# NOTICE OF MEETING



# WATER, WASTE AND SEWER ADVISORY COMMITTEE MEETING

A Water, Waste and Sewer Advisory Committee Meeting of Byron Shire Council will be held as follows:

Venue Conference Room, Station Street, Mullumbimby

Date Thursday, 29 October 2020

Time **11.30am** 

Phillip Holloway Director Infrastructure Services

I2020/1236 Distributed 22/10/20

### CONFLICT OF INTERESTS

What is a "Conflict of Interests" - A conflict of interests can be of two types:

**Pecuniary** - an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person or another person with whom the person is associated.

**Non-pecuniary** – a private or personal interest that a Council official has that does not amount to a pecuniary interest as defined in the Code of Conduct for Councillors (eg. A friendship, membership of an association, society or trade union or involvement or interest in an activity and may include an interest of a financial nature).

**Remoteness** – a person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to a matter or if the interest is of a kind specified in the Code of Conduct for Councillors.

Who has a Pecuniary Interest? - a person has a pecuniary interest in a matter if the pecuniary interest is the interest of the person, or another person with whom the person is associated (see below).

Relatives, Partners - a person is taken to have a pecuniary interest in a matter if:

- The person's spouse or de facto partner or a relative of the person has a pecuniary interest in the matter, or
- The person, or a nominee, partners or employer of the person, is a member of a company or other body that has a pecuniary interest in the matter.
- N.B. "Relative", in relation to a person means any of the following:
- (a) the parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descends or adopted child of the person or of the person's spouse;
- (b) the spouse or de facto partners of the person or of a person referred to in paragraph (a)
- No Interest in the Matter however, a person is not taken to have a pecuniary interest in a matter:
   If the person is unaware of the relevant pecuniary interest of the spouse, de facto partner, relative or company or other body, or
- Just because the person is a member of, or is employed by, the Council.
- Just because the person is a member of, or a delegate of the Council to, a company or other body that has a
  pecuniary interest in the matter provided that the person has no beneficial interest in any shares of the company or
  body.

#### Disclosure and participation in meetings

- A Councillor or a member of a Council Committee who has a pecuniary interest in any matter with which the Council is concerned and who is present at a meeting of the Council or Committee at which the matter is being considered must disclose the nature of the interest to the meeting as soon as practicable.
- The Councillor or member must not be present at, or in sight of, the meeting of the Council or Committee:
   (a) at any time during which the matter is being considered or discussed by the Council or Committee, or
  - (b) at any time during which the Council or Committee is voting on any question in relation to the matter.

**No Knowledge** - a person does not breach this Clause if the person did not know and could not reasonably be expected to have known that the matter under consideration at the meeting was a matter in which he or she had a pecuniary interest.

#### Non-pecuniary Interests - Must be disclosed in meetings.

There are a broad range of options available for managing conflicts & the option chosen will depend on an assessment of the circumstances of the matter, the nature of the interest and the significance of the issue being dealt with. Non-pecuniary conflicts of interests must be dealt with in at least one of the following ways:

- It may be appropriate that no action be taken where the potential for conflict is minimal. However, Councillors should consider providing an explanation of why they consider a conflict does not exist.
- Limit involvement if practical (eg. Participate in discussion but not in decision making or vice-versa). Care needs to be taken when exercising this option.
- Remove the source of the conflict (eg. Relinquishing or divesting the personal interest that creates the conflict)
- Have no involvement by absenting yourself from and not taking part in any debate or voting on the issue as of the provisions in the Code of Conduct (particularly if you have a significant non-pecuniary interest)

## RECORDING OF VOTING ON PLANNING MATTERS

#### Clause 375A of the Local Government Act 1993 – Recording of voting on planning matters

- In this section, planning decision means a decision made in the exercise of a function of a council under the Environmental Planning and Assessment Act 1979:
  - (a) including a decision relating to a development application, an environmental planning instrument, a development control plan or a development contribution plan under that Act, but
  - (b) not including the making of an order under that Act.
- (2) The general manager is required to keep a register containing, for each planning decision made at a meeting of the council or a council committee, the names of the councillors who supported the decision and the names of any councillors who opposed (or are taken to have opposed) the decision.
- (3) For the purpose of maintaining the register, a division is required to be called whenever a motion for a planning decision is put at a meeting of the council or a council committee.
- (4) Each decision recorded in the register is to be described in the register or identified in a manner that enables the description to be obtained from another publicly available document, and is to include the information required by the regulations.
- (5) This section extends to a meeting that is closed to the public.

## WATER, WASTE AND SEWER ADVISORY COMMITTEE MEETING

## BUSINESS OF MEETING

1. APOLOGIES

## 2. DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

## 3. ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

## 4. STAFF REPORTS

## Infrastructure Services

4.1	Byron STP Condition 9. Additional Load - Quarterly Report	. 13
4.2	2020 Household Kerbside waste Compostion Audit	. 16
4.3	Framework for guiding the strategic direction of (recycled) water management	.24
4.4	Inflow and Infiltration - quarterly update	. 34
4.5	Commercial and domestic water resourcing	.49

## ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

## ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

	Report No. 3.1	Adoption of Minutes from 30 July 2020 Meeting			
	Directorate:	Infrastructure Services			
5	Report Author:	Dominika Tomanek, Executive Assistant Infrastructure Services			
	File No:	12020/1181			

10

## **RECOMMENDATION:**

That the minutes of the Water, Waste and Sewer Advisory Committee Meeting held on 30 July 2020 be confirmed.

## Attachments:

15 1 Minutes 30/07/2020 Water, Waste and Sewer Advisory Committee, I2020/1094, page 8

## Report

The attachment to this report provides the minutes of the Water, Waste and Sewer Advisory Committee Meeting of 30 July 2020 .

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## Report to Council

The minutes were reported to *Council on* **Comments** 

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In accordance with the Committee Recommendations, Council resolved the following:

# Report of the Water, Waste and Sewer Advisory Committee Meeting held on 30 July 2020 File No: I2020/1173

## 20-427 Resolved:

- 1. That Council notes the minutes of the Water, Waste and Sewer Advisory Committee Meeting held on 30 July 2020.
- 2. That with regard to *Report No. 4.2 Effects of water mining in Byron and surrounding shires on groundwater resources,* that point 3 of the Management Recommendation in the minutes be amended to read as follows: That the report be brought to next WWSC and Coastal Estuary Catchment Panel meetings outlining water resourcing both commercial and domestic prior to any changes to the LEP the being undertaken.
- 3. That a report also be provided to the next meeting of the WWS committee that clarifies the advice from staff to the WWS Committee held on 30 July 2020 that, under the *Byron LEP 2014 water mining for bottled water is not a permitted use in the RU1 and RU2 Zones"* in the light of DA 10.2015.102.1 approved in July 2015 under the current BYRON LEP 2014 for a Rural industry (fruit juice production, winery and water bottling facility) at Huonbrook.
- **20-428** Resolved that Council adopt the following Committee and Management Recommendations:

# Report No. 4.2 Effects of water mining in Byron and surrounding shires on groundwater resources

File No: I2020/879

## Committee Recommendation 4.2.1

- 1. That Council note the report.
- 2. That Council introduce in next round of "housekeeping" for the LEP, a clause similar to Tweed Shire Council LEP clause 7.15 relating to groundwater extraction, but with no exception and no part (3).
- 3. That the report be brought to next WWSC and Coastal Estuary Catchment Panel meetings outlining water resourcing both commercial and domestic.

## Management Recommendation

- 1. That Council note the report.
- 2. That Council introduce in next round of "housekeeping" for the LEP, a clause that prohibits

3.1

Ground Water extraction as follows:

- 7.15 Industry—groundwater extraction, etc
  - (1) This clause applies to development for the purpose of industry, being a building or place at which groundwater is extracted, handled, treated, processed, stored, packed or transported offsite for commercial bottling and drinking purposes.
  - (2) Development to which this clause applies is prohibited on land to which this Plan applies similar to Tweed Shire Council LEP clause 7.15 relating to groundwater extraction, but with no exception and no part (3).
- 3. That the report be brought to next WWSC and Coastal Estuary Catchment Panel meetings outlining water resourcing both commercial and domestic.
- 4. That Council write to the relevant NSW Government Agency seeking a review of water extraction licenses in relation to the terms of such licenses prohibiting water being extracted for commercial bottling/ drinking purposes, and limiting extraction for on farm purposes such as irrigation of crops, watering of farm animals and other domestic purposes associated with the farm.
- **20-429 Resolved** that Council adopt the following Committee Recommendations:

**Report No. 4.3 Byron STP Condition 9. Additional Load - Quarterly report** File No: I2020/1011

## Committee Recommendation 4.3.1

- 1. That Council note the report.
- 2. That Council add actual volumes reused to the quarterly report.
- **20-430 Resolved** that Council adopt the following Committee Recommendation:

#### **Report No. 4.4 Inflow and Infiltration - quarterly update** File No: 12020/1062

Committee Recommendation 4.4.1

That Council note the report.

## 20-431 Resolved:

that Council adopt the following Committee Recommendations:

**Report No. 4.5 Nutrient Loading in the Belongil Update** File No: I2020/1078

## Committee Recommendation 4.5.1

- 1. That the Council note the update provided to resolution 20-243 in relation to nutrient loading in the Belongil catchment.
- 2. That Council consider amendment of Delivery Plan Action 1.5.2 to read "ensure our STPs meet or exceed EPA Licence conditions and don't negatively impact on their receiving environments".

5

According to resolution 20-427 point 2, minutes of WWSC Meeting, recommendations in Report 4.2.3 has been amended to read as follows:

That the report be brought to next WWSC and Coastal Estuary Catchment Panel meetings outlining water resourcing both commercial and domestic **prior to any changes to the LEP the being undertaken.** 

# MINUTES OF MEETING



# WATER, WASTE AND SEWER ADVISORY COMMITTEE MEETING

Venue	Conference Room, Station Street, Mullumbimby
Date	Thursday, 30 July 2020
Time	11.30am

3.1 - ATTACHMENT 1

## BYRON SHIRE COUNCIL

WATER, WASTE AND SEWER ADVISORY COMMITTEE MEETING MINUTES 30 JULY 2020

Minutes of the Water, Waste and Sewer Advisory Committee Meeting held on Thursday, 30 July 2020 File No: 12020/1094

PRESENT: Cr Richardson, Cr C Coorey

Staff: Phil Holloway (Director Infrastructure Services) Cameron Clark (Manager Utilities) Dean Baulch (Principal Engineer System Planning) Jason Stanley (System Planning Officer), online Bryan Green (Water, Sewer system Environment Officer) Pablo Orams (Integrated Water Management Officer), online Julian Vivoli (Consultant, Utilities)

Dominika Tomanek (Minute Taker)

Community: Col Draper, David Fligelman (online), Madeleine Green, Duncan Dey (online), Mary Gardner (online) and Ben Fawcett (online)

*Cr Richardson (Chair) opened the meeting at 11:38 am and acknowledged that the meeting was being held on Bundjalung Country.* 

APOLOGIES:

Cr S Ndiaye Cr M Lyon

DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

Madelaine Green declared a non-pecuniary interest. The nature of the interest being that she resides next to Resource Recovery Centre.

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

**Committee Recommendation:** 

That the minutes of the Water, Waste and Sewer Advisory Committee Meeting held on 9 April 2020 be confirmed.

(Dey/Fawcett)

The recommendation was put to the vote and declared carried.

Note: The minutes of the meeting held on 9 April 2020 were noted, and the Committee Recommendations adopted by Council, at the Ordinary Meeting held on 28 May 2020.

BUSINESS ARISING FROM PREVIOUS MINUTES

There was no business arising from previous minutes.

WWSAC Water, Waste and Sewer Advisory Committee Meeting

page 3

3.1 - ATTACHMENT 1

## BYRON SHIRE COUNCIL

WATER, WASTE AND SEWER ADVISORY COMMITTEE MEETING MINUTES 30 JULY 2020

PROCEDURAL MOTION

#### Committee Recommendation:

That Council change the order of business to deal with Reports 4.4 first on the Agenda.

#### STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 4.4Inflow and Infiltration - quarterly updateFile No:12020/1062

Committee Recommendation:

That Council note the report.

(Coorey/Dey)

The recommendation was put to the vote and declared carried Against: Col Draper.

Report No. 4.1	Minutes of Water, Waste and Sewer Advisory Committee Meeting held
	on 9 April 2020
File No:	12020/1073

Committee Recommendation:

That Committee note the report.

The recommendation was put to the vote and declared carried.

(Dey/Fawcett)

# Report No. 4.2 Effects of water mining in Byron and surrounding shires on groundwater resources File No: 12020/879

#### Committee Recommendation:

- 1. That Council note the report.
- 2. That Council introduce in next round of "housekeeping" for the LEP, a clause similar to Tweed Shire Council LEP clause 7.15 relating to groundwater extraction, but with no exception and no part (3).
- 3. That the report be brought to next WWSC and Coastal Estuary Catchment Panel meetings outlining water resourcing both commercial and domestic prior to any changes to the LEP the being undertaken..

The recommendation was put to the vote and declared carried.

(Coorey/Green)

WWSAC Water, Waste and Sewer Advisory Committee Meeting

page 4

3.1 - ATTACHMENT 1

#### BYRON SHIRE COUNCIL

WATER, WASTE AND SEWER ADVISORY COMMITTEE MEETING MINUTES 30 JULY 2020

Report No. 4.3	Byron STP Condition 9. Additional Load - Quarterly report
File No:	12020/1011

Committee Recommendation:

- 1. That the Council note the report.
- 2. That Council add actual volumes reused to the quarterly report.

(Dey/Richardson)

The recommendation was put to the vote and declared carried.

Report No. 4.5	Nutrient Loading in the Belongil Update
File No:	12020/1078

Committee Recommendation:

- 1. That the Council note the update provided to resolution 20-243 in relation to nutrient loading in the Belongil catchment.
- 2. That Council consider amendment of Delivery Plan Action 1.5.2 to read "ensure our STPs meet or exceed EPA Licence conditions and don't negatively impact on their receiving environments".

The recommendation was put to the vote and declared carried.

(Dey/Coorey)

There being no further business the meeting concluded at 1:38 pm.

WWSAC Water, Waste and Sewer Advisory Committee Meeting

page 5

## STAFF REPORTS - INFRASTRUCTURE SERVICES

## STAFF REPORTS - INFRASTRUCTURE SERVICES

	Report No. 4.1	Byron STP Condition 9. Additional Load - Quarterly Report
	Directorate:	Infrastructure Services
5	Report Author:	Dean Baulch, Principal Engineer, Systems Planning
		Vivianne Lins, Environmental Planner
	File No:	I2020/1125

## 10

## Summary:

This report is for the Committees information and reviews compliance with the Byron Bay Sewerage Augmentation Scheme - Conditions of Approval (2002).

15 Condition 9(iii) requires that sufficient reuse (recycled water) capacity be available before the acceptance of any additional load at the treatment plant.

In the years since the approval was granted (2002 to date), 2,508 Equivalent Tenements (ET) have been approved, resulting in an additional load of 1.48 ML/day at the treatment plant. The current

20 day operating capacity of the reuse system equates to 2.02ML/day or 3,427ET. Therefore the reuse system provides sufficient capacity to accommodate the additional load as defined in the Conditions of Approval.

## **RECOMMENDATION:**

## That the report is noted.

25

## 30 REPORT

The relevant section from Condition 9 of the Approval is Condition 9(iii), which states, "Additional load at West Byron STP will not be accepted until: availability of sufficient reuse capacity to accommodate 100% of the volume of treated effluent generated by the additional load".

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"Additional Load" is defined in the report as "any sewage load resulting from development consents after the date of this approval". Date of Approval is 9 December 2002.

- From December 2002 through to the end of September 2020, 2,508 additional sewer Equivalent
   Tenements (ET) have been approved by Council through development consents. This additional load (including approvals for secondary dwellings) was also adjusted (reduced) based on development applications that have been withdrawn or refused during the same period. Figure 1 shows the annual approved additional ET load from 2002 to 2020.
- 45 The current day operating capacity of the reuse system to produce treated effluent is 26 Litres per second or 2.25ML/day less 10% of water for filter backwash purposes equates to 2.02ML/day or 3,427ET.

