

Gladstone Regional Council 1770 Low Pressure Sewer Options & Costs Review

February 2018

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## 1. Introduction

#### 1.1 Background

Gladstone Regional Council currently provides a sewerage service to the Township of Seventeen Seventy (1770). The existing system comprising a conventional gravity system that was originally established to service approximately 30 lots, and a low pressure collection network that was more recently constructed in approximately 2012. The low pressure system currently services in the order of 70 properties, with forecast implementation to cater for up to 99 in total. Collected sewage from 1770 is pumped to the Agnes Water Sewage Treatment Plant (STP) for treatment and effluent disposal.

The implementation of a low pressure sewerage system at 1770 followed previous options assessments commissioned by Miriam Vale Shire Council, including a study by GHD in 2005. The 2005 investigation evaluated conventional gravity reticulation, common effluent drainage system, vacuum sewerage and low pressure sewerage networks. The investigation identified a low pressure system as preferred on the basis of cost, land acquisitions, environmental and social impacts.

Notwithstanding, Council has received complaints from some property owners in regards to performance of the low pressure units and the costs associated with maintaining the units. GHD has been engaged to review a number of operation and maintenance models for the existing low pressure sewer system as well as the offer to abandon the existing low pressure sewerage system and installation of a conventional gravity system.

#### 1.2 Purpose of this report

The purpose of this report is to:

- Review the feasibility of a gravity sewerage system at 1770 and develop high level costs for this option (Capex and Opex)
- Review Council developed spreadsheets of low pressure system operational and capital replacement/upgrade costs for various low pressure sewerage operational scenarios (6 no.)
- Develop a combined Net Present Value (NPV) analysis of the above options
- Provide commentary of the above financial analysis as well as additional constraints and opportunities of the 1770 sewerage conveyance options, so as to assist Council and the community in decisions moving forward for servicing the community.

#### 1.3 Scope and limitations

This report: has been prepared by GHD for Gladstone Regional Council and may only be used and relied on by Gladstone Regional Council for the purpose agreed between GHD and the Gladstone Regional Council.

GHD otherwise disclaims responsibility to any person other than Gladstone Regional Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible. The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has prepared this report on the basis of information provided by Gladstone Regional Council and

others who provided information to GHD, which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

The Cost Estimate has been prepared for the purpose of comparison between options and must not be used for any other purpose. The Cost Estimate is a preliminary estimate only. Actual prices, costs and other variables may be different to those used to prepare the Cost Estimate and may change.

#### 2.1 Sewerage Infrastructure

The town of 1770 is currently serviced by a combination of conventional gravity (approx. 30 lots) and low pressure (approx. 70 lots) sewerage systems. Collected sewage is conveyed through to Agnes Waters for treatment.

The roll out of low pressure units has occurred since 2012, with the approximate number of annual installations undertaken and forecast provided in the following table, as advised by Council.

Year	Low Pressure Units Installed	Cumulative Operational Low Pressure Units
2012	10	10
2013	12	22
2014	12	34
2015	18	52
2016	6	58
2017	10	68
2018	9	77
2019	3	80
2020	3	83
2021	4	87
2022	3	90
2023	3	93
2024	3	96
2025	3	99

Table 1 Overview of Scheduled 1770 Low Pressure Sewerage Installations

The low pressure sewerage units installed are Twin Stage Centrifugal OGP pumps (~1.8 L/s, 1.5 kW) installed in a 1,100 L moulded polyethylene chamber. These units were selected on the basis of suitability and robustness for high sand ingress risk. The electrical control panels installed were the Aquatec oneSMART models. Appendix A provided further details of the currently installed Aquatec low pressure units and controllers.

The above low pressure installation data has been used as a basis for cost estimation provided in this report for both historic installation (eg. for renewals) and forecast installation (eg. future capital expenditure).

It is possible that additional connections beyond 99 may occur post year 2025, however restriction of development due to appropriate land tenure/geography in the study area is likely to limit significant development.

Figure 1 provides an overview of the existing 1770 sewerage system including overview of the extent of existing low pressure and gravity systems.











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## 3. Sewerage Options

Council requested that the following sewerage system scenarios be investigated as part of this project:

- Option 1 Status Quo (property owners Operate and Maintain (O&M) infrastructure located within property boundary ie. Low pressure sewerage pump station). Council maintains and operates infrastructure outside of the property boundary (ie. bulk collection network).
- Option 2 Property owners retain responsibility for O&M infrastructure located within property, however Council repair/replace faulty pumps provided they have seen more than 5 years of service since installation. Council will continue to operate and maintain infrastructure outside of property boundary.
- Option 3 Property owners retain responsibility for O&M infrastructure located within property, however Council will repair/replace any faulty pumps provided they have seen more than 10 years of service since installation. Council will continue to operate and maintain infrastructure outside of property boundary.
- Option 4 Council to take over O&M of the existing low pressure sewer systems. Scenario includes provision for easements (to facilitate access for O&M service), Council funded annual pump out and annual O&M callout/inspection. This option has provision for Council to repair/replace any faulty pumps provided they have seen more than 10 years of service since installation.
- Option 4B Council take over O&M of the existing low pressure sewer system with Remote Monitoring technology fitted to the pump unit electrical control system. Scenario includes provision for easements (to facilitate access for O&M service), Council funded annual pump out and annual O&M callout/inspection. However unlike Option 4, in which 100% of units is subject to pump out/callout, in Option 4B, Council call outs for maintenance of pumps and wet wells is reduced (by two thirds) on the assumption that ability to remotely monitor the systems will reduce Council's service intervention. This option has provision for Council to repair/replace any faulty pumps provided they have seen more than 10 years of service since installation.
- Option 5 Council replace existing low pressure sewerage system holistically with a new gravity sewerage collection network.

Options 1, 2, 3, 4 and 4 B focus on the replacement of mechanical and electrical components of the low pressure sewerage pump station only. That is, no allowance for replacement of pump well civils or pipework (local and trunk delivery).

The gravity sewerage option has been evaluated on the basis of a high level concept design undertaken as part of this investigation. This design included evaluation of potential Equivalent Population (EP) loads to the network, which influenced infrastructure sizing in accordance with the Capricorn Municipal Development Guidelines (CMDG).

A more detailed overview of the details and key assumptions of the above, including basis for cost evaluation, is provided in the following sections.

#### 3.1 Option 1 – Status Quo

This option represented the existing scenario in which the property owner owns and operates the low pressure sewerage system to the property boundary. Council intervene as required for the first year (effectively warranty period), thereafter the equipment is the responsibility of the property owner in regards to the operation and maintenance of the facility (including electricity, which is estimated to typically be in the order of \$20/yr). The customer is responsible after one year for the repair / replacement of equipment as required.

Council maintains and operates infrastructure outside of the property boundary (ie. bulk collection network).

This scenario is similar to the gravity systems in that the property owner is responsible for all sewerage infrastructure within the property, and Council is responsible for infrastructure outside of the property

In this scenario, Council is responsible for the scheduled installation and warranty period for the new low pressure units identified in the growth projections of Table 1 (ie. approx. 30 additional units)

#### 3.2 Option 2 – Property owners retain responsibility for O&M of Low Pressure Systems, Council repair/replace faulty pumps provided > 5 years of service

Option 2 is as per Option 1 and the existing scenario, however Council take responsibility for the repair/replacement of the Customer owned low pressure pump station, providing the unit has reached at least 5 years of service. For context, the pump specification sheet outlines an expected operational lifespan of 20 years.

No allowance for electrical control box or PLC is made in this scenario.

This option assumes that Council pays for installation of new scheduled connections (as per Table 1, plus the replacement costs of new units that reach 5 years of age as per scheduled installation defined in Table 1.

Council maintains and operates infrastructure outside of the property boundary (ie. bulk collection network).

#### 3.3 Option 3 – Property owners retain responsibility for O&M of Low Pressure Systems, Council repair/replace faulty pumps provided > 10 years of service

Option 3 is as per Option 2, however Council is obligated to replace/repair faulty low pressure pump systems only after 10 years of service. No allowance for electrical control box or PLC is made in this scenario.

Council maintains and operates infrastructure outside of the property boundary (ie. bulk collection network).

## 3.4 Option 4 – Council take over O&M of low pressure sewer systems. Provision for easements and annual Council O&M service

For this option, Council becomes responsible for the operation and maintenance of the low pressure sewerage systems within the property boundary, as well as the trunk infrastructure of the network. Council would be responsible to address customer identified issues in accordance with agreed service levels.

For the purposes of this investigation, Council have proposed that provision for an Easement be included to ensure ease of access for preventative or reactive maintenance. The requirement or extent of this would need to be resolved by Council and property owners.

For the purposes if this investigation, it has conservatively been assumed that each low pressure unit of the network would be subject to an annual Council call out. In addition, allowance has been made for an annual pump out of the pump wells of debris or sludge and the replacement of the low pressure pump units, for every property, after they have reached 10 year service life (as defined in Table 1). In addition, for each pump changeover (ie. installation and every 10 yrs thereafter), the scenario makes allowance for Council to pay for the like-for-like replacement of the existing electrical control system (eg. OneSmart Control Panel with Optional PLC).

The financial modelling of the above is also replicated in the scenario of 20 years rather than 10, to provide a degree of sensitivity to the analysis.

On the basis that the existing low pressure pump stations do not have remote monitoring or alarming capability, Council would not be able to dismiss or address customer notified complaints of system performance without physically inspecting the property.

In this Option, the property owner would remain responsible for the power supply of the systems and for the notification to Council of any identified problems. Council maintains and operates infrastructure outside of the property boundary (ie. bulk collection network).

#### 3.5 Option 4B – Council take over O&M of low pressure sewer system, including retrofitting Remote Monitoring technology. Provision for easements and reduced annual Council O&M service due to remote unit viewing/serviceability

Option 4B is as per Option 4, however this option includes provision for installation of a new electrical/PLC control system with automated and remote access to Council of the low pressure sewerage systems. This would include remote alarming, visual monitoring of performance and set points, ability to remotely reset faults (where possible) and potentially, remote adjustment of settings. The system would use a SIM card system for SMS/Email communication and the cost of this communication facility would be paid by Council. Appendix A contains an example of the upgraded electrical control system and remote functionality that can be achieved (eg. OmniSmart-1000).

For the purposes of this investigation, allowance has been made for retrofitting this technology to all existing low pressure units as well as future installations, including those for 10 year pump replacements.

The financial modelling of the above is also replicated in the scenario of 20 years rather than 10, to provide a degree of sensitivity to the analysis.

This option assumes a reduction in Council's service intervention (call out and pump out of pump wells) is achieved through more vigilant monitoring by Council of the low pressure units via the installation of the remote monitoring and control system. For the purposes of this assessment, it has been assumed that only one third (33%) of the installed low pressure units require annual inspection.

In this Option, the property owner would remain responsible for the power supply of the systems and for the notification to Council of any other problems.

Council maintains and operates infrastructure outside of the property boundary (ie. bulk collection network).

## 3.6 Option 5 - Council replace existing low pressure sewerage system holistically with a new gravity sewerage collection network

#### 3.6.1 General

The above four options encompass low pressure sewerage reticulation as well as the existing gravity network. An alternative to the adoption of low pressure could potentially be a new gravity system which eliminates requirement for mech/elec infrastructure within the owner's property boundary. As part of this investigation, GHD has undertaken a concept design of a sewerage system that could be constructed to service existing and future house developments, and also integrate into the existing 1770 gravity/pressure trunk sewerage network.

#### 3.6.2 Design Standards

The concept design is based on standards typically required by Council, namely Capricorn Municipal Development Guidelines (CMDG - Sewerage Network D12) and where not explicitly defined in CMDG, the Water Services Association of Australia (WSA 02-2014 V.3.1 - Gravity Sewerage Code of Australia).

The gravity sewerage design is based on survey data provided by Council and alignments were chosen to best utilise natural ground slope. Notwithstanding, pump stations were required to pump sewage over the hill at the northern most catchment.

Key design criteria adopted for the concept design area as follows:

- Average Dry Weather Flow (ADWF) 250 L/EP/d as per Table D12.06.01
- Wet Weather Flow (WWF) = 5 x ADWF as per Section D12.06
- Minimum grades for sewers DN150 (1:150) and DN225 (1:290) as per Table D12.09.02
- Maximum spacing for sewer manholes 120 m as per Table D12.08.02
- Design Equivalent Populations (EP) as per Table D12.C.01
- Maximum capacities for gravity sewers as per WSAA WSA 02-2014-3.1 Table 5.6.

In addition to the above, the gravity sewer depths were limited to 0.9 m at the shallowest (to enable gravity connection to properties) and a maximum depth of 3 m before a pump station or lift station was established (on the basis rock or sand is likely present throughout the network and that excavations deeper than that in such geology becomes excessive in cost).

#### 3.6.3 EP Loads

Application of the CMDG Table D12.C.01 principles, the following EP loads to the 1770 concept gravity network apply (Refer Appendix A for area definition).

#### Table 2 Overview of EP loads to 1770 Gravity Network

Area	Description	Total Number of ET	EP/ET	EP
1	Residential Area - Northern Most (Endeavour Street, Banks Drive, Ocean Drive and Tupia Street)	50	2.6	130
2	Residential Area - (Parkinson Drive and Captain Cook Drive)	25	2.6	65
3	1770 Camping Ground	96	2.08	200

4	Residential Area - Along Captain Cook Drive, opposite Endeavour Park	23	2.6	60
5	Residential Area - (adjacent Elliot St)	4	2.6	10
6	Residential Area - (Elliot Street, Barton Street and Gaden Street)	44	2.6	114
7	1771 Marina Café	8	5.2	42
7	2 X Dock area and buildings	3.85	2.34	9
	Total			630

#### 3.6.4 Design Overview

Adopting the above principles, the concept design is provided in Figure 2. The system effectively drains from north to south, terminating at the existing pump station adjacent to the 1770 boat ramp. Sewage from here is pumped back to Agnes Waters.

A summary of the gravity sewerage infrastructure included in the concept design is as follows:

•	Total EP	630 EP
•	DN100 Rising Main (DICL Tyton Xtreme)	900 m
•	DN150 Gravity Main (DICL Tyton Xtreme)	1,600 m
•	DN225 Gravity Main (DICL Tyton Xtreme)	800 m
•	Pump Stations	4 no.
•	Lift Stations (lifting to adjacent, shallower gravity main)	1 no.

Layout and long section of the concept gravity network is provided in Appendix B.

## 4. Cost Estimates

A breakdown of the cost estimates developed as part of this investigation is provided in Appendix C. On the basis capital and operational costs change annually as a function of sewerage infrastructure installed over the projected 28 year planning horizon (eg. staged installation of low pressure units, replacement of gravity pump station mech/elec etc), a summary of the total annual Capex and Opex costs for each option is most relevantly seen in the NPV section below. An inflation rate of 1.8% p.a has been adopted for this cost analysis.

All costs presented are exclusive of Goods and Services Tax (Ex GST).

#### 4.1 Capital Costs (CAPEX)

#### 4.1.1 Option 1 - Status Quo Operational Costs (OPEX)

The CAPEX costs to Council for this scenario are as follows:

- Installation of new low pressure sewerage pump stations as scheduled in Table 1 (ie. 31 no. remain). This includes an allowance of for the equivalent pump unit (Twin Stage Centrifugal OGP pump ~1.8 L/s, 1.5 kW potentially Council may prefer the new OGT model same cost and refer Appendix A) installed in a 1,100 L moulded polyethylene chamber and pipework, complete with controller and PLC as per current installations (eg. OneSmart 2 controller with optional PLC refer Appendix A). The year 2017 (Dec) cost allowance for these units complete install is approximately \$9,000 (Ex GST).
- The number of annual installs is as per Appendix Table C1 and ranges from 9-3 units.

#### 4.1.2 Option 2 - Property owners retain responsibility for O&M of Low Pressure Systems, Council repair/replace faulty pumps provided > 5 years of service

The CAPEX costs to Council for this scenario are as per Option 1, plus:

- Allowance to replace the pump only for properties in which the pump has been installed for more than 5 years. The replacement pump unit is either the OGT (new technology) or OGP (existing) units, for a December 2017 installed price of price \$3,200 (Ex GST), which includes \$500 (Ex GST) for labour.
- As per table C2, the scenario accounts for 572 low pressure pumps being replaced over the 28 year study period, at an average of 20 units per annum.

#### 4.1.3 Option 3 - Property owners retain responsibility for O&M of Low Pressure Systems, Council repair/replace faulty pumps provided > 10 years of service

The CAPEX costs to Council for this scenario is as per Option 2, however the frequency of pump replacement is significantly reduced as Council is only obligated to replace units that have seen 10 years of service life.

- As per Table C3, the scenario accounts for 287 low pressure pumps being replaced over the 28 year study period, at an average of 10 units per annum.
- The financial modelling of the above is also replicated in the scenario of 20 years rather than 10, to provide a degree of sensitivity to the analysis.

#### 4.1.4 Option 4 – Council take over O&M of low pressure sewer systems. Provision for easements and annual Council O&M service

The CAPEX costs to Council for this scenario are as follows:

- Installation of new low pressure sewerage pump stations complete as scheduled in Table 1 (ie. 31 no. remain at \$9,000 (Ex GST)), plus the installation of new pumps and electrical control boxes for pumps/electrics that have had 10 years of service life. This includes an allowance of for the equivalent pump unit (Twin Stage Centrifugal OGP pump ~1.8 L/s, 1.5 kW or potentially Council may prefer the new OGT model same cost and refer Appendix A), complete with controller and PLC as per current installations (eg. OneSmart 2 controller with optional PLC refer Appendix A). The year 2017 (Dec) cost allowance for these replaced units complete install is \$4,400 (Ex GST).
- The financial modelling of the above is also replicated in the scenario of 20 years rather than 10, to provide a degree of sensitivity to the analysis.
- In addition to the above, an allowance has been made to establish an access easement to each of the 99 connected properties to enable unrestricted Council access to the properties/low pressure systems. A nominal allowance of \$5,000 (Ex GST) per easement has been included. This represents a significant cost (approx. \$500k), which may be removed (or significantly negotiated) on the basis Council is taking on responsibility of the units.
- Refer Appendix C, Table C4 for cost breakdown.

#### 4.1.5 Option 4B - Council take over O&M of low pressure sewer system, including retrofitting Remote Monitoring technology. Provision for easements and reduced annual Council O&M service due to remote unit viewing/serviceability

The CAPEX costs to Council for this scenario is as per Scenario 4, however:

- The option includes adoption of remote monitoring of the pump control system at a cost of \$1,200 (Ex GST) (eg. OmniSmart 1000/LCD and communications card refer Appendix A). Although the newer unit costs the same as the currently installed controllers, and the forecast 10 yearly replacements is the same as for Option 4, the allowance to replace all existing controllers as well as new 2018 installs amounts to higher cost (ie. 77 controllers in year 2018).
- The financial modelling of the above is also replicated in the scenario of 20 years rather than 10, to provide a degree of sensitivity to the analysis.
- An allowance for access easements is also made (ie. \$5,000 (Ex GST) as per Option 3).
- Refer Appendix C, Table C4B for cost breakdown.

## 4.1.6 Option 5 - Council replace existing low pressure sewerage system holistically with a new gravity sewerage collection network

The CAPEX estimate for the for the gravity concept design is approximately \$5.5 M (Ex GST) as per the breakdown in Table C5 of Appendix C.

The concept scheme comprises approximately 3.3 km of Council's typically preferred pipeline for this scenario – Ductile Iron Cement Lined (DICL) Tyton Xtreme pipeline (DN100-DN225). Adopted pipeline rates increased to account for the likely presence of rock for much of the alignment. Provision for emergency storage has been made at each of the pump stations.

Additional costs of note for this gravity option are associated with the fact the area is already established. For example, typically in designing a gravity sewerage network, the collection mains would run across the rear of the properties to enable efficient collection from adjacent houses. For 1770, the fact yards are established with pools, sheds, gardens etc, access to achieve common gravity mains is limited. The concept design is based on pipeline alignment within road reserves where possible. Notwithstanding, the presence of established properties has resulted in a Legals and Land Acquisition allowance of approximately \$550k (Ex GST) and a Reinstatement allowance of approximately \$320 k (Ex GST).

Although the gravity system is relatively robust, allowance has been made after 15 years of service to replace the mechanical and electrical components of the pump stations (Approximately \$300k (Ex GST).

#### 4.2 Operational Costs (OPEX)

#### 4.2.1 Option 1 - Status Quo Operational Costs (OPEX)

In this option, the property owner is solely responsible for the operation and maintenance of the low pressure sewerage infrastructure within the property boundary. No scheduled OPEX costs for Council.

#### 4.2.2 Option 2 - Property owners retain responsibility for O&M of Low Pressure Systems, Council repair/replace faulty pumps provided > 5 years of service

In this option, the property owner is solely responsible for the operation and maintenance of the low pressure sewerage infrastructure within the property boundary. No O&M costs beyond replacement of eligible faulty pumps is applicable, and these replacement labour costs are included in the CAPEX component

#### 4.2.3 Option 3 - Property owners retain responsibility for O&M of Low Pressure Systems, Council repair/replace faulty pumps provided > 10 years of service

In this option, the property owner is solely responsible for the operation and maintenance of the low pressure sewerage infrastructure within the property boundary. No O&M costs beyond replacement of eligible faulty pumps is applicable, and these replacement labour costs are included in the CAPEX component.

#### 4.2.4 Option 4 - Council take over O&M of low pressure sewer systems. Provision for easements and annual Council O&M service

Option 4 involves Council taking over O&M of the low pressure sewerage systems. The property owner continues to pay for the electricity costs of the units (nominally \$20/yr).

For this option, Council's key O&M allowances would be for call outs to inspect pumps notified by the property owner as faulty. An allowance has been made for both a plumber and labourer for 2 hours per unit per year (Total callout cost of \$432 (Ex GST) as per December 2017).

In addition, an annual allowance for vac-truck pump out of the base of the tanks has been made. This equates to \$200 (Ex GST) as per December 2017 pricing.

#### 4.2.5 Option 4B – Council take over O&M of low pressure sewer system, including retrofitting Remote Monitoring technology. Provision for

## easements and reduced annual Council O&M service due to remote unit viewing/serviceability

The OPEX costs for Option 4B are generally as per Option 4, with the additional allowance of \$60 per year (Ex GST) to enable remote monitoring of the low pressure pump stations. The controller manufacturer indicates this price may range from \$30-\$60/year depended on the data usage of the SIM card. A conservative allowance of \$60 (Ex GST) has been adopted.

Inclusion of the remote monitoring enables the assumption the extent of Council O&M is reduced due to effective utilisation of the remote monitoring technology of the pump stations. Specifically, the call outs and pump outs have been assumed as one third (33%) of Option 4.

## 4.2.6 Option 5 - Council replace existing low pressure sewerage system holistically with a new gravity sewerage collection network

Operational costs for the gravity option have been calculated as a function of capital cost. A two (2) year procurement/construction/commissioning period has been assumed with operational phase commencing 2020.

The adopted OPEX components for the gravity system area as follows:

- General O&M 1% of civil infrastructure costs
- Mechanical / Electrical Maintenance 3% of M/E infrastructure (assuming M/E accounts for 20% of the pump station capital costs).

#### 4.3 Net Present Value (NPV)

This section presents the NPV analysis of the seven (6) options considered. The NPV utilises CAPEX and OPEX costs outlined in Sections 4.1 and 4.2 respectively. Refer also to Appendix C for further details. The NPV analysis values presented within this section have been developed for the purpose of financially comparing options only. A range of discount rates have been used ranging from 4% to 8%.

Table 3 presents the summary of the NPV analysis.

It is note that Options 3, 4 and 4B have the financial analysis repeated for the scenario of 20 years pump replacement rather than 10, so as to provide an increased degree of sensitivity to the analysis.

#### Table 3 NPV Assessment of 1770 Sewerage Options

Option 1 - Status Quo (property owners O&M infrastructure located within					
property boundary). Council maintains and operates infrastructure outside of		T-4-1 C4			
the property boundary.		(\$)	N 4%	PV (over 28 year) 6%	s) 8%
Capital Works Cost (CAPEX)	\$	298,888.74	\$257,541.81	\$240,360.51	\$225,070.96
Operational Costs (OPEX)	\$	-	\$0.00	\$0.00	\$0.00
TOTAL Option 1 (excl. GST)	\$	298,888.74	\$257,541.81	\$240,360.51	\$225,070.96
Option 2 - Property owners retain responsibility for O&M infrastructure located within property, however Council repair/replace faulty pumps					
provided they have seen more than 5 years of service. Council will continue					
to operate and maintain infrastructure outside of property boundary.		Total Cost	N 4%	PV (over 28 year: 6%	s) 8%
Capital Works Cost (CAPEX)	s	2 605 199 12	\$1 519 615 30	\$1 217 219 80	\$1 002 166 25
Operational Costs (OPEX)	\$	-	\$0.00	\$0.00	\$0.00
TOTAL Option 2 (excl. GST)	\$	2,605,199.12	\$ 1,519,615.30	\$ 1,217,219.80	\$ 1,002,166.25
Option 3 - Property owners retain responsibility for O&M infrastructure located within property, however Council will repair/replace any faulty pumps					
provided they have seen more than 10 years of service. Council will continue					
to operate and maintain infrastructure outside of property boundary.		Total Cost	N 496	PV (over 28 years	s)
Capital Works Cost (CAPEX)	c	1 / 23 538 26	\$831 377 16	\$667 394 05	\$550 706 35
Operational Costs (OPEX)	\$	1,423,338.20	\$0.00	\$0.00	\$0.00
TOTAL Option 3 (excl. GST)	\$	1,423,538.26	\$ 831,377.16	\$ 667,394.05	\$ 550,796.35
Option 3-20YR - Property owners retain responsibility for 0&M infrastructure located within property, however Council will repair/replace any faulty pumps					
provided they have seen more than 20 years of service. Council will continue					
to operate and maintain infrastructure outside of property boundary.		Total Cost	N	PV (over 28 years	s)
Capital Works Cost (CADEX)	c	(\$)	4% \$467 200 12	6295 297 64	6227 676 65
Operational Costs (OPEX)	\$		\$407,300.12	\$380,287.04	\$0.00
TOTAL Option 3 (excl. GST)	\$	747,710.55	\$ 467,300.12	\$ 386,287.64	\$ 327,676.65
Option 4 - Council to take over O&M of the low pressure sewer systems					
(pump replacement 10 years)		Total Cost	N 4%	PV (over 28 year:	s) 8%
Capital Works Cost (CAPEX)	s	2.340.281.83	\$1,507,599,84	\$1,273,695,60	\$1,105,410,69
Operational Costs (OPEX)	\$	1,942,186.97	\$1,099,316.94	\$864,913.41	\$698,606.07
TOTAL Option 4 (excl. GST)	\$	4,282,468.81	\$ 2,606,916.78	\$ 2,138,609.01	\$ 1,804,016.76
Option 4-20YR - Council to take over 0&M of the low pressure sewer systems (nump replacement 20 years)		Total Cost	N	DV (over 28 vear	2)
		(\$)	4%	6%	8%
Capital Works Cost (CAPEX)	\$	1,411,018.73	\$1,006,993.92	\$887,174.29	\$798,621.11
Operational Costs (OPEX)	\$	1,942,186.97	\$1,099,316.94	\$864,913.41	\$698,606.07
TOTAL Option 4 (excl. GST)	5	3,353,205.71	\$ 2,106,310.86	\$ 1,752,087.70	\$ 1,497,227.18
Option 4B - Council take over 0&M of low pressure sewer system with					
Remote Monitoring (Reduce call out cost (1/3) due to moitoring and		o			
assistance with preventative maintence)		(S)	N 4%	PV (over 28 year: 6%	s) 8%
Capital Works Cost (CAPEX)	s	2.324.156.96	\$1,538,986,40	\$1,314,810.03	\$1.152.155.23
Operational Costs (OPEX)	\$	870,157.66	\$489,134.32	\$383,630.77	\$308,985.06
TOTAL Option B1 (excl. GST)	\$	3,194,314.62	\$ 2,028,120.72	\$ 1,698,440.80	\$ 1,461,140.29
Option 4P 20VD Counsil take over 0.2M of low processor eventer with					
Remote Monitoring (Reduce call out cost (1/3) due to moitoring and					
assistance with preventative maintence)		Total Cost	N	PV (over 28 years	s)
	6	(\$)	4%	6%	6020.025.52
Capital Works Cost (CAPEX) Operational Costs (OPEX)	\$	1,648,329.25	\$1,174,909.36	\$1,033,703.62	\$929,035.53
TOTAL Option B1 (excl. GST)	\$	2,518,486.91	\$ 1,664,043.68	\$ 1,417,334.39	\$ 1,238,020.59
Option 5 - New Gravity Sewerage Scheme		Total Cost	N	PV (over 28 years	s)
		(\$)	4%	6%	8%
Capital Works Cost (CAPEX)	\$	5,957,067.73	\$5,877,984.77	\$5,706,558.57	\$5,543,850.09
General O&M (1% Civil)	s	687 660 42	\$398 775 25	\$316 394 91	\$257 253 55
Mech/Elec Maintenance (3% of M/E Infrastructure)	\$	239,362.84	\$138,806.85	\$110,131.66	\$89,545.56
TOTAL Option 5 (excl. GST)	\$	6,884,090.99	\$6,415,566.87	\$6,133,085.14	\$5,890,649.20

#### 4.4 Summary

Key points of note from the cost assessment area as follows:

- The least expensive option for Council in terms of both CAPEX and OPEX is Option 1, Status Quo in which the property owners continue to own and operate the low pressure units independently. Council's cost is limited to the installation of the remaining 31 low pressure systems, at a total cost of approximately \$300k (Ex GST).
- The most expensive CAPEX option is the installation of a new gravity sewerage system. The cost estimate for the Concept Design developed as part of this investigation is approximately \$5.96 M (Ex GST). Although the OPEX costs are comparable to some of the low pressure sewerage options (although excludes power cost), the NPV is approximately three times the next cheapest option at approximately \$6.1 M (Ex GST) for the 6% discount rate.
- For Option 2 and 3 in which the property owner maintains responsibility for the low pressure sewerage systems, Option 3, in which Council is not obligated to replace pumps unless they have achieved 10 years of service as oppose to Option 2's five years, is cheaper by approximately 50%, with a 6% NPV cost of \$667 k (Ex GST). This NPV is reduced further again if the replacement obligation is stretched out to 20 years of service (ie. Option 3-20Yr \$386k).
- The NPVs of the low pressure options where Council takes over O&M are more than the above owner maintained Options 2 and 3, however still cheaper than the gravity sewerage option.
- On the basis that the new remote monitoring pump controllers (eg. OmniSmart) cost the same in CAPEX as the existing PLC controllers, the CAPEX of the two Council operated and maintained low pressure scenarios is similar (Options 4 and 4B).
- The cheapest OPEX and overall NPV for the Council low pressure O&M scenarios is Option 4B in the scenario where allowance is made to replace only faulty pumps that have reached a service life of 20 years (NPV approximately \$1.4 M at 6%). In the case where Option 4B makes allowance for replacement of faulty pumps that have seen 10 years of operation, this NPV increases approximately 20% to \$1.7 M at 6%. The remote monitoring/operational functionality of the new smart controllers in Option 4B is assumed to reduce call outs to approximately one third of Options 4. That is, it is assumed that only one in three low pressure pump units would require Council site servicing per calendar year. It is understood that this rate is conservative in comparison to the current situation with the basic controllers installed.

## 5. Conclusion and Recommendations

#### 5.1 Conclusion

Council has commissioned this report to investigate options for sewerage at the town of 1770. The assessment has included continuation of the existing scenario, as well as variations on the O&M obligations of Council with the existing low pressure sewerage systems. In addition and as a fundamental alternative, GHD has developed a concept design for a gravity sewerage network to service the area.

The following options were evaluated:

- Option 1 Status Quo (property owners Operate and Maintain (O&M) infrastructure located within property boundary ie. Low pressure sewerage pump station). Council maintains and operates infrastructure outside of the property boundary (ie. bulk collection network).
- Option 2 Property owners retain responsibility for O&M infrastructure located within property, however Council repair/replace faulty pumps provided they have seen more than 5 years of service since installation. Council will continue to operate and maintain infrastructure outside of property boundary.
- Option 3 Property owners retain responsibility for O&M infrastructure located within property, however Council will repair/replace any faulty pumps provided they have seen more than 10 years of service since installation. Council will continue to operate and maintain infrastructure outside of property boundary.
- Option 4 Council to take over O&M of the existing low pressure sewer systems. Scenario includes provision for easements (to facilitate access for O&M service), Council funded annual pump out and annual O&M callout/inspection. This option has provision for Council to repair/replace any faulty pumps provided they have seen more than 10 years of service since installation.
- Option 4 B Council take over O&M of the existing low pressure sewer system with Remote Monitoring technology fitted to the pump unit electrical control system. Scenario includes provision for easements (to facilitate access for O&M service), Council funded annual pump out and annual O&M callout/inspection. However unlike Option 4, in which 100% of units is subject to pump out/callout, in Option 4B, Council call outs for maintenance of pumps and wet wells is reduced (by two thirds) on the assumption that ability to remotely monitor the systems will reduce Council's service intervention. This option has provision for Council to repair/replace any faulty pumps provided they have seen more than 10 years of service since installation.
- Option 5 Council replace existing low pressure sewerage system holistically with a new gravity sewerage collection network.

For all low pressure options above, Council maintains and operates infrastructure outside of the property boundary.

- The least expensive option for Council in terms of both CAPEX and OPEX is Option 1, Status Quo. Council's cost is limited to the installation of the remaining 31 low pressure systems, at a total cost of approximately \$300k (Ex GST).
- The most expensive CAPEX option is the installation of a new gravity sewerage system. The cost estimate for the Concept Design developed as part of this investigation is approximately \$5.96 M (Ex GST). Although the OPEX costs are comparable to some of the low pressure sewerage options, the NPV is approximately three times the next cheapest option at approximately \$6.1 M (Ex GST) for the 6% discount rate. There remains

significant risk that this CAPEX could increase significantly in regards to the widespread presence of rock, which adds time and cost to construction. Allowance has been made for land acquisition for new infrastructure (such as the four pump stations) and also reinstatement of established properties that would be disrupted, however these costs have potential to significantly increase the gravity sewerage option.

