

## **5.6. WATER AND WASTEWATER QUARTERLY REPORT FOR PERIOD ENDING 30 JUNE 2020**

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**DEPARTMENT** Water and Wastewater

**MANAGER** Mark Stoermer, Chief Executive Officer

### **RECOMMENDATION**

**It is recommended that the Quarterly Report of the Water and Wastewater Department for the period ending 30 June 2020 be received and noted.**

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### **EXECUTIVE SUMMARY**

This report documents progress on key operational and service delivery areas as well as the Regulatory compliance status within the Water and Wastewater Department for the period 01 April to 30 June 2020.

With moderate rainfall and slightly reduced demand in some area the results are generally positive for quarter. Notable capital improvements in water include, the completion of Mowbray River Road water main renewal, water treatment plant instrument process control renewal program and the Daintree water treatment plant backup generator structural renewal. In Wastewater, a new crossover road was built for the delivery of leachate and an outfall flow meter pit installed at the Port Douglas Wastewater Treatment Plant. Construction of a lime dosing shed at Mossman Wastewater Treatment Plant was also completed.

### **BACKGROUND**

This report is the fourth Quarterly Report submitted by the Water and Wastewater Department during the 2019/2020 Financial Year. This report highlights progress against key performance areas required by the Department of Natural Resources, Mines and Energy (DNRME) and required compliance levels by the Department of Environment and Science (DES).

### **COMMENT**

This report enables Councillors and the community to obtain a strategic view of activities within the Water and Wastewater Department.

The Quarterly Report documents progress on key operational and service delivery aspects and regulatory compliance levels.

The Water and Wastewater Quarterly Report does not include comprehensive progress reporting in terms of the Capital Works Programs, Operational Plan and financial statements as these are dealt with in separate Quarterly Reports to Council.

### **FINANCIAL/RESOURCE IMPLICATIONS**

Failure to comply with required standards and to respond quickly and effectively to water and wastewater incidents may result in harm to the community and substantial penalties.

## RISK MANAGEMENT IMPLICATIONS

Council as a registered water service provider has a statutory obligation to ensure it is able to provide water and wastewater services to customers. Council's reputation would suffer if it is unable to maintain service levels at prescribed standards. This Quarterly Water and Wastewater report provides information on strategies implemented by the Water and Wastewater Department to minimise occupational health and safety risks and risks to Council infrastructure.

## SUSTAINABILITY IMPLICATIONS

**Economic:** It is essential to adequately maintain water and wastewater infrastructure in order to provide satisfactory services in support of economic development in the Shire.

**Environmental:** Failing to provide adequate and compliant water and wastewater services can lead to environmental harm and breaching of licence conditions.

**Social:** The Community expects fully operational and compliant water and wastewater services.

## CORPORATE/OPERATIONAL PLAN, POLICY REFERENCE

This report has been prepared in accordance with the following:

### Corporate Plan 2019-2024 Initiatives:

#### Theme 3 - Leading Environmental Stewardship

**Goal 3 -** *We will continue to build water infrastructure so that the Douglas Shire may enjoy water security and water quality.*

**Goal 4 -** *We will partner with the community to educate and monitor.*

#### Theme 5 - Robust Governance and Efficient Service Delivery

**Goal 3 -** *We will make sound financial decisions by ensuring robust strategic planning, financial management and reporting.*

### Operational Plan 2019-2020 Actions:

**3.3.1 -** *Continue upgrades to sewer network.*

**3.3.2 -** *Implement smart meters for water trial.*

**3.3.3 -** *Complete improvements to the Daintree water intake.*

## COUNCIL'S ROLE

Council can play a number of different roles in certain circumstances and it is important to be clear about which role is appropriate for a specific purpose or circumstance. The implementation of actions will be a collective effort and Council's involvement will vary from information only through to full responsibility for delivery.

The following areas outline where Council has a clear responsibility to act:

**Builder/Owner** Council makes a significant investment every year in the infrastructure that underpins the Shire through its capital works program. Council will manage its assets with appropriate frameworks and deliver its projects through robust project management.

**Regulator** Council has a number of statutory obligations detailed in numerous regulations and legislative Acts. Council also makes local laws to ensure that the Shire is well governed. In fulfilling its role as regulator, Council will utilise an outcomes based approach that balances the needs of the community with social and natural justice.

## CONSULTATION

**Internal:** Nil

**External:** Water and wastewater quality parameters are tested by an accredited laboratory and test results and service levels are required to be reported to DNRME and DES.

**Community:** Nil

## ATTACHMENTS

1. Water and Wastewater Quarterly Report for the period ending 30 June 2020 [5.6.1 - 19 pages]

## 1 April to 30 June 2020

The aim of the Water and Wastewater Quarterly Report is to inform Councillors and the community on the progress of key operational and service delivery areas as well as regulatory compliance status within the Water and Wastewater Department.

The Water and Wastewater quarterly report does not include comprehensive progress reporting in terms of Capital Works or Operational Plan; these are dealt with in separate quarterly reports to Council.

This report highlights certain aspects of the activities of the Water and Wastewater Department that are industry benchmark indicators as well as key performance areas and compliance monitoring parameters as required by the Department of Natural Resources, Mines and Energy (DNRME) and the Department of Environment and Science (DES).

### Water

#### 1. Water reticulation services

General maintenance was carried out on all schemes for this quarter including all intakes. Hydrant and valve maintenance was performed two days each week to identify their locations, ensure accessibility and attend to any maintenance issues. The water reticulation team continued recording the number of water service renewals and Dial Before You Dig service locations (DBYD). There were 35 new water service renewals and 214 DBYD in this reporting period. Water service renewals are replacing water services which have reached their life expectancy and are at risk of failing. Providing DBYD service locations on council infrastructure assists in preventing damage and disruption to water, sewer and drainage services within the Douglas Shire. Water flushing programs were implemented due to the maintenance and functionality of hydrants, water quality complaints that related to aesthetic issues and for maintaining acceptable chlorine residuals within the schemes. Response/reaction time for all water reticulation incidents was within the customer service standards. See table 1 showing results on water reticulation maintenance activities across all schemes.

Regular reservoir and pump station checks and intake maintenance was performed on all three schemes.

**Table 1. Water reticulation services maintenance activities undertaken across all schemes**

<b>Douglas Shire Reticulation (all schemes)</b>	
Settlement Meter Reads	61
New Water Services Connections	4
Service Repairs	143
Water Mains Repairs	9
Water service renewals	35
Water Quality Notifications (Complaints)	4(0)
Dial before you dig	214
Flushing Events: Mossman/Port Douglas/Cooya/ Newell	14
Flushing Events: Whyanbeel/Wonga	6
Flushing Events: Daintree	11

There were four water quality notifications during the reporting period. All water quality notifications were handled under customer service standards. Issues were rectified by investigating the situation, testing the water quality and flushing of the reticulation system.

Water and Wastewater team views all water quality notifications and complaints seriously and endeavour to achieve outcomes where customer satisfaction is priority.

Table 2 below details the nature of the notification, how it was resolved and the response time. All water quality parameters measured were within the health guideline limits in the Australian Drinking Water Guidelines (ADWG).

**Table 2. Water Quality Notifications**

Address	CRM No & Date	Nature of water complaint	How it was resolved	Response Time
Kalu Close, Bonnie Doon	85200/2020 18/06/2020	Tap water was cloudy	Water main was flushed and water quality tested. Results were compliant, internal water issue. Customer satisfied with the outcome.	15 mins
Marlin Drive, Wonga Beach	84395/2020 28/05/2020	Tap water was milky	Air in water main, water main flushed. Customer was happy with the outcome.	30 mins
Bonnie Doon Road, Bonnie Doon	82582/2020 06/04/2020	Tap water was milky and had an odour	Water main was flushed and water quality tested. All results were compliant. Advised customer to consider flushing their private water main as it is 270m in length from the water meter. Customer advised to contact Council for any further issues.	15 mins
Rutherford Road, MIALLO	82498/2020 03/04/2020	Tap water was milky	Water main was flushed and water quality tested. Results were compliant, customer satisfied with the outcome.	15 mins

The 2019/2020 capital works programme for water quality and reticulation has progressed well in this reporting period, with most projects completed and under budget. Completed projects include the Mowbray River Road water main renewal, instrument process control renewal program, assessment upgrade of the RTU and SCADA software, SCADA/PLC equipment renewals and the Daintree water treatment plant generator set structural renewal.

### **Water schemes and potable water consumption**

In this reporting period, water consumption remained steady within Port Douglas and Mossman residential and commercial areas. Welcome winter rains came early in April, May and June to maintain a favourable water level at the Rex Creek intake. In June 2020, emergent works were performed to repair a major water leak within the Mossman water network at Newell Beach. The water leak commenced in December 2019 as a slow leak, due to wet season effects the leak was very difficult to locate as it was under the bed of a creek and took a few months to find. Once located at the start of this reporting period planning the difficult repair commenced with environmental factors a major consideration. Negotiations occurred





*Image 1 & 2: Wastewater and Water staff in training*

**Mossman/Port Douglas Scheme**

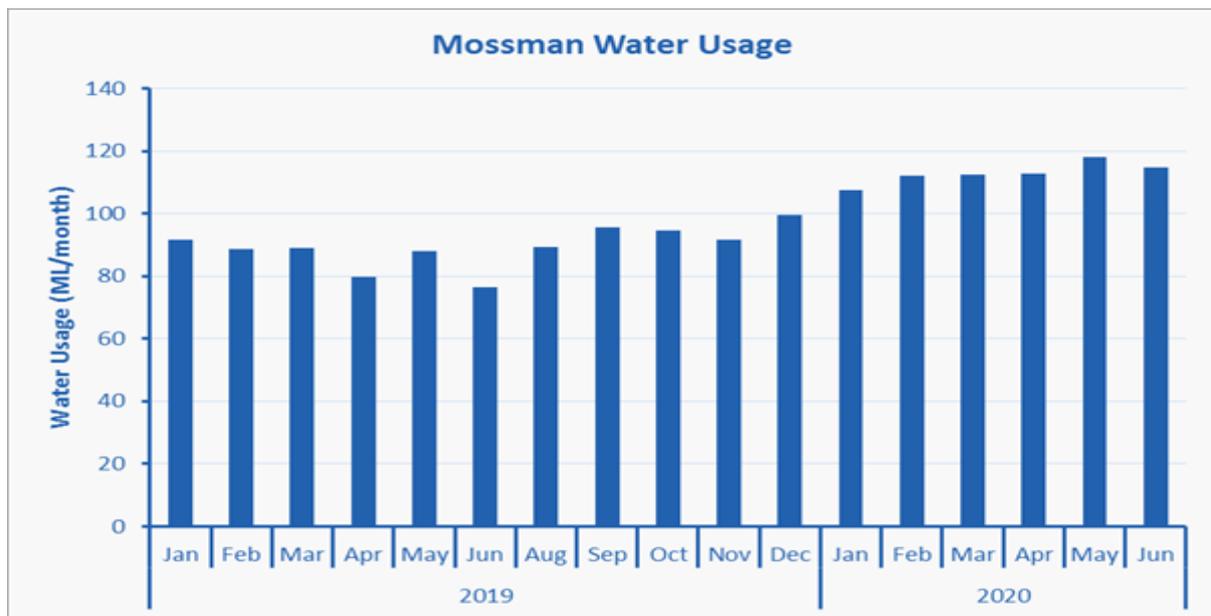
All Ultra Filtration (UF) racks were operational and maintenance works continued with cartridge repairs to ensure compliance with UF rack integrity test limits. To maintain UF filter efficiency, clean-in-place operations were undertaken as well as all general service works, routine inspections and maintenance within the Mossman/Port Douglas Scheme.

