Proposed Temporary Warehouse for Storage of Building Materials for a Period of 3 Years
at
Lots 2207 RP (Part), 2213 S.A RP, 2213 S.B & 2214 RP in D.D. 129, Lau Fau Shan, Yuen Long, N.T.

Annex 1 Drainage Assessment

A. Site particulars

1.1.1 The site possesses an area of about 2,050m^2. The surface of the site will be hard paved.

1.1.2 The application site will be occupied by a warehouse for storage of building materials such as tiles, marble and sanitary wares.

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

1.1.3 The subject site has been hard paved and occupied an area of approximately 2,050m^2. It has a very gradient sloping from north to south from about +7.3mPD to +6.5mPD.

1.1.4 In order to follow the topography of the application site, the proposed surface channel will be constructed following the gradient of the site. As demonstrated in the calculation in **Annex 1.3** hereunder, 600mm surface U-channel will be capable to drain surface runoff accrued at the subject site and the same passing through the site from adjacent area.

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

1.1.5 With regard to the location of the existing catchpit and the topography surrounding the application site, the land to the north of the site is found higher than the application site. The land to south, west and east of the site is found lower than the application site. (**Figure 4**)

1.1.6 As such, an external catchment is identified has been identified in **Figure 4**.

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

1.1.7 There is an existing public catchpit to the western part of the application site.

1.2 Runoff Estimation & Proposed Drainage Facilities

A. Proposed drainage facilities

1.2.1 Subject to the above calculations, it is determined that 600mm surface U-channel which is made of concrete along the site periphery is adequate to intercept storm water passing through and generated at the application site (**Figure 4**).

1.2.2 The collected surface runoff will be conveyed to existing public catchpit to the wettern part of the site. (**Figure 4**)

1.2.3 All the proposed drainage facilities, including the section of surface channel proposed in between of the subject site to the open drain, will be provided and maintained at the applicant's own expense. Also, sand trap and U-channel will be cleaned at regular interval to avoid the accumulation of rubbish/debris which would affect the dissipation of storm water.

1.2.4 The provision of the proposed surface U-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.

1.2.5 All proposed works at the site periphery would not obstruct the flow of surface runoff from the adjacent areas, the provision of surface U-channel at site boundary is detailed hereunder:

(a) Soil excavation at site periphery, although at minimal scale, is inevitably for the provision of surface U-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 U-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 hoarding so as to allow unobstructed flow of surface runoff from adjacent area.

1.2.6 The applicant is conscientious in preparing this drainage proposal. Also, he is willing to provide necessary drainage facilities to minimize the drainage impact accrued by the proposed development. The acceptance of this drainage proposal will give positive recognition to the applicant's efforts.

Annex 1.3 Drainage Calculation for the Proposed Provision of Drainage Facilities at Subject Site

1. Runoff Estimation

1.1 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 7,050m^2; (**Figure 4**)
ii. The catchment is predominant paved, it is assumed that the value of run-off co-efficient (k) is taken as 1.

Difference in Land Datum = 33.2m – 6.5m = 26.7m

L = 157m

∴ Average fall = 26.7m in 157m or 1m in 5.88m

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

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

$$t_c = 0.14465 \left[157/ (17.01^{0.2} \times 7{,}050^{0.1}) \right]$$

$$t_c = 5.31 \text{ minutes}$$

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 270 mm/hr

By Rational Method, $Q = 1 \times 270 \times 7{,}050 / 3{,}600$

$$\therefore\ Q = 528.75 \text{ l/s} = 31{,}725 \text{ l/min}$$

In accordance with the Chart or the Rapid Design of Channels in "Geotechnical Manual for Slopes", for an approximate gradient of about 1:150 along the site periphery of the site, 600mm surface U-channel is considered adequate to dissipate all the stormwater accrued by the application site and the adjacent land.

Annex 2 Estimated Traffic Generation

2.1 The ingress/egress of the application site is abutting a local vehicular track leading to Lau Fau Shan Roundabout. (**Figure 1**)

2.2 Only 5.5 tonnes light goods vehicle is required to deliver building materials such as tiles, marble and sanitary wares to and from the application site.

2.3 The average and peak trip rates generated from and attracted to the site are shown below.

Type of vehicle	Average Traffic Generation Rate (pcu/hr)	Average Traffic Attraction Rate (pcu/hr)	Traffic Generation Rate at Peak Hours (pcu/hr)	Traffic Attraction Rate at Peak Hours (pcu/hr)
Light goods vehicle	0.3	0.3	0	0
Private car	0.2	0.2	1	1
Total	0.5	0.5	1	1

Note 1: The opening hour of the proposed development is restricted to 9:00 a.m. to 7:00 p.m. from Mondays to Saturdays. No operation will be held on Sundays and public holidays.

Note 2: The pcu of private car and light goods vehicle is taken as 1 and 1.5 respectively; and

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.

2.4 In association with the proposed use, adequate space for manoeuvring and loading/unloading are available within the application site. By virtue of the fact that the application site is directly linked with Yuen Long Highway via Lau Fau Shan Road and the traffic generated by the proposed development is insignificant, the proposed development being applied would not aggravate the traffic condition in the area. Similar warehouse has also been approved by Town Planning Board recently such as A/YL-LFS/482 & 498.