	Current Approved ET	Available Capacity (ET)
Condition 9(iii) Additional Load Calculation	2,508	-
Current effluent reuse system capacity 2020	3,427	919

## STAFF REPORTS - INFRASTRUCTURE SERVICES



Figure 1 - Equivalent Tenements approved by Council from 2002-2020

Therefore, the existing reuse system provides sufficient capacity to accommodate the additional load as defined in the Conditions of Approval.

Committee Report Tracking Summary: Condition 9. Additional Load at Byron STP	Current Approved ET	Difference (ET)
30 January 2020	2,408	-
30 July 2020	2,478	70
29 October 2020	2,508	30

In terms of the actual reuse volumes for Byron Bay since the system was commissioned the following annual figures are provided:-

10

Calendar Year	Total Urban Reuse Flows (ML)			
	050.0			
2006	258.8			
2007	336.1			
2008	204.4			
2009	174.5			
2010	257.2			
2011	287.4			
2012	294.0			
2013	287.2			
2014	296.9			
2015	261.9			
2016	221.8			
2017	257.3			
2018	246.7			
2019	424.7			
2020	311.2			

# BYRON SHIRE COUNCIL STAFF REPORTS - INFRASTRUCTURE SERVICES



Figure 2 – Annual Reuse Volumes for Byron Bay

## STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 4.2	2020 Household Kerbside waste Compostion Audit
Directorate:	Infrastructure Services
Report Author:	Danielle Hanigan, Team Leader Resorce Recovery and Quarry,
File No:	12020/1524

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## Summary:

- 10 The purpose of this report is to provide the Water Waste and Sewer Advisory Committee with a summary of the findings of the kerbside waste composition audit conducted throughout the Byron Shire in Autumn 2020.
- In March 2020, consultants EC Sustainable conducted a compositional audit of residential kerbside
   bins in both the urban and rural areas of the Byron Shire. The purpose of the audit was to provide
   data on the characterisation of the three waste streams (organics, recycling and general waste)
   which will enable planning for future services, community education programs, and information on
   the number of eligible containers within the Container Deposit Scheme (CDS).
- 20 The audit was undertaken in accordance with NSW EPA Guidelines and targeted a sample size of 220 households in accordance with these guidelines. Audits were conducted across all areas of the Shire, including the rural village / areas of Possum Creek, Talofa, Coopers Shoot, Main Arm, Federal and Coorabell and the urban townships of Byron Bay, Bangalow, Ocean Shores, Suffolk Park, Mullumbimby, Brunswick Heads and South Golden Beach.
- 25 From the audit, the consultants have provided a comprehensive report of their findings, a summary report with visual representations of the data (see Attachment 1 E2020/83797) as well as the raw data collated from the audit.
- 30 The audit was conducted using an aggregate methodology, whereby the contents of bins was placed in labelled bags, and taken to a suitable site to be sorted into up to 100 different waste material categories.
- It should be noted that the collection component of the audit was completed by in March 2020, just prior to the "lockdown" impacts of Covid-19, and EC Sustainable did not feel that there was any significant impact to the data at this time.

## **RECOMMENDATION:**

## That the Committee note the report

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## Attachments:

1 Byron Shire Council Kerbside Bin Audit 2020-Summary, E2020/83797, page 19

## REPORT

## **Objectives:**

- 5 The primary objectives of undertaking the kerbside bin composition audit are to determine the following information;
  - Generation rates based on weight and volume in essence how much are residents putting into each of their 3 bins.
- Resources in the waste stream what useful recyclable or compostable materials are unnecessarily going to landfill because they are placed in the red lidded bin
  - Contamination rates and types in the recycling and organics streams
  - Resource Recovery rates
  - Landfill diversion rates
  - CDS eligible containers across the three streams (what containers are in the domestic bins that are eligible for the 10c redemption)
    - Comparable data with that of the previous audit conducted in 2016 to show trends and improvements / declines.

#### 20 Outcomes:

The audit report analysed data in comparison to the previous audit conducted in 2016 and made a number of key findings. The 2020 audit found that waste diversion from landfill overall was 71%, an increase from the previous audit conducted in 2016 which had a 51% waste diversion rate.

- 25 This was achieved through higher resource recovery rates in both the recycling and organics streams, as well as reduced contamination to these streams. It also showed a significantly higher weight collected within the organics bins than the previous audit.
- Whilst these results are pleasing, there is still improvement to be made in diverting resources away from the general waste stream, particularly food and garden waste which still makes up 28% of the general waste stream overall, and 34% in rural areas where an organics service is not present. This also creates a significant environmental impact through methane production so diverting this material to be composted will be a key focus of Resource Recovery Education programs in the future.
- 35

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A further breakdown on waste volumes per household, as well as the composition of each bin in both the urban and rural areas of the Shire is found within Attachment 1 (E2020/83797) *Byron Shire Council Kerbside Bin Audit 2020 – Summary.* 

## 40 Next steps:

• Increased focus on community education programs that aim to divert resources from the general waste stream, and reduce contamination to the resource recovery streams, focussing on the top contamination items.

#### 45

- Increased promotion of home composting in rural areas.
- Resume Contamination Reduction Program *Lift the Lid* bin audits whereby recycling and organics bins are inspected and tagged dependant on their contents, providing personalised advice on whether they have placed the correct items in their bins.
- Increased focus on the tourism business and accommodation sector as per the *Integrated Waste Strategy* to ensure correct behaviours within this demographic who are often integrated with residents.

- Consider feasibility of expanding the organics collection service into higher density rural areas and whether this would have an overall positive impact on carbon emission and waste diversion.
- Delivery of actions within the Towards Zero Byron Shire's Integrated Waste Management and Resource Recovery Strategy 2019-2029.

## **Covid-19 Impacts:**

- It is important to note that the information provided in the attached summary report is indicative of a "normal" state of play, and is useful in comparing data from previous audits which are conducted outside peak holiday periods. Whilst the data within the attached report shows a positive trend, the consequences of Covid -19 on the waste streams has been considerable due to the overall reversion back to single use items, as well as an increase in the take-away food market. This is particularly evident in the public place waste management sector whereby bins are filled with
- 15 takeaway food and beverage containers. There has also been increased demand for larger residential waste bins to cater for working from home and increased number of people living within single dwellings.

## STRATEGIC CONSIDERATIONS

## Community Strategic Plan and Operational Plan

CSP Objective	L2	CSP Strategy	L3	DP Action	L4	OP Activity
Community Objective 1: We have infrastructure, transport and services which meet our expectations	1.4	Provide a regular and acceptable waste and recycling service	1.4.1	Implement Integrated Waste Management and Resource Recovery Strategy	1.4.1.1	Implement 2020/21 action plan activities identified in the Waste Management Strategy

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## STAFF REPORTS - INFRASTRUCTURE SERVICES



# **Residential Bin Study 2020**

Byron Shire Council commissioned a residential bin generation and contents composition study in March 2020. The study was conducted by an approved contractor, EC Sustainable Pty Ltd, using State Government guidelines from the NSW Environment Protection Authority (EPA).

Council conducted this audit to update its characterisation of bin streams, plan for future services and provide additional data for 'eligible containers' in the Container Deposit Scheme (CDS).

#### What was involved:

The study involved a random sample of 220 households' bin contents from households across the Byron Shire Council. Bins contents were collected on the regular bin day for the property, sorted, weighed and disposed or recycled as normal. Results averages are reported for the Shire and property size.

### What we found:

Compared to a previous audited completed in 2016 by another consultancy, the 2020 audit found improvements in the kerbside bin performance.

There were higher diversion and resource recovery rates and lower contamination rates in the recycling and organics streams.

#### Bin performance, 2016 and 2020

The 2020 audit shows 71% of all waste was diverted from landfill, higher than 51% in the 2016 audit. The increase in diversion rate means more resources were recovered through the recycling and organics bins. Compared to the 2016 audit, in 2020 an average household generated:

- Waste bins: 1kg/wk lower generation.
- Organics bins: 6kg/wk higher generation, with contamination 17 percentage points lower.
- Recycling bins: a similar generation, with contamination 5 percentage points lower.

## STAFF REPORTS - INFRASTRUCTURE SERVICES



The residential three bin system performance comparison for the 2016 and 2020 audits:



Waste bins Recycling bins Organics bins Waste bins Recycling bins Organics bins

Data indi	cator	Unit of measurement	2016	2020
		Waste stream	5.8	4.8
	By weight	Recycling stream	5.0	4.8
Concretion	(kg/hh/wk)	Organics stream	3.4	9.4
Generation		All streams	14.2	19.0
Tato	Buyolumo	Waste stream	77.2	77.2
	/hin % full)	Recycling stream	64.0	73.6
	(Bill / Julia)	Organics stream	51.4	67.9
	Percentage (% by weight)	Recyclables	7.5	15.9
Resources		Garden organics	2.1	2.9
in the waste stream		Food	15.7	16.8
		Other organics	10.8	8.3
	Weight	Recycling stream	0.6	0.4
Contomination	(kg/hh/wk)	Organics stream	0.6	0.4
Contamination	Rate	Recycling stream	12.9	7.9
	(% by weight)	Organics stream	20.5	3.8
Resource recovery	Rate	Recycling stream	76.4	85.6
rate	(% by weight)	Organics stream	58.0	86.6
Diversion rate	Rate (% by weight)	Kerbside diversion	51.0	70.8

## STAFF REPORTS - INFRASTRUCTURE SERVICES



#### Bin performance details, 2020 urban and rural

The 2020 audit also assessed and compared the urban and rural areas kerbside bin performance. **Urban areas achieved a higher diversion rate at 74.3% compared to rural areas at 50.7%.** This was mainly due to additional organics resources recovered via the kerbside organics bin collection services, a service provided at urban areas only.





Waste bins

Recycling bins O

Organics bins

Waste bins

Recycling bins Organics bins

Data indi	cator	Unit of measurement	Urban, 2020	Rural, 2020
		Waste stream	4.8	4.4
	By weight	Recycling stream	4.7	6.4
Concretion	(kg/hh/wk)	Organics stream	12.5	NA
Generation		All streams	22.0	10.8
Tate	Buyelume	Waste stream	77.9	63.5
	by volume	Recycling stream	73.5	78.1
	(bill 70 luil)	Organics stream	67.9	NA
	Percentage (% by weight)	Recyclables	15.7	20.4
Resources		Garden organics	2.8	6.5
in the waste stream		Food	16.6	20.7
		Other organics	8.3	7.0
	Weight	Recycling stream	0.4	1.0
Contemination	(kg/hh/wk)	Organics stream	0.5	NA
Containination	Rate	Recycling stream	7.6	14.8
	(% by weight)	Organics stream	3.8	NA
Resource recovery	Rate	Recycling stream	85.7	86.0
rate	(% by weight)	Organics stream	89.6	NA
Diversion rate	Rate (% by weight)	Kerbside diversion	74.3	50.7

## STAFF REPORTS - INFRASTRUCTURE SERVICES

4.2 - ATTACHMENT 1





### STAFF REPORTS - INFRASTRUCTURE SERVICES



#### Property type results, 2020

The usage of each bin type varies by type of property, with the weight of bin contents presented for collection shown below. Typically, the larger the property size, the more waste, recycling and organics bin contents presented for collection.

- Urban households present more overall kerbside bin contents than rural households.
- Urban households have the additional organics bin collection services.



#### Generation rates by property type 2020

These are the top materials by percentage in each type of residential bin for an average household:

#### Top materials in each bin type, 2020

Waste bins		Recycling bins	Organics bins		
Food	22.5%	Glass beverage containers	37.6%	Garden vegetation	81.9%
Nappies and sanitary products	10.3%	Cardboard	17.8%	Food	11.0%
Textiles	8.7%	Newspaper	8.4%	Wood - treated	1.3%
Plastic film	5.5%	Glass packaging containers	6.5%	Mixed waste	1.1%
Tissue paper and napkins	4.6%	Magazines and brochures	4.6%	Cardboard	1.0%
Soil, rock and ceramics	4.0%	Office paper	4.5%	Tissue paper and napkins	0.9%
Cardboard	3.7%	Steel packaging containers	2.7%	-	-
Containerised food and liquid	3.2%	PET packaging containers	1.6%	-	-
Garden vegetation	2.9%	HDPE beverage containers	1.6%	-	-
Building materials and fittings	2.9%	HDPE packaging containers	1.5%	-	-

## STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 4.3	Framework for guiding the strategic direction of (recycled) water management
Directorate:	Infrastructure Services
Report Author: File No:	Pablo Orams, Mr I2020/1573

## Summary:

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Recycled water in Byron Shire has become a significant resource to improve the resilience of the community and delivery sustainability outcomes. To help unlock this potential, BSC's Utilities team is assessing its current water recycling strategy and management practices. This work has identified a series of improvement opportunities, particularly the need to shift to a more integrated and collaborative approach to manage recycled water in conjunction with the whole water cycle.

This report explores the legacy and complexity of Byron Shire's recycled water, current efforts to improve its performance, and proposes a conceptual approach ("Urban Metabolism") to guide the future strategic direction of recycled water and broader water management in the Shire. Urban

20 metabolism provides a simple framework to characterise urban areas, while enabling robust analysis of how they use water and other resources to provide benefits to the resident population, and with consideration of the limits of the natural environment. This framework, with its set of sustainability-focused strategic objectives and indicators, provides unparalleled potential to support decision making in water management.

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By presenting this new approach, the Utilities team hopes to gain feedback and approval to progress it into practical implementation.

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## **RECOMMENDATION:**

That the committee approves further development of the proposed framework and assessment of the requirements for its practical implementation

4.3

## REPORT

# Background

- 5 Byron Shire Council's (BSC) recycled water schemes were originally conceived as a way to avoid treated effluent discharge into the environment. This has produced a "new" water source expected to be beneficially used. However, in a region historically characterised by its generous rainfall, finding sustainable ways to use this water has proved challenging.
- Environmental re-use schemes have offered a partial solution, and have achieved valuable outcomes (e.g. support management of acid sulphate soils and peat fires, enhance local biodiversity, carbon sequestration, etc.). This has been complemented with recycled water connections to businesses (e.g. sport fields, nurseries, schools, etc.) and municipal use (e.g. irrigation of open spaces and public toilets). However, a proportion of treated effluent, while of high-quality, still remains unused.
  - Partly influenced by the recent drought conditions, community interest in recycled water has increased. This could offer an opportunity to improve inflow-to-recycled-water conversion. However, the Utilities team recognises that its current strategic framework and management
- 20 practices could be improved to better align with the current sustainability issues of the Shire and the region. The "how" (and "why") to provide recycled water to new customers requires long-term, systems thinking to ensure maximum benefit is achieved. This is the improvement opportunity this report intends to explore.

# **The problem we are facing**

As the region's population and economy grows, pressure over potable water resources is increasing. In parallel, climate variability and an increase in extreme events is exposing the water security risks to the region. Byron Shire's strong reliance on climate-dependent water sources (i.e.

30 Rous County Council's water supply) represents a risk to residents, the economy and the environment.

Recycled water can offer an alternative and reliable (but not unlimited) water source as a demand management tool to offset potable water requirements. However, BSC recognises that the original motivation for recycled water (i.e. to avoid effluent discharge into the environment), while still critically important, did not fully incorporated a water security narrative.

In addressing this gap, since March 2020 the Utilities team has undertaken a review of its current recycled water management approach. Some of the improvement opportunities that have been identified are:

40 identified are

- Recycled water is currently managed in isolation from the wider water system<sup>1</sup>, as well as from Council's high-level strategic objectives (e.g. BSC's Community Strategic Plan, Net Zero Emissions Strategy, etc.).
- There is a need for clear and context-specific key performance indicators (KPIs) to assess and communicate the effectiveness of recycled water efforts, particularly when addressing sustainability issues.
  - Current recycled water monitoring and information management systems are fragmented, not allowing for timely and efficient decision-making support.

<sup>&</sup>lt;sup>1</sup> Refers to the various stages of the urban and catchment water cycles, including source extraction, treatment, supply, use, wastewater, recycling and hydrological flows (run-off, precipitation, infiltration, evaporation).

