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Sarah-Joe Lobwein
Sustainable Operations
of the Environment
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M. Brown

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Resolving to publish Yes/No
Technical data

Sydney
WATER

Primary treatment

Equipment	Design criteria	Details
Automated screens	Number	6
	Type	Step screen
	Aperture	6 mm
	Capacity	1150 L/s
Grit tanks	Target Average capture	200 kg/d
	Number	4
	Type	Longitudinal aerated grit chamber
	Dimensions (l x w x d)	15 m x 3 m x 3.65 m
Sedimentation tanks	Capacity	500 L/s/unit
	Detention time	2 min
	Average capture	400 kg/d
	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
	Scrapper type	Chain and launder

Secondary treatment

Equipment	Design criteria	Details
Bioreactor	Number	5
	Type	Modified Ludzack Eltinger (MLE)
	Dimensions (l x w x d)	45 x 12 x 6 m
	Hydraulic capacity	175 ML/d
	Capacity	5540 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
	Number	4
Secondary clarifiers	Type	Circular
	Dimensions (d 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
UV disinfection	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
	Number of lamps	4 channels, 2 banks of 8 UV modules
	Capacity	1152
	UV dose rate	1000 L/s per channel
	Faecal count reduction	35 mJ/cm ²
	UV dose rate	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
	Number	2
Anaerobic digesters	Type	Floating Roof
	Capacity	4.25 ML each
	Biogas production rate	0.9-1.35 kg/KgVS
	Detention time	24 days
Centrifuge	pH target	7.4
	Number	3
	Type	High G
	Input	951 kg/h
Energy recovery	Biocids produced	6.5 DT/d
	Solids Recovery	97%

Energy recovery

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

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Chemical additions

Purpose	Design criteria	Details
Polymer - Thickening	Chemical added	Cationic Polymer
	Storage Capacity	2000 L
Polymer - Dewatering	Usage (dry)	92 kg/d
	Chemical added	Cationic Polymer
Disinfection - wet weather	Storage Capacity	2000 L
	Usage (emulsion)	65.9 L/d
	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 HPS concentration	<0.1 ppm
	Hourly rate	45000 m ³ /h