Proposed Temporary Warehouse for Storage of Vehicle Parts for a Period of 3 Years
at
Lot 758 RP (Part) in D.D.82, Ping Che Road, 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 650m^2.

1.1.2   The area adjacent to the proposed development is mainly rural in nature.   To the east of the application site is Ping Che Road.   Vacant land is found to the west and south of the site.

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

1.1.3   It is sloping from southeast to northwest from about +8.5mPD to +8.1mPD.

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

1.1.4   According to **Figure 3**, 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 3,** an 700mm x 700mm open drain is found to the immediate north of the application site.   This drain joins Ping Yeung River to the west.

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 650m^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 $\qquad$ = 8.5m – 8.1m = 0.4m

$\qquad$ L $\qquad$ = 42m

$\qquad$ ∴ Average fall $\qquad$ = 0.4m in 42m or 1m in 105m

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

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

$\qquad$ t_c $\qquad$ = $0.14465 \, [\, 42/ (0.95^{0.2} \times 650^{0.1}) \,]$

$\qquad$ t_c $\qquad$ = 3.21 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 305 mm/hr

By Rational Method, $\qquad$ Q_1 $\qquad$ = $1 \times 305 \times 650 / 3{,}600$

$\qquad$ ∴Q_1 $\qquad$ = 55.07 l/s = 3,304.17 l/min = $0.055 \text{m}^3/\text{s}$

In accordance with the Chart or the Rapid Design of Channels in "Geotechnical Manual for Slopes", for an approximate gradient of about 1:135 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 3**).

1.3.2 Catchpit will be provided at the turning point of the surface U-channel.

1.3.3 The collected stormwater will then be dissipate to the existing 700mm x 700mm open drain to the north of application site and then dissipate to Ping Yuen River.

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   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.

1.3.8   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.

1.3.9   100mm will be reserved at the toe of the site hoarding to allow unobstructed flow of surface runoff.