

**Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with
Ancillary Facilities for a Period of 3 Years**

**At Various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen
Long, New Territories**

Drainage Assessment Report

Applicant:

R-riches Property Consultants Limited

Oct 2024

Consultant:

C & H Consulting Co. Ltd

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

DRAINAGE IMPACT ASSESSMENT

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Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

1. Introduction

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635), is applied for planning permission. This report is a Drainage Assessment Report to support the submission.

2. Site Description

The site is located on the left in western side of Tai Tong Shan Road. The site has a higher level on the northern side and lower level on the southern side. The site has partly developed, and the open storage has been constructed at the site. The topography level of the site is lower than the eastern side of site and higher than the western side of the site. Site Area is about 10,313 sq. m (Includes Government Land of about 1,794 sq. m) (Appendix A shows the Location Plan) The ground profile in the further west is sloping downward towards the west direction.

There are some existing drainage facilities that existing Stream (5m width x 5 m depth) along northern side of the site connected to existing open channel with critical size 13m width x 6m depth along western side of the site. Existing Stream is natural-stream channels (conservatively take $n=0.04$). and the open channel is made of concrete (conservatively take $n=0.018$). The final discharge is managed by DSD. " n " value is a coefficient which represents the roughness or friction applied to the flow by the channel in manning's equation.

3. Drainage Assessment

Peripheral channel is designed to collect the runoff generated from and passed through the site (Appendix B shows the Outside Catchment Area Plan). The final discharge point is the existing 13m width x 6m depth open channel in the western side of the site. The runoff intensity is 180mm/hr. The runoff coefficient

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of the site to be 0.95, while that of the part of outside catchment area is 0.95 and part of area is 0.40. (Appendix C shows the Drainage Layout Plan of the site).

The overall catchment area for the existing 1.8m(W)x1.5m(D) open channel is presented in Appendix D. The total area including the site is 516.725sq m. The runoff intensity is 180mm/hr. It is conservatively assumed that 50% to be hard paved (C=0.95) and 50% to be unpaved (C=0.25).

For the site itself, the runoff including the site and the outside catchment area is collected by proposed 375UC and finally discharge to the existing 1.8m(W)x1.5m(D) open channel via the proposed 525pipe. For checking the existing 1.8m(W)x1.5m(D) open channel, since the site is currently full of vegetation, in drainage point of view, the runoff coefficient is changed from 0.25 to 0.95. It is found that the 1.8m(W)x1.5m(D) open channel is adequate to cater the extra runoff due the proposed development. Detailed calculation is presented in Appendix E,

It is found that the existing open channel is capable to cater the runoff without flooding risk.

4. Conclusion

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635), is applied for planning permission. The runoff generated from the site is collected and discharged to the existing open channel in the south that finally discharge to Existing open channel (SCP1011280) maintained by DSD. The overall catchment of the existing open channel and the corresponding runoff is investigated and found that it is capable of catering to the extra runoff from the proposed development. (Appendix E shows the detailed calculation) There is no flooding risk for the proposed development.

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

Appendix A: Site Location Plan





Site Area

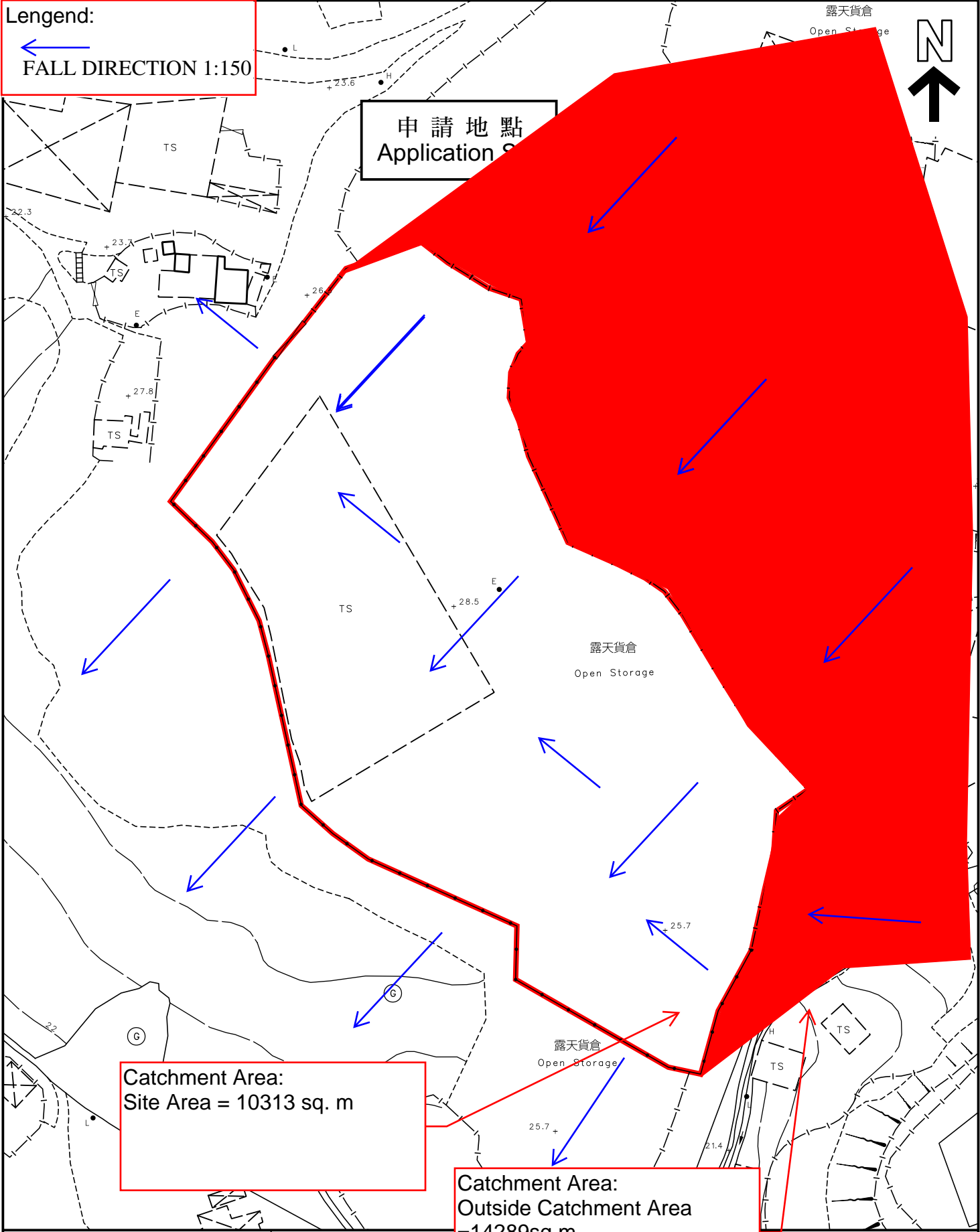
Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

Appendix B: Outside Catchment Plan

Lengend:
← FALL DIRECTION 1:150



申請地點
Application Site



Catchment Area:
Site Area = 10313 sq. m

Catchment Area:
Outside Catchment Area
=14289sq.m

本摘要圖於2024年2月6日擬備，
所根據的資料為測量圖編號
6-NW-24D
EXTRACT PLAN PREPARED ON 6.2.2024
BASED ON SURVEY SHEET No.
6-NW-24D

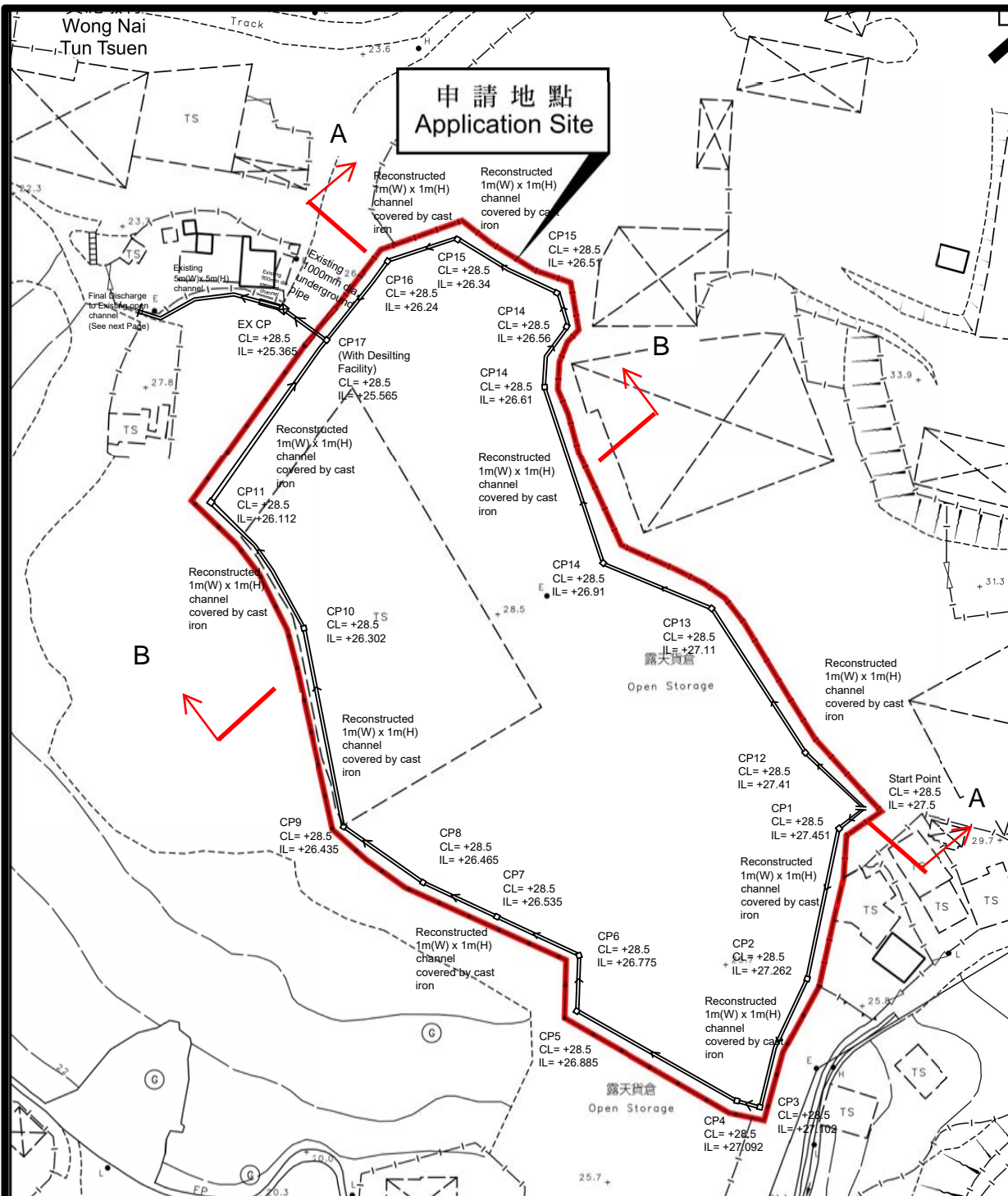
平面圖 SITE PLAN

地點界線只作識別用
APPLICATION SITE BOUNDARY
IDENTIFICATION PURPOSE ONLY

參考編號
REFERENCE No.
A/YL-TT/635

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

Appendix C: Drainage Layout Plan



Note:

