

East Rockingham Wastewater Plant

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May 2009

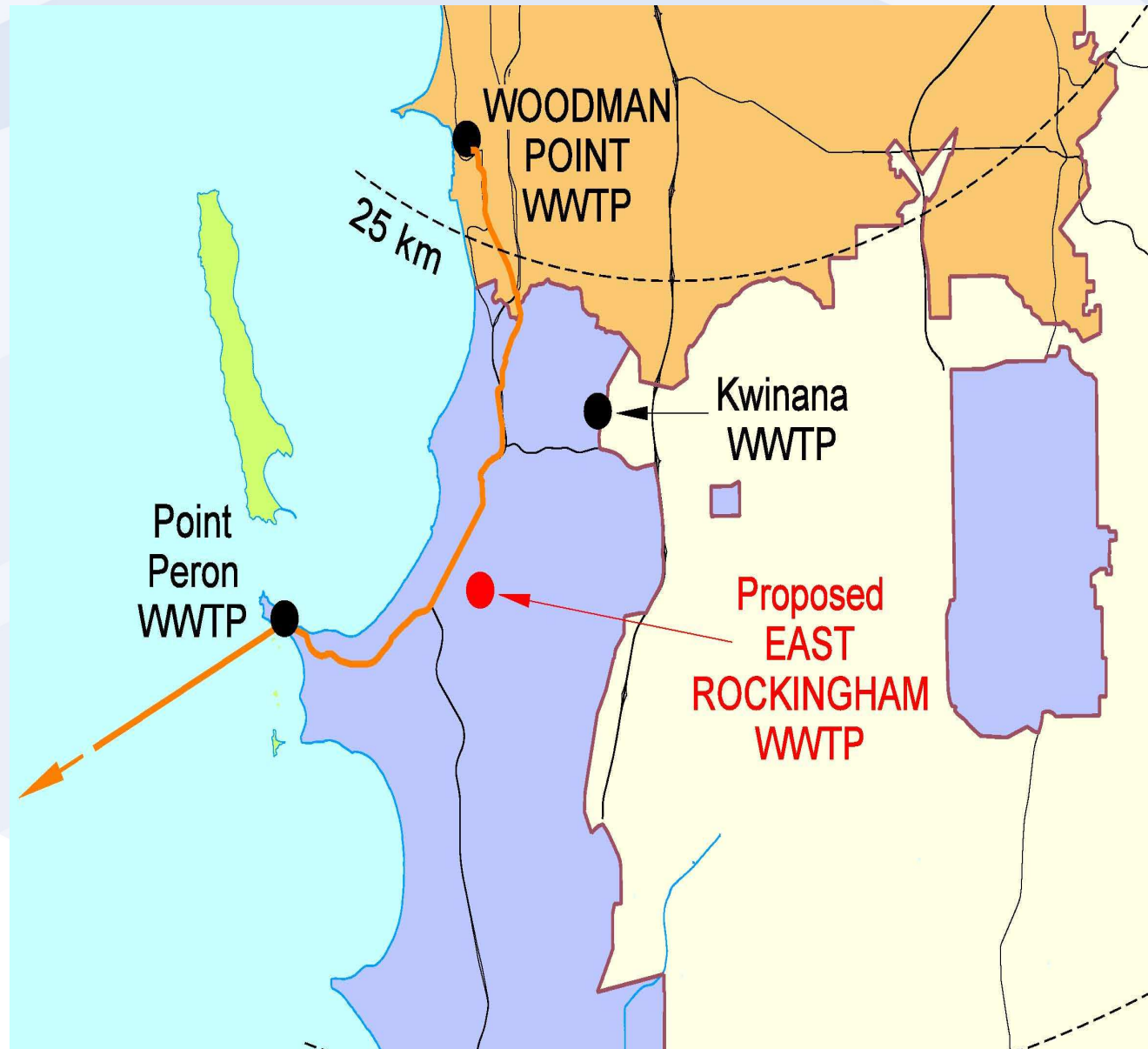


Contents

- WWTP Site: selection, global, within IP14, size
- Odour, land use planning, status
- Other major Perth WWTPs

Catchment area

- Includes the existing Kwinana & Pt Peron WWTPs
- Kwinana WWTP
4.7 ML/day, by 2009
- Pt Peron WWTP
20 ML/day, by 2012



Value Management Study Outcomes

Investigate four scheme plans:

- Central WWTP located at East Rockingham with effluent disposal primarily to SDOOL and industrial re-use where possible
- Central WWTP located at existing Kwinana WWTP site, as above
- Two WWTPS, one located at existing Kwinana WWTP site and one at East Rockingham, as above
- Central WWTP located at Pinjarra, with effluent to process water (to Alcoa?)

