

Appendix 3.9 Calculation of Odour Emission Rate of YLEPP (Deodorizers)

Phase 1

Deodorizers	X	Y	Location	Flow Rate (m ³ /s)	Velocity (m ² /s)	Height of the Deodorizer Exhaust Point (mAG)	Diameter of the Deodorizer Exhaust Point (m)	Serving Units	Odour Survey at YLSTW					STSTW EIA [1]					Odour Emission Rate (ou/s) at each DO before Treatment	Removal Efficiency	Odour Emission Rate (ou/s) at each DO after Treatment			
									Width (m)	Length (m)	Diameter (m)	No. of Unit	Odour Emission Area (m ²)	Equivalent Sampling Point in Odour Survey	Corresponding Odour Source in existing YLSTW	SOER from the Equivalent Sampling Points (ou/m ² .s)	Equivalent Sampling Point in Odour Survey	Corresponding Odour Source in existing STSTW				SOER from the Equivalent Sampling Points (ou/m ² .s)	Max. SOER from the Equivalent Sampling Points (ou/m ² .s)	Odour Emission Rate (ou/s) at each sampling point
DO1	820854.98	836375.55	Inlet Works	18.89	9.40	12	1.6	Inlet well	7.8	27.2	-	1	212.16	S2	Screening Skips at Inlet Works	6.98	F1	Inlet Channel	5.42	6.98	1480.88	14753.62	95%	737.68
								Coarse screen	2	8.5	-	3	51	S1	Screw Pump Pumping Station	4.42	F1	Inlet Channel	5.42	5.42	276.42			
								Wet well	9.5	27	-	1	256.5	S2	Screening Skips at Inlet Works	6.98	F1	Inlet Channel	5.42	6.98	1790.37			
								Fine screen	3	11.5	-	4	138	S1	Screw Pump Pumping Station	4.42	F1	Inlet Channel	5.42	5.42	560.97			
									3	40.5	-	1	121.5	S1	Screw Pump Pumping Station	4.42	F1	Inlet Channel	5.42	5.42	658.53			
								Grit trap	3	44.5	-	1	133.5	S2	Screening Skips at Inlet Works	6.98	F2	Screening Skip	3.83	6.98	931.83			
									-	-	3.05	3	21.92	S2	Screening Skips at Inlet Works	6.98	F2	Screening Skip	3.83	6.98	152.99			
								1.5	20.5	-	3	92.25	S2	Screening Skips at Inlet Works	6.98	F2	Screening Skip	3.83	6.98	643.91				
								Primary Treatment	8.7	55.5	-	5	2414.25	S3	Primary Sedimentation Tank Surface	0.196	F5	Primary Sedimentation Tank	2.9	2.9	7001.33			
								Screening Skip	4.5	10	-	4	180	S2	Screening Skips at Inlet Works	6.98	F1	Inlet Channel	5.42	6.98	1256.40			
DO2	820924.50	836544.05	Ancillary Building	42	18.50	12	1.7	Biological Treatment	15	56.5	-	6	5085	S4	Aeration Tank Surface	0.41	F7	Aeration Tank (Anoxic Zone)	0.07	0.41	2084.85	3862.49	90%	386.25
								DAF tank	11	28	-	8	2464	S5	Final Sedimentation Tank	0.0337	F9	Final Sedimentation Tank	0.03	0.0337	83.04			
								Disc filter	3.5	14.6	-	8	408.8	S5	Final Sedimentation Tank	0.0337	F9	Final Sedimentation Tank	0.03	0.0337	13.78			
								UV disinfection	4	14.5	-	1	58	S5	Final Sedimentation Tank	0.0337	F9	Final Sedimentation Tank	0.03	0.0337	1.95			
								Effluent PS wet well	3.3	11	-	3	108.9	S5	Final Sedimentation Tank	0.0337	F9	Final Sedimentation Tank	0.03	0.0337	3.67			
								16	15	-	1	240	S2	Screening Skips at Inlet Works	6.98	F1	Inlet Channel	5.42	6.98	1675.20				
								Sludge mixing tank	9	25	-	1	225	S6	Consolidation Tank	0.0493	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	5944.50			
								Thickening sludge holding tank	9.5	26.5	-	1	251.75	S7	S.A.S Thickener House	1.19	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	6651.24			
									12	13.5	-	1	162	S7	S.A.S Thickener House	1.19	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	4280.04			
								Centrifuge	2.5	8	-	4	80	S6	Consolidation Tank	0.0493	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	2113.60			
DO4	820790.92	836455.98	Sludge Dewatering Building	7	8.91	12	1	Digested sludge holding tank	12	21.5	-	2	516	S8	Sludge Holding Tank	0.137	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	13632.72	15382.08	95%	769.10
								Dewatered sludge skip	4.5	8	-	4	144	S9	Dewatered Sludge Skip at Sludge Dewatering House	0.0721	F12	Dewatered Sludge Skip	1.14	1.14	164.16			
								Centrifuge	2.5	8	-	3	60	S6	Consolidation Tank	0.0493	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	1585.20			
DO5	820728.96	836385.15	Organic Waste Reception Facility [2]	5.07	7.97	12	0.9	Bunker	6	20	-	1	120	N/A	N/A	N/A	N/A	N/A	3.68	441.60	2119.68	95%	105.98	
								Dilution Tank	10	15	-	1	150	N/A	N/A	N/A	N/A	N/A	N/A	3.68				552.00
								Organic Waste Buffer Tank	10	30.6	-	1	306	N/A	N/A	N/A	N/A	N/A	N/A	3.68				1126.08



