**Proposed Temporary Warehouse for Storage of Exhibition Materials for a Period of 3 Years**
**at**
**Lot 1022 (Part) in D.D. 119, Pak Sha Tsuen, Yuen Long, N.T.**

# Annex 1 DRAINAGE PROPOSAL

## 1.1 Existing Situation

A. Site particulars

1.1.1 The application site had been paved and it will be covered by three warehouses. The application site occupies an area of about 819m$^2$.

1.1.2 The area adjacent to the proposed development is mainly rural in nature. It is surrounded by other open storage yards and warehouses to the north, west, south and east. The northern site boundary is abutting a vehicular track leading from Kung Um Road.

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

1.1.3 For the uncovered land area, it has a gradient sloping from north to south from about +20.7mPD to +19.7mPD. (**Figure 4**)

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

1.1.4 According to **Figure 4**, it is noted that the land to the south, north and west is found lower than the application site.

1.1.5 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

1.1.6 As shown in **Figure 4,** an existing natural drain is found to the immediate north of the application site.

## 1.2 Runoff Estimation

### 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 819m$^2$. (**Figure 4**);
ii. The catchment is predominant rural in character, it is assumed that the value of run-off co-efficient (k) is taken as 1 for conservative purpose.

Difference in Land Datum = 20.7 – 19.7m = 1m

L = 90m

∴ Average fall = 1m 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),

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

$$t_c = 0.14465 \left[ 90/ (1.11^{0.2} \times 819^{0.1}) \right]$$

$$t_c = 6.52 \text{ minutes}$$

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 255 mm/hr

***By Rational Method***, $Q = 1 \times 255 \times 819 / 3{,}600$

$$\therefore \ Q = 58.01 \text{ l/s} = 3{,}480.75 \text{ l/min}$$

In accordance with the Chart or the Rapid Design of Channels in "Geotechnical Manual for Slopes", for an approximate gradient of 1:90 and 1:100, **300mm surface U-channel is considered adequate to dissipate all the stormwater accrued by the application site**. The intercepted stormwater will then be discharged to the existing open drain to the immediate east of the application site.

## 1.3 Proposed Drainage Facilities

1.3.1 Subject to the calculations in 1.2 above, it is determined that proposed 300mm concrete surface U-channel along the uncovered portion of the site periphery is adequate to intercept storm water generated at the application site (**Figure 4**).

1.3.2 The collected stormwater will then be discharged to the existing open drain via a proposed 300mm surface U-channel outside the site boundary to the immediate north of the application site.

1.3.3 Sand trap is proposed at the terminal catchpit as shown in **Figure 4**.

1.3.4 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.

1.3.5 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.

1.3.6 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.

1.3.7 The proposed development would not affect the existing ditches, drains and obstruct the flow of the flow of surface runoff.

1.3.8 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 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 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.

(d) Some holes will be provided at the toe of site hoarding so that the flow of surface runoff from adjacent land would not be interrupted.

## Annex 2 Estimated Traffic Generation

2.1 The application site is accessible via a vehicular access leading from Kung Um Road. Having mentioned that the site is intended for temporary warehouse of only 819m$^2$ only, traffic generated by the proposed development is extremely insignificant

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2.2 The estimated average traffic generation and traffic generation rate at peak hours are as follow:

