

# Rouse Hill Water Recycling Plant technical data sheet

## Primary treatment

Equipment	Design criteria	Details
Automated screens	Number	2
	Type	Step screens
	Aperture	3 mm
	Capacity	1,900 L/s
	Average capture	48 kg/d
Grit chamber	Number	1
	Type	Vortex grit chamber
	Dimensions (∅)	5.5 m
	Capacity	1,400 L/s

## Secondary treatment

Equipment	Design criteria	Details
IDAL (Intermittently Decanted Aerated Lagoons)	Number	4
	Type	Johannesburg
	Dimensions (w x l x d)	24 m x 49 m x 4 m
	Volume	4,707 m <sup>3</sup>
	Detention time	33 h
	Number of anoxic zones	3
Equalisation basin	Number	1
	Dimensions (w x l x d)	48 m x 26 m x 5 m
	Volume	6.4 ML

## Tertiary treatment

Equipment	Design criteria	Details
Dual media filters	Number	12
	Type	Deep bed dual media filter
	Media	Anthracite, sand and gravel
	Maximum flow rate	60 L/s/filter
	Surface area	19.2 m <sup>2</sup>
	Backwash frequency	48 h
	Backwash water	Returned to head of works
	Backwash triggered by	Filter run time or head loss
Chlorination	Contact Tank no.	2
	Retention Time	0.5 h
	Volume	0.36 ML
	Hydraulic Capacity	167 L/s
UV disinfection	Number of banks	3
	Number of lamps	8
	Capacity	100 L/s
	UV dose rate	40 mJ/cm <sup>2</sup>

## Solids handling

Equipment	Design criteria	Details
Rotary drum thickeners	Number	3
	Capacity	20 L/s
	Number	3

Digesters	Type	Aerobic. Rectangular digesters with two zones in each digester.
	Volume zone 1	1,185 m <sup>3</sup> each
	Volume zone 2	1,346 m <sup>3</sup> each
	Capacity	120 L/s
Dewatering centrifuge	Number	2
	Type	High G-force centrifuges
	Feed rate	3-5 L/s
	Number	3, 2 duty, 1 standby

## Chemical additions

Purpose	Design criteria	Details
Phosphorus removal	Chemical added	Ferrous chloride
	Storage Capacity	50 kL
	Dosage rate	4 mg/L
Phosphorus removal	Chemical added	Anionic polymer
	Storage Capacity	5 kL
	Dosage rate	0.2 mg/L
Coagulant	Chemical used	Aluminium sulphate
	Storage Capacity	80 kL
	Dosage rate	1 mg/L
Sludge thickening	Chemical used	Polymer
	Storage Capacity	9 kL
	Dosage rate	3.2 kg/dry tonne
Sludge dewatering	Chemical used	Polymer
	Storage Capacity	5 kL
	Dosage rate	12 kg/dry tonne
Recycled water disinfection	Chemical used	Sodium hypochlorite
	Storage Capacity	30 kL
	Dosage rate	8.5 mg/L
pH balance	Chemical used	Sodium hydroxide (only if required)
	Storage Capacity	40 kL
	Dosage rate	2.3 mg/L
Disinfection	Chemical used	Sodium hypochlorite
	Storage Capacity	20 kL
	Dosage rate	3 mg/L
Chlorine removal	Chemical used	Sodium bisulphite
	Storage Capacity	15 kL
	Dosage rate	3.5 mg/L

## Odour Control

Equipment	Design criteria	Details
Chemical scrubber	Number	1
	Type	Wet chemical scrubber
	Outlet H <sub>2</sub> S concentration	0.03 ppm
	Total design air flow	6.5 kL/s
Carbon scrubber	Number	4
	Type	Caustic impregnated activated carbon
	Total design air flow	6.5 kL/s