Any topsoil that is imported from offsite for use in landscaping will be weed free.
- Topsoil will be stripped from areas of high weed infestation and buried as fill or disposed of off site.
- Topsoil from moderate and low weed infestation areas will be stripped and stockpiled separately.
- No domestic pets will be brought on site by construction personnel.

5.1.2 Protection during occupation of Googong township

5.1.2.1 Access provision and management

As described in Section 3.4, the relevant stage of the Googong Foreshores Township Interface boundary (refer Figures 9.1 to 9.3) will be established prior to any other works being undertaken within the adjacent portion of the GFIMS Area. Once established, the boundary will provide a permanent barrier to pedestrian or vehicular access from Googong township into the Googong Foreshores and/or the PTWL Conservation Area. No fence will be constructed along the segment of the Googong Foreshores Township Interface boundary adjoining the PTWL Conservation Area to facilitate the movement of native herbivores between Googong Foreshores and the PTWL Conservation Area. As detailed in the approved PTWL-P&MP (Biosis 2012), unimpeded movement of native herbivores between the two conservation areas will be required for biomass management purposes.

Following establishment of the Boundary Type 1 along the Googong Foreshores-Township interface, Vehicle access to Management Area 1 and Googong Foreshores from the Township will be achievable only via one of the locked gates and will be permitted only to emergency service personnel and authorised parties engaged by Council to undertake maintenance activities. As will be clearly stated on appropriately located signs (refer Section 5.1.2.5), persons illegally accessing Management Area 1 and/or Googong Foreshores from Googong township will be investigated and prosecuted.

Following sale of the subject lots, access to the privately owned portions of Management Areas 3 and 4 will be provided to the owner of the lot/s, their engaged construction personnel and other parties similarly authorised by the property owner to access the land.

A condition of the DA for each lot within Management Areas 3 and 4 will be that the property owner, their engaged personnel and other relevant parties read, understand, sign and abide by the CEMP to be prepared, approved by Council and implemented for the relevant stage of works.

5.1.2.2 Weed Hygiene Measures

(v) *Identify and implement appropriate weed hygiene measures.*

The risk of weed introduction and establishment within the GFIMS area will continue following dedication of land within the GFIMS Area to Council or sale of the land as private residential lots. During this time, the sources of weed introduction will shift from construction based activities (i.e. vehicle and materials movements) to activities associated with inhabitation and/or maintenance of the GFIMS Area. Potential sources of weed introduction to the GFIMS Area and the mitigation measures that will be implemented to combat them are detailed in the following.

- a. **Source - Slashing.** The introduction and spread of weed seed and/or propagules during slashing is well documented. For example, the slashing of road verges and nature strips has spread the noxious grass weeds African Love Grass and Chilean Needle Grass throughout urban Canberra. Slashing within the GFIMS area (by Council or property owners as applicable) may be required to manage biomass to the level required by the relevant Bushfire Management Plan/s. Accordingly, such slashing may result in the introduction and/or spread of weed seed and/or propagules within the GFIMS Area.

Mitigation. To prevent the introduction of weeds into the GFIMS Area (notably into Management Areas 1 and 2), slashers and other machinery will be thoroughly cleaned of all weed seed and propagules prior to entry into the GFIMS Area. In addition, a component of the Environmental Education Program (refer Section 5.1.2.5) will be to advise property owners regarding the risk of weed introduction from slashers and mowers borrowed from elsewhere.

- b. **Source – Dumping of garden waste.** Garden waste (lawn clippings, prunings, unwanted soil etc) may contain weed seed and/or propagules which may establish if dumped in the GFIMS Area.

Mitigation. A component of the Environmental Education Program (refer Section 5.1.2.5) will be to advise property owners regarding the risk of weed introduction from garden waste dumped in the GFIMS Area. In addition, persons dumping rubbish (including garden waste) in the GFIMS Area will be appropriately investigated and fined or prosecuted as applicable.

5.1.2.3 Feral animal control

Feral vertebrates

Feral Cat and Red Fox

Feral Cats (*Felis catus*) and the Red Fox (*Vulpes vulpes*) are known to predate upon small native vertebrates and invertebrates, including threatened species such as the Pink-tailed Worm-lizard and the numerous threatened woodland birds occurring within the GFIMS Area and Googong Foreshores. These feral predators are known to currently occur throughout the locality, where Foxes in particular are supported in part by the presence of sheep which provide a reliable and readily available food source. Whilst the progressive removal of sheep grazing from the GFIMS Area and the remainder of Googong township will reduce this food source, the development of Googong township has the potential to increase Feral Cat and/or Fox populations and associated impacts in the GFIMS Area and locality through:

- increased food sources in the form of unsealed rubbish bins, domestic poultry (chickens, ducks etc), aviary birds and rodents; and
- increased risk of release of unwanted cats and kittens which quickly become feral.

European Rabbit

European Rabbits (*Oryctolagus cuniculus*) occur across the majority of NSW and the Googong locality is no exception to this. Rabbits, particularly when populations are high, cause significant degradation of the landscape through:

- overgrazing – resulting in impacts to native flora, increased soil exposure to weed establishment, erosion and reduced fodder for native herbivores; and
- burrowing – resulting in increased soil exposure to weed establishment, erosion, damage to fences and other infrastructure.

Whilst Rabbits populations have been substantially controlled via the introduction of Myxomatosis in 1951 and Rabbit Calicivirus in 1996, the species has persisted at varying population levels.

Feral Pig

Feral Pigs (*Sus scrofa*) are known to occur within Googong township, Googong Foreshores and the surrounding region, generally confining diurnal movements to woody vegetated areas with movements out into more open country to forage at night. The foraging activity ('rooting') of Feral Pigs is highly destructive to the environment, causing substantial excavation of, and damage to, drainage lines, seepages and other wet areas. This foraging activity of Feral Pigs causes and/or exacerbates erosion and results in heightened sedimentation, nutrification of receiving waterways and is thought to spread weeds, particularly Great Mullein (*Verbascum thapsus*) (TAMS 2013). Plate 3 provides a photograph of the damage caused by Feral Pig foraging along one of the drainage lines located in the northern extent of the GFIMS Area.



Plate 3: Disturbance from Feral Pig foraging within the GFIMS Area

Indian Myna

Whilst the species is not known to currently occur in the locality, urbanisation associated with the development of Googong township is likely to result in the introduction of the Indian Myna (*Acridotheres tristis*) to the locality. The newly established presence of the Indian Myna has been observed following the development of each of the new residential developments established in the Canberra region since the introduction of the species to the region (i.e. Jerrabomberra, North Gungahlin suburbs etc). This species is very territorial and is known to be highly disruptive to native birds, particularly those that nest and/or roost in tree hollows. These impacts are usually particularly pronounced within close proximity to urban development.

Exotic fish

As described in the Googong Foreshores PoM (TAMS 2013), though there have been some captures and unconfirmed sightings, European Carp (*Cyprinus carpio*) have not yet established in the Googong Reservoir (Lintermans 2002). However Eastern Gambusia (*Gambusia holbrooki*) (also known as Mosquito Fish) and Redfin Perch (*Perca fluviatilis*) occur in the Googong Reservoir and the reaches of Queanbeyan River upstream and downstream of the reservoir.

The introduction of European Carp or other exotic fish species to the Googong Reservoir has the potential significantly impact upon the water supply function and aquatic ecology values of the reservoir by:

- threatening the survival of native fish, amphibians and invertebrate species through competing for food and habitat, direct predation and the spread of disease; and
- causing increased turbidity by eating aquatic vegetation and disturbing the bed of the reservoir and Queanbeyan river.

The introduction of urban development within close proximity to Googong Reservoir has the potential to result in introductions of exotic fish, invertebrates or plants to the reservoir. The most likely cause of this would be residents releasing unwanted aquarium or pond specimens into Googong Reservoir or one of the many small dams or creeks that flow to the reservoir.

Management and control

As described in Section 5.1.2.5, it will be important to educate local residents and visitors to Googong township regarding the actions that may support and/or increase Feral Cat, Red Fox and Indian Myna numbers. It will also be important to educate the public regarding the importance of not releasing exotic fish, invertebrates or plants into the Googong Reservoir or any of the dams or creeks that flow to the reservoir.

In addition, as discussed in the PTWL-P&MP, appropriate management of Feral Cats, Foxes, Rabbits and Feral Pigs within the GFIMS Area (particularly within Management Area 1) will be important to protect the Pink-tailed Worm-lizard population and the other important ecological values of the locality.

Given that vertebrate fauna (including feral herbivores and feral predators) will move freely between Googong Foreshores and Management Area 1, populations of feral vertebrate species in the locality will be managed most effectively by the existing and ongoing 'integrated feral animal control program' undertaken by TAMS in accordance with the ACT Pest Animal Management Strategy 2012 – 2022 (ACT Government 2012) (TAMS 2013). However, the effectiveness of this program relies in part on the co-operation of adjacent land managers. As such, TAMS are likely to require the co-operation and assistance of the relevant land managers of the GFIMS Area (i.e. GTPL then Council for Management Areas 1 and 2; private owners of lots comprising Management Areas 3 and 4).

5.1.2.4 Domestic animal control

The following measures will be implemented to prevent domestic animals from roaming within the GFIMS Area, and potentially beyond into Googong Foreshores:

- a. An Environmental Education Program will be developed and implemented (refer Section 5.1.2.5).
- b. As detailed in Section 3.3.1 and shown in Figures 9.1 and 9.2, the Googong Foreshores Interface boundary fence (Boundary Type 1) will be a 1.8m high fence constructed of steel railing and chain mesh. This Boundary Type 1 will be constructed along the interface between Googong township and Googong Foreshores and around the southern, western and northern boundaries of Management Area 1 – PTWL Conservation Area.

These fences will be appropriately maintained and whilst not providing an impassable barrier, will provide a deterrent to domestic animals.

- c. A cat prohibition covenant will be placed over Management Area 1 and the publically owned portions of Management Area 2. This covenant will be enforced via the provisions of the NSW *Companion Animals Act 1998* of which 'Section 30 – Cats prohibited in some public places' permits implementation and enforcement of such a covenant for –

(b) **Wildlife protection areas** (meaning any public place or any part of a public place set apart by the local authority for the protection of wildlife and in which the local authority ordered that cats are prohibited for the purposes of the protection of wildlife and in which, or near the boundaries of which, there are conspicuously exhibited by the local authority at reasonable intervals notices to the effect that cats are prohibited in or on that public place).

5.1.2.5 Environmental Education Program

- (x) *Provide details of an environmental education program, which must include information about the protection of water quality in the Googong reservoir.*

In collaboration with the GFTI Working Group, GPL will develop an Environmental Education Program (EEP) for implementation to educate residents of Googong township and the broader public regarding the importance of protecting the Googong Reservoir catchment. Whilst the particulars of the EEP will be determined during its development, the following provides a framework for the EEP and an overview of what it will entail.

The components of the EEP relating to the protection of water quality in the Googong Reservoir will be implemented within six months of the date of the approval of the GFIMS. The components of the EEP relating to education of residents and visitors on matters specific to the use and development of land within the GFIMS Area will be developed and implemented prior to the sale of residential lots within the GFIMS Area (i.e. those with the portions of Neighbourhoods 1B, 4 and 5 encompassed by the GFIMS Area).

