

Temporary Warehouse for Storage of Electronic Parts, Construction Materials and Vehicle Parts for a Period of 3 Years
at
Lots 773 (Part), 774 (Part) in D.D. 119 & Adjoining Government Land, Pak Sha Tsuen, 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 almost the entire site is covered by a number of warehouses. The application site occupies an area of about 4,820m².
- 1.1.2 The area adjacent to the proposed development is mainly rural in nature. It is surrounded by other open storage yards and warehouses to the north, west, south and further east. The eastern site boundary is abutting a vehicular track leading from Kung Um Road.

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

- 1.1.3 It has a gradient sloping from northeast to southwest and southwest to northeast from about +16.0mPD to +14.0mPD. The lowest point at the site is situated at the centre part of the application site which is +14.0mPD. (**Figure 4**)

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

- 1.1.4 According to **Figure 4**, it is noted that the land to the northwest is progressively higher than the application site. However, most of the surface runoff from the west is blocked by the existing warehouses to the northwest of the application site. The land to the south of the application site commands a lower level than the application site. The land to the east is separated by an existing open drain. The land to the northeast and southwest is bounded by existing warehouses.
- 1.1.5 As such, an external catchment has been identified to the northwest of the application site.

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

- 1.1.6 As shown in **Figure 4**, an existing open drain is found to the east of the application site. It flows from the south to north and joins the public drain at Lam Tai East Road.

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 application site has been fully paved whereas the external catchment is partly paved. It is assumed that the value of run-off co-efficient (k) is taken as 1 for conservation reason.

	Catchment 1	Catchment 2
Difference in Land Datum	= 21m – 14m = 7m	=16.1m – 14.0m =2.1m
L	100m	126m
∴ Average fall	= 7m in 100m or 1m in 14.29m	= 2.1m in 126m or 1m in 60m

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

	Catchment 1	Catchment 2
Time of Concentration (t _c)	= 0.14465 [L/(H ^{0.2} × A ^{0.1})] = 0.14465 [100/ (7 ^{0.2} × 3,340 ^{0.1})] = 4.3 minutes	= 0.14465 [L/(H ^{0.2} × A ^{0.1})] = 0.14465 [126/ (1.67 ^{0.2} × 2,834 ^{0.1})] = 7.43 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 in the following

By Rational Method,	Catchment 1	Catchment 2
	Q ₁ = 1 × 285 × 3,340 / 3,600 ∴ Q ₁ = 264.42 l/s l/min = 15,865 = 0.26m ³ /s	Q ₁ = 1 × 250 × 2,834 / 3,600 ∴ Q ₁ = 196.81 l/s l/min = 11,808.33 = 0.2m ³ /s

In accordance with the Chart or the Rapid Design of Channels in “Geotechnical Manual for Slopes”, for an approximate gradient of about 1:50-1:80 in order to follow the gradient of the application site, 450mm and 525mm surface U-channel along the site periphery 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 450 and 525mm concrete surface U-channel 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 open drain via a proposed 525mm surface U-channel (with iron grating) to the east of the application site.
- 1.3.3 Sand trap is proposed at the terminal catchpit as shown in **Figure 4**.
- 1.3.4 All the proposed drainage facilities will be provided and maintained at the applicant's own expense. Also, sand trap and surface U-channel will be cleaned at regular interval to avoid the accumulation of rubbish/debris which would affect the dissipation of storm water.
- 1.3.5 The provision of the proposed surface channel will follow the gradient of the application site. All the proposed drainage facilities will be constructed and maintained at the expense of the applicant.
- 1.3.6 Prior to the commencement of the drainage works, the applicant will seek consent from District Lands Office/Yuen Long and relevant land owners for the provision of drainage facilities outside the application site.
- 1.3.7 The proposed development would not affect the existing ditches, drains and obstruct the flow of the flow of surface runoff.
- 1.3.8 The provision of 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) Some holes will be provided at the toe of site hoarding so that the flow of surface runoff from adjacent land would not be interrupted.

Annex 2 Estimated Traffic Generation

- 2.1 The application site is accessible via a vehicular access leading from Kung Um Road. Having mentioned that the site is intended for temporary warehouse only, traffic generated by the proposed development is extremely insignificant
- 2.2 The estimated average traffic generation and traffic generation rate at peak hours are as follow:

Type of Vehicle	<u>Average Traffic Generation Rate</u> (pcu/hr)	<u>Average Traffic Attraction Rate</u> (pcu/hr)	<u>Traffic Generation Rate at Peak Hours</u> (pcu/hr)	<u>Traffic Attraction Rate at Peak Hours</u> (pcu/hr)
Light goods vehicle	0.56	0.56	0	0

Note 1: The opening hour of the proposed development is restricted to 9:00 a.m. to 5:00 p.m. from Mondays to Saturdays. No operation will be held on Sundays and public holidays.

Note 2: The pcu of light goods vehicle is taken as 1.5.

Note 3: Morning peak is defined as 7:00a.m. to 9:00a.m. whereas afternoon peak is defined as 5:00p.m. to 7:00p.m.

- 2.3 As shown in the above estimation, it is estimated that the proposed development would not generate significant amount of traffic. It would not affect the traffic condition of Kung Um Road.
- 2.4 In association with the intended purpose, adequate space for manoeuvring of vehicle would be provided outside the warehouses and queueing up of traffic would not be the result especially that the traffic generated is insignificant. The negligible increase in traffic would not aggravate the traffic condition of Kung Um Road and nearby road networks.