



**THARBOGANG WETLANDS (RESERVE 1002928)  
LAKE WYANGAN**

**PLAN OF MANAGEMENT**



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## 1.0 EXECUTIVE SUMMARY

The Tharbogang Wetlands Plan of Management has been prepared by Council to reflect the features of **Tharbogang Wetlands** (formerly referred to locally as Tharbogang Swamp) being Crown Reserve 1002928 (Lot 187 DP 756035) gazetted 20 April 2000 for Environmental Protection.

The Plan of Management (PoM) examines the current character, current use and future needs of the land and its relationship to the surrounding properties and communities within which it is located and establishes a clear direction for future development, planning and resource management of the land by Council.

The PoM is required in accordance with Section 3.23 of the *Crown Land Management Act (CLMA) 2016* and Section 36 of the *Local Government Act (LGA) 1993*.

Although predominantly a dry ephemeral wetland, Tharbogang Wetlands is considered as part of a collective of wetland areas within the “Lake Wyangan Basin” including Nericon Wetlands (referred to locally as Nericon Swamp) and Campbell’s Wetland (referred to locally as Campbell’s Swamp).

Tharbogang Wetlands has had little study undertaken and was not included in the Charles Sturt University Study of the Lake Wyangan Basins’ Campbell’s and Nericon Swamps (and Fivebough and Tuckerbil Swamps at Leeton). It is however considered to contribute to the overall biodiversity of these local wetlands and provides critical habitat and connectivity generally.

Wetlands generally have played a significant role in Aboriginal culture, providing sources of food and shelter, for teaching and recreation, and used for ceremonies. Wetlands also hold cultural values for non-Aboriginal communities that relate to histories of recreation, conservation and pastoralism. Both cultures play an important role in future understanding and management of the collective wetlands in the Lake Wyangan Basin.

The PoM proposes to support improved adaptive management of Tharbogang Wetland and its linkages to Campbell’s and Nericon Wetlands within the broader Lake Wyangan Basin, and:

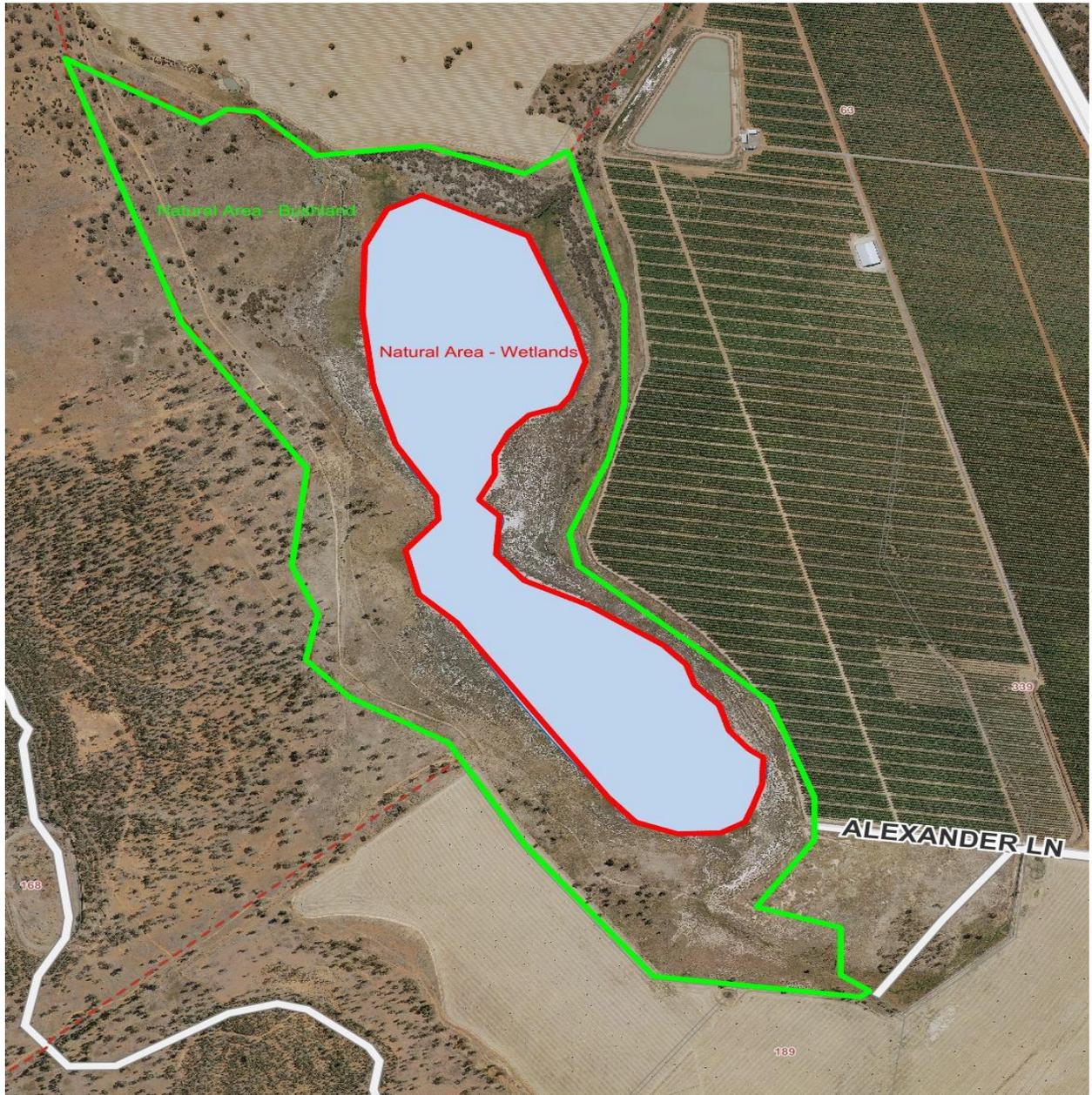
- To potentially improve and conserve the location’s biodiversity and its ecosystem function;
- To potentially provide for continued restoration and regeneration of the land;
- To provide for improved community use of and access to the land;
- To increase awareness through community education; and
- To increase partnership involvement of key stakeholders.

Current management practices differ to other Wetlands within the Lake Wyangan Basin due largely to its inability to receive environmental water and prevailing salinity.

Tharbogang Wetlands is categorised in this PoM, as: -

- **Natural Area – Bushland;** and
- **Natural Area – Wetland**

Figure 1 - Natural Area Bushland & Natural Area Wetland



The categorisation of this land is consistent with the Reserves' purpose of Environmental Protection and the land continues to be used and managed for such purpose

## 2.0 INTRODUCTION

Figure 2 – Locality diagram



Griffith City is a thriving regional capital with a vibrant lifestyle and diverse economy; embracing community, heritage, culture and the environment.

Located in the Riverina, Griffith is 584km from Sydney, 458 km from Melbourne and 358km from Canberra; and is the largest regional centre in the Western Riverina region. Griffith is located in the heart of Wiradjuri Nation – the largest nation of Aboriginal and Torres Strait Islander people in Australia.

The City of Griffith is unique in that it has no natural supply of surface water. Both town and irrigation water are supplied via the Main Canal from the Murrumbidgee River through a series of strategically designed and built channel systems. A series of drainage channels has diverted both stormwater and off-farm drainage water into small wetland areas and MI's larger strategic infrastructure, Barren Box Swamp. The vibrancy of Griffith's growth as a regional centre is a result of the development of the Murrumbidgee Irrigation system of the early 20<sup>th</sup> Century to create the Riverina's food bowl.

Griffith City Council is responsible for the care and control of many parcels of community land. With the introduction of the *CLMA 2016* on 1 July 2018, Council will manage Crown reserves, for which it is appointed Crown Land Manager, under the provisions of the LGA 1993.

### 2.1 Corporate Objectives

Griffith City Council has a positive future being acknowledged as a predominant major regional centre. Council's Mission Statement is –

1. To respond to the needs of the community and deliver in an economical manner those services which are the responsibility of Local Government.
2. To provide Local Government administration that is dedicated, accountable and committed to the improvement of the quality of life and the economic well-being of the citizens of the City of Griffith.

Figure 3 – Community Strategic Plan 2022-2032



The Community Strategic Plan '**Community Strategic Plan'2022-2032'** endorsed 22 March 2022 identifies the community's priorities and aspirations for the future and provides strategies for achieving these goals. The Community Strategic Plan is made up of four themes. The four key themes. The objectives and strategies within the plan are:

Figure 4 – Community Strategic Plan – Objectives and Strategies

**Leadership**

**1. An engaged and informed community**

- 1.1 Provide clear, accessible, relevant information
- 1.2 Actively engage with and seek direction from our community and stakeholders

**2. Work together to achieve our goals**

- 2.1 Develop and maintain partnerships with community, government and non-government agencies to benefit our community
- 2.2 Maximise opportunities to secure external funding for partnerships, projects and Programs

**3. Plan and lead with good governance**

- 3.1 Undertake Council activities within a clear framework of strategic planning, policies, procedures and service standards

**Love the Lifestyle**

**4. Griffith is a great place to live**

- 4.6 Promote reconciliation and embrace our Wiradjuri heritage and culture
- 4.7 Provide a range of sporting and recreational facilities
- 4.8 Improve the aesthetic of the City and villages, by developing quality places and improved public realm

**Growing our City**

**5. Grow our economy**

- 5.4 Strategic land use planning and management to encourage investment in the region
- 5.6 Promote Griffith as a desirable visitor destination

**6. Provide and manage assets and services**

- 6.1 Provide, renew and maintain a range of quality infrastructure, assets, services and facilities
- 6.3 Mitigate the impact of natural disasters

**Valuing our Environment**

**7. Enhance the natural and built environment**

- 7.1 Encourage respectful planning, balanced growth and sustainable design
- 7.2 Deliver projects to protect and improve biodiversity, biosecurity and sustainability
- 7.4 Improve sustainable land use

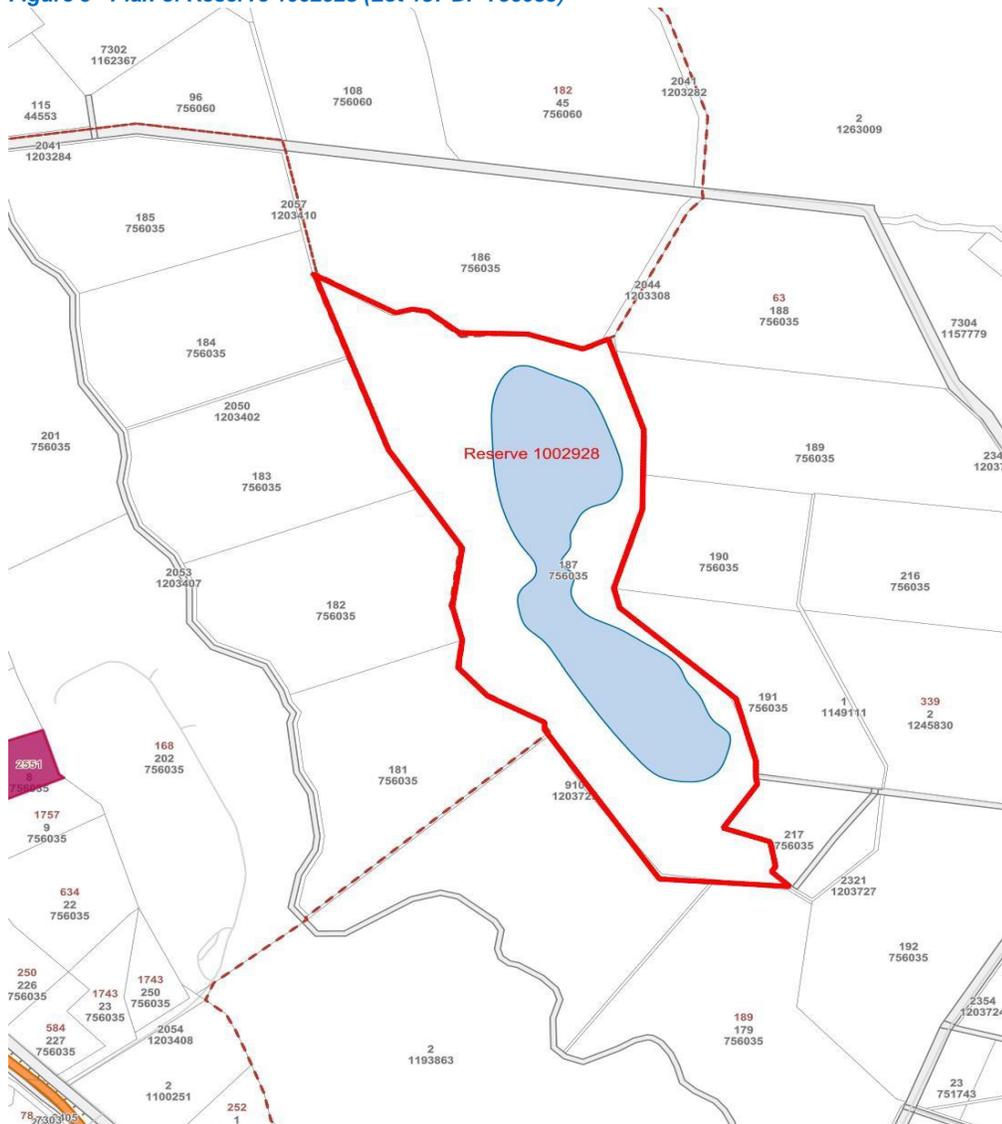
**8. Use and manage our resources wisely**

- 8.1 Manage Griffith's water resources responsibly
- 8.2 Reduce energy consumption and greenhouse gas emissions
- 8.4 Implement programs to improve sustainability