Mossman water treatment plant met all consumer demand requirements throughout this reporting period.

There were no water quality reportable incidents in the Mossman water scheme within this reporting period. High levels volumes of water were maintained in all reservoirs in the Mossman/Port Douglas Scheme with the exception of Craiglie reservoir, which is currently offline to allow capital project works to continue. This reservoir is expected to be back online in September 2020.

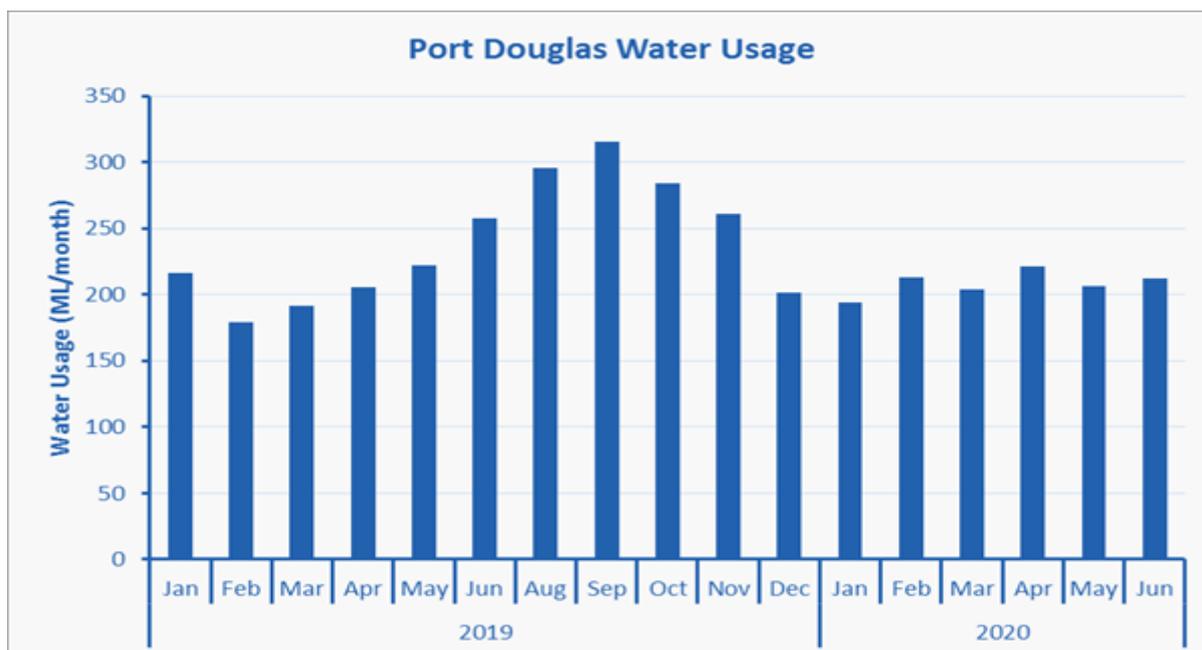
**Mossman Water Supply**

The total monthly consumption of water in Mossman, Cooya Beach and Newell Beach areas can be seen in Figure 2.



**Fig 2. Mossman Scheme Total Monthly Consumption Figures**

**Port Douglas Water Supply**



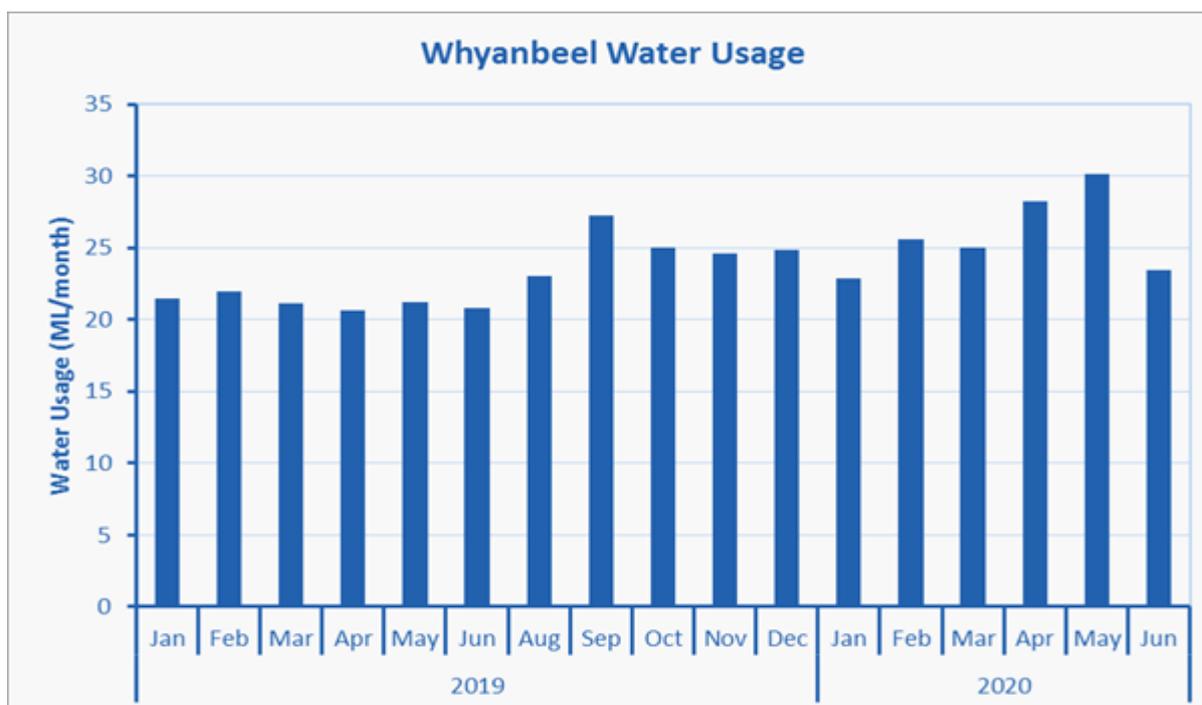
**Fig 3. Port Douglas Scheme Total Monthly Consumption Figures**

**Whyanbeel Scheme**

Whyanbeel Water Treatment Plant met all demand requirements during the reporting period.

The UF rack was operational during the reporting period. To maintain UF filter efficiency chemical clean-in-place operations were undertaken, general service and maintenance works continued to maintain efficient operation of the plant.

There were no water quality reportable incidents in the Whyanbeel water scheme for the reporting period.



**Fig 4. Whyanbeel Scheme Total Monthly Consumption Figures**

Daintree Water Treatment Plant met all demand requirements during the reporting period.

To maintain UF filter efficiency chemical clean-in-place operations were undertaken and general maintenance and service works continued to maintain efficient operation of the plant.

There were no water quality reportable incidents in the Daintree water scheme for the reporting period.

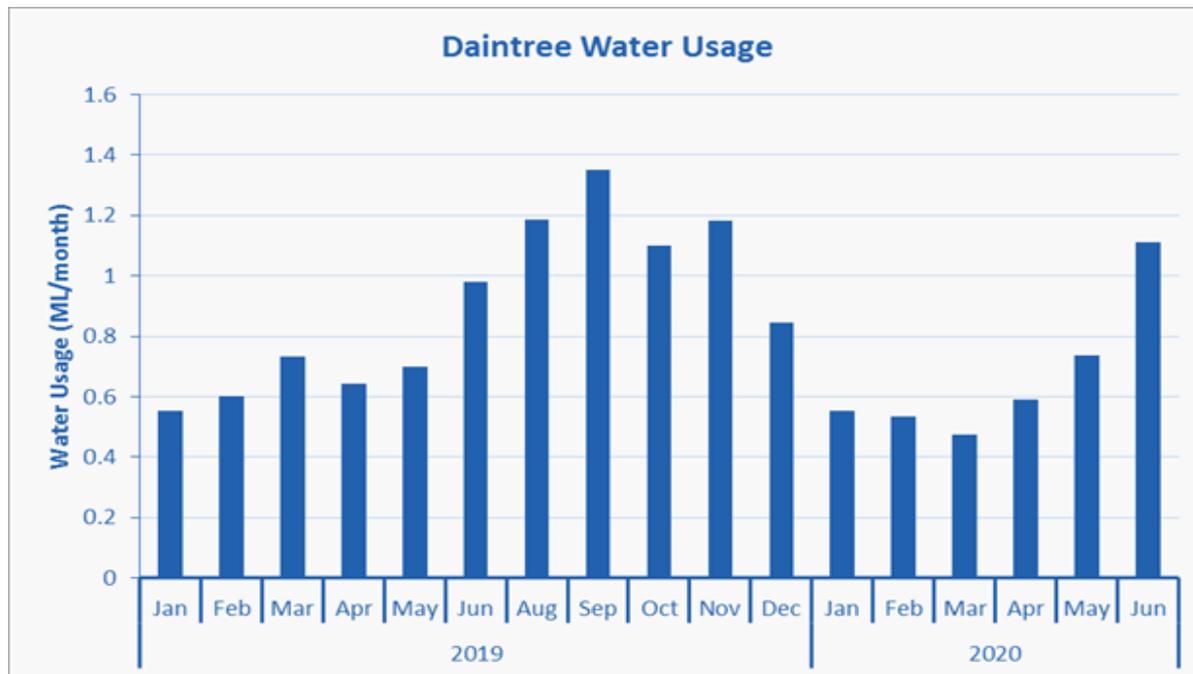


Fig 5. Daintree Scheme Total Monthly Consumption Figures

## 2. Water quality monitoring and results

Drinking water sampling occurs at intakes, reservoirs and in the reticulation network to ensure compliance with the ADWG.

