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Timothy Wai Pui WU/PLAND

寄件者: TsangShun Qi <[redacted]>
寄件日期: 2026年08月12日星期三 16:44
收件者: Timothy Wai Pui WU/PLAND
主旨: TKLN / 129 Drainage Proposal
附件: 752 drainage proposal.pdf

類別: Internet Email

Dear Sir,

Please find the revised Drainage Proposal attached. This email supersedes the one sent earlier on 12/08/2026.

Thanks

Carter Tsang
[redacted]

Drainage Proposal

Lots. 752 S.A,752 S.B,752 S.C,752 S.D,752 S.E,752 RP
In D.D. 82

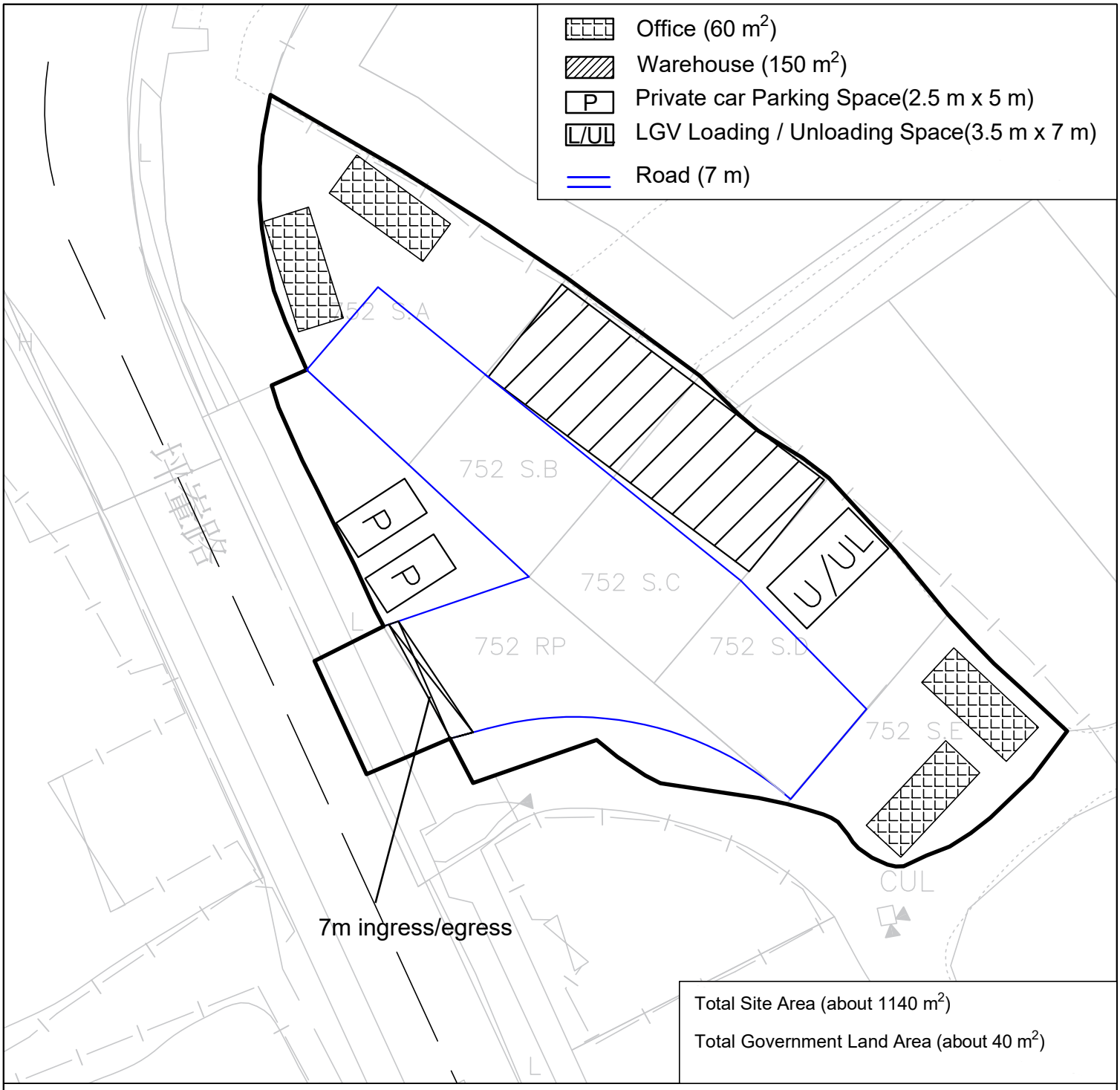
1. Site particulars

1.1 The application site is located at Lots. 752 S.A,752 S.B,752 S.C,752 S.D,752 S.E,752 RP in D.D. 82. The site area is approximately 1140 m². The site location is shown in Figure 1.