## 2.2 Land to which this plan applies

The lands to which this PoM applies is: -

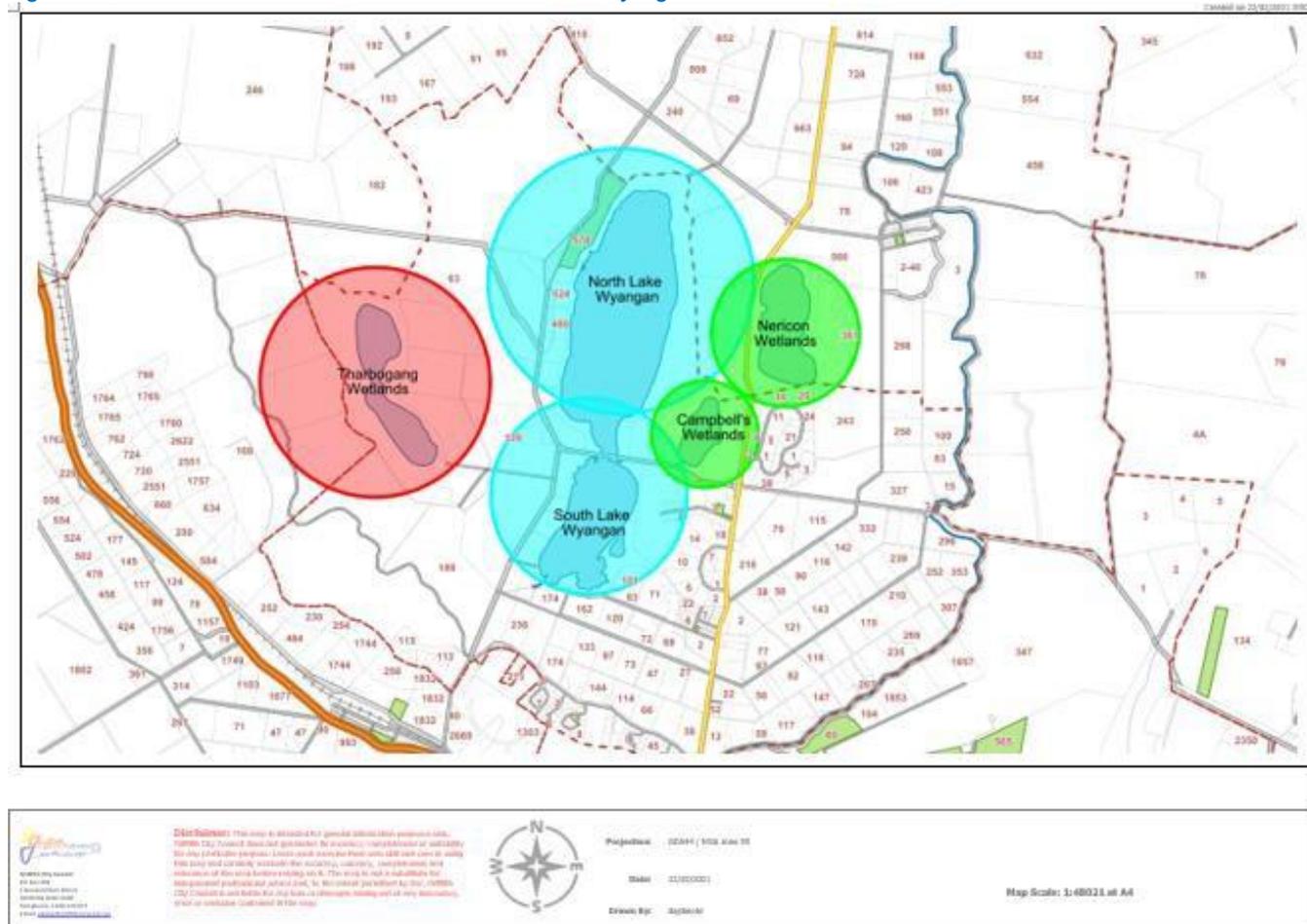
*Figure 5 - Plan of Reserve 1002928 (Lot 187 DP 756035)*



**Reserve 1002928** known locally as Tharbogang Swamp and referred to in this PoM as Tharbogang Wetlands comprising Lot 187 DP 756035, Parish of Ballingall, County of Sturt of 157.26 hectares. Tharbogang Wetland is located south-west of Lake Wyangan Recreation Reserve (approx. 9 km north of Griffith).

Tharbogang Wetland (together with neighbouring Campbell's and Nericon Wetlands, Jack Carson Reserve and North Lake Wyangan) provide an important area for biodiversity and linkages to nearby natural bushland that supports a number of waterbirds, bushland and grassland bird species as well as other reptile, mammal, amphibians and invertebrate species.

Figure 6 - Collective location of Wetlands in relation to Lake Wyangan



### 2.3 Owner of the land

Tharbogang Wetlands is owned by The State of New South Wales (as Crown land) and managed by Griffith City Council as Crown Land Manager under the *CLMA 2016*.

Reserve 1002928 was reserved for the purpose of 'Environmental Protection' on 20 April 2000 (Folio 3375) and Griffith City Council Crown Reserves (R1002928) Trust was appointed in the same notification (Folio 3376).

The management and use of the land is subject to the provisions contained in the *CLMA 2016* and is not subject to any condition, restriction or covenant imposed by the owner.

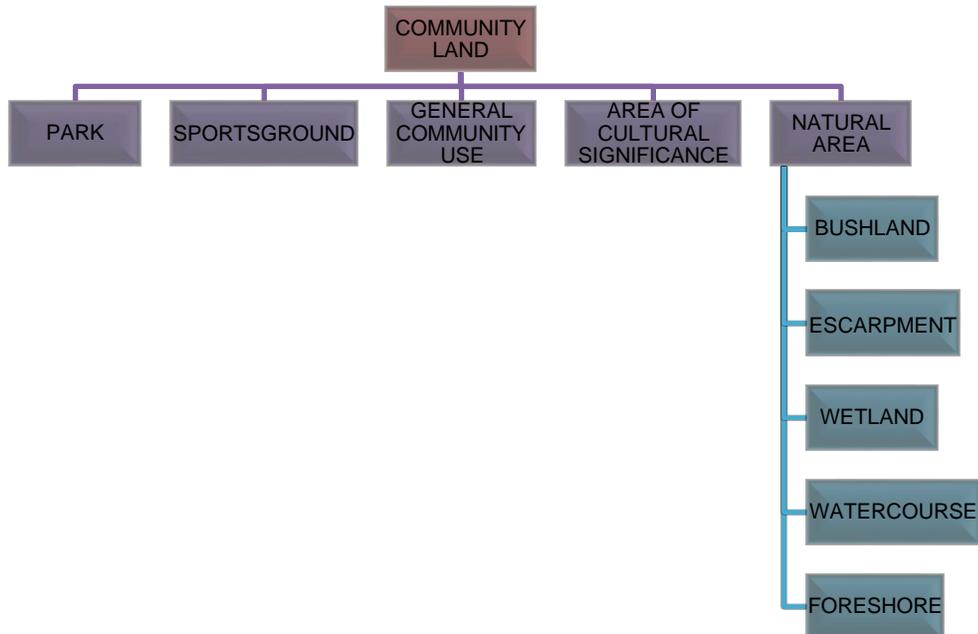
### 2.4 Categorisation of the reserve

With the introduction of the *CLMA 2016*, Council is to manage dedicated or reserved Crown land under their control as community land under section 3.21 of the Act.

Under section 3.23(2) of the *CLMA 2016*, Council Crown Land Managers must assign to all Crown land under their management, one or more initial categories of 'Community Land' referred to in section 36 of

the *LGA 1993*. The category is to relate most closely to the purpose(s) for which the land is dedicated or reserved.

For the purpose of section 3.23 of the *CLMA 2016*, the PoM for Tharbogang Wetlands is a 'first Plan'.



The *CLMA 2016* provides a new regime for the management of Crown land and Council is now responsible for compliance with Native Title legislation for the Crown land it manages. Council must obtain Native Title Manager advice as to the validity of any act or activity that it wishes to undertake on Crown Reserves (or Crown land) prior to dealing with the land, i.e., authorised through *Part 2 Division 3 of the NTA (C'th) 1993*.

Both the *Aboriginal Land Rights Act (ALR)1983* and the *Commonwealth Native Title Act (NTA (C'th)) 1993* recognises the intent of the original reserve purpose of the land so that a complying activity can be considered lawful or validated.

On Crown land, Native Title rights and interest must be considered unless:

- Native Title has been extinguished; or
- Native Title has been surrendered; or
- Determined by a court to no longer exist.

Examples of acts which may affect Native title on Crown land reserves managed by Council include: -

- The construction of new buildings and other facilities such as toilet blocks, walking tracks, tennis courts, grandstands and barbeques,
- The construction of extensions to existing buildings,
- The construction of new roads or tracks,
- Installation of infrastructure such as powerlines, sewerage pipes, etc.,
- The issue of a lease or licence,
- The undertaking of earthworks.

The area has historically been referred to as a Swamp/Wetland area and is similar in nature to both Nericon and Campbell's Wetlands that were categorised as Natural Area – Wetland and included in the previous MI Inventory of Wetlands in the Eastern MIA. Tharbogang Wetlands similarly to Nericon, is an ephemeral wetland and is dry for longer periods of time and more reliant on rainfall and stormwater runoff than off-farm drainage. It is acknowledged that Tharbogang Wetland has also played an important role in Aboriginal culture.

Accordingly, Council proposes to amend the initial categorisation by the addition of '**Natural Area – Wetland**' in this Plan of Management, reflecting both the revegetation programs in recent years to connect bushland with Council's adjoining freehold land (used as an offset to Council's adjacent landfill site) and valuing the wetland area existent during major rain events. These factors both enhance and align with its neighbouring Wetlands.

Activities on the Council Managed Crown Reserves will need to reflect the intent of the gazetted purpose of Environmental Protection and will be assessed for compliance with relevant Local Government and Crown Lands legislation, including assessment of the activity under the *NTA 1993 (C'th)* and registered claims under the *ALRA 1983*.

### 3.0 PLANNING INSTRUMENTS, LEGISLATION and POLICIES

#### 3.1 Local Government Act 1993 & Local Government (General) Regulations 2021

Under the *LGA 1993*, Section 36(1) Council must prepare a Plan of Management for all community land under their control. A Plan of Management may apply to one or more areas of community land.

Council must also consider the guidelines under Clause 101 of the Local Government (General) Regulations 2021 for categorisation of community land when preparing Plans of Management.

Clause 108 of the guidelines states that the land should be categorised as a wetland under Section 36(5) of the Act if the land includes marshes, mangroves, backwaters, billabongs, swamps, sedgelands, wet meadows or wet heathlands that form a waterbody that is inundated cyclically, intermittently or permanently with fresh, brackish or salt water, whether slow moving or stationary.

This Plan of Management has been prepared in accordance with the *LGA 1993* using the land categories approved by the Minister administering the *CLMA 2016* where lands are Council Managed Crown Reserves.

The minimum requirements for a Plan of Management for community land is set out in Section 36(3) of the *LGA 1993* and must identify the following:

- (a) the category of the land,
- (b) the objectives and performance targets of the plan with respect to the land,
- (c) the means by which the council proposes to achieve the plan's objectives and performance targets,
- (d) the manner in which the council proposes to assess its performance with respect to the plan's objectives and performance targets, and may require the prior approval of the council to the carrying out of any specified activity on the land.

Section 36(2) specifies that a Plan of Management may apply to one or more areas of community land, except as provided by this Division.

Sections 36E – 36N of the *LGA 1993* specifies the core objectives for the management of each category of community land.

#### 3.2 Land Zoning

Although not identified in the GLEP (2014) as a Wetland, the zoning of Environmental Conservation takes into account the connectivity of lands within the Lake Wyangan Basin and the surrounding bushland setting of the adjacent tail of McPherson's Range as it extends from the north-east of Griffith through the Scenic Hill Reserve and becomes what is locally known as 'Ballingall Slopes'.

Accordingly, Tharbogang Wetlands is zoned C2 – Environmental Conservation in conjunction with neighbouring land on its western boundary. Land to its north and east is zoned RU1 – Primary Production; and land to its south is zoned E4 – Environmental Living.