Contingency Plan, to get over the hurdle

Contingency Plan

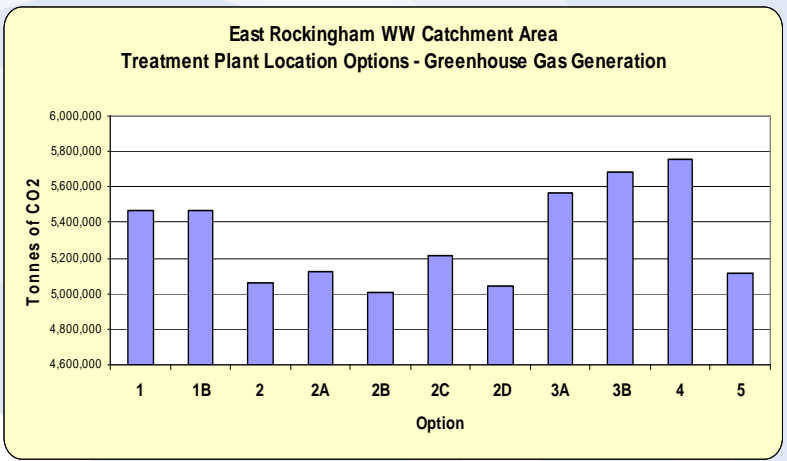
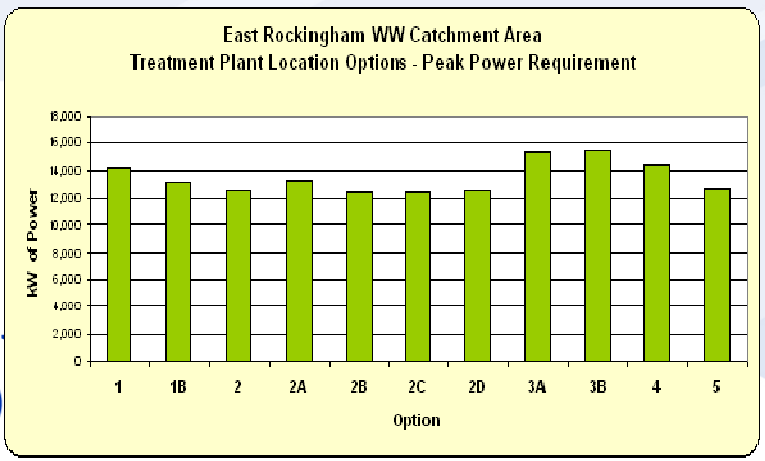
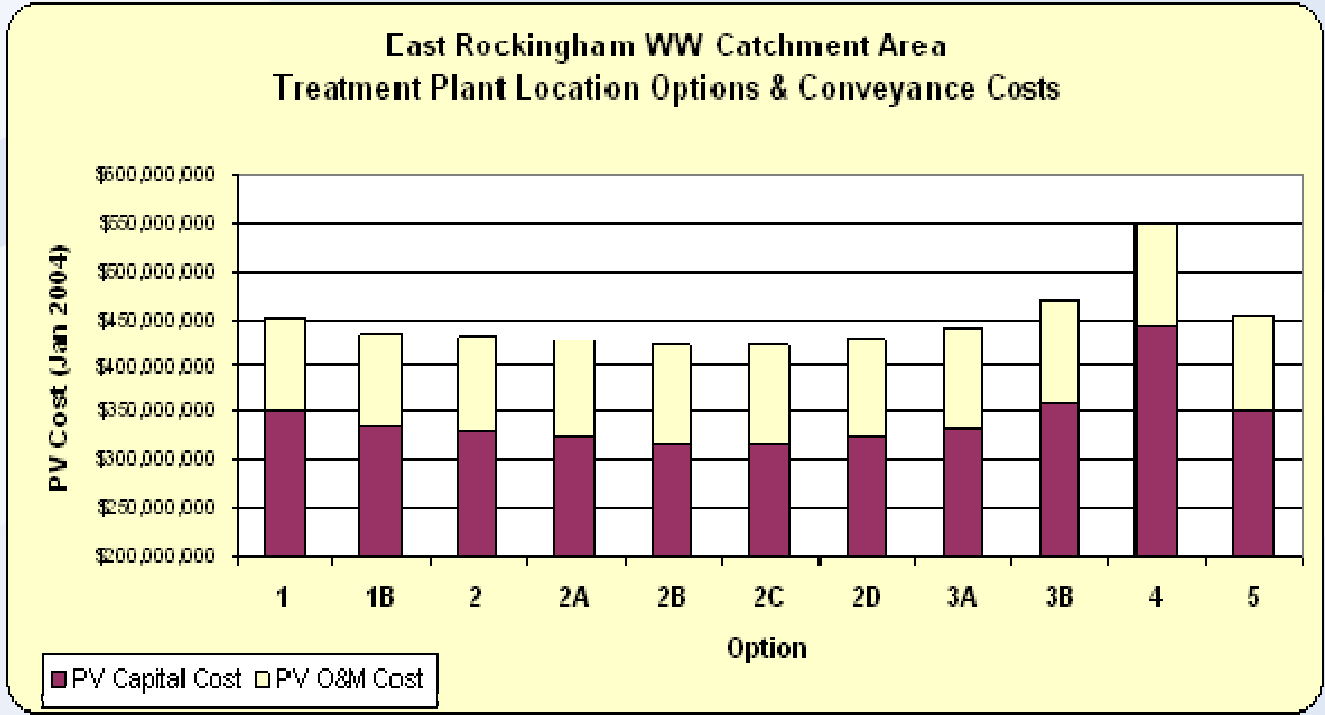
Five Main Projects

