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NSW Department of Planning, Industry and Environment
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Submission – draft NSW Water Strategy

Thank you for the opportunity to provide comment on the d*raft NSW Water Strategy.*

Rous County Council (RCC) supports the actions presented in the draft Strategy and considers them necessary to address key risks facing the Local Water Utility (LWU) sector across the state.

We provide the following comments and suggestions in addition to those actions considered in the Strategy:

1. Finance and regulatory support for regional pilot projects that increase water security options for LWU's (link to actions 6.6 and 7.1)
2. Improve Integrated Water Cycle Management planning as it relates to water security (link to actions 4.1, 6.2 and 6.8)
3. Support regional communities with Water Efficiency Programs. (link to actions 5.1, 6.5 and 6.10)

1. Support pilot projects in regional communities

The NSW Productivity Commission Green Paper recommended that NSW addresses gaps in the current State based frameworks to ensure that water recycling remains an option available for LWU's. The discussion paper also called for the establishment of a pilot demonstration plant in Sydney to help people understand the water cycle while garnering support for potable reuse options from the broader community.

While there is merit in the establishment of a pilot plant in Sydney, it is equally important that the same consideration should be given to a pilot plant in regional NSW. The challenges facing regional NSW and our metropolitan counterparts concerning the technical aspects of potable reuse options are similar. However, there are bespoke differences in overall community acceptance and engagement processes needed for these options. Unfortunately, these differences will not be addressed by a metropolitan based pilot plant on its own. Community engagement in regional NSW is also needed to demonstrate community support for these options.

Should both proposals be progressed, there is no doubt that each utility can learn and share both resources and findings to strengthen both projects. Regional LWUs have a strong history in collaboration and resource sharing when it comes to water source planning and a regional pilot plant would benefit all regional NSW LWUs.

RCC, in partnership with Southern Cross University, is proposing to invest around $10 million to pioneer the use of recycled water for drinking purposes in regional NSW.

This proposal is to construct a pilot potable recycled water treatment plant in regional NSW that will pioneer how to implement recycled water for drinking purposes. The project has regional benefits as the impacts of persistent drought conditions has renewed the interest of LWUs to consider this as an option. This project aims to clearly demonstrate that potable recycled water is safe, environmentally sustainable, cost-effective and can be accepted by the community in regional NSW.

Due to its widely recognised model for sustainable urban development, RCC's modern Perradenya residential estate located in the Northern Rivers region provides the ideal opportunity for the NSW Government to explore the viability of utilising recycled water for drinking and other potable purposes. A key feature of the Perradenya Estate's ecologically sustainable development model is to eventually utilise recycled water for all purposes (both drinking and non-drinking) and ensure a resilient water supply for the community. Importantly, the use of recycled water for all purposes is strongly supported by Perradenya Estate residents and landowners.

Southern Cross University is well-placed to partner with RCC to deliver the proposed pilot treatment plant. The university's Dean of the School of Environment, Science and Engineering Professor Nick Ashbolt has extensive experience in the research and development of national and international guidelines for recycled water. Together with the Chair of Engineering and Associate Professor Peter Coombes, a former government chief water scientist, Professor Ashbolt leads a strong multiple disciplinary team that will aid the successful implementation of recycled water, fit-for-purpose throughout the Perradenya Estate.

The proposal will allow the creation of a living relationship to maximise community engagement while demonstrating safe operating protocols. The evidence-based process will drive a culture of operational improvement, transparency and with extensive engagement ultimately, broader community acceptance. The project is also designed to deliver significant additional value through the pilot plant's design by including the following features:

1. Larger than usual plant footprint to allow better site access – especially for inspections so that others can become familiar with the technology and gain understanding of the process.
2. A specialised laboratory to provide close monitoring of the plant's operations and make it possible to demonstrate plant safety and the multiple barrier approach to treatment.
3. Meeting, teaching and other educational facilities to support engagement with government, industry, interest groups and the community.
4. Provide a venue to demonstrate the technology and build on social engineering considerations and positive engagement.

RCC commends this initiative and request that due consideration be made for potential State funding support through the NSW Water Strategy, based on the merits of this project for regional NSW.

2. Improve Integrated Water Cycle Management planning as it relates to water security.

The NSW Government Productivity Commission Green Paper made several observations about the future impacts on the water supply sector because of a fast-growing population, changing climate and ageing infrastructure. The report highlighted that these issues would test the water sector's ability to meet our needs into the future.

