ORDINARY COUNCIL MEETING

AGENDA

16 JUNE 2020

Notice is hereby given, in accordance with the provisions of the Local Government Act 1993 that an **ORDINARY MEETING of ORANGE CITY COUNCIL** will be held in the **VIA ONLINE VIDEO CONFERENCING PLATFORM ZOOM on Tuesday, 16 June 2020** commencing at **7.00PM.**

David Waddell

CHIEF EXECUTIVE OFFICER

For apologies please contact Administration on 6393 8218.

AGENDA

1 INTRODUCTION

1.1 APOLOGIES AND LEAVE OF ABSENCE

1.2 LIVESTREAMING AND RECORDING

This Council Meeting is being livestreamed and recorded. By speaking at the Council Meeting you agree to being livestreamed and recorded. Please ensure that if and when you speak at this Council Meeting that you ensure you are respectful to others and use appropriate language at all times. Orange City Council accepts no liability for any defamatory or offensive remarks or gestures made during the course of this Council Meeting. A recording will be made for administrative purposes and will be available to Councillors.

1.3 OPENING PRAYER

1.4 ACKNOWLEDGEMENT OF COUNTRY

I would like to acknowledge the Wiradjuri people who are the Traditional Custodians of the Land. I would also like to pay respect to the Elders both past and present of the Wiradjuri Nation and extend that respect to other Aboriginal Australians who are present.

1.5 DECLARATION OF PECUNIARY INTERESTS, SIGNIFICANT NON-PECUNIARY INTERESTS AND LESS THAN SIGNIFICANT NON-PECUNIARY INTERESTS

The provisions of Chapter 14 of the Local Government Act, 1993 (the Act) regulate the way in which Councillors and designated staff of Council conduct themselves to ensure that there is no conflict between their private interests and their public role.

The Act prescribes that where a member of Council (or a Committee of Council) has a direct or indirect financial (pecuniary) interest in a matter to be considered at a meeting of the Council (or Committee), that interest must be disclosed as soon as practicable after the start of the meeting and the reasons given for declaring such interest.

As members are aware, the provisions of the Local Government Act restrict any member who has declared a pecuniary interest in any matter from participating in the discussion or voting on that matter, and requires that member to vacate the Chamber.

Council's Code of Conduct provides that if members have a non-pecuniary conflict of interest, the nature of the conflict must be disclosed. The Code of Conduct also provides for a number of ways in which a member may manage non pecuniary conflicts of interest.

RECOMMENDATION

It is recommended that Councillors now disclose any conflicts of interest in matters under consideration by the Council at this meeting.

2 MAYORAL MINUTES

Nil

3 CONFIRMATION OF MINUTES OF PREVIOUS MEETING

RECOMMENDATION

That the Minutes of the Ordinary Meeting of Orange City Council held on 2 June 2020 (copies of which were circulated to all members) be and are hereby confirmed as a true and accurate records of the proceedings of the Council meeting held on 2 June 2020.

ATTACHMENTS

1 Minutes of the Ordinary Meeting of Orange City Council held on 2 June 2020

ORANGE CITY COUNCIL

MINUTES OF THE

ORDINARY COUNCIL MEETING

HELD IN VIA ONLINE VIDEO CONFERENCING PLATFORM ZOOM

ON 2 JUNE 2020

COMMENCING AT 7.00PM

1 INTRODUCTION

ATTENDANCE

Cr R Kidd (Mayor), Cr S Romano (Deputy Mayor), Cr K Duffy, Cr J Hamling, Cr J McRae, Cr T Mileto, Cr S Munro, Cr S Nugent, Cr M Previtera, Cr G Taylor, Cr R Turner, Cr J Whitton

Chief Executive Officer, Acting Director Corporate and Commercial Services, Director Development Services, Director Community, Recreation and Cultural Services, Director Technical Services, Manager Financial Services, Manager Engineering Services, Governance Coordinator, Administration Officer – Governance

1.1 APOLOGIES

Nil

1.2 LIVESTREAMING AND RECORDING

The Mayor advised that the meeting was being livestreamed and recorded.

1.3 ACKNOWLEDGEMENT OF COUNTRY

1.4 DECLARATION OF PECUNIARY INTERESTS, SIGNIFICANT NON-PECUNIARY INTERESTS AND LESS THAN SIGNIFICANT NON-PECUNIARY INTERESTS

Cr R Kidd declared a less than significant non-pecuniary interest in item 2.2 of the Finance Policy Committee (Request for Financial Assistance – Duntryleague Golf Club) as he and his wife are members of Duntryleague.

Cr J Hamling declared a less than significant non-pecuniary interest in item 2.2 of the Finance Policy Committee (Request for Financial Assistance – Duntryleague Golf Club) as he is a member of Duntryleague.

Cr J McRae declared a less than significant non-pecuniary interest in item 2.4 of the Planning and Development Committee (Heritage Study Review) as a property she owns is on the amended heritage list.

2 MAYORAL MINUTES

Nil

THE MAYOR DECLARED THE ORDINARY MEETING OF COUNCIL ADJOURNED FOR THE CONDUCT OF THE OPEN FORUM AT 7.02PM

OPEN FORUM

Holly Manning

Ms Manning spoke on the Orange Farmers Markets.

Neil Jones (CCL - 4.1 – Notice of Motion – Removal of No Fishing Sign, Ploughmans Creek Wetlands)

Mr Jones spoke against the motion.

Amanda Rasmussen (PDC – 2.3 – DA 54/2020(1) – 153-157 Peisley Street)

Ms Rasmussen spoke in favour of the development.

THE MAYOR DECLARED THE ORDINARY MEETING OF COUNCIL RESUMED AT 7.23PM

COUNCIL – ITEM 4.2 – REMOVAL OF EVENT CAMPING IN THE RESOLUTION ON GOSLING CREEK
Cr Previtera withdrew this Notice of Motion.

3 CONFIRMATION OF MINUTES OF PREVIOUS MEETING

RESOLVED - 20/145 **Cr S Munro/Cr S Nugent**

That the Minutes of the Ordinary Meeting of Orange City Council held on 19 May 2020 (copies of which were circulated to all members) be and are hereby confirmed as a true and accurate record of the proceedings of the Council meeting held on 19 May 2020.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

THE MAYOR DECLARED THE ORDINARY MEETING OF COUNCIL ADJOURNED FOR THE CONDUCT OF THE POLICY COMMITTEE MEETINGS AT 7.24PM

THE MAYOR DECLARED THE ORDINARY MEETING OF COUNCIL RESUMED AT 8.23PM

4 NOTICES OF MOTION/NOTICES OF RESCISSION

4.1 NOTICE OF MOTION - REMOVAL OF NO FISHING SIGN, PLOUGHMANS CREEK WETLANDS

TRIM REFERENCE: 2020/850

RESOLVED - 20/154 **Cr M Previtera/Cr S Romano**

That Council remove the recently installed No Fishing Sign at Ploughmans Creek Wetlands and once again allow fishing at the wetlands.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr Munro, Cr Previtera, Cr Romano, Cr Taylor, Cr Whitton
Against: Cr Mileto, Cr McRae, Cr Nugent, Cr Turner
Absent: Nil

4.2 NOTICE OF MOTION - REMOVAL OF EVENT CAMPING IN THE RESOLUTION ON GOSLING CREEK

TRIM REFERENCE: 2020/851

ITEM WITHDRAWN

5 GENERAL REPORTS

*** Cr Previtera left the meeting due to technical issues with the time being 8.49pm. ***

5.1 MURRAY DARLING ASSOCIATION MEMBERSHIP

TRIM REFERENCE: 2020/754

RESOLVED - 20/155 **Cr R Turner/Cr J McRae**

That Orange City Council do not pay for membership in the Murray Darling Association.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Cr Previtera

5.2 UPDATE ON OUTSTANDING RESOLUTIONS OF COUNCIL INCLUDING QUESTIONS TAKEN ON NOTICE AND NOTICES OF MOTIONS.

TRIM REFERENCE: 2020/532

RESOLVED - 20/156 **Cr S Nugent/Cr R Kidd**

That the information provided in the report by the Manager Corporate Governance on Outstanding and Completed Notices of Motion, Questions of Notice and Matters arising be acknowledged.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Cr Previtera

MATTER ARISING

Cr Taylor raised an issue relating to parking. It was advised that a number of matters were due to proceed to the City of Orange Traffic Committee.

*** Cr Previtera came back into the meeting with the time being 9.05pm. ***

5.3 OC FUTURE CITY

TRIM REFERENCE: 2020/655

RESOLVED - 20/157 **Cr K Duffy/Cr J Hamling**

That the OC FutureCity Planning and Design Framework/Strategy and associated documents be placed on exhibition for 40 days.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

5.4 ROAD CLOSURE APPLICATION - PART THE ESCORT WAY

TRIM REFERENCE: 2020/776

RESOLVED - 20/158 **Cr J Whitton/Cr S Munro**

That Council resolves to:

1 Advertise the proposed road closure in accordance with the requirements of the Crown Land Management Act.

2 That Council's Chief Executive Officer be given delegation to finalise determination for road closure for part The Escort Way, Orange post exhibition.

3 Proceed to sell that part of the road closed to the owner of 474 The Escort Way, Orange.

4 Grant approval for the use of the Council Seal on any necessary documentation.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

5.5 LEASE RIAWENA OVAL TO ORANGE DISTRICT CRICKET ASSOCIATION

TRIM REFERENCE: 2020/810

RESOLVED - 20/159 **Cr J Hamling/Cr K Duffy**

That Council resolves:

1 To enter into a 5 year lease with four 5 year options with the Orange District Cricket Association of Riawena Oval.

2 That permission be granted to use the Council seal on all necessary documentation.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

5.6 LEASE 73A HILL STREET TO ORANGE REGIONAL CONSERVATORIUM INC

TRIM REFERENCE: 2020/812

RESOLVED - 20/160 **Cr S Munro/Cr J McRae**

That Council resolves:

1 To enter into a 3 year lease with one 3 year option with the Orange Regional Conservatorium Inc.

2 That permission be granted to use the Council seal on all necessary documentation.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

5.7 CITY ENTRANCE SIGN CONCEPTUAL DESIGN

TRIM REFERENCE: 2020/814

MOTION **Cr S Nugent/Cr J Hamling**

That Council proceed with the development and installation of the entrance sign at the intersection of the Northern Distributor Road and the Mitchell Highway on the eastern approach as detailed in this report with a minor modification to the design to acknowledge the Wiradjuri people as the traditional owners of this land.

AMENDMENT **Cr R Kidd/Cr S Munro**

That a report be brought back to Council on entrance signage at the intersection of the Northern Distributor Road and Mitchell Highway on the eastern approach including detail on size, ambience and cost implications and that the design include an acknowledgement to the Wiradjuri people as the traditional owners of this land and the inclusion of flags.

For: Cr Kidd, Cr Duffy, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Cr Hamling, Cr McRae
Absent: Nil

THE AMENDMENT ON BEING PUT TO THE MEETING WAS CARRIED AND BECAME THE MOTION

THE MOTION ON BEING PUT TO THE MEETING WAS CARRIED

RESOLVED - 20/161 **Cr R Kidd/Cr S Munro**

That a report be brought back to Council on entrance signage at the intersection of the Northern Distributor Road and Mitchell Highway on the eastern approach including detail on size, ambience and cost implications and that the design include an acknowledgement to the Wiradjuri people as the traditional owners of this land and the inclusion of flags.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

*** Cr Romano went out of the room with the time being 9.28pm. ***

MATTER ARISING

Cr Munro requested that staff report on how Councillors conduct themselves regarding Social Media and maybe get training on how they conduct themselves in regards to comments.

Cr Kidd advised that all Councillors can access training of their choice.

6 CLOSED MEETING

In accordance with the Local Government Act 1993, and the Local Government (General) Regulation 2005, in the opinion of the General Manager, the following business is of a kind as referred to in Section 10A(2) of the Act, and should be dealt with in a Confidential Session of the Council meeting closed to the press and public.

In response to a question from the Mayor, the Chief Executive Officer advised that no written submissions had been received relating to any item listed for consideration by the Closed Meeting of Council.

The Mayor extended an invitation to any member of the public present at the meeting to make a presentation to the Council as to whether the meeting should be closed for a particular item.

** Cr Kidd left the meeting due to technical issues with the time being 9.32pm. **

RESOLVED - 20/162 **Cr K Duffy/Cr M Previtera**

That Council adjourn into a Closed Meeting and members of the press and public be excluded from the Closed Meeting, and access to the correspondence and reports relating to the items considered during the course of the Closed Meeting be withheld unless declassified by separate resolution. This action is taken in accordance with Section 10A(2) of the Local Government Act, 1993 as the items listed come within the following provisions:

6.1 Tenders for the upgrade of Forest Road from Bloomfield Hospital to Cadia Road

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.2 Acquisition of Land - Footpath along Northern Distributor Road

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.3 Health Infrastructure Agreement

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.4 Acquisition of easements - Spring Creek/Icely Road Pipeline - Lot 51 DP1132549

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.5 Acquisition of Easement - Spring Creek/Icely Road Pipeline - Lot 1 DP 739045

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.6 Acquisition of Easement - Spring Creek/Icely Road Pipeline - Lot 2 DP 577491

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.7 Acquisition of Easement - Stage 4 Southern Feeder Road - Lot 193 DP 756899

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.8 Tender for Construction of Southern Feeder Road Stage 3

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

The Mayor declared the Ordinary Meeting of Council adjourned for the conduct of the Closed Meeting at 9.34pm.

*** Cr Romano came back into the room with the time being 9.34pm. ***

The Mayor declared the Ordinary Meeting of Council resumed at 9.43pm.

7 RESOLUTIONS FROM CLOSED MEETING

The Chief Executive Officer and Director Development Services read out the following resolutions made in the Closed Meeting of Council.

6.1 TENDERS FOR THE UPGRADE OF FOREST ROAD FROM BLOOMFIELD HOSPITAL TO CADIA ROAD

TRIM REFERENCE: 2020/704

RESOLVED - 20/163 **Cr K Duffy/Cr S Munro**

That Council resolves to:

1 Approve the Chief Executive Officer, or his nominee, to enter into a standard contract with Hynash Constructions Pty Ltd for the upgrade of Forest Road from Bloomfield Hospital to Cadia Road for the amount of $1,289,393.23 plus GST;

2 Grant permission to the Chief Executive Officer or nominee to do such things as may be necessary or convenient to give effect to this decision, including affixing the Council Seal to all relevant documents if required.

For: Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Cr Kidd

*** Cr Kidd came back into the room with the time being 9.36pm. ***

6.2 ACQUISITION OF LAND - FOOTPATH ALONG NORTHERN DISTRIBUTOR ROAD

TRIM REFERENCE: 2020/763

RESOLVED - 20/164 **Cr K Duffy/Cr S Munro**

That Council resolves:

1 To acquire approximately 1,645m^2 of part Lot 52 DP835576 for the construction of a footpath along the Northern Distributor Road.

2 That upon acquisition, the land be classified as Operational.

3 To delegate to the Chief Executive Officer such authority as may be necessary or convenient to give effect to this resolution, including without limitation the affixing of the Seal of the Council on any document if required.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

6.3 HEALTH INFRASTRUCTURE AGREEMENT

TRIM REFERENCE: 2020/781

RESOLVED - 20/165 **Cr J Whitton/Cr M Previtera**

That Council resolves:

1 To offer to Health Infrastructure the arrangements outlined in the conclusion of this report.

2 That authority be granted to the CEO to finalise negotiations.

3 That authority be granted for the use of the Council Seal on any documentation if required.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

6.4 ACQUISITION OF EASEMENTS - SPRING CREEK/ICELY ROAD PIPELINE - LOT 51 DP1132549

TRIM REFERENCE: 2020/831

RESOLVED - 20/166 **Cr K Duffy/Cr S Munro**

That Council resolves:

1 That Council acquire as easement approximately 0.1012 ha over Lot 51 DP 1132549 under the voluntary provisions of the Land Acquisitions (Just Terms Compensation) Act 1991.

2 That the Chief Executive Officer be authorised to finalise the acquisition.

3 That permission be granted for the use of the Council Seal on any document if required.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

6.5 ACQUISITION OF EASEMENT - SPRING CREEK/ICELY ROAD PIPELINE - LOT 1 DP 739045

TRIM REFERENCE: 2020/833

RESOLVED - 20/167 **Cr J Hamling/Cr S Munro**

That Council resolves:

1 That Council acquire as easement approximately 0.0524 ha over Lot 1 DP 739045 under the voluntary provisions of the Land Acquisitions (Just Terms Compensation) Act 1991.

2 That the Chief Executive Officer be authorised to finalise the acquisition.

3 That permission be granted for the use of the Council Seal on any document if required.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

6.6 ACQUISITION OF EASEMENT - SPRING CREEK/ICELY ROAD PIPELINE - LOT 2 DP 577491

TRIM REFERENCE: 2020/835

RESOLVED - 20/168 **Cr J Hamling/Cr S Munro**

That Council resolves:

1 That Council acquire as easement approximately 0.1154 ha over Lot 2 DP 577491 under the voluntary provisions of the Land Acquisitions (Just Terms Compensation) Act 1991.

2 That the Chief Executive Officer be authorised to finalise the acquisition.

3 That permission be granted for the use of the Council Seal on any document if required.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

6.7 ACQUISITION OF EASEMENT - STAGE 4 SOUTHERN FEEDER ROAD - LOT 193 DP 756899

TRIM REFERENCE: 2020/836

RESOLVED - 20/169 **Cr S Munro/Cr M Previtera**

That Council resolves:

1 That Council acquire as easement approximately 441.1 m^2 over Lot 193 DP 756899 under the voluntary provisions of the Land Acquisitions (Just Terms Compensation) Act 1991.

2 That the Chief Executive Officer be authorised to finalise the acquisition.

3 That permission be granted for the use of the Council Seal on any document if required.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

6.8 TENDER FOR CONSTRUCTION OF SOUTHERN FEEDER ROAD STAGE 3

TRIM REFERENCE: 2020/832

RESOLVED - 20/170 **Cr S Munro/Cr T Mileto**

1 That Council enters into a contract with Hamcon Civil Pty Ltd (MAAS) to construct Stage 3 of the Southern Feeder Road (Tender F2993) based on their initial tendered Lump Sum of $6,854,830 less identified savings of $189,500.

2 That the common seal of Council be authorized for use on all relevant documents associated with this contract.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

THE MEETING CLOSED AT 9.48PM

This is Page Number 13 and the Final Page of the Minutes of the Ordinary Meeting of Orange City Council held on 2 June 2020.

4 NOTICES OF MOTION/NOTICES OF RESCISSION

4.1 RESCISSION MOTION - REMOVAL OF NO-FISHING SIGN, PLOUGHMANS CREEK WETLANDS

RECORD NUMBER: 2020/907

We, **CR STEPHEN NUGENT, CR JOANNE MCRAE and CR TONY MILETO** wish to move the following Notice of Rescission at the Council Meeting of 16 June 2020:

MOTION

That Council rescind the following resolution of the Council Meeting of 2 June 2020:

4.1 NOTICE OF MOTION - REMOVAL OF NO FISHING SIGN, PLOUGHMANS CREEK WETLANDS

TRIM REFERENCE: 2020/850

RESOLVED - 20/154 **Cr M Previtera/Cr S Romano**

That Council remove the recently installed No Fishing Sign at Ploughmans Creek Wetlands and once again allow fishing at the wetlands.

Signed Cr Stephen Nugent Cr Joanne McRae Cr Tony Mileto

STAFF COMMENT

WETLANDS MANAGEMENT PLAN

A Plan of Management was developed in 2005, exhibited and public hearings conducted during 2006 and adopted by Council on 14 November 2006.

The Plan of Management focused on the establishment of the Wetland and surrounding amenity. The plan's objectives for the Wetlands are detailed on page 7 and were focused on management that was:

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;
b. to restore and regenerate degraded wetlands;
c. to facilitate community education in relation to wetlands, and the community use of wetlands, without compromising the ecological values of wetlands;
d. 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
e. to protect existing landforms such as natural drainage lines, watercourses and foreshores.

Fishing was not contemplated in the Plan of Management.

A further operational plan was developed in 2013 titled The Ploughman's Valley Catchment Wetland Management Plan "PVCW MP" (D13/20809). This plan was developed in a joint venture with Parkland Planners, which covers all of Council's wetlands constructed in the millennium drought period (Ploughmans, Coogal Parklands, Brooklands and Somerset Park).

The broader context of the document recognised the continued development of the wetlands, its community use and ongoing management.

A strong focus was to continue to protect the vegetation surrounding each wetland which has significant importance for both water quality and also to act as a safety barrier to prevent children inadvertently accessing the water bodies.

FISHING

Whilst technically a permissible activity under the PVCW MP community fishing was not implemented due to the need to protect the foreshore and vegetation. Fish stocking programs were not undertaken and until recently, fish had not migrated to the wetlands.

Should fishing be promoted, it is recommended that it needs to be undertaken in a controlled sense to minimise the incidental damage and to retain the integrity and functionality of the aquatic vegetation planted around the wetlands. Control in the form of 'at which locations' around the wetland and how users access the water's edge should be implemented.

It is recommended that this control could be managed by either providing a gravel access point to an area of rip rap stone or an elevated fishing platform over the water's edge. The site can be managed through signage indicating where fishing is permitted to occur.

Maintenance staff could determine where the most appropriate locations for establishing fishing permissible areas are (i.e. access to the water's edge) which has less fringe vegetation and with gently sloping banks to the water's edge. An elevated platform would permit fringe vegetation to remain generally intact and clearly identify permissible access points which could be linked back to the existing path network.

ATTACHMENTS

1 Plan of Management - Ploughmans Valley, D05/19048⇩
2 Ploughmans Valley Catchment Wetland Management Plan - September 2013, D20/33671⇩

PLAN OF MANAGEMENT

FOR

PLOUGHMANS VALLEY

Adopted by Council on 13 November 2006
134/509/250/1/1/1

CONTENTS

1 PLOUGHMANS VALLEY PLAN OF MANAGEMENT

Proposed Amendment No 3 to Orange Local Environmental Plan 2000 involves (among other matters) the reclassification of certain Council lands within the Ploughmans Valley urban release area from community land to operational land under the Local Government Act 1993.

In consideration of proposed Amendment No 3, Council, at its meeting held on 19 August 2004, resolved:

1 *That consideration of the reclassification of land located on the corner of Cargo Road and Ploughmans Lane (wetlands area) be deferred… pending an independent investigation into environmental and social impacts of the Ploughmans Creek sub-catchment through to Molong Road.*

2 *That this information be incorporated into a Plan of Management for the subject area.*

The investigation referred to in (1) above was undertaken by Geolyse Pty Ltd and the Western Research Institute between November 2004 and January 2005. In consideration of the findings of the investigation, Council, at its meeting held on 3 February 2005, resolved:

1 *That the land the subject of future residential subdivision, described as Lot 1 DP 214645 (the most southern parcel) be reclassified to Operational land. The 'wetland site' described as Lot 1 DP 997063 and Lot B DP 150805 will retain its Community status.*

2 *That the findings of the Environmental and Social Impacts Investigation provide a frame of reference in consideration of the proposed reclassification of certain lands (Lot 1 DP 997063, Lot B DP 150805 and Lot 1 DP 214645) from Community to Operational.*

3 *That the findings of the Environmental and Social Impacts Investigation provide a frame of reference for preparation of a future Plan of Management for Community land along Ploughmans Creek south of Molong Road.*

4 *That subject to the Recommendations above, Council adopt draft Orange Local Environmental Plan (Amendment No 3).*

Pursuant to Section 36(1) of the Local Government Act 1993, plans of management must be prepared for all community land. In accordance with the above resolutions of Council, this plan comprises the Ploughmans Valley Plan of Management in respect of community land adjacent to Ploughmans Creek, between Molong Road in the north and the railway line in the south.

2 LAND COVERED UNDER THIS PLAN OF MANAGEMENT

This Plan of Management applies to community land adjacent to Ploughmans Creek between Molong Road in the north and the railway line in the south (see attached map to which this plan applies). The subject land parcels are located and described as follows:

Location	Lot / DP	Ref
Stirling Avenue	Lot 200 DP 1071901	19866
	Lot 226 DP 1071901	19892
'Wetland', Ploughmans Lane	Lot B DP 150805	15022
	Lot 1 DP 997063	2243
Wilima Walk, between Cargo Rd & Riawena Oval	Lot 239 DP 238474	15278
Wilima Walk, between Riawena Oval & Forbes Rd	Lot 317 DP 252984	15276
	Lot 400 DP 600872	15275
	Lot 258 DP 251170	4027
Ploughmans Creek, between Forbes Rd & Glendale Cres	Lot 103 DP1011992	17548
	Lot 57 DP 733903	6172
	Lot 28 DP 840025	15621
	Lot 78 DP 791356	11058
	Lot 112 DP 731758	11112
	Lot 166 DP 788533	11058
	Lot 13 DP 825013	13327
Ploughmans Creek, between Glendale Cres & Northern Distributor Road (NDR)	Lot 166 DP788533	11059
	Lot 14 DP 825013	13324
	Lot 36 DP 829469	13353
	Lot 89 DP 814901	11072
	Lot 134 DP 818191	13174
	Lot 65 DP 833842	14405
	Lot 6 DP 786647	13654
	Lot 159 DP 844278	15768
Ploughmans Creek, between Northern Distributor Road & Molong Road	Lot 20 DP 1076334	20001

3 CATEGORY OF THE LAND

Pursuant to Section 36(4) of the Local Government Act 1993, the community land to which this Plan of Management applies is categorised as follows:

Location (as described above)	Category
Stirling Avenue	Park
'Wetland', Ploughmans Lane	Natural Area - Wetland
Wilma Walk, between Cargo Rd & Riawena Oval	Park
Wilma Walk, between Riawena Oval & Forbes Rd	Natural Area- Watercourse
Ploughmans Creek, between Forbes Rd & Glendale Cres	Natural Area - Wetland
Ploughmans Creek, between Glendale Cres & NDR	Natural Area - Watercourse
Ploughmans Creek, between NDR & Molong Road	Park

Maps of the community land are attached.

4 OWNER OF THE LAND

The community land to which this Plan of Management applies is owned by Orange City Council.

5 MANAGEMENT OF THE LAND

The land to which this Plan of Management applies is used and managed in accordance with the objectives and methods outlined below.

5.1 Park

Objectives

The community land categorised as *Park* shall be managed in accordance with the following objectives:

(a) to encourage, promote and facilitate recreational, cultural, social and educational pastimes and activities, and

(b) to provide for passive recreational activities or pastimes and for the casual playing of games, and

(c) to improve the land in such a way as to promote and facilitate its use to achieve the other core objectives for its management, and

(d) 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

(e) to protect existing landforms such as natural drainage lines, watercourses and foreshores.

Methods

The objectives shall be implemented by the following strategies / methods:

1 To encourage community ownership and use of the park

2 To enhance the aesthetic value of the park

3 To provide opportunities for passive and active recreation

4 To consider the principles of *Crime Prevention Through Environmental Design*

5 To enhance the native flora and fauna attributes of the park

Assessment

The strategies will be achieved by the following actions / performance measures:

- Provide recreational and amenity facilities/ infrastructure including children's play equipment and park furniture (tables, seats, benches, rubbish bins); provide for ongoing park improvements in Council's Management Plan
- Maintain equipment and facilities in a manner that allows safe and continuing use; implement a regular park inspection program and monitor incident reporting on Council's request system
- Establish and maintain landscaping of native plantings, consistent with plantings in the wetland areas; implement a regular park inspection program.
- Control litter and weeds; provide prompt action to customer requests and undertake a regular park inspection program.
- Provide pedestrian linkages (accessible path and cycleways) to adjoining community land; assess community satisfaction and park useability through resident surveys at Local Area Forums
- Provide opportunities for public art with an emphasis on conservation and biodiversity, along pedestrian linkages; include land in Council's Public Art Policy
- Ensure landscaping, lighting and equipment does not provide opportunities for concealment, anti-social behaviour or crime; monitor incident reporting to Council and Orange Police
- Facilitate active community participation in planning, establishment and maintenance works for the park; establish a community advocate for monitoring and/or care of the park

5.2 Wetland

Objectives

The community land categorised as *Natural Area - Wetland* shall be managed in accordance with the following objectives:

(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, and

(d) 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

(e) to protect existing landforms such as natural drainage lines, watercourses and foreshores.

Methods

The objectives shall be implemented by the following strategies / methods:

1 To improve the ecological and biodiversity values of Ploughmans Creek by rehabilitation initiatives

2 To enhance the aesthetic value of Ploughmans Creek

3 To improve the hydrological health of Ploughmans Creek and catchment

4 To reduce stormwater runoff, peak flows and pollutant loads

5 To control and manage soil erosion

6 To encourage community participation in wetland design and management

7 To encourage community use of the wetland

Assessment

The strategies will be achieved by the following actions / performance measures:

- Develop and implement a masterplan for the restoration and enhancement of Ploughmans Creek including constructed wetlands, riparian and adjacent potential grassy woodland-shrub zones, in stream zones, recreational and amenity facilities/ infrastructure and street-parkland plantings
- Implement an appropriate constructed wetland design
- Monitor and manage urban animal incursion (cats and dogs) into wetland areas; use of community surveillance and reporting on Council's request system
- Develop and implement a feral animal control program (exotic fish, rabbit, fox, cat and dog) with particular emphasis on creek-line corridors; use of annual surveys to determine occurrence of feral animals
- Implement a staged replacement of introduced trees species (willows, poplars, etc) adjacent to and/or fronting the wetland; provide for ongoing replacement program in Council's Management Plan

Assessment (cont)

- In conjunction with the Department of Natural Resources, investigate the feasibility of native fauna reintroductions to the wetlands in an urban environment, dependent on the availability of suitable habitat
- Undertake annual fauna species counts and reporting in the State of the Environment Report
- Construct appropriate drainage measures to convey stormwater runoff from adjoining residential areas to wetland areas
- Extend existing drainage from adjoining residential lots to the constructed wetland area
- Develop and implement water management strategies on land adjoining the wetlands to reduce stormwater runoff, peak flows and pollutant loads
- Undertake quarterly water quality testing within the constructed wetland using a probe to monitor temperature, pH (acidity), electrical conductivity, dissolved oxygen and turbidity
- Undertake annual water quality reporting in the State of the Environment Report
- In conjunction with the Department of Natural Resources, develop and implement a plan to address stream incision along Ploughmans Creek
- Require the preparation, implementation and enforcement of *Erosion and Sediment Control Plans* for development involving earthworks and excavations adjacent to the wetland areas
- Maintain ongoing cooperation and consultation with Ploughmans Creek Wetland Action Group and other appropriate environmental, conservation and landcare groups
- Facilitate active community participation in planning, establishment and maintenance works for the wetland areas
- Undertake community education programs in wetland management, local biodiversity, etc
- Provide recreational and amenity facilities/ infrastructure within and adjacent to the wetland to encourage community use
- Provide pedestrian linkages (accessible path and cycleways) to adjoining community land
- Encourage community participation in respect of monitoring for flora and fauna, water quality and quantity, etc
- Assess community satisfaction through resident surveys at Local Area Forums, etc

5.3 Watercourse

Objectives

The community land categorised as *Natural Area - Watercourse* shall be managed in accordance with the following objectives:

(a) to manage watercourses so as to protect the biodiversity and ecological values of the instream environment, particularly in relation to water quality and water flows, and

(b) to manage watercourses so as to protect the riparian environment, particularly in relation to riparian vegetation and habitats and bank stability, and

(c) to restore degraded watercourses, and

(d) to promote community education, and community access to and use of the watercourse, without compromising the other core objectives of the category, and

(e) 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

(f) to protect existing landforms such as natural drainage lines, watercourses and foreshores.

Methods

The objectives shall be implemented by the following strategies / methods:

1 To improve the hydrological health of Ploughmans Creek and catchment

2 To reduce stormwater runoff, peak flows and pollutant loads

3 To control and manage soil erosion

4 To encourage community use of the watercourse

Assessment

The strategies will be achieved by the following actions / performance measures:

- Investigate the feasibility of undertaking a *macroinvertebrate study* to identify stormwater runoff, flows and pollutant loads pre- and post- the constructed wetland
- Investigate Council-owned land north of Forbes Road to determine a conceptual wetland or stormwater basin layout to maximise downstream stormwater quality and reduce runoff, peak flows and pollutant loads. The investigation is subject to inclusion of the land as community land.
- Investigate land upstream of Molong Road to determine its potential role for stormwater management. Likely structures could include an off-line wetland, retarding basin, etc.
- Undertake quarterly water quality testing to monitor temperature, phosphorus, electrical conductivity, dissolved oxygen and turbidity
- Undertake biannual sampling and laboratory analysis of water downstream of the constructed wetland to monitor Total Phosphorus, Total Nitrogen, heavy metals and pesticides
- Undertake annual water quality reporting in the State of the Environment Report

Assessment (cont)

- Implement a stage replacement of introduced trees species (willows, poplars, etc) adjacent to and/or fronting Ploughmans Creek with native plantings
- In conjunction with the Department of Natural Resources, develop and implement a plan to address stream incision along Ploughmans Creek
- Require the preparation, implementation and enforcement of Erosion and Sediment Control Plans for developments involving earthworks and excavations adjacent to Ploughmans Creek
- In conjunction with the Department of Natural Resources, investigate the feasibility of native fauna reintroductions along Ploughmans Creek, dependent on the availability of suitable habitat
- Provide pedestrian linkages (accessible path and cycleways) to adjoining community land
- Undertake community education programs in relation to access and use of the watercourse

6 FUTURE USE OF THE LAND

Community land to which this Plan of Management applies shall be developed in accordance with the objectives and methods outlined above.

Development of the land in accordance with this Plan will provide open space linkages, passive and active recreation opportunities, ecological rehabilitation, biodiversity conservation, catchment hydrological improvements and stormwater management. The Plan will afford community participation and ownership in the development of social and environmental assets.

- Future use of the land may be subject to a lease, licence or grant of any estate under the provisions of the Local Government Act 1993, between Council and an organisation, group or club. Use of the land in association with a lease, licence or grant shall complement the natural and modified ecological and hydrological environments, and be consistent with the objectives of the land categorisation, pursuant to this Plan of Management. ***Assessment (cont)***

Development consent may or may not be required for the development of facilities and infrastructure identified in this Plan, pursuant to Orange Local Environmental Plan 2000 (amended) and the Environmental Planning and Assessment Act 1979.

7 PLAN IMPLEMENTATION

The achievement of the actions / performance measures in this plan will depend on the following:

- The availability of funding and priorities set through Council's Management Plan (budgets)
- The levying of development contributions towards capital improvements, open space and drainage works
- The attainment of grants from public authorities including Catchment Management Authority, National Heritage Trust and the like.

The programming of activities will therefore be subject to the availability of funding resources at the Local, State and Federal levels.