Figure 7a - Planning Zone – Tharbogang Wetlands – C2– Environmental Conservation

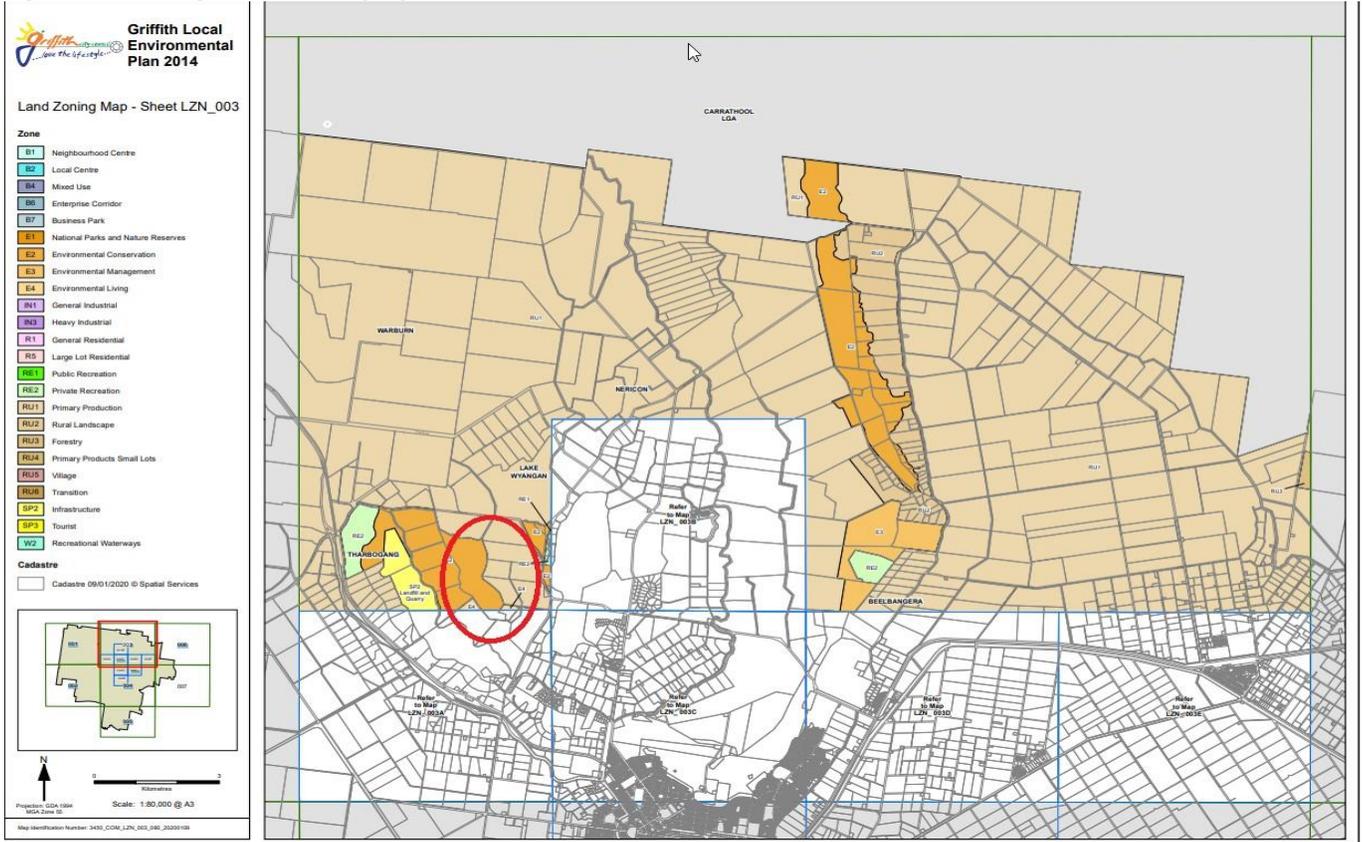
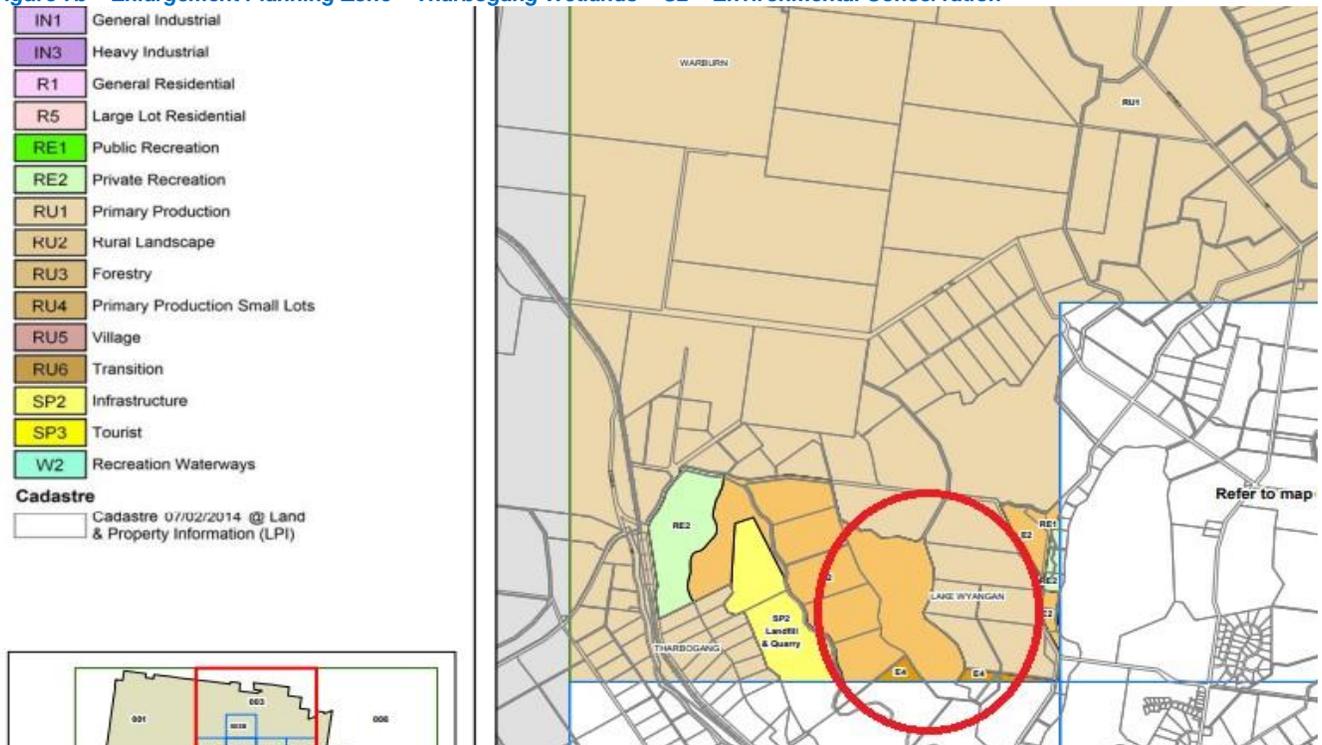


Figure 7b – Enlargement Planning Zone – Tharbogang Wetlands – C2 – Environmental Conservation



## Zone C2 Environmental Conservation

### 1. The objectives of the C2 – Environmental Conservation are:

- *To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.*
- *To prevent development that could destroy, damage or otherwise have an adverse effect on those values.*
- *To ensure the long term viability of populations of threatened species and ecological communities by protecting and improving the condition of wildlife habitats.*

### • **Development that may be carried out within the zone without the need for development consent**

### 2. Permitted without consent

- *Water reticulation systems.*

### • **Development that may not be carried out within the zone except with development consent**

### 3. Permitted with consent

*Boat launching ramps; Boat sheds; Community facilities; Eco-tourist facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Information and education facilities; Jetties; Oyster aquaculture; Recreation areas; Research stations; Roads; Water recycling facilities; Water supply systems.*

### • **Development that is prohibited within the zone**

### 4. Prohibited

*Business premises; Hotel or motel accommodation; Industries; Multi dwelling housing; Pond-based aquaculture; Recreation facilities (major); Residential flat buildings; Restricted premises; Retail premises; Seniors housing; Service stations; Tank-based aquaculture; Warehouse or distribution centres; Any other development not specified in item 2 or 3.*

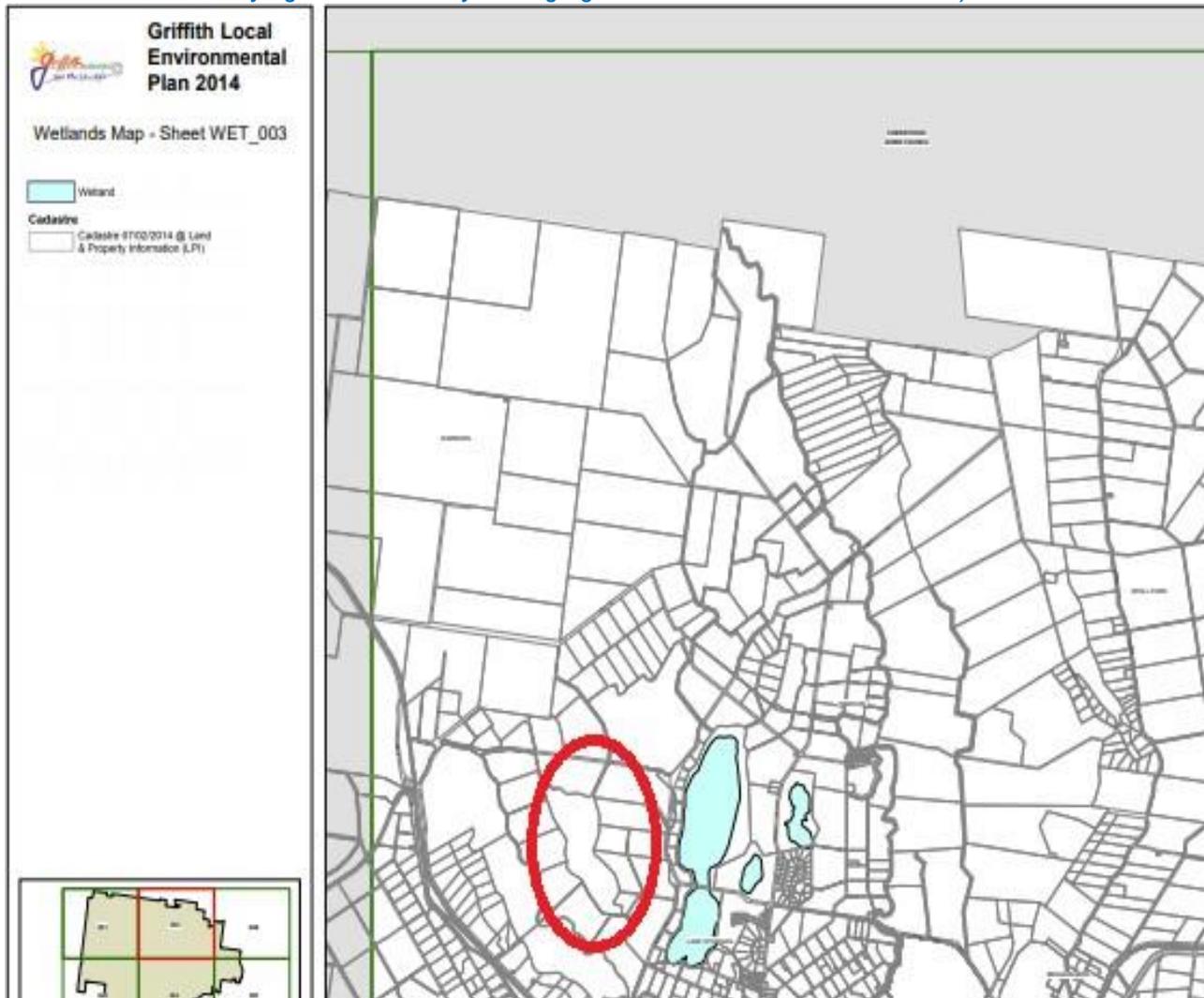
The GLEP (2014) also provides additional local provisions as follows: -

## 7.6 Wetlands

- (1) The objective of this clause is to ensure that wetlands are preserved and protected from the impacts of development.
- (2) This clause applies to land identified as “Wetlands” on the Wetlands Map.
- (3) In deciding whether to grant development consent for development on land to which this clause applies, the consent authority must consider:
  - (a) whether or not the development is likely to have any significant adverse impact on the following:
    - (i) the condition and significance of the existing native fauna and flora on the land,

- (ii) the provision and quality of habitats on the land for indigenous and migratory species,
- (iii) the surface and groundwater characteristics of the land, including water quality, natural water flows and salinity; and
- (b) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.
- (4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that:
  - (a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or
  - (b) if that impact cannot be reasonable avoided – the development is designed, sited and will be managed to minimize that impact, or
  - (c) if that impact cannot be minimised – the development will be managed to mitigate that impact.

Figure 8 – GLEP (2014) - Wetlands Map – Sheet WET\_003 (this map shows Campbell's and Nericon Wetlands, Jack Carson Wildlife Reserve and North Lake Wyangan. Note: currently Tharbogang Wetlands is not included as a Wetland)



### 3.3 State Environmental Planning Policy (Transport & Infrastructure) 2021

This Policy – *SEPP (Transport & Infrastructure) 2021* – commenced on 1 March 2021 and provides that certain types of works do not require development consent by a public authority, other agencies or authorised person.

**Division 12** of the *SEPP (Transport & Infrastructure) 2021* defines parks and public reserves which this Policy covers, i.e., Crown land within the meaning of the *CLMA 2016* including a public reserve but not including a reserve that is dedicated or reserved for a public cemetery.

*Section 2.73 (2) (c)* of the Policy provides that in respect of land reserved within the meaning of the *CLMA 2016*, development for any purpose can be carried out without consent by or on behalf of the Secretary, a Crown land manager of the land, the Ministerial Corporation or the Minister administering the *CLMA 2016*, if the development is for the purposes of implementing a PoM adopted for the land under the *CLMA 2016* in to such land or in accordance with the *Local Government Act 1993* in relation to Crown land managed by a Council.

*Section 2.73 (3)* of the Policy provides for a range of construction or maintenance works that are applicable under this Policy which may be carried out by or on behalf of a public authority in connection with a public reserve.

### 3.4 Council Plans, Strategies, Policies and Procedures

This PoM is to be used in conjunction with the appropriate Council plans, policies and procedures that govern the use and management of community land and any facilities located on the lands.

Additional Council policies, plans and strategies adopted after the date of this plan that have relevance to the planning, use and management of community land will apply as though they were in force at the date of adoption of the PoM, i.e. State of the Environment Report initially prepared in 2016 and to be prepared in conjunction with subsequent LGA elections.

### 3.5 Review of this Plan

The use and management of Tharbogang Wetlands is regulated by this PoM.

Whilst the guidelines and principles outlined in the plan may be suitable at present, the Plan should be reviewed from time to time, to confirm its relevance.

The review should take place within 5 years of adoption of this plan.

### 3.6 Community Consultation

Consultation with the community is an important part of the preparation of this PoM. Consultation gives Council a better understanding of the range of local issues affecting the use and enjoyment of the land to which this PoM applies and gives all sectors of the community the chance to have an input into the direction of policy development being undertaken by Council.

Initial consultation has occurred with members of the Murrumbidgee Field Naturalists (MFN) together with Council's Environmental Officer. Previous consultation occurred with the Griffith Local Aboriginal Land Council when an Aboriginal Cultural Assessment was undertaken in August 2014 and sights recorded.

All stakeholders are given the opportunity to express their opinions and provide relevant information in relation to the planned management of the land, however as the land is Crown land, final approval for the PoM rests with the Minister administering the *CLMA 2016* as owner of the land.

Council is required to submit the draft PoM to NSW Department of Planning & Environment, as representative of the owner of the land under section 39 of the *LGA 1993*. This process occurs prior to a public exhibition and community consultation of the Plan of Management. Refer to the "***Process for Consultation and Approval of an Initial Plan of Management***" (Figure 9 below).

If after public consultation there is no change to the categorisation and no additional purpose is required to be added to the reserve, no additional ministerial consent is required. Council can then proceed to adopt the Plan of Management.