1. Catchpit (CP17) with desilting facility shall follow CEDD standard drawing No. C2406I.
2. Proposed Catchpit and UC follows Typical Details of Geotechnical Manual for Slope Fig.8.10 and Fig.8.11 respectively.
3. Stepped Channel follows Typical Details of CEDD standard drawing No. C2411G
4. Cast iron cover for channel follows Typical Details of CEDD standard drawing No. C2412E
5. The inverted level of the connection point shall be verified on site prior the commencement of work

Legend:

- Existing Drainage Facility/Reconstructed Facility with Cast iron cover
- Proposed Catchpit
- Existing Stepped Channel

Company:

Project:

VARIOUS LOTS IN D.D.117 AND ADJOINING GOVERNMENT LAND, TAI TONG, YUEN LONG, NEW TERRITORIES (A/YL-TT/635)

(Drainage Impact Assessment)

Title:

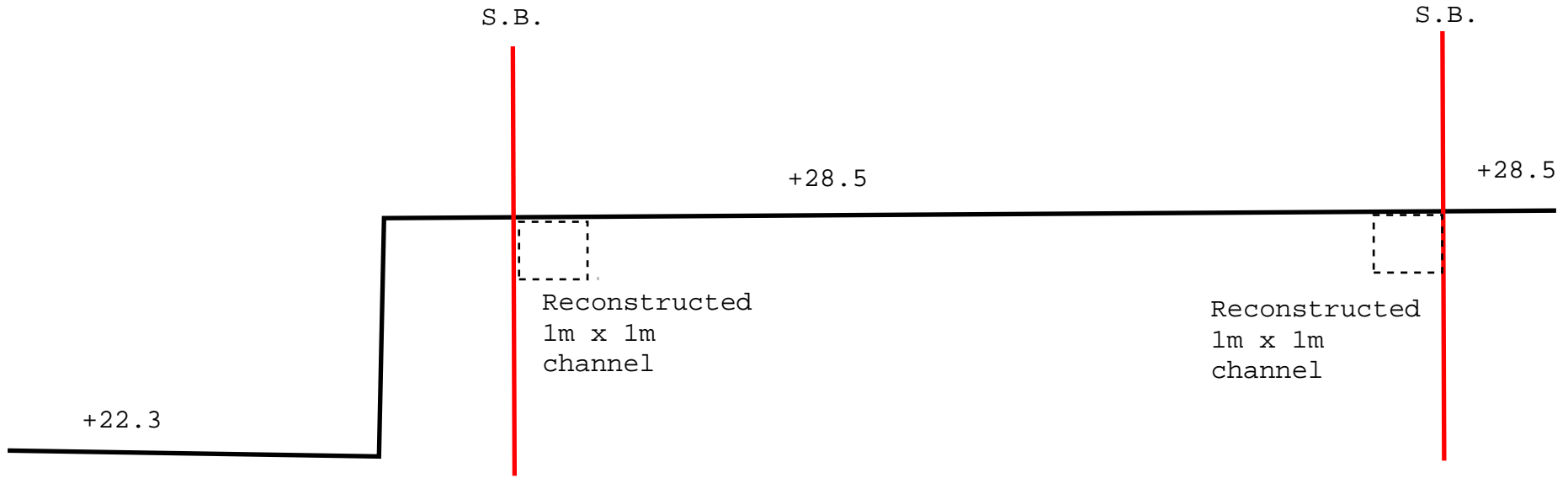
Drainage layout

Dwg No:

File:

Fig.1

Date:
8 Oct 2024



S.B.

S.B.

+28.5

+28.5

+22.3

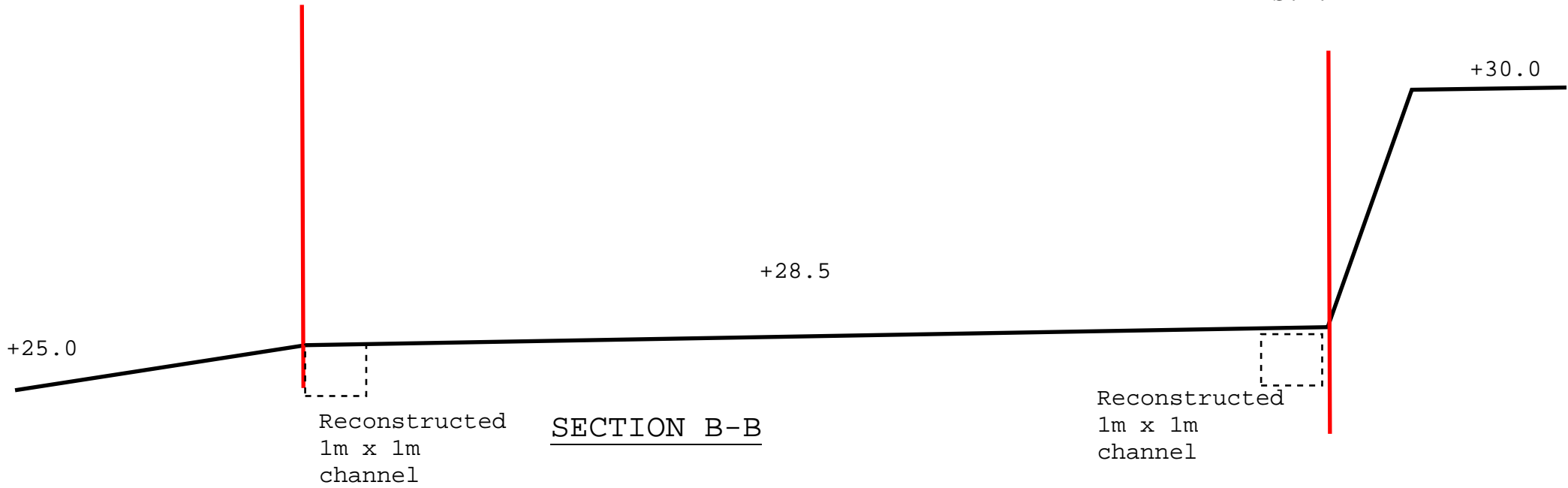
Reconstructed
1m x 1m
channel

Reconstructed
1m x 1m
channel

S.B.

SECTION A-A

S.B.



+25.0

+28.5

+30.0

Reconstructed
1m x 1m
channel

SECTION B-B

Reconstructed
1m x 1m
channel



Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

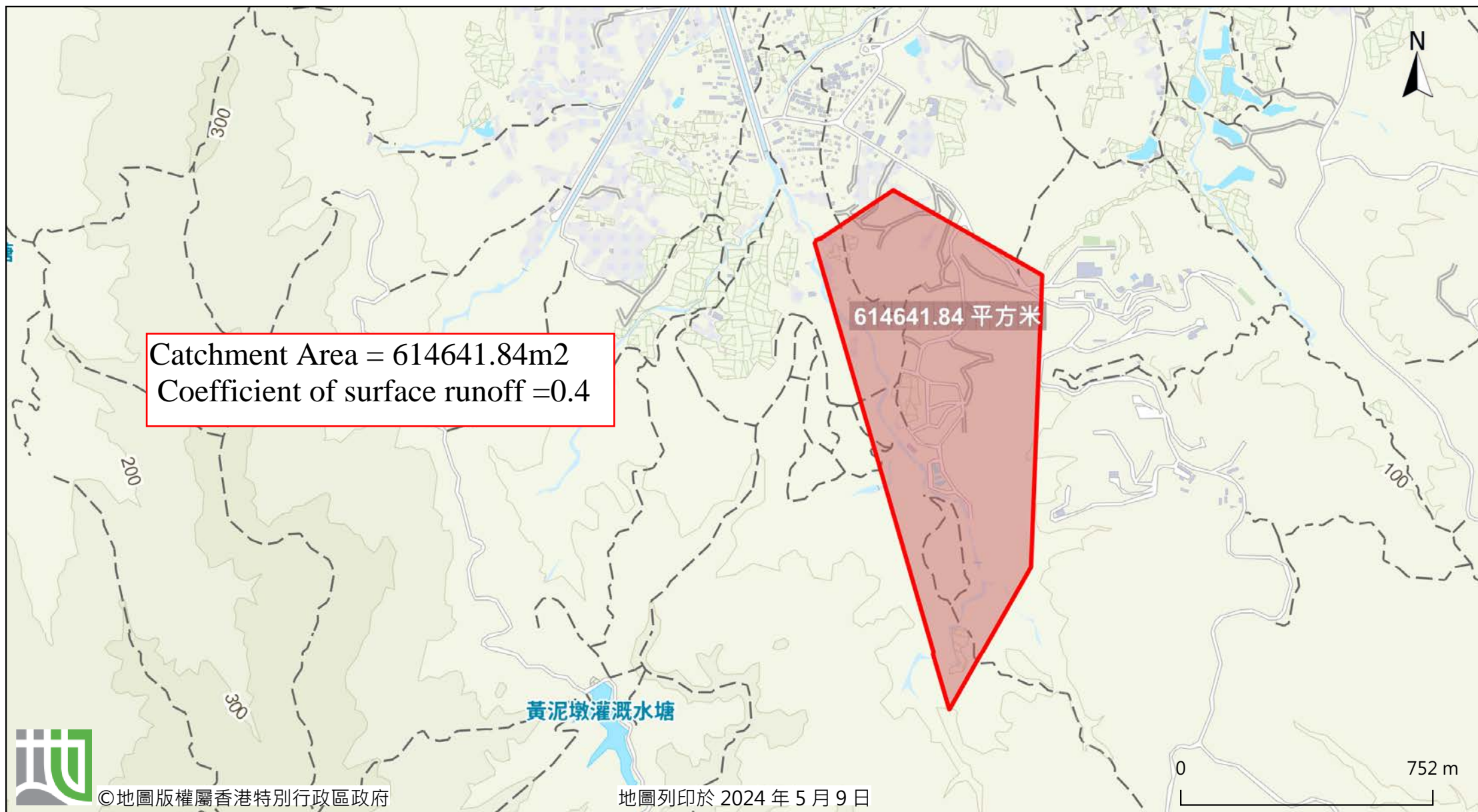
Appendix D: Overall Catchment Area for Existing Channel

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

Appendix D1: Overall Catchment Area for Existing 5m (W) x 5m (H) Channel

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

Appendix D2: Overall Catchment Area for Existing 13m (W) x 6m (H) Channel



Catchment Area = 614641.84m²
Coefficient of surface runoff = 0.4

614641.84 平方米

洪水坑灌溉水塘

藍地灌溉水塘

黃泥墩灌溉水塘

大橫涌水塘



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地圖列印於 2024 年 5 月 9 日



Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

Appendix E: Calculation

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

Appendix E1: Calculation of 1m x 1m channel and 1000mm dia. pipe and 900mm width stepped channel

Company:

Project :

Date: 8/10/2024

Site Area = 10313 m² (C=0.95, hard-paved)
Outside Catchment Area = 14289 m² (C=0.6, Grassland, heavy soil, Steep Slope) (Ratio of concrete paved: ratio of soil paved = 1:2)
Total Catchment Area= 24602 m²

$$t_o = \frac{0.14465L}{H^{0.2} A^{0.1}}$$

where t_o = time of concentration of a natural catchment (min.)
 A = catchment area (m²)
 H = average slope (m per 100 m), measured along the line of natural flow, from the summit of the catchment to the point under consideration
 L = distance (on plan) measured on the line of natural flow between the summit and the point under consideration (m)

$$t = \frac{0.14475 \times 100 \times 1.5^{0.2} \times 38338^{0.1}}{0.6}$$

= 4.646 min

$$i = \frac{a}{(t_d + b)^c}$$

where i = extreme mean intensity in mm/hr,
 t_d = duration in minutes ($t_d \leq 240$), and
 a, b, c = storm constants given in Tables 3a, 3b, 3c and 3d.

