

**Appendix II**  
*Sewage Treatment Proposal*

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祥達顧問有限公司  
**Gender Consultants Limited**

Proposed Villa at Lots 407S.A. ss.2 S.A. and 408 S.B. ss.1 RP in D.D.94, Kwu Tung, Sheung Shui Sewage Treatment Proposal

**1 EVALUATION OF SEWAGE IMPACT**

**1.1 Evaluation of Generation**

1.1.1 For the estimation of sewage generation from the proposed development, the planning unit flow factors for person as recommended in the “ Guidelines for Estimating Sewage Flows ( Version 1.0 ) ( hereinafter as “GESF” ) published by EPD “. As estimated number of residents are summarized in **Table 1.1**.

**Table 1.1 Estimated Population of the Proposed Villa**

Type of People	Number of People per Day
Resident	12

1.1.2 For the sewage flow estimation from resident, the planning unit flow factor of  $0.37\text{m}^3/\text{person}/\text{day}$  in GESF has been adopted.

1.1.3 As derived from the above, the total estimated daily flow generated by residents of the proposed development will be  $4.5\text{m}^3 / \text{day}$ . The calculation is provided in **Appendix A** for reference..

**1.2 Proposed Sewage Treatment Facility**

1.2.1 As the Site is not currently served by any public sewer, a septic tank system (STS) is proposed as an interim measure to treat the sewage generated by residents of the proposed development. This on-site interim measure will be disused once the public sewer system is available.

1.2.2 The estimated daily flow generated by residents of the proposed development will be  $4.5\text{m}^3/\text{day}$ . In order to allow sufficient capacity of the STS, a septic tank with a capacity of minimum  $5.0\text{m}^3$  is recommended to be constructed. According to the design requirement as specified in “ Drainage Plans Subject to Comment by the Environmental Protection Department “ (ProPECC PN 5/93), the recommended dimensions of the septic tank should be about (L) 4.80m x (W) 1.90 m x (D) 2.00 m with a concrete wall thickness of 0.20 m to fulfil the specified dimension requirement.



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1.2.3 The minimum clearance requirements for a soakaway system are shown in **Table 1.2**

**Table 1.2 Minimum Clearance Requirements for Soakaway Systems**

Type	Distance from Soakaway System( m )	Remarks
Building	3	-
Retaining Walls	6	-
Wells	50	-
Stream where the bed is lower than invert of Soakaway System	15 (30)	Should the water from the stream or pool is used or likely to be used for drinking or domestic purpose, the distance (30) will be adopted
Pools	7.5 (30)	adopted
Cuts of Embankments	30	-
Paths	1.5	-
Beaches	100	From boundaries of gazette beaches or bathing Beach subzones of water control zone
Beaches	30	From H.W.M. and from nearest watercourses for other cases
Ground water table	0.6	Below invert

1.2.4 Figure 1.1 shows the proposed location of the septic tank and soakaway system and Drawing Number EP 50/D1/5/01 & EP 50/D1/5/02 showing the Septic Tank Detail and Soakaway Pit System respectively.

1.2.5 As the site is not served by public sewer and the use of STS is considered the most suitable option for sewage proposal.

1.2.6 With the provision of the proposed on-site sanitary facility ( i.e. STS ) , there will be no adverse water quality/sewage impact arising from the proposed development during the operation.



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**1.3 Provision of Sewage Treatment and Disposal Facilities Recommendation**

1.3.1 The Septic Tank System (STS) should be properly sited, designed, constructed, operated and maintained in accordance with the “ Guidance Notes on Discharges from Village Houses” and “ Drainage Plans subject to Comment by the Environmental Protection Department (ProPECC PN 5/93)” published by the EPD. To minimize the adverse impact on the public and the environment, the following precaution should be considered during planning a new STS:

- Locate the STS away from the beach, stream, well, retaining wall etc. to prevent water contamination and leakage;
- Carry out a soil percolation test before the STS construction to ensure the permeability of Soil; and
- Locate the STS in an open space with easy access for desludging.

