File: 4352
(01)
S127 Change

Document Date: 06.07.15

Resource Consent

Pursuant to the Resource Management Act 1991, the Northland Regional Council (hereinafter called "the Council") does hereby grant a Resource Consent to:

WHANGAREI DISTRICT COUNCIL, WASTE & DRAINAGE DIVISION, PRIVATE BAG 9023, WHANGAREI MAIL CENTRE, WHANGAREI 0148

To undertake the following activities associated with the operation of the Whangarei main wastewater treatment system located at Kioreroa Road, Whangarei:

AUT.004352.01.06: To discharge treated wastewater (other than that authorised by Consent (02)), after treatment in a mechanical treatment plant and wetland treatment system, to the Coastal Marine Area (Limeburners Creek) adjacent to Lot 1 DP 96770 and Lots 3 and 5 DP 96772 Blk IX or XIII Whangarei SD, at or about Map References Q07:303-054 and Q07:300-049.

AUT.004352.02.03: To discharge wastewater that has received ultra violet (UV) light disinfection directly to the Coastal Marine Area (Limeburners Creek) adjacent to Pt Lot 1 DP 65087 Blk IX or XIII Whangarei SD, at or about Map Reference Q07:308-056, during extreme wet weather

AUT.004352.03.01: To discharge contaminants to land within the area of the wetland treatment system, on Lot 1 DP 96770, Lots 3 and 5 DP 96772 Blk IX or XIII Whangarei SD at or about Map References Q07:305-054 and Q07:300-048.

AUT.004352.04.01 To discharge contaminants (primarily odours) into the air, on Pt Lot 1 DP 50540, Lot 1 DP 96770, Lots 3 and 5 DP 96772 and Pt Lot 1 and Lot 2 DP 65087, Blk IX or XIII Whangarei SD at or about Map References Q07:310-053, Q07:311-054, Q07:308-056, Q07:305-054 and Q07:300-048.

AUT.004352.05.01 To place and use a structure in, and to occupy the coastal marine area, for activities associated with disposal of wastewater, on Pt Lot 1 DP 65087, at or about Map Reference Q07:308-056.

Subject to the following conditions:

DISCHARGE TO COASTAL MARINE AREA VIA THE TREATMENT WETLANDS (01)

1 The quantity of treated wastewater discharged to Limeburners Creek shall not exceed 140,000 cubic metres per day.

For compliance purposes, the discharge of treated wastewater authorised by this consent shall be defined as detailed in the table below:

Type of Flow	Discharge
Normal Daily Flow	Up to 21,000 cubic metres per day.
Medium Wet Weather Flows	A discharge in excess of 21,000 cubic metres per day but less than or equal to 30,400 cubic metres per day.
High Wet Weather Flows	A discharge in excess of 30,400 cubic metres per day up to a maximum discharge of 57,400 cubic metres per day.
Extreme Wet Weather Flows	Flows to the treatment plant that is in excess of 57,400 cubic metres per day up to a maximum of 140,000 cubic metres per day.

2 For the purpose of this consent, disinfection is defined as the use of a process designed specifically to reduce the number of viable, potentially infectious microorganisms in the discharge. All wastewater discharged shall be disinfected by means of Ultra Violet Light (UV) irradiation from an artificial source as required by Condition 3.

3 The treatment system shall be upgraded in accordance with the following details:

Stage 1: An upgrade the activated sludge plant a capacity to treat up to 21,000 cubic metres of wastewater per day to enhance the conversion of ammonia to nitrate.

An upgrade to the UV disinfection system to a system with a capacity of up to 30,400 cubic metres per day.

All necessary changes to the treatment plant configuration to ensure that; all Normal Daily Flows, as defined in Condition 1, receive treatment from all components of the treatment plant, including the UV disinfection system, before being discharged to the wetland treatment system. All Medium Wet Weather Flows, as defined in Condition 1, are treated to and including the secondary clarifier stage and the UV disinfection system before being discharged to the wetland treatment system.

All High Wet Weather Flows, as defined in Condition 1, are treated to and including the secondary clarifier stage before being discharged to the wetland treatment system.

The Stage 1 upgrade shall be completed and commissioned within two years of the date of commencement of this Consent.

Stage 2: The UV disinfection system shall be upgraded so that it is capable of effectively treating up to 57,400 cubic metres per day.

All necessary changes to the treatment plant configuration shall be made to ensure that all High Wet Weather Flows, as defined in Condition 1, are treated by the UV disinfection system before being discharged to the wetland treatment system.

The Stage 2 upgrade shall be completed and commissioned within seven years of the date of commencement of this Consent.

4 The Consent Holder shall install and maintain in good working order the following devices:

(a) Existing or equivalent flow measuring devices, and associated data recorders, capable of measuring and recording all flows to the treatment plant, with an accuracy of ±5%.

(b) A sampling device capable of taking 24 hour flow-proportioned composite samples of all effluent being discharged to the wetland treatment systems.

5 The Consent Holder shall keep a record of all wastewater flows to the treatment plant. Both the total daily volume and the instantaneous rate of flow shall be recorded. Records shall be provided to the Northland Regional Council as required by Monitoring Schedule 1 (**attached**), and also within three working days upon written request by the Northland Regional Council.

6 The quality of the treated wastewater from the existing treatment system, up until the completion and commissioning of Stage 1 of the treatment plant upgrade, as required by Condition 3, shall comply with relevant conditions in the previous consent (Schedule 2 **attached**). This Condition shall no longer apply once Stage 1 of the treated plant upgrade has been completed.

