

Assessment report of data submitted

Project name: Arunlea (BH1422/AL066)

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A notice for further information was received from the environmental health department outlined below.

Condition 3 -

I am satisfied that most of condition 3 has been met. The only question I have is about the waste. RO produces two waste streams; the concentrate and the chemical waste. The RO report specifies that "RO waste will discharge to foul drainage and will be sufficiently diluted, presenting no anticipated issues.". Has a suitable consent been obtained from the water undertaker for this?

1. Purpose

This statement outlines the operational strategy for the Reverse Osmosis (RO) system to address concerns regarding chemical discharges into the foul drainage system. Due to the naturally soft characteristics of the borehole supply and a proactive maintenance schedule, the system will operate with a single, non-hazardous waste stream.

2. Single Waste Stream Configuration

Unlike many industrial RO installations, this system will produce only one continuous waste stream: Concentrate.

- **Nature of Discharge:** This stream consists of the natural minerals already present in the incoming supply, simply at a higher concentration. It contains no added process chemicals.
- **Elimination of Chemical Waste:** By following the maintenance strategy below and as shown in the PWSMP, the requirement for a secondary "Chemical Waste" or "CIP" (Clean-In-Place) stream is eliminated.

3. Mitigation of Fouling and Scaling

The council's concerns regarding chemical cleaning waste (acids and alkalis) are mitigated by the following site-specific factors:

- **Pre-Filtration:** 5-micron sediment filtration removes physical particulates before they reach the RO membranes, preventing mechanical fouling.
- **Soft Water Profile:** The raw water source is naturally soft. This removes the risk of calcium carbonate scaling, which is the primary reason for acidic chemical cleaning.
- **Annual Membrane Exchange:** Rather than using aggressive chemicals to clean aged membranes, a Annual Replacement will be performed. All accumulated organic or inorganic matter is removed from the site as solid waste (the spent membrane) rather than being flushed into the drainage system as liquid chemical waste.

4. Hygiene and Sanitisation

To maintain system integrity without hazardous discharge:

- **Post-RO Chlorination:** Microbiological safety is ensured via chlorine dosing downstream of the RO unit.

5. Conclusion

The proposed system is designed for high-efficiency physical filtration. By replacing membranes annually and utilising the naturally soft water supply, it ensures that no hazardous chemical effluents will be discharged into the foul sewer. The only discharge will be the concentrated mineral content of the original source water.