Purpose

The purpose of the EEP will be to provide a program to convey the key messages and mechanisms for implementation of environmental education of residents of Googong township and the broader public regarding the importance of protecting the Googong Reservoir catchment, its primary water supply function and other significant natural and cultural heritage values.

Target audience

The EEP will target residents of Googong township and the broader public during visitation to the GFIMS Area and/or locality. However, certain elements of the EEP will be developed to specifically target certain stakeholder groups such as the property owners of lots wholly or partially encompassed by the GFIMS Area.

Key messages

The key messages of the EEP will be developed based on the following.

- The primary purpose and function of Googong Foreshores and associated Googong Reservoir Catchment is the protection of the supply of high quality raw water for provision to the ACT and Queanbeyan.
- The overarching purpose of the GFIMS Area is to provide a buffer zone between Googong township and Googong Foreshores, within which appropriate management will be undertaken to prevent the development and occupation of the Googong township from impacting upon water quality within the Googong Reservoir, listed threatened species, ecological communities and the environment on Commonwealth land.
- The importance of protecting the significant natural and cultural heritage values of Googong Foreshores and the GFIMS Area (notably within Management Area 1 – PTWL Conservation Area).
- The GFIMS Area has been established for the benefit of the community in both the protection of the quality of water flowing to Googong reservoir and in the provision of a large area retained and protected for its environmental conservation, aesthetic, intrinsic and recreational values. Specific reference will be made to the activities permitted within the publically accessible parts of the GFIMS Area, being:
 - the majority of Management Area 2, freely accessible for mountain biking, bushwalking, bird watching and other low impact recreation; and
 - the entirety of Management Area 1 for bushwalking, bird watching etc, provided access is gained via Googong Foreshores during the designated open hours (generally 8am to 5pm).
- Extensive effort and monetary cost has been devoted by GTPL to the design, establishment, and restoration of the GFIMS Area and associated management and protection infrastructure (i.e. fencing, weed removal, revegetation, PTWL habitat enhancement etc).
- It is vitally important to the effective achievement of the purpose of the GFIMS Area that the public, particularly local residents, support the management and protection of the GFIMS Area. The desired behaviours and attitudes include:
 - abiding by access restrictions;
 - avoiding activities that may degrade the GFIMS Area and/or be counter to the purpose and objectives of the GFIMS Area and this GFIMS;
 - assisting with maintenance works within Management Areas 1 and the publically owned portions of Management Area 2;
 - managing the private land within Management Areas 2, 3 and 4 in accordance with the restrictions imposed by the implemented covenant and the management regime described herein for the land;

- maintaining surveillance over the GFIMS Area and reporting all illegal or otherwise inappropriate activities; and
- maintaining an overarching sense of community ownership of the GFIMS Area.

Key objective

The key objective of the EEP will be the effective conveyance of the key messages of the EEP to the target audience, such that the desired behaviours and attitudes (listed above) become the cultural norm.

Key Figure – Community Facilitator

A Community Facilitator position has been established as a first point of contact for the residents of Googong township, and will be crucial in developing and facilitating the EEP.

The Community Facilitator's primary roles as they relate to the EEP will be:

- provide information to prospective buyers of property in the GFIMS Area and the wider Googong township;
- deliver Welcome Information Packs to new residents;
- organise community events such as public talks, community planting/weeding days, guided walks, etc;
- update the website with news, events, fact sheets etc;
- develop a quarterly newsletter for residents of Googong township;
- monitor signage, fencing etc, reporting to GTPL should maintenance be required (following handover, reporting to Council);
- answer questions, address concerns and respond to feedback from residents of Googong township;
- respond to any reporting of trespassing, rubbish dumping, or other illegal or otherwise inappropriate behaviour;
- report on feedback received for annual monitoring and review of the EEP; and
- organise an annual survey of residents in the GFIMS Area for evaluation of the effectiveness of the EEP.

Mechanisms for implementation

The following types of mechanisms have been developed to meet the key objective of the EEP:

- Type 1 – First contact – awareness-raising through provision of initial information.
- Type 2 – Reinforcement – building understanding and reinforcing the key messages.
- Type 3 – Community engagement – public involvement and community programs to encourage pride in, and protectiveness of, the values of the GFIMS Area, Googong Foreshores, and surrounds.

The mechanisms by which the EEP will achieve its purpose will include but not be limited to the following.

Pre-purchase Information

Mechanism Type: Type 1 – First contact

Target Audience: All prospective buyers of properties within Googong township. Real estate agents selling properties within the township.

Targeted pre-purchase information will be provided as part of the sales and marketing information to prospective buyers of property within Googong township. The pre-purchase information regarding the GFIMS Area will consist of a brochure of one or two pages containing:

- the key messages of the EEP, emphasising the values of Googong Foreshores and of the land within the GFIMS Area;
- links to the website where further information (including a Welcome Information Pack, fact sheets etc.) can be downloaded; and
- the contact details of the Community Facilitator, who can be contacted for further information.

In addition to provision of the brochure, real estate agents will ensure that all prospective buyers of property within the GFIMS Area are provided with all information relevant to the property. The responsibilities of the property owner as they relate to the covenant over the land will be fully disclosed as part of the sales agreement. Additional information regarding the purpose and objectives of the GFIMS Area will also be provided. This information will primarily be provided in the form of brochures or other similar printed or online media. Real estate agents will also be encouraged to discuss the information provided and actively promote the unique benefits and opportunities offered to owners of properties located within the GFIMS Area. The information provided will include but not be limited to:

- the purpose for the covenant over the land (local native flora species only for prevention of weed encroachment etc) and information regarding the practicalities of the covenant;
- the cat prohibition over the publically owned portions of the GFIMS Area, enforced via the provisions of the NSW *Companion Animals Act 1998* (NSW CA Act), the reasons for the prohibition, a request that all cats owned by residents of Googong township are kept indoors at all times and information regarding the benefits of cat containment; and
- other responsibilities and benefits of living in the GFIMS Area.

Welcome Information Pack (WIP)

Mechanism Type: Type 1 – First contact

Target Audience: All new residents of Googong township. Residents within the GFIMS Area will be supplied with a targeted WIP, however most of the information provided will be relevant to all new residents of Googong township.

A WIP on the GFIMS Area will be developed by the Community Facilitator in conjunction with GTPL. This WIP will contain the following as a minimum:

- welcome letter;
- illustrative brochure explaining the design, location and purpose of the GFIMS Area and its constituent Management Areas;
- the key messages of the EPP;

- relevant fact sheets – the facts about planting and cultivation of indigenous species, attracting and protecting native wildlife, use of chemicals and management of chemical spills, prevention of weed introduction (including the importance of disposing of garden waste thoughtfully), the benefits of cat containment etc;
- Q&As;
- encouragement to participate in public events held in and/or relating to the GFIMS Area; and
- a welcome note from the Community Facilitator, including contact details for questions, concerns, further information, action groups or to report prohibited activities.

Each property owner in Googong township will be provided with a WIP on arrival to their new home, delivered personally by the Community Facilitator where practicable, otherwise by the real estate agent. The WIP will also be available for download on the website, and if desired/requested, will be sent to prospective purchasers. WIPs will also be made readily available for distribution to any interested party including students, community groups, interest groups or stakeholders.

To the extent practicable, the WIP will include material relevant to the recipient (i.e. information for owners of properties fully or partly encompassed by the GFIMS Area will contain specifically addressed information).

Signage

Mechanism type: Primarily Type 2 – Reinforcement.

Target audience: GFIMS Area residents, Googong township residents using the public open space, and visitors to Googong township.

The following permanent signage will be installed:

1. Googong Foreshores – Township Interface Boundary signage. A suitably sized sign will be attached to the Googong township side of the fence at 100m intervals along the sections of 'Boundary Type 1' (refer Figures 9.1 and 9.2) that occur between Management Areas 2 and 3 and Googong Foreshores (i.e. publically accessible sections). These signs will provide information relating to the:
 - purposes of the fence (i.e. delineation of the boundary between Googong township and Googong Foreshores, prevention of unauthorised human access, prevention of domestic pet access etc);
 - primary water supply purpose and function of Googong Foreshores and associated Googong Reservoir Catchment;
 - significant natural and cultural heritage values of Googong Foreshores;
 - prohibition of access to Googong Foreshores gained directly from Googong township through or over Boundary Type 1, including associated enforcement and implications relating to infringement;
 - party responsible for the management of Googong Foreshores and the publically accessible portions of the GFIMS Area; and
 - party whom members of the public should contact should they observe illegal or degrading activities being conducted within or immediately adjacent to the GFIMS Area or if they wish to obtain additional information (i.e. the Community Facilitator and others as applicable).

No fence will be installed along the Googong Foreshores – Township Interface Boundary between Management Area 1 – PTWL Conservation Area and Googong Foreshores (refer Figures 9.1 and 9.2). As the public will only be able to access this area via the Googong Foreshores, signage is not required on this boundary.

2. PTWL Conservation Area Boundary signage. A suitably sized sign will be attached to the Googong township urban development side of the fence at 100m intervals along the entire length of boundary around the PTWL Conservation Area (Boundary Type 1, refer Figures 9.1 and 9.2). These signs will provide information relating to the:
 - biodiversity values of the PTWL Conservation Area and importance of protecting such values;
 - how to access the PTWL Conservation Area (i.e. via the Googong Foreshores entrance during the open hours of Googong Foreshores, generally 8am to 5pm);
 - prohibition of access to the PTWL Conservation Area gained directly from Googong township through or over Boundary Type 1, including associated enforcement and implications relating to infringement;
 - management activities that have occurred and will continue to occur within the PTWL Conservation Area;
 - roles that the public can play in protecting the PTWL Conservation Area;
 - actions that would damage the PTWL Conservation Area and/or diminish the habitat values of the area to the PTWL (i.e. recreational rock turning, bush rock collection, weed introduction, etc);
 - cat prohibition covenant that is in place over the PTWL Conservation Area, enforced via the provisions of the NSW CA Act (refer Section 5.1.2.4); and
 - party responsible for the management of the PTWL Conservation Area; and
 - party whom members of the public should contact should they observe illegal or degrading activities being conducted within or immediately adjacent to the PTWL Conservation Area or if they wish to obtain additional information (i.e. the Community Facilitator and others as applicable).
3. Googong Reservoir Catchment Boundary signage. A suitably sized sign will be displayed at 100m intervals along the Googong Reservoir Catchment Boundary as it occurs within the publically accessible areas of Googong township. This will entail the attachment of signs to posts along Boundary Type 2 as it occurs within Management Area 2 adjacent to Management Area 3 (refer Figures 9.1 and 9.2). These signs will provide information relating to the:
 - location of the boundary as marking the boundary of the Googong Reservoir catchment/watershed;
 - primary water supply purpose and function of Googong Foreshores and associated Googong Reservoir Catchment;
 - actions that would damage the GFIMS Area and/or Googong Foreshores (i.e. those that may diminish the water catchment function or habitat function of the area);

- roles that the public can play in protecting the GFIMS Area, Googong Foreshores and water quality in Googong reservoir (i.e. prevention of weed introduction, assistance with maintenance works within Management Areas 1 and 2, public surveillance, etc);
- party responsible for the management of the GFIMS Area; and
- party whom members of the public should contact should they observe illegal or degrading activities being conducted within or immediately adjacent to the GFIMS Area or if they wish to obtain additional information (i.e. the Community Facilitator and others as applicable).