- **Kwinana WWTP upgrade to 12 ML/day** – done
- **Xmas Ave WWPS upgrade** – due by 2009
- **Seabrooke Ave WWPS Pressure Main duplication** – done, to protect Lake Richmond
- **Diversion of Baldivis inflows to Kwinana WWTP** – in definition now, by 2010 – on track
- **SDOOL Duplication to Cape**

WWTP Site Selection

- **Option 1 – To East Rockingham Area**
 - All Sewer Districts (SD) to, decommission new K WWTP
- **Option 2 – Part Flows to East Rockingham & Kwinana**
 - Kwinana SD in varying amounts
- **Option 3 – All Flows to Kwinana WWTP**
 - Baldivis SDs direct to K WWTP, Rockingham & Warnbro SDs to Major Transfer Pump station in East Rockingham area to K WWTP
- **Option 4 – All Flows to Pinjarra located WWTP**
 - Byford SD direct, All others to major Transfer Ps in Baldivis to P WWTP
- **Option 5 – Part flows to East Rockingham & Kwinana WWTP**, with Byford SD to Kwinana

WWTP Site Selection



WWTP Site Selection

The most sustainable and preferred WWTP location is;

Option 2

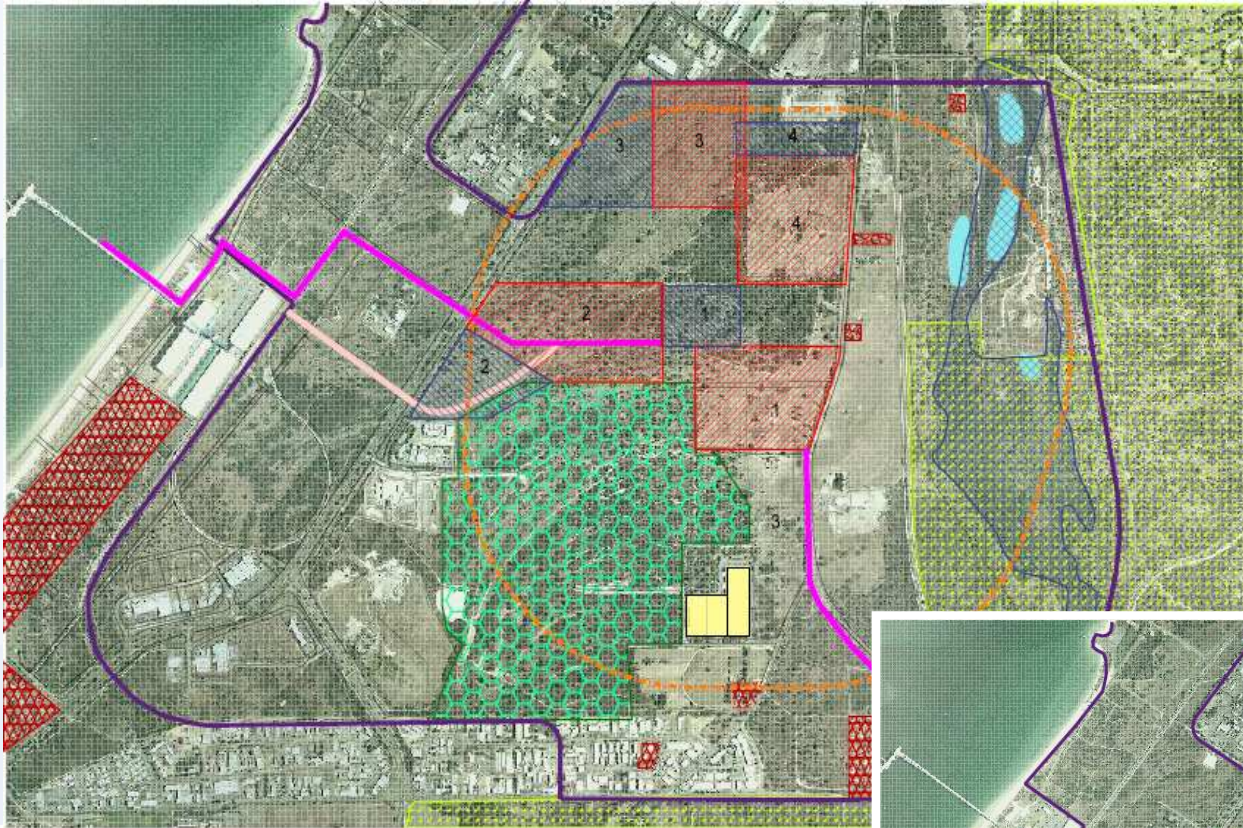
somewhere in **EAST ROCKINGHAM**

With

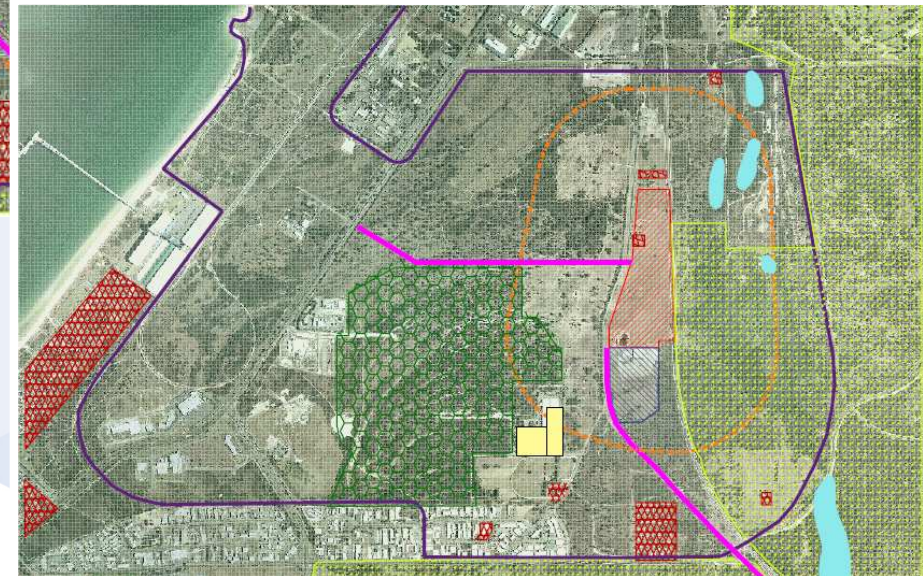
A small Kwinana WWTP



A number of locations were explored



- Inside IP14 area
- Outside IP14 area
- Social, technical, environmental



Proposed location



- Well within the IP14 land area

Proposed plant and infrastructure



**31 hectares
between
Mandurah
and
Patterson
roads**

**Subject to
environment
approvals**

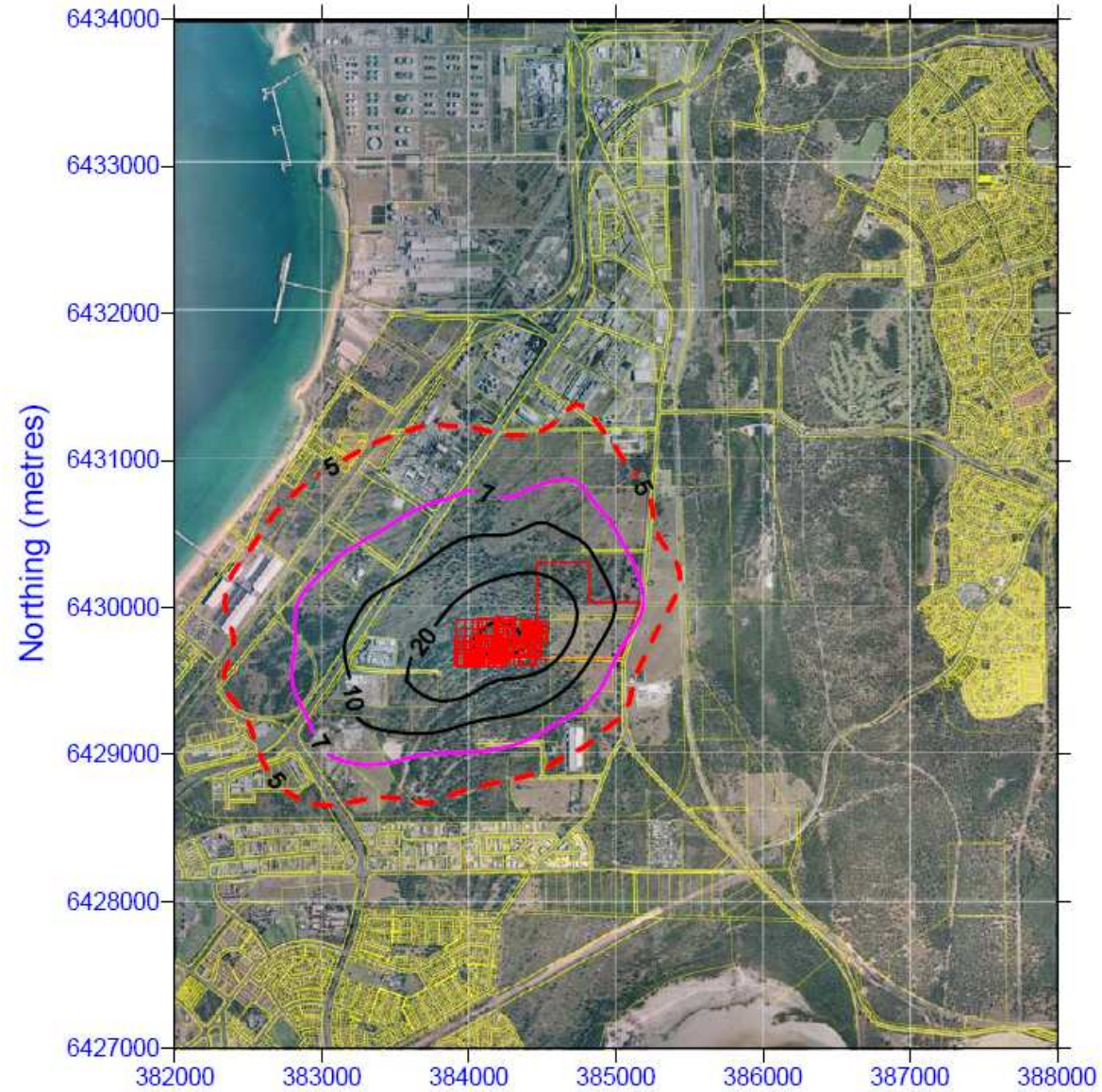
Staged Implementation

- Stage 1 – 40 ML/day – 2015
 - Stage 2 – 80 ML/day – 2027
 - Stage 3 – 120 ML/day – 2040
 - Stage 4 – 160 ML/day – 2070
-
- At its ultimate capacity, ER WWTP will provide a wastewater service for 800,000 people, or the equivalent on flows from industrial and commercial premises.

Odour Management

- The proposed site is more than 1.5km away from the nearest residential housing at Hillman.
- This is sufficient distance to allow for a defined odour buffer.
- The plant will be built using the latest technology and will incorporate a high degree of odour containment and control.
- In normal operating circumstances, existing urban areas outside the plant's odour buffer will not be affected by odour.

Covered East Rockingham WWTP - 160 ML/d - 2006 to 2008 Winds



Conc. (Odour_Units); 99.9% avg.