The timely observations made in this discussion paper are on the backdrop of an unprecedented drought in regional NSW with many LWUs planning for major infrastructure projects to secure water supplies for their communities. Currently, the existing framework is a one size fits all approach and does not consider regional LWU's capacity to meet all elements of the framework. A flexible and tailored approach is necessary to make sure that these regional LWUs have cost effective and adaptive options available that are in the best interest of the communities that they serve.

Any improvements to the Integrated Water Cycle Management checklist under the best-practise management framework must involve extensive consultation with regional LWUs. These LWUs have a unique understanding of the challenges facing their respective communities when securing sustainable and affordable water supplies.

The NSW regional water strategies were informed by new modelling and climate change assessment methodologies. LWUs need to be consulted on any changes to the current guidelines that are used to determine the long-term reliability of their water supply network. In addition, LWUs need access to the modelling data so that both NSW policy authors and LWUs have access to the most contemporary information when making decisions about assuring long-term water security for their communities.

3. Support regional communities with Water Efficiency Programs

Many regional LWUs have seen significant reductions in per capita consumption for residential water use and at that same time many of our local industries have managed to increase their production without increasing the demand from town water supplies. Since 1995 the Rous region has reduced individual water consumption by 50%.

While further opportunities do exist, and many LWUs would like to action those options, the business cases for those long-term region wide investments are becoming increasingly more challenging.

The economic, environmental, and social benefits of water efficiency programs is undeniable. These programs not only defer source augmentation but also can reduce the size and scale of water supply infrastructure. However, the ability to move forward on contemporary water efficiency strategies requires ever increasing investments to secure a further reduction in water demands over the long-term.

Regional LWUs provide services to areas that have significant social and economic disadvantage. For all regional LWUs, the costs of providing this critical community service are a key consideration before embarking on significant investments such as, smart metering deployment programs, pressure management and leakage detection as well as individual business water efficiency investments for key regional industries.

RCC is recommending that funding support for region-wide water efficiency initiatives be strongly considered in the final NSW Water Strategy. Many regional LWUs may not take the next steps needed without NSW government support. Unfortunately, without this support many well-intentioned programs may simply not deliver the water savings needed to achieve these benefits.

RCC appreciates your consideration of this submission and should you have any queries, please do not hesitate to contact Rous County Council's Future Water Project Manager, Mr Michael McKenzie on [redacted] or via email at [redacted], who would be pleased to assist you further.

Yours faithfully

[redacted]

Phillip Rudd
General Manager

LET'S DRINK TO THE FUTURE

A PROPOSAL TO BUILD A PILOT RECYCLED WATER TREATMENT PLANT CAPABLE OF SUPPLYING DRINKING QUALITY WATER IN THE NSW NORTHERN RIVERS REGION

ROUS COUNTY COUNCIL

BULK WATER SUPPLY | WEED BIOSECURITY | FLOOD MITIGATION

LET'S DRINK TO THE FUTURE

Rous County Council in partnership with Southern Cross University is proposing to invest around $10 million to pioneer the use of recycled water for drinking purposes in regional NSW.

Up to $4 million in funding assistance is being sought from the NSW Government to build a pilot water recycling plant capable of providing drinking quality water to a modern residential development in the Northern Rivers region.

Construction of a pilot water recycling plant as part of the Perradenya Estate is an ideal opportunity to establish a water legacy for NSW by exploring the viability of using recycled water as a future drinking water source to meet the community's water needs, especially during drought. ■

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BULK WATER SUPPLY | WEED BIOSECURITY | FLOOD MITIGATION

Southern Cross University

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1. OVERVIEW

Rous County Council, in partnership with Southern Cross University, is proposing to construct a pilot treatment plant in regional NSW that will pioneer how to implement recycled water for drinking purposes and build community trust.

The NSW Government has long supported the use of recycled water for a range of non-drinking purposes to reduce the demand on drinking water supplies.

However, the impact of persistent drought conditions has renewed the NSW Government's interest in potentially utilising recycled water for drinking purposes so long as it is safe, environmentally sustainable, cost-effective and accepted by the community.