Googong Website

Mechanism Type: Both Type 1 – First contact and Type 2 – Reinforcement

Target Audience: Residents of the GFIMS Area and wider Googong township. Other stakeholders and interested parties.

Information relating to the GFIMS Area will be included on the Googong website. This information will be targeted to residents and other stakeholders at various levels.

Information to be provided on the website will include, but not be limited to:

- a description of the purpose and objectives of the GFIMS Area
- information explaining the design, context, location, values and purpose of the GFIMS Area and its constituent Management Areas;
- an animation of the GFIMS Area, its design, context, location, values and constituent Management Areas.
- the key messages of the EEP;
- a downloadable WIP, links to relevant fact sheets and other information – the facts about planting and cultivation of indigenous species, attracting and protecting native wildlife, use of chemicals and management of chemical spills, prevention of weed introduction etc;
- Q&As; and
- upcoming events, news etc, updated monthly by the Community Facilitator.

The information to be included on the webpage will be refined during the development of the EEP and during discussions with the GTPL marketing and communications team. It is expected that interested residents of the Googong township will be able to join an email list, where they will be notified when events, news and other updates are posted to the website.

Public Events

Mechanism Type: Type 3 – Community Engagement

Target Audience: All Googong township residents, particularly those living within or near to the GFIMS Area.

A range of public events will be organised by the Community Facilitator each year. These events are expected to be held every second month and may include:

- public lectures relating to the values of the GFIMS Area and/or the Googong Foreshores;
- community planting and weeding days;

- guided walks of the PTWL Conservation Area; and
- workshops (e.g. nest box building, bird or plant identification etc).

These public events will be developed by the Community Facilitator in consultation with GTPL however they may include the involvement of Actew Water, TAMS rangers, ecologists, Greening Australia, local catchment groups, local wildlife groups, Wildcare etc.

Monitoring, Evaluation and Adaptive Management

The EEP will be adaptively managed to ensure its continual improvement.

Evaluation of the implementation and success of the EEP will be a topic of the biannual GFTI Working Group meetings which are to be held for the duration of the development of Googong township. These meetings will provide an opportunity for regular review of the EEP.

In addition, a review of the EEP will be undertaken as part of the annual GFIMS monitoring event and included in each GFIMS Implementation Report (Refer Section 6). As part of this review, an annual survey will be conducted of Googong township residents, coordinated by the Community Facilitator. This will be used as an evaluation tool for the EEP. Information gathered at this time will be fed back into the program to enhance the mechanisms for implementation and other aspects of the EEP.

The evaluation of the EEP will be based upon the effectiveness in reaching and communicating with residents, and the effectiveness in promoting the desired behaviours and attitudes.

While the specific performance indicators for the EEP will be determined during the EEP's development, the following can be seen as some of the primary benchmarks for the success of the program:

- high attendance and participation at public events;
- low incidence of negative behaviours (i.e. dumping of rubbish, trespassing etc.) and reporting of negative behaviours by other residents;
- positive feedback received through the annual survey and/or throughout the year;
- positive media coverage;
- positive feedback from other stakeholders (TAMS, Actew Water, Council etc) during the biannual GFTI Working Group meetings or otherwise; and
- cooperation of residents with cat containment and native vegetation covenants, as relevant.

5.2 Maintenance of the GFIMS Area

The above described, establishment, restoration and protection measures will provide the foundation required to achieve the purpose of this GFIMS and the GFIMS Area – to prevent the development and occupation of the township from impacting upon water quality within the Googong Reservoir, listed threatened species, ecological communities and the environment on Commonwealth land. However, active maintenance of the GFIMS Area will be integral to the ongoing achievement of this purpose.

Table 11: GFIMS Area maintenance activities

Maintenance Activity	Management Area/s	Responsible Party	
		Prior to sale or dedication	Post sale or dedication
Weed monitoring and control	<p>MAs 1 and 2 (publically accessible areas only)</p> <p>A biannual (spring and autumn) weed monitoring and control program will be implemented to identify any regrowth of woody weeds and to locate any noxious weeds that may have re-established. Any such regrowth or re-establishment will be immediately eradicated using appropriate weed control techniques.</p> <p>As detailed in the Queanbeyan City Council 2011-2021 – Weed Management Plan (Queanbeyan City Council 2011), to minimise potential impacts, the following operational guidelines must be observed:</p> <ul style="list-style-type: none"> • only accredited weed control operators can undertake weed control works; • to minimise the risk of off target damage and to ensure the correct herbicide or control method is undertaken it is vital that only trained staff or contractors who can confidently and competently identify both weed and non-weed species undertake control work; • herbicides will only be applied according to the label and at the recommended rate; • herbicides will be applied using a coloured dye; • weeds will not be sprayed if plants are under stress, such as on very hot days or 	GTPL	Council

Maintenance Activity	Management Area/s	Responsible Party	
		Prior to sale or dedication	Post sale or dedication
	<p>in very dry or dusty conditions, as the uptake of herbicide through leaves will be reduced;</p> <ul style="list-style-type: none"> spraying operations will not occur on windy days, or if it is likely to rain soon after application; and all spraying operations are to be recorded - this is not only a legal requirement but will also assist with indicating performance measures. <p>Key Performance Indicators –</p> <ul style="list-style-type: none"> No GFIMS Area Priority Weeds are able to reach reproductive age. Severity of weed infestations do not increase over time. 		
	<p>MAs 2 (privately owned), 3 and 4</p> <p>Owners of the private lots comprising MAs 2, 3 and 4 will be required to control all NSW NW Act listed noxious weeds on their properties in accordance with the responsibilities of private landowners under the Act.</p> <p>In accordance with Council's obligations under the NSW NW Act, Weed Officers (with Legal Training III and Weed Officers Induction) will conduct the required inspections throughout the GFIMS Area. Where noxious weeds are identified, Council will provide the requisite Weed Control Order to the landowner and undertake follow-up inspections to assess compliance with the requirements of the order.</p> <p>All weed monitoring and control works should be undertaken by trained or otherwise competent personnel using weed management techniques targeted to the species with minimal impact upon any non-target species. Personnel must be able to confidently and competently identify both weed and non-weed species.</p>	GTPL	Land owner

Maintenance Activity	Management Area/s	Responsible Party	
		Prior to sale or dedication	Post sale or dedication
	Key Performance Indicators – <ul style="list-style-type: none"> No GFIMS Area Priority Weeds are able to reach reproductive age. Severity of weed infestations do not increase over time. 		
Vertebrate pest control	MAs 1 and 2 As described in Section 5.1.2.5, a topic of the Environmental Education Program (EEP) will relate to educating local residents and visitors to Googong township regarding the actions that may support and/or increase Feral Cat, Red Fox and Indian Myna numbers. Given that vertebrate fauna (including feral herbivores and feral predators) will move freely between Googong Foreshores and MA 1, populations of feral vertebrate species in the locality will be managed most effectively by the existing and ongoing 'integrated feral animal control program' undertaken by TAMS in accordance with the ACT Pest Animal Management Strategy 2011 – 2021 (ACT Government 2012) (TAMS 2013). However, the effectiveness of this program relies in part on the co-operation of adjacent land managers. As such, TAMS are likely to require the co-operation and assistance of the relevant land managers of the GFIMS Area (i.e. GTPL then Council for MAs1 and the publically accessible part of MA 2; private owners of lots encompassing land within MAs 2, 3 and 4). Key Performance Indicators – <ul style="list-style-type: none"> An increase in vertebrate pests is not reported by TAMS as a result of the development of Googong township. Residents show understanding of the impacts of vertebrate pests during annual survey conducted as part of the review of the EEP. Contravention of cat containment covenants is not reported. 	GTPL	Council and TAMS

Maintenance Activity	Management Area/s	Responsible Party	
		Prior to sale or dedication	Post sale or dedication
	MAs 3 and 4 As above.	GTPL	Land owner
Maintenance of built infrastructure and revegetation plantings	MAs 1 and 2 All built infrastructure and revegetation/landscape plantings will be appropriately maintained. Key Performance Indicator - <ul style="list-style-type: none"> No less than 90% of planted stock is alive at the time of monitoring (refer Section 6). Fences are structurally sound at the time of monitoring. 	GTPL	Council (Council & TAMS for maintenance of Interface Boundary Fence)
	MAs 3 and 4 The maintenance of any built infrastructure and any revegetation/landscape plantings within MAs 3 and 4 will be the prerogative and responsibility of the property owner. Notwithstanding this, all owners of private properties located within the GFIMS Area will be required to meet their responsibilities under Clause 6.5 of the Queanbeyan LEP. Key Performance Indicator - <ul style="list-style-type: none"> No reports are made of owners not meeting their responsibilities under Clause 6.5 of the Queanbeyan LEP. 	GTPL	Land owner (Land owner & TAMS for maintenance of Interface Boundary Fence)
Bushfire hazard management	MA 1 In accordance with the approved PTWL-P&MP, biomass and associated bushfire hazard within MA 1 – PTWL Conservation Area will be managed primarily by native herbivore (primarily Eastern Grey Kangaroos) grazing. Grazing by native herbivores at the desirable intensity to optimise PTWL habitat quality will also greatly reduce fuel loads within the	GTPL	Council

Maintenance Activity	Management Area/s	Responsible Party	
		Prior to sale or dedication	Post sale or dedication
	<p>PTWL Conservation Area. However, a 20m wide buffer zone running around the boundary of the PTWL Conservation Area will form part of the Outer Asset Protection Zone (OAPZ) for adjacent residential properties and, as such, would be managed as an Outer Protection Area in accordance with the Planning for Bushfire Protection - A Guide for Councils, Planners, Fire Authorities and Developers (NSW Rural Fire Service 2006), which entails maintaining fuel loads at less than eight (8) tonnes per hectare (ha). In this environment, no additional measures are expected to be required to maintain such fuel loads. However, in the event that native herbivore grazing is insufficient to maintain the required fuel loads within the 20m wide buffer zone, slashing may be undertaken within the buffer zone to maintain fuel loads to Outer Protection Area standards. Slashing would only occur using equipment thoroughly cleaned of all potentially weed seed laden material prior to entry into the GFIMS Area. Cutter blades would be set high enough to avoid rocks within the buffer zone.</p> <p>Key Performance Indicators –</p> <ul style="list-style-type: none"> • Buffers are maintained either through Kangaroo grazing or slashing (if required) to Outer Protection Area standards (fuel loads at less than eight (8) tonnes per ha). • Minimal weed spread and no weed introduction occurs as a result of slashing. 		
	<p>MA 2 (publically accessible areas)</p> <p>The installation of the Boundary Type 1 along the boundary between MA 2 and Googong Foreshores, together with the development of the adjacent Neighbourhoods 4 and 5, is likely to largely preclude access to MA 2 for significant numbers of native herbivores. Accordingly, it is unlikely that native herbivore grazing will manage biomass (and associated bushfire fuel load) to a considerable degree within MA 2. As such, whilst the specific location and extent of slashing areas will be determined during the development</p>		