Assume 10 yrs return period

$$a = 485$$
$$b = 3.11$$
$$c = 0.397$$

$$i = 215.062891 \text{ mm/hr}$$

Therefore, take $i = 220 \text{ mm/hr}$

Company:

Project :

Date: 8/10/2024

Calculation for channels:

14289 (C=0.6, Grassland, heavy soil, Steep Slope) (Ratio of concrete paved: ratio of soil paved = 1:2)

Catchment Area of site

Site Area = 10313 m²
= 0.010313 km²

Peak runoff in m³/s = 0.278 x 0.95 x 220 mm/hr x 0.010313 km²
= 0.599206 m³/s
= 35952 liter/min

Outside Area = 14289 m²
= 0.014289 km²

Peak runoff in m³/s = 0.278 x 0.6 x 220 mm/hr x 0.014289 km²
= 0.524349 m³/s
= 31461 liter/min

Total Peak Runoff for Site = 1.123555 m³/s = 67413.3042 liter/min

Check 1000mm dia. Pipe by Colebrook-White Equation

$$V = -\sqrt{(8gDs)} \log\left(\frac{ks}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}}\right)$$

where :

V	=			mean velocity (m/s)	
g	=	9.81	m/s ²	gravitational acceleration (m/s ²)	
D	=	1	m	internal pipe diameter (m)	
ks	=	0.000003	m	hydraulic pipeline roughness (m)	(Table 5, from DSD Sewerage Manual, uPVC)
v	=	1.14E-06	m ² /s	kinematic viscosity of fluid (m ² /s)	
s	=	0.01		hydraulic gradient	
Area	=	0.70685835	m ² /s		
Therefore, design V of	=	4.5521	m/s	>	Design velocity = 1.1236 m ³ /s / (1 ² * pi/4 x 0.9) ==>O.K.
					from catchment area = 1.5895053 m/s

For 1m x 1m channel in the site,

By Manning's equation (1m x 1m (depth) channel is adopted)

$$Q = \frac{1}{n} \frac{A^{\frac{5}{3}}}{P^{\frac{2}{3}}} S_0^{\frac{1}{2}}$$

where $n = 0.015$

$$S_0 = 0.0015$$

$$A = 1 \times 1 = 1 \text{ m}^2$$

$$P = 3 \text{ m}$$

$$= \frac{1}{0.015} \frac{(1)^{\frac{5}{3}}}{(3)^{\frac{2}{3}}} (0.0015)^{\frac{1}{2}}$$

$$= 1.24 \text{ m}^3/\text{hr}$$

$$> 1.123 \text{ m}^3/\text{hr}$$

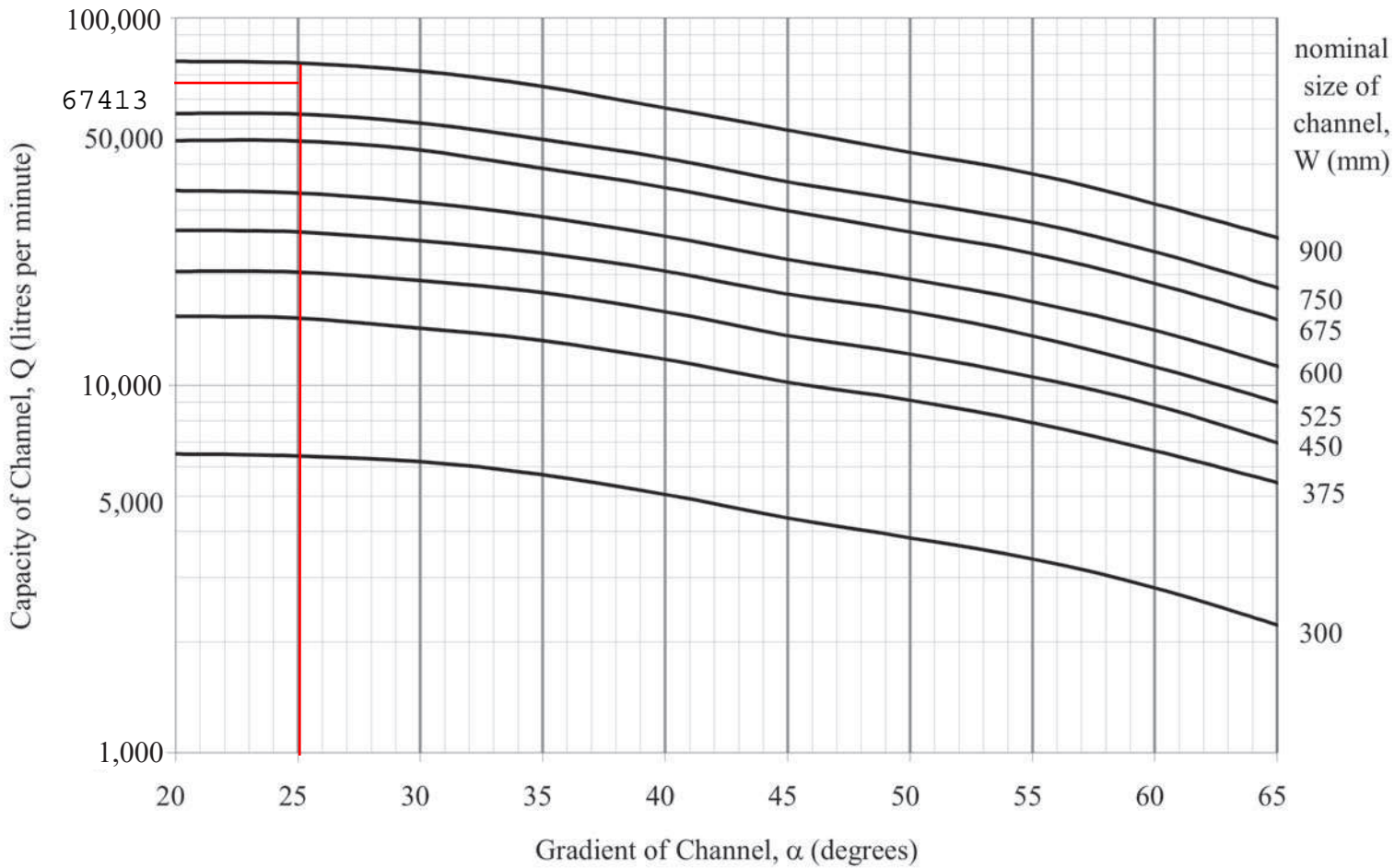
OK!

Proposed 1.0m (W) x 1.0m (H) open channel (1:150) in the site can cater the surface runoff from proposed development

GEO Technical Guidance Note No. 27 (TGN 27)
Hydraulic Design of Stepped Channels on Slopes

Issue No.: 1 Revision: - Date: 3.8.2006 Page: 6 of 16

Figure 2 – Design Chart for Standard Sized Stepped Channels



Existing stepped channel (25 degrees) in the site can cater the surface runoff from proposed development

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Appendix E2: Calculation of 5m(W) x 5m (H) Existing channel

Company:
Project :

Date: 8/10/2024

Site Area = 10313 m² (C=0.95, hard-paved)
Outside Catchment Area = 24699 m² (C=0.6, Grassland)
Total Catchment Area= 35012 m²

$$t_o = \frac{0.14465L}{H^{0.2} A^{0.1}}$$

where t_o = time of concentration of a natural catchment (min.)
 A = catchment area (m²)
 H = average slope (m per 100 m), measured along the line of natural flow, from the summit of the catchment to the point under consideration
 L = distance (on plan) measured on the line of natural flow between the summit and the point under consideration (m)

$$t = 0.14475 * 100 / 1.5^{0.2} / 24699^{0.1} \\ = 4.854 \text{ min}$$

$$i = \frac{a}{(t_d + b)^c}$$

where i = extreme mean intensity in mm/hr,
 t_d = duration in minutes ($t_d \leq 240$), and
 a, b, c = storm constants given in Tables 3a, 3b, 3c and 3d.

Assume 10 yrs return period

$$a = 485 \\ b = 3.11 \\ c = 0.397$$

$$i = 212.806427 \text{ mm/hr}$$

Therefore, take $i = 220 \text{ mm/hr}$

Company:

Project :

Date: 8/10/2024

Calculation for channels:

Catchment Area of site

$$\begin{aligned} \text{Site Area} &= 10313 \text{ m}^2 \\ &= 0.010313 \text{ km}^2 \end{aligned}$$

$$\begin{aligned} \text{Peak runoff in m}^3/\text{s} &= 0.278 \times 0.95 \times 220 \text{ mm/hr} \times 0.010313 \text{ km}^2 \\ &= 0.599206 \text{ m}^3/\text{s} \\ &= 35952 \text{ liter/min} \end{aligned}$$

$$\begin{aligned} \text{Outside Area} &= 24699 \text{ m}^2 \\ &= 0.024699 \text{ km}^2 \end{aligned}$$

$$\begin{aligned} \text{Peak runoff in m}^3/\text{s} &= 0.278 \times 0.6 \times 220 \text{ mm/hr} \times 0.024699 \text{ km}^2 \\ &= 0.906355 \text{ m}^3/\text{s} \\ &= 54381 \text{ liter/min} \end{aligned}$$

$$\begin{aligned} \text{Total Peak Runoff for Site} &= 1.50556 \text{ m}^3/\text{s} = 90333.6258 \text{ liter/min} \end{aligned}$$

By Manning's equation, (5m x 5m (depth) channel is adopted)

$$Q = \frac{1}{n} \frac{A^{\frac{5}{3}}}{P^{\frac{2}{3}}} S_0^{\frac{1}{2}}$$

where $n = 0.04$

$$S_0 = 0.001$$

$$A = 5 \times 5 = 25 \text{m}^2$$

$$P = 5 + 5 + 5 = 15 \text{m}$$

$$= \frac{1}{0.04} \frac{(25)^{\frac{5}{3}}}{(15)^{\frac{2}{3}}} (0.001)^{\frac{1}{2}}$$

$$= 22.6 \text{ m}^3/\text{hr}$$

> 1.51 m³/hr

OK!