7 The quality of the treated wastewater from the Stage 1 of the upgraded treatment system, measured prior to it entering the wetlands, shall not exceed the following limits:

"DETERMINAND"	Up To 21,000 cubic metres per day	21,000 to 30,400 cubic metres per day	30,400 to 57,400 cubic metres per day
50%ile (median) Five day Biochemical Oxygen Demand (milligrams per litre)	10	25	25
Total Daily load 50%ile (median) Five day Biochemical Oxygen Demand	200		

(kilograms per day)			
Total Daily load 90%ile Five day Biochemical Oxygen Demand (kilograms per day)	250		
50%ile (median) Total Suspended Solids (milligrams per litre)	10	25	25
Total Daily load 50%ile (median) Total Suspended Solids (kilograms per day)	200		
Total Daily load 90%ile Total Suspended Solids (kilograms per day)	250		
50%ile (median) Total Ammoniacal Nitrogen (milligrams per litre)	5	10	15

For compliance purposes, the measured total daily flows into the UV disinfection system shall be used to determine which of the above flow related standards apply.

The Excel method shall be used to determine the above 50%ile (median) and 90%ile values.

For flows up to 21,000 cubic metres per day, the 50%ile value of the samples taken during each three month period, in accordance with Schedule 1 (**attached**), shall be used to determine compliance.

For flows greater than 21,000 cubic metres per day, the 50%ile value of the samples taken during each three month period in accordance with Schedule 1 (**attached**) shall be used to determine compliance. This shall apply for each three month period where more than 10 samples have been taken.

Where there are less than 10 samples taken in a given three month period, then the sample set shall be made up to a maximum of 15, but not less than 10 by including results from the following three month period.

This shall be done by using consecutive sample results immediately following on from the three month period being assessed for compliance. On such occasions where data from two three month periods have been used together, the two periods shall be considered as one six month compliance period.

This Condition shall no longer apply once Stage 2 of the treated plant upgrade has been completed and commissioned.

8 All discharges up to 30,400 cubic metres per day shall, as a minimum, be treated by the UV disinfection system, and discharge rates in excess of this may bypass the UV disinfection system (these discharges being covered by Consent (02)).

For all flows up to 30,400 cubic metres per day, a received UV dose, defined as a 10 minute average value of 30 milli-Watt seconds per square centimetre (mWs/cm^2), must be exceeded at all times. For compliance purposes the received UV dose shall be calculated in accordance with details provided in Schedule 1 (**attached**).

This condition shall not take effect until such time as Stage 1 of the treatment system upgrade has been completed and commissioned as required by Condition 3.

This Condition shall no longer apply once Stage 2 of the treated plant upgrade has been completed and commissioned.

9 The quality of the treated wastewater from Stage 2 of the upgraded treatment system, measured prior to it entering the wetlands, shall not exceed the following limits:

Determinand	Flow Up To 21,000 cubic metres per day	Flow 21,000 to 30,400 cubic metres per day	Flow 30,400 to 57,400 cubic metres per day
50%ile (median) Five day Biochemical Oxygen Demand (milligrams per litre)	15	25	25
Total Daily load 50%ile (median) Five day Biochemical Oxygen Demand (kilograms per day)	300		
Total Daily load 90%ile Five day Biochemical Oxygen Demand (kilograms per day)	500		
50%ile (median) Total Suspended Solids (milligrams per litre)	15	25	25
Total Daily load 50%ile (median) Total Suspended Solids (kilograms per day)	300		
Total Daily load 90%ile Total Suspended Solids (kilograms per day)	500		
50%ile (median) Total Ammoniacal Nitrogen (milligrams per litre)	5	10	15

For compliance purposes, the measured total daily flows into the UV disinfection system shall be used to determine which of the above flow related standards apply.

The Excel method shall be used to determine the above 50%ile (median) and 90%ile values.

For discharges up to 21,000 cubic metres per day, the 50%ile value of the samples taken during each three month period in accordance with Schedule 1 (**attached**) shall be used to determine compliance.

For flows greater than 21,000 cubic metres per day, the 50%ile value of the samples taken during each three month period in accordance with Schedule 1 (**attached**) shall be used to determine compliance. This shall apply for each three month period where more than 10 samples have been taken. Where there are less than 10 samples taken in a given three month period, then the sample set shall be made up to a maximum of 15, but not less than 10 by including results from the following three month period.

This shall be done by using consecutive sample results immediately following on from the three month period being assessed for compliance. On such occasions where data from two three month periods have been used together, the two periods shall be considered as one six month compliance period.

All discharges up to 57,400 cubic metres per day shall be treated by the UV disinfection system.

For all flows up to 30,400 cubic metres per day, a received UV dose, defined as a 10 minute average value of 30 milli-Watt seconds per square centimetre (mWs/cm^2), shall be exceeded at all times. When the treated wastewater flow exceeds 30,400 cubic metres per day, a received UV dose, defined as a 10 minute average value, of 40 mWs/cm^2 shall be exceeded at all times. For compliance purposes the received UV dose shall be calculated in accordance with details provided in Schedule 1 (attached).

This condition shall not take effect until such time as Stage 2 of the treatment system upgrade has been completed and commissioned as required in Condition 3.

10 The Consent Holder shall, no later than 1 April 2013, upgrade the wastewater treatment plant so that all Extreme Wet Weather Flows are treated by a UV disinfection system before being discharged to either the wetland treatment system or to Limeburners Creek in accordance with Consent (02).