Water quality verification monitoring includes regular testing of individual reticulation zones with monthly sampling at the reservoirs. Supporting programs for the verification of drinking water quality include;

- Water treatment plants and reservoirs that have SCADA alarms for action and critical limits and are operated under critical control points;
- Reservoir inspections that are done regularly to ensure that the reservoirs are intact and that any points of ingress are repaired; and
- Network operations that have a flushing program that ensures the chlorine residual is above 0.2 mg/L.

For the reporting period, a total of 74 treated water E.coli compliance samples were taken in the three drinking water schemes. A total of 30 E.coli samples were tested in the Douglas water laboratory and 44 in a NATA accredited laboratory. Other parameters monitored allow the Water and Wastewater Department to observe trends in water quality through the schemes. All tested parameters in drinking water samples during the reporting period were compliant with ADWG health guideline values and standards required by the Water Supply Regulator and Queensland Health.

Attachment 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

### Mossman/Port Douglas Supply Scheme

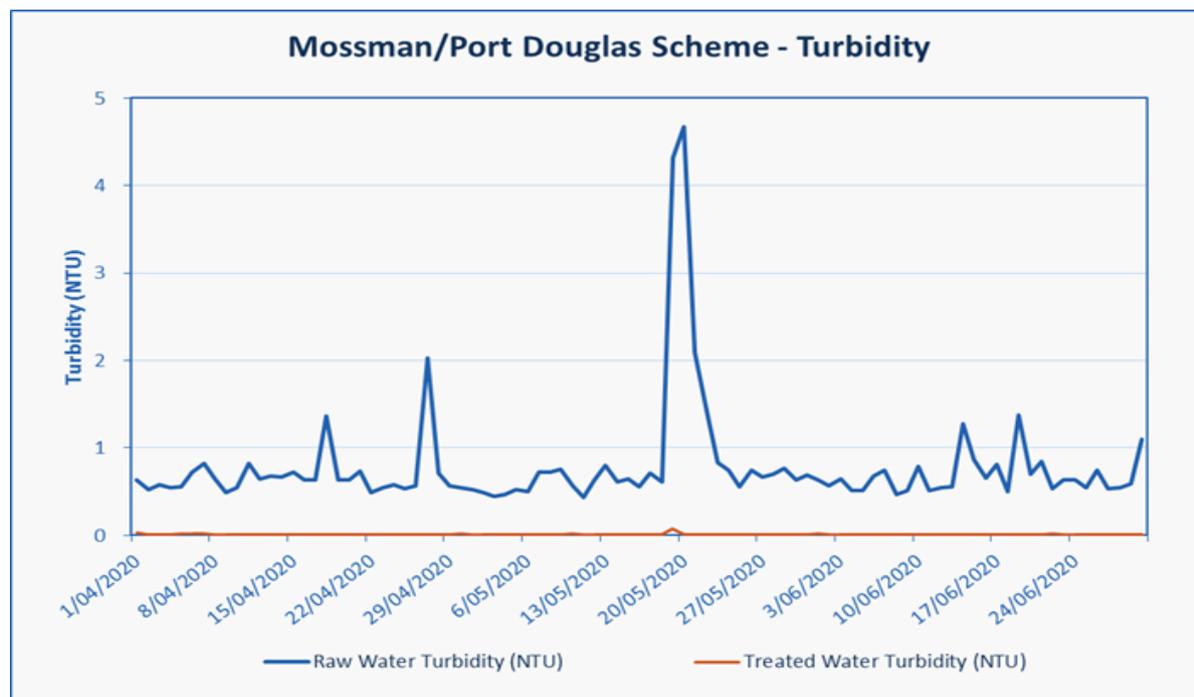
Average monthly values for key operational and compliance parameters are detailed in Tables 3 and 4 for treated water at Port Douglas Reservoirs and Port Douglas/Mossman Reticulation network respectively. Figure 6 indicates the daily turbidity trends at the intake and treated water as recorded at the Mossman Water Treatment Plant for the period April to June 2020.

**Table 3. Average monthly values for key operational and compliance parameters in the Port Douglas Reservoirs.**

Month	pH	Temp °C	Total Alkalinity mg CaCO3/L	Free Cl mg/L	Total Cl mg/L	E.coli MPN
Standard	6.5 - 8.5	10 - 30	0 - 200	0.2 - 5.0	<5	<1
Apr-20	7.5	27.5	7.95	1.1	1.1	<1
May-20	7.1	23.6	6.8	1	1.1	<1
Jun-20	7.3	23.7	6.25	1	1.1	<1

**Table 4. Average monthly values for key operational and compliance parameters in the Mossman/Port Douglas Reticulation Network.**

Month	pH	Temp °C	Free Cl mg/L	Total Cl mg/L	Colour PCU	Cu mg/L	Fe mg/L	Mn mg/L	E.coli MPN
Standard	6.5 - 8.5	10 - 30	0.2 - 5.0	<5	<15	<1	<0.3	<0.1	<1
Apr-20	7.2	27.5	0.7	0.8	<1	0.01	0.009	<0.0002	<1
May-20	6.9	25	0.7	0.8	<1	0.013	<0.008	<0.0002	<1
Jun-20	7	24.4	0.8	0.9	<1	0.009	<0.008	<0.0002	<1



**Fig 6. Turbidity trends at the Rex Creek intake and treated water at the Mossman Water Treatment Plant**

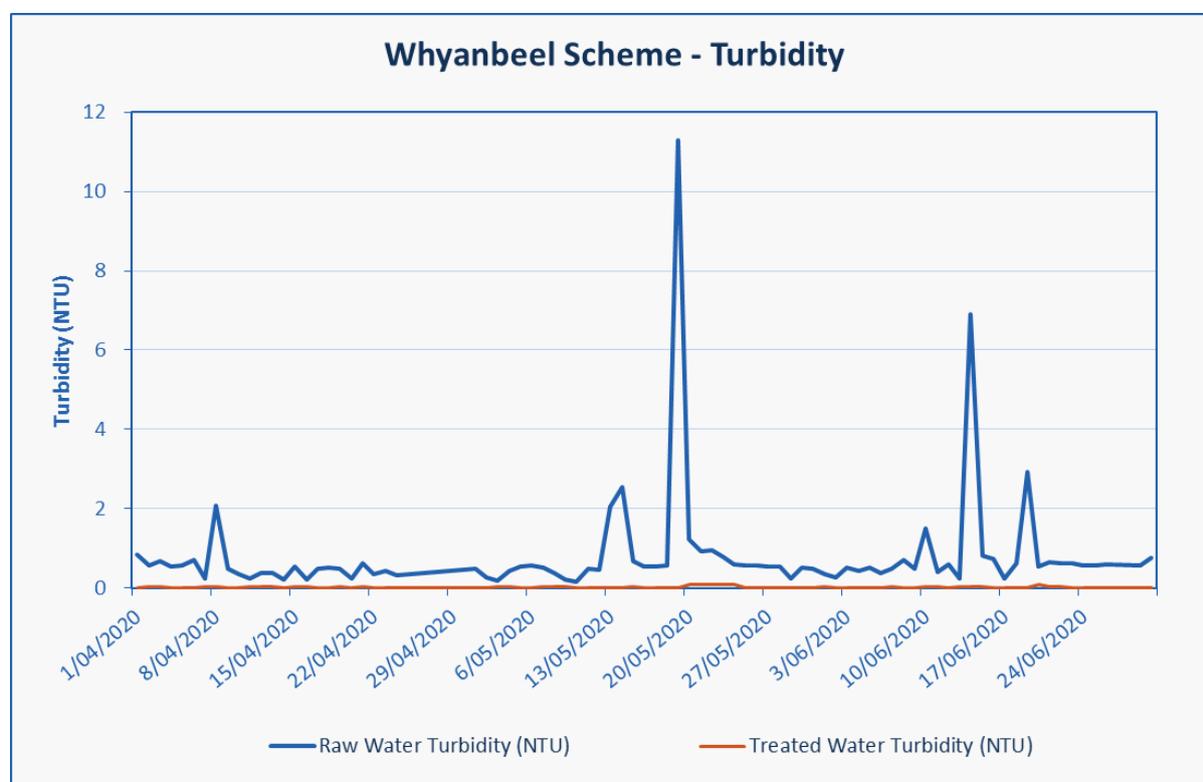
Average monthly values for key operational and compliance parameters are detailed in Tables 5 and 6 for treated water at the Whyanbeel Reservoir and Whyanbeel Reticulation Network respectively. Figure 7 indicates the daily turbidity trends at the intake and treated water as recorded at the Whyanbeel Water Treatment Plant for the period April to June 2020.

**Table 5. Average monthly values for key operational and compliance parameters in the Whyanbeel Reservoir.**

Month	pH	Temp °C	Total Alkalinity mg CaCO <sub>3</sub> /L	Free Cl mg/L	Total Cl mg/L	E.coli MPN
Standard	6.5 - 8.5	10 - 30	0 - 200	0.2 - 5.0	<5	<1
Apr-20	8	28.1	13	0.8	0.9	<1
May-20	7.8	26.2	11	0.8	0.9	<1
Jun-20	7.9	24.3	11	1	1.1	<1

**Table 6. Average monthly values for key operational and compliance parameters in the Whyanbeel Reticulation Network.**

Month	pH	Temp °C	Free Cl mg/L	Total Cl mg/L	Colour PCU	Cu mg/L	Fe mg/L	Mn mg/L	E.coli MPN
Standard	6.5 - 8.5	10 - 30	0.2 - 5.0	<5	<15	<1	<0.3	<0.1	<1
Apr-20	7.9	28	0.8	0.9	<1	0.002	0.016	0.0004	<1
May-20	7.8	26.2	0.7	0.8	<1	0.0025	0.01	0.0003	<1
Jun-20	7.8	25.2	0.8	0.9	<1	0.003	0.01	<0.0005	<1

