

## East Rockingham Wastewater Treatment Plant

### Background

#### *What is wastewater?*

On average, people produce about 200 litres of wastewater every day. This wastewater comes from our homes, our schools, our places of work, hospitals and other services and is more than 99.7% water.

Most comes from our homes - from showers, baths, sinks and washing machines as well as the toilet. It contains some pollutants, mainly of human origin. These are in the form of suspended and dissolved matter, oil and greases, detergents, nutrients, heavy metals and potentially harmful bacteria and viruses.

Wastewater also comes from commercial and industrial premises. Limits are placed on pollutants from discharges from industries so that the wastewater quality is similar to that coming from a home.

Wastewater treatment plants remove much of the pollutant material from the wastewater. The wastewater that has been treated in a wastewater treatment plant and is suitable for discharge into the environment is called treated wastewater.

#### *Why do we need the East Rockingham scheme?*

The long-term plan to service wastewater in Perth is a series of wastewater treatment plants from north to south about 15 kilometres apart. North of the Swan River we already have Subiaco, serving the western suburbs, and Beenyup, serving the northern ones.

Woodman Point, Point Peron and Kwinana wastewater treatment plants (WWTP's) currently service suburbs to the south of the city. The Kwinana and Point Peron WWTP's were planned to serve a limited population.

The south-west corridor, from Kwinana to Singleton is predicted to grow rapidly with the opening of the Perth to Mandurah railway line. Large new residential areas are being developed at Baldivis and Secret Harbour and future regional centres are being planned.

Growth in the southern corridor requires greater treatment plant capacity. The East Rockingham WWTP is planned to cater for this growth and replace the Point Peron WWTP, located in a recreational reserve.

It is expected that the plant at East Rockingham will ultimately service about 700,000 people. Potentially, it may also service a large portion of the East Rockingham industrial area. The plant would be built in stages over a number of years to cater for the growing population, with a forecast commissioning date of 2015.

### Current Situation

Until this plant is built, the Point Peron WWTP will continue to operate and treat wastewater generated from the coastal areas from Rockingham to Singleton.

The Kwinana WWTP has recently been upgraded to accommodate the growth in Kwinana and Baldivis. With the commissioning of the East Rockingham WWTP, the Kwinana WWTP will continue to service the Town of Kwinana.

**The Future**

The East Rockingham WWTP is planned to be located within the proposed East Rockingham Industrial Park (IP14) area, located off Chesterfield and Mandurah Roads.

More detailed investigations are currently being undertaken to obtain a better understanding of any potential impacts the WWTP may have on the surrounding and regional environment. This involves undertaking flora and fauna surveys, surface and underground water investigations, odour dispersion modeling, ensuring vital pipeline corridors are reserved and other planning requirements are considered.

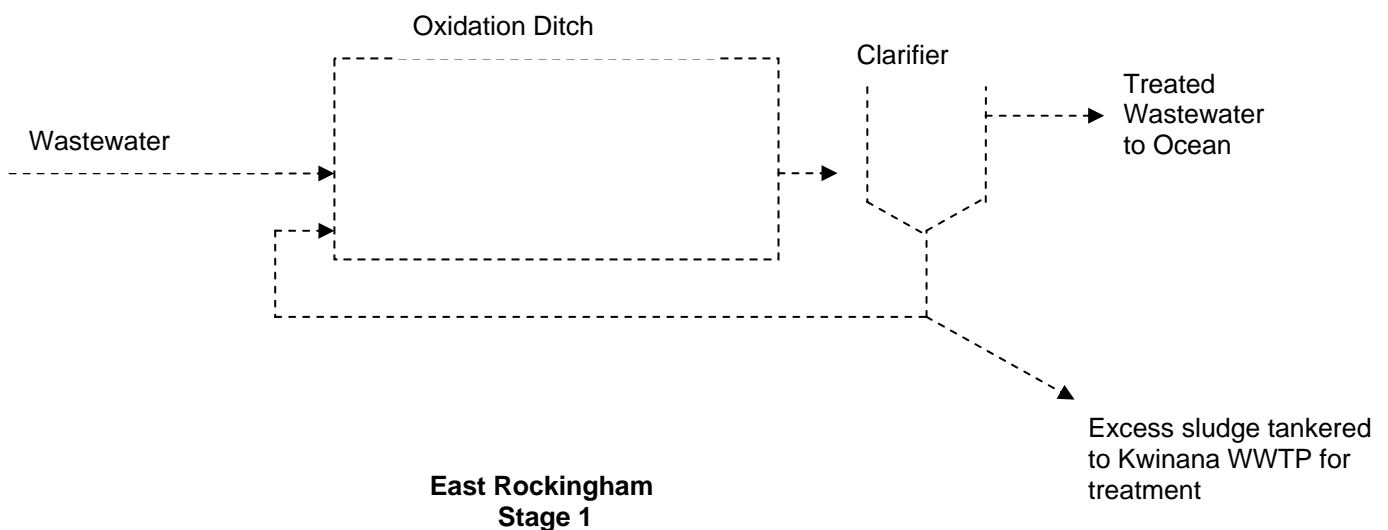
It is proposed that wastewater will be treated by the activated sludge process to produce a treated wastewater with low solids and nitrogen levels making it suitable for further treatment for recycling or discharge to the ocean. Any treated wastewater not recycled will be pumped to the ocean via the existing Sepia Depression Ocean Outfall.