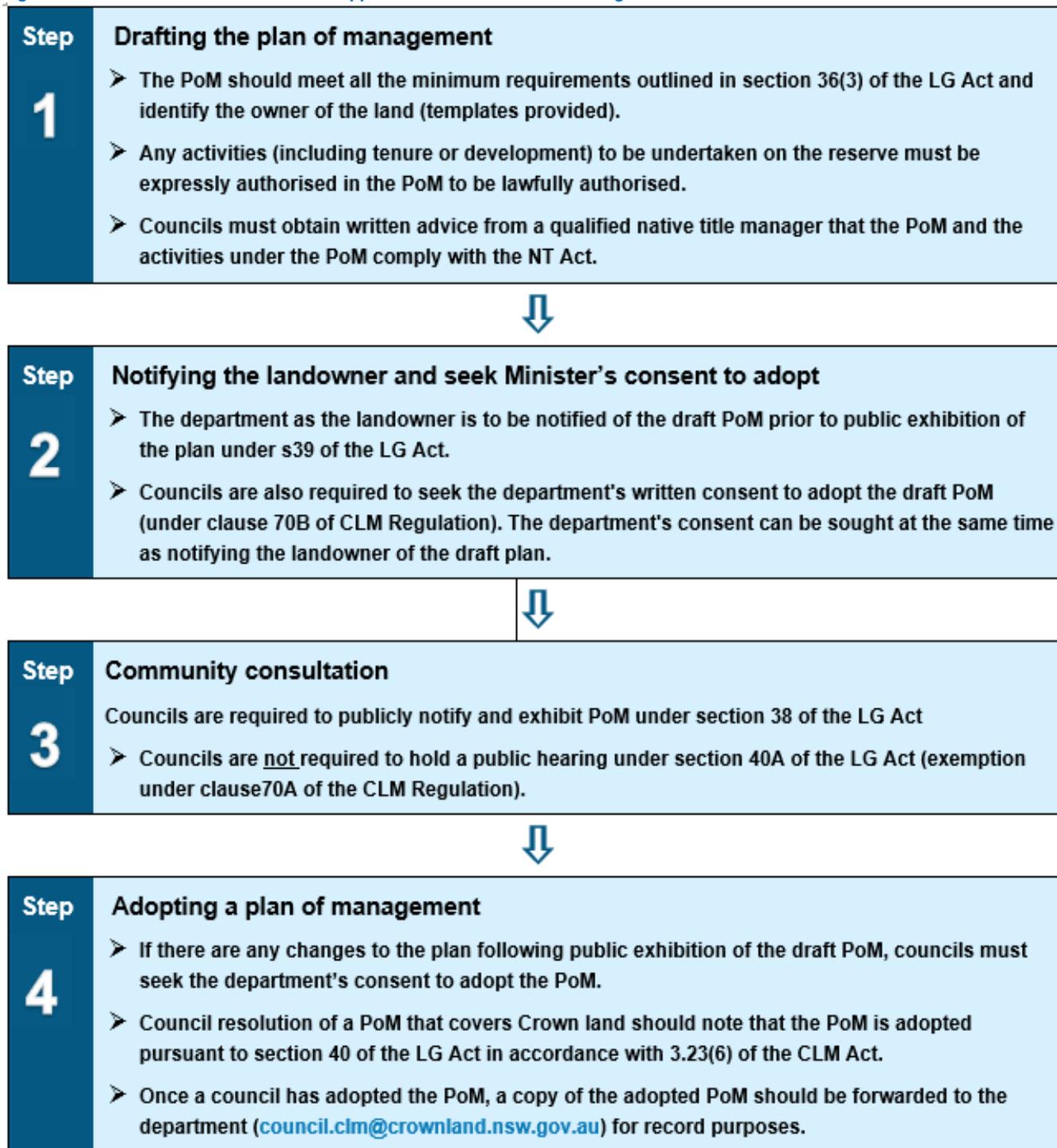
If Council proposes a change in the categorisation of the land following public consultation, the plan must be referred again to the Minister administering the *CLMA 2016* to adopt the Plan of Management.

The purpose of this Plan of Management is to extend the categorisation of Reserve 1002928 – Tharbogang Wetlands by the addition of Natural Area – Wetland. Under Section 36(5) of *LGA 1993*, this proposal does not require a public hearing.

The addition of Natural Area – Wetland to the existing category of Natural Area – Bushland will not impact on the current and future use of the land.

Community consultation is also offered as a result of the development application process in line with Council's Griffith Community Participation Plan of 16 December 2019 (in response to Section 2.23 of the *Environmental Planning and Assessment Act 1979*).

Figure 9 - Flowchart for Consultation and Approval of an Initial Plan of Management

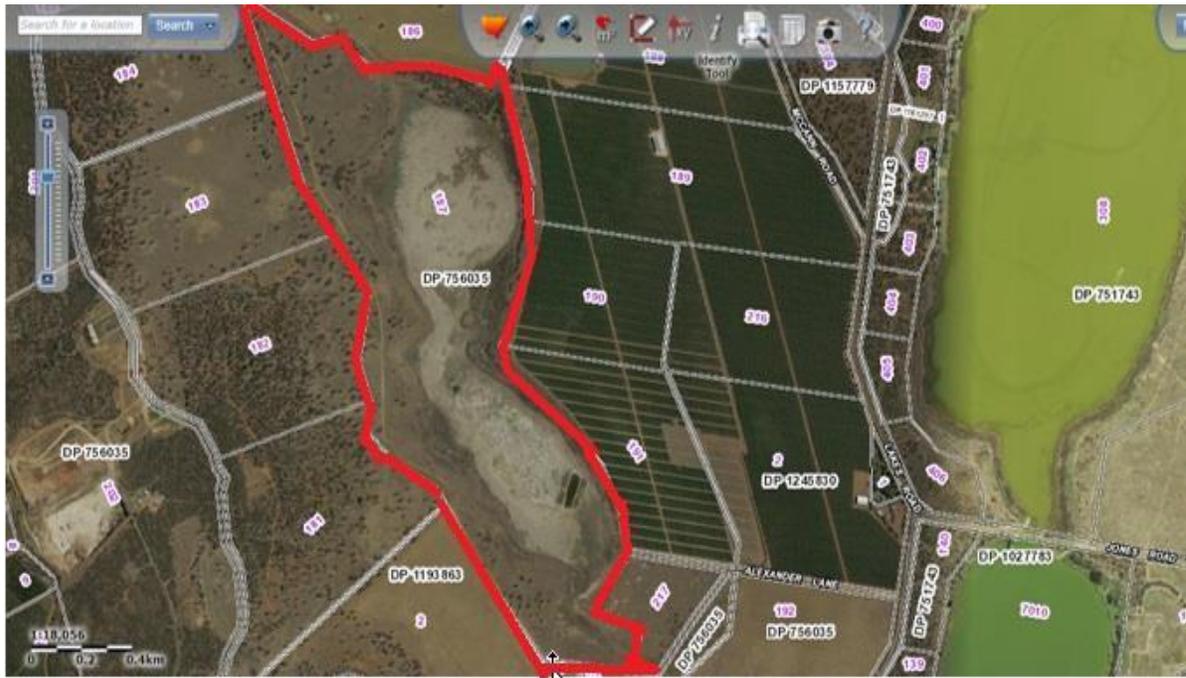


## 4.0 THE PHYSICAL ENVIRONMENT

Tharbogang Wetlands is accessed off Lakes Road via Alexander Lane (an unsealed Council Public Road) to the west of Jack Carson Wildlife Reserve (South Lake Wyangan) and is described as a medium shallow depression (93ha of the total area of 157.27ha) with elevated salinity. The Wetlands also has a dam at its south-eastern end.

Tharbogang Wetlands is bounded to its east and north by farming land; to its south/south-west by environmental living large lots; and immediately on its south-eastern boundary by Lot 217 DP 756035 being part Crown Reserve 1032848 notified on 8 December 2011 for Environmental Protection and Public Recreation. Lot 217 is managed by the Department of Planning, Industry & Environment, Crown Lands (Griffith Office). Lots 187 and 217 although under separate management, are not divided by internal fencing.

*Figure 10 – Aerial imagery of Tharbogang Wetlands (Lot 187 DP 756035), neighbouring farmland and to its east, North and South Lake Wyangan*



Tharbogang Wetlands was excluded from Charles Sturt University's study of neighbouring Campbell's and Nericon Wetlands in 2000.

It had however been noted that, Griffith City Council has indicated the importance of the Lake Wyangan Basin Wetlands (including Tharbogang Wetlands), as an important area due to its environmental assets (**Roberts** et al. 2005 – An Audit of Wetlands in the eastern MIA). Tharbogang Wetlands was included as a wetland known to have values important to the region because they provide species-specific habitat, usually birds, including modified habitats, i.e., waterbirds, shorebirds and waders previously noted at Tharbogang Wetlands.

Of the Wyangan Basin Wetlands, Tharbogang was not identified as a 'target wetlands' in the above-mentioned Audit however L Harrison and J Roberts did include Tharbogang Wetlands in its 2005

'Inventory of Wetlands in the Eastern MIA'. At that time, it was noted to contain Bimble Box on higher ground; a Black Box fringe on the wetland; remnant live trees and also many dead trees. The Inventory also commented inter alia –

**“Ecological Values**

*Habitat for migratory waders and large numbers of ducks, swans and ibis (GCC 1991).*

**Ecological History**

*Water was pumped from Lake Wyangan (South Lake) in the past (eg 1989), there is also local drainage (Sutherland pers. Comm. 2004). Swamp was continually wet during part of the 1990's.”*

A condition assessment score at that time was given as 40% however no potential was assessed.

A plant species list was prepared by Eric Whiting, MFN when undertaking a field trip in March 1999 although this is considered to be an incomplete plant list and future studies have been indicated (E. Whiting, **personal** communication 10 February 2020).

Bird counts are restricted to those surveys during the Rehabilitation Project undertaken by Council during 2013-2017 and more specifically as noted in the Tharbogang Wetlands Bird Surveys, between October 2013 and February 2015 (refer to **Appendix 2** pgs. 52-53). This coincided with a significant rainfall event in March 2012.

Mr Whiting noted thirteen Families of plant species *including Asteraceae, Boraginaceae, Caesalpiniaceae, Chenopodiaceae, Goodeniaceae, Lamiaceae, Malvaceae, Myrtaceae, Oxalidaceae, Pittosporaceae, Polygonaceae* and *Solanaceae* representing a total of twenty-six species. Refer to **Appendix 4** (pg. 55).

*Figure 11 – Photos taken by J Tarbit, GCC*



## 4.1 The Site – History

Historically, the area was held under tenure for ‘grazing and dry cultivation’ by the former Department of Lands/Water Resources Commission entities at that time with grazing ceasing prior to notification of the Reserve and Council’s appointment as Crown Land Manager. Cultivation was usually restricted to a 2-year period within a 5-year range. Approved grazing/cultivation ceased in mid1997. An extract from the Mirrool Irrigation Area Parish Map shows Portion 187 as “Lease to Farm 1891”.

Tharbogang, similar to Campbell’s and Nericon Wetlands is also regarded as a shallow depression within the Lake Wyangan Basin. Once a healthy Black Box (*Eucalyptus largiflorens*) depression, many of the trees have died from excessive drainage water and rising salt levels.

Although drainage reserves have historically fed excess irrigation into the Wetland, with evolving and improved farming practices, less water has entered the wetland in recent years with reliance on rainfall and stormwater run-off from adjacent slopes. The relative importance of such input to the wetland has been neither noted or quantified.

The Department of Land and Water Conservation undertook a formal Land Assessment of the Lake Wyangan area including Portion 407 (Campbell’s Swamp) and Portion 257 (Nericon Swamp), Parish of Wyangan and Portion 187 (Tharbogang Swamp), Parish of Ballingall in March / April 1996 to determine the suitable forms of land use for these parcels of land. The initial findings were published in 1997 and recommended that the areas be reserved for the “purposes of study and conservation of native flora and fauna”.

Griffith City Council Crown Reserves (R.1002928) Trust was appointed to manage the land for ‘Environmental Protection’ as a result of the reservation of Tharbogang Wetlands - Reserve 1002928.

The original survey Plan (1921) of Portion 187 DP 751743 shows an ‘open Box Swamp’ with a Tank located to the north-west of the road now known as Anderson Lane; grey clay soil within the swamp depression; and dead Yarran on the generally western boundary (northern end). Refer **Appendix 4** (pg. 55)

The impacts of salinity are likely to have altered as a result of extensive grazing and seasonal cultivation of Tharbogang Wetlands, general changes to farm practices together with variations in climatic conditions. The reduction of on-farm water discharge and channel escapes are also likely to have affected the soil composition although it is noted that no soil studies have been undertaken at Tharbogang Wetlands unlike Campbell’s and Nericon Wetland and the associated CSU Report of 2000.

Issues of salinity were such that Wetland Ecologist, Geoff Sainty suggested a range of salt tolerant species to be planted at Tharbogang Wetlands following a meeting with Joanne Tarbit in September 2014. Suggested plantings included Club-rush, Juncus, Phragmites and Typha species. It was identified that this site could reach a salinity level of 34000us/cm with seawater registering at 54000us/cm, subsequently germination at this site might prove difficult (**noted** Joanne Tarbit, GCC 2014).

MI compiled reports in 2005 as essential background preparation for a program for monitoring wetland condition within the eastern MIA and surrounds linked to responsibilities of Murrumbidgee Irrigation towards wetlands as required under its water supply licence; and under its own and State Biodiversity

Policy. The study area incorporated a total of 38 wetland areas (former Floodplain Channels; Depression Wetlands; the Wyangan Basin (Lake Wyangan, Nericon, Campbell's and Tharbogang Swamps); Deflation Basins and Impounded Basins. The Condition Assessment is previously mentioned above.

The subsequent Reports were: -

- *Inventory of Wetlands in the eastern MIA (May 2005)* (L Harrison and J Roberts)
- *An Audit of Wetlands in the eastern MIA (September 2005)* (J Roberts)

Although the Wyangan Basin Wetlands were treated as one type in the Report, it reflected Lake Wyangan and Nericon Swamp (each comprising 2 water regimes); and the Campbell's, Nericon and Tharbogang Wetlands collective areas comprising of 1 x Ephemeral; 2 x Seasonal; and 1 x Permanent areas with ecological values largely tied to their respective water regimes (**Roberts** et al. 2005).

#### 4.2 The Site – Recent and Current

Development at Tharbogang Wetlands has been restricted to strategic improvements to existing fencing to keep out stock from neighbouring properties and re-vegetation programs to improve the condition of the habitat. Such works were undertaken by GCC's Environmental Officer.

Council received funding from the NSW Government "Office of Environment and Heritage Environmental Trust Restoration and Rehabilitation Grant Program" during 2013. These funds were broadly used for replacement fencing, direct seeding, weed and pest control. A Cultural Survey was also undertaken at the site with many artefacts recorded.

The Project provided two primary objectives: -

1. To improve 172ha of native vegetation condition and diversity including endangered ecological communities (EEC) and threatened species habitat through strategic bushland regeneration activities, vertebrate pest control and 50ha of revegetation.
2. To protect and enhance the riparian condition of the Swamp through 1.2km of stock restriction fencing and establishment of vegetation in erosion prone areas.

A secondary objective and subsequent outcome of the above was to facilitate improved community engagement with environmental issues being addressed through the Project using ongoing media releases, website updates and field days.

