

07 July 2023

Mary Byrne

(via email: [mbyrne64@yahoo.co.nz](mailto:mbyrne64@yahoo.co.nz))

Dear Mary

**Local Government Official Information Request – Fluoridation**

I refer to your request for further information received by Western Bay of Plenty District Council on 04 July 2023 regarding estimates for fluoridating Athenree and Wharawhara.

A copy of the information you have requested is attached to this letter.

Yours faithfully



Gary Allis  
**Deputy CEO/General Manager Infrastructure Services**

# Capital Cost Estimate

# Lutra.

Project Name: Athenree Fluoride Concept Design  
 Calculation Title: Capital Cost Estimate - Athenree WTP Fluoride System  
 Project Number: WBOP022  
 Doc. Reference: WBOP022-CE02-1

PROCESS EQUIPMENT				Total Cost	Comments
1	Process Units	Unit Price	Quantity		
1.1	Dosing Pump Grundfos DDA 7.5-16 AR	\$ 3,500	2	\$ 7,000	
1.2	Pump Connector DN8 CAP x 1/2BSP socket	\$ 50	4	\$ 200	
1.3	Calibration column	\$ 156	1	\$ 156	
1.4	Pulsation Dampener	\$ 950	2	\$ 1,900	
1.5	PVC cabinet	\$ 3,000	1	\$ 3,000	
1.6	Board	\$ 500	1	\$ 500	
1.7	Fill point display	\$ 2,000	1	\$ 2,000	
1.8	HFA bulk tank - 1500L	\$ 18,000	1	\$ 18,000	Doubleskinned
1.9	HFA dosing tank - 30L	\$ 2,000	1	\$ 2,000	Doubleskinned
1.10	Bulk Transfer Pump	\$ 2,000	2	\$ 4,000	Pulse input with remote on/off.
1.11	IBC Transfer Pump	\$ 4,000	1	\$ 4,000	
1.12	Service Water Pump	\$ 4,000	2	\$ 8,000	
1.13	Hose Reel and Safety Shower	\$ 4,000	1	\$ 4,000	
1.14	Dosing pump pressure gauge and assembly	\$ 1,000	1	\$ 1,000	Estimate
1.15	Static Mixer	\$ 2,000	1	\$ 2,000	
1.16	Balance Tank	\$ 10,000	2	\$ 20,000	
1.17	Booster Pump (incl. VSD)	\$ 10,000	2	\$ 20,000	
1.18	Shipping	\$ 4,000	1	\$ 4,000	Allowance
1.19	Pipework (dosing line interconnecting pipework)	\$ 2,000	1	\$ 2,000	
1.20	Pipework (double skinned)	\$ 5,000	1	\$ 5,000	Allowance
1.21	Pipework (main)	\$ 20,000	1	\$ 20,000	Allowance
1.22	Valves, Fittings and Connections	\$ 50,000	1	\$ 50,000	Allowance includes piping and valves around balance tanks and booster pumps
<b>Process Equipment and Valves TOTAL</b>				<b>\$ 178,756</b>	
3	ELECTRICAL AND CONTROL	Unit Price	Quantity		
3.1	Mini Mag Flow Meter	\$ 14,000	1	\$ 14,000	
3.2	Mag Flow Meter	\$ 5,000	1	\$ 5,000	
3.3	Flow Switch	\$ 1,500	3	\$ 4,500	
3.4	Level Switch	\$ 1,000	3	\$ 3,000	
3.5	Level Transmitter	\$ 2,330	7	\$ 16,310	
3.6	Level Indicator	\$ 250	2	\$ 500	
3.7	Fluoride Analyser	\$ 15,000	1	\$ 15,000	
3.8	Position Limit Switches	\$ 500	10	\$ 5,000	
3.9	Pressure Gauge	\$ 500	7	\$ 3,500	
3.10	Electrical & Control Integration	\$ 30,000	1	\$ 30,000	
3.11	Documentation (SOP's, Manuals, H&S, Operation)	\$ 30,000	1	\$ 30,000	
<b>Electrical Control &amp; Instrumentation TOTAL</b>				<b>\$ 126,810</b>	
3	CIVIL & STRUCTURAL WORKS	Unit Price	Quantity		
3.1	Building	\$ 1,750	30	\$ 52,500	Industrial building, full height block walls
3.2	Concrete slab	-	-	\$ 20,000	

