



Living Earth  
BLG Report – 18<sup>th</sup> May 2021  
Organics Processing Plant

February 2021 – April 2021

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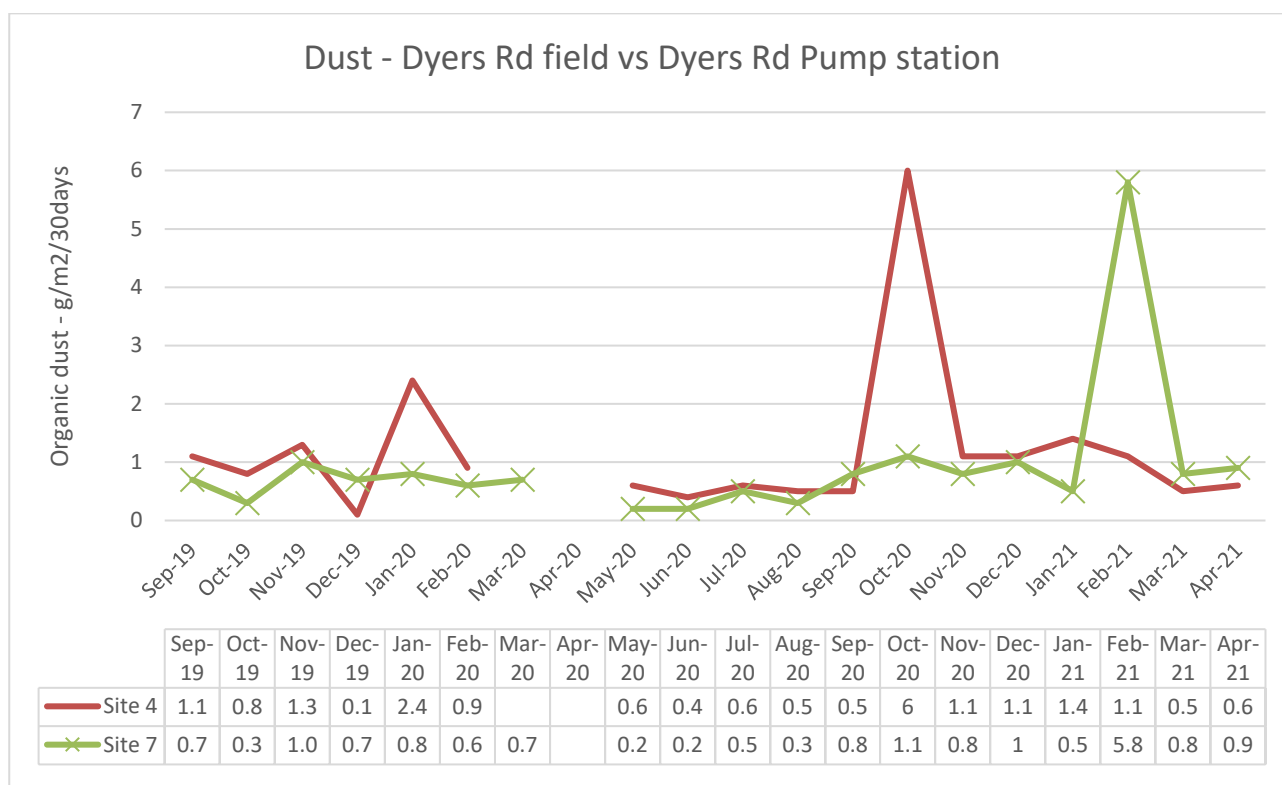
11 May 2021

The consent conditions of CRC 080301.1 are detailed in this report and comments provided on current status. Key matters are discussed below:

**Dust (c25)**

We have two deposition gauges located close to Dyers Road. One is situated in a field North of Metro Place (upwind of the organics plant) and the other in at the old pump station near the end of Maces Road (downwind of the organics plant and near the residential Bromley area).

The February dust was abnormally high at the pump station, this level was higher than the gauges located closer to the OPP. This may indicate a more localised dust event that contributed to this. Each year the dust results are reviewed by an independent environmental scientist.



These gauges both record lower dust levels than are recorded on site and record similar dust levels to each other. This indicates that any dust from the organics plant is not adversely impacting the gauge that is approximately 600m downwind of the site near the Bromley residential area. This is the deposition gauge most relevant to the community.

The deposition gauge results for the period July 2020 – June 2021 will be independently reviewed after this period.

