Approval

1. The Aqua Nova NR 8 EP ("the system") described in the Specifications and Drawings in the attached Schedule and manufactured by Everhard Industries Pty Ltd (ABN 00 969 859) ("the manufacturer") has been assessed in accordance with the Queensland Plumbing and Wastewater Code (QPW Code) dated 15 January 2013.

2. Approval is granted for the advanced secondary quality wastewater treatment system with nutrient reduction, subject to compliance by the manufacturer with the requirements of the Plumbing and Drainage Act 2002, part 5 and the conditions of approval detailed below.

3. This approval, the conditions of approval and the Schedule comprise the entire Chief Executive Approval document.

4. Any modification by the manufacturer to the design, drawings or specifications scheduled to this approval must be approved by the Chief Executive.

Conditions of approval

5. The manufacture, installation, operation, service and maintenance of the systems must be in conformity with the conditions of this Chief Executive Approval.

6. The advanced secondary quality wastewater treatment system, which is an example of the approved systems, may only be used on premises that generate per day

   (a) a maximum hydraulic loading of 1,200 litres; and

   (b) a maximum organic loading of 560 grams BOD\(^5\) and

7. The system must continue to meet the requirements of advanced secondary quality wastewater treatment system, producing the following effluent quality —

   (a) 90% of the samples taken must have a BOD\(^5\) less than or equal to 10 g/m\(^3\) with no sample greater than 20 g/m\(^3\).

   (b) 90% of the samples taken must have total suspended solids less than or equal to 10 g/m\(^3\) with no sample greater than 20 g/m\(^3\).

   (c) 90% of the samples taken must have a thermotolerant coliform count not exceeding 10 organisms per 100 mL with no sample exceeding 200 organisms per 100 mL.

   (d) The total chlorine concentration must be greater than or equal to 0.5 g/m\(^3\) and less than 2.0 g/m\(^3\) in four out of five samples taken; and
(e) The manufacturer has included nitrogen and phosphorus reduction in the treatment process, the effluent compliance criteria must continue to meet, in addition to the above, the following nutrient criteria:

a. 90% of the samples taken, with 95% confidence limits shall have a total nitrogen concentration less than or equal to 25 mg/L; and

b. 90% of the samples taken, with 95% confidence limits shall have a total phosphorus concentration less than or equal to 5 mg/L.

8. Each system must be serviced in accordance with the details supplied in the owner’s service and maintenance manuals.

9. Each system must be supplied with —

   (a) a copy of this Chief Executive Approval document;
   (b) details of the system;
   (c) instructions for authorised persons for its installation;
   (d) a copy of the owner’s manual to be given to the owner at the time of installation; and
   (e) detailed instructions for authorised service personal for its operation and maintenance.

10. This approval does not extend, apply to, or include the land application system used in conjunction with an approved system installed on premises.

11. At each anniversary of the Chief Executive Approval date, the supplier must submit to the Chief Executive a list of all systems installed in Queensland during the previous 12 months.

12. Where the Chief Executive is notified of any system failures the Chief Executive may randomly select a number of installed systems for audit. The Chief Executive will notify the supplier’s nominated NATA accredited laboratory which systems are to be audited for BOD5 and TSS. The sampling and testing of the selected systems, if required, is to be done at the supplier’s expense. The following results must be reported to the Chief Executive;

   (a) Address of premises;
   (b) Date inspected and sampled;
   (c) Sample identification number;
   (d) BOD5 for influent and effluent; and
   (e) TSS for influent and effluent.

13. The Chief Executive may, by written notice, cancel this approval if the manufacturer fails — to comply with one or more of the conditions of approval; or within 30 days, to remedy a breach, for which a written notice been given by the Chief Executive.