**Predicted Odour Contours for 160 ML/d
Covered Plant – All Wind Data**

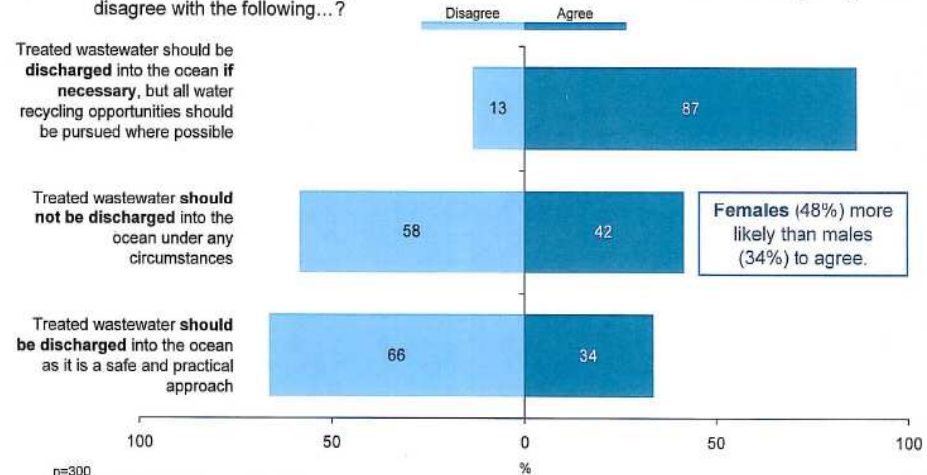


Re-use

- Requirement of VMS, to investigate
- Community perception very high for re-use
- External stakeholders requirement / preference
- On-going internal discussions, conclusion needs a whole of government approach
- Can only continue to plan for it, although needs a commercial decision (viable ?) or direction from owner (Govt = CSO ?)

Ocean Discharge

Q: In planning for a wastewater treatment plant, considerations include how to dispose of the treated water. Like much of Perth's treated wastewater, the East Rockingham wastewater treatment plant would discharge treated wastewater into the ocean via an outlet. Do you agree or disagree with the following...?



The responses to these three statements indicate that there is a good deal of sensitivity regarding ocean discharge of treated water. The majority agree that ocean discharge should occur if necessary, however, water recycling options should be pursued. 42% think there should be no discharge under any circumstances.

Ocean Disposal

- Water recycling is preferred, but ocean disposal of treated wastewater will always be necessary.
- Treated ww from the ER WWTP will be discharged to the ocean through the existing Sepia Depression Ocean Outlet Landline (SDOOL).
- Perth's Long-term Ocean Outlet Monitoring (PLOOM) shows that discharging treated ww to the ocean is environmentally sustainable and is not harming Perth's beaches or marine environment.

Sludge

For the planning comparison purposes solids collected in the treatment process are digested, thickened, dewatered and stabilised

For odour modelling, the following assumptions:

- Stages 1&2 @ 40-80 ML/d – stabilised in aerobic digester, thickened in dissolved air flotation tank, dewatered and trucked from the site**
- Stages 3&4 @ 80-160 ML/d – addition of primary treatment and anaerobic digestion, with gas recovery for energy generation**

Sludge disposal / reuse as part of greater Perth study currently being undertaken

Land Use planning

- Involves whole of government approach, and may include Cabinet submission
- With WWTP within IP14, and loss of land for conservation estate, new local structure plan required
- Discussions with LandCorp and its town planners on land planning in the IP14 area