The UV disinfection system shall be designed and operated so that all Extreme Wet Weather Flows receive a UV dose, defined as the 10 minute average value, of at least 40 mWs/cm^2, or any greater intensity necessary to ensure that all the following standards are met:

(a) The 50 percentile (median) concentration of Escherichia coli (E coli) in the discharge shall not exceed 1,500 colony forming units (cfu) per 100 millilitres;

(b) The 90th percentile concentration of E coli in the discharge shall not exceed 3,000 cfu per 100 millilitres; and

(c) There is at least a 1.5 order of magnitude (i.e. 1.5 logarithm) reduction in the concentration of F-specific bacteriophage and culturable rotavirus when compared to untreated wastewater that enters the plant.

Compliance with (a)–(c) above shall be determined using the samples collected in accordance with Section 1.1 of Schedule 1 (**attached**).

For compliance purposes the received UV dose shall be calculated in accordance with details provided in Schedule 1 (**attached**).

11 A continuous flow measurement and recording device, with on-site visual display from which readings may be readily obtained, shall be installed and maintained by the Consent Holder to enable the reporting of data to demonstrate compliance with Conditions 8 and/or 9. These records shall be provided to the Northland Regional Council in accordance with Schedule 1 (**attached**).

This condition shall not take effect until such time as Stage 1 of the treatment system upgrade has been completed and commissioned as required in Condition 3.

12 The Consent Holder shall keep records of the inlet flow rates to the UV channels, the received UV dose, the measured UV intensity and the parameters used for calculating the UV dose, in a format to be agreed with the Northland Regional Council. Records shall be provided to the Northland Regional Council as required in Monitoring Schedule 1 (**attached**), and also immediately upon written request by the Northland Regional Council.

This condition shall not take effect until such time as Stage 1 of the treatment system upgrade has been completed and commissioned as required in Condition 3.

13 In the event of failure of any measurement system used in the control of the UV dosing system, the maximum available number of duty banks of UV lamps shall be automatically activated.

14 A telemetry alarm system connected to a 24 hour staffed station shall be installed, utilised and maintained by the Consent Holder to provide a warning in the event that:

(a) The external power supply to the UV disinfection system has been interrupted;

(b) Failure of any measurement system used to control the UV dosing system has occurred; and

(c) A discharge of sewage effluent has occurred which had not been subjected to the required UV dose as specified in Conditions 8, 9 and 10 of this consent.

The telemetry alarm system shall be installed and commissioned within two years of the date of commencement of this Consent as part of the Stage 1 upgrade specified in Condition 3.

15 Notwithstanding any other conditions of this consent, the discharge shall not cause the water quality of Limeburners Creek, as measured at the Port Road Bridge (Northland Regional Council Sampling Site Number 100207), to fall below the following standards:

(a) The natural temperature of the water shall not change by more than 3 degrees Celsius;

(b) The natural pH of the water shall be within the range 6.5 to 9.0;

(c) The concentration of dissolved oxygen (daily minimum) shall not be reduced below 80% saturation;

(d) The natural clarity of the waters shall not be reduced more than 20% as measured with by black disc;

(e) The natural colour of the waters shall not be changed by more than 10 Maunsell units;

(f) The concentration of total ammoniacal nitrogen measured over a four day period shall not exceed the following:

Water Quality Criteria for Saltwater Aquatic Life based on Total Ammoniacal Nitrogen [(NH_4 + NH_3)-N] (milligrams per litre) Criteria - Continuous Concentrations

Salinity – 10 g/kg					
pH	**10°C**	**15°C**	**20°C**	**25°C**	**30°C**
7.0	16	12	7.7	5.4	3.6
7.2	9.9	7.2	4.9	3.4	2.3
7.4	6.4	4.4	3.0	2.1	1.5
7.6	4.1	2.8	2.0	1.4	0.99
7.8	2.6	1.8	1.2	0.91	0.62
8.0	1.6	1.2	0.80	0.57	0.39
8.2	1.1	0.72	0.51	0.36	0.26
8.4	0.67	0.46	0.34	0.24	0.17
8.6	0.44	0.30	0.22	0.16	0.12
8.8	0.28	0.21	0.15	0.12	0.09
9.0	0.19	0.14	0.11	0.08	0.07
Salinity – 20 g/kg					
pH	**10°C**	**15°C**	**20°C**	**25°C**	**30°C**
7.0	17	12	8.0	5.4	3.9
7.2	11	7.4	5.1	3.6	2.5
7.4	6.7	4.6	3.4	2.2	1.6
7.6	4.4	2.8	2.1	1.4	0.99
7.8	2.8	1.9	1.3	0.91	0.64
8.0	1.7	1.2	0.82	0.59	0.41
8.2	1.1	0.77	0.54	0.39	0.26

8.4	0.69	0.49	0.36	0.25	0.18
8.6	0.46	0.34	0.23	0.16	0.12
8.8	0.30	0.21	0.16	0.12	0.09
9.0	0.20	0.15	0.11	0.08	0.07
			Salinity - 30 g/kg		
pH	**10°C**	**15°C**	**20°C**	**25°C**	**30°C**
7.0	18	12	9.1	6.0	4.5
7.2	12	8.0	5.4	3.9	2.6
7.4	7.2	4.9	3.4	2.4	1.6
7.6	4.6	3.0	2.6	1.5	1.1
7.8	2.8	2.0	1.4	0.99	0.67
8.0	1.8	1.3	0.91	0.62	0.44
8.2	1.2	0.82	0.57	0.41	0.28
8.4	0.74	0.51	0.36	0.26	0.19
8.6	0.49	0.34	0.25	0.18	0.13
8.8	0.30	0.22	0.16	0.12	0.09
9.0	0.21	0.16	0.12	0.09	0.07

(g) The median of samples taken shall not exceed 136 enterococci per 100 millilitres, and no sample shall exceed 277 enterococci per 100 millilitres.