- For Option 2 and 3 in which the property owner maintains responsibility for the low pressure sewerage systems, Option 3, in which Council is not obligated to replace pumps unless they have achieved 10 years of service as oppose to Option 2's five years, is cheaper by approximately 50%, with a 6% NPV cost of \$667 k (Ex GST). Further NPV savings could be achieved is pump replacement is pushed out to 20 years (ie. NPV \$386 k Option 3-20Yr).
- On the basis that the new remote monitoring pump controllers (eg. OmniSmart) cost the same in CAPEX as the existing PLC controllers, the CAPEX of the two Council operated and maintained low pressure scenarios is similar (Options 4 and 4B).
- The cheapest OPEX and overall NPV for the Council low pressure O&M scenarios is Option 4B (NPV approximately \$1.7 M at 6%), which assumes that the remote monitoring/operational functionality of the new smart controllers can reduce call outs to approximately one third of Option 4. That is, it is assumed that only one in three low pressure pump units would require Council site servicing per calendar year. It is understood that this rate is conservative in comparison to the current situation with the basic controllers installed. Further reductions in NPV are achieved should the pump life replacement be pushed out to 20 years instead of 10 (ie. NPV \$1.4 M at 6% for Option 4B-20Yr).

#### 5.2 Recommendations

Gravity sewerage is not considered a preferred option on the basis of cost and logistics of construction. The area includes hills and rock which increase the requirements for pump/lift stations and cost of construction. In addition, the area comprises established properties with gardens, pools, fences, sheds etc, which restrict gravity sewer alignments and increase rehabilitation conflict/costs.

The low pressure system is established for existing areas of 1770. It is understood that Council is generally satisfied with the operation of this system.

Opportunity exists for Council to become involved in the operation and maintenance of these systems, instead of the current situation in which the property owner takes responsibility after the first one year of installation. Technology continues to improve, and the current controllers that enable remote alarming, viewing and setting adjustments have the potential to lessen the requirements of Council, that may have previously been the case.

The cost estimates for low pressure scenarios in which Council takes over O&M include an allowance of \$5,000 (ex GST) per property for easements. It is considered that there may be potential to significantly reduce or remove this cost on the basis that the property owner is being relieved of this O&M responsibility (potential savings totalling approximately \$500 k). As an alternative, Council may be able to establish a Memorandum of Understanding (MoU) for Council's authorised access to service the low pressure sewerage systems.

It is possible that the adoption of pump and controller replacement every 10 years may be conservative. The current pump manufacturer claims a 20 year design life on the pump specification sheets. The NPV assessment undertaken as part of this project has included scenarios in which the pump replacement is pushed to 20 years (electrical remains maximum 10). Uncertainty in actual pump/electrical life span remains, however the sensitivity assessment illustrates NPV savings associated with increased pump life. It is considered that the 20 year

pump life would represent the maximum operational life expectancy of this mechanical infrastructure.

Should Council not wish to continue the current property owner O&M of the low pressure units, it is recommended that Option 4B be considered further. That is, Council take over O&M of low pressure sewer system with Remote Monitoring technology fitted to the pump unit electrical control system. The use of the smart controllers is recommended on the basis they are equivalent in cost to the existing controllers/PLC, however they have the potential to significantly reduce the extent of Council call out and general OPEX costs (ie. some customer calls/complaints could be resolved remotely).

## Appendices

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## **Appendix A** – Aquatec Low Pressure Sewerage Information

# Desmart Aquatec's Pressure Sewer Control Panels



POWER

## Tailored Control Panels for Aquatec's Pressure Sewer Systems

Aquatec – The number one choice in environmentally friendly pressure sewerage systems.

# **1 ONE**SMART **Aquatec**. Because anything else is a compromise.

1-OneSmart is designed and built to Australian Standards and conditions and therefore fully complies with Australian Standards AS/NZS codes and standards for electrical and safety requirements.

Like all of Aquatec's pressure sewer products the 1-OneSmart controller is designed to last the life of the pressure sewer network and is the number one choice in long term monitoring and control of your pressure sewer assets.

Aquatec's 1-OneSmart control panels are tailored to Aquatec's Pressure Sewer Systems control and monitoring requirements. The latest technology is utlised to provide custom built products to suit individual requirements and proprietary Scada systems. From the Level 1 1-OneSmart control system through to level 3 full Scada monitoring and on line data logging system 1-OneSmart is the number 1 choice.



1-OneSMART the number 1 choice.





## CADAPOC

Complete Scada Systems.

#### Smart1 Features

Aquatec's 1-OneSmart1 control panel is the first choice for any pressure sewer projects and includes features such as:

- Fully complies with AS3000
- Poly carbonate IP56 enclosure
- Key lockable to 92268
- AC 3 rated motor contractor
- 90Db audible alarm with mute
- Individually fused circuits for alarm and control components
- High level alarm (low voltage) strobe light
- Pump panel circuit breaker

#### **Optional features**

- Generator Hatch
- Stainless steel control panel
- Under and over voltage protection
- Over pressure protection CVP
- On / off switch

Smart-3 capabilities.

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#### Smart2 Features

Aquatec's 1-OneSmart2 control panels provide additional features to protect and monitor the pressure sewer network. Inbuilt features includes:

- Fully complies with AS300
- 316 Stainless steel powder coated enclosure IP56
- Under and over voltage protection
- Over pressure protection CVP
- Key lockable to 92268
- AC3 rated motor contractor
- 90 Db audible alarm with mute and inbuilt timer cutout
- On / off switch
- High level alarm (low voltage) strobe light
- Pump / panel circuit breaker
- Individually fused circuits for alarm and control components
- Customised labels

#### **Optional features**

- Generator Hatch
- Poly carbonate control panel
- PLC with LCD screen
- LCD display for pump and alarm operation
- Remote hand held key pad to perform operational functions, download logged data and remotely adjust settings
- Data login module for system analysis

#### Smart3 Features

Aquatec's 1-OneSmart3 is an advanced control and monitoring package which provides full remote communication wherever you are.

Quick programming from intuitive interface programs can be created and modified to suit individual requirements. The smart3 gives you complete monitoring and control capabilities remotely enabling you to manage your whole pressure sewer network.

1-OneSmart3 high level monitoring and remote control panel includes:

- PLC with LCD screen
- Telemetry and Scada pack tailored to suit authorities requirements
- Continuous accurate level monitoring
- Current sensing module
- Pump run interface and remote start stop
- LCD display for pump and alarm operation (optional)
- Interactive interfacing touch pad (optional)
- Remote hand held key pad to perform operation functions download logged data and remotely adjust settings
- RS 232 Modbus and ethernet communication modules
- Expansion modules up to 40 digital inputs outputs
- 4-20mA expansion module





#### Aquatec offers a wide range of water and wastewater products.

- Packaged pumping stations
- Pumping, sewerage, stormwater • and pollutant removal products

- Pressure sewer systems
  Water supply and process systems
  Sewerage and greywater treatment systems
  Dosing, metering and monitoring systems

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### **OGP** + Technical Specification



2-Stage Centrifugal OGP+ 50Hz

#### Submersible Grinder Pump

#### Series: OGP+

1.5kW, 2875RPM, 50Hz Compact Series For Automatic Level Control/Manual Operation

#### Description

The 2-stage centrifugal grinder pressure pump is designed to reduce domestic, commercial and industrial sewage to a finely ground slurry. With an International Protection Rating of IP68, Aquatec's pumps hold the highest levels of protection on the market today.



Discharge	32mm
Liquid Temperature	104°F (40°C) Continuous
Volute	Cast Iron ASTM A-48, Class 30
Motor Housing	Cast Iron ASTM A-48, Class 30
Seal Plate	Cast Iron ASTM A-48, Class 30
Impellers	
Design	12 Vane, Splitter-Type, Vortex, With Pump Out Vanes On Back Side. Dynamically Balanced, ISO G6.3.
Material	85-5-5 Bronze
Shredding Ring	Hardened 440C Stainless Steel Rockwell® C-55.
Cutter	Hardened 440C Stainless Steel, Rockwell® C-55.
Shaft	416 Stainless Steel
Square Rings	Buna-N
Hardware	300 Series Stainless Steel
Paint	Industrial Grade 2 Part Epoxy
Seal	
Design	Single Mechanical, oil filled reservoir
Material	Rotating Faces - Silicon-Carbide
	Stationary Faces - Silicon-Carbide
	Hardware -300 Series Stainless
Cord Entry	Custom Molded, IP68 Quick Connect, for Sealing and Strain Relief
Cord	
Automatic	CSA/UL Approved 12/5 Type SOW
<b>Upper Bearing</b> Design	Single Row, Angular Contact Ball
Lubrication	Oil
Load	Radial & Thrust
Lower Bearing	
Design	Single Row, Angular Contact Ball
Lubrication	Oil
Load	Radial & Thrust
Motor	
Design	NEMA L- Single Phase Torque Curve, Oil-Filled, Squirrel Cage Induction
Insulation	Class F
Single Phase	Capacitor Start / Capacitor Run
Check Valve	
Body	Cast Iron ASTM A-48, Class 30
Seat	Bronze ASTM C836
Flap	Fiber Reinforced Buna
Level Control	Options include Pressure Transducer, ESPS Pressure Switch, Float Switch.
Optional Equipment	Cord Length, C-Channel Check Valve Kit for Guide Channel mounting of pumps

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### **OGP** + Technical Specification

2-Stage Centrifugal OGP+ 50Hz

#### Motor Data

Model No	OGP20X2C
Part No	119525A
kW	1.5
Phases	1~
Volt	230
Hz	50
Rpm (Nom)	2875
No. of Poles	2

Nema Start Code	Н
Full Load Amps	17.0
Locked Rotor Amps	65.0
Cord Size	12/5
Cord Type	SOW
Cord O.D.	.71 (18)
± .02 (.5) In (mm)	

#### Important

- Pump may be operated "dry" for extended periods without damage to motor and/or seals.
- 2 This pump is appropriate for those applications specified as class i division ii hazardous locations.
- **3** This pump is not appropriate for those applications specified as class i division i hazardous locations.



## 112.78 225.55 3.81

121.92

- 334.52





## OGP+ Performance Curve 2 Stage Centrifugal



#### Series OGP+ 1.5kw, 2875RPM, 50Hz

Performance curve includes impact of integral anti-siphon and check valve.

Testing is performed with water, specific gravity 1.0 @ 20°C, other fluids may vary performance.

Performance Curve

#### Metres Head

\_



Curve According to ISO 9906

### OGT Technical Specification

aquatec 🗘

Turbine Technology OGT 50Hz 1~

#### Submersible Grinder Pump

Series: OGT .75kW, 2850RPM, 50Hz 1~

#### Description

Aquatec's Omni Grind Turbine pump combines high head capabilities with low amp technology to offer a 20 year expected pump life.

The Grinder Pump is designed to reduce domestic sewage to a finely ground slurry. With an International Protection Rating of IP68, Aquatec's pumps hold the highest levels of protection on the market today.



Discharge	32mm BSP-F
Liquid Temperature	104°F (40°C) Continuous
Motor Housing	Cast Iron ASTM A-48, Class 30
Seal Plate	Cast Iron ASTM A-48, Class 30
Suction Casing	Cast Iron ASTM A-48, Class 30
Impeller	Stainless Steel with Abrasion Resistant Coating
Shredding Ring	Hardened 440C Stainless Steel Rockwell® C-55.
Cutter	Hardened 440C Stainless Steel, Rockwell® C-55.
Shaft	416 Stainless Steel
Square Rings	Buna-N
O-Rings	Buna-N
Hardware	316 Series Stainless Steel
Paint	Axalta™ Corlar® Epoxy
Seal	
Design	Single Mechanical
Material	Rotating Faces - Silicon-Carbide Stationary Faces - Silicon-Carbide Elastomer - Buna-N
	Hardware -300 Series Stainless
Cord Entry	Custom Moulded, Quick Connect, for Sealing and Strain Relief. Rated IP68
Cord	
Туре	CSA/UL Approved SOW (quick disconnect)
Manual	14/3
Automatic	12/5
<b>Upper Bearing</b> Design	Single Row, Ball, Oil Lubricated
Load	Radial
Lower Bearing	
Design	Single Row, Ball, Oil Lubricated
Load	Radial & Thrust
<b>Motor</b> Design	Oil-Filled Squirrel Cage Induction
Insulation	Class F
Туре	Capacitor Start / Capacitor Run
Optional Equipment	Additional Cord Length, C-Channel Check Valve Kit for Guide Channel mounting of pumps

## OGT Technical Specification

Turbine Technology OGT 50Hz 1~

#### Motor Data - Model OGT 10S2AU

Model No	OGT10S2AU
Part No	139736
kW	0.75
Phases	1~
V	240
Hz	50
Rpm (Nom)	2850
No. of Poles	2

Nema Start Code	D
Full Load Amps	8.2
Locked Rotor Amps	25.9
Cord Size (external	12/5
level control)	
Cord Size (inbuilt	12/5
level control)	
Cord Type	SOW
Cord O.D.	18mm
Cord Length	15m

#### Important

-
1) Pump may operate to 80 meters
without damage to pump
2) Refer to operational manual for amp
draw above 50m
3) Pump may be operated "Dry" for
extended periods without damage to
motor and/or seals
4) This pump is not appropriate for
hose applications specified as class
division   hazardous locations





### OGT Performance Curve Turbine Technology



## Series OGT 0.75kW, 2850RPM, 50Hz Pump Design head 50m Refer to Performance curve includes impact of Notes 1 & 2. integral anti-siphon and check valve. Testing is performed with water, specific gravity 1.0 @ 20°C, other fluids may vary performance. Head (m) Performance Curve 90 Metres/Head 80 70 60 50 40 30 20 10

Flow (L/s)

0.5

1

1.5

2

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### **OmniSmart Controller**

The OmniSmart controller is a fully automated pre-programmed device that accurately controls flows within your reticulation systems prioritising pump operation to optimise your pressure sewer network.

# 

Aquatec's Omnismart controller thinks outside the box, by:

- Integrating your system into the surrounding sewer connections;
- Can be retrofitted to upgrade existing pressure sewer installations
- Optimising the whole network by analysing usage and flow to iron out the peaks and troughs.

This optimisation:

- Increases the life of your whole network;
- Self-scouring rising mains by creating daily 'flushing waves';
- Prioritises operation after power failure based on effluent levels in each tank;
- Improves flow and minimises retention issues;
- Reduces both capital and operation expenditure;
- Reduces additional infrastructure/ maintenance requirements; and
- Reduces whole of life costs by increasing the life expectancy of existing assets.

	OS1000 Series		OS6000 Series	
Features	1000A	1000B	6000A	6000B
Key lockable IP65 polycarbonate green enclosure	•	•	•	•
Backing plate for easy mounting on wall or post	•	•	•	•
90Db audible alarm with automatic mute, night time chirp and self-correction	•	•	•	•
External mute button for audible alarm	•	•	•	•
Strobe light for fault notification and identification	•	•	•	•
Automatic and manual pump modes	•	•	•	•
Microprocessor based operation with upgradeable firmware and is fully programmable	•	•	•	•
Compatible with level switches or hydrostatic transducers	•	•	•	•
Back up high level float switch compatible	•	•	•	•
Brown out/Low voltage protection	•	•	•	•
High voltage protection	•	•	•	•
Adjustable Over Pressure Protection	•	•	•	•
Motor current monitoring and protection for both low and high amps	•	•	•	•
Real time Clock (date and time)	•	•	•	•
Pump protection for Anti-seize, excessive run time and motor starts	•	•	•	•
Adjustable pump and alarm activation points	•	•	•	•
Adjustable Alarm delays	•	•	•	•
LED system status indication	•	•	•	•
Internal status history (last 2500 events including motor state, adjustable fluid levels granularity, configurational changes and alarms)	•	•	•	•
USB Plug and Play administration interface and history	•	•	•	•
SCOP Compatible for improved system health and diurnal curve flattening	•	•	•	•
Controller behaviour and activation based on time of day and fluid levels	•	•	•	•
Adjustable start delay after power failure based on fluid levels	•	•	•	•
Automatic scouring, time delay, and storage modes	•	•	•	•
Output to control external devices	•	•	•	•
Battery Backup for Alarms, fluid levels, history, and telemetry/SMS	•	•	•	•
Hours run and pump start counter*		•	•	•
Backlit LCD screen for system status, diagnostics and fluid level	•	•	•	•
Telemetry/SCADA RS485 and RS232 MODBUS (see telemetry flyer)			•	•
Telemetry/SCADA 3G Cellular and DNP3 (see telemetry flyer)				•
Email Alarm notifications				•
Remote Diagnostics, pump control and administration				•
ETP support of historical event data transfer				

Standard

Optional\* Available via USB on 1000A





## OmniSmart - 1000

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## OmniSmart - 1000

Aquatec's OmniSmart 1000 Series controllers have been built specifically for the pressure sewer market. The Microprocessor based circuit board provides the flexibly to not only meet your current requirements, but also meet future requirements as they are needed.



### Additional Functionality

- High-level alarm strobe light
- Adjustable pump and alarm activation points
- Adjustable start delay after power failure based on fluid levels
- Hours run and pump start counter
- Pump Start/Stop timers including minimum and maximum times
- Manual mode to test/run pump
- Battery Backup for Alarms, strobe, fluid level and status history (1000B option)
- Anti-seize activation
- Motor current and voltage sensing
- System & Pump protection settings with time delays
- Timer based output to activate solenoid for mains water addition



### Technical Specifications - OmniSmart1000

Manufacture	Aquatec Fluid Systems
	Australian owned & built
Inputs	4 digital inputs
	1 Analog Input
System Input	USB plug and play administration port
Processor	Microprocessor based operation with upgradeable firmware
Display	Backlit LCD (1000B option) displaying:
	Fluid level model
	Current main voltage
	Pump Status
	Current draw
	Motor Run, off or delay time
	Fluid Level
	Battery Status
	Input statuses
	Fault information
LED System Status	Fault Indicator
	Main Power
	Mains power low
	Motor Indicator
	High Level Alarm     Over Processor Protection
	Drobe Indicator
	Battery Status
Supported Fluid Level Control	
	External Level Control
	Differential
	Individual
	Hydrostatic transducer (0-5v. 0-10v, 4-20mA)
Additional Controls	Support for external high level alarm switch and Over Pressure Pro-
	tection switch
History	Internal Memory with status history
Battery Backup	Battery Backup (1000B option) for Alarms, Strobe, fluid level & status history on power failure
Real Time Clock	Internal real time clock with date & time
System Power Supply	Single phase 240 Volts 50Hz

Subject to change. Correct as at date of printing.



### **OmniSmart Controller**

We wish to highlight the many benefits of Aquatec's OmniSmart 1000 controller.

The OmniSmart pump controller comes standard with the following and does not require telemetry.

- USB plug and play to upload control settings or download up to 2500 historical events
- LED System indication to give:
  - o General Fault
  - Mains power voltage ok
  - Mains power voltage fault
  - $\circ \quad \text{Pump on} \quad$
  - o High level alarm
  - o Over pressure
  - o Level status
  - Back up battery status
  - Modbus data activity
  - Mobile device status
  - Mobile signal status

Additionally the OmniSmart's will provide:

- Brown out (low voltage) protection
- o Over voltage protection
- o Compatible with all types of level sensors
- o Over pressure protection
- o 90dB alarm
- o External mute button
- Non encroaching generator plug mounting
- Auto/off/ manual switch

Additionally the strobe flashes in different sequences to indicate the following giving the customer an external (visual) alarm identification:

- 1. Power failure
- 2. High level alarm
- 3. Motor max runtime exceeded
- 4. Over pressure protection
- 5. Motor over current
- 6. Motor under current
- 7. Battery fault
- 8. Probe fault

Power failure scenario

The OmniSmart has a number of options when it comes to recovering from a power failure scenario. The first and most simplest is that a pump delay window is defined. This staggers the startup of the OmniSmart's throughout this window to spread the load on the reticulation

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system. The OmniSmart's are prioritized based on the fluid level within the tank. The fuller they are, the closer to the start of the window they begin to pump. This is all achieved without the need for telemetry, as the pumps also monitor the pressure within the reticulation and will bowout gracefully if they see pressures too high, allowing it to retry later. There are more sophisticated recovery schemes which we offer that can be pre-programmed into the OmniSmart's based on SCOP.

The OmniSmart 1000 can then be upgraded to a OmniSmart 6000 via an economical plug in module to provide:

- 3G SMS and email notification
- DMP Scada control
- Modbus RS232 and RS485
- Remote SMS or Telemetry pump control and set point control/adjustment

Remote operational capabilities:

- Programmed maintenance
- Self-scouring rising mains
- Prioritise operation after power failure based on effluent level
- Adjustable pumping level set points
- Change operation mode
- Shut-down of specific pumps
- Stop and re-start specific sites

Remote monitoring capabilities:

- Blockage Indication
- Capacity readings
- Full control of individual or multiple sites
- Complete visibility of pump system locations
- Tank storage levels

### Withholding Pumping During Storm Events

The OmniSmart6000 series have an 'Inhibit' command that can be remotely set via DNP3. As part of inhibiting the OmniSmart, it also requests a time to be inhibited for. The time is there as a safety net in the event that connection is lost with the SCADA master and consequently the OmniSmart wouldn't otherwise be able to be un-inhibited. There is also an 'Empty Tank' command which can be used prior to the storm to pump the tank down from its current level to the stop level.

Using these two commands in conjunction with each other allows you to have the maximum storage available prior to the storm and then withhold pumping during and after the storm events until the receiving point or further downstream regains capacity.

Another way of coming at the same problem and dealing with (not only) storms but temporary capacity issues within your network, is to setup interlocks between the downstream pump stations and the OmniSmart's. This then automates the entire process of expectation handling of temporary capacity problems and pump station outages within your network, so long as all the pump stations and OmniSmart's are connected to the same SCADA master. Having this tight integration between assets is another reason why we recommend adding the OmniSmart's to your own SCADA system, instead of having them isolated on their own hosted platform.

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Aquatec can preprogram the OmniSmart 1000 to provide a controlled pressure sewer system with or without remote monitoring. We do this using SCOP (Sequence Control Operation Philosophy).

This allows us to check pipe sizes, scouring velocities, retention times and pressures throughout the system during standard operation as well as after prolonged power failures. This information is then used to individually pre-program each OmniSmart in the factory via our SCOP process which flattens out the diurnal curve (flow peaks) in the system during the day. Utilizing this methodology, telemetry isn't required and will achieve these benefits without the onerous ongoing monthly telecommunication or hosting costs. If you choose, you can add the telemetry upgrade to a small sample of OmniSmart's for monitoring areas within your system or to give you advance working with problem clients/sites.

The main benefits are:

- Creates flushing waves when a small number (first stage) of pumps are installed to gain scouring velocity and keep retention times within WSAA low risk requirements
- Reduce retention times in pipes by sequencing when pumps start in the system i.e. flows can be held back to pump an non peak times
- Flatten diurnal curve (flows in the system) reducing the pipe sizing requirement and reducing the load on the sewerage treatment plant.

If this information needs to be monitored or controlled remotely then it's as simple as adding a module to the OmniSmart 1000 to upgrade it to a OmniSmart 6000.

Hosting of the system by outside companies, Aquatec strongly recommend that each Authority do not consider hosting the Pressure sewer System via outside companies.

The risks involved in this include:

- Risk of losing IP gained from operational experiences
- Risk of an outside corporation having access to your data
- Risk of communications going down and therefore no control
- Risk of having a separate in house and outsourced hosting system
- Risk of ongoing expenses approximately \$100.00 p/a that either council have to wear or the local community.



Version: 1, Version Date: 30/04/2018

### **Pumps**

With an International Protection Rating of IP68, Aquatec's pumps hold the highest levels of protection on the market today.

### **Optional Accessories**

Aquatec offers a wide range of Optional Accessories to meet or improve on your project specifications. Our Technical Consultants make recommendations for enhancements to your Pressure Sewer System based on budgets and the unique demands of your application.

Key Optional Accessories include:

- Full Range of Custom Chambers
- External Storage Vessels
- Service trailers and equipment
- Access Covers
- Odour Controls
- Swiftlift Pump Trolley

### Pump Upgrades

Upgrade kits with new components purpose-built for existing networks are designed to retrofit into your existing system for trouble free operation.

### **Omni Grind Turbine - OGT**

- New innovation technology
- Low amp turbine technology
- Residential, industrial and commercial applications
- Smaller cutter radius for greater ability to grind fibrous materials
- Special Aerospace Industry coating to prevent wear from abrasive products
- Non-contact pumping assembly with minimal wearing parts
- Flows up to 1.2l/s giving higher scouring velocities
- Capable and tested to operate at 80m continuously giving greater flexibility for network design
- Certified by BSI to NSF/ANS146
- Class F motor insulation
- Highest cutting force of an pressure sewer pump

### Omni Grind Plus - OGP

- For commercial, industrial and large scale residential applications
- Recessed vortex impellers for
- higher flows with reduced wear
- Flows up to 1.75l/s
- Capable and tested to operate
- at 60m
- 1.5kw motor
- Available in single or three phase
- Hydraulically balanced
- Class F motor insulation

### **Grinder Pump Performance** Comparison

- OGT Regenerative Turbine
- OGP 2 Stage Centrifugal
- ••• Progressing Cavity (for comparison)

1

2

Appendix B – Gravity Sewer Concept Design



Cad File No: G:\42\20430\CADD\Drawings\42-20430-FIGA1.dwg

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# Appendix C – Cost Estimates

	TABLE C1																
Option 1	- Status Quo(property owners O&M infrastructure located																
withi	n property boundary). Council maintains and operates																
	infrastructure outside of the property boundary.						-										
YEAR		2017	2	018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Council Co	its - CAPEX																
New Sched	uled Installation Costs Only																
	Cost of a new pump	\$2,700	\$ 2,7	749	\$ 2,798	\$ 2,848	\$ 2,900	\$ 2,952	\$ 3,005	\$ 3,059	\$ 3,114	\$ 3,170	\$ 3,227	\$ 3,285	\$ 3,345	\$ 3,405	\$ 3,466
	Cost of a new Control Box and PLC	\$1,200	\$ 1,2	222	\$ 1,244	\$ 1,266	\$ 1,289	\$ 1,312	\$ 1,336	\$ 1,360	\$ 1,384	\$ 1,409	\$ 1,434	\$ 1,460	\$ 1,486	\$ 1,513	\$ 1,540
	Cost of 1,100 L Tank, pipework etc	\$2,100	\$ 2,1	138	\$ 2,176	\$ 2,215	\$ 2,255	\$ 2,296	\$ 2,337	\$ 2,379	\$ 2,422	\$ 2,466	\$ 2,510	\$ 2,555	\$ 2,601	\$ 2,648	\$ 2,696
	Cost of Installation (plumber/electrician)	\$500	\$ 5	509	\$518	\$ 527	\$ 537	\$ 547	\$ 556	\$ 567	\$ 577	\$ 587	\$ 598	\$ 608	\$ 619	\$ 631	\$ 642
	General earthworks and construction costs	\$2,500	\$ 2,5	545	\$ 2,591	\$ 2,637	\$ 2,685	\$ 2,733	\$ 2,782	\$ 2,833	\$ 2,884	\$ 2,935	\$ 2,988	\$ 3,042	\$ 3,097	\$ 3,153	\$ 3,209
	Total Low New Pressure Installation	\$9,000	\$9,	162	\$9,327	\$9,495	\$9,666	\$9,840	\$10,017	\$10,197	\$10,381	\$10,568	\$10,758	\$\$10,951	\$11,148	\$11,349	\$11,553
	Number of pumps to be installed by Council (New																
	installations Only)			9	3	3	4	3	3	3	3	0		0 0	0	0	0
	Total Annual Cost to Install new Low Pressure Pump																
	Stations Only		\$ 82,4	158	\$ 27,981	\$ 28,484	\$ 38,663	\$ 29,519	\$ 30,050	\$ 30,591	\$ 31,142	\$ -	\$-	\$-	\$-	\$-	\$-
	Number of properties connected			77	80	83	87	90	93	96	99	99	99	99	99	99	99
	Rationalised Cost per Connection Only		\$ 1,070	.88	\$ 349.76		\$ 444.40	\$ 327.99	\$ 323.12	\$ 318.66	\$ 314.57	\$ -	\$ -	\$ -	\$ -	\$-	\$-
	Total Council CAPEX Costs		\$ 82,4	158	\$ 27,981	\$ 28,484	\$ 38,663	\$ 29,519	\$ 30,050	\$ 30,591	\$ 31,142	\$ -	\$ -	\$-	\$ -	\$ -	\$-
	Total Council OPEX Costs		\$	-	\$-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$-	\$ -

TABLE C1																
- Status Quo(property owners O&M infrastructure located																
n property boundary). Council maintains and operates																
infrastructure outside of the property boundary.																
	20	32	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
sts - CAPEX																
uled Installation Costs Only																
Cost of a new pump	\$ 3,52	28	\$ 3,592	\$ 3,657	\$ 3,722	\$ 3,789	\$ 3,858	\$ 3,927	\$ 3,998	\$ 4,070	\$ 4,143	\$ 4,218	\$ 4,293	\$ 4,371	\$ 4,449	\$ 4,529
Cost of a new Control Box and PLC	\$ 1,56	58	\$ 1,596	\$ 1,625	\$ 1,654	\$ 1,684	\$ 1,714	\$ 1,745	\$ 1,777	\$ 1,809	\$ 1,841	\$ 1,874	\$ 1,908	\$ 1,943	\$ 1,978	\$ 2,013
Cost of 1,100 L Tank, pipework etc	\$ 2,74	14	\$ 2,794	\$ 2,844	\$ 2,895	\$ 2,947	\$ 3,000	\$ 3,054	\$ 3,109	\$ 3,165	\$ 3,222	\$ 3,280	\$ 3,339	\$ 3,399	\$ 3,461	\$ 3,523
Cost of Installation (plumber/electrician)	\$ 65	53	\$ 665	\$ 677	\$ 689	\$ 702	\$ 714	\$ 727	\$ 740	\$ 754	\$ 767	\$ 781	\$ 795	\$ 809	\$ 824	\$ 839
General earthworks and construction costs	\$ 3,26	57	\$ 3,326	\$ 3,386	\$ 3,447	\$ 3,509	\$ 3,572	\$ 3,636	\$ 3,702	\$ 3,768	\$ 3,836	\$ 3,905	\$ 3,975	\$ 4,047	\$ 4,120	\$ 4,194
Total Low New Pressure Installation	\$11,7	61	\$11,973	\$12,189	\$12,408	\$12,631	\$12,859	\$13,090	\$13,326	\$13,566	\$13,810	\$14,058	\$14,311	\$14,569	\$14,831	\$15,098
Number of pumps to be installed by Council (New																
installations Only)		0	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0
Total Annual Cost to Install new Low Pressure Pump																
Stations Only	\$-		<b>\$</b> -	<b>\$</b> -	\$ -	\$-	\$-	\$-	\$ -	\$ -	<b>\$</b> -	\$-	\$ -	\$-	\$-	\$ -
Number of properties connected		99	99	99	99	99	99	99	99	99	99	99	99	99	99	99
Rationalised Cost per Connection Only	\$-		\$ -	\$-	\$-	\$ -	\$-	\$-	\$ -	\$ -	\$-	\$-	\$ -	\$ -	\$-	\$ -
Total Council CAPEX Costs	\$-		\$ -	\$-	\$ -	\$ -	\$-	\$-	\$-	\$ -	\$-	\$ -	\$ -	\$ -	\$-	\$-
Total Council OPEX Costs	\$-		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	TABLE C1         - Status Quo(property owners O&M infrastructure located in property boundary). Council maintains and operates infrastructure outside of the property boundary.         infrastructure outside of the property boundary.         sts - CAPEX         uled Installation Costs Only         Cost of a new pump         Cost of a new Control Box and PLC         Cost of 1,100 L Tank, pipework etc         Cost of Installation (plumber/electrician)         General earthworks and construction costs         Total Low New Pressure Installation         Number of pumps to be installed by Council (New installations Only)         Total Annual Cost to Install new Low Pressure Pump Stations Only         Number of properties connected         Rationalised Cost per Connection Only         Total Council CAPEX Costs         Total Council OPEX Costs	TABLE C1         - Status Quo(property owners O&M infrastructure located in property boundary). Council maintains and operates infrastructure outside of the property boundary.         Image: Constant	TABLE C1- Status Quo(property owners O&M infrastructure located n property boundary). Council maintains and operates infrastructure outside of the property boundary.Image: Status CAPEX2032Sts - CAPEX2032uled Installation Costs OnlyImage: Status CAPEXCost of a new pump\$ 3,528Cost of a new pump\$ 3,528Cost of a new control Box and PLC\$ 1,568Cost of 1,100 L Tank, pipework etc\$ 2,744Cost of Installation (plumber/electrician)\$ 653General earthworks and construction costs\$ 3,267Total Low New Pressure Installation\$11,761Number of pumps to be installed by Council (New installations Only)0Total Annual Cost to Install new Low Pressure Pump Stations Only\$ -Number of properties connected99Rationalised Cost per Connection Only\$ -Total Council CAPEX Costs\$ -Total Council OPEX Costs\$ -	TABLE C1- Status Quo(property owners O&M infrastructure located in property boundary). 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Image: Const of a new pump       \$ 3,528       \$ 3,592       \$ 3,657         Cost of a new Control Box and PLC       \$ 1,568       \$ 1,596       \$ 1,625         Cost of 1,100 L Tank, pipework etc       \$ 2,744       \$ 2,794       \$ 2,844         Cost of Installation (plumber/electrician)       \$ 5       \$ 3,226       \$ 3,326       \$ 3,326         Total Low New Pressure Installation       \$11,761       \$11,973       \$12,189         Number of pumps to be installed by Council (New installations Only)       Image: Const of the properties connected       99       99       99</td><td>TABLE C1         - Status Quo(property owners O&amp;M infrastructure located in property boundary). Council maintains and operates infrastructure outside of the property boundary.       Image: State Content of the properties connected of the propen</td><td>TABLE C1         - Status Quo(property owners O&amp;M infrastructure located n property boundary). 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Status Quo (Properties connected Pump)       S 1,528       S 1,529       S 1,657       S 1,657       S 1,657       S 1,657       S 1,657       S 1,657       S 1,658       S 1,657       S 1,657       S 1,658       S 1,657       S 1,657       S 1,658       S 1,528       S 1,528       S 1,724       S 1,744       S 1,745       S 1,7</td><td>TABLE C1         - Status Quo(property owners O&amp;M infrastructure located in property boundary). Council maintains and operates infrastructure outside of the property boundary.       Image: Status Musici Marcine M</td><td>TABLE C1         - Status Quo(property owners O&amp;M infrastructure located in property boundary). Council maintains and operates infrastructure outside of the property boundary.       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Image: Constructure outside of the property boundary.       Image: Constructure outside of the property boundary.         Image: Const of a new pump       \$ 3,528       \$ 3,592       \$ 3,657         Cost of a new Control Box and PLC       \$ 1,568       \$ 1,596       \$ 1,625         Cost of 1,100 L Tank, pipework etc       \$ 2,744       \$ 2,794       \$ 2,844         Cost of Installation (plumber/electrician)       \$ 5       \$ 3,226       \$ 3,326       \$ 3,326         Total Low New Pressure Installation       \$11,761       \$11,973       \$12,189         Number of pumps to be installed by Council (New installations Only)       Image: Const of the properties connected       99       99       99	TABLE C1         - Status Quo(property owners O&M infrastructure located in property boundary). Council maintains and operates infrastructure outside of the property boundary.       Image: State Content of the properties connected of the propen	TABLE C1         - Status Quo(property owners O&M infrastructure located n property boundary). Council maintains and operates infrastructure outside of the property boundary.       Image: Construct on the property boundary.       I	TABLE C1         - Status Quo(property owners O&M infrastructure located in property boundary). Council maintains and operates infrastructure outside of the property boundary.       Image: Status	TABLE C1         - Status Quo(property owners O&M infrastructure located in property boundary). Council maintains and operates infrastructure outside of the property boundary.       Image: Status Quo (Property Boundary). Council maintains and operates infrastructure outside of the property boundary.       Image: Status Quo (Property Boundary). Council maintains and operates infrastructure outside of the property Boundary.       Image: Status Quo (Property Boundary). 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Status Quo (Properties connected Pump)       S 1,528       S 1,529       S 1,657       S 1,657       S 1,657       S 1,657       S 1,657       S 1,657       S 1,658       S 1,657       S 1,657       S 1,658       S 1,657       S 1,657       S 1,658       S 1,528       S 1,528       S 1,724       S 1,744       S 1,745       S 1,7	TABLE C1         - Status Quo(property owners O&M infrastructure located in property boundary). Council maintains and operates infrastructure outside of the property boundary.       Image: Status Musici Marcine M	TABLE C1         - Status Quo(property owners O&M infrastructure located in property boundary). Council maintains and operates infrastructure outside of the property boundary.       Image: Status	TABLE C1         - status Quo(property owners O&M infrastructure outside of the property boundary.       normal field in the properting field in	TABLE C1         - Status Quo(property owners O&M infrastructure located in property boundary). 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Option	2 - Property owners retain responsibility for O&M																		
renair/r	enlace faulty numps provided they have seen more																		
than 5 ve	pars of service. Council will continue to operate and																		
maint	ain infrastructure outside of property boundary.																		
YEAR		2017		2018		2019	202	0	2021		2022	2023		2024		2025	2026	2027	2028
Council Co	osts - CAPEX																		
New Insta	llation and Replacement of Pump Costs (>5yr)																		
	Cost of a new pump	\$2,700	\$	2,749	\$	2,798	\$ 2,848	3 \$	5 2,900	\$	2,952	\$ 3,005	\$	3,059	\$	3,114	\$ 3,170	\$ 3,227	\$ 3,285
	Cost of Installation (plumber/electrician)	\$500	\$	509	\$	518	\$ 527	7 \$	537	\$	547	\$ 556	\$	567	\$	577	\$ 587	\$ 598	\$ 608
	Total Cost per pump replaced		\$	3,258	\$	3,316	\$ 3,376	5 \$	3,437	\$	3,499	\$ 3,562	\$	3,626	\$	3,691	\$ 3,757	\$ 3,825	\$ 3,894
	Number of pumps to be installed by Council (New																		
	installations + >5 yr Replacement)			31		15	2	1	10		13	34		18		24	10	13	34
	Total Annual Cost to Install new Low Pressure																		
	Pumps and Replace Pumps aged > 5 yrs		\$	100,986	\$	49,744	\$ 70,895	5   \$	34,367	\$	45,481	\$ 121,092	\$	65,261	\$	88,582	\$ 37,573	\$ 49,725	\$ 132,390
New Tank	Installations																		
	Number of new low pressure pump station																		
	installations			9		3		3	4		3	3		3		3	0	0	0
	Cost of a new Control Box and PLC	\$1,200	\$	1,222	\$	1,244	\$ 1,266	5 \$	5 1,289	\$	1,312	\$ 1,336	\$	1,360	\$	1,384	\$ 1,409	\$ 1,434	\$ 1,460
	Additional Costs to above for 1,100L Tank and																		
	pipework for new installations	\$2,100	\$	2,138	\$	2,176	\$ 2,215	5 \$	2,255	\$	2,296	\$ 2,337	\$	2,379	\$	2,422	\$ 2,466	\$ 2,510	\$ 2,555
	General earthworks and construction costs	\$2,500	\$	2,545	\$	2,591	\$ 2,637	7 \$	2,685	\$	2,733	\$ 2,782	\$	2,833	\$	2,884	\$ 2,935	\$ 2,988	\$ 3,042
	Total Per Low New Pressure Installation (Excl Pump																		
	& Plumber)	\$5,800		\$5,904		\$6,011	\$6,11	9	\$6,229		\$6,341	\$6 <i>,</i> 455		\$6,571		\$6,690	\$6,810	\$6,933	\$7,058
	Total Per Low New Pressure Installation (Excl																		
	Pump & Plumber)		\$5	3,139.60	\$1	18,032.04	\$18,356.6	1	\$24,916.04	\$1	19,023.40	\$19,365.82	\$1	9,714.41	\$2	0,069.27	\$0.00	\$0.00	\$0.00
	Number of properties connected			77		80	8	3	87		90	93		96		99	99	99	99
	Rationalised Cost per New Connection and																		
	Replacement of Pumps > 5 yrs		\$ 2	2,001.63	\$	847.19	\$ 1,075.31	1 \$	681.41	\$	716.72	\$ 1,510.30	\$	885.17	\$ 1	1,097.48	\$ 379.53	\$ 502.27	\$ 1,337.27
	Total Council CAPEX Costs		\$	154,125	\$	67,776	\$ 89,251	l (\$	59,283	\$	64,505	\$ 140,458	\$	84,976	\$	108,651	\$ 37,573	\$ 49,725	\$ 132,390

