Total Loading of Stormwater During Operational Phase

Rainfall Intensity (washing out Pollutant)	1386 mm/yr [1]
Change of Runoff Coefficient C	0.6 [2]
BOD5 Concentration	22.5 mg/L [3]
TN Concentration	2.0 mg/L [3]
TP Concentration	0.2 mg/L [3]

Projects	Items	Area (km^2)	Average Daily Runoff (m^3/day)	Additional Loading (kg/day)			Remarks
				BOD5	TN	TP	
LMC Loop	Loop [4]	0.58	1.3E+03	19.7	1.7	0.2	[6]
	Western Connection Road (WCR)	0.03	5.7E+01	0.5	0.0	0.0	[7]
	Direct Link (DL)	0.01	2.5E+01	0.4	0.0	0.0	[8]
	Eastern Connection Road (ECR)	0.03	7.1E+01	0.8	0.1	0.0	[9]
	Subtotal	**0.64**	**1.5E+03**	**21.4**	**1.9**	**0.2**	
NENT NDA	Kwu Tong North (KTN) [5]	0.68	1.6E+03	25.4	2.3	0.2	[10]
	Fanling North (FLN) [5]	0.49	1.1E+03	19.9	1.8	0.2	[11]
	Subtotal	**1.17**	**2.7E+03**	**45.4**	**4.0**	**0.4**	
Total				**66.7**	**5.9**	**0.6**	

Remarks:

[1] According to "Stormwater Drainage Manual, annual rainfall in Hong Kong is around 2200mm. However, according to the report on "Update on Cumulative Water Quality and Hydrological Effect of Coastal Developments and Upgrading of Assessment Tool", only rainfall events of sufficient intensity and volume would give rise to runoff. It indicated that runoff percentage for the wet season is about 82% while dry season is only 44%. Therefore, only rainfall of 2200*(82%+44%)/2=1386mm can be generated into runoff and is adopted in this Study.

[2] According to "Stormwater Drainage Manual, runoff coefficient depends on the impermeability, slope and retention characteristics of the ground surface. In this study, 0.8 of runoff coefficient is used for developed area and 0.2 is adopted for undeveloped area. Therefore, the change of runoff coefficient due to the development is 0.6.

[3] EPD, Update on Cumulative Water Quality and Hydrological Effect of Coastal Developments and Upgrading of Assessment Tool- Pollution Loading Inventory Report

[4] LMC Loop: Only developed area are counted in. As a conservative assumption, all paved area accessible by public without restricting considered contributing. Loading from 10.8ha open space and 12.8ha Ecological Area (EA) of Loop are assumed to maintain the same. 10% of building roof with no major pollution runoff are assumed for conservative assessment.

[5] NENT NDA: The total developed area from unpaved area in NDAs can be refer to the Annex 1 which present the details of the paved area. As a conservative assumption, all paved area accessible by public without restricting considered contributing. 10% of building roof with no major pollution runoff are assumed for conservative assessment.

[6] 1/3 surface runoff will be diverted to EA first after silt trap before discharged into Shenzhen River. As such, an 20% of removal efficiency is adopted for silt trap and additional 50% of removal efficiency is adopted for EA (ref: Table 8.21 of EIA-071/2001). 2/3 surface runoff will be discharged directly after the silt traps and 20% of removal efficiency is adopted.

[7] All surface runoff will be discharged to Meander first before discharged into Shenzhen River. 50% of removal efficiency of Meander is adopted due to management practices such as regular cleaning.

[8] 1/2 surface runoff will be diverted to Meander first after treatment by prevailing road and public place management practice such as cleaning desilting (with or without enhancement) before discharged. 50% removal efficienc is adopted; 1/2 surface runoff will be discharged directly after the silt traps and 20% of removal efficiency is adopted.

[9] All surface runoff will be discharged to Meander/Ma Tso Lung River first before discharged into Shenzhen River. 50% of removal efficiency of Meander/Ma Tso Lung Rivers is adopted due to management practices such as regular cleaning.

[10] 1/4 surface runoff will be diverted to Ma Tso Lung after treatment by prevailing road and public place management practice such as cleaning desilting (with or without enhancement) before discharged. 50% removal efficienc is adopted; 3/4 will be discharged directly after the silt traps and 20% of removal efficiency is adopted.