It is acknowledged that the additional land will be included in the Plan of Management, including privately owned land proposed to be dedicated as public open space, and public land classified as operational, earmarked for future reclassification. The inclusion of additional lands will complete the localised Ploughmans Valley network, and allow for holistic management of the catchment. The Plan will be amended as required, in accordance with the Local Government Act 1993 to include additional land. Public participation is an important component.

Ploughmans Valley Catchment Wetland Management Plan

Prepared for

ORANGE CITY COUNCIL

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Document Registration

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The input of Council Officers Nigel Hobden, Shahreen Alford and David Shea is appreciated. The interest of Councillors, community groups and individuals is acknowledged.

The use of Google Earth and NSW Government SIX site images is acknowledged

Table of Contents

1. INTRODUCTION

The City of Orange has two primary catchments, the Ploughman's Valley catchment and the Blackman's Swamp Creek catchment. The current Plan refers to the Ploughman's Valley catchment. This catchment drains the western third of Orange City urban area.

In response to severe drought in the first decade of the 21th century, a City-wide water harvesting scheme was developed within the Ploughman's Valley Catchment. The scheme involved four constructed pond systems that capture, detain and treat overland stormwater flow, eventually for partial use by the City of Orange for water supply. Construction of these wetlands occurred in 2010 and they are managed by the City Council for their passive recreation, amenity, wildlife habitat as well as being a water resource. The wetlands therefore provide a range of environmental, recreational and economic functions.

Orange City Council is committed to improving the quality of water throughout its catchments for the benefit of the community and the environment. Council therefore recognises that the management and maintenance of the constructed wetlands must extend to the catchment area surrounding the ponds. This includes the various creek-lines, ephemeral waterways and detention basins that form part of the City's open space network.

1.1 Purpose of the Wetland Management Plan

The primary purpose for the development of the Ploughmans Valley Wetland Management Plan is that it will be utilised by Council staff as a manual for maintenance of the wetland systems and their feeding tributaries. It will be an important document for providing clarity to the community of Council's Service Maintenance Levels for riparian environments throughout the catchment. It will also inform Council's Asset Management Plans on future expenditure.
The Plan is to be a user-friendly tool for use primarily by Council staff and contractors conducting routine maintenance within the riparian zone of the Ploughman's Valley Catchment.

The Plan components include:

- Mapping of maintenance zones for all riparian corridors in the Ploughmans Valley Catchment under the care and control of Council
- Maintenance actions and schedules for each maintenance zone
- Monitoring actions and schedules of the constructed wetlands for use with the wetland model, including:
    - Sedimentation build-up, to guide removal and actions to reduce runoff loads;
    - Water quality, including nutrient and algae monitoring;
    - Vegetation health;
    - Biodiversity balance, to ensure maintenance of water quality.
- Recreation restrictions, to minimise Council's liability and maintain water quality.
- An education strategy which, among other catchment related environmental topics, covers impacts of pollutants from activities within the catchment.
- Strategic planning targets for implementation of key measures within the riparian corridors of the Catchment
- Methods to monitor and address pest insect populations and aquatic weed incursions throughout the catchment.

1.2 Approach

The following approach has been undertaken to meet project objectives

1. Divide the stream lines and riparian zones into a series of management reaches commencing at the headwaters of Ploughmans Creek and its Somerset and Brooklands tributaries.
2. Identify the condiitons in each reach in terms of their management implications
3. Devise a set of action criteria and appropiate resonses for each reach.

2. CATCHMENT ASSESSMENT

2.1 Ploughmans Creek

The portions of ploughmans Creek that occur on public lands were divided into four reaches:

1. The wetland between Stirling Ave and Cargo Road
2. The wetland to the immediate north of The Escort Way[1]
3. The reach of streamline from below the Escort wetland to Glendale Cresent
4. The reach of streamline from Glendale Cresent to the v notch weir north of the Northern Distributrer Road.

2.2 The Somerset Park Streamline

1. The reach of streamline from Burrendong Way to the Somerset Wetlands
2. The Somerset Wetlands
3. The reach of stream line below the Somerset Wetlands to the Northern Distributer Road

2.3 The Brooklands Park Streamline

1. The reach of streamline from Kearneys Drive to the Brooklands Wetlands[2]
2. Brooklands Wetlands

These areas are shown in figure 2.1.

[1] Note that the Escort Way wetland plays a significant role in flood mitigation: It acts as a variable height storage during high flows, reducing the rate of downstream flows. All the wetlands act as water filters, contamiant processors and via the provision of ecological niches.

[2] Erosion, sediment mobilisation and deposition is a significant issue in all wetlands. It is largely related to urban development and suggests inadequate erosion and sediment control. The methodology to prevent erosion is well known. It simply requires Council inspectors to enforce the rules.

Orange City Council – Ploughmans Valley Catchment Wetland Management Plan

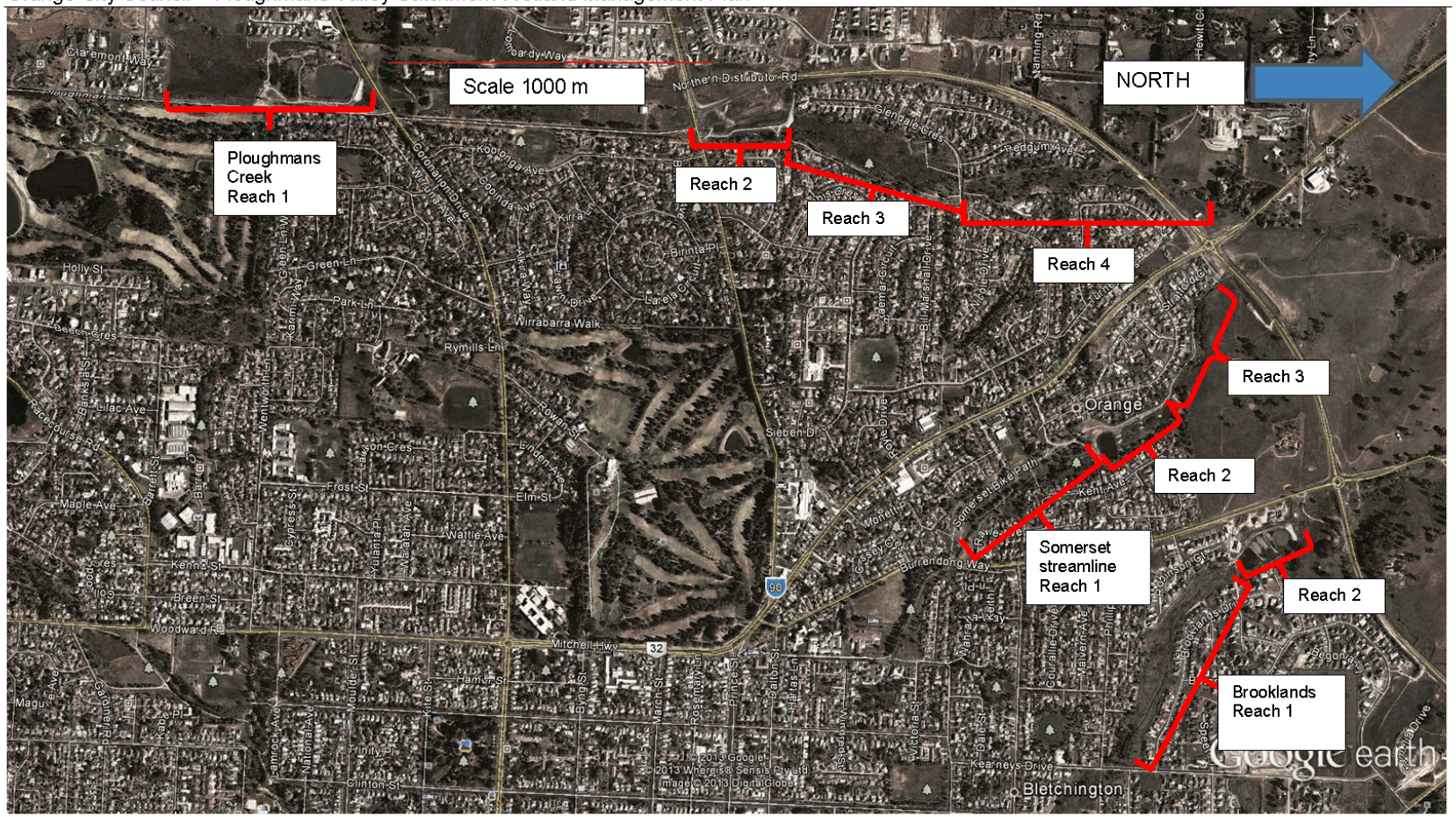

Figure 2.1 Reaches described in this Management Plan (Image source: Google Earth. Dated 6 May 2013).

Note the reach between Ploughmans Creek reach 1 and Ploughmans Creek reach 2 is largely on private lands and was not included in this study.

Figure 2.2. Southern (upper) portion of Ploughmans Creek Wetland (upper portion of Ploughmans Creek Reach 1). The sites / item numbers refer to table 2.1.

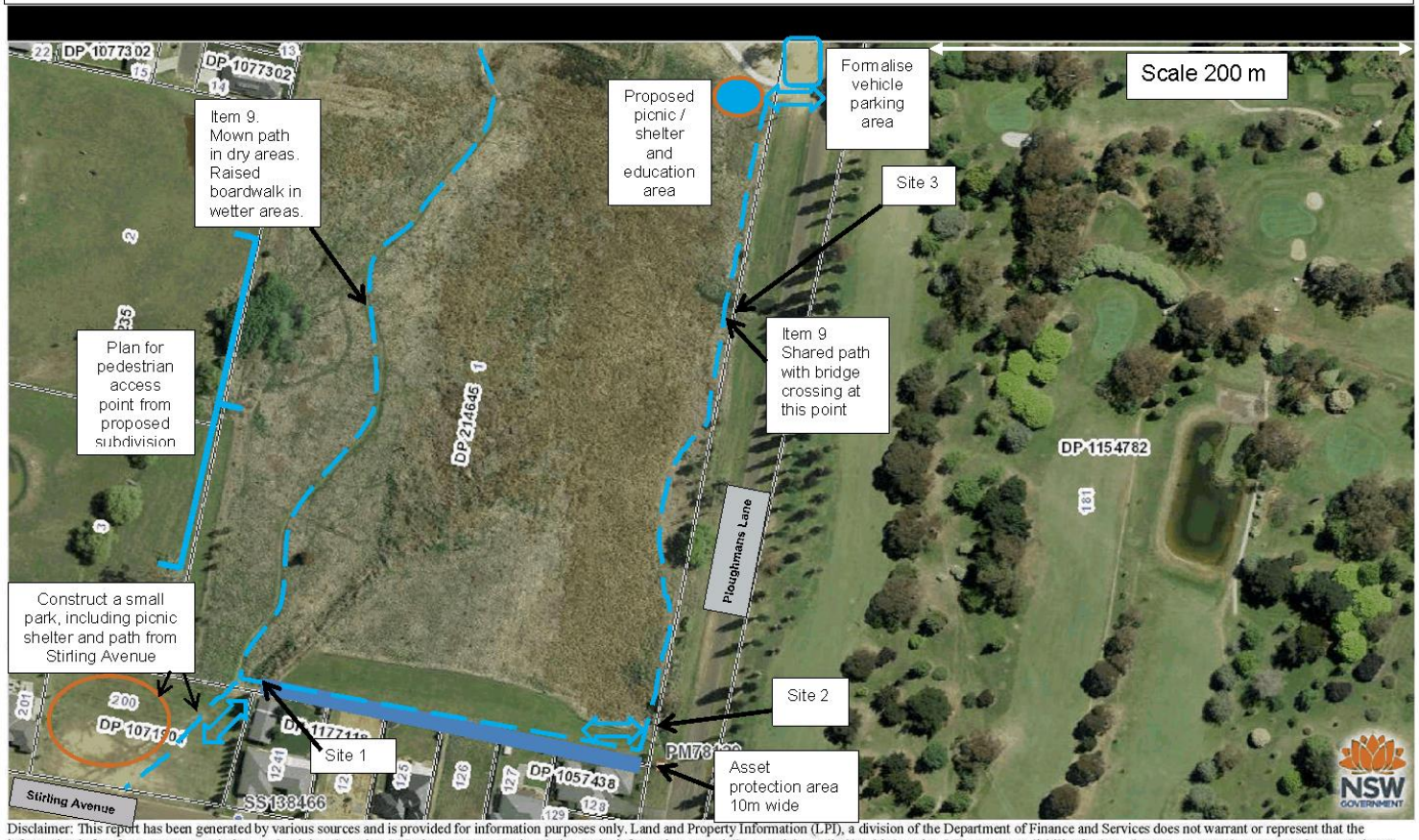

Diagram key: Public assess point: Area where proposed action/ construction is needed: Track: Feature planting

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Figure 2.3. Northern (lower) portion of Ploughmans Creek Wetland (lower portion of Ploughmans Creek Reach 1).

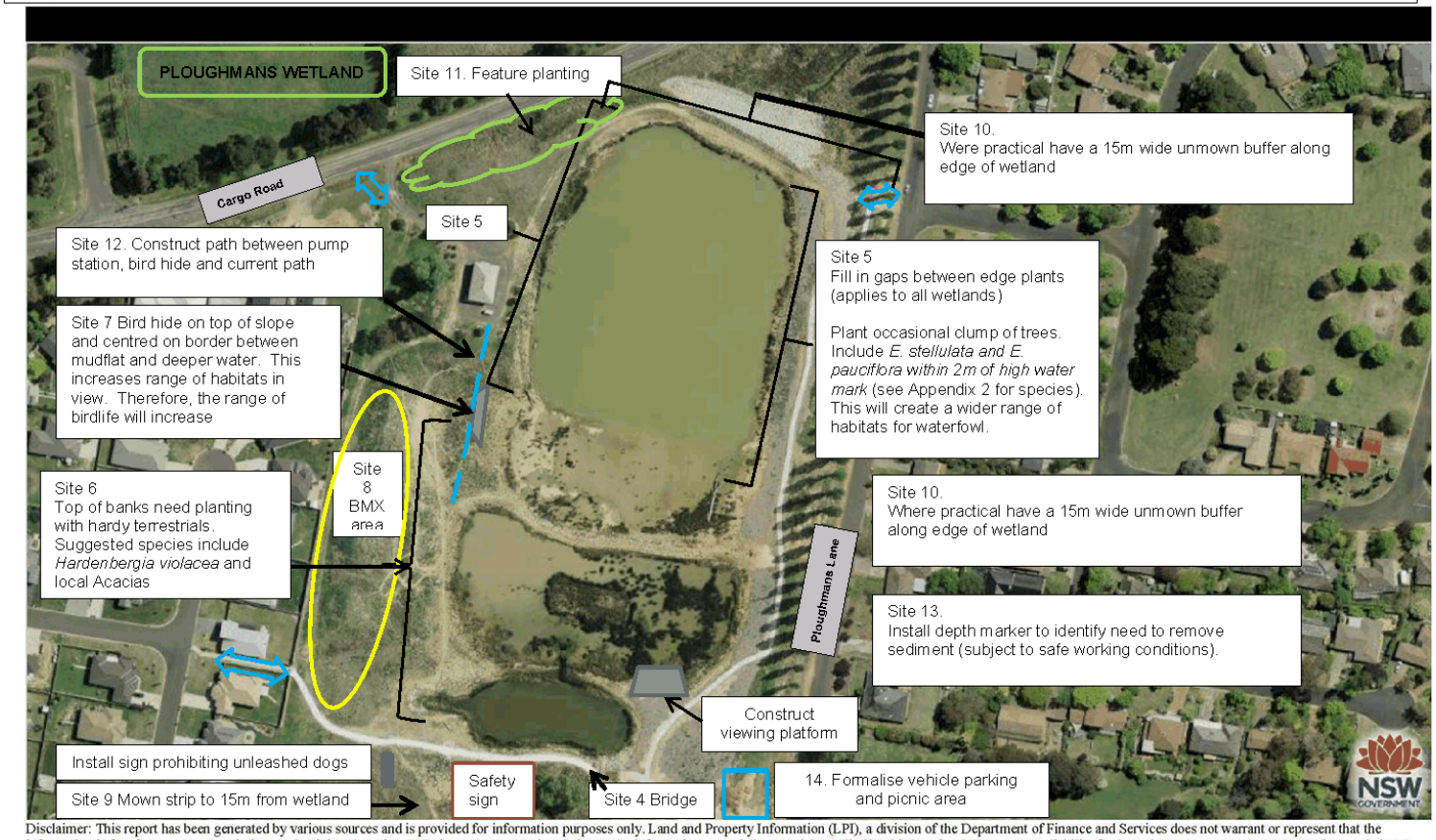

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Table 2.1. Maintenance Plan Ploughmans Creek Wetlands

Item/ Site	Component to be monitored	Purpose	Performance target	Schedule	Maintenance action
1 (figure 2.2)	Outlet and dispersion drains	No erosion. Deposition <30% of channel depth. No saturation zones across walking tracks	Fully vegetated, but no breakout for at least 8 m DS of outlet.	Check monthly and after >30 mm/day rain events[3].	Increase dimensions of rock pad as per appendix 1.
2	As above	As above	As above for 8 m into the wetland	As above	As above
3	Unlined drain	Ensure drain continues to function delivering relatively clear water to wetland.	Vegetated base and sides	As above PLUS check for road base deposition during any road construction. Require silt fences to trap loose gravel	Scalp sides and base if vegetation prevents flow to wetland. During road construction require silt fences to trap loose gravel. Sediment bar to be removed when it exceeds 200 mm high.
4 (figure 2.3)	Rock lined channel between wetland cells	Prevent nick point developing and migrating upslope	Rocks are of sufficient size so that they do not move during storms.	Check monthly and after >30 mm/day rain events.	Replace boulders as required with larger ones. Suggested D_{50} is 400 mm. Use 'flat' angular rock. Rocks should be touching. See Appendix 1.
5	Fringing emergent wetland vegetation	Minimise risk of children having easy access to the water Planting an array of wetland vegetation will increase the number of wetland habitats	A vegetation zone at least 2m wide of thick, vigorous 'spikey' vegetation.	Quarterly, but main emphasis in spring when transplanting is likely to be most successful.	Plant out 'holes' in vegetation. Include stakes at 10 cm intervals to further discourage entry in recently replanted areas. Include Juncus usitatus on 'drier' edge.
	Fringing terrestrial vegetation	Provide more diversity in vegetation structure. (This should encourage a more diverse suite of birds	Establish 'clumps' of trees including some overhanging the water	Plant: *E. stellulata* *E. pauciflora* and *Acacia dealbata* 'near' the water in clumps of 8 to 12 trees	The seedlings should be at least 500mm above the normal water level. .

[3] Daily rainfall >30mm occurs 5 times in the average year.

Item/ Site	Component to be monitored	Purpose	Performance target	Schedule	Maintenance action
6	Spoil heaps to the immediate west of the wetland	Stabilise slopes and prevent sediment loss to wetlands. Visual Separation of wetland area from BMX area.	80% ground cover within 2 years.	Check soil for pH and nutrient availability. Fertilise/ lime. Place jute mesh Spread up to 10 t/ha of mulch. Check plant health weekly after planting as per normal schedule. Hardenbergia violacea is a key ground cover. Lomandra longifolia is useful along the toe of the bank Acacias will provide a shrub layer.	Irrigate a maximum of twice to assist establishment. Replace dead plants after 3 months.
7	Bird hide[4]	Ensure that the bird hide provides recreational and education experiences with minimum disturbance to the birds.	An effective bird hide that does not provide opportunity for antisocial activity.		
8	BMX area[5]	Provide a BMX recreation area that is 'safe' and will not result in sedimentation of the wetland.	A BMX area that is attractive to local young people, but does not impact on the wetlands	Monthly inspection to ensure safe conditions consistent with its intended use. Monthly inspection to ensure runoff from the area is not adding sediment to the wetlands.	Ensure the BMX conditions meet Council's safety standards for informal recreation areas. Ensure field staff have clear guidance on appropriate maintenance and tree planting for the area[6]. Ensure that there is sufficient grassed area between the BMX track and the wetlands to prevent any mobilised sediment reaching the wetlands.
9 (both figures 2.2	Walking track along the eastern and western side of the	Minimise risk to visitors to the area. Minimise impact of visitors	Clear walks on either side of the wetlands. The path along the	Mow the track on the western side whenever the grass exceeds 75 mm. Note wet areas and	Mow the western track an indicative 2.5m wide. Install an elevated boardwalk if

[4] *Appendix 10 contains information on bird hides*
[5] *Appendix 11 contains a letter from a resident concerning the BMX area.*
[6] *Council Engineers confirm that the area of earth mounding, south of the brick pump shed building is unstable and hazardous for the movement or operation of earth moving machinery. Therefore reshaping of mounds will not be undertaken, however they can be enhanced through tree planting etc.*

and 2.3)	wetland	to the wetland.	eastern boundary is concrete.	prioritise for elevated boardwalk.	pedestrian traffic and ground condition require it.
10 (both figures 2.2 and 2.3)	Buffer distance between wetland and mown areas.	Provide adequate buffering around the wetlands	A minimum of 15m of unmown lands between the operating water level and any mown area (where practical and safe for public)	Mark 15m buffer boundaries around wetland. Inspect quarterly	Ensure parks and garden staff know of this 15m requirement
11	Feature planting	Provide a landscape statement linking these urban wetlands to other urban vegetation in the city.	Provide a clear 'urban' feature.	Plant an array of large trees common in the area: e.g. Weeping elms and Chinese pistachios[7].	Prepare planting area, irrigate initially to maintain seedlings. Fertilise as needed.
12	Construct path between pump station, bird hide and path	Create a link enabling walking around the entire wetland	Ability to walk around the entire wetland	Track constuction feasibility needs to be determined by engineers as the substrate has little structural strength. Heavy vehicles ie concrete trucks or gravel supplies - caution will be required on where they access.	Determine agreed suitable path materials. Note that if the path is 'soft', it will require more maintenance. However, woven geotextile can be used to provide a 'base' for the path[8]
13	Sediment accumulation	Provide objective trigger for removal of accumulated sediment. Also provides indication of erosion rate from the surrounding catchment.	Removal of sediment before its accumulation significantly reduces wetland function. Highlight the need to minimise erosion within the catchment.	Check annually PLUS after 30 mm/day rain events.	Excavate a minimum of 0.3m where safe to do so.
14	Litter, vandalism, graffiti in public spaces such as the parking area and shelter	Public amenity	Increased interest and public satisfaction with natural environment of Orange	Monthly	Repair /replace as soon as practical. Remove graffiti and any rubbish immediately.
15	Noxious weeds	Ensure no spreading of weeds	Rapid removal of noxious weeds from wetlands and riparian areas	Inspect quarterly	Immediately remove

[7] *Alternatively, eucalypts could be the dominant trees, with acacias making up the bulk of the shrub layer. Ground cover will be highly dependant on the location. Bowers (2012) provides a list of plants found in parks and reserves near Orange City. This list is given in appendix 7.*
[8] *A material such as Maccaferri would be suitable.*

Figure 2.4. site 1 was scalped of sediment and typha plants a few months prior to inspection. The main concerns are scouring and sediment deposition. The construction activity upstream of the site will contribute large quantities of sediment to the wetland.

Figure 2.5. Site 2. There is no energy dissipater at this site (see appendix A for design criteria). The hay bales are outflanked by high flows. Sediment, including road base, is an issue.

NOTES

- *Pipe diameter is 675 mm*
- *Based on appendix A, length of rock pad is 6*0.675=4 m*
- *Width of pad is =pipe width (675 mm) plus 0.6m immediately downstream (1.275 m), widening to initial width plus 0.4 times the length of the rock pad (i.e. 0.675+0.6+0.4*4=2.875: Use 3m width).*

Figure 2.6. site 3. This channel conveys runoff from the golf course into the wetland. Hay bales have been outflanked and silt fences are preferred. Silt fences are more effective than hay bales at trapping road gravel.
A bridge or box culvert will be needed for the proposed walking track. A rock pad is not proposed at present because there is little evidence of bank scour.

Figure 2.7. Site 4. This trash rack is probably not necessary as the upstream wetland would provide filtering. The rocks upslope of the rack are too small. Conversely the ones downstream protrude above the base of the rack. Replace current small rocks upslope of the rack with rock with a D_{50} of around 400 mm (Engineering Dept may have information on catchment size, impreviousness and anticipated peak flows. This information is needed to determine correct rock size).

Figure 2.8. Site 5. Much of the wetland has thick, vigorously growing fringing vegetation. However gaps in vegetation increase risk of children accessing the water. There are numerous areas around the wetland like this. The lack of continuous vegetation creates an erosion hazard.

Children are developing informal BMX tracks adjacent to the wetland. They should be encouraged to use lands to the west where sediment mobilisation can be more easily controlled (see fig 2.3).

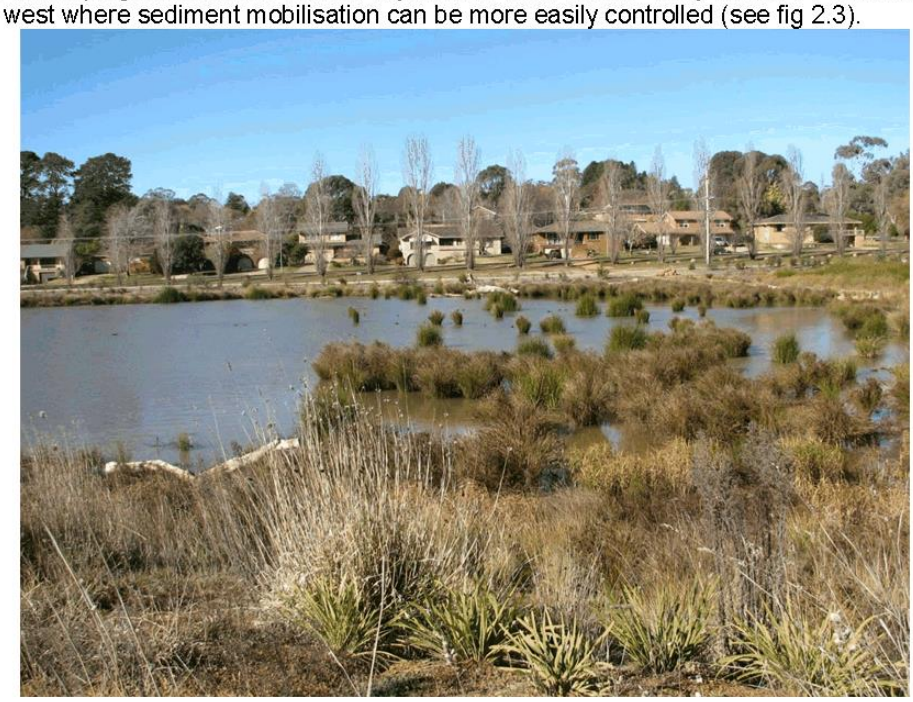

Figure 2.9. Placement of the bird hide so that both the mud flats and the deeper waters can be viewed will maximise diversity of species available for viewing.

Figure 2.10. Item 6. Spoil heaps need stabilisation to avoid sediment deposition in the wetland.

Figure 2.11. Item 5. Planting clumps of suitable eucalypts close to the water will increase habitat diversity.

Figure 2.12. Planting/ mulching should extend a minimum of 15m from the wetlands where practical and consistent with public safety. No mowing within 15m of the wetland.

Figure 2.13. Escort Way Wetlands

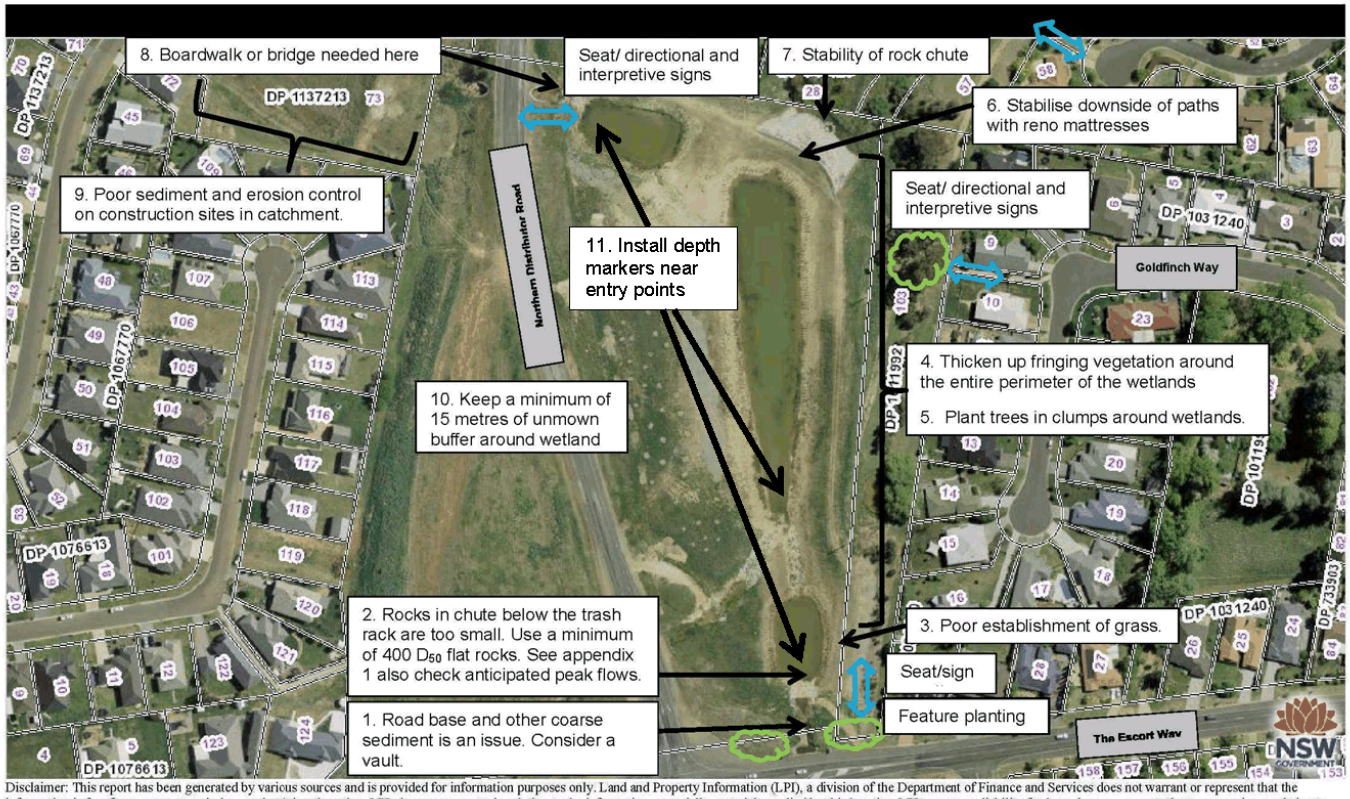

Table 2.2. Maintenance Plan for Escort Way Wetlands

Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
1 (figure 2.13)	Inflow channel to trash rack	Prevent accumulation and subsequent mobilisation of road base into wetland	No coarse sediment accumulation downslope of the trash rack	Check that road and housing contractors implement adequate erosion control. Check after >20mm rain events during road construction. Thereafter, check monthly and after >30 mm/day rain events..	Consider installing a vault covered with mesh. Alternatively, agree to clean out if necessary after each inspection.
2	Mobilisation of rocks in chute below trash rack.	Prevent mobilisation of rocks, leading to exposure and scouring of base	No movement of rocks	As above	See appendix 1 for details.
	Sediment accumulation among rocks	Indicates significant erosion events in the catchment	No obvious sediment accumulation among rocks or immediately below in the wetland	As above	If sediment is covering more than 50% of rocks AND has created a sediment plume in the wetland, remove rocks. Put aside, Excavate sediment. Replace rocks
3	Poor grass cover between the edge of the fringing wetland vegetation and the path	Minimise erosion of banks	Vegetated banks. No rilling No sediment plumes in the wetland.	1 week after any remediating action. Thereafter, check monthly and after >30 mm/day rain events..	No mowing within 15m of wetland edge (if practical).
4	Fringing vegetation is sparse in many areas. Easy entry for children	Prevent accidental drowning. Minimise sediment entry to wetlands.	At least 2m wide of thickly growing wetland plants fringing the wetland.	Check monthly and after >30 mm/day rain events.. Main emphasis in spring when transplanting is likely to be most successful.	Next spring, divide the plants and plant all the 'holes'. If necessary collect some plants from Somerset wetland. Plant *Eleocharis sphacelata* in the deeper water, *Baumea articulata* in the middle (to a water depth<50% of plant height) and Juncus usitatus into shallow areas. Use *Gahnia (clarkei?)* and *Lomandra longifolia* as outer fringe.
5	Fringing terrestrial vegetation	Provide more diversity in vegetation structure. (This should encourage a more diverse suite of birds)	Establish 'clumps' of trees including some overhanging the water	Annually in spring.	Plant: *E. stellulata* *E. pauciflora* and *Acacia dealbata* 'near' the water in clumps of 8 to 12 trees.

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Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
					Replace dead ones.
6	Erosion of path footings	Prevent loss of path	Stable and no erosion along path	Install mattress. Inspect after first significant rain event (>20mm/day).	Install Reno mattress (or similar product). Indicative size is 1m wide, 0.25 m deep and 2m long containing D_{50} 120 mm rocks, range 70-150 mm on downside of the path for approx. 60m
7	Stability of overflow	Ensure long term integrity of wetland wall	No movement of rocks in the overflow chute.	Check monthly and after >30 mm/day rain events.	Check with Engineering Dept on assumed velocity of water and required stone dimensions. Install as recommended.
8	The need for elevated access between the tunnel and the wetlands	Public safety	Dry, safe access except when actually raining.	Check during next few rain events	Council intends to install bridge or elevated boardwalk.
9	Poor erosion and sediment control in the catchment	Minimise sediment entry to the wetland, thereby reducing maintenance needs	No sediment plumes from construction areas (subdivisions, roads, etc)	Monthly	Liaise with Engineering Dept. encourage compliance (including Council's own operations. Report significant non-compliance to rangers.
10	Unmown buffer	Provide minimum adequate buffer around the wetland	Minimal sediment mobilisation from wetland surrounds	Mark indicative 15m buffer boundary around wetland and stream lines. Inspect quarterly	Ensure parks and garden staff know of this 15m requirement
11	Sediment accumulation	Provide objective trigger for removal of accumulated sediment. Also provides indication of erosion rate from the surrounding catchment.	Removal of sediment before its accumulation significantly reduces wetland function. Highlight the need to minimise erosion within the catchment.	Install depth markes at 3 points (See figure 2.13). The markers should be in water at least 0.6m deep. And marked in cm. Check annually PLUS after 30 mm/day rain events. Check entry aprons for sediment. Remove rocks and clean out excess sediment once the accumulation covers	1. If sediment depth exceeds 0.2m, Scrape sediment of the entry apron concrete (see photo 2.15). 2. Remove rocks and clean out excess sediment once the accumulation covers more than 70% of the average rock 'height'. Replace rocks 3. Excavate a minimum of 0.3m where safe to do so.

Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
				more than 70% of the average rock 'height'. Replace rocks Check height sticks, program excavation when accumulated depth exceeds 0.3m	
12	Noxious weeds	Ensure no spreading of weeds	Rapid removal of noxious weeds from wetlands and riparian areas	Inspect quarterly	Immediately remove

Figure 2.14. Item 1. There are significant quantities of road base entering the wetlands. Erosion management along the roads could be better. (It will become a significant issue during housing development. Alternatively consider installing a vault covered with a 50*50mm mesh. This would need to be capable of being cleaned out with an excavator bucket.

Figure 2.15. The trash rack has minimal ability to capture sediment because there is no plinth at the base. Additionally there is no 'return at the top so PET bottles can float away. The rocks below the rack are too small given the catchment size (and therefore the likely peak flows). Additionally the rocks protrude above the concrete basin. There is significant influx of road base.

Figure 2.16. Item 4. The fringing vegetation is sparse, and provides little cover for birdlife. Additionally children could readily access the water. Thicken up vegetation see item/site 4 in table 2. Also add clumps of suitable fringing trees. See item/site 5.

Figure 2.17. Item 3. Grass cover is only fair. Don't mow until it thickens up. Aim for 15m of unmown buffer around the wetlands (item 10).

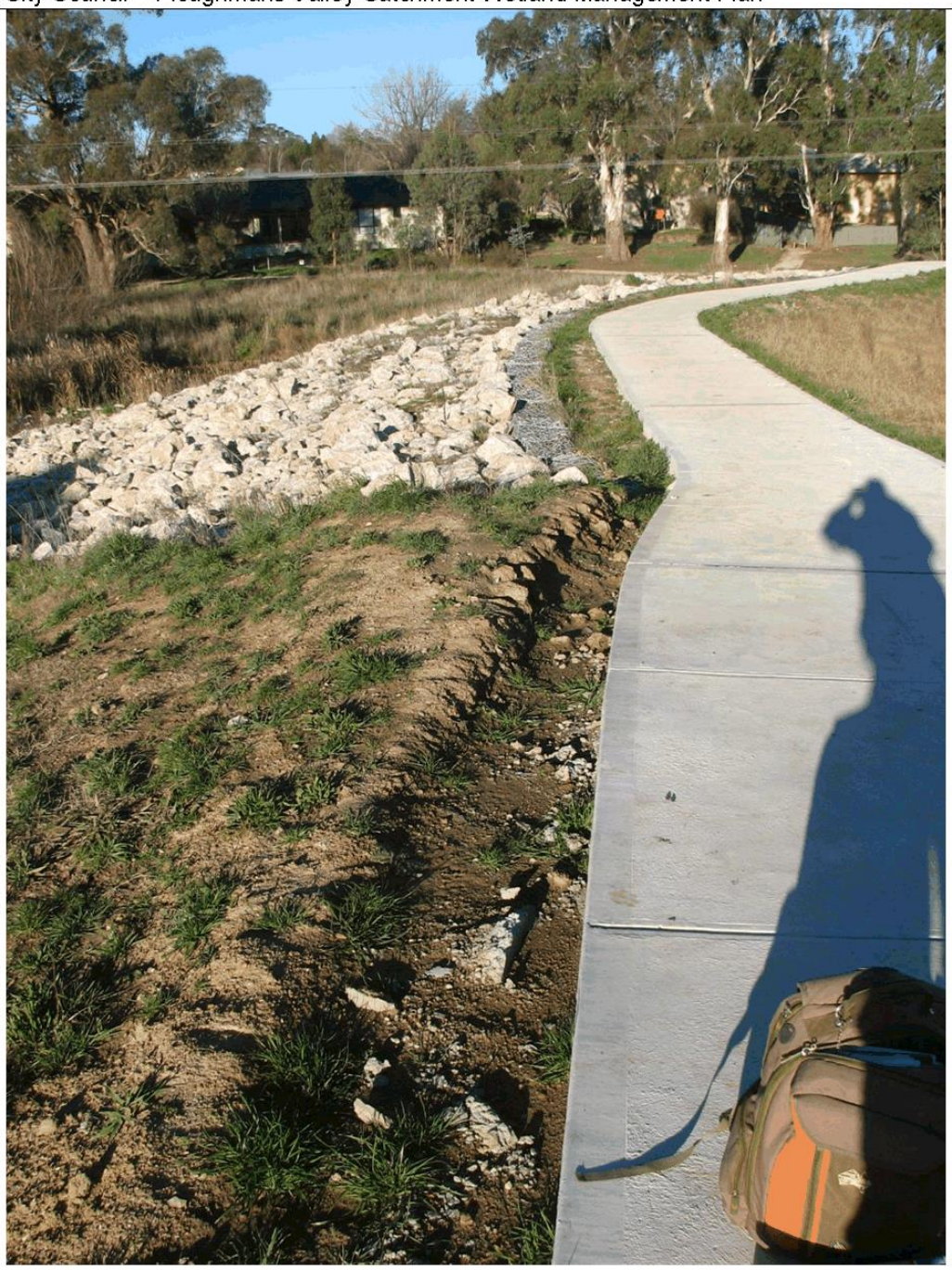

Figure 2.18. Item 6. Soil on downward side of the path is being eroded. Stabilise with gabion mattress.

Figure 2.19. Item 7. Rocks in lower part of spillway have been mobilised (Check with Engineering Dept re anticipated peak flows and therefore suitable rock sizes). If no information repair with 400-600 mm 'flat' rocks. They should be touching. Note downstream Typha will assist in retaining sediment.

Figure 2.20. Item 8. This area will need an elevated boardwalk to allow access through the tunnel in wet weather.

Figure 2.21 Item 9. Poor erosion and sediment control increases sediment influx to wetlands. The silt fence is sitting above the ground surface. The coir logs have 'rolled' and are ineffectual.

Figure 2.22. Reach 3. Between Escort Wetlands and Glendale Crescent (upper section).
Referred to as Coogal Park on Council maps.

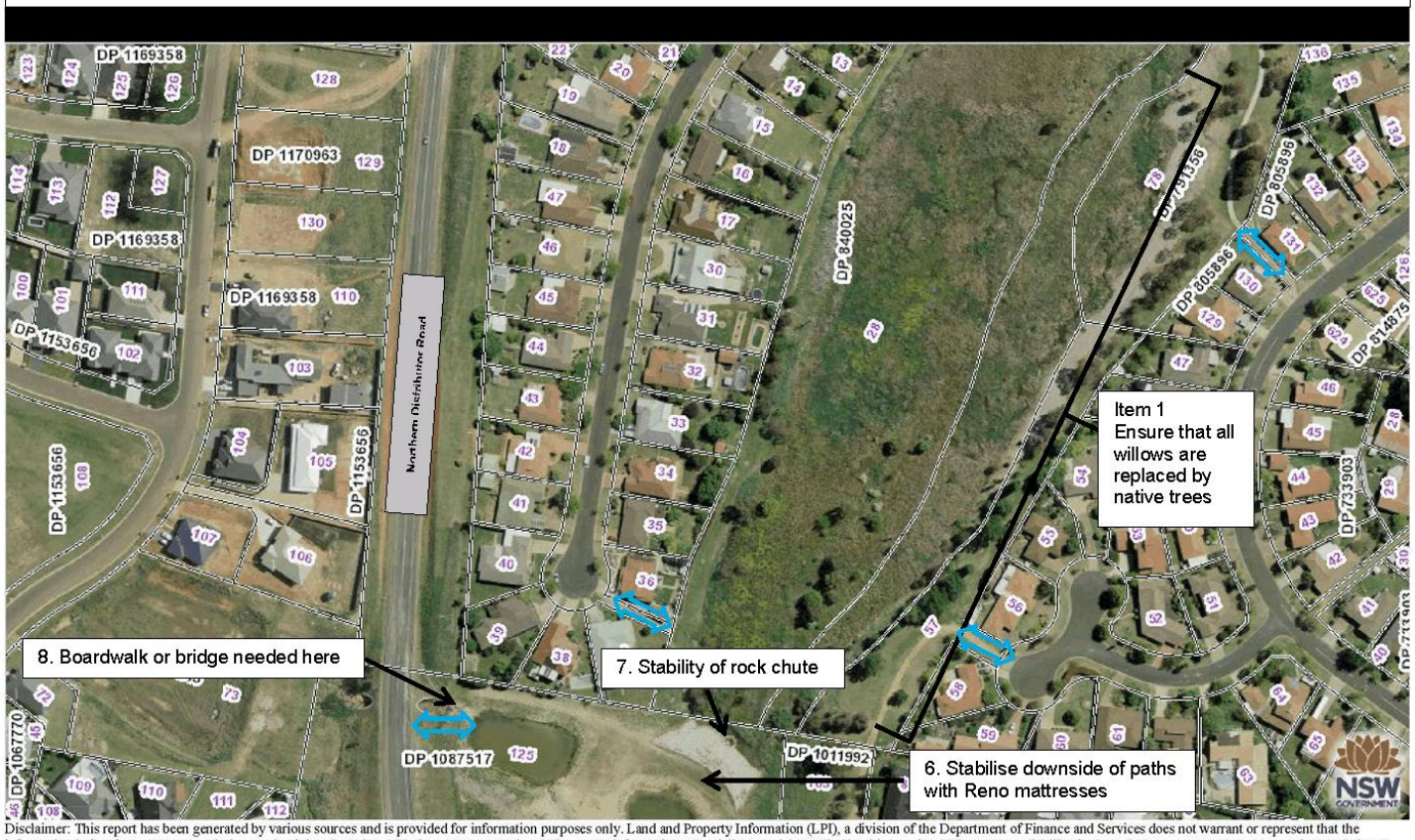

Figure 2.23. Reach 3. Between Escort Wetlands and Glendale Crescent (lower section).
Referred to as Coogal Park on Council maps.

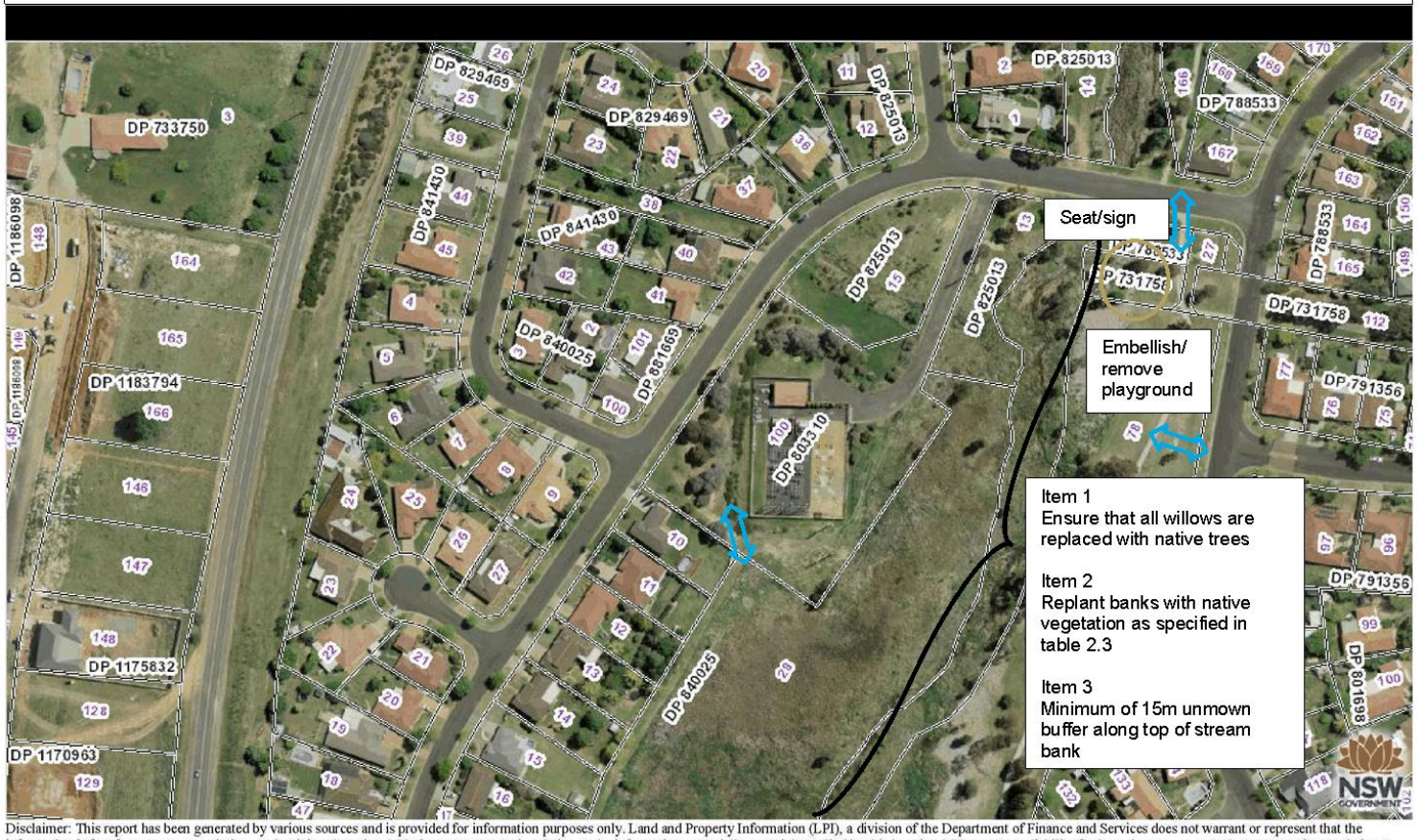

Figure 2.24. Satellite image of reach 3 in July 2012 (Image source Google Earth). Note the extensive cover of willows. These have been removed.

Table 2.3. Maintenance Plan for Ploughmans Creek between the Escort Wetlands and Coogal Park

Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
1 (figures 2.22 to 2.24)	Replace willows with native trees	Prevent re-infestation	No willow recruitment	Annually in spring time	Inject all willows with herbicide in late spring/early summer. Replace with native trees (see below)
2	Re-establishment of native trees	Replacement of willows with native trees that will stabilise banks	An almost continuous copse of native trees at least 7m wide along both sides of the floodplain.	As above	Plant: *E. stellulata, E. pauciflora* and *Acacia dealbata* 'near' the water Also *E. rubida, E. viminalis, E. bridgesiana* and *E. dives on slightly higher ground* Plant *Gahnia (clarkei?)* and *Lomandra longifolia* as ground cover Replace dead specimens.
3	Poor grass cover between the edge of the aquatic vegetation and the path	Minimise erosion of banks	Vegetated banks. No rilling No sediment plumes into the wetland.	1 week after any remediating action. Check monthly and after >30 mm/day rain events.	No mowing within 15m of wetland edge (if practical).

Notes

This stretch of the creek consists of a significant flood plain that is up to 100 m wide. The creek meanders through it and it is heavily vegetated with Typha. There are numerous willow stumps.

Figure 2.25. Typha is becoming dominant now that willow removal has increased light penetration. Typha is an effective remover of pollutants.

Figure 2.26. Immediately upstream of Glendale Cres. The typha is very thick in high light intensity areas. The trees fringing the floodplain need enhancement. See item 2 in table 2.3.

Figure 2.27. Reach 4. Between Glendale Crescent and the Northern Distributor Road (upper section).

Figure 2.28. Reach 4. Between Glendale Crescent and the Northern Distributor Road (lower section).

Table 2.4. Maintenance Plan for Ploughmans Creek between Glendale Cres and the Mitchell Hwy (lower section).

Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
1	Replace willows with native trees	Prevent re-infestation	No willow recruitment	Annually in spring time	Inject all willows with herbicide in late spring/early summer. Replace with native trees (see below)
2	Re-establishment of native trees	Replacement of willows with native trees that will stabilise banks	An almost continuous copse of native trees at least 7m wide along both sides of the floodplain.	As above	Plant: *E.. pauciflora* and *Acacia dealbata* 'near' the water Also *E. rubida, E.. bridgesiana* and *E. dives on slightly higher ground* Plant *Gahnia (clarkei?)* and *Lomandra longifolia* as ground cover Replace dead specimens.
3	Poor grass cover between the edge of the aquatic vegetation and the path	Minimise erosion of banks	Vegetated banks. No rilling No sediment plumes into the wetland.	1 week after any remediating action. Check monthly and after >30 mm/day rain events.	No mowing within 15m of wetland edge (if practical and safe for public).
4	Creek bed and banks downstream of V notch weir near RFS building	The area is unstable	Rock stabilised scour hole	Annual plus after >30 mm/day rain events.	Armour both base and sides with 400 mm D_{50} rocks. Push them at least 50% into the stream bed.

Reach 4: From Glendale Crescent to north of The Northern Distributor Road

Ploughmans Creek is confined within a variable width of 50 to 100m. The slope is apparently steeper in this reach. The main issues are

1. Ensuring that willows do not re-establish themselves.
2. Ensuring a more or less continuous 5 to 7m wide lines of trees on either side of the creek
3. Ensuring a buffer distance of at least 15m between the riparian zone and any mown areas.
4. Ensuring that mowing does not result in water filled ruts adjacent to the stream line.
5. Ensuring that the banks downstream of the V notch weir are stabilised

Figure 2.29. There is frequently a narrow buffer between the riparian zone and the mown area. This should be at least 15m wide (where practical and safe for the public).

Figure 2.30. Ploughmans Creek is in good condition in this stretch. Adjacent eucalypts will assist in maintaining it in a stable condition.

Figure 2.31. Wheel ruts create opportunities for weeds as well as trip hazards for visitors.

Figure 2.32. Ploughmans Creek adjacent to the Northern Distributer. Allow a minimum of 15m between the top of the creek bank and any mown area.

Figure 2.33. The V notch weirs provide an hydraulic jump which can result in a scour pool and undercut banks.

Figure 2.34. Somerset Park from Burrendong Way to the Somerset Wetlands (upper portion Burrendong Way to Barcelona Way).

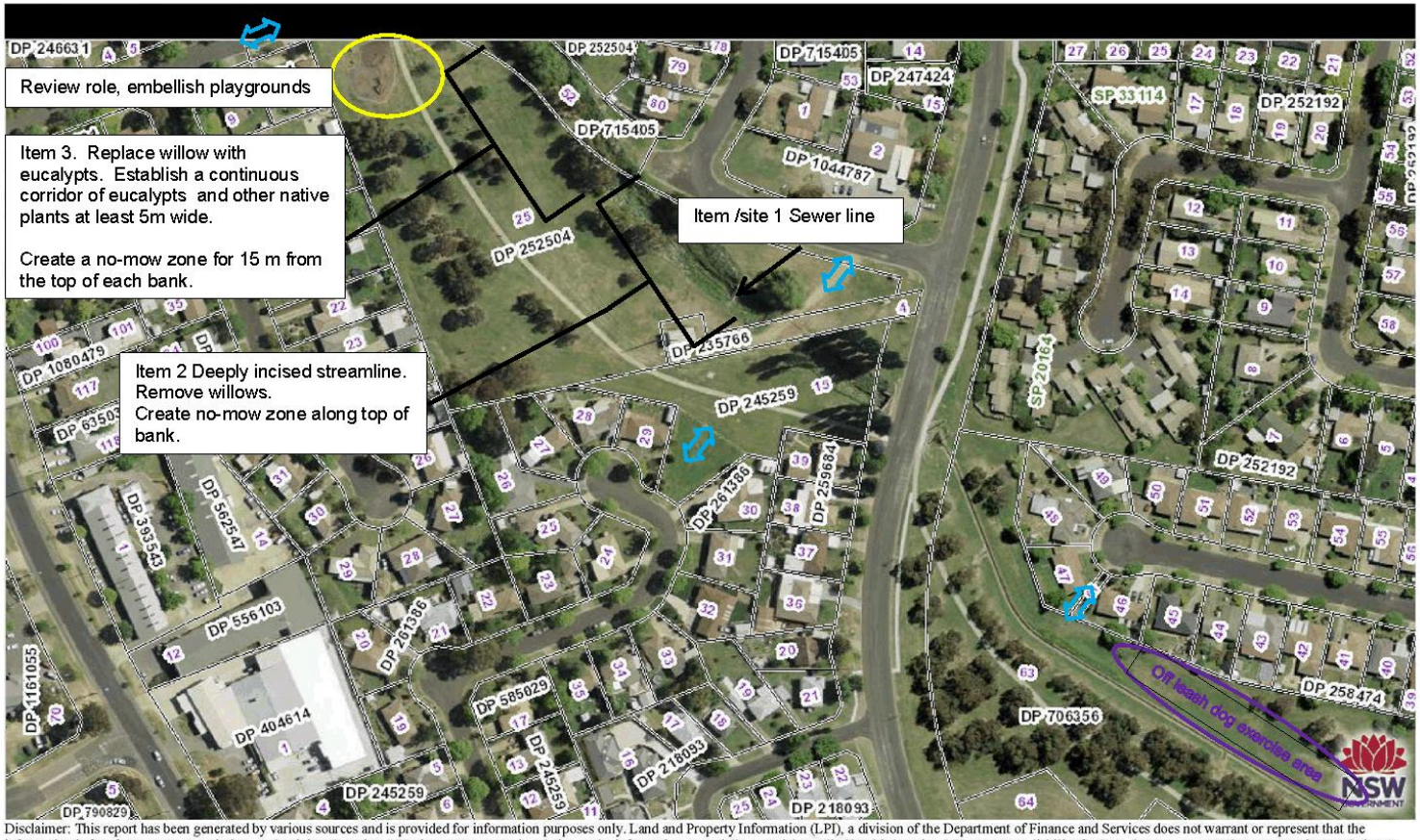

Figure 2.35. Somerset Park from Barcelona Way to top of uppermost wetland cell.

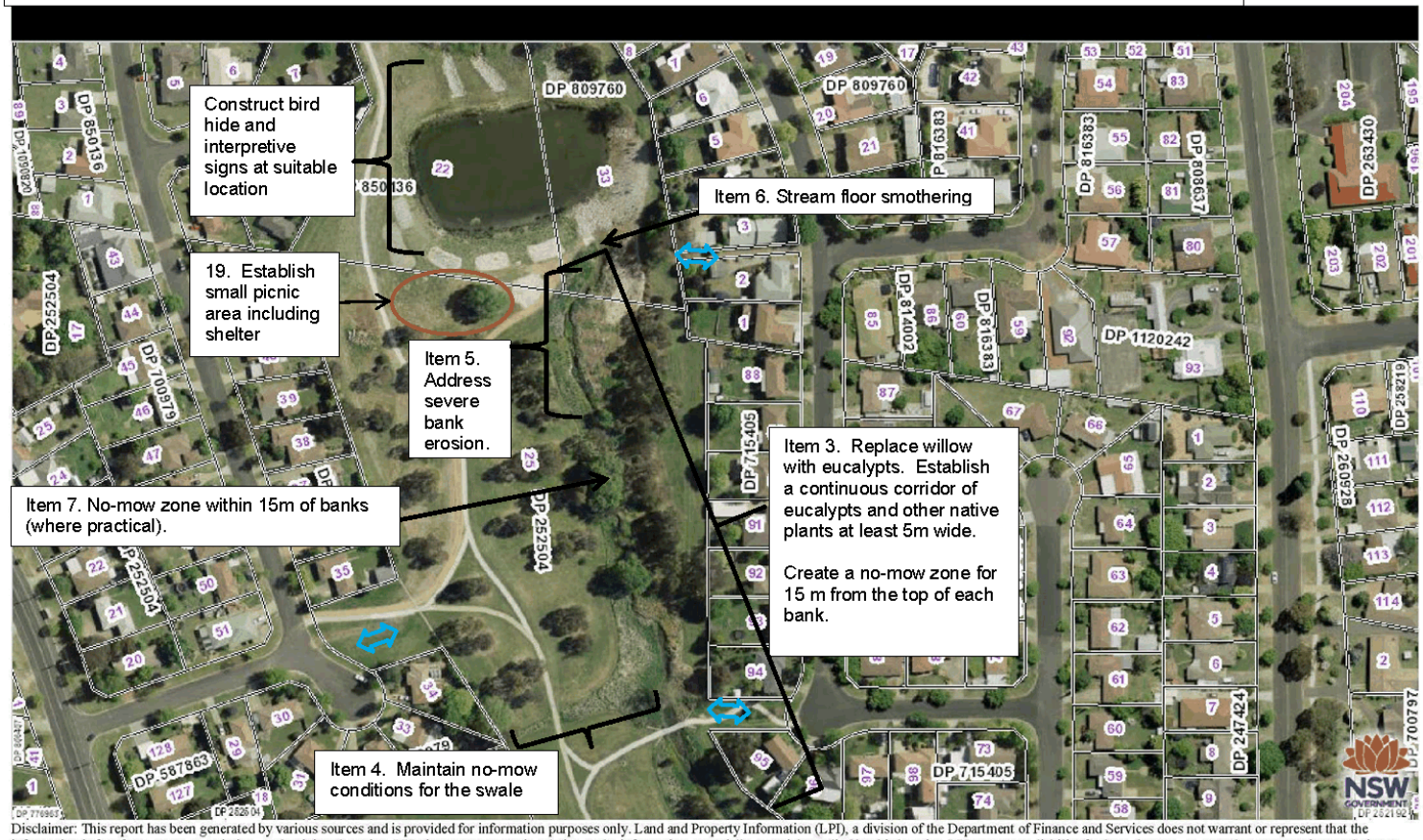

Table 2.5. Maintenance Plan for Somerset tributary between Burrendong Way to the top of the uppermost wetland cell

Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
1 (figure 2.34).	Sewer line	Identify and leaks	No leaks but if there are leaks they are attended to within 24 hrs.	Check monthly and after >30 mm/day rain events.	Report leaks immediately to Council's sewage and water Dept.
2 (figure 2.36)	Deeply incised section of the stream	Identify bank instability and sediment mobilisation	No visible scars on bank. No sediment plumes downstream.	Check monthly and after >30 mm/day rain events.	The banks may eventually need to be laid back to 1:2.5 to 1:3 V:H slopes and planted out. This is a major project and only undertake if essential.
3 (figure 2.38)	Replace all willows with eucalypts and other natives	Increase biodiversity. Reduce scouring and sediment mobilisation	No willow recruitment. A virtually continuous corridor of native vegetation	Annually in spring time	Inject all willows with herbicide in late spring/ early summer. Replace with native vegetation. Plant: *E.. pauciflora* and *Acacia dealbata* 'near' the water Also *E. rubida*, *E.. bridgesiana* and *E. dives on slightly higher ground* Plant *Gahnia (clarkei?)* and *Lomandra longifolia* as ground cover Replace any dead seedlings.
4 (figure 2. 37)	Drainage swales	Maximise contaminant removal from stormwater before it reaches the main streams.	Non turbid water entering the streams	Check monthly and after >30 mm/day rain events.	Keep a 2m no-mow strip on either side of the drainage swale.
5 (figure 2.39)	Bank stability	Identify and correct severe erosion and undercutting	Remediated, stable bank	Check monthly and after >30 mm/day rain events. Consider installing erosion pins	Remediation will be a significant cost. The left bank will need to be laid back to a 1:2.5 to 1:3 V:H slope. The toe armoured and the bank revegetated.
6 (figure 2.40)	Stream floor smothering	Identify the extent that upstream actions are reducing sediment accumulation	Minimal fine sediment on stream floor	Check monthly and after >30 mm/day rain events.	At least some of the sediment is from the erosion scar immediately upstream. Remediation of this area should reduce sediment yield.
7	Insufficient distance between mown areas and top of stream banks	Minimise erosion of banks	Vegetated banks. No rilling No sediment plumes into the wetland.	1 week after any remediating action. Then check monthly and after >30 mm/day rain events.	No mowing within 15m of wetland edge (if practical and safe for the public).
8	Noxious weeds	Ensure no spreading of weeds	Rapid removal of noxious weeds from wetlands and riparian areas	Inspect quarterly	Immediately remove

Figure 2.36. The Somerset Park Tributary is incised near the top end of its catchment. However the banks are well vegetated. Removal of willows and addition of euclypts and other native plants would assist stabilisation.

Figure 2.37. Well vegetated swale drains minimuse urban impacts on streams. Leave a unmown strip 2m wide on each side of the drain.

Figure 2.38. Willows are a significant issue in isolated areas. Note the bare banks under the willows. The willows are encroaching into the stream, diverting flow. Replace willows with native species.

Figure 2.39. Bank erosion is a significant issue in the area marked item 5 in figure 2.35.

Figure 2.40. There is significant smothering of the stream floor upslope of the first wetland cell.

Figure 2.41. Items/ action areas associated with the Somerset wetlands.

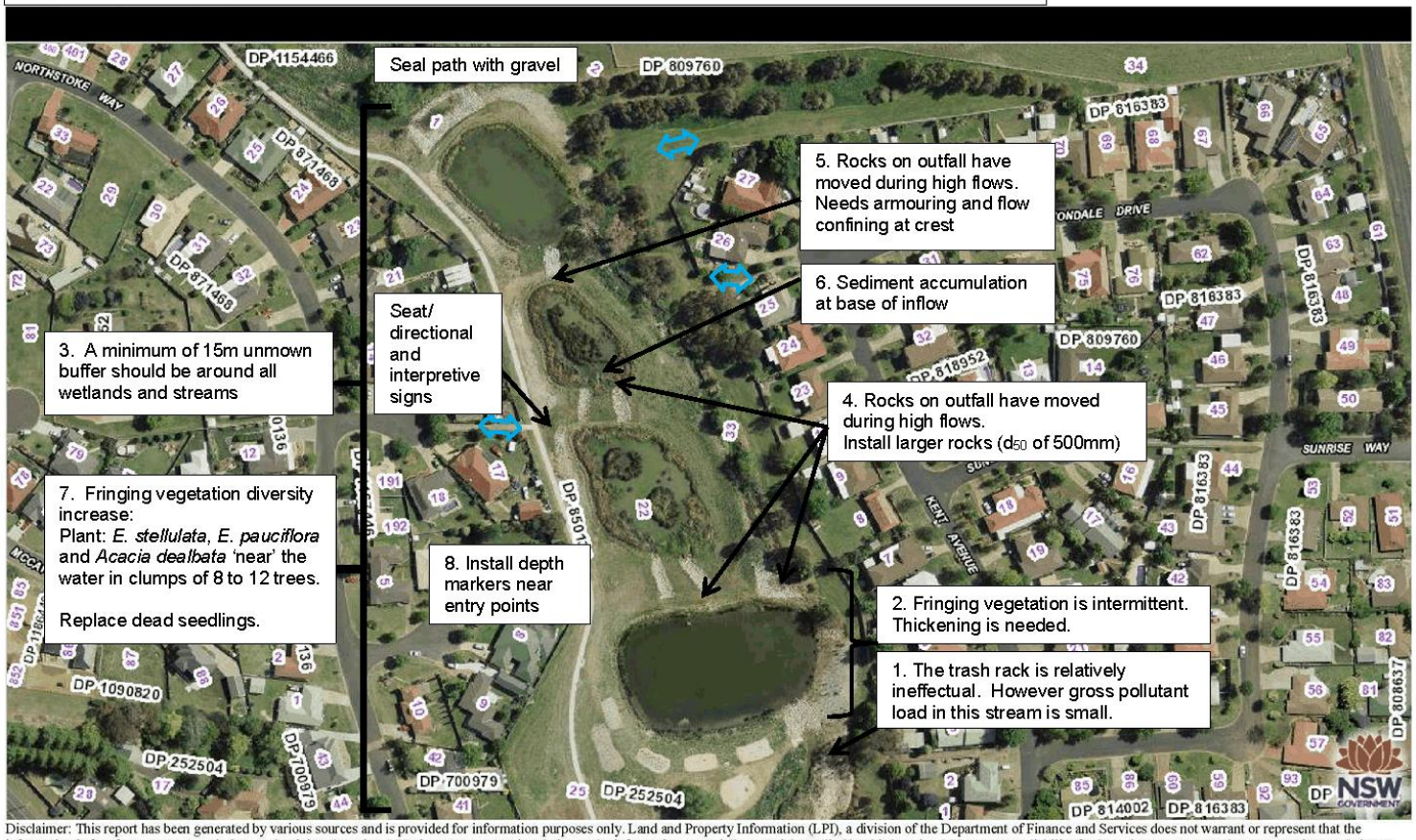

Table 2.6. Maintenance Plan for Somerset Park wetlands

Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
1 (figure 2.42)	Accumulation of gross pollutants	Check design effectiveness before using again	Effective trash racks in the 'right' locations	Annually in spring time	Remove as required.
2 (figure 2.43 & 2.44).	Fringing vegetation is sparse in many areas. Easy entry for children	Prevent accidental drowning. Minimise sediment entry to wetlands.	At least 2m wide of thickly growing wetland plants fringing the wetland.	Check monthly and after >30 mm/day rain events. Main emphasis in spring when transplanting is likely to be most successful.	Next spring, divide the plants and plant all the 'holes'. If necessary collect some plants from the downstream cells of the Somerset wetland. Plant *Baumea articulata* on 'deeper' side (to a water depth<50% of plant height) and *Juncus usitatus* into shallow areas. *Gahnia (clarkei?)* and *Lomandra longifolia* as outer fringe.
3 (figure 2.45)	Increased width of buffer between top of creek bank mown area.	Minimise erosion of banks	Vegetated banks. No rilling No sediment plumes into the wetland.	1 week after any remediating action. Then monthly and after >30 mm/day rain events.	No mowing within 15 m of edge of wetland (if practical).
4 (figure 2.46)	Stability of all rock outfalls	Ensure long term integrity of wetland wall. Prevent scouring following mobilisation of rock cover	No movement of rocks in the overflow chute.	Check monthly and after >30 mm/day rain events.	See appendix 1 for details
5 (figure 2.47)	Outflanking of rock chute between ponds 3 and 4. Needs a plinth or similar structure to manage flows	Prevent scouring below wetlands	Water overtopping the wetlands is contained within rock armoured area.	As above.	Install an armoured conveyance to prevent overflows scouring the top of the bank.
6 (figures 2.48 & 2.49)	Sediment accumulation among rocks	Indicates significant erosion events in the catchment	No obvious sediment accumulation among rocks or immediately below in the wetland	As above	If sediment is covering more than 50% of rocks AND has created a sediment plume in the wetland, remove rocks. Put aside, Excavate sediment. Replace rocks
7	Fringing terrestrial vegetation	Provide more diversity in vegetation structure. (This should encourage a more diverse suite of birds)	Establish 'clumps' of trees including some overhanging the water	Annually in spring.	Plant: *E. stellulata* ,*E. pauciflora* and *Acacia dealbata* 'near' the water in clumps of 8 to 12 trees. Replace dead seedlings.

