

Dovecote Park Skellingthorpe WWTW

Treated Effluent Quality

Daily Volume	200 m ³ /d
COD	100 mg/l
BOD	22 mg/l
TSS	30 mg/l
pH	6-9

Crude Effluent

Daily Volume	200 m ³ /d
COD	10,000 mg/l
BOD	6,000 mg/l
TSS	4,000 mg/l
FOG	1,500 mg/l
pH	7.5

Balance Tank

1 days storage	200 m ³ /d
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Provide 1 No Circular Tank 10m Dia x 3.0H, 2.6m to TWL

Emergency Buffer Tank

1 days storage

200 m³/d

Provide 1 No Circular Tank 10m Dia x 3.0H, 2.6m to TWL

DAF (Dissolved Air Flotation)

Balanced Continuous Flow

COD	70% removal
COD	
BOD	70% removal
BOD	
TSS	90% removal
TSS	
pH	With Chemical addition

2.31	l/sec
3,000	mg/l
600	kg/d
1,800	mg/l
360	kg/d
400	mg/l
80	kg/d
7.5	

MBBR

Loading Rates

COD loading rate	5.0	gms/m ² .d
Media SA reqd	120,000	m ² /d
Media SSA	530	m ² /m ³
Media Vol	226	m ³ media
Media Fill	50.0	%
Tank Volume	453	m ³

Provide 1 No MBBR unit. (14m Dia x 3.5mH, 3.0m to TWL = 462m³ capacity)

Diffusers

Tank SA	154.0	m ²
Plan Area Density	10.0	%
Diffuser SA	15.4	m ²
No Diffusers	218	No

Aeration

Rate	15.0	m ³ /m ² .hr
Vol	2,309	m ³ /hr
Motor	40	kW
Flow per diffuser	11	m ³ /hr

Blowers

Duty / Standby GM40 @ 500mBar

Final Settlement

Balanced Flow

Peak Flow	8.3	m ³ /hr
Upward Flow Vel	0.6	m
SA	13.9	m ²

Provide Lamella Settling Tank (3.5mL x 1.8mW x 3.0mH) & autodesludging using a positive displacement pump

Sludge Handling

Primary Sludge

Biological Sludge

70% BOD

	720	kg/d
	252	kg/d
Total	972	kg/d
At 3% DS	32	m ³ /d

Provide Sludge Storage Tank 4.0m dia x 4.0m H

Secondary Containment in accordance with CIRIA C736

Concrete Bund Wall

Balance Tank	200 m ³
Emergency Buffer Tank	200 m ³
DAF	45 m ³
MBBR	462 m ³
Sludge Tank	32 m ³
Lamella Final Tank	17 m ³
Total	956 m³

Required Bund Capacity

25% of combined volume	239 m ³
Or 110% of largest tank (MBBR)	508 m ³

Required Bund Capacity

Bund Plan Area	720 m ²
Less Footprint Area of tanks, etc	325 m ²
Available Bund Plan Area	395 m ²
Bund Height	1.3 m

Construct a 1.3m H concrete bund around whole of works

David Setford 30-05-24