The consent includes dust limits for gauges over the site boundary. During the 2019-2020 reporting period there were 11 times the levels had been above the consent limits across all gauges. 10 of these instances were from gauges onsite. The one instance (June 2020) where an offsite collector was elevated was at a time where there was construction/ pavement repair work occurring next to the dust collector.

### **Boundary plantings (c25)**

The small (<10m) section of our boundary where trees were needed to be replanted has been done.

### **Odour (c27/ c14)**

Minimising odour remains the top priority in our operations.

The OPP redevelopment that will increase the rate of composting that is completed in-vessel and enclosing the later part of the process will fix these issues.

### **Transition Plan**

To try and minimise the environmental impacts of the OPP leading up to the redevelopment the following tasks are being undertaken:

1. Remove stockpiles of finished compost from the site. The aim of this is to reduce the quantity of compost currently held in maturing windrows. These changes are forecast to be completed by September 2021.
2. Replace the biofilter media. This media is changed periodically and doing this will ensure that the compost coming for the in-vessel process is stabilised as much as it can.
3. Planting the Southern boundary tree line
4. Trial is being investigated with the introduction of a probiotic at the beginning of the process to determine whether this will improve the stability of the compost when it comes out of the in-vessel process.

RMA Authorisation Number: **CRC 080301.1**

Description		Compliance (Y/N)	Findings Comments & Problems
1	The discharges shall be only odour and dust from an organics processing plant and green waste composting facility located at 40 Metro Place, Bromley, Christchurch at map reference NZMS 260 M35: 8627-4087 and indicated as "Applicant's Site" on plan CRC080301A attached as part of this consent.	Yes	No discharge except odour and dust occur from the facility other than storm and wastewater that are covered under different consents.
2	The organics processing plant shall process not more than 90,000 tonnes of organic material per year.	Yes	Plant operates less than this tonnage.
3	The discharges of odour and dust shall only occur from the following sources:  <ul style="list-style-type: none"> <li>a. From construction activities associated with the establishment of the organics processing plant;</li> <li>b. From an odour extraction system on the process building that discharges to air via biofilters;</li> <li>c. From composting of organic material in managed windrows; and</li> <li>d. From screening, blending, packaging and stockpiling of matured compost.</li> </ul>	Yes	<ul style="list-style-type: none"> <li>a) n/a during this period</li> <li>b) Activity undertaken during this period</li> <li>c) Activity undertaken during this period</li> <li>d) Activity undertaken during this period</li> </ul>
<b>Construction of Organics Processing Plant</b>			
4	The consent holder shall provide to the Canterbury Regional Council a Construction Management Plan to be submitted for approval before commencement of the works on site that includes but is not limited to the following requirements:  <ul style="list-style-type: none"> <li>a. Regular watering of dusty surfaces during dry windy conditions;</li> <li>b. Restricting traffic speed within the site to less than 15 kilometres per hour;</li> <li>c. Covering loads of excavated soil whenever visible dust occurs from this source;</li> <li>d. Locating stockpiles in areas that are less likely to be affected by prevailing winds and at least 50 metres from boundaries; and</li> <li>e. Stabilisation of exposed areas as soon as possible after work is completed.</li> </ul>	Yes	n/a during this period
<b>Organics Processing Plant</b>			
5	The consent holder shall provide to the satisfaction of the Canterbury Regional Council a Facilities Operation Manual before operating the organics processing plant.	Yes	A copy was provided in 2012 as required under the consent.
6	The material processed shall only include the following:  <ul style="list-style-type: none"> <li>a. Green waste;</li> <li>b. Food waste; and</li> <li>c. River weed.</li> </ul>	Yes	No other items accepted.
7	Organic waste containing putrescible material {food waste} shall be processed in a tunnel compost system contained within the process building.	Yes	All kerbside organics and foodwaste collection vehicles are emptied inside the processing hall.