## STAFF REPORTS - INFRASTRUCTURE SERVICES

- There is a need to improve and update governance arrangements, policies, internal \_ procedures and systems to effectively manage recycled water, its related infrastructure and the final users.
- 5
- The benefit/cost balance of BSC's recycled water is not fully understood. The resource is currently supplied for free and there is a need to clearly articulate the value it provides the community.
- There is a disconnection between BSC's current recycled water practices and the community's expectations/understanding of the resource.
- Community education regarding recycled water has been limited.
- 10

More importantly, there is need for a comprehensive and robust long-term strategy to guide BSC's recycled water efforts, and aid with addressing the above improvement opportunities. The current Byron Shire Recycled Water Management Strategy 2017 – 2027 has a strong focus on the implementation of environmental schemes to use recycled water, but does not make links to the

potential of recycled water to address broader strategic outcomes and the regional water security 15 problem.

At a higher level, the Utilities team has found that there is lack of shared understanding among stakeholders of the overall water system's dynamics, and hence difficulty in articulating and

- 20 justifying the reasons and benefits/impacts of investment and management decisions (including water recycling). This is also perceived to promote reactive and siloed management approaches, failing to factor in the complex nature of water cycle processes and the long-term sustainability of decisions made. State Government initiatives such as DPIE's 30-year Integrated Water Cycle Management (IWCM) Strategy framework<sup>2</sup> for local water utilities offer a pathway to address this
- challenge. IWCM's seek to plan water management activities to complement each other and 25 provide optimal outcomes for the community and the environment. However, IWCMs require fundamental re-structuring of governance and management practices, and is often hampered by institutional, political, planning and cost barriers<sup>3</sup>. BSC developed an IWCM strategy in 2009, but it hasn't been adopted yet and is currently under review, despite it being a comprehensive and
- 30 substantial document.

Current decision-making frameworks don't allow for adequate coordination and integration in water-related strategic, planning and investment decisions. This denotes a more fundamental issue than that of the current under-review recycled water strategy, and which should be

35 addressed as a priority.

# What are we doing to address this issue?

The Utilities team is currently developing the conceptual framework to re-structure the recycled 40 water management strategy, based on long-term, whole-of-water-cycle approach. This will allow for managing recycled water in the context of systemic sustainability. This conceptual framework is introduced in the next section and is the central focus for discussion.

Additionally, the team is working on the following fronts:

## 45

## Short-term (1 to 2 years)

- Undertaking an operational audit of the Byron Bay STP (BBSTP) and the Byron Bay Urban Recycled Water Scheme (BBURWS) to assess its level of compliance with current regulations, and identify what compliance considerations are required to expand it.
- 50 Mapping of compliance obligations (e.g. licenses, conditions of consent, etc.) related to the BBSTP and BBURWS, aiming to inform improvement opportunities to our monitoring and reporting practices.

<sup>&</sup>lt;sup>2</sup> Source: <u>https://www.industry.nsw.gov.au/water/water-utilities/best-practice-mgmt/iwcm</u>

<sup>&</sup>lt;sup>3</sup> Source: <u>https://www.gldwater.com.au/total water cvcle mps</u>

## STAFF REPORTS - INFRASTRUCTURE SERVICES

- Standardising end-user and recycled water meter auditing processes.

## Mid-term (2 to 5 years)

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- Defining possible key performance indicators to better guide, and assess the impact of, management/investment decisions in recycled water.
- Consolidating available information to establish a baseline and identify improvement opportunities to the current monitoring and data management practices.
- Better understanding the potential uses for recycled water in the Shire, including residential, commercial, environmental and municipal uses.
  - Defining a framework to guide/prioritize the allocation of recycled water between competing users, in a socially fair, economically efficient and environmentally-sensitive manner.
  - Investigating the benefit/cost balance of recycled water, and articulating possible recycled water pricing approaches.
    - Involving other Council departments in the conversation (e.g. Planning, Open Spaces, Sustainability, Rates, etc.) to drive shared understanding of the issues surrounding recycled water.
  - Engaging neighbouring councils (e.g. Ballina Shire Council) to benchmark recycled water practices.
    - Engaging relevant regional bodies (Rous County Council and DPIE) to align BSC recycled water strategy to regional water strategies and financial incentives.
    - Developing a communication and community engagement plan to educate the community and stakeholders about recycled water.

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The above initiatives represent a shift to a more proactive approach to manage recycled water, and to set the foundations for improvements at both strategic and operational management levels. Further engagement with key stakeholders will be required to define the long term vision of recycled water management, and how to get there. The section below aims to start this process.

# Introducing urban metabolism - a conceptual framework to inform strategic decision making in (recycled) water management

How can we proactively address the need for better integration and coordination in a practical 5 way? How to support strategic decision making to ensure the sustainability of our water resources and systems? And, how can we do this now?

The concept of "urban metabolism" can offer a way to answer these questions.

- 10 Urban metabolism is a conceptual model which, at it simplest, uses a mass balance approach to quantify materials entering and/or leaving a city. The idea was first presented in 1965 with the aim of addressing contemporary urban resource issues. It is used for the analysis, critical assessment and management of urban areas as systems that `metabolise' material and energy inputs needed to sustain the city's inhabitants at home, work and play - ultimately releasing them back to the environment as waste.4,5 15
  - Figure 1: The urban metabolism concept, showing energy, water and material flows entering a city system as resources, and exiting as waste. Energy and water are shown to be closely interrelated<sup>t</sup>



A key strength of the urban metabolism framework is its clear definition of the system boundary 25 which leads to clear analytical options and strong relevance to urban planning and design. Knowing the system boundary is fundamental in defining which factors should be included in, or excluded from, the analysis.<sup>7</sup>

If focusing solely on water resources management, metabolic models of cities can be constructed using a water-mass balance. This enables the identification and quantification of water inputs, 30 outputs and storage, and related impacts in urban water systems. It also provides a way to understand how water is being used within the system (e.g. residential, commercial, environmental or cultural water uses). Depending on how the boundary of the system is defined, urban metabolism can include both anthropogenic water flows (e.g. potable water, wastewater, etc.) and 35 natural water flows (e.g. rain, infiltration, etc.), serving as a simple tool to conceptualise whole-of-

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water-cycle issues.

<sup>&</sup>lt;sup>4</sup> Source: https://my.uq.edu.au/programs-courses/course.html?course\_code=WATR7700

<sup>&</sup>lt;sup>5</sup> Source: <u>http://www.urbanwateralliance.org.au/publications/UWSRA-tr100.pdf</u>

<sup>&</sup>lt;sup>6</sup> Adapted from: <u>http://www.urbanwateralliance.org.au/publications/UWSRA-tr100.pdf</u>

<sup>&</sup>lt;sup>7</sup> Source: <u>http://www.urbanwateralliance.org.au/publications/UWSRA-tr100.pdf</u>

Figure 2: Conceptual water-mass balance of a city, including anthropogenic (e.g. potable water) and natural (e.g. rain) water flows, and the various water users within the system (e.g. social, economic and environmental).



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Water-mass balance analysis offers simple, big-picture representations of complex urban systems using water. But most importantly, they can accurately quantify all water flows into, through and out

10 of the defined urban boundary (similarly to what is done in an accounting exercise). These two characteristics facilitate the framing of useful indicators to assess the water metabolic performance (i.e. how water resources are used) of urban systems.<sup>8</sup>

A substantial body of research led by the University of Queensland, the Cities Research Centre
 (Griffith University) and the CRC for Water Sensitive Cities has provided a comprehensive set of urban metabolic indicators focused on assessing urban water management performance. The indicators respond to visions and principles for urban water management set by peak industry bodies and international development agencies<sup>9</sup>, as well as already stablished assessment frameworks that report and benchmark water management performance of cities<sup>10</sup>. The indicators are categorised in four key urban metabolism strategic objectives. These are summarised bellow:<sup>11</sup>

1. Resource efficiency

Denotes the efficient use of water-related resources (including water, energy for moving and treating water, and the nutrients mobilised in water). It refers to the overall water efficiency of the urban area in relation to water drawn from the environment, rather than the water use efficiency of end users.

## 2. Supply internalisation

Aims to decrease reliance on water drawn from the environment by using water sources available within the urban area (i.e. rainwater and/or stormwater harvesting and the recycling of wastewater and/or greywater).

<sup>&</sup>lt;sup>8</sup> Source: <u>https://core.ac.uk/download/pdf/86630415.pdf</u>

<sup>&</sup>lt;sup>9</sup> Includes: The International Water Association, the OECD, the Asian Development Bank, the UK Water Partnership, and the Australian CRC for Water Sensitive Cities.

<sup>&</sup>lt;sup>10</sup> Includes: Green City Index (EIU 2009, 2011), City Blueprint (van Leeuwen et al. 2012), Water Sensitive Cities Index (CRC WSC 2016), Sustainable Cities Water Index (Arcadis 2016), Asian Water Development Outlook (ADB 2013, 2016)

<sup>&</sup>lt;sup>11</sup> Source: <u>https://core.ac.uk/download/pdf/86630415.pdf</u>

# STAFF REPORTS - INFRASTRUCTURE SERVICES

# 3. Protection of water resources and hydrological flows

Refers to the sustainable management of water resources in terms of stocks, qualities and flows. This includes: (i) managing water extraction from the environment with consideration of the region's capacity to supply, (ii) limiting the discharge of pollutants to the environment to maintain the quality of waterways, and (iii) restoring natural hydrological flows altered by increased imperviousness, i.e. reducing stormwater runoff, increasing infiltration and increasing evapotranspiration.

## 4. Recognition of the diverse functions of water

Water has functions that go beyond just meeting primary needs for potable water. This can include social functions (e.g. urban liveability, recreation, cultural), provision for environmental flows within urban catchments to sustain habitat health and biodiversity, enabling economic activities (e.g. industrial, commercial, energy generation, agricultural, forestry, fisheries, livestock), and supporting a range of urban spaces (e.g. green infrastructure, vegetation and green open space for amenity, recreation and urban heat island mitigation). (Note: Currently it

15 green open space for amenity, recreation and urban heat island mitigation). (Note: Currently it is not clear how to quantify water functionality, as water functions are multidimensional and context specific. Hence, this objective remains aspirational and more research is required to design indicators to measure it).

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Examples of indicators that respond to these objectives are presented in **Table 1**. Please refer to **Figure 3** to place these indicators in the context of a hypothetical water-mass balance representation of Byron Bay.

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Strategic objective	Indicator	Examples of how each indicator can be quantified	Additional explanation
Resource Water efficiency per person		Total use of environmental water* per person litres / person / day	A smaller result indicates higher resource efficiency (e.g. more benefits are achieved with less).
	Water-related energy efficiency per person	Total energy use for the water system per person energy / person / day	
	Nutrient recovery (e.g. from wastewater and/ or stormwater)	Wastewater nutrient load that is beneficially utilised Nutrients	A result of 0 indicates no nutrient recovery. A result of 1 indicates all nutrients are recovered, avoiding their release into receiving waterways.
Supply internalisatio n	Water supply internalisation	Proportion of total water demand met by internally harvested and/or recycled water recycled water / (recycled water + environmental water)	A result of 0 indicates that the urban system relies solely on externally sourced environmental water. A result of 1 indicates the urban system is completely self-sufficient with regards to its water supply.
Protecting water resources and hydrological flows	Water use within sustainable extraction limits	Rate of environmental water extraction relative to the sustainable urban water allocation environmental water / sustainable water allocation	A result of <1 indicates that water extraction from the environment (e.g. for potable water) is done within sustainable levels. A result of >1 indicates water extraction exceeds the capacity of the environment to supply water sustainably.

 Table 1: Examples of urban metabolic indicators to assess urban water management performance<sup>12</sup>

<sup>12</sup> Adapted from: <u>https://core.ac.uk/download/pdf/86630415.pdf</u>

## STAFF REPORTS - INFRASTRUCTURE SERVICES

	Restoration of natural hydrological flows (runoff, infiltration, Evaporation) compared to pre- development baseline	Current hydrology relative to pre-development hydrology run-off / run-off current / run-off pre-development evaporation current / infiltration pre-development	Results closer to 1 indicate a hydrological performance closer to pre-development levels, hence resembling the natural hydrology.
Recognising the diverse functionality of water	Support to the diverse functions of water (social, environmental, economic, urban spaces, etc.)	This indicator remains aspirational, as a methodol defined. Nevertheless, considering the multi-functi can help inform more comprehensive decision ma	ogy to quantify water functionality is yet to be onality of water within the urban environment king.

\*Environmental water: Water drawn from outside the urban boundary, typically undergoing centralised treatment, purification and subsequent distribution to different water users (e.g. households, industry, agriculture, etc.) through a large water distribution network. Centralised surface or groundwater supply schemes are typical examples of environmental water being drawn for supplying today's cities. In the case of Byron Shire, Rous County Council's water supply scheme falls within this category.



Figure 3: Conceptual water-mass balance model of Byron Bay. The thickness of the arrows broadly exemplifies the magnitude of the water flow. This model is only hypothetical and does not include all elements of the real systems.



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## STAFF REPORTS - INFRASTRUCTURE SERVICES

## Practical application of urban metabolic indicators

Urban metabolism provides a conceptually simple framework to characterise cities, while enabling robust and holistic analysis of their resource use performance relative to the functions they provide to the resident population and the limits of the natural environment. This framework, with its set of 5 sustainability-focused strategic objectives and indicators, provides unparalleled potential to support decision making at a city-wide scale. This includes:

- Evidence-based strategy and policy planning and implementation •
- Benchmark water resource management and development performance (e.g. assessment of scenarios)
  - Guide investment strategies and assess their impact •
  - Collaboration across different scales (e.g. organisational, sectorial, catchment, etc.) •
  - Policy innovation (e.g. holistic planning, water-energy nexus, etc.)
  - Stakeholder engagement (e.g. education, communication, participation, decision-making, • etc.)

By quantifying and mapping different resource flows, we can show decision-makers where resources are most used, where interventions may be possible, and what types of interventions are 20 necessary to enhance the sustainability and resilience of our cities (e.g. land-use planning, policy, infrastructure, technology, behavioural changes, etc.).<sup>13</sup>

## Relevance to BSC's recycled water efforts

25 By taking an urban metabolism approach, management of recycled water can be done within the context of the whole urban system, rather than the current siloed management approach focused on reducing effluent loads into the environment.

Adopting the urban metabolism strategic objectives and indicators will, by design, encourage better 30 management coordination across different stages of the urban water cycle (e.g. water supply, wastewater, catchment and coastal management, demand management, etc.). Decisions in recycled water will require consideration of the whole water-mass balance, surfacing the potential trade-offs, impacts or opportunities that such decisions generate in other parts of the cycle, and vice versa. This also includes consideration of the broader regional problematic and the relevant

35 strategies and institutions that govern it.

> For instance, recycled water can be proactively managed to increase the level of water supply internalisation of the Shire, and hence reducing reliance on potable water supplied by RCC. This in turn can support higher levels of resource use efficiency as well as alleviating pressure on the sustainable extraction limits of RCC' water supply catchments.

> An urban metabolism model can also help assess the role of recycled water in the hydrological performance of the Shire, given it is currently supplied to environmental schemes (e.g. BBIWMR) that influence evaporation and infiltration rates, as well as having links to the Shire's drainage system.

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It can also provide a way to assess the <u>energy/emissions</u> implications of recycled water decisions. Water treatment and conveyance can be energy-intensive activities. Being able to quantify and assess this water-energy nexus is particularly important to support BSC's climate mitigation and adaptation efforts (e.g. Net Zero Emissions Strategy).

<sup>13</sup> Source: <u>https://resourceefficientcities.org/wp-content/uploads/2019/10/GI-REC-Pilot-City-Cape-Town-</u> FINAL.pdf

# STAFF REPORTS - INFRASTRUCTURE SERVICES

By recognising the <u>multi-functionality of water</u>, urban metabolism can help in linking recycled water efforts to BSC's various strategic objectives, such as the Community Strategic Plan, Sustainable Visitation Strategy, Economic Development Strategy and urban masterplans (which focus heavily on greening the urban environment and improving sense of place and community).