Existing 5m (W) x 5m (H) open channel (1:150) in the site can cater the surface runoff from proposed development

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

Appendix E3: Calculation of 13m(W) x 6m (H) Existing channel

Company:
Project :

Date: 8/10/2024

Site Area = 10313 m² (C=0.95, hard-paved)
Outside Catchment Area = 614642 m² (C=0.6, Grassland)
Total Catchment Area = 624955 m²

$$t_o = \frac{0.14465L}{H^{0.2} A^{0.1}}$$

where t_o = time of concentration of a natural catchment (min.)
 A = catchment area (m²)
 H = average slope (m per 100 m), measured along the line of natural flow, from the summit of the catchment to the point under consideration
 L = distance (on plan) measured on the line of natural flow between the summit and the point under consideration (m)

$$t = 0.14475 * 100 / 1.5^{0.2} / 624955^{0.1} \\ = 3.514 \text{ min}$$

$$i = \frac{a}{(t_d + b)^c}$$

where i = extreme mean intensity in mm/hr,
 t_d = duration in minutes ($t_d \leq 240$), and
 a, b, c = storm constants given in Tables 3a, 3b, 3c and 3d.

Assume 10 yrs return period

$$a = 485 \\ b = 3.11 \\ c = 0.397$$

$$i = 228.957085 \text{ mm/hr}$$

Therefore, take $i = 230 \text{ mm/hr}$

Company:

Project :

Date: 8/10/2024

Calculation for channels:

Catchment Area of site

$$\begin{aligned} \text{Site Area} &= 10313 \text{ m}^2 \\ &= 0.010313 \text{ km}^2 \end{aligned}$$

$$\begin{aligned} \text{Peak runoff in m}^3/\text{s} &= 0.278 \times 0.95 \times 230 \text{ mm/hr} \times 0.010313 \text{ km}^2 \\ &= 0.626443 \text{ m}^3/\text{s} \\ &= 37587 \text{ liter/min} \end{aligned}$$

$$\begin{aligned} \text{Outside Area} &= 624955 \text{ m}^2 \\ &= 0.624955 \text{ km}^2 \end{aligned}$$

$$\begin{aligned} \text{Peak runoff in m}^3/\text{s} &= 0.278 \times 0.6 \times 230 \text{ mm/hr} \times 0.624955 \text{ km}^2 \\ &= 23.97577 \text{ m}^3/\text{s} \\ &= 1438546 \text{ liter/min} \end{aligned}$$

$$\text{Total Peak Runoff for Site} = 24.60222 \text{ m}^3/\text{s} = 1476132.971 \text{ liter/min}$$

By Manning's equation (13m x 6m depth) channel (is adopted)

$$Q = \frac{1}{n} \frac{A^{5/3}}{P^{2/3}} S_0^{1/2}$$

where $n = 0.018$

$$S_0 = 0.001$$

$$A = 13 \times 6 = 78 \text{m}^2$$

$$P = 13 + 6 + 6 = 25 \text{m}$$

$$= \frac{1}{0.018} \frac{(78)^{5/3}}{(25)^{2/3}} (0.001)^{1/2}$$

$$= 336 \text{ m}^3/\text{hr}$$

> 24.60 m³/hr

OK!

Existing 13m (W) x 6m (H) open channel (1:150) in the site can cater the surface runoff from proposed development

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

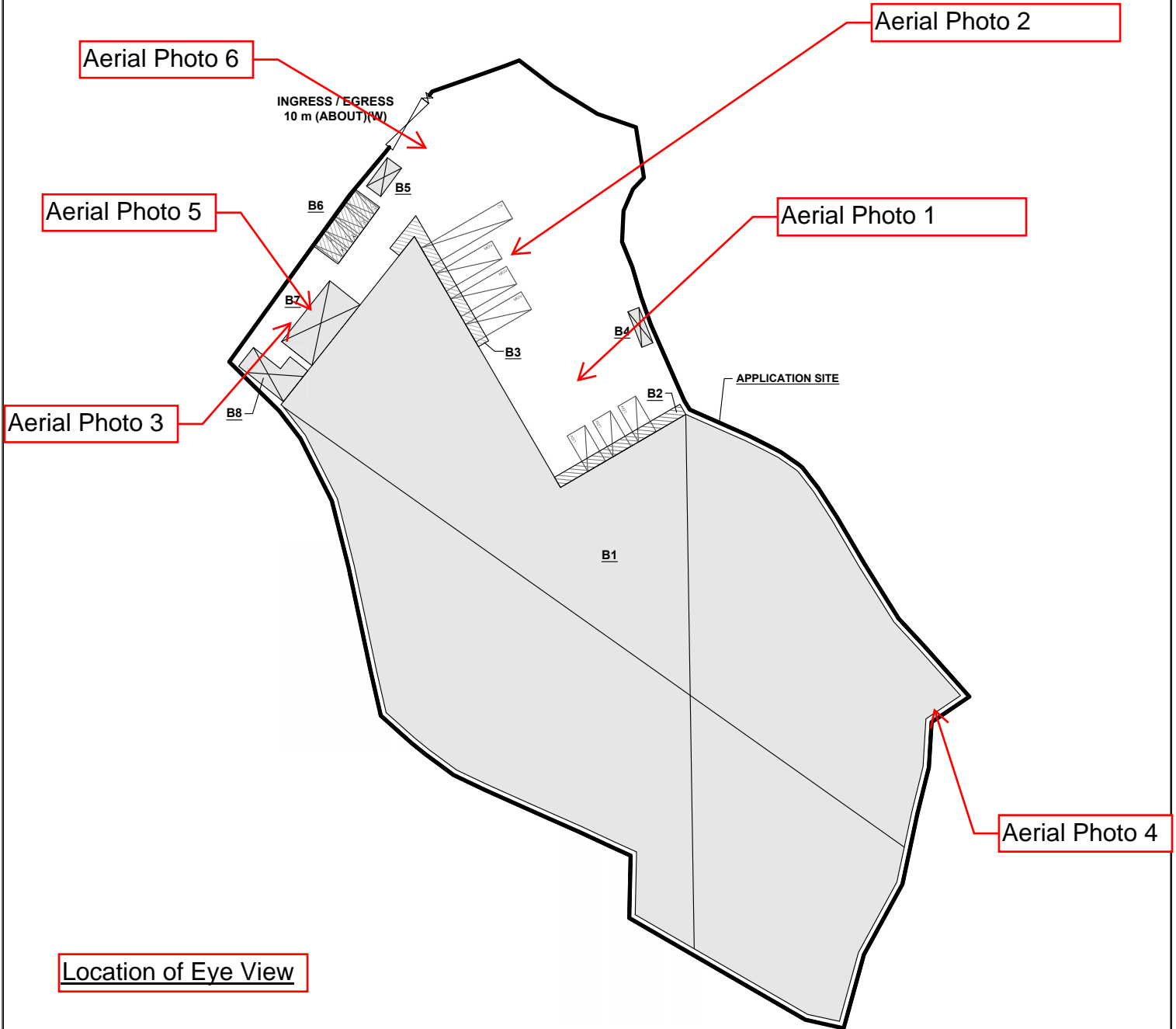
Appendix F: Site Photo

DEVELOPMENT PARAMETERS

APPLICATION SITE AREA	: 10,313 m ²	(ABOUT)
COVERED AREA	: 7,730 m ²	(ABOUT)
UNCOVERED AREA	: 2,583 m ²	(ABOUT)
PLOT RATIO	: 1.47	(ABOUT)
SITE COVERAGE	: 75 %	(ABOUT)
NO. OF STRUCTURE	: 8	
DOMESTIC GFA	: NOT APPLICABLE	
NON-DOMESTIC GFA	: 15,211 m ²	(ABOUT)
TOTAL GFA	: 15,211 m ²	(ABOUT)
BUILDING HEIGHT	: 3 m - 13 m	(ABOUT)
NO. OF STOREY	: 1 - 2	

STRUCTURE	USE	COVERED AREA	GFA	BUILDING HEIGHT
B1	WAREHOUSE (EXCL D.G.G.)*	7,393 m ² (ABOUT)	14,786 m ² (ABOUT)	13 m (ABOUT)(2-STOREY)
B2	COVERED L/UL AREA	50 m ² (ABOUT)	50 m ² (ABOUT)	7 m (ABOUT)(1-STOREY)
B3	COVERED L/UL AREA	58 m ² (ABOUT)	58 m ² (ABOUT)	7 m (ABOUT)(1-STOREY)
B4	METER ROOM	13 m ² (ABOUT)	13 m ² (ABOUT)	3 m (ABOUT)(1-STOREY)
B5	GUARDROOM	18 m ² (ABOUT)	18 m ² (ABOUT)	3 m (ABOUT)(1-STOREY)
B6	COVERED PARKING SPACES	60 m ² (ABOUT)	60 m ² (ABOUT)	3.5 m (ABOUT)(1-STOREY)
B7	SITE OFFICE AND WASHROOM	88 m ² (ABOUT)	176 m ² (ABOUT)	7 m (ABOUT)(1-STOREY)
B8	SITE OFFICE AND STORE ROOM	50 m ² (ABOUT)	50 m ² (ABOUT)	3.5 m (ABOUT)(1-STOREY)
TOTAL		7,730 m² (ABOUT)	15,211 m² (ABOUT)	

*WAREHOUSE (EXCL. D.G.G.) - WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN)



PARKING AND LOADING / UNLOADING PROVISIONS

NO. OF PRIVATE CAR PARKING SPACE	: 4
DIMENSION OF L/UL SPACE	: 5 m (L) x 2.5 m (W)
NO. OF L/UL SPACE FOR LIGHT GOODS VEHICLE	: 3
DIMENSION OF L/UL SPACE	: 7 m (L) x 3.5 m (W)
NO. OF L/UL SPACE FOR MEDIUM GOODS VEHICLE	: 3
DIMENSION OF L/UL SPACE	: 11 m (L) x 3.5 m (W)
NO. OF L/UL SPACE FOR CONTAINER VEHICLE	: 1
DIMENSION OF L/UL SPACE	: 16 m (L) x 3.5 m (W)

LEGEND

	APPLICATION SITE
	STRUCTURE (ENCLOSED)
	STRUCTURE (CANOPY)
	PRIVATE CAR PARKING SPACE
	LOADING / UNLOADING SPACE FOR LGV
	LOADING / UNLOADING SPACE FOR MGW
	LOADING / UNLOADING SPACE FOR CV
	INGRESS / EGRESS

PLANNING CONSULTANT 	PROJECT PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS	ADDRESS VARIOUS LOTS IN D.D. 117 AND ADJOINING GOVERNMENT LAND, TAI TONG, YUEN LONG, NEW TERRITORIES	SCALE 1 : 1000 @ A4	TITLE LAYOUT PLAN		NORTH SOUTH
			DRAWN BY MN	DATE 21.11.2023	DWG NO. PLAN 4	



TAI LAM
COUNTRY
PARK

Existing Open Channel
5m(W)x 5m(H)