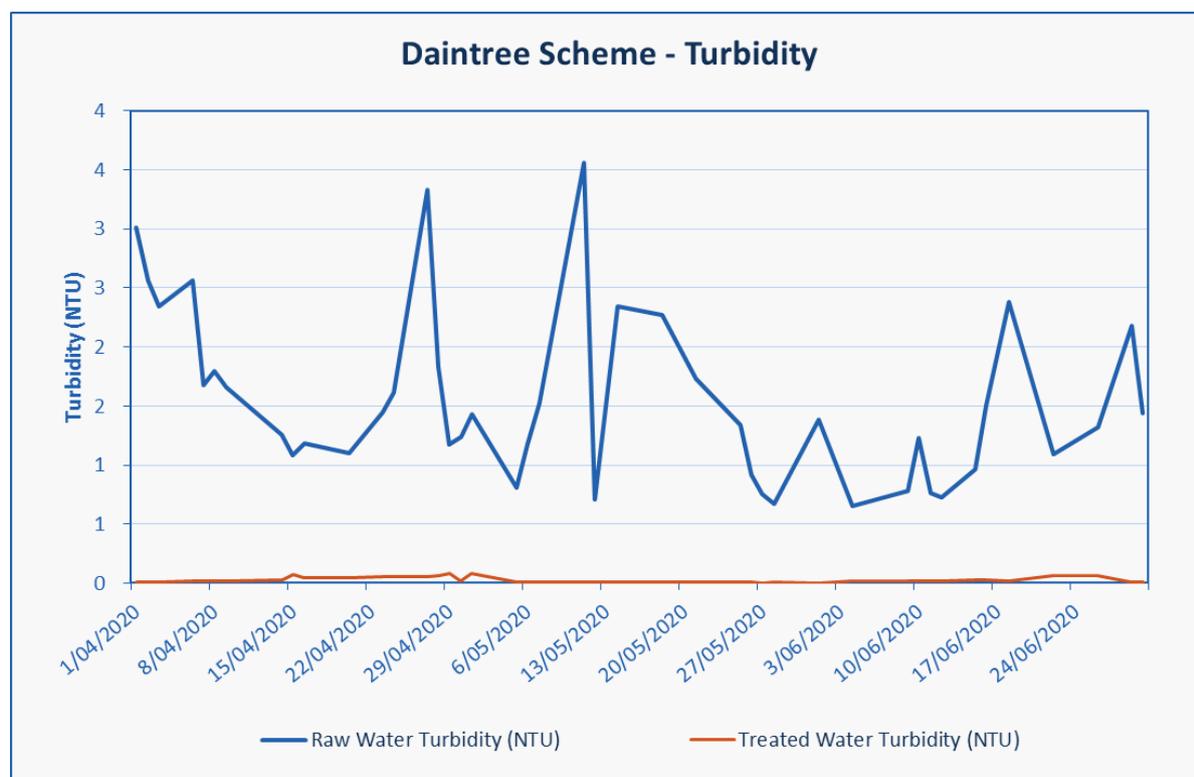


**Fig 7. Turbidity trends at the Little Falls Creek intake and treated water at the Whyanbeel Water Treatment Plant.**

Average monthly values for key operational and compliance parameters are detailed in Table 7 for treated water at Daintree Reticulation network. Daintree reticulation network experienced some low chlorine events due to low water usage within the network. Low chlorine results initiated a flushing program, which reduce water age and elevated the chlorine concentration to prescribed levels. Figure 8 indicates the daily turbidity trends at the intake and treated water as recorded at the Daintree water treatment plant for the period April to June 2020.

**Table 8. Average monthly values for key operational and compliance parameters in the Daintree Reticulation Network.**

Month	pH	Temp °C	Free Cl mg/L	Total Cl mg/L	Colour PCU	Cu mg/L	Fe mg/L	Mn mg/L	E.coli MPN
Standard	6.5 - 8.5	10 - 30	0.2 - 5.0	<5	<15	<1	<0.3	<0.1	<1
Apr-20	8.2	26.8	0.1	0.1	<1	0.003	0.009	0.0002	<1
May-20	8.3	25.3	0.3	0.3	<1	0.002	0.013	0.0003	<1
Jun-20	8.5	23.9	0.4	0.5	<1	0.003	0.015	0.0003	<1



**Fig 8. Turbidity trends at the Intake/Martin Creek intake and treated water at the Daintree Water Treatment Plant.**

## Wastewater

### 3. Wastewater reticulation services

General maintenance programs continued on the reticulation networks and 32 pump stations in the Mossman and Port Douglas catchments. Wastewater Treatment Plants operated within license requirements throughout this period. In this quarter, the completed 2019/2020 wastewater capital works projects include a new crossover road for the delivery of leachate at the Port Douglas Wastewater Treatment Plant, wastewater pump renewals and the outfall flow

meter pit. The Mossman Wastewater Treatment Plant lime dosing equipment and shed is delayed due to COVID-19, it is expected to be completed by the end of July 2020. The lime dosing shed will protect the supplies from the elements with a stand installed for easy forklift access to limit manual handling.

Table 8 below shows the number of maintenance activities undertaken across all schemes.

	<b>Port Douglas Catchment</b>	<b>Mossman Catchment</b>
Pump Blockages	7	5
Sewer Chokes	2	0
Sewer Main Breaks	0	0
HCB Repairs (House Connection Branch)	1	1
Odour Complaints	0	1

**Table 8. Wastewater Reticulation Services**

## **Influent and irrigation flows**

### **Port Douglas Wastewater Treatment Plant**

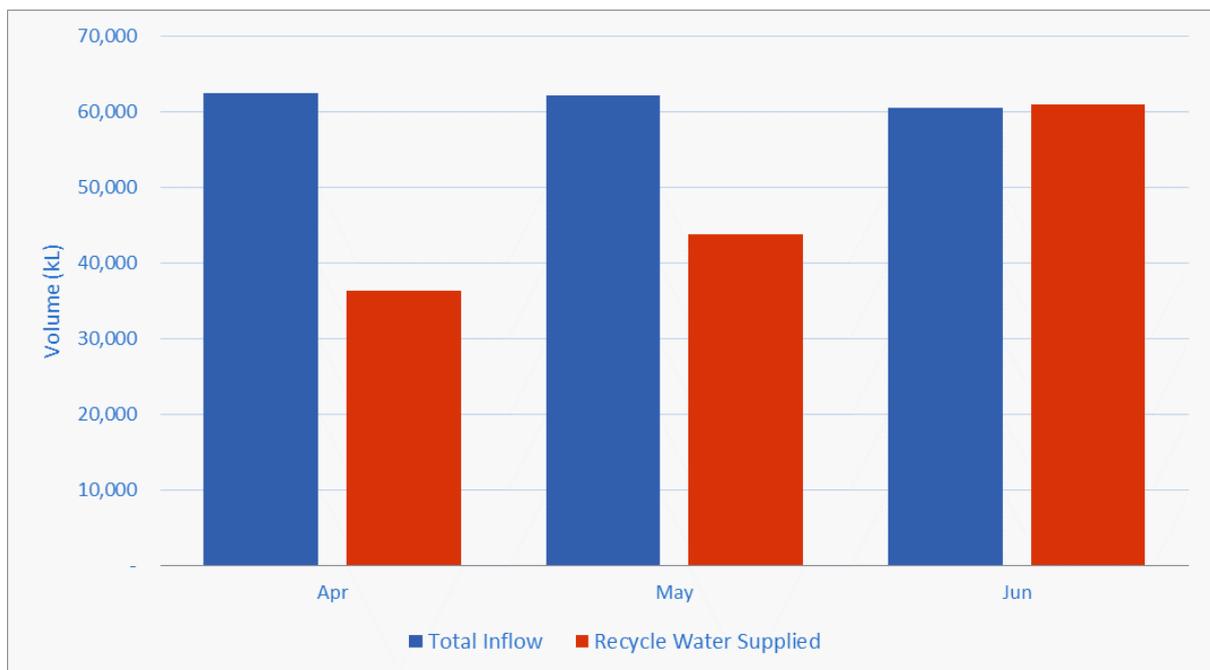
A total of 185,034 kl of influent entered the Port Douglas Wastewater Treatment Plant during the reporting period. The average daily flow was 2,033 kl/day. Tanker truck contractors delivered 597 kl of septage to the plant and 1,200 kl of Leachate from the Killaloe Landfill and Transfer Station. Influent is treated in a Sequencing Batch Reactor (SBR) which produced compliant effluent during the reporting period. A total of 84% of the treated effluent was pumped to two resort golf courses for irrigation purposes and the remaining discharged into the Dickson Inlet. Total rainfall on site during the reporting period was measured as 240.50 mm. On 21 May 2020, the highest rainfall on a day was recorded as 80 mm at Port Douglas Wastewater Treatment Plant.

The effects of COVID-19 created cost savings for the council within the operational process at the Port Douglas Wastewater Treatment Plant. The plant averaged 1,316 kL less sewer inflow per day during this reporting period. With less sewer inflow creates less growth of bacteria, which significantly reduces biosolids production. The plant produced 222.80 tonne less biosolids during the reporting period compared to the same period in 2019. The power usage at the plant reduced by an average of 807 Kw per day plus the cost savings of \$16,253.26 for carting biosolids to farms for reuse.

Daily inflows and total monthly flows for the reporting period are presented in Fig 9 and 10 respectively.