3.3	Booster Pump Pad	\$	10,000
<b>Civil and Structural TOTAL</b>		<b>\$</b>	<b>82,500</b>
<b>DISCIPLINE TOTALS</b>			
1	PROCESS EQUIPMENT	\$	179,000
2	ELECTRICAL AND CONTROL	\$	127,000
2	CIVIL & STRUCTURAL WORKS	\$	83,000
<b>SUB TOTAL</b>		<b>\$</b>	<b>389,000</b>
10%	Engineering & Project Management		\$38,900.00
15%	Preliminary & General		\$58,350.00
30%	Contingency		\$116,700.00
<b>TOTAL CAPITAL COST (+50%/-50%)</b>		<b>\$</b>	<b>603,000</b>

# Operating Cost Estimate

# Lutra.

Project Name: Athenree Fluoride Concept Design  
 Calculation Title: Operating Cost Estimate - Athenree WTP Fluoride System  
 Project Number: WBOP022  
 Doc. Reference: WBOP022-CE02-1

2022 Plant Flow	2.6	ML/d
Power Cost	0.2	\$/kWh

1 Additional Chemicals					Total Cost	Comments
	Dose (L HFAM/L) (20% HFA)	Supply Cost (\$/L)	Supply Cost (\$/ML)	Supply Cost (\$/annum)		
1.1	HFA	3.96	\$ 0.750	\$ 2.97	\$ 2,820	\$0.65-0.75/L from Ixom
<b>Chemicals SUB TOTAL</b>					<b>\$ 2,820</b>	
2 Power		Power (kW)	Usage (h/d)	Power Cost per Day	Power Cost (\$/annum)	Comments
2.1	Delivery Pumps	0.48	1	0.096	\$ 35	Estimate
2.2	Dose Pumps	0.1	24	0.48	\$ 175	Grundfos DDA 7.5-16 AR
2.3	Booster Pumps	3	24	14.4	\$ 5,256	
<b>Power SUB TOTAL</b>					<b>\$ 210</b>	
3 Maintenance					Maintenance Annual Cost (\$)	
			%			
5.1	Civil		2	\$	1,660	
5.2	Process		5	\$	8,950	
5.3	E&I		2	\$	2,540	
<b>Maintenance SUB TOTAL</b>					<b>\$ 13,150</b>	
1	Additional Chemicals				\$ 2,820	
2	Power				\$ 210	
3	Maintenance				\$ 13,150	
<b>TOTAL OPEX COST</b>					<b>\$ 16,000</b>	

# Operating Cost Estimate

# Lutra.

Project Name: Athenree Fluoride Concept Design  
 Calculation Title: Operating Cost Estimate - Athenree WTP Fluoride System  
 Project Number: WBOP022  
 Doc. Reference: WBOP022-CE02-1

2050 Plant Flow	5.2	ML/d
Power Cost	0.2	\$/kWh

1 Additional Chemicals					Total Cost	Comments
	Dose (L/day) (20% HFA)	Supply Cost (\$/L)	Supply Cost (\$/ML)	Supply Cost (\$/annum)		
1.2	HFA	3.96	\$ 0.750	\$ 2.97	\$ 5,640	
<b>Chemicals SUB TOTAL</b>					<b>\$ 5,640</b>	
2 Power		Power (kW)	Usage (h/d)	Power Cost per Day	Power Cost (\$/annum)	Comments
2.1	Delivery Pumps	0.48	1	0.096	\$ 35	
2.2	Dose Pumps	0.1	24	0.48	\$ 175	Grundfos DDA 7.5-16 AR
2.3	Booster Pumps	3	24	14.4	\$ 5,256	
<b>Power SUB TOTAL</b>					<b>\$ 210</b>	
3 Maintenance					Maintenance Annual Cost (\$)	
			%			
5.1	Civil		2	\$ 1,660		
5.2	Process		5	\$ 8,950		
5.3	E&I		2	\$ 2,540		
<b>Maintenance SUB TOTAL</b>					<b>\$ 13,150</b>	
1	Additional Chemicals				\$ 5,640	
2	Power				\$ 210	
3	Maintenance				\$ 13,150	
<b>TOTAL OPEX COST</b>					<b>\$ 19,000</b>	