Note: Compliance with the median value in this condition shall be based on the results of not less than any ten consecutive samples.

When the upstream water quality in the receiving waters, (Northland Regional Council Sampling Site Number 100207) does not meet the above standards, then the discharge shall not cause the water quality at the Port Road Bridge to be worse than the upstream water quality.

16 The Consent Holder shall provide and maintain easy and safe access to the following sampling points:

(a) At a point that is as close as practicable to the outlet from each UV treatment system required by Conditions 3 and 10;

(b) At all the final discharge points from the wetlands to Limeburners Creek.

DISCHARGE TO COASTAL MARINE AREA (02)

17 The treated wastewater discharged directly into Limeburners Creek in accordance with this consent are all those flows that:

(a) Are in excess of 664 litres per second (equivalent to a daily discharge of 57,400 cubic metres) up to a maximum of 1,620 litres per second (equivalent to a daily discharge of 140,000 cubic metres), hereafter referred to as **Extreme Wet Weather Flows**; and

(b) Cannot be discharged to the wetland treatment system due to maintenance requirements or the sudden failure of infrastructure between the treatment plant and the wetland treatment system.

For the purpose of this condition, maintenance requirements are works required for the care or upkeep of the wetland system and the infrastructure between the treatment plant and the wetland treatment system which necessitate the cessation of wastewater flow into the wetland treatment system.

18 Notwithstanding any other conditions of this consent, the discharge shall not give rise to all or any of the following effects in the receiving waters at the Northland Regional Council Sampling Site Number 100207:

(a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;

(b) Any conspicuous change in the colour or visual clarity;

(c) Any emission of objectionable odour as identified by a suitably trained and experienced Enforcement Officer of the Northland Regional Council, or its agent;

(d) Any significant adverse effects on aquatic life.

19 The Consent Holder shall use the sampling point prescribed in Condition 16(a) to collect samples of disinfected wastewater during Extreme Wet Weather Flows prior to its discharge to Limeburners Creek.

DISCHARGE TO GROUND (03)

20 The discharge shall not give rise to all or any of the following effects in the receiving waters at the Port Road Bridge:

(a) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;

(b) Any conspicuous change in the colour or visual clarity;

(c) Any emission of objectionable odour;

(d) Any significant adverse effects on aquatic life.

DISCHARGE OF CONTAMINANTS INTO AIR (04)

21 The Consent Holder's operations shall not give rise to any discharge of contaminants, at or beyond the property boundary, which is deemed by a suitably trained and experienced Enforcement Officer of the Northland Regional Council, or its agent, to be noxious, dangerous, offensive or objectionable to such an extent that it has, or is likely to have, an adverse effect on the environment.

For the purposes of this condition, contaminants include, but are not limited to, dust, and odour. In addition, for the purposes of this condition, the "property boundary" shall be drawn at the boundary of:

(a) The treatment plant property, this being Pt Lot 1 DP 50540, Lot 1 DP 96770, Lots 3 and 5 DP 96772 and Pt Lot 1 and Lot 2 DP 65087; and/or

(b) Any other properties, or parts thereof, in the vicinity of the treatment plant property which are either owned by, or under the control of, the Consent Holder; and/or

(c) Any other properties over which the Consent Holder has obtained legal rights to emit or discharge contaminants to air by the grant of either an easement, covenant, or other legal instrument either currently registered, or at some future date registered, against the title of such other properties.

The Consent Holder shall forward copies of any easements, covenants or other legal instruments referred to in sub-clause (c) above, when they are legally established to the Northland Regional Council within 20 working days of their establishment.

STRUCTURE IN THE CMA (05)

22 The Consent Holder shall keep the coastal marine area free of debris resulting from the Consent Holder's activities.

23 The Consent Holder shall maintain all facilities covered by this consent in good order and repair. The facilities shall not be altered, added to, demolished or removed, in whole or in part, without obtaining prior consent of the Northland Regional Council.

24 The outlet structure shall effectively dissipate the energy of the discharge to prevent scouring of the downstream channel or watercourse.

GENERAL CONDITIONS

25 The discharge shall be monitored and reported by the Consent Holder in accordance with the Monitoring Program contained within Schedule 1 (**attached**).

26 The Consent Holder shall immediately advise the Northland Regional Council and Northland Health of all Extreme Wet Weather Flow discharges from the treatment plant. Such advice shall also be confirmed in writing as soon as practicable and no later than 48 hours after the event.

27 The Consent Holder shall record the date, start and finish times, the volume of wastewater discharged, and whether the discharge was via the wetland or direct to Limeburners Creek, for all Extreme Wet Weather Flows events. This information shall be forwarded to the Northland Regional Council and Northland Health within 24 hours of the discharge ceasing.

28 The Consent Holder shall, for the purposes of adequately monitoring the consent as required under Section 35 of the Resource Management Act 1991, on becoming aware of any incident or situation that does not comply with this consent, immediately advise the Northland Regional Council of the incident. The Consent Holder shall then supply a written report to the Northland Regional Council within one week detailing:

(a) The nature of the non-compliance;

(b) The location of the discharge and receiving environment;

(c) The time of discharge;

(d) The duration of discharge;

(e) The quantity of contaminant discharged;

(f) The nature of contaminant discharged (e.g. raw sewage, primary, secondary treated sewage);

(g) The measures taken to mitigate the effects on the environment and public health; and

(h) The proposed measures to prevent similar discharges in future.

28A The Consent Holder shall notify the Northland District Health Board, in accordance with Condition 28, of any disruption to the disinfection system that results in the UV dose required by Conditions 8, 9 and 10 not being achieved for a period greater than 30 minutes.