8	Organic waste not containing putrescible material may be composted in managed windrows.	Yes	This is only material that does not contain food waste
	<b>Tunnel Compost System</b>		
9	The tunnel compost system shall consist of a process building, outdoor uncovered windrows and screening and stockpiling.	Yes	This is the current process.
10	The process building shall: <ul style="list-style-type: none"> <li>a. House all receiving, shredding and blending of organic waste that is to be composted in the tunnel composting process; and</li> <li>b. Be operated under a negative pressure system with all discharges to air being treated via a biofilter.</li> </ul>	Yes	<ul style="list-style-type: none"> <li>a) All receipting, shredding, and blending of materials is completed in the process hall before being loaded into tunnels.</li> <li>b) The suction pressure of the biofilter fan (tunnel exit) is typically maintained at negative 100Pa and monitored via a computer control system.</li> </ul>
11	The incoming organic material shall be placed into the tunnel composting system on a daily basis within 24 hours of receipt.	Yes	This is completed. OPP operates on public holidays in line with the kerbside collection trucks. We are open and processing on all days that collection occurs.
12	The tunnel composting process shall have a duration of not less than seven days, which includes an allowance of up to half a day for tunnel emptying, cleaning and filling. During the tunnel composting process, the temperature of all the compost shall be maintained at greater than 55 degrees Celsius for a minimum of three continuous days or less at higher temperatures, so that pathogen destruction has occurred in compliance with New Zealand Composting Standard NZ4454. At the same time or after the tunnel composting process, the compost shall be aerobically treated for 14 days or longer, during which time the temperature must always be over 40 degrees Celsius and the average temperature must be higher than 45 degrees Celsius.	Yes	During this period typical time was 11-14 days in tunnel.
13	Records shall be maintained showing compliance with Condition (12). Such records shall be available to Canterbury Regional Council on request.	Yes	Reports recorded via computer control system recording time and temperature.
14	The maturation composting stage shall be an uncovered windrow system that allows the process to meet Condition (27) of this consent.	No	<p>These windrows have been identified by Environment Canterbury as likely cause of odour complaints.</p> <p>Outdoor uncovered windrows are used after the tunnel composting process.</p>
	<b>Greenwaste Windrow Compost System</b>		
15	Organic wastes not containing putrescibles are to be shredded, blended and formed into windrows within 24 hours of receipt.	Yes	Green waste windrows separated from other windrows. Some is used in the OPP to blend with kerbside materials, other materials composted in open windrows
16	Any organic waste which contains putrescible material is to be redirected into the tunnel composting system.	Yes	The green waste area is manned, and materials separated to be diverted to the tunnels.
17	Not more than 30,000 tonnes per annum of greenwaste shall be composted in full in the outdoors windrows.	Yes	We receive less than this.

18	<p>The uncovered windrows shall meet the following criteria:</p> <ul style="list-style-type: none"> <li>a. The windrow shall be maintained in an aerobic state throughout; and</li> <li>b. The state of the windrows shall be monitored for oxygen, temperature and moisture as follows (and records retained): <ul style="list-style-type: none"> <li>a. Oxygen: Weekly for the first four weeks after the row is constructed and thereafter if the row is suspected of turning anaerobic;</li> <li>b. Temperature: Weekly;</li> <li>c. Moisture Content: Every second day</li> </ul> </li> </ul>	Yes	Oxygen, moisture, and temperature measurements are undertaken to monitor the conditions of the windrows.
<b>Odour Extraction System – Organics Processing Plant</b>			
19	The odour extraction system on the process building shall be designed by a person competent in this area of technology to industry best practices.	Yes	n/a during the period
20	The odour extraction system shall be of sufficient capacity to prevent any fugitive discharge of odours from the process building under all operating conditions.	Yes	n/a during the period
21	The discharge shall exhaust via a biofilter with an average loading of not greater than 80 cubic metres of air per hour per cubic metre of bed material	Yes	Biofilter size 20.7m x 42.5m size. Maximum airflow ex fan is 90,000m <sup>3</sup> /hr. If media is > 1.17m deep then 80m <sup>3</sup> /hr/m <sup>3</sup> of media cannot be exceeded. Bed depth typically 1.3 – 1.5m. fan speed typically <90% of max. Fan can be limited in the control system to maximum speed as required. Fan operation measured, controlled, and monitored by computer control system.
22	The odour extraction systems shall operate at all times during processing of raw materials or products.	Yes	Operates 24/7 and monitored but computer system.
23	<p>The bio filters shall be maintained in such a way as to effectively reduce odours from the organics processing plant so Condition (27) is met. This shall include but not be limited to:</p> <ul style="list-style-type: none"> <li>a. Maintaining satisfactory moisture levels in the biofilter.</li> <li>b. Maintaining an appropriate pH range, typically 4 to 8.</li> <li>c. Maintain aerobic conditions at all times.</li> <li>d. Replace the biofilter media at an appropriate time, determined when any of the above operating parameters, odour levels, or, airflow backpressure are unable to be maintained within their operating limits.</li> </ul>	Yes	<ul style="list-style-type: none"> <li>a) Humidifier operates at inlet to the biofilter. Moisture tested January 2021 as 60%</li> <li>b) pH recorded January 2021 as 6.6 (Hill Laboratory report 2523284)</li> <li>c) Oxygen levels &gt;20% (Lab tested July 2020)</li> <li>d) Back pressure monitored for bed media condition. Media last changed 2018. Media due to be changed in the next reporting period.</li> </ul>
<b>Dust Control</b>			
24	<p>The consent holder shall implement the following measures to minimise the generation and discharge of dust:</p> <ul style="list-style-type: none"> <li>a. Use water sprays with any mechanical handling of compost when conditions are likely to generate dust.</li> </ul>	Yes	<ul style="list-style-type: none"> <li>a) Misters and water trucks are used</li> <li>b) Site is asphalt sealed</li> <li>c) Windrows are under 5m in height</li> <li>d) Bulk loads covered</li> <li>e) Misters and water trucks are used</li> </ul>