Option	2 - Property owners retain responsibility for O&M	Ì														
infrast	ructure located within property, however Council															
repair/r	eplace faulty pumps provided they have seen more															
than 5 ye	ears of service. Council will continue to operate and															
main	tain infrastructure outside of property boundary.															
YEAR		2029	2030	)	2031	2032	2033	2034		2035	20	36	2037	2038	2039	2040
Council Co	osts - CAPEX															
New Insta	llation and Replacement of Pump Costs (>5yr)															
	Cost of a new pump	\$ 3,345	\$ 3,405	\$	3,466	\$ 3,528	\$ 3,592	\$ 3,657	\$	3,722	\$ 3,78	9	\$ 3,858	\$ 3,927	\$ 3,998	\$ 4,070
	Cost of Installation (plumber/electrician)	\$ 619	\$ 631	\$	642	\$ 653	\$ 665	\$ 677	\$	689	\$ 70	2	\$ 714	\$ 727	\$ 740	\$ 754
	Total Cost per pump replaced	\$ 3,964	\$ 4,035	\$	4,108	\$ 4,182	\$ 4,257	\$ 4,334	\$	4,412	\$ 4,49	1	\$ 4,572	\$ 4,654	\$ 4,738	\$ 4,823
	Number of pumps to be installed by Council (New															
	installations + >5 yr Replacement)	18	24	Ļ	10	13	34	18		24		10	13	34	18	24
	Total Annual Cost to Install new Low Pressure															
	Pumps and Replace Pumps aged > 5 yrs	\$ 71,350	\$ 96,846	\$	41,079	\$ 54,364	\$ 144,742	\$ 78,007	\$ 1	105,882	\$ 44,91	2	\$ 59,436	\$ 158,246	\$ 85,285	\$ 115,760
New Tank	Installations															
	Number of new low pressure pump station															
	installations	0	0	)	0	0	0	0		0		0	0	0	0	0
	Cost of a new Control Box and PLC	\$ 1,486	\$ 1,513	\$	1,540	\$ 1,568	\$ 1,596	\$ 1,625	\$	1,654	\$ 1,68	4	\$ 1,714	\$ 1,745	\$ 1,777	\$ 1,809
	Additional Costs to above for 1,100L Tank and															
	pipework for new installations	\$ 2,601	\$ 2,648	\$	2,696	\$ 2,744	\$ 2,794	\$ 2,844	\$	2,895	\$ 2,94	7	\$ 3,000	\$ 3,054	\$ 3,109	\$ 3,165
	General earthworks and construction costs	\$ 3,097	\$ 3,153	\$	3,209	\$ 3,267	\$ 3,326	\$ 3,386	\$	3,447	\$ 3,50	9	\$ 3,572	\$ 3,636	\$ 3,702	\$ 3,768
	Total Per Low New Pressure Installation (Excl Pump															
	& Plumber)	\$7,185	\$7,314	Ļ	\$7,446	\$7,580	\$7,716	\$7,855		\$7,996	\$8,1	10	\$8,287	\$8,436	\$8,588	\$8,742
	Total Per Low New Pressure Installation (Excl															
	Pump & Plumber)	\$0.00	\$0.00		\$0.00	\$0.00	\$0.00	\$0.00		\$0.00	\$0.	00	\$0.00	\$0.00	\$0.00	\$0.00
	Number of properties connected	99	99	)	99	99	99	99		99		99	99	99	99	99
	Rationalised Cost per New Connection and															
	Replacement of Pumps > 5 yrs	\$ 720.71	\$ 978.24	\$	414.94	\$ 549.13	\$ 1,462.04	\$ 787.95	\$ 1,	,069.51	\$ 453.6	5 \$	\$ 600.36	\$ 1,598.44	\$ 861.47	\$ 1,169.30
	Total Council CAPEX Costs	\$ 71,350	\$ 96,846	\$	41,079	\$ 54,364	\$ 144,742	\$ 78,007	\$ 1	105,882	\$ 44,91	2	\$	\$ 158,246	\$ 85,285	\$ 115,760

Optio	n 2 - Property owners retain responsibility for O&M						
infras	structure located within property, however Council						
repair/	replace faulty pumps provided they have seen more						
than 5 y	years of service. Council will continue to operate and						
maiı	ntain infrastructure outside of property boundary.						
YEAR		2041	2042	2043	2044	2045	2046
Council (	Costs - CAPEX						
New Inst	allation and Replacement of Pump Costs (>5yr)						
	Cost of a new pump	\$ 4,143	\$ 4,218	\$ 4,293	\$ 4,371	\$ 4,449	\$ 4,529
	Cost of Installation (plumber/electrician)	\$ 767	\$ 781	\$ 795	\$ 809	\$ 824	\$ 839
	Total Cost per pump replaced	\$ 4,910	\$ 4,999	\$ 5,089	\$ 5,180	\$ 5,273	\$ 5,368
	Number of pumps to be installed by Council (New						
	installations + >5 yr Replacement)	10	13	34	18	24	10
	Total Annual Cost to Install new Low Pressure						
	Pumps and Replace Pumps aged > 5 yrs	\$ 49,102	\$ 64,981	\$ 173,010	\$ 93,242	\$ 126,561	\$ 53,683
New Tan	k Installations						
	Number of new low pressure pump station						
	installations	0	0	0	0	0	0
	Cost of a new Control Box and PLC	\$ 1,841	\$ 1,874	\$ 1,908	\$ 1,943	\$ 1,978	\$ 2,013
	Additional Costs to above for 1,100L Tank and						
	pipework for new installations	\$ 3,222	\$ 3,280	\$ 3,339	\$ 3,399	\$ 3,461	\$ 3,523
	General earthworks and construction costs	\$ 3,836	\$ 3,905	\$ 3,975	\$ 4,047	\$ 4,120	\$ 4,194
	Total Per Low New Pressure Installation (Excl Pump						
	& Plumber)	\$8,900	\$9,060	\$9,223	\$9,389	\$9,558	\$9,730
	Total Per Low New Pressure Installation (Excl						
	Pump & Plumber)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Number of properties connected	99	99	99	99	99	99
	Rationalised Cost per New Connection and						
	Replacement of Pumps > 5 yrs	\$ 495.98	\$ 656.38	\$ 1,747.58	\$ 941.84	\$ 1,278.39	\$ 542.25
	Total Council CAPEX Costs	\$ 49,102	\$ 64,981	\$ 173,010	\$ 93,242	\$ 126,561	\$ 53,683

		1	I	T		1		T		T		1		1		1		<u> </u>		1	1
Ор	tion 3 - Property owners retain responsibility for O&M																				
infra	structure located within property, however Council will																				
repair/re	place any faulty pumps provided seen more than 10 years of																				
service.	Council will continue to operate and maintain infrastructure																				
	outside of the property boundary.																				
YEAR		2017			2018		2019	)	2020		2021		2022		2023		2024		2025	2026	2027
Council Co	osts - CAPEX																				
New Insta	allation and Replacement of Pump Costs (>10yr)																				
	Cost of a new pump	2700		\$	2,749	\$	2,798	\$	2,848	\$	2,900	\$	2,952	\$	3,005	\$	3,059	\$	3,114	\$ 3,170	\$ 3,227
	Cost of Installation (plumber/electrician)	500		\$	509	\$	518	\$	527	\$	537	\$	547	\$	556	\$	567	\$	577	\$ 587	\$ 598
	Total Cost per pump replaced			\$	3,258	\$	3,316	\$	3,376	\$	3,437	\$	3,499	\$	3,562	\$	3,626	\$	3,691	\$ 3,757	\$ 3,825
	Number of pumps to be installed by Council (New																				
	installations + > 10 yr Replacement)				9		3	3	3		4		13		15		15		21	6	10
	Total Annual Cost to Install new Low Pressure Pumps and																				
	Replace Pumps aged > 10 yrs			\$	29,318	\$	9,949	\$	10,128	\$	13,747	\$	45,481	\$	53,423	\$	54,385	\$	77,509	\$ 22,544	\$ 38,250
New Tank	Installations																				
	Number of new low pressure pump station installations				9		3	3	3		4		3		3		3		3	(	0 0
	Cost of a new Control Box and PLC	\$1,200		\$	1,222	\$	1,244	\$	1,266	\$	1,289	\$	1,312	\$	1,336	\$	1,360	\$	1,384	\$ 1,409	\$ 1,434
	Additional Costs to above for 1,100L Tank and pipework for																				
	new installations	\$2,100		\$	2,138	\$	2,176	\$	2,215	\$	2,255	\$	2,296	\$	2,337	\$	2,379	\$	2,422	\$ 2,466	\$ 2,510
	General earthworks and construction costs	\$2,500		\$	2,545	\$	2,591	\$	2,637	\$	2,685	\$	2,733	\$	2,782	\$	2,833	\$	2,884	\$ 2,935	\$ 2,988
	Total Per Low New Pressure Installation (Excl Pump &																				
	Plumber)	\$5,800			\$5,904		\$6,011		\$6,119		\$6,229		\$6,341		\$6,455		\$6,571		\$6,690	\$6,810	\$6,933
	Total Per Low New Pressure Installation (Excl Pump &																				
	Plumber)			\$5	3,139.60	\$1	8,032.04	\$1	18,356.61	\$2	24,916.04	\$1	19,023.40	\$1	9,365.82	\$1	9,714.41	\$2	0,069.27	\$0.00	\$0.00
				<u> </u>		l.		† i				· ·		L.		Ľ.		<u> </u>			
New Tank	<pre>c Installations</pre>																				
	Number of properties connected				77	'	80	)	83		87		90		93		96		99	99	99
	Rationalised Cost per New Connection and Replacement of																				
	Pumps > 10 yrs			\$ 1	L,070.88	\$	349.76	\$	343.19	\$	444.40	\$	716.72	\$	782.68	\$	771.86	\$	985.64	\$ 227.72	\$ 386.36
								1													
	Total Council CAPEX Costs			\$	82,458	\$	27,981	\$	28,484	\$	38,663	\$	64,505	\$	72,789	\$	74,099	\$	97,578	\$ 22,544	\$ 38,250
-																					

Table C3

Option 3 - Property owners retain responsibility for 08M infrastructure located within property boundary.         Image: constraint of the property boundary.         Image: co															
Infrastructure located within property, however Council will repair/replace any faulty pumps provided seen more than 10 years of service. Council will continue to operet and maintain infrastructure outside of the property boundary.         Image: Control operation operation installation infrastructure outside of the property boundary.         Image: Control operation operatioperating operation operation operation operation operati	Opt	ion 3 - Property owners retain responsibility for O&M													
repair/replace any faulty pumps provided seen more than 10 years of service. Council will continue to operate and maintain infrastructure outside of the property boundary. <ul> <li></li></ul>	infras	structure located within property, however Council will													
Sperice. Council will continue to operate and maintain infrastructure outside of the property boundary.         Specific Council Counc	renair/ren	lace any faulty numps provided seen more than 10 years of													
Instruction of the property boundary.       Image: construction of proproperty boundary.       Image: construction o	service (	Souncil will continue to operate and maintain infrastructure													
VEAR         Consider of the property contrary.         Consider of the property	Scivice. C	outside of the property boundary													
YEAR         2028         2029         2030         2031         2032         2033         2034         2035         2036         2037         2038         2039         2040           Council Costs - CAPEX         Image: Constant of Pump Costs (p10yr)         Image: Cost of a new pump         \$ 3,285         \$ 3,345         \$ 3,405         \$ 3,466         \$ 3,522         \$ 3,557         \$ 3,722         \$ 3,789         \$ 3,885         \$ 3,998         \$ 4,070           Cost of a new pump         \$ 3,285         \$ 3,345         \$ 4,013         \$ 663         \$ 663         \$ 663         \$ 663         \$ 663         \$ 663         \$ 4,772         \$ 4,774         \$ 7,74         \$ 7,74         \$ 7,78         \$ 4,823           Number of pumps to be installed by Council (New         \$ 3,894         \$ 3,964         \$ 4,108         \$ 4,122         \$ 4,421         \$ 4,472         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,572         \$ 4,274         \$ 1,470           Number of nump sto be install new Low Pressure Pumps and Replace Pumps aged > 10 yrs         \$ 3,564         \$ 1,518         \$ 1,540         \$ 1,568         \$ 1,556         \$ 1,654															
LCM       2003      <	VEAD		2028	202	0 2020	2021	2022	2022	2024	2025	2026	2027	2028	2020	2040
Control cols of cols         Control cols         Contr		sts - CADEX	2028	202	2030	2031	2032	2033	2034	2033	2030	2037	2038	2039	2040
Intervisionation and regulation requirement correction and regulation for thing Costs (2,0)/1       5       3,285       \$       3,485       \$       3,465       \$       3,592       \$       3,592       \$       3,789       \$       3,888       \$       3,998       \$       4,070         Cost of a new pump       5       608       5       613       5       642       5       633       5       665       5       677       5       689       5       714       5       727       5       744       5       727       5       744       5       727       5       744       5       727       5       4,637       5       4,637       5       4,637       5       4,637       5       4,637       5       4,637       5       4,637       5       4,637       5       4,637       5       4,637       5       4,637       5       4,637       5       4,617       5       4,617       5       4,617       5       4,617       5       4,617       5       4,617       5       4,617       5       4,617       5       4,617       5       4,617       5       4,617       5       4,617       5       4,617       5       4,61	Now Instal	listion and Bonlacomont of Rumn Costs (>10ur)													
Loss of a new pump       3       4       13       15       12       5       10       9       3       3       4       13       15       15       21       6       10       9       3       3       4       13       15       15       21       6       10       9       3       3       4       13       15       15       21       6       10       9       3       3       4       13       15       15       21       6       10       9       3       3       4       13       15       121       6       10       9       3       3       4       13       15       121       6       10       9       3       3       4       13	New Insta		ć <u>2 20</u> 5	ć 224	. ¢ 2.405	¢ 2,466	ć 2 5 2 0	¢ 2502	¢ 2657	¢ 2.722	ć 2.790	ć 2050	¢ 2,027	ć 2.000	ć 4.070
Cost of installation (plumber/electrical)       5       60/s       5       60/s       5       60/s       5       60/s       5       60/s       5       60/s       5       7/4       5       7/2       5       7/2       5       7/2       5		Cost of a new pump	\$ 3,285	\$ 3,34	5 3,405	\$ 3,466	\$ 3,528	\$ 3,592	\$ 3,057	\$ 3,722	\$ 3,789	\$ 3,858	\$ 3,927	\$ 3,998	\$ 4,070
Installations       9       3       3       4       13       15       15       21       6       10       9       3       3         Total Loss per pump sto be installed by Council (New installations +> 10 yr Replacement)       9       3       3       4       13       15       15       21       6       10       9       3       3         Total Annual Cost to Install new Low Pressure Pumps and Replace Pumps aged > 10 yrs       \$ 35,044       \$ 11,892       \$ 12,106       \$ 16,432       \$ 54,364       \$ 63,857       \$ 65,006       \$ 92,647       \$ 26,947       \$ 4,572       \$ 4,188       \$ 14,214       \$ 14,470         New Tank Installations       0		Cost of Installation (plumber/electrician)	\$ 608	\$ 61 ¢ 2.00	9 \$ 631	\$ 642	\$ 653	\$ 665	\$ 6//	\$ 689	\$ 702	\$ /14	\$ 727	\$ 740	\$ 754
Number of pumps to be installed by Council (New installations +> 10 yr Replacement)       9       3       3       4       13       15       15       21       6       10       9       3       3         Total Annual Cost to Install new Low Pressure Pumps and Replace Pumps aged > 10 yrs       \$ 35,044       \$ 11,892       \$ 12,106       \$ 16,432       \$ 54,364       \$ 65,006       \$ 92,647       \$ 26,947       \$ 45,720       \$ 41,889       \$ 14,214       \$ 14,470         Number of new low pressure pump station installations       0		Total Cost per pump replaced	\$ 3,894	\$ 3,96	4 \$ 4,035	\$ 4,108	\$ 4,182	\$ 4,257	\$ 4,334	\$ 4,412	\$ 4,491	\$ 4,572	\$ 4,654	\$ 4,738	\$ 4,823
Installations +> 10 yr Replacement)       9       3       3       4       13       15       15       21       6       10       9       3       3       3         Total Annual Cost to Install new Low Pressure Pumps aged > 10 yrs       \$ 35,044       \$ 11,892       \$ 12,106       \$ 16,432       \$ 54,364       \$ 63,857       \$ 65,006       \$ 92,647       \$ 26,947       \$ 45,720       \$ 41,889       \$ 14,214       \$ 14,470         New Task Installations       0		Number of pumps to be installed by Council (New													
Total Annual Cost to install new Low Pressure Pumps and Replace Pumps aged > 10 yrs       \$ 35,044       \$ 11,892       \$ 12,106       \$ 16,432       \$ 54,364       \$ 65,006       \$ 92,647       \$ 26,947       \$ 45,720       \$ 41,889       \$ 14,214       \$ 14,470         New Tank Installations       0		installations + > 10 yr Replacement)	9		3 3	4	. 13	15	15	21	6	10	9	3	3
Replace Pumps aged > 10 yrs       \$ 35,044       \$ 11,892       \$ 12,106       \$ 16,432       \$ 54,364       \$ 63,857       \$ 65,006       \$ 92,647       \$ 26,947       \$ 45,720       \$ 41,889       \$ 11,214       \$ 14,470         New Tank Installations       0 <th></th> <th>Total Annual Cost to Install new Low Pressure Pumps and</th> <th></th>		Total Annual Cost to Install new Low Pressure Pumps and													
New Tank Installations       Image: New Tank Installation New Tessure Installation (Excl Pump & Plumber)       Image: New Tank Installations       Image: New Tank Installations       Image: New Tank Installations       Image: New Tank Installations       Image: New Tank Installation New Tessure Installation (Excl Pump & Plumber)       Image: New Tank Installation New Tessure Installation (Excl Pump & Str.)       Image: New Tank Installation New Tessure Installation (Excl Pump & Str.)       Image: New Tank Installation New Tessure Installation (Excl Pump & Str.)       Image: New Tank Installation New Tessure Installation (Excl Pump & Str.)       Image: New Tank Installation New Tessure Installation (Excl Pump & Str.)       Image: New Tank Installation New Tessure Installation (Excl Pump & Str.)       Image: New Tank Installation New Tessure Installation (Excl Pump & Str.)       Image: New Tank Installation New Tessure Installation New Tessure Installation New Tessure Installation (Excl Pump & Str.)       Image: New Tank Installation New Tessure Installation New Tank InstallationS		Replace Pumps aged > 10 yrs	\$ 35,044	\$ 11,89	2 \$ 12,106	\$ 16,432	\$ 54,364	\$ 63,857	\$ 65,006	\$ 92,647	\$ 26,947	\$ 45,720	\$ 41,889	\$ 14,214	\$ 14,470
Number of new low pressure pump station installations         0	New Tank	Installations													
Number of new low pressure pump station installations       0															
Cost of a new Control Box and PLC       \$ 1,460       \$ 1,480       \$ 1,513       \$ 1,584       \$ 1,596       \$ 1,654       \$ 1,654       \$ 1,684       \$ 1,714       \$ 1,777       \$ 1,809         Additional Costs to above for 1,100L Tank and pipework for new installations       \$ 2,555       \$ 2,601       \$ 2,661       \$ 2,668       \$ 2,696       \$ 2,744       \$ 2,895       \$ 2,895       \$ 2,947       \$ 3,000       \$ 3,000       \$ 3,165         General earthworks and construction costs       \$ 3,042       \$ 3,097       \$ 3,153       \$ 3,209       \$ 3,267       \$ 3,386       \$ 3,447       \$ 3,509       \$ 3,572       \$ 3,668       \$ 3,702       \$ 3,768         Total Per Low New Pressure Installation (Excl Pump & Plumber)       \$ 7,058       \$ 7,185       \$ 7,185       \$ 7,314       \$ 7,446       \$ 7,580       \$ 7,716       \$ 7,855       \$ 7,996       \$ 8,140       \$ 8,287       \$ 8,8436       \$ 8,888       \$ 8		Number of new low pressure pump station installations	0		0 0	0	0	0	0	0	C	0 0	0	0	0
Additional Costs to above for 1,100L Tank and pipework for new installations       \$ 2,555       \$ 2,601       \$ 2,648       \$ 2,696       \$ 2,794       \$ 2,844       \$ 2,895       \$ 2,947       \$ 3,000       \$ 3,054       \$ 3,109       \$ 3,165         General earthworks and construction costs       \$ 3,042       \$ 3,097       \$ 3,153       \$ 3,227       \$ 3,326       \$ 3,386       \$ 3,447       \$ 3,509       \$ 3,572       \$ 3,668       \$ 3,762       \$ 3,768         Total Per Low New Pressure Installation (Excl Pump & Plumber)       \$ 7,058       \$ 7,185       \$ 7,185       \$ 7,314       \$ 7,446       \$ 7,855       \$ 7,855       \$ 7,996       \$ 8,140       \$ 8,287       \$ 8,436       \$ 8,8588       \$ 8,8588       \$ 8,742         Humber)       \$ 7,058       \$ 7,058       \$ 7,185       \$ 7,314       \$ 7,446       \$ 7,850       \$ 7,716       \$ 7,855       \$ 7,996       \$ 8,140       \$ 8,287       \$ 8,436       \$ 8,8588       \$ 8,8588       \$ 8,000       \$ 0,00 <t< td=""><td></td><td>Cost of a new Control Box and PLC</td><td>\$ 1,460</td><td>\$ 1,48</td><td>5 \$ 1,513</td><td>\$ 1,540</td><td>\$ 1,568</td><td>\$ 1,596</td><td>\$ 1,625</td><td>\$ 1,654</td><td>\$ 1,684</td><td>\$ 1,714</td><td>\$ 1,745</td><td>\$ 1,777</td><td>\$ 1,809</td></t<>		Cost of a new Control Box and PLC	\$ 1,460	\$ 1,48	5 \$ 1,513	\$ 1,540	\$ 1,568	\$ 1,596	\$ 1,625	\$ 1,654	\$ 1,684	\$ 1,714	\$ 1,745	\$ 1,777	\$ 1,809
new installations       \$ 2,555       \$ 2,601       \$ 2,648       \$ 2,696       \$ 2,794       \$ 2,844       \$ 2,895       \$ 2,947       \$ 3,000       \$ 3,054       \$ 3,109       \$ 3,165         General earthworks and construction costs       \$ 3,042       \$ 3,097       \$ 3,153       \$ 3,209       \$ 3,267       \$ 3,326       \$ 3,386       \$ 3,447       \$ 3,509       \$ 3,572       \$ 3,636       \$ 3,702       \$ 3,768         Total Per Low New Pressure Installation (Excl Pump & Plumber)       \$7,058       \$7,185       \$7,314       \$7,446       \$7,580       \$7,716       \$7,855       \$7,996       \$8,140       \$8,287       \$8,436       \$8,588       \$8,588       \$8,742         Total Per Low New Pressure Installation (Excl Pump & Plumber)       \$7,058       \$7,185       \$7,314       \$7,446       \$7,580       \$7,716       \$7,855       \$7,996       \$8,140       \$8,287       \$8,436       \$8,588       \$8,588       \$8,742         Total Per Low New Pressure Installation (Excl Pump & Plumber)       \$0.00		Additional Costs to above for 1,100L Tank and pipework for													
General earthworks and construction costs       \$ 3,042       \$ 3,097       \$ 3,153       \$ 3,209       \$ 3,267       \$ 3,386       \$ 3,447       \$ 3,509       \$ 3,572       \$ 3,666       \$ 3,702       \$ 3,768         Total Per Low New Pressure Installation (Excl Pump & Plumber)       \$7,058       \$7,185       \$7,314       \$7,446       \$7,580       \$7,716       \$7,855       \$7,996       \$8,140       \$8,287       \$8,436       \$8,588       \$8,588       \$8,742         Total Per Low New Pressure Installation (Excl Pump & Plumber)       \$7,058       \$7,185       \$7,314       \$7,446       \$7,580       \$7,716       \$7,855       \$7,996       \$8,140       \$8,287       \$8,436       \$8,588       \$8,588       \$8,742         Integration (Excl Pump & Plumber)       \$9,000       \$0,000		new installations	\$ 2,555	\$ 2,60	L \$ 2,648	\$ 2,696	\$ 2,744	\$ 2,794	\$ 2,844	\$ 2,895	\$ 2,947	\$ 3,000	\$ 3,054	\$ 3,109	\$ 3,165
Total Per Low New Pressure Installation (Excl Pump & Plumber)       \$7,058       \$7,185       \$7,314       \$7,446       \$7,580       \$7,716       \$7,855       \$7,996       \$8,140       \$8,287       \$8,436       \$8,588       \$8,742         Total Per Low New Pressure Installation (Excl Pump & Plumber)       \$0.00		General earthworks and construction costs	\$ 3,042	\$ 3,09	7 \$ 3,153	\$ 3,209	\$ 3,267	\$ 3,326	\$ 3,386	\$ 3,447	\$ 3,509	\$ 3,572	\$ 3,636	\$ 3,702	\$ 3,768
Plumber)       \$7,058       \$7,185       \$7,314       \$7,346       \$7,580       \$7,716       \$7,855       \$7,996       \$8,140       \$8,287       \$8,436       \$8,588       \$8,742         Total Per Low New Pressure Installation (Excl Pump & Plumber)       \$0.00		Total Per Low New Pressure Installation (Excl Pump &													
Total Per Low New Pressure Installation (Excl Pump & Plumber)\$0.00 <td></td> <td>Plumber)</td> <td>\$7,058</td> <td>\$7,18</td> <td>5 \$7,314</td> <td>\$7,446</td> <td>\$7,580</td> <td>\$7,716</td> <td>\$7,855</td> <td>\$7,996</td> <td>\$8,140</td> <td>\$8,287</td> <td>\$8,436</td> <td>\$8,588</td> <td>\$8,742</td>		Plumber)	\$7,058	\$7,18	5 \$7,314	\$7,446	\$7,580	\$7,716	\$7,855	\$7,996	\$8,140	\$8,287	\$8,436	\$8,588	\$8,742
Plumber)\$0.00		Total Per Low New Pressure Installation (Excl Pump &													
Image: New Tank Installations       Image: New Connected       Image: New Connected       Image: New Connection and Replacement of Pumps > 10 yrs       Image: New Connection and Replacement of S 353 98       Image:		Plumber)	\$0.00	\$0.0	0 \$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
New Tank InstallationsImage: New ConnectedImage: Second con															
Number of properties connected       99       90       99       90	New Tank	Installations													
Rationalised Cost per New Connection and Replacement of Pumps > 10 yrs $$ 353.98$ $$ 120.12$ $$ 122.28$ $$ 165.98$ $$ 549.13$ $$ 645.02$ $$ 656.63$ $$ 935.82$ $$ 272.19$ $$ 461.82$ $$ 423.12$ $$ 143.58$ $$ 146.16$		Number of properties connected	99	9	9 99	99	99	99	99	99	99	99	99	99	99
Pumps > 10 yrs		Rationalised Cost per New Connection and Replacement of													
		Pumps > 10 yrs	\$ 353.98	\$ 120.1	2 \$ 122.28	\$ 165.98	\$ 549.13	\$ 645.02	\$ 656.63	\$ 935.82	\$ 272.19	\$ 461.82	\$ 423.12	\$ 143.58	\$ 146.16
				·	1	1	1	·	· · · ·	† ·			† ·		
Total Council CAPEX Costs \$35,044 \$ 11,892 \$ 12,106 \$ 16,432 \$ 54,364 \$ 63,857 \$ 65,006 \$ 92,647 \$ 26,947 \$ 45,720 \$ 41,889 \$ 14,214 \$ 14,470		Total Council CAPEX Costs	\$ 35,044	\$ 11,89	2 \$ 12,106	\$ 16,432	\$ 54,364	\$ 63,857	\$ 65,006	\$ 92,647	\$ 26,947	\$ 45,720	\$ 41,889	\$ 14,214	\$ 14,470