Due to its widely recognised model for sustainable urban development, Rous County Council's modern Perradenya residential estate located in the Northern Rivers region provides the ideal opportunity for the NSW Government to explore the viability of utilising recycled water for drinking and other potable purposes.

A key feature of the Perradenya Estate's ecologically sustainable development model is to eventually utilise recycled water for all purposes (both drinking and non-drinking) and ensure a resilient water supply for the community. Importantly, the use of recycled water for all purposes is strongly supported by Perradenya Estate residents and landowners.

Southern Cross University is well-placed to partner with Rous County Council to deliver the proposed pilot treatment plant. The university's Dean of the School of Environment, Science and Engineering Professor Nick Ashbolt has extensive experience in the research and development of national and international guidelines for recycled water. Together with the Chair of Engineering and Associate Professor Peter Coombes, a former government chief water scientist, Professor Ashbolt leads a strong multiple disciplinary team that will aid the successful implementation of recycled water, fit-for-purpose throughout the Perradenya Estate.

Rous County Council and Southern Cross University are currently seeking funding assistance of up to $4 million from the State Government to establish this water legacy for NSW. The proposal will allow the creation of a living relationship to maximise community engagement whilst institutionalising and demonstrating safe operating protocols. The evidence-based process will drive a culture of operational improvement, transparency and community acceptance. As such, the proposed approach will serve to increase knowledge around health risks and to continuously improve risk management approaches whilst providing national guidance.

2. BACKGROUND TO THE PERRADENYA ESTATE

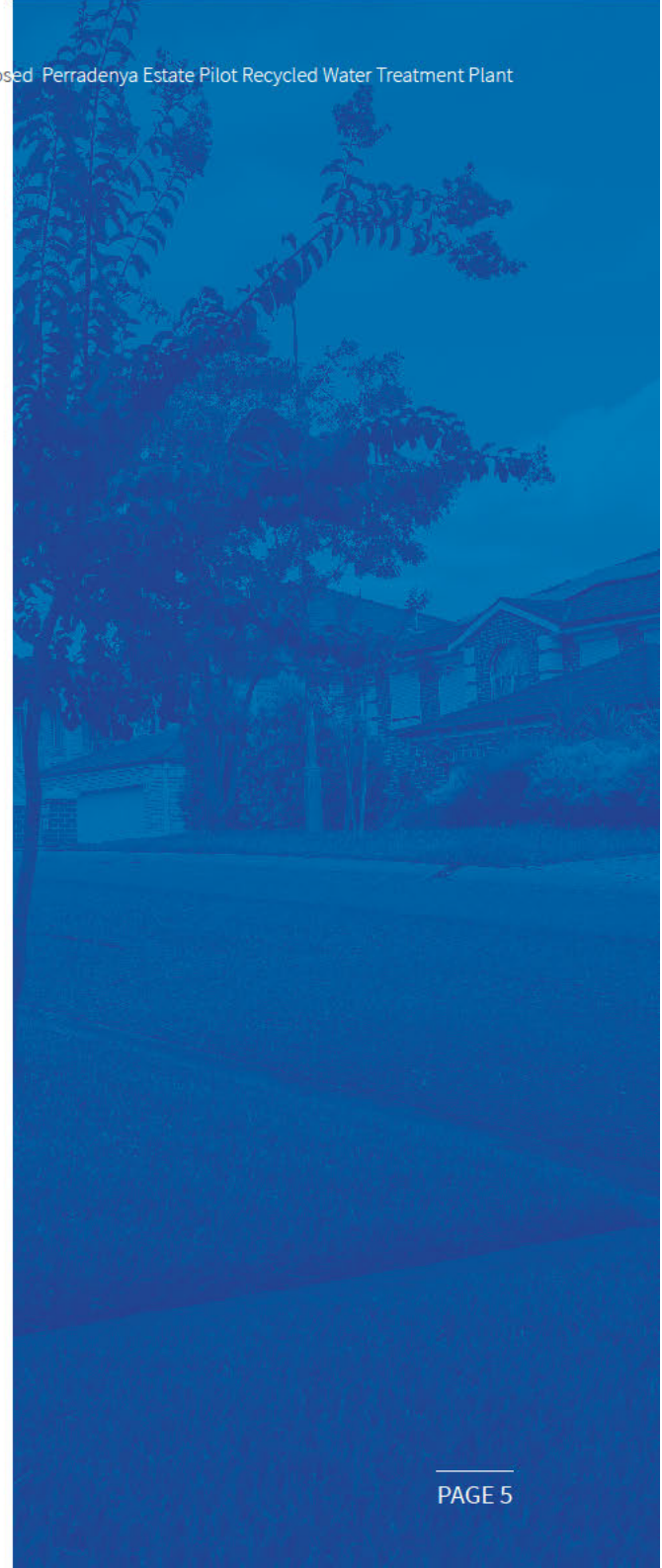
Rous County Council's Perradenya Estate residential development comprises 168 lots on a 70-hectare site located within a ten-minute drive south-west of Lismore in the NSW Northern Rivers region. To date, 108 lots within the Perradenya Estate have been developed.