The program for development included the following projects: -

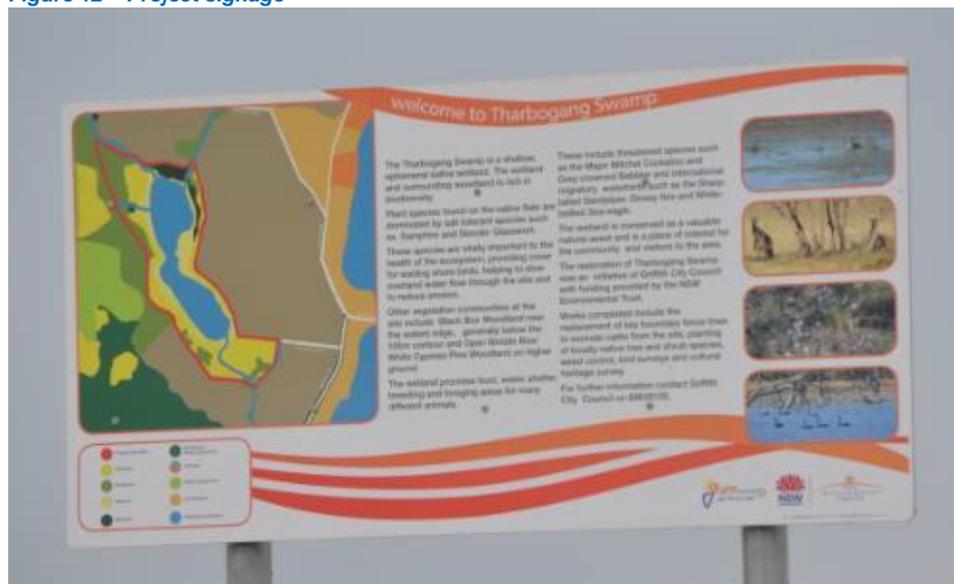
- ❖ Conduct a baseline assessment to establish the current condition of the site and develop a work plan
- ❖ Water quality monitoring 6 monthly (following flood event in 2012)
- ❖ Regular woody noxious weed control i.e., African Boxthorn (*Lycium ferocissimum*) and Briar Rose (*Rosa rubiginosa*)
- ❖ Tharbogang Swamp MFN Tour - 17 November 2013
- ❖ Bird surveys established at 6 established sites between October 2013 and February 2015 (including regular photo monitoring)
- ❖ Tharbogang Swamp Fencing Works (1.7km fencing replaced) - July/August 2014
- ❖ Undertake a Tharbogang Swamp Cultural Assessment - August 2014

- ❖ Regenerate areas not showing signs of natural regeneration with 45km direct seeding plus 5ha grass seeding - August 2014
- ❖ Fox-baiting undertaken Spring/Autumn - 2015/2016

Council's *State of the Environment Report (2016)* identifies strategies including to: -

- 'Improve sustainable land use' by measures including the protection of landscapes that are environmentally sensitive; determining the extent of soil salinity and reduce impact where possible; and enhance compliance with applicable environmental codes and standards.
- 'Plan effectively and consider health issues within planning and sustainable development frameworks' by measures including to encourage nature-based recreation at levels that are compatible with existing conservation values.
- 'Improve biodiversity by preserving and protecting existing biodiversity' by measures including developing and implementing a Biodiversity Strategy and Offset Strategy to identify appropriate land for revegetation and protection; development of a 'Sustainable Living Guide' to inform the community on biodiversity related issues; and compile detailed management plans for all parks and reserves.
- 'To ensure and maintain the conservation of the natural environment' by measures including developing a 'Noxious Weeds' Guide for the Griffith LGA; avoid development in areas of environmental significance; improving education and promotional resources to assist in the conservation and promotion of biodiversity; and continuing noxious weeds management.
- 'To preserve our built and natural heritage for future generations' by measures including increasing awareness of local indigenous heritage.

Figure 12 – Project signage



### 4.3 Topography, Hydrology and Drainage

The area of Tharbogang Wetlands is a very shallow depression of large size (approx. 110 hectares within the overall area of 157.26 ha) with a variation of height above sea level between 103m and 110m as per the below map.

Historical mapping identifies five drainage reserves feeding into the Wetlands from the north, north-west, south-west and southerly points from adjoining agricultural properties. Other sources of water are primarily rainfall and local stormwater runoff during heavy rainfall from neighbouring slopes to the south, south-west as high as 179m above sea level.

Historical aerial photographic imagery held by DPIE Crown Lands Griffith Office does confirm evidence of drainage inflow into the wetlands area as shown by the example in the imagery below in Figure 13. Aerial imagery photographic runs were taken 5-yearly and further imagery can be viewed at the Department's Griffith Office.

Figure 13 – Aerial Imagery 1997 Griffith Run 4 No. 326



Drainage water from off-farm irrigation has been reduced over recent years due to improved agricultural practices and on-farm water storage. No environmental water is available for delivery to this site.

Subsequently, this ephemeral wetland is often dry with the recent exception of the 2012 March floods.

Figure 14 - Photo L: courtesy J Tarbit, GCC showing Tharbogang Wetlands following 2012 floods; and Photo R: current condition



Figure 15 – Topographic imagery of Tharbogang Wetlands and the Lake Wyangan Basin



Griffith, Griffith City Council, New South Wales, 2680, Australia (-34.28708 146.05510)

#### 4.4 Soils and Geology

The sediments of the Riverina plain are relatively young compared to those of the Lake Wyangan Basin, with the surface aged in the tens of thousands of years, whereas the landscape of the Lake Wyangan basin is aged in the hundreds of thousands of years. The material in the Macpherson Range is from the Cocopara Group formed in the late Devonian (400 million years old), and comprises sandstones, siltstones, pebbly conglomerate and quartzite sandstones (ERIC 1999).

Given its proximity within the Lake Wyangan Basin and although not included in the CSU Report (2000), Tharbogang Wetlands is likely to identify similarly to its neighbouring Wetlands.

Soil studies would be advantageous to assist in future management directives at the site.

## 4.5 Biodiversity

Under the *LGA 1993*, Council has obligations for conservation issues as determined by the *Biodiversity Conservation Act 2016*, and the *Fisheries Management Act 1994*.

Griffith City Council's Planning Certificate under Section 10.7(2) and 10.7(5) *Environmental Planning and Assessment Act 1979* dated 23 February 2021 indicates the following: -

- The site is not subject to any conservation area.
- The site does not contain any items of Environmental Heritage.
- The site is not land biodiversity certified land within the meaning of Part 7AA of the *Threatened Species Conservation Act 1995*.
- The land is not subject to any bio-banking agreement under Part 5 of the *Biodiversity Conservation Act 2016*.
- The land is not subject to any set aside areas under Section 60ZC of the *Local Lands Services Act 2013*.
- The subject land has been mapped as being bushfire prone land.
- The subject land has been mapped as being within a buffer zone of an industry or other activity.
- Griffith City Council's Tree Preservation Order applies, i.e. a person must not ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree or other vegetation without the authority conferred by development consent or a permit granted by Council.

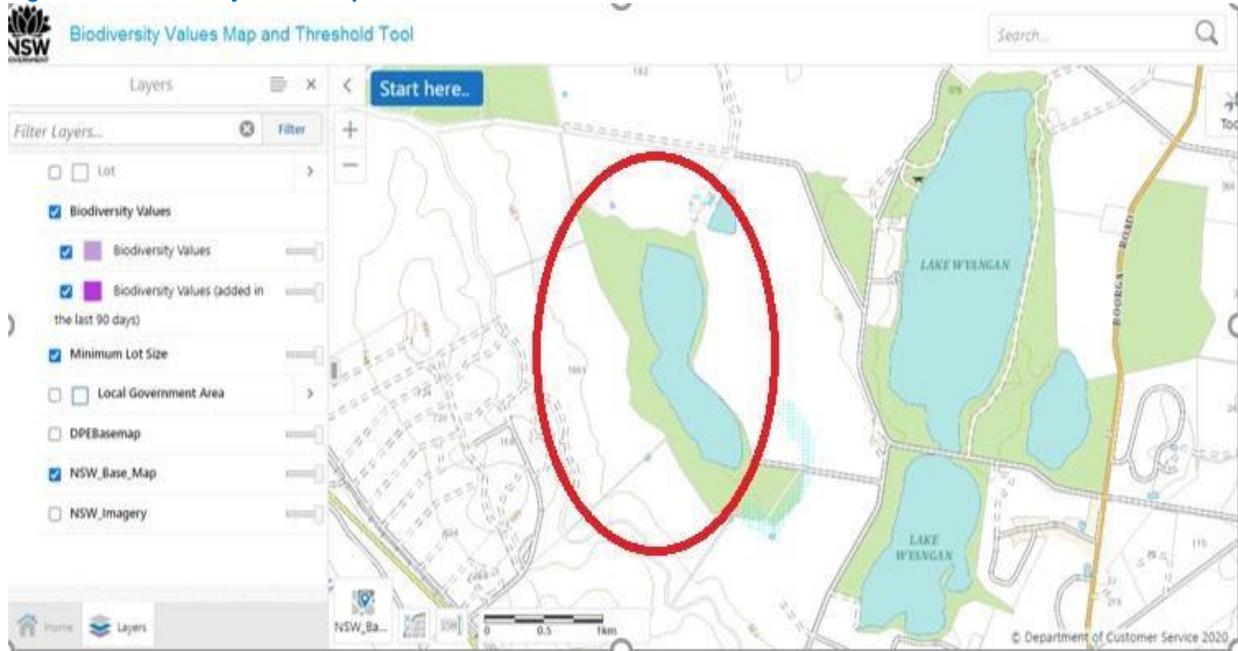
Council considers the land to be below the Flood Planning Level (FPL) and therefore subject to flood related development controls. Restrictions on development apply to this land.

*Note: **Flood planning level** means the level of a 1:100 ARI (average recurrent interval) flood event plus 0.5 metres freeboard.*

The NSW Government Biodiversity Values Map and Threshold Tool indicates that there is no land of biodiversity within Lot 187 DP 756035 as per Figure 16 below.

Any future work will be subject to detailed assessment in accordance with the legislation prior to the removal of any native vegetation.

Figure 16 - Biodiversity Values Map and Threshold Tool – Lot 187 DP 756035



#### 4.6 Riparian Land and Watercourses

There are no named rivers or creeks in the vicinity of Tharbogang Wetlands. Griffith LEP however identifies both North and South Lake Wyangan as Riparian Lands and Watercourses in Map – Sheet RLW\_003 below.

A waterbody as defined in the Griffith LEP 2014 states –

*Waterbody (artificial) or artificial waterbody* means an artificial body of water, including any constructed waterway, canal, inlet, bay, channel, dam, pond, lake or artificial wetland, but does not include a dry detention basin or other stormwater management construction that is only intended to hold water intermittently.

Figure 17 – Griffith LEP Riparian Lands and Watercourses Map – Sheet RLW\_003



## 5.0 THE SOCIAL ENVIRONMENT

### 5.1 Aboriginal Significance

A search of the Office of Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) dated 22 February 2021 indicates that.

- There are eight (8) Aboriginal sites recorded in or near Lot 187 DP 756035 (200 metres buffer); and
- No Aboriginal places have been declared in or near Lot 187 DP 756035 (200 metres buffer).

A subsequent AHIMS search undertaken on 22 February 2021 with a 50-meter buffer, indicated six (6) Aboriginal sites recorded in or near Lot 187 DP 756035.

It is noted that although a Cultural Assessment was previously carried out in August 2014, the results may not have been lodged with the Office of Environment and Heritage for formal recording.

Scar Trees were sighted during an inspection of 12 February 2021.

Council will undertake due diligence in accordance with the *NSW National Parks and Wildlife Act 1974 (NPW Act)* and the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales*.

Council may consider that the Griffith Local Aboriginal Land Council (Griffith LALC) undertake a further site assessment of any area where proposed works are to be undertaken, i.e., upgrade or new walking tracks and installation of interpretive signage etc.

It may be necessary to apply for an Aboriginal Heritage Impact Permit (AHIP) prior to undertaking any development at the site should further investigation indicate that proposed works are likely to impact on any of the recorded sites.

*Figure 18 - L - Scar tree and R – (photo courtesy GCC) stone artefacts (evidence of camp mounds)*



### 5.2 Heritage Significance

The relevant 10.7 Certificate indicates that no environmental items and controls exist at this site.

## 6.0 KEY ISSUES

Although programs have been implemented on-site to improve biodiversity, to-date, no formal management guidelines (Plan and / or Committee) have been in place.

Tharbogang Wetlands differs to its neighbouring Campbell's and Nericon Wetlands due to its reliance on rainfall to maintain its wetland areas and inability to receive environmental water. Never-the-less, it remains important in its connectivity to these areas and the biodiversity that it contributes to the area overall, particularly linkages to adjacent bushland areas.

Key issues affecting Tharbogang Wetlands particularly include: -

- ❖ future management;
- ❖ protecting the ecological biodiversity and habitat values of the land, the flora and fauna of the land (either individually or collectively in conjunction with Campbell's and Nericon Wetlands);
- ❖ implementing measures directed to minimising or mitigating any disturbance caused by human intrusion or neighbouring development (individually and collectively); and
- ❖ protecting the aesthetic, heritage, recreational, educational and scientific values of the land
- ❖ improving opportunities for education, study and eco-tourism to promote the site's special features within the broader Lake Wyangan Basin.

The growth of Griffith and its surrounding area has been key to its success as an agricultural food bowl, however it has also caused significant pressure on the local environment.

Since settlement in the early 1900's, over 94% of the land has been cleared with the remaining 6% of native vegetation existing in pockets. Tharbogang Wetlands has historically until prior to notification of the Reserve for 'Environmental Protection' in 2000, been grazed (though not necessarily continuously) and cultivated under dry conditions. Notably, with its low-lying nature, there are five drainage points from neighbouring properties that over time, have potentially contributed to the saline nature of the site.

Council's *State of the Environment Report (2012 / 2016)* indicates that there are 802 species of flora currently recorded within the Griffith LGA on the NSW Wildlife Atlas database. Of these, 22 endangered plants listed under the *NSW Threatened Species Conservation Act 1995 (TSC Act)* (now the *Biodiversity Conservation (BC) Act 2016*) are known or predicted to occur within the Griffith LGA.

To date, 271 birds, 28 mammals, 20 bats, 41 reptiles and 9 amphibians are currently recorded within the Griffith LGA on the NSW Wildlife Atlas database. Of those recorded, 15 species are classified as endangered and 50 are classified as vulnerable under the *TSC Act 1995 (now the BC Act 2016)*. Sixteen fauna species are listed as endangered under the *Commonwealth Environmental Protection and Biodiversity Conservation (EPBC) Act 1999*; and sixteen migratory water bird species are protected under international treaties with China, Japan and the Republic of Korea. Seven endangered ecological communities also listed under the *TSC Act 1995 (now the BC Act 2016)* are also known to occur in the Griffith LGA.

Bird Surveys have been restricted to the period following significant flooding and coincided with Council's 'Restoration and Rehabilitation Grant Program' specifically relating to waterbird surveys between October 2013 and February 2015. The surveys recorded a total of 58 species including the vulnerable and threatened species of Magpie Goose, Pink-eared Duck and the Major Mitchell Cockatoo - **See Appendix 2 (pg. 52-53).**

Although the plant species list initially undertaken by Eric Whiting in 1999 was not comprehensive, a subsequent identification of plant species would be beneficial. This would confirm increased species variety and site condition following the cessation of grazing and cultivation and the revegetation programs conducted during the Rehabilitation Program of 2013-2017.

A list of plant species sited in 1999 is shown in **Appendix 3** (pg. 54).