1.3.2 - The operator should implement good housekeeping practices to ensure that the continuous operation of the STS. These should include:

- Avoid deposit any oil, chemical and solid waste into the STS;
- Inspect and measure of the sludge depth of treatment components at least once every 6 months;
- Remove the STS sludge properly when exceed 1/4 of overall water depth;
- Inspect the STS immediately when flooding, overflow, odour become noticeable or not flush well and;
- Clean and flush of screens and other sewage handling equipment regularly.

1.3.3 According to the ‘ Guideline Notes on Discharges from Village Houses:, the STS should be inspected and desludged regularly. Desludging should be done by Specialist Contractor. A tank lorry equipped with a pump is often used for pumping out the content of the septic tank and transport to sludge treatment facility for future treatment.

- END -

Appendix A

Sewage Treatment Proposal for Lots 407S.A. ss.2 S.A. and 408 S.B. ss.1 RP in D.D.94, Kwu Tung, Sheung Shui Calculation of Daily Flow

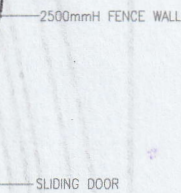
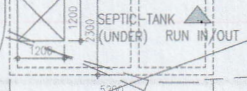
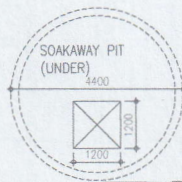
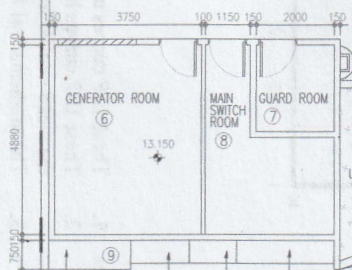
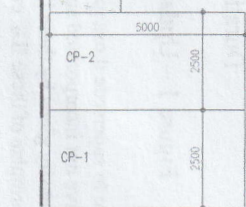
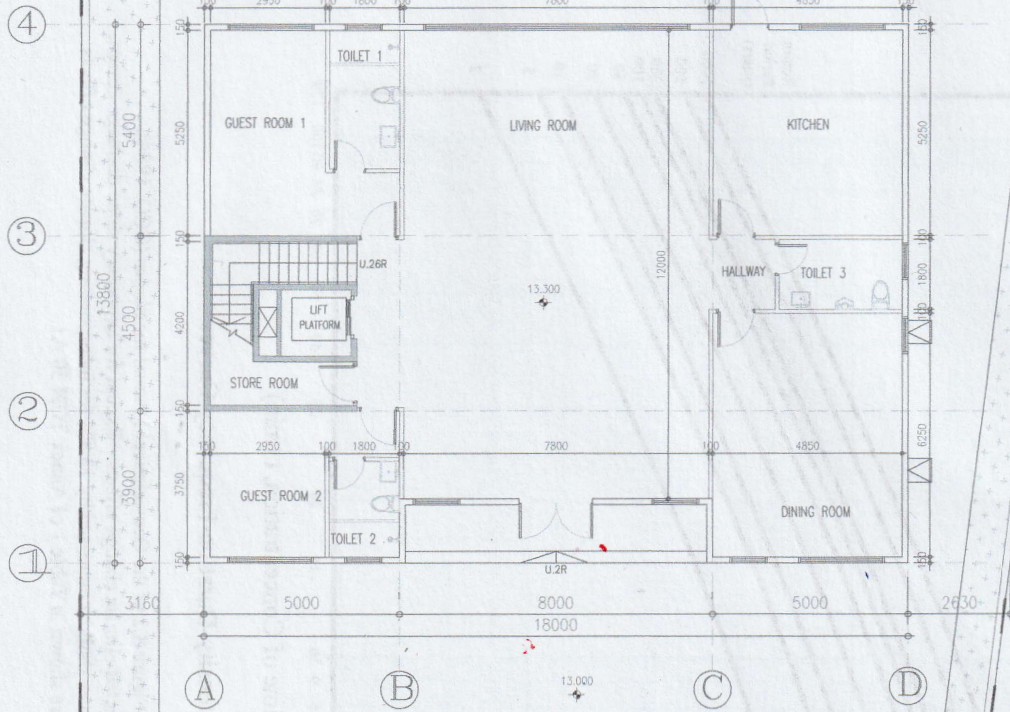
<u>Estimation of Sewage Flow from the Villa Development</u>		
Total number of residents	12 persons	
Unit flow- Activities	0.37 m <sup>3</sup> /person/day	Referred to the planning unit flow factor for “Domestic Flow” activities in Table T-1 of GESF <sup>(a)</sup>
Estimated daily flow	4.5 m <sup>3</sup> /day	
<b>Total Estimated Daily Flow</b>	<b>4.5 m<sup>3</sup>/Day</b>	