Final Discharge to
Wong Tong Stream

SITE PHOTO 2

Po Leung Ku
Jockey Club
Tong Holiday C

Northing:821135 , Easting:830107

100m



Aerial Photo: Overview of the Site



Aerial Photo 1: Shortage



Aerial Photo 2: Shortage



Aerial Photo 3: Site View



Aerial Photo 4: Site View



Aerial Photo 5: Site View



Aerial Photo 6: Site Entrance



Site Photo 1: Stepped Channel and Existing Stream (5m (W) x5m(H))



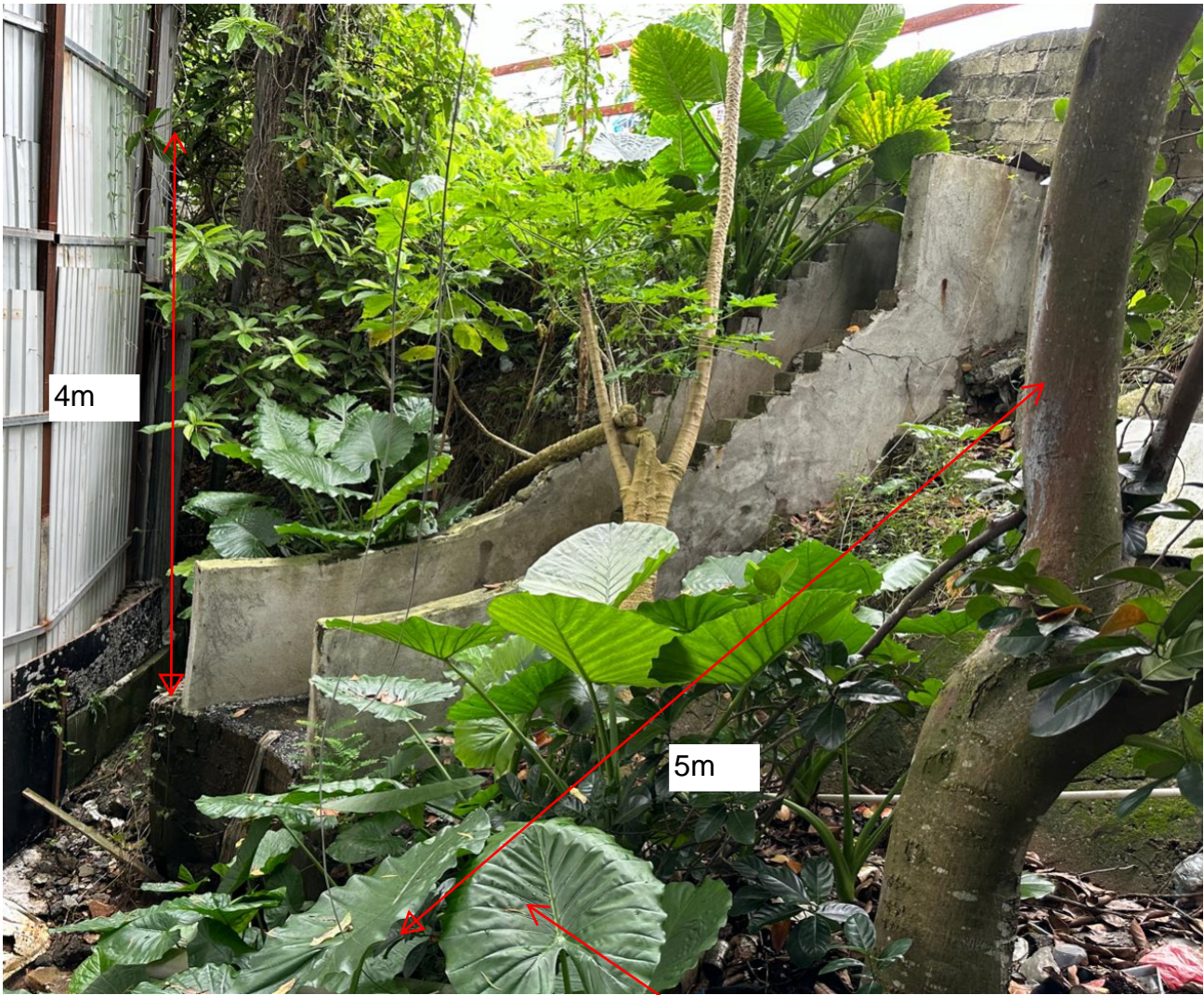
Site Photo 2: Final Discharge to Wong Tong Stream (Maintained by DSD)



Site Photo 3: Existing 1m (W) x 1m (H) in the site



Site Photo 4: Existing 1m (W) x 1m (H) in the site

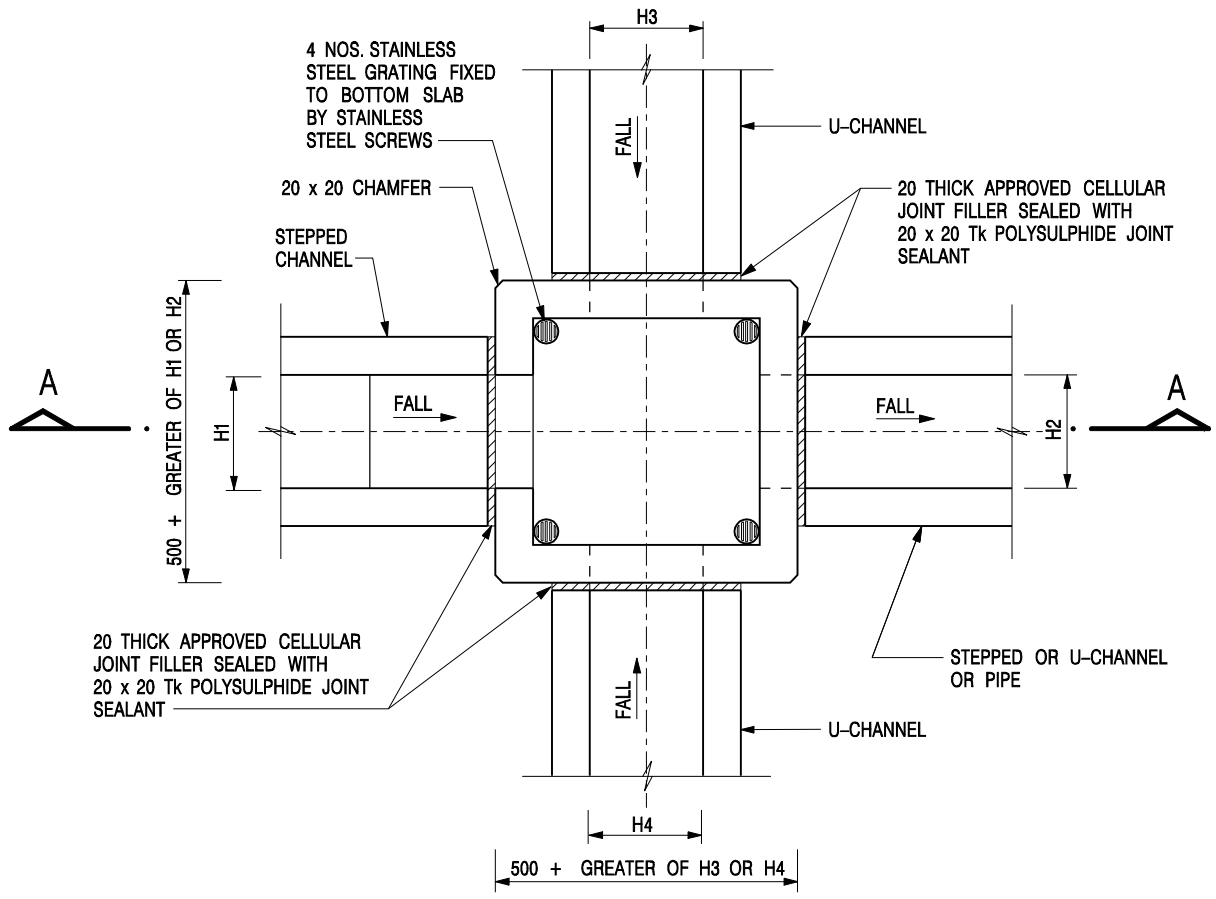


Slope Gradient
= 25 degrees

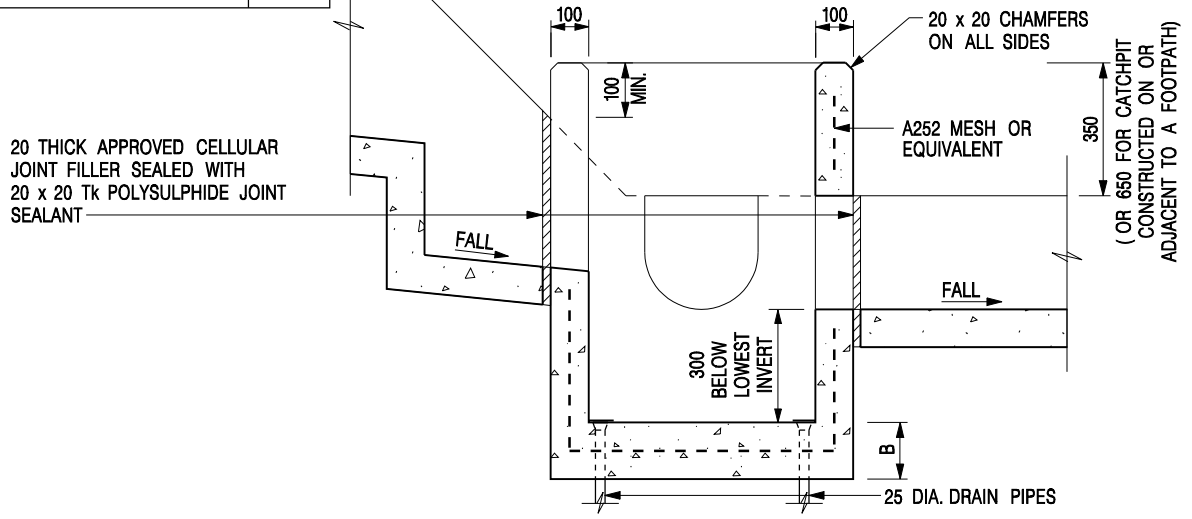
Dimension of Stepped Channel

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years at various Lots in D.D. 117 and Adjoining Government Land, Tai Tong, Yuen Long, New Territories (A/YL-TT/635)

Appendix G: Standard Drawing



NOMINAL SIZE (LARGEST OF H1, H2, H3 & H4)	B
300 - 600	150
675 - 900	175



SECTION A - A

NOTES:

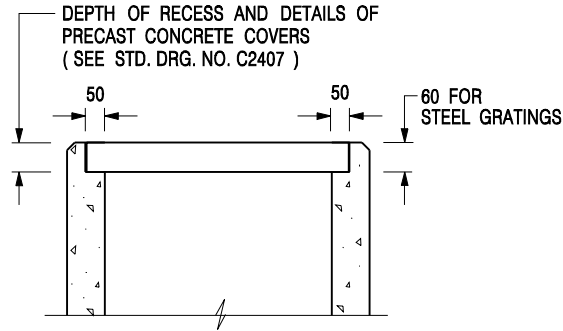
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 2 FOR OTHER NOTES.