29 The Northland Regional Council in conjunction with the Consent Holder, and submitters to the consent applications, shall review the conditions of these consents in the seventh and twelfth year after the date the commencement of the Consent.

(a) To deal with any adverse effects on the environment that may arise from the exercise of the consent following assessment of the results of the monitoring of the consent and/or as a result of the Northland Regional Council's monitoring of the state of the environment in the area.

(b) To deal with any inadequacies or inconsistencies the Northland Regional Council considers there to be in the conditions of the consent, following the establishment of the activity the subject of the consent.

(c) To change existing, or impose new limits on conditions relating to the quality and quantity of the discharges and the receiving waters.

(d) To take into account issues associated with the catchment modelling undertaken by the Consent Holder or its agents, consents associated with the Okara Park pump station, and the wider reticulation system.

The Consent Holder shall meet all reasonable costs of any such review.

30 The Northland Regional Council may, in accordance with Section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent. Such notice may be served annually during the month of June. The review may be initiated for any one or more of the following purposes:

(a) To deal with any adverse effects on the environment that may arise from the exercise of the consent following assessment of the results of the monitoring of the consent and/or as a result of the Northland Regional Council's monitoring of the state of the environment in the area.

(b) To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

(c) To provide for compliance with rules in any regional plan that has been made operative since the commencement of the consent.

(d) To deal with any inadequacies or inconsistencies the Northland Regional Council considers there to be in the conditions of the consent, following the establishment of the activity the subject of the consent.

(e) To deal with any material inaccuracies that may in future be found in the information made available with the application. (Notice may be served at any time for this reason.)

(f) To change existing, or impose new limits on conditions relating to the quality of the discharges and the receiving waters.

EXPIRY DATE: 30 APRIL 2022

The original resource consents AUT.004352.01.02 & AUT.004352.01.02 dated 16 March 2012 were authorised by CD Arcus on behalf of the Independent Hearing Commissioners. A further change was granted on 11 November 2014 under delegated authority from the Council by SJ Savill. This change to consents is granted this Sixth day of July 2015 under delegated authority from the Council by:

S J Savill
Consents Programme Manager –
Water and Wastes

SCHEDULE 1

MONITORING PROGRAMME

The Consent Holder (or its authorised agent) shall undertake the following monitoring:

1. MONITORING OF THE DISCHARGE VIA THE WETLANDS TO LIMEBURNERS CREEK

Biochemical Oxygen Demand, Total Suspended Solids, and Total Ammoniacal Nitrogen

Twenty-four hour flow proportioned samples shall be collected from the wastewater flow after the UV treatment system and before its discharge to the treatment wetlands.

All efforts shall be made to collect 15 flow proportioned samples in each of the three month sampling periods specified below, when flows are less than or equal to 21,000 cubic metres per day. These samples shall be collected throughout the entire three month period where possible.

Flow proportioned samples shall be collected from all flows that are in excess of 21,000 cubic metres per day up to the maximum of 57,400 cubic metres per day up to a maximum of 15 samples in each of the three month periods specified below.

The three month sampling periods are specified as follows:

- 01 January to 31 March inclusive
- 01 April to 30 June inclusive
- 01 July to 30 September inclusive
- 01 October to 31 December inclusive

These samples shall be analysed for the following determinands:

1.1.1.1 Determinand
Total* Five Day Biochemical Oxygen Demand (BOD_5)
Total suspended Solids (TSS)
Total Ammoniacal Nitrogen

* Note: Total BOD includes carbonaceous and nitrogenous oxygen demand.

Samples for analysis should preferably be sub-sampled from the bulk flow proportioned sample. Where this cannot be achieved, the sampling regime shall be clearly recorded.

Microbiological Analysis

Bulk composite samples, made up of not less than three consecutive grab samples of equal volume collected at least five minutes apart, shall be collected from the effluent flow at the following locations:

- Untreated sewage effluent as it enters the treatment plant at a point prior to the primary screens, (sample point A).
- Treated sewage effluent immediately before UV disinfection, (sample point B).
- Treated sewage effluent after UV disinfection, but prior to the wetlands, (sample point C).

These samples shall be taken and analysed for the following determinands in accordance with the following table:

1.1.1.2 Determinand and Frequency
Faecal coliforms, weekly, at sample points B and C
Enterococci, monthly, at sample points B and C
Representative enteroviruses, quarterly, at sample point C
F-specific bacteriophage, quarterly, at sample points A and C

Samples for analysis should preferably be sub-sampled from the bulk composite sample. Where this cannot be achieved, the sampling regime shall be clearly recorded.

1.1 Monitoring of Extreme Wet Weather Flow Discharges

The following monitoring programme applies up until 31 March 2013:

Bulk composite samples made up of not less than three consecutive grab samples of equal volume collected at least five minutes apart shall be collected from all the bypass discharges to Limeburners Creek and the influent to the treatment plant at a point prior to the primary screens, (sample point A).

The composite samples shall be analysed for the following determinands:

1.1.1.3 Determinand
Enterococci
Faecal coliforms
Ammoniacal N
Total Five Day Biochemical Oxygen Demand (BOD_5)
Total Suspended Solids (TSS)

Samples for analysis should preferably be sub-sampled from the bulk composite sample. Where this cannot be achieved, the sampling regime shall be clearly recorded.

The following monitoring programme takes effect after 1 April 2013 following the upgrade required by Condition 10.

Events to be Sampled

The sampling outlined below shall be undertaken during at least two Extreme Wet Weather Flow discharge events each year. One of these discharge events shall be where a proportion of the discharge is primary treated wastewater from the equalisation basin that has received only UV disinfection prior to being discharged, if such an event occurs during the year.