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Urban metabolism provides an evidence-based framework to inform how to <u>prioritize recycled</u> <u>water supply among competing users</u> (e.g. is more benefit achieved by prioritizing uses that achieve potable water substitution? is environmental/hydrological performance more important? etc.), with consideration of social fairness, environmental sustainability and economic efficiency outcomes

10 outcomes.

It's very important to note that the above benefits can be translated to the management of all other aspects of the urban water cycle. While this initiative arises from the recycled water section, it is highly relevant to all of BSC's water management efforts.

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## What is the next step?

The above proposal is intended to establish a robust position for discussion with the BSC's Executive Team and the relevant Advisory Committees. Feedback from these key stakeholders will help provide direction to the Utilities team to further advance the proposed conceptual

20 will help provide direction to the Utilities team to further advance the proposed conceptual framework. The next step will be to assess the requirements for the practical implementation of such a framework.

## STAFF REPORTS - INFRASTRUCTURE SERVICES

Inflow and Infiltration - quarterly update
Infrastructure Services
Jason Stanley, Inflow & Infiltration Project Manager
12020/1583

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## Summary:

10 The Byron Shire Council Inflow and Infiltration (I&I) project involved two separate projects, being condition assessments and rectification works that were both successfully awarded to Interflow.

Despite the presence of the COVID-19 viral pandemic and the imposed limitations by the Australian and state Government, measures and contingencies were put in place to ensure that these projects could continue in a safe and timely manner.

The assessment of the sewer gravity mains and maintenance holes within catchments 3002 and 5012 in Byron Bay and Ocean Shores has now been finalised. Various lines and maintenance holes were unable to be assessed despite best efforts from council's sewer maintenance teams to

20 locate and uncover buried maintenance holes. The results of the vast majority of the catchment that was assessed is discussed in detail throughout this report.

## **RECOMMENDATION:**

That Committee note the report

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## Attachments:

- 1 24.2015.79.1 WWSAC Attachment 1 3002-5012 Rectification, E2020/82583 , page 40
- 2 24.2015.79.1 WWSAC Attachment 2 4001 Relines, E2020/82585 , page 46

## REPORT

### 1. Introduction

5 This report will provide an update on the findings from the assessments that were undertaken on the gravity sewer mains and maintenance holes within sewer catchments 3002 and 5012. It will also present the scope for the FY20/21 rectification works through catchments 3002 and 5012, as well as the next highest priority works within catchment 4001 to be assessed.

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## 2. Condition Assessment

#### 2.1 Completed Scope Catchment 3002

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The 3002 gravity sewer catchment is located in Byron Bay and encloses the area shaded blue in Figure 1 below which includes the Byron Bay CBD. This catchment comprises a total of 329 gravity sewer mains and 262 maintenance holes. Despite the fact that council's sewer maintenance crews assisted with the location and uncovering of buried maintenance holes, not all were able to be undertaken within the time constraint of the project, hence 10 gravity sewer mains and 53 maintenance holes could not be assessed.



Figure 1 – Byron Bay 3002 Sewer Catchment, CCTV Works

## 2.2 Completed Scope Catchment 5012

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The 5012 gravity sewer catchment is located in Ocean Shores and encloses the area shaded blue in Figure 2 below. This catchment comprises a total of 223 gravity sewer mains and 159 maintenance holes. It should be noted that a large portion of the catchment was inaccessible prior to undertaking the assessments mainly due to the maintenance holes within this catchment being built over by residents constructing raised gardens, sheds, etc. Despite the fact that council's sewer maintenance crews assisted with the location and uncovering of

# BYRON SHIRE COUNCIL STAFF REPORTS - INFRASTRUCTURE SERVICES

buried maintenance holes, not all were able to be undertaken within the time constraint of the project, hence 59 gravity sewer mains and 47 maintenance holes could not be assessed.



Figure 2 – Ocean Shores 5012 Sewer Catchment, CCTV Works

## 2.3 Assessment Findings

Of the mains and maintenance holes that were assessed within the 3002 and 5012 catchments, the below table summarises the recommended proposal based on the assessment findings.

Catchment	3002	5012					
MAINS							
Total number assessed	319	164					
Total number not assessed	10	59					
Number requiring rectification	101	43					
Rectification cost	\$390,000	\$107,000					
MI	ls						
Total number assessed	209	112					
Total number not assessed	53	47					
Number requiring rectification*	100	62					
Rectification cost	\$237,000	\$35,000					
Total rectification cost	\$627,000	\$142,000					

It should be noted that the majority (72% in 5012 and 41% in 3002) of rectification works on 15 maintenance holes involves the simple addition of lifting lugs on the existing concrete lid to facilitate access for operations and maintenance crews without the need for heavy manual intervention with a crowbar.

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WWSAC Agenda

## 3. Proposed works FY20/21

## 3.1 Rectification

The proposed rectification works include the rectification of the gravity mains and maintenance holes noted above in Section 2.3 of this report and as detailed in Attachment 1, in addition to the relining of the next highest risk mains within the original Mullumbimby 4001 catchment which is still subjected to peaking factors during rainfall events. These 7 mains to be relined that total a length of 424m all reportedly had active infiltration during their assessment. Therefore, the relining of these mains in the 4001 catchment in addition to the rectification works recommended for catchments 3002 and 5012 are expected to cost in the order of  $\$10,000 (\pm 20\%)$ .

## 15 **3.2 Assessments**

The proposed works for FY20/21 includes the condition assessment of the gravity sewer mains (29.2km) and maintenance holes (~550) within catchments 3005, 4002, 4003, 4004, and 5009 located within Byron Bay, Mullumbimby, and Ocean Shores respectively. Maps of these catchments are shown in the below figures. CCTV assessments are expected to cost in the order of \$150,000 in addition to the assessment of maintenance holes, contract management and reporting which will cost in the order of \$100,000.



Figure 3 – Byron Bay 3005 Sewer Catchment

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# STAFF REPORTS - INFRASTRUCTURE SERVICES



Figure 4 – Mullumbimby 4002 Sewer Catchment



## STAFF REPORTS - INFRASTRUCTURE SERVICES



Figure 6 – Mullumbimby 4004 Sewer Catchment



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Figure 7 – Ocean Shores 5009 Sewer Catchment

## 4. Conclusion

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The assessments that were undertaken in FY19/20 have uncovered various concerns throughout the relevant networks that require council's attention. The recommended scope subsequently established from these assessments' and the remaining relining works from the Mullumbimby 4001 catchment totals ~\$810,000. This in addition to the assessment of the gravity sewer assets in catchments 3005, 4002, 4003, 4003, and 5009 which totals \$250,000 results in a total FY20/21 spend of \$1.06M for both rectification and continued assessment works.

	Schedule of Quantities	and P	rices	\$			
	Rectification of Sewer MHs 3	3002 C	Catch	۱m	ent		
Pay Item	Brief Description	Unit	Qty	ľ	Jnit Rate (\$ excl GST)	Price	e (excl GST) (Qty Unit Rate)
Section 1:	Preliminary Works						
1.01	Site establishment and disestablishment and all preliminary works including CEMP and all required approvals	Lump	100	\$	200.00	\$	20,000.0
1.02	Preparation of Traffic management Plan	Lump	67	\$	200.00	\$	13,400.0
Sub-total amount for Section 1 (To be carried forward to the Summary				Ŧ		\$	33,400.0
Pay Item	Item Brief Description		Qty	l	Jnit Rate (\$	Price	e (excl GST) (Qty
Section 2:	Removal and Disposal	1					onicitate
2.01	Removal and disposal of existing MH lid and surround	Lump	9	s	200.00	\$	1 800 (
2.01	Removal and disposal of existing sten irons	each	210	ŝ	50.00	\$	10 500 (
2.02	Removal and disposal of existing MH 1.1m deep	Lump	1	ŝ	1 800 00	\$	1 800 (
2.00	Removal and disposal of existing MH 1.7m deep	Lump	2	ŝ	2 000 00	ŝ	4 000 (
2.04	Removal and disposal of existing drop nine	Lump	1	ŝ	2,000.00	ŝ	200 (
Sub-total	amount for Section 2 (To be carried forward to the Summary)	Lump		Ŷ	200.00	\$	18,300.0
					Init Data (f	Dries	
Pay Item	Brief Description	Unit	Qty		excl GST)	Price	Unit Rate)
Section 3:	Supply, Delivery, Excavation and Installation						
3.01	Supply, delivery, and installation of DI MH lid, frame and surround	each	9	\$	600.00	\$	5,400.0
3.02	Supply, delivery, preparation of surface, and installation of inert MH liner	m <sup>2</sup>	195	\$	520.00	\$	101,631.0
3.03	Supply, delivery, and installation of lifting lugs on existing concrete lid	Lump	63	\$	200.00	\$	12,600.0
3.04	Supply, delivery, and installation of concrete MH 1.1m deep	Lump	1	\$	6,000.00	\$	6,000.0
3.05	Supply, delivery, and installation of concrete MH 1.7m deep	Lump	2	\$	7,000.00	\$	14,000.0
3.06	Supply, delivery, and installation of drop pipe <4m	Lump	1	\$	500.00	\$	500.0
Sub-total	amount for Section 3 (To be carried forward to the Summary)					\$	140,131.
Pay Item	Brief Description	Unit	Qty	l	Jnit Rate (\$ excl GST)	Price	e (excl GST) (Qty Unit Rate)
Section 4:	Site Restoration						
4.01	Reinstate road pavement	m²	30	\$	300.00	\$	9,000.0
4.02	Reinstate verge and median with top soil	m²	12	\$	20.00	\$	240.0
Sub-total	amount for Section 4 (To be carried forward to the Summary)					\$	9,240.
Pay Item	Brief Description	Unit	Qty	ι	Jnit Rate (\$ excl GST)	Price	e (excl GST) (Qty Unit Rate)
Section 5:	Provisional Items				,		,
5.01	Flow Control	hrs	24	\$	150.00	\$	3.600.0
5.02	Traffic Control	hrs	154	\$	150.00	\$	23,100.0
5.03	Removal of root intrusion	hrs	4	\$	150.00	\$	600.0
5.04	Labourer rate (2 person crew)	hrs	39	\$	230.00	\$	8,970.0
Sub-total	amount for Section 5 (To be carried forward to the Summary)					\$	36,270.0
	Summary of Schedule	of Ra	tes				
Contin	Description	orita					
Section	Description					Ar	nount (exi GST)
1	Presiminary Works					\$	33,400.0
2	Removal and Disposal					¢ ⊅	18,300.0
3	Supply, Delivery, Excavation and Installation					Э	140,131.6

Total amo	unt	\$ 237,341.66
5	Provisional Items	\$ 36,270.00
4	Site Restoration	\$ 9,240.00

3002 Sewer	Main	Rectification
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	Access 10	Landh	Death	Location	d of bundless	Destilation Second	Conceptual Cost	
•	Asset ID	Cengui Depui Cocabon		# of Junctions	Rectincation Scope		Estimate	
1	33238	77.88	3.8	Road Pavement	0	Strucutrally reline the exisiting main.	\$	8,303.00
3	33250	63.86	2.7	Grassed Verge	1	Install a patch liner at Ch 0.00m	\$	1,100.00
5	33266	24.29	2.5	Road Pavement	0	Strucutrally reline the exisiting main.	\$	2,944.00
8	33272	52.67	1	Grassed Verge	1	Strucutrally reline the exisiting main.	s	5,782.00
9	33279	79.09	0.8	Road Pavement	8	Strucutrally reline the exisiting main, including through the existing radial	s	9.554.00
						displacement at Ch 0.65m.	-	
10	33280	33.25	1	Grassed Verge	4	Remove silt build at Ch 30.49m.	\$	830.00
11	33285	69.09	1.1	Road Pavement	4	Install patch liner at Ch 30.86m.	\$	1,415.00
12	33286	17.13	2	Road Pavement	0	Remove existing root intrusion, structurally reline the existing main.	\$	3,673.00
16	33294	40.60	2	Road Pavement	5	Remove existing root intrusion, structurally reline the existing main.	\$	6,020.00
18	33302	31.23	1	Grassed Verge	2	Remove existing compacted obstruction at Ch 25.24m.	\$	830.00
19	33306	37.33	0.9	Road Pavement	1	Isolated dig up at Ch 35.11m to repair collapsed section.	\$	6,530.00
20	33310	43.98	0.8	Private Property	2	Remove silt obstrcution at Ch 22.96m.	\$	830.00
22	33312	39.69	1	Private Property	5	Remove existing root intrusion, structurally reline the existing main.	\$	4,799.00
25	33321	61.98	1	Road Pavement	6	Strucutrally reline the exisiting main.	\$	7,843.00
27	35712	2.92	1.2	Road Pavement	1	Confirm whether blocked junction at Ch 2.65m is live or otherwise. If live, clear	s	830.00
						blockage.		
31	36300	43.83	1.2	Road Pavement	2	Rectify radial displacement at D/S MH 39431 then structurally reline the exisiting	s	6,488.00
						main.		
33	32418	73.76	1.8	Public Park	1	Rectify broken pipe at Ch 0.06m with patch liner.	\$	1,100.00
						Remove existing root intrusion from the existing main and 4 private connections,		
34	32937	75.65	1	Grassed Verge	6	structurally reline the existing main and the 4 private connections subject to root	\$	27,740.00
						intrusion.		
35/36	32938	29.43	1	Road Pavement		Remove existing root intrusion, structurally reline the existing main.	\$	3,458.00
39	33164	60.80	1	Road Pavement	4	Remove obstructions from 3 private connections.	\$	2,275.00
41	33169	15.66	1.2	Private Property	1	Strucutrally reline the exisiting main.	\$	2,081.00
42	33170	19.73	0.8	Road Pavement	3	Strucutrally reline the exisiting main.	\$	3,618.00
44	33174	30.12	1	Private Property	2	Remove silt obstrcution at Ch 30.12m. Monitor as recommended.	\$	830.00
48	33181	55.10	1	Private Property	3	Remove root intrusion from defective junction at Ch 20.00m and structurally reline	\$	10,940.00
						the existing main and the defective junction.		
52	33198	37.77	1.4	Grassed Verge	2	Remove obstruction from defective junction at Ch 26.62m.	\$	515.00
53	33199	57.20	1.6	Grassed Verge	1	Rectify exisiting collapsed and buried MH 38503 within the road pavement.	\$	5,430.00
54	33200	32.95	1.6	Road Pavement	3	Remove root intrusion obstruction from defective junction at Ch 12.17m.	\$	1,715.00
61	33233	60.51	1.6	Grassed Verge	#N/A	Remove root intrusion obstruction from defective junction at Ch 23.84m.	s	1,715.00
64	33241	83.07	1.6	Grassed Verge	3	Remove root intrusion obstruction from defective junction at Ch 36.26m and	s	5,115.00
						structurally reline defective junction.	_	
66	33247	31.78	1	Grassed Verge	3	Remove existing root intrusion, structurally reline the existing main.	\$	4,008.00
67/68	33249	36.41	1.5	Grassed Verge	1	the axistics male and the defeative insetion	5	9,071.00
71	33258	26.20	1.5	Grassed Verge	1	Remove root obstruction from the existing main and install a patch repair liner to	\$	1,415.00
<u> </u>						ensure the roots do not return.	-	
72	33260	26.39	0	Grassed Verge	1	Remove root intrusions from the existing main and the defective junction at Ch	\$	8,069.00
<u> </u>						22.37m and structurary reine the existing main and the detective junction.	⊢	
						Remove root intrusions from the existing main and the defective junctions at Ch		
80	33291	48.87	1	Grassed Verge	2	12.23m, 17.61m, and structurally reline the existing main and the defective junctions.	3	8,432.00
<u> </u>							$\vdash$	
81	33300	38.65	2	Grassed Verge	1	Remove root intrusion obstruction from defective junction at Ch 0.33m and	s	5,115.00
<u> </u>						structurally reline detective junction. Remove root intrusion from defective junction at Ch.0.37m and 7.39m across both	⊢	
87/88	33325	32.00	1.3	Grassed Verge	1	assessments 2.87/2.88 and structurally reline the existing main and the defective	\$	6,745.00
89/90	33327	29.61	1	Grassed Verge		Remove root intrusion from defective junction at Ch 14.43m from assessment 2.90	s	2.615.00
				-		and structurally reline the defective junction and install a patch repair liner at Ch-	-	
93	33726	74.01	2.5	Road Pavement	2	Isolated up up and repair of the factor displacement at CH 35.2 m and the pipe	\$	5,850.00
94	33730	14.09	1	Ecotoath		Isolated dia up and renaix of the radial displacement at Ch 14.09m.	s	4,800,00
<u> </u>	-201010	14.05		- sogetti	-	Confirm whether blocked isordien at Ch 10 75m is live or otherwise. If live short	ŕ	4,000.00
96	33732	35.25	0.7	Private Property	6	blockage.	\$	515.00
$\vdash$						Rentification of the radial displacement at Ch 3 24m Results UK 38311 with second	$\vdash$	
97	33733	25.04	2	Road Pavement	· ·	intervention and a structural patch liner.	\$	1,560.00
104	33893	16.63	2.7	Grassed Verse		Clear the main of two object obstructions at Ch 14.37m and 15.88m	s	830.00
108	33898	20.45	1.8	Arakwal Park	1	Confirm whether blocked junction at Ch 12.30m is live or otherwise. If live, clear	s	2.045.00
110	34674	25.30	1.2	Grassed Verge		Isolated excavation and rectification of the broken pipe at Ch 0.36m.	s	4.290.00
112	36200	65.70	1.9	Arakwal Park		Drain main and conduct CCTV inspection with inclination.	s	994.20
						Clear private connection at Ch 64.60m of obstruction and structurally reline	-	
114	36210	74.92	1.3	Footpath	4	connection line. Monitor as recommended.	\$	5,115.00
						Clear private connection at Ch 62.73m of obstruction and structurally reline		
115	36213	70.53	1.3	Grassed Verge	4	connection line.	\$	5,115.00
119	36280	62.72	1.1	Footpath	3	Clear private connection at Ch 60.77m of obstruction.	s	515.00
121	36282	23.18	2.1	Footpath	3	Install structural patch liner at Ch 14.74m.	s	1,100.00
123	36287	58.92	1.1	Grassed Verge	2	Install structural patch liner at Ch 40.86m.	s	1,100.00
124	36650	72.02	0	Grassed Verge	6	Clear private connection at Ch 70.74m of obstruction.	\$	515.00
132/133	33183	80.10	1.2	Road Pavement	- 4	INSTITUTE FOR RECEIPTION OF D.J. CH. J.J. JOHN BERJ HOLDONE OF DESIGNATION 1.2. FOR BITS RESIDE	s	3,280.00
						Clear private connection at Ch 18.38m of obstruction and structurally reline	É	-,
134	33184	71.00	0.8	Road Pavement	2	connection line. Dislodge the wedged object at Ch 41.84m.	s	2,030.00
				Road Pavement -				
135	33761	33.88	1.5	Intersection	· ·	Install structural patch repair liner at Ch 28.28m over broken pipe section.	s	1,100.00
139/140	33738	73.00	1.5	Arakwal Park	5	токакел ехсауакот аг сигчологи огаззезателя 2.109 котелноче рерикотк алеклео-	s	4,290.00
142	33755	51.08	1.5	Arakwal Park	2	Clear private connection at Ch 17.08m of obstruction.	s	515.00
143	36198	56.67	2.5	Grassed Verge		Dislodge wedged object at Ch 11.54m.	\$	515.00
							<u> </u>	