	<ul style="list-style-type: none"> <li>b. Provide an impervious base to all outdoor composting areas.</li> <li>c. Limit the height and slope of outdoor piles to less than five metres in height.</li> <li>d. Bulk carriers removing material from site shall be covered.</li> <li>e. Use water tankers and/or sprinklers to dampen down areas of heavy vehicle access when wind speed exceeds five metres per second (five minute average) during dry conditions.</li> <li>f. Suspend all product load-out and windrow turning operations during dry conditions when the wind speed measured by the on-site meteorological station, blowing from between 10 degrees and 130 degrees, exceeds 10 metres per second for two consecutive five-minute averages. Recommencement of load-out and windrow turning operations may occur if recorded wind speeds from that sector are less than 10 metres per second for two consecutive five minute averages.</li> </ul>		f) Monitored on site, data reported each minute.
25	<ul style="list-style-type: none"> <li>a. Within 12 months of this consent coming into effect the consent holder shall establish and maintain suitable tree windbreaks around all areas where compost is stored.</li> <li>b. Notwithstanding condition 25(a), a further line of tree shelter shall be established along the boundary with Affordable Storage Limited and the boundary with Dogwatch Sanctuary Trust, to fill in gaps in the existing tree shelter plantings where establishment or growth has been poor such that a continuous shelter belt more than 1.8 metres high has not been formed. These additional shelter trees shall be planted within six months of commencement of the change to conditions. All shelter trees shall have a minimum height of 1.8 metres and shall be maintained and irrigated until they reach a height of at least five metres. Any dead, diseased or damaged trees shall be replaced immediately. The trees shall be protected from the prevailing wind during at least the initial three years of establishment of the trees by wind cloth fencing or similar in order to optimise tree growth.</li> <li>c. A plan showing planting and landscaping works to be undertaken to comply with Condition 25(b) shall be prepared by a suitably qualified person and shall be submitted to the Canterbury Regional Council within three months of commencement of the change to conditions.</li> </ul>	No	<p>A gap in the tree windbreak exists at a section along the boundary with Affordable storage. A result of containers being moved to complete some pavement repairs.</p> <p>A new bund has been constructed and new trees have been planted.</p>
26	On-site vehicle speeds in the outside windrow, compost storage and compost screening areas shall be restricted to not more than 15 kilometres per hour. A sign, capable of being read at a distance of five metres, shall be erected at the main vehicle entrance to the outside storage area to inform all drivers of this requirement.	Yes	Signs in place, all drivers, and contractors re-inducted with specific mention made of consent compliance.
27	The discharges to air shall not cause odour or dust which is offensive or objectionable beyond the boundary of the site on which this consent is exercised.	No	<p>Notices of non-compliance have been received by Living Earth from Ecan during this period.</p> <p>Infringement notices have been received by Living Earth from Ecan during this period.</p>
28	Notwithstanding Conditions 24 and 27, all product load-out, heavy vehicle operation and windrow turning activities shall cease at any time when these activities cause visible suspended particulate matter beyond the western site boundary, including at properties occupied by Affordable Storage	Yes	Monitored daily. Screened compost located at Northern end of the operational site to minimise distance it may travel off site. Activities restricted in