**Note :**

(a) GESF – ‘ Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning ‘ published by Environmental Protection (EPD)



LANDSCAPE AREA 190m<sup>2</sup>



GREENERY AREA CALCULATION  
 SITE AREA: 1,018m<sup>2</sup>  
 PROPOSED GREENERY AREA: 16+190=206m<sup>2</sup> > 203.6m<sup>2</sup>  
 GREENERY RATIO: 206 / 1,018 = 20.236% > 20%

PROPOSED EXEMPTED GFA CALCULATION	
GROUND FLOOR	About
⑥ GENERATOR ROOM	21 m <sup>2</sup>
⑦ GUARD ROOM	6 m <sup>2</sup>
⑧ MAIN SWITCH ROOM	12 m <sup>2</sup>
⑨ Cabinets	6 m <sup>2</sup>
<b>Total</b>	<b>45 m<sup>2</sup></b>

Road

EX. ROAD BOUNDARY

AUTHORIZED PERSON, PROJECT MANAGER & ENGINEER

LEADTOP'S RAYMOND LTD.

REGD. NO. 10777 AS PROJECT ENGINEER (SPECIALIST)

ROOMS: FLOOR 17, CHEUNG TAT CENTRE, 14 CHEUNG LEE STREET, TUNG SHAN INDUSTRIAL ESTATE, HONG KONG

TEL: +852 2426 1116 FAX: +852 2426 0324

DRAWING TITLE

**GROUND FLOOR PLAN**

LEGEND:

- SITE BOUNDARY
- LANDSCAPE AREA

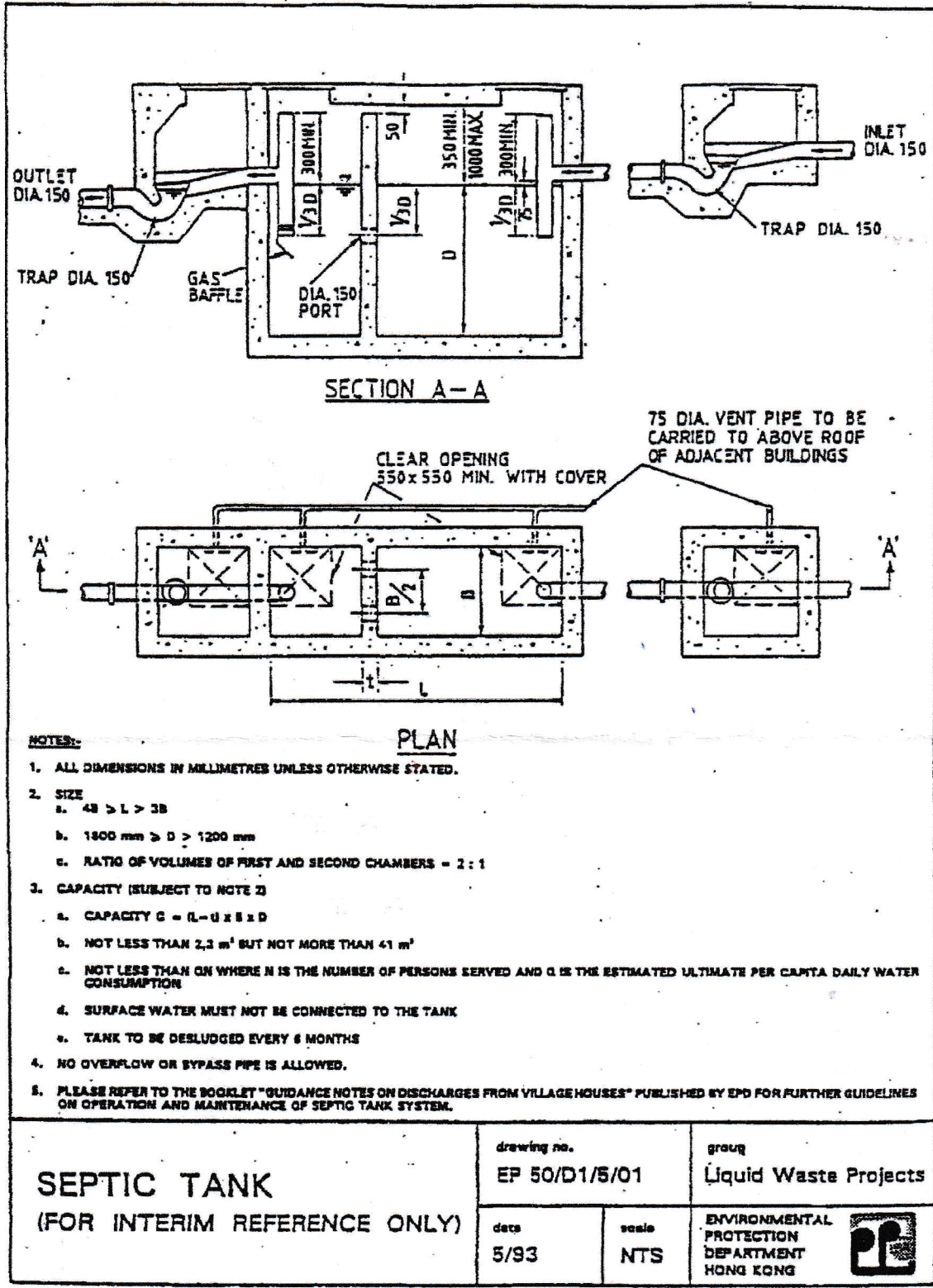
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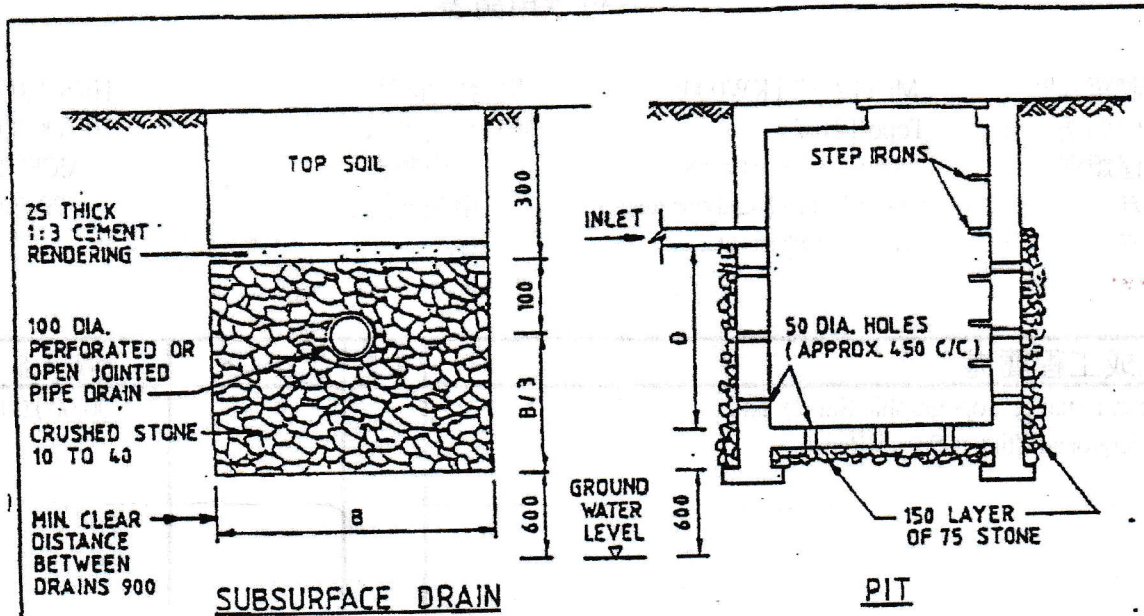
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REV. 0