Table C3

0	ption 3 - Property owners retain responsibility for O&M												
inf	rastructure located within property, however Council will												
repair/r	replace any faulty pumps provided seen more than 10 years of												
service	. Council will continue to operate and maintain infrastructure												
	outside of the property boundary.	-											
VEAR			20/11		2042		20/13		2044		2045		2046
Council	Costs - CAPEX	-	2041		2042		2043		2044		2043		2040
New Ins	tallation and Replacement of Pump Costs (>10vr)												
	Cost of a new pump	Ś	4.143	Ś	4.218	Ś	4.293	Ś	4.371	Ś	4.449	Ś	4.529
	Cost of Installation (plumber/electrician)	\$	767	\$	781	\$	795	\$	809	\$	824	\$	839
	Total Cost per pump replaced	\$	4,910	\$	4,999	\$	5,089	\$	5,180	\$	5,273	\$	5,368
	Number of pumps to be installed by Council (New				-	-					-		
	installations + > 10 yr Replacement)		4		13		15		15		21		6
	Total Annual Cost to Install new Low Pressure Pumps and												
	Replace Pumps aged > 10 yrs	\$	19,641	\$	64,981	\$	76,328	\$	77,702	\$	110,741	\$	32,210
New Tai	nk Installations												
	Number of new low pressure pump station installations		0		0		0		0		0		0
	Cost of a new Control Box and PLC	\$	1,841	\$	1,874	\$	1,908	\$	1,943	\$	1,978	\$	2,013
	Additional Costs to above for 1,100L Tank and pipework for												
	new installations	\$	3,222	\$	3,280	\$	3,339	\$	3,399	\$	3,461	\$	3,523
	General earthworks and construction costs	\$	3,836	\$	3,905	\$	3,975	\$	4,047	\$	4,120	\$	4,194
	Total Per Low New Pressure Installation (Excl Pump &												
	Plumber)		\$8,900		\$9,060		\$9,223		\$9,389		\$9,558		\$9,730
	Total Per Low New Pressure Installation (Excl Pump &												
	Plumber)		Ş0.00		Ş0.00		<b>\$0.00</b>		Ş0.00		Ş0.00		Ş0.00
New Tai	nk Installations												
	Number of properties connected		99		99		99		99		99		99
	Rationalised Cost per New Connection and Replacement of												
	Pumps > 10 yrs	Ş	198.39	Ş	656.38	Ş	770.99	Ş	784.87	Ş	1,118.59	Ş	325.35
			10.014		64.004		76 222		77 700	-	440 744		22.246
L	TOTAL COUNCIL CAPEX COSTS	>	19,641	>	64,981	Ş	10,328	Ş	11,102	Ş	110,741	Ş	32,210

Table C3

i			1	1		<b>—</b>		1		r		1		r		r				r			
Optio infr	on 3-20YR - Property owners retain responsibility for O&M astructure located within property, however Council will																						
repair/r	epiace any faulty pumps provided seen more than 20 years of																					1	
service.	Council will continue to operate and maintain infrastructure																	1				1	
	outside of the property boundary.					⊢												$\vdash$				┣──	
						┢												∟				┝──	
YEAR		2017			2018	<u> </u>	2019		2020		2021		2022		2023		2024	$\vdash$	2025		2026	<b> </b>	2027
Council	Costs - CAPEX																					L	
New Inst	callation and Replacement of Pump Costs (>20yr)																						
	Cost of a new pump	2700		\$	2,749	\$	2,798	\$	2,848	\$	2,900	\$	2,952	\$	3,005	\$	3,059	\$	3,114	\$	3,170	\$	3,227
	Cost of Installation (plumber/electrician)	500		\$	509	\$	518	\$	527	\$	537	\$	547	\$	556	\$	567	\$	577	\$	587	\$	598
	Total Cost per pump replaced			\$	3,258	\$	3,316	\$	3,376	\$	3,437	\$	3,499	\$	3,562	\$	3,626	\$	3,691	\$	3,757	\$	3,825
	Number of pumps to be installed by Council (New																					í –	
	installations + > 20 yr Replacement)				9	)	3		3		4		3		3		3	1	3		0	1	0
	Total Annual Cost to Install new Low Pressure Pumps and																						
	Replace Pumps aged > 20 yrs			\$	29,318	\$	9,949	\$	10,128	\$	13,747	\$	10,496	\$	10,685	\$	10,877	\$	11,073	\$	-	\$	-
New Tar	k Installations																						
	Number of new low pressure pump station installations				9	,	3		3		4		3		3		3	1	3		0	1	0
	Cost of a new Control Box and PLC	\$1,200		\$	1,222	\$	1,244	\$	1,266	\$	1,289	\$	1,312	\$	1,336	\$	1,360	\$	1,384	\$	1,409	\$	1,434
	Additional Costs to above for 1,100L Tank and pipework for					<u> </u>					-									-	-	Ē	
	new installations	\$2.100		Ś	2.138	Ś	2.176	Ś	2.215	Ś	2.255	Ś	2.296	Ś	2.337	Ś	2.379	Ś	2.422	Ś	2.466	Ś	2.510
	General earthworks and construction costs	\$2,500		Ś	2.545	Ś	2.591	Ś	2.637	Ś	2.685	Ś	2.733	Ś	2.782	Ś	2.833	\$	2.884	Ś	2.935	\$	2.988
	Total Per Low New Pressure Installation (Excl Pump &	1 /		1 '	/	†–	/	Ľ	<i>y</i>	Ľ	,	Ľ	,	'	7 -	Ľ.	,	<u> </u>	/		,	Ċ.	/
	Plumber)	\$5,800			\$5,904		\$6,011		\$6,119		\$6,229		\$6,341		\$6,455		\$6.571	1	\$6,690		\$6,810	1	\$6,933
	Total Per Low New Pressure Installation (Excl Pump &	40,000			<i>40)00</i>	+	+0)011		<i>+0)120</i>		+0)==0		+0)0 - 1		<i>+0)</i> .00		<i>+ 0)0 / 1</i>	┢──	<i>\\\\\\\\\\\\\</i>		<i>+0)0±0</i>		+0)000
	Plumber)			\$5	3 139 60	\$1	8 032 04	\$1	18 356 61	\$2	4 916 04	\$1	9 023 40	\$1	9 365 82	\$1	9 714 41	\$2	0 069 27		\$0.00	1	\$0.00
				+	3,135.00	+	0,032.04		10,000.01	72	4,510.04	<u> </u>	5,023.40	Ψ±	5,505.02	<u> </u>	.5,7 14.41	72	.0,005.27		<i>ç</i> 0.00	<u> </u>	
New Tar	k Installations					<u> </u>												⊢				<u> </u>	
	Number of properties connected				77	, <del> </del>	80		83		87		90		93		96	⊢	99		99	<u> </u>	90
	Rationalised Cost per New Connection and Replacement of				,,	┼──	00		00		07		50				50	⊢				<u> </u>	
	Pumps > 10 vrs			¢ 1	1 070 89	ć	3/0 76	¢	3/12 10	ć	111 10	¢	377 00	ć	272 17	ć	318 66	ć	31/1 57	ć	_	¢	_
				<u>ې</u>	1,070.00	<u>⊢</u> ,	543.70		J+J.13	ر ب	444.40		521.55	ر ب	JZJ.12		510.00	Ļ	514.57	ڊ ا	-	, 	
	Total Council CAREX Costs			ć	07 150	6	27 001	ć	20 101	ć	30 663	ć	20 510	ć	20.050	ć	20 501	ć	21 1/2	ć		ć	
	TOTAL COUNCIL CAPEN COSIS			Ş	02,430	<u>,                                    </u>	27,901	ļŞ	20,404	Ş	20,003	ļŞ	29,519	د ا	30,030	Ş	30,391	Ş	51,142	Ş	-	ې ب	-

		1		T		1		T											T	<b>—</b>	T	
Option	3-20YR - Property owners retain responsibility for O&M																					
infra	structure located within property, however Council will																					
repair/rep	place any faulty pumps provided seen more than 20 years of																					
service. C	Council will continue to operate and maintain infrastructure																					
	outside of the property boundary.																					
																				-		
YEAR			2028	3	2029		2030		2031		2032		2033	2034	2035	5	2036	2037	203	8	2039	2040
Council Co	osts - CAPEX																			-		
New Insta	llation and Replacement of Pump Costs (>20yr)																			1		
	Cost of a new pump	\$	3,285	\$	3,345	\$	3,405	\$	3,466	\$3,	528	\$ 3	,592	\$ 3,657	\$ 3,722	\$	3,789	\$ 3,858	\$ 3,92	1\$	3,998	\$ 4,070
	Cost of Installation (plumber/electrician)	\$	608	\$	619	\$	631	\$	642	\$	653	\$	665	\$ 677	\$ 689	\$	702	\$ 714	\$ 72	1\$	740	\$ 754
	Total Cost per pump replaced	\$	3,894	\$	3,964	\$	4,035	\$	4,108	\$ 4,	182	\$ 4	,257	\$ 4,334	\$ 4,412	\$	4,491	\$ 4,572	\$ 4,654	i \$	4,738	\$ 4,823
	Number of pumps to be installed by Council (New		-		-				-											<u> </u>		
	installations + > 20 yr Replacement)		C		0		0		0		10		12	12	18	3	6	10		9	3	3
	Total Annual Cost to Install new Low Pressure Pumps and																			1		
	Replace Pumps aged > 20 yrs	\$	-	\$	-	\$	-	\$	-	\$ 41,	818	\$ 51,	,085	\$ 52,005	\$ 79,411	\$	26,947	\$ 45,720	\$ 41,889	) \$ 1	4,214	\$ 14,470
New Tank	Installations																					
	Number of new low pressure pump station installations		C		0		0		0		0		0	0	0		0	0		0	0	C
	Cost of a new Control Box and PLC	\$	1,460	\$	1,486	\$	1,513	\$	1,540	\$ 1,	568	\$ 1	,596	\$ 1,625	\$ 1,654	\$	1,684	\$ 1,714	\$ 1,74	; \$	1,777	\$ 1,809
	Additional Costs to above for 1,100L Tank and pipework for																					-
	new installations	\$	2,555	\$	2,601	\$	2,648	\$	2,696	\$ 2,	744	\$ 2	,794	\$ 2,844	\$ 2,895	\$	2,947	\$ 3,000	\$ 3,054	ļ\$	3,109	\$ 3,165
	General earthworks and construction costs	\$	3,042	\$	3,097	\$	3,153	\$	3,209	\$3,	267	\$ 3	,326	\$ 3,386	\$ 3,447	\$	3,509	\$ 3,572	\$ 3,636	; \$	3,702	\$ 3,768
	Total Per Low New Pressure Installation (Excl Pump &																					
	Plumber)		\$7,058	3	\$7,185		\$7,314		\$7,446	\$7	,580	\$7	7,716	\$7,855	\$7,996	5	\$8,140	\$8,287	\$8,43	6 5	\$8,588	\$8,742
	Total Per Low New Pressure Installation (Excl Pump &																					
	Plumber)		\$0.00		\$0.00		\$0.00		\$0.00	\$	0.00	ļ \$	60.00	\$0.00	\$0.00		\$0.00	\$0.00	\$0.0	0	\$0.00	\$0.00
New Tank	Installations																					
	Number of properties connected		99	)	99		99		99		99		99	99	99	)	99	99	9	9	99	99
	Rationalised Cost per New Connection and Replacement of																					
	Pumps > 10 yrs	\$	-	\$	-	\$	-	\$	-	\$ 422	2.41	\$ 51	6.01	\$ 525.30	\$ 802.13	\$	272.19	\$ 461.82	\$ 423.12	2 \$ 1	43.58	\$ 146.16
	Total Council CAPEX Costs	\$	-	\$	-	\$	-	\$	-	\$ 41,	818	\$ 51,	,085	\$ 52,005	\$ 79,411	\$	26,947	\$ 45,720	\$ 41,889	) \$ 1	4,214	\$ 14,470

Optio infi repair/r service.	on 3-20YR - Property owners retain responsibility for O&M rastructure located within property, however Council will replace any faulty pumps provided seen more than 20 years of . Council will continue to operate and maintain infrastructure												
	outside of the property boundary.	$\vdash$											
VEAD		┢	2041		2042		2042		2011		2045		2046
Council		⊢	2041		2042		2045		2044		2043		2040
New Ins	tallation and Replacement of Pump Costs (>20vr)	┢──											
	Cost of a new nump	Ś	1 1/13	¢	1 218	¢	1 293	¢	/ 371	¢	1 1 1 9	¢	1 529
	Cost of Installation (nlumber/electrician)	Ś	767	ې د	781	ې د	795	ې د	909	ې د	874	ې د	839
	Total Cost per pump replaced	Ś	4.910	Ś	4.999	\$	5.089	Ś	5.180	Ś	5.273	Ś	5.368
	Number of pumps to be installed by Council (New	Ť	.,	Ŧ	.,	Ŧ	0,000	Ť	0)200	Ŧ	0)_/0	Ŧ	0,000
	installations $+ > 20$ yr Replacement)		4		3		3		3		3		0
	Total Annual Cost to Install new Low Pressure Pumps and												
	Replace Pumps aged > 20 yrs	\$	19,641	\$	14,996	\$	15,266	\$	15,540	\$	15,820	\$	-
New Tar	nk Installations												
	Number of new low pressure pump station installations		0		0		0		0		0		0
	Cost of a new Control Box and PLC	\$	1,841	\$	1,874	\$	1,908	\$	1,943	\$	1,978	\$	2,013
	Additional Costs to above for 1,100L Tank and pipework for												
	new installations	\$	3,222	\$	3,280	\$	3,339	\$	3,399	\$	3,461	\$	3,523
	General earthworks and construction costs	\$	3,836	\$	3,905	\$	3,975	\$	4,047	\$	4,120	\$	4,194
	Total Per Low New Pressure Installation (Excl Pump &												
	Plumber)		\$8,900		\$9,060		\$9,223		\$9,389		\$9,558		\$9,730
	Total Per Low New Pressure Installation (Excl Pump &												
	Plumber)	L	\$0.00		\$0.00		\$0.00		\$0.00		\$0.00		\$0.00
		L											
New Tar	nk Installations	L											
	Number of properties connected	L	99		99		99		99		99		99
	Rationalised Cost per New Connection and Replacement of												
	Pumps > 10 yrs	\$	198.39	\$	151.47	\$	154.20	\$	156.97	\$	159.80	\$	-
		Ļ	10 6 4 4		14.000	<u> </u>	15 200		15 540	<u> </u>	15 020		
	TOTAL COUNCIL CAPEX COSTS	>	19,641	>	14,996	Ş	15,266	ļ	15,540	Ş	15,820	ļ	-

Optio	n 4 - Council to take over O&M of the low pressure sewer systems (pump replacement 10 years)															
		2017	7	2019	2010	2020	2021	1 2022	2022	2024	2025	2026	2027	2029	2020	2020
	etc - CADEY	2017	/ 	2018	2019	2020	2023	2022	2023	2024	2025	2020	2027	2028	2029	2030
New Insta	lation and Benlacement of Pump Costs (>10vr)															
ivew motor	Cost of a new pump	\$2,700	)	\$ 2,749	\$ 2,798	\$ 2,848	\$ 2,900	\$ 2,952	\$ 3,005	\$ 3.059	\$ 3,114	\$ 3,170	\$ 3,227	\$ 3,285	\$ 3,345	\$ 3,405
	Cost of a new Control Box and PLC	\$1,200	)	\$ 1,222	\$ 1,244	\$ 1,266	\$ 1,289	\$ 1,312	\$ 1,336	\$ 1,360	\$ 1,384	\$ 1,409	\$ 1,434	\$ 1,460	\$ 1,486	\$ 1,513
	Cost of Installation (plumber/electrician)	\$500	)	\$ 509	\$ 518	\$ 527	\$ 537	\$ 547	\$ 556	\$ 567	\$ 577	\$ 587	\$ 598	\$ 608	\$ 619	\$ 631
	Total Cost per Pump and Control/PLC replaced			\$ 4.479	\$ 4.560	\$ 4.642	\$ 4.725	\$ 4.811	\$ 4.897	\$ 4.985	\$ 5.075	\$ 5.166	\$ 5.259	\$ 5.354	\$ 5.450	\$ 5.548
	Number of pumps to be installed by Council (New installations + > 10 yr			+ .,	7 .,	+ .,e.=	+ .,.==	+ .,	+ .,	+ .,	+ 0,010	+ -,	+ 0,200	+ 0,000	+ -,	+ -,
	Replacement)			9	3	3	4	1 13	15	15	21	6	5 10	9	3	3
	Total Annual Cost to Install new Low Pressure Pumps and Controllers and															
	Replace Pumps aged > 10 yrs			\$ 40,313	\$ 13,679	\$ 13,926	\$ 18,902	\$ 62,537	\$ 73,457	\$ 74,779	\$ 106,575	\$ 30,998	\$ 52,593	\$ 48,186	\$ 16,351	\$ 16,645
New Tank	Installations															
	Number of new low pressure pump station installations			9	3	3	4	1 3	3	3	3	0	0 0	0	0 0	0
	Additional Costs to above for 1,100L Tank and pipework for new installations	\$2,100	D	\$ 2,138	\$ 2,176	\$ 2,215	\$ 2,255	\$ 2,296	\$ 2,337	\$ 2,379	\$ 2,422	\$ 2,466	\$ 2,510	\$ 2,555	\$ 2,601	\$ 2,648
	General earthworks and construction costs	\$2,500	)	\$ 2,545	\$ 2,591	\$ 2,637	\$ 2,685	\$ 2,733	\$ 2,782	\$ 2,833	\$ 2,884	\$ 2,935	\$ 2,988	\$ 3,042	\$ 3,097	\$ 3,153
	Total Per Low New Pressure Installation (Excl Pump & Plumber)	\$4,600	)	\$4,683	\$4,767	\$4,853	\$4,940	\$5,029	\$5,120	\$5,212	\$5,306	\$5,401	\$5,498	\$5,597	\$5,698	\$5,801
	Total Per Low New Pressure Installation (Excl Pump, Controller & Plumber)			\$42,145.20	\$14,301.27	\$14,558.69	\$19,761.00	\$15,087.52	\$15,359.10	\$15,635.56	\$15,917.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Number of properties connected			77	80	83	87	7 90	93	96	99	99	99	99	99	99
Easement	5															
	Capital cost per connection	\$5,000.00	)	\$5,000.00	\$ 5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Total Annual Easement Cost			\$385,000.00	15,000.00	15,000.00	20,000.00	15,000.00	15,000.00	15,000.00	15,000.00	0.00	0.00	0.00	0.00	0.00
													4-0-00		4.0.0-0.00	<b>.</b>
				\$467,458.00	\$42,980.75	<u>\$43,484.40</u>	\$58,662.83	<u>\$92,624.22</u>	<u>\$103,815.66</u>	\$105,414.34	<u>\$137,491.72</u>	<u>\$30,998.02</u>	<u>\$52,593.30</u>	<u>\$48,185.99</u>	<u>\$16,351.11</u>	<u>\$16,645.43</u>
	I otal Council CAPEX Costs per Connection			\$6,070.88	\$537.26	\$523.91	\$674.29	\$1,029.16	\$1,116.30	\$1,098.07	\$1,388.81	\$313.11	\$531.25	\$486.73	\$165.16	\$168.14
Council Co			-					-								
Council Co	sts - OPEX															
Callouts	Lloughungto for a plumbar	ć 20.04														
	Hourly rate for a plumber	\$ 30.84 ¢ 24.25														
		\$ 54.25 \$ 62.90														
	Vehicle Hourly Pate	\$ 02.80 \$ 10.00														
		\$ 1/3.89														
	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min	Ş 145.65														
	Assume call out is 2 hours	1 50	hourly nav	for overtime												
	Cost per callout	\$ 431.67														
	Percentage of houses doing a call out each year	100%	6													
	Number of Callouts per year	2007		77	80	83	87	7 90	93	96	99	99	99	99	99	99
	Total Annual Cost of Call outs			\$ 33.238.80	\$ 34.533.82	\$ 35.828.84	\$ 37.555.53	\$ 38.850.54	\$ 40.145.56	\$ 41.440.58	\$ 42.735.60	\$ 42.735.60	\$ 42.735.60	\$ 42.735.60	\$ 42.735.60	\$ 42.735.60
	Rationalised annual Call Out Cost per connection			\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67
	•															
Pump out																
	Estimated Cost to Vac-truck accumulated material in the base of the pump															
	wells	\$200.00	D	\$203.60	\$207.26	\$211.00	\$214.79	\$218.66	\$222.60	\$226.60	\$230.68	\$234.83	\$239.06	\$243.36	\$247.74	\$252.20
	Number of pump outs per year	100.00%	6													
				77	80	83	87	7 90	93	96	99	99	99	99	99	99
	Total Annual Vac-Truck pump out costs			\$15,677.20	\$16,581.18	\$17,512.63	\$18,687.03	\$\$19,679.38	\$20,701.40	\$21,753.83	\$22,837.44	\$23,248.51	\$23,666.99	\$24,092.99	\$24,526.67	\$24,968.15
	Rationalised annual Vac-Truck Pump Out of Pump Well per connection			\$203.60	\$207.26	\$211.00	\$214.79	\$218.66	\$222.60	\$226.60	\$230.68	\$234.83	\$239.06	\$243.36	\$247.74	\$252.20
	Total Council OPEX Costs			\$48,916	<u>\$51,115</u>	<u>\$53,341</u>	\$56,243	\$58,530	<u>\$60,847</u>	<u>\$63,194</u>	<u>\$65,573</u>	<u>\$65,984</u>	\$66,403	\$66,829	\$67,262	<u>\$67,704</u>
	Total Council Operation Costs per Connection			\$635.27	\$638.94	\$642.67	\$646.47	\$650.33	\$654.27	\$658.28	\$662.35	\$666.51	\$670.73	\$675.04	\$679.42	\$683.88
													1			
	Total Cost (CAPEX + OPEX)			\$516,374.00	\$94,095.75	\$96,825.87	\$114,905.39	\$151,154.14	\$164,662.62	\$168,608.75	\$203,064.76	\$96,982.13	\$118,995.89	\$115,014.58	\$83,613.38	\$84,349.18
	Rationalised Total Costs (CAPEX + OPEX)			\$6,706.16	\$1,176.20	\$1,166.58	\$1,320.75	5 \$1,679.49	\$1,770.57	\$1,756.34	\$2,051.16	\$979.62	2 \$1,201.98	\$1,161.76	\$844.58	\$852.01