***Escherichia coli* (*E coli*), Total Suspended Solids, 5-day Biochemical Oxygen Demand, and Total Ammoniacal Nitrogen Analyses**

At least ten (10) samples of disinfected Extreme Wet Weather Flow wastewater shall be collected during each of the two sampling events described above. Each of the ten samples shall be a grab sample collected at least five minutes apart and shall be collected from the sampling site referred to in Condition 16(a).

Each of the ten samples shall be analysed for Escherichia coli (E coli). The E coli results from this sampling shall be used to assess compliance with the discharge standards specified in Condition 10 of the consent.

In addition, a composite sample made up of not less than three consecutive grab samples of equal volume collected at least five minutes apart shall be collected and analysed for total suspended solids (TSS), 5-day biochemical oxygen demand (BOD_5), and total ammoniacal nitrogen (NH_3+NH_4-N) concentrations.

F-specific Bacteriophage and Rotavirus Analyses

One (1) sample of disinfected Extreme Wet Weather Flow wastewater shall be collected during each the two sampling events described above from the sampling site referred to in Condition 16(a). In addition, one (1) sample of untreated wastewater shall be collected at the same time from the influent to the treatment plant at a point prior to the primary screens (sample point A referred to in Section 1 of this monitoring schedule).

The two samples (one treated and one untreated) shall be analysed for F-specific bacteriophage and culturable rotavirus concentrations. Results from this sampling shall be used to assess compliance with the treatment performance requirements specified in Condition 10 of the consent.

The Consent Holder will need to collect sufficient volumes of wastewater to enable compliance with Condition 10 to be ascertained.

2. WETLAND MONITORING

Bulk composite samples made up of not less than three consecutive grab samples of equal volume collected at least five minutes apart shall be collected from the treatment plant effluent at a point of inflow into each wetland, and from at least three outlets from each wetland. The outlet samples may be made into a single composite discharge sample for each wetland. The composite samples shall be analysed for the following determinands:

1.1.1.4 Determinand
Faecal coliforms
Enterococci
Ammoniacal N
Total Five Day Biochemical Oxygen Demand (BOD_5)
Total Suspended Solids (TSS)

Samples for analysis should preferably be sub-sampled from the bulk composite sample. Where this cannot be achieved, the sampling regime shall be clearly recorded.

The samples shall be collected on a quarterly basis during normal flow conditions, and at least four times per year when flows through the wetlands are elevated (medium to high wet weather flow). Samples of the inlet to the wetland shall be taken four days prior to the sampling of the outlets of the wetlands.

3. CALCULATION OF UV DOSE

Definitions

For each bank of UV lamps, UV dose is defined as the product of the UV light intensity (impacting on wastewater passing through the bank) and the retention time (of wastewater passing through the bank).

The following terms are defined for each UV irradiation channel.

Reactor Volume is the volume of wastewater at any given time passing through the banks of UV lamps in litres.

Adjusted Retention Time is the reactor volume divided by the measured rate of flow into the UV channel in litres per second.

Measured UV Intensity is the average UV intensity (mW/cm^2) across the reactor volumes measured for each operating bank of UV lamps.

Calculations

The reactor volume, the flow rate of wastewater through the UV channel and the UV light intensity shall be recorded at no greater than 1 (one) minute intervals for each operational UV channel. The received UV light dose for each operational UV channel shall be calculated using the following formula:

Received UV Light Dose = Measured UV Intensity X Adjusted Retention Time

The "**10 minute Average Received Ultra Violet Light Dose**" shall be calculated by summing all the "Received UV Light Dose" values recorded over the previous 10 minute period and dividing that sum by the number of values.

4. OTHER COMPLIANCE MATTERS

Any significant odours at the site are to be noted and recorded in the monitoring report.

All samples are to be collected using standard methods and approved containers.

All samples collected are to be transported in accordance with standard procedures and under chain of custody to the laboratory.

All samples collected shall be analysed at a laboratory with registered quality assurance procedures[#], and all analyses are to be undertaken using standard methods, where applicable.

Registered Quality Assurance Procedures are procedures which ensure that the laboratory meets recognised management practices as would include registrations such as ISO 9000, ISO Guide 25, Ministry of Health Accreditation.

Calculation of the percentile values to determine compliance with Conditions 8, 9 and 10 of the Consent shall be undertaken using the excel method, ie. an excel spreadsheet shall be used to calculate the percentile values.

5. REPORTING

The Consent Holder shall report the results of the above monitoring to the Northland Regional Council by the fifteenth day of each month for the preceding month, unless otherwise stated.

Records of flows to the treatment plant, as required by Condition 5, shall be supplied to the Northland Regional Council by the fifteenth day of each month for the preceding month, unless otherwise stated.

Records of inlet flow rates to the UV channels, the received UV dose, the measured UV intensity as required by Conditions 8, 9, and 10 shall be supplied to the Northland Regional Council by the fifteenth day of each month for the preceding month, unless otherwise stated.

All of the above records shall be provided in electronic (Excel spreadsheet) format, or otherwise as agreed beforehand with the Northland Regional Council.

6. REVIEW

The monitoring programme is to be reviewed seven years after the commencement of the consent, or otherwise where a need arises. The Northland Regional Council, in conjunction with the Consent Holder, shall undertake the review. The Consent Holder shall meet the reasonable costs of any such review.

In addition to the above review, the analytical methods detailed as part of this monitoring will be reviewed on an as need be basis, depending on:

(a) Any operational difficulties experienced by the Consent Holder or the Northland Regional Council during the monitoring of the consent.

(b) New, or other more appropriate methods becoming available.