DATE 2024.04.19







**NOTES:**

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED
2. PERCOLATION TEST FOR DETERMINING ABSORPTION CAPACITY OF SOIL
  - a. EXCAVATE A HOLE 300 mm SQUARE TO THE SAME DEPTH OF THE PIT OR TRENCH.
  - b. FILL THE HOLE WITH APPROXIMATELY 150 mm OF WATER AND ALLOW TO SEEP AWAY COMPLETELY.
  - c. RE-FILL THE HOLE WITH WATER TO A DEPTH OF 150 mm AND OBSERVE THE TIME, IN MINUTES, FOR WATER TO SEEP COMPLETELY AWAY.
  - d. DIVIDE THE TIME BY 4 TO GIVE TIME TAKEN TO FALL 25 mm FOR USE IN TABLE BELOW.
3. ALLOWABLE LOADING OF SOAKAWAY SYSTEMS

TIME IN MINUTES FOR WATER TO FALL 25 mm IN TEST PIT	ALLOWABLE LOADING IN LITRES PER m <sup>2</sup> PER DAY	
	DRAIN TRENCH BOTTOM AREA	PIT PERCOLATION AREA
1 OR LESS	153	278
2	120	175
3	98	130
10	69	94
30	33	48

THE TOTAL ALLOWABLE LOADING PER DAY SHOULD EQUATE WITH THE DAILY INCOMING FLOW

4. MINIMUM CLEARANCE REQUIREMENTS FOR SOAKAWAY SYSTEMS

	DISTANCE FROM SOAKAWAY SYSTEMS (m)
BUILDING	3
RETAINING WALLS	8
WELLS	50
STREAM WHERE THE BED IS LOWER THAN INVERT OF SOAKAWAY SYSTEM	15 (30)*
POOLS	7.5 (30)*
CUTS OR EMBANKMENTS	30
PATHS	1.5
BEACHES	100
GROUND WATER TABLE	0.6

\* THESE DISTANCES SHOULD BE INCREASED TO DISTANCES SHOWN IN BRACKETS IF THE WATER FROM THE STREAM OR POOL IS USED OR LIKELY TO BE USED FOR DRINKING OR DOMESTIC PURPOSES.

(FROM BOUNDARIES OF GAZETTED BEACHES OR BATHING BEACH SUBZONES OF WATER CONTROL ZONES)

(FROM M.W.M. AND FROM NEAREST WATERCOURSES FOR OTHER CASES)

(BELOW INVERT)

<h2>SOIL SOAKAWAY SYSTEM</h2> <p>(FOR INTERIM REFERENCE ONLY)</p>	drawing no.	EP 50/D1/5/02		group	Liquid Waste Projects
	date	5/93	scale	NTS	ENVIRONMENTAL PROTECTION DEPARTMENT HONG KONG