Optio	n 4 - Council to take over O&M of the low pressure sewer systems (pump																
	replacement 10 years)	───															
VFAR		207	203	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Council Co	sts - CAPEX	203	205	2000	2034	2033	2030	2057	2030	2033	2040	2041	2042	2043	2044	2043	2040
New Instal	lation and Replacement of Pump Costs (>10yr)	<u> </u>															
	Cost of a new pump	\$ 3,46	6 \$ 3,528	\$ 3,592	\$ 3,657	\$ 3,722	\$ 3,789	\$ 3,858	\$ 3,927	\$ 3,998	\$ 4,070	\$ 4,143	\$ 4,218	\$ 4,293	\$ 4,371	\$ 4,449	\$ 4,529
	Cost of a new Control Box and PLC	\$ 1,54	0 \$ 1,568	\$ 1,596	\$ 1,625	\$ 1,654	\$ 1,684	\$ 1,714	\$ 1,745	\$ 1,777	\$ 1,809	\$ 1,841	\$ 1,874	\$ 1,908	\$ 1,943	\$ 1,978	\$ 2,013
	Cost of Installation (plumber/electrician)	\$ 64	2 \$ 653	\$ 665	\$ 677	\$ 689	\$ 702	\$ 714	\$ 727	\$ 740	\$ 754	\$ 767	\$ 781	\$ 795	\$ 809	\$ 824	\$ 839
	Total Cost per Pump and Control/PLC replaced	\$ 5,64	8 \$ 5,750	\$ 5,854	\$ 5,959	\$ 6,066	\$ 6,175	\$ 6,286	\$ 6,400	\$ 6,515	\$ 6,632	\$ 6,751	\$ 6,873	\$ 6,997	\$ 7,123	\$ 7,251	\$ 7,381
	Number of pumps to be installed by Council (New installations + > 10 yr																
	Replacement)	───	4 1:	15	15	21	6	10	9	3	3	4	13	15	15	21	6
	I otal Annual Cost to Install new Low Pressure Pumps and Controllers and Replace Pumps aged > 10 yrs	\$ 22.50	2 6 74 760	¢ 97 902	¢ 00.202	¢ 127.200	¢ 27.052	\$ 62.96E	¢ 57 507	¢ 10 545	¢ 10.906	\$ 27.00G	¢ 90.240	\$ 104.051	\$ 106.940	¢ 152.269	¢ 11 200
New Tank	Installations	\$ 22,55	5 5 74,730	\$ 87,803	ə 05,505	3 127,303	\$ 57,052	\$ 02,805	\$ 57,557	\$ 15,545	\$ 19,090	\$ 27,000	ə 05, <b>3</b> 45	\$ 104,951	\$ 100,840	\$ 152,200	ə 44,200
New Tank		+															
	Number of new low pressure pump station installations		0 0	o o	0	0	0	0	0	0	0	0	0	0 0	0	0	0
	Additional Costs to above for 1,100L Tank and pipework for new installations	\$ 2,69	6 \$ 2,744	\$ 2,794	\$ 2,844	\$ 2,895	\$ 2,947	\$ 3,000	\$ 3,054	\$ 3,109	\$ 3,165	\$ 3,222	\$ 3,280	\$ 3,339	\$ 3,399	\$ 3,461	\$ 3,523
	General earthworks and construction costs	\$ 3,20	9 \$ 3,267	\$ 3,326	\$ 3,386	\$ 3,447	\$ 3,509	\$ 3,572	\$ 3,636	\$ 3,702	\$ 3,768	\$ 3,836	\$ 3,905	\$ 3,975	\$ 4,047	\$ 4,120	\$ 4,194
	Total Per Low New Pressure Installation (Excl Pump & Plumber)	\$5,90	)5 \$6,011	\$6,120	\$6,230	\$6,342	\$6,456	\$6,572	\$6,691	\$6,811	\$6,934	\$7,058	\$7,185	\$7,315	\$7,446	\$7,580	\$7,717
							40.00	40.00	40.00		40.00	40.00	40.00		40.00	40.00	40.00
	Total Per Low New Pressure Installation (Excl Pump, Controller & Plumber)	\$0.0	0 \$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	Ş0.00	\$0.00	\$0.00	Ş0.00	Ş0.00	\$0.00	\$0.00	Ş0.00	Ş0.00
	Number of properties connected	<u> </u>	0 00		00	00	00	00	00	00	00	00	00	00	00	00	00
		3		55	33	33	33	35	33	55	33	55	33	55	33	33	33
Fasements		+															
	Capital cost per connection	\$0.0	00 \$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Total Annual Easement Cost	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Council CAPEX Costs	\$22,593.4	40 <u>\$74,750.2</u>	<u>\$87,802.80</u>	<u>\$89,383.25</u>	<u>\$127,389.01</u>	<u>\$37,052.00</u>	\$62,864.90	<u>\$57,596.82</u>	\$19,544.52	\$19,896.32	<u>\$27,005.94</u>	<u>\$89,349.16</u>	<u>\$104,950.90</u>	<u>\$106,840.02</u>	\$152,268.39	\$44,288.35
	Total Council CAPEX Costs per Connection	\$228.7	2 \$755.0	\$886.90	\$902.86	\$1,286.76	\$374.26	\$635.00	\$581.79	\$197.42	\$200.97	\$272.79	\$902.52	\$1,060.11	\$1,079.19	\$1,538.06	\$447.36
Council Co	sts - OPEX	<u> </u>	_														
Callouts	· · · ·	<u> </u>															
	Hourly rate for a plumber	<u> </u>															
	Hourly rate for a labourer	+															
	Un-costs/Uvernead 88.34%	───	_														
	Total bourly rate	<u> </u>															
	Minimum call out cost (2 hours of ordinary nav – 1 hour 20 min	+															
	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours	<u> </u>															
	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout	<u> </u>															
	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year																
	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year		99 99	99	99	99	99	99	99	99	99	99	99	99	99	99	99
	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs	\$ 42,735.60	99 99 0 \$ 42,735.60	9 99 \$ 42,735.60	99 <b>\$ 42,735.60</b>	99 \$ <b>42,735.60</b>	99 \$ <b>42,735.60</b>	99 \$ <b>42,735.60</b>	99 <b>\$ 42,735.60</b>	99 \$ <b>42,735.60</b>	99 <b>\$ 42,735.60</b>	99 \$ <b>42,735.60</b>	99 <b>\$ 42,735.60</b>	99 \$ 42,735.60	99 \$ <b>42,735.60</b>	99 \$ <b>42,735.60</b>	99 <b>\$ 42,735.60</b>
	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection	\$ 42,735.60 \$ 431.67	09 99 0 \$ 42,735.60 7 \$ 431.67	9 99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ <b>42,735.60</b> \$ <b>431.67</b>	99 \$ 42,735.60 \$ 431.67	99 \$ <b>42,735.60</b> \$ <b>431.67</b>	99 \$ 42,735.60 \$ 431.67	99 \$ <b>42,735.60</b> \$ <b>431.67</b>	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ <b>42,735.60</b> \$ <b>431.67</b>
	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection	\$ 42,735.6 \$ 431.6	99 99 0 \$ 42,735.60 7 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ <b>42,735.60</b> \$ <b>431.67</b>	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ <b>42,735.60</b> \$ <b>431.67</b>	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ <b>42,735.60</b> \$ <b>431.67</b>
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection	\$ 42,735.6 \$ 431.6	99 99 0 \$ 42,735.60 7 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ <b>42,735.60</b> \$ <b>431.67</b>	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ <b>42,735.60</b> \$ <b>431.67</b>
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump	\$ 42,735.6 \$ 431.6	99 99 00 \$ 42,735.60 7 \$ 431.67	999 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ 42,735.60 \$ 431.67	99 \$ <b>42,735.60</b> \$ <b>431.67</b>
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells	\$ 42,735.6 \$ 431.6 \$ 256.7	99 99 0 \$ 42,735.60 7 \$ 431.67 74 \$261.30	9 99 \$ 42,735.60 \$ 431.67 6 \$266.07	99 \$ 42,735.60 \$ 431.67 \$270.86	99 \$ 42,735.60 \$ 431.67 \$275.73	99 \$ 42,735.60 \$ 431.67 \$280.70	99 \$ 42,735.60 \$ 431.67 \$ \$285.75	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$290.89	99 \$ <b>42,735.60</b> \$ <b>431.67</b> \$296.13	99 \$ 42,735.60 \$ 431.67 \$301.46	99 \$ 42,735.60 \$ 431.67 \$	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$312.41	99 \$ 42,735.60 \$ 431.67 \$318.03	99 \$ 42,735.60 \$ 431.67 \$323.76	99 \$ 42,735.60 \$ 431.67 \$	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$335.52
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year	\$ 42,735.6 \$ 431.6 \$ 256.7	99 99 0 \$ 42,735.60 7 \$ 431.67 74 \$261.30	9 99 \$ 42,735.60 \$ 431.67 \$ 2266.07	99 \$ 42,735.60 \$ 431.67 \$270.86	99 \$ <b>42,735.60</b> \$ <b>431.67</b> \$275.73	99 \$ 42,735.60 \$ 431.67 \$280.70	99 \$ 42,735.60 \$ 431.67 \$285.75	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$290.89	99 \$ 42,735.60 \$ 431.67 \$296.13	99 \$ <b>42,735.60</b> \$ <b>431.67</b> \$301.46	99 \$ 42,735.60 \$ 431.67 \$ 306.89	99 \$ <b>42,735.60</b> \$ <b>431.67</b> \$312.41	99 \$ 42,735.60 \$ 431.67 \$318.03	99 \$ 42,735.60 \$ 431.67 \$323.76	99 \$ <b>42,735.60</b> \$ <b>431.67</b> \$329.59	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$335.52
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year	\$ 42,735.6 \$ 431.6 \$ 256.7	99 99 0 \$ 42,735.60 7 \$ 431.67 74 \$261.30	9 99 \$ 42,735.60 \$ 431.67 \$ 266.07 9 99	99 \$ <b>42,735.60</b> \$ <b>431.67</b> \$270.86 99	99 \$ 42,735.60 \$ 431.67 \$275.73	99 \$ 42,735.60 \$ 431.67 \$280.70 99	99 \$ 42,735.60 \$ 431.67 \$ 285.75	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$290.89 99	99 \$ 42,735.60 \$ 431.67 \$296.13 99	99 \$ <b>42,735.60</b> \$ <b>431.67</b> \$301.46 99	99 \$ 42,735.60 \$ 431.67 \$ 306.89 99	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$312.41 99	99 \$ 42,735.60 \$ 431.67 \$ 318.03	99 \$ 42,735.60 \$ 431.67 \$323.76 99	99 \$ <b>42,735.60</b> \$ <b>431.67</b> \$ 329.59 99	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$335.52 99
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year Total Annual Vac-Truck pump out costs Rationalised annual Vac-Truck pump out costs	\$ 42,735.6 \$ 431.6 \$ 256.7 \$256.7	99 99 0 \$ 42,735.60 7 \$ 431.67 4 \$261.30 99 99 57 \$25,875.00	9 99 \$ 42,735.60 \$ 431.67 6 \$266.07 9 99 \$26,340.84	99 \$ 42,735.60 \$ 431.67 \$ 270.86 99 \$26,814.98	99 \$ 42,735.60 \$ 431.67 \$ 275.73 99 \$27,297.65	99 \$ 42,735.60 \$ 431.67 \$280.70 \$280.70 99 \$27,789.00	99 \$ 42,735.60 \$ 431.67 \$ 285.75 \$285.75 99 \$28,289.21	99 \$ 42,735.60 \$ 431.67 \$ 290.89 99 \$28,798.41	99 \$ 42,735.60 \$ 431.67 \$296.13 99 \$29,316.78	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$ 301.46 99 <b>\$29,844.48</b>	99 \$ 42,735.60 \$ 431.67 \$ 306.89 99 \$30,381.69	99 \$ 42,735.60 \$ 431.67 \$ 312.41 99 \$30,928.56	99 \$ 42,735.60 \$ 431.67 \$ 318.03 99 \$31,485.27	99 \$ 42,735.60 \$ 431.67 \$ 323.76 99 \$32,052.00	99 \$ 42,735.60 \$ 431.67 \$ 329.59 99 \$32,628.94	99 \$ 42,735.60 \$ 431.67 \$ 335.52 99 \$33,216.26
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year Total Annual Vac-Truck pump out costs Rationalised annual Vac-Truck Pump Out of Pump Well per connection	\$ 42,735.6 \$ 431.6 \$ 2256.7 \$25,417.5 \$256.7	999999 0\$42,735.60 7\$431.67 7\$\$261.30 99999 7\$\$25,875.00 7\$\$261.30	9 99 \$ 42,735.60 \$ 431.67 5 \$266.07 9 99 \$26,340.84 \$ \$266.07	99 \$ 42,735.60 \$ 431.67 \$ 270.86 99 \$26,814.98 \$270.86	99 \$ 42,735.60 \$ 431.67 \$ 275.73 99 \$27,297.65 \$ 275.73	99 \$ 42,735.60 \$ 431.67 \$280.70 \$280.70 \$280.70	99 \$ 42,735.60 \$ 431.67 \$ 285.75 \$285.75 \$28,289.21 \$285.75	99 \$ 42,735.60 \$ 431.67 \$290.89 99 \$28,798.41 \$290.89	99 \$ 42,735.60 \$ 431.67 \$ 2296.13 99 \$29,316.78 \$ 296.13	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$ 301.46 99 <b>\$29,844.48</b> \$ 301.46	99 \$ 42,735.60 \$ 431.67 \$ 306.89 \$30,381.69 \$30,381.69	99 \$ 42,735.60 \$ 431.67 \$312.41 99 \$30,928.56 \$312.41	99 \$ 42,735.60 \$ 431.67 \$ 318.03 99 \$31,485.27 \$318.03	99 \$ 42,735.60 \$ 431.67 \$323.76 99 \$32,052.00 \$323.76	99 \$ 42,735.60 \$ 431.67 \$ 329.59 \$32,628.94 \$329.59	99 \$ <b>42,735.60</b> \$ <b>431.67</b> \$335.52 99 <b>\$33,216.26</b> \$335.52
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year Total Annual Vac-Truck pump out costs Rationalised annual Vac-Truck Pump Out of Pump Well per connection	\$ 42,735.6 \$ 431.6 \$ 256.7 \$25,417.5 \$256.7	9999999 0 <b>\$42,735.60</b> 7 <b>\$431.67</b> 7 <b>\$431.67</b> 74\$261.30 99999 7 <b>\$25,875.0</b> 9	9 99 \$ 42,735.60 \$ 431.67 \$ 2266.07 9 99 \$ 26,340.84 \$ 266.07	99 \$ 42,735.60 \$ 431.67 \$ 270.86 99 \$26,814.98 \$270.86	99 \$ 42,735.60 \$ 431.67 \$ 275.73 99 \$27,297.65 \$275.73	99 \$ 42,735.60 \$ 431.67 \$280.70 \$280.70 \$280.70	99 \$ 42,735.60 \$ 431.67 \$ 285.75 \$285.75 \$285.75 \$285.75	99 \$ 42,735.60 \$ 431.67 \$290.89 99 \$28,798.41 \$290.89	99 \$ 42,735.60 \$ 431.67 \$ 296.13 99 \$296.13 \$ 296.13	99 \$ 42,735.60 \$ 431.67 \$ 301.46 99 \$29,844.48 \$ 301.46	99 \$ 42,735.60 \$ 431.67 \$ 306.89 \$30,381.69 \$306.89	99 \$ 42,735.60 \$ 431.67 \$312.41 99 \$30,928.56 \$312.41	99 \$ 42,735.60 \$ 431.67 \$318.03 99 \$31,485.27 \$318.03	99 \$ 42,735.60 \$ 431.67 \$323.76 99 \$32,052.00 \$323.76	99 \$ 42,735.60 \$ 431.67 \$ 329.59 \$32,628.94 \$ 329.59	99 \$ 42,735.60 \$ 431.67 \$335.52 99 \$33,216.26 \$335.52
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year Total Annual Vac-Truck pump out costs Rationalised annual Vac-Truck Pump Out of Pump Well per connection Total Council OPEX Costs	\$42,735.6 \$431.6 \$256.7 \$25,417.5 \$25,417.5 \$256.7	99 99 99 99 0 \$ 42,735.60 7 \$ 431.67 44 \$261.30 99 99 57 \$25,875.09 74 \$261.30 15 \$25,875.09 74 \$261.30 15 \$25,875.09 75 \$25,875.09 74 \$261.30 75 \$25,875.09 75 \$25,875.09 76 \$25,875.09 77 \$25,875.09 78 \$261.30 79 99 79 99 79 99 79 99 79 99 70 \$25,875.09 70 \$25,875.09	9 99 \$ 42,735.60 \$ 431.67 \$ 2266.07 9 99 \$ 26,340.84 \$ 266.07	99 \$ 42,735.60 \$ 431.67 \$ 270.86 99 \$26,814.98 \$270.86 99	99 \$ 42,735.60 \$ 431.67 \$275.73 99 \$27,297.65 \$275.73	99 \$ 42,735.60 \$ 431.67 \$280.70 \$280.70 \$280.70 \$280.70	99 \$ 42,735.60 \$ 431.67 \$ 285.75 \$285.75 \$285.75 \$285.75 \$285.75	99 \$ 42,735.60 \$ 431.67 \$290.89 99 \$28,798.41 \$290.89	99 \$ 42,735.60 \$ 431.67 \$296.13 99 \$29,316.78 \$296.13	99 \$ 42,735.60 \$ 431.67 \$ 301.46 99 \$29,844.48 \$301.46	99 \$ 42,735.60 \$ 431.67 \$ 306.89 \$306.89 \$30,381.69 \$306.89	99 \$ 42,735.60 \$ 431.67 \$312.41 99 \$30,928.56 \$312.41	99 \$ 42,735.60 \$ 431.67 \$318.03 99 \$31,485.27 \$318.03	99 \$ 42,735.60 \$ 431.67 \$323.76 99 \$32,052.00 \$323.76	99 \$ 42,735.60 \$ 431.67 \$ 329.59 \$32,628.94 \$329.59 \$32,628.94 \$329.59	99 \$ 42,735.60 \$ 431.67 \$335.52 99 \$33,216.26 \$335.52 \$75 952
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year Total Annual Vac-Truck pump out costs Rationalised annual Vac-Truck Pump Out of Pump Well per connection Total Council OPEX Costs Total Council OPEX Costs per Connection	\$42,735.6 \$431.6 \$256.7 \$256.7 \$25,417.5 \$256.7 \$25,417.5 \$256.7	99 99 99 99 99 99 97 \$ 42,735.60 7 \$ 431.67 74 \$261.30 99 99 97 \$25,875.09 74 \$261.30 99 99 99 99 99 99 99 99 99 99	9 99 \$ 42,735.60 \$ 431.67 5 \$266.07 9 99 9 \$26,340.84 5 \$267.74 9 \$27.74 9 \$27.74 9 \$27.74 9 \$27.74	99 \$ 42,735.60 \$ 431.67 \$ 270.86 99 \$26,814.98 \$270.86 99 \$26,814.98 \$270.86	99 \$ 42,735.60 \$ 431.67 \$275.73 99 \$27,297.65 \$275.73 \$275.73	99 \$ 42,735.60 \$ 431.67 \$ 280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70	99 \$ 42,735.60 \$ 431.67 \$ 431.67 \$ 285.75 \$285.75 \$285.75 \$285.75 \$285.75 \$285.75	99 \$ 42,735.60 \$ 431.67 \$ 290.89 99 \$28,798.41 \$290.89 99 \$28,798.41 \$290.89 99 \$28,798.41 \$290.89	99 \$ 42,735.60 \$ 431.67 \$ 296.13 99 \$29,316.78 \$296.13 99 \$29,316.78 \$296.13 99 \$29,316.78 \$296.13	99 \$ 42,735.60 \$ 431.67 \$ 301.46 99 \$29,844.48 \$ 301.46 99 \$29,844.48 \$ 301.46	\$306.89 \$306.89 \$306.89 \$306.89 \$306.89 \$306.89	99 \$ 42,735.60 \$ 431.67 \$312.41 \$30,928.56 \$312.41 \$73,664 \$744.08	99 \$ 42,735.60 \$ 431.67 \$ 318.03 \$ \$31,485.27 \$318.03 \$ \$31,485.27 \$318.03	99 \$ 42,735.60 \$ 431.67 \$ 323.76 99 \$32,052.00 \$323.76 \$ \$74,788 \$755.43	99 \$ 42,735.60 \$ 431.67 \$ 329.59 99 \$32,628.94 \$329.59 99 \$32,628.94 \$329.59 99 \$32,628.94 \$329.59	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$3335.52 99 <b>\$33,216.26</b> \$335.52 <u>\$75,952</u> \$767.19
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year Total Annual Vac-Truck pump out costs Rationalised annual Vac-Truck Pump Out of Pump Well per connection Total Council OPEX Costs Total Council OPEX Costs per Connection	\$42,735.6 \$431.6 \$256.7 \$25,417.5 \$25,417.5 \$25,417.5 \$256.7	99 99 99 99 97 \$ 42,735.60 7 \$ 431.67 74 \$261.30 99 99 97 \$25,875.00 74 \$261.30 99 99 99 99 90 99 90 99 90 \$25,875.00 80 80 80 80 80 80 80 80 80	9 99 \$ 42,735.60 \$ 431.67 5 \$266.07 9 99 \$26,340.84 \$ \$266.07 9 99 \$26,340.84 \$ \$266.07 9 99 \$ \$26,340.84 \$ \$266.07 9 99 \$ \$26,340.84 \$ \$ \$266.07 9 99 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	99 \$ 42,735.60 \$ 431.67 \$ 270.86 99 \$26,814.98 \$270.86 99 \$26,814.98 \$270.86	99 \$ 42,735.60 \$ 431.67 \$275.73 99 \$27,297.65 \$275.73 \$70,033 \$707.41	99 \$ 42,735.60 \$ 431.67 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70		99 \$ 42,735.60 \$ 431.67 \$ 290.89 99 \$28,798.41 \$290.89 99 \$28,798.41 \$290.89 99 \$28,798.41 \$290.89	99 \$ 42,735.60 \$ 431.67 \$ 296.13 \$296.13 \$296.13 \$296.13 \$296.13 \$296.13	99 \$ 42,735.60 \$ 431.67 \$ 301.46 99 \$29,844.48 \$ 301.46 99 \$29,844.48 \$ 301.46 99 \$29,844.48 \$ 301.46	99 \$ 42,735.60 \$ 431.67 \$ 306.89 99 \$30,381.69 \$306.89 	99 \$ 42,735.60 \$ 431.67 \$312.41 99 \$30,928.56 \$312.41 \$73,664 \$744.08	\$31,485.27 \$31,485.27 \$31,485.27 \$31,485.27 \$31,485.27 \$31,485.27	99 \$ 42,735.60 \$ 431.67 \$ 323.76 99 \$32,052.00 \$323.76 \$ \$74,788 \$755.43	99 \$ 42,735.60 \$ 431.67 \$ 329.59 \$32,628.94 \$329.59 \$32,528.94 \$329.59 \$75,365 \$761.26	99 \$ 42,735.60 \$ 431.67 \$ 3335.52 99 \$33,216.26 \$335.52 \$335.52 \$75,952 \$767.19
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year Total Annual Vac-Truck pump out costs Rationalised annual Vac-Truck Pump Out of Pump Well per connection Total Council OPEX Costs Total Council OPEX Costs per Connection	\$256.7 \$256.7 \$256.7 \$25,417.5 \$25,417.5 \$256.7 \$25,417.5 \$256.7 \$25,417.5 \$256.7	99 99 0 \$ 42,735.60 7 \$ 431.67 7 \$ 431.67 7 \$ 2261.30 99 99 7 \$25,875.09 7 \$261.30 99 99 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	9 99 \$ 42,735.60 \$ 431.67 5 \$266.07 9 99 \$26,340.84 5 \$266.07 9 \$26,340.84 5 \$267,74	99 \$ 42,735.60 \$ 431.67 \$ 270.86 99 \$26,814.98 \$270.86 \$270.86 \$270.86	99 \$ 42,735.60 \$ 431.67 \$ 275.73 99 \$27,297.65 \$275.73 \$275.73 \$275.73 \$275.73 \$275.73 \$275.73 \$275.73	99 \$ 42,735.60 \$ 431.67 \$ 280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70	99 \$ 42,735.60 \$ 431.67 \$ 285.75 \$285.75 \$285.75 \$285.75 \$285.75 \$285.75 \$285.75 \$285.75	99 \$ 42,735.60 \$ 431.67 \$ 290.89 99 \$28,798.41 \$290.89 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$296.13 99 <b>\$29,316.78</b> \$296.13 <b>\$</b> <b>\$29,316.78</b> \$296.13 <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b> <b>\$</b>	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$ 301.46 99 <b>\$29,844.48</b> \$ 301.46 <b>\$ 72,580</b> \$ 7733.13	999 \$ 42,735.60 \$ 431.67 \$ 3306.89 \$30,381.69 \$30,381.69 \$306.89 \$306.89	99 \$ 42,735.60 \$ 431.67 \$312.41 \$312.41 \$312.41 \$312.41 \$73,664 \$744.08	99 \$ 42,735.60 \$ 431.67 \$ 318.03 \$ \$31,485.27 \$318.03 \$ \$ \$31,485.27 \$318.03 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	99 \$ 42,735.60 \$ 431.67 \$ 323.76 99 \$32,052.00 \$323.76 \$ \$74,788 \$755.43	99 \$ 42,735.60 \$ 431.67 \$ 329.59 \$32,628.94 \$329.59 \$32,628.94 \$329.59 \$75,365 \$761.26	99 \$ 42,735.60 \$ 431.67 \$ 335.52 \$ 99 \$ 33,216.26 \$ 335.52 \$ 75,952 \$ 767.19
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year Total Annual Vac-Truck pump out costs Rationalised annual Vac-Truck Pump Out of Pump Well per connection Total Council OPEX Costs Total Council OPEX Costs per Connection	\$42,735.6 \$42,735.6 \$431.6 \$256.7 \$25,417.5 \$256.7 \$25,417.5 \$256.7 \$256.8 \$688.4	999999 0\$42,735.60 7\$431.67 7\$431.67 7\$\$261.30 99999 7\$\$25,875.00 7\$\$25,875.00 7\$\$25,875.00 7\$\$261.30 99999 99999 999999 99999 999999 999999	9 99 \$ 42,735.60 \$ 431.67 \$ 431.67 \$ 266.07 9 99 \$ 26,340.84 \$ 266.07 \$ 266.07 \$ 30 \$ 266.07 \$ 30 \$ 431.67	99 \$ 42,735.60 \$ 431.67 \$ 270.86 99 \$26,814.98 \$270.86 99 \$26,814.98 \$270.86 99	99 \$ 42,735.60 \$ 431.67 \$ 275.73 99 \$27,297.65 \$ 275.73 \$ 275.73 \$ 275.73 \$ 275.73 \$ 275.73	99 \$ 42,735.60 \$ 431.67 \$ 280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70	99 \$ 42,735.60 \$ 431.67 \$ 285.75 \$285.75 \$285.75 \$285.75 \$285.75 \$285.75 \$285.75	99 \$ 42,735.60 \$ 431.67 \$ 290.89 99 \$28,798.41 \$290.89 \$200.89 \$200	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> <b>\$ 296.13</b> 99 <b>\$29,316.78</b> \$296.13 <b>\$ 29,316.78</b> \$296.13 <b>\$ 100</b> <b>\$ 100</b>	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> <b>\$ 301.46</b> 99 <b>\$29,844.48</b> \$301.46 <b>\$ 301.46</b> <b>\$ 301.36</b> <b>\$ 301.36</b> <b>\$ 301.46</b> <b>\$ 301.46</b> <b>\$ 301.46</b> <b>\$ 301.46</b> <b>\$ 301.46</b> <b>\$ 301.46</b> <b>\$ 301.46</b> <b>\$ 301.36</b> <b>\$ 301.36</b> <b>\$ 301.36</b> <b>\$ 301.36</b> <b>\$ 301.36</b> <b>\$ 301.46</b> <b>\$ 301.4</b>	99 \$ 42,735.60 \$ 431.67 \$ 306.89 \$30,381.69 \$30,381.69 \$306.89 \$306.89 \$306.89	99 <b>\$ 42,735.60</b> <b>\$ 431.67</b> \$312.41 99 <b>\$30,928.56</b> \$312.41 <b>\$73,664</b> \$744.08	99 \$ 42,735.60 \$ 431.67 \$ 318.03 \$ 31,485.27 \$ 318.03 \$ \$74,221 \$ 749.71	99 \$ 42,735.60 \$ 431.67 \$ 323.76 99 \$32,052.00 \$323.76 \$ \$755.43	99 \$ 42,735.60 \$ 431.67 \$ 329.59 \$32,628.94 \$329.59 \$32,628.94 \$329.59 \$75,365 \$761.26	99 \$ 42,735.60 \$ 431.67 \$ 335.52 99 \$33,216.26 \$335.52 \$75,952 \$767.19
Pump outs	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the pump wells Number of pump outs per year Total Annual Vac-Truck pump out costs Rationalised annual Vac-Truck Pump Out of Pump Well per connection Total Council OPEX Costs Total Council Operation Costs per Connection Total Cost (CAPEX + OPEX)	\$42,735.6 \$431.6 \$256.7 \$25,417.5 \$25,417.5 \$25,417.5 \$256.7 \$256.7 \$256.7 \$256.7 \$256.7 \$256.7 \$256.7 \$256.7 \$256.7 \$256.7 \$256.7	9       99         9       94         0       \$ 42,735.60         7       \$ 431.67         7       \$ 261.36         9       99         9       99         74       \$261.36         99       99         97       \$25,875.00         74       \$261.36         13       \$68,611         12       \$693.04         12       \$693.04         13       \$143,360.99	9 99 \$ 42,735.60 \$ 431.67 5 \$266.07 9 99 \$ \$26,340.84 \$ \$266.07 9 \$99 \$ \$26,340.84 \$ \$266.07 \$ \$ \$266.07 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	99 \$ 42,735.60 \$ 431.67 \$ 270.86 99 \$26,814.98 \$270.85 \$27	99 \$ 42,735.60 \$ 431.67 \$ 275.73 99 \$27,297.65 \$275.73 99 \$27,297.65 \$275.73 99 \$27,297.65 \$275.73 99 \$27,297.65 \$275.73 99 \$27,297.65 \$275.73	99 \$ 42,735.60 \$ 431.67 \$ 280.70 99 \$27,789.00 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70 \$280.70	99 \$ 42,735.60 \$ 431.67 \$ 431.67 \$ 285.75 <	99 \$ 42,735.60 \$ 431.67 \$ 290.89 99 \$28,798.41 \$290.89 99 \$28,798.41 \$290.89 99 \$271,534 \$722.57 \$722.57	99 \$ 42,735.60 \$ 431.67 \$ 2296.13 99 \$29,316.78 \$296.13 \$296.13 \$296.13 \$296.13 \$297,052 \$727.80 \$727.80 \$727.80 \$727.80	99 \$ 42,735.60 \$ 431.67 \$ 301.46 99 \$29,844.48 \$ 301.46 \$ 301.46 \$ 301.46 \$ 301.46	99 \$ 42,735.60 \$ 431.67 \$ 431.67 \$ 306.89 \$30,381.69 \$30,381.69 \$306.89 \$306.89 \$30,381.69 \$30,381.69 \$30,381.69 \$30,381.69 \$30,381.61 \$306.89	99 \$ 42,735.60 \$ 431.67 \$ 312.41 99 \$30,928.56 \$ 312.41 \$ 73,664 \$ 744.08 \$ 744.08 \$ 163,013.32	\$318.03 \$318.03 \$31,485.27 \$318.03 \$31,485.27 \$318.03 \$74,221 \$749.71 \$749.71	99 \$ 42,735.60 \$ 431.67 \$ 323.76 \$ 323.76 \$ 323.76 \$ 323.76 \$ 323.76 \$ 323.76 \$ 323.76 \$ 323.76 \$ 323.76 \$ 323.76	99 \$ 42,735.60 \$ 431.67 \$ 329.59 \$32,628.94 \$329.59 \$32,628.94 \$329.59 \$75,365 \$761.26 \$761.26 \$761.26	99 \$ 42,735.60 \$ 431.67 \$ 3335.52 99 \$33,216.26 \$ 335.52 \$75,952 \$767.19 \$120,240.21

20YR																
Optio	n 4 - Council to take over O&M of the low pressure sewer systems (pump replacement 20 years)															
YEAR		2017	/	2018	2019	2020	2021	2022	2023	2024	1 2025	5 2026	2027	7 2028	, 2029	<u>;</u>
Council Co	ists - CAPEX															
New Instal	lation and Replacement of Pump Costs (>20yr)															
	Cost of a new pump	\$2,700	)	\$ 2,749	\$ 2,798	\$ 2,848	\$ 2,900	\$ 2,952	\$ 3,005	\$ 3,059	\$ 3,114	\$ 3,170	\$ 3,227	\$ 3,285	\$ 3,345	\$ 3,
	Cost of a new Control Box and PLC	\$1,200	)	\$ 1,222	\$ 1,244	\$ 1,266	\$ 1,289	\$ 1,312	\$ 1,336	\$ 1,360	\$ 1,384	\$ 1,409	\$ 1,434	\$ 1,460	\$ 1,486	\$ 1
	Cost of Installation (plumber/electrician)	\$500	)	\$ 509	\$ 518	\$ 527	\$ 537	\$ 547	\$ 556	\$ 567	\$ 577	\$ 587	\$ 598	\$ 608	\$ 619	\$
	Total Cost per Pump and Control/PLC replaced			\$ 4,479	\$ 4,560	\$ 4,642	\$ 4,725	\$ 4,811	\$ 4,897	\$ 4,985	\$ 5,075	\$ 5,166	\$ 5,259	\$ 5,354	\$ 5,450	\$ 5
	Number of pumps to be installed by Council (New installations + > 20 yr			. ,	. ,		. ,	. ,		. ,		. ,		, ,		+
	Replacement)			9	3	3	4	3	3	3	3 3	3 0			, c	5
	Total Annual Cost to Install new Low Pressure Pumps and Controllers and				-	-	-								<u> </u>	
	Replace Pumps aged > 20 vrs			\$ 40,313	\$ 13,679	\$ 13,926	\$ 18,902	\$ 14.432	\$ 14,691	\$ 14,956	\$ 15,225	s -	s .	s .	s .	Ś
New Tank	Installations			+ .0,010	+ _0,010	+ _0,0_0	+ _0,002	+,.=	+,	÷,	+	¥	Ŧ	+	<b>•</b>	+
iten raik																+
	Number of new low pressure pump station installations			9	3	3	4	3	3	3	3 3	3 0	) (	) C	(	)
	Additional Costs to above for 1 1001 Tank and ninework for new installations	\$2.100		Ś 2 138	\$ 2,176	\$ 2.215	\$ 2.255	\$ 2.296	\$ 2337	\$ 2379	\$ 2,422	\$ 2,466	\$ 2.510	\$ 2555	\$ 2,601	¢
	General earthworks and construction costs	\$2,100 \$3 EAC		¢ 2,130	γ 2,170 \$ 2,61	\$ 2,213	\$ 2,233	\$ 2,230	¢ 2,337	¢ 2,379	\$ 2,422	\$ 2,400	\$ 2,310	\$ 2,333	\$ 2,001	ب د
		\$2,300	<u>,</u>	<sub>ب 2,04</sub> 3		ر 2,037	دەں,∠ ب	<i>د</i> ,/۵۵	<i>2,102</i>	2,033 پ		2,735	<i>ک</i> ر کر	پ 3,042 ا	, 3,097	
	Total Per Low New Pressure Installation (Excl Pump & Plumber)	\$4,600	)	\$4,683	\$4,767	\$4,853	\$4,940	\$5,029	\$5,120	\$5,212	2 \$5,306	5 \$5,401	\$5,498	\$5,597	\$5,698	3 5
	Total Per Low New Pressure Installation (Excl Pump, Controller & Plumber)			\$42,145.20	\$14,301.27	\$14,558.69	\$19,761.00	\$15,087.52	\$15,359.10	\$15,635.56	5 \$15,917.00	\$0.00	\$0.00	\$0.00	\$0.00	)
	Number of properties connected			77	80	83	87	90	) 93	96	5 90	99 99	90	99	) gr	
	- F - F															
Easements	5															
	Capital cost per connection	\$5,000.00	)	\$5,000.00	\$ 5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	0 \$0.00	\$0.00	\$0.00	\$0.00	)
	Total Annual Easement Cost			\$385,000.00	15,000.00	15,000.00	20,000.00	15,000.00	15,000.00	15,000.00	15,000.00	0.00	0.00	0.00	0.00	)
	Total Council CAPEX Costs			\$467,458.00	<u>\$42,980.75</u>	\$43,484.40	<u>\$58,662.83</u>	<u>\$44,519.07</u>	\$45,050.41	<u>\$45,591.32</u>	2 <u>\$46,141.96</u>	<u>\$0.00</u>	\$0.00	<u>\$0.00</u>	<u>\$0.00</u>	<u>ر</u>
	Total Council CAPEX Costs per Connection			\$6,070.88	\$537.26	\$523.91	\$674.29	\$494.66	\$484.41	\$474.91	L \$466.08	3 \$0.00	\$0.00	\$0.00	\$0.00	<u>ر</u>
Council Co	ists - OPEX															
Callouts																
	Hourly rate for a plumber	\$ 36.84														
	Hourly rate for a labourer	\$ 34.25														
	On-costs/Overhead 88.34%	\$ 62.80														
	Vehicle Hourly Rate	\$ 10.00														1
	Total hourly rate	\$ 143.89													<u> </u>	
	Minimum call out cost (2 hours of ordinary nay = 1 hour 20 min	φ 10100													<u> </u>	+
	Assume call out is 2 hours	1 50	hourly nav	for overtime												+
		\$ 131.67	nouny puy												<u> </u>	
	Percentage of bouses doing a call out each year	÷ +31.07	,													-
	Number of Collegits por year	100/6		77	00	02	07	00	02	04		00	00		0	
				// ¢ 22 220 00	6 24 522 82	C 07 020 04	۰۸ د عع دد د م	90	93	90	95	99	95	99	95	/ 
	Potionalized annual Call Out Cast new connection			\$ 33,238.80	\$ 34,533.82	\$ 35,828.84	\$ 37,555.53	\$ 38,850.54	\$ 40,145.56	\$ 41,440.58	\$ 42,735.60	\$ 42,735.60	\$ 42,735.60	\$ 42,735.60	\$ 42,735.60	\$ 42,7
	Rationalised annual Call Out Cost per connection			\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 4
Pump outs	5 5														<u> </u>	
	Estimated Cost to Vac-truck accumulated material in the base of the pump															
	wells	\$200.00		\$203.60	\$207.26	\$211.00	\$214.79	\$218.66	\$222.60	\$226.60	\$230.68	\$234.83	\$239.06	\$243.36	\$247.74	4 Ś
	Number of pump outs per year	100.00%	6												<u> </u>	<u> </u>
				77	80	83	87	90	93	96	5 99	99	99	99	99	J
	Total Annual Vac-Truck pump out costs			\$15.677.20	\$16.581.18	\$17.512.63	\$18.687.03	\$19.679.38	\$20,701.40	\$21.753.83	3 \$22.837.44	4 \$23.248.51	\$23.666.99	\$24.092.99	\$24.526.6	7 \$24.9
	Rationalised annual Vac-Truck Pump Out of Pump Well per connection			\$203.60	\$207.26	\$211.00	\$214.79	\$218.66	\$222.60	\$226.60	\$230.68	3 \$234.83	\$239.06	5 \$243.36	\$247.74	1 \$
																-
	Total Council OPEX Costs			<u>\$48,916</u>	<u>\$51,115</u>	\$53,341	\$56,243	<u>\$58,530</u>	\$60,847	<u>\$63,19</u> 4	4 <u>\$65,5</u> 73	<u>\$65,9</u> 84	\$66,403	\$66,829	\$67,267	2 9
	Total Council Operation Costs per Connection			\$635.27	\$638.94	\$642.67	\$646.47	\$650.33	\$654.27	\$658.28	\$662.35	\$666.51	\$670.73	\$675.04	\$679.47	2 \$
															<u> </u>	<u> </u>
	Total Cost (CAPEX + OPEX)			\$516,374.00	\$94,095.75	\$96,825.87	\$114,905.39	\$103,048.99	\$105,897.37	\$108,785.73	\$111,715.00	\$65,984.11	\$66,402.59	\$66,828.59	\$67,262.27	/ \$67,
	Rationalised Total Costs (CAPEX + OPEX)			\$6,706.16	\$1,176.20	\$1,166.58	\$1,320.75	\$1,144.99	\$1,138.68	\$1,133.18	\$1,128.43	\$666.51	\$670.73	\$675.04	\$679.47	2 \$6

#### 5/02/2018 2:40 PM Document Set ID: 4055567 Version: 1, Version Date: 30/04/2018

Optio	on 4 - Council to take over O&M of the low pressure sewer systems (pump																	
	replacement 20 years)																	
			2024	2022	2022	2024	2025	2020		202	2020	2040	2014	2047	2042	2011	20.45	20.46
YEAR			2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	. 2042	2 2043	2044	2045	2046
New Insta	Usis - CAPEA																	
	Cost of a new numn	Ś	3 466	\$ 3,528	\$ 3.592	\$ 3,657	\$ 3,722	\$ 3,789	Ś 3,858	\$ 3,927	\$ 3,998	\$ 4,070	\$ 4 143	\$ 4.218	\$ 4 293	Ś 4371	\$ 4.449	\$ 4.529
	Cost of a new Control Box and PLC	\$	1 540	\$ <u>3,520</u> \$ 1568	\$ 3,552 \$ 1,596	\$ 1,625	\$ 1,654	\$ 1,684	\$ 3,858 \$ 1,714	\$ 3,327 \$ 1.745	\$ 3,338	\$ 1,070	\$ 1,145	\$ 1,210	\$ 1.908	\$ 1.943	\$ 1.978	\$ 2,013
	Cost of Installation (nlumber/electrician)	Ś	642	\$ 1,500 \$ 653	\$ 665	\$ 677	\$ 689	\$ 702	\$ <u>1,714</u> \$ 714	\$ 1,743	\$ <u>1,777</u>	\$ 1,005	\$ 767	\$ <u>1,</u> 074	\$ 795	\$ 1,545	\$ 874	\$ 2,013 \$ 839
	Total Cost per Pump and Control/PLC replaced	Ś	5 648	\$ 5,750	\$ 5,854	\$ 5,959	\$ 6,066	\$ 6175	\$ 6.286	\$ 6400	\$ 6515	\$ 6.632	\$ 6751	\$ 6.873	\$ 6,997	\$ 7 123	\$ 7 251	\$ 7 381
-	Number of pumps to be installed by Council (New installations $+ > 20$ yr	Ŷ	5,616	<i>y</i> 3,730	<i>y</i> 3,031	<i>ϕ</i> 3,333	÷ 0,000	<i>\ </i> 0,175	\$ 0,200	Ç 0,100	<i>\(\vee\)</i>	÷ 0,032	<i>\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ </i>	<i>\$</i> 0,073	<i>\ </i> 0,557	<i>y</i> ,, <u>12</u> 3	<i>v</i> ,,231	<u>, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>
	Replacement)		0	10	12	12	18	e e	10		3	3	4		3	3	з	0
	Total Annual Cost to Install new Low Pressure Pumps and Controllers and			10			10		10						,			0
	Replace Pumps aged > 20 yrs	Ś	- 1	\$ 57.500	\$ 70.242	\$ 71.507	\$ 109,191	\$ 37.052	\$ 62,865	\$ 57.597	\$ 19.545	\$ 19,896	\$ 27.006	\$ 20.619	\$ 20,990	\$ 21,368	\$ 21,753	s -
New Tank	Installations	, v		<i>ç 37,300</i>	<i>v</i> , 0,242	<i>\</i>	<i>v</i> 105,151	<i> </i>	¢ 02,000	<i>\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ </i>	÷ 10,040	¢ 10,000	¢ 27,000	÷ 20,015	÷ 20,550	÷ 11,000	÷,	¥
	Number of new low pressure pump station installations		0	0	0	0	0		0		0 0	0			0 0	0	0	0
							-		-		-	-	-			-		
	Additional Costs to above for 1,100L Tank and pipework for new installations	Ś	2,696	\$ 2,744	\$ 2,794	\$ 2.844	\$ 2,895	\$ 2,947	\$ 3,000	\$ 3.054	\$ 3,109	\$ 3,165	\$ 3,222	\$ 3,280	\$ 3,339	\$ 3,399	\$ 3,461	\$ 3,523
	General earthworks and construction costs	Ś	3.209	\$ 3.267	\$ 3.326	\$ 3.386	\$ 3.447	\$ 3.509	\$ 3.572	\$ 3.636	\$ 3,702	\$ 3.768	\$ 3.836	\$ 3.905	\$ 3.975	\$ 4.047	\$ 4.120	\$ 4.194
		Ŷ	0,200	φ <u>σ)</u> Ξο,	<i>\(\)</i>	<i>ϕ</i> 0,000	<i>\(\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	<i>\(\)</i>	<i>\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ </i>	<i>\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ </i>	<i>\(\vee\)</i>	<i>\(\)</i>	<i>\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ </i>	<i>\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ </i>	<i>\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ </i>	φ i,e.i	<i>y</i> ., <u>1</u> 20	φ .) <u>1</u> 5 .
	Total Per Low New Pressure Installation (Excl Pump & Plumber)		\$5,905	\$6.011	\$6,120	\$6,230	\$6,342	\$6,456	\$6.572	\$6.69	\$6.811	\$6,934	\$7.058	\$7.18	\$7,315	\$7,446	\$7,580	\$7,717
			<i>Ş3,303</i>	<i>40,011</i>	\$0,120	<i>\\</i> 0,230	<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	<i>\$0,130</i>	ç0,572	. <i>\$0,031</i>	\$0,011	<i>\</i>	<i><i></i></i>	, ,, <u>105</u>	, ,,,515	<i>,,,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<i>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</i>	<i>,,,,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	Total Per Low New Pressure Installation (Excl Pump, Controller, & Plumber)		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
			Ş0.00	<b>70.00</b>	<i></i>	<i></i>		÷0.00	Ç0.00	ç0.00	, şo.oo		ç0.00	, ÷0.00	, ço.oo	<i>\$0.00</i>	<i></i>	<i></i>
	Number of properties connected		99	99	99	99	99	go	99	90	99	90	90	90	99	99	99	99
			55	55			55		55		, 55	55	55	, 55	, 55			55
Fasement	<u> </u>																	
Lusement	Capital cost per connection		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Total Annual Fasement Cost		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	, 0.00	0.00	0.00	0.00
	Total Council CAPEX Costs		\$0.00	\$57 500 20	\$70 242 24	\$71 506 60	\$100 100 59	\$27.052.00	\$62 864 90	\$57 506 8	¢10 544 52	\$10 806 27	\$27.005.94	\$20 619 0/	\$20 000 18	\$21 268 00	\$21 752 62	\$0.00
	Total Council CAPEX Costs per Connection		\$0.00	\$580.81	\$709.52	\$722.29	\$1 102 94	\$374.26	\$635.00	\$581.70	\$197 <i>4</i> 2	\$200.97	\$27,003.54	\$20,019.0	\$212.00	\$21,505.00	\$219.75	<u>\$0.00</u> \$0.00
			Ş0.00	<i>\$</i> 500.01	<i>\$705.52</i>	<i><b>Ç</b>/LL.LJ</i>	\$1,102.54		, , , , , , , , , , , , , , , , , , ,	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, <u>, , , , , , , , , , , , , , , , , , </u>	\$200.57	<i>Ş</i> 272.73	, , , , , , , , , , , , , , , , , , ,	Ş212.02		Ş215.72	<i></i>
Council Co	insts - OPEX																	
Callouts		1																
cunouts	Hourly rate for a plumber																	
	Hourly rate for a labourer																	
	On-costs/Overhead 88 34%																	
	Vehicle Hourly Rate																	
	Total hourly rate																	
	Minimum call out cost (2 hours of ordinary pay = 1 hour 20 min																	
	Assume call out is 2 hours																	
	Cost per callout																	
	Percentage of houses doing a call out each year																	
	Number of Callouts per year		99	99	99	99	99	90	99	90	99	99	90	90	99	99	99	99
	Total Annual Cost of Call outs	\$ 42	735.60	\$ 42,735,60	\$ 42,735.60	\$ 42,735,60	\$ 42,735.60	\$ 42,735.60	\$ 42,735,60	\$ 42,735.60	\$ 42,735.60	\$ 42,735.60	\$ 42,735.60	\$ 42,735.60	\$ 42,735.60	\$ 42,735.60	\$ 42,735.60	\$ 42,735.60
	Rationalised annual Call Out Cost per connection	\$	431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67	\$ 431.67
-		Ŷ	102107	ý 40110 <i>/</i>	<i>v</i> 102107	<i>v</i> 402107	· ·····	<i>v</i> 402107	<b>V</b> 402107	<i>\\</i>	<i>\ \</i>	<i>\ \\</i>	<b>V</b> 402107	<i>\\</i>	<i>v</i> 102107	<i>v</i> 402107	÷ -102107	<del>, 102107</del>
Pump out	s																	
	Estimated Cost to Vac-truck accumulated material in the base of the pump																	
	wells		\$256 74	\$261.36	\$266.07	\$270.86	\$275.73	\$280.70	\$285.75	\$290.80	\$296.13	\$301.46	\$306.89	\$312.41	\$318.03	\$323.76	\$329 59	\$335 52
-	Number of pump outs per year	,	230.71	<b>7201.30</b>	<i>\$</i> 200.07	<i>\$270.00</i>	<i>\</i> 2/3//3	÷200.70	÷	Ç230.03	, <u>, , , , , , , , , , , , , , , , , , </u>	<i>\$</i> 501.10	Ç300.03	, , <u>,</u> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<i>\$</i> 510.05	<i>\$323.70</i>	<i>4323.33</i>	\$333.3 <b>L</b>
			99	99	99	99	99	90	99	90	99	99	90	90	99	99	99	99
	Total Annual Vac-Truck pump out costs	\$25	417.57	\$25,875,09	\$26,340,84	\$26,814,98	\$27,297,65	\$27,789.00	\$28,289,21	\$28,798,41	\$29,316,78	\$29,844,48	\$30,381,69	\$30.928.56	5 \$31,485,27	\$32.052.00	\$32.628.94	\$33,216,26
	Rationalised annual Vac-Truck Pump Out of Pump Well per connection	+	\$256 74	\$261.36	\$266.07	\$270.86	\$275.73	\$280.70	\$285.75	\$290.80	\$296.13	\$301.46	\$306.89	\$312.41	\$318.03	\$323.76	\$329 59	\$335 52
-		`	230.71	<i>Ş</i> 201.50	<i>\$</i> 200.07	<i>\$270.00</i>	<i>\</i> 2/3//3	÷200.70	÷ ÷203.73	Ç250.03	, <u>, , , , , , , , , , , , , , , , , , </u>	<i>\$</i> 501.10	\$300.03	<i>\$</i> 512.11	<i>\$</i> 510.05	<i>\$323.70</i>	<i>4323.33</i>	φ <b>333.3</b> Ε
											1							
	Total Council OPEX Costs		\$68,153	\$68 611	\$69.076	\$69 551	\$70 022	\$70 525	\$71 025	\$71 52	\$72 052	\$72 580	\$73 117	\$73 66/	\$74 221	\$74 788	\$75 365	\$75 957
	Total Council Operation Costs per Connection		\$688.42	\$693.04	\$697.74	\$702 53	\$707.41	\$712 37	\$717.42	\$722.5	\$727.80	\$733.13	\$738 56	5744 09	\$749.71	\$755.43	\$761.26	\$767 19
		<u> </u>			<i>2037.14</i>	φ, σ <b>2</b> .JJ	,,,,,	, <u>12</u> .J/	, 1/.+Z	<i>, , , , , , , , , , , , , , , , , , , </i>	<i>ç, 2</i> , .00	<i>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</i>	ç, 30.30	ç, <del>, , , ,</del> ,00	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Ç, 333	<i>,,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Υ, <b>υ</b> , τ <i>J</i>
		-																
											1							
	Total Cost (CAPEX + OPEX)	\$68	.153.17	\$126.110.89	\$139.318.68	\$141.057.18	\$179.223.83	\$107.576.61	\$133.889.71	\$129.130.8	\$91.596.90	\$92.476.41	\$100.123.23	\$94.283.19	\$95.211.05	\$96.155.61	\$97.117.17	\$75.951.86
	Rationalised Total Costs (CAPFX + OPFX)	(	\$688.42	\$1.273.85	\$1,407,26	\$1.424.82	\$1,810.34	\$1.086.63	\$1.352.42	\$1.304.3	\$925.22	\$934.11	\$1.011.35	\$952.36	\$961.73	\$971.27	\$980.98	\$767.19
		1 7		+=,=, 3.03	+1,	7-17-4-102				÷1,004.3.		, <del>,,,,,</del> ,,,,				φ <i>στ.</i> <b>Ξ</b> . Ξ. Ζ. /	2300.30	<i>4.01.10</i>