Phase 2

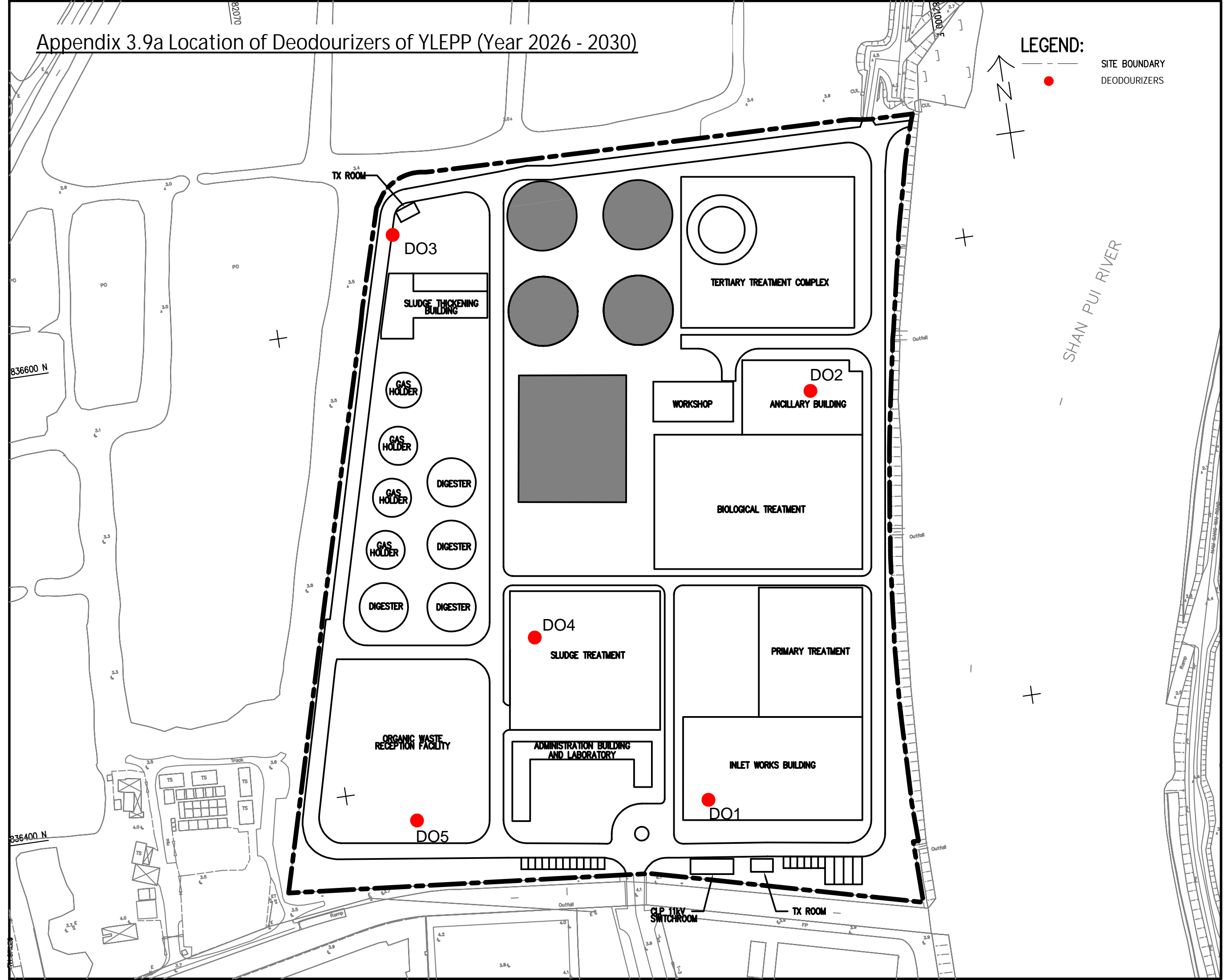
Deodorizers	X	Y	Location	Flow Rate (m ³ /s)	Velocity (m ² /s)	Height of the Deodorizer Exhaust Point (mAG)	Diameter of the Deodorizer Exhaust Point (m)	Serving Units	Odour Survey at YLSTW					STSTW EIA [1]					Odour Emission Rate (ou/s) at each DO before Treatment	Removal Efficiency	Odour Emission Rate (ou/s) at each DO after Treatment			
									Width (m)	Length (m)	Diameter (m)	No. of Unit	Odour Emission Area (m ²)	Equivalent Sampling Point in Odour Survey	Corresponding Odour Source in existing YLSTW	SOER from the Equivalent Sampling Points (ou/m ² .s)	Equivalent Sampling Point in Odour Survey	Corresponding Odour Source in existing STSTW				SOER from the Equivalent Sampling Points (ou/m ² .s)	Max. SOER from the Equivalent Sampling Points (ou/m ² .s)	Odour Emission Rate (ou/s) at each sampling point
DO1	820854.98	836375.55	Inlet Works	18.89	9.40	12	1.6	Inlet well	7.8	27.2	-	1	212.16	S2	Screening Skips at Inlet Works	6.98	F1	Inlet Channel	5.42	6.98	1480.88	19407.03	95%	970.35
								Coarse screen	2	8.5	-	3	51	S1	Screw Pump Pumping Station	4.42	F1	Inlet Channel	5.42	5.42	276.42			
								Wet well	9.5	27	-	1	256.5	S2	Screening Skips at Inlet Works	6.98	F1	Inlet Channel	5.42	6.98	1790.37			
								Fine screen	3	11.5	-	4	138	S1	Screw Pump Pumping Station	4.42	F1	Inlet Channel	5.42	5.42	747.96			
									3	40.5	-	1	121.5	S1	Screw Pump Pumping Station	4.42	F1	Inlet Channel	5.42	5.42	658.53			
								Grit trap	3	44.5	-	1	133.5	S2	Screening Skips at Inlet Works	6.98	F2	Screening Skip	3.83	6.98	931.83			
									-	-	3.05	4	29.22	S2	Screening Skips at Inlet Works	6.98	F2	Screening Skip	3.83	6.98	203.99			
								1.5	20.5	-	4	123	S2	Screening Skips at Inlet Works	6.98	F2	Screening Skip	3.83	6.98	858.54				