Key threatening processes are the things that could threaten the survival or evolutionary development of species, populations, or ecological communities. They are listed in the *Biodiversity Conservation Act 2016* and include pest animals, weeds, diseases and habitat loss / change. With a total of 33 Key threatening processes identified within the Griffith LGA (Council's *State of the Environment Report (2016)*), those most threatening to the local Wetlands are: -

- Invasion of Environmental Weeds
- Anthropogenic Climate Change
- Removal of dead wood and dead trees
- Loss of hollow-bearing trees

Although a low-lying depression adjacent to the tail of McPherson's Range, it requires significant rainfall and subsequent run-off from the hills for Tharbogang Wetlands to contain significant water, i.e., the 2012 100-year flood event provided for the Wetlands to attract water-bird species. While 75 mm (3 inches) of rain provided inflow into Lake Wyangan, no inflow was noted at Tharbogang Wetlands (**Personal** communication, David Kellett 10 April 2020).

Historically, water inflow would have been via drainage water from adjoining cultivation practices with five drainage entry points identified on the survey plan. With no capacity for receipt of environmental water, the ephemeral nature of Tharbogang Wetland's significance is valued by its connectivity to nearby bushland settings (both Council owned and departmentally managed) and the existing hollow-bearing trees as part of the collective Lake Wyangan Basin Wetlands.

*Figure 19 – View of Tharbogang Wetlands near entry point at western end of Anderson Lane looking to the south-west*



It has also been recognised that climatic variations are occurring with human-induced build-up of greenhouse gases in the atmosphere known as 'enhanced' greenhouse or anthropogenic climate change. This is expected to change many of the basic weather patterns that make up our climate including wind and rainfall patterns; and the incidence and intensity of storms.

In NSW, the average temperatures have been steadily rising since the 1960s. The decade from 2008 to 2017 was the hottest on record. Accordingly, climate change will increasingly affect the environment and society across the State.

Figure 20a – Climatic modelling Murray – Murrumbidgee Change in days over 35° 2020-2039

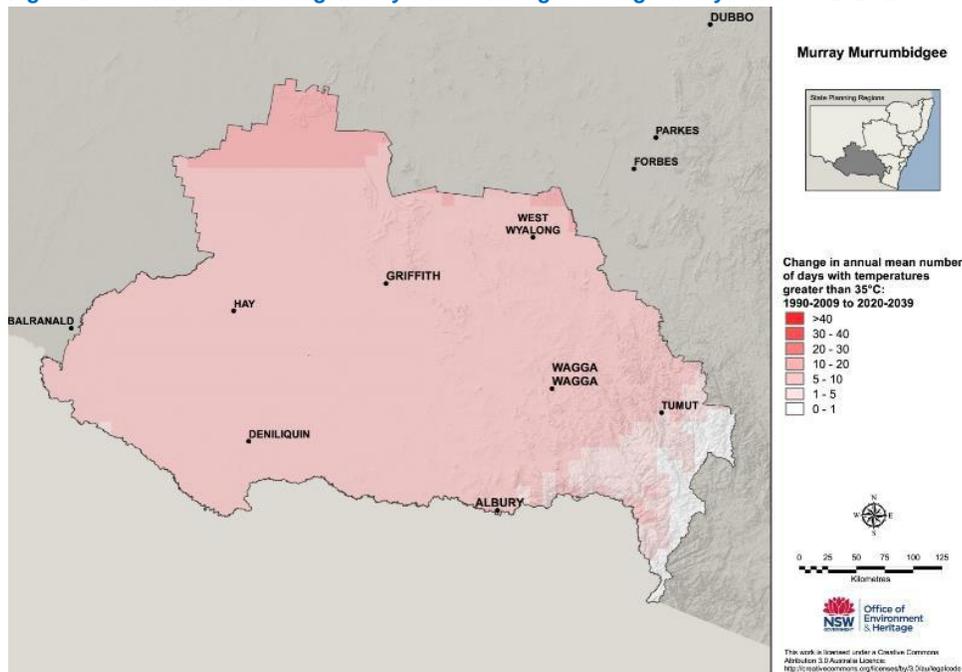
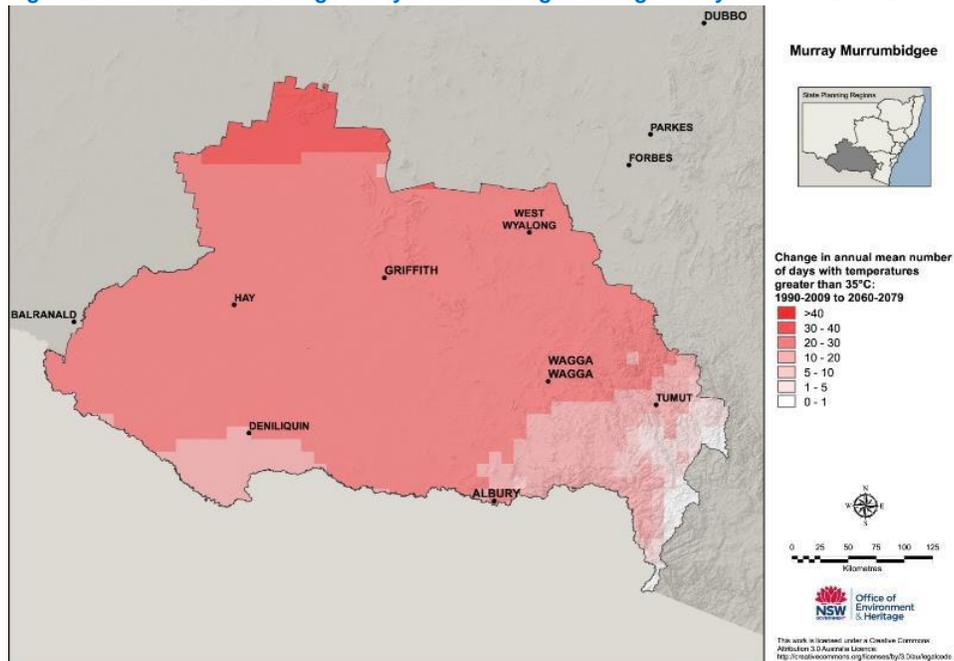


Figure 20b – Climatic modelling Murray – Murrumbidgee Change in days over 35° 2060-2079



Understanding the potential for impact of climatic variations on our environment and building resilience to these changes will assist in protecting their biodiversity and preventing further fragmentation of habitat.

Environmental and other weeds also compete with native vegetation causing imbalances to biodiversity. While significant infestation of African Boxthorn (*Lycium ferocissimum*) was removed during the 'Restoration and Rehabilitation Program' between 2013-2017, there is now emergence of this species together with Prickly Pear (*Opuntia stricta*) stands that have the potential to impact on the vegetation program previously undertaken.

**Figure 21: Re-emergence of weed infestations – L: African Boxthorn and R: Prickly Pear**



## 7.0 DEVELOPMENT AND USE

### 7.1 Current Use of Land and Structures at date of Adoption of Plan of Management

Tharbogang Wetlands continues to be used for environmental protection, albeit that it receives less study and accordingly, less acknowledgement for its biodiversity than its neighbouring Campbell's and Nericon Wetlands, likely due to its prevailing drier nature.

It is accessed off Lakes Road via Alexander Lane, a council public road, however there is no sense of arrival other than entry via a gate adjacent to the signage shown at Figure 12. For all intent and purpose, Alexander Lane appears to the general public, to provide entry into the adjoining northern farming property. There is no signage off Lakes Road to suggest Tharbogang Wetlands' existence.

There is the existence of some internal vehicular tracks, however no formal walking tracks have been created. Visitation appears not to be encouraged. There appears a lack of flora and fauna surveys, also a likely result of the drier condition of the Tharbogang Wetlands generally.

Recent re-vegetation programs and the existence of large hollow-bearing trees despite a lack of water, still provide significant biodiversity and connectivity to other wetlands in the Lake Wyangan Basin and warrants its inclusion with Campbell's and Nericon Wetlands.

There is potential to promote the site with further interpretive and cultural signage to provide information and education on both the biodiversity of the site and the significance of wetland areas to the local Wiradjuri community.

Guidance through a Plan of Management and a specific Management (or Advisory) Committee in respect of Tharbogang, Campbell's and Nericon Wetlands collectively, will provide more appropriately for improved management outcomes and support Council in decision making. Through this process of collaboration, there is potential for more opportunities to seek funding from a range of sources, particularly given the fragility of the site.

*Figure 22 – Photos taken during inspection of 12 February 2021 including revegetation works*



## 7.2 Strategic Objectives

The aim of this Plan of Management is to guide Council in future development of the land in accordance with the legislative requirements of both the *LGA 1993* and the *CLMA 2016* as applicable to the respective management types.

This Plan of Management will assist Council to: -

- Identify and assess the reserves' current uses, condition and potential future uses.
- Potentially form a Management or Advisory Committee to oversee future long-term management.
- Provide guidelines for the effective and ongoing management and budget forecasting for Tharbogang Wetlands, individually (and Campbells and Nericon Wetlands collectively).
- Provide facilities that support use of the wetlands for ecological, scientific and cultural studies and aesthetic values supporting birdwatching and walking (as considered appropriate)
- Manage the lands for environmental protection, restoration and improving the condition of wildlife habitats of the site overall.
- Collate all information in a single document.

## 7.3 Permitted and future use

The notified purpose of Tharbogang Wetlands is 'Environmental Protection' and the current assigned category is **Natural Area – Bushland**. The addition of **Natural Area – Wetland** provides for the variability of part of the site with both categories aligning with the reserve's past and current use and values identified in this Plan.

While future use is not intended to change, Tharbogang Wetland is likely to require further actions when a Management or Advisory Committee is in place, i.e.

- Undertake current flora and fauna studies;
- Detailed cultural assessment particularly where any prospective improvements are proposed;
- Installation of interpretive and directional signage (flora, fauna, cultural features) to enhance visitation, study and improve accessibility;
- Install road-side signage;
- Additional re-vegetation programs (Greening Australia, National Tree Day and School Tree-planting days etc.);
- Drainage, water supply or other reticulation, or irrigation facilities

Future development of the land will be consistent with the reserve purpose, available funding and budget allocations, and relevant legislation, i.e. *LGA 1993*, *CLMA 2016*, *NTA 1993 (C'th)* and the *ALRA 1983*.

## 7.4 Leases, Licences and other Estates

For this section, please see the Explanation of Terms set out below.

Section 3.22 of the *CLMA 2016* authorised Councils to now manage dedicated or reserved Crown land as public land under the *LGA 1993*.

The *LGA 1993* provides that tenures (leases, licences, or any other estates) or easements may be granted over all or part of community land. A Lease will not be issued in respect of Tharbogang Wetlands as it does not meet the requirements under the *NT Act 1993* however, there may be opportunity for the issue of short-term licences for crash-grazing (if appropriate) and one-off events, i.e. Tree Planting Days, World Wetlands Day excursions etc. (as considered appropriate).

Should Council enter into short-term grazing licences, prospective licencees must ensure that grazing practices are undertaken in accordance with the Reserve's purpose of 'Environmental Protection' and utilise sustainable grazing practices to ensure that over-stocking does not occur; weeds species are not introduced to the site; nor is there a negative footprint impacting on the environment, i.e. management practices could include temporary fencing and the requirement to provide alternate water sources for stock. Strategic and timely grazing will provide for reduced weed growth prior to the setting of seed with long-term benefits in reducing the prevailing seed bank.

Leases, licences and other estates formalise the use and occupation of community land and can generally only be permitted if consistent with the purpose for which the reserve was dedicated or reserved, or on a short-term basis as prescribed in the Local Government (General) Regulation 2021.

Tenures may be held by:

- Community organisations and sporting clubs, or
- By private / commercial organisations or
- Individuals providing facilities and / or services for public use.

The maximum period for leases and licences on community land allowable under the *LGA 1993* is 30 years (with the consent of the Minister for a period over 21 years) for purposes consistent with the categorisation and core objectives of the particular area of community land.

Community land may only be leased or licenced for periods of more than 5 years if public notice is given according to the requirements of Sections 47 and 47A of the *LGA 1993*.

### Licences

Licences allow multiple and non-exclusive use of an area. A licence may be required where intermittent or short-term use or control of all or part of the community land is proposed. A number of licences for different holders can apply to the same area at the same time, provided there is no conflict of interest.

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Explanation of Terms

Tenure – A lease, licence or other estate issued by Council in accordance with Section 46 of the Local Government Act 1993 or Section 2.19 – secondary interests & 2.20 – short term licences, of the Crown Land Management Act 2016.

Holder - The company, organisation, individual or group of individuals who have been issued with a Tenure.

## Purposes for which Tenures may be issued

In accordance with Section 46A of the *LGA 1993*, a PoM for community land is to specify and authorise any purpose for which a lease, licence or other estate may be granted over community land during the life of the PoM. The issue of any licence granted by Council over Reserve 1002928 must also have consideration to Section 47B of the *LGA 1993* in respect of 'Natural Areas'.

This PoM authorises a Tenure to be issued:

For any permissible use as detailed.

- For purposes consistent with the Reserve's:
  - Categorisation (see Section 2.4), and
  - Zoning (see Section 3.2), and
  - Reserve purpose of Environmental Protection as required under the *CLMA 2016*.

Temporary licences may be granted for up to one year where they are consistent with purposes for which a short-term licence can be issued under the provision of the *Local Government Act 1993*.

Licences and other estates formalise the use and occupation of community land and can generally only be permitted if consistent with the purpose for which the reserve was dedicated or reserved, or on a short-term basis as prescribed in the Local Government (General) Regulation 2021.

A tenure on Crown land may impact native title rights and interests. Any use agreement issued on Crown land must be issued in accordance with the future act provisions of the *NTA 1993* and in accordance with Part 8 of the *CLMA 2016* unless native title is extinguished. For Crown land which is not excluded land this will require written advice from one of Council's native title managers that it complies with any applicable provisions of the native title legislation.

The adoption of this PoM and associated works meet the definition of a 'future act' under Section 233 of the *NTA 1993*.

Section 24KA (Facilities for services to the public) of the *NTA 1993* could also be considered for works in relation to drainage, pipelines or other water supply or reticulation facilities, irrigation channels or other irrigation facilities as may be necessary.

Section 24LA (Low impact future acts) of the *NTA 1993* could be considered for works not of a permanent nature. That is, excavation and land clearing would only be permitted where reasonably necessary for the protection of public health or public safety, tree lopping and clearing of noxious or introduced animal or plant species, or environmental assessment or protection activities.

Where Council is considering undertaking major works, Council may need to enter into either an Indigenous Land Use Agreement (ILUA) or apply for Section 24FA Protection.

Future acts proposed for Reserve 1002928 will require native title manager assessment at the time, to validate all works under the *NTA 1993* and undertake any procedural requirements as a consequence of those works.