Table C4-20YR

	1	1 1		I	1	1	1			1			1						
Ontion 4P. Council toke over OPM of low processes cover system																			
option 4B- Council take over O&W of low pressure sewer system with Remote Monitoring (Reduce call out cost (1/2) due to moitoring	-																		
and assistance with preventative maintence)	5																		
YEAR	2017	7	2018	2019	2020	2021	2022	2023	2024	1 2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Council Costs - CAPEX																			
New Installation and Replacement of Pump Costs (>10yr)																			
Cost of a new pump	\$2,700	\$	2,749	\$ 2,798	\$ 2,848	\$ 2,900	\$ 2,952	\$ 3,005	\$ 3,059	\$ 3,114	\$ 3,170	\$ 3,227	\$ 3,285	\$ 3,345	\$ 3,405	\$ 3,466	\$ 3,528	\$ 3,592 \$	\$ 3,657
Cost of Installation (plumber/electrician)	\$500	\$	509	\$ 518	\$ 527	\$ 537	\$ 547	\$ 556	\$ 567	\$ 577	\$ 587	\$ 598	\$ 608	\$ 619	\$ 631	\$ 642	\$ 653	\$ 665 \$	677
Total Cost per pump replaced			\$3,258	\$3,316	\$3,376	\$3,437	\$3,499	\$3,562	\$3,626	\$3,691	\$3,757	\$3,825	\$3,894	\$3,964	\$4,035	\$4,108	\$4,182	\$4,257	\$4,334
Number of pumps to be replaced		620	9	3	3	4		15	15	21	6		9	3	3	4	13	15	15
l otal Cost to replace all pumps in year		\$29,	318.40	\$9,948.71	\$10,127.79	\$13,746.78	\$45,481.23	\$53,422.95	\$54,384.57	\$77,508.89	\$22,544.01	\$38,249.68	\$35,044.35	\$11,891.72	\$12,105.77	\$16,431.56	\$54,363.82	\$63,856.58	\$65,006.00
Number of properties connected			77	80	83	87	/ 90	93	96	5 99	90	99	99	99	99	99	99	99	100
New Tank Installations			,,		, 03	07	50			5 55	,		55		55	55			100
Number of new low pressure pump station installations			9	3	3	4	4 3	3	3	3 3	0	0 0	0	0	0	0	0	0	0
Additional Costs to above for 1,100L Tank and pipework																			
for new installations	\$2,100	\$	2,138	\$ 2,176	\$ 2,215	\$ 2,255	\$ 2,296	\$ 2,337	\$ 2,379	\$ 2,422	\$ 2,466	\$ 2,510	\$ 2,555	\$ 2,601	\$ 2,648	\$ 2,696	\$ 2,744	\$ 2,794 \$	5 2,844
General earthworks and construction costs	\$2,500	\$	2,545	\$ 2,591	\$ 2,637	\$ 2,685	\$ 2,733	\$ 2,782	\$ 2,833	\$ 2,884	\$ 2,935	\$ 2,988	\$ 3,042	\$ 3,097	\$ 3,153	\$ 3,209	\$ 3,267	\$ 3,326 \$	5 3,386
Total Per Low New Pressure Installation (Excl Pump,																			
Controller & Plumber)	\$4,600		\$4,683	\$4,767	\$4,853	\$4,940	\$5,029	\$5,120	\$5,212	\$5,306	\$5,401	\$5,498	\$5,597	\$5,698	\$5,801	\$5,905	\$6,011	\$6,120	\$6,230
Total Per Low New Pressure Installation (Excl Pump,																			
Controller & Plumber)		\$42,	145.20	\$14,301.27	\$14,558.69	\$19,761.00	\$15,087.52	\$15,359.10	\$15,635.56	5 \$15,917.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Remote Monitoring Capability																			
Upgrade PLC Control box	\$1,200.00	) \$1,	221.60	\$1,243.59	\$1,265.97	\$1,288.76	\$1,311.96	\$1,335.57	\$1,359.61	1 \$1,384.09	\$1,409.00	\$1,434.36	\$1,460.18	\$1,486.46	\$1,513.22	\$1,540.46	\$1,568.19	\$1,596.41	\$1,625.15
Number of PLC Control Boxes to be installed by Council																			
(New installations + > 10 yr Replacement)			77	3	3	4	4 3	3	3	3 3	0	0 0	77	3	3	4	3	3	3
Total Annual Cost to Install new PLC Control Boxes and																			
Replace PLC Control Boxes aged > 10 yrs		\$94,	063.20	\$3,730.77	\$3,797.92	\$5,155.04	\$3,935.88	\$4,006.72	\$4,078.84	\$4,152.26	\$0.00	\$0.00	\$112,433.97	\$4,459.39	\$4,539.66	\$6,161.84	\$4,704.56	\$4,789.24	\$4,875.45
-																			
Lasements	ć5 000 00		000.00	с. с. с. с	ć5 000 00	ć5 000 00	¢5,000,00	¢5,000,00	¢5,000,00	¢5,000,00	¢0.00	¢0.00	ć0.00	ćo. 00	ćo 00	ćo. 00	¢0.00	¢0.00	ć0.00
Capital cost per connection	\$5,000.00	) \$5,	000.00	\$ 5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
l otal Annual Easement Cost		\$385,	000.00	15,000.00	15,000.00	20,000.00	15,000.00	15,000.00	15,000.00	15,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Council CAPEX Costs		\$550	526 80	\$42 080 75	\$13 191 10	\$58 662 83	\$79 504 63	¢97 799 79	\$80,008,07	7 \$112 578 15	\$22 544 01	\$38 2/10 68	\$1 <i>1</i> 7 <i>1</i> 79 22	\$16 351 11	\$16 645 42	\$22 592 40	\$50.068.30	\$68 645 83	\$60 881 <i>1</i> 5
Total Council CAPEX Costs per Connection		\$350,	1/10 70	\$527.26	\$ \$522.01	\$58,002.85	\$75,504.03 \$992.29	\$0/,700.70 \$0/12.07	\$03,038.37 \$078.11	\$112,578.15	\$22,344.01	\$36,245.06	\$147,478.32	\$16,351.11	\$169.14	\$22,535.40	\$596.65	\$602.20	\$609,801.45
Total council CAPEX costs per connection		, ,, ,	145.70	JJJ1.20	, ,,,,,,,,,,	5074.23	, 3003.30	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	\$528.11	\$1,157.15	, ,227.72	. 5360.50	\$1,485.08	\$105.10	\$100.14	Ş220.22	\$350.05	3053.35	3030.01
Council Costs - OPEX																			
Callouts																			
Hourly rate for a plumber	\$ 36.84																		
Hourly rate for a labourer	\$ 34.25																		
On-costs/Overhead 88.34%	\$ 62.80																		
Vehicle Hourly Rate	\$ 10.00																		
Total hourly rate	\$ 143.89																		
Minimum call out cost (2 hours of ordinary pay = 1 hour 20	) min																		
Assume call out is 2 hours	1.50	hourly pay for ove	ertime																
Cost per callout	\$ 431.67																		
Percentage of houses doing a call out each year	33%	6																	
Number of Callouts per year			26	27	28	29	30	31	. 32	2 33	33	33	33	33	33	33	33	33	33
Total Annual Cost of Call outs		\$11,2	223.49	\$ 11,655.16	\$ 12,086.84	\$ 12,518.51	\$ 12,950.18	\$ 13,381.85	\$ 13,813.53	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20 \$	\$ 14,245.20
Rationalised annual Call Out Cost per connection		\$ 1	45.76	\$ 145.69	\$ 145.62	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89 \$	\$ 142.45
Duran auto		<b>├</b>					L												
Pump outs		┥			<u> </u>		<u> </u>												
Estimated Cost to Vac-truck accumulated material in the	6200 00		202.00	6007.0C	6244.00	6244.70	6240.00	6222 C	éaac co	6220 CO	6224.02	6000.00	6343.30	6247 74	6ara ao	60FC 74	6264.26	éace or	6370.00
base of the pump wells	\$200.00	۶ ۱	203.60	\$207.26	\$211.00	\$214.79	\$218.66	\$222.60	\$226.60	) \$230.68	\$234.83	\$239.06	\$243.36	\$247.74	\$252.20	\$256.74	\$261.36	\$266.07	\$270.86
Total Annual Vas Truck nump out costs	33.00%		20	2/ \$5 506 15	28	25 66 330 01	30	31 56 000 47	32	2 53	53	5 53 53	53 68 031 00	53 69 175 56	55 69 222 72	53	50 625 02	53 60 700 20	55 60 020 22
Potionalized annual Vac Truck Pump Out of Pump Well pe	or connectiv	, <del>, , ,</del>	295.00	\$3,390.13	\$ <b>3,907.66</b>	\$0,229.01	\$210 6210 66	\$0,900.47	\$7,251.20	\$7,012.40	\$7,749.50 \$724.92	\$7,009.00	\$0,031.00	\$0,173.30 \$247.74	\$0,522.72	\$0,472.32	\$261 26	\$266.07	\$270.95
			203.00	\$207.20	\$211.00	3214.75	\$218.00	\$222.00	\$220.00	\$250.08	\$254.65	\$235.00	\$245.50	\$247.74	\$232.20	\$230.74	\$201.50	\$200.07	Ş270.80
Remote monitoring										1									
Estimated cost per connection for remote monitoring	\$60.00		\$61.08	\$62,18	\$63.30	\$64.44	\$65.60	\$66.78	\$67.98	\$69.20	\$70.45	\$71.72	\$73.01	\$74.32	\$75.66	\$77.02	\$78.41	\$79.82	\$81.26
Number of Connections to be remotely monitored	ç		77	80	83	87	90	93	96	5 99	99	99	99	99	99	99	99	99	99
Total monitoring cost per annum	1	\$4.	703.16	\$4.974.36	\$5.253.79	\$5.606.11	\$5.903.81	\$6.210.42	\$6.526.15	\$6.851.23	\$6.974.55	\$7.100.10	\$7.227.90	\$7.358.00	\$7.490.44	\$7.625.27	\$7.762.53	\$7,902.25	\$8.044.49
	1	<u> </u>		÷ .,5 / 400	,, <b></b>	+=,0000122	+=,000.01	÷ • )==••••	+ = ,0=0.10	+ -,002.20	÷ :,::		,, <u>,</u> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,., <b></b>	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,., <b></b> ,	÷•,••=•••	֥ ;= ;====	+-,5
Total Council OPEX Costs	1	l s	21,220	\$22,226	\$23.249	\$24.354	\$25.414	\$26.493	\$27.591	\$28.709	\$28.969	\$29.234	\$29.504	\$29.779	\$30.058	\$30.343	\$30.633	\$30,928	\$31.228
Total Council Operation Costs per Connection	1		\$276	\$278	\$280	\$280	\$282	\$285	\$287	7 \$290	\$293	\$295	\$298	\$301	\$304	\$306	\$309	\$312	\$315
	1	1			1	1	1	1	1	1	1	1			· · ·				
Total Cost (CAPEX + OPEX)		1 1															1	I	
Total cost (CALEX FOLEX)		\$571,	747.05	\$65,206.42	\$66,732.90	\$83,016.46	\$104,918.42	\$114,281.51	\$116,689.92	2 \$141,287.06	\$51,513.27	\$67,483.97	\$176,982.41	\$46,129.87	\$46,703.79	\$52,936.39	\$89,701.14	\$99,573.56	\$101,109.47
Rationalised Total Costs (CAPEX + OPEX)		\$571,	747.05 425.29	\$65,206.42 \$815.08	\$66,732.90 \$804.01	\$83,016.46 \$954.21	5 \$104,918.42 \$1,165.76	\$114,281.51 \$1,228.83	\$116,689.92 \$1,215.52	2 \$141,287.06 2 \$1,427.14	\$51,513.27 \$520.34	\$67,483.97 \$681.66	\$176,982.41 \$1,787.70	\$46,129.87 \$465.96	\$46,703.79 \$471.76	\$52,936.39 \$534.71	\$89,701.14 \$906.07	\$99,573.56 \$1,005.79	\$101,109.47 \$1,011.09

Ontion	IP. Council take over ORM of low proseure cover system												
with Remo	the Monitoring (Reduce call out cost (1/3) due to moitoring												
	and assistance with preventative maintence)												
YEAR		2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
New Instal	STS - CAPEX												
New Instal	Cost of a new pump	\$ 3.722	\$ 3,789	\$ 3.858	\$ 3.927	\$ 3,998	\$ 4.070	Ś 4.143	\$ 4.218	\$ 4,293	\$ 4.371	\$ 4,449	\$ 4.529
	Cost of Installation (plumber/electrician)	\$ 689	\$ 702	\$ 714	\$ 727	\$ 740	\$ 754	\$ 767	\$ 781	\$ 795	\$ 809	\$ 824	\$ 839
	Total Cost per pump replaced	\$4,412	\$4,491	\$4,572	\$4,654	\$4,738	\$4,823	\$4,910	\$4,999	\$5,089	\$5,180	\$5,273	\$5,368
	Number of pumps to be replaced	21	6	10	9	3	3	4	13	15	15	21	6
	Total Cost to replace all pumps in year	\$92,646.56	\$26,946.91	\$45,719.93	\$41,888.60	\$14,214.20	\$14,470.05	\$19,640.69	\$64,981.21	\$76,327.93	\$77,701.83	\$110,740.65	\$32,209.71
	Number of properties connected	101	102	102	104	105	106	107	109	100	110	111	112
New Tank	Installations	101	102	103	104	103	100	107	100	109	110	111	112
	Number of new low pressure pump station installations	0	0	0	0	0	0	0	0	0	0	0	0
	Additional Costs to above for 1,100L Tank and pipework												
	for new installations	\$ 2,895	\$ 2,947	\$ 3,000	\$ 3,054	\$ 3,109	\$ 3,165	\$ 3,222	\$ 3,280	\$ 3,339	\$ 3,399	\$ 3,461	\$ 3,523
	General earthworks and construction costs	\$ 3,447	\$ 3,509	\$ 3,572	\$ 3,636	\$ 3,702	\$ 3,768	\$ 3,836	\$ 3,905	\$ 3,975	\$ 4,047	\$ 4,120	\$ 4,194
	Total Per Low New Pressure Installation (Excl Pump,	66.040	40.450	40.570			45.000	AT 050	67.405	67.045	47.44	47.500	<u> </u>
	Controller & Plumber) Total Per Low New Pressure Installation (Evel Dump	\$6,342	\$6,456	\$ <del>6</del> ,572	\$6,691	\$6,811	\$6,934	\$7,058	\$7,185	\$7,315	\$7,446	\$7,580	\$7,717
	Controller & Plumber)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
		20.00	<i>20.00</i>	20.00	ç0.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Remote M	onitoring Capability												
	Upgrade PLC Control box	\$1,654.40	\$1,684.18	\$1,714.50	\$1,745.36	\$1,776.77	\$1,808.76	\$1,841.31	\$1,874.46	\$1,908.20	\$1,942.55	\$1,977.51	\$2,013.11
	Number of PLC Control Boxes to be installed by Council												
	(New installations + > 10 yr Replacement)	3	0	0	77	3	3	4	3	3	3	3	0
	I otal Annual Cost to Install new PLC Control Boxes and Replace PLC Control Boxes aged > 10 yrs	\$4 962 21	\$0.00	\$0.00	¢124 202 50	\$5 220 22	¢E 426 27	67 265 26	¢E 672 27	\$E 724 EQ	¢E 977 64	¢E 022 E2	\$0.00
	Replace File Control Boxes aged > 10 yrs	\$4,503.21	Ş0.00	Ş0.00	J1J4,JJ2.JJ	\$5,550.52	ŞJ,420.27	\$7,303.20	\$J,023.37	\$3,724.33	33,027.0 <del>4</del>	\$3,332.33	Ş0.00
Easements													
	Capital cost per connection	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Total Annual Easement Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Council CAPEX Costs	<u>\$97,609.76</u>	<u>\$26,946.91</u>	<u>\$45,719.93</u>	<u>\$176,281.18</u>	\$19,544.52	\$19,896.32	\$27,005.94	\$70,604.58	\$82,052.52	<u>\$83,529.47</u>	\$116,673.18	\$32,209.71
	I otal Council CAPEX Costs per Connection	\$966.43	\$264.19	\$443.88	\$1,695.01	\$186.14	\$187.70	\$252.39	\$653.75	\$/52./8	\$759.36	\$1,051.11	\$287.59
Council Co	sts - OPEX												
Callouts													
	Hourly rate for a plumber												
	Hourly rate for a labourer												
	On-costs/Overhead 88.34%												
	Vehicle Hourly Rate												
	Total nourly rate Minimum call out cost (2 hours of ordinary pay = 1 hour 20												
	Assume call out is 2 hours												
	Cost per callout												
	Percentage of houses doing a call out each year												
	Number of Callouts per year	33	33	33	33	33	33	33	33	33	33	33	33
	Total Annual Cost of Call outs	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20	\$ 14,245.20
	Rationalised annual Call Out Cost per connection	\$ 141.04	\$ 139.66	\$ 138.30	\$ 136.97	\$ 135.67	\$ 134.39	\$ 133.13	\$ 131.90	\$ 130.69	\$ 129.50	\$ 128.34	\$ 127.19
Pumn oute													
i anp outs	Estimated Cost to Vac-truck accumulated material in the												
	base of the pump wells	\$275.73	\$280.70	\$285.75	\$290.89	\$296.13	\$301.46	\$306.89	\$312.41	\$318.03	\$323.76	\$329.59	\$335.52
	Number of pump outs per year	33	33	33	33	33	33	33	33	33	33	33	33
	Total Annual Vac-Truck pump out costs	\$9,099.22	\$9,263.00	\$9,429.74	\$9,599.47	\$9,772.26	\$9,948.16	\$10,127.23	\$10,309.52	\$10,495.09	\$10,684.00	\$10,876.31	\$11,072.09
	Rationalised annual Vac-Truck Pump Out of Pump Well pe	\$275.73	\$280.70	\$285.75	\$290.89	\$296.13	\$301.46	\$306.89	\$312.41	\$318.03	\$323.76	\$329.59	\$335.52
Remoto m	onitoring												
nemote m	Estimated cost per connection for remote monitoring	\$82.72	\$84.21	\$85.72	\$87.27	\$88.84	\$90.44	\$92.07	\$93.72	\$95.41	\$97.13	\$98.88	\$100.66
	Number of Connections to be remotely monitored	99	99	99	99	99	99	99	99	99	99	99	99
	Total monitoring cost per annum	\$8,189.29	\$8,336.70	\$8,486.76	\$8,639.52	\$8,795.03	\$8,953.35	\$9,114.51	\$9,278.57	\$9,445.58	\$9,615.60	\$9,788.68	\$9,964.88
	Total Council OPEX Costs	\$31,534	\$31,845	\$32,162	\$32,484	\$32,812	\$33,147	\$33,487	\$33,833	\$34,186	\$34,545	\$34,910	\$35,282
	Total Council Operation Costs per Connection	\$319	\$322	\$325	\$328	\$331	\$335	\$338	\$342	\$345	\$349	\$353	\$356
	Total Cost (CADEX + ODEX)	\$120 142 AT	¢E0 701 01	677 001 02	\$209 7CF 20	652 257 02	¢E2 042 02	\$60 403 00	\$104 437 07	¢116 330 30	¢110 074 27	¢1E1 E03 30	\$67 401 07
	Rationalised Total Costs (CAPEX + OPEX)	\$1 278 65	ې ۵۵,/91.81 ۲. ۲۶۶۶ ک	\$756 12	\$2 00,705.38	\$32,557.02 \$498.64	\$35,043.03 \$500.41	\$00,492.88	\$104,437.87 \$967 02	\$1 066 41	\$1 072 /0	\$1 365 67	\$602 F1
1		+_,_,0.05	, <i>23,0.33</i>	, <i>,,,,,,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						+-,000.41	+ -,0,0,40	+-,000.02	+

-20																			
Option 4B system with	-20 - Council take over O&M of low pressure sewer Remote Monitoring (Reduce call out cost (1/3) due to																		
moltori	ng and assistance with preventative maintence)																		<u> </u>
VFAR		2017	,	2018	2019	2020	2021	2022	2023	3 2024	1 2025	2026	2027	2028	2029	2030	2031	2032	2
Council Costs -	CAPEX	2017		2010	2015	2020	2021	2022	202.	2027	1 2023	, 2020	2027	2020	2025	2030	2031	2052	2
New Installatio	on and Replacement of Pump Costs (>20yr)									1						1			
Cos	t of a new pump	\$2,700	)	\$ 2,749 \$	2,798	\$ 2,848	\$ 2,900	\$ 2,952	\$ 3,005	\$ 3,059	\$ 3,114	\$ 3,170	\$ 3,227	\$ 3,285	\$ 3,345	\$ 3,405	\$ 3,466	\$ 3,528	\$ 3,5
Cos	t of Installation (plumber/electrician)	\$500	)	\$ 509 \$	518	\$ 527	\$ 537	\$ 547	\$ 556	\$ 567	\$ 577	\$ 587	\$ 598	\$ 608	\$ 619	\$ 631	\$ 642	\$ 653	\$ 6
Tot	al Cost per pump replaced			\$3,258	\$3,316	\$3,376	\$3,437	\$3,499	\$3,562	2 \$3,626	\$3,691	\$3,757	\$3,825	\$3,894	\$3,964	\$4,035	\$4,108	\$4,182	\$4,
Nur	mber of pumps to be replaced			9	3	3	4	3	3 3	3 3	3 3	8 0	0	0	0	0 0	0	10	
Tot	al Cost to replace all pumps in year			\$29,318.40	\$9,948.71	\$10,127.79	\$13,746.78	\$10,495.67	7 \$10,684.59	9 \$10,876.91	\$11,072.70	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41,818.33	\$51,085
Nur	mber of properties connected			77	80	83	87	90	) 93	3 96	5 99	99	99	99	99	99	99	99	<u> </u>
New Tank Inst	allations		1																
Nur	mber of new low pressure pump station installations			9	3	3	4	. 3	3 3	3 3	3 3	8 0	0	0	0	0	0	0	
Ado	ditional Costs to above for 1,100L Tank and pipework																		1
for	new installations	\$2,100	)	\$ 2,138 \$	\$ 2,176	\$ 2,215	\$ 2,255	\$ 2,296	\$ 2,337	\$ 2,379	\$ 2,422	\$ 2,466	\$ 2,510	\$ 2,555	\$ 2,601	\$ 2,648	\$ 2,696	\$ 2,744	\$ 2,7
Ger	neral earthworks and construction costs	\$2,500	)	\$ 2,545 \$	\$ 2,591	\$ 2,637	\$ 2,685	\$ 2,733	\$ 2,782	\$ 2,833	\$ 2,884	\$ 2,935	\$ 2,988	\$ 3,042	\$ 3,097	\$ 3,153	\$ 3,209	\$ 3,267	\$ 3,3
Tot	al Per Low New Pressure Installation (Excl Pump,								.	.									1
Cor	ntroller & Plumber)	\$4,600	)	\$4,683	\$4,767	\$4,853	\$4,940	\$5,029	\$5,120	\$5,212	\$5,306	\$5,401	\$5,498	\$5,597	\$5,698	\$5,801	\$5,905	\$6,011	\$6,1
Tot	al Per Low New Pressure Installation (Excl Pump,					Ι.	Ι.	Ι.	Ι.	Ι.	Ι.								1
Cor	ntroller & Plumber)			\$42,145.20	\$14,301.27	\$14,558.69	\$19,761.00	\$15,087.52	2 \$15,359.10	\$15,635.56	\$15,917.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.
omoto Monit	toring Conchility																		<b> </b>
		\$1 200 00		\$1.221.60	¢1 3/3 Ε0	\$1 26E 07	¢1 200 76	\$1 211 04	\$1 22E F	7 \$1 250 61	\$1 204 00	\$1 400 00	\$1 ADA DA	\$1 AGO 10	\$1 A06 A6	¢1 E12 22	\$1 EAD AG	\$1 EGO 10	\$1 E0 <i>C</i>
Ope	mbor of PLC Control Boyos to be installed by Council	\$1,200.00	,	\$1,221.00	\$1,245.59	\$1,205.97	\$1,200.70	\$1,511.90	\$1,555.57	/ \$1,559.01	L \$1,564.05	\$1,409.00	\$1,454.50	\$1,400.18	\$1,460.40	\$1,515.22	\$1,540.40	\$1,508.19	\$1,590.
(No	$r_{\rm rest}$ installations + > 10 vr Replacement)			77	2					2 3			0	77	2	2	1	3	1
Tot	al Annual Cost to Install new PIC Control Boyes and			11	3	3	4				2	, U	0	//	3	3	4	3	<u> </u>
Ren	alace PLC Control Boxes aged > 10 vrs			\$94,063,20	\$3 730 77	\$3 797 97	\$5 155 04	\$3 935 88	\$4 006.72	\$4 078 84	\$4 152.26	\$0.00	\$0.00	\$112 433 97	\$4 459 39	\$4 539 66	\$6 161 84	\$4 704 56	\$4 789
				\$34,003.20	Ş3,730.77	<i>33,737.32</i>	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,000.72	2 94,070.04	, ,, <u>,</u> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Ş0.00	Ş112,433.57	\$4,435.35	\$4,555.00	<i>\$0,101.04</i>	J4,704.30	Ş4,705.
asements																			
Cap	bital cost per connection	\$5,000.00	)	\$5,000.00	5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.
Tot	al Annual Easement Cost			\$385,000.00	15,000.00	15,000.00	20,000.00	15,000.00	15,000.00	0 15,000.00	15,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
Tot	al Council CAPEX Costs			\$550,526.80	\$42,980.75	\$43,484.40	\$58,662.83	\$44,519.07	7 \$45,050.41	1 \$45,591.32	\$46,141.96	<u>\$0.00</u>	\$0.00	\$112,433.97	\$4,459.39	\$4,539.66	<u>\$6,161.84</u>	\$46,522.89	\$55,874.
Tot	al Council CAPEX Costs per Connection			\$7,149.70	\$537.26	\$523.91	\$674.29	\$494.66	\$484.41	1 \$474.91	\$466.08	\$0.00	\$0.00	\$1,135.70	\$45.04	\$45.86	\$62.24	\$469.93	\$564.
																			<b> </b>
ouncil Costs -	OPEX								-	-									<b> </b>
allouts	when a star for a sub-sub-sub-sub-sub-sub-sub-sub-sub-sub-	ć 20.04																	I
HOL	urly rate for a plumber	\$ 30.84																	<u> </u>
HOL	costs (Querbood 88 24%)	\$ 34.25																	<u> </u>
Voh	aida Hourly Pata	\$ 02.80 \$ 10.00																	<u> </u>
Tot	al hourly rate	\$ 10.00 \$ 142.00																	<u> </u>
Mir	ai nouny rate nimum call out cost (2 hours of ordinary nav = 1 hour 20	3 143.03							-										
۵۹۹	ume call out is 2 hours	1 50	hourly new	for overtime					1	1						-			<u> </u>
Cos	t per callout	\$ 431.67	nouny pay																
Per	centage of houses doing a call out each year	33%																	
Nur	mber of Callouts per year			26	27	28	29	30	31	1 32	2 33	33	33	33	33	33	33	33	
Tot	al Annual Cost of Call outs			\$ 11.223.49 \$	11.655.16	\$ 12.086.84	\$ 12.518.51	\$ 12,950,18	\$ 13.381.85	\$ 13.813.53	\$ 14.245.20	\$ 14.245.20	\$ 14.245.20	\$ 14.245.20	\$ 14.245.20	\$ 14.245.20	\$ 14.245.20	\$ 14.245.20	\$ 14.245.2
Rat	ionalised annual Call Out Cost per connection			\$ 145.76 \$	5 145.69	\$ 145.62	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.89	\$ 143.8
ump outs																			L
Esti	imated Cost to Vac-truck accumulated material in the																		1
bas	e of the pump wells	\$200.00	)	\$203.60	\$207.26	\$211.00	\$214.79	\$218.66	\$222.60	\$226.60	\$230.68	\$234.83	\$239.06	\$243.36	\$247.74	\$252.20	\$256.74	\$261.36	\$266.
Nur	mber of pump outs per year	33.00%	6	26	27	28	29	30	31	1 32	2 33	33	33	33	33	33	33	33	<u> </u>
Tot	al Annual Vac-Truck pump out costs			\$5,293.60	\$5,596.15	\$5,907.88	\$6,229.01	\$6,559.79	\$6,900.47	7 \$7,251.28	\$7,612.48	\$7,749.50	\$7,889.00	\$8,031.00	\$8,175.56	\$8,322.72	\$8,472.52	\$8,625.03	\$8,780
Rat	ionalised annual Vac-Truck Pump Out of Pump Well pe	er connection	n I	\$203.60	\$207.26	\$211.00	\$214.79	\$218.66	5 \$222.60	\$226.60	\$230.68	\$\$234.83	\$239.06	\$243.36	\$247.74	\$252.20	\$256.74	\$261.36	\$266.
																			<u> </u>
emote monit	oring										<u> </u>								
Esti	imated cost per connection for remote monitoring	\$60.00	)	\$61.08	\$62.18	\$63.30	\$64.44	\$65.60	\$66.78	\$67.98	\$69.20	\$70.45	\$71.72	\$73.01	\$74.32	\$75.66	\$77.02	\$78.41	\$79
Nur	mber of Connections to be remotely monitored			77	80	83	87	90	93	3 96	5 99	99	99	99	99	99	99	99	
Tot	al monitoring cost per annum			\$4,703.16	\$4,974.36	\$5,253.79	\$5,606.11	\$5,903.81	\$6,210.42	\$6,526.15	\$6,851.23	\$6,974.55	\$7,100.10	\$7,227.90	\$7,358.00	\$7,490.44	\$7,625.27	\$7,762.53	\$7,902
Tot	al Council OPEX Costs			\$21,220	\$22,226	\$23,249	\$24,354	\$25,414	\$26,493	\$27,591	\$28,709	\$28,969	\$29,234	\$29,504	\$29,779	\$30,058	\$30,343	\$30,633	\$30,9
Tot	al Council Operation Costs per Connection			\$276	\$278	\$280	\$280	\$282	\$285	5 \$287	\$290	\$293	\$295	\$298	\$301	. \$304	\$306	\$309	\$3
	al Cost (CADEV + ODEV)			\$571 747 05	605 200 42	\$66 700 00	602.040.40	\$60.000.00	671 E 43 47	¢72 102 27	2 674 050 05	620 000 20	620 224 20	\$141 030 CC	624 220 45	624 E00 02	\$26 E04 02	677 155 64	\$0C 000
Iot	ar CUSE (CAPEX + UPEX)		-	\$5/1,/4/.05	\$65,206.42	300,/32.90	>83,016.46	32.86 ¢777	\$71,543.15	>/3,182.27	× × × × × × × × × × × × × × × × × × ×	>28,969.26	\$29,234.29	\$141,938.06	\$34,238.15	>34,598.02	\$30,504.83	¢770.25	386,802.7
Rat	IONANSEU TULAI CUSIS (LAPEA + UPEA)	I	1	۶1,425.29	\$0.619¢	3004.01	3954.21	\$777.03	ې/۵۶.28 ۲	\$702.32	\$750.07	\$292.0Z	şz95.30	71,435.72	əə45.84	>>49.47	Ş508.74	\$779.35	30/0./