Resource Consent

FILE: 41633
(01 and 02)
New

Document Date: 04.03.2020

Pursuant to the Resource Management Act 1991, the Northland Regional Council (hereinafter called "the council") does hereby grant a Resource Consent to:

WHANGAREI DISTRICT COUNCIL, PARKS DIVISION, PRIVATE BAG 9023, WHANGAREI MAIL CENTRE, WHANGAREI 0148

To undertake the following activities associated with the maintenance of public parks and sports fields within various sites in the Whangarei District:

Note: All location co-ordinates in this document refer to Geodetic Datum 2000, New Zealand Transverse Mercator Projection.

AUT.041633.01.01	**Discharge tertiary treated wastewater to land.**
AUT.041633.02.01	**Discharge contaminants (odour) to air.**

Subject to the following conditions:

1 These consents only authorise the use of treated wastewater for the irrigation of garden beds, trees and sports fields.

2 The activities authorised be these consents shall be undertaken in accordance with the **attached** document entitled: *"Proposed methodology for emergency use of treated wastewater from the Whangarei Waste Water Treatment Plant"*, dated February 4 2020. However, if there are any differences or apparent conflict between this document and any conditions of this consent, then the conditions of consent shall prevail.

3 The Consent Holder shall advise the Northland Regional Council's assigned monitoring officer in writing of the proposed date that these consents will be exercised for the first time each year at least 24 hours beforehand.

4 As part of written notification required by Condition 3, the Consent Holder shall provide a Wastewater Irrigation Management Plan to the Northland Regional Council's Compliance Manager. The plan shall include, but not be limited to, details of:

(a) The proposed irrigation schedule including proposed dates and locations; and

(b) Staff responsibilities for managing the application of wastewater to land; and

(c) A map of each irrigation area including exclusion zones required by Condition 10; and

(d) The operational irrigation management processes and procedures to be used to meet the requirements of this consent, including monitoring; and

(e) Procedures on record keeping and reporting non-compliance; and

(f) Procedures to prevent the emission of objectionable odours.

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

5 These consents shall only be exercised during periods when water restrictions are implemented by Whangarei District Council.

6 As a minimum, all wastewater shall receive tertiary (UV) treatment and additional chlorination to provide additional treatment prior to it being used for irrigation purposes.

7 The concentration of faecal coliforms in the treated wastewater, as measured in any sample collected prior to it being used for irrigation purposes, shall not exceed 1000 cfu per 100 millilitres.

8 The irrigation of sports fields with treated wastewater shall only occur on closed sports fields for the purpose of re-establishing vegetation on the fields.

9 The public shall be restricted from sports fields during irrigation activities authorised by these consents and the fields shall remain closed until the surface of the irrigated area is dry. As a minimum, prominent signage shall be placed prior to the commencement of irrigation.

10 No treated wastewater shall be discharged to sports fields within:

(a) 20 metres of any property boundary (not owned by the Consent Holder); or

(b) 15 metres of the coastal marine area; or

(c) 15 metres of a river, lake, stream, pond or natural wetland; or

(d) 5 metres of any identified stormwater flow paths.

11 Garden beds and trees shall be only be irrigated with treated wastewater using a hose with a trigger nozzle. The hose shall not be left unattended during irrigation.

12 Treated wastewater shall not be discharged to land during rain events or when the soils within the irrigation areas are saturated.

13 There shall be no ponding of treated wastewater within, or surface runoff of any contaminants from the irrigated areas as a result of the exercise of these consents.

14 The exercise of these consents shall not result in the discharge of treated wastewater into any watercourse, including any identified overland flow path.

15 The irrigation systems and components shall be maintained in good working order so that they work effectively at all times.

16 The Consent Holder's operations shall not give rise to any contaminants including spray drift from irrigation of treated wastewater beyond the Consent Holder's property boundaries that are deemed by a monitoring officer of the Northland Regional Council to be noxious, dangerous, offensive or objectionable.

17 These consents shall be monitored in accordance with Schedule 1 **attached**.

18 A copy of the records required in accordance with Schedule 1 shall be forwarded each month to the Northland Regional Council's assigned monitoring officer by the 15th of the following month. In addition, a copy of this record shall be forwarded immediately to the Northland Regional Council's assigned monitoring officer on written request. The records shall be in an electronic format that has been agreed to by the Northland Regional Council.

19 The Consent Holder shall notify the Northland Regional Council's Compliance Manager in writing of any proposed change(s) to the operation or processes that may change the nature or quantity of contaminants discharged at least 72 hours prior to the proposed change(s) occurring.

Advice Note: *If the proposed alteration may result in adverse effects that are greater than those authorised by this consent, or the change is outside the scope of what was applied for, then either a change to the conditions of this consent under Section 127 of the Resource Management Act, or a new consent would need to be obtained.*

20 The Consent Holder shall maintain records of all complaints relating to the exercise of these consents received by the Consent Holder as detailed below:

(a) The name and address of the complainant, if provided;

(b) The date and time the complaint is received;

(c) The duration of the alleged event that gave rise to the complaint;

(d) The location from which the complaint arose, if provided by the complainant;

(e) The weather conditions prevailing at the time;

(f) Any events in the management of any processes that may have given rise to the complaint;

(g) In relation to (f), any actions taken by the Consent Holder to minimise any possible cause of the complaint.

21 The Consent Holder shall on becoming aware of any discharge that is not authorised by these consents:

(a) Immediately take such action, or execute such work as may be necessary, to stop and/or contain the discharge; and

(b) Immediately notify the Northland Regional Council by telephone of the discharge; and

(c) Take all reasonable steps to remedy or mitigate any adverse effects on the environment from the discharge; and

(d) Report to the Northland Regional Council's Compliance Manager in writing within one week on the cause of the discharge and the steps taken, or being taken, to effectively control or prevent the discharge from occurring again.