**Fig 9. Port Douglas Daily Inflow**

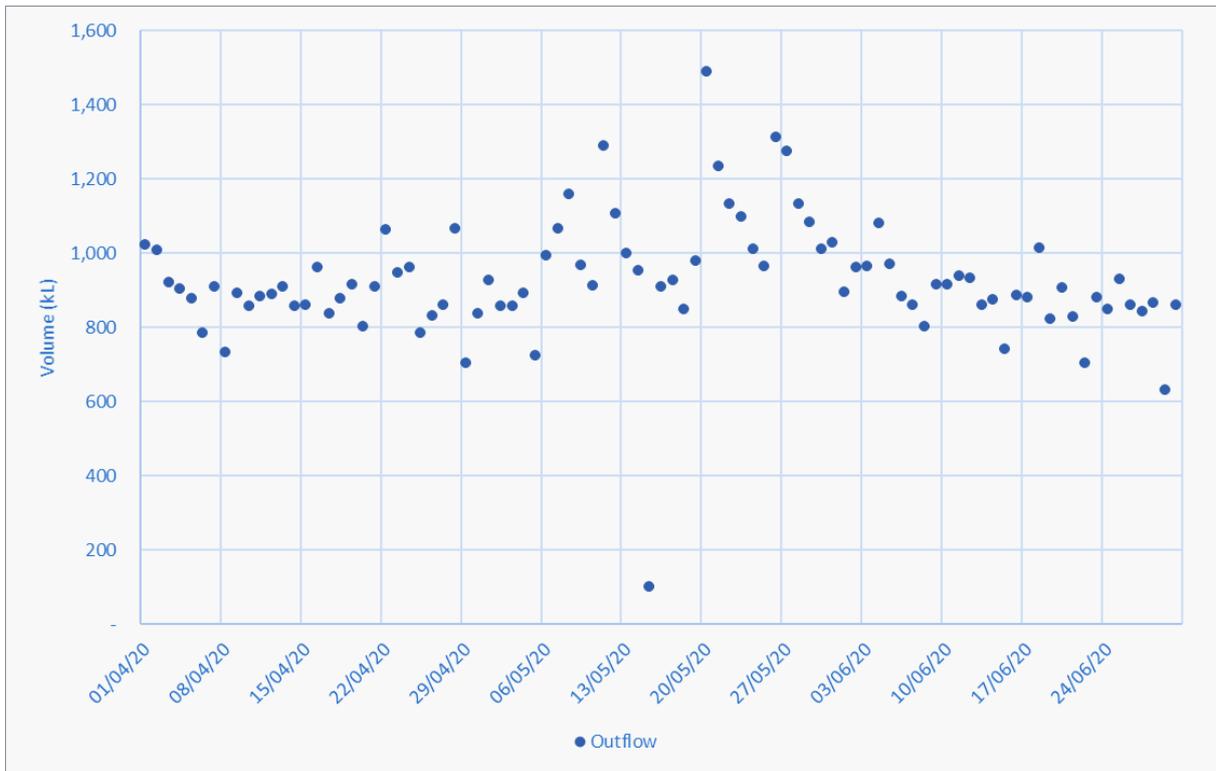


**Fig 10. Port Douglas Total Monthly Flow 2020**

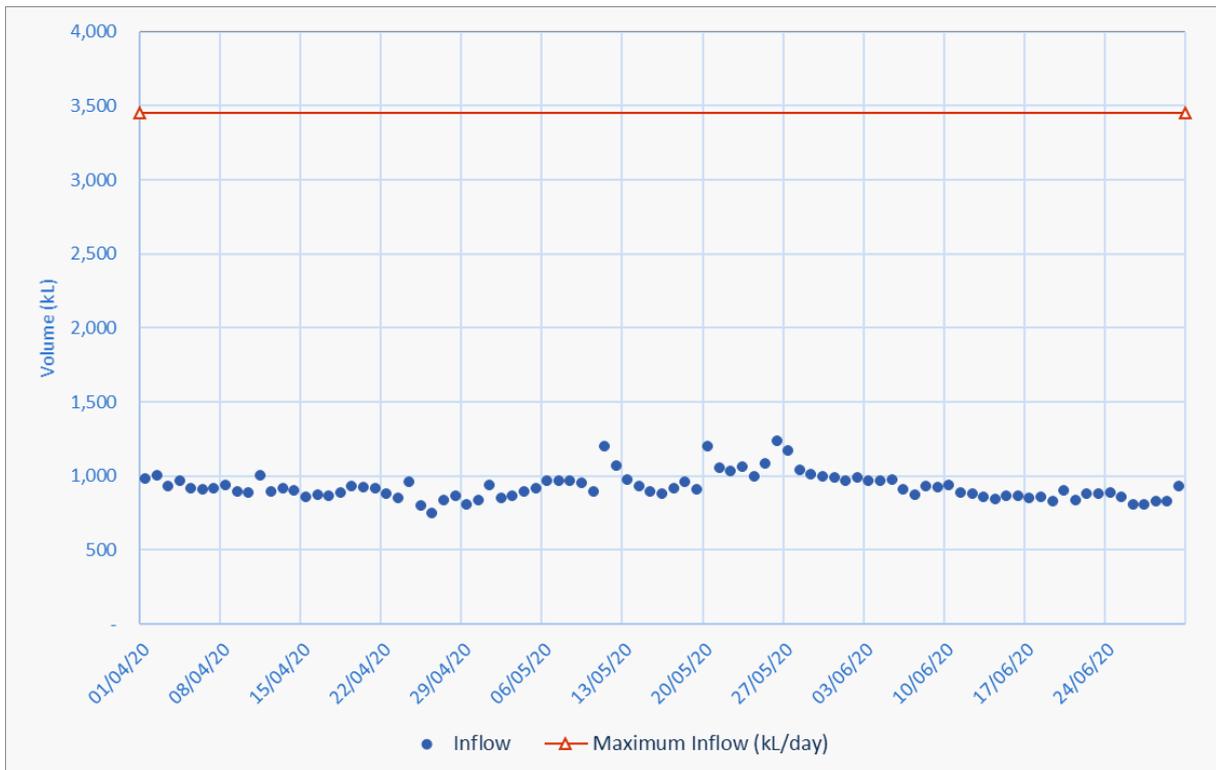
**Mossman Wastewater Treatment Plant**

The Mossman Wastewater Treatment Plant received a total influent flow of 84,193 kl during the reporting period. The average daily flow was 925 kl/day. Influent is treated in an Oxidation Ditch system and compliant effluent is discharged into the Mossman River. A total of 288 mm of rain fell on site for the reporting period with the highest daily rainfall measured at 62 mm on 21 May 2020 at Mossman Wastewater Treatment Plant.

Outflow and Inflow data for the reporting period are shown in Fig 11 and 12 respectively.



**Fig 11. Mossman Wastewater Treatment Plant Daily Outflow**



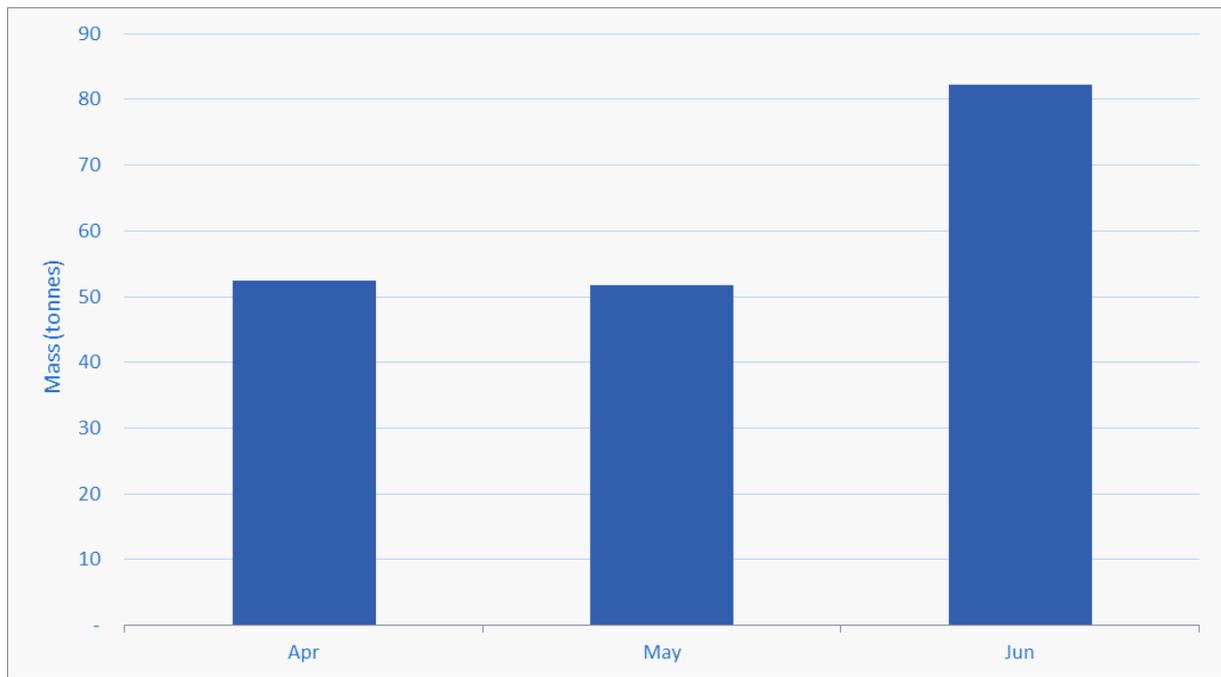
**Fig 12. Mossman Wastewater Treatment Plant Total Daily Inflow 2020**

Bio-solids were only produced at the dewatering plants at Port Douglas Wastewater Treatment Plant (12.2% solids) this quarter and Mossman Wastewater Plant (11.9% solids). Bio-solids were transported by Arkwood Organics to Edmonton Farms, Tablelands Regional Farms and Spring Mount Waste Facility for further treatment and beneficial land application as organic fertiliser and soil conditioner.

**Port Douglas Wastewater Treatment Plant**

At Port Douglas Wastewater Treatment Plant, 186.23 tonnes of wet bio-solids were produced during the reporting period and sent to farms for beneficial reuse. This amount of wet bio-solids equates to 22.79 dry tonnes.

The monthly bio-solids production trends can be seen in Figure 13.

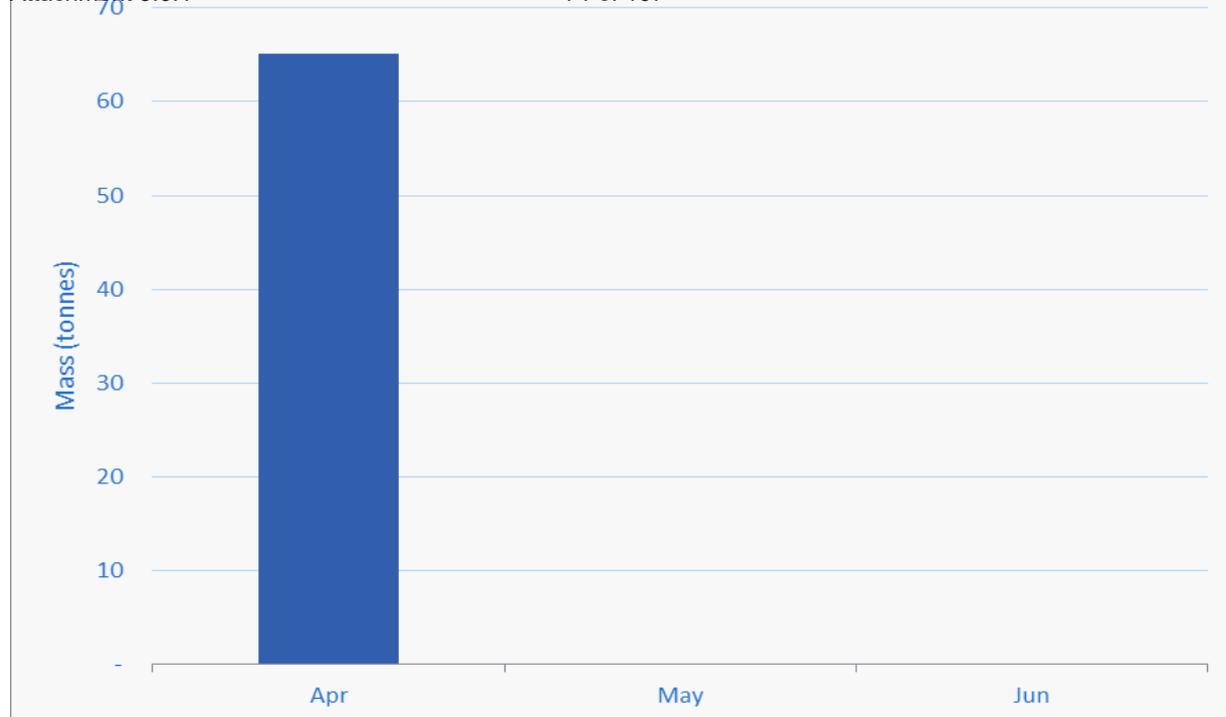


**Fig 13. Port Douglas Wastewater Treatment Plant monthly bio-solids production 2020**

**Mossman Wastewater Treatment Plant**

At Mossman Wastewater Treatment Plant, 65.12 tonnes of wet bio-solids was produced during the reporting period and sent to farms for beneficial reuse. This amount of wet bio-solids equates to 7.74 dry tonnes.