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Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
8	Sediment accumulation	Provide objective trigger for removal of accumulated sediment. Also provides indication of erosion rate from the surrounding catchment.	Removal of sediment before its accumulation significantly reduces wetland function. Highlight the need to minimise erosion within the catchment.	Install depth markes at 3 points (See figure 2.41). The markers should be in water at least 0.5m deep. And marked in cm. Check annually PLUS after 30 mm/day rain events. Check entry aprons for sediment. Remove rocks and clean out excess sediment once the accumulation covers more than 70% of the average rock 'height'. Replace rocks Check height sticks, program excavation when accumulated depth exceeds 0.3m	1. If sediment depth exceeds 0.2m, Scrape sediment of the entry apron concrete (see photo 2.15). 2. Remove rocks and clean out excess sediment once the accumulation covers more than 70% of the average rock 'height'. Replace rocks 3. Excavate a minimum of 0.3m where safe to do so.
9. install picnic shelter	Litter, vandalism, graffiti	Public amenity	Increased interest and public satisfaction with natural environment of Orange	Monthly	Repair /replace as soon as practical. Remove graffiti and any rubbish immediately.
10	Noxious weeds	Ensure no spreading of weeds	Rapid removal of noxious weeds from wetlands and riparian areas	Inspect quarterly	Immediately remove

Figure 2.42. Item 1. This trash rack is not collecting much gross pollutants. Why?

Figure 2.43. Item 2. There are some gaps in the vegetation surroiunding the wetlands. These gaps increase risk that children could enter the water.

Figure 2.44. Item 2. The fringing aquatic plant zone is especially wide in this wetland cell. This is probably because it has a shallow grade in the pond. The thick vegetation reduces the risk of children accessing it. A 15m wide unmown buffer is required.

Figure 2.45. Item 3. The 'no-mow' area should extend at least 15m from the top water level in the wetland cells

Figure 2.46. Item 4. Entry to lowest pond. Rocks are too small and are therefore moving.

Figure 2.47. Item 5. Rocked batter between ponds 3 and 4. The rocks are being outflanked. The site needs include graded edges to prevent lateral flows and an armoured base to prevent scouring on top of the bank. Rocks with D_{50} of 500 mm are needed. Rabbits are evident.

Figure 2.48. Item 6. The geofabric has been damaged and there is extensive deposition of coarse sediment among the rocks.

Figure 2.49. Item 6. Sediment at the inflow to pond 3.

Figure 2.50. Somerset reach 3: From wetlands to Northern Distributer Road

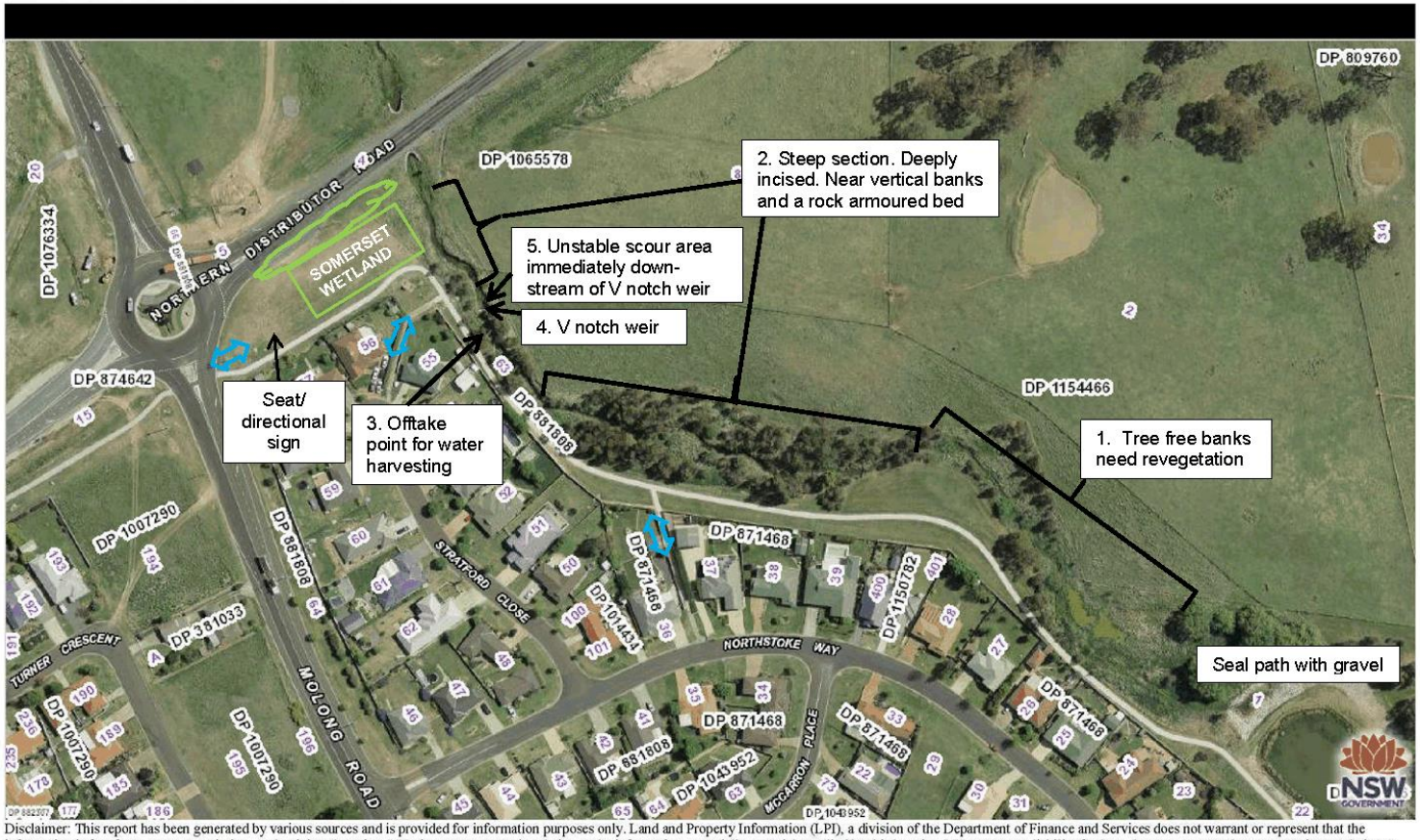

Table 2.7. Maintenance Plan for Somerset Park tributary downstream of wetlands

Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
1 (figure 2.51)	Revegetate top of banks with eucalypt trees and other specimens	Increase bank stability	Full suite of understorey, shrubs and trees for 6 m on both banks	Monthly after planting for 3 months, then annually in spring time	Suggested species:—*E.. pauciflora Acacia dealbata E. rubida, E.. bridgesiana.* Callistemon and Lomandra as typical shrubs and ground covers respectively. Reducing weed competition is critical. . Replace dead plants
2 (figure 2.53, 2.54 & 2.55)	Bank instability	Determine if action is needed to reduce erosion	No significant increase in the rate of erosion	Annually in spring time.	Laying back stream banks is a major , expensive action that requires input from the Office of Water. Erosion pins and permanent photo points could be established.
3 (figure 2.56)	Water offtake/ pump well	Ensure that sedimentation is not blocking flow to and from the offtake well	No obvious accumulation of sediment against the well intake	Before and after any planned water harvesting period and after >30 mm/day rain events	Remove sediment. Cleaning out the pump well will be difficult. It is preferable that the sediment not be there in the first place. Look at improved meshing and flows at the off-take point.
4 (figure 2.57)	Outflanking of the V notch weir and associated bank erosion.	The v notch weir is inoperable if all the flow does not pass over it.	Repair of the weir. Stabilisation of surrounding bed and banks	Monthly and after >30 mm/day events	Extend the concrete slab holding the V notch to at least 1m into the right hand bank[9]. Include a slope on the top of the slab to reduce depth of water against the weir in overtopping events.
5 (figure 2.58)	Creek bed and banks immediately downstream of V notch weir	The area is unstable	Rock stabilised scour hole	Monthly and after >30 mm/day events	Armour both base and sides with 400 mm D_{50} rocks
6	Noxious weeds	Ensure no spreading of weeds	Rapid removal of noxious weeds from wetlands and riparian areas	Inspect quarterly	Immediately remove

[9] Convention refers to left hand and right hand sides of streams as determined when facing downstream.

Figure 2.51. Item 1. Plant out tree-free banks.

Figure 2.52. Dumping of weeds is an issue in some areas. signage ***'Don't dump on your reserves'*** Could be placed at strategis points where dumping is prevalent.

Figure 2.53. Item 2. This section of the waterway is relatively steep. The rock floor inhibits further incision. However the near vertical banks are scoured during high flows and this results in deposition at the base of the bank.

Figure 2.54. Item 2. The waterway is incised over 2m. Plant roots will provide little resistance to erosion at the depth. Laying back the banks would assist, but it is expensive and probably not worthwhile as the length of waterway involved is relatively short.

Figure 2.55. Item 2. Nearby reaches of the water way are less incised and are relativley stable.

Figure 56. Item 3. The water harvesting off take is partly blocked with sediment. Sediment accumulation in the pump-well will be extremely difficult to clean out.

Figure 2. 57. Item 4. The concrete block containing the V notch weir has been outflanked. This has resulted in severe undercutting of the right hand bank. It needs stabilisation. The concrete block needs extending at least 1 m into the bank. The bank needs armouring at this point.

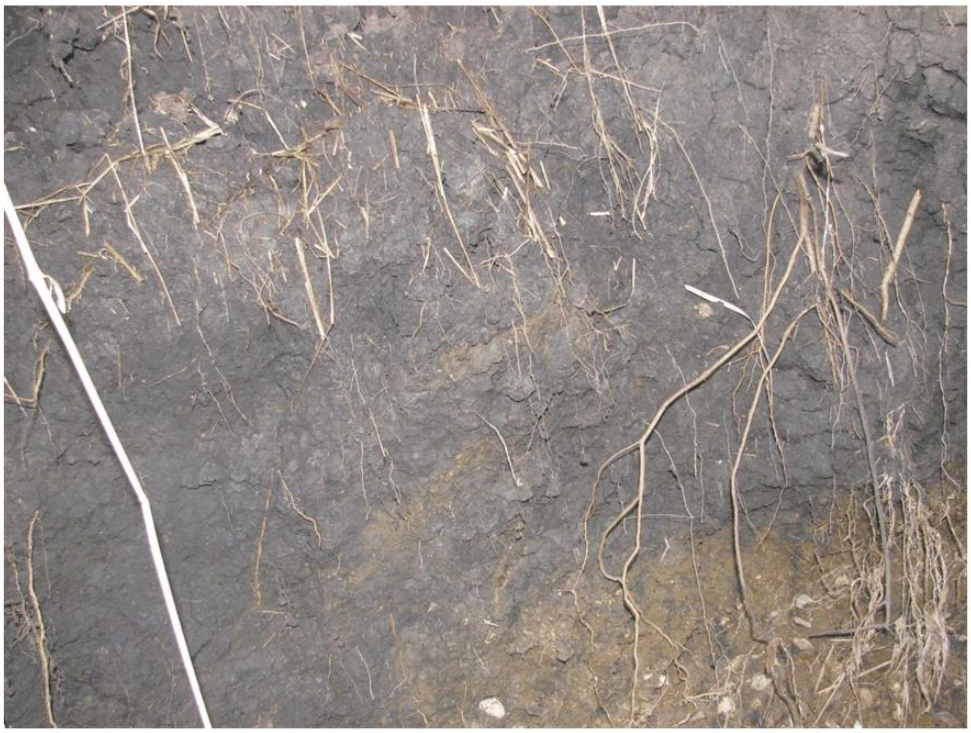

Figure 2.58. Item 5. The right hand bank and base immediately downstream of V notch weir are being eroded. Armouring is required. This must not interfere with the free fall of water through the V notch weir.

Figure 2.59. Item 2. The reach below the V notch weir is deeply incised. The near vertical banks are unstable. The ideal treatment would be to 'lay' the banks back to 2.5 to 3 :1 H:V, then plant out with full suite of riparian vegetation. However this would be an expensive operation.

Figure 2.60. Brooklands Reach 1 Upstream of Keaneys Drive to the wetlands. (upper portion downstream to Botanic Way).

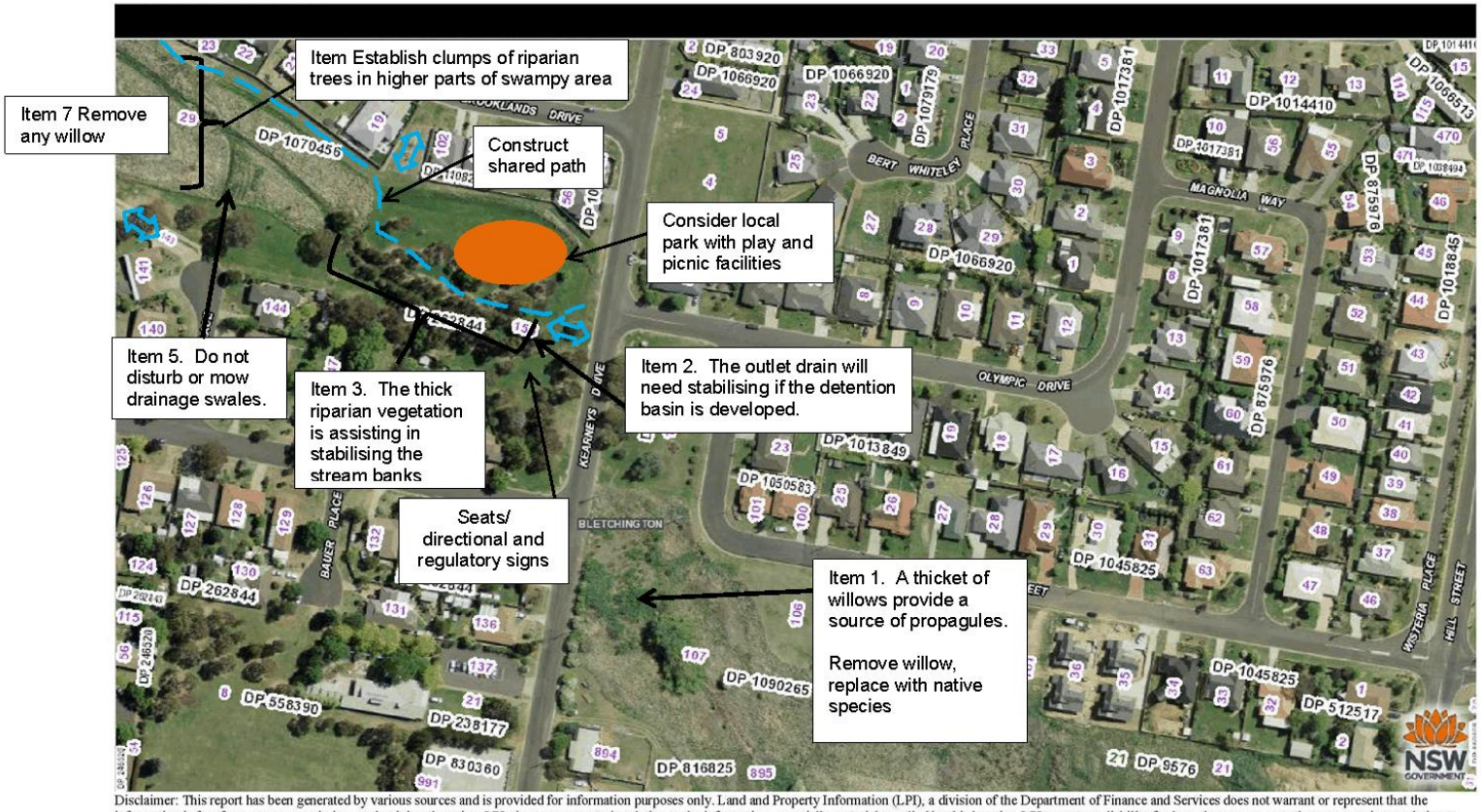

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Figure 2.61. Brooklands Reach 1 lower portion, from Botanic Way to immediately upstream of the wetlands.

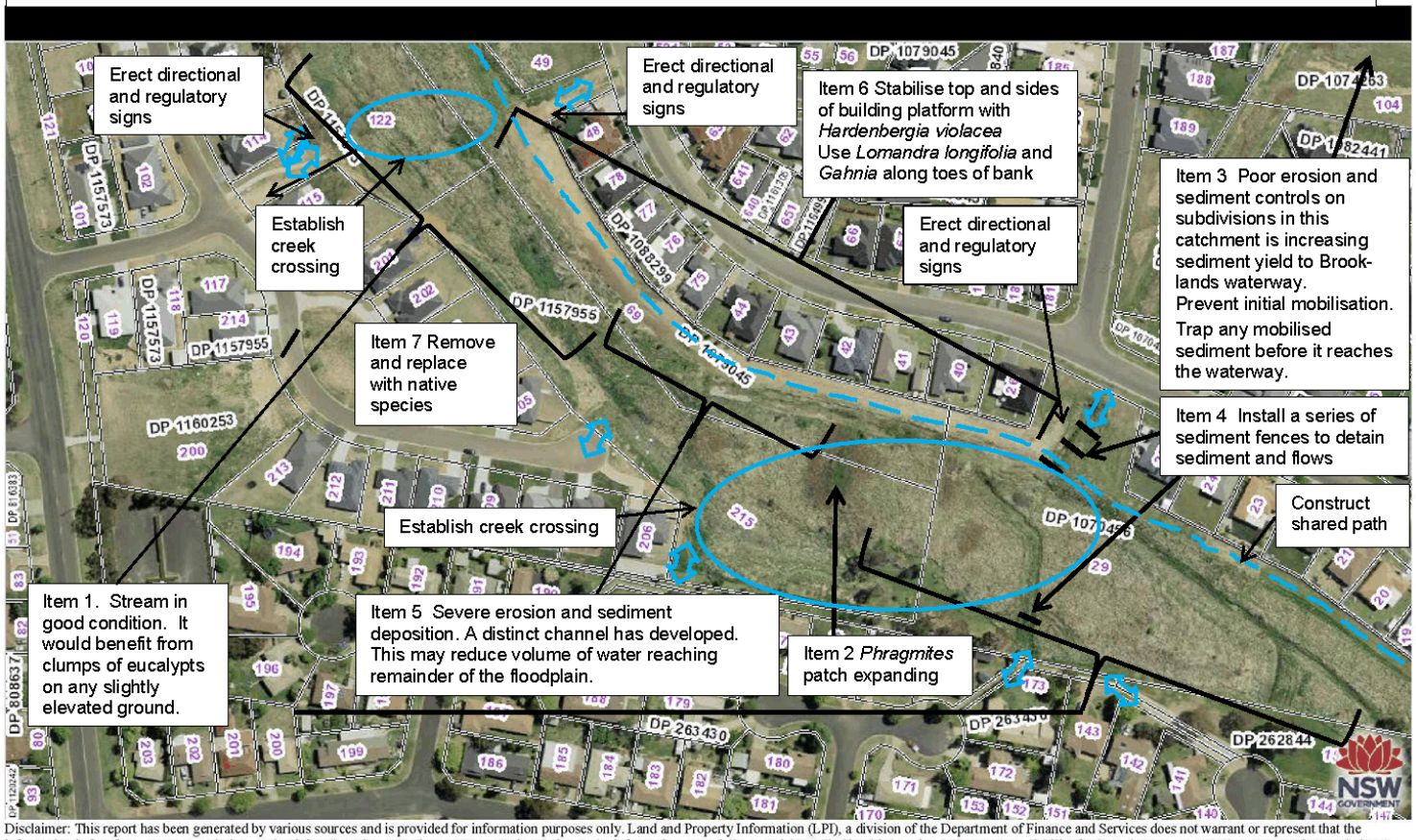

Table 2.8. Maintenance plan for reach 1 of Brooklands streamline (upper portion of stream line from upstream of Kearneys Drive to Botanica Way)

Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
1 (figure 2.60, 2.62)	Severe infestation of willows. These are an significant source of propagules to downstream waters	Site is private property. But it is a major threat to downstream conditions	No new recruitment of willows downstream of Kearneys Drive	Annually in spring time	Poison/ remove as required, immediately replace with natives. NOTE that this lot is currently private property. This action cannot be implemented without the owners' specific written permission.
2 (figure 2.63).	The pipe under Kearneys Drive is ½ submerged. This suggests either downstream scouring and creation of a sediment bar or severe sedimentation.	Ensure that flow in the pipe is not impacted by sediment (Especially during upstream construction activities).	No significant sediment bars downstream of the inlet	Check monthly and after >30 mm/day rain events	Excavate if sediment bars become visible.
3 (figure 2.64 and 2.65)	Gradual planting of riparian trees and shrubs downstream of current vegetation	Gradual increase in length of riparian trees and shrubs downstream of Kearneys Drive	Increase 'length' of planting by at least 20m/year.	1 week after any remediating action. Then monthly and after >30 mm/day rain events	Plant a 7m strip on either side of the stream line with suitable riparian trees and shrubs. *E. stellulata* *E. pauciflora* and *Acacia dealbata* plus riparian shrubs. Replace dead specimens.
4 (figure 2.68)	Re-colonisation of 'higher' ground within the swampy area with suitable riparian species	Increase biodiversity along stream line.	Occasional clumps of riparian trees	Annually	Plant: *E. stellulata* *E. pauciflora* and *Acacia dealbata* plus riparian shrubs 'near' the water in clumps of 4 to 6 trees.
5	Mown areas	Establish a 15m non-mown buffer around wetland / stream line edges	No mowing within 15m of stream or wetland.	Quarterly	Request that mowing be outside the 15m buffer zone. (May require some signage)
6	Noxious weeds	Ensure no spreading of weeds	Rapid removal of noxious weeds from wetlands and riparian areas	Inspect quarterly	Immediately remove

Figure 2.62. Item 1. A thicket of willows on private property astride the upper reach of Brooklands stream. These are a major source of propagules.

Figure 2.63. Item 2. Immediately downstream of Kearneys Drive. Pipe half drowned, suggesting scouring and deposition downstream. Armouring of the stream base will be needed if a detention basin is built upstream

Figure 2.64. Item 3. Banks and riparian zone are well vegetated in this area. Water is turbid and this is suggestive of urban pollution. Relatively recent undercutting and collapse of the upper bank has created a shelf at the toe.

Figure 2. 65. Item 3. The dense planting of riparian trees and shrubs in this area will assist in stabilisation.

Figure 2.67. Item 4. The thick ground cover is an effective filter for particulate matter. Keep disturbance to a minimum. The presence of occasional shrubs and trees indicates local high ground where suitable trees and shrubs could be planted.

Figure 2.68. Item 4. The stream banks in this area are well vegetated. Water clarity is good.

Table 2.9. Maintenance plan for reach 1 of Brooklands streamline (lower portion of reach from Botanica Way to the wetlands)

Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
1 (figure 2.68)	e-colonisation of 'higher' ground within the swampy area with suitable riparian species	Increase biodiversity along stream line.	Occasional clumps of riparian trees	Annually	Plant: *E. stellulata* *E. pauciflora* and *Acacia dealbata* plus riparian shrubs 'near' the water in clumps of 4 to 6 trees.
2 (figure 2.68, 2.69).	Phragmites	Indicator of good ecological conditions in area	Gradual increase in area of this species	Annually via satellite images	If the area begins to decline check if excess sedimentation has diverted flows.
3 (figure 2.70)	Sedimentation inflows from urban development upslope of Botanic Way.	Establish the severity of sedimentation arriving from urban development upslope of Botanic Way.	No appreciable sediment	Check monthly and after >30 mm/day rain events	If there is sedimentation AND Council cannot control it upslope, then install a series of silt fences on inflow lines from Botanic Way and Provincial Place
4	Effectiveness of silt fences in reducing sediment influx	Ultimately minimise sediment accumulation in Brooklands wetlands.	Minimal sediment, but all of it captured prior to the water entering the stream line.	Check monthly and after >30 mm/day rain events	Clean out accumulated sediment. Notify Engineering Dept that there is an issue with upslope erosion and sediment control.
5 (figure 2.71)	Erosion of stream channel	Identify the severity of erosion of banks (leading to prevention and remediation)	Revegetation of scoured areas. No sediment plumes into the wetland.	1 week after any remediating action. Then monthly and after >30 mm/day rain events	Fill in major scour lines. Cover the eroded area with jute mat. Pin in as per instructions. Plant out with Phragmites australis at 4 plants/ msq.
6 (figure 2.72).	Top, sides and base of building platform on the right hand side of the streamline	Minimise sediment influx to streamline. Provide a stable platform for future public paths	80% ground cover.	Check plant health weekly after planting as per normal schedule. Then monthly and after >30 mm/day rain events	Spread up to 10 t/ha of mulch. Hardenbergia violacea is a key ground cover on top and face of platform. Lomandra longifolia and Gahnia clarkei(?) useful along the toe of the bank Acacias will provide a shrub layer.
7	Replace all willows with eucalypts and other natives	Increase biodiversity. Reduce scouring and sediment mobilisation	No willow recruitment. A virtually continuous corridor of native vegetation	Annually in spring time	Inject all willows with herbicide in late spring/ early summer. Replace with native vegetation. Plant: *E.. pauciflora* and *Acacia dealbata* 'near' the water Also *E. rubida, E.. bridgesiana* and *E. dives on slightly higher ground* Plant *Gahnia (clarkei?)* and *Lomandra longifolia* as ground cover Replace any dead seedlings.

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Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
8	Fringing terrestrial vegetation	Provide more diversity in vegetation structure. (This should encourage a more diverse suite of birds)	Establish 'clumps' of trees including some overhanging the water	Annually in spring.	Plant: *E.. pauciflora* and *Acacia dealbata* 'near' the water Also *E. rubida, E.. bridgesiana* and *E. dives* on slightly higher ground. Plant trees in a 7m wide corridor on either side of the floodplain. Plant *Gahnia (clarkei?)* and *Lomandra longifolia* as ground cover Replace dead specimens.
9	Noxious weeds	Ensure no spreading of weeds	Rapid removal of noxious weeds from wetlands and riparian areas	Inspect quarterly	Immediately remove

Figure 2.68. Item 1. Stream in good condition. However it would benefit from additional diversity. Planting riparian trees and shrubs will help.

Figure 2.69. Item 2. Phragmites is expanding. It is a very hardy wetland plant, capable or resisting flood flows. It will greatly assist in improving water quality. It is also an important habitat plant.

Figure 2.70. Lack of adequate erosion and sediment control on development sites within this subcatchment will add significantly increased sediment load to the streamline. Increasing impreviousness will increase peak flow rates increasing the risk of erosion.

Figure 2.71. Severe channel erosion due to increased flow from Botanica Way.

Figure 2.72. The top, face and toe of the building platform runs parallel to the right hand side of the stream line. It needs revegetation.

Figure 2.73. Brooklands Reach 2. The wetlands.

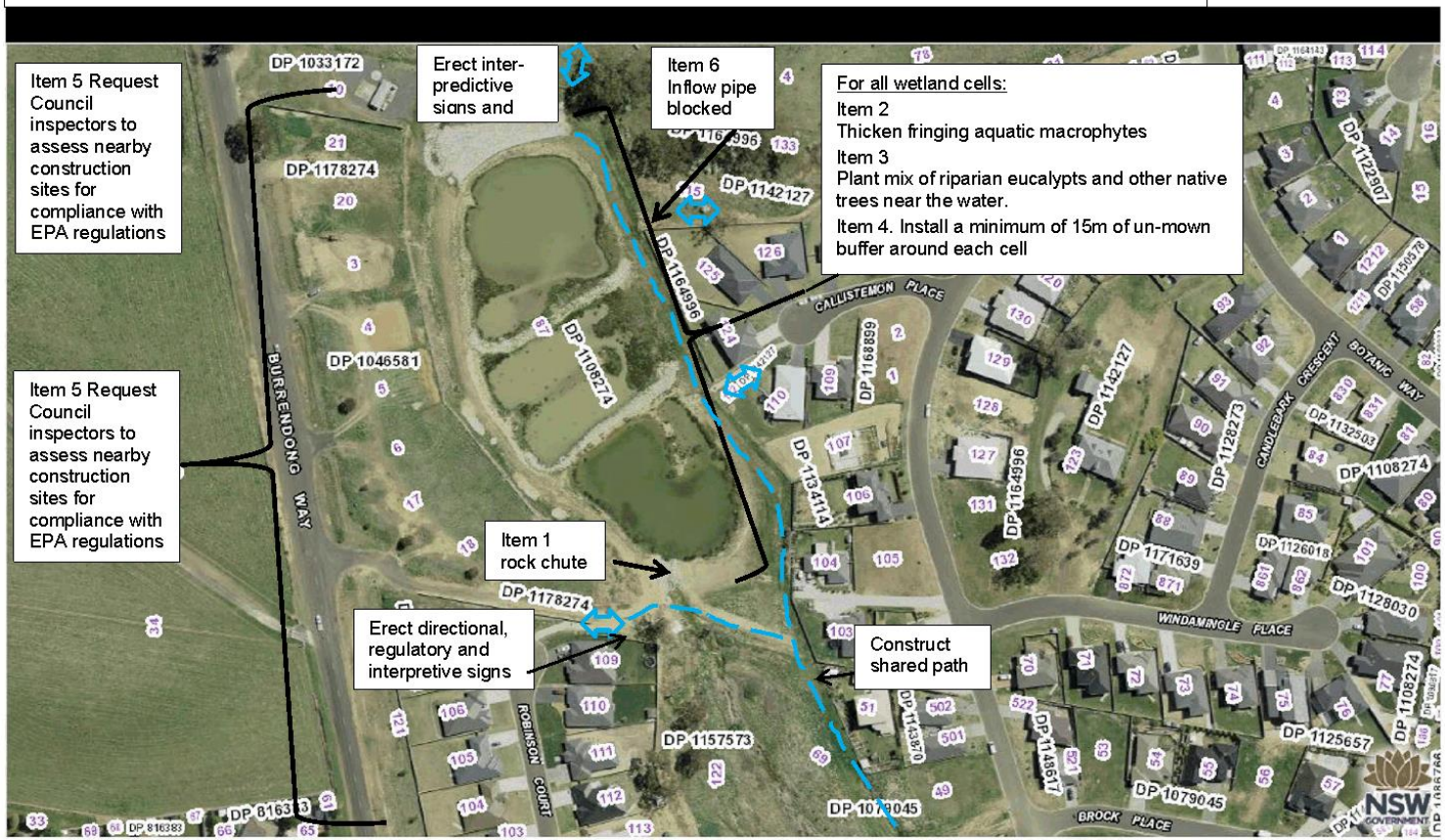

Table 2.10. Maintenance Plan for Brooklands Wetland cells.

Item/ Site	Component to be monitored	Purpose	Performance target	Inspection schedule	Maintenance action
1 (figure 2.74)	Rock chutes downslope of the trash rack	The rocks have moved since installation. This has exposed bare soil in some areas.	Stabilisation of rock chute	Monthly and after >30 mm/day rain events	See appendix 1 for details
2 (figure 2.75)	Fringing aquatic vegetation is sparse in many areas. Easy entry for children	Reduce risk of accidental drowning. Minimise sediment entry to wetlands.	At least 2m wide of thickly growing wetland plants fringing the wetland.	Check monthly and after >30 mm/day rain events Main emphasis in spring when transplanting is likely to be most successful.	Next spring, divide the plants and plant all the 'holes'. If necessary collect some plants from the downstream cells of the Somerset wetland. Plant *Baumea articulata* on 'deeper' side (to a water depth<50% of plant height) and *Juncus usitatus* into shallow areas. *Gahnia (clarkei?)* and *Lomandra longifolia* as outer fringe.
3 (figure 2.76)	Fringing terrestrial vegetation	Provide more diversity in vegetation structure. (This should encourage a more diverse suite of birds)	Establish 'clumps' of trees including some overhanging the water	Annually in spring.	Plant: *E. stellulata* *E. pauciflora* and *Acacia dealbata* 'near' the water in clumps of 8 to 12 trees. Replace dead ones.
4 (figure 2.77 and 2.78)	Increased width of buffer between top of creek bank mown area.	Minimise erosion of banks and influx of sediment from nearby construction sites.	Vegetated banks. No rilling No sediment plumes into the wetland.	1 week after any remediating action. Then monthly and after >30 mm/day rain events	No mowing within 15 m of edge of wetland (if practical). Note need for 10m wide Asset Protection Zone around dwellings.
6 (figure 2.79)	Inflowing pipes are partly blocked and have minimal rock pad.	Stabilise inflow lines. Minimise sediment influx to wetland.	No sediment plumes downslope of inflows.	Annual plus after >30 mm/day rain events	Provide adequate rock pad (see appendix 1)
7	Noxious weeds	Ensure no spreading of weeds	Rapid removal of noxious weeds from wetlands and riparian areas	Inspect quarterly	Immediately remove
8	The potential for a path parallel to the Northern Distributor Road	Link Somerset and Brooklands Wetland areas.	Ability for residents to mover between wetlands		

Figure 2.74. Item 1. Rocks downslope of the trash rack have moved and are not armouring the outflow area.

Figure 2.75. Item 2. Gaps among the fringing vegetation need planting out.

Figure 2.76. Item 3. Eucalypts and other fringing trees are needed to 'overhang' the wetland

Figure 2.77. Item 4. A minimum of 15m un-mown buffer is needed around the wetland in order to minimise entry of turbid water from unregulated building sites.

Figure 2.78. Item 4. Water in the Brooklands Wetland is turbid. This is not from upstream as the inflowing water is clear. Erosion and sediment mobilisation from nearby building sites will rapidly fill the wetland. Increasing the buffer width around the wetland to 15m will assist.

The wetland has a good range of aquatic habitat. Additional logs and plantings of fringing trees will improve diversity even further.

Figure 2.79. Inflow pipes are becoming blocked.

3. RECREATION ISSUES AND MANAGEMENT

3.1 Introduction

This section outlines the management and maintenance of the four subject wetlands and riparian corridors for recreation.

3.2 Benefits of wetlands and riparian areas for recreation

The benefits of wetlands and riparian corridors for recreation include providing:

- access to natural settings and wildlife.
- extensive linear corridors which encourage physical exercise.
- linkages to surrounding land uses.

Figure 3.1. Ploughmans Wetland is used by a wide range of residents.

Figure 3.2. The wetlands provide a range of habitats.

3.3 Objectives for recreation in wetlands and riparian corridors

Council's objective for management of wetlands and riparian corridors is primarily for water cycle management. A secondary objective is to balance recreational use with other values and functions of wetlands and riparian corridors, such as habitat for flora and fauna, water storage and drainage, flood mitigation, aesthetic amenity, education and interpretation.

Council's objectives regarding recreation in wetlands and riparian corridors are to:

- encourage community use of riparian corridors and wetlands for compatible recreational activities and community education without affecting water quality.

- promote community access to and use of the wetlands and riparian corridors without detrimentally affecting the environment or neighbourhood amenity through noise, dust, light, visual impact, traffic).
- ensure that engineered structures in wetlands and riparian corridors will not reduce the ability of a particular park to continue to be used for informal outdoor enjoyment by the general public.
- encourage physical linkages between wetlands and riparian corridors for recreation.
- minimise Council liability regarding recreational activities in wetlands and riparian corridors.

3.4 Planning context

The context of recreation in wetlands and riparian corridors in Council's planning framework is outlined below.

3.4.1 Orange Recreation Needs Study

The Orange Recreation Needs Study (Insite, 2008) recognises that wetlands, riparian corridors and greenways in urban development areas are an important part of the network of recreational settings in Orange, for several reasons including recreation and habitat protection.