Maintenance Activity	Management Area/s	Responsible Party	
		Prior to sale or dedication	Post sale or dedication
	<p>of the Neighbourhood Structure Plans for Neighbourhoods 4 and 5 (as supported by the requisite Bushfire Management Plan/s), it is likely that portions of MA 2 will require periodic slashing. Slashing would only occur using equipment thoroughly cleaned of all potentially weed seed laden material prior to use.</p> <p>Key Performance Indicators –</p> <ul style="list-style-type: none"> • Slashing is undertaken as required in accordance with the requirements of the Neighbourhood Structure Plans for Neighbourhoods 4 and 5. • Minimal weed spread and no weed introduction occurs as a result of slashing. 		
	<p>MAs 2 (private ownership), 3 and 4</p> <p>A Bushfire Management Plan will be required in support of each Development Application (DA) submitted to Council for development within a lot occurring within MA 4 (residential development within MAs 2 and 3 will not be permitted as it would be inconsistent with the E2-Environment Conservation zoning of the land). The Bushfire Management Plan will need to be prepared in accordance with Planning for Bushfire Protection - A Guide for Councils, Planners, Fire Authorities and Developers (NSW Rural Fire Service 2006).</p> <p>Key Performance Indicators –</p> <ul style="list-style-type: none"> • None. DAs and the relevant Bushfire Management Plans will be assessed by Council and conformance will be the responsibility of the land owner. 	GTPL	Land owner

6. GFIMS Implementation, Monitoring and Review

6.1 Legal Mechanisms and Ongoing Implementation

(xv) *Provide details of how the area to be managed under the Googong Foreshores Interface Management Strategy will be managed in perpetuity.*

Prior to commencement of construction within the adjacent Neighbourhood of Googong township, an 88b Instrument is to be registered over the land, requiring the owners of the GFIMS Area to maintain it pursuant to the terms of this GFIMS. The 88b Instrument will be registered in numerous stages for separate portions of the GFIMS Area. The (Commonwealth) Minister will to be notified upon registration of the 88b Instrument prior to the commencement of construction within the adjacent Neighbourhood of Googong township. If the 88b Instrument is registered in stages, the Minister will to be notified upon registration of each stage.

The dedication of the land for the GFIMS Area is detailed within the Googong Urban Development Local Planning Agreement (Googong LPA) for Googong township. Following handover of Management Area 1 and the relevant portions of Management Area 2 to Council, these portions of the GFIMS Area will irrevocably become publicly owned land. It will then be the responsibility of Council to classify the land as community land and prepare a plan of management in accordance with the requirements of section 36 of Part 2 of the *Local Government Act 1993*. This will further enable the relevant parts of the GFIMS Area to be protected in perpetuity and provide Council with the authority to manage the land as an asset. This irrevocable dedication of portions of the GFIMS Area to public ownership will ensure that the land cannot be used for another purpose in future.

Development cannot occur within Management Areas 1, 2 or 3 of the GFIMS Area, without the permission of Council or other relevant authority (as this would not be in accordance with the LPA or the zoning of the land).

Furthermore, as detailed in Section 1.1, in accordance with *Clause 6.5 – Development near Googong Dam Foreshores* of the Queanbeyan LEP, development consent must not be granted for development within the GFIMS Area unless the consent authority is satisfied that the objectives of the clause will be met.

Upon approval by the Minister, the establishment, restoration, management and monitoring measures described in this GFIMS would become requirements of the approval under the EPBC Act. DSEWPaC may conduct compliance audits and may implement enforcement measures, if these requirements are not satisfactorily adhered to.

6.2 Monitoring and Review

6.2.1 Monitoring

Once implemented, the Responsible Party (GTPC prior to dedication and sale; Council post dedication and sale) will monitor and report on the implementation of this GFIMS on an annual basis. In addition to the identification of non-conformance on an ongoing basis (refer Section 6.2.3), the Responsible Party will conduct one dedicated monitoring event in the spring of each year. The Responsible Party may conduct the monitoring event itself if suitable expertise is available in-house or engage another suitably qualified specialist/organisation. The purpose of the monitoring event will be to specifically assess whether the establishment, restoration, protection or maintenance

measures identified in this GFIMS are effective in achieving the purpose of this GFIMS. Particular items that will be assessed will include but not be limited to the following.

- The timing and completeness of the GFIMS Area fencing requirements described in Section 3.3, assessed in the context of the progression of the development of the adjacent area of Googong township.
- The performance of the weed removal works described in Section 4.1 to be undertaken within the relevant portion of the GFIMS Area prior to dedication to Council or sale to private ownership (as relevant).
- The performance of the revegetation works described in Section 4.2 to be undertaken within Management Area 1 and publically owned areas of Management Area 2 prior to dedication to Council.
- The performance of and/or degree of compliance with the protection measures described in Section 5.1.1 to be implemented during development of Googong township, including:
 - access provision and management;
 - contractor and construction worker induction;
 - environmental management checklists;
 - erosion and sedimentation control; and
 - prevention of weed introduction.
- The performance of and/or degree of compliance with the protection measures described in Section 5.1.2 to be implemented during occupation of Googong township, including:
 - access provision and management;
 - prevention of weed introduction;
 - feral animal control;
 - domestic animal control; and
 - Environmental Education Program.
- The degree of compliance with the 'landscaping with indigenous species only' requirement of Clause 6.5 of the Queanbeyan LEP for all land within Management Areas 2, 3 and 4 post sale to private ownership. This will occur via observations made from Management Areas 1 and 2, from Googong Foreshores or from other publically accessible land.
- The performance of the maintenance activities described in Section 5.2 to be undertaken within the GFIMS Area, including:
 - weed monitoring and control;
 - vertebrate pest control;
 - maintenance of built infrastructure and revegetation plantings; and
 - bushfire hazard management.

6.2.2 Performance indicators and compliance

(xii) Provide performance indicators, specifying outcomes to be achieved and reports of compliance at key milestones.

Compliance with this GFIMS will be indicated by the successful performance of each of the establishment, restoration, protection or maintenance measures prescribed in this GFIMS (Sections 4 and 5) for implementation within the GFIMS Area. As described above, this will be assessed during the annual GFIMS monitoring event, the results of which (i.e. reports of compliance) will be provided in the GFIMS Implementation Report to be prepared following the monitoring event.

The specific key performance indicators for each establishment, restoration, protection or maintenance measure are located within Table 12 below or within the relevant section of this GFIMS as specified in the table. The purpose for, and desired outcomes of each measure is discussed further within the relevant section of this GFIMS. Performance indicators are likely to develop further during annual review of this GFIMS.

Table 12. Key Performance Indicators

Measure Type	Section	Key Performance Indicators (KPIs)
Establishment and Restoration – once-off KPIs		
Initial weed removal	4.1	<ul style="list-style-type: none"> GFIMS Area Priority Weeds mapped prior to development of adjoining Neighbourhood. All GFIMS Area Priority Weeds adequately suppressed (WoNS and woody weeds absent, remainder at least 90% reduced) from each portion of land within the GFIMS Area prior to its sale or dedication.
Revegetation Planting	4.2	<ul style="list-style-type: none"> Revegetation is undertaken as proposed. No less than 90% of planted stock is alive at the time of monitoring.
Fencing – once-off KPIs		
Googong Foreshores Interface Boundary Fencing	3.3.1	<ul style="list-style-type: none"> The relevant section of the boundary is defined and fenced prior to any other development works commencing within the adjoining portion of the GFIMS Area.
GFIMS Area Internal Fencing	3.3.2	<ul style="list-style-type: none"> Boundary Type 3 is defined and constructed following issue of a Subdivision Certificate for the creation of residential lots in the adjacent Neighbourhood, prior to access being provided to land purchasers or the public.
Protection during development of Googong township – once-off KPIs		
Access Provision and Management	5.1.1.1	<ul style="list-style-type: none"> No unauthorised access to the GFIMS Area or Googong township occurs during construction of the Township
Contractor and Construction Worker Induction	5.1.1.2	<ul style="list-style-type: none"> Contractor and construction worker induction protocol is followed (inspection of induction records and toolbox talks will

		be undertaken).
Environmental Management Checklists	5.1.1.3	<ul style="list-style-type: none"> • Checklist is developed and implemented as per the CEMP.
Erosion and Sedimentation Control	5.1.1.4	<ul style="list-style-type: none"> • To be stipulated within the CEMP, however the target is to minimise erosion and ensure no sediment leaves the site.
Weed Hygiene Measures	5.1.1.5	<ul style="list-style-type: none"> • Annual monitoring shows no introduction or spread of GFIMS Area priority weeds during development of the Township.
Protection of the GFIMS Area and Googong Foreshores during occupation of Googong township, and Maintenance of the GFIMS Area – KPIs to be evaluated annually		
Access Provision and Management	5.1.2.1	<ul style="list-style-type: none"> • No unauthorised access to the PTWL Conservation Area or Googong Foreshores is occurring. • No prohibited activities are occurring within publically accessible areas of MA 1 and 2.
Weed Hygiene Measures	5.1.2.2	<ul style="list-style-type: none"> • As determined through annual monitoring, no weeds are introduced or spread as a result of slashing or the dumping of garden waste.
Feral Animal Control	5.1.2.3	<ul style="list-style-type: none"> • Monitoring and review does not determine there to be an increase in, or increase in impacts by, feral vertebrate fauna as a consequence of the development of Googong township.
Domestic Animal Control	5.1.2.4	<ul style="list-style-type: none"> • Monitoring and review does not determine there to be impacts to water quality, ecology or other values of the Googong Foreshores as a consequence of escaped or roaming domestic animals from Googong township.
Environmental Education Program	5.1.2.5	<ul style="list-style-type: none"> • KPIs to be determined during the development of the EEP. Benchmarks presented in 5.1.2.5 (Monitoring, Evaluation and Adaptive Management).
Maintenance of the GFIMS Area	5.2	<ul style="list-style-type: none"> • As presented in Table 11. GFIMS Area Maintenance Activities.

6.2.3 Non-conformance and corrective actions

(xiii) Undertake corrective actions if management measures are not achieved.

A non-conformance is an action or omission that does not comply with the purpose and intent of this GFIMS or any legal or other requirements. Where monitoring or review (as outlined in Section 6.2.1) identify that the establishment, restoration, protection or maintenance measures identified in this GFIMS are ineffective in achieving the purpose of this GFIMS, a non-conformance or opportunity for improvement will be raised. Non-conformance or opportunities for improvement can be identified by a Council officer, any representative of or contractor to GTPL or any other stakeholder.

Where a non-conformance is identified through the review and monitoring processes outlined in Section 6.2.1, opportunities for improvement will be sought and/or determined by the party responsible for the relevant Management Area/s to ensure continual improvement.

Identifying non-conformance

Non-conformance with this GFIMS may be identified in one of the following ways.

- On ground identification of an aspect of the proposed establishment, restoration, protection or maintenance measures identified in this GFIMS that is/has:
 - not been implemented or has not been satisfactorily implemented; or
 - being ineffective in achieving its purpose.
- Through review of the GFIMS Implementation Report prepared following the completion of the annual monitoring.
- Through a review of concerns raised by stakeholders or other third parties.