For telephone notification during council opening hours the Northland Regional Council's assigned monitoring officer for these consents shall be contacted. If that person cannot be spoken to directly, or it is outside of council opening hours, then the Environmental Hotline shall be contacted.

Advice Note: *The Environmental Hotline is a 24 hour, seven day a week, service that is free to call on 0800 504 639.*

22 The Northland Regional Council may, in accordance with Section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of these consents. The review may be initiated at any time for any one or more of the following purposes:

(a) To deal with any adverse effects on the environment that may arise from the exercise of these consents and which it is appropriate to deal with at a later stage; or

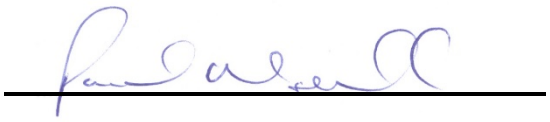
(b) To address the results of monitoring associated with the discharges.

(c) To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.

The Consent Holder shall meet all reasonable costs of any such review.

EXPIRY DATE: 28 FEBRUARY 2023

These consents are granted this Fourth day of March 2020 under delegated authority from the council by:



Paul Maxwell
Coastal & Works Consents Manager

SCHEDULE 1

MONITORING PROGRAMME:

The Consent Holder (or its authorised agent) shall monitor these consents in accordance with the following monitoring programme.

1. DAILY IRRIGATION RECORDS

For each irrigation period, daily records shall be kept of the following:

(a) The total volume of wastewater discharged each day.

(b) The areas and location of irrigation.

(c) The estimated volume of wastewater irrigated to each area.

2. WASTEWATER QUALITY MONITORING

In order to determine compliance with Condition 7, a sample of treated wastewater shall be taken from each tanker load following chlorination. The samples will be monitored for the following parameter:

- Faecal Coliforms

3. SAMPLE COLLECTION, SAMPLE CONTAINERS AND TRANSPORT, AND ANALYTICAL METHODS

All samples shall be collected using standard procedures and in appropriate laboratory supplied containers.

All samples collected as part of this monitoring programme shall be transported in accordance with standard procedures and under chain of custody to the laboratory.

All samples collected shall be analysed at a laboratory with registered quality assurance procedures[#], and all analyses shall be undertaken using standard methods, where applicable.

Registered Quality Assurance Procedures are procedures which ensure that the laboratory meets recognised management practices as would include registrations such as ISO 9000, ISO Guide 25, Ministry of Health Accreditation, IANZ.

4. REPORTING

All results obtained by the monitoring programme shall be forwarded to the Northland Regional Council's assigned monitoring officer monthly as required by Condition 18. The records shall be in an electronic format that has been agreed to by the Northland Regional Council.

However, any monitoring results which are non-compliant with a condition of this consent shall be provided to the council within 24 hours of receipt of the results by the Consent Holder.

Whangarei District Council
Private Bag 9023, Whangarei 0148, New Zealand
P +64 9 430 4200 | 0800 WDC INFO | 0800 932 463
E mailroom@wdc.govt.nz www.wdc.govt.nz

Proposed methodology for emergency use of treated wastewater from the Whangarei Waste Water Treatment Plant.

This is a short term solution during times when Whangarei District and the Northland region is under pressure for potable water. It water would be utilised during drought restriction level 1 as a voluntary activity to manage water use and Drought restriction level 2 and above. It is likely that this solution will be needed at different times and locations over multiple years and therefore a maximum consent period is required. If this water source was to be utilised as a permanent activity this would be addressed under a further consent application to allow for public consultation.

Currently Whangarei District Council is identifying non potable supplies of water to ensure the ongoing viability of recently planted trees, renovated sportsfields and annual planted beds. This relieves pressure on the potable water supply for Whangarei residents and businesses and potentially allows for allocation of potable water to other districts in the region to alleviate water shortages.

The recycled wastewater will be taken from the treatment plant after the final UV treatment process and before the water is directed to the currently consented wetland system (AUT004351.01-05).

Water will not be required from the plant for disposal when the treatment plant is at peak performance and potentially bypassing the UV treatment as this is within periods of heavy rain when addition water for watering is not required.

The following outlines the process for obtaining and applying the treated recycled water:

1. Operator to procure water carrier truck (3000L, 4000L or 10,000L)
2. Truck is filled with recycled water at the WWTP (the water is sourced after the final UV treatment – at the stage is would usually be discharged to the wetland system). Operator to use gloves and safety eyewear.
3. As tank is filling, chlorine is added in the form of 12.5% bleach at a rate of 40ml per 1000L to provide additional disinfecting to the water.
4. Once the first tank is filled a water sample will be taken and tested by the lab at the WWTP to check whether the chlorine levels need adjusting for future loads.
5. Operator will either water using a hose or use spray bar on the back of the truck.
6.
    a. By hose (tree and annual planting) – operator will water individual trees using a hose. Operator will use gloves and eye protection and will wash their hands before eating / drinking. Watered area will be very localised around trees, so closing of site won't be necessary.

    b. By spray bar (grass and sportsfield) – operator will drive the truck in a pattern and speed to water desired area with suitable amount of water. The site will be closed prior to watering and stay closed until surface is dry.

7. No watering will take place within 5m of any waterway / drainage channel.
8. At the end of watering with the truck, it will be washed out with a suitable disinfectant before returning to hire company.

Locations are indicative and will change over time as new sites are planted and upgraded - the same process will be utilised on all sites identified each time this water is required (at Drought level 1 or 2).

February 4, 2020