There is currently no tenures over Reserve 1002928.

## Direction of Funds

Income produced from the Reserve, i.e. as per the approved Tenure, will be distributed to manage other community land in a fashion determined by Council.

### **7.5 Native Title Assessment**

Further to [Section 2.4 – Categorisation of the Reserve](#) and reference to Native Title Assessment, Council is required under the provisions of the *CLMA 2016*, to undertake steps to identify whether activities proposed on Crown land will affect Native Title. Council must further consider what provisions of the *NTA 1993 (C'th)* will validate the activity; and what procedures should be taken in relation to a particular activity prior to its commencement.

The activity must be authorised through *Part 2 Division 3 of the NTA 1993 (C'th)*.

Examples of acts which may affect native title on Crown land or Crown reserves managed by Council include:

- The construction of new building and other facilities such as toilet blocks, walking tracks, tennis courts, grandstands and barbeques
- The construction of new roads and tracks
- Installation of infrastructure such as power lines, sewerage pipes, etc.
- The issue of a lease or licence
- The undertaking of major earthworks

Accordingly, Council must obtain written advice from its Native Title Manager in relation to certain activities and acts carried out on Crown land where the land is not excluded land, in accordance with native title legislation and applicable to works and activities to be undertaken at Tharbogang Wetlands.

### **7.6 Easements**

Council reserves the right to grant easements as required for utilities and access, bearing in mind the impact of such easements on the site.

The granting of easements over Crown land will be subject to the provisions of the *NTA 1993 (C'th)* and Division 8.3 of the *CLMA 2016*.

A copy of Certificate of Title Identifier 187/756035 confirms that no Easement has been registered impacting on the land within the Reserve area.

## 8.0 MANAGEMENT FRAMEWORK FOR NATURAL AREAS CATEGORISED AS WETLANDS

### 8.1 Biodiversity Conservation

Biodiversity conservation provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places including species and ecosystem diversity that supports both aesthetic values and ecological balances.

Long-term grazing and dry cultivation practices together with changed water management practices of adjoining landholders has altered the biodiversity of Tharbogang Wetlands over time, with the wetland area now reliant exclusively on high rainfall events.

The Commonwealth Department of Agriculture, Water and Environment has identified Australia's Strategy for Nature including the following goals: -

1. Connect all Australians with Nature
2. Care for nature in all its diversity
3. Share and build knowledge

Council through its *State of the Environment Report (2012 / 2016)* has initially identified strategies to enhance biodiversity of land within its area of management. This PoM further supports endeavours for Council to manage Tharbogang (together with Campbells and Nericon Wetlands) individually (and collectively) to -

- ❖ connect the local community and visitors with nature;
- ❖ care for the natural environment within the wetlands in all its diversity and variance;
- ❖ share and build knowledge (both within Council as Crown Land Manager and more broadly to share and build knowledge through stakeholder engagement and partnerships;
- ❖ provide potential eco-tourism opportunities of the broader Lake Wyangan Basin.

### 8.2 Management

Management of the land must take into consideration the reserve's purpose and the purpose for which the land is classified and categorised.

In broad terms, Council will need to determine the priority of development (if any), it proposes to undertake and the linkages to be made within the area to negate any further loss of ecological communities.

There are a number factors of consideration for future Management of Tharbogang (together with Campbell's and Nericon) Wetlands which ideally would be managed collectively for optimum outcome within the broader Lake Wyangan Basin. Tharbogang is more unique in that it doesn't have provision for delivery of environmental water and is far more reliant on heavy rainfall events.

With support of Council, a Management or Advisory Committee comprising of key stakeholder agencies and community groups could discuss and plan management outcomes and seek funding opportunities. Committee members may also be better placed to undertake specific monitoring to support Council's achievement of objectives.

The formation of a Management or Advisory Committee will better assist Council to: -

1. Implement land management practices to improve the wetlands' habitats, ecosystem services and cultural values. Management of weeds and pests and continued maintenance of existing vegetated areas and development of further vegetated buffer zones may improve the various habitats within the area for both bushland and wetland species of flora and fauna. Recent inspections have identified isolated pockets of emerging African Boxthorn (that had been extensively removed from the site) and Prickly Pear. Fox and feral cat predation are also a likely impact on the site.
2. Recognise the importance of wetlands for its cultural values in particular, their importance of Country for Aboriginal people. Wetlands have been an important part of Aboriginal culture and heritage as a source of food, water and natural resources, and for cultural ceremonies. The cultural values of wetlands also extend to non-Aboriginal communities through their historical use for recreation including fishing, hunting and camping and conservation of habitats. Education of these values has potential to share and build knowledge and allow for a broader range of community members to care for and appreciate nature and the biodiversity of the wetlands.
3. Rehabilitate degraded areas and their habitats (collectively) as far as is practicable. Rehabilitation will be guided by Council's overall planning and funding capacity however community engagement may facilitate greater outcomes.
4. Consider potential impacts of climate change in planning management and conservation outcomes. The reduction of non-hydrological pressures, i.e. weed invasion and salinity; and increasing the protected area network and linking corridors to allow for migration of organisms.
5. Consider potential improvements i.e. interpretive signage to improve information and undertake studies of flora and fauna species and soil studies to provide better availability of data to support management outcomes.

**Table 1 – Management Issues and Guidelines**

Management Oversight	Management or Advisory Committee formed and comprising Council staff (as appropriate) together with key stakeholders (including representatives of OEH, MI, MFN, Griffith Local Aboriginal Land Council (GLALC) or interested community member(s)) to assist in future planning i.e., relevant studies, monitoring, maintenance. This Committee would only be providing advice to Council who would ultimately give its approval for various works (re-vegetation, signage, etc.)
Site Entry	May require maintenance in accordance with approvals, manuals or schedules as required; and improved entry and associated signage, i.e. no current signage exists either along Boorga or Lakes Roads to direct visitation to the site.
Feral Animals	Monitoring and appropriate pest control measures should be undertaken so as not to impact on native fauna (i.e., domesticated and feral cats; and foxes) or impact on native flora (rabbits) (as per Protection of the Environment Operations Act 1997 and the National Parks and Wildlife Act, 1974 and GCC – Keeping of Animals (Public Policy) <i>CO-CP-703</i> ).
Trees	Trees should not be removed and tree-planting to be undertaken in accordance with GCC Tree Preservation Order – <i>PG-CP-401</i> (Local Policy) in relation to the provision of environmental corridors for native fauna and flora.

Fire	Fire management practices to be implemented in accordance with <i>the Rural Fires Act 1997</i> . Hazard reduction works may also include the use of low intensity cultural burns if considered appropriate.
Weeds	Weed management practices will be undertaken in accordance with guidelines to ensure protection of the wetland area from environmental weeds / weeds of National significance (as per GCC Biosecurity – Weeds and Legislation and <i>PG-CP-401</i> ).

### 8.3 Community Access and Education

Community access is integral to education and gaining both appreciation and an understanding of the value of Tharbogang Wetlands to the broader community.

Wetlands vary widely due to the local and regional differences in topography, hydrology, vegetation and other factors including human involvement. A wetland need only be wet for long enough for its plants and animals to be adapted to, or event dependent on the wet conditions for at least part of their life cycle.

The historical context of Tharbogang Wetlands is valuable in educating locals and the wider community to the importance of biodiversity and connectivity to habitat within the localised Lake Wyangan Basin and the wider Riverina.

The community’s primary access point to Tharbogang Wetlands is directly off Lakes Road via Alexander Lane, albeit that signage is non-existent. Improved signage would assist increased visitation of the site and provide the public with a considerable ‘point of difference’ of Wetland appearance to that of its neighbours.

*Figure 23 – Signage of Alexander Lane and Tharbogang Wetlands is non-existent  
Photo looking south on Lakes Road adjacent to Alexander Lane*



Photo looking westerly along Alexander Lane between farming properties towards Tharbogang Wetlands



There are internal vehicular tracks however no formal walking tracks with directional or interpretive signage have been installed at Tharbogang Wetlands identifying the areas of bushland/wetland significance and site specific vegetation or cultural points of interest, i.e. scar trees. Assessment under the *NT Act 1993* would be required to determine if construction of walking tracks is permissible.

Opportunities for education can be enhanced by brochures available to visitors; acknowledging World Wetlands Day, or undertaking tree-planting programs with school students and / or the wider community to encourage ownership in the value of the site and its offerings.

#### 8.4 Plan Implementation

The following action plan sets out the requirements under Section 36(3) of the LGA 1993 with respect to:

- The objectives and performance targets of the plan
- The proposed means in which to achieve the objectives and performance targets
- The proposed manner in which the objectives and performance targets are assessed for performance.

**Responsibility: Griffith City Council (GCC)**

Table 2 - Objectives and Performance Targets of this Plan of Management (PoM)

Performance Target	Actions	Priority	Performance Indicator
<b>LEGISLATIVE</b>			
To ensure that relevant legislation is complied with in relation to preparation of the PoM.	1. The Plan is prepared in accordance with Native Title Manager advice, the LGA 1993, the CLMA 2016 and NTA 1993 (C'th)	High	<ul style="list-style-type: none"> <li>• The Plan is reviewed by Council's Native Title Manager and approved by Department of Planning &amp; Environment.</li> <li>• Council exhibits and adopts the PoM subject to community comments being addressed.</li> </ul>

			(Where significant changes to the PoM are required, the PoM will be re-referred to the Department).
<b>MANAGEMENT</b>			
To provide over-arching management of the area	2. Form a Management or Advisory Committee with key stakeholders to support Council's management for Environmental Protection	High	<ul style="list-style-type: none"> <li>• Management or Advisory Committee is formed and the Committee forms a strategy for management in alignment with the adopted PoM.</li> <li>• Management or Advisory Committee meets regularly (i.e. quarterly) and reports to Council.</li> <li>• Funding opportunities sourced (internal or external).</li> </ul>
To assess the current infrastructure and condition where applicable	3. Audit of existing infrastructure and assets 4. Ensure appropriate tenure arrangement (where applicable)	On-going	<ul style="list-style-type: none"> <li><input type="checkbox"/> Assets (current and future) are managed in accordance with prescribed Council standards, and community expectations.</li> <li><input type="checkbox"/> Consultation with relevant Agencies and key stakeholders in regards to receipt of environmental water.</li> <li><input type="checkbox"/> Review of tenure conditions (where appropriate).</li> </ul>
<b>INFRASTRUCTURE</b>			
To upgrade & install any new infrastructure aligned with Environmental Protection	5. Ensure on-going inspection and assessment of any infrastructure 6. Plan and renewal of infrastructure in accordance with Environmental Protection outcomes, Asset Management guidelines and budgetary constraints	On-going	<ul style="list-style-type: none"> <li>• Management or Advisory Committee to discuss potential of water delivery improvements with relevant Agency experts.</li> <li>• Future works are carried out as approved by Council and in accordance with the PoM; budget availability; and required development processes (as applicable).</li> </ul>
To manage the area to provide clearly defined access	7. Install directional signage to improve available access	On-going	<ul style="list-style-type: none"> <li>• Directional signage for clarity of users</li> <li>• Feedback from community is positive and negative feedback acted upon as necessary</li> </ul>

<b>ENVIRONMENT</b>			
To provide quality passive recreational facilities	8. Maintain the area for site-specific passive recreational use	On-going	<ul style="list-style-type: none"> <li>Relevant infrastructure is upgraded as necessary and well maintained</li> <li>Community feedback is positive and negative feedback acted upon as necessary</li> </ul>
To monitor and assess environmental biodiversity outcomes	9. Develop appropriate monitoring requirements	On-going	<ul style="list-style-type: none"> <li>Engage with relevant key stakeholders to undertake up-to-date audit of flora and fauna</li> <li>Plan and appropriately budget for relevant studies to support environmental outcomes in accordance with Council and State Environmental Policies</li> <li>Report key findings as appropriate to relevant agencies</li> </ul>
To manage environmental and user safety	<p>10. Consider the safety of the community in the maintenance of the passive recreational areas</p> <p>11. Carefully consider use of chemicals and pest control measures within the respective remnant vegetation and wetland areas</p> <p>12. Maintain fire management controls</p>	On-going	<ul style="list-style-type: none"> <li>Audit process for safety reporting working well</li> <li>Staff are appropriately trained in safe handling and use of appropriate chemicals for the land</li> <li>External contractors (if used) for pest animal control measures hold relevant up-to-date certification</li> <li>No unauthorised use of facilities</li> <li>Reduction of fire risks to property (neighbouring lands)</li> <li>Feedback from the community is positive and negative feedback is acted upon where necessary</li> </ul>
<b>USE OF THE RESERVES</b>			
Access and Signs	13. Review signs and follow guidelines provided by Statewide Mutual Signs as Remote Supervision	On-going	<ul style="list-style-type: none"> <li>Install improved roadside signage</li> <li>Install new interpretive and directional signage</li> <li>Install new cultural signage</li> <li>Feedback from the community is positive and negative</li> </ul>

			feedback is acted upon where necessary
Parking	14. Identify suitable parking adjacent to entry point of Wetland	On-going	<ul style="list-style-type: none"> <li>• Install suitable signage and bollard to prevent unauthorised vehicular access</li> <li>• Community feedback is positive and negative feedback acted upon as necessary</li> </ul>

## 8.5 Communication in the Management of the Reserves

Communication between Council and members of the proposed Management (or Advisory) Committee and Tenure Holders is important to the success of this Plan. Council will establish and maintain clear lines of communication.

Other community communications may be appropriate in terms of education and improved brochures available through Council's Tourist Information Centre.

### 8.5.1 Information and Monitoring

Monitoring and collection of information relating to the Tharbogang Wetlands Plan of Management are important tools to enable good management outcomes.

Few records are held collectively by the MFN and Council. Better collation of information and data by Council would be of benefit to long-term management of the Wetlands to enhance future management and source funding opportunities where applicable.

Monitoring of associated tenure agreements by Council (where applicable), will also be undertaken to ensure users and user groups comply with tenure conditions.

### 8.5.2 Infrastructure

Any infrastructure to further service the purpose of the land may be constructed provided that, a Native Title Assessment has been carried out by Council's Native Title Manager; the land is not subject to a Claim under the *ALRA 1983*; and the provisions of the *LGA 1993* and the *CLMA 2016* have been complied with.

Subsequent development activities shall be undertaken in a way that minimises the area, degree and duration of disturbance; and the area is to be restored to the greatest extent practicable to ensure management is undertaken in accordance with the Reserve purpose of 'Environmental Protection'.

### 8.5.3 Public Liability

Council will continue to maintain public liability insurance in respect of Tharbogang Wetlands.