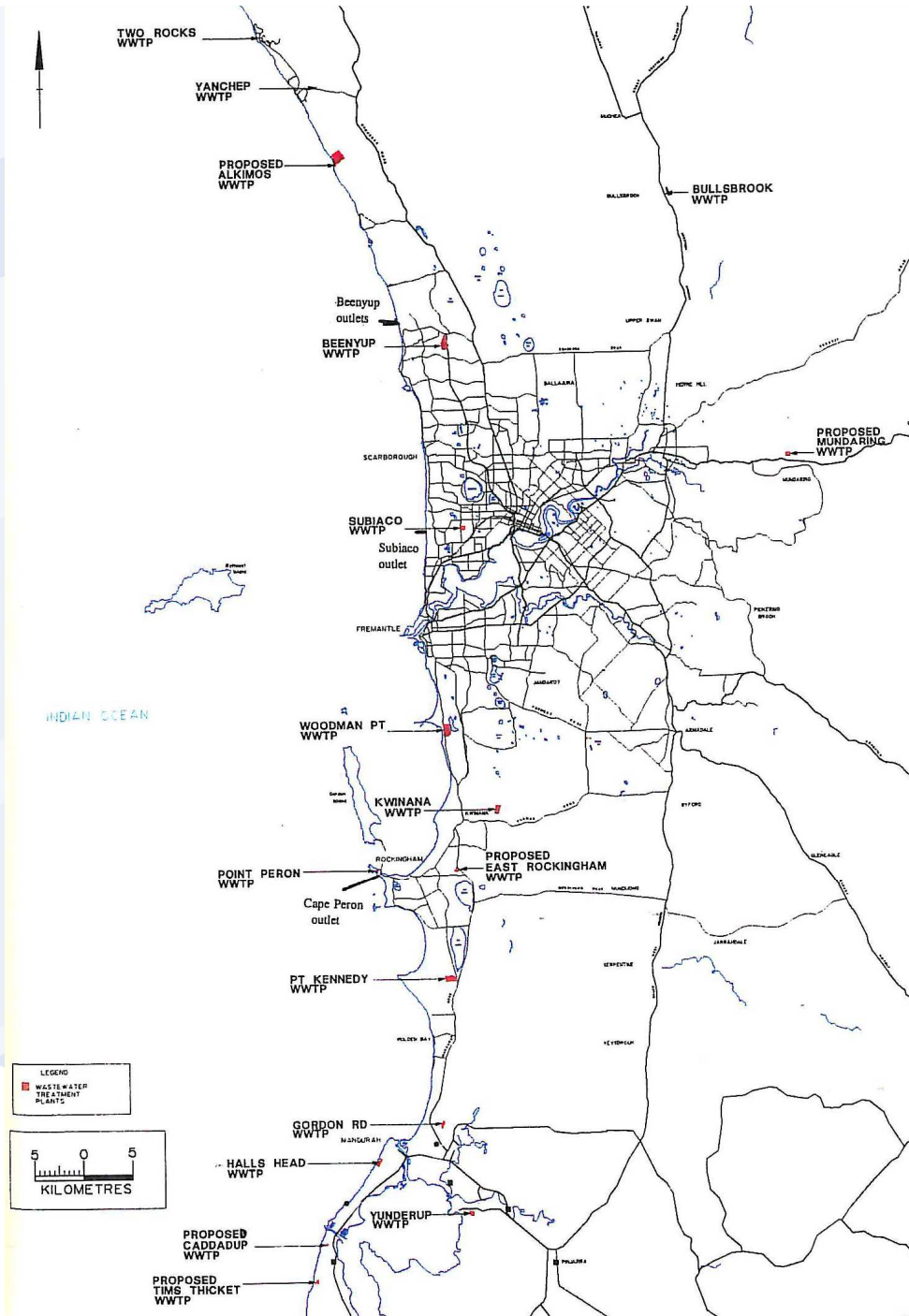
Current status of project

- **Approvals**
 - Environment (Federal) – May 2009
 - then State
- **Site**
 - acquisition agreement, valuations
- **Preliminary design**
 - being finalised
- **Project Completion on target for 2015**

Other Major Perth WWTPs

Steve Mackenzie





Other Major WWTPs

- **Subiaco WWTP**

60 ML/day

Nearest residential property about 600 metres

Built in 1927

First upgraded in 1961/ Last upgrade 2004

- **Beenyup WWTP**

120 ML/day

Nearest residential property about 100 metres

Built in 1972/Last upgrade 2005

- **Woodman Point WWTP**

160 ML/day

Nearest residential property about 500 metres

Built in 1966/Last upgrade 2002

Odour Complaints

Odour Complaints		
	Last 12 months (To April 2009)	Previous 12 months (to April 2008)
Subiaco WWTP	0	0
Beenyup WWTP	49	75
Woodman Point WWTP	20	36

Planned WWTP Upgrades

- Woodman Point WWTP
- Beenyup WWTP
- Subiaco

WWTPs – Wastewater Recycling

- Woodman Point WWTP
Kwinana Water Reclamation Plant (KWRP)
- Beenyup WWTP
Groundwater Replenishment Trails
- Subiaco WWTP
McGillivray Oval Irrigation Project
Aquifer recharge of Perry Lakes

**By 2030 it is estimated that water recycling
in Perth will exceed 30%**

Questions?