# Capital Cost Estimate

# Lutra.

Project Name: Wharawhara Fluoride Concept Design  
 Calculation Title: Capital Cost Estimate - Wharawhara WTP Fluoride System  
 Project Number: WBOP022  
 Doc. Reference: WBOP022-CE01-1

PROCESS EQUIPMENT				Total Cost	Comments
1	Process Units	Unit Price	Quantity		
1.1	Dosing Pump Grundfos DDA 7.5-16 AR	\$ 3,500	2	\$ 7,000	
1.2	Pump Connector DN8 CAP x 1/2BSP socket	\$ 50	4	\$ 200	
1.3	Calibration column	\$ 156	1	\$ 156	
1.4	Pulsation Dampener	\$ 950	2	\$ 1,900	
1.5	PVC cabinet	\$ 3,000	1	\$ 3,000	
1.6	Board	\$ 500	1	\$ 500	
1.7	Fill point display	\$ 2,000	1	\$ 2,000	
1.8	HFA bulk tank - 3000L	\$ 25,000	1	\$ 25,000	Doubleskinned
1.9	HFA dosing tank - 60L	\$ 3,000	1	\$ 3,000	Doubleskinned
1.10	Bulk Transfer Pump	\$ 2,000	2	\$ 4,000	Pulse input with remote on/off.
1.11	IBC Transfer Pump	\$ 4,000	1	\$ 4,000	
1.12	Service Water Pump	\$ 4,000	2	\$ 8,000	
1.13	Hose Reel and Safety Shower	\$ 4,000	1	\$ 4,000	
1.14	Dosing pump pressure gauge and assembly	\$ 1,000	1	\$ 1,000	Estimate
1.15	Static Mixer	\$ 2,000	1	\$ 2,000	
1.16	Balance Tank	\$ 10,000	2	\$ 20,000	
1.17	Booster Pump (incl. VSD)	\$ 10,000	2	\$ 20,000	
1.18	Shipping	\$ 4,000	1	\$ 4,000	Allowance
1.19	Pipework (dosing line interconnecting pipework)	\$ 2,000	1	\$ 2,000	
1.20	Pipework (double skinned)	\$ 5,000	1	\$ 5,000	Allowance
1.21	Pipework (main)	\$ 20,000	1	\$ 20,000	Allowance
1.22	Valves, Fittings and Connections	\$ 50,000	1	\$ 50,000	Allowance includes piping and valves around balance tanks and booster pumps
<b>Process Equipment and Valves TOTAL</b>				<b>\$ 186,756</b>	
3	ELECTRICAL AND CONTROL	Unit Price	Quantity		
3.1	Mini Mag Flow Meter	\$ 14,000	1	\$ 14,000	
3.2	Mag Flow Meter	\$ 5,000	1	\$ 5,000	
3.3	Flow Switch	\$ 1,500	3	\$ 4,500	
3.4	Level Switch	\$ 1,000	3	\$ 3,000	
3.5	Level Transmitter	\$ 2,330	7	\$ 16,310	
3.6	Level Indicator	\$ 250	2	\$ 500	
3.7	Fluoride Analyser	\$ 15,000	1	\$ 15,000	
3.8	Position Limit Switches	\$ 500	10	\$ 5,000	
3.9	Pressure Gauge	\$ 500	7	\$ 3,500	
3.10	Electrical & Control Integration	\$ 30,000	1	\$ 30,000	
3.11	Documentation (SOP's, Manuals, H&S, Operation)	\$ 30,000	1	\$ 30,000	
<b>Electrical Control &amp; Instrumentation TOTAL</b>				<b>\$ 126,810</b>	
3	CIVIL & STRUCTURAL WORKS	Unit Price	Quantity		
3.1	Building	\$ 1,750	30	\$ 52,500	Industrial building, full height block walls
3.2	Concrete slab	-	-	\$ 20,000	