								Primary Treatment	8.7	55.5	-	8	3862.8	S3	Primary Sedimentation Tank Surface	0.196	F5	Primary Sedimentation Tank	2.9	2.9	11202.12			
								Screening Skip	4.5	10	-	4	180	S2	Screening Skips at Inlet Works	6.98	F1	Inlet Channel	5.42	6.98	1256.40			
DO2	820924.50	836544.05	Ancillary Building	42	18.50	12	1.7	Biological Treatment	15	56.5	-	6	5085	S4	Aeration Tank Surface	0.41	F7	Aeration Tank (Anoxic Zone)	0.07	0.41	2084.85	3863.71	90%	386.37
								DAF tank	11	28	-	8	2464	S5	Final Sedimentation Tank	0.0337	F9	Final Sedimentation Tank	0.03	0.0337	83.04			
								Disc filter	3.5	14.6	-	8	408.8	S5	Final Sedimentation Tank	0.0337	F9	Final Sedimentation Tank	0.03	0.0337	13.78			
								UV disinfection	4	14.5	-	1	58	S5	Final Sedimentation Tank	0.0337	F9	Final Sedimentation Tank	0.03	0.0337	1.95			
								Effluent PS wet well	3.3	11	-	3	108.9	S5	Final Sedimentation Tank	0.0337	F9	Final Sedimentation Tank	0.03	0.0337	4.89			
								16	15	-	1	240	S2	Screening Skips at Inlet Works	6.98	F1	Inlet Channel	5.42	6.98	1675.20				
								Sludge mixing tank	9	25	-	1	225	S6	Consolidation Tank	0.0493	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	5944.50			
								Thickening sludge holding tank	9.5	26.5	-	1	251.75	S7	S.A.S Thickener House	1.19	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	6651.24			
									12	13.5	-	1	162	S7	S.A.S Thickener House	1.19	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	4280.04			
								Centrifuge	2.5	8	-	6	120	S6	Consolidation Tank	0.0493	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	3170.40			
DO4	820790.92	836455.98	Sludge Dewatering Building	7	8.91	12	1	Digested sludge holding tank	12	21.5	-	2	516	S8	Sludge Holding Tank	0.137	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	13632.72	15910.48	95%	795.52
