

APPENDIX 5.3

Meteorological Data

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Monthly Rainfall (mm) Recorded at HKO Rain Gauge at Tap Shek Kok (R21)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Avg
	TSK	TSK	TSK	TSK	TSK	TSK	TSK	TSK	TSK	TSK	TSK	TSK	TSK	TSK	TSK	
Jan	28.5	0.0	18.5	1.0	30.0	33.0	10.0	99.0	38.5	20.0	14.0	55.0	5.5	20.5	25.5	26.6
Feb	0.0	43.0	19.5	23.5	115.0	146.5	1.0	29.0	13.5	5.5	6.0	53.5	14.0	52.0	15.5	35.8
Mar	32.0	33.0	25.0	73.5	30.0	25.5	21.5	43.5	65.0	91.5	47.0	67.5	38.5	61.0	12.0	44.4
Apr	141.0	39.0	93.0	145.0	74.0	177.0	66.0	818.5	94.0	7.5	36.0	55.0	42.0	95.0	103.5	132.4
May	220.0	96.5	27.5	329.0	206.0	300.5	165.5	161.5	145.5	276.5	249.0	197.0	230.0	397.5	279.5	218.8
Jun	336.0	279.0	217.0	227.0	345.5	677.5	183.0	219.0	751.5	165.5	521.0	117.5	513.5	409.5	415.5	358.5
Jul	198.5	615.5	444.0	222.0	573.0	254.5	94.0	293.5	471.0	187.5	78.0	251.0	158.0	226.5	67.5	275.6
Aug	229.0	551.5	570.5	134.0	522.0	209.5	686.5	261.0	245.5	445.5	399.5	363.0	460.0	285.0	333.0	379.7
Sep	527.5	154.5	98.0	317.5	230.5	101.0	244.5	42.0	288.5	414.0	269.0	132.5	151.5	209.5	56.0	215.8
Oct	50.0	2.0	293.0	6.0	22.0	47.5	33.0	100.0	12.5	65.5	18.0	1.5	0.5	16.5	23.0	46.1
Nov	495.5	0.0	3.5	1.5	3.0	40.5	14.0	63.0	2.5	24.5	21.0	0.0	13.5	65.5	12.0	50.7
Dec	8.0	169.0	5.0	0.0	11.5	32.0	41.0	66.5	21.0	54.5	2.0	0.0	2.0	23.0	0.0	29.0
Total	2266.0	1983.0	1814.5	1480.0	2162.5	2045.0	1560.0	2196.5	2149.0	1758.0	1660.5	1293.5	1629.0	1861.5	1343.0	1813.5

Monthly Rainfall (mm) Recorded at HKO Rain Gauge at Lau Fau Shan

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Avg
	LFS	LFS	LFS	LFS	LFS	LFS	LFS	LFS	LFS	LFS	LFS	LFS	LFS	LFS	LFS	
Jan	27.5	0.0	18.5	0.0	23.5	22.0	9.5	102.5	31.5	13.0	11.5	46.5	4.5	25.5	26.0	24.1
Feb	0.0	40.0	25.0	23.0	121.5	95.0	0.0	29.5	16.5	9.5	5.0	58.0	18.0	59.0	18.0	34.5
Mar	30.0	32.5	34.0	13.0	29.5	27.0	24.0	38.5	26.5	51.5	37.5	99.5	47.0	64.5	15.0	38.0
Apr	137.5	20.5	76.5	n/a	63.0	127.0	54.0	704.5	100.5	6.0	17.5	82.5	41.0	63.5	126.0	115.7
May	276.5	131.0	33.0	89.0	165.5	273.0	120.0	89.5	99.5	230.5	249.5	165.0	266.5	286.5	245.5	181.4
Jun	269.5	278.0	138.0	172.5	310.5	376.5	158.0	195.5	605.0	135.5	351.0	82.0	461.5	413.0	419.5	291.1
Jul	107.0	774.5	307.5	215.0	555.5	158.5	94.0	254.5	458.0	197.5	79.0	210.0	212.0	220.0	34.0	258.5
Aug	171.0	442.0	318.5	131.5	514.0	177.5	474.5	291.0	215.5	295.0	271.5	236.0	468.5	310.0	390.5	313.8
Sep	380.5	144.5	2.0	317.5	131.5	57.0	260.0	42.5	273.5	298.0	251.0	114.0	180.5	208.0	56.0	181.1
Oct	60.0	3.0	13.5	0.5	93.5	75.5	19.5	177.0	3.5	97.0	25.0	3.5	1.0	1.0	31.0	40.3
Nov	293.0	0.0	4.0	1.5	6.0	38.5	23.5	62.0	1.0	20.0	10.0	1.0	32.0	76.5	20.0	39.3
Dec	7.0	162.5	5.0	0.0	11.5	26.5	37.5	60.5	50.0	67.5	0.0	0.0	2.0	25.0	0.0	30.3
Total	1759.5	2028.5	975.5	963.5	2025.5	1454.0	1274.5	2047.5	1881.0	1421.0	1308.5	1098.0	1734.5	1752.5	1381.5	1540.4

