

Cronulla Wastewater Treatment Plant technical data

Primary treatment

Equipment	Design criteria	Details
Automated screens	Number	6
	Type	Step screen
	Aperture	6 mm
	Capacity	1190 L/s
	Target Average capture	200 kg.d
Grit tanks	Number	4
	Type	Longitudinal aerated grit chamber
	Dimensions (l x w x d)	15 m x 3 m x 3.65 m
	Capacity	500 L/s/unit
	Detention time	2 min
	Average capture	400 kg/d
Sedimentation tanks	Number	4
	Type	Conventional rectangular
	Dimensions (l x w x d)	64 m x 4.5 m x 2.75 m, each tank
	Volume (V)	790 m ³ /tank
	Detention time	1.5-2.5 h
	Hydraulic loading rate	24.5 m ³ /m ² .d
	Scraper type	Chain and launder

Secondary treatment

Equipment	Design criteria	Details
Bioreactor	Number	5
	Type	Modified Ludzack Ettinger (MLE)
	Dimensions (l x w x d)	45 x 12 x 6 m
	Hydraulic capacity	178 ML/d
	Capacity	5940 L/s
	Zones	anoxic, aerobic, anoxic, aerobic, anoxic, aerobic
	Zone 1 DO target	1.2 mg/L
	Zone 2 & 3 DO target	0.5 mg/L
	Sludge age	6.1 days
	Solid Loading Rate (Peak)	7.7 kg/m ² /d
	Secondary clarifiers	Number
Type		Circular
Dimensions (∅ x depth)		36 m x 5m
Peak Capacity		44.2 ML/d/unit

Tertiary treatment

Equipment	Design criteria	Details
Dual media filters	Number	8
	Type	Deep bed dual media filter
	Media	1000 mm anthracite, 300 mm sand and 225 mm gravel/garnet
	Maximum flow rate	175 L/s each
	Dimensions (l x w x d)	10 x 2 x 4 m
	Backwash frequency	12 – 24 h
	Backwash water	Returned to primary sedimentation
	Backwash triggered by	Filter run time, time of day or head loss
UV disinfection	Number	4 channels, 2 banks of 8 UV modules
	Number of lamps	1152
	Capacity	1000 L/s per channel
	UV dose rate	35 mJ/cm ²
	Faecal count reduction	80000 counts per 100 ml reduced to <10 counts per 100 ml

Solids handling

Equipment	Design criteria	Details
Dissolved air flotation	Number	2
	Surface area	35.3 m ²
	Capacity	2600 m ³ /h
Anaerobic digesters	Number	2
	Type	Floating Roof
	Capacity	4.25 ML each
	Biogas production rate	0.9-1.35 kg/kgVS
	Detention time	24 days
	pH target	7.4
Centrifuge	Number	3
	Type	High G
	Input	951 kg/h
	Biosolids produced	6.5 DT/d
	Solids Recovery	97%

Energy recovery

Equipment	Design criteria	Details
Cogeneration	Number	1
	Type	GE Jenbacher® JMC 316 GS-B/N.L spark ignited gas engine
	Output	835 kW (60% of plant energy needs)

Chemical additions

Purpose	Design criteria	Details
Polymer - Thickening	Chemical added	Cationic Polymer
	Storage Capacity	2000 L
	Usage (dry)	93 kg/d
Polymer – Dewatering	Chemical added	Cationic Polymer
	Storage Capacity	2000 L
	Usage (emulsion)	65.9 L/d
Disinfection – wet weather	Chemical added	Sodium Hypochlorite
	Storage Capacity	25 kL
	Usage	350 L/h

Odour Control

Equipment	Design criteria	Details
Biofilter	Number	2
	Type	Bio trickling filters
	Target H ² S concentration	<0.1 ppm
	Hourly rate	45000 m ³ /h