Proposed Temporary Open Storage of Construction Materials for a Period of 3 Years and Filling of Land
at
Lots 360 A S.A (Part), 360 A RP (Part), 360 B S.A (Part), 360 B RP (Part), 360 C S.A (Part), 360 D S.A (Part) & 360 D RP (Part) in D.D.87, Ta Kwu Ling, N.T.

Annex 1 Drainage Proposal

1.1 Existing Situation

A. Site particulars

1.1.1 The application site occupied an area of about 1,917m^2.

1.1.2 The area adjacent to the proposed development is mainly rural in nature. It is surrounded by temporary structures to the east and west. To the south is public road. A river is found to the immediate north. It is proposed that the site will be filled with 0.2m thick concrete.

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

1.1.3 It has a gradient sloping from south to north from about +25.5mPD to +24.2mPD.

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

1.1.4 According to **Figure 4**, it is noted that the level of the application site is comparatively higher than the adjoining land. As such, no external catchment has been 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 river 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 1,917m^2;
ii. For conservative reason, it is assumed that the value of run-off co-efficient (k) is taken as 1.

Difference in Land Datum   =   25.5m – 24.2m   = 1.3m

        L   =   65m

     $\therefore$ Average fall   =   1.3m in 65m   or   1m in 50m

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

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

        t_c $= 0.14465 \left[65/(2^{0.2} \times 1{,}917^{0.1}) \right]$

        t_c = 3.84 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 300 mm/hr

By Rational Method, Q_1 $= 1 \times 300 \times 1{,}917 / 3{,}600$

     $\therefore Q_1$ $= 159.75 \text{ l/s} = 9{,}585 \text{ l/min} = 0.16 \text{m}^3/\text{s}$

In accordance with the Chart or the Rapid Design of Channels in "Geotechnical Manual for Slopes", for an approximate gradient of about 1:55 and 1:100 in order to follow the gradient of the application site, <u>375mm surface U-channel is considered adequate to dissipate all the stormwater accrued by the application site.</u>

1.3   <u>Proposed Drainage Facilities</u>

1.3.1   Subject to the calculations in 1.2 above, it is determined that proposed 375mm 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   Catchpit will be provided at the turning point of the surface U-channel. Sand trap or alike will be provided at the terminal catchpit.

1.3.3   The collected stormwater will then be dissipate to the river outside the northern site periphery.

1.3.4   All the proposed drainage facilities will be provided and maintained at the applicant's own expense.

1.3.5   The provision of the proposed surface channel will follow the gradient of the application site.

1.3.6   Prior to the commencement of drainage works, the applicant will seek the consent of the District Lands Office/North and relevant registered land owner for works outside the application site or outside the jurisdiction of the applicant.

1.3.7   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.   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)   10cm opening will be reserved at the toe of the site hoarding to allow unobstructed flow of surface runoff.