The monthly bio-solids production trends can be seen in Figure 14.



**Fig 14. Mossman Wastewater Treatment Plant monthly bio-solids production 2020**

### Effluent quality and compliance

During the reporting period compliance sampling was performed as per EPPR01790513 license conditions, see Table 9.

**Table 9. Monitoring of contaminant releases to waters as per Environmental Authority EPPR01790513**

Characteristics Determination	PDWWTP Frequency	MWWTP Frequency
5-day Biochemical Oxygen Demand	weekly	fortnightly
Suspended Solids	weekly	fortnightly
pH	weekly	weekly
Dissolved Oxygen	weekly	weekly
Ammonia Nitrogen	fortnightly	fortnightly
Total Nitrogen	fortnightly	fortnightly
Total Phosphorus as P	fortnightly	fortnightly
Oil and Grease	fortnightly	fortnightly
Faecal Coliforms (Organisms/100ml)	fortnightly	fortnightly
Free residual chlorine	-	fortnightly

Additionally, more samples are taken from the treatment processes, bio-solids, receiving waters and bores. Samples are tested by a NATA accredited laboratory for physical, chemical and microbiological parameters. All parameters tested during the reporting period from the Port Douglas and Mossman wastewater treatment plants were compliant.

The process and compliance is monitored each day by in-house analyses of samples at the wastewater treatment plants. Process settings, effluent quality, flow rates, pump stations performance and maintenance aspects are monitored and controlled with SCADA Citect via an extensive Telemetry network.

The results for final effluent key licence compliance parameters (Ammonia, Total Phosphorous, Total Suspended Solids, BOD<sub>5</sub> & Total Nitrogen) are shown in Figure 15, 16, 17, 18 & 19.

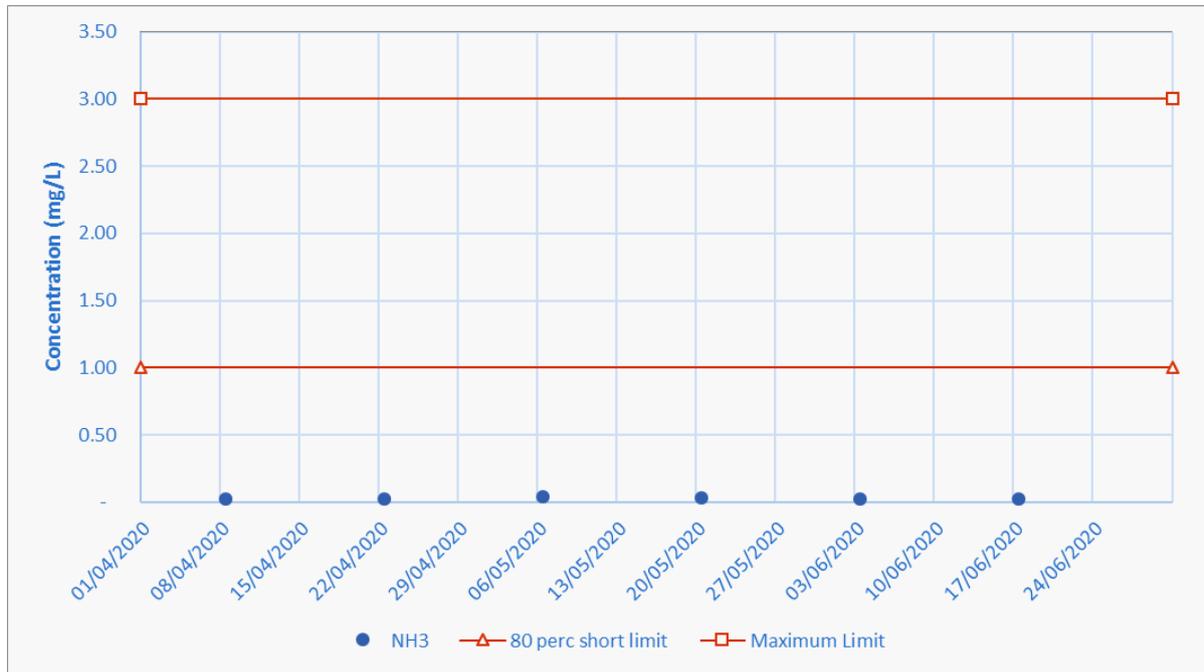


Fig 15. Port Douglas Wastewater Treatment Plant Final Effluent Test Results for Ammonia

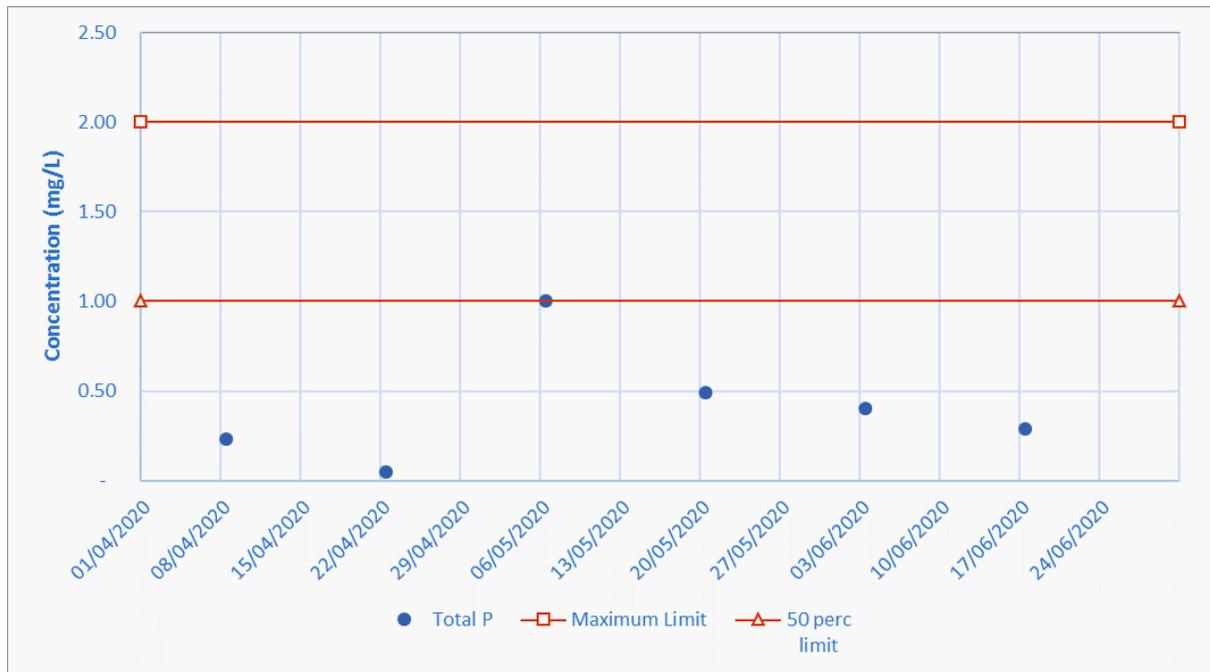
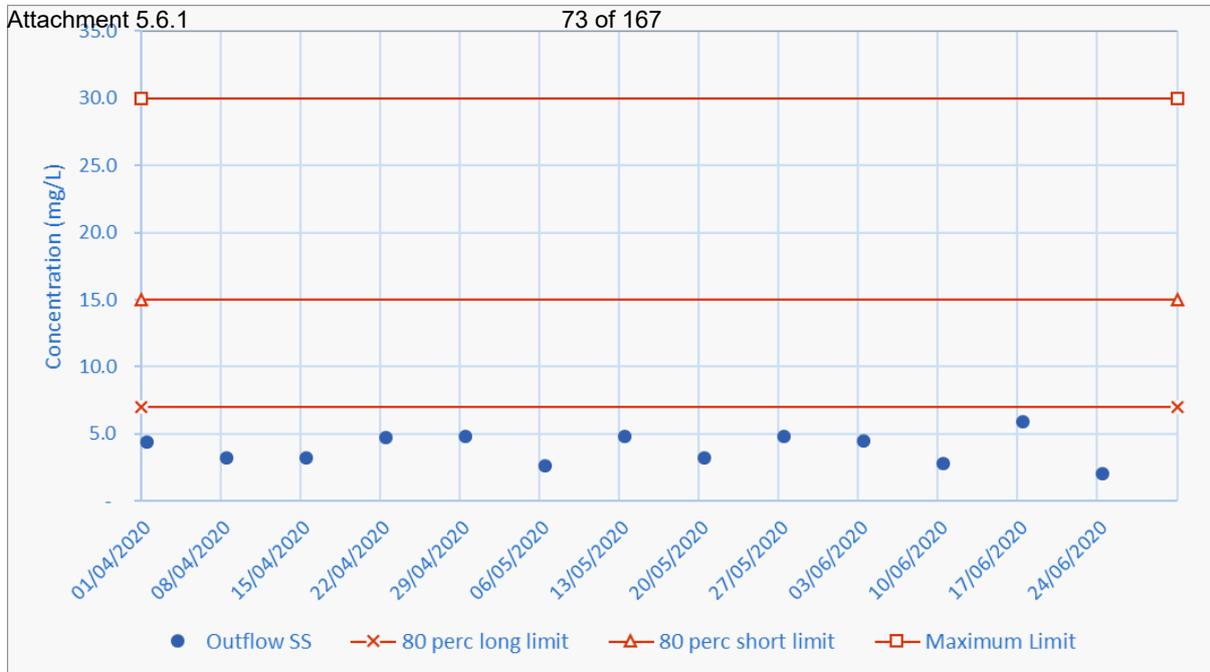
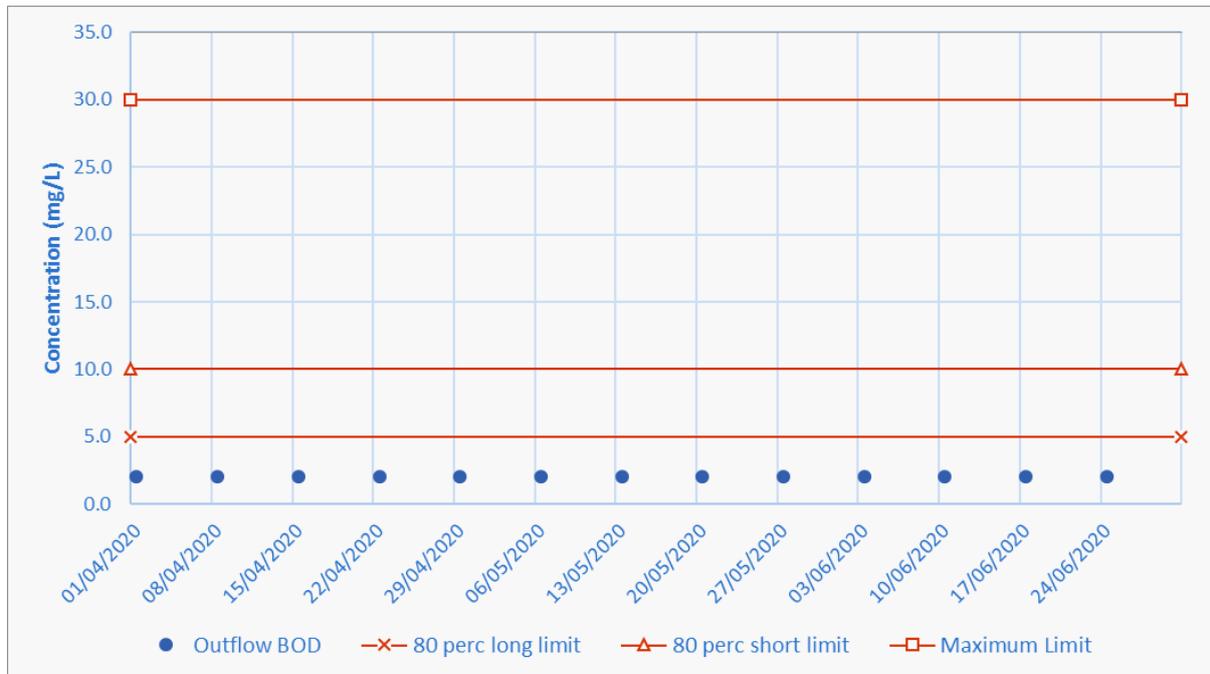


