

**Proposed Temporary Shop & Services for a Period of 3 Years  
at  
Lot 3100 (Part) in D.D. 116, Tai Kei Leng, Yuen Long, New Territories**

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**Annex 1 Drainage Proposal**

**1.1 Existing Situation**

**A. Site particulars**

- 1.1.1 The application site occupies an area of about 130m<sup>2</sup>.
- 1.1.2 The site is serviced by a vehicular access leading from Tai Shu Ha Road East. The area adjacent to the proposed development is mainly rural in nature and some temporary structures were found adjacent to the site.

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

- 1.1.3 It has a gradient sloping from north to south from about +6.8mPD to +6.6mPD. **(Figure 4)**

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

- 1.1.4 The land to the west, east and south is found lower in level than the application site. However, the land to the north is found a little bit higher than the application site, an external catchment has been identified in **Figure 4**.

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

- 1.1.5 As shown in **Figure 4**, an open drain is found to the west of the application site. The stormwater intercepted by the proposed surface channel at the application site will be dissipated to the said open drain via a proposed 300mm surface channel.

## 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 catchment is approximately 470m<sup>2</sup>; (**Figure 4**)
- ii. It is assumed that the value of run-off co-efficient (k) is taken as 1 for conservative reason.

$$\text{Difference in Land Datum} = 7.0\text{m} - 6.6\text{m} = 0.4\text{m}$$

$$L = 35\text{m}$$

$$\therefore \text{Average fall} = 0.4\text{m in } 35\text{m} \text{ or } 1\text{m in } 87.5\text{m}$$

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

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

$$t_c = 0.14465 [ 35 / 1.14^{0.2} \times 470^{0.1} ]$$

$$t_c = 2.66 \text{ minutes}$$

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 325 mm/hr

***By Rational Method,***

$$Q_1 = 1 \times 325 \times 470 / 3,600$$

$$\therefore Q_1 = 42.43 \text{ l/s} = 2,545.83 \text{ l/min} = 0.043\text{m}^3/\text{s}$$

In accordance with the Chart or the Rapid Design of Channels in “Geotechnical Manual for Slopes”, for an approximate gradient of about 1:100 and 1:150 in order to follow the gradient of the application site, 300mm underground pipe with gullies 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 300mm surface 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 directly to the existing open drain to the west of the application site as shown in **Figure 4**.
- 1.3.3 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.
- 1.3.4 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.
- 1.3.5 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.
- 1.3.6 The proposed development would not affect the existing ditches, drains and obstruct the flow of the flow of surface runoff.
- 1.3.7 The provision of surface channel at site boundary is detailed hereunder:
- (a) Soil excavation at site periphery, is inevitably for the provision of surface channel. The accumulation of excavated soil at the site periphery would obstruct the free flow of the surface runoff from the surroundings. Hence, 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. The works at the site periphery would not either alter the flow of surface runoff from adjacent areas.
  - (d) 100mm gap will be provided at the toe of site hoarding to allow unobstructed flow of surface runoff.

## Annex 2 Estimated Traffic Generation

- 2.1 The application site is serviced by a vehicular track leading from Tai Shu Ha Road East. Having mentioned that the site is intended for shop and services of which most of the customers would arrive the site on foot, traffic generated by the proposed development is not significant.
- 2.2 The proposed parking space at the application site would only be opened to visitors with prior appointment.
- 2.3 There will be 1 parking space of 5m x 2.5m for private car. The estimated traffic generation/attraction rate is shown below:

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)
Private car	0.1	0.1	1	1

Note:

1. The operation hours of the proposed development is from 9:00a.m. to 7:00p.m. from Mondays to Sundays and public holidays.
2. The pcu of private car is taken as 1; &
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.







**Application Site**



Project 項目名稱:

Proposed Temporary Shop and Services for a Period of 3 Years at Lot 3100 (Part) in D.D.116, Tai Kei Leng, Yuen Long, N.T.

Drawing Title 圖目:

Location Plan

Drawing No. 圖號:

Figure 2

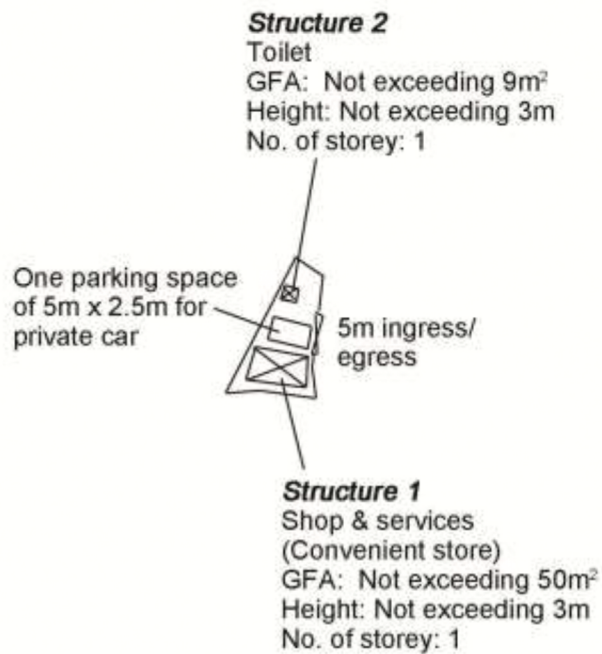
Remarks 備註:

→ Vehicular access leading from Tai Shu Ha Road East

Scale 比例:

As shown

N



Project 項目名稱:

Proposed Temporary Shop and Services for a Period of 3 Years at Lot 3100 (Part) in D.D.116, Tai Kei Leng, Yuen Long, N.T.