**CATCHPIT WITH TRAP
(SHEET 1 OF 2)**

-	FORMER DRG. NO. C2406J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20	DRAWING NO. C2406 /1
DATE JAN 1991	




**ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS**

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE SHALL BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
5. CONCRETE TO BE COLOURED AS SPECIFIED.
6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED BY THE ENGINEER, CATCHPIT WITH TRAP IS NORMALLY NOT PREFERRED DUE TO PONDING PROBLEM.
7. UPON THE REQUEST FROM MAINTENANCE PARTY, DRAIN PIPES AT CATCHPIT BASE CAN BE USED BUT THIS IS FOR CATCHPITS LOCATED AT SLOPE TOE ONLY AND AS DIRECTED BY THE ENGINEER.
8. FOR CATCHPITS CONSTRUCTED ON OR ADJACENT TO A FOOTPATH, STEEL GRATINGS (SEE DETAIL 'A' ON STD. DRG. NO. C2405) OR CONCRETE COVERS (SEE STD. DRG. NO. C2407) SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER.
9. IF INSTRUCTED BY THE ENGINEER, HANDRAILING (SEE DETAIL 'G' ON STD. DRG. NO. C2405; EXCEPT ON THE UPSLOPE SIDE) IN LIEU OF STEEL GRATINGS OR CONCRETE COVERS CAN BE ACCEPTED AS AN ALTERNATIVE SAFETY MEASURE FOR CATCHPITS NOT ON A FOOTPATH NOR ADJACENT TO IT. TOP OF THE HANDRAILING SHALL BE 1 000 mm MIN. MEASURED FROM THE ADJACENT GROUND LEVEL.
10. MINIMUM INTERNAL CATCHPIT WIDTH SHALL BE 1 000 mm FOR CATCHPITS WITH A HEIGHT EXCEEDING 1 000 mm MEASURED FROM THE INVERT LEVEL TO THE ADJACENT GROUND LEVEL. AND, STEP IRONS (SEE DSD STD. DRG. NO. DS1043) AT 300 c/c STAGGERED SHALL BE PROVIDED. THICKNESS OF CATCHPIT WALL FOR INSTALLATION OF STEP IRONS SHALL BE INCREASED TO 150 mm.
11. FOR RETROFITTING AN EXISTING CATCHPIT WITH STEEL GRATING, SEE DETAIL 'F' ON STD. DRG. NO. C2405.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

-	FORMER DRG. NO. C2406J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE

**CATCHPIT WITH TRAP
(SHEET 2 OF 2)**

 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	
SCALE 1 : 20	DRAWING NO.
DATE JAN 1991	C2406 /2

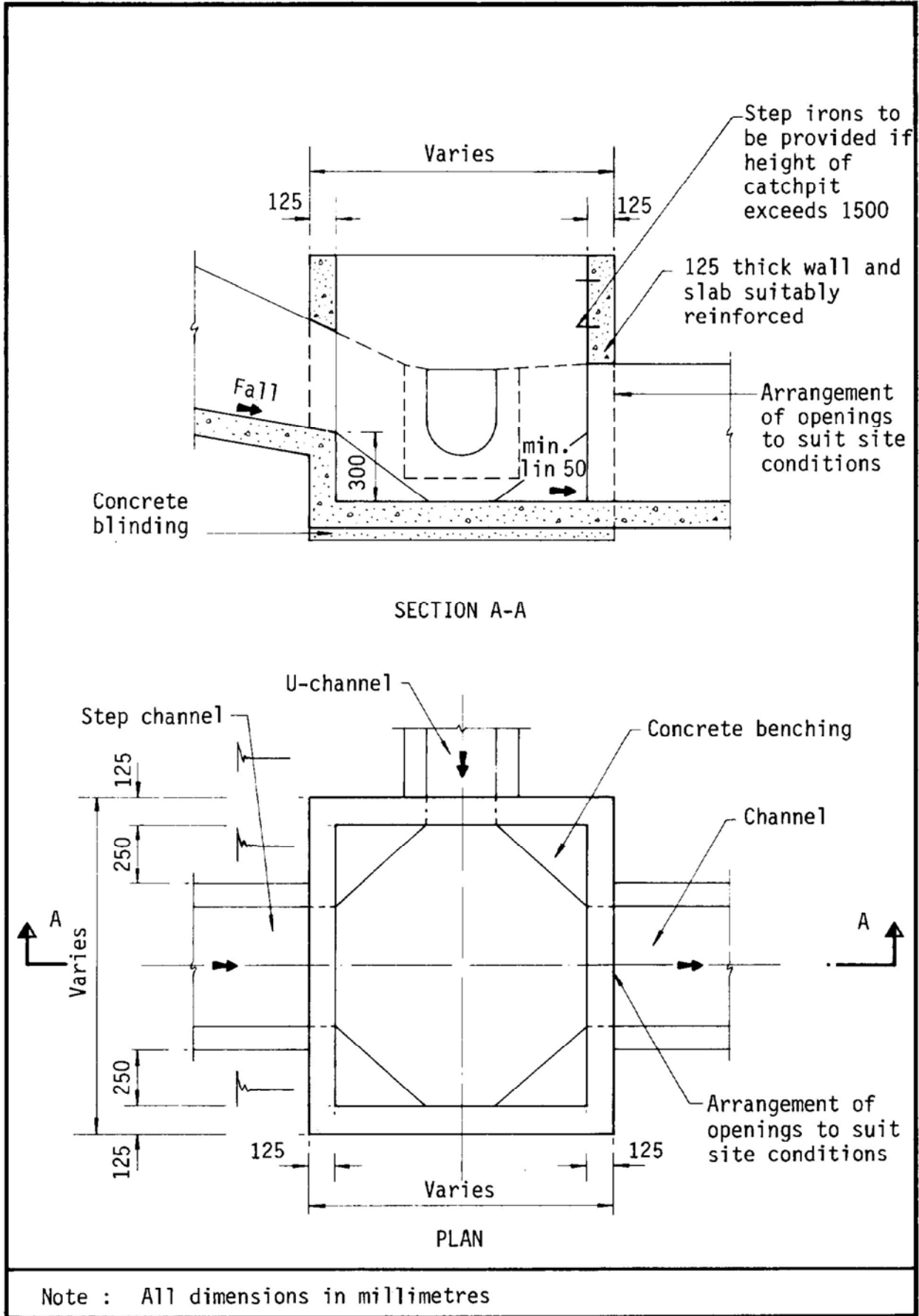
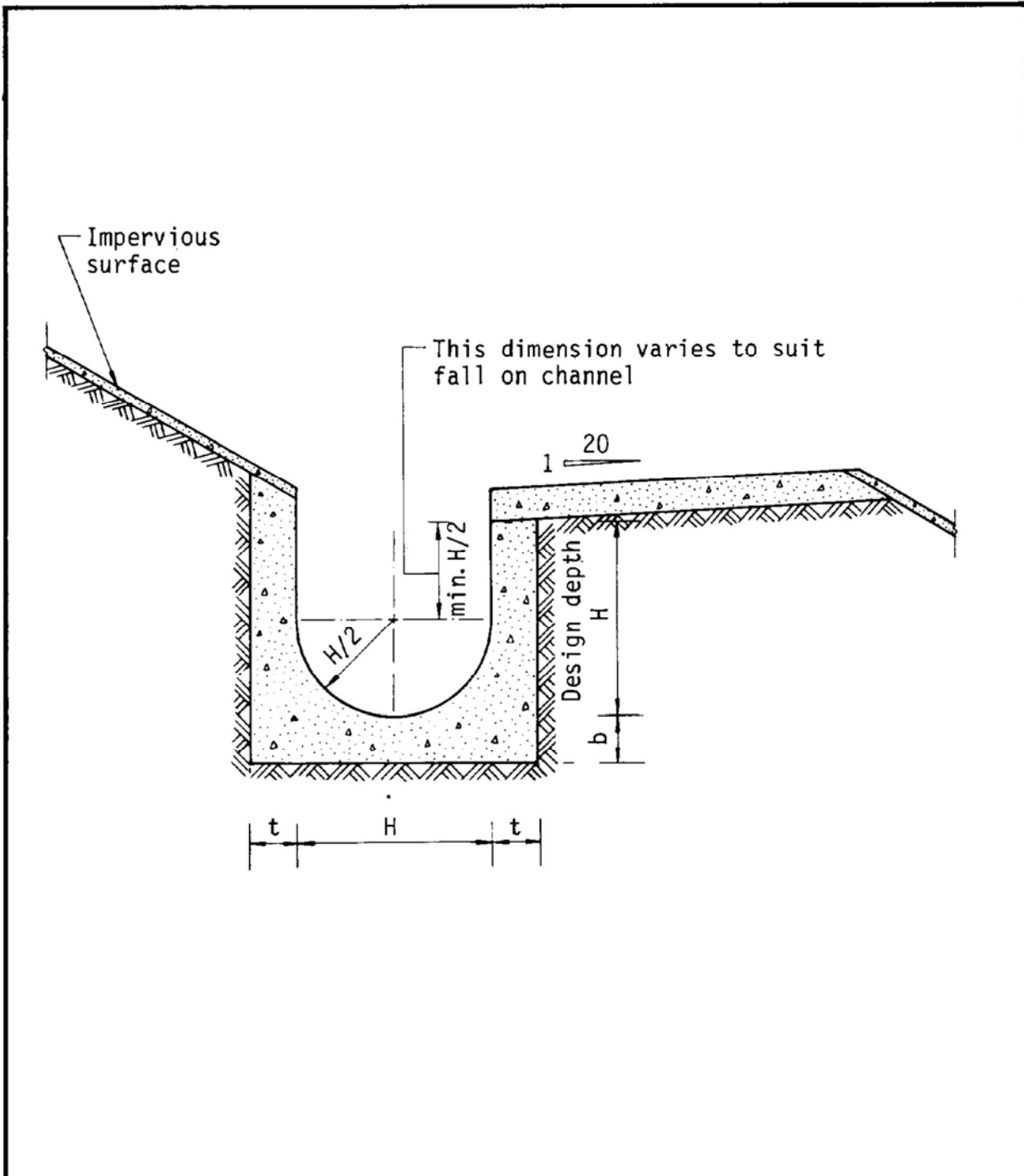


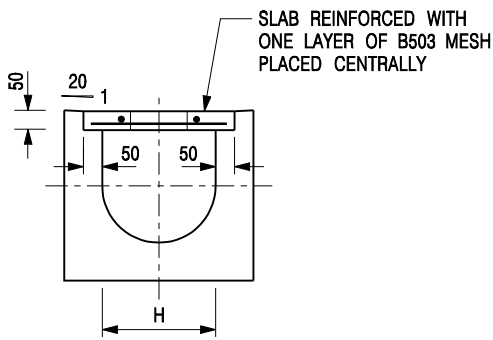
Figure 8.10 - Typical Details of Catchpits