Reporting non-conformance

Non-conformances will be investigated and reported in the annual GFIMS Implementation Report (refer Section 6.2.5). For each non-conformance the following details must be included:

- Details of the person reporting the non-conformance.
- Description of the non-conformance including time, date and location.
- Summary of the non-conformance including cause and environmental impact or ineffectiveness of the relevant mitigation measure.
- Summary of actions taken to remediate the situation and mitigate further environmental impact or ineffectiveness of the relevant mitigation measure.
- Further action required, and a timeframe for completion and responsibility to correct or prevent future non-conformances.

Implementation of corrective actions

Should the completed investigation identify that non-conformance with this GFIMS has occurred, GTPL will implement the corrective actions required to achieve compliance. The type, scope and duration of the corrective action/s implemented will be determined depending upon the nature of the non-conformance. For example, should it be identified that the frequency of the spot spraying events undertaken as part of the weed control maintenance program implemented by the Responsible Party within Management Area 2 is not maintaining the area free of Serrated Tussock, the Responsible Party will increase the frequency as a corrective action.

6.2.4 Adaptive management and GFIMS review

An adaptive management approach will be employed in respect of the implementation, review and refinement of this GFIMS. Adaptive management is defined by learning from past management actions to use the experience for future planning and management (Allan and Stankey 2009).

As described above, following implementation of this GFIMS an annual (spring) monitoring program will be implemented to assess the impacts of the development of Googong township and the effectiveness, or otherwise, of the protection and maintenance measures implemented within the GFIMS Area.

The results of the annual monitoring event (detailed in a draft GFIMS Implementation Report), including identified potential opportunities for improvement, will be reviewed by GTPL and the GFTI Working Group. The review will be undertaken to formalise the above described adaptive management of the GFIMS Area and to ensure that the purpose of this GFIMS is being suitably achieved.

Once the members of the GFTI Working Group have had sufficient time to review the draft GFIMS Implementation Report, GTPL will call a GFTI Working Group meeting (in November if possible) to discuss issues associated with the implementation of this GFIMS and to determine in collaboration if, how and when to act upon them. Following this meeting, the GFIMS Implementation Report will be updated and finalised, required amendments to the GFIMS will be made and the revised GFIMS will be implemented, resulting in the repeal of the preceding version.

The GFIMS monitoring and review will be conducted by GTPL prior to handover to Council and by Council post handover. GTPL and Council may conduct the monitoring and review in-house if suitable expertise is available or engage another suitably qualified specialist/organisation.

In addition to the annual November GFIMS Implementation Report review meeting, GTPL will also call a GFTI Working Group meeting each May. The purpose of this meeting will be to provide an opportunity to consider and determine responses to issues associated with the implementation of the GFIMS that have arisen in the six months since the last annual monitoring event and GFIMS Review.

GTPL will chair all GTPL Working Group meetings and circulate minutes to all members of the GFTI Working Group and the Minister.

6.2.5 Monitoring and reporting schedule

(xi) Indicate timing and frequency of monitoring to determine impacts and effectiveness of mitigation measures.

In accordance with CoA 6 and as described above, once implemented, GTPL will monitor and report on the implementation of this GFIMS on an annual basis. The resulting GFIMS Implementation Report will include a thorough assessment and review of the impacts of the development of Googong township and the effectiveness, or otherwise, of the protection and maintenance measures implemented within the GFIMS Area as detailed in Section 5 of this GFIMS.

The GFIMS Implementation Report will be published on the Googong website within three months of undertaking the annual review. Documentary evidence providing proof of the date of publication and non-compliance with and of the conditions of approval will be provided to the Department of the Environment at the same time as the compliance report is published.

7. Summary of Management Measures and Responsibilities

(xiv) Clearly state the person or persons responsible for each management measure.

A summary of the management measures and responsible parties for each management measure is provided in Table 13.

Table 13: GFIMS Management Measures and Responsibilities

Management measure	Management Area/s	Relevant GFIMS Section/s	Timing	Responsible Party	
				Prior to sale or dedication	Post-sale or dedication
Development of the Environmental Education	<p>The Environmental Education Program (EEP) will target residents of Googong township and the broader public during visitation to the GFIMS Area and/or locality. As such, the EEP will apply to the entire GFIMS Area.</p> <p>Notwithstanding the above, certain elements of the EEP will be developed to specifically target particular portions of the GFIMS Area due to the specific values and requirements of the land (e.g. MA 2 – Googong Reservoir Catchment Area etc). The EEP will also contain elements specifically targeted to certain stakeholder groups such as the property owners of lots wholly or partially encompassed by the GFIMS Area.</p>	5.1.2.5	The components of the EEP relating to the protection of water quality in the Googong Reservoir will be implemented within six months of the date of the approval of the GFIMS. The components of the EEP relating to education of residents and visitors on matters specific to the use and development of land within the GFIMS Area will be developed and implemented prior to the sale of residential lots within the GFIMS Area (i.e. those with the portions of Neighbourhoods 1B, 4 and 5 encompassed by the GFIMS Area).	GTPL	Council
Weed monitoring and control	<p>MA 1 and publically owned portions of MA 2 and MA 3</p> <p>The presence and distribution within the GFIMS Area of each of the priority weeds (as identified in Table 8) will be assessed and mapped prior to commencement of development within the</p>	4.1 & 5.2	Initial mapping and control = Prior to the issue of a Subdivision Certificate for the creation of residential lots in each adjacent Neighbourhood Neighbourhood of Googong	GTPL/Weed control contractor	Council

Management measure	Management Area/s	Relevant GFIMS Section/s	Timing	Responsible Party	
				Prior to sale or dedication	Post-sale or dedication
	adjoining Neighbourhood of Googong township. Following initial control, a biannual (spring and autumn) weed monitoring and control program will be implemented to identify any regrowth of woody weeds and to locate any noxious weeds that may have re-established. Any such regrowth or re-establishment will be immediately eradicated using appropriate weed control techniques.		township. Biannual (spring and autumn) weed monitoring and control program = Following initial control, and ongoing.		
	MA4 and privately owned portions of MAs 2 and 3 The presence and distribution within the GFIMS Area of each of the priority weeds (as identified in Table 8) will be assessed and mapped prior to commencement of development within the adjoining Neighbourhood of Googong township. Following sale, owners of the private lots comprising MAs 2, 3 and 4 will be required to control all NSW NW Act listed noxious weeds on their properties in accordance with the responsibilities of private landowners under the Act. In accordance with Council's obligations under the NSW NW Act, Weed Officers (with Legal Training III and Weed Officers Induction) will conduct the required inspections throughout the GFIMS Area.	4.1 & 5.2	Initial mapping and control = Prior to the issue of a Subdivision Certificate for the creation of residential lots in each adjacent Neighbourhood Neighbourhood of Googong township. Ongoing monitoring and control = Following sale / handover and ongoing.	GTPL/Weed control contractor	Property owner/Council
Vertebrate pest control	MA 1 and publically owned portions of MA 2 and MA 3 <ul style="list-style-type: none"> Development of the Environmental Education Program for implementation throughout Googong township. Establishment of appropriate fencing. 	5.1.2.4	Development of the Environmental Education Program = Prior to the sale of residential lots in each adjacent Neighbourhood (i.e. NH1B, NH4 and NH5). Establishment of fencing Boundary Types 1	GTPL	Council and TAMS

Management measure	Management Area/s	Relevant GFIMS Section/s	Timing	Responsible Party	
				Prior to sale or dedication	Post-sale or dedication
	<ul style="list-style-type: none"> Implementation of cat prohibition, enforced via the provisions of the NSW CA Act. 		<p>and 2 = Prior to the issue of a Subdivision Certificate for the creation of residential lots in the adjacent Neighbourhood (i.e. NH1B, NH4 and NH5).</p> <p>Implementation of cat prohibition = Upon commencement of construction of residencies in adjacent Neighbourhood (i.e. NH1B, NH4 and NH5).</p>		
	<p>MA4 and privately owned portions of MAs 2 and 3</p> <ul style="list-style-type: none"> Cooperation with TAMS as required. 	5.1.2.4	Following sale and handover and ongoing.	GTPL	Property owner
Revegetation Planting and maintenance	<p>MA 1 – Native grass re-establishment and encouragement program in accordance with the approved PTWL-P&MP.</p> <p>The revegetation will be appropriately maintained.</p>	4.2	Following establishment of the PTWL Conservation Area and in accordance with the approved PTWL-P&MP.	GTPL	Council
	<p>Publically owned portions of MA 2 and MA3 – Native woodland revegetation program developed in collaboration with Council.</p> <p>The revegetation will be appropriately maintained.</p>	4.2	Following the issue of a Subdivision Certificate for the creation of residential lots in NH4 and NH5, GTPL will undertake a program of native revegetation works throughout the publically owned portions MA 2 and MA3.	GTPL	Council
	<p>MA4 and private owned portions of MAs 2 and 3 – No specific requirements however only indigenous species may be used.</p> <p>The maintenance of any revegetation/landscape plantings</p>	4.2	Timing to be determined by property owner.	GTPL	Property owner

Management measure	Management Area/s	Relevant GFIMS Section/s	Timing	Responsible Party	
				Prior to sale or dedication	Post-sale or dedication
	within privately owned portions of MAs 3 and 4 will be the prerogative and responsibility of the property owner. All owners of private properties located within the GFIMS Area will be required to meet their responsibilities under Clause 6.5 of the Queanbeyan LEP.				
Construction and maintenance of built infrastructure	MA 1 and publically owned portions of MA 2 and MA 3 GTPL will be responsible for the construction of the Googong Foreshores Interface boundary fencing (i.e. Boundary Type 1) and the other GFIMS Area internal fencing (e.g. Boundary Type 2). All built infrastructure will be appropriately maintained.	3.3 & 5.2	Construction = Prior to the issue of a Subdivision Certificate for the creation of residential lots in each adjacent Neighbourhood (i.e. NH1B, NH4 and NH5). Maintenance = Ongoing	GTPL	Council (Council & TAMS for maintenance of Interface Boundary Fence)
	MA4 and privately owned portions of MAs 2 and 3 GTPL will be responsible for the initial pre-sale construction of GFIMS Area internal fencing (Boundary Type 3). All built infrastructure will be appropriately maintained following sale to private ownership.	3.3 & 5.2	Initial construction of internal fencing = Prior to the sale and handover of residential lots. Maintenance = Ongoing	GTPL	Property owner
Contractor and construction worker induction during development	MAs 1-4 This will include environmental awareness and induction training, review and corrective/preventative action as required, and weekly toolbox talks.	5.1.1.2	Induction = Prior to a contractor's commencement of works on site. Toolbox talks = Weekly throughout duration of works.	GTPL and Contractors	GTPL and Contractors