[11] Silt traps will be implemented and 20% of removal efficiency of silt traps is assumed in this Study. Enhanced design or closer spacing between silt traps may increase the efficiency.

[12] It is assumed that loading contributions from land outside developed areas remain the same and loading from all developed areas are contributing to receiving water bodies.

Annex 1: Summary of NENT NDA Developed Areas

KTN NDA:

a. Developable to be paved (refer attachment) = 1,983,258 sq.m
b. Developable area with existing pavement (refer C&DMMP)= 1,228,796 sq.m
c. Net increase in paved area = (a) – (b) = 754,462 sq.m

FLN NDA:

a. Developable to be paved (refer attachment) = 1,218,861 sq.m
b. Developable area with existing pavement (refer C&DMMP)= 675,620 sq.m
c. Net increase in paved area = (a) – (b) = 543,241 sq.m

KTN NDA Development Parameters
Revised RODP

Site No.	Site Area (ha)	Site Area (sqm)	Land Use Type	Paved area and developed in NDA
A1-1	0.14	1437	A	N
A1-2	3.22	32227	PRH(Local Rehousing)	Y
A1-3	0.18	1774	O	Y
A1-4	1.24	12409	R1(With Commercial)	Y
A1-5	2.55	25457	CDA	Y
A1-6	2.83	28265	R1(With Commercial)	Y
A1-7	0.24	2410	O	Y
A1-8	2.15	21475	HOS	Y
A1-9	5.10	51003	R2	Y
A1-10	11.26	112624	O	Y
A1-11	0.27	2679	OU(RAF)	Y
A1-12	0.20	2000	OU(RAF)	Y
A2-1	0.24	2386	A	N
A2-2	6.86	68570	PRH	Y
A2-3	0.26	2595	O	Y
A2-4	1.80	18033	HOS	Y
A2-5	1.38	13762	R1(With Commercial)	Y
A2-6	0.22	2213	O	Y
A2-7	2.75	27478	PRH	Y
A2-8	0.13	1333	O	Y
A2-9	4.60	45965	R2	Y
A2-10	0.39	3930	A	N
A2-11	0.68	6833	E	Y
A2-12	0.68	6833	E	Y
A2-13	0.70	6979	E	Y
A2-14	0.53	5275	O	Y
A3-1	0.86	8620	E	Y
A3-2	0.73	7302	E	Y
A3-3	8.75	87512	PRH	Y
A3-4	0.84	8368	E	Y
A3-5	0.03	315	A	N
A3-6	3.50	34956	R2	Y
A3-7	0.39	3939	RR4	N
B1-1	2.38	23817	A	N
B1-2	0.51	5060	A	N
B1-3	2.20	22037	GB	N
B1-4	0.16	1621	A	N
B1-5	0.21	2145	OU(RAF)	Y
B1-6	0.85	8514	A	N
B1-7	2.29	22861	OU(DCS)	Y
B1-8	0.59	5927	A	N
B1-9	0.08	847	A	N
B2-1	0.59	5871	A	N
B2-2	4.00	39960	G	Y
B2-3	0.20	1999	A	N
B2-4	0.42	4189	IC	Y
B2-5	1.03	10301	E	Y
B2-6	1.42	14229	E	Y
B2-7	0.69	6868	E	Y
B2-8	1.38	13766	G	Y
B2-9	0.62	6200	O	Y
B2-10	2.58	25827	CDA	Y
B2-11	0.33	3346	A	N
B2-12	2.43	24294	OU(C,R&D)	Y
B2-13	0.72	7170	O	Y
B3-1	0.29	2856	O	Y
B3-2	3.83	38276	OU(C,R&D)	Y
B3-3	0.20	1979	O	Y
B3-4	0.35	3471	O	Y