Similar to the Beenyup, Subiaco and Woodman Point WWTP’s, there will be the potential for primary treatment prior to the activated sludge process. This means that it is possible to use the anaerobic sludge treatment process and recover energy.

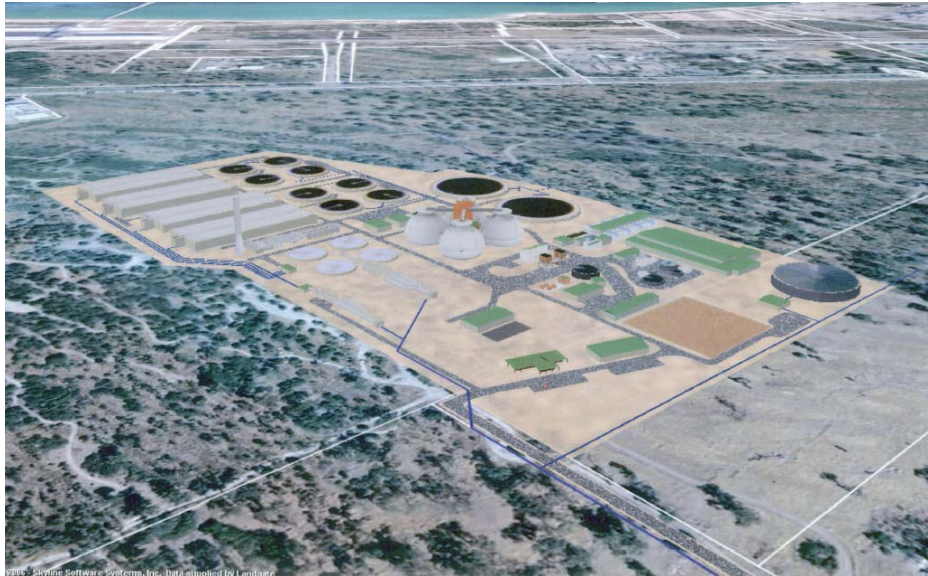
Odorous gases will be collected, treated and vented via a 50 metre tall stack.

The ultimate capacity of the plant is forecast as 160 megalitres per day, with staging in 4 x 40 megalitre per day treatment modules. The first 40 megalitre module is forecast to be commissioned by 2015. Subsequent modules are predicted to be required by 2028, 2040 and 2070.

The proposed site area can accommodate a water reclamation plant, to recycle water to industry.



As future treatment capacity is required, additional modules will be added and a primary sedimentation process added. A conceptual plant layout is shown below.



*Is it safe?*

### *Ocean discharge*

Commissioning of the East Rockingham WWTP will eventually provide a tertiary level of treatment for the collected wastewater. This means that the final effluent quality will be greatly improved over the current treatment process at Point Peron WWTP. So much so, the new plant can cater for forecast population growth for the next 30 to 40 years before the current quantity of nitrogen is similarly discharged to the ocean.

The existing Sepia Depression Ocean Outfall is monitored to ensure existing environmental criteria are met.

The East Rockingham WWTP will greatly improve the quality of treated wastewater discharged into the ocean.

### *Odour*

All treatment plants generate odour and the plant location is distant from the residential areas of Rockingham. The proposed industrial park is considered a suitable location for the plant.

Odour dispersion modelling is been undertaken from wind data collected from the site. With proper planning, compatible industrial uses may be accommodated within the planned odour buffer.

Odorous gases will be collected, treated and vented on-site. The level of emission control envisaged will be the same as for any treatment plant in Perth.

### **More Information**

- Alkimos wastewater treatment plant site  
<http://www.watercorporation.com.au/A/alkimos.cfm>