Management measure	Management Area/s	Relevant GFIMS Section/s	Timing	Responsible Party	
				Prior to sale or dedication	Post-sale or dedication
Adherence to the environmental management and monitoring checklist and fortnightly review.	<p>MAs 1-4</p> <p>Monitoring of all site controls will occur in accordance with the CEMP to be approved by Council and implemented for all works within the GFIMS Area.</p> <p>The CEMP will include an environmental management and monitoring checklist which will include each specific activity and environmental control listed in the CEMP</p>	5.1.1.3	Throughout duration of works as specified in the CEMP.	GTPL and Contractors	GTPL and Contractors
Erosion and sedimentation control measures	<p>MAs 1-4</p> <p>The CEMP prepared for the GFIMS Area and approved by Council, will detail the erosion and sedimentation control measures to be implemented during all construction works within the GFIMS Area.</p>	5.1.1.4	Throughout duration of works as specified in the CEMP.	GTPL and Contractors	GTPL and Contractors
Weed hygiene during construction	<p>MAs 1-4</p> <p>Management of weed hygiene during all construction occurring within the GFIMS Area will occur in accordance with the CEMP to be approved by Council. The CEMP will include a dedicated weed hygiene section and the importance of the weed control measures within will be expressed during inductions and toolbox talks.</p>	5.1.1.5	Throughout duration of works as specified in the CEMP.	GTPL and Contractors	GTPL, Contractors and Council
Bushfire/biomass hazard management	<p>MA 1</p> <p>In accordance with the approved PTWL-P&MP, biomass and associated bushfire hazard within MA 1 – PTWL Conservation</p>	3.1 & 5.2	Kangaroo grazing = Current and ongoing as permitted and encouraged by removal of the fence between the PTWL Conservation Area	GTPL	Council

Management measure	Management Area/s	Relevant GFIMS Section/s	Timing	Responsible Party	
				Prior to sale or dedication	Post-sale or dedication
	Area will be managed primarily by native herbivore (primarily Eastern Grey Kangaroos) grazing. In the event that native herbivore grazing is insufficient to maintain the required fuel loads within the 20m wide buffer zone, slashing may be undertaken within the buffer zone to maintain fuel loads to Outer Asset Protection Zone standards.		and Googong Foreshores. Slashing = to occur if determined to be required during bushfire hazard monitoring.		
	Publically owned portions of MA 2 and MA 3 It is likely that areas within the publically owned portions of MA 2 will require periodic slashing.	3.1 & 5.2	Requirements and associated timing to be determined by GTPL or Council in accordance with the approved Bushfire Management Plan.	GTPL	Council
	MA4 and privately owned portions of MAs 2 and 3 A Bushfire Management Plan will be required in support of each Development Application (DA) submitted to Council for development within a lot occurring within MA 4.	3.1 & 5.2	Requirements and associated timing to be determined by property owner in accordance with their approved Bushfire Management Plan.	GTPL	Property owner
GFIMS Area monitoring	MAs 1-4 Once implemented, monitoring and reporting on the implementation of this GFIMS will occur on an annual basis. In addition to the identification of non-conformance on an ongoing basis (refer Section 6.2.3), one dedicated monitoring event will be undertaken in the spring of each year.	6.2.1	Once implemented, monitoring and reporting on the implementation of this GFIMS will occur on an annual basis.	GTPL	Council
GFIMS review	The resulting GFIMS Implementation Report (prepared following the annual monitoring event and GFTI Working Group meeting) will include a thorough assessment and review of the impacts of the development of Googong township and the effectiveness, or otherwise, of the protection and	6.2.4 & 6.2.5	The GFIMS Implementation Report will be prepared and published on the Googong website within three months of undertaking the annual review.	GTPL	Council

Management measure	Management Area/s	Relevant GFIMS Section/s	Timing	Responsible Party	
				Prior to sale or dedication	Post-sale or dedication
	<p>maintenance measures implemented within the GFIMS Area as detailed in Section 5 of this GFIMS.</p> <p>The GFIMS Implementation Report will be published on the Googong website within three months of undertaking the annual review. Documentary evidence providing proof of the date of publication and non-compliance with and of the conditions of approval will be provided to the Department of the Environment at the same time as the compliance report is published.</p>				

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Appendix A – Recommended species list for revegetation planting

Scientific Name	Common name	Category	Annual/Perennial
Native			
Fern			
<i>Cheilanthes austrotenuifolia</i>	Rock-fern	Fern	perennial
Grass			
<i>Aristida ramosa</i>	Purple Wiregrass, Kerosene Grass, Prickly Threeawn	Grass	perennial
<i>Austrodanthonia bipartita</i>	Bandicoot Grass, Wallaby Grass, Leafy Wallaby Grass	Grass	perennial
<i>Austrodanthonia caespitosa</i>	Ringed Wallaby-grass, Common Wallaby-grass	Grass	perennial
<i>Austrodanthonia carphoides</i>	Short Wallaby-grass	Grass	perennial
<i>Austrodanthonia laevis</i>	Wallaby Grass	Grass	perennial
<i>Austrodanthonia monticola</i>	Small-flower Wallaby Grass	Grass	perennial
<i>Austrodanthonia racemosa</i>	Clustered Wallaby-grass, Slender Wallaby Grass	Grass	perennial
<i>Austrostipa bigeniculata</i>	Tall Speargrass	Grass	perennial
<i>Austrostipa blackii</i>	Crested Spear-grass	Grass	perennial
<i>Austrostipa densiflora</i>	Dense Spear-grass	Grass	perennial
<i>Austrostipa scabra</i>	Corkscrew, Corkscrew Speargrass,	Grass	perennial
<i>Bothriochloa macra</i>	Redgrass, Redleg Grass	Grass	perennial
<i>Chloris truncata</i>	Windmill Grass	Grass	perennial
<i>Chloris ventricosa</i>	Tall Windmill Grass	Grass	perennial
<i>Cymbopogon refractus</i>	Barbed Wire Grass	Grass	perennial
<i>Dichelachne crinita</i>	Longhair Plumegrass	Grass	perennial
<i>Dichelachne hirtella</i>	Slender Plumegrass	Grass	annual
<i>Dichelachne inaequiglumis</i>	Plume Grass	Grass	perennial
<i>Dichelachne micrantha</i>	Short-hair Plumegrass	Grass	perennial
<i>Dichelachne parva</i>	Plume Grass	Grass	perennial
<i>Dichelachne rara</i>	Plume Grass	Grass	annual

<i>Elymus scaber</i>	Common Wheat-grass, Wheatgrass,	Grass	perennial
<i>Joycea pallida</i>	Silvertop Wallaby Grass, Redanther Wallaby Grass	Grass	perennial
<i>Microlaena stipoides</i>	Microlaena, Weeping Grass	Grass	perennial
<i>Panicum effusum</i>	Hairy Panic, Poison Panic	Grass	perennial
<i>Poa labillardierei</i>	Tussock Grass	Grass	perennial
<i>Poa sieberiana</i>	Snow Grass, Fine-leaved Tussock-grass	Grass	perennial
<i>Sorghum leiocladum</i>	Wild Sorghum	Grass	perennial
<i>Sporobolus creber</i>	Western Rat-tail Grass, Slender Rat's Tail Grass	Grass	perennial
<i>Sporobolus elongatus</i>	Slender Rat's-tail Grass	Grass	perennial
<i>Themeda australis</i> (syn. <i>Themeda triandra</i>)	Kangaroo Grass	Grass	perennial
Herb			
<i>Acaena agnipila</i>	Sheep's Burr, Bidgee-widgee	Herb	perennial
<i>Acaena echinata</i>	Sheep's Burr	Herb	perennial
<i>Acaena novae-zelandiae</i>	Bidgee-widgee, Biddy Biddy	Herb	perennial
<i>Acaena ovina</i>	Sheep's Burr, Bidgee-widgee	Herb	perennial
<i>Ajuga australis</i>	Australian Bugle, Austral Bugle	Herb	perennial
<i>Alternanthera nana</i>	Hairy Joyweed, Downy Pigweed	Herb	annual
<i>Ammobium alatum</i>	Tall Ammobium	Herb	perennial
<i>Ammobium craspedioides</i>	Yass Daisy	Herb	perennial
<i>Aphanes australiana</i>	Australian Piert	Herb	annual
<i>Arachnorchis</i> spp.	Spider Orchids	Herb	perennial
<i>Arthropodium milleflorum</i>	Vanilla-lily, Pale Vanilla-lily	Herb	perennial
<i>Arthropodium minus</i>	Small Vanilla Lily	Herb	perennial
<i>Asperula conferta</i>	Common Woodruff	Herb	perennial
<i>Asperula scoparia</i>	Prickly Woodruff	Herb	perennial
<i>Brachyscome aculeata</i>	Hill Daisy	Herb	perennial
<i>Brachyscome decipiens</i>	Field Daisy	Herb	perennial
<i>Brachyscome diversifolia</i>	Large-headed Daisy	Herb	perennial
<i>Brachyscome graminea</i>	Grass Dairy	Herb	perennial
<i>Brachyscome heterodonta</i>	Lobe-seed Daisy	Herb	perennial

<i>Brachyscome multifida</i>	Cut-leaved Daisy	Herb	annual
<i>Brachyscome rigidula</i>	Leafy Daisy	Herb	perennial
<i>Brachyscome scapigera</i>	Tufted Daisy	Herb	perennial
<i>Brachyscome spathulata</i>	Spoon Daisy	Herb	perennial
<i>Brunonia australis</i>	Pincushion, Blue Pincushion	Herb	perennial
<i>Brunoniella australis</i>	Blue Trumpet	Herb	perennial
<i>Bulbine bulbosa</i>	Bulbine Lily, Native Onion	Herb	perennial
<i>Bulbine glauca</i>	Rock Lily	Herb	perennial
<i>Burchardia umbellata</i>	Milkmaids	Herb	perennial
<i>Caesia calliantha</i>	Blue Grass-Lily	Herb	perennial
<i>Calocephalus citreus</i>	Lemon Beautyheads	Herb	perennial
<i>Calochilus robertsonii</i>	Purplish Beard Orchid	Herb	perennial
<i>Calotis cuneifolia</i>	Purple Burr-daisy	Herb	perennial
<i>Calotis glandulosa</i>	Mauve Burr-daisy	Herb	perennial
<i>Calotis lappulacea</i>	Yellow Burr-daisy, Yellow Daisy-burr	Herb	perennial
<i>Calotis scabiosifolia</i>	Rough Burr-daisy	Herb	perennial
<i>Carex inversa</i>	Knob Sedge, Common Sedge	Herb	perennial
<i>Centella asiatica</i>	Pennywort	Herb	perennial
<i>Centella cordifolia</i>	Centella	Herb	perennial
<i>Centrolepis strigosa</i>	Hairy Centrolepis	Herb	annual
<i>Chamaesyce drummondii</i>	Caustic-weed	Herb	perennial
<i>Chrysocephalum apiculatum</i>	Yellow Buttons, Common Everlasting	Herb	perennial
<i>Chrysocephalum semipapposum</i>	Clustered Everlasting, Yellow Buttons	Herb	perennial
<i>Clematis microphylla</i>	Small-leaved Clematis	Climber	perennial
<i>Convolvulus erubescens</i>	Australian Bindweed, Blushing Bindweed	Herb	perennial
<i>Correa reflexa</i>	Common Correa, Native Fuchsia	Herb	perennial
<i>Cotula australis</i>	Common Cotula, Carrot Weed	Herb	annual
<i>Craspedia canens</i>	Billy Buttons, Grey Billybuttons	Herb	perennial
<i>Craspedia variabilis</i>	Billy Buttons	Herb	perennial
<i>Cymbonotus lawsonianus</i>	Bear's Ear, Austral Bears-ears, Bears-ears	Herb	perennial
<i>Cynoglossum australe</i>	Australian Forget-me-not, Australian	Herb	perennial