								Dewatered sludge skip	4.5	8	-	4	144	S9	Dewatered Sludge Skip at Sludge Dewatering House	0.0721	F12	Dewatered Sludge Skip	1.14	1.14	164.16			
								Centrifuge	2.5	8	-	4	80	S6	Consolidation Tank	0.0493	SCI	Sludge Treatment of Stonecutter Island STW	26.42	26.42	2113.60			
DO5	820728.96	836385.15	Organic Waste Reception Facility [2]	5.07	7.97	12	0.9	Bunker	6	20	-	1	120	N/A	N/A	N/A	N/A	N/A	3.68	441.60	2119.68	95%	105.98	
								Dilution Tank	10	15	-	1	150	N/A	N/A	N/A	N/A	N/A	N/A	3.68				552.00
								Organic Waste Buffer Tank	10	30.6	-	1	306	N/A	N/A	N/A	N/A	N/A	N/A	3.68				1126.08
DO6	820834.40	836551.13	Ancillary Building (Phase 2)	24.4	9.99	12	1.8	Biological Treatment	15	56.5	-	4	3390	S4	Aeration Tank Surface	0.41	F7	Aeration Tank (Anoxic Zone)	0.07	0.41	1389.90	1459.67	90%	145.97
								DAF tank	11	28	-	6	1848	S5	Final Sedimentation Tank	0.0337	F9	Final Sedimentation Tank	0.03	0.0337	62.28			
								Disc filter	3.5	12.7	-	5	222.25	S5	Final Sedimentation Tank	0.0337	F9	Final Sedimentation Tank	0.03	0.0337	7.49			

Note:
 [1] The odour sampling locations and emission rates for the corresponding locations are made reference to Table 3.9 and Appendix 3.05 for the approved EIA Report for Sha Tin Cavern Sewage Treatment Works (STSTW) (AEIAR-202/2016).
 [2] The SOER of Food Waste Facilities Building is from the SOER adopted for North Lantau RTS Building Area in the approved Organic Waste Treatment Facilities Phase 1 (OWTF-P1) EIA Report (AEIAR-149/2010), and its subsequent Environmental Review Report for Variation of Environmental Permit (VEP-488/2015).

Appendix 3.9a Location of Deodourizers of YLEPP (Year 2026 - 2030)



LEGEND:

-  SITE BOUNDARY
-  DEODOURIZERS



Appendix 3.9b Location of Deodourizers of YLEPP (Ultimate)

LEGEND:

-  SITE BOUNDARY
-  DEODOURIZERS