Rainfall data from the past 14 years had been reviewed.

It is noted that the average rainfall in Tap Shek Kok is slightly higher than that of Lau Fau Sha.

Thus, the average rainfall in Tap Shek Kok will be adopted for the leachate estimation for the WENT Landfill Extensions.

To plan for the worst, the evaporation rate in Tuen Mun has not been taken into account in the estimation of leachate flow.

Monthly Values of Evaporation from King Park HKO

Extracted from HKO - SUMMARY OF METEOROLOGICAL OBSERVATIONS IN HONG KONG 1999 to 2005

	Mean Daily Evaporation								Mean Monthly Evaporation							
	1999	2000	2001	2002	2003	2004	2005	2006	1999	2000	2001	2002	2003	2004	2005	2006
Jan	2.4	2.3	1.9	2	2.3	2.3	2.1	2.1	74.4	71.3	58.9	62	71.3	71.3	65.1	65.1
Feb	3.4	1.9	2.4	2.6	2.2	2.2	1.3	2.6	95.2	53.2	67.2	72.8	61.6	61.6	36.4	72.8
Mar	2.1	3	.3	2.8	2.4	2.2	2.2	2.1	65.1	93	93	86.8	74.4	68.2	68.2	65.1
Apr	3.8	2.7	2.4	3.4	3.2	3.3	2.6	2.9	114	81	72	102	96	99	78	87
May	3.1	4.1	3.9	4.1	3.8	4	3	3.3	96.1	127.1	120.9	127.1	117.8	124	93	102.3
Jun	4.6	4.8	3.8	4.4	3.5	5.1	3.1	3.3	138	144	114	132	105	153	93	99
Jul	4.2	5.1	4.2	4.3	5.4	4.3	5.3	4.3	130.2	158.1	130.2	133.3	167.4	133.3	164.3	133.3
Aug	4.4	4.4	4.7	4.2	4.1	4.2	4.3	4.3	136.4	136.4	145.7	130.2	127.1	130.2	133.3	133.3
Sep	4.1	4.9	4.4	3.8	3.9	4.5	4.3	4.1	123	147	132	114	117	135	129	123
Oct	4.2	3.9	4	3.2	3.9	4.7	4.4	3.7	130.2	120.9	124	99.2	120.9	145.7	136.4	114.7
Nov	3.5	2.7	3.4	3.1	3	3.3	3.1	2.6	105	81	102	93	90	99	93	78
Dec	2.8	2.3	2.6	2	3	3.2	3.2	2.7	86.8	71.3	80.6	62	93	99.2	99.2	83.7
Total	3.6	3.5	3.4	3.3	3.4	3.6	3.2	3.2	107.9	107.0	103.4	101.2	103.5	110.0	99.1	96.4

Rainfall data from the past 8 years had been reviewed. It is noted that 2006 had the min. evaporation and will be adopted for the leachate estimation for the WENT Landfill Extensions.

Thus, the Effective Rainfall for the Leachate Estimation :

	Average Rainfall (mm/month)	Evaporation in 2006 (mm/month)	Effective Rainfall (mm/month)
Jan	26.6	65.1	0.0
Feb	35.8	72.8	0.0
Mar	44.4	65.1	0.0
Apr	132.4	87	45.4
May	218.8	102.3	116.5
Jun	358.5	99	259.5
Jul	275.6	133.3	142.3
Aug	379.7	133.3	246.4
Sep	215.8	123	92.8
Oct	46.1	114.7	0.0
Nov	50.7	78	0.0
Dec	29.0	83.7	0.0
Total	1813.5	1157.3	902.9

The effective rainfall is only 50% of the total rainfall. To plan for the worst, the evaporation rate in Tuen Mun has not been taken into account in the estimation of leachate flow.