Site No.	Site Area (ha)	Site Area (sqm)	Land Use Type	Paved area and developed in NDA
B3-5	2.54	25445	OU(C,R&D)	Y
B3-6	0.15	1453	A	N
B3-7	0.13	1319	A	N
B3-8	1.13	11318	OU(C,R&D)	Y
B3-9	0.43	4266	O	Y
B3-10	0.02	181	A	N
B3-11	0.44	4390	A	N
B3-12	4.19	41938	OU(C,R&D)	Y
B3-13	0.14	1387	A	N
B3-14	0.24	2445	A	N
B3-15	0.08	750	OU(PFS)	Y
B3-16	0.10	1028	OU(VC)	Y
C1-1	1.47	14676	O	Y
C1-2	0.33	3294	A	N
C1-3	1.61	16129	CDA	N
C1-4	2.50	24951	V	N
C1-5	2.94	29430	GB	N
C1-6	24.79	247891	AGR	N
C1-7	1.13	11305	O	Y
C1-8	0.09	934	O	Y
C1-9	37.17	371668	OU(NP)	N
C1-10	0.13	1303	A	N
C1-11	0.05	455	IC	Y
C2-1	3.46	34568	O	Y
C2-2	19.48	194808	AGR	N
C2-3	0.92	9249	IC	N
C2-4	0.96	9633	AGR	N
C2-5	0.17	1671	AGR	N
C2-6	0.08	788	O	Y
D1-1	0.31	3081	O	Y
D1-2	0.70	7025	OU(RAF)	Y
D1-3	0.16	1572	OU(SPS)	Y
D1-4	0.33	3285	O	Y
D1-5	1.11	11077	R4	Y
D1-6	0.56	5623	A	N
D1-7	6.33	63349	R2	Y
D1-8	8.57	85740	GB	N
D1-9	14.07	140675	V	N
D1-10	0.23	2272	A	N
D1-11	4.47	44670	R2	Y
D1-12	1.98	19763	G(REC)	Y
D1-13	2.77	27743	G(REC)	Y
D1-14	1.26	12597	G	Y
D1-15	0.33	3251	A	N
E1-1	2.43	24322	O	Y
E1-2	0.69	6872	E	Y
E1-3	2.27	22727	G	Y
E1-4	0.94	9372	E	Y
E1-5	2.46	24625	G(REC)	Y
E1-6	0.56	5623	G	Y
E1-7	7.53	75322	O	Y
E1-8	13.96	139625	GB	N
E1-9	0.08	784	OU(RCP)	Y
F1-1	3.00	30001	G(REC)	Y
F1-2	0.16	1645	OU(SPS)	Y
F1-3	8.16	81620	OU(R&D)	Y
F1-4	0.26	2645	G	N
F1-5	0.10	963	GB	N
F1-6	0.76	7625	GB	N
F1-7	0.49	4889	O	Y
F1-8	0.11	1063	AGR	N
G1-1	4.66	46641	OU(FR)	N
G1-2	0.52	5154	OU(FR)	N
G1-3	39.01	390094	GB	N
G1-4	0.87	8725	G	Y
G1-5	2.45	24511	G	Y
G1-6	0.97	9690	G	N
G1-7	0.80	7974	G	N
G1-8	5.41	54085	G	N
G1-9	0.04	368	A	N

Site No.	Site Area (ha)	Site Area (sqm)	Land Use Type	Paved area and developed in NDA
H1-1	51.60	515976	GB	N
road	44.6789	446789	road	y
river	8.8441	88441	river	N
bridge crossing river	0.4457	4457	bridge crossing river	y

