Whatuwhiwhi

Scheme Description

Whatuwhiwhi is located on the Northeast coast of North Island on the Karikari Peninsula. It is approximately 30 km northeast of Kaitaia. The Whatuwhiwhi wastewater treatment site is located just off Inland Road approximately 2.0 km north of the junction of Simon Urlich Road and Inland Road. The Whatuwhiwhi wastewater system services the Whatuwhiwhi urban drainage areas.

Wastewater Treatment Plant

The treatment plant consists of two aerobic treatment ponds configured in series. The ponds are fitted with a new proprietary treatment technology (Aqua Mats) to achieve high treatment standards. The Aqua Mats is a synthetic material with high surface area, designed to encourage the colonization of beneficial bacteria and algal communities that naturally inhabit the wastewater environment. As pre-treatment prior to the ponds the plant is equipped with a new automatic fine step screen. As post-treatment the treated effluent passes over a rock-filter prior to discharge into the adjacent natural wetland area. In the future an Ultra-Violet disinfection system will be added to the system.

Key Plant

Ref	Description
1	Aqua Mats
2	Aerobic Treatment Ponds
3	Telemetry System - PLC
4	Natural Wetland
5	Flowmeter
6	Air Blower
7	Overflow Discharge Weir

Reticulation

The reticulation comprises of:

Pump Stations (No)	Gravity Sewer (m)	Rising Main (m)	Pipe Bridges (m)	Air Valves (No)	Manholes (No)	Roding Eyes (No)	Connections (No)
14	23,631	4,420	4	0	402	45	592

Critical Assets

Ref	Description	Inspection - Frequency
1	Pipe Bridges	Annual – visual inspection
2	Sewer close to waterways	Annual - blasting
3	Pumps	Monthly - servicing
4	Automatic Inlet Step Screen	Weekly - cleaning
5	Electrical Facilities	Weekly – visual inspection

Resource Consent Requirements

The resource consent requirements to monitor the wastewater samples are to be collected from NRC sites at MP-outlet maturation pond at marsh discharge point (105629) and NRC-outlet natural wetland at compound boundary (104461). Submitted herewith are the resource consent requirements with the associate parameters and governing limits:

No.	Parameters	Limits imposed in RC
1	Quantity of treated wastewater discharged to water in the un-named tributary of Waimango.	Shall not exceed 700 m^3/day
2	NH4-N in natural wetland	Less than 1.2 g/m^3 (at pH 7.5)
3	Quantity of wastewater entering the treatment system as a result of stormwater inflow & infiltration to the sewers	Minimise as far as practicable.
4	NRC sampling site 105629 of up-graded plant - treated wastewater determinants: BOD (g/m^3) Faecal coliform (c/100ml) NH_4 –N (g/m^3) TSS (g/m^3)	The monitoring result must comply with the following: Med 12 < 30 90% percentile < 50 Med 12 < 500 90% percentile < 2,600 Med 12 < 30 90% percentile < 50 Med 12 < 30 90% percentile < 40
5	Quantity of discharged gross solids from the outlet of treatment system	Nil

Maintenance Requirements

Plant or Component Description	Maintenance Action	Frequency					
		Weekly	Fortnightly	Monthly	Quarterly	6/Monthly	Yearly
Plant Site	Check site security including fences, gates and locks. Replace or repair as necessary.	✓					
	Also remove any rubbish and mow the grass within plant site & around the perimeter.			✓			
	Spray to remove weeds around plant perimeter				✓		
Inlet & Outlet	Check flows at inlet & outlet and remove blockages as necessary	✓					
Pond Surface	Check for scum and remove as necessary	✓					
Inlet Step Screens	Hose down all debris and heavy wastes off the screen	✓					
Aerobic Treatment Pond	Assess odour and algae growth (Oct – March) & investigate the cause of odour if need be.	✓					
Sampling Sites	Check and clear site access		✓				
Air Blower	Check air blower current draw to assess whether blocked. Lift and clean as necessary. Lift air blowers and check bearings and moving parts.						✓
Valves	Check operation of non-return, isolation and air valves. Clean and lubricate as necessary					✓	
Transfer Pumps	Check the pumps operation Clean and service as necessary				✓		
Electrical and Telemetry System	Inspect, repair and service the necessary electrical and telemetry system including the review of alarm system	✓					
Flow Meters	Inspect and calibrate all flow- meters in accordance to the manufacturers specifications						✓
Structures	Inspect all structures including wavebands, inlet, outlet, discharge drain, etc and repair as necessary.						✓
Road	Inspect the access road & carry out repairs as required.						✓
Natural Wetland	Inspect the wetland areas and carry out the necessary maintenance if necessary	✓					

Contingency Planning

The contingency plans in place for Whatuwhiwhi wastewater sewerage system are sewer spills & blockages

Sewer Spill & Blockages

All incidents concerning spills occurrence at Whatuwhiwhi Wastewater Sewerage System are dealt as in accordance to the Councils spill protocol as agreed with NRC.

Contingency measures during crisis

During the period of power failures at Whatuwhiwhi Wastewater Treatment Plant, which normally lasts for 1 to 4 hours at the most, it is noted that there is no major significant adverse effect on the plant performance with respect to blockage, spillage or odour, etc. The plant is capable to handle such situation with ease.

In view to the above, the flow meter and the inlet screen have a by-pass which enables the in-coming flow to go straight to the treatment pond 2 and so on without disturbing the normal treatment process.

De-Sludging Methodology

The Whatuwhiwhi Wastewater Treatment Plant consists of two ponds, an oxidation pond of 3,600 m^3 and a maturation pond of 8,000 m^3. Annual sludge generation has been calculated as 70 m^3 for each pond.

The plant was completely de-sludged during the plant upgrade carried out in 2010 and it was budgeted for further de-sludging between 2022 and 2028.