	Hound's-tongue		
<i>Cynoglossum suaveolens</i>	Sweet Hound's-tongue	Herb	perennial
<i>Daucus glochidiatus</i>	Australian Carrot, Native Carrot, Austral Carrot	Herb	annual
<i>Derwentia perfoliata</i>	Digger's Speedwell	Herb/Shrub	perennial
<i>Desmodium brachypodum</i>	Large Tick-trefoil	Herb	perennial
<i>Desmodium varians</i>	Slender Tick-trefoil	Herb	annual
<i>Dianella longifolia</i>	Smooth Flax Lily	Herb	perennial
<i>Dianella revoluta</i>	Blueberry Lily, Black-Anther Flax Lilly, Spreading Flax Lily	Herb	perennial
<i>Dichondra repens</i>	Kidney Grass, Kidney Weed	Herb	perennial
<i>Dichopogon fimbriatus</i>	Chocolate Lily, Nodding Chocolate Lily	Herb	perennial
<i>Dichopogon strictus</i>	Chocolate Lily	Herb	perennial
<i>Dipodium punctatum</i>	Hyacinth Orchid, Pink Hyacinth Orchid	Herb	perennial
<i>Diuris aequalis</i>	Buttercup Doubletail	Herb	perennial
<i>Diuris behrii</i>	Golden Cowslips	Herb	perennial
<i>Diuris chryseopsis</i>	Common Golden Moths	Herb	perennial
<i>Diuris dendrobioides</i>	Long-tail Purple Diuris, Wedge Diuris	Herb	perennial
<i>Diuris maculata</i>	Leopard Orchid, Nanny Goats, Leopard Diuris, Spotted Doubletail	Herb	perennial
<i>Diuris ochroma</i>	Pale Golden Moths	Herb	perennial
<i>Diuris pedunculata</i>	Small Snake Orchid, Two-leaved Golden Moths, Golden Moths, Cowslip Orchid, Snake Orchid	Herb	perennial
<i>Diuris punctata</i>	Purple Donkey-orchid, Purple Double-tails, Purple Diuris, Purple Cowslip, Dotted Double-tails	Herb	perennial
<i>Diuris semilunulata</i>	Donkey-ears	Herb	perennial
<i>Diuris sulphurea</i>	Tiger Orchid, Hornet Orchid	Herb	perennial
<i>Drosera peltata</i>	Hairy Climbing Sundew, Pale Sundew	Herb	perennial
<i>Drosera pygmaea</i>	Pigmy Sundew, Tiny Sundew	Herb	perennial
<i>Eriochilus cucullatus</i>	Parson's Bands	Herb	perennial
<i>Erodium crinitum</i>	Native Crowfoot, Blue Storks-bill, Blue Crowfoot, Blue Herons-bill	Herb	annual

<i>Eryngium ovinum</i>	Blue Devil	Herb	annual
<i>Eryngium rostratum</i>	Blue Devil	Herb	annual
<i>Eryngium vesiculosum</i>	Prostrate Blue Devil, Prickfoot	Herb	perennial
<i>Euchiton gymnocephalus</i>	Creeping Cudweed	Herb	perennial
<i>Euchiton involucratus</i>	Star Cudweed	Herb	perennial
<i>Euchiton sphaericus</i>	Annual Cudweed, Star Cudweed	Herb	annual
<i>Euphrasia collina</i>	Eyebright	Herb	perennial
<i>Galium gaudichaudii</i>	Rough Bedstraw	Herb	perennial
<i>Gastrodia sesamoides</i>	Cinnamon Bells, Potato Orchid	Herb	perennial
<i>Genoplesium</i>	Midge Orchids	Herb	perennial
<i>Geranium antrorsum</i>	Antrorse Geranium	Herb	perennial
<i>Geranium retrorsum</i>	Common Cranes-bill	Herb	perennial
<i>Geranium solanderi</i>	Native Geranium	Herb	perennial
<i>Glossodia major</i>	Wax-lip Orchid, Parson-in-the-pulpit	Herb	perennial
<i>Glycine clandestina</i>	Twining Glycine	Herb	perennial
<i>Glycine tabacina</i>	Glycine Pea, Variable Glycine	Herb	perennial
<i>Gonocarpus tetragynus</i>	Common Raspwort	Herb	perennial
<i>Goodenia bellidifolia</i>	Daisy-leaved Goodenia, Rocket Goodenia	Herb	perennial
<i>Goodenia hederacea</i>	Forest Goodenia, Ivy Goodenia	Herb	perennial
<i>Goodenia pinnatifida</i>	Scrambled Eggs, Cut-leaf Goodenia	Herb	perennial
<i>Goodenia stelligera</i>	Spiked Goodenia	Herb	perennial
<i>Gratiola nana</i>	Creeping Brooklime	Herb	perennial
<i>Gratiola pedunculata</i>	Brooklime	Herb	perennial
<i>Gratiola peruviana</i>	Austral Brooklime	Herb	perennial
<i>Gypsophila tubulosa</i>	Annual Chalkwort	Herb	annual
<i>Helichrysum scorpioides</i>	Button Everlasting	Herb	perennial
<i>Hydrocotyle laxiflora</i>	Stinking Pennywort	Herb	perennial
<i>Hymenochilus bicolor</i>	Bicolor Greenhood	Herb	perennial
<i>Hymenochilus cycnocephalus</i>	Swan Greenhood	Herb	perennial
<i>Hymenochilus muticus</i>	Midget Greenhood, Blunt Greenhood, Dwarf Greenhood	Herb	perennial
<i>Hypericum gramineum</i>	Small St John's Wort	Herb	perennial

<i>Hypericum japonicum</i>	Small St John's Wort, Matted St John's Wort	Herb	perennial
<i>Isoetopsis graminifolia</i>	Grass Cushion	Herb	annual
<i>Isotoma axillaris</i>	Rock Isotome	Herb	perennial
<i>Lagenophora stipitata</i>	Blue-bottle Daisy, Common Lagenophora	Herb	perennial
<i>Laxmannia gracilis</i>	Slender Wire-Lily	Herb	perennial
<i>Leptorhynchos squamatus</i>	Scaly Buttons	Herb	perennial
<i>Leucochrysum albicans</i>	Hoary Sunray	Herb	perennial
<i>Limosella australis</i>	Australian Mudwort	Herb	perennial
<i>Linum marginale</i>	Wild Flax, Native Flax	Herb	perennial
<i>Lobelia dentata</i>	Toothed Lobelia, Wavy Lobelia	Herb	perennial
<i>Lobelia gibbosa</i>	Tall Lobelia	Herb	perennial
<i>Lomandra bracteata</i>	Mat-rush	Herb	perennial
<i>Lomandra filiformis</i>	Wattle Mat-rush	Herb	perennial
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush, Honey Weed	Herb	perennial
<i>Lomandra multiflora</i>	Many-flowered Matrush	Herb	perennial
<i>Lotus australis</i>	Austral Trefoil, Australian Trefoil	Herb	perennial
<i>Lythrum salicaria</i>	Purple Loosestrife	Herb	perennial
<i>Mentha diemenica</i>	Slender Mint	Herb	perennial
<i>Mentha satureioides</i>	Creeping Mint, Native Pennyroyal	Herb	perennial
<i>Microseris lanceolata</i>	Yam Daisy, Murnong	Herb	perennial
<i>Microtis parviflora</i>	Slender Onion-orchid	Herb	perennial
<i>Microtis unifolia</i>	Common Onion-orchid, Onion-orchid	Herb	perennial
<i>Mimulus repens</i>	Creeping Monkey-flower	Herb	annual
<i>Opercularia diphylla</i>	Stinkweed	Herb	perennial
<i>Opercularia hispida</i>	Hairy Stinkweed	Herb	perennial
<i>Ophioglossum lusitanicum</i>	Adder's Tongue	Herb	perennial
<i>Oreomyrrhis argentea</i>	Silvery Carraway	Herb	perennial
<i>Oreomyrrhis eriopoda</i>	Australian Carraway	Herb	perennial
<i>Oxalis exilis</i>	Shady Wood Sorrel, Indian Sorrel	Herb	perennial
<i>Oxalis perennans</i>	Grassland Wood Sorrel, Grass Wood-sorrel, Creeping Yellow Sorrel	Herb	perennial

<i>Patersonia sericea</i>	Silky Purple-flag	Herb	perennial
<i>Pelargonium australe</i>	Native Storks-bill, Austral Storks-bill, Wild Geranium	Herb	perennial
<i>Pelargonium inodorum</i>	Scentsless Storks-bill	Herb	annual
<i>Pelargonium rodneyanum</i>	Magenta Storks-bill	Herb	perennial
<i>Plantago debilis</i>	Shade Plantain, Slender Plantain	Herb	perennial
<i>Plantago euryphylla</i>	Plantain	Herb	perennial
<i>Plantago gaudichaudii</i>	Narrow-leaf Native Plantain, Narrow Plantain	Herb	perennial
<i>Plantago varia</i>	Variable Plantain, Small Plantain, Sago-weed	Herb	perennial
<i>Podolepis hieracioides</i>	Tall Copper-wire Daisy	Herb	perennial
<i>Podolepis jaceoides</i>	Showy Copper-wire Daisy	Herb	perennial
<i>Polygala japonica</i>	Dwarf Milkwort	Herb	perennial
<i>Poranthera microphylla</i>	Small Poranthera, Small-leaved Poranthera	Herb	annual
<i>Portulaca oleracea</i>	Common Pigweed, Common Purslane, Munyeroo	Herb	annual
<i>Prasophyllum petilum</i>	Tarengo Leek Orchid	Herb	perennial
<i>Pratia purpurascens</i>	Whiteroot	Herb	perennial
<i>Pseudognaphalium luteoalbum</i>	Jersey Cudweed	Herb	annual
<i>Ptilotus erubescens</i>	Hairy Tails, Hairy Heads	Herb	perennial
<i>Ranunculus graniticola</i>	Granite Buttercup	Herb	perennial
<i>Ranunculus lappaceus</i>	Common Buttercup, Australian Buttercup	Herb	perennial
<i>Ranunculus pachycarpus</i>	Thick-fruited Buttercup	Herb	perennial
<i>Rostellularia adscendens</i>	Pink-tongues, Bearded Anthem, Dwarf Justicia	Herb	
<i>Rumex brownii</i>	Swamp Dock, Slender Dock	Herb	perennial
<i>Rumex dumosus</i>	Wiry Dock	Herb	perennial
<i>Rumex tenax</i>	Shiny Dock	Herb	perennial
<i>Rutidosis leiolepis</i>	Monaro Golden Daisy	Herb	perennial
<i>Rutidosis leptorhynchoides</i>	Button Wrinklewort	Herb	perennial
<i>Solenogyne dominii</i>	Smooth Solenogyne	Herb	perennial
<i>Solenogyne gunnii</i>	Hairy Solenogyne	Herb	perennial