| 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 | 0.19 | 0.19 | 0 | 0 |

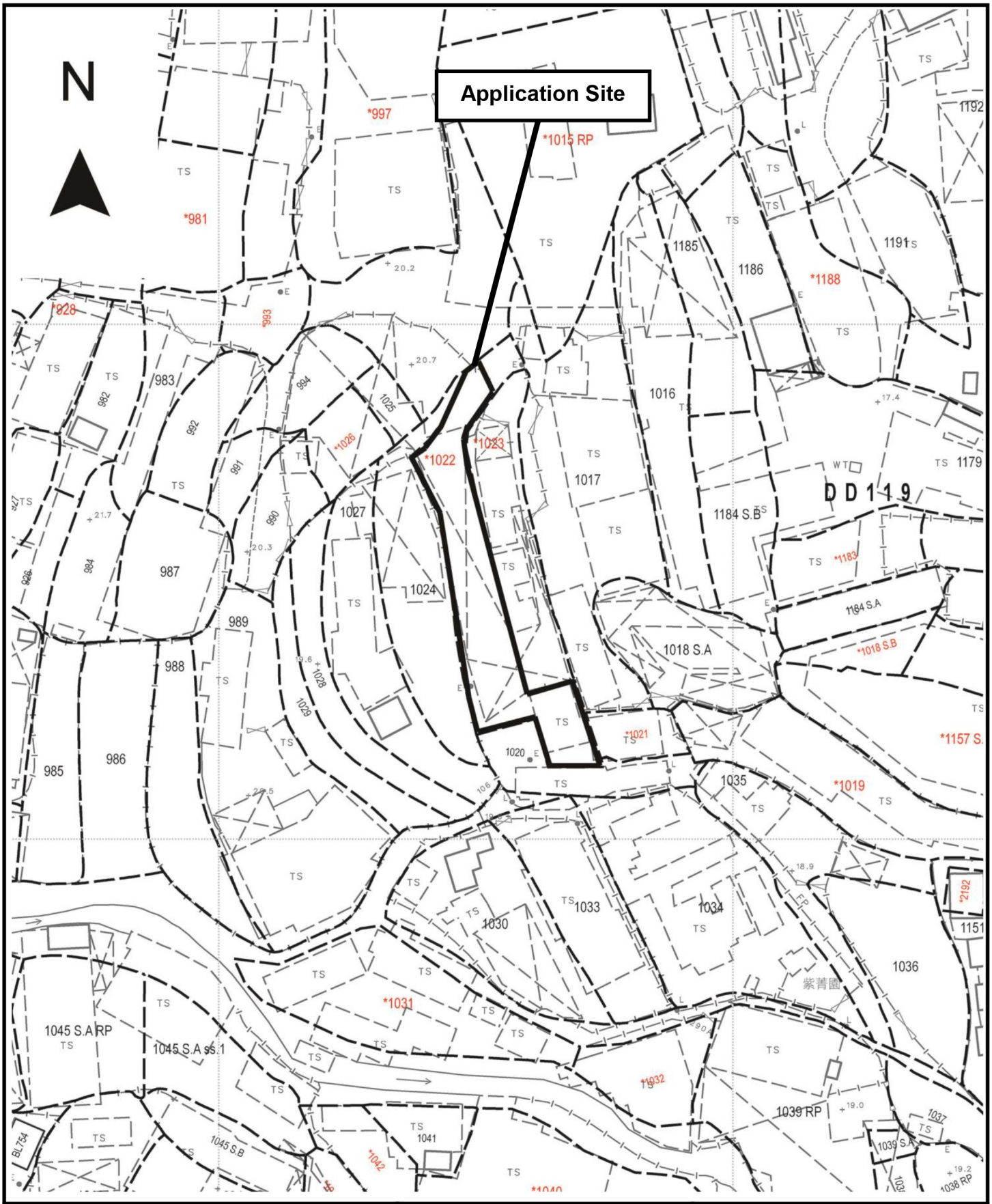
Note 1: The opening hour of the proposed development is restricted to 9:00 a.m. to 5:00 p.m. from Mondays to Saturdays. No operation will be held on Sundays and public holidays.

Note 2: The pcu of light goods vehicle is taken as 1.5.

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.

2.3 As shown in the above estimation, it is estimated that the proposed development would not generate significant amount of traffic. It would not affect the traffic condition of Kung Um Road.

2.4 In association with the intended purpose, adequate space for manoeuvring of vehicle would be provided inside the application site and queueing up of traffic would not be the result especially that the traffic generated is insignificant. The negligible increase in traffic would not aggravate the traffic condition of Kung Um Road and nearby road networks.




Project 項目名稱:

Proposed Temporary Warehouse for Storage of Exhibition Materials for a Period of 3 Years at Lot 1022 (Part) in D.D. 119, Pak Sha Tsuen, Yuen Long, N.T.

Drawing Title 圖目:

Site Plan

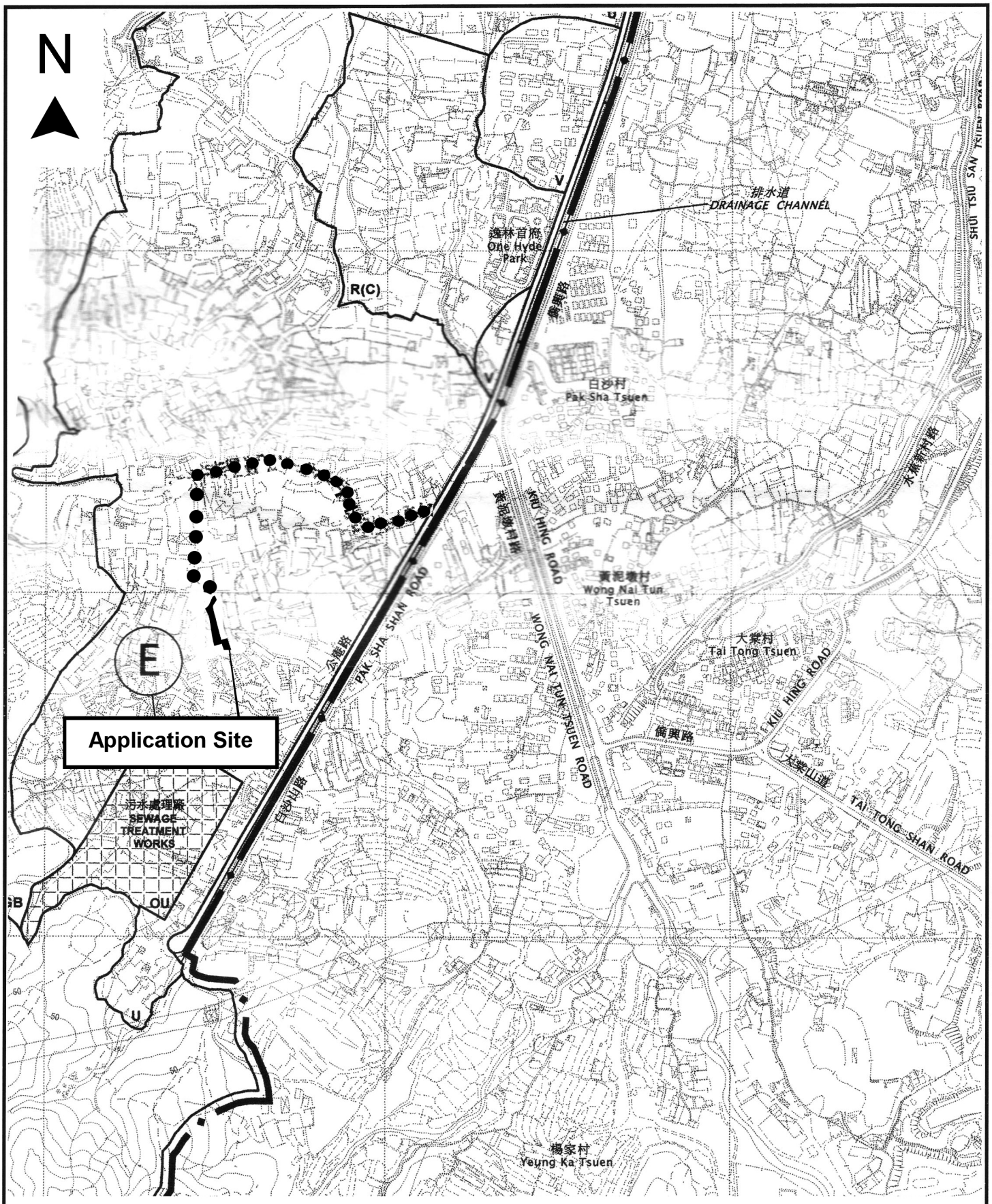
Drawing No. 圖號:

Figure 1

Remarks 備註:

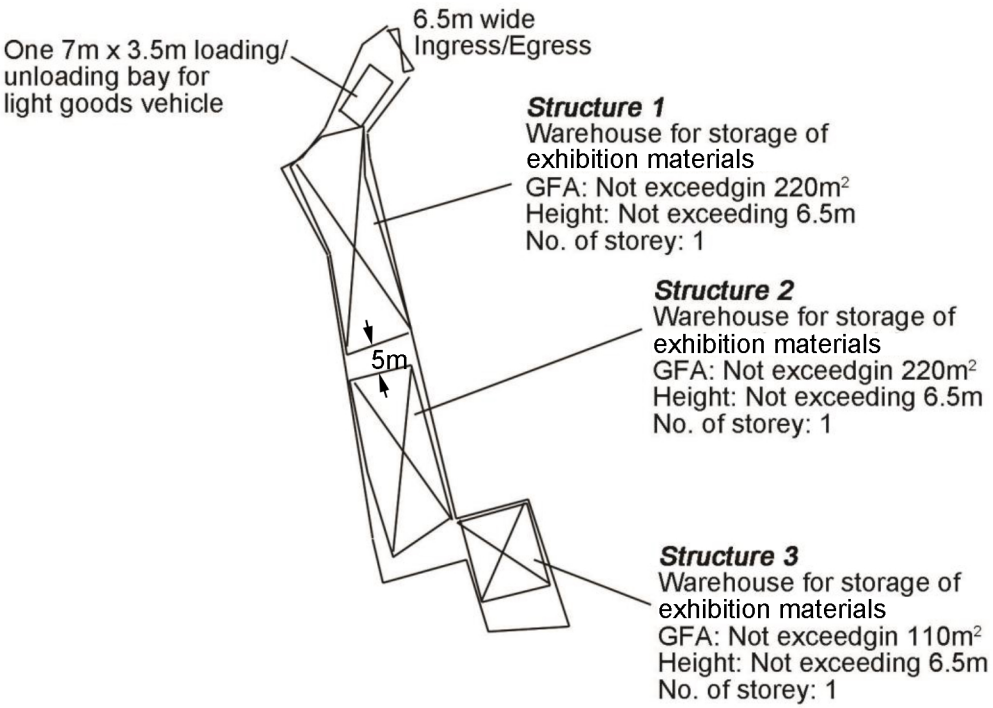
Scale 比例:

1:1000

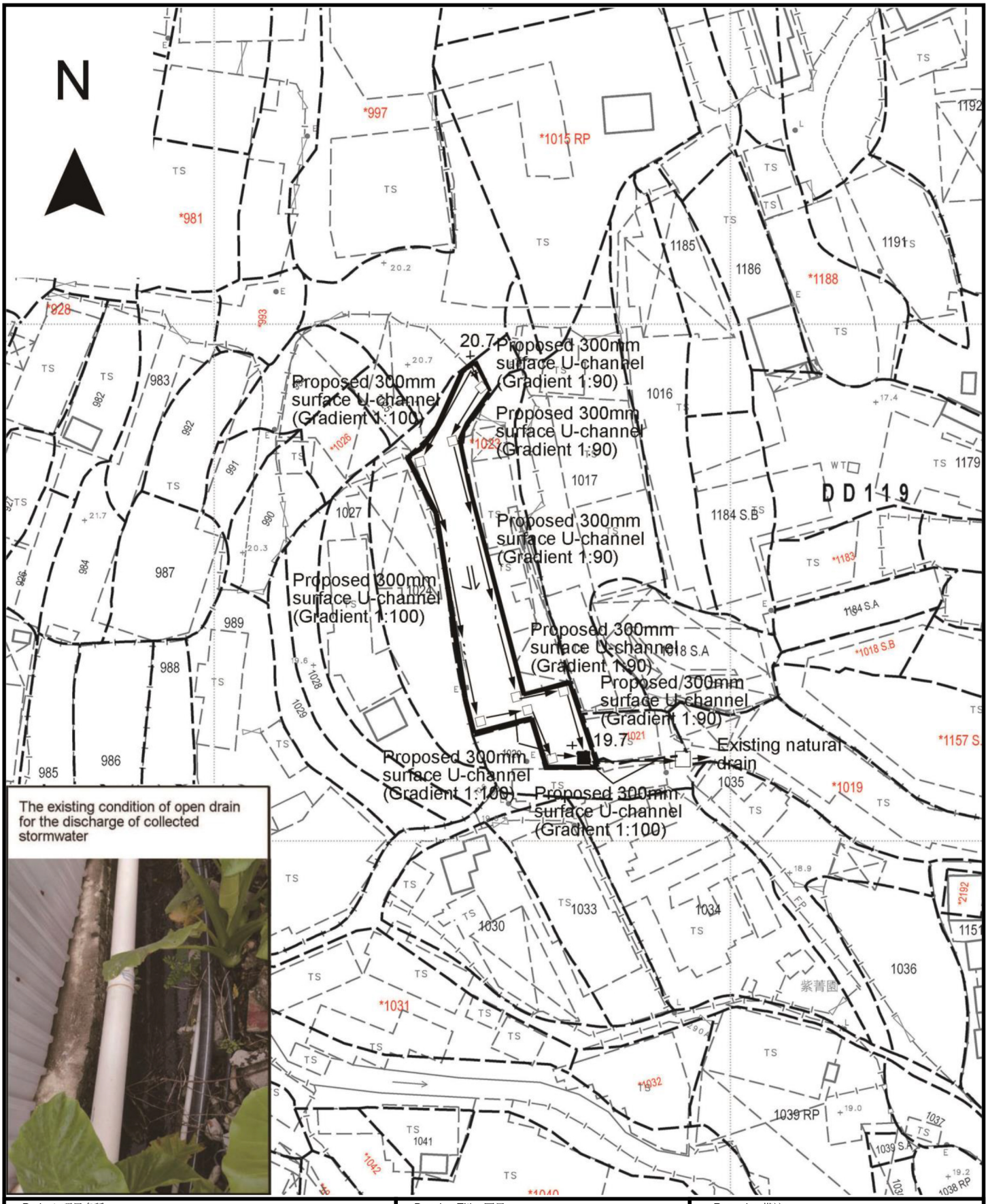



| | | |
|---|---|---|
| Project 項目名稱:<br>Proposed Temporary Warehouse for Storage of Exhibition Materials for a Period of 3 Years at Lot 1022 (Part) in D.D. 119, Pak Sha Tsuen, Yuen Long, N.T. | Drawing Title 圖目:<br>Location Plan | Remarks 備註:<br>●●● Vehicular access leading from Kung Um Road to the application site |
| | Drawing No. 圖號:<br>Figure 2 | Scale 比例:<br>1:7500 |