Option	4B-20 - Council take over O&M of low pressure sewer													
mo	itoring and assistance with preventative maintence)													
YEAR		2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Council Co	sts - CAPEX													
New Instal	lation and Replacement of Pump Costs (>20yr)													
	Cost of a new pump	\$ 3,657	\$ 3,722	\$ 3,789	\$ 3,858	\$ 3,927	\$ 3,998	\$ 4,070	\$ 4,143	\$ 4,218	\$ 4,293	\$ 4,371	\$ 4,449	\$ 4,529
	Cost of Installation (plumber/electrician)	\$ 677	\$ 689	\$ 702	\$ 714	\$ 727	\$ 740	\$ 754	\$ 767	\$ 781	\$ 795	\$ 809	\$ 824	\$ 839
	Total Cost per pump replaced	\$4,334	\$4,412	\$4,491	\$4,572	\$4,654	\$4,738	\$4,823	\$4,910	\$4,999	\$5,089	\$5,180	\$5,273	\$5,368
	Number of pumps to be replaced	12	18	6	10	9	3	3	4	3	3	3	3	0
	Total Cost to replace all pumps in year	\$52,004.80	\$79,411.33	\$26,946.91	\$45,719.93	\$41,888.60	\$14,214.20	\$14,470.05	\$19,640.69	\$14,995.66	\$15,265.59	\$15,540.37	\$15,820.09	\$0.00
	Number of properties connected	100	101	102	102	104	105	106	107	109	100	110	111	112
New Tank		100	101	102	103	104	105	100	107	100	109	110	111	112
New Talik														
	Number of new low pressure pump station installations	0	0	0	0	0	0	0	0	0	0	0	0	0
	Additional Costs to above for 1.100L Tank and pipework				-					-	-			
	for new installations	\$ 2,844	\$ 2,895	\$ 2,947	\$ 3,000	\$ 3,054	\$ 3,109	\$ 3,165	\$ 3,222	\$ 3,280	\$ 3,339	\$ 3,399	\$ 3,461	\$ 3,523
	General earthworks and construction costs	\$ 3,386	\$ 3,447	\$ 3,509	\$ 3,572	\$ 3,636	\$ 3,702	\$ 3,768	\$ 3,836	\$ 3,905	\$ 3,975	\$ 4,047	\$ 4,120	\$ 4,194
	Total Per Low New Pressure Installation (Excl Pump,													
	Controller & Plumber)	\$6,230	\$6,342	\$6,456	\$6,572	\$6,691	\$6,811	\$6,934	\$7,058	\$7,185	\$7,315	\$7,446	\$7,580	\$7,717
	Total Per Low New Pressure Installation (Excl Pump,													
	Controller & Plumber)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Remote M	Initoring Capability	64 COT 17	64.054.00	64 604 10	64 744 70	64 <b>7</b> 45 66	64 776	ć4 000 = 0	64 0 44 0 -	64.074.14	64 000 00	ć4 0 40 55	64 077 7 1	62.010.01
	Upgrade PLC Control box	\$1,625.15	\$1,654.40	\$1,684.18	\$1,714.50	\$1,745.36	\$1,776.77	\$1,808.76	\$1,841.31	\$1,874.46	\$1,908.20	\$1,942.55	\$1,977.51	\$2,013.11
	(Now installations + > 10 vr Poplacement)	2	2	0				2	4		2	2	2	0
	Total Appual Cost to Install new PLC Control Boyes and	3	3	0	0	//	3	3	4		3	3	3	0
	Replace PLC Control Boxes aged > 10 yrs	\$4 875 45	\$4 963 21	\$0.00	\$0.00	\$134 392 59	\$5 330 32	\$5 426 27	\$7 365 26	\$5 623 37	\$5 724 59	\$5 827.64	\$5 932 53	\$0.00
		<i><i><i>ϕ</i></i> 1,010110</i>	<i> </i>	<i><b>Ç</b>0.00</i>	<i>¥0.00</i>	<i>\</i>	<i><i><i></i></i></i>	<i>40,120,21</i>	<i></i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<i><i><i>vcjc_cici</i></i></i>	<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	<i>\\\\\\\\\\\\\</i>	<i><i><i></i></i></i>	+0.00
Easement	5													
	Capital cost per connection	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
	Total Annual Easement Cost	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Council CAPEX Costs	\$56,880.25	\$84,374.54	\$26,946.91	\$45,719.93	\$176,281.18	\$19,544.52	\$19,896.32	\$27,005.94	\$20,619.04	\$20,990.18	\$21,368.00	\$21,752.63	\$0.00
	Total Council CAPEX Costs Total Council CAPEX Costs per Connection	<u>\$56,880.25</u> \$568.80	<u>\$84,374.54</u> \$835.39	<u>\$26,946.91</u> \$264.19	<u>\$45,719.93</u> \$443.88	<u>\$176,281.18</u> \$1,695.01	<u>\$19,544.52</u> \$186.14	<u>\$19,896.32</u> \$187.70	<u>\$27,005.94</u> \$252.39	<u>\$20,619.04</u> \$190.92	<u>\$20,990.18</u> \$192.57	<u>\$21,368.00</u> \$194.25	<u>\$21,752.63</u> \$195.97	<u>\$0.00</u> \$0.00
	Total Council CAPEX Costs Total Council CAPEX Costs per Connection	<u>\$56,880.25</u> \$568.80	<u>\$84,374.54</u> \$835.39	<u>\$26,946.91</u> \$264.19	<u>\$45,719.93</u> \$443.88	<u>\$176,281.18</u> \$1,695.01	<u>\$19,544.52</u> \$186.14	<u>\$19,896.32</u> \$187.70	<u>\$27,005.94</u> \$252.39	<u>\$20,619.04</u> \$190.92	\$20,990.18 \$192.57	<u>\$21,368.00</u> \$194.25	<u>\$21,752.63</u> \$195.97	<u>\$0.00</u> \$0.00
Council Co	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX	<u>\$56,880.25</u> \$568.80	<u>\$84,374.54</u> \$835.39	<u>\$26,946.91</u> \$264.19	<u>\$45,719.93</u> \$443.88	<u>\$176,281.18</u> \$1,695.01	<u>\$19,544.52</u> \$186.14	<u>\$19,896.32</u> \$187.70	<u>\$27,005.94</u> \$252.39	<u>\$20,619.04</u> \$190.92	<u>\$20,990.18</u> \$192.57	<u>\$21,368.00</u> \$194.25	<u>\$21,752.63</u> \$195.97	<u>\$0.00</u> \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber	<u>\$56,880.25</u> \$568.80	<u>\$84,374.54</u> \$835.39	<u>\$26,946.91</u> \$264.19	<u>\$45,719.93</u> \$443.88	\$176,281.18 \$1,695.01	<u>\$19,544.52</u> \$186.14	<u>\$19,896.32</u> \$187.70	<u>\$27,005.94</u> \$252.39	<u>\$20,619.04</u> \$190.92	\$20,990.18 \$192.57	<u>\$21,368.00</u> \$194.25	<u>\$21,752.63</u> \$195.97	\$0.00 \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a labourer	\$56,880.25 \$568.80	<u>\$84,374.54</u> \$835.39	<u>\$26,946.91</u> \$264.19	<u>\$45,719.93</u> \$443.88	\$176,281.18 \$1,695.01	<u>\$19,544.52</u> \$186.14	\$ <u>19,896.32</u> \$187.70	\$27,005.94 \$252.39	<u>\$20,619.04</u> \$190.92	\$20,990.18 \$192.57	<u>\$21,368.00</u> \$194.25	<u>\$21,752.63</u> \$195.97	\$0.00 \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a labourer On-costs/Overhead 88.34%	<u>\$56,880.25</u> \$568.80	<u>\$84,374.54</u> \$835.39	<u>\$26,946.91</u> \$264.19	<u>\$45,719.93</u> \$443.88	\$176,281.18 \$1,695.01	<u>\$19,544.52</u> \$186.14	\$ <u>19,896.32</u> \$187.70	<u>\$27,005.94</u> \$252.39	<u>\$20,619.04</u> \$190.92	\$20,990.18 \$192.57	<u>\$21,368.00</u> \$194.25	<u>\$21,752.63</u> \$195.97	\$0.00 \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a plumber On-costs/Overhead 88.34% Vehicle Hourly Rate	\$56,880.25 \$568.80	<u>\$84,374.54</u> \$835.39	<u>\$26,946.91</u> \$264.19	<u>\$45,719.93</u> \$443.88	\$176,281.18 \$1,695.01	<u>\$19,544.52</u> \$186.14	<u>\$19,896.32</u> \$187.70	<u>\$27,005.94</u> \$252.39	<u>\$20,619.04</u> \$190.92	\$20,990.18 \$192.57	<u>\$21,368.00</u> \$194.25	\$21,752.63 \$195.97	\$0.00 \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a labourer On-costs/Overhead 88.34% Vehicle Hourly Rate Total hourly rate	\$56,880.25 \$568.80	\$84,374.54 \$835.39	<u>\$26,946.91</u> \$264.19	<u>\$45,719.93</u> \$443.88	\$176,281.18 \$1,695.01	<u>\$19,544.52</u> \$186.14	\$19,896.32 \$187.70	\$27,005.94 \$252.39	\$20,619.04 \$190.92	\$20,990.18 \$192.57	<u>\$21,368.00</u> \$194.25	\$21,752.63 \$195.97	\$0.00 \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a labourer On-costs/Overhead 88.34% Vehicle Hourly Rate Total hourly rate Minimum call out cost (2 hours of ordinary pay = 1 hour 20	\$56,880.25 \$568.80	\$84,374.54 \$835.39	<u>\$26,946.91</u> \$264.19	\$45,719.93 \$443.88	\$176,281.18 \$1,695.01	<u>\$19,544.52</u> \$186.14	\$19,896.32 \$187.70	\$27,005.94 \$252.39	\$20,619.04 \$190.92	\$20,990.18 \$192.57	<u>\$21,368.00</u> \$194.25	\$21,752.63 \$195.97	\$0.00 \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a labourer On-costs/Overhead 88.34% Vehicle Hourly Rate Total hourly rate Minimum call out cost (2 hours of ordinary pay = 1 hour 20 Assume call out is 2 hours	\$56,880.25 \$568.80	\$84,374.54 \$835.39	<u>\$26,946.91</u> \$264.19	\$45,719.93 \$443.88	\$176,281.18 \$1,695.01	\$19,544.52 \$186.14	\$19,896.32 \$187.70	\$27,005.94 \$252.39	\$20,619.04 \$190.92	\$20,990.18 \$192.57	<u>\$21,368.00</u> \$194.25	\$21,752.63 \$195.97	\$0.00 \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a labourer On-costs/Overhead 88.34% Vehicle Hourly Rate Total hourly rate Minimum call out cost (2 hours of ordinary pay = 1 hour 20 Assume call out is 2 hours Cost per callout	\$56,880.25 \$568.80	\$84,374.54 \$835.39	<u>\$26,946.91</u> \$264.19	\$45,719.93 \$443.88	\$176,281.18 \$1,695.01	\$19,544.52 \$186.14	\$19,896.32 \$187.70	\$27,005.94 \$252.39	\$20,619.04 \$190.92	\$20,990.18 \$192.57	<u>\$21,368.00</u> \$194.25	<u>\$21,752.63</u> \$195.97	\$0.00 \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a labourer On-costs/Overhead 88.34% Vehicle Hourly Rate Total hourly rate Minimum call out cost (2 hours of ordinary pay = 1 hour 20 Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year	\$56,880.25 \$568.80	<u>\$84,374.54</u> \$835.39	<u>\$26,946.91</u> \$264.19	\$45,719.93 \$443.88	\$176,281.18 \$1,695.01	\$19,544.52 \$186.14	<u>\$19,896.32</u> \$187.70	\$27,005.94 \$252.39	\$20,619.04 \$190.92	\$20,990.18 \$192.57	<u>\$21,368.00</u> \$194.25	<u>\$21,752.63</u> \$195.97	\$0.00 \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a labourer On-costs/Overhead 88.34% Vehicle Hourly Rate Total hourly rate Minimum call out cost (2 hours of ordinary pay = 1 hour 20 Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year	\$56,880.25 \$568.80	\$84,374.54 \$835.39	\$26,946.91 \$264.19	\$45,719.93 \$443.88	\$176,281.18 \$1,695.01	\$19,544.52 \$186.14	\$19,896.32 \$187.70	\$27,005.94 \$252.39	\$20,619.04 \$190.92	\$20,990.18 \$192.57	\$21,368.00 \$194.25	\$21,752.63 \$195.97	\$0.00 \$0.00
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a labourer On-costs/Overhead 88.34% Vehicle Hourly Rate Total hourly rate Minimum call out cost (2 hours of ordinary pay = 1 hour 20 Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs	\$56,880.25 \$568.80	\$84,374.54 \$835.39	\$26,946.91 \$264.19 \$264.19 33 \$ 14,245.20	\$45,719.93 \$443.88 	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 	\$19,896.32 \$187.70	\$27,005.94 \$252.39 	\$20,619.04 \$190.92	\$20,990.18 \$192.57	\$21,368.00 \$194.25	\$21,752.63 \$195.97	\$0.00 \$0.00 
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         Sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection	\$56,880.25 \$568.80 	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 	\$45,719.93 \$443.88 	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 	\$19,896.32 \$187.70 	\$27,005.94 \$252.39 	\$20,619.04 \$190.92 	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 	\$21,752.63 \$195.97 	\$0.00 \$0.00 
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         Sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection	\$56,880.25 \$568.80 	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 	\$45,719.93 \$443.88 	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 	\$19,896.32 \$187.70 	\$27,005.94 \$252.39 	\$20,619.04 \$190.92 	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 	\$21,752.63 \$195.97 	\$0.00 \$0.00 
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         Sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection	\$56,880.25 \$568.80 	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 	\$45,719.93 \$443.88 	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 	\$19,896.32 \$187.70 	\$27,005.94 \$252.39 	\$20,619.04 \$190.92 	\$20,990.18 \$192.57	\$21,368.00 \$194.25 	\$21,752.63 \$195.97 	\$0.00 \$0.00 
Council Co Callouts	Total Council CAPEX Costs Total Council CAPEX Costs per Connection sts - OPEX Hourly rate for a plumber Hourly rate for a labourer On-costs/Overhead 88.34% Vehicle Hourly Rate Total hourly rate Minimum call out cost (2 hours of ordinary pay = 1 hour 20 Assume call out is 2 hours Cost per callout Percentage of houses doing a call out each year Number of Callouts per year Total Annual Cost of Call outs Rationalised annual Call Out Cost per connection Estimated Cost to Vac-truck accumulated material in the base of the nump wells	\$56,880.25 \$568.80 33 \$ 14,245.20 \$ 142.45 \$ 270.86	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 \$33 \$14,245.20 \$139.66 \$280.70	\$45,719.93 \$443.88 	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 	\$19,896.32 \$187.70 	\$27,005.94 \$252.39 \$252.39 \$33 \$14,245.20 \$133.13 \$306.89	\$20,619.04 \$190.92 	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$ 14,245.20 \$ 129.50	\$21,752.63 \$195.97 	\$0.00 \$0.00 
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         Sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         Settimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year	\$56,880.25 \$568.80 33 \$ 14,245.20 \$ 142.45 \$ 270.86 33	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$139.66 \$280.70 33	\$45,719.93 \$443.88 	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 	\$19,896.32 \$187.70 	\$27,005.94 \$252.39 252.39 33 \$14,245.20 \$133.13 \$306.89 33	\$20,619.04 \$190.92 	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33	\$21,752.63 \$195.97 	\$0.00 \$0.00 
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         Sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         Sestimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs	\$56,880.25 \$568.80 33 \$ 14,245.20 \$ 142.45 \$ 142.45 33 \$270.86 33 \$8,938.33	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$ 139.66 \$280.70 33 \$9,263.00	\$45,719.93 \$443.88 443.88 33 \$14,245.20 \$138.30 \$285.75 33 \$9,429.74	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 	\$19,896.32 \$187.70 	\$27,005.94 \$252.39 252.39 33 \$14,245.20 \$133.13 \$306.89 33 \$10,127.23	\$20,619.04 \$190.92 	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$ 14,245.20 \$ 129.50 \$323.76 33 \$10,684.00	\$21,752.63 \$195.97 	\$0.00 \$0.00 
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         S         Estimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs         Rationalised annual Vac-Truck Pump Out of Pump Well per Varian Participantian Provide Pump Well	\$56,880.25 \$568.80 \$568.80 33 \$14,245.20 \$142.45 \$142.45 \$270.86 33 \$8,938.33 \$270.86	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$ 139.66 \$280.70 33 \$9,263.00 \$280.70	\$45,719.93 \$443.88 33 \$14,245.20 \$138.30 \$285.75 33 \$9,429.74 \$285.75	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 3186.14 33 \$14,245.20 \$135.67 \$296.13 33 \$9,772.26 \$296.13	\$19,896.32 \$187.70 	\$27,005.94 \$252.39 \$252.39 33 \$14,245.20 \$ 133.13 \$306.89 33 \$10,127.23 \$306.89	\$20,619.04 \$190.92 333 \$14,245.20 \$131.90 \$312.41 333 \$10,309.52 \$312.41	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33 \$10,684.00 \$323.76	\$21,752.63 \$195.97 	\$0.00 \$0.00 
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         Settimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs         Rationalised annual Vac-Truck Pump Out of Pump Well per total Annual Vac-Truck Pump Out of Pump Well per total Annual Vac-Truck Pump Out of Pump Well per total Annual Vac-Truck Pump Out of Pump Well per total Pump Well Pump Well Pump Valor Pump Well Pump Valor Pump Well Pump Valor Pum	\$56,880.25 \$568.80 33 \$ 14,245.20 \$ 142.45 \$ 142.45 \$ 33 \$270.86 33 \$8,938.33 \$270.86	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$ 139.66 \$280.70 33 \$9,263.00 \$280.70	\$45,719.93 \$443.88 33 \$14,245.20 \$138.30 \$285.75 33 \$9,429.74	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 	\$19,896.32 \$187.70 	\$27,005.94 \$252.39 252.39 33 \$14,245.20 \$ 133.13 \$306.89 33 \$10,127.23 \$306.89	\$20,619.04 \$190.92 	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33 \$10,684.00 \$323.76	\$21,752.63 \$195.97 	\$0.00 \$0.00 30.00 33 \$14,245.20 \$127.19 \$335.52 33 \$11,072.09 \$335.52
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         S         Estimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs         Rationalised annual Vac-Truck Pump Out of Pump Well pe	\$56,880.25 \$568.80 33 \$ 14,245.20 \$ 142.45 \$ 142.45 \$ 142.45 \$ 142.45	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$ 139.66 \$280.70 33 \$9,263.00 \$280.70	\$45,719.93 \$443.88 3443.88 33 \$14,245.20 \$138.30 \$285.75 33 \$9,429.74 \$285.75	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 3186.14 33 \$14,245.20 \$135.67 \$296.13 33 \$9,772.26 \$296.13	\$19,896.32 \$187.70 33 \$14,245.20 \$134.39 \$301.46 33 \$9,948.16 \$301.46	\$27,005.94 \$252.39 \$252.39 33 \$14,245.20 \$ 133.13 \$306.89 33 \$10,127.23 \$306.89	\$20,619.04 \$190.92 333 \$14,245.20 \$131.90 \$312.41 33 \$10,309.52 \$312.41	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33 \$10,684.00 \$323.76	\$21,752.63 \$195.97 	\$0.00 \$0.00 30 33 \$14,245.20 \$127.19 \$335.52 33 \$11,072.09 \$335.52
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         Sestimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs         Rationalised annual Vac-Truck Pump Out of Pump Well penemeters         Out costs         Rationalised annual Vac-Truck Pump Out of Pump Well penemeters	\$56,880.25 \$568.80 33 \$ 14,245.20 \$ 142.45 \$ 142.45 \$ 142.45 \$ 142.45	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$ 139.66 \$280.70 33 \$9,263.00 \$280.70	\$45,719.93 \$443.88 33 \$14,245.20 \$138.30 \$285.75 33 \$9,429.74 \$285.75	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 33 \$14,245.20 \$135.67 \$296.13 33 \$9,772.26 \$296.13	\$19,896.32 \$187.70 33 \$14,245.20 \$134.39 \$301.46 33 \$9,948.16 \$301.46	\$27,005.94 \$252.39 \$252.39 33 \$14,245.20 \$ 133.13 \$306.89 33 \$10,127.23 \$306.89	\$20,619.04 \$190.92 333 \$14,245.20 \$131.90 \$312.41 33 \$10,309.52 \$312.41	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33 \$10,684.00 \$323.76	\$21,752.63 \$195.97 	\$0.00 \$0.00 30.00 33 \$14,245.20 \$127.19 \$335.52 33 \$11,072.09 \$335.52
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         S         Estimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs         Rationalised annual Vac-Truck Pump Out of Pump Well per contor         Conitoring         Estimated cost per connection for remote monitoring	\$56,880.25 \$568.80 33 \$ 14,245.20 \$ 142.45 \$ 142.45 \$ 142.45 \$ 142.45 \$ 142.45	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$ 139.66 \$280.70 33 \$9,263.00 \$280.70 \$33	\$45,719.93 \$443.88 33 \$14,245.20 \$138.30 \$285.75 33 \$9,429.74 \$285.75	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 3186.14 33 \$14,245.20 \$135.67 \$296.13 33 \$9,772.26 \$296.13	\$19,896.32 \$187.70 33 \$14,245.20 \$134.39 \$301.46 333 \$9,948.16 \$301.46	\$27,005.94 \$252.39 \$252.39 33 \$14,245.20 \$ 133.13 \$306.89 33 \$10,127.23 \$306.89	\$20,619.04 \$190.92 333 \$14,245.20 \$131.90 \$312.41 33 \$10,309.52 \$312.41	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33 \$10,684.00 \$323.76	\$21,752.63 \$195.97 33 \$14,245.20 \$128.34 \$329.59 33 \$10,876.31 \$329.59	\$0.00 \$0.00 30.00 31 \$14,245.20 \$14,245.20 \$127.19 \$335.52 33 \$11,072.09 \$335.52
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         S         Estimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck Pump Out of Pump Well pe         Onitoring         Estimated cost per connection for remote monitoring         Number of Connections to be remotely monitored	\$56,880.25 \$568.80 33 \$ 14,245.20 \$ 142.45 \$ 142.45 \$ 142.45 \$ 142.45 \$ 142.45	\$84,374.54 \$835.39 33 33 \$ 14,245.20 \$ 141.04 \$275.73 33 \$9,099.22 \$275.73	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$ 139.66 \$280.70 33 \$9,263.00 \$280.70 33 \$9,263.00 \$280.70	\$45,719.93 \$443.88 33 \$14,245.20 \$138.30 \$285.75 33 \$9,429.74 \$285.75	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 3186.14 33 \$14,245.20 \$135.67 \$296.13 33 \$9,772.26 \$296.13	\$19,896.32 \$187.70 33 \$14,245.20 \$134.39 \$301.46 333 \$9,948.16 \$301.46	\$27,005.94 \$252.39 \$252.39 33 \$14,245.20 \$ 133.13 \$306.89 33 \$10,127.23 \$306.89 33 \$10,127.23 \$306.89	\$20,619.04 \$190.92 333 \$14,245.20 \$131.90 \$312.41 333 \$10,309.52 \$312.41	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33 \$10,684.00 \$323.76	\$21,752.63 \$195.97 33 \$14,245.20 \$128.34 \$329.59 33 \$10,876.31 \$329.59	\$0.00 \$0.00 \$0.00 33 \$14,245.20 \$127.19 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         S         Estimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs         Rationalised annual Vac-Truck Pump Out of Pump Well per ser         Onitoring         Estimated cost per connection for remote monitoring         Number of Connections to be remotely monitored         Total monitoring cost per annum	\$56,880.25 \$568.80 33 \$ 14,245.20 \$ 142.45 \$ 142.45 \$ \$ 270.86 33 \$8,938.33 \$8,938.33 \$8,938.33 \$270.86	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$ 139.66 \$280.70 33 \$9,263.00 \$280.70 33 \$9,263.00 \$280.70 33 \$9,263.00 \$280.70	\$45,719.93 \$443.88 33 \$14,245.20 \$138.30 \$285.75 33 \$9,429.74 \$285.75 33 \$9,429.74	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 3186.14 33 \$14,245.20 \$135.67 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13	\$19,896.32 \$187.70 33 \$14,245.20 \$134.39 \$301.46 333 \$9,948.16 \$301.46	\$27,005.94 \$252.39 \$252.39 33 \$14,245.20 \$ 133.13 \$306.89 33 \$10,127.23 \$306.89 33 \$10,127.23 \$306.89 33 \$10,127.23 \$306.89	\$20,619.04 \$190.92 333 \$14,245.20 \$131.90 \$312.41 333 \$10,309.52 \$312.41 333 \$10,309.52 \$312.41	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76	\$21,752.63 \$195.97 33 \$14,245.20 \$128.34 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33	\$0.00 \$0.00 \$0.00 33 \$14,245.20 \$127.19 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         S         Estimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs         Rationalised annual Vac-Truck Pump Out of Pump Well per ser         Onitoring         Estimated cost per connection for remote monitoring         Number of Connections to be remotely monitored         Total monitoring cost per annum         Total Council OPEX Cost	\$56,880.25 \$568.80 33 \$14,245.20 \$142.45 \$142.45 \$270.86 33 \$8,938.33 \$270.86 33 \$8,938.33 \$270.86	\$84,374.54 \$835.39 33 33 \$ 14,245.20 \$ 141.04 \$ 141.04 \$ 275.73 33 \$9,099.22 \$275.73 33 \$9,099.22 \$275.73	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$ 139.66 \$280.70 33 \$9,263.00 \$280.70 \$33 \$9,263.00 \$280.70 \$33 \$9,263.00 \$280.70	\$45,719.93 \$443.88 33 \$14,245.20 \$138.30 \$285.75 33 \$9,429.74 \$285.75 33 \$9,429.74 \$285.75	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 3186.14 33 \$14,245.20 \$135.67 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13	\$19,896.32 \$187.70 33 \$14,245.20 \$134.39 \$301.46 333 \$9,948.16 \$301.46 333 \$9,948.16	\$27,005.94 \$252.39 \$252.39 33 \$14,245.20 \$ 133.13 \$306.89 33 \$10,127.23 \$306.89 33 \$10,127.23 \$306.89 33 \$10,127.23 \$306.89	\$20,619.04 \$190.92 333 \$14,245.20 \$131.90 \$312.41 333 \$10,309.52 \$312.41 333 \$10,309.52 \$312.41	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76	\$21,752.63 \$195.97 33 \$14,245.20 \$128.34 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59	\$0.00 \$0.00 \$0.00 33 \$14,245.20 \$127.19 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         S         Estimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs         Rationalised annual Vac-Truck Pump Out of Pump Well per semantal cost per connection for remote monitoring         Number of Connections to be remotely monitored         Total Council OPEX Costs         Total Council OPEX Costs	\$56,880.25 \$568.80 33 \$14,245.20 \$14,245.20 \$142.45 \$270.86 33 \$8,938.33 \$8,938.33 \$8,938.33 \$8,938.44 99 \$8,044.49	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 33 \$3 \$14,245.20 \$139.66 \$280.70 \$33 \$9,263.00 \$280.70 \$33 \$9,263.00 \$280.70 \$33 \$9,263.00 \$280.70 \$33,845 \$84.21 99 \$8,336.70	\$45,719.93 \$443.88 33 33 \$ 14,245.20 \$ 138.30 \$ 14,245.20 \$ 138.30 \$ 285.75 33 \$9,429.74 \$285.75 33 \$9,429.74 \$285.75 33 \$9,429.74 \$285.75	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 3186.14 33 33 \$14,245.20 \$135.67 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13	\$19,896.32 \$187.70 33 33 \$14,245.20 \$134.39 \$301.46 333 \$9,948.16 \$301.46 333 \$9,948.16 \$301.46	\$27,005.94 \$252.39 \$252.39 33 \$14,245.20 \$ 133.13 \$306.89 33 \$10,127.23 \$306.89 33 \$10,127.23 \$306.89 33 \$10,127.23 \$306.89	\$20,619.04 \$190.92 333 \$14,245.20 \$131.90 \$312.41 333 \$10,309.52 \$312.41 333 \$10,309.52 \$312.41 333 \$10,309.52 \$312.41 333 \$10,309.52 \$33,233 \$32,241 \$33,233 \$32,241 \$33,233 \$32,241 \$33,241 \$34,241 \$34,245\$	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76	\$21,752.63 \$195.97 	\$0.00 \$0.00 \$0.00 33 \$14,245.20 \$127.19 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         S         Estimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs         Rationalised annual Vac-Truck Pump Out of Pump Well per conitoring         Number of Connections to be remotely monitored         Total monitoring cost per annum         Total Council OPEX Costs         Total Council OPEX Costs per Connection	\$56,880.25 \$568.80 33 \$14,245.20 \$14,245.20 \$142.45 33 \$270.86 33 \$8,938.33 \$270.86 33 \$8,938.33 \$8,938.33 \$270.86 33 \$8,938.33 \$270.86 33 \$8,938.33	\$84,374.54 \$835.39 	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$139.66 \$280.70 33 \$9,263.00 \$280.70 33 \$9,263.00 \$280.70 33 \$9,263.00 \$280.70 33 \$9,263.00 \$280.70 33 \$9,263.00 \$280.70	\$45,719.93 \$443.88 33 \$14,245.20 \$138.30 \$285.75 33 \$9,429.74 \$285.75 33 \$9,429.74 \$285.75 33 \$9,429.74 \$285.75	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 3186.14 33 \$14,245.20 \$135.67 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13	\$19,896.32 \$187.70 33 33 \$14,245.20 \$134.39 \$301.46 333 \$9,948.16 \$301.46 333 \$9,948.16 \$301.46	\$27,005.94 \$252.39 \$252.39 33 \$14,245.20 \$133.13 \$306.89 33 \$10,127.23 \$306.89 33 \$10,127.23 \$306.89 33 \$10,127.23 \$306.89 33 \$306.89 33 \$306.89 33 \$306.89 33 \$306.89 33 \$306.89 33 \$306.89 \$33,487 \$33,487 \$338	\$20,619.04 \$190.92 333 \$14,245.20 \$131.90 \$312.41 333 \$10,309.52 \$312.41 333 \$10,309.52 \$312.41 333 \$10,309.52 \$312.41 333 \$333 \$333 \$333 \$334	\$20,990.18 \$192.57 	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$129.50 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76	\$21,752.63 \$195.97 33 \$14,245.20 \$128.34 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 \$329.59 \$333 \$10,876.31 \$329.59 \$333 \$10,876.31 \$329.59 \$333 \$10,876.31 \$329.59 \$333 \$10,876.31 \$329.59 \$333 \$10,876.31 \$329.59 \$333 \$10,876.31 \$329.59 \$333 \$10,876.31 \$329.59 \$333 \$10,876.31 \$329.59 \$333 \$333 \$10,876.31 \$329.59 \$333 \$333 \$10,876.31 \$329.59 \$333 \$3353 \$3353 \$3353 \$3353 \$3353 \$3353 \$3353 \$33535 \$33535 \$33555 \$3355555555	\$0.00 \$0.00 \$0.00 33 \$14,245.20 \$127.19 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52 \$355.52
Council Co Callouts	Total Council CAPEX Costs         Total Council CAPEX Costs per Connection         Sts - OPEX         Hourly rate for a plumber         Hourly rate for a labourer         On-costs/Overhead 88.34%         Vehicle Hourly Rate         Total hourly rate         Minimum call out cost (2 hours of ordinary pay = 1 hour 20         Assume call out is 2 hours         Cost per callout         Percentage of houses doing a call out each year         Number of Callouts per year         Total Annual Cost of Call outs         Rationalised annual Call Out Cost per connection         S         Estimated Cost to Vac-truck accumulated material in the base of the pump wells         Number of pump outs per year         Total Annual Vac-Truck pump out costs         Rationalised annual Vac-Truck Pump Out of Pump Well pe         Onitoring         Estimated cost per connection for remote monitoring         Number of Connections to be remotely monitored         Total monitoring cost per annum         Total Council OPEX Costs         Total Council OPEX Costs per Connection	\$56,880.25 \$568.80 33 \$14,245.20 \$14,245.20 \$142.45 33 \$8,938.33 \$8,938.33 \$8,938.33 \$8,938.33 \$270.86 33 \$8,938.33 \$270.86 33 \$8,938.33 \$31,228 \$31,228 \$31,228 \$31,228	\$84,374.54 \$835.39 \$835.39 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	\$26,946.91 \$264.19 \$264.19 33 \$14,245.20 \$139.66 \$280.70 \$33 \$9,263.00 \$280.70 \$280.70 \$33 \$9,263.00 \$280.70 \$33 \$9,263.00 \$280.70 \$33 \$9,263.00 \$280.70 \$33,845 \$31,845 \$322 \$322	\$45,719.93 \$443.88 \$443.88 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	\$176,281.18 \$1,695.01 	\$19,544.52 \$186.14 3186.14 33 \$14,245.20 \$135.67 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13 33 \$9,772.26 \$296.13 333 \$9,772.26 \$296.13 \$333 \$9,772.26 \$296.13 \$333 \$9,772.26 \$296.13 \$296.13 \$333 \$9,772.26 \$296.13 \$333 \$9,772.26 \$296.13 \$296.13 \$296.13 \$333 \$9,772.26 \$296.13 \$296.13 \$296.13 \$333 \$9,772.26 \$296.13 \$296.13 \$296.13 \$333 \$9,772.26 \$296.13 \$333 \$9,772.26 \$296.13 \$296.13 \$296.13 \$333 \$296.13 \$333 \$296.13 \$333 \$297.226 \$3331 \$331 \$331 \$331 \$331 \$331 \$331 \$3	\$19,896.32 \$187.70 33 33 \$14,245.20 \$134.39 \$301.46 333 \$9,948.16 \$301.46 333 \$9,948.16 \$301.46 333 \$9,948.16 \$301.46	\$27,005.94 \$252.39 \$252.39 3 3 3 3 \$ 14,245.20 \$ 133.13 \$ 3 \$ 14,245.20 \$ 133.13 \$ 3 \$ 14,245.20 \$ 133.13 \$ 3 \$ 14,245.20 \$ 133.13 \$ \$ 306.89 3 3 \$ \$10,127.23 \$ \$306.89 \$ 3 3 \$ \$10,127.23 \$ \$306.89 \$ 3 \$ \$ \$306.89 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$20,619.04 \$190.92 \$190.92 33 33 \$14,245.20 \$131.90 \$312.41 33 \$10,309.52 \$312.41 33 \$10,309.52 \$312.41 33 \$312.41 \$312.41 33 \$312.41 \$312.41 \$332.41 \$342 \$342 \$342 \$342 \$342 \$342 \$342 \$342	\$20,990.18 \$192.57 3192.57 33 33 \$14,245.20 \$130.69 3318.03 33 \$14,245.20 \$130.69 3318.03 33 \$10,495.09 \$318.03 33 \$10,495.09 \$318.03 33 \$10,495.09 \$318.03 33 \$10,495.09 \$318.03 33 \$10,495.09 \$318.03 33 \$10,495.09 \$318.03 \$318.03 \$33 \$10,495.09 \$318.03 \$33 \$10,495.09 \$318.03 \$33 \$10,495.09 \$318.03 \$33 \$10,495.09 \$318.03 \$33 \$10,495.09 \$318.03 \$33 \$10,495.09 \$318.03 \$33 \$10,495.09 \$318.03 \$33 \$10,495.09 \$318.03 \$33 \$10,495.09 \$318.03 \$33 \$318.03 \$33 \$318.03 \$33 \$318.03 \$33 \$318.03 \$33 \$318.03 \$33 \$33 \$318.03 \$33 \$33 \$318.03 \$33 \$33 \$33 \$33 \$33 \$33 \$33 \$33 \$33 \$	\$21,368.00 \$194.25 33 \$14,245.20 \$129.50 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 33 \$10,684.00 \$323.76 \$323.76 \$323.76 \$323.76 \$333.76 \$323.76 \$333.76 \$333.76 \$323.76 \$333.76	\$21,752.63 \$195.97 33 33 \$14,245.20 \$128.34 33 \$14,245.20 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 33 \$10,876.31 \$329.59 \$329.59 \$329.59 \$329.59 \$329.59 \$333 \$10,876.31 \$329.59 \$35355 \$35355555555555555555555555555	\$0.00 \$0.00 \$0.00 33 \$14,245.20 \$127.19 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52 33 \$11,072.09 \$335.52 \$35,282,17