<i>Stackhousia monogyne</i>	Creamy Candles, Creamy Stackhousia	Herb	perennial
<i>Stellaria angustifolia</i>	Swamp Starwort	Herb	perennial
<i>Stellaria filiformis</i>	Thread Starwort	Herb	annual
<i>Stellaria multiflora</i> (Back Creek)	Back Creek Many Flowered Starwort, Back Creek Rayless Starwort	Herb	annual
<i>Stellaria pungens</i>	Prickly Starwort	Herb	perennial
<i>Stuartina hamata</i>	Crooked Cudweed, Hooked Cudweed	Herb	annual
<i>Stuartina muelleri</i>	Spoon Cudweed	Herb	annual
<i>Stylidium despectum</i>	Dwarf Triggerplant	Herb	annual
<i>Stylidium graminifolium</i>	Grass Triggerplant	Herb	perennial
<i>Stypandra glauca</i>	Nodding Blue Lily	Herb	perennial
<i>Swainsona behriana</i>	Behr's Swainson-pea	Herb	perennial
<i>Swainsona monticola</i>	Mountain Swainson-pea	Herb	perennial
<i>Swainsona oroboides</i>	Variable Swainson-pea	Herb	perennial
<i>Swainsona recta</i>	Mountain Swainson-pea, Small Purple-pea	Herb	perennial
<i>Swainsona sericea</i>	Silky Swainson-pea	Herb	perennial
<i>Thelymitra ixiooides</i>	Spotted Sun-orchid, Dotted Sun-orchid	Herb	perennial
<i>Thelymitra malvina</i>	Mauve-tuft Sun-orchid, Mauve-tufted sun orchid	Herb	perennial
<i>Thelymitra pauciflora</i>	Slender Sun-orchid, Few-flowered Sun-orchid	Herb	perennial
<i>Thelymitra rubra</i>	Pink Sun-orchid, Salmon Sun-orchid, Red Sun-orchid	Herb	perennial
<i>Thesium australe</i>	Austral toadflax, Austral Toad-flax, Australian Toadflax	Herb	perennial
<i>Thysanotus patersonii</i>	Twining Fringe-lily	Herb	perennial
<i>Thysanotus tuberosus</i>	Common Fringe-lily	Herb	perennial
<i>Tricoryne elatior</i>	Yellow Rush-lily, Yellow Autumn-lily	Herb	perennial
<i>Triptilodiscus pygmaeus</i>	Austral Sunray	Herb	annual
<i>Velleia paradoxa</i>	Spur Velleia	Herb	perennial
<i>Viola hederacea</i>	Native Violet, Ivy-leaf Violet, Ivy-leaved Violet	Herb	perennial

<i>Vittadinia cuneata</i>	Fuzzweed	Herb	annual
<i>Vittadinia muelleri</i>	Narrow-leaf New Holland Daisy	Herb	perennial
<i>Wahlenbergia communis</i>	Tufted Bluebell	Herb	perennial
<i>Wahlenbergia gracilis</i>	Australian Bluebell, Sprawling Bluebell	Herb	perennial
<i>Wahlenbergia stricta</i>	Tall Bluebell, Austral Bluebell, Australian Bluebell	Herb	perennial
<i>Wurmbea dioica</i>	Early Nancy	Herb	perennial
<i>Xerochrysum bracteatum</i>	Golden Everlasting	Herb	annual
<i>Xerochrysum viscosum</i>	Sticky Everlasting	Herb	annual
Sedge/Rush			
<i>Isolepis cernua</i>	Nodding Club-rush	Sedge/Rush	perennial
<i>Isolepis hookeriana</i>	Grassy Club-sedge, Grassy Club-rush	Sedge/Rush	annual
<i>Isolepis inundata</i>	Swamp Club-sedge, Swamp Club-rush	Sedge/Rush	perennial
<i>Juncus australis</i>	Austral Rush	Sedge/Rush	perennial
<i>Juncus subsecundus</i>	Finger Rush	Sedge/Rush	perennial
<i>Lepidosperma laterale</i>	Sword Sedge, Variable Swordsedge	Sedge/Rush	perennial
<i>Luzula meridionalis</i>	Common Woodrush	Sedge/Rush	perennial
<i>Schoenus apogon</i>	Common Bog Sedge, Fluke Bogrush	Sedge/Rush	annual
Shrub			
<i>Acacia decurrens</i>	Black Wattle, Early Black Wattle, Green Wattle, Queen Wattle, Sydney Green Wattle	Shrub/Tree	perennial
<i>Acacia falcata</i>	Sickle Wattle, Burra, Sickle-shaped Acacia, Sally, Hickory Wattle, Silver-leaved Wattle	Shrub	perennial
<i>Acacia gunnii</i>	Ploughshare Wattle, Dog's Tooth Wattle	Shrub	perennial
<i>Acacia mearnsii</i>	Black Wattle, Green Wattle, Late Black Wattle	Shrub/Tree	perennial
<i>Acacia rubida</i>	Red-stem Wattle, Red-leaved Wattle	Shrub/Tree	perennial
<i>Acacia siculiformis</i>	Dagger Wattle	Shrub	perennial
<i>Acacia ulicifolia</i>	Prickly Moses, Juniper Wattle	Shrub	perennial
<i>Banksia marginata</i>	Silver Banksia, Honeysuckle Banksia, Dwarf Honeysuckle, Warrock	Shrub/Tree	perennial

<i>Bossiaea buxifolia</i>	Box-leaved Bitter-pea	Shrub	perennial
<i>Bossiaea prostrata</i>	Creeping Bossiaea, Prostrate Bitter-pea	Shrub	perennial
<i>Brachyloma daphnoides</i>	Daphne Heath	Shrub	perennial
<i>Bursaria spinosa</i>	Australian Blackthorn, Bursaria, Blackthorn, Native Blackthorn, Sweet Bursaria	Shrub/Tree	perennial
<i>Cassinia aculeata</i>	Common Cassinia, Chinese-scrub, Sifton Bush, Dogwood, Dolly Bush	Shrub	perennial
<i>Cassinia arcuata</i>	Drooping Cassinia, Chinese Tea-scrub, Sifton Bush, Chinese Shrub	Shrub	perennial
<i>Cassinia longifolia</i>	Shiny Cassinia, Cauliflower Bush, Long-leaf Dogwood	Shrub	perennial
<i>Cassinia quinquefaria</i>	Rosemary Cassinia	Shrub	perennial
<i>Cryptandra amara</i>	Bitter Cryptandra	Shrub	perennial
<i>Daviesia genistifolia</i>	Spiny Bitter-pea, Broom Bitter-pea	Shrub	perennial
<i>Daviesia latifolia</i>	Hop Bitter-pea	Shrub	perennial
<i>Daviesia leptophylla</i>	Narrow-leaf Bitter-pea	Shrub	perennial
<i>Daviesia mimosoides</i>	Narrow-leaf Bitter-pea	Shrub	perennial
<i>Daviesia ulicifolia</i>	Gorse Bitter-pea	Shrub	perennial
<i>Dillwynia cinerascens</i>	Grey Parrot-pea	Shrub	perennial
<i>Dillwynia glaucula</i>	Michelago Parrot-pea	Shrub	perennial
<i>Dillwynia prostrata</i>	Matted Parrot-pea	Shrub	perennial
<i>Dillwynia retorta</i>	Heathy Parrot-pea	Shrub	perennial
<i>Dillwynia sericea</i>	Showy Parrot-pea	Shrub	perennial
<i>Dodonaea viscosa</i>	Sticky Hop-bush, Giant Hop-bush	Shrub	perennial
<i>Epacris</i> spp.	Native Heaths	Shrub	perennial
<i>Exocarpos cupressiformis</i>	Cherry Ballart, Native Cherry, Wild Cherry, Cherry Wood	Shrub/Tree	perennial
<i>Grevillea rosmarinifolia</i>	Rosemary Grevillea	Shrub	perennial
<i>Hakea microcarpa</i>	Small-fruit Hakea, Small-fruited Needlebush	Shrub	perennial
<i>Hardenbergia violacea</i>	False Sarsparilla, Purple Coral-pea, Native Lilac	Shrub	perennial
<i>Hibbertia obtusifolia</i>	Hoary Guinea-flower	Shrub	perennial
<i>Hibbertia riparia</i>	Stream Guinea-flower, Erect Guinea-	Shrub	perennial

	flower		
<i>Hovea linearis</i>	Creeping Hovea	Shrub	perennial
<i>Indigofera australis</i>	Austral Indigo, Australian Indigo, Native Indigo, Hill Indigo	Shrub	perennial
<i>Kunzea ericoides</i>	Burgan, Kanuka	Shrub/Tree	perennial
<i>Kunzea parvifolia</i>	Violet Kunzea, Tickbush	Shrub	perennial
<i>Leucopogon fletcheri</i>	Pendant Beard Heath	Shrub	perennial
<i>Leucopogon fraseri</i>	Beard Heath	Shrub	perennial
<i>Leucopogon virgatus</i>	Common Beard Heath	Shrub	perennial
<i>Lissanthe strigosa</i>	Peach Heath	Shrub	perennial
<i>Melichrus urceolatus</i>	Urn Heath	Shrub	perennial
<i>Pimelea curviflora</i>	Curved Rice-flower	Shrub	perennial
<i>Pomaderris pallida</i>	Pale Pomaderris	Shrub	perennial
<i>Pomaderris</i> spp.	Pomaderris	Shrub/Tree	perennial
<i>Pultenaea procumbens</i>	Heathy Bush-pea	Shrub	perennial
<i>Styphelia triflora</i>	Pink Five-corners	Shrub	perennial
<i>Vittadinia gracilis</i>	Woolly New Holland Daisy	Shrub	perennial
Tree			
<i>Acacia dealbata</i>	Silver Wattle	Tree/Shrub	perennial
<i>Allocasuarina verticillata</i>	Drooping Sheoak, Coast She-oak, Hill-oak, Sheoak	Tree	perennial
<i>Brachychiton populneus</i>	Kurrajong	Tree	perennial
<i>Eucalyptus blakelyi</i>	Blakely's Red Gum	Dominant tree	perennial
<i>Eucalyptus bridgesiana</i>	Apple Box, But-but	Tree	perennial
<i>Eucalyptus goniocalyx</i>	Long-leaved Box, Bundy, Olive-barked Box	Tree	perennial
<i>Eucalyptus mannifera</i>	Brittle Gum	Tree	perennial
<i>Eucalyptus melliodora</i>	Yellow Box, Yellow Jacket, Honey Box (Qld), Yellow Ironbark (Qld)	Dominant tree	perennial
<i>Eucalyptus nortonii</i>	Mealy Bundy, Large-flowered Bundy	Tree	perennial
<i>Eucalyptus polyanthemus</i>	Red Box	Tree/Mallee	perennial
<i>Eucalyptus rossii</i>	Scribbly Gum, Snappy Gum, White Gum, Inland Scribbly Gum	Tree	perennial
<i>Eucalyptus rubida</i>	Candlebark, Ribbon Gum, White Gum	Tree	perennial

Note: The primary source for this species list was the 'Species list for the EPBC Act policy statement 3.5 - White box - yellow box - Blakely's red gum grassy woodlands and derived native grasslands' (Department of the Environment and Heritage, 2006). Some revisions to scientific names have occurred since this list was last updated in 2006. The species list has been edited to remove and add species as relevant to develop the species list that is most appropriate for the GFIMS Area.