The importance of opportunities for walking and cycling to the Orange community are demonstrated by:

- walking and cycling are popular recreational activities in Orange.
- off-road cycleways and walking tracks are a top-ranked facility that the general community, school students and sporting clubs would like Orange City Council to build.
- community surveys showing that off-road cycleways and walking tracks are the second-ranked main recreational opportunity to provide.
- the community identifying off-road cycleways are a facility which requires upgrading as a priority.

Given the popularity of walking and cycling in Orange, the study identified that limited linear trails and cycleways/walking tracks are a weakness in provision. As such, convenient access to off-road shared pathway networks are a priority in the next 5-10 years. A recommendation of the study to establish a formal shared pathway through Paul Park, Somerset Park and Jaeger Oval has been implemented.

3.4.2 Recreation Needs Study Review

The Orange Recreation Needs Study was reviewed and updated in 2011 (Lantz Marshall, 2011). The review highlighted the importance of path systems which provide good

connectivity between places of activity, and which link residential areas with open spaces and other community destinations.

Recreation facilities which are combined with drainage functions must consider flood immunity to ensure that recreational facilities may reasonably be installed, and that safe and flat pedestrian / cycle access can be achieved to connection points, while avoiding drains with narrow pinch points and steep sides which limit pedestrian and cycle access.

3.4.3 Orange City Bicycle Plan

The Orange City Bicycle Plan (2012) encourages opportunities for cycling on shared off-road paths. Existing and proposed routes linking the wetlands and riparian corridors with other parts of Orange, and paths within the four riparian corridors, are recommended. A route joining the wetlands with the botanic Gardens is shown in figure 3.1.

3.4.4 Plans of Management

The Ploughmans Wetlands and Coogal Wetlands were constructed after the Plan of Management for Ploughmans Valley was prepared, so they are not specifically mentioned in the Plan. However, the Plan of Management supports opportunities for passive and active recreation associated with the wetlands in Ploughmans Valley.

The Plan of Management for Local and Neighbourhood Parks is a generic Plan of Management which includes Somerset Park, and could also be applied to the Brooklands Wetland.

3.5 Permissible activities and developments

Examples of permissible activities and developments in the subject wetlands to support appropriate recreational use are set out below. These activities are generally compatible with the objectives set out in Section 3.3.

Table 3.1 Permissible and prohibited recreational activities

Permissible activities	Prohibited
Birdwatching / nature observation	Boating (powered)
Boating (non-powered, authorised)	Camping
Cycling	Horse riding
Educational activities	Model aircraft flying (motorised)
Filming / photography	Hunting / shooting
Fishing and fish stocking	Remote controlled boats (fuel)
Flora and fauna surveys	Swimming
Picnics and barbecues	Motorised vehicles (unauthorised)
Planting vegetation under Council guidance	Unleashed dog exercise
Walking / jogging	
Walking dogs (leashed only)	
Water quality testing	

Permissible developments include, but are not limited to:

Amenities/toilets
Bike racks/storage
Bins for rubbish and dog waste
Bird hides
BMX tracks with adequate sedimentation control measures
Boardwalks / raised paths (steel or timber)
Bridges
Children's play equipment
Fitness equipment
Jetty/deck for observations, water testing
Lighting
Picnic tables/shelters
Public art
Seats / benches
Shelters
Signs – directional, educational, regulatory
Vehicle parking areas
Viewing tower
Walking / cycling paths

3.6 Issues and actions

Actions to address issues related to recreation in the subject wetlands and riparian corridors are set out below.

3.6.1 Visual amenity

Public open spaces which are easily visible, particularly with a substantial road frontage, attract people to use them.

Council is keen to improve the visual attractiveness of its constructed wetlands from major roads which adjoin them, such as Cargo Road and the Northern Distributor.

Table 3.2 Actions to improve visual amenity

Wetland/corridor	Actions
Ploughmans	Install a 'Ploughmans Wetlands' sign on the northern boundary at Cargo Road.
	Plant feature plants along the northern boundary at Cargo Road.
Coogal	Plant feature plants along the southern boundary at The Escort Way.
	Plant feature plants at the Goldfinch Way pedestrian access point.
Somerset	Install a 'Somerset Wetlands' sign on the northern boundary at the Northern Distributor.
	Plant feature plants along the northern boundary at the Northern Distributor.
Brooklands	Install a 'Brooklands Wetlands' sign on the northern boundary at the Northern Distributor.
	Plant feature plants along the northern boundary at the Northern Distributor.

3.6.2 Safety

People, particularly children, falling into wetland bodies is a safety concern. A more effective and desirable alternative to regulatory signage and fencing is to plant dense and/or spiky plants on the edge of the wetland to deter pedestrian access. Warning signs may be necessary in certain places, such as when children's play areas are nearby.

Table 3.3 Actions to improve safety

Wetland/corridor	Actions
Ploughmans	Install signage about the potential safety hazard of deep water in places where children's play areas are nearby e.g. willow at Ploughman Creek.
Coogal	Install a bridge or elevated boardwalk over the muddy path between the underpass and the wetland.
	Plant barrier planting on the edge of the wetland.
Somerset	Complete thick edge planting of the southern pond.
Brooklands	Plant barrier planting on the edge of the wetland.

3.6.3 Access

Access by pedestrians, cyclists and people using vehicles on adjacent roads is important to encourage use of wetlands and riparian corridors. However, public access and movement needs to be balanced with ecological considerations, such as the behaviour of wetland birds in the presence of humans.

Universal access principles ensures that people with disabilities, as well as people with young children, and the general population, can easily access public areas.

Good examples of pedestrian access from adjoining streets in the design of residential subdivisions are at Coogal Wetland and Somerset Park.

Seats and directional signs should continue to be installed at access junctions to assist people waiting for others and resting.

Pedestrian access through wetlands in riparian corridors can damage natural vegetation. Raised walkways, boardwalks and bridges are preferred options to reduce such damage.

A combination of sealed shared paths and unsealed paths should continue to be provided to cater for different users and activities. Sealed (Class 1) paths should be at least 2.5 metres wide, and incorporate stencilled bike / pedestrian symbols and signage for shared pathways.

Council have developed a limestone/clay surface which is binding and does not easily erode. Inspections of the path surface should ensure the surface material has not spread, and if so, then reseal.

Figure 3.3. Proposed path linking wetlands and stream lines to the Botanic Gardens.

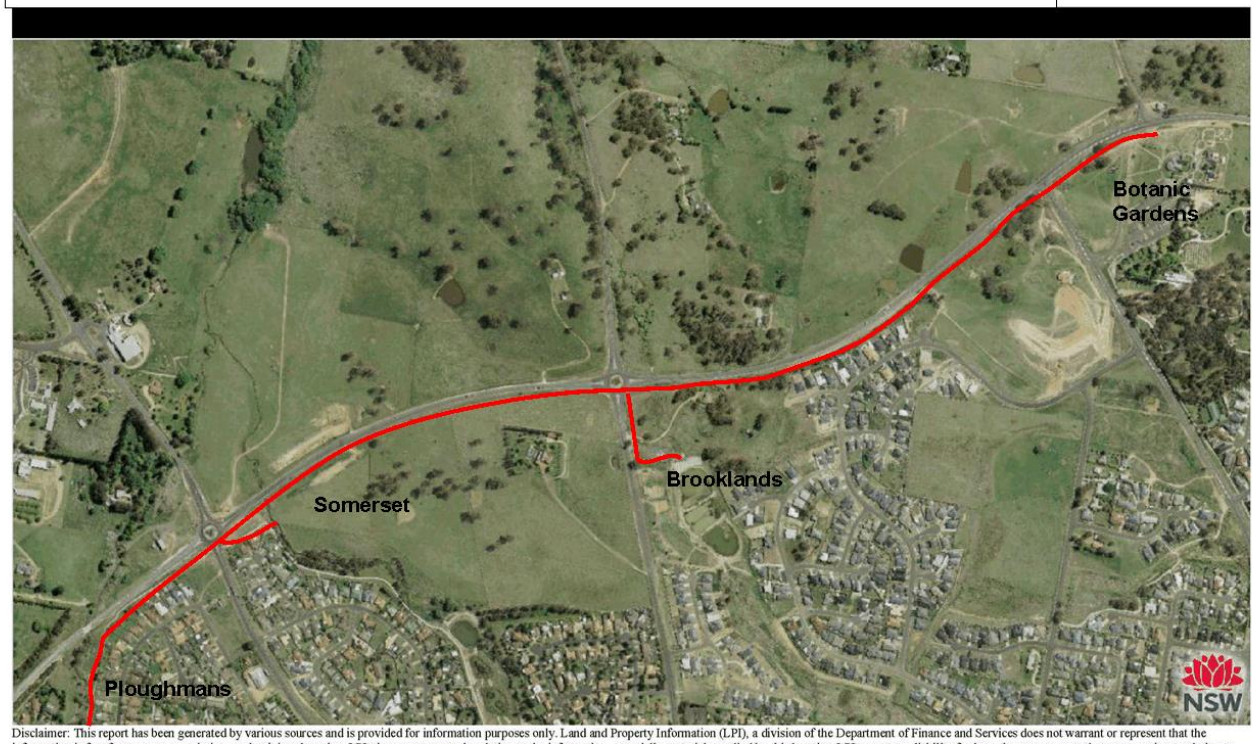

Table 3.4 Actions to improve access

Wetland/corridor	Actions
Ploughmans	Construct a path near edge of the pump shed building.
	Construct a shared path along the south-eastern fenceline of the Ploughmans Creek wetland, which would link the existing sealed path south to Stirling Avenue. This path should incorporate an appropriate crossing over the drainage channel. Construction of the path should not involve removal of any existing trees along the fenceline.
	Construct a boardwalk over the wet section along the grass walking track just south of the sealed path.
	Construct a boardwalk over reeds north-west of the stormwater discharge point in the south-west corner.
	Construct a pathway from Stirling Avenue to link with the grass walking track.
	Allow for a pedestrian access point from the proposed subdivision on the south-west corner.
	Formalise the vehicle parking area off Ploughmans Lane.
Coogal	Install a seat and directional sign at entrances off The Escort Way, Goldfinch Way, Glendale Crescent, and the Northern Distributor Road.
Somerset	Install a seat and directional sign at the northern end of Somerset Park.
	Seal the informal path on the northern dam wall with gravel.
	Install a seat and directional sign at the entrance off Northstoke Way.
Brooklands	Construct a continuous sealed shared path on the north-eastern side of the riparian corridor between the Northern Distributor and Kearneys Drive. Attention needs to be given to settling of fill on the path route. This path to include an appropriate crossing of the outlet between 25 and 26 Brooklands Drive.
	Establish crossings of the creek between Robinson Circuit and Brooklands Drive, and Provincial Place and Brooklands Drive.
	Install a seat and directional sign at the entrance off Kearneys Drive.
All wetlands	Provide linkage between wetlands and Botanic Gardens as per figure 3.3.

3.6.4 Children's play

Wetlands and riparian corridors offer children places to play, whether in the creek or on the adjoining banks, or in formal and informal play spaces in the corridor.



As the riparian corridors in the study area also function as parks, children's playgrounds are and can be part of the open space network. Council is preparing a Playground Strategy which will integrate and promote nature-based play in its play spaces.

As Glendale Crescent playground consists one metal swing-set, it will eventually be removed and replaced subject to Council's Playground strategy.

Informal BMX jumps have been established in dumped fill on the western side of the Ploughmans Creek wetland.

Table 3.5 Actions to improve children's play opportunities

Wetland/corridor	Actions
Ploughmans	In principle, continue use of this area for BMX. Monitor erosion, runoff and possible sedimentation of the wetland.
Coogal	Review the role of the playground at Sieben Drive/Glendale Crescent in Orange's open space network. Embellish/remove the playground accordingly.
Somerset	Review the role of the playground in Somerset Park in Orange's open space network. Embellish the playground accordingly.
Brooklands	Consider the space north of Kearneys Drive as a local park incorporating play opportunities offered by the creek and its banks at this location.

3.6.5 Picnics and barbecues

Picnics and barbecues are popular activities associated with attractive bodies of water.

Picnic and barbecue facilities should be provided where appropriate, but the need for disposal of rubbish in bins is important to avoid gross pollutants in wetlands and waterways.

Table 3.6 Actions to improve opportunities for picnics and barbecues

Wetland/corridor	Actions
Ploughmans	Construct a small park off Stirling Avenue in the south-west corner of the wetland. The park could include a picnic table/shelter.
Coogal	-
Somerset	Establish a small picnic area south of the southern pond.
Brooklands	Consider picnic facilities in the space north of Kearneys Drive.

3.6.6 Dog exercise

Exercising dogs is a popular activity which takes place at wetlands and in riparian corridors. However unleashed dogs can chase birds and bark at them, which scares the birds and they may not return.

Council has designated an unleashed dog exercise area north of the concrete canal in Paul Park.

Signs have been installed at Ploughmans, Coogal and Somerset Wetlands that unleashed dogs are not permitted.

Table 3.7 Actions regarding dog exercise

Wetland/corridor	Actions
Ploughmans	Install a sign prohibiting unleashed dogs at the new boardwalk section south of the gravel path.
Coogal	-
Somerset	-
Brooklands	Install signs at all entry points prohibiting unleashed dogs.

3.7 Monitoring of recreation

Monitoring of recreational activities may be carried out in conjunction with the frequency of inspections and maintenance of engineered structures in the wetlands and riparian corridors. More frequent inspections and maintenance may be necessary in response to residents and users reporting any issues to Council.

Recreational use of the wetland may be monitored by methods such as visitor surveys (interview, on-line), people counters, and photography.

4. EDUCATION STRATEGY

4.1 Current educational initiatives

4.1.1 General community

Orange City Council is doing an admirable job educating the community about the value and function of wetlands, riparian corridors and catchments. Council educates the general community about wetlands and catchment management via:

- project pages on its website
- initiatives such as '*Only Nutters Litter Gutters*' stencilling over drains.
- organising tree planting by community groups. In 2012 1,000 trees were planted in Blackmans Reach 3.

A good example of wetland education and a mix of appropriate recreational opportunities has been developed at Gosling Creek Reserve and Bloomfield Park. As the Ploughmans, Coogal, Somerset and Brooklands wetlands and their surrounds 'mature' consistent with Gosling Creek Reserve and Bloomfield Park, educational and recreational use of those wetlands is likely to increase and diversify with increased community awareness of the opportunities they offer.

Community activities such as the Planet Ark National Tree Day utilise wetlands to encourage community participation and education.

4.1.2 On-site

Educational initiatives in the riparian corridors and at the wetlands include:

- interpretive signage at Ploughmans Creek, Coogal and Somerset Park.
- stencils over the drain off Brooklands Drive
- wildlife warning sign on Ploughmans Lane.
- Council staff conducting school students for wetland visits, water quality testing, and invertebrate surveys. School groups use logs at Ploughmans Creek and Somerset Park for seating.

The signage is passive information rather than interactive. The designs are to encourage visitors to read and visualise the wetland values and processes. Council has a new series of signs . These will be installed in the near future.

Other activities involving wetlands include:

- Council has a walking and cycling brochure which includes the wetland/ riparian paths
- The Orange Bike Plan shows the wetland/riparian paths
- Council has allocated funds for a 'Wetlands of Orange' brochure which is also on Council's website

The development of a 'Wetlands of Orange' brochure will complement the existing Bird Routes of Orange District (BROOD) brochure and the Walking / Cycling Guide.

Interpretive sign at Somerset Park


Stencil over drain off Brooklands Drive

Wildlife crossing sign at Ploughmans Lane


Log used for seating at Somerset Wetland

Signage should address the issue of unleased dogs entering the wetlands and scaring off water birds. This is especially important during the spring nesting season.

4.2 Educational initiatives

4.2.1 Physical works

Suggested structures to improve educational opportunities at the wetlands in the study area, with minimal disturbance to wildlife, are set out below.

Table 4.1 Works to improve educational opportunities

Wetland/corridor	Actions
Ploughmans	Construct a viewing platform over the southern pond to assist with water quality testing, invertebrate surveys, and viewing of the wetland.
	Construct a bird hide with interpretive signs on the western side of the northern pond.
	Establish a shelter and informal seating for educational groups.
Coogal	Erect interpretive signs at the Goldfinch Way pedestrian access point.
	Erect interpretive signs east of the Northern Distributor Road underpass.
Somerset	Construct a bird hide with interpretive signs at a suitable location overlooking the wetland.

Brooklands	Erect interpretive signs at the wetland.

4.2.2 Educational resources and programs

Councils can do or influence many things in educating the community about wetlands and the effects of their activities in catchments which result in water pollution and other undesirable impacts.

Initiatives to educate the community of the value of wetlands, and of managing quality water in catchments, should be tailored to the particular audience as follows.

General community
Continue Tree Planting Day activities.

Organise and participate in World Wetlands Day activities on or around 2 February each year.
Place stencil signs at street and other drain inlets stating where the water flowing through that drain ends up.

The provision of bike racks at wetland nodes is recommended.

Post educational tools on Council website, for example Byron Shire Council:
http://www.byron.nsw.gov.au/water-catchment-trailer

Adapt and highlight campaigns by other organisations on Council's website and other media, such as 'Say No to Plastic Bags'
http://www.noplasticbags.org.au/home/default.aspx

and 'The Drain is Just for Rain'
http://www.hastings.nsw.gov.au/resources/documents/sw_drain_just_rain.pdf

Post and publicise case studies of environmental initiatives by Councils, including:
http://www.environment.nsw.gov.au/stormwater/casestudies/index.htm#case

Liaise with other organisations, such as the Australian Museum about 'Museum in a Box'
http://australianmuseum.net.au/Museum-in-a-Box-Catchments-Water-for-Living

School students

Numerous resources for primary and secondary school teachers and students on wetlands, and catchment water quality, are available, such as:

- Discovering Wetlands in Australia
  http://www.environment.gov.au/water/publications/environmental/wetlands/pubs/classroom-resource.pdf

- http://www.environment.gov.au/water/education/concepts/quality.html

School and community groups are encouraged to participate in water quality assessment including water bug surveys, nutrient measurement and gross pollutant removal. Educational activities are provided to small groups from schools.

School groups can also visit a wetland education centre at Bicentennial Park (Sydney Olympic Park), Hunter Wetlands Environmental Education Centre, and the Aquatic Environment Education Centre in Albury.

Council's Environmental Manager could co-ordinate Streamwatch testing, and compile and publicise testing results.

Catchment land uses

Add words about agriculture, industry etc.

Neighbouring land uses

Neighbouring land uses have an important role to play in minimising their impact on wetlands and riparian corridors.

The Wentworth Golf Course is located to the east of the Ploughmans Lane Wetland. Use of fertilisers impacts on water quality. The Department of Environment and Climate Change NSW (2011) have issued environmental guidelines for golf courses to minimise their environmental impact.

To add on education of residents re potable/non-potable water, oil changes on driveways, dumping

4.3 Funding for educational activities

Funding for wetland and catchment educational activities may be provided by all levels of government, and by private organisations.

Possible grants from the Commonwealth and NSW government are listed below.

Table 4.2 Commonwealth and State government grants for wetland education

Grant	Organisation	Purpose
Commonwealth		
Caring for Our Country: Community Action Grant	Depts. of Sustainability, Environment, Water, Population, and Communities; and Agriculture, Fisheries and Forestry	Support local activities such as tree planting, revegetation, dune rehabilitation, field days, improving land management practices, and recording and using traditional ecological knowledge.
State		
Environmental Trust: Lead environmental	Office of Environment and Heritage	Provides administrative funds for environmental organisations that work with

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Grant	Organisation	Purpose
community groups program		their communities to conserve the environment.
Environmental Trust: Environmental education program	Office of Environment and Heritage	Supports projects which increase commitment to protecting the environment and promoting sustainable behaviour.
Environmental Trust: Eco schools program	Office of Environment and Heritage	Funds schools so they can involve their students and the community in developing and implementing environmental management projects.
Environmental Trust: Protecting our places program	Office of Environment and Heritage	Supports projects that restore or rehabilitate Aboriginal land or land that is culturally significant to Aboriginal people, or that educate Aboriginal and other communities about the environment.

5. STRATEGIC PLANNING TARGETS

The key strategic planning target is the maintenance/ enhancement of the social, recreational, educational, environmental and economic values of the waterways and wetlands.

These values are commonly interdependent in that enhancement of one value often increases other values.

Vision

The values are expressed as a vision statement. For example:

The wetlands and waterways of the Orange Urban Areas will have diverse habitats consistent with the local climate, landform and soils. They will provide a significant recreational and social resource for the City as well as increasing the range of educational opportunities in the area. The capture and reuse of stormwater will reduce Orange City's dependence on external water resources ,at the same time providing its residents with a safe, more reliable water supply.

Statement of intent

1. Council recognises the importance of the waterways and wetlands in managing floods and sediment as well as supplying suitable quality water for potable reuse.

Council therefore will place these resources on its asset list and look to manage them so that all their values are maintained/enhanced.

In particular Council will ensure that catchment activities such as road construction and subdivision development do not result in degradation of the wetlands/ waterways via excessive sedimentation.

2. Council recognises the social and recreational values of the wetlands and waterways. It will therefore encourage safe and appropriate use of the precincts.

3. Council recognises that an ecologically diverse set of wetlands and waterways increases the ecological values of the precinct while the same time increasing its recreational and educational values. It will therefore aim to increase the range of habitats within the waterway and wetland precincts.

4. Council recognises the issue of public safety on all Council managed areas. It will therefore address issues such as the BMX track adjacent to the Ploughmans Creek Wetland in ways that keep risk to a responsible minimum whilst providing youths with opportunities for active recreation.

5. Council recognises the economic value of the tourist industry. It will therefore publicise the wetlands as part of naturally better Orange. This would be in conjunction with other natural features of Orange such as the botanic gardens.

6. Opportunities to facilitate visitor appreciation of the wetlands, e.g by construction of a bird hide on the western edge of Ploughmans Wetland, will be developed.

Key performance indicator

This plan contains a set of maintenance schedules. These schedules should be implemented and the reporting process commenced within 12 month, that is by Spring 2014.

6. REFERENCES

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Appendix 1. Riprap specifications for pipes and chutes

The dimensions of the riprap area below a pipe outlet depends on the pipe diameter and the anticipated velocity of the water exiting the pipe. The diagrams are copied from Catchment and Creeks Pty Ltd report on stormwater outlets in parks and waterways.

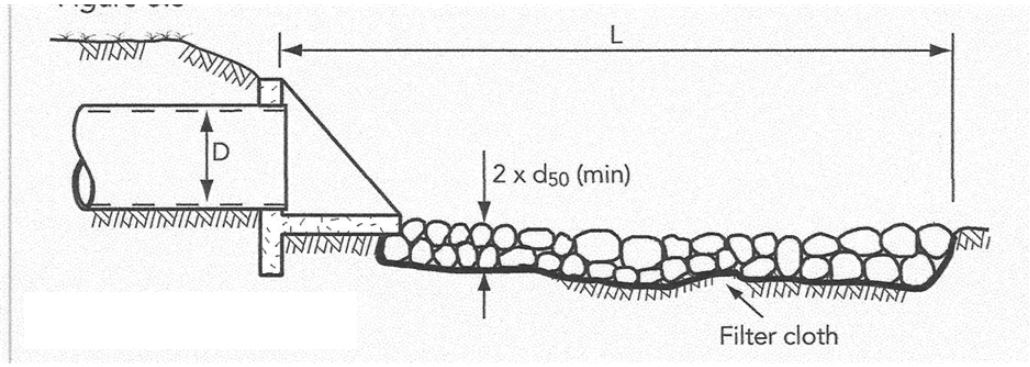

Figure A.1. long section of pipe outlet and rock pad (from BCC, 2003).

NOTE:

- *Geofabric underlay*
- *2 layers of rock*
- *Rocks are touching*
- *Tops of rocks are below the outlet plinth (i.e. not protruding).*
- *The width of the rock pad =pipe width plus 0.6m immediately downstream, widening to initial width plus 0.4 times the length of the rock pad (i.e. for a 900 mm pipe=0.9+0.6+0.4* pad length (m)*

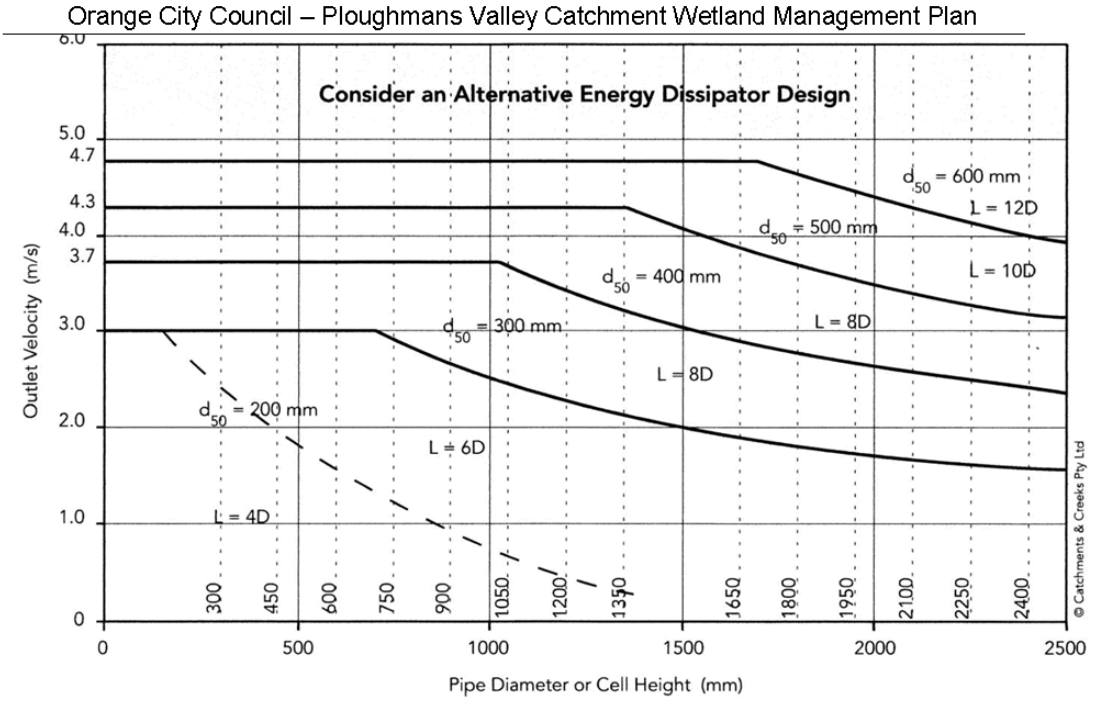

Figure A.2. Diagram used to estimate D_{50}[10] of rocks and length of rock pad as a function of pipe diameter and anticipated velocity of the water.

Note:

- *The need to estimate velocity of water in the pipe. (Developing catchments will result in increased runoff over time. This can be calculated, or be available from the engineering Dept of Council. As an example for site 1, a 1m pipe is expected to require a D_{50} of 300 mm and a rock pad which is 1.6 m wide at the pipe outlet, expanding to (1+0.6+(8*0.4)=4.8 m wide at the end.*
- *The rock pad length for a 1 m diameter pipe is given by: L=6D or 6m long.*

A similar calculation should be made for each outlet or overflow system.

Rock lined chute dimensions

Several of the wetland inlets and outlets rely on rock lined chutes to absorb the water's energy and provide a stabilised entry or exit point.

In some areas the rocks have been mobilised by high velocity flows. This has been partially corrected by introducing more rocks. However there should be a rational basis for determining the correct rock size.

[10] D_{50} is the diameter below which 50% of the rocks are smaller.

Council's engineering section provided the information below for points of interest along each streamline.

Table A2.1. The catchment areas and impervious fraction in each subcatchment.

Site	Area (ha)	Existing Imperviousness fraction	Future imperviousness fraction
1 Coronation Drive	188	0.17	0.26
2 Forbes Road /Escort Way	389	0.22	0.35
3 Spillway to Coogal Park	441	0.24	0.35
4 Somerset Park	216	0.45	0.45
5 Brooklands			
U/S Kearney Drive (south)	61	0.48	0.49
U/S Brooklands Drive	54	0.42	0.46
U/S Wetlands ponds	161	0.44	0.46

This information above was combined with soil information and design rain events to calculate the anticipated peak flows.

A 20 year Average Recurrence Interval (ARI), time of concentration storm (ToC) was used to estimate peak flow rates. The ToC was set as 50% of ToC for a similarly sized rural catchment to allow for greater connectivity.

It was assumed that 50% of the impervious surface was directly connected to the stormwater system and it has a runoff coefficient of 1. The runoff coefficient for the other lands was based on Landcom (2004).

The width and length of the chutes were taken from satellite images. The grade was estimated in the field.

Table A2.2. The anticipated runoff coefficient for a 20 Year ToC storm and the consequent peak runoff rate.

Site	Runoff coefficient (50% connected impervious). Assumes full urban development.	Runoff peak cubic m/sec (20 Y ToC storm) Assumes full urban development.	D_{50} stone (mm) required for each site
1 Coronation Drive	0.87	37	not an issue
2 Forbes Road /Escort Way	0.86	65	472
3 Spillway to Coogal Park	0.86	74	470
4 Somerset Park	0.88	43	350
Brooklands			
U/S Kearney Drive (south)	0.89	15	not an issue
U/S Brooklands Drive	0.89	13	
U/S Wetlands ponds	0.88	32	275

The results in table A2.2 suggest:

- A D_{50} of 500mm for the chutes in the Escort Way Wetland
- A D_{50} of 350 mm to 400 for the chutes in Somerset Park
- A D_{50} of 300 mm for the chutes in Brooklands wetland.

NOTES:

- *Geofabric underlay* (e.g Bidim A34)
- *2 layers of rock. The tops of the rocks shall not protrude to an elevation which is higher than the plinth of the discharge lintel.*
- *Rocks are touching*
- *D_{50} specifications*
    - *- D_{max}<1.5 of D_{50}.*
    - *No rock shall be < 50% of D_{50} (i.e. for D_{50} of 500 the minimum rock size is 250 mm)*
    - *The rocks shall be angular, not rounded.*
    - Neither the breadth *nor the thickness of a single rock is less than 1/3 of its length.*
    - *The sides of the chute shall slope upwards to a height of 1m above the floor. The side slope shall be not more than 1:3 V:H.*

It is recognised that the chutes are already in place. However the rocks size should be a minimum used in any replacement activity.

Appendix 2. Sedimentation build-up, removal and actions to reduce runoff loads

Figure A2.1. This trash rack design allow for retention of sediment and debris at the base. It also has a return which facilitates retention of floating debris when the entire structure is submerged.

Reason for reducing sediment addition to wetlands

- Sediment accumulation is important because the transported sediment also contains phosphorus. Anaerobic conditions on the floor of the wetlands can result in release of phosphorus into the surrounding water and this, in turn, can facilitate algal blooms.
- Sediment accumulation reduced the effectiveness of the wetland because it smothers plants and mud dwelling fauna, it creates bars and short circuits, disrupting plug flow.
- The accumulated sediment reduces the volume of water that can be retained in the wetland. This reduces the hydraulic residence time, increasing peak outflow rate and reducing the extent of contamiant removal.

Key erosion and sediment sources

The five most obvious areas are:

1. The left (western) side of Ploughmans Wetland, south of the brick pump shed (BMX area)
2. The sediment load entry points to the wetlands adjacent to the Escort Way
3. The stream banks upslope from Somerset wetlands
4. The outflanking and scouring associated with the V notch weirs downslope of Somerset Wetlands, and on Ploughmans Creek to the west of the RFS shed on the Northern Distributer Road
5. Brooklands Creek system downstream of Botanic Way.

These issues were examined in the site inspection report in section 2, above.

Sediment control in construction areas

Several of the wetlands are close to road construction and urban subdivision areas. These areas can be a major sediment source.

Currently sediment control measures are included within the development consent, however these are proving difficult to enforce. There is a need for Council Compliance Officers to take over this role if the development is resulting in significant sediment yield. (This can provide Council with significant compliance funds via on-the-spot fines).

Residents are encouraged to ring the pollution line 131555 should they be concerned about wetlands or waterways being polluted.

Measuring sediment accumulation in wetlands

This can be simply measured by inserting a 50mm *50mm stake into the wetland at least 10m downstream of the inlet. The stake should extend a minimum of 10 cm above top water level. The stake should be notched at 5 cm intervals and the notches be sufficiently prominent so that they can be readily felt by hand when underwater.

Note the initial depth to the floor. Measure and record the extent to which the stake protrudes above the base of the wetland.

Arrange to excavate the pond when the sediment reduces the depth by 30%.

Appendix 3. Water quality, including nutrient monitoring

The Australian Guidelines for Water quality Monitoring and Reporting (ANZECC / ARMANZ, 2000a) provides the key resource for targeted water quality monitoring and reporting in Australia. This publication sets out clear steps to establish and operate a monitoring program. These are shown below:

Framework of monitoring AND adaptive management program

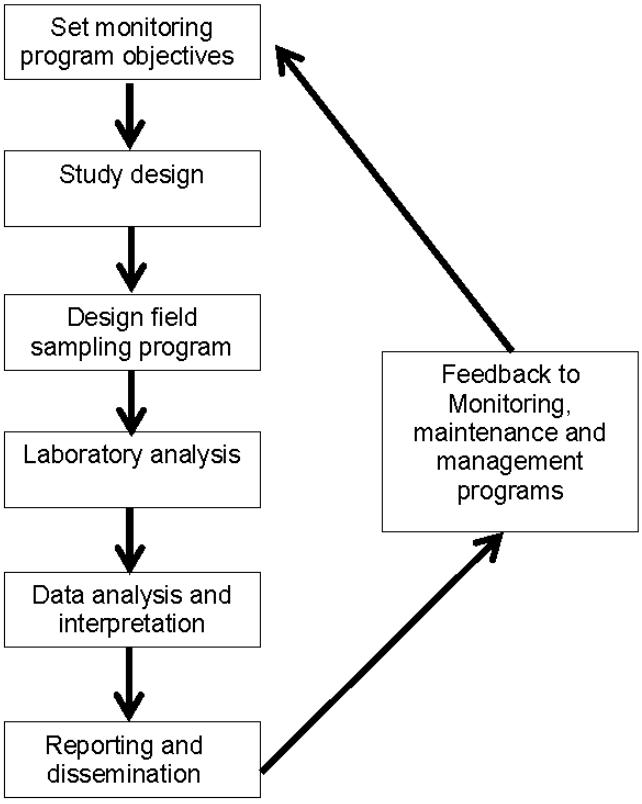

Figure A 3.1. Framework of monitoring AND adaptive management program. (Derived from ANZECC / ARMANZ, (2000)).

The guidelines make the important point that the process is an iterative one, with changes in the monitoring regimes based on the findings and on changes if project objectives. The components in figure A3.1 are discussed below.

Set monitoring program objectives

The objectives should be based on answers to the questions in table A 3.1.

Table A.3.1. Questions used to set the monitoring program objectives (derived from ANZECC / ARMANZ, 2000a).