14. This approval may only be assigned with the prior written consent of the Chief Executive.

15. This approval expires on 19 March 2020 unless cancelled earlier in accordance with paragraph 13 above.

Lindsay Walker

Director
Plumbing Drainage and Special Projects

Date approved: 19 March 2015

Chief Executive Approval
SCHEDULE

Attachment 1

Specifications for the

Aqua Nova NR 8 EP
CHIEF EXECUTIVE APPROVAL No. 05/2015
Plumbing and Drainage Act 2002, part 5, division 1, section 93

SCHEDULE

Attachment 2

Drawings for the

Aqua Nova NR & EP
Schedule 1: Specification

Aqua-NovaNR (10100N) Aerated Wastewater Treatment System

The Aqua-NovaNR (10100N & 80100N) Aerated Wastewater Treatment System (AWTS) is designed to treat the wastewater from a residential dwelling occupied by a maximum of 8 persons (1600L/day) to a Secondary Standard

- BOD<sub>5</sub> < 10g/m<sup>3</sup>
- TSS < 10g/m<sup>3</sup>
- Thermotolerant Coliforms < 10cfu/100mL
- Total Nitrogen < 25mg/L
- Total Phosphorus < 5mg/L
- Total Chlorine Concentration greater or equal to 0.5g/m<sup>3</sup> less than 2.0g/m<sup>3</sup>

Systems are contained in 3000L Septic Tanks each with design capacities as set out below.

Operation

The Aqua-nova treatment plant is a two tank system.

Wastewater flows into the first tank (Primary Tank). This tank acts as a septic tank removing most solids and fats/oils. Solids retained in this tank are digested anaerobically.

Water from this tank flows to a second tank. This tank is aerated and fitted with submerged media. Aerobic bacteria grow on the media to biodegrade the remaining contaminants in the wastewater. Bacteria occasionally slough off the media and become suspended in the water.

Aeration is continuous.

Water then flows to a clarifier where the solids are allowed to settle. These solids are pumped back to the start of the treatment plant.

Clarified wastewater is chlorinated

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Department of Housing and Public Works
Chief Executive Approval

Approval No: 5715
Date of Issue: 1/3/15
Delegate Signature: [Signature]

Building Codes Queensland
Configuration

The Aqua-Nova AWTS is assembled in the following configuration:

<table>
<thead>
<tr>
<th>Design capacities</th>
<th>Polymer 2 x 3000L (80100N)</th>
<th>Concrete 2 x 3000L (10100N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>primary sedimentation</td>
<td>3000L</td>
<td>3000L</td>
</tr>
<tr>
<td>secondary treatment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• aeration chamber</td>
<td>3000L</td>
<td>2253L</td>
</tr>
<tr>
<td>• sedimentation</td>
<td>1985L</td>
<td>430L</td>
</tr>
<tr>
<td>• irrigation</td>
<td>430L</td>
<td>393L</td>
</tr>
<tr>
<td>emergency storage</td>
<td>393L</td>
<td>1095L</td>
</tr>
<tr>
<td></td>
<td>1000L</td>
<td></td>
</tr>
<tr>
<td>operational water level</td>
<td>(mm)</td>
<td>(mm)</td>
</tr>
<tr>
<td>• primary</td>
<td>1385mm</td>
<td>1510</td>
</tr>
<tr>
<td>• secondary</td>
<td>1350mm</td>
<td>1350</td>
</tr>
</tbody>
</table>

- A chlorine disinfection unit is installed on the outlet of the clarifying chamber. Disinfected Wastewater is filtered through a zeolite filter.

- Air is supplied to the contact aeration chamber by a Nitto LA80 air blower or equivalent, producing an airflow of a nominal 100 litres/minute at 1.3 m water depth.

- A Davey model D-25A submersible irrigation pump or equivalent is installed in the irrigation chamber for standard above ground irrigation. Type of pump may vary if subsurface irrigation is employed or the disposal area is significantly above the location of the sewage treatment plant.

- Label will be located on the Control Box of the system and have the following information provided:
  - System Name
  - Model No.
  - Approval Number
  - Design Hydraulic Capacity
  - Date of Manufacture
  - Top Load Limitations
  - Weight of Tank
  - Lifting/Transport Instructions
  - The name and telephone number of an appropriate service representative to be contacted in the event that a problem with the plant occurs.
  - The website from which the documentation can be downloaded during the design life.