

**Temporary Shop & Services (Retail Shop for Hardware Accessories) for a Period of 3 Years
at
Lots 1202 S.C (Part), 1202 S.D (Part) in D.D. 117 & Adjoining Government Land, Tai Tong, Yuen Long, N.T.**

Annex 1 DRAINAGE PROPOSAL

1.1 Existing Situation

A. Site particulars

1.1.1 The application site had been paved and occupied an area of about 250m².

1.1.2 The application site is occupied for a retail shop for hardware accessories.

B. Level and gradient of the application site & proposed surface channel

1.1.3 The lowest point of the site is at the northeastern part which is about +17.0mPD. The highest point of the site is at the southwestern part which is about +17.3mPD.

C. Catchment area of the proposed drainage provision at the application site

1.1.4 According to **Figure 4**, it is noted that the land to surrounding the application site commands a lower level or about the same level as the application site except to the south. However, the land to the south is occupied by a shop & services which has been approved by Town Planning Board under A/YL-TT/496 of which surface U-channel has been provided. As such, no external catchment is identified.

D. Particulars of the existing drainage facilities to accept the surface runoff collected at the application site

1.1.5 As shown in **Figure 4**, a manhole is found to the north of the application site.

1.2 Runoff Estimation

1.2.1 Rational method is adopted for estimating the designed run-off

$$Q = k \times i \times A / 3,600$$

Assuming that:

- i. The area of the entire catchment is approximately 250m²; (**Figure 4**)
- ii. Though the catchment is predominant rural in character, it is assumed that the value of run-off co-efficient (k) is taken as 1.

$$\text{Difference in Land Datum} = 17.1\text{m} - 16.8\text{m} = 0.3\text{m}$$

$$L = 51\text{m}$$

$$\therefore \text{Average fall} = 0.3\text{m in } 51\text{m} \text{ or } 1\text{m in } 170\text{m}$$

According to the Brandsby-Williams Equation adopted from the “Stormwater Drainage Manual – Planning, Design and Management” published by the Drainage Services Department (DSD),

$$\text{Time of Concentration (} t_c \text{)} = 0.14465 [L / (H^{0.2} \times A^{0.1})]$$

$$t_c = 0.14465 [51 / (0.59^{0.2} \times 250^{0.1})]$$

$$t_c = 4.72 \text{ minutes}$$

With reference to the Intensity-Duration-Frequency Curves provided in the abovementioned manual, the mean rainfall intensity (i) for 1 in 50 recurrent flooding period is found to be 285mm/hr

$$\text{By Rational Method, } Q_1 = 1 \times 285 \times 250 / 3,600$$

$$\therefore Q_1 = 19.79 \text{ l/s} = 1,187.5 \text{ l/min} = 0.02\text{m}^3/\text{s}$$

In accordance with the Chart or the Rapid Design of Channels in “Geotechnical Manual for Slopes”, 150mm surface U-channel at 1:60 and 1:80 gradient is considered adequate to dissipate all the stormwater accrued by the application site and adjacent land.

1.3 Proposed Drainage Facilities

- 1.3.1 Subject to the calculations in 1.2 above, it is determined that proposed 150mm concrete surface U-channel at gradient of about 1:60 & 1:80 along the site periphery is adequate to intercept storm water passing through and generated at the application site (**Figure 4**).
- 1.3.2 The collected stormwater will then be discharged to the existing manhole at the northeast corner of the application site.
- 1.3.3 All the proposed drainage facilities will be provided and maintained at the applicant’s own expense. Also, surface channel will be cleaned at regular interval to avoid the accumulation of rubbish/debris which would affect the dissipation of storm water.
- 1.3.4 Sand trap or alike will be provided at the terminal catchpit to avoid the addition of load into public drainage.
- 1.3.5 All the proposed drainage facilities will be constructed and maintained at the expense of the applicant.

- 1.3.6 For the drainage works outside the jurisdiction of the applicant, the applicant will seek the consent of land owners or District Lands Office/Yuen Long for works outside application site prior to the commencement of works.
- 1.3.7 The development would neither obstruct overland flow nor adversely affect existing natural streams, village drains, ditches and the adjacent areas, etc.
- 1.3.8 All proposed works at the site periphery would not obstruct the flow of surface runoff from the adjacent areas, the provision of trees and surface channel at site boundary is detailed hereunder:
- (a) Soil excavation at site periphery, although at minimal scale, is inevitably for the provision of surface channel and landscaping. In the reason that the accumulation of excavated soil at the site periphery would obstruct the free flow of the surface runoff from the surroundings, the soil will be cleared at the soonest possible after the completion of the excavation process.
 - (b) In view of that soil excavation may be continued for several working days, surface channel will be dug in short sections and all soil excavated will be cleared before the excavation of another short section.
 - (c) No leveling work will be carried at the site periphery. The level of the site periphery will be maintained during and after the works. As such, the works at the site periphery would not either alter or obstructed the flow of surface runoff from adjacent areas.
 - (d) 100mm openings will be provided at the toe of site hoarding so as to allow unobstructed flow of surface runoff from adjacent area.