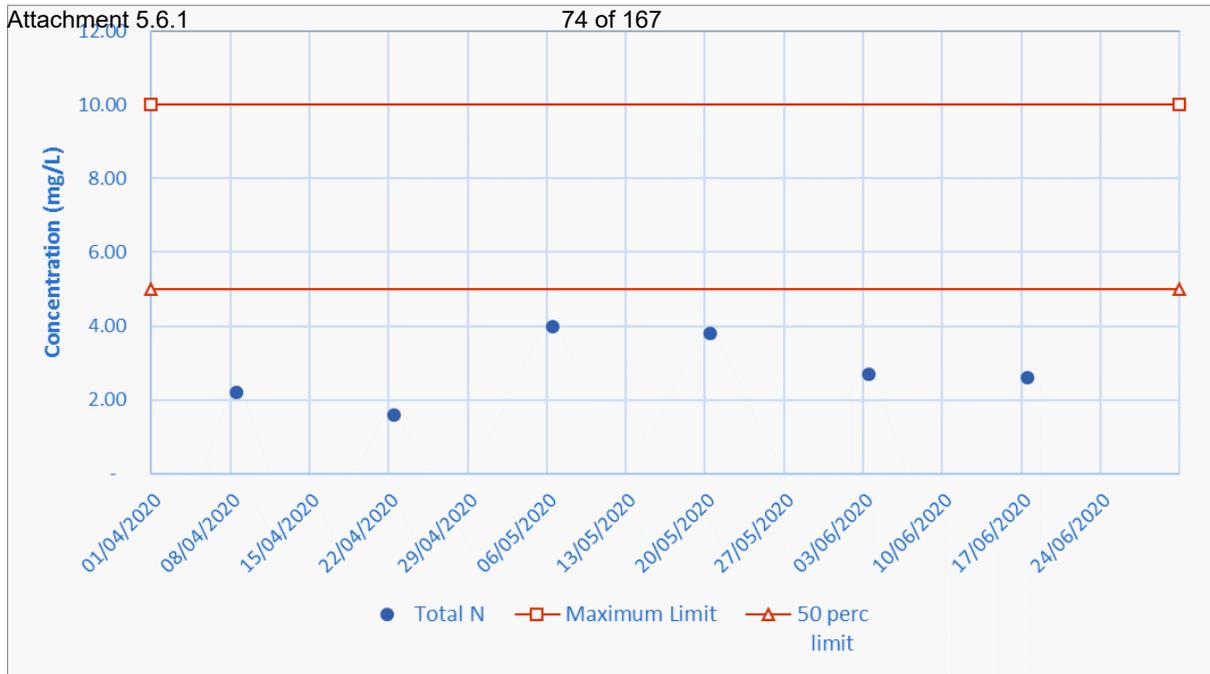
Fig 16. Port Douglas Wastewater Treatment Plant Final Effluent Test Results for Total Phosphorous



**Fig 17. Port Douglas Wastewater Treatment Plant Final Effluent Test Results for Total Suspended Solids**



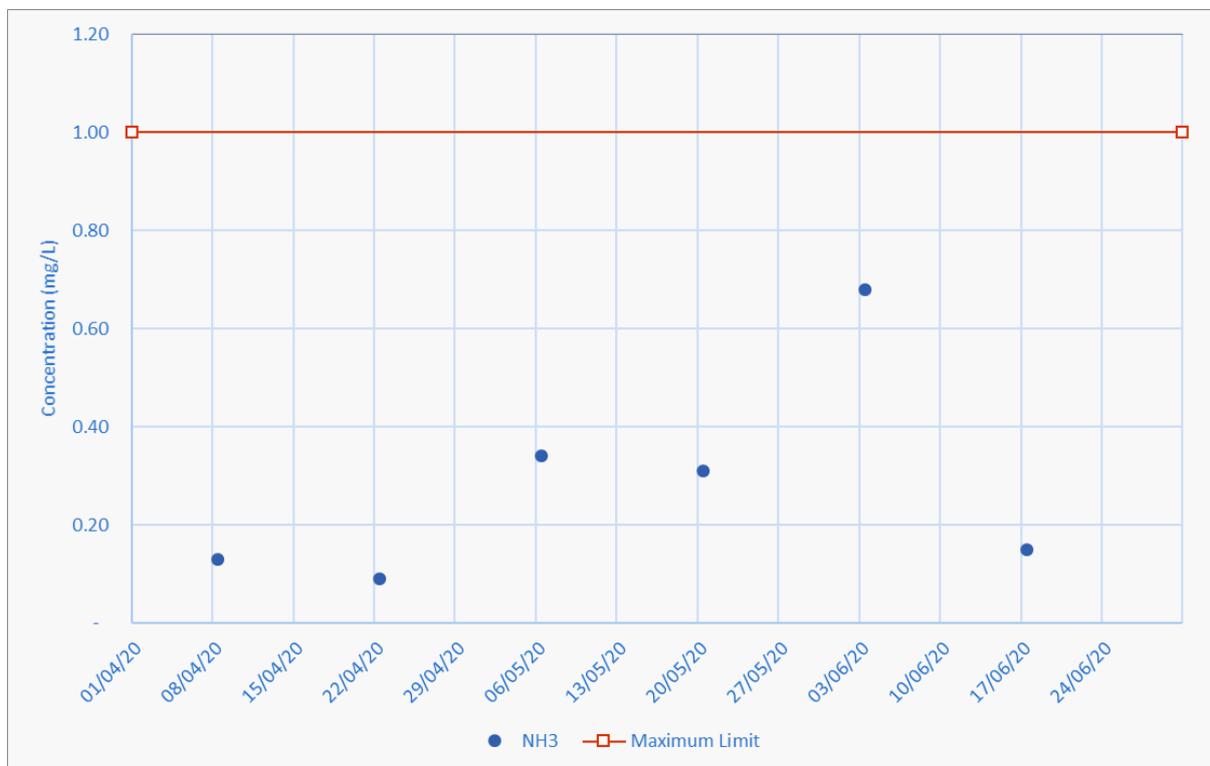
**Fig 18. Port Douglas Wastewater Treatment Plant Final Effluent Test Results for BOD<sub>5</sub> (Biochemical Oxygen Demand)**



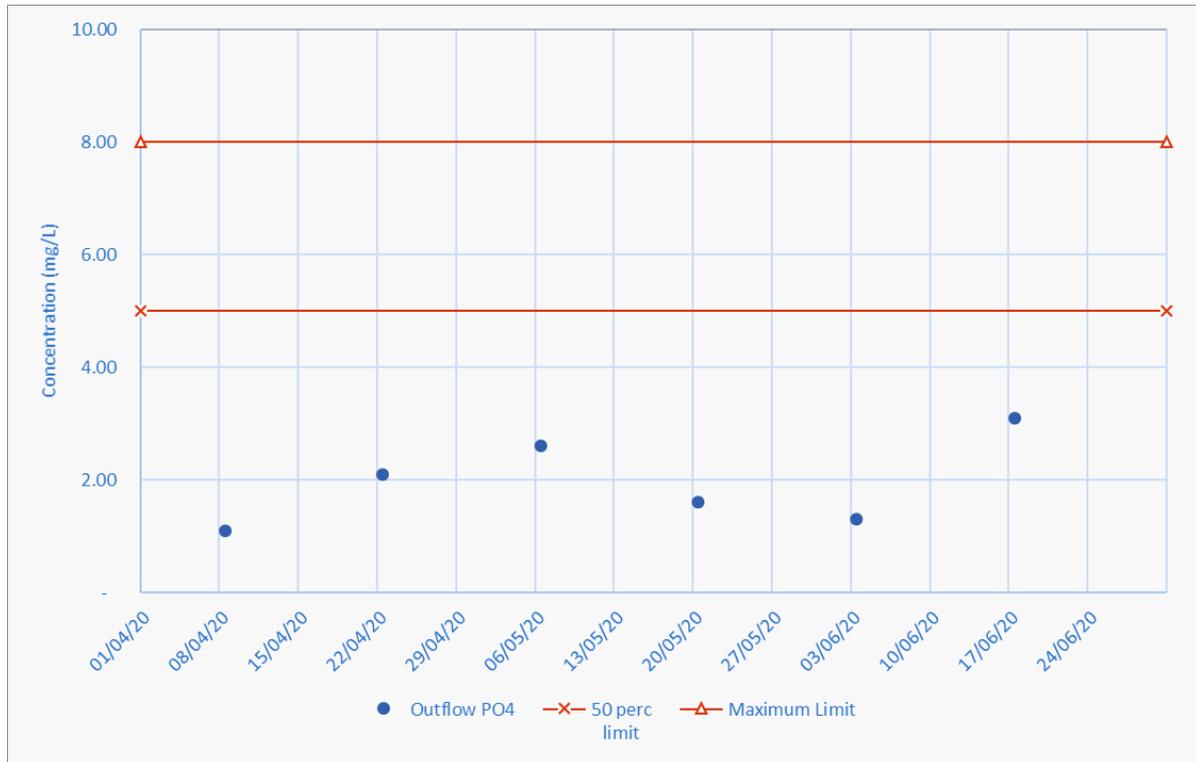
**Fig 19. Port Douglas Wastewater Treatment Plant Final Effluent Test Results for total Nitrogen**