FLN NDA Development Parameters
Revised RODP

Site No.	Site Area (ha)	Site Area (sqm)	Land Use Type	Paved area and developed in NDA
A1-1	0.53	5293	G	N
A1-2	0.38	3786	G	Y
A1-3	8.88	88814	AGR	N
A1-4	0.30	3042	O	Y
A1-5	0.36	3598	A	N
A1-6	0.09	947	OU(SPS)	Y
A1-7	0.97	9697	CA	N
A1-8	5.18	51835	G	Y
A1-9	3.27	32705	AGR	N
A1-10	0.19	1924	A	N
A1-11	3.37	33746	G	Y
A2-1	1.07	10664	A	N
A2-2	0.17	1713	A	N
A2-3	3.68	36772	OU(STW)	Y
A2-4	0.58	5799	A	N
A3-1	1.74	17397	G	Y
B1-1	0.27	2666	O	Y
B1-2	1.12	11162	O	Y
B1-4	0.10	950	OU(SPS)	Y
B1-5	0.51	5144	O	Y
B1-6	0.32	3242	A	N
B1-7	1.86	18553	R2	Y
B1-8	0.26	2589	R4	Y
B1-9	1.26	12613	R3	Y
B1-10	0.35	3522	O	Y
B2-1	1.36	13614	O	Y
B2-2	2.21	22137	OU(POFEFTS)	Y
B2-3	0.05	487	OU(SPS)	Y
B2-4	0.36	3584	G	Y
B2-5	0.22	2156	IC	Y
B2-6	2.26	22561	PRH	Y
B2-7	1.56	15619	PRH	Y
B2-8	1.59	15926	O	Y
B2-9	0.82	8246	O	Y
B2-10	0.23	2258	O	Y
B2-11	2.24	22350	PRH	Y
B2-12	1.48	14771	PRH	Y
B3-1	0.78	7832	O	Y
B3-2	1.01	10112	PRH	Y
B3-3	1.18	11828	PRH	Y
B3-4	0.73	7260	E	Y
B3-5	0.75	7454	E	Y
B3-6	1.04	10359	R2(With Commercial)	Y
B3-7	1.05	10453	R2	Y
B3-8	0.50	5050	O	Y
B3-9	1.06	10567	R2	Y
B3-10	0.79	7871	E	Y
B3-11	0.33	3306	O	Y
B3-12	0.92	9216	E	Y
C1-1	0.03	342	A	N
C1-2	0.12	1219	A	N
C1-3	0.75	7486	O	Y
C2-1	0.10	1045	O	Y
C2-2	0.12	1155	O	Y
C2-3	0.11	1115	OU(SPS)	Y
C2-4	0.61	6140	O	Y
C2-5	0.35	3508	G	Y
C2-6	0.88	8823	G	Y
C2-7	0.69	6886	E	Y
C2-8	6.31	63126	O	Y
C2-9	0.72	7215	E	Y
C2-10	0.20	1979	O	Y
D1-1	0.10	1018	A	N
D1-2	0.19	1922	O	Y
D1-3	0.60	5967	O	Y
D1-4	0.65	6452	O	Y
D1-5	0.61	6149	O	Y
D1-6	1.29	12873	G	Y

Site No.	Site Area (ha)	Site Area (sqm)	Land Use Type	Paved area and developed in NDA
D2-1	0.87	8741	O	Y
D2-2	2.16	21617	HOS	Y
D2-3	0.28	2754	O	Y
D2-4	2.67	26741	R2	Y
D2-5	0.19	1870	O	Y
D2-6	1.48	14805	PRH	Y
D2-7	0.06	609	O	Y
D2-8	0.74	7402	O	Y
D2-9	5.47	54731	PRH (Local Rehousing	Y
D2-10	1.71	17117	O	Y
D2-11	0.35	3515	O	Y
D2-12	1.98	19814	R2	Y
D2-13	0.17	1690	A	N
D2-14	0.56	5600	G	Y
D2-15	0.45	4490	G	Y
D2-16	0.12	1181	G	Y
D2-17	0.02	237	A	N
D3-1a	1.28	12787	R1	Y
D3-1b	1.40	13998	HOS	Y
D3-1c	1.74	17437	R1(With Commercial)	Y
D3-2	0.07	697	A	N
D3-3	1.12	11161	R1(With Commercial)	Y
D3-4	1.50	15035	R1(With Commercial)	Y
D3-5	2.34	23413	O	Y
D3-6	1.49	14878	R1(With Commercial)	Y
D3-7	1.40	13967	R1(With Commercial)	Y
D3-8	1.84	18383	PRH	Y
D3-9	0.14	1407	A	N
D3-10	0.16	1561	O	Y
D3-11	0.80	7950	E	Y
D3-12	0.86	8564	E	Y
D3-13	0.09	889	A	N
D4-1	0.61	6090	G	Y
road	26	260996	road	Y
river	25	254233	river	N
bridge crossing river	1	10071	bridge crossing river	Y