## 9.0 REFERENCES

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- *Griffith Local Environmental Plan 2014 (GLEP 2014)* sourced 1 March 2021

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<https://www.legislation.nsw.gov.au/#/view/act/1993/30>

- *Local Government Regulations* sourced 12 March 2021

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- *NSW Land Registry Services* sourced on 8 March 2021

<https://www.nswlrs.com.au/Historical-Records-Online#Historical%20Maps>

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- Other Sources

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- Trove

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## 10 APPENDICES

- 1) Core Objectives for Categories of Community Land – Bushland and Wetland
- 2) Bird Survey Report – Tharbogang Wetlands
- 3) Interim Plant Species List – Tharbogang Wetlands
- 4) Portion Plan – Lot 187 DP 756035, Parish of Ballingall
- 5) Extract Mirrool Irrigation Area Parish Map

## APPENDIX 1

### **CORE OBJECTIVES FOR MANAGEMENT OF COMMUNITY LAND CATEGORISED AS BUSHLAND (*Local Government Act 1993*)**

#### **36J Core objectives for management of community land categorised as bushland**

The core objectives for management of community land categorised as bushland are -

- (a) to ensure the ongoing ecological viability of the land by protecting the ecological biodiversity and habitat values of the land, the flora and fauna (including invertebrates, fungi and micro-organisms) of the land and other ecological values of the land, and
- (b) to protect the aesthetic, heritage, recreational, educational and scientific values of the land, and
- (c) to promote the management of the land in a manner that protects and enhances the values and quality of the land and facilitates public enjoyment of the land, and to implement measures directed to minimising or mitigating any disturbance caused by human intrusion, and
- (d) to restore degraded bushland, and
- (e) to protect existing landforms such as natural drainage lines, watercourses and foreshores, and
- (f) to retain bushland in parcels of a size and configuration that will enable the existing plant and animal communities to survive in the long term, and
- (g) to protect bushland as a natural stabiliser of the soil surface.

### **CORE OBJECTIVES FOR MANAGEMENT OF COMMUNITY LAND CATEGORISED AS WETLAND (*Local Government Act 1993*)**

#### **36K Core objectives for management of community land categorised as a wetland**

The core objectives for management of community land categorised as a wetland are –

- (a) To protect the biodiversity and ecological values of wetlands, with particular reference to their hydrological environment (including water quality and water flow), and to the flora, fauna and habitat values of the wetlands, and
- (b) To restore and regenerate degraded wetlands, and
- (c) To facilitate community education in relation to wetlands, and the community use of wetlands, without compromising the ecological values of wetlands.

## Appendix 2

### BIRD SURVEY REPORT

	A	B	C	D	E	F	G	H	I
1	<b>BIRD SURVEY - THARBOGANG WETLANDS - Surveys undertaken during Rehabilitation Program</b>								
2	Observers: Max O'Sullivan (MO), MFN & Joanne Tarbit (JT), GCC								
3									
4		<b>SPECIES NAME</b>	<b>SCIENTIFIC NAME</b>	<b>THREATENED SPECIES STATUS</b>	<b>8/10/2013</b>	<b>5/03/2014</b>	<b>2/07/2014</b>	<b>31/07/2014</b>	<b>25/02/2015</b>
5	1	Australian Hobby	<i>Falco longipennis</i>						1
6	2	Australian Magpie	<i>Cracticus (Gymnorhina) tibicen</i>		3	4	2	7	
7	3	Australian Pelican	<i>Pelecanus</i>		4		4	18	
8	4	Australian Raven	<i>Corvus coronoides</i>		2		5	4	4
9	5	Australian Ringneck	<i>Barnardius zonarius</i>						3
10	6	Australian White Ibis	<i>Threskiornis molucca</i>			78	67		
11	7	Black Currawong	<i>Strepera fuliginosa</i>		1		2		
12	8	Black Kite	<i>Milvus migrans</i>		6	7	1	1	
13	9	Black Swan	<i>Cygnus atratus</i>		145				
14	10	Black-fronted Dotterel	<i>Elseyornis (Characrius) melanops</i>		2		4	10	
15	11	Black-winged Stilt	<i>Himantopus himantopus</i>		19	7	11	14	
16	12	Blue Bonnet	<i>Northiella haematogaster</i>		4	4	18	6	48
17	13	Brown Goshawk	<i>Accipiter fasciatus</i>			1			
18	14	Chestnut Teal	<i>Anas castanea</i>		26	8	3	16	
19	15	Cockateil	<i>Nymphicus hollandicus</i>		16				
20	16	Collared Sparrowhawk	<i>Accipiter cirrocephalus</i>						1
21	17	Common (Eurasian) Blackbird	<i>Turdus merula</i>		8				
22	18	Common Starling	<i>Sturnus vulgaris</i>			36	6	40	91
23	19	Crested Pigeon	<i>Ocyphaps lophotes</i>			6	6	1	3
24	20	Eurasian Coot	<i>Fulica atra</i>		350				
25	21	Galah	<i>Eolophus roseicapillus</i>		1	48			
26	22	Glossy Ibis	<i>Plegadis falcinellus</i>		5				
27	23	Grey Crowned Babbler	<i>Pomatostomus temporalis</i>	V	8				
28	24	Grey Teal	<i>Anas gracilis</i>		90	781>	256>	80	
29	25	Hooded Plover	<i>Thirnornis (Charadrius) rubricollis</i>		1				
30	26	Laughing Kookaburra	<i>Dacelo novaeguineae</i>						4
31	27	Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>		1				
32	28	Little Raven	<i>Corvus mellori</i>			9		10	
33	29	Magpie Goose	<i>Anseranas semipalmata</i>	V	2				
34	30	Magpie-lark (Pee-wee)	<i>Grallina cyanoleuca</i>		3	6	4	6	11
35	31	Major Mitchell Cockatoo	<i>Lophochroa (Cacatua) leadbeateri</i>	V	3		24+		
36	32	Masked Lapwing	<i>Vanellus miles</i>		1		3	2	
37	33	Nankeen (Australian) Kestrel	<i>Falco cenchroides</i>						3
38	34	Noisy Miner	<i>Manorina melanocephala</i>		3	2		8	

39	35	Pacific Black Duck	<i>Anas superciliosa</i>		5			3	
40	36	Pied Butcherbird	<i>Cracticus nigrogularis</i>			1			4
41	37	Pink-eared Duck	<i>Malacorhynchus membranaceus</i>	√		1			
42	38	Red-capped Plover	<i>Charadrius ruficapillus</i>		2			7	
43	39	Red-kneed Dotterel	<i>Erythronyx cinctus</i>		6		1	21	
44	40	Red-necked Avocet	<i>Recurvirostra novaehollandiae</i>		17			4	
45	41	Red-rumped Parrot	<i>Psephotus haematonotus</i>		9	100	104	25	157
46	42	Rufous Whitster	<i>Pachycephala rufiventris</i>					1	1
47	43	Sharp-tailed Sandpiper	<i>Calidris acuminata</i>		8				
48	44	Silver Gull	<i>Larus novaehollandiae</i>		1			37	
49	45	Straw-necked Ibis	<i>Threskiornis spinicollis</i>		78>			40	
50	46	Striated Pardalote	<i>Pardalotus striatus</i>		2	2			
51	47	Tree Martin	<i>Petrochelidon nigricans</i>		24	180>	12	47	
52	48	Wedge-tailed Eagle	<i>Aquila audax</i>					2	
53	49	Weebill	<i>Smicrornis brevirostris</i>					4	
54	50	Whistling Kite	<i>Haliastur sphenurus</i>		1			3	
55	51	White-bellied Sea-eagle	<i>Haliaeetus leucogaster</i>		1			1	
56	52	White-browed Woodswallow	<i>Artamus superciliosus</i>		6		1		
57	53	White-cheeked Honeyeater	<i>Phylidonyris niger</i>		1				
58	54	White-faced Heron	<i>Egretta novaehollandiae</i>		2		3	10	
59	55	White-winged Chough	<i>Corcorax melanorhamphos</i>		8		20		10
60	56	Willie Wagtail	<i>Rhipidura leucophrys</i>		1		2		
61	57	Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>		6		7		
62	58	Yellow-throated Miner	<i>Manorina flavigula</i>		4		13		12
63									
64		√ = Threatened							
65									

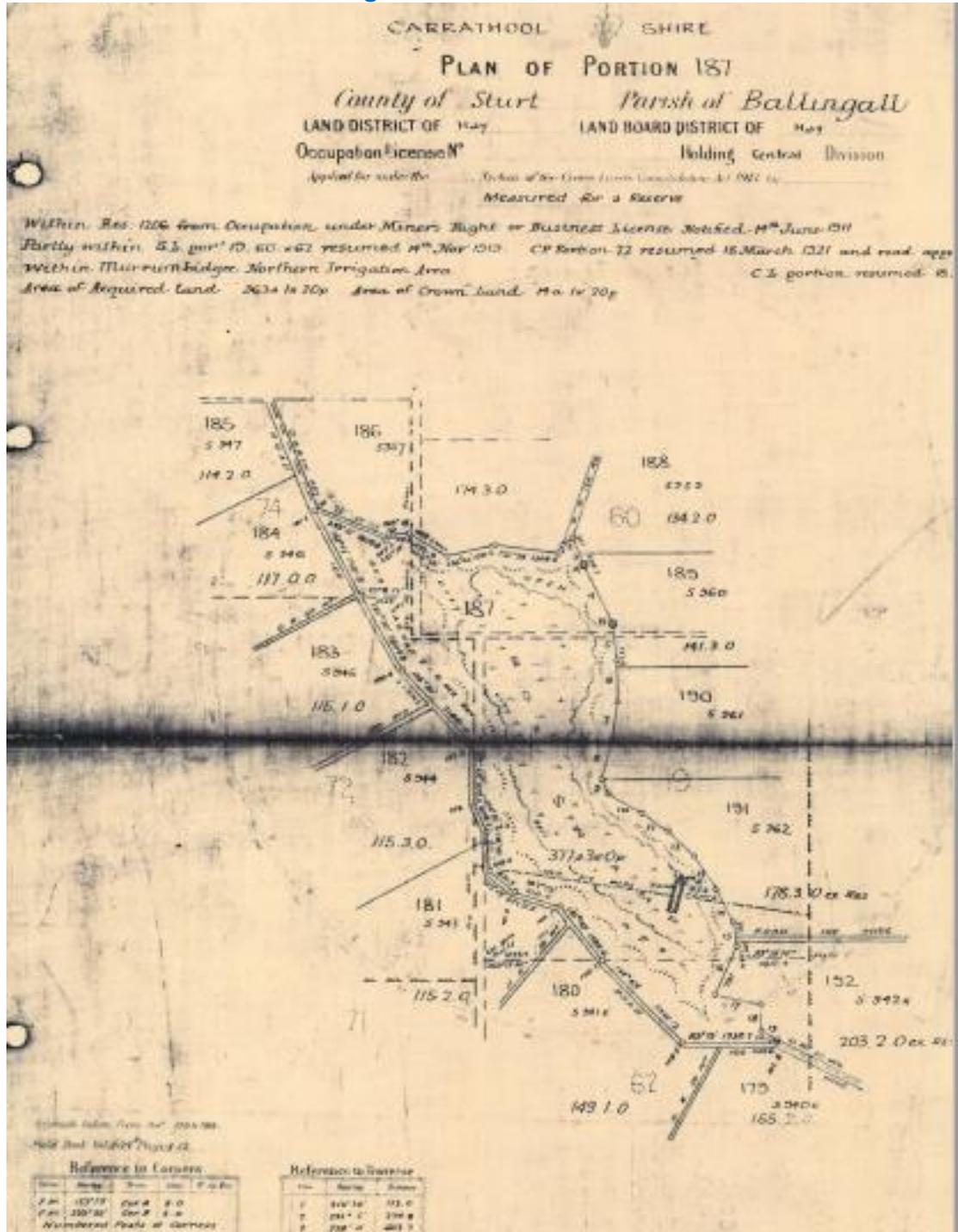
## Appendix 3

### Interim Plant Species List

	A	B	C	D	E
1	<b>INCOMPLETE PLANT SPECIES LIST - THARBOGANG WETLANDS</b>				
2	Noted by <b>Eric Whiting (EW), MFN</b>				
3	<b>FAMILY</b>	<b>SCIENTIFICA NAME</b>	<b>COMMON NAME</b>	<b>DATE</b>	<b>Introduced Species</b>
4	Asteraceae	<i>Cirsium vulgare</i>	Spear Thistle	28/03/1999	#
5		<i>Vittadinia cuneata</i>	Fuzzweed	"	
6		<i>Xanthium spinosum</i>	Bathurst Burr	"	#
7	Boraginaceae	<i>Heliotropium curassivicum</i>	Smooth Heliotrope	"	
8		<i>Heliotropium europaeum</i>	Common Heliotrope	"	#
9	Caesalpiniaceae	<i>Senna artemisioides zygophylla</i>	Punty Bush	"	
10	Chenopodiaceae	<i>Atriplex semibaccata</i>	Creeping Saltbush	"	
11		<i>Chenopodium murale</i>	Nettle-leaf Goosefoot	"	#
12		<i>Einadia nutans</i>	Climbing Saltbush	"	
13		<i>Enchylaena tomentosa</i>	Ruby Saltbush	"	
14		<i>Maireana aphylla</i>	Cotton Bush	"	
15		<i>Maireana brevifolia</i>	Yanga Bush	"	
16		<i>Maireana humillima</i>			
17		<i>Salsola kali</i>	Buckbush	"	
18		<i>Sclerolaena muricata</i>	Black Roly-poly	"	
19		<i>Suaeda australis</i>	Seablite	"	#
20	Goodeniaceae	<i>Goodenia fascicularis</i>	Silky Goodenia	"	
21	Lamiaceae	<i>Marrubium vulgare</i>	Horehound	"	#
22	Malvaceae	<i>Sida corrugata</i>	Corrugated Sida	"	#
23	Mimosaceae	<i>Acacia oswaldii</i>	Miljee	"	
24	Myrtaceae	<i>Eucalyptus largiflorens</i>	Black Box	"	
25		<i>Eucalyptus microcarpa</i>	Grey Box	"	
26	Oxalidaceae	<i>Oxalis exilis</i>	Wood-sorrel	"	
27	Pittosporaceae	<i>Pittosporum phylliraeoides</i>	Butterbush	"	
28	Polygonaceae	<i>Polygonum arenastrum</i>	Wireweed	"	#
29	Solanaceae	<i>Lycium ferocissimum</i>	African Boxthorn	"	#
30		<i>Nicotiana glauca</i>	Tree Tobacco	"	#

Appendix 4

Portion Plan 187 Parish Ballingall



Appendix 5

Extract Mirrool Irrigation Area Parish Map