Perradenya Estate has been widely recognised as providing an innovative and comprehensive model for future residential developments due to its approach to the sustainable use of resources.

A key objective of the development is to demonstrate ecologically sustainable water management by eventually producing and providing recycled water of a drinkable or potable standard for use throughout the residential village.

The estate's ecologically sustainable development model includes the construction of an onsite treatment plant equipped with the latest technology to provide high quality recycled water that meets all public health and water quality standards and is approved by NSW Health.

Perradenya Estate residents and landowners continue to express strong interest in connecting to this recycled water system for all their household uses and needs when it becomes available.



3. RATIONALE AND BENEFITS

Drinking water supplies throughout regional NSW were severely impacted by recent, persistent drought conditions. In particular, the Northern Rivers region – where Rous County Council is the regional water supply authority – recently experienced its driest conditions and lowest rainfall in living memory.

Through its comprehensive Future Water Project as well as drought and regional demand management plans, Rous County Council is committed to leading the way in developing new and sustainable water sources that secure a resilient water supply for the region's many communities now and beyond. The potential use of recycled water as an additional drinking water source is a firm part of Rous County Council's planning for the region's water supply.

Why does the Perradenya Estate provide the ideal opportunity for the NSW Government to explore the viability of utilising recycled water for drinking purposes?

1. Rous County Council is both the regional water supply authority as well as the organisation responsible for managing the Perradenya Estate residential development.
2. Perradenya Estate is located in regional NSW with easy access to Lismore, Ballina and Gold Coast airports.
3. Construction and implementation of the pilot recycled water treatment plant enjoys strong support from Southern Cross University, whose partnership provides access to industry experts as well as research and education opportunities and other commercial possibilities.
4. Production and provision of recycled water of a drinkable or potable standard has formed a key part of the Perradenya Estate's development model since its inception.
5. Utilising recycled water for drinking and non-drinking purposes already enjoys strong support among the local Perradenya Estate community, with many residents and landholders choosing the village due to the possibility of this low impact, sustainable water supply option. Capitalising on this championing community support is a critical aspect in developing processes and experience in regional water reuse.
6. The wider Northern Rivers community is very conscious of the region's precious water resources and embraces initiatives aimed at providing a secure and reliable water supply in a safe and sustainable manner.
7. Rous County Council will also be allocating significant funding towards the pilot recycled water treatment plant and, as such, is not seeking full funding from the NSW Government for the proposal.

4. SCOPE

Rous County Council in partnership with Southern Cross University proposes to implement and operate a pilot water recycling plant on the Perradenya Estate site with treatment equipment capable of producing high quality drinking (potable) water for use throughout the residential village.

The partnership will demonstrate improved understanding of the design and multiple barrier processes involved in the treatment train that delivers recycled water of acceptable quality. This proof of concept research will embed spatial analysis and feedback from users to define acceptable quality, socioeconomic outcomes and appropriate water safety management oversight. The research team will incorporate the results of the pilot project into systems analysis of the Northern Rivers region to understand the economic and environmental values of recycled water schemes. Hence, the proposed work will also provide a better understanding of regional water security given climatic and demographic change scenarios, along with the potential regional health and well-being improvements the scheme is expected to bring. Overall, the rigorous testing and validating provided by this proposal is seen as essential before significant investment is considered in large-scale water recycling plants and the wider use of recycled water for drinking purposes.