14013001310131013101310131013101310131013101411301130 </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>								
Image         Solid         Solid <th< td=""><td>145</td><td>32939</td><td>41.34</td><td>0.90</td><td>Road Pavement</td><td>1</td><td>Remove root intrusion from private junction at CH1.41 and structurally reline the private line.</td><td>\$ 5,115.00</td></th<>	145	32939	41.34	0.90	Road Pavement	1	Remove root intrusion from private junction at CH1.41 and structurally reline the private line.	\$ 5,115.00
Image: Process of the state of the	146	32941	53.59	1.00	Private Property	-	Remove root intrusion from the main at chainage 0.29m and 2.00m and install 2 x	\$ 2,315.00
100         20.00         10.10         10.00         Point Property         4         Including them to priored incompare.         5         (A.10.0)           101         20.00         71.00         0.00         Aust Present         1         (A.10.0)           102         20.000         71.00         0.00         Aust Present         2         Natural with the train property of a single priority of							structural patch liners to prevent reoccurrence. Remove root intrusion from the main at chainage 0.06m and 0.73m and install a	
10.1         10.207         17.00         10.30         Nature and the indust summary sing single right of and partial in the indust single right of and partial indust sindus single right of and partial	150	32949	33.44	1.00	Private Property	4	structural patch liner to prevent reoccurrence.	\$ 1,415.00
1010         20140         7.16         1.00         Namewer         1         Namewer         Namewer         1         Namewer         Namewer         1         Namewer         Namewer         Namewer         Namewer         Namewer         Namewer         Namewer         Namewer         Namewer	151	33167	72.08	0.90	Road Pavement	3	Undertake isolated excavation to repair displaced pipe repair at chainage 31.99m.	\$ 6,530.00
1000         10194         71.06         31.00         March Person         2         Noticely and years having main, house an monephale         5         40000           1001         31.000         41.000         10.0	152	33168	21.94	1.50	Road Pavement		Structurally reline the existing main.	\$ 3,044.00
1000         10100         10100         101000         101000         101000           1000         20127         10120         1010000         1010000         1010000         1010000         1010000         1010000         1010000         10100000         10100000         101000000000         1010000000000000000000000000000000000	155	33194	73.65	3.90	Road Pavement	2	Structurally reline the existing main. Monitor as recommended.	\$ 8,695.00
101         20201         41.30         Auto Paramet         2         Dark Eulokage into unda function under.         3         138.00           102         20202         34.41         1.80         Auto Paramet         1         Continuous for Thy Diright of Auto ParaMet, Mark Mith, Rudy and Wild         5         728.000           103         20203         1.41.01         6.80         Paramet Autor Status for Family and Status for	156	33195	16.63	1.00	Road Pavement		Install structural patch liner at chainage 2.21.	\$ 1,100.00
19         2010         41.00         4.00         Mark backer         2         Mark backer for model.         5         7.480.00           19         2020         31.40         10.00         Mark and mark to Mr.         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00         1         7.480.00	157	33201	52.97	1.40	Road Pavement	2	Clear the blockage in the vertical downstream main.	\$ 1,360.00
101         2020         30.40         1.10         Anale Pine         1.1         Spring and states by its Pine Pines         5         1.2000           101         3100         11.00         1000         11.00         1000         11.00         10.00         11.00         10.00         11.00         10.00         11.00         10.00         11.00         10.00	159	33210	61.50	4.30	Road Pavement	2	Install structural liner from MH to MH.	\$ 7,480.00
119         3370         114.1         438         Name Payees	165	33223	39.45	1.50	Arakwal Park	1	Confirm reason for 75% ponding at chainage 39.45m from MH. Rectify as variable works as directed by the Principal.	\$ 1,290.00
170         3732         1712         472         Ase Parene         -         Booked wide being units paties of along 17.00. Units paties along 17.00. Uni	178	33750	11.43	0.50	Private Property		Remove obstruction from the main and undertake CCTV assessment.	\$ 1,213.58
12         371         77.4         341         Part Prenew         3         Description priority protein action and parts (256). Induction binary Part Preserve in and Control Preserve Part Part Preserve in Part Part Preserve in Part Part Preserve in Part Part Part Part Part Part Part Part	179	33752	18.52	4.20	Road Pavement		Structurally reline the existing main.	\$ 2,702.00
132         3274         7.7.4         3.40         Real Parents         3         Manage of effect much terms are agrees along along the terms into agrees along back of the advance advance of the advance of the advance of the advance advance o							Clear obstruction from private junction at chainage 17.68m. Undertake heavy	
114         2374         61.9         0.8         Paul Paument         5         Class description a damage ALA me assume to the full distort pain a full distort distort pain a full distort pain a full distort pain a full distort	182	33758	72.16	3.40	Road Pavement	3	cleaning of entire main to remove various grease deposits and root intrusions then structurally reline the entire main.	\$ 9,806.00
10         10.00         10	184	33768	45.10	0.80	Road Pavement	5	Clear obstruction at chainage 40.41m in assessment 184. Install structural patch	\$ 2 380.00
18         3300         31.99         8.00         Prode Property	104	53700	43.10	0.00	Pload Parternetic	, in the second	liner at chainage 0.50m in assessment 184.	2,000.00
186         33000         32.99         0.00         Prode Property							Uncover unidentified MH at chainage 10.09m in assessment 187. Structurally reline	
Image: Constraint of the constraint of the sector	186	33900	32.99	0.60	Private Property	-	the main from MH 39524 to the unidentified MH (~22.90m) due to the horizontal	\$ 2,810.00
191         M124         9-04         1,20         Prode Property         1         Decide for radie runging of ladies should patch from information runging of laties and the bards of ladies 1.50 and and and the ladies 1.50 and t							deformation which appears to be beneath the private structure.	
190         31024         05.44         1.20         Product Property         1         Diar MM 33456 ison whethe MM 3456 ison works to dual to the private property         S         1.980.00           190         31025         27.43         1.20         Product Property         1         Cate monthwates there private privates is from and shaded accurate inver 481 b Mee. Cate monthwates private is monthwates private is the main and publication where 481 b Mee.         S         8.4000           191         32057         77.52         3.00         Product Property         1         Cate monthwates may private in the main and publication in whethe sequence actions in the main and publication in which apped is the main and publication in which apped is the main and publication in which apped is the main and publication in the main apped is the main and publication in the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in the main apped is the main and publication in themain apped is the main and publication in the main apped is the							Undertake pipe repair (realign and install structural patch liner) of main immediately	
Image: Constraint of the second sec	189	36124	50.54	1.20	Private Property	1	DS of MH 38456 from within MH 38456 so as not to disturb the private property.	\$ 1,560.00
10         11125         27.43         1.20         Prode Property         11         Class not bracks the splets af strates the transmiss paths in the main and statistications         \$         5, 502.00           114         30207         7.152         3.50         Prode Property         1         Substate New Years paths in the main and Istatistications         \$         8, 607.00           101         30205         5.210         0.50         Prode Property         4         worker the top Main and thema years in the main and Istatistication         \$         4, 420.00           201         32026         7.2.52         4.50         Road Personal         3         Personal strates the substation to main 320.50 is real tracks pipe - tim is long.         \$         4, 420.00           201         32050         7.2.53         4.50         Road Personal         2         Indid duckdar jach. New Mid Main at head is long.         \$         1, 420.00           212         32026         7.2.53         4.50         Road Personal         2         Indid duckdar jach. New Mid Main at head is long.         \$         1, 420.00           224         32777         7.0.7         0.70         Ruad Personal         2         Indid duckdar jach. New Mid								
190         24125         27.60         1.30         Phode Property         1         auth New Char cont levales they used as parts. In numeric and tability structures         \$         5.000.00           194         35007         77.5.5         3.50         Phode Property         1         sholdware how, disting of effers mult be structure actions grasse deposed, then         \$         4.697.00           207         30075         50.31         1.00         Phode Property         4         soldeed according 5.03 fits tom Mit 3052 to seguid braken gies – 1 in thenge.         \$         4.200.00           208         23157         56.31         1.00         Read Parement         2         Phode According the erds in num.         \$         1.057.00           217         32320         72.74         4.00         Read Parement         2         Phode According the erds in num.         \$         1.050.00           218         32327         70.71         0.70         Read Parement         2         Phode According the erds in num.         \$         1.050.00           224         32727         70.71         0.70         Read Parement         2         Phode According the fits and the	1						Clear root intrusion from private junction at chainage 1.67m and install junction	
Image         Image <th< td=""><td>190</td><td>36125</td><td>27.63</td><td>1.20</td><td>Private Property</td><td>1</td><td>patch liner. Clear root intrusion from various points in the main and install structural</td><td>\$ 5,108.00</td></th<>	190	36125	27.63	1.20	Private Property	1	patch liner. Clear root intrusion from various points in the main and install structural	\$ 5,108.00
144         3607         7.3.2         3.60         Private Property         1         Understand burg during of end in an to serve values grasse disposit from         \$         8.467.00           201         32055         62.19         0.50         Private Property         4         volated escaration 20.1m hum M1 3052 for regard braking plan-1m ht region.         \$         4.420.00           202         32337         66.31         1.00         Read Paremet         2         Individual scheme of intropion of through the end in anis.         \$         1.1850.00           202         32337         70.71         0.70         Read Paremet         2         Individual scheme for finds M3 3052 for sing pulsing infinium.         \$         1.1850.00           204         32377         70.71         0.70         Read Paremet         2         Individual scheme for finds M3 3052 to sing pulsing infinium.         \$         1.1850.00           203         39164         43.3         4.50         Read Paremet         2         Individual scheme for finitum M3 3052 for sing pulsing infinitum.         \$         1.1850.00           203         39164         43.3         4.50         Read Paremet         2         Individual scheme for finitum M3 3052 for sing pulsing main         \$         1.1800.00           203         3	<u> </u>						aner MH to MH.	
Image: Constraint of the first offer the anter main.         Image: Constraint offer the other main.         Image: Constrai	194	36207	73.52	3.50	Private Property	1	Undertake heavy cleaning of entire main to remove various grease deposits then	\$ 8,497.00
2019         32.09         32.00         32.00         Produc Property         4         statical accountin 30.31m from 164 199570 for regular texture gaps1 m is larged.         \$         4.200.00           200         323197         56.31         1.00         Read Powement         2         read alsocation from private junction at charage 36 15m and issued at stockur jush from the from MM 32021 to stop purple inflution.         \$         11.5870.00           217         32320         72.26         4.50         Road Powement         2         read alsocation jush from the from MM 32021 to stop purple inflution.         \$         1.580.00           224         32377         70.71         0.70         Road Powement         2         read alsocation jush from the from MM 32021 to stop purple inflution.         \$         1.580.00           233         M144         70.52         5.60         Road Powement         4         read alsocation jush from the fission and stockura jush from the fission and stockura jush from the fission and stockura jush from the stockura jush from the fission and stockura jush from the fission and stockura jush from the fission and fissio	<u> </u>						structurally reline the entire main.	
200         33157         56.31         1.00         Read Paramet         3         Remote not intrustation toor plauka junction at change 35 the aut issual structure tern in the plauka control tern from MM 2022 to support life there support to the stress of support life terms in the plauka control at the terms in the plauka control at there support to the stress of support life terms in the plauka control at there support to the stress of support life terms in the plauka control at there support to the stress of support life terms in the plauka control at there support to the stress of support life terms in the plauka control at there support to the stress of support life terms in the plauka control at the stress of support life terms in the stress of terms in the stress of support life terms in the stress of support life terms in the stress of support life terms in the stress of support life terms in the stress of support life terms in the stress of support life terms in the stress of support life terms in the support life terms in the support life terms in the stress of support life terms in the support life terms in the stress of support life terms in the support life terms in the support life terms in the stress of support life terms in the s	201	36295	52.10	0.50	Private Property	4	Isolated excavation 30.31m from MH 39520 to repair broken pipe ~1m in length.	\$ 4,260.00
2015         96.31         1.00         Read Parement         3         Immone tool induction that public grades and analysis the indication that the probability of the state instation.         \$         11.878.00           217         33320         72.38         4.50         Ruid Parement         2         instat information that public grades and state and analysis the indication of the state instation.         \$         1.550.00           224         33727         76.71         0.70         Ruid Parement         2         instat induction public public and indication problem that the state and analysis the indication of the state and indication of the public public and indication public public and indication public public and indication public public and indication public pu								
Image of the final production of the structure of t	209	33157	56.31	1.00	Road Pavement	3	Remove root intrusion from private junction at chainage 39.19m and install structural	\$ 11,876.00
272         33220         77.36         4.60         Read Parement         2         Instal factorial galak flow the Th from M4 3025 of targe galaxy efficience.         5         1.600.00           224         33727         70.71         0.70         Read Parement         2         Instrume for indication them that the previous galaxy efficience.         \$         3.255.00           234         33127         70.71         0.70         Read Parement         2         Instrume for indication the privite junction of tables the CT strume and indication the privite galaxy efficience.         \$         3.256.00           233         36164         43.24         4.50         Read Parement         4         restal shoctorial galab flow of the table the CT strume strume and tables the table strume and tables the tables the table strume and tables the table strume and tables the tables the table strume and tables the tables the table strume and tables the table strume and tables the tables							iner in me private connection ane, matar seructural iner throughout the entire main.	
224         33727         70.71         0.70         Russ Peremet         2         Renove not involuent text prevalues from text and easily the set change 45 cms to kmall a structure path from the structure path from the change 45 cms to kmall a structure path from the control and structure path from at CH 132 for mont M1 3050 for to fromaton pat	217	33230	72.38	4.50	Road Pavement	2	Install structural patch liner 1m from MH 38282 to stop gushing infiltration.	\$ 1,630.00
224         33727         70.71         0.70         Read Powement         2         inductive junction guids from, install a subcursal patch from at chanage 40 km to         \$         3.365.00           231         30146         4.324         4.50         Read Powement         .         Clear main of obsticution that tables and the previous pier repart         \$         1.240.00           233         30144         70.22         5.60         Read Powement         .         Clear main of obsticution that tables and tables and tables at chanage 4.21m from 3M44.         \$         1.650.00           236         36601         23.87         1.00         Private Property							Remove root intrusion from private junction at chainage 61.74m and install a	
Image: space of the solid algebra and algebra a	224	33727	70.71	0.70	Road Pavement	2	structural junction patch liner. Install a structural patch liner at chainage 49.04m to	\$ 3,265.00
231         36166         43.24         4.50         Ruad Parement         - Char main of odmiction that blocks the CCTV assessment at chalange 26.84m         \$         1.240.0           233         36194         70.52         5.60         Poad Parement         4         install structural patch liner at influstion point at chalange 42.01m from 38445.         \$         1.600.00           236         36601         23.87         1.00         Private Property         3         install structural patch liner over the bricks pipe at at chalange 42.78m from NM 4         \$         1.600.00           246         33166         72.52         1.40         Avalawal Park         4         Renove not influsion from the main at CH 72.52m from MM 30055 and install a structural patch liner over the bricks pipe at the reaccurrence of not influsion.         \$         1.630.00           248         33166         72.52         1.40         Avalawal Park         -         Install structural patch liner to prevent the reaccurrence of not influsion.         \$         1.630.00           248         33276         77.52         1.700         Grassed Verge         4         Clear the private property and to bip offrasion.         \$         1.600.00           248         33281         30.13         1.00         Grassed Verge         2         Install structural patch liner to restificuon an CH 32							rectify the radial displacement at the previous pipe repair.	
Image: Constraint of the constraint.           202         20261         3.06         0.00         Private Property         2         Instat structural path the struct	231	36186	43.24	4.50	Road Pavement		Clear main of obstruction that blocked the CCTV assessment at chainage 26.64m	\$ 1,240.00
233         36194         710.52         5.60         Rold Parement         4         Install structural patch lines at drainage 201m fom 3946.         \$         1,550 00           235         36601         23.87         1.00         Private Property         3         Install structural patch lines over the hole in the pipe wail at chainage 427m from MH         \$         1,100 00           237         36688         53.53         1.00         Read Parement         2         Install structural patch lines over the broken pipe at drainage 0.10m from MH 30635 and install a structural patch lines are monoarmical front lineuosin.         \$         1,530 00           246         33166         72.02         1.40         Anakail Park         4         Remove root infruition over the broken pipe at chainage 412m from MH 30635 and install a structural patch lines at CH 72.52m from MH 30635 and install a structural patch lines at CH 118.64m from MH 40152 to restly the broken pipe at the structure patch lines at CH 13.85m from MH 40152 to restly the broken pipe at the structural patch lines at CH 13.85m from MH 40152 to restly the broken pipe.         \$         1,000 00           246         33276         77.92         1.70         Grassed Verge         2         Install structural patch lines at CH 13.85m from MH 40152 to restly the broken pipe.         \$         1,000 00           246         33281         393.3         1.60         Grassed Verge         2         I							from MH 39445.	-
235         36601         23.87         1.00         Private Property         3         Initial structural patch liner over the hole in the give wall at chainage 0.10m from the 1900.         \$         1,00.00           237         36668         53.53         1.00         Read Parement         2         install structural patch liner over the tooken pipe at chainage 44.78m from MM 3653 and instal a         \$         1,830.00           246         33186         72.52         1.40         Arabual Park         4         Remove nort insuon from the main at CH 72.52m from MH 39533 and instal a         \$         1,730.00           282         35710         33.16         0.76         Arabual Park         1         Clear main an creasess (CCTV).         \$         1,002.00           284         32376         77.92         1.70         Grassed Verge         4         Clear main and reasess (CCTV).         \$         8.622.00           296         33281         39.13         1.00         Grassed Verge         2         Install structural patch liner at CH 13.80m from MH 40192 to rectily the torskin pipe.         \$         1,000.00           296         32810         30.33         0.80         Road Parement         6         Clear private junction at CH 12.50m from MH 3002 of the obstruction.         \$         3,000           296	233	36194	70.52	5.60	Road Pavement	4	Install structural patch liner at infiltration point at chainage 42.01m from 39445.	\$ 1,630.00
Image: Construction of the construction.         \$         1,730.00           262         35710         33.16         0.76         Azakwai Park         1         Clear main and reasses (CCTV).         \$         1,002.86           263         35709         28.77         0.5         Azakwai Park         -         Install structural patch liner to prevent the recoccurrence of not iteraction.         \$         1,002.86           264         33276         77.92         1.70         Grassed Verge         4         Clear the anion of iteraction and the 40182 to really the broken pipe and to size infiltration.         \$         1,000.00           264         33204         39.33         1.00         Grassed Verge         2         natall structural patch liner to prevent the recoccurrence of not broken han pipe.         \$         1,000.00           264         33204         40.23         1.00         Grassed Verge         2         natall structural patch liner at CH 38.2m from MH 39637 to fibra broken pipe.         \$         3,445.00 <td>235</td> <td>36601</td> <td>23.87</td> <td>1.00</td> <td>Private Property</td> <td>3</td> <td>Install structural patch liner over the hole in the pipe wall at chainage 0.10m from</td> <td>\$ 1,100.00</td>	235	36601	23.87	1.00	Private Property	3	Install structural patch liner over the hole in the pipe wall at chainage 0.10m from	\$ 1,100.00
237         36686         53.53         1.00         Road Pavement         2         Initial structural patch informs for bit broken pipe at charage 44.2mm from MH         \$         1,630.00           246         33166         72.52         1.40         Arakwal Park         4         Remove root intrusion from the main at CH 72.52m from MH 3053s and install a         \$         1,730.00           247         59700         33.16         0.76         Arakwal Park         1         Clear main and ressess (CCTV).         \$         1,025.66           263         35709         28.77         0.5         Arakwal Park         -         Install structural patch liner at CH 18.84m from MH 4012 to rectify the broken pipe at 333.00         1,000.00           264         33286         39.13         1.00         Grassed Vroge         2         Install structural patch liner at CH 38.8m from MH 3057 to fix break in pipe.         \$         1,000.00           268         33281         39.13         1.00         Grassed Vroge         2         Install structural patch liner at CH 38.8m from MH 30507 to fix break in pipe.         \$         1,000.00           268         32940         40.23         1.00         Phivate Property         2         Clear the private junction at CH 32.4m from MH 30507 to fix break in pipe.         \$         3,445.00	⊢						MH 39504.	