Issue/ question	Response
What information is currently available?	• Who has the information? • Can it be/ has been collated? • What issues arise from examining the data?
Is there a conceptual model of the waterways and how they function within the urban area?	• What is the 'vision'/ 'aim' of the waterway management activities? • What are the issues limiting the value of the waterways to the Orange community? • What are the urban impacts on the waterbodies? • Is there a conceptual understanding of the processes determining waterbody 'performance'? • What assumptions are made in developing the conceptual model? (e.g. diversity of habitat will result in diversity of biota). • Is it possible to limit urban impacts such as increased peak flow rates and increased contamiant loads so that waterway values are not degraded ant further?
Why is the monitoring required?	• Demonstrate effectiveness of Council's investment in wetlands • To identify sites/ streams where water quality issues need addressing • To ensure that the environmental, social, economic and educational values of the streamlines / wetland are maintained • To ensure water quality within the system enables water harvesting for re-use.
Who are the stakeholders who will utilise the water quality data	• Council's community and recreational section • Council's water harvesting and re-use team • Council staff responsible for assessing erosion and sediment management • Residents and visitors who use the streamlines/ wetlands/ riparian zone for recreation-walking, relaxed viewing, jogging, socialising, observing 'nature', education? • Students/ educators who use the streamlines/ wetlands as an educational resource. • Downstream landholders who use the water for rural activities.
What information is required to meet stakeholder needs? What information can be collected? Is it sufficient to meet stakeholder needs?	• Link the information requirements to stakeholder needs and management aims: • Is the water quality sufficient for at least secondary recreation? • Is the water/ site 'safe' for proposed recreational activities • Is the water suitable for harvest and potable reuse • What avoidable treatment costs can be prevented/ minimised via maintaining water quality (e.g. reduction in faecal contamination, turbidity, suspended solids and colour)? • What are the point source and diffuse contamination sources? • Is instream contamination significant?, e.g bank erosion, sediment mobilisation

Study design

The key question here is what parameters need to be measured in order to demonstrate that the waterway values are being maintained/ improved?

The table below sets out the proposed approach.

Table A.3.2. Questions used to set the monitoring program design (derived from ANZECC / ARMANZ, 2000a).

Issue/ question	Response
What are the water quality objectives?	Base on ANZECC (2000), Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Base on disturbed systems and secondary recreation criteria. PLUS Total suspended solids (TSS) and trace element to identify water harvesting risks PLUS AUSRIVAS to identify change is impact intensity over time.

The water quality attributes to be measured are listed in table A.3.3.

Table A.3.3. Water quality attributes to be measured (derived from ANZECC / ARMANZ, 2000a). The investigation triggers are the thresholds where the attributes could commence to impact on the values of slightly disturbed waterbodies.

Attribute	Threshold values	Comment
Total phosphorus	20 ug/L	Laboratory measurement
Filterable reactive phosphorus	15 ug/L	Laboratory measurement
Total nitrogen	250 ug/L	Laboratory measurement
Oxidised nitrogen	15 ug/L	
Ammoniacal-nitrogen	13 ug/L	Laboratory measurement
Dissolved oxygen range	90 to 110 % saturation	Field
pH	6.5 to 8.0	Field
Salinity	20 to 250 uS/m	Field
Turbidity	2 to 25 NTU	Field
Total suspended solids	Similar to turbidity	Laboratory measurement
AUSRIVAS	(this requires specialist in situ assessment)	Field
Trace metals	Check against Australian Drinking Water Guidelines (2011) for exceedences. Exceedences may be due to previous gold mining activities	Laboratory measurement (do two samplings then examine data against ANZECC (2000b) criteria to determine likely importance of trace metal contamination.
Microbial load	<1000 faecal coliforms/100 mL <230 enterococci/100 mL	Laboratory measurement
Algae	<15,000 to 20,000 cell/mL	Laboratory measurement
Other characteristics	Assess against ANZECC (2000b) criteria for secondary recreation. Include clarity, colour, oil slicks and urban rubbish.	

Field sampling program

The field sampling program aims to answer the stakeholders' water quality questions.

Sampling locations:

- Immediately downstream of Ploughmans Wetland
- Immediately downstream of Escort Wetland
- Immediately upstream of V notch weir near the Bush Fire Brigade shed, downstream of the Northern Distributer Road
- Upstream of Somerset Wetland
- Immediately upstream of V notch weir downstream of Somerset Wetlands
- Immediately downstream of Brooklands Park.

PLUS
targeted event based measurement depending on future results and program objectives.

Sampling timing

Spring time (between September 15 and December 15 when there is flow in all three streamlines).

Sample between 10 AM and 2 PM

OH&S

The before sampling check list is set out below:

Table A.3.4. Checklist for field staff prior to leaving the office to sample wetlands and waterways.

	Component	Yes/ no
	Has the supervisor been informed of the sampling activity?	
	Does each member of the sampling team has a mobile phone AND the emergency numbers?	
	Can all team members swim?	
	Do all team members near the water have life jackets?	
	Do at least 2 members have current Senior First Aid Certificates?	
	Have all members appropriate clothing, e.g long pants, long sleeve shirts and hats?	
	Are all members of the team familiar with the sampling techniques and labelling protocols?	
	Has the team leader undertaken a TOOL KIT meeting with the team to emphasise safety as well as sampling protocols?	
	Is the sampling protocol fully documented?	
	Are the appropriate bottles, cooler bricks and the esky available?	
	Are the labelling components available?	
	Has the receiving laboratory and the transport company been notified of the sampling?	

In the field:

- Record date and sampling time plus stream conditions, e.g high flow, water depth, turbid water, etc.
- Sample the same sites as per previous sampling (subject to agreed changes). **However** do not sample if safety is an issue.

- Use gloves. Avoid contact with water
- Label the bottle when it is dry, prior to sampling
- Undertake the water sampling by hand or, if available, use a grab sampler to hold the bottle. Take the sample, with the bottle neck facing upstream so that there is no interference with flows.
- In water >1m deep, sample from 0.25 to 0.5m below the surface. Use a shallower depth is the water is less than 1m deep. Take care to not disturb sediment.
- Fill bottles then the tightly seal and place in esky with cooler bricks.
- Send to laboratory with NATA Registration for the agreed tests.
- Sample AUSRIVAS as per the protocol:

http://www.environment.gov.au/.../pubs/manual-nsw.pdf

Data analysis and reporting

- Check the raw data for discrepancies and unusual results.
- Check the laboratory's QA
- Undertake basic analysis comparing with previous samplings and across the sites. Calculate simple statistics such as Standard errors and confidence intervals across all sites.
- Prepare a simple report with clear recommendations on future sampling and analysis.

Appendix 4. Vegetation Health

Vegetation health is a broad term and in the current project it is linked directly to the

- stream lines,
- ponds and
- riparian zones

of Ploughmans Creek Catchment.

While each of these three components have different growth habits and different growth requirements, the vegetation in each of these zones is critically important in maintaining the environmental, social, recreational and economic values of the system.

Monitoring vegetation health is complicated by seasonal conditions, for example many wetland plants senesce each winter. Additionally, the 'wet' portions of the catchment are sometimes impacted by floods and drought. Erosion and deposition are also natural consequences of the physics, chemistry and biology of the catchment. All of these impacts produce change in the apparent health of the vegetation. However they are 'natural'.

Anthropogenic impacts such as increased nutrient concentrations and increased sediment from road and building construction sites can impact on vegetation health. Examples include direct impacts such as smothering plants with sediment, and indirect impacts such as enhanced nutrient concentrations leading to increased weed competition.

The key issue is to what extent do natural and anthropogenic impacts effect the abilities of the vegetation to maintain desired values of the system.

Specifically

- What are the requirements for vegetation health?
- What are the indicative symptoms of 'poor' health?
- How severe are the symptoms?
- Are there anthropogenic activities within the catchment that are impacting on vegetation health?
- What actions are needed to address the health issues?
- Who is responsible for implementing the actions?
- Who is responsible for funding the actions?

The assessment system below can be adapted to suit specific sites situations. The sheets can be modified to suit change conditions and to incorporate other monitoring requirements.

Orange City Council – Ploughmans Valley Catchment Wetland Management Plan

Table A 4.1. Vegetation health: Riparian zone. Key objective: A diverse healthy riparian zone based on local native species, extending at least 7m from the top of the banks on both sides of the stream. Assess each spring time

Date: **Assessor name and responsibility**

Location Photo point & direction	Layers present	Threats present?	Tree Health	Shrub Health	Ground cover Health	Recommended responses	Sign off : action implemented/ modified/not authorised?
	Trees Shrubs Understorey	Bank erosion? Scouring inflows? Meandering? Mowing within 15m of top of bank? Weeds? Dumping? Vandalism?	Good vigorous new growth? Minimal growth? Dieback/ obvious stress /death? Responses to previous actions e.g. enhancement planting Other comments				

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Table A 4.2. Vegetation health: Stream line. Key objective: A diverse healthy aquatic/ near floodplain zone based on local native species. Assess each spring time

Date: **Assessor name and responsibility:**

Location Photo point & direction	Layers present	Threats present?	Tree Health	Shrub Health	Ground cover Health	Recommended responses	Sign off : action implemented/ modified/not authorised?
	Trees e.g snow gum Shrubs e.g callistemon Aquatics, e.g typha, Phragmites	Weeds (e.g. willows, phalaris)? Dumping? Vandalism? Preferential flow paths developing Smothering with sediment Flood damage Gross pollutants Poor water quality	Good vigorous new growth? Minimal growth? Dieback/ obvious stress /death? Responses to previous actions ,e.g. enhancement planting Evidence of increased colonisation by natives Other comments				

Table A 4.3. Vegetation health: Wetlands/ ponds. Key objective: A diverse, healthy aquatic/ fringing zone based on local native species. Assess each spring time

Date: **Assessor name and responsibility:**

Location Photo point & direction	Layers present (	Threats present?	Deep water species	Fringing aquatics	Semi aquatics	Wet condition tolerant terrestrial community	Recommend-ed responses	Sign off : action implemented/ modified/not authorised?
	(Typically 'layered' in response to water depth and inundation frequency) Deep water species Fringing aquatic plants Semi aquatics Wet condition tolerant terrestrials	Weeds (e.g. willows,)? Algae Dumping? Vandalism? Preferential flow paths developing Smothering Flood damage Gross pollutants Poor water quality Erosion	Good vigorous new growth? Minimal growth? Dieback/ obvious stress /death? Responses to previous actions ,e.g. enhancement planting Evidence of increased colonisation by natives Other comments					

Appendix 6. Pest management

(Taken largely from Bingham, 2004)

Mosquito Control

The cool climate in Orange inhibits mosquitoes for much of the year.

Additionally, streams and well maintained wetlands do not normally increase mosquito populations, thereby posing a risk to public health. Wetlands deter mosquito breeding by providing healthy habitat for predators of mosquito larvae, thereby reducing adult mosquito populations.

Monitoring mosquitoes

If mosquito numbers do become problematic they may pose a risk to public health and impact on the amenity of the site. Early detection of mosquito larvae means that control measures can be implemented before adult mosquito numbers become a problem. It is therefore important to monitor mosquito larvae population as part of a routine maintenance schedule. It should be noted that the risk of mosquito outbreaks is greater in summer (the period of prolific mosquito growth), than in the cooler months. Visually monitor for mosquito larvae ("wrigglers"), on the water surface (if water is present) or the presence of mosquitoes during dawn and dusk when mosquitoes are most active. Visually monitor for mosquito larvae ("wrigglers"), and use the following sampling method:

- Monitor at least 10 sites of approximately 1m^2 where mosquitoes are likely to breed, such as areas of shallow water, vegetation and litter accumulation;
- Within each site, use a dip net or plastic container to take 10 dips into the water column to a depth of approximately 10 cm;
- Count the number of mosquito larvae in each sample; and
- Compare results between sampling sessions and sites to reveal changes in abundance and/or location,
- Make notes on the areas and vegetation types within which mosquito larvae are observed as this assist in understanding breeding preferences.

Also or alternatively the Environmental Health Department may be able to provide a trapping service to determine mosquito numbers and species.

Control Option

Predation by macro-invertebrates and fish may prevent mosquito larvae from developing into a significant adult problem. Native larvivorous fish and some macro-invertebrates feed on mosquito larvae and certain often act as biological control in wetlands (University of Sydney and Westmead Hospital). A well-maintained and viable wetland habitat will favour such predator-prey interactions.

As a last resort, apply chemical control agents in consultation with experts.

Introduced Fish

There exists in any water body the risk of non-native fish entering the system. This can be either via the existing drainage network or dumping by residents. The most common species to occur is *Gambusia holbrooki* as described below.

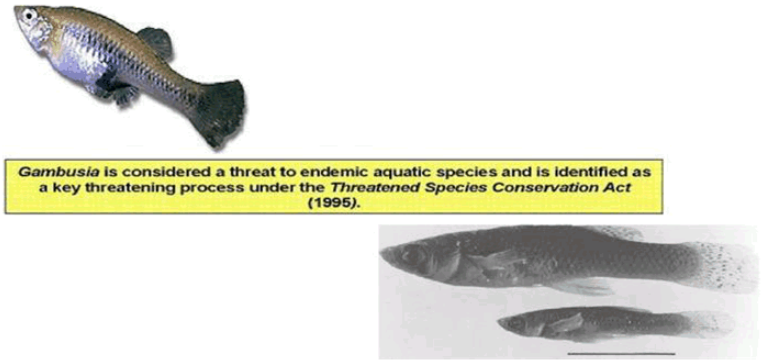

Figure A6.1. Mosquito fish The scale bar in the photograph represents 1 cm. These small fish are greenish-brown on the back, with a silvery white underside. The females are much larger than the males. (Source: www.gambusia.net and www.burkesbackyard.com.au).

Gambusia ("Mosquito fish") is a small fish native to the United States and introduced into Australia in the 1920's in an attempt to control mosquito larvae. Unfortunately, this fish species has not been effective at controlling mosquito numbers. Its introduction has proved to be disastrous because mosquito larvae only form a small part of its diet – it also consumes native tadpoles, ants, flies, aquatic beetles, rotifers, crustaceans, molluscs and the eggs and fry of native fish species.

The presence of Mosquito fish should be visually monitored on a quarterly basis and confirmed. An eradication program may be required if this species is detected – Council should consult Department of Fisheries to enquire if an eradication program is necessary, and if so, the best eradication methods.

More detailed information on *Gambusia* and control options can be found at:
The *Gambusia* Control Homepage: **www.gambusia.net**

Water Birds

Populations of water fowl, including ducks and swamp hens can be problematic in a constructed wetland due to their tendency to damage vegetation and deteriorate water quality via increases in nutrients and faecal coliforms. At Orange this is not a major issue as the water will be treated before any re-use.

Water birds are not considered a significant pest except during planting of aquatic plants.

11.4 Algae Management

Healthy wetlands and other water bodies have naturally occurring algae that exist at low concentrations. However, several factors can exacerbate their numbers, potentially causing harm to other plant and animal life.

These factors include:

- enrichment of fresh waters with nutrients such as nitrogen and phosphorus. Orange urban areas could contribute to this load ;
- insufficient wetland turnover, i.e. water turnover rate of longer than 30 days, allowing chlorophyll a levels to increase and algal blooms to spread;
- prolonged warm, sunny and calm weather; and
- decomposition of organic matter in the wetland

Orange's climate is cool, so algal growth will be slow and in most instances there is insufficient residence time in the wetlands to enable an algal bloom to develop.

The conditions when a bloom is most likely at Orange is late summer when it can be hot and dry, with minimal inflows.

Some varieties of algae are described in the following sections.

Green Algal Blooms Appearance:

- Most noticeable as floating algal scum. Scum can be made up of small floating plants (i.e. duckweeds) or filaments (string-like algae). It is common in water channels and pipes.
- See figure A 6.3)

The main concerns are:

- Unpleasant odours
- Shading and suffocation of water plants
- Clogging/stagnation of water, channels and pipes

Figure A 6.2. A typical green algal bloom (Photo courtesy M. Bingham)

Blue-Green Algal Blooms (Cyanobacteria)
Blue-green algae or Cyanobacteria are microscopic cells that grow naturally in fresh water. If present in large numbers blue-green algal blooms can produce toxins that are harmful to both humans and animals.

Figure A 6.3. A typical blue-green algal bloom (Photo courtesy M. Bingham)

Appearance:

Blue-green paint-like scum or small specks floating at or near the surface. Scums can be green, blue-green, blue, red, white, grey or yellow-brown depending on the age and state of decomposition.

Main Concerns:

- Potential production of toxins harmful to humans and animals.
- Unpleasant scum and odours.
- Shading and suffocation of water plants.

Monitoring & Sampling Algae Blooms

Monitor the waterbody for algal blooms as part of a routine maintenance regime, but more frequently if a problem arises. Early detection will prevent damage to the waterbody such as, smothering of wetland plants and potentially toxic blue green algae blooms.

Sampling Algae Blooms

Note: Rubber gloves must be worn when collecting surface samples as blue-green algae may cause skin irritations.

Rinse a wide-mouthed sample container (e.g. a clean jar or ice cream container) with water from the site. Dip the container just below the water surface and allow the algae to pour into the container.

After collecting the water sample in the sample container:

Place the water sample in a plastic bottle (e.g. soft drink bottle or a plastic bottle sent by the laboratory) that has been rinsed with water from site.

1. Add either: Leugol's iodine solution, or Tinctuoe iodine solution – this is readily available from the chemist.
2. Iodine solution will preserve the sample by killing the algae and associated bacteria that may cause decomposition during transport.
3. Add enough iodine solution to make the water light brown colour (light tea colouration).
4. Store below 4^{o}C in a dark environment (such as a small foam esky containing ice) – but do not freeze.
5. Make sure the sample is sent to a laboratory within 24 hours.

Algae Control Options

Green Algae Management Options

Green algae blooms usually require less urgent attention than potentially toxic blue-green algae blooms. Management of green algae will depend on how much algae is growing in the waterbody.

High Levels of Green Algae that are Smothering Wetland Plants ("Bloom" levels)

If high levels of green algae are smothering the wetland plants, or choking the system, then they should be manually removed with a rake or pool scoop. Removed algae should be taken *away* from the wetland and disposed of at a Council approved waste facility.

Moderate Levels of Green Algae

It is not recommended to remove green algae mats or scums unless they are having an adverse impact (e.g. shading plants, choking the system, impeding flows etc). The presence of a moderate level of green algae may actually have certain advantages: by competing for light and nutrients green algae may reduce the occurrence of potentially toxic blue-green algal blooms. In Australian Wetlands' experience, blue-green algae often colonise the "empty" habitat once green algae are removed. This is an undesirable situation because blue-green algae cause more management problems than green algae.

Low Levels of Green Algae

Low levels of green algae are natural and can be beneficial to the wetland system: it is not recommended to remove low levels of green algae.

Blue-Green Algae Bloom Management

A number of management options may be implemented if a blue-green algae bloom is detected in a wetland.

It is advisable to first consult with the Department of Natural Resources (DNR) regarding appropriate management actions to deal with the potentially toxic blue-green algae.

Management options include:

1. If total blue green algal count is 500-2,000 cells/ml, no restrictions or warnings are needed but regular monitoring maintained. As pre-emptive management is more efficient than treatment after a bloom has occurred, contingency measures such as turnover mixing could be increased until numbers are brought back to lower levels. Alternatively, if the blue-green algae are not toxic and are not choking the wetland plants nor impacting wildlife, it may be left to "run its course". The bloom may be a seasonal "one-off" occurrence that will die out on its own.

2. If total blue green algal count is between 2,000 - 15,000 cells/ml, fertiliser activity and sprinkling must be limited where possible in the vicinity of the site and monitoring is to be increased at the affected site to weekly to indicate whether the algae may be dangerous to wildlife in the wetland and public health.

3. If total blue green algal count exceeds 15,000 cells/ml, there is the possibility of an established bloom and the following actions must be considered:

4. All fertiliser activity and sprinkling must be stopped for all areas draining to the wetland (obviously this is difficult to achieve in the Orange Urban Area);

5. warning signs need to be posted around the wetland to warn the public of potentially toxic blue-green algae and the risks associated with contacting the water; and

6. all site personnel to be notified and relevant authorities to be contacted for further information.

Appendix 5 Trees likely to be suitable along streamlines and near wetlands.

Orange City is within the SE Highlands bio-region of NSW. The area is all above 800m, so species such as snow gum will be suitable.

The main reference for this is Bower (2012).

According to Hunter (2002), the characteristic eucalypts along disturbed creek lines of the area are

- *E. viminalis*,
- *E. stellulata* (Black sally, common near swamps and streams),
- *E. pauciflora* and
- *E. dalrympleana (*not wet areas*)*.

Acacia dealbata is also common near streams (Costermans, 2000)

Other possibilities include:
E. bridgesiana and *E. dives*,

Bower (2012) provides a list of plants found in parks and reserves near Orange City.

His list is reproduced below. Not all the species listed in Bower are expected to occur within the Ploughmans Creek Catchment. However species that grow in frost hollows below 900 to 1000m are possible.

ATTACHMENT 2

List of Plant Species

Recorded in Reserves

Managed by Orange City Council

Key to list abbreviations:

*	Introduced species
‡	Planted species
BP	Bloomfield Park
BSR	Black Sallee Reserve
GC	Gosling Creek Reserve
HR	Hinton Reserve
LC	Lake Canobolas Reserve
LR	Lysterfield Reserve
RR	Rifle Range crown land
PR	Pinnacle Reserve

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CLASS FILICOPSIDA																										
Adiantaceae																										
Cheilanthes austrotenuifolia	Rock Fern																								•	
CLASS CONIFEROPSIDA																										
Pinaceae																										
**Pinus radiata*	Monterey Pine								•																	
CLASS MAGNOLIOPSIDA																										
SUBCLASS MAGNOLIIDAE																										
Adoxaceae																										
**Sambucus nigra*	Elderberry																								•	
Amygdalaceae																										
**Prunus cerasus*	Sour Cherry						•				r						u		r							
**Prunus mahaleb*	Mahaleb Cherry																									•
Apiaceae																										
**Conium maculatum*	Hemlock											o	c													
Daucus glochidiatus Form A	Native Carrot																								•	
Hydrocotyle algida	Pennywort																								•	
Hydrocotyle laxiflora	Stinking Pennywort			•	o																o			c	•	•
Hydrocotyle tripartita	Pennywort					•																				
Araliaceae																										
**Hedera helix*	English Ivy	o															u							a		•
Asteraceae																										
**Carduus pycnocephalus*	Slender Thistle				r																				•	
**Carthamus lanatus*	Saffron Thistle																			•						
Cassinia arcuata	Sifton Bush		r					•			u						•		•		o				•	
Cassinia longifolia	Shiny Cassinia				•																				•	•
**Centaurea calcitrapa*	Star Thistle												r													
**Chondrilla juncea*	Skeleton Weed												r					r		•					•	
Chrysocephalum apiculatum	Common Everlasting										u						o		u							
**Cirsium vulgare*	Spear Thistle	•	o		o		o					u	o		o					•	o			o	•	•
**Conyza sumatrensis*	Tall Fleabane				u									o						•	u				•	
**Crepis capillaris*	Smooth Hawksbeard												u	u							•			u	•	
Cymbonotus sp.																								u		
Euchiton sphaericus																			u					•		
**Hypochaeris radicata*	Flatweed		o		o	•	o				u	c	o	o	o	o		r	o	•	o		•	a/c		•
**Lactuca serriola*	Prickly Lettuce		u										u							•	r					
Leptorhynchos squamatus							u																			
**Leucanthemum vulgare*	Ox-eye Daisy										c															
Senecio bathurstianus																									•	
Senecio diaschides																										•
Senecio minimus																										•

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**Taraxacum officinale*	Dandelion	u						u			u	u		c										c		
**Tragopogon porrifolius*	Salsify	u	r					r			r		u		u					•						
Boraginaceae																										
**Anchusa arvensis*	Wild Bugloss				•																					
Cynoglossum australe	Australian Hound's Tongue				u						u				r						o				•	•
Cynoglossum suaveolens	Sweet Hound's Tongue						u	o																		
**Echium plantagineum*	Paterson's Curse				o		u						•							•						
**Echium vulgare*	Viper's Bugloss										r				•						u					
Brassicaceae																										
**Hirschfeldia incana*	Hairy Brassica												•													
**Rorippa nasturtium-aquaticum*	Watercress					•																				
Campanulaceae																										
Wahlenbergia luteola								o													o					
Wahlenbergia gracilis	Sprawling Bluebell																								•	
Wahlenbergia stricta subsp. *stricta*	Tall Bluebell																							o		•
Caprifoliaceae																										
**Lonicera japonica*	Japanese Honeysuckle																									•
Caryophyllaceae																										
**Petrorhagia nanteuilii*																									•	
Scleranthus biflorus	Cushion-bush							o		u						o	r		u		o					
**Stellaria media*	Common Chickweed												•													
Stellaria pungens	Prickly Starwort																								•	•
Clusiaceae																										
**Hypericum perforatum*	St. John's Wort				a		a	c		c		u	o	o	o	o		u		•	a			r	•	•
Convolvulaceae																										
Convolvulus graminetinus								c										u	u		o				•	
Dichondra repens	Kidney Weed															r										
Crassulaceae																										
Crassula sieberiana	Australian Stonecrop																								•	
Dilleniaceae																										
Hibbertia obtusifolia	Hoary Guinea Flower										r														•	
Hibbertia riparia	Erect Guinea Flower							o		•									u		c					
Fabaceae: Faboideae																										
**Cytisus scoparius*	Scotch Broom										u		•	u												
Daviesia latifolia	Hop Bitter-pea										r															•
Desmodium varians	Slender Tick-trefoil							o		r						c			o		c					
Dillwynia phylicoides									•	o																
**Genista monspessulana*	Montpellier Broom															u	a		u							
Glycine clandestina	Twining Glycine							c											r		u		•	c		•

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Mirbelia oxylobioides	Mountain Mirbelia									o															•	
Pultenaea subternata																										
**Trifolium angustifolium*	Narrow-leaved Clover						u						r			r					u					
**Trifolium arvense*	Haresfoot Clover																				u				•	
**Trifolium campestre*	Hop Clover				u		u														u					
**Trifolium dubium*	Yellow Suckling Clover				u	•	r																		•	
**Trifolium glomeratum*	Clustered Clover												u								r					
**Trifolium repens*	White Clover					•	o						•		u	o							•	a/o		•
**Vicia hirsuta*	Hairy Vetch	r																								•
**Vicia sativa*		u	u		o			u			u	o	o							•				u		
**Vicia sativa* subsp. *nigra*	Narrow-leaved Vetch														a	c					o					•
Fabaceae: Mimosoideae																										
‡Acacia buxifolia	Box-leaf Wattle											•														
Acacia dealbata	Silver Wattle	•	•		•					•		•					•		•		•			o		•
Acacia implexa	Hickory Wattle											•														
Acacia melanoxylon	Blackwood																							c	•	•
Acacia mearnsii	Black Wattle																								•	
‡Acacia rubida	Red-stemmed Wattle	•																								
Gentianaceae																										
**Centaurium erythraea*	Common Centaury				c		o				u	u		o						•						
**Centaurium tenuiflorum*																u			o		u			u	•	
Geraniaceae																										
Geranium homeanum																										•
Geranium retrorsum	Common Cranesbill									o						c										•
Geranium solanderi subsp. *solanderi*	A Native Geranium		u	•	c		u	u			r	u	o	u			o	o	c		o		•	o	•	•
Haloragaceae																										
Gonocarpus tetragynus	Common Raspwort										•												•	o	•	
Lamiaceae																										
**Mentha x piperita*	Peppermint												•													
**Prunella vulgaris*	Self-heal					•							•			o										•
**Salvia verbenaca*	Vervain											o														
Scutellaria humilis	Dwarf Skullcap																								•	
Loranthaceae																										
Amyema pendulum																									•	
Malaceae																										
**Cotoneaster pannosus*	Silver-leaf Cotoneaster											•	o				u		u							•
**Crataegus monogyna*	Hawthorn	o	•		•		•	•				o	•	•		o	a		u		•					
**Pyracantha crenulata*	Nepal Firethorn												•				r									
Myrtaceae																										
Eucalyptus bridgesiana	Apple Box		•	•			•	•	•	•		•				•	•	•	•		•	•				
Eucalyptus canobolensis	Canobolas Candlebark						•		•																	•

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Eucalyptus macrorhyncha	Red Stringybark																								•	
Eucalyptus pauciflora	Snow Gum		•						•				•			•								c		•
‡*Eucalyptus* sp.			•																							
Eucalyptus rubida	Candlebark			•							o															
Eucalyptus saxicola	Mt. Canobolas Box																								•	
Eucalyptus stellulata	Black Sally	•										•	•			•										
Eucalyptus viminalis	Ribbon Gum	•	•	•	•	•	•	•		•		•	•	•	•	•	•	•	•		•	•				
Leptospermum myrtifolium	Myrtle Tea-tree											•														•
Myrsinaceae																										
**Anagallis arvensis*	Scarlet Pimpernel				u						r		u			u				•	u				•	
Onagraceae																										
Epilobium billardierianum subsp. *cinereum*					c	•		o																	•	•
*Epilobium billardierianum*subsp. *hydrophilum*						•																				
Epilobium gunnianum	Gunn's Willow-herb												u													
Epilobium hirtigerum													•			u										
Oxalidaceae																										
Oxalis sp.		•			o		o				u				u	u					o					
Phyllanthaceae																										
Poranthera microphylla								c			r					o										
Plantaginaceae																										
**Plantago lanceolata*	Lamb's Tongues	•			c	•	c	o				•	c	c	o	o		u	o	•	c			o		•
Plantago varia								o									u							o		•
**Veronica anagallis-aquatica*	Blue Water Speedwell												•													
Veronica calycina	Hairy Speedwell						•																			
Veronica gracilis	Slender Speedwell	•					c																			
Veronica derwentiana subsp. *subglauca*																										•
Polygonaceae																										
**Acetosella vulgaris*	Sheep Sorrel		u				•				u		•		u			o		•	o					•
Persicaria lapathifolia	Pale Knotweed												•													
**Polygonum aviculare*	Wireweed												•							•						
Rumex brownii	Swamp Dock	r				•	r				r															•
**Rumex conglomeratus*	Clustered Dock												•													
**Rumex crispus*	Curled Dock					•						u	o													•
Ranunculaceae																										
Ranunculus lappaceus	Common Buttercup										•													r		•
**Ranunculus repens*	Creeping Buttercup					•																				
Rosaceae																										
Acaena agnipila		u			o		u	o		u			u						u		r					•
Acaena novae-zelandiae	Bidgee-widgee	a	u	•								o	u			c					o		•	c		•

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Rubus parvifolius	Native Raspberry	a	c		u		o	r		o			u	u		o					o		•	o	•	•
**Rubiaceae* *Sanguisorba minor* subsp. *muricata*	Sheep's Burnet						c												u							
Rubiaceae																										
Asperula conferta	Common Woodruff	u					c	c		u	o	o			c	c					c		•	u		
Asperula scoparia	Prickly Woodruff							r																		
**Galium aparine*	Goosegrass												o													•
Opercularia hispida	Hairy Stinkweed																r									
Rutaceae																										
Phebalium squamulosum subsp. *squamulosum*	Forest Phebalium																								•	
Santalaceae																										
Exocarpos cupressiformis	Native Cherry															•				•				o	•	•
Sapindaceae																										
Dodonaea viscosa subsp. *angustissima*	Narrow-leaved Hopbush																								•	
Scrophulariaceae																										
Mimulus repens	Creeping Monkey-flower					•																				
**Parentucellia latifolia*	Red Bartsia				o																					
**Verbascum virgatum*	Twiggy Mullein				o																					
Solanaceae																										
**Solanum nigrum*	Black-berry Nightshade																								•	
Stylidiaceae																										
Stylidium graminifolium	Grass Trigger-plant							•			r															
Thymelaeaceae																										
Pimelea curviflora var. *sericea*	Pimelea							o		u									o		•					
Pimelea glauca	Smooth Rice-flower							u											a							
Urticaceae																										
Urtica incisa	Stinging Nettle																								•	
Violaceae																										
**Viola odorata*	Sweet Violet												r													
SUBCLASS LILIIDAE																										
Anthericaceae																										
Arthropodium milleflorum	Pale Vanilla-lily	•																								•
Dichopogon fimbriatus	Nodding Chocolate Lily							o																		
Tricoryne elatior	Yellow Autumn-lily				o		u	u													u					
Asphodelaceae																										
Bulbine bulbosa	Native Leek										r										o					
Cyperaceae																										
Carex appressa	Tall Sedge												o			r										
Carex inversa	Knob Sedge				u	•	u				u		o			o										

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Juncus subsecundus						•																				
Luzula meridionalis						•																				
Lomandraceae																										
Lomandra filiformis subsp. *filiformis*	Wattle Matrush																r									
Lomandra multiflora subsp. multiflora	Many-flowered Mat-rush							u		c			r				r				u					
Orchidaceae																										
Dipodium punctatum	Hyacinth Orchid																				o					
Microtis unifolia	Common Onion Orchid					•																				
Phormiaceae																										
Dianella longifolia	Blueberry Lily						•			o						r	o							r	•	•
ianella revoluta	Blueberry Lily									c									o						•	
Poaceae																										
**Agrostis capillaris*	Browntop Bent					•							r													
**Anthoxanthum odoratum*	Sweet Vernal Grass	a	o		a	a	a	a		a		c	a	c			u						•	o/a		
**Arrhenatherum elatius* var. *elatius*	False Oatgrass		a										•		o	u	o		o		•			o		
Austrodanthonia laevis	A Wallaby Grass																	u								
Austrodanthonia pilosa var. *pilosa*	Smooth-flower Wallaby Grass									c		a	u	a	o	a	c	a	c		o				•	
Austrodanthonia eriantha	Hill Wallaby Grass																								•	
Austrostipa densiflora	Fox-tail Speargrass																								•	
Austrostipa scabra subsp. *falcata*	Speargrass																								•	
**Briza maxima*	Quaking Grass																c									
**Bromus catharticus*	Prairie Grass												u							•						
**Bromus diandrus*	Great Brome												r							•	u					
**Bromus hordeaceus*	Soft Brome											u									u					•
**Cynosurus echinatus*	Rough Dogs Tail																								•	
**Dactylis glomerata*	Cocksfoot	a	c	•			u	c		a		a	a	a	u	o	c	u					•	c	•	•
Dichelachne crinita	Longhair Plumegrass									u	r					r										
Dichelachne micrantha	Shorthair Plumegrass							o								o	o		u		o					
Dichelachne rara	A Plumegrass																						•	o		
Echinopogon ovatus	Forest Hedgehog Grass															o										
**Eleusine tristachya*	Goose Grass												•													
Elymus scaber	Wheat Grass	r	r		u			o					u		o	o	r	r	u		c		•			
Festuca asperula	Graceful Festuca																							r		
**Holcus lanatus*	Yorkshire Fog				o	•						c	a	a		c		u		•	o		•	c	•	•
Lachnagrostis aemula	Blowngrass										r												•			
Lachnagrostis filiformis	Blowngrass												•			u									•	•
**Lolium perenne*	Perennial Ryegrass											o	u	r	u						u					

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**Pennisetum clandestinum*	Kikuyu Grass					•							u													
**Phalaris aquatica*	Phalaris	c	a									o		a	o		u									
Poa labillardieri	Tussock	o	u							a		o	o		a	a					a					•
**Poa pratensis*	Kentucky Bluegrass											•	c													
Poa sieberiana var. *cyanophylla*	Blue-leaved Snowgrass																								•	
Poa sieberiana var. *sieberiana*	Snowgrass				c		u	a									a	a	a				•	a/c		
Sorghum leiocladum	Wild Sorghum											o									a					
Themeda australis	Kangaroo Grass						a	o		a			•		a	a	c	c	•		c			o	•	
**Vulpia bromoides*	Squirrel Tail Fescue					•																				
Typhaceae																										
Typha orientalis	Broadleaf Cumbungi												•													
Total Native Species	126	14	13		16	12	17	29		21		16	23	5	8		19	10	24		28		11			
Total Introduced Species	87	12	13		21	16	19	9		3		20	46	14	15		13	8	10		27		6			
Total Species	213	26	26		37	28	36	38		24		36	69	19	23		32	18	34		55		17			

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Appendix 6. Inspection sheets for wetlands.