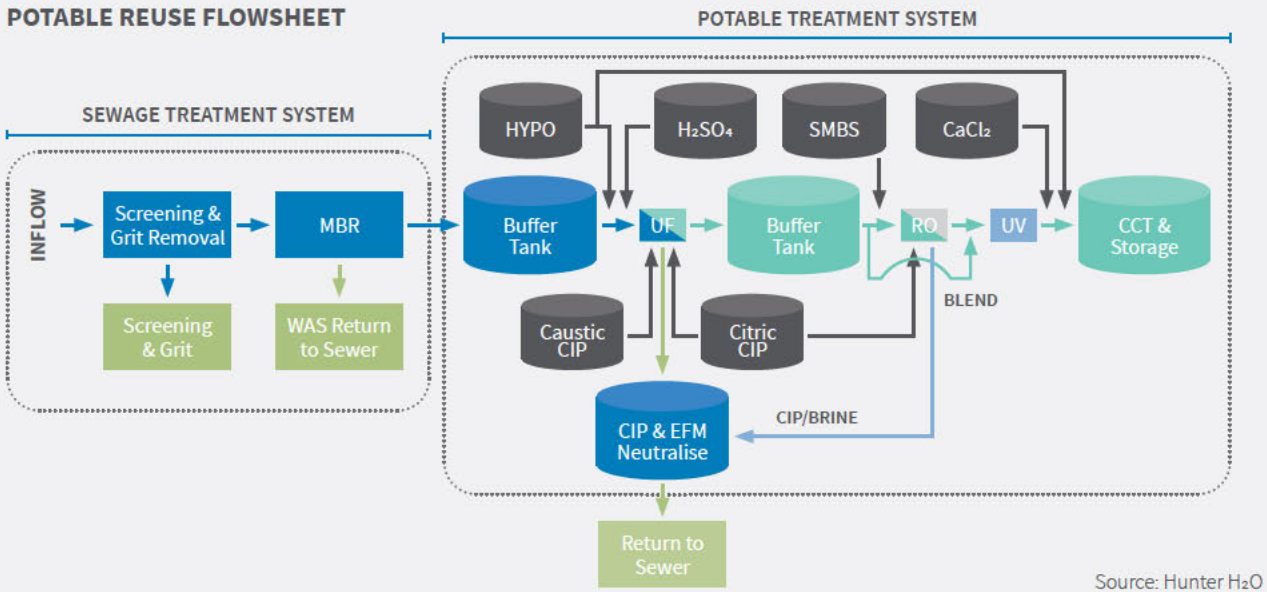
Rous County Council and Southern Cross University propose to deliver significant additional value through the pilot plant's design by including the following features:

1. **Larger than usual plant footprint to allow better site access – especially for inspections so that others can become familiar with the technology and gain understanding of the process.**
2. **Specialised laboratory to provide close monitoring of the plant's operations and make it possible to demonstrate plant safety and the multiple barrier approach to treatment.**
3. **Meeting, teaching and other educational facilities to support engagement with government, industry, interest groups and the community.**
4. **Provide a venue to demonstrate the technology and build on social engineering considerations and positive messaging.**

Thorough testing and documentation at the pilot facility along with an operating culture focused on engaging with the community to deliver safe water will all aid in future development of potable reuse in Australia. This goes hand-in-hand with transparent data/information flow provided to all relevant authorities as a hallmark of the pilot scheme so as to sustain treated recycled water to Perradenya Estate residents and landowners for drinking and other uses.

Once regulatory approval and community support is gained, the pilot plant's treated recycled water will be supplied to Perradenya Estate residents and landowners for drinking and other potable purposes.

Figure 1: Proposed supply and treatment process - Perradenya Estate Pilot Recycled Water Treatment Plant



Source: Hunter H₂O

4.1 Treatment Process

To assist the project's development, Rous County Council has sought technical advice from Hunter H2O – one of the largest water industry consulting firms in the Australia-Pacific region. This technical advice includes the preferred process for supplying wastewater to the pilot plant and treating it to the standard required for drinking and other potable purposes.

Importantly, **Figure 1** illustrates the various treatment barriers to wastewater contaminants, which together with management systems ensure that the quality of the water produced by the pilot plant adheres to the NSW guideline values for drinking water sourced from wastewater as well as Australian Guidelines for Water Recycling.

5. COST AND TIMING

Current estimates indicate the total project investment required is around $10 million. This total investment figure includes both the expected $6.6 million capital cost of building the pilot recycled water treatment plant on the Perradenya Estate site as well as the plant's ongoing operational costs.