N




| Project 項目名稱: | Drawing Title 圖目: | Remarks 備註: |
|---|---|---|
| Proposed Temporary Warehouse for Storage of Exhibition Materials for a Period of 3 Years at Lot 1022 (Part) in D.D. 119, Pak Sha Tsuen, Yuen Long, N.T. | Proposed Layout Plan | |
| | Drawing No. 圖號: Figure 3 | Scale 比例: 1:1000 |




The existing condition of open drain for the discharge of collected stormwater



Project 項目名稱:

Proposed Temporary Warehouse for Storage of Exhibition Materials for a Period of 3 Years at Lot 1022 (Part) in D.D. 119, Pak Sha Tsuen, Yuen Long, N.T.

Drawing Title 圖目:

Proposed Drainage Plan

Drawing No. 圖號:

Figure 4

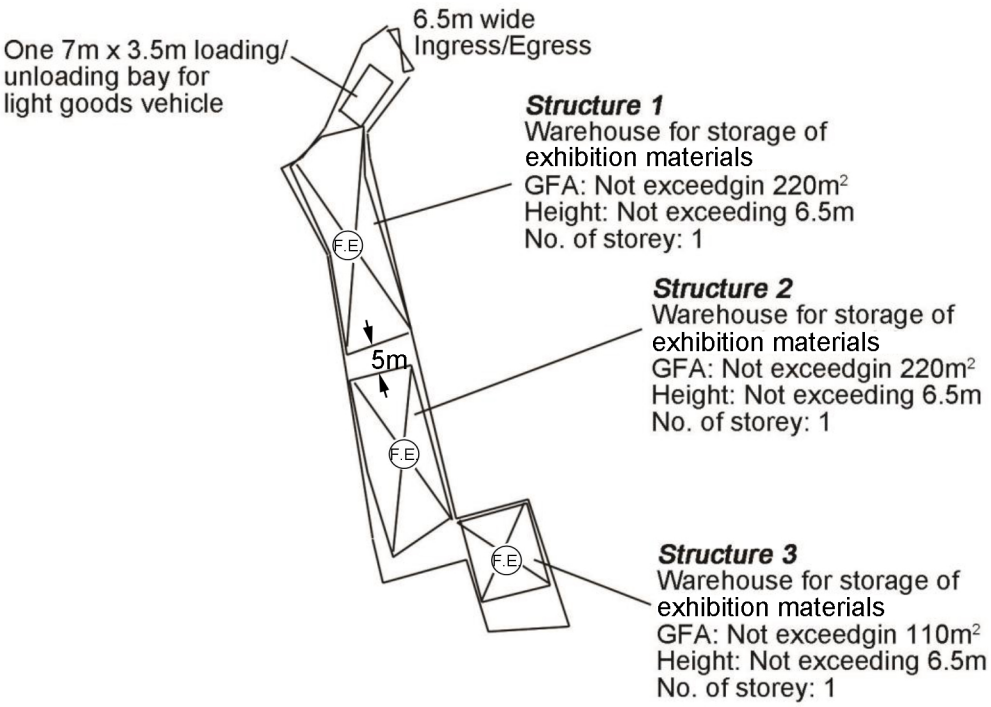
Remarks 備註:

- □ Proposed catchpit
- ■ Proposed catchpit with Sand trap
- ⇐ Flow of Surface Runoff
- +20.7 Level (in mPD)

Scale 比例:

1:1000

N

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| Project 項目名稱:<br>Proposed Temporary Warehouse for Storage of Exhibition Materials for a Period of 3 Years at Lot 1022 (Part) in D.D. 119, Pak Sha Tsuen, Yuen Long, N.T. | Drawing Title 圖目:<br>Proposed Fire Service Installations Plan | Remarks 備註:<br>F.E 9 litre water type fire extinguisher |
| | Drawing No. 圖號:<br>Figure 5 | Scale 比例:<br>1:1000 |