Drawing Title 圖目:

Proposed Layout Plan

Remarks 備註:

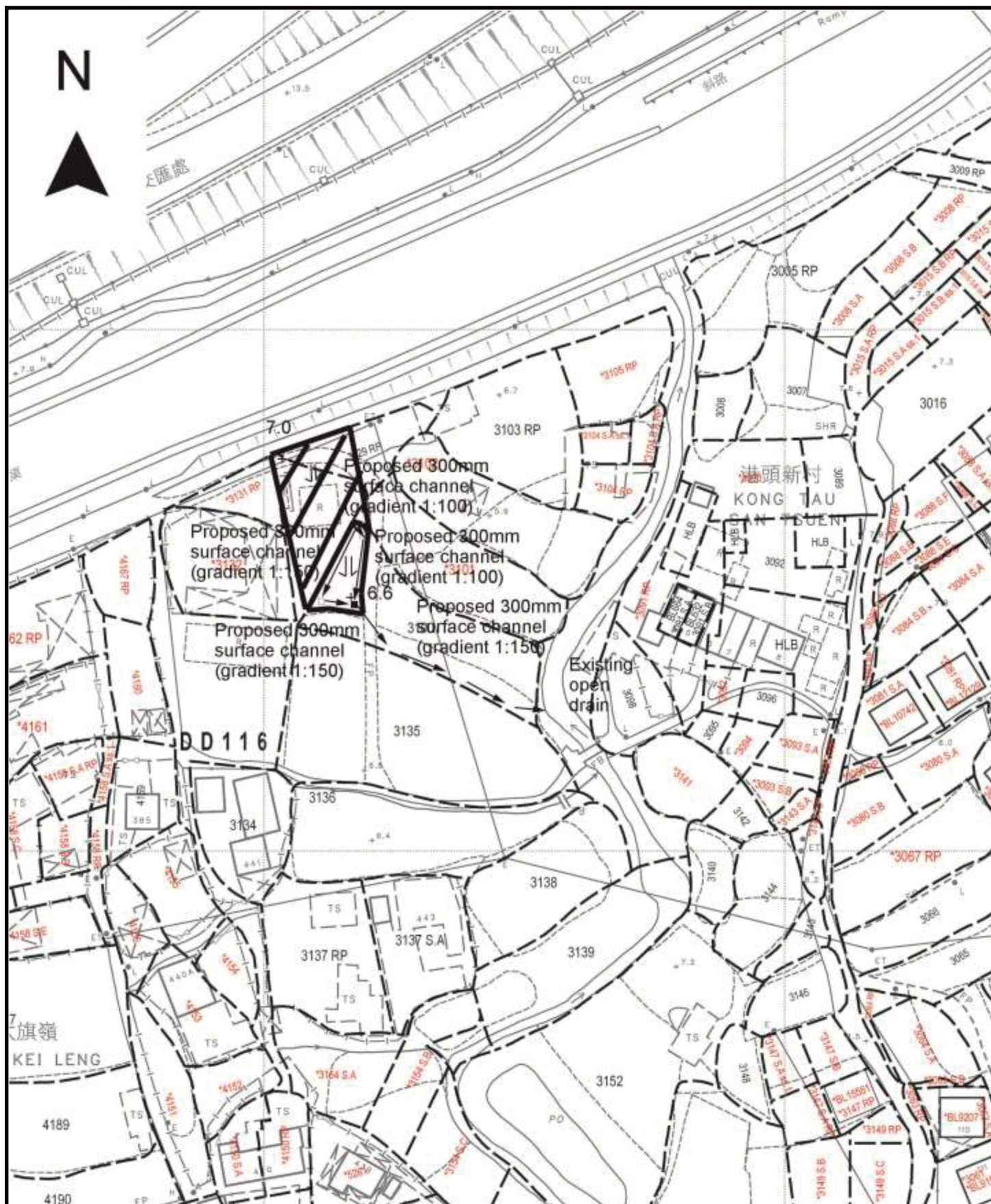
Drawing No. 圖號:

Figure 3

Scale 比例:

1:1000





Project 項目名稱:

Proposed Temporary Shop and Services for a Period of 3 Years at Lot 3100 (Part) in D.D.116, Tai Kei Leng, Yuen Long, N.T.

Drawing Title 圖目:

Proposed Drainage Plan

Drawing No. 圖號:

Figure 4

Remarks 備註:

+6.6 Level (in mPD)

Flow of surface runoff

Proposed catchpit

Catchpit with sand trap

External catchment

Scale 比例:

1:1000