Low         Low <thlow< th=""> <thlow< th=""> <thlow< th=""></thlow<></thlow<></thlow<>	237	36688	53.53	1.00	Road Pavement	2	Install structural patch liner over the broken pipe at chainage 44.78m from MH	\$ 1,630.00
246         33186         72.52         1.40         Anakwai Park         4         Interview food mitsed and mask at LP 22 can first mit and mitsed and mits	<u> </u>						40330.	
202         33710         33.16         0.76         Arakwal Park         1         Chear man and reasons (CCV).         \$         1.028.96           263         35710         33.16         0.76         Arakwal Park         1         Clear man and reasons (CCV).         \$         1.028.96           263         35709         28.77         0.5         Arakwal Park         -         Install structural patch liner at CH 18.84m from MH 40192 to rectify the broken pipe and to stop infinisto.         \$         1.000.00           284         33276         77.92         1.70         Grassed Verge         2         Install structural patch liner at CH 38.92m from MH 30507 to fit break in pipe.         \$         1.000.00           285         33281         38.13         1.00         Grassed Verge         2         Install structural patch liner at CH 38.92m from MH 30507 to fit break in pipe.         \$         1.000.00           282         33303         38.35         0.90         Road Pavement         6         Clear the private Junction of crot intrusion and reade and structural patch liner at the insect rectification works.         \$         3.445.00           296         32940         40.23         1.00         Private Property         -         Clear the main of root intrusion mended and cH 17.54m from         \$         1.445.00	246	33186	72.52	1.40	Arakwal Park	4	Remove root intrusion from the main at CH 72.52m from MH 39535 and install a	\$ 1,730.00
Prior         Outron         Description         Description <thdescription< th=""> <thdescription< th=""> <thdescrip< td=""><td>262</td><td>35710</td><td>33.16</td><td>0.76</td><td>Arakwai Park</td><td>1</td><td>Clear main and reassess (CCTV)</td><td>\$ 1.028.96</td></thdescrip<></thdescription<></thdescription<>	262	35710	33.16	0.76	Arakwai Park	1	Clear main and reassess (CCTV)	\$ 1.028.96
283         35769         28.77         0.5         Arakwal Park         -         Influe include and each of a bit of bit with a bit of bit of bit with a bit bit with bit bit bit with a bit bit bit with a bit bit bit bit b		33710	55.10	0.10	Pranta Park		Install structural natch lines at Clif 18 84m from MH 40192 to rectify the tunken nine	4 1,020.00
284         33276         77.92         1.70         Grassed Verge         4         Clean fine and installal structural liner from MH to MH.         \$         8.622.00           285         33281         39.13         1.00         Grassed Verge         2         Install structural liner from MH 39507 to fix break in pipe.         \$         1.100.00           292         33303         38.35         0.90         Road Pevement         6         Clear the private junction at CH 0.72m from MH 39507 to fix break in pipe.         \$         1.380.00           296         32840         40.23         1.00         Private Property         2         Clear private junction of not intrusion at CH 3242m from MH 39650 and install a         \$         3.445.00           296         32840         40.23         1.00         Private Property         2         Clear the main of noti intrusion immediately upstream from MH 39650 and install a         \$         3.445.00           298         32851         3.05         0.90         Private Property         -         Clear the main of not intrusion immediately upstream from MH 39650 and install a         \$         1.415.00           207         3.3323         27.87         0.80         Private Property         1         Clear not intrusion from main line and install structural patch liner at CH 3258m from MH 38657 to prevent the reocc	263	35709	28.77	0.5	Arakwal Park		and to stop infiltration.	\$ 1,100.00
285         33281         39.13         1.00         Grassed Verge         2         Install structural patch liner at CH 38.92m from MH 39697 to fix break in pipe.         \$         1.100.00           292         33303         38.35         0.90         Road Pavement         6         Clear the private junction of CP 2m from MH 39697 to fix break in pipe.         \$         1.360.00           296         32940         40.23         1.00         Private Property         2         Clear the private junction of root intrusion. Remove the piece of the post-occurrence.         \$         3.445.00           298         32940         40.23         1.00         Private Property         -         Clear the main of root intrusion immediately upstream from MH 39660 and install a structural patch liner at the point of root intrusion oprevent the re-occurrence.         \$         3.445.00           298         32951         3.05         0.90         Private Property         -         Clear the main of root intrusion immediately upstream from MH 39660 and install a structural patch liners at CH 12.58m from MH 38457 to prevent the re-occurrence.         \$         1.445.00           302         33323         27.87         0.80         Private Property         1         Clear root intrusion from main line and install a structural patch liner at CH 32.54m from MH 38457 to revert the re-occurrence.         \$         1.730.00         3.61432.00	284	33276	77.92	1.70	Grassed Verge	4	Clean line and installal structural liner from MH to MH.	\$ 8.622.00
292         33303         38.35         0.90         Road Pavement         6         Clear the private junction at CH 0.72m from MH 38054 of the obstruction.         \$         1,380.00           296         32940         40.23         1.00         Private Property         2         Clear private junction of root intrusion at CH 3.24m from MH 38054 of the obstruction.         \$         3,445.00           296         32940         40.23         1.00         Private Property         2         Clear the main of root intrusion immediately upstream from MH 38050 and install a structural patch liner at the point of root intrusion to prevent the re-occurrence.         \$         3,445.00           296         32951         3.05         0.90         Private Property         -         Clear the main of root intrusion immediately upstream from MH 38050 and install a structural patch liners at CH 12.56m from main line and install astructural patch liners at CH 12.56m from MH 38457 to prevent the reoccurrence of root intrusion to prevent the reoccurrence.         \$         2,945.00           303         36132         43.70         1.00         Private Property         1         Clear root intrusion from the main line and install a structural patch liner at CH 3.24m from MH 38457 to prevent the reoccurrence.         \$         1,730.00           304         33226         73.12m         3.6         Grassed Verge         2         Clean froot intrusion from the main line a	285	33281	39.13	1.00	Grassed Verge	2	Install structural patch liner at CH 38.92m from MH 39507 to fix break in pipe.	\$ 1,100.00
296         32940         40.23         1.00         Private Property         2         Clear private junction of root intrusion at CH 34.24m from MH 38456 and raine the private junction to prevent the re-occurrence of root intrusion. Remove the piece of timber from within the main if still there at the fine of rectification works.         \$         3,445,00           298         32951         3.05         0.90         Private Property         -         Clear the main of root intrusion immediately upstream from MH 39660 and install a structural patch liners at the point of root intrusion to prevent the re-occurrence.         \$         1,415,00           302         33223         27.87         0.80         Private Property         1         Clear root intrusion from main line and install structural patch liners at CH 12,58m from MH 38457 to prevent the reoccurrence.         \$         1,415,00           303         36132         43.70         1.00         Private Property         1         Clear root intrusion from the main line and install a structural patch liners at CH 12,58m from MH 38457 to prevent the reoccurrence.         \$         1,730,00           304         33226         73.12m         3.6         Grassed Verge         2         Clear root intrusion from the main line and install a structural patch liner at CH 3,344,00         \$         8,142,00           310         33305         55.43m         1         Grasseed Verge         2         Clear b	292	33303	38.35	0.90	Road Pavement	6	Clear the private junction at CH 0.72m from MH 39054 of the obstruction.	\$ 1,360.00
2963294040.231.00Private Property2Clear private junction of root intrusion at CH 34 24m from MH 38456 and reline the piece of induction to prevent the re-occurrence of root intrusion. Remove the piece of the								
296       32840       40.23       1.00       Private Property       2       private junction to prevent the re-occurrence of root intrusion. Remove the piece of so finitors on works.       \$       3.445.00         298       32951       3.05       0.90       Private Property       -       Clear the main of root intrusion immediately upstream from MH 39060 and install a structural patch liner at the point of root intrusion to prevent the re-occurrence.       \$       1.415.00         300       33323       27.87       0.80       Private Property       1       Clear too intrusion from main line and install structural patch liners at CH 12.58m       \$       2.945.00         303       36132       43.70       1.00       Private Property       1       Clear root intrusion from main line and install structural patch liners at CH 12.58m       \$       2.945.00         304       33226       73.12m       3.6       Grassed Verge       1       Clear root intrusion from the main line and install a structural patch liner at CH       \$       1.730.00         310       33305       55.43m       1       Grassed Verge       2       Clean line and install structural inter from MH to MH.       \$       6.693.00         316       36191       18.15m       4       Grassed Verge       -       Clear blockage in vertical dropper pipe.       \$       8.50.00							Clear private junction of root intrusion at CH 34.24m from MH 38456 and reline the	
Index       Index <th< td=""><td>296</td><td>32940</td><td>40.23</td><td>1.00</td><td>Private Property</td><td>2</td><td>private junction to prevent the re-occurrence of root intrusion. Remove the piece of</td><td>\$ 3,445.00</td></th<>	296	32940	40.23	1.00	Private Property	2	private junction to prevent the re-occurrence of root intrusion. Remove the piece of	\$ 3,445.00
298       32951       3.05       0.90       Private Property       -       Clear the main of root intrusion immediately upstream from MH 39060 and install a structural patch liner at the point of root intrusion to prevent the re-occurrence.       \$       1,415.00         302       33323       27.87       0.80       Private Property       1       Clear root intrusion from main line and install structural patch liners at CH 12.58m from MH 38457 to prevent the reoccurrence of root intrusion and at CH 17.14m from MH 38457 to rectify the broken pipe.       \$       2,945.00         303       36132       43.70       1.00       Private Property       1       Clear root intrusion from the main line and install a structural patch liner at CH       \$       1,730.00         304       33226       73.12m       3.6       Grassed Verge       2       Clean line and installal structural liner from MH to MH.       \$       8,142.00         310       33305       55.43m       1       Grassed Verge       2       Clean line and installal structural liner from MH to MH.       \$       8,693.00         319       36214       81.07m       3.3       Grassed Verge       -       Clear line and undertake inclination survey of main to identify reason for 90% pointing       \$       1,316.42         323       36221       44.87m       3       Private Property       2       Clear line and							timber from within the main it still there at the time of rectification works.	
298       32951       3.05       0.90       Private Property       -       Clear the main of root infrusion termeduately upstream from MM 30400 and install a structural patch liner at the point of root infrusion to prevent the re-occurrence.       \$       1,415.00         302       33323       27.87       0.80       Private Property       1       Clear root infrusion from main line and install structural patch liners at CH 12.58m from MH 38457 to prevent the reoccurrence of root intrusion and at CH 17.14m from MH 38457 to rectify the broken pipe.       \$       2,945.00         303       36132       43.70       1.00       Private Property       1       Clear root infrusion from the main line and install a structural patch liner at CH 17.14m from MH 38457 to rectify the broken pipe.       \$       1,730.00         304       33226       73.12m       3.6       Grassed Verge       2       Clean line and installal structural liner from MH to MH.       \$       8,142.00         310       33305       55.43m       1       Grassed Verge       2       Clean line and installal structural liner from MH to MH.       \$       8,693.00         319       36214       81.07m       3.3       Grassed Verge       -       Clear line and undertake indination survey of main to identify reason for 90% points       \$       1,316.42         323       36221       44.87m       3       Private Property							Mana the serie of each interview increasilities under an Arm Mill 20050 and install -	
Image: International particulation particulation of the second particle control of the second	298	32951	3.05	0.90	Private Property		Clear the main of root intrusion immediately upstream from MH 39000 and install a structural patch liner at the point of cost intrusion to prevent the re-occurrence.	\$ 1,415.00
302       3323       27.87       0.80       Private Property       1       Clear root Intrusion from main line and install structural patch liners at CH 12.58m from MH 38457 to prevent the reoccurrence of root intrusion and at CH 17.14m from MH 38457 to prevent the reoccurrence of root intrusion and at CH 17.14m from MH 38457 to rectify the broken pipe.       \$       2,945.00         303       38132       43.70       1.00       Private Property       1       Clear root Intrusion from the main line and install a structural patch liner at CH 12.58m MH 38457 to prevent the reoccurrence.       \$       1,730.00         304       33226       73.12m       3.6       Grassed Verge       2       Clean line and install a structural patch liner at CH 12.58m MH 38456 to prevent the reoccurrence.       \$       8,142.00         310       33305       55.43m       1       Grassed Verge       2       Clean line and installal structural liner from MH to MH.       \$       8,1693.00         316       36191       18.15m       4       Grassed Verge       -       Clear blockage in vertical dropper pipe.       \$       8,300.00         319       36214       81.07m       3.3       Grassed Verge       1       Clear line and undertake inclination survey of main to identify reason for 90% ponding.       \$       1,316.42         323       36221       44.87m       3       Private Property							processing participation at one particle of their instruments of prevents one resolution that.	
302       3323       27.87       0.80       Private Property       1       from MH 38457 to prevent the reoccurrence of root intrusion and at CH 17.14m from       \$       2,945.00         303       36132       43.70       1.00       Private Property       1       Clear root Intrusion from the main line and install a structural patch liner at CH 30.48m from MH 38456 to prevent the reoccurrence.       \$       1,730.00         304       33226       73.12m       3.6       Grassed Verge       2       Clean line and install a structural liner from MH to MH.       \$       8,142.00         310       33305       55.43m       1       Grassed Verge       1       Unover buried MH 38461 to surface. Clean line and installal structural liner from MH to MH.       \$       8,090.00         316       36191       18.15m       4       Grassed Verge       -       Clear line and undertake inclination survey of main to identify reason for 90% on 90% on 90% on 90%       \$       1,316.42         319       36214       81.07m       3.3       Grassed Verge       1       Clear line and undertake inclination survey of main to identify reason for 90% on 90% on 90% on 90% on 90%       \$       1,316.42         323       36221       44.87m       3       Private Property       2       Clean line and installal structural liner from MH to MH.       \$       5,317.00							Clear root intrusion from main line and install structural patch liners at CH 12.58m	
Image: Constraint of the state of	302	33323	27.87	0.80	Private Property	1	from MH 38457 to prevent the reoccurrence of root intrusion and at CH 17.14m from	\$ 2,945.00
303       36132       43.70       1.00       Private Property       1       Clear root intrusion from the main line and install a structural patch liner at CH 30.46m from MH 38456 to prevent the reoccurrence.       \$       1,730.00         304       33226       73.12m       3.6       Grassed Verge       2       Clean line and installal structural liner from MH to MH.       \$       8,142.00         310       33305       55.43m       1       Grassed Verge       1       Uncover buried MH 39440 to surface. Clean line and installal structural liner from MH to MH.       \$       8,093.00         316       36191       18.15m       4       Orassed Verge       -       Clean line and undertake inclination survey of main to identify reason for 90% portion.       \$       8,00.00         319       36214       81.07m       3.3       Grassed Verge       1       Clean line and undertake inclination survey of main to identify reason for 90% portion.       \$       1,316.42         323       36214       44.87m       3       Private Property       2       Clean line and installal structural liner from MH to MH.       \$       5,317.00         325       36283       21.02m       1.3       Concrete Footpath       -       Undertake isolated excavation to repair broken pipe section directly downstream of the dead end upstream MH.       \$       5,400.00							MH 38457 to rectify the broken pipe.	
304       30.46m from MH 38456 to prevent the reocourrence.       30.46m from MH 38456 to prevent the reocourrence.         304       33226       73.12m       3.6       Grassed Verge       2       Clean line and installal structural liner from MH to MH.       \$ 8,142.00         310       33305       55.43m       1       Grassed Verge       1       Uncover buried MH 39440 to surface. Clean line and installal structural liner from MH to MH.       \$ 6,693.00         316       36191       18.15m       4       Grassed Verge       -       Clean line and undertake inclination survey of main to identify reason for 90% ponding.       \$ 830.00         319       362214       81.07m       3.3       Grassed Verge       1       Clean line and installal structural liner from MH to MH.       \$ 5,317.00         323       36221       44.87m       3       Private Property       2       Clean line and installal structural liner from MH to MH.       \$ 5,317.00         325       36283       21.02m       1.3       Concrete Footpath       -       Undertake isolated excavation to repair broken pipe section directly downstream of the dead end upstream MH.       \$ 5,400.00	303	36132	43.70	1.00	Private Property	1	Clear root intrusion from the main line and install a structural patch liner at CH	\$ 1,730.00
304       33226       73.12m       3.6       Grassed Verge       2       Clean line and installal structural liner from MH to MH.       \$       8,142.00         310       33305       55.43m       1       Grassed Verge       1       Unover buried MH 39440 to surface. Clean line and installal structural liner from MH to MH.       \$       6,693.00         316       36191       18.15m       4       Grassed Verge       -       Clean line and undertake inclination survey of main to identify reason for 90% portion.       \$       830.00         319       36214       81.07m       3.3       Grassed Verge       1       Clean line and undertake inclination survey of main to identify reason for 90% portion.       \$       1,316.42         323       36221       44.87m       3       Private Property       2       Clean line and installal structural liner from MH to MH.       \$       5,317.00         325       36283       21.02m       1.3       Concrete Footpath       -       Undertake isolated excavation to repair broken pipe section directly downstream of the dead end upstream MH.       \$       5,400.00							30.46m from MH 38456 to prevent the reoccurrence.	
310       33305       55.43m       1       Grassed Verge       1       Unover buried MH 39440 to surface. Clean line and installal structural line from MH to MH.       \$       6,693.00         316       36191       18.15m       4       Grassed Verge       -       Clear blockage in vertical dropper pipe.       \$       830.00         319       36214       81.07m       3.3       Grassed Verge       1       Clear line and undertake inclination survey of main to identify reason for 90% ponding.       \$       1,316.42         323       36221       44.87m       3       Private Property       2       Clean line and installal structural liner from MH to MH.       \$       5,317.00         325       36283       21.02m       1.3       Concrete Footpath       -       Undertake isolated excavation to repair broken pipe section directly downstream of the dead end upstream MH.       \$       5,400.00	304	33226	73.12m	3.6	Grassed Verge	2	Clean line and installal structural liner from MH to MH.	\$ 8,142.00
316         36191         18.15m         4         Grassed Verge         -         Clear line and undertake inclination survey of main to identify reason for 90%         \$         830.00           319         36214         81.07m         3.3         Grassed Verge         1         Clear line and undertake inclination survey of main to identify reason for 90%         \$         1,316.42           323         38221         44.87m         3         Private Property         2         Clean line and installal structural liner from MH to MH.         \$         5,317.00           325         36283         21.02m         1.3         Concrete Footpath         -         Undertake isolated excavation to repair broken pipe section directly downstream of the dead end upstream MH.         \$         5,400.00	310	33305	55.43m	1	Grassed Verge	1	Uncover buried MH 39440 to surface. Clean line and installal structural liner from	\$ 6,693.00
316         36191         18.15m         4         Grassed Verge         -         Clear blockage in vertical dropper pipe.         \$         830.00           319         36214         81.07m         3.3         Grassed Verge         1         Clear line and undertake inclination survey of main to identify reason for 90% ponding.         \$         1,316.42           323         36221         44.87m         3         Private Property         2         Clean line and installal structural liner from MH to MH.         \$         5,317.00           325         36283         21.02m         1.3         Concrete Footpath         -         Undertake isolated excavation to repair broken pipe section directly downstream of the dead end upstream MH.         \$         5,400.00							MH to MH.	
319       36214       81.07m       3.3       Grassed Verge       1       Clear line and undertake inclination survey of main to identify reason for 90% ponding.       \$       1.316.42         323       36221       44.87m       3       Private Property       2       Clean line and installal structural liner from MH to MH.       \$       5,317.00         325       36283       21.02m       1.3       Concrete Footpath       -       Undertake isolated excavation to repair broken pipe section directly downstream of the dead end upstream MH.       \$       5,400.00	316	36191	18.15m	4	Grassed Verge	-	Clear blockage in vertical dropper pipe.	\$ 830.00
Image: specific state	319	36214	81.07m	3.3	Grassed Verge	1	Glear line and undertake inclination survey of main to identify reason for 90%	\$ 1,316.42
325     36283     21.02m     1.3     Concrete Footpath     Undertake isolated excavation to repair broken pipe section directly downstream of the dead end upstream MH.     S     5,400.00	323	36224	44.87m	3	Private Property	2	Clean line and installal structural liner from klid in klid	\$ 5.347.00
325 36283 21.02m 1.3 Concrete Footpath - the dead end upstream MH. \$ 5,400.00	92.9	JULE			rinate Property	6	Electrotake isolated exceeded into non-k bakes size portion departie department.	+ 0,317.00
	325	36283	21.02m	1.3	Concrete Footpath		the dead end upstream MH.	\$ 5,400.00