DATE	**Wetland name**	**Inspector name**	**Inspection frequency**	**Rain (mm in past week)**	**Reason for inspection (e.g routine monthly, after a 30 mm daily rain event, etc**	**Catchment development activity (increasing? What type-road, housing, etc) Level of effective erosion control**

As a minimum highlight: Urgent issues in RED, Medium issues in ORANGE and low priority/ good conditions in GREEN.

Inlet area Is there inflow? H/M/L or zero	Extent and type of blockage	Colonisation by plants	Rock instability	Turbidity of water Obvious contamination, e.g oil slicks	Evidence of damage, incl vandalism	Actions required	Action sign off
Trash rack area 1	Concrete apron	Type of sediment (e.g. road base, clay, organic debris,??	Depth of sediment	Gross pollutants	Other/	Actions required	Action sign off

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Trash rack area 2	Bars	Type of captured trash (vegetative, PET bottles)	Depth of trash 10% 30% 50% 70% 90% full?	Evidence of overtopping or bypassing? Severity?	Evidence of damage incl vandalism? Severity?	Actions required	Action sign off
Rock pad/chute? gabion mattress?	Mobilisation	Outflanking	Sediment depth	Vegetation encroachment	Severity of impacts	Actions required	Action sign off
Wetland area	Water level (lower/ higher than typical. outflow	Obvious sedimentation?	Severity (against depth gauge) Smothering of plants/ Severity	Are there areas eroding and adding sediment to sides of wetland?	Percent of wetland impacted by sedimentation? Severity?	Actions required	Action sign off

Other Inlet areas Where? Is there inflow? H/M/L or zero	Extent and type of blockage, Litter?	Colonisation by plants	Rock instability? Where? Bank erosion? Where? Severity?	Turbidity of water Obvious contamination, e.g oil slicks	Evidence of damage, incl vandalism Dumping	Actions required	Action sign off
Outlets Is there flow? No/L/M/ H/ extreme?	Vertical system operating	Blockage? Severity?	Bypass operating	Outflanking ? Mobilisation? Severity	Downstream erosion? Severity?	Actions required	Action sign off
Animals	Number of different birds on water	Number of birds on banks	Number of different birds in surrounding bush & trees	Snakes? Frogs? Fish? Numbers?	Feral animals? Are they an issue? Severity	Native animals?	Any actions required?
Fringing vegetation	Are there gaps? Gap frequency and size	Apparent health of vegetation (consistent with season)	What percentage of the wetland has >1m width of fringing vegetation?	What percentage of the wetland has >3m width of fringing vegetation?	Is there a range in species with change in depth?	Actions required	Action sign off

Riparian terrestrial vegetation	Are there gaps?	Gap frequency?	What types dominant/ common/ rare: Trees/ shrubs/ ground cover	At least 15m of unmown buffer where practical?	Damage? Weeds? Insect attack? Apparent health?	Actions required	Action sign off
Weeds	Algae blooms/ % cover	Weeds evident in/near wetland % cover	Types e.g willows, salvinia	Terrestrial weeds need suppression. But compulsory removal only if declared noxious.	% cover	Actions required	Action sign off
Surrounding ground/tracks and amenities	Surrounding banks: Erosion? Severity Slumping? Severity Where?	Track condition	Rubbish in area	Overgrown veg	Signage damage? Vandalism? Dumping? What material? Severity?	Actions required	Action sign off
Other issues							

Draw diagram of wetland showing locations where action is needed.

Appendix 9. Inspection sheets for streams and riparian zones.

DATE	Stream name Location (between what streets?)	Inspector name	Inspection frequency	Rain (mm in past week)	Reason for inspection (e.g routine 3 monthly, after a 100 mm rain event, etc	Catchment development activity (increasing? What type-road, housing, etc) Level of effective erosion control

As a minimum highlight: Urgent issues in RED, Medium issues in ORANGE and low priority/ good conditions in GREEN.

Inflow area Is there inflow? H/M/L or zero	Location/ GPS Photo? MARK Location on attached Satellite Images	Colonisation by plants Coverage? Plant health? Which species need replanting/ replacing? Where? Is the 15m buffer being maintained?	Weeds an issue?	% of bank/ bed impacted by erosion? Where?	Sediment Type? Depth? Blockage severity? Where?	Water quality Oil? Small? Foaming? Gross pollutants? Where?	Actions required Where?	Action sign off
Inflow (e.g pipe discharge, outfall from wetlands, swale) Is there inflow? H/M/L or zero								

Inflow area Is there inflow? H/M/L or zero	Location/ GPS Photo? MARK Location on attached Satellite Images	Colonisation by plants Coverage? Plant health? Which species need replanting/ replacing? Where? Is the 15m buffer being maintained?	Weeds an issue?	% of bank/ bed impacted by erosion? Where?	Sediment Type? Depth? Blockage severity? Where?	Water quality Oil? Small? Foaming? Gross pollutants? Where?	Actions required Where?	Action sign off
Area 1								
Area 2								
Area 3								

Inflow area Is there inflow? H/M/L or zero	Location/ GPS Photo? MARK Location on attached Satellite Images	Colonisation by plants Coverage? Plant health? Which species need replanting/ replacing? Where? Is the 15m buffer being maintained?	Weeds an issue?	% of bank/ bed impacted by erosion? Where?	Sediment Type? Depth? Blockage severity? Where?	Water quality Oil? Small? Foaming? Gross pollutants? Where?	Actions required Where?	Action sign off
Area 4								
Area 5								
Area 6								

Appendix 10. Bird hides.

The figure below is a bird 'blind'. Depending on local considerations, a roof, seats, etc may not be needed. Input from local naturalists can assist in modifying design to suit Orange conditions.

Note that the structure will be ex[posed to strong westerly winds

Image source: wikimedia.org/wikipedia/commons/c/c6/Birdwatching_bird_hide_blind.jpg

Appendix 11. Letter from a resident regarding BMX area near Ploughmans Wetland.

Mr Glen Pearson
58 Fahy Crescent
ORANGE NSW 2800

23rd August, 2013

Mr Garry Styles
General Manager
Orange City Council
PO Box 35
135-137 Byng Street
Orange NSW 2800

RE: Feedback from the Ploughman's Valley Catchment Wetland Management Plan

Dear Mr Styles,

I am writing to congratulate Orange City Council on the development of the Ploughman's Valley Catchment Wetland Management Plan. I applaud Mr Peter Bacon and Mrs Sandy Hoy's proposed vision for the future of what potentially could become a wonderful asset to our community.

As a member of the public, I was involved in the Community Consultation Meeting and came away impressed with the ideas raised by Peter and Sandy and am confident that Mr Nigel Hobden will help guide the implementation of the Wetland Management Plan over the ensuing years.

As a resident whose premises is adjacent to Ploughman's Wetlands, I am extremely grateful for the beautification of the area and am overwhelmingly pleased with the soothing quality of now enjoying water views. I have taken pride in the area, and have endeavoured to keep the area tidy and monitor the appropriate use of the asset.

Over the last few years I have attended the regular meetings of the Ploughman's Valley Wetlands Care Group. Given that this is my backyard, I have a vested interest in the future direction of the site.

One issue that is often raised at these meetings is the enormous mounds of dirt left on the western edge of the Ploughman's Wetland.

This issue was raised again at the Community Consultation and Nigel's response, on behalf of Council, was not satisfactory enough.

Currently, as you may be aware, there is a makeshift BMX track fashioned out of these mounds.

My view, and I share this view with members of the Ploughman's Valley Wetlands Care Group, is to remove these mounds in the interest of safety to the children and for the overall amenity of the area.

I am aware of the significant rainfall that fell during the construction of the Wetlands. However, as a resident, I always thought that these mounds would have been removed during drier weather/seasons.

This, unfortunately, has not occurred in the last two years. Nigel indicated that the mounds of dirt will not be removed as it's too wet. Naturally, I think this is a bit of a cop-out from Orange City Council. The contractors who put the dirt there in the first place should have been obligated under their contractual arrangement with Council to remove it when the rain subsided. I understand the loss of an excavator bogged in dirt is not ideal but that was during a significant rain event. Surely in the period of time since construction these unsightly overgrown mounds of dirt should have been removed.

The possible litigation that Orange City Council could endure following a bicycle accident on unmaintained tracks and jumps that Council Staff are aware of would surely outweigh the cost of removing these problematic mounds.

As a PDHPE Teacher at Orange High School, I have a valuable understanding of the benefits of having facilities available to young people for daily physical activity.

This is not the place for a BMX track.

The environmental aspects of the site are better suited to the removal of these mounds and the construction of a concrete path, similar to the Eastern side that connects and encircles the Wetland itself.

Unfortunately, the negative social impact of having this makeshift BMX track so close to the back of a residential estate is beginning to be a problem. Adolescent boys, in general, frequent the area and I have recently picked up empty beer bottles and spirits cans. Last summer, I also saw some clown on a motorbike at the site.

I feel that unless something is done before the warmer weather starts; Council will have a greater problem on their hands as this inappropriate use will continue.

We have such a fantastic opportunity to enhance this land to become a fantastic asset to the City of Orange. A green corridor extending the full length of Ploughman's Creek presents great value to the whole of Orange. The community would benefit from tourism, environmental conservation, diversity of birdlife, recreational pursuits and, perhaps more importantly, would benefit from aesthetically appealing surroundings.

I trust that you will carefully consider these ideas for the betterment of the residents and visitors of this great city.

Regards,

Glen Pearson

(Bachelor of Human Movement/Bachelor of Teaching)

Appendix 12 Path strengthening materials

A typical product is woven geotextile.
Depending on the likely loads HP580 or a similar product would be suitable.

TENCATE Mirafi®

Mirafi® HP Woven Polypropylene Geotextiles

Properties of Mirafi® HP Woven Polypropylene Geotextiles

Property		Unit	HP270	HP340	HP370	HP465	HP470	HP570	HP580	HP665
Tensile strength	MD	kN/m	35	40	55	55	60	70	80	70
Tensile strength	CD	kN/m	35	40	40	55	60	70	80	95
ISO 10319										
Elongation	MD	%	15	15	15	15	15	20	20	20
Elongation	CD	%	15	15	15	15	15	15	15	15
ISO 10319										
CBR puncture		kN	4.5	5.0	6.5	7.0	7.0	6.5	7.5	8.0
ISO 12236										
UV resistance after 500 hours		%	90	90	90	90	90	90	90	90
ASTM D4355										
Opening size, O_{90}		mm	0.35	0.30	0.25	0.25	0.35	0.35	0.25	0.25
ISO 12956										
Water flow, Q_{50}		l/m²/s	30	25	25	10	30	30	15	20
ISO 11058										
Roll width		m	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Roll length		m	100	100	100	100	100	100	100	100

200-603-bde-11/09 (TC_Asia)

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info.asia@tencate.com, www.tencate.com

TENCATE materials that make a difference

Hi Peter,
Please find attached data sheet for HP series woven geotextile. I have HP580 available ex stock in Sydney and HP270 and HP340 in stock in Brisbane. These would have a lead time of 3-4 days.
Roll prices as follows (excl. GST)
HP270 - $960.00
HP340 - $1080.00
HP580 - $1840.00
Freight to Orange – $365.00
Give me a call if you require any further information or assistance.
Kind regards,

Wayne Bowker
Technical Sales

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ANZECC / ARMANZ, 2000

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4.2 NOTICE OF MOTION - ROWING ON SPRING CREEK RESERVOIR - ORANGE COMMUNITY ROWING CLUB

RECORD NUMBER: 2020/879

I, **CR REG KIDD** wish to move the following Notice of Motion at the Council Meeting of 16 June 2020:

MOTION

That Orange City Council review and report on the feasibility of allowing organised, and supervised rowing on Spring Creek Reservoir to be called "Orange Community Rowing Club".

BACKGROUND

The background notes below were written by an experienced international rowing coach and rowing mentor and Orange resident.

Reasons we need to establish an Orange Community Rowing Club:

1) The original proposal and approval for rowing to be allowed on Spring Creek was so that the people of Orange would have the opportunity to participate in the sport of rowing and one day have the possibility of the Oarsome Foursome coming from within the community of Orange.

2) The original Kinross Wolaroi Rowing Club was established as a legal entity under the auspices of Kinross Wolaroi School and the Uniting Church and recognised by NSW Rowing as an established club with constitutional voting rights and as a full NSW Rowing member.

   Under this structure, people who did not attend the school would still be able to row on Spring Creek and could also compete for the Kinross Wolaroi Club once they had left the school. This meant that students from other schools, students from the local Universities as well as masters rowers would be able to row on Spring Creek and compete under the flag of the Kinross Wolaroi Rowing Club. Unfortunately I believe the school has now done away with the legal entity of the Kinross Wolaroi Rowing Club as originally established which now denies the club from full voting rights and representation at NSW Rowing meetings. It also means that the school will not accept rowers from other schools, universities nor masters rowers to row on Spring Creek and compete for the Kinross Wolaroi Club from Orange.

   This being the case, it will be impossible for the oarsome foursome to ever come from Orange, which was one of the original intentions linked to the approval for Kinross Wolaroi School to row on Spring Creek. As students leaving Kinross Wolaroi are only 18 years old and are therefore young and inexperienced in international rowing terms, it is highly unlikely that a rower from the school could ever compete at the highest international level.

3) Unfortunately the manner in which the Kinross Wolaroi Rowing Club is currently operating is not in a format that is community based. It is therefore not operating in the best interest of developing rowing within the Orange community. There are a number of talented and interested people within the Orange community that are very interested in being involved in rowing. As stated above, the only available opportunity for them to be involved in rowing that now appears possible, including the future development of rowing within the Orange community is through the establishment of an Orange Rowing Club supported by the Orange City Council, local schools and universities and the Orange business community.

4) The requirements to establish a successful community based rowing club are as follows:

   A) Receive support from the Orange City Council in relation to the use of Spring Creek

   B) Be granted equal rights under the original environmental conditions set by Justice Bignall in 2003 for the use of Spring Creek as has been awarded to the Kinross Wolaroi Rowing Club

   C) Be allotted a parcel of land within the precinct of Spring Creek and the Kinross Wolaroi shed to construct a rowing shed for the housing of boats and equipment for the Orange Community Club

   D) To investigate the possibility of a financial contribution from Orange City Council towards the construction of the community based rowing shed

Signed Cr Reg Kidd

STAFF COMMENT

It is recommended that Council initiate discussions with Kinross Wolaroi School to determine possibility of expanding the current program to permit this activity.

The alternative is to revisit the previous rescinded motion where Council rescinded the previous motion to commence a process to permit additional activity on Spring Creek Dam. However this process would likely take several years without any certainty of a positive outcome. The rescission motion of 25 June 2019 follows for information.

RESOLVED - 19/323 **Cr J Whitton/Cr G Taylor**

That Council rescind the following resolution of the Council Meeting of 4 June 2019:

5.2 Recreational use of Spring Creek and Suma Park Dams

RESOLVED - 19/313 *Cr S Romano/Cr M Previtera*

That Council resolves to:

2 Commence the process to seek approval to permit access to Spring Creek Dam for non-powered and electric boating and fishing but not permit camping.

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

Nil

4.3 NOTICE OF MOTION - ORANGE SHOWGROUND TOILET AND CANTEEN FACILITIES MEETING

RECORD NUMBER: 2020/877
AUTHOR: Sam Romano, Cr

EXECUTIVE SUMMARY

I am pleased to advise that a meeting was held with members of the Showground Committee at the Showground pavilion on Tuesday 26 May 2020. Attendees at the meeting included Morrie Meagher, Peter Naylor, Scott Maunder, Cr Sam Romano, Nick Redmond, Member for Orange Phil Donato, Cr Reg Kidd, and 2 additional attendees whose names were not recorded. This report is a summary of what was discussed at this meeting.

FINANCIAL IMPLICATIONS

The Showground project is dependent upon Government funding.

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

That the report on Orange Showground Toilet and Canteen Facilities meeting be noted.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION

Discussions were held about:

- What grants have Orange City Council applied for the Showground?
- What is the budget for Canteen/Toilet block at Showground and who provided this?
- Will Orange City Council contribute $200,000 towards this?
- Should this be advertised and design and construct proposals be obtained from local contractors and suppliers, on Tenderlink as per Council website.
- Amenities; Toilets, male, female and accessible. Showers?
- What type of events?
  - A Safe Driving education
  - B Emergency Services training
  - C Exhibitions (Art, Sport, CWA, Camping etc...)
  - D Archery, Bird and poultry, Farm machines.
- How do we make this part of COVID 19 recovery with State Government?
- How will this operate (Show Society?)
- Federal assistance support money?

- Need Andrew Gee to commit to Federal funding for Showground upgrade.
- We need to support farmers and have facilities so they can rebuild rural shows.

Outcome

The outcome was very positive where Phil Donato stated that he will meet with Minister Melinda Pavey regarding State funding for this project.

5 GENERAL REPORTS

5.1 RECOMMENDATIONS AND RESOLUTIONS FROM POLICY COMMITTEES

TRIM REFERENCE: 2020/908
AUTHOR: Nick Redmond, Acting Director Corporate and Commercial Services

EXECUTIVE SUMMARY

Council's Policy Committees (Planning and Development Committee, Employment and Economic Development Policy Committee, Infrastructure Policy Committee, Sport and Recreation Policy Committee, Environmental Sustainability Policy Committee, Finance Policy Committee and Services Policy Committee) have delegation to determine matters before those Committees, with the exception of items that impact on Council's Delivery Operational Plan.

This report provides minutes of the Policy Committees held since the last meeting. Resolutions made by the Committees are for noting, and Recommendations are presented for adoption or amendment by Council.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "17.1 Collaborate - Provide representative, responsible and accountable community governance".

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

1 That the resolutions made by the Planning and Development Committee at its meeting held on 2 June 2020 be noted.

2 That the resolutions made by the Infrastructure Policy Committee at its meeting held on 2 June 2020 be noted.

3 That the resolutions made by the Environmental Sustainability Policy Committee at its meeting held on 2 June 2020 be noted.

4 That the resolutions made by the Finance Policy Committee at its meeting held on 2 June 2020 be noted.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION

Planning and Development Committee
At the Planning and Development Committee meeting held on 2 June 2020, all resolutions were made under delegation, and the minutes are presented for noting.

Infrastructure Policy Committee
At the Infrastructure Policy Committee meeting held on 2 June 2020, all resolutions were made under delegation, and the minutes are presented for noting.

Environmental Sustainability Policy Committee
At the Environmental Sustainability Policy Committee meeting held on 2 June 2020, all resolutions were made under delegation, and the minutes are presented for noting.

Finance Policy Committee
At the Finance Policy Committee meeting held on 2 June 2020, all resolutions were made under delegation, and the minutes are presented for noting.

ATTACHMENTS
1 PDC 2 June 2020 Minutes, 2020/882⇩
2 IPC 2 June 2020 Minutes, 2020/883⇩
3 ESPC 2 June 2020 Minutes, 2020/884⇩
4 FPC 2 June 2020 Minutes, 2020/885⇩

ORANGE CITY COUNCIL

MINUTES OF THE

PLANNING AND DEVELOPMENT COMMITTEE

HELD IN VIA ONLINE VIDEO CONFERENCING PLATFORM ZOOM

ON 2 JUNE 2020

COMMENCING AT 7.24PM

1 INTRODUCTION

ATTENDANCE

Cr R Turner (Chairperson), Cr R Kidd (Mayor), Cr S Romano (Deputy Mayor), Cr K Duffy, Cr J Hamling, Cr J McRae, Cr T Mileto, Cr S Munro, Cr S Nugent, Cr M Previtera, Cr G Taylor, Cr J Whitton

Chief Executive Officer, Acting Director Corporate and Commercial Services, Director Development Services, Director Community, Recreation and Cultural Services, Director Technical Services, Manager Financial Services, Manager Engineering Services, Governance Coordinator, Administration Officer – Governance

APOLOGIES AND LEAVE OF ABSENCE

Nil

1.1 DECLARATION OF PECUNIARY INTERESTS, SIGNIFICANT NON-PECUNIARY INTERESTS AND LESS THAN SIGNIFICANT NON-PECUNIARY INTERESTS

Cr J McRae declared a less than significant non-pecuniary interest in Item 2.4 - Heritage Study Review - as a property she owns is on the amended heritage list.

2 GENERAL REPORTS

2.1 ITEMS APPROVED UNDER THE DELEGATED AUTHORITY OF COUNCIL

TRIM REFERENCE: 2020/728

RESOLVED - 20/146 **Cr J Whitton/Cr R Kidd**

That Council resolves to acknowledge the information provided in the report by the Manager Development Assessments on Items Approved Under the Delegated Authority of Council.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil

Absent: Nil

2.2 PLANNING PROPOSAL TO AMEND ORANGE LOCAL ENVIRONMENTAL PLAN 2011 - REZONING OF 185 LEEDS PARADE

TRIM REFERENCE: 2020/750

RESOLVED - 20/147 **Cr J Whitton/Cr S Munro**

1 That Council resolve to support the planning proposal, enabling the matter to be progressed through to the Gateway process; with staff to forward the matter to the Department of Planning, Industry and Environment for assessment.

2 That the matter then proceed in accordance with any requirements or conditions of a Gateway Determination before being returned to Council once the public and agency consultations have been concluded.

3 That Council require the site to be subject to a Development Control Plan in the form of a masterplan that addresses:

- Urban design outcomes with respect to the presentation of the site to the frontages of Leeds Parade and the Northern Distributor Road.
- Measures to address potential acoustic impacts emanating from the site.
- Pedestrian and cyclist linkages and permeation of and through the site.
- Size, height and number limits on the extent of pylon signs, as well as appropriate and preferred locations for such signs.

4 That the proponent be advised of the need to prepare a masterplan addressing the above matters, to enable future development of the site to proceed in an orderly manner.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

2.3 DEVELOPMENT APPLICATION DA 54/2020(1) - 153-157 PEISLEY STREET, ORANGE

TRIM REFERENCE: 2020/818

RESOLVED - 20/148 **Cr S Nugent/Cr J Hamling**

That Council consents to development application DA 54/2020(1) for Recreation Facility (indoor) (change of use) at Lot 2 DP 535024 - 153-157 Peisley Street, Orange pursuant to the conditions of consent in the attached Notice of Approval.

Division of Voting	
Voted For	Cr R Kidd (Mayor), Cr S Romano (Deputy Mayor), Cr K Duffy, Cr J Hamling, Cr J McRae, Cr T Mileto, Cr S Munro, Cr S Nugent, Cr M Previtera, Cr G Taylor, Cr R Turner, Cr J Whitton
Voted Against	Nil

Absent	Nil

2.4 HERITAGE STUDY REVIEW

TRIM REFERENCE: 2020/819

Cr J McRae declared a less than significant non-pecuniary interest in this item as a property she owns is on the amended heritage list, removed herself from the room for this item, and took no part in the debate or voting on this matter.

RESOLVED - 20/149 **Cr S Nugent/Cr R Kidd**

That the Draft Heritage Study Review May 2020 prepared by David Scobie Architects and Adaptive Architects be placed on public exhibition for a period of 40 days.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Cr McRae

THE MEETING CLOSED AT 7.35PM.

ORANGE CITY COUNCIL

MINUTES OF THE

INFRASTRUCTURE POLICY COMMITTEE

HELD IN VIA ONLINE VIDEO CONFERENCING PLATFORM ZOOM

ON 2 JUNE 2020

COMMENCING AT 7.35PM

1 INTRODUCTION

ATTENDANCE

Cr J Whitton (Chairperson), Cr R Kidd (Mayor), Cr S Romano (Deputy Mayor), Cr K Duffy, Cr J Hamling, Cr J McRae, Cr T Mileto, Cr S Munro, Cr S Nugent, Cr M Previtera, Cr G Taylor, Cr R Turner

Chief Executive Officer, Acting Director Corporate and Commercial Services, Director Development Services, Director Community, Recreation and Cultural Services, Director Technical Services, Manager Financial Services, Manager Engineering Services, Governance Coordinator, Administration Officer – Governance

APOLOGIES AND LEAVE OF ABSENCE

Nil

1.1 DECLARATION OF PECUNIARY INTERESTS, SIGNIFICANT NON-PECUNIARY INTERESTS AND LESS THAN SIGNIFICANT NON-PECUNIARY INTERESTS

Nil

2 GENERAL REPORTS

2.1 CURRENT WORKS

TRIM REFERENCE: 2020/783

RESOLVED - 20/150 **Cr R Kidd/Cr S Munro**

That Council resolves to note the report on Current Works.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

MATTER ARISING – FARMERS MARKETS

*** Cr Duffy left the meeting due to technical issues with the time being 7.56pm***

RESOLVED - 20/151 **Cr J Hamling/Cr S Nugent**

That Council resolves to allow the Farmers Markets to return to the Naylor Pavilion from 13 June 2020 subject to following current COVID19 restrictions.

For: Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Taylor, Cr Turner, Cr Whitton
Against: Cr Kidd, Cr Previtera, Cr Romano
Absent: Cr Duffy

THE MEETING CLOSED AT 7.57PM.

ORANGE CITY COUNCIL

MINUTES OF THE

ENVIRONMENTAL SUSTAINABILITY POLICY COMMITTEE

HELD IN VIA ONLINE VIDEO CONFERENCING PLATFORM ZOOM

ON 2 JUNE 2020

COMMENCING AT 7.58PM

1 INTRODUCTION

ATTENDANCE

Cr M Previtera (Chairperson), Cr R Kidd (Mayor), Cr S Romano (Deputy Mayor), , Cr J Hamling, Cr J McRae, Cr T Mileto, Cr S Munro, Cr S Nugent, Cr G Taylor, Cr R Turner, Cr J Whitton

Chief Executive Officer, Acting Director Corporate and Commercial Services, Director Development Services, Director Community, Recreation and Cultural Services, Director Technical Services, Manager Financial Services, Manager Engineering Services, Governance Coordinator, Administration Officer – Governance

*** Cr K Duffy was not present for this meeting due to technical issues. ***

APOLOGIES AND LEAVE OF ABSENCE

Nil

1.1 DECLARATION OF PECUNIARY INTERESTS, SIGNIFICANT NON-PECUNIARY INTERESTS AND LESS THAN SIGNIFICANT NON-PECUNIARY INTERESTS

Nil

2 GENERAL REPORTS

2.1 COUNCIL'S POSITION ON CLIMATE CHANGE - UPDATE TO CNSWJO

TRIM REFERENCE: 2020/822

RESOLVED - 20/151 **Cr S Nugent/Cr R Kidd**

That the report on Council's Position on Climate Change and advice on programming be noted.

For: Cr Kidd, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Cr Duffy

MATTER ARISING

The Mayor requested that information be provided to the media on Council's progress in regard to solar energy.

THE MEETING CLOSED AT 8.01PM.

ORANGE CITY COUNCIL

MINUTES OF THE

FINANCE POLICY COMMITTEE

HELD IN VIA ONLINE VIDEO CONFERENCING PLATFORM ZOOM

ON 2 JUNE 2020

COMMENCING AT 7.00PM

1 INTRODUCTION

ATTENDANCE

Cr J Whitton (Chairperson), Cr R Kidd (Mayor), Cr S Romano (Deputy Mayor), Cr K Duffy, Cr J Hamling, Cr J McRae, Cr T Mileto, Cr S Munro, Cr S Nugent, Cr M Previtera, Cr G Taylor, Cr R Turner

Chief Executive Officer, Acting Director Corporate and Commercial Services, Director Development Services, Director Community, Recreation and Cultural Services, Director Technical Services, Governance Coordinator, Manager Corporate Governance, Administration Officer Governance, Manager Financial Services, Manager Engineering Services.

*** Cr Duffy arrived back in the meeting with the time being 8.01pm****

APOLOGIES AND LEAVE OF ABSENCE

Nil

1.1 DECLARATION OF PECUNIARY INTERESTS, SIGNIFICANT NON-PECUNIARY INTERESTS AND LESS THAN SIGNIFICANT NON-PECUNIARY INTERESTS

Cr R Kidd declared a less than significant non-pecuniary interest in Item 2.2 - Request for Financial Assistance – Duntryleague Golf Club, as he and his wife are members of Duntryleague.

Cr J Hamling declared a less than significant non-pecuniary interest in Item 2.2 - Request for Financial Assistance – Duntryleague Golf Club, as he is a member of Duntryleague.

2 GENERAL REPORTS

2.1 REQUEST FOR FINANCIAL ASSISTANCE - LIFELINE CENTRAL WEST

TRIM REFERENCE: 2020/815

RESOLVED - 20/152 **Cr R Kidd/Cr R Turner**

That Council resolves:

1 That a donation of $15,709.89 be made from the Small Donations Program to Lifeline Central West (increased services to the vulnerable in the community due to COVID-19).

2 That Council's intention to donate $15,709.89 to Lifeline Central West be placed on public exhibition for 28 days.

3 That Council's Chief Executive Officer be given delegation to finalise determination for the Donation to Lifeline Central West post exhibition.

4 That Lifeline be invited to do a presentation to Council to include how Council can assist to support further adequate resource funding for Lifeline across the State.

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr McRae, Cr Mileto, Cr Munro, Cr Nugent, Cr Previtera, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Nil
Absent: Nil

2.2 REQUEST FOR FINANCIAL ASSISTANCE - DUNTRYLEAGUE GOLF CLUB

TRIM REFERENCE: 2020/849

Cr R Kidd declared a less than significant non-pecuniary interest in this Item, as he and his wife are members of Duntryleague, and stayed in the room for this item.

Cr J Hamling declared a less than significant non-pecuniary interest in this Item, as he is a member of Duntryleague, and stayed in the room for this item.

RESOLVED - 20/153 **Cr S Munro/Cr R Turner**

That Council resolves:

1 To support the diversion of stormwater from Woodward Road into Duntryleague;

2 That funding of $3,500 for the infrastructure and wages in addition to the Development Application Fees ($230) and Road Opening Permit Fees ($437.50) for the Duntryleague Golf Club Storm Water diversion be funded from Road Maintenance Fund.

3 That subject to the approval of a Development Application, Council:

I. Undertake all survey work;

II. Gift three x 600mm diameter storm water pipes;

III. Reimburse Development Application fees;

IV. Waive all Road Opening Permit fees; and

V. Assist with the lodgement and approval of the RMS Road Occupancy License together with the Works Authorisation Deed as a contribution/works in kind.

4 To place the proposed allocation of funds to Duntryleague Golf Club on public exhibition for a minimum of 28 days (in accordance with section 356 of the Local Government Act 1993).

For: Cr Kidd, Cr Duffy, Cr Hamling, Cr Munro, Cr Romano, Cr Taylor, Cr Turner, Cr Whitton
Against: Cr McRae, Cr Mileto, Cr Nugent, Cr Previtera
Absent: Nil

MATTER ARISING

Cr Mileto asked to be provided with details of a previous loan agreement with the Club.

THE MEETING CLOSED AT 8.22PM.

5.2 STATEMENT OF INVESTMENTS - MAY 2020

TRIM REFERENCE: 2020/898
AUTHOR: Julie Murray, Financial Accountant

EXECUTIVE SUMMARY

The purpose of this report is to provide a statement of Council's investments held as at 31 May 2020.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "17.2 Collaborate - Ensure financial stability and support efficient ongoing operation".

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

That Council resolves:

1 To note the Statement of Investments as at 31 May 2020.

2 To adopt the certification of the Responsible Accounting Officer.

FURTHER CONSIDERATIONS

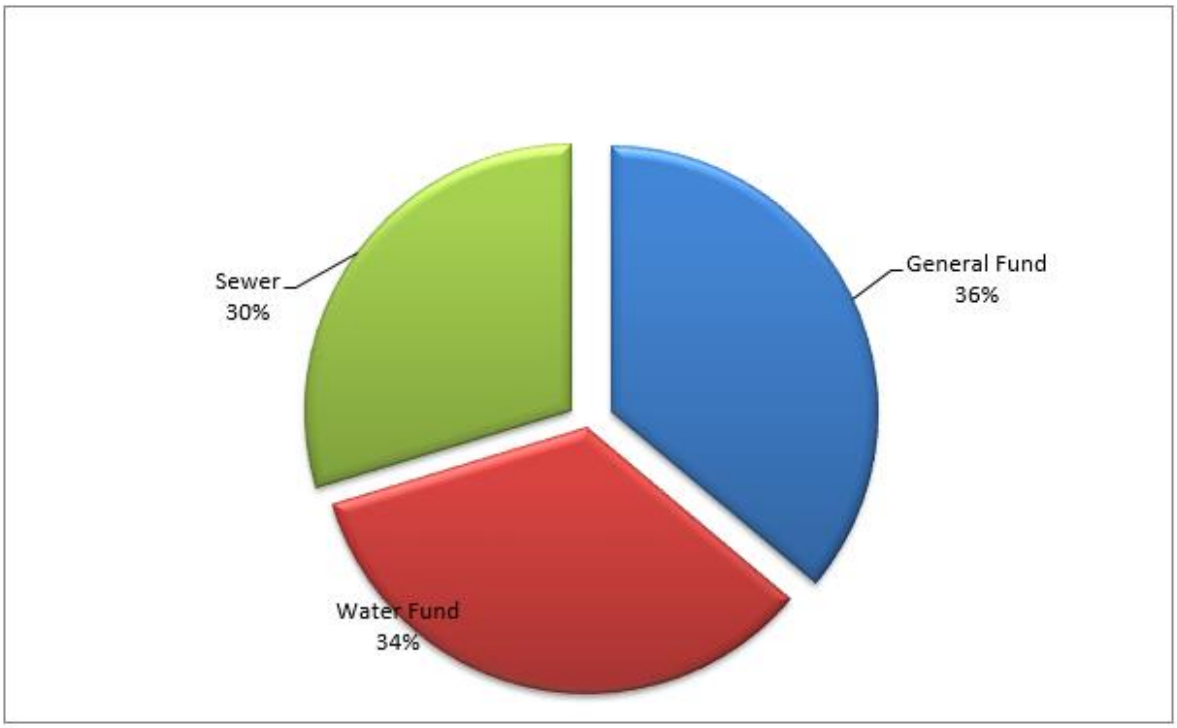
Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION

Section 212(1) of the Local Government (General) Regulation 2005 requires that a written report be presented each month at an Ordinary Meeting of the Council detailing all money that Council has invested under Section 625 of the Local Government Act 1993.