	Limited, Dogwatch Sanctuary Trust or their successors.		NE wind conditions.
29	<p>The consent holder shall maintain records of any odour or dust complaints received by the consent holder. These records shall include:</p> <ul style="list-style-type: none"> <li>a. Location of complainant when odour or dust was detected;</li> <li>b. Date and time of odour or dust detection;</li> <li>c. Weather conditions, including wind direction, at the composting facility when odour or dust was detected;</li> <li>d. Strength of the odour complained of, assessed on a scale of 1 to 5 by the complainant with the following rating system: 1 odour noticeable but not persistent; 2 odour clear and persistent; 3 odour unpleasant and persistent; 4 odour strong, offensive and persistent; 5 odour very strong and offensive.</li> <li>e. The amount of dust complained of, assessed on a description of the visible quantities and extent of dust deposits on a scale of 1 to 5 by the complainant with the following rating system: 1 noticeable and not extensive; 2 clear and minor coverage; 3 nuisance and moderate coverage; 4 objectionable and extensive coverage; 5 significant extensive deposits, offensive. A description of the appearance of the dust shall also be recorded;</li> <li>f. Any possible cause for the odour or dust complained of; and</li> <li>g. Any corrective action taken.</li> </ul> <p>Records demonstrating compliance with the above condition shall be provided to the Canterbury Regional Council on request and shall be summarised as part of the Annual Environmental Report required under Condition 36.</p>	Yes	Complaints made to Ecan are reported by Ecan.
	<b>Monitoring</b>		
30	<p>The consent holder shall undertake site-boundary odour assessments at least once per day, in a manner consistent with Work Instruction WI30 Issue 6, dated 1 September 2010, submitted with the application, or an equivalent later document. These assessments shall occur at no fewer than eight locations around the site boundary, including at least one location downwind of the composting tunnels and the maturation windrows. In the event of strong odours being detected, that may create adverse effects beyond the site boundary, then the consent holder shall take all practicable efforts to mitigate the odour using measures that may include the use of masking agents, capping the source, and returning odorous material to the tunnels. Records shall be kept that include the date and time of the assessment, meteorological parameters at the time, odour descriptions and odour intensities at each monitoring location. Staff members responsible for these assessments shall have calibrated noses, determined by suitably qualified persons at an accredited laboratory. These staff members shall be recalibrated for odour sensitivity at least once every three years.</p>	Yes	Completed. Further staff have undertaken the calibrated nose process.
31	<p>The consent holder shall, prior to unloading a tunnel, undertake an odour assessment of the compost material, in a manner consistent with Work Instruction WI4 Issue 6, dated 1 September 2010, submitted with the application, or an equivalent later document. In the event of strong odours being detected, that may create adverse effects beyond the site boundary, then the consent holder shall</p>	Yes	<p>Odour assessments are completed on a continuous basis when tunnels are being emptied.</p> <p>Tunnel combining process undertaken in the OPP hall</p>