#### Table C5 - New Gravity Sewerage Scheme

Item	Description	Quantity	Unit	U	nit Rate		Amount
1	PRELIMINARIES						
	Management Plans, Quality Plans, Site Establishment, Traffic Control,	<b>5</b> %	Item	(14	tom 2+3)	¢	140 805 00
	Environmental Management etc	570		(11	teni 2+3)	φ	149,003.00
	Site Preparation and Earthworks (Clearing / Grubbing Only)	2%	Item	(It	tem 2+3)	\$	59,922.00
	Sub-Total (excl GST)						\$209,727.00
2	SUPPLY AND INSTALL GRAVITY SEWERAGE MAIN						
	Supply and Install DN150 DICL Tyton Xtreme Gravity Main (0.9-2m)	1120	m		500.00		560,000.00
	Supply and Install DN150 DICL Tyton Xtreme Gravity Main (2-3m)	480	m		650.00		312,000.00
	Supply and Install DN225 DICL Tyton Xtreme Gravity Main (0.9-2m)	560	m		560.00		313,600.00
	Supply and Install DN225 DICL Tyton Xtreme Gravity Main (2-3m)	240	m		700.00		168,000.00
	Supply and Install Concrete Manholes	55	ea		2,500.00		137,500.00
	Sub-Total (excl GST)					\$	1,491,100.00
3	SUPPLY AND INSTALL SEWAGE PUMP STATIONS AND						
	RISING MAIN						
	Pump Station 1 (Approx 1 L/s)	1	ea	\$ 2	250,000.00		250,000.00
	Pump Station 2 (Approx 2 L/s)	1	ea	\$ 2	250,000.00		250,000.00
	Relift Pump Station 3 (Approx 6-7 L/s)	1	ea	\$ 3	300,000.00		300,000.00
	Pump Station 4 (Approx 8 L/s)	1	ea	\$ 3	300,000.00		300,000.00
	Supply and Install DN100 DICL Tyton Xtreme Pressure Main	900	m	\$	450.00		405,000.00
	Sub-Total (excl GST)					\$	1,505,000.00
	Sub Total (Items 1, 2 & 3)					\$	3,205,827.00
	Testing and Commissioning	2%	Item			\$	64,116.54
	Valve/Fittings for Pipeline	2%	Item			\$	64,116.54
	Miscellaneous Equipment	5%	Item			\$	160,291.35
	Reinstatement (Roads, Gardens, Pavement, Fences etc)	10%	Item			\$	320,582.70
	Sub Total Infrastructure (excl GST)					\$	3,654,642.78
	Contingencies	30%	Item			\$	1,096,392.83
	Engineering, Survey, Design	15%	Item			\$	548,196.42
	Legals, Land Acquisition	15%	Item			\$	548, 196.42
	Project and Construction Management	3%	Item			\$	109,639.28
	Sub Total Project Costs (excl GST)					\$	2,302,424.95
	TOTAL (EXCLUDING GST)						<u>5,957,067.73</u>

### Table C5 - New Gravity Sewerage Scheme

Council Costs - OPEX	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Replacement Mech&Elec After 15 Yrs												
General O&M (1% Civil)				\$ 20,003	\$ 20,363	\$ 20,730	\$ 21,103	\$ 21,483	\$ 21,870	\$ 22,263	\$ 22,664	\$ 23,072
Mech/Elec Maintenance (3% of M/E Infrastructure)				\$ 6,963	\$ 7,088	\$ 7,216	\$ 7,346	\$ 7,478	\$ 7,612	\$ 7,750	\$ 7,889	\$ 8,031

Council Costs - OPEX	2029		2030	2031	2032	2033	203	4	2035	2036	2037	2038	2039	2040
Replacement Mech&Elec After 15 Yrs								\$	750,564					
General O&M (1% Civil)	\$ 18,961	\$ :	19,302	\$ 19,650	\$ 20,003	\$ 20,363	\$ 20,730	) \$	21,103	\$ 21,483	\$ 21,870	\$ 22,263	\$ 22,664	\$ 23,072
Mech/Elec Maintenance (3% of M/E Infrastructure)	\$ 6,600	\$	6,719	\$ 6,840	\$ 6,963	\$ 7,088	\$ 7,216	5\$	7,346	\$ 7,478	\$ 7,612	\$ 7,750	\$ 7,889	\$ 8,031

Council Costs - OPEX	2041	2042	2043	204	1	2045	2046
Replacement Mech&Elec After 15 Yrs							
General O&M (1% Civil)	\$ 18,961	\$ 19,302	\$ 19,650	\$ 20,003	\$	20,363	\$ 20,730
Mech/Elec Maintenance (3% of M/E Infrastructure)	\$ 6,600	\$ 6,719	\$ 6,840	\$ 6,963	\$	7,088	\$ 7,216

## Appendix D – Net Present Value

### Project: 1770 Low Pressure Sewer System Option and Cost Review Job Number: 42-20430 Title: Net Present Value - Options Assessment



Option 1 - Status Quo (property owners O&M infrastructure located within property					
boundary). Council maintains and operates infrastructure outside of the property					
boundary.		Total Cost	<b>۱</b> ۱۵۷	IPV (over 28 years	)
Construction Control (CAREV)	ć	(\$)	4% ¢257.541.91	6240 260 F1	60%
Capital Works Cost (CAPEX)	ې د	298,888.74	\$257,541.81	\$240,360.51	\$225,070.96 \$0.00
TOTAL Option 1 (excl. GST)	ې \$	298 888 74	\$257 541 81	\$240 360 51	\$225 070 96
Ontion 2 - Property owners retain responsibility for O&M infrastructure located	÷	200,000.14	<i>\$257,</i> 541.01	\$240,500151	Ş223,070.50
within property, however Council repair/replace faulty pumps provided they have					
seen more than 5 years of service. Council will continue to operate and maintain					
infrastructure outside of property boundary.		Total Cost	N	IPV (over 28 years	)
		(\$)	4%	6%	8%
Capital Works Cost (CAPEX)	\$	2,605,199.12	\$1,519,615.30	\$1,217,219.80	\$1,002,166.25
Operational Costs (OPEX)	\$	-	\$0.00	\$0.00	\$0.00
TOTAL Option 2 (excl. GST)	\$	2,605,199.12	\$ 1,519,615.30	\$ 1,217,219.80	\$ 1,002,166.25
Option 3 - Property owners retain responsibility for O&M infrastructure located					
have seen more than 10 years of service. Council will continue to operate and					
maintain infrastructure outside of property boundary.		Total Cost	N	IPV (over 28 years	)
		(\$)	4%	6%	8%
Capital Works Cost (CAPEX)	\$	1,423,538.26	\$831,377.16	\$667,394.05	\$550,796.35
Operational Costs (OPEX)	\$	-	\$0.00	\$0.00	\$0.00
TOTAL Option 3 (excl. GST)	\$	1,423,538.26	\$ 831,377.16	\$ 667,394.05	\$ 550,796.35
Option 3-20YR - Property owners retain responsibility for O&M infrastructure					
located within property, however Council will repair/replace any faulty pumps					
operate and maintain infrastructure outside of property boundary		Total Cost	N	IPV (over 28 years	)
		(\$)	4%	6%	8%
Capital Works Cost (CAPEX)	\$	747,710.55	\$467,300.12	\$386,287.64	\$327,676.65
Operational Costs (OPEX)	\$	-	\$0.00	\$0.00	\$0.00
TOTAL Option 3 (excl. GST)	\$	747,710.55	\$ 467,300.12	\$ 386,287.64	\$ 327,676.65
Option 4 - Council to take over O&M of the low pressure sewer systems (pump					
replacement 10 years)		Total Cost	N	IPV (over 28 years	)
		(\$)	4%	6%	8%
Capital Works Cost (CAPEX)	\$	2,340,281.83	\$1,507,599.84	\$1,273,695.60	\$1,105,410.69
Operational Costs (OPEX)	Ş	1,942,186.97	\$1,099,316.94	\$864,913.41	\$698,606.07
101AL Option 4 (exci. GS1)	\$	4,282,468.81	\$ 2,606,916.78	\$ 2,138,609.01	\$ 1,804,016.76
replacement 20 years)		Total Cost		ID)/ /	
		(\$)	4%	6%	) 8%
Capital Works Cost (CADEX)	ć	1 411 018 73	\$1,006,003,02	\$887 174 20	\$708 621 11
Operational Costs (OPEX)	Ś	1.942.186.97	\$1,000,333.92	\$864.913.41	\$698.606.07
TOTAL Option 4 (excl. GST)	\$	3.353.205.71	\$ 2.106.310.86	\$ 1.752.087.70	\$ 1.497.227.18
		-,,	. , ,	• , • ,••	. , . , .
Option 4B - Council take over O&M of low pressure sewer system with Remote					
Monitoring (Reduce call out cost (1/3) due to moitoring and assistance with					
preventative maintence)		Total Cost	N 40/	IPV (over 28 years	)
		(\$)	4%	6%	8%
Capital Works Cost (CAPEX)	Ş	2,324,156.96	\$1,538,986.40	\$1,314,810.03	\$1,152,155.23
	ې و	3 104 314 62	\$469,134.32	\$363,030.77	\$308,985.00
	φ	3, 194, 3 14.02	\$ 2,020,120.72	\$ 1,030,440.00	\$ 1,401,140.23
Option 4B-20YR - Council take over O&M of low pressure sewer system with					
Remote Monitoring (Reduce call out cost (1/3) due to moitoring and assistance with					
preventative maintence)		Total Cost	N	IPV (over 28 years	)
		(\$)	4%	6%	8%
Capital Works Cost (CAPEX)	\$	1,648,329.25	\$1,174,909.36	\$1,033,703.62	\$929,035.53
Operational Costs (OPEX)	\$	870,157.66	\$489,134.32	\$383,630.77	\$308,985.06
TOTAL Option B1 (excl. GST)	\$	2,518,486.91	\$ 1,664,043.68	\$ 1,417,334.39	\$ 1,238,020.59
Option 5 - New Gravity Sewerage Scheme		Total Cost	Ν	IPV (over 28 years	)
		(\$)	4%	6%	8%
Capital Works Cost (CAPEX)	\$	5,957,067.73	\$5,877,984.77	\$5,706,558.57	\$5,543,850.09
Operational Costs (OPEX)					
General O&M (1% Civil)	\$	687,660.42	\$398,775.25	\$316,394.91	\$257,253.55
Miecn/Elec Maintenance (3% of M/E Infrastructure)	Ş	239,362.84	\$138,806.85	\$110,131.66	\$89,545.56
LILLAL UNTION 5 (OVEL (SSI)	15	6,884,090.99	§6,415,566.87	<b>\$6,133,085.14</b>	\$5,890,649.20

# Project: 1770 Low Pressure Sewer System Option and Cost Review Job Number: 42-20430

Title: Net Present Value - Options Assessment

	(\$)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Works Cost (CAPEX)	\$ 298.888.74	\$ 82.458.00	27.980.75	\$ 28.484.40	\$ 38.662.83 \$	29.519.07	\$ 30.050.41	\$ 30.591.32	\$ 31.141.96	\$ - <u></u>	ś -	Ś -	Ś -	Ś -	Ś -	\$ -
Operational Costs (OPEX)	\$ -	\$ - 9	-	\$ -	\$ - \$		Ś -	\$ -	\$ -	\$ - 5	, Ś -	\$ -	\$ -	\$ -	; \$-	<u>\$</u> -
TOTAL Ontion 1 (excl. GST)	\$ 298 888 74			•				•	•						•	•
Option 2 - Property owners retain responsibility for O&M infrastructure located	·,															
within property, however Council repair/replace faulty pumps provided they have																
seen more than 5 years of service. Council will continue to operate and maintain																
infrastructure outside of property boundary.	Total Cost															
	(\$)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Works Cost (CAPEX)	\$ 2,605,199.12	\$ 154,125.20 \$	67,775.59	\$ 89,251.12	\$ 59,283.00 \$	64,504.63	\$ 140,457.85	\$ 84,975.89	\$ 108,650.85	\$ 37,573.36	\$ 49,724.58	\$ 132,389.78	\$ 71,350.30	\$ 96,846.14	\$ 41,078.91	\$ 54,363.82
Operational Costs (OPEX)	\$-	\$ - \$	-	\$ -	\$-\$	-	\$ -	\$ -	\$ -	\$ - 9	\$-	\$-	\$-	\$-	\$-	\$ -
TOTAL Option 2 (excl. GST)	\$ 2,605,199.12															
	•															
Option 3 - Property owners retain responsibility for O&M infrastructure located																
within property, however Council will repair/replace any faulty pumps provided they																
nave seen more than 10 years of service. Council will continue to operate and	Total Coat															
maintain intrastructure outside of property boundary.	I otal Cost	2049	2010	2020	2024	2022	2022	2024	2025	2020	2027	2029	2020	2020	2024	2022
	(\$)	2010	2019	2020	2021	2022	2023	2024	2025	2020	2021	2020	2029	2030	2031	2032
Capital Works Cost (CAPEX)	\$ 1,423,538.26	\$ 82,458.00 \$	27,980.75	\$ 28,484.40	\$ 38,662.83 \$	64,504.63	\$ /2,/88./8	\$ 74,098.97	\$ 97,578.15	\$ 22,544.01	\$ 38,249.68	\$ 35,044.35	\$ 11,891.72	\$ 12,105.77	\$ 16,431.56	\$ 54,363.82
Operational Costs (OPEX)	Ş -	\$-; T	-	Ş -	ş - ş	-	Ş -	Ş -	Ş -	Ş - ;	- <sup>۲</sup>	Ş -	Ş -	Ş -	Ş -	Ş -
TOTAL Option 3 (exci. GST)	\$ 1,423,538.26															
Ontion 3.20YR - Property owners retain responsibility for ORM intrastructure																
located within property, however Council will repair/replace any faulty pumps																
provided they have seen more than 20 years of service. Council will continue to																
operate and maintain infrastructure outside of property boundary.	Total Cost															
	(\$)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Works Cost (CAPEX)	\$ 747,710.55	\$ 82,458.00	27,980.75	\$ 28,484.40	\$ 38,662.83 \$	29,519.07	\$ 30,050.41	\$ 30,591.32	\$ 31,141.96	\$ - 9	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 41,818.33
Operational Costs (OPEX)	\$ -	\$ - \$	; -	\$ -	\$ - \$	-	\$ -	\$ -	\$ -	\$ - 9	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL Option 3 (excl. GST)	\$ 747,710.55															
	I	4														
Ontion 4 - Council to take over O&M of the low pressure sewer systems (nump																
replacement 10 years)	Total Cost															
• • • •	(\$)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Works Cost (CAPEX)	\$ 2.340.281.83	\$ 467.458.00	42.980.75	\$ 43,484,40	\$ 58.662.83 \$	92.624.22	\$ 103.815.66	\$ 105.414.34	\$ 137.491.72	\$ 30,998,02	\$ 52,593,30	\$ 48,185,99	\$ 16.351.11	\$ 16.645.43	\$ 22,593,40	\$ 74,750,26
Operational Costs (OPEX)	\$ 1,942,186.97	\$ 48,916.00	51,115.00	\$ 53,341.47	\$ 56,242.56 \$	58,529.92	\$ 60,846.96	\$ 63,194.41	\$ 65,573.04	\$ 65,984.11	\$ 66,402.59	\$ 66,828.59	\$ 67,262.27	\$ 67,703.75	\$ 68,153.17	\$ 68,610.69
TOTAL Option 4 (excl. GST)	\$ 4,282,468.81	1	-			-										
	. , ,															
Ontion 4 20VP Council to take over Q8M of the low pressure sower systems (pump																
replacement 20 years)	Total Cost															
	(\$)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Works Cost (CAPEX)	\$ 1,411,018,73	\$ 467,458,00	42 980 75	\$ 43 484 40	\$ 58 662 83 \$	44 519 07	\$ 45,050,41	\$ 45 591 32	\$ 46 141 96	\$	Ś _	Ś.	Ś	\$ -	\$ -	\$ 57,500,20
Operational Costs (OPEX)	\$ 1,942,186,97	\$ 48,916.00	51,115,00	\$ 53,341.47	\$ 56,242.56 \$	58,529,92	\$ 60.846.96	\$ 63,194,41	\$ 65.573.04	\$ 65,984,11	\$ 66.402.59	\$ 66.828.59	\$ 67.262.27	\$ 67,703,75	\$ 68.153.17	\$ 68,610,69
TOTAL Option 4 (excl. GST)	\$ 3.353.205.71	· · · · · · · · · · · · · · · · · · ·	51,110100	¢ 00,012117	¢ 00)2 12100 ¢	00,010101	¢ 00,010130	÷ 00,202	÷ 00,070101	¢ 00,50 mil 0	<i>y</i> 00)102100	φ 00)0 <u>2</u> 0.00	¢ 07,202.27	<i>ç ci,i coli c</i>	<i>ç</i> 00,100,11	\$ 00,010.00
		<u> </u>														
Option 4B - Council take over O&M of low pressure sewer system with Remote																
Monitoring (Reduce call out cost (1/3) due to moitoring and assistance with																
preventative maintence)	Total Cost															
	(\$)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Works Cost (CAPEX)	\$ 2,324,156.96	\$ 550,526.80 \$	42,980.75	\$ 43,484.40	\$ 58,662.83 \$	79,504.63	\$ 87,788.78	\$ 89,098.97	\$ 112,578.15	\$ 22,544.01	\$ 38,249.68	\$ 147,478.32	\$ 16,351.11	\$ 16,645.43	\$ 22,593.40	\$ 59,068.39
Operational Costs (OPEX)	\$ 870,157.66	\$ 21,220.25	22,225.67	\$ 23,248.50	\$ 24,353.63 \$	25,413.79	\$ 26,492.74	\$ 27,590.95	\$ 28,708.91	\$ 28,969.26	\$ 29,234.29	\$ 29,504.10	\$ 29,778.76	\$ 30,058.36	\$ 30,343.00	\$ 30,632.76
TOTAL Option B1 (excl. GST)	\$ 3,194,314.62															
Option 4B-20YR - Council take over O&M of low pressure sewer system with																
Remote Monitoring (Reduce call out cost (1/3) due to moltoring and assistance with	Total Coat															
preventative maintence)		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Works Cost (CAPEY)	(Ÿ)	\$ 550 526 90 ¢	42 090 75	\$ 12 101 10	¢ 50 662 02 ¢	44 E10 07	\$ 45.050.41	\$ 45 E01 22	\$ 46 141 00	ć (		¢ 112 422 07	\$ 4,450.20	\$ 4 520 66	\$ 6161.94	\$ 46 532 90
Capital Works Cost (CAPEA)	\$ 1,046,529.25 \$ 870 157 66	\$ 550,520.80 \$ \$ 21,220.25	42,960.75	\$ 23 248 50	\$ 30,002.03 \$ \$ 31,353.63 \$	25 /13 70	\$ 26 /02 7/	\$ 45,591.52	\$ 40,141.90 \$ 28,708.01	\$ 28 060 26 9	- \$ 70 73/ 70	\$ 112,455.97	\$ 4,459.59	\$ 20.058.36	\$ 0,101.04	\$ 40,522.69
TOTAL Ontion B1 (evcl. GST)	\$ 2549 496 04	, 21,220.23 ;	, 22,223.07	γ 23,240.3U	ڊ دن.در <del>،</del> ۲	20,410.79	y 20,492.74	, 21,390.95	, 20,700.91	- 20,303.20 S	, <i>23,234.2</i> 9	γ 29,304.10	<i>23,110.10</i>	y 30,030.30	y 30,343.00	÷ 50,032.70
	φ 2,010,400.91															
Option 5 - New Gravity Sewerage Scheme	Total Cost														0004	
	(\$)	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Works Cost (CAPEX)	\$ 5,957,067.73	\$ 2,978,533.87	2,978,533.87													
Operational Costs (OPEX)																
General O&M (1% Civil)	\$ 687,660.42			\$ 20,003.43	\$ 20,363.50 \$	20,730.04	\$ 21,103.18	\$ 21,483.04	\$ 21,869.73	\$ 22,263.39	\$ 22,664.13	\$ 23,072.08	\$ 23,487.38	\$ 23,910.15	\$ 24,340.54	\$ 24,778.67
iviecn/Elec Maintenance (3% of M/E Infrastructure)	\$ 239,362.84	_		\$ 6,962.85	\$ 7,088.19 \$	/,215.77	\$ 7,345.66	\$ /,4/7.88	\$ /,612.48	\$ 7,749.50	\$ 7,889.00	\$ 8,031.00	\$ 8,1/5.56	\$ 8,322.72	\$ 8,4/2.52	\$ 8,625.03

# Project: 1770 Low Pressure Sewer System Option and Cost Review Job Number: 42-20430

Title: Net Present Value - Options Assessment

		(\$)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Capital Works Cost (CAPEX)	\$	298,888.74	\$ - :	\$-	\$ -	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$ -	\$-	\$ -	\$-
Operational Costs (OPEX)	\$	-	\$ - :	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$-	\$ -	\$ -	\$ -	\$-
TOTAL Option 1 (excl. GST)	\$	298,888.74														
Option 2 - Property owners retain responsibility for O&M infrastructure located																
within property, however Council repair/replace faulty pumps provided they have																
seen more than 5 years of service. Council will continue to operate and maintain		Total Cost														
infrastructure outside of property boundary.		(\$)	2033	2034	2035	2036	2037	2038	2039	2040	20/11	2042	20/13	2044	2045	2046
Canital Warks Cast (CADEV)	ć	(Ψ)	£ 144 741 F0	2004 6 78 007 20	¢ 105 001 70	2000 ¢ 44.011 F2	£ 50.425.01	£ 150 245 01	¢ 95 395 10	£ 115 760 42	2041 ¢ 40.101.71	£ C4 081 21	¢ 172 000 07	¢ 02 242 20	£ 120 FC0 74	2040 6 F2 C82 85
Capital Works Cost (CAPEX)	¢	2,005,199.12	\$ 144,741.59 \$	\$ 78,007.20	\$ 105,001.78	\$ 44,911.52	\$ 59,455.91	\$ 156,245.61	\$ 65,265.19	\$ 115,700.45	\$ 49,101.71	\$ 04,961.21	\$ 175,009.97	\$ 95,242.20	\$ 120,300.74	\$ 55,062.65
TOTAL Ontion 2 (excl. GST)	ې د	2 605 100 12	Ŷ	۔ ب	- Ļ	- Ļ	۔ ب	- Ļ	- Ļ	- ب	۔ ب	- Ļ	- ب	- Ļ	- ب	۔ ب
	Ψ	2,003,133.12														
Option 3 - Property owners retain responsibility for O&M infrastructure located																
within property, however Council will repair/replace any faulty pumps provided they	/															
have seen more than 10 years of service. Council will continue to operate and																
maintain infrastructure outside of property boundary.		Total Cost														
		(\$)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Capital Works Cost (CAPEX)	\$	1,423,538.26	\$ 63,856.58	\$ 65,006.00	\$ 92,646.56	\$ 26,946.91	\$ 45,719.93	\$ 41,888.60	\$ 14,214.20	\$ 14,470.05	5 \$ 19,640.69	\$ 64,981.21	\$ 76,327.93	\$ 77,701.83	\$ 110,740.65	\$ 32,209.71
Operational Costs (OPEX)	Ş	-	Ş -	Ş -	Ş -	Ş -	Ş -	Ş -	Ş -	Ş -	Ş -	Ş -	Ş -	Ş -	Ş -	Ş -
I UTAL OPTION 3 (excl. GST)	\$	1,423,538.26														
Ontion 3-20YR - Property owners retain responsibility for O&M intrastructure																
located within property, however Council will repair/replace any faulty pumps																
provided they have seen more than 20 years of service. Council will continue to																
operate and maintain infrastructure outside of property boundary.		Total Cost														
		(\$)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Capital Works Cost (CAPEX)	\$	747,710.55	\$ 51,085.27	\$ 52,004.80	\$ 79,411.33	\$ 26,946.91	\$ 45,719.93	\$ 41,888.60	\$ 14,214.20	\$ 14,470.05	5 \$ 19,640.69	\$ 14,995.66	\$ 15,265.59	\$ 15,540.37	\$ 15,820.09	\$-
Operational Costs (OPEX)	\$	-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$ -	\$-	\$-	\$ -	\$ -	\$ -	\$-
TOTAL Option 3 (excl. GST)	\$	747,710.55														
Option 4 - Council to take over O&M of the low pressure sewer systems (pump																
replacement 10 years)		Total Cost														
		(\$)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Capital Works Cost (CAPEX)	\$	2,340,281.83	\$ 87,802.80	\$ 89,383.25	\$ 127,389.01	\$ 37,052.00	\$ 62,864.90	\$ 57,596.82	\$ 19,544.52	\$ 19,896.32	2 \$ 27,005.94	\$ 89,349.16	\$ 104,950.90	\$ 106,840.02	\$ 152,268.39	\$ 44,288.35
Operational Costs (OPEX)	Ş	1,942,186.97	\$ 69,076.44	\$ 69,550.58	\$ 70,033.24	\$ 70,524.60	\$ 71,024.80	\$ 71,534.01	\$ 72,052.38	\$ 72,580.08	3 \$ 73,117.28	\$ 73,664.15	\$ 74,220.87	\$ 74,787.60	\$ 75,364.54	\$ 75,951.86
TOTAL Option 4 (excl. GST)	\$	4,282,468.81														
	1	-														
Option 4-20YR - Council to take over O&M of the low pressure sewer systems (pum	р															
replacement 20 years)		Total Cost	0000	0024	0005	0000	0007	0000	0000	00.40	00.44	0040	00.42	0044	0045	0040
	4	(\$)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Capital Works Cost (CAPEX)	Ş	1,411,018.73	\$ 70,242.24	\$ /1,506.60	\$ 109,190.58	\$ 37,052.00	\$ 62,864.90	\$ 57,596.82	\$ 19,544.52	\$ 19,896.32	2 \$ 27,005.94	\$ 20,619.04	\$ 20,990.18	\$ 21,368.00	\$ 21,/52.63	\$- \$75.051.90
	Ş	1,942,180.97	\$ 69,076.44	\$ 09,550.58	\$ 70,033.24	\$ 70,524.00	\$ 71,024.80	\$ 71,534.01	\$ 72,052.38	\$ 72,580.08	\$ \$ 73,117.28	\$ 73,004.15	\$ 74,220.87	\$ 74,787.60	\$ 75,304.54	\$ 75,951.80
TOTAL Option 4 (excl. GST)	Þ	3,353,205.71														
Option 4B - Council take over Q&M of low pressure sewer system with Remote																
Monitoring (Reduce call out cost (1/3) due to moitoring and assistance with																
preventative maintence)		Total Cost														
		(\$)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Capital Works Cost (CAPEX)	\$	2,324,156.96	\$ 68,645.83	\$ 69,881.45	\$ 97,609.76	\$ 26,946.91	\$ 45,719.93	\$ 176,281.18	\$ 19,544.52	\$ 19,896.32	2 \$ 27,005.94	\$ 70,604.58	\$ 82,052.52	\$ 83,529.47	\$ 116,673.18	\$ 32,209.71
Operational Costs (OPEX)	\$	870,157.66	\$ 30,927.73	\$ 31,228.02	\$ 31,533.71	\$ 31,844.90	\$ 32,161.70	\$ 32,484.19	\$ 32,812.50	\$ 33,146.71	L \$ 33,486.93	\$ 33,833.28	\$ 34,185.87	\$ 34,544.80	\$ 34,910.20	\$ 35,282.17
TOTAL Option B1 (excl. GST)	\$	3,194,314.62														
Option 4B-20YR - Council take over O&M of low pressure sewer system with																
neventative maintence)		Total Cost														
		(\$)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Capital Works Cost (CAPEX)	Ś	1.648.329.25	\$ 55.874.51	\$ 56,880,25	\$ 84,374,54	\$ 26,946,91	\$ 45,719,93	\$ 176,281,18	\$ 19.544.57	\$ 19,896 37	2 \$ 27,005,94	\$ 20.619.04	\$ 20,990,18	\$ 21,368.00	\$ 21,752.63	Ś -
Operational Costs (OPEX)	Ś	870,157.66	\$ 30,927.73	\$ 31,228.02	\$ 31,533.71	\$ 31,844.90	\$ 32,161.70	\$ 32,484.19	\$ 32,812.50	\$ 33,146.71	\$ 33,486.93	\$ 33,833.28	\$ 34,185.87	\$ 34,544.80	\$ 34,910.20	\$ 35,282.17
TOTAL Option B1 (excl. GST)	\$	2,518,486.91		. ,		. ,	. ,	,	, , ,	,	,	,		. ,	. , '	,
	Ť	,,														
Ontion 5 - New Gravity Sewerage Scheme		Total Cost														
option 5 - New Gravity Sewerage Scheme		(\$)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046
Canital Works Cost (CAPEX)	ć	5 957 067 72	\$ 292 676 01	2004	2000	2000	2001	2000	2003	2040	2041	2012	2010	2011	2040	2040
Operational Costs (OPEX)	د ا	3,337,007.73	τοτοίος το													
General Q&M (1% Civil)	¢	687 660 42	\$ 25 224 68	\$ 25 678 72	\$ 26 1/0 0/	\$ 26.611.49	\$ 27 090 /19	\$ 27 578 11	\$ 28 074 52	\$ 28 579 84	5 5 29 09/ 20	\$ 29 618 00	\$ 30 151 12	\$ 30 693 84	\$ 31 246 32	\$ 31 808 76
Mech/Elec Maintenance (3% of M/E Infrastructure)	Ś	239.362.84	\$ 8.780.28	\$ 8.938.33	\$ 9,099.22	\$ 9.263.00	\$ 9.429.74	\$ 9,599.47	\$ 9,772.26	\$ 9,948.16	5 \$ 10.127.23	\$ 10.309.52	\$ 10.495.09	\$ 10.684.00	\$ 10.876.31	\$ 11.072.09
	7	,001.01			. 2,000.22	, 2,200.00	, 2,.20.74	, 2,000.17	,	, 5,5.0.10	,	,,,505.0 <b>L</b>	,,	,5000	,,5,6,61	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

GHD

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4220430-50812/https://projects.ghd.com/oc/nqoc/1770lowpressuresewer/Delivery/Documents/42-20430-REP\_1770 Sewage Options and Cost Review.docx

#### **Document Status**

Revision	Author	Reviewer		Approved for Issue						
		Name	Signature	Name	Signature	Date				
0	M.Brennan	S.Orr	S.Orr	S.Orr	S.Orr	05/02/18				
## www.ghd.com