ĺ	326	36285	74.44m	3	Private Property	2	Clean line and installal structural liner from MH to MH.	\$ 8,274.00
[	328	36299	75.97m	3.8	Carpark		Clear sediment deposit and undertake CCTV of main.	\$ 1,285.82
							TOTAL	\$ 386,632.98

# STAFF REPORTS - INFRASTRUCTURE SERVICES

	Schedule of Quantities a	and P	rices				
	Rectification of Sewer MHs 5	012 C	atch	me	ent		
Pay Item	Brief Description	Price (excl GST) (Qty Unit Rate)					
Section 1:	Preliminary Works						
1.01	Site establishment and disestablishment and all preliminary works including CEMP and all required approvals	Lump	62	\$	200.00	\$	12,400.00
1.02	Preparation of Traffic management Plan	Lump	0	\$	200.00	\$	
Sub-total	amount for Section 1 (To be carried forward to the Summary)					\$	12,400.00
Pay Item	Brief Description	Unit	Qty	L	Init Rate (\$ excl GST)	Price	(excl GST) (Qty x Unit Rate)
Section 2:	Removal and Disposal						
2.01	Removal and disposal of existing MH lid and surround	Lump	2	\$	200.00	\$	400.00
2.02	Removal and disposal of existing MH liner	each	0	\$	200.00	\$	- 1
2.03	Removal and disposal of existing step irons	Lump	33	\$	50.00	\$	1,650.00
Sub-total	amount for Section 2 (To be carried forward to the Summary)					\$	2,050.00
Pay Item	Brief Description	Unit	Qty	U	Jnit Rate (\$ excl GST)	Price (excl GST) (Qty x Unit Rate)	
Section 3:	Supply, Delivery, Excavation and Installation						
3.01	Supply, delivery, and installation of DI MH lid, frame and surround	each	2	\$	600.00	\$	1,200.00
3.02	Supply, delivery, preparation of surface, and installation of inert MH liner	m²	12	\$	520.00	\$	6,175.11
3.03	Supply, delivery, and installation of lifting lugs on existing concrete lid	Lump	52	\$	200.00	\$	10,400.00
3.04	3.04   Install new concrete lid   Lump   4   \$   250.00						1,000.00
Sub-totai	amount for Section 3 (To be carried forward to the Summary)					\$	18,775.11
Pay Item	Brief Description	Unit	Qty	L 1	Jnit Rate (\$ excl GST)	Price	(excl GST) (Qty x Unit Rate)
Section 4:	Site Restoration						
4.01	Reinstate road pavement	m²	0	\$	300.00	\$	-
4.02	Reinstate verge and median with top soil	m²	4	\$	20.00	\$	80.00
Sub-total	amount for Section 4 (To be carried forward to the Summary)					\$	80.00
Pay Item	Brief Description	Unit	Qty	L	Jnit Rate (\$ excl GST)	Price	(excl GST) (Qty x Unit Rate)
Section 5:	Provisional Items						
5.01	Flow Control	hrs	0	S	150.00	S	-
5.02	Traffic Control	hrs	0	S	150.00	S	-
5.03	Removal of root intrusion	hrs	12	\$	150.00	\$	1,800.00
5.04	Labourer rate (2 person crew)	hrs	0	\$	230.00	\$	-
Sub-total	amount for Section 5 (To be carried forward to the Summary)					\$	1,800.00
	Summary of Schedule	of Ra	tes				
Section	Description					Am	ount (ex  GST)
1	Preliminary Works					S	12,400.00
2	Removal and Disposal					S	2,050.00
3	Supply, Delivery, Excavation and Installation					\$	18,775.11
4	Site Restoration					\$	80.00
5	\$	1,800.00					
Total amo	aunt					¢	35 105 11