**Mossman Wastewater Treatment Plant**

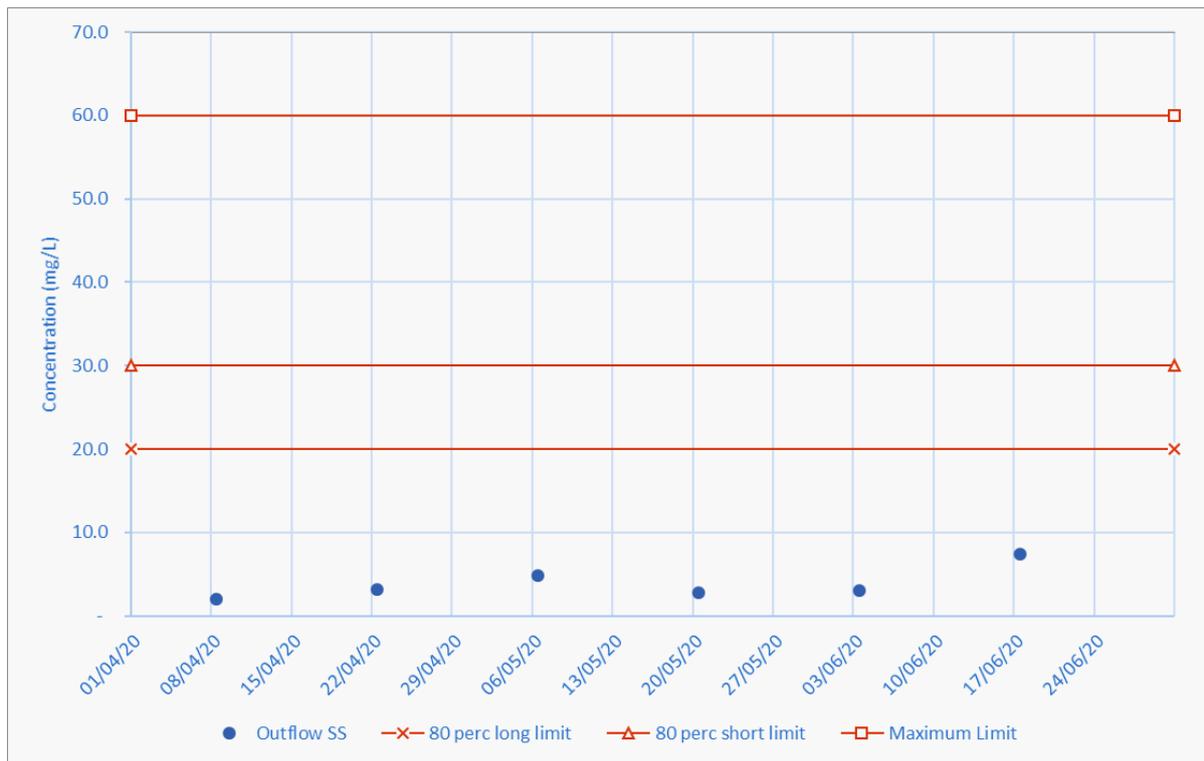
The results for final effluent key licence compliance parameters (Ammonia, Total Phosphorous, Total Suspended Solids, BOD<sub>5</sub> & Total Nitrogen) are shown in Figures 20, 21, 22, 23 & 24.



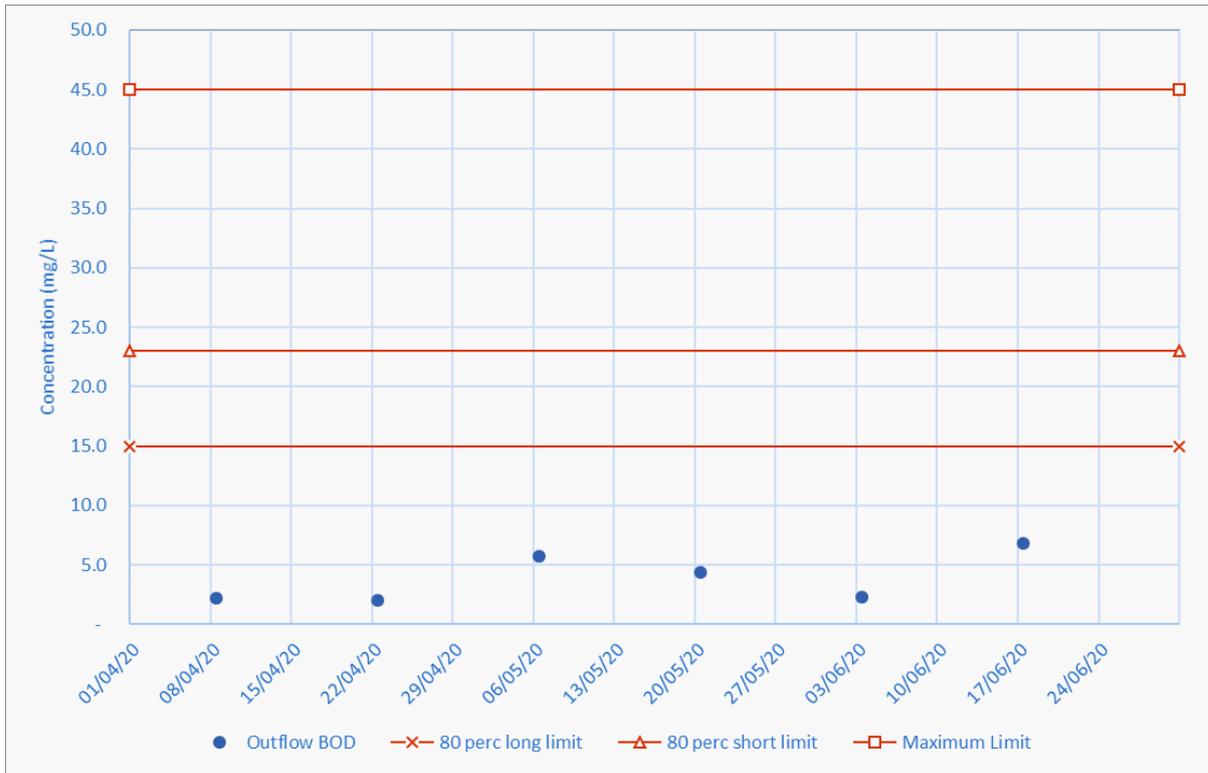
**Fig 20. Mossman Wastewater Treatment Plant Final Effluent Test Results for Ammonia**



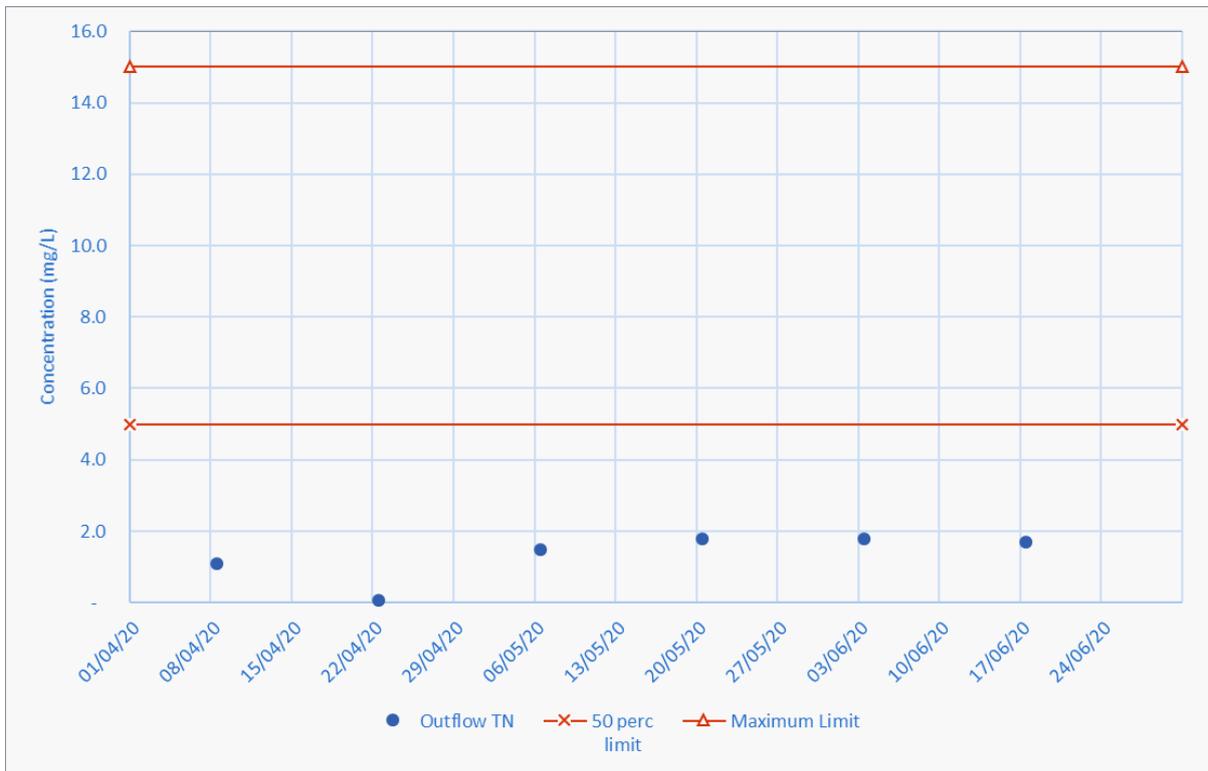
**Fig 21. Mossman WWTP Final Effluent Test Results for Total Phosphorous**



**Fig 22. Mossman WWTP Final Effluent Test Results for Total Suspended Solids**



**Fig 23. Mossman Wastewater Treatment Plant Final Effluent Test Results for BOD<sub>5</sub> (Biochemical Oxygen Demand)**



**Fig 24. Mossman Wastewater Treatment Plant Final Effluent Test Results for total Nitrogen**