Rous County Council in partnership with Southern Cross University is currently seeking a funding contribution of up to $4 million from the NSW Government towards the pilot plant's construction.

Rous County Council will contribute the further $6 million needed to build and then operate the pilot plant, and Southern Cross will provide in-kind support by way of its academics to assist with analytical, engagement and regulatory aspects.

At this stage, it is expected construction of the pilot plant would take up to 18 months to complete.

6. RESEARCH PARTNERSHIP

As described above Southern Cross University is well placed to partner with Rous County Council in the development and implementation of a recycled water supply at the Perradenya Estate in the Northern Rivers region of NSW.

The Dean of the School of Environment, Science and Engineering, Professor Nick Ashbolt has extensive experience in developing guidelines and research into recycled water supplies, as does Professor Liu in leading sustainable options for the treatment of wastewater. Together with the Chair of Engineering and Associate Professor Peter Coombes, a former government chief water scientist, Professors Ashbolt and Liu lead a strong multiple disciplinary team that will aid the successful implementation of the recycled water scheme.

Prior experience and failures with recycled water schemes internationally illustrates the critical importance of engaging the broader community to sustain acceptance of recycled water. Hence, Southern Cross University will assist Rous County Council in creating a living relationship to maximise community engagement whilst institutionalising and demonstrating safe operating protocols. The evidence-based process including socioeconomic assessments will drive a culture of operational improvement, transparency and acceptance.

The partnership will demonstrate improved understanding of the design and multiple barrier processes involved in the treatment train that delivers recycled water of acceptable quality. The proposed associated research will also serve to understand emerging health risks (such as with antimicrobial resistance) and to continuously improve upon more sustainable treatment options (for energy and nutrient recovery) and risk management approaches whilst providing national guidance.

7. FURTHER CONSULTATION

To date, the proposal for the Perradenya Estate pilot recycled water treatment plant has been developed by Rous County Council in close consultation with a number of key stakeholders including experts from Southern Cross University, Hunter H2O Pty. Ltd. and various NSW Government agencies.

The proposal's further development and eventual delivery will rely on genuine and active consultation and partnerships with a range of stakeholders from landholders and the broader community through to industry, community, environment and other groups.

Most importantly, however, securing the support of the NSW Government, all relevant regulatory authorities and the Perradenya Estate community is crucial to the proposal's success.

Table 1: Preliminary stakeholder scan – Perradenya Estate Pilot Recycled Water Treatment Plant

Stakeholder to be consulted	Level of consultation required	Desired consultation outcomes
NSW Government	High	Approved funding assistance
NSW Health	High	Regulatory approval
Perradenya Estate residents and landholders	High	Agreement to connect to potable recycled water system
Industry Bodies eg Water Services Association of Australia (WSAA)	Medium	Support and guidance to assist with implementation and compliance

8. ABOUT ROUS COUNTY COUNCIL AND SOUTHERN CROSS UNIVERSITY

Located in the NSW Northern Rivers region, Rous County Council is a multi-purpose county council responsible for delivering bulk water supply, weed biosecurity and flood mitigation infrastructure and services to the communities of its four constituent councils (Ballina Shire, Byron Shire, Lismore City and Richmond Valley).

It also provides weed biosecurity services to Kyogle Council and Tweed Shire Council on a fee for service basis.

The Perradenya residential estate development forms part of Rous County Council's property portfolio, which it manages as part of the organisation's ongoing operations.

Since being formed almost four years ago, Rous County Council has enjoyed a close and productive relationship with Southern Cross University – especially in driving the educational and professional standards for those students pursuing a career in the water industry.

Southern Cross University is an integral part of the NSW Northern Rivers region and delivers world-class higher education and research opportunities to rural and regional students.

The University's Dean and Head of the School of Environment, Science and Engineering Professor Nick Ashbolt was a co-author of the national and various international recycled water guidelines. Professor Liu has recently joined the university and comes as the former Canadian Research Chair in Wastewater Treatment and fellow of the Canadian Royal Society. Associate Professor Peter Coombes is the Chair of Engineering and a former government chief water scientist.

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Southern Cross University

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For further information on Rous County Council or any of our ongoing projects visit website **www.rous.nsw.gov.au**

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