	return the assessed material to the tunnel and shall not empty the tunnel until it has been determined that the material is no longer odorous to the point where it may create an adverse effect beyond the site boundary. Staff members responsible for these assessments shall have calibrated noses, determined by suitably qualified persons at an accredited laboratory. These staff members shall be recalibrated for odour sensitivity at least once every three years.		enables an empty tunnel to be available at all time if required for this.
32	<p>a. At all times during exercise of this consent, wind speed and wind direction shall be measured by an anemometer established on the site.</p> <p>b. The anemometer shall be installed at a height of at least five metres above ground level at a location free from any obstruction that has potential to significantly affect wind flow.</p> <p>c. Wind speed resolution of measurement shall be not more than 0.1 metres per second and wind speed accuracy of measurement shall be at least within +/-0.2 metres per second.</p> <p>d. The anemometer shall be established, located and operated to the satisfaction of the Canterbury Regional Council.</p> <p>e. Wind speed and direction shall be continuously recorded with an averaging time for each parameter of not more than five minutes.</p> <p>f. These data shall be:</p> <p>(i) recorded using an electronic data logging system; and</p> <p>(ii) provided to the Canterbury Regional Council upon request.</p>	Yes	Weather station located on site.
33	<p>a. Dust deposition monitoring shall occur in at least two dust gauges sited near to the boundary with Affordable Storage Limited or successor and the boundary with Dogwatch Sanctuary Trust or successor and at least one further control dust gauge. The location of the dust deposition gauges shall be determined by a suitably qualified person and shall be provided in writing to the Canterbury Regional Council. The method of monitoring shall be ISO DIS-4222.2 or a similar method to the satisfaction of the Canterbury Regional Council. Samples shall be collected monthly and the monitoring results shall be included and summarised in the Annual Environmental Report required under Condition 36.</p> <p>b. Dust control measures shall be implemented to maintain the rate of dust deposition at the consent holder's boundary, measured in accordance with Condition 33(a), at less than 4g/m<sup>2</sup>/30 days above the background concentration measured at the control site. Any exceedance of this trigger level shall be reported to the Canterbury Regional Council, including the likely reasons for exceedance and any remedial action undertaken.</p>	Yes	A Total of eight dust gauges are used as controls (2), onsite (3) and offsite (3). Offsite gauges are in the immediate neighboring properties and these are used to monitor compliance against this consent.
	<b>Management Plan</b>		
34	<p>(a) The consent holder shall prepare and implement an Environmental Management Plan (EMP) that addresses the control of discharges to air from the site.</p> <p>(b) The EMP shall be prepared and provided to the Canterbury Regional Council: attention: RMA Compliance and Enforcement Manager, within three months of the granting of this consent variation and within one month of the completion of annual reviews.</p> <p>(c) The EMP shall be reviewed annually.</p> <p>(d) The EMP and any revisions shall include all measures necessary to achieve compliance with the</p>	Yes	Independent review of the EMP completed in 2020.

	<p>conditions of this consent.</p> <p>(e) The EMP shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>a. A description of the dust and odour sources on site;</li> <li>b. The methods to be used for controlling dust and odour at each source;</li> <li>c. A description of consent and monitoring requirements;</li> <li>d. A system of training for employees and contractors to make them aware of the requirements of the EMP; and</li> <li>e. Identifying staff responsible for implementing and reviewing the EMP.</li> </ul>		
	<b>Community Liaison Group</b>		
35	<ul style="list-style-type: none"> <li>a. Within one month of the commencement of the change of conditions, the consent holder shall invite local residents and interested people to attend a meeting to establish a Community Liaison Group. The invitation to attend and establish a Community Liaison Group shall be extended to include: <ul style="list-style-type: none"> <li>(i) all property owners and occupiers with boundaries adjoining, or but for the presence of roads, with boundaries immediately next to the site; and</li> <li>(ii) all parties who made a submission on the application to change consent conditions.</li> </ul> </li> <li>b. A representative of the consent holder shall attend all meetings of the Community Liaison Group. The Canterbury Regional Council shall be invited to send a representative to attend all meetings.</li> <li>c. The consent holder shall ensure that members of the Community Liaison Group are provided with the opportunity and facilities to meet at least once every three months.</li> <li>d. The main purposes of the Community Liaison Group shall be to: <ul style="list-style-type: none"> <li>a. Identify and address any adverse effects of discharges to air from the site, including possible remedial action; and</li> <li>b. Discuss the results of all monitoring and reporting required under this consent.</li> </ul> </li> </ul>	<b>Yes</b>	Ongoing CLG meetings held as required, including this meeting.
	<b>Reporting</b>		
36	<p>The consent holder shall, no later than the 30<sup>th</sup> of June of each year, provide an Annual Environmental Report to the Canterbury Regional Council setting out all monitoring and reporting results required by conditions of consent and their interpretation by an appropriately qualified person, including dust deposition monitoring and complaints recording undertaken in relation to this consent over the previous period. Where the result of any test or monitoring undertaken in relation to this consent exceeds the relevant limit/trigger level or does not comply with the relevant condition, then the steps that were taken to rectify the non-compliance shall be specified.</p>	<b>Yes</b>	Annual report provided to Ecan.
	<b>Administration</b>		
37	This consent shall not be exercised concurrently with CRC930514.	<b>Yes</b>	

38	<p>The Canterbury Regional Council may annually, on or about the last working day of March each year, serve notice of its intention to review the conditions of this consent for the purposes of:</p> <ul style="list-style-type: none"> <li>a. Dealing with any adverse effect on the environment which may arise from the exercise of the consent; or</li> <li>b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment; or</li> <li>c. Complying with the requirements of an operative regional plan.</li> </ul>	Yes	OPP upgrade options being considered
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