As at 31 May 2020, the investments held by Council in each fund is shown below:

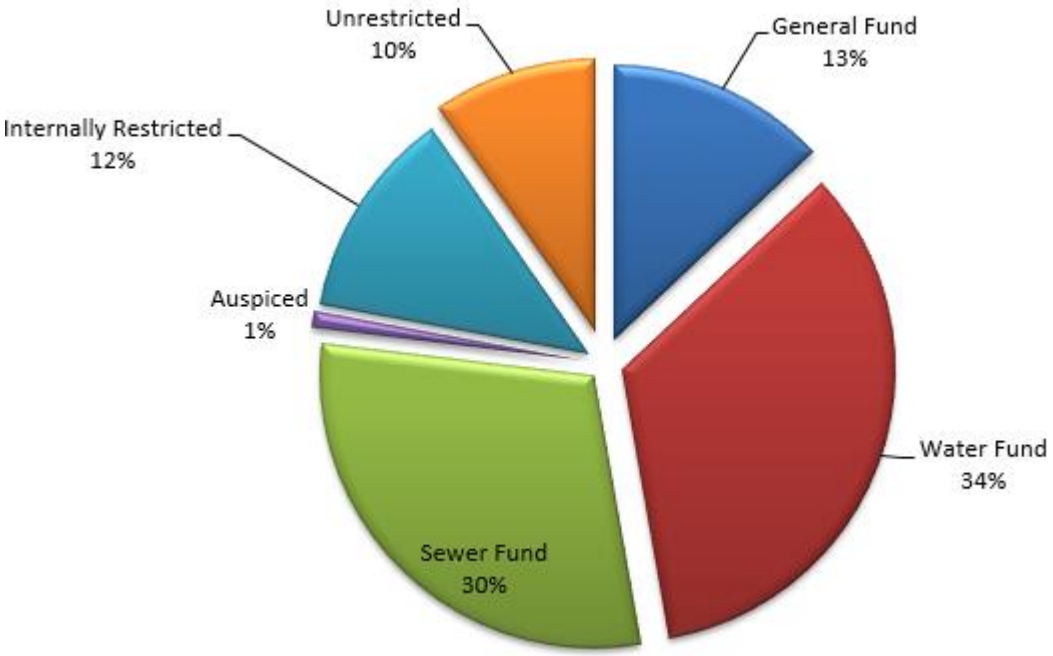
	31/05/2020	**30/04/2020**
General Fund	62,453,251.54	59,821,072.77
Water Fund	59,165,456.69	59,290,632.67
Sewer Fund	51,290,880.32	51,639,567.34
Total Funds	**172,909,588.55**	**170,751,272.78**



A reconciliation of Council's investment portfolio provides a summary of the purposes for which Council's investments are being held. The summary is as follows:

	31/05/2020	30/04/2020
Externally Restricted		
- General Fund	22,510,164.59	25,337,690.84
- Water Fund	59,165,456.69	59,290,632.67
- Sewer Fund	51,290,880.32	51,639,567.34
- Auspiced	1,702,428.42	1,702,428.42
Internally Restricted	21,419,388.40	16,208,553.16
Unrestricted	16,821,270.13	16,572,400.35
Total Funds	**$172,909,588.55**	**$170,751,272.78**

The unrestricted cash position movements during the month are normal as projects commence and income is received. Movements may also arise following processing of income received between funds or into restricted assets to appropriately allocate for the purposes Council has determined. The movement in General Fund between Externally restricted and Internally restricted assets is due to the reclassification of the Financial Assistance Grants paid in advance being reclassified to internally restricted due to the grant being untied (ie it is not for a specific purpose). Council's cashflow is monitored on a daily basis and some investments have been redeemed rather than rolled over to support requirements.



Portfolio Advice

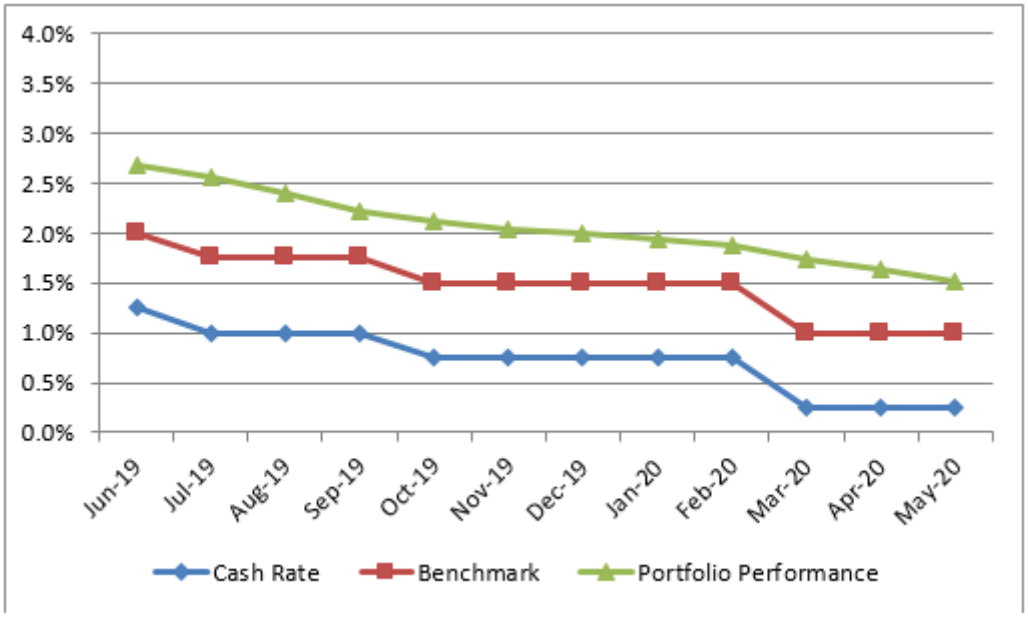
Council utilises the services of an independent investment advisor in maintaining its portfolio of investments. Council's current investment advisor is Imperium Markets, an independent asset consultant that works with wholesale investors to develop, implement and manage their investment portfolio. Imperium Markets is a leading provider of independent investment consulting services to a broad range of institutional investors including government agencies, superannuation funds and not-for-profit organisations.

Imperium Markets major services provided to Council include:

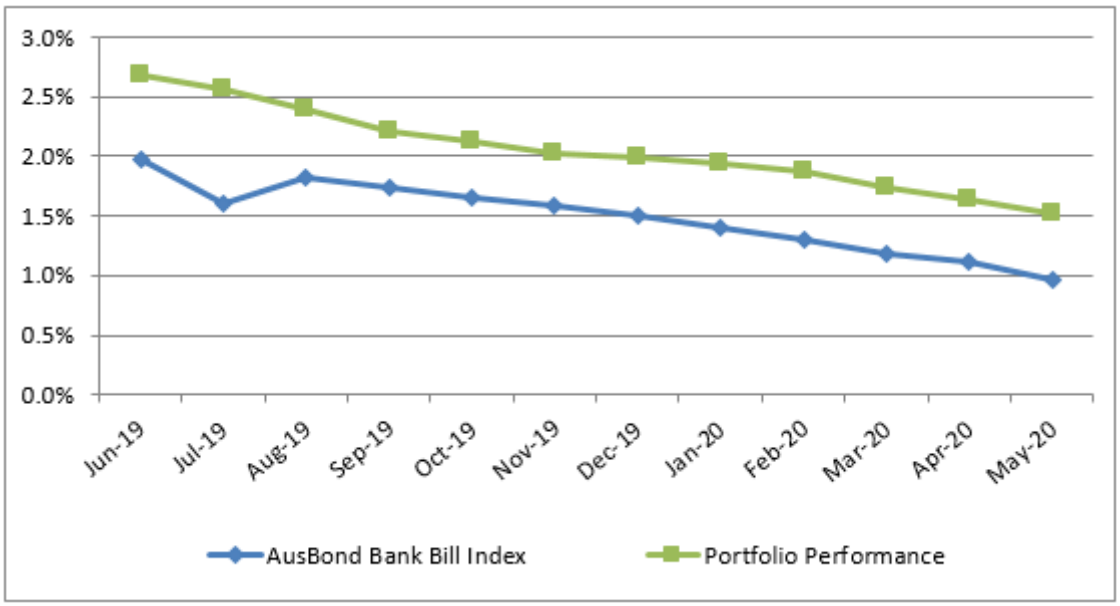
- Quarterly portfolio summary reports
- Advice on investment opportunities, in particular Floating Rate Note products
- Advice on policy construction
- Year-end market values for Floating Note Rate products held by Council.

Portfolio Performance

Council's current Long Term Financial Plan establishes the benchmark for Council's interest on investments at "75 basis points above the current cash rate". The cash rate as at 31 May 2020 remained at 0.25 per cent. The weighted average interest rate of Council's investment portfolio at the same reporting date was 1.52 per cent which continues to exceed Council's benchmark i.e. the cash rate of 0.25 per cent plus 0.75 per cent (or 75 basis points).



Council has also utilised the AusBond Bank Bill Index to provide a further benchmark focused towards long term investments. As at 31 May 2020, the AusBond rate was 0.97 per cent. The weighted average interest rate of Council's investment portfolio at the same reporting date was 1.52 per cent.



Council's Investment Policy establishes limits in relation to the maturity terms of Council's investments as well as the credit ratings of the institutions with whom Council can invest.

The following tables provide a dissection of Council's investment portfolio as required by the Policy. The Policy identifies the maximum amount that can be held in a variety of investment products or with institutions based on their respective credit ratings.

Table 1 shows the percentage held by Council (holdings) and the additional amount that Council could hold (capacity) for each term to maturity allocation in accordance with limits established by Council's Policy.

Table 1: Maturity – Term Limits

Term to Maturity Allocation	Maximum	Holding	Remaining Capacity
0 - 3 Months	100.00%	21.03%	78.97%
3 - 12 Months	100.00%	46.31%	53.69%
1 - 2 Years	70.00%	17.38%	52.62%
2 - 5 Years	50.00%	15.27%	34.73%
5+ Years	25.00%	0.00%	25.00%

Table 2 shows the total amount held, and the weighted average interest rate (or return on investment), by credit rating. The credit rating is an independent opinion of the capability and willingness of a financial institution to repay its debts, or in other words, the providers' financial strength or creditworthiness. The rating is typically calculated as the likelihood of a failure occurring over a given period, with the higher rating (AAA) being superior due to having a lower chance of default. However, it is generally accepted that this lower risk will be accompanied by a lower return on investment.

Table 2 demonstrates that Council receives a lower return for its A rated and above investments than for those with ratings of B or less. The level of money held in the bank accounts has been added to the table to illustrate the ability of Council to cover the operational liabilities that typically occur (for example payroll, materials and contracts, utilities).

Table 2: Credit Rating Limits

Credit Rating	Maximum	Holding	Remaining Capacity	Value	Return on Investment
Bank Accounts	100.00%	7.64%	92.36%	$13,217,453.12	0.25%
AAA	100.00%	0.00%	100.00%	N/A	N/A
AA	100.00%	25.30%	74.70%	$43,751,240.00	1.52%
A	60.00%	36.38%	23.62%	$62,900,000.00	1.47%
BBB & NR	40.00%	30.68%	9.32%	$53,040,895.43	1.60%
Below BBB	0.00%	0.00%	0.00%	N/A	N/A

AMP Bank was downgraded by Standard and Poor's from A to BBB during August 2019, thereby pushing the holdings of BBB rated products close to the maximum capacity. This situation continues to be monitored and will be addressed over time, by transferring across to A rated counterparties as the BBB rated investments fall due.

Certification by Responsible Accounting Officer

I, Jason Cooke, hereby certify that all investments have been made in accordance with Section 625 of the Local Government Act 1993, Clause 212 of the Local Government (General) Regulation 2005 and Council's Investment Policy.

5.3 EMPLOYMENT OF APPRENTICES, TRAINEES AND CADETS AT COUNCIL

RECORD NUMBER: 2020/852
AUTHOR: Michael Ridge, Manager Human Resources

EXECUTIVE SUMMARY

At the Infrastructure Policy Committee Meeting on 12 May 2020, Cr Munro requested a report be brought back to Council on the number of Apprentices currently employed by Council and whether the number could be increased. This report provides an overview of the employment of Apprentices, Trainees and Cadets at Council and the potential for additional positions.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "15.3 Collaborate - Engage and train young people to develop our future leaders".

FINANCIAL IMPLICATIONS

Nil – however, there will be additional costs if Council determines to increase the number of Apprentices, Trainees or Cadets employed by Council. Depending on the position the costs would range from approximately $25,000 to $57,000 per annum per position.

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

That Council resolves to acknowledge the report by Manager Human Resources on the Employment number of Apprentices, Trainees and Cadets at Council.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION

Background

Orange City Council currently has 6 Apprentice, 9 Trainee, 7 Cadet and 8 School Based Trainee positions within its organisation structure (noting some positions are vacant). Council's Apprentices and School Based Trainees are employed by Skillset and hosted at Council while Trainees and Cadets are employed directly by Council.

The current positions are:

- Horticultural Trainee X 4 (City Presentation)
- Greenkeeper Apprentice (City Presentation)
- Trainee Diploma Educator X 3 (Community Services/Children Services)
- Cadet Accountant X 2 (Financial Services)
- School Based Trainees X 8 (positions currently in Development Assessment, Human Resources, Information Technology, Children's Services, Business Development). These positions were approved by Council at its meeting on 22 October 2019.
- Trainee Cadet Aboriginal Environmental Health Officer (Building and Environment)
- Trainee Drafting Officer X 2 (Engineering Services and Building and Environment)
- Apprentice Heavy Vehicle Mechanic (Depot, Airport and Emergency Services/Workshop)
- Apprentice Electrician X 2 (Building Services and Water and Sewer)
- Apprentice Plumber (Water and Sewer)
- Apprentice Carpenter (Building Services)
- Cadet Engineer X 4 (Water and Sewer, Works, Operations, Engineering Services)

The fourth cadet engineer is new for 2020. In addition, in the 2020/21 draft budget a Weeds Trainee and additional Apprentice Heavy Vehicle Mechanic are proposed.

Potential for Additional Positions

Council provides Apprenticeships across all our trade qualified sections with limited opportunity to add additional roles due to supervisory requirements by a Tradesperson.

There may be some opportunity to add additional Trainee positions across Council's operations. Trainee's study a Certificate II to Advanced Diploma and can work in a wide range of indoor and outdoor positions from Administration, Business Services, Community Services, Water Industry Operations and Civil Construction. Should Council determine to provide additional funding for Trainee positions consultation would then occur with Directors/Managers on which areas these could be accommodated. One immediate area without a change to the budget could be within the proposed expanded footpath construction budget for new concreters/civil traineeships.

5.4 SYNTHETIC TURF WITHIN ROAD VERGES

RECORD NUMBER: 2020/855
AUTHOR: Jason Theakstone, Manager Engineering Services

EXECUTIVE SUMMARY

Council is starting to receive an increase in the number of enquiries to install synthetic turf within Council's road reserve. This report serves to recommend Council not allow the installation of artificial turf within the road reserves.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "9.1 Preserve - Construct and maintain a road network meets the community's transport and infrastructure needs".

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

That Council resolves to:

1 Not allow the installation of synthetic turf on road reserves.

2 Require hydro seeding of the road verge in front of new dwellings if turf watering is unable to be maintained under current water restrictions.

3 That, should Council resolve to allow the installation of synthetic turf, staff develop an approval policy and installation guidelines for adoption.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION

Due to the current water restrictions Council does not allow the watering of lawn/turf within the city and builders want to make their developments more "sellable" by placing lawn in front of the house. Council has also been approached by private owners in established areas requesting permission to install synthetic turf for presentation purposes. As a result builders and owners are requesting to install synthetic turf within Council's road reserve.

Whilst it can be argued that the installation of synthetic turf does beautify the allotment, reduce the need for watering and stop erosion, it comes with some significant drawbacks and potential liability for Council;

1. Comparatively expensive and complex restoration where Council and other service provides (utilities suppliers) excavate through the road reserve post installation. Complete replacement of the synthetic surface following disturbance would often be required
2. The covering of hydrants and other critical infrastructure occurs
3. Stormwater gets trapped under the fabric and "balloons" the fabric
4. Synthetic turf reduces water infiltration and increases runoff into Council's stormwater system
5. Increases the radiant heat of the streetscape
6. It can become a trip hazard and risk to the public if dislodged and not maintained
7. The fabric becomes vandalised or suffers general wear and tear
8. The fabric ages and fades
9. The builder installs the synthetic turf and the subsequent purchaser is unaware of the Council conditions and limitation of the artificial lawn.
10. To plant street trees synthetic turf must be cut and following the tree installation the turf should be re bonded to a hard edge otherwise the carpet may lift and become a trip hazard
11. The medium on which synthetic turf is laid is generally metal dust or similar. This medium is highly permeable and has generous pore spaces for oxygen. These two elements, water and oxygen, provide a 'hot-bed' matrix beneficial to the feeding root structure of trees. In many instances the roots will travel above the compacted in-situ soils; travelling through the gravel layer and lifting the carpet, creating multiple trip hazards within the road reserve (nature strip area where no footpaths are present).
12. Synthetic turf requires ongoing maintenance. It must have a sand or crumbed rubber infill to ensure that the pile stays upright. This infill can migrate due to the action of wind or water, especially on steeper road verges. Weeds can also grow through or on top of the synthetic turf.

Council's subdivision code requires developers to hydro seed road verges when creating building allotments. The matrix of the hydro seed holds the road verge and prevents scours in most cases. Unfortunately when builders build houses in newly created subdivisions, the building activities destroy this grass.

Comparison is likely to be drawn to Council's use of this type of surfacing in the past (>10yrs ago) on the likes of the Lords Place and Moulder Street roundabout islands and part of the verge. It should be noted that the synthetic turf is used in non-pedestrian trafficked locations and has not been repeated in any installations in the recent past.

5.5 ORANGE REGIONAL GALLERY EXTENSION

RECORD NUMBER: 2020/933
AUTHOR: Scott Maunder, Director Community, Recreation and Cultural Services

EXECUTIVE SUMMARY

The Orange Regional Gallery Extension will mark a new chapter in the Gallery's history through the creation of new exhibition, engagement and conservation spaces.

Highlights of the extension include:

- a large new gallery space for contemporary art exhibitions with controllable natural lighting;
- a 75 seat lecture theatre and lobby for community engagement and education;
- a state of the art climate-controlled art storage and conservation area which will ensure the future growth and protection of our significant collections.

In August 2018, Orange Regional Gallery was granted $4,052,990 through the first round of the NSW Government's Regional Cultural Fund to extend the Gallery by 1,070sqm. The extension is designed by Sydney firm Architect Marshall whose previous projects include the extension to the Museum of Contemporary Art in Sydney.

To enable the Gallery extension to reach its full potential, a fundraising campaign has been developed to enable the community to participate in supporting the extension.

This report details the opportunities that will be available to the community.

LINK TO DELIVERY/OPERATIONAL PLAN

The recommendation in this report relates to the Delivery/Operational Plan strategy "4.3 Live - Maintain and renew cultural facilities and programs".

FINANCIAL IMPLICATIONS

Nil

POLICY AND GOVERNANCE IMPLICATIONS

Nil

RECOMMENDATION

That Council adopt the Fundraising Strategy as detailed in this report.

FURTHER CONSIDERATIONS

Consideration has been given to the recommendation's impact on Council's service delivery; image and reputation; political; environmental; health and safety; employees; stakeholders and project management; and no further implications or risks have been identified.

SUPPORTING INFORMATION

FUNDRAISING RATIONALE

The Gallery fundraising team have arrived at the Donor and Naming Right levels and fundraising strategy through extensive consultation with experts in the field.

Primarily we have been assisted by:

- The fundraising team at the Art Gallery of New South Wales who have been responsible for raising over $103,000,000 in community funds in addition to their State Government grant.
- Team leaders from Creative Partnerships Australia who provide detailed advice around community and corporate fundraising partnerships for Arts organisations.
- Colleagues from other Regional Galleries who have overseen successful fundraising campaigns related to their building projects
- Museums and Galleries NSW, the peak body for regional galleries in the state. They have provided advice and contacts.

These groups have advised us on a number of occasions and reviewed our material and strategy. They are also providing advice around protocol and media.

FUNDRAISING STRATEGY

The Gallery's fundraising campaign will be run via events, in print, online and via 1 to 1 meetings.

Phase 1: **Naming Rights open.**

Meetings and discussions with high level donors seeking naming rights for any of three of the spaces: the new Extension Gallery, the Lecture theatre and the refurbished smaller Gallery 2. (17 June 2020 and ongoing)

Phase 2: Donors board campaign launch.

Covid 19 Circumstances permitting, an event will be held in Gallery 1 to coincide with the turning of the first sod ceremony at the beginning of August. The Gallery's new website will be launched at the same time which will have the ability to receive donations of all amounts over $2 into the Gallery's Tax Deductible Gift fund. (1 August and then ongoing)

Phase 3: Theatre Seat Fundraiser.

Once the theatre structure has been constructed, the Gallery will make the purchase of the 75 seats available, prior to Christmas 2020. Seats will be available for $1,000 each and a plaque bearing the name of the donor will be installed on the back of the seat they selected.

FUNDRAISING LEVELS AND CATEGORIES

The Gallery's Tax Deductible Gift status is confirmed and a DGR fund has been established to receive donations. The technical means of donating online are now being finalised, which will ensure that all donors are traceable and will receive a deductible gift receipt.

An option for high level donors to donate over 3 financial years is proposed and has been shown to be an effective incentive in other examples, such as at the Art Gallery of New South Wales.

Our approach will be to divide fundraising into categories, which also broadly reflects the phases listed above. This is because different approaches and discussions are required.

Category 1: Naming Rights

The new Extension Gallery, Lecture Theatre and Gallery 2 are being made available for naming rights. This means that the particular physical space will bear the name of the donor in perpetuity and be referred to by name in all logistical and promotional material. For example: *The John and Jane Citizen theatre*.

The Naming Rights aspect of fundraising has the potential to raise $800,000 and is separate to our general fundraising target of $500,000.

EXTENSION GALLERY:	$500,000
THEATRETTE:	$200,000
GALLERY 2:	$100,000

It is also proposed here that two prominent community organisations who have tirelessly supported the Gallery over the last 35 years be acknowledged through naming rights in perpetuity:

The Friends of Orange Regional Gallery Reception

The refurbished reception area will be opened up and become an important gathering space for events, tours and general public welcoming. In recognition of this extraordinary fundraising and volunteering it is proposed to recognise the Friends and for signage to be installed in this space.

Orange Regional Arts Foundation Conservation Wing

It is proposed that the vital new storage and conservation areas will bear this name to acknowledge the substantial contributions made to the Gallery, particularly for substantial purchases and commissions for the Gallery's nationally significant collection. Signage will be installed at the entrance to the conservation area, located in the theatre lobby.

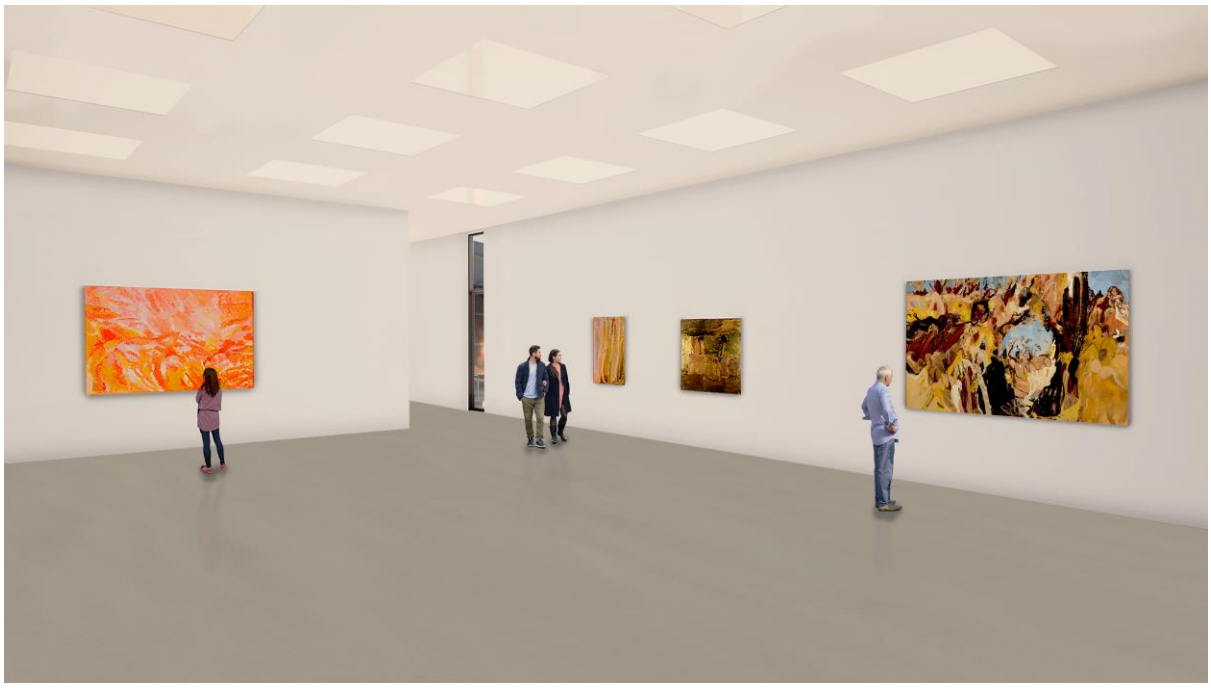
Category 2: Donors (Target $500,000)

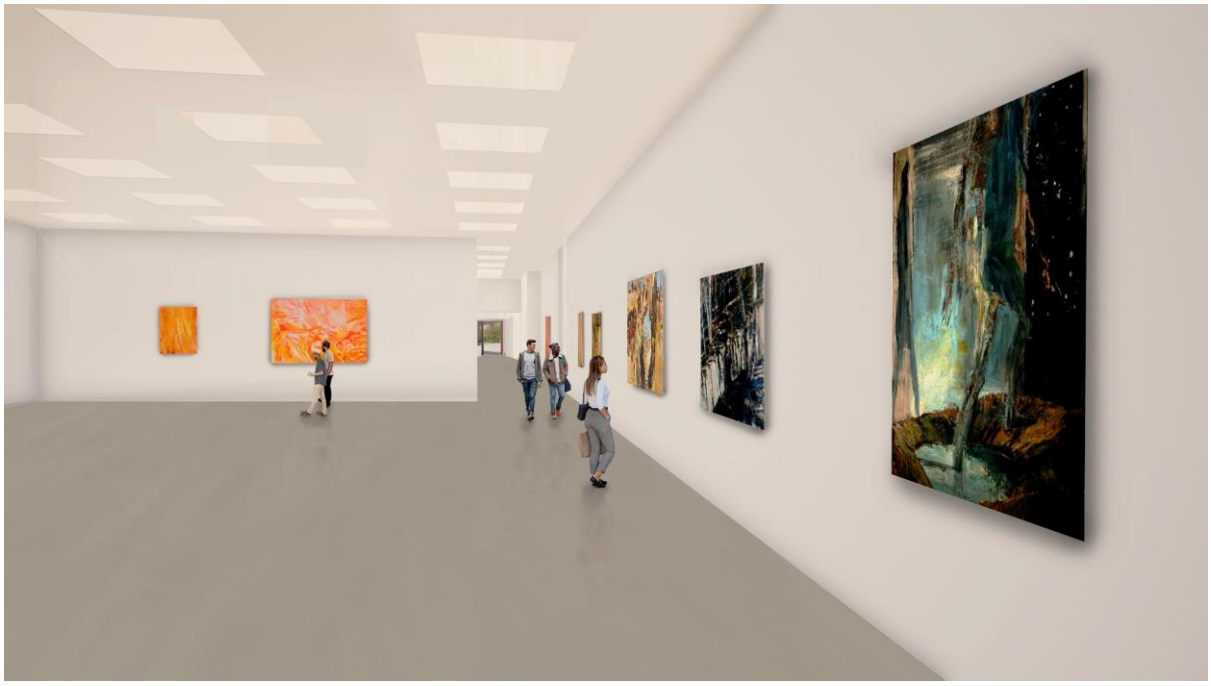
The Donors board will be situated in the lobby of the new lecture theatre as visitors enter the new extension. It essentially marks the next chapter in the building's history. Fundraising for this category offers a range of options or levels. Boards like this are a common feature in many cultural facilities and can be added to after the building has been completed.

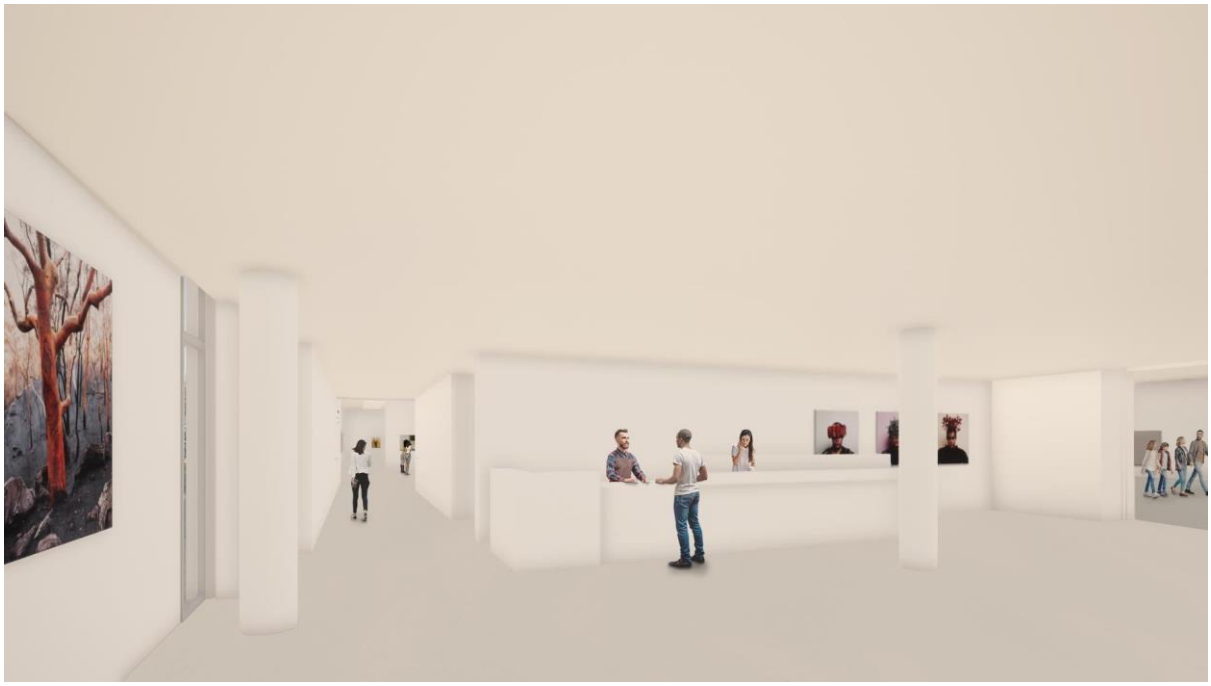
Donations options for this category will be available via online portal and in person. People will be listed alphabetically in each level.

BENEFACTORS:	$50,000 +
DONORS:	$10,000 +
SUPPORTERS:	$3,000 +


ORANGE REGIONAL GALLERY EXTENSION DONORS
NSW Government
Orange City Council
BENEFACTORS
Citizen Family
Jane Citizen
John & Jane Citizen
Jane Citizen
DONORS
Citizen Family
Jane Citizen
John & Jane Citizen
John Citizen
Citizen Family
Jane Citizen
John & Jane Citizen
John Citizen
Citizen Family
Jane Citizen
John & Jane Citizen
John Citizen
Citizen Family
Jane Citizen
John & Jane Citizen
John Citizen
SUPPORTERS







6 CLOSED MEETING - SEE CLOSED AGENDA

The Chief Executive Officer will advise the Council if any written submissions have been received relating to any item advertised for consideration by a closed meeting of Orange City Council.

The Mayor will extend an invitation to any member of the public present at the meeting to make a representation to Council as to whether the meeting should be closed for a particular item. In accordance with the Local Government Act 1993, and the Local Government (General) Regulation 2005, in the opinion of the General Manager, the following business is of a kind as referred to in Section 10A(2) of the Act, and should be dealt with in a Confidential Session of the Council meeting closed to the press and public.

RECOMMENDATION

That Council adjourn into a Closed Meeting and members of the press and public be excluded from the Closed Meeting, and access to the correspondence and reports relating to the items considered during the course of the Closed Meeting be withheld unless declassified by separate resolution. This action is taken in accordance with Section 10A(2) of the Local Government Act, 1993 as the items listed come within the following provisions:

6.1 Acquisition of Easement - Spring Creek/Icely Road Pipeline - Lot 111 DP 736116

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.2 Acquisition of Easement - Stage 4 Southern Feeder Road - Lot 44 DP788920

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.3 Visy Recycling and JR Richards & Sons Proposed Recyclables Supply Agreement

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.4 Initiatives to Support CBD businesses

This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.1 ACQUISITION OF EASEMENT - SPRING CREEK/ICELY ROAD PIPELINE - LOT 111 DP 736116

RECORD NUMBER: 2020/834
AUTHOR: Shirley Hyde, Legal and Property Officer

REASON FOR CONFIDENTIALITY
This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.2 ACQUISITION OF EASEMENT - STAGE 4 SOUTHERN FEEDER ROAD - LOT 44 DP788920

RECORD NUMBER: 2020/837
AUTHOR: Shirley Hyde, Legal and Property Officer

REASON FOR CONFIDENTIALITY
This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.3 VISY RECYCLING AND JR RICHARDS & SONS PROPOSED RECYCLABLES SUPPLY AGREEMENT

RECORD NUMBER: 2020/914
AUTHOR: Wayne Davis, Manager Waste Services and Technical Support

REASON FOR CONFIDENTIALITY
This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

6.4 INITIATIVES TO SUPPORT CBD BUSINESSES

RECORD NUMBER: 2020/932
AUTHOR: Ian Greenham, Director Technical Services

REASON FOR CONFIDENTIALITY
This item is classified CONFIDENTIAL under the provisions of Section 10A(2) of the Local Government Act 1993, which permits the meeting to be closed to the public for business relating to (c) information that would, if disclosed, confer a commercial advantage on a person with whom the Council is conducting (or proposes to conduct) business.

7 RESOLUTIONS FROM CLOSED MEETING