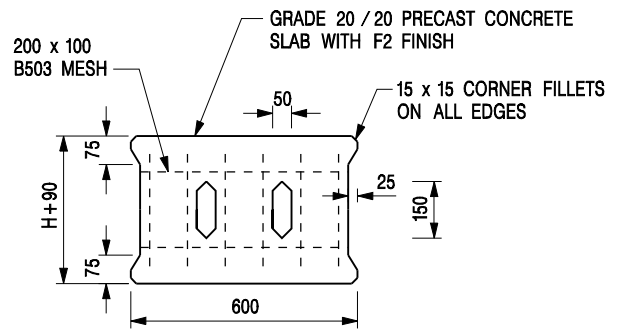
Dimensions of U - channel

Nominal size of channel H (mm)	Thickness t (mm)	Thickness b (mm)
225 to 600	150	150
675 to 1200	175	225

Figure 8.11 - Typical U-channel Details



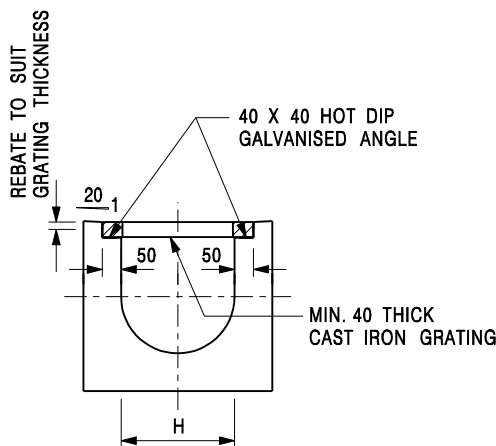
TYPICAL SECTION



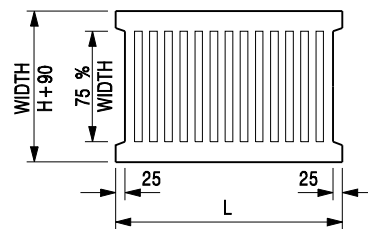
PLAN OF SLAB

U-CHANNELS WITH PRECAST CONCRETE SLABS

(UP TO H OF 525)



TYPICAL SECTION



L = 600mm FOR H ≤ 375mm
L = 400mm FOR H > 375mm

CAST IRON GRATING

(DIMENSIONS ARE FOR GUIDANCE ONLY, CONTRACTOR MAY SUBMIT EQUIVALENT TYPE)

U-CHANNEL WITH CAST IRON GRATING

(UP TO H OF 525)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. H=NOMINAL CHANNEL SIZE.
3. ALL CAST IRON FOR GRATINGS SHALL BE GRADE EN-GJL-150 COMPLYING WITH BS EN 1561.
4. FOR COVERED CHANNELS TO BE HANDED OVER TO HIGHWAYS DEPARTMENT FOR MAINTENANCE, THE GRATING DETAILS SHALL FOLLOW THOSE AS SHOWN ON HyD STD. DRG. NO. H3156.

E	NOTES 3 & 4 AMENDED.	Original Signed	12.2014
D	NOTE 4 ADDED.	Original Signed	06.2008
C	MINOR AMENDMENT. NOTE 3 ADDED.	Original Signed	12.2005
B	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
A	CAST IRON GRATING AMENDED.	Original Signed	12.2002
REF.	REVISION	SIGNATURE	DATE

COVER SLAB AND CAST IRON GRATING FOR CHANNELS



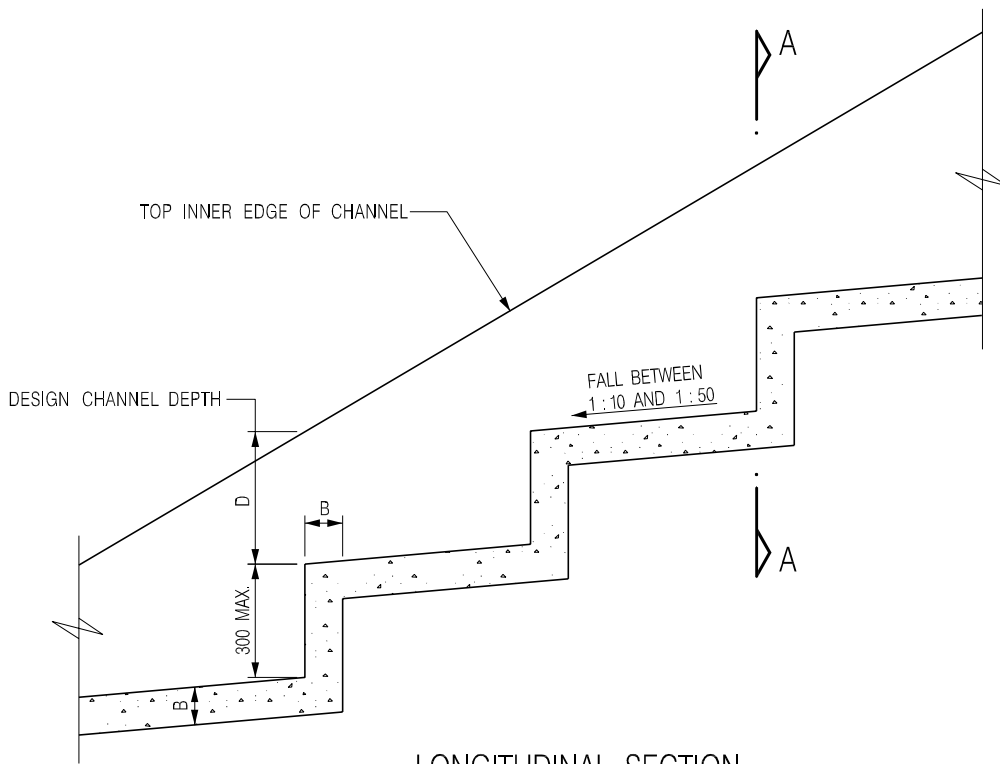
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

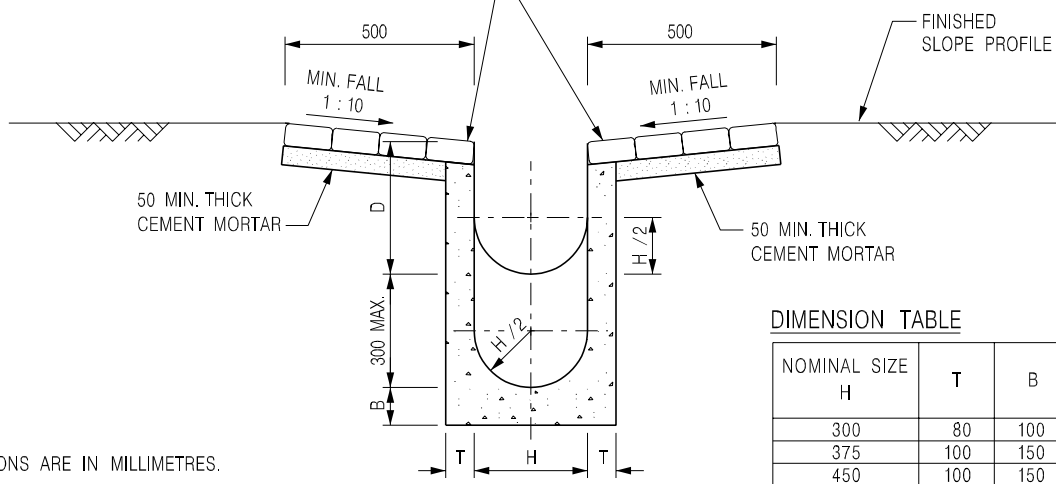
DRAWING NO.

C2412E



LONGITUDINAL SECTION

60 THICK MASONRY FACING ON 50 MIN. THICK CEMENT MORTAR (SET IN 1 : 3 CEMENT / SAND) OR 75 THICK CONCRETE APRON, AS SPECIFIED; ALL TO BE OMITTED IF THIS AREA IS SPRAYED CONCRETE



SECTION A - A

DIMENSION TABLE

NOMINAL SIZE H	T	B	D
300	80	100	350
375	100	150	540
450	100	150	575
525	100	150	615
600	100	150	650
675	125	175	740
750	125	175	775
900	125	175	850

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. FOR DIMENSIONS OF CHANNELS SEE TABLE.
3. ALL CONCRETE SHALL BE GRADE 20 / 20.
4. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
5. EXPANSION JOINTS SHALL BE PROVIDED AT A MAXIMUM SPACING OF 10 METRES WITH DETAILS AS SHOWN ON STD. DRG. NO. C2413.
6. 675 - 900 CHANNELS SHALL BE REINFORCED AS SHOWN ON STD. DRG. NO. C2410.

G	GENERAL REVISION.	Original Signed	08.2006
F	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
E	NOTE 6 AMENDED.	Original Signed	01.2004
D	GENERAL REVISION.	Original Signed	12.2002
C	MINOR AMENDMENT.	Original Signed	08.2001
B	MINOR AMENDMENT.	Original Signed	3.94
A	MINOR AMENDMENT.	Original Signed	11.92
REF.	REVISION	SIGNATURE	DATE

DETAILS OF STEPPED CHANNEL



CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20
DATE JAN 1991

DRAWING NO.
C2411G

FIRE SERVICES NOTES:

1. HOSE REEL SYSTEM

- 1.1 HR SYSTEM TO BE PROVIDED AND INSTALLED FOR THE STRUCTURE B1 IN ACCORDANCE WITH THE CODE OF PRACTICE FOR MINIMUM FIRE SERVICE INSTALLATIONS AND EQUIPMENT.
- 1.2 HOSE REELS SHALL BE PROVIDED AT THE POSITIONS INDICATED ON PLAN.
- 1.3 SUFFICIENT HOSE REELS TO BE PROVIDED TO ENSURE THAT EVERY PART OF THE AREA CAN BE REACHED BY A LENGTH OF NOT MORE THAN 30m OF HOSE REEL TUBING.
- 1.4 AN MODIFIED HOSE REEL SYSTEM WITH 2000L F.S. WATER TANK TO BE PROVIDED AND TO BE SINGLE END FEED FROM TOWN MAIN. THE LOCATION OF THE FS WATER TANK AND FS PUMP ROOM ARE CLEARLY MARKED ON PLANS.
- 1.5 TWO FIXED FIRE PUMPS (DUTY & STANDBY) TO BE PROVIDED IN THE PUMP ROOM.
- 1.6 NO FIRE SERVICES INLET TO BE PROVIDED FOR THE MODIFIED HOSE REEL SYSTEM.
- 1.7 AN INSTRUCTION PLATE SHALL BE PROVIDED NEXT TO THE BREAK GLASS UNIT FOR OPERATION OF HOSE REEL

2. AUTOMATIC SPRINKLER SYSTEM

- 2.1 AN AUTOMATIC SPRINKLER SYSTEM TO BE PROVIDED TO THE ENTIRE STRUCTURE B1 IN ACCORDANCE WITH LPC RULES INCORPORATING BS EN12845 : 2015 AND FSD CIRCULAR LETTER 5/2020. THE SPRINKLER TANK, SPRINKLER PUMP ROOM, SPRINKLER INLET AND SPRINKLER CONTROL VALVE GROUP SHALL BE CLEARLY MARKED ON PLANS.
- 2.2 THE CLASSIFICATION OF THE AUTOMATIC SPRINKLER INSTALLATION TO BE ORDINARY HAZARD GROUP 3.
- 2.3 A 135,000 LITERS SPRINKLER WATER TANK TO BE PROVIDED AS INDICATED ON PLAN.
- 2.4 SPRINKLER CONTROL VALVE SET AND SPRINKLER INLET TO BE PROVIDE AT GROUND FLOOR AND THE LOCATION AS INDICATED ON PLAN.
- 2.5 TWO SPRINKLER PUMPS (DUTY & STANDBY) AND ONE SPRINKLER JOCKEY PUMP TO BE PROVIDED FOR SERVING THE STRUCTURE AND LOCATED IN PUMP ROOM.
- 2.6 ALL SPRINKLER PIPE SIZE SHOULD BE $\phi 32\text{mm}$ UNLESS SPECIFY.
- 2.7 TYPE OF STORAGE METHOD FOR THE BUILDING IS AS FOLLOWS:
(A) STORAGE CATEGORY : CATEGORY (I)
(B) STORAGE HEIGHT : NOT EXCEEDING 4M
(C) STORAGE : ST1
- 2.8 STORAGE BLOCK SHOULD BE SEPARATED BY AISLES NO LESS THAN 2.4 WIDE.
- 2.9 STORAGE SHOULD BE CONFINED TO BLOCKS NOT EXCEEDING 50M² IN PLAN AREA FOR CATEGORY I.
- 2.10 ALL INSTALLED SPRINKLER SHOULD BE PENDENT TYPE AND THE TEMPERATURE RATING OF SPRINKLER HEAD SHALL BE 68°C UNLESS OTHERWISE SPECIFIED.

