Proposed Temporary Shop & Services (Real Estate Agency) for a Period of 3 Years
at
Lot 1367 (Part) in D.D. 130, Tsoi Yuen Tsuen, Tuen Mun, N.T.

Annex 1   DRAINAGE PROPOSAL

1.1   Existing Situation

A.   Site particulars

1.1.1   The application site will be paved and occupied an area of about 50m^2.

1.1.2   The application site will be occupied for a real estate agency.

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 +18.0mPD. The highest point of the site is at the southwestern part which is about +17.9mPD.

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

1.1.4   According to **Figure 3**, it is noted that the land to surrounding the application site commands a lower level or about the same level as the application site.   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 3,** a river is found to the south 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 50m^2; (**Figure 3**)
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.

$$\text{Difference in Land Datum} \quad = \quad 18.0\text{m} - 17.9\text{m} \quad = 0.1\text{m}$$

$$L \quad = \quad 9\text{m}$$

$$\therefore \quad \text{Average fall} \quad = \quad 0.1\text{m in 9m} \quad \text{or} \quad 1\text{m in 90m}$$

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

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

$$t_c = 0.14465\,[\,9/(1.11^{0.2} \times 50^{0.1})\,]$$

$$t_c = 0.86 \text{ minutes}$$

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 350mm/hr

$$\textbf{\textit{By Rational Method}}, Q_1 = 1 \times 350 \times 50 / 3{,}600$$

$$\therefore Q_1 = 4.86 \text{ l/s} = 291.67 \text{ l/min} = 0.004 \text{m}^3/\text{s}$$

In accordance with the Chart or the Rapid Design of Channels in "Geotechnical Manual for Slopes", <u>150mm surface U-channel at 1:130 gradient is considered adequate to dissipate all the stormwater accrued by the application site and adjacent land.</u>

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 1:130 along the site periphery is adequate to intercept storm water passing through and generated at the application site (**Figure 3**).

1.3.2 The collected stormwater will then be discharged to the river to the south of the application site via the proposed 150mm surface U-channel outside 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 <u>All the proposed drainage facilities will be constructed and maintained at the expense of the applicant.</u>

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 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)   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 gap will be reserved at the toe of the site hoarding to allow free flowing of surface runoff to and from the application site.

N

TS
TS
277
278
2381
2382
2385 TS
285
282
E
E
FP
73
E
280
ET
2383
18.5 + E
E
L
TS
E
L
ET
19.
Proposed 150mm surface U-channel (Gradient 1:130)
Proposed 150mm surface U-channel (Gradient 1:130)
PMT
18.0
17.9
Proposed 150mm surface U-channel (Gradient 1:130)
74 74
TS
Proposed 150mm surface U-channel (Gradient 1:130)
TS
1361
17.7
FB
17.7
Existing river
L
CUL
FP
E
L
1365 RP
+17.8
1366 RP
ET
+30.5
L

Project 項目名稱:	Drawing Title 圖目:	Remarks 備註:
Proposed Temporary Shop & Services (Real Estate Agency) for a Period of 3 Years at Lot 1367 (Part) in D.D. 130, Tsoi Yuen Tsuen, Tuen Mun, N.T.	Proposed Drainage Plan	$+18.0$ Level (in mPD)

Proposed catchpit

Proposed catchpit with sand trap

Flow of surface runoff

Drawing No. 圖號:

Figure 3

Scale 比例:

1:500