5012 Sewer Main Rectification

	Areat ID	Length	Death	Location	# of lunctions	Restification Soons	Conceptual Cos
*	Asset ID	Lengu	Depth	Location	# or Junctions	Racuicauon Scope	Estimate
4	34760	34.8	0.70	Private Property		Clear obstruction and re-assess the main (CCTV).	\$ 1,038.80
6	32413	41.54	1.00	Private Property	1	Install junction patch liner around private junction at Ch 0.45m. Clear obstruction and re-assess the main (CCTV).	\$ 2,279.24
7	32414	35.81	1.00	Private Property	1	Drain the main and re-assess the main (CCTV) with inclination.	\$ 1,044.86
14	35373	46.53	1.50	Private Property		Clear obstruction and re-assess the main (CCTV).	\$ 1,109.18
22	35395	31.55	1.10	Private Property		Clear obstruction and re-assess the main (CCTV).	\$ 1,019.30
31 / 32	35662	58.81	1.80	Private Property	1	Clear root obstruction in private junction at Ch 28.88m from Assessment 31 and structurally reline the private line. Clear sediment obstruction in the main at Ch 46.47m from Assessment 31.	\$ 4,710.00
36	35999	41	0.00	Private Property	-	Clear obstruction and re-assess the main (CCTV).	\$ 1,076.00
43	34818	81.99	1.40	Private Property	2	Clear root obstruction in private junction at Ch 23.73m and structurally reline the private line.	\$ 4,080.00
45	35360	31.27	1.40	Private Property	1	Clear obstruction 1m from MH 39964.	\$ 515.00
53	35367	34.72	1.00	Private Property		Clear obstruction and re-assess the main (CCTV).	\$ 1,038.32
60	35667	24.33	1.30	Private Property	1	Remove root intrusion and install a structural patch line to prevent future intrusion.	\$ 1,730.00
61	35730	54.55	1.20	Private Property	-	Clear obstruction and re-assess the main (CCTV).	\$ 1,157.30
62	35731	21.4	1.20	Private Property	1	Clear root obstruction in private junction at Ch 0.54m and structurally reline the private line.	\$ 4,080.00
63	35732	87.53	1.50	Private Property	3	Remove obstruction in vertical drop pipe.	\$ 830.00
65	35733	43.01	1.20	Private Property	1	Clear root obstruction in private junction at Ch 42.23m and structurally reline the private line.	\$ 4,080.00
68	35777	48.21	1.30	Private Property	1	Clear root obstruction in private junction at Ch 5.19m and structurally reline the private line. Re-assess the main (CCTV).	\$ 4,369.26
71	35801	43.47	1.2	Private Property	1	Clear root obstruction in the main adjacent to MH 40208. Monitor as recommended	\$ 515.00
72	35804	15.41	1.3	Private Property	æ	Clear root obstruction in the main adjacent to MH 40009. Monitor as recommended	\$ 515.00
74	36525	55.88	1.3	Private Property	3	Install structural patch liner at CH 10.86m from MH 40005 to ensure horizontal deformation doesn't worsen. Clear root obstruction in private junction at Ch 42.99m from MH 40005 and install structural liner in private junction line. Monitor as recommended	\$ 4,980.00
75	36528	87.37	1.2	Private Property	4	Clear vertical drop of obstruction at CH 87.37. Monitor as recommended.	\$ 830.00
92	34718	47.6	1.3	Private Property	2	Clear private junction of obstruction at CH 22.99 and install structural liner in private connection line. Undertake re- assessment (CCTV) of the main. Monitor as recommended.	\$ 4,365.60
98	34735	69.30	1.2	Private Property	3	Clear private junction of obstruction at CH 22.31 and install strucutral liner in private connection line. Monitor as recommended.	\$ 4,080.00
100	34737	35.33	1.1	Private Property	1	Clear private junction of root intrusion at CH 22.31 and install structural liner in private connection line. Remove root intrusion in the main at CH 32.83 and install a patch liner to prevent reoccurrence. Monitor as recommended.	\$ 5,610.00
103	34741	73.85	1.1	Private Property		Remove obstruction from main immediately downstream of MH 40030 and undertake re-assessment (CCTV) of the main.	\$ 958.10

WWSAC Agenda

4.4 - ATTACHMENT 1

104	34742	78.61	1.5	Private Property	2	Clear private junction of root intrusion at CH 28.37 and install structural liner in private connection line. Monitor as recommended.	\$	4,080.00
108	34772	34.01	1.3	Private Property	1	Remove root intrusion from the main at CH 24.51 and install a structural patch liner to prevent reoccurrence. Monitor as recommended	\$	1,730.00
109	34773	57.60	1.3	Private Property	1	Remove root intrusion from the main at CH 13.68 and install structural patch liner to prevent reoccurrence. Monitor as recommended.	47	1,730.00
110	34774	32.95	1	Private Property	1	Remove root intrusion from the main at CH 2.38 and CH 27.42 and install 2 x structural patch liners to prevent reoccurrence. Monitor as recommended.	47	2,945.00
111	34794	37.48	1.2	Private Property		Undertake cleaning to remove sedient build up in the invert of the main at CH 1.62m. Undertake reassessment (CCTV) of the main. Monitor as recommended.	s	830.00
112	34796	55.32	1.2	Private Property	2	Remove root intrusion from the main at CH 21.29 and install a structural patch liner to prevent reoccurrence. Undertake cleaning of the line to relieve the 50% ponding occuring at CH 54.49. Monitor as recommended.	\$	2,045.00
114	34803	1.57	1.3	Private Property		Isolated excavation to repair broken end of line connection. Monitor as recommended	\$	4,350.00
115	34808	77.54	1.6	Private Property	4	Clear private junction of root intrusion at CH 70.45 and install structural liner in private junction line. Monitor as recommended.	\$	4,080.00
117	34813	56.02	1.2	Private Property	2	Clear private junction of root intrusion at CH 29.05 and install structural patch liner in private junction. Clear main of root intrusion at CH 55.96 and install patch liner to prevent reoccurence. Monitor as recommended.	43	5,295.00
119	35358	43.92	0.9	Private Property	1	Install patch liner at CH 27.01 to prevent gushing infiltration	\$	1,100.00
121	35368	52.75	1.5	Private Property	-	Undertake re-assessment (CCTV) of the main. Monitor as recommended.	s	316.50
124	35382	34.51	1.4	Private Property	1	Clear main of root intrusion at CH 30.67 and install patch liner to prevent reoccurence. Monitor as recommended.	\$	1,730.00
130	35735	46.13	1.2	Private Property		Clear main of obstruction in the invert. Undertake re- assessment (CCTV) of the main. Monitor as recommended.	\$	906.78
139	35767	44.03	1.2	Private Property	2	Clear private junction of root intrusion at CH 21.68 and install structural liner in private connection line. Undertake re- assessment (CCTV) of the main. Monitor as recommended.	Ş	4,344.18
141	35770	12.99	1.2	Private Property	1	Clear main of root intrusion at CH 12.74 and install patch liner to prevent reoccurence. Monitor as recommended.	\$	1,730.00
145	35806	48.43	1	Private Property	2	Clear private junction of obstruction at CH 9.03. Clear main of root intrusion throughout and install structural liner MH to MH. Monitor as recommended.	\$	6,303.00
155	34712	52.30	1.7	Private Property	1	Clear private junction of obstruction at CH 26.73. Monitor as recommended.	s	830.00
161	35646	35.09	1.5	Road Pavement		Heavy cleaning of existing main required to remove build-up. Undertake re-assessment (CCTV) of the main. Monitor as recommended	\$	1,670.54
173	35763	64.49	1.2	Easement	-	Isolated excavation at CH 9.83 to rectify significant radial displacement. Undertake re-assessment (CCTV) of the main. Monitor as recommended	\$	4,736.94
						TOTAL	\$	106,763.90

WWSAC Agenda

## STAFF REPORTS - INFRASTRUCTURE SERVICES



## STAFF REPORTS - INFRASTRUCTURE SERVICES



## STAFF REPORTS - INFRASTRUCTURE SERVICES

4.4 - ATTACHMENT 2



## STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 4.5	Commercial and domestic water resourcing
Directorate:	Infrastructure Services
Report Author:	Chris Larkin, Manager Sustainable Development
File No:	12020/1584

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## Summary:

- 10 The report refers to **Res 20-427**:
  - 1. That Council notes the minutes of the Water, Waste and Sewer Advisory Committee Meeting held on 30 July 2020.
- 15 2. That with regard to Report No. 4.2 Effects of water mining in Byron and surrounding shires on groundwater resources, that point 3 of the Management Recommendation in the minutes be amended to read as follows: That the report be brought to next WWSC and Coastal Estuary Catchment Panel meetings outlining water resourcing both commercial and domestic prior to any changes to the LEP the being undertaken.
- 20

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## **RECOMMENDATION:**

That the Committee note the report.

<sup>3.</sup> That a report also be provided to the next meeting of the WWS committee that clarifies the advice from staff to the WWS Committee held on 30 July 2020 that, under the Byron LEP 2014 water mining for bottled water is not a permitted use in the RU1 and RU2 Zones" in the light of DA 10.2015.102.1 approved in July 2015 under the current BYRON LEP 2014 for a Rural industry (fruit juice production, winery and water bottling facility) at Huonbrook.

4.5

## REPORT

## Water Mining

- 5 Council resolved (20-427 (3))
  - 3. That a report also be provided to the next meeting of the WWS committee that clarifies the advice from staff to the WWS Committee held on 30 July 2020 that, under the Byron LEP 2014 water mining for bottled water is not a permitted use in the RU1 and RU2 Zones" in the light of DA 10.2015.102.1 approved in July 2015 under the current BYRON LEP 2014 for a Rural industry (fruit juice production, winery and water bottling facility) at Huonbrook.
  - The following information is provided to address this resolution.
- 15

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10

Under Byron LEP 2014 water mining for bottled water is not a permitted use in the RU1 and RU2 Zones. In terms of defining the activity it is considered that it fits within the definition of general industry and is an industrial activity.

20 **general industry** means a building or place (other than a heavy industry or light industry) that is used to carry out an industrial activity.

*industrial activity* means the manufacturing, production, assembling, altering, formulating, repairing, renovating, ornamenting, finishing, cleaning, washing, dismantling, transforming, processing, recycling, adapting or servicing of, or the research and development of, any goods, substances, food, products or articles for commercial purposes, and includes any storage or transportation associated with any such activity.

Other definitions of Rural Industry, Extractive Industry or Mining would not apply to the activity due to the manner in which those definitions are drafted.

**Rural industry** means the handling, treating, production, processing, storage or packing of animal or plant agricultural products for commercial purposes, and includes any of the following— (a) agricultural produce industries.

- 35 (b) livestock processing industries,
  - (c) composting facilities and works (including the production of mushroom substrate),
  - (d) sawmill or log processing works,

within the meaning of the Mining Act 1992.

- (e) stock and sale yards,
- (f) the regular servicing or repairing of plant or equipment used for the purposes of a rural
- 40 *enterprise*.

45

**extractive industry** means the winning or removal of extractive materials (otherwise than from a mine) by methods such as excavating, dredging, tunnelling or quarrying, including the storing, stockpiling or processing of extractive materials by methods such as recycling, washing, crushing, sawing or separating, but does not include turf farming.

- extractive material means sand, soil, gravel, rock or similar substances that are not minerals
- 50 **mine** means any place (including any excavation) where an operation is carried on for mining of any mineral by any method and any place on which any mining related work is carried out, but does not include a place used only for extractive industry.

*mining* means mining carried out under the Mining Act 1992 or the recovery of minerals under the Offshore Minerals Act 1999, and includes—

## STAFF REPORTS - INFRASTRUCTURE SERVICES

- a) the construction, operation and decommissioning of associated works, and
- b) the rehabilitation of land affected by mining.

Water is not listed for the purposes of the Mining Act 1992 as a "Mineral".

#### 5

It is noted Tweed Shire Council have amended the Tweed LEP 2014 to permit ground water extraction for commercial purposes under Clause 7.15. The provisions nominate the activity as an industry and limit or enable the activity to only six properties in the Shire. The Byron LEP 2014 has no planning clauses of a similar nature. The clause under the Tweed LEP states:

#### 10

## Tweed Local Environmental Plan 2014

Current version for 29 May 2020 to date (accessed 3 June 2020 at 16:57) Part 7 > Clause 7.15

#### 7.15 Industry-groundwater extraction, etc

- (1) This clause applies to development for the purpose of industry, being a building or place at which groundwater is extracted, handled, treated, processed, stored or packed for commercial purposes.
- (2) Development to which this clause applies is prohibited on land to which this Plan applies, except for the following land-
  - (a) Lot 1, DP 735658, being land at 477 Urliup Road, Urliup,
  - (b) Lots 1 and 2, DP 883113, being land at 2574 Kyogle Road, Kunghur,
  - (c) Lot 121, DP 1111869, being land at 101 Bryens Road, Nobbys Creek,
  - (d) Lot 5, DP 1206755, being land at 10-20 Edwards Lane, Kynnumboon,
  - (e) Lot 1, DP 593157, being land at 64 Geles Road, Upper Burringbar,
  - (f) Lot 3, DP 815475, being land at 350 Rowlands Creek Road, Rowlands Creek.
- (3) Before granting consent to development to which this clause applies, the consent authority must-
  - (a) consider any impact of the proposed development on-
    - (i) natural water systems, and
    - (ii) the potential agricultural use of land, and
    - (iii) groundwater dependent ecosystems, and
  - (b) be satisfied that the proposed development incorporates appropriate measures to avoid, minimise or mitigate any impact set out in paragraph (a).
- Council has previously approved a water bottling plant under DA 10.2011.530.1 at Clunes in 2012.
   The use was considered under Byron LEP 1988 at the time as a permitted use. It has also been brought to Council attention a DA has also been approved at Huonbrook under DA 10.2015.102.1 for a Rural Industry comprising fruit juice production, winery and water bottling facility. The staff assessment report described the development as:-
- 20 The application seeks development consent for the use of an existing shed for the purposes of a fruit juice production, winery and bottling plant. Water is also proposed to be bottled on site.
- The site is presently used for agricultural activities including horticulture (fruit growing) and grazing cattle. Organic tropical fruit from the farm and produce from other local farms is proposed to be juiced or made into wine or cider and bottled within the existing shed structure. Water is to be sourced from a licensed bore on the property is also proposed to be bottled at the proposed facility.
- 30 The applicant has advised that the fruit winery and bottling plant does not involve the public visiting the property. No cellar door service is to be provided. The proposed internal changes

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## STAFF REPORTS - INFRASTRUCTURE SERVICES

to the existing shed include installation of internal partitions for the creation of a cold room, bottling room processing room.

The applicant described the proposal in the following extract as:-

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3.2 The Proposed Development

The planset comprising 3 sheets depicts the site plan, the floor plan and elevations.

#### 3.2.1 Fruit juice and wine

Fruit sourced from the organically certified farm and the wider locality will be processed into fruit juice, cider and wine. Sheet 2 of the planset depicts the layout of the facility. The packing shed will b used for delivery and processing of fruit. A coolroom is to be provided as depicted.

#### 3.2.2 Bottling Plant

d Systems Planning Consultants

The small bottling plant will be installed within the existing rural shed within the bottling room as depicted within Sheet 2. Water from the licenced bore will be bottled in addition to fruit juice, cider and wine.

Particular attention to achieving high levels of sustainability is a characteristic of this facility. For example more expensive equipment is being used such that it

Agricultural Produce Industry – Fruit Winery & Bottling Plant						
52 – 361 Huonbrook Rd, Huonbrook	February 2015	Page 8				

can be steam cleaned rather than use chemicals. Glass will be used rather than

plastic. Solar generated electricity will power the plant.

The staff assessment report considered the proposal to fit within the definition of a rural industry at the time and the following comments provided in terms of permissibility

rob@balancedsystems.com.au

10 The proposed fruit juice production, winery and water bottling plant is considered to fall within the definition of rural industry and is therefore permissible with Consent within the RU2 zone.

Whether this is a correct interpretation of the planning controls would be a matter for consideration by the Court if the approval was ever challenged under Section 9.455 of the EPA Act 1979 for a Breach of the Act.

Not withstanding, any future application which included elements of water mining and bottling would be rigorously reviewed in terms of permissibility, and based on the interpretation above, it is considered that such an activity is prohibited in the RU1 and RU2 Zones. Council can however

20 seek to draft an LEP amendment and forward a Planning proposal to the Department of Planning for Gateway Determination to clarify the matter and to plainly identify that water mining and water bottling is a prohibited activity within Byron shire.