3. FIRE ALARM SYSTEM

- 3.1 FIRE ALARM SYSTEM SHALL BE PROVIDED THROUGHOUT THE STRUCTURE A IN ACCORDANCE WITH BS 5839-1 : 2017 AND FSD CIRCULAR LETTER NO.6/2021. ONE ACTUATING POINT AND ONE AUDIO WARNING DEVICE SHOULD BE LOCATED AT EACH HOSE REEL POINT. THE ACTUATION POINT SHOULD INCLUDE FACILITIES FOR FIRE PUMP START AND AUDIO / VISUAL WARNING DEVICE INITIATION. MANUAL CALL POINT SHOULD BE PROVIDED ADJACENT TO ALL EXITS TO OPEN AIR ON G/F.
- 3.2 AN ADDRESSABLE TYPE FIRE ALARM PANEL TO BE PROVIDED AND LOCATED INSIDE PUMP ROOM.

4. EMERGENCY LIGHTING

- 4.1 SUFFICIENT EMERGENCY LIGHTING SHALL BE PROVIDED THROUGHOUT THE ENTIRE BUILDINGS/STRUCTURES IN ACCORDANCE WITH BS 5266: PART 1 AND BS EN 1838 AND FSD CIRCULAR LETTER 4/2021.




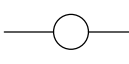


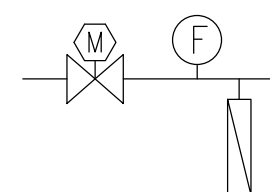







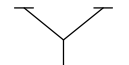






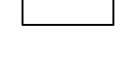


5. EXIT SIGN

- 5.1 SUFFICIENT DIRECTIONAL AND EXIT SIGN SHALL BE PROVIDED IN ACCORDANCE WITH BS 5266: PART 1 AND FSD CIRCULAR LETTER 5/2008.

6. MISCELLANEOUS F.S. INSTALLATION

- 6.1 PORTABLE FIRE EXTINGUISHERS WITH SPECIFIED TYPE AND CAPACITY TO BE PROVIDED AT LOCATION AS INDICATED ON PLANS.
- 6.2 NO EMERGENCY GENERATOR TO BE PROVIDED FOR SERVING THE EMERGENCY POWER. DUPLICATED POWER SUPPLIES FOR ALL FIRE SERVICES INSTALLATIONS COMPRISING A CABLE CONNECTED FROM ELECTRICITY MAINS DIRECTLY BEFORE THE MAIN SWITCH.
- 6.2 WHEN A VENTILATION / AIR CONDITIONING CONTROL SYSTEM TO A BUILDING IS PROVIDED, IT SHALL STOP MECHANICALLY INDUCED AIR MOVEMENT WITHIN A DESIGNATED FIRE COMPARTMENT.
- 6.3 NO DYNAMIC SMOKE EXTRACTION SYSTEM SHALL BE PROVIDED SINCE FIRE COMPARTMENT OF STRUCTURE A & B NOT EXCEEDING 7000 CUBIC METERS.
- 6.4 NO AUDIO/VISUAL ADVISORY SYSTEM SHALL BE PROVIDED SINCE FIRE COMPARTMENT OF STRUCTURE A & B NOT EXCEEDING 2000 SPUARE METERS.
- 6.5 NO DANGEROUS GOODS WILL BE STORED AT ALL STRUCTURES.

LEGEND (FOR LAYOUT PLAN)

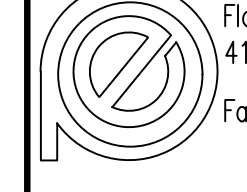
	HOSE REEL W/ LOCKABLE GLASS FRONTED NOZZLE BOX, STRIKER, C/W FIRE ALARM BELL & BREAK GLASS UNIT
	150mm FIRE ALARM BELL
	BREAK GLASS UNIT
	SPRINKLER HEAD
	FLOW SWITCH
	MONITORED GATE VALVE
	SPRINKLER ZONE SUBSIDIARY CONTROL VALVE ASSEMBLY INCLUDES ZONE SUBSIDIARY CONTROL VALVE, FLOW SWITCH, TEST GATE VALVE AND DRAIN VALVE
	GATE VALVE
	NON RETURN VALVE
	VORTEX INHIBITOR
	BALL FLOAT VALVE
	PRESSURE SWITCH
	SPRINKLER / HOSE REEL PIPE
	SPRINKLER CONTROL VALVE SET
	CHECK METER POSITION
	SPRINKLER / F.S. INLET
	5Kg CO2 TYPE FIRE EXTINGUISHER
	4Kg DRY POWDER TYPE FIRE EXTINGUISHER
	PUMP
	150mm WATER ALARM GONG
	ADDRESSABLE TYPE FIRE ALARM PANEL
	PUMP CONTROL PANEL
	EMERGENCY LIGHT
	EXIT SIGN

ABBREVIATION

SPR.	SPRINKLER
H.R.	HOSE REEL
F.E.	FIRE EXTINGUISHER
CO ₂	CARBON DIOXIDE
L.P.C.	LOSS PREVENTION COUNCIL
F.S.I.	FIRE SERVICES INSTALLATION
H/L	HIGH LEVEL
M/L	MID LEVEL
L/L	LOW LEVEL
F/A	FROM ABOVE
F/B	FROM BELOW
T/A	TO ABOVE
T/B	TO BELOW
U/G	UNDERGROUND
F.S.	FIRE SERVICES

DRAWING LIST:

DRAWING NO.	REVISION	DRAWING TITLE
FS-01	A	F.S. NOTES., BLOCK PLAN, LEGEND, ABBREVIATION, DRAWING LIST, PIPE MATERIAL SCHEDULE
FS-02	A	FIRE SERVICES INSTALLATION LAYOUT PLAN

A	P.D SUBMISSION	22-01-2024	WC
REV	DESCRIPTION	DATE	BY
FSI CONTRACTOR			
East Power Engineering Limited			
 Flat A, 7/F., Hop Sing Commercial Building, 41 Chi Kiang Street, Tseungwan, Kowloon Fax : 2394-3772 Tel : 2397-3238			
PROJECT			
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS			
FIRE SERVICES INSTALLATION WORK AT IN D.D.117 AND ADJOINING GOVERNMENT LAND, TAI TONG, YUEN LONG, NEW TERRITORIES			
DRAWING TITLE			
F.S. NOTES, ABBREVIATION, DRAWING LIST, PIPE MATERIAL SCHEDULE			
	INITIAL	DESIGNATION	DATE
DRAWN BY	CAD	CAD	27-2-2022
DESIGN BY	WINKLE	S.ENG	27-2-2022
CHECK BY	CM	PM	27-2-2022
APPROVED BY	--	--	--
PROJECT NO.	--	--	--
PAPER SIZE	A1	PLOT SCALE	1 : 1
DRAWING NO.			
EP-21002-FS01			
SCALE	N. T. S.	REVISION	A

STRUCTURE	USE	COVERED AREA	GFA	BUILDING HEIGHT
B1	WAREHOUSE (EXCL. D.G.G.)*	7,393 m ² (ABOUT)	14,786 m ² (ABOUT)	13 m (ABOUT)(2-STOREY)
B2	COVERED L/U/L AREA	50 m ² (ABOUT)	50 m ² (ABOUT)	7 m (ABOUT)(1-STOREY)
B3	COVERED L/U/L AREA	58 m ² (ABOUT)	58 m ² (ABOUT)	7 m (ABOUT)(1-STOREY)
B4	METER ROOM	13 m ² (ABOUT)	13 m ² (ABOUT)	3 m (ABOUT)(1-STOREY)
B5	GUARDROOM	18 m ² (ABOUT)	18 m ² (ABOUT)	3 m (ABOUT)(1-STOREY)
B6	COVERED PARKING SPACES	60 m ² (ABOUT)	60 m ² (ABOUT)	3.5 m (ABOUT)(1-STOREY)
B7	SITE OFFICE AND WASHROOM	88 m ² (ABOUT)	176 m ² (ABOUT)	7 m (ABOUT)(1-STOREY)
B8	SITE OFFICE AND STORE ROOM	50 m ² (ABOUT)	50 m ² (ABOUT)	3.5 m (ABOUT)(1-STOREY)
TOTAL		7,730 m² (ABOUT)	15,211 m² (ABOUT)	

*WAREHOUSE (EXCL. D.G.G.) - WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN)



A	P.D SUBMISSION	22-01-2024	WC
REV	DESCRIPTION	DATE	BY

FSI CONTRACTOR
East Power Engineering Limited
 Flat A, 7/F., Hop Shing Commercial Building,
 41 Chi Kiang Street, Tseung Kwan O, Kowloon
 Fax. : 2394-3772 Tel. : 2397-3238

PROJECT
PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS
 FIRE SERVICES INSTALLATION WORK AT IN.D.D. 117 AND ADJOINING GOVERNMENT LAND, TAI TONG, YUEN LONG, NEW TERRITORIES

DRAWING TITLE
 FIRE SERVICE INSTALLATION LAYOUT PLAN

	INITIAL	DESIGNATION	DATE
DRAWN BY	CAD	CAD	07-12-2020
DESIGNED BY	JACKIE	S.ENG	07-12-2020
CHECKED BY	CM	PM	08-12-2020
APPROVED BY	-	-	-
PROJECT NO.	-		
PAPER SIZE	A3	PLOT SCALE	1 : 1
DRAWING NO. EP-21002-FS02			
SCALE	1 : 800	REVISION	A