3.3	Booster Pump Pad			\$	10,000
3.4	Turning Bay	\$	250	60	\$ 15,000
<b>Civil and Structural TOTAL</b>					<b>\$ 97,500</b>
<b>DISCIPLINE TOTALS</b>					
1	PROCESS EQUIPMENT			\$	187,000
2	ELECTRICAL AND CONTROL			\$	127,000
2	CIVIL & STRUCTURAL WORKS			\$	98,000
<b>SUB TOTAL</b>					<b>\$ 412,000</b>
10%	Engineering & Project Management				\$41,200.00
15%	Preliminary & General				\$61,800.00
30%	Contingency				\$123,600.00
<b>TOTAL CAPITAL COST (+50%/-50%)</b>					<b>\$ 639,000</b>

# Operating Cost Estimate

# Lutra.

Project Name: Wharawhara Fluoride Concept Design  
 Calculation Title: Operating Cost Estimate - Wharawhara WTP Fluoride System  
 Project Number: WBOP022  
 Doc. Reference: WBOP022-CE01-1

2022 Plant Flow	3.5	ML/d
Power Cost	0.2	\$/kWh

1 Additional Chemicals					Total Cost	Comments
	Dose (L HFAM/L) (20% HFA)	Supply Cost (\$/L)	Supply Cost (\$/ML)	Supply Cost (\$/annum)		
1.1	HFA	3.96	\$ 0.750	\$ 2.97	\$ 3,790	\$0.65-0.75/L from Ixom
<b>Chemicals SUB TOTAL</b>					<b>\$ 3,790</b>	
2 Power		Power (kW)	Usage (h/d)	Power Cost per Day	Power Cost (\$/annum)	Comments
2.1	Delivery Pumps	0.48	1	0.096	\$ 35	
2.2	Dose Pumps	0.1	24	0.48	\$ 175	Grundfos DDA 7.5-16 AR
2.3	Booster Pumps	3	24	14.4	\$ 5,256	
<b>Power SUB TOTAL</b>					<b>\$ 210</b>	
3 Maintenance					Maintenance Annual Cost (\$)	
			%			
5.1	Civil		2	\$ 1,960		
5.2	Process		5	\$ 9,350		
5.3	E&I		2	\$ 2,540		
<b>Maintenance SUB TOTAL</b>					<b>\$ 13,850</b>	
1	Additional Chemicals				\$ 3,790	
2	Power				\$ 210	
3	Maintenance				\$ 13,850	
<b>TOTAL OPEX COST</b>					<b>\$ 18,000</b>	



# Operating Cost Estimate

# Lutra.

Project Name: Wharawhara Fluoride Concept Design  
 Calculation Title: Operating Cost Estimate - Wharawhara WTP Fluoride System  
 Project Number: WBOP022  
 Doc. Reference: WBOP022-CE01-1

2035 Plant Flow	12.1	ML/d
Power Cost	0.2	\$/kWh

1 Additional Chemicals					Total Cost	Comments
	Dose (L/day) (20% HFA)	Supply Cost (\$/L)	Supply Cost (\$/ML)	Supply Cost (\$/annum)		
1.2	HFA	3.96	\$ 0.750	\$ 2.97	\$ 13,120	
<b>Chemicals SUB TOTAL</b>					<b>\$ 13,120</b>	
2 Power		Power (kW)	Usage (h/d)	Power Cost per Day	Power Cost (\$/annum)	Comments
2.1	Delivery Pumps	0.48	1	0.096	\$ 35	
2.2	Dose Pumps	0.1	24	0.48	\$ 175	Grundfos DDA 7.5-16 AR
2.3	Booster Pumps	3	24	14.4	\$ 5,256	
<b>Power SUB TOTAL</b>					<b>\$ 210</b>	
3 Maintenance					Maintenance Annual Cost (\$)	
			%			
5.1	Civil		2	\$ 1,960		
5.2	Process		5	\$ 9,350		
5.3	E&I		2	\$ 2,540		
<b>Maintenance SUB TOTAL</b>					<b>\$ 13,850</b>	
1	<b>Additional Chemicals</b>				<b>\$ 13,120</b>	
2	<b>Power</b>				<b>\$ 210</b>	
3	<b>Maintenance</b>				<b>\$ 13,850</b>	
<b>TOTAL OPEX COST</b>					<b>\$ 27,000</b>	