1.2 The existing site is fully paved with approximate levels of +9.0 mPD. No significant site formation works are anticipated for the proposed development.

1.3 The site can access from Ping Che Road. The surrounding area is predominantly rural, comprising temporary structures Village House and government facilities.


Existing Catch Pit will be demolished



January 2026

Layout Plan

Lots. 752 S.A, 752 S.B, 752 S.C, 752 S.D, 752 S.E, 752 RP In D.D. 82 and adjoining Goverment Land

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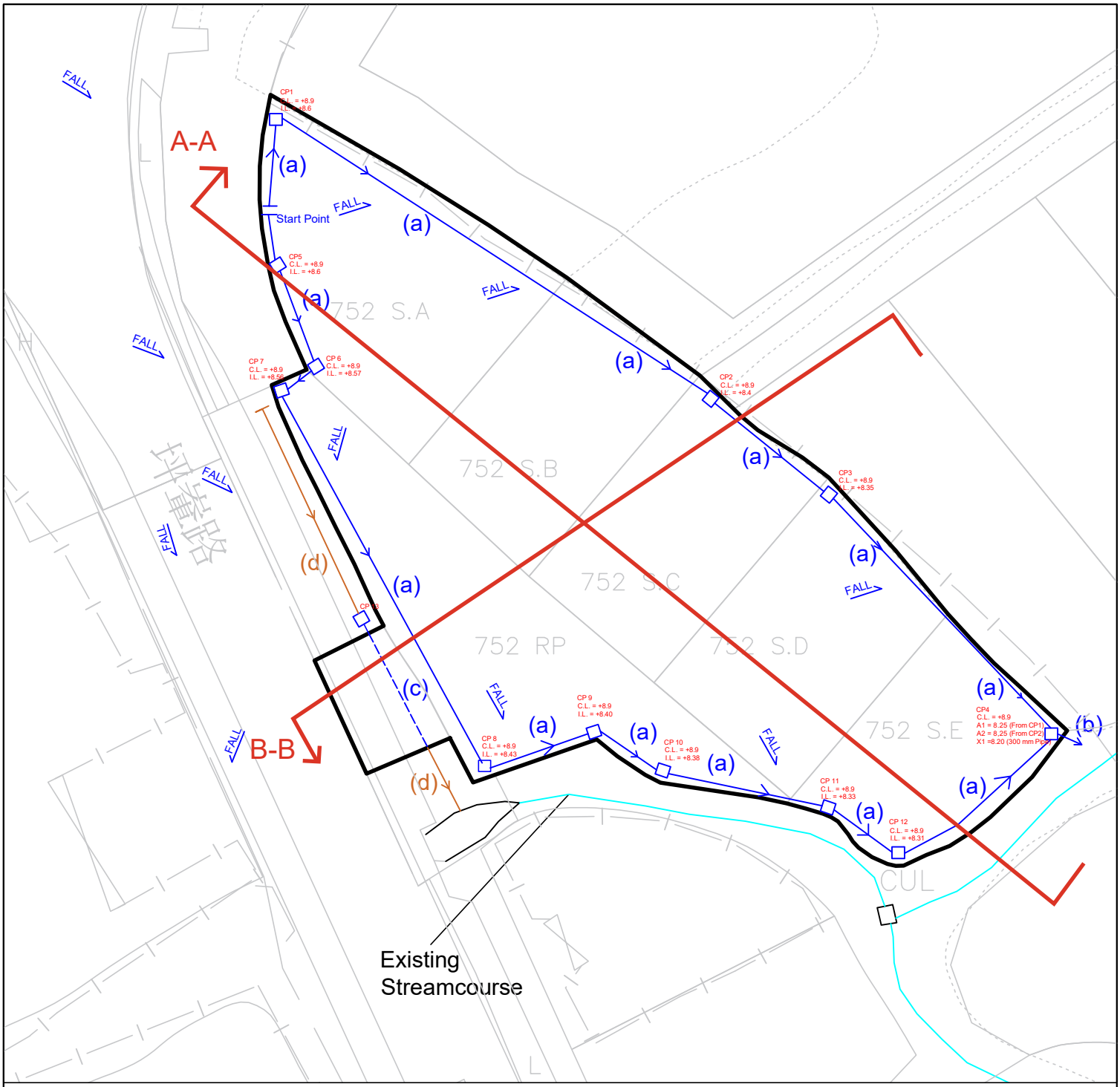
Annex 1



(a) Proposed 300 mm U- Channel follows Typical Details of Geotechnical Manual for Slope Fig.8.10 and Fig.8.11 respectively.

(b) Proposed 375 mm Concrete Pipe

(c) Proposed 300 mm Concrete Pipe

Proposed Catch Pit (CP4 shall follow CEDD standard drawing No. C2406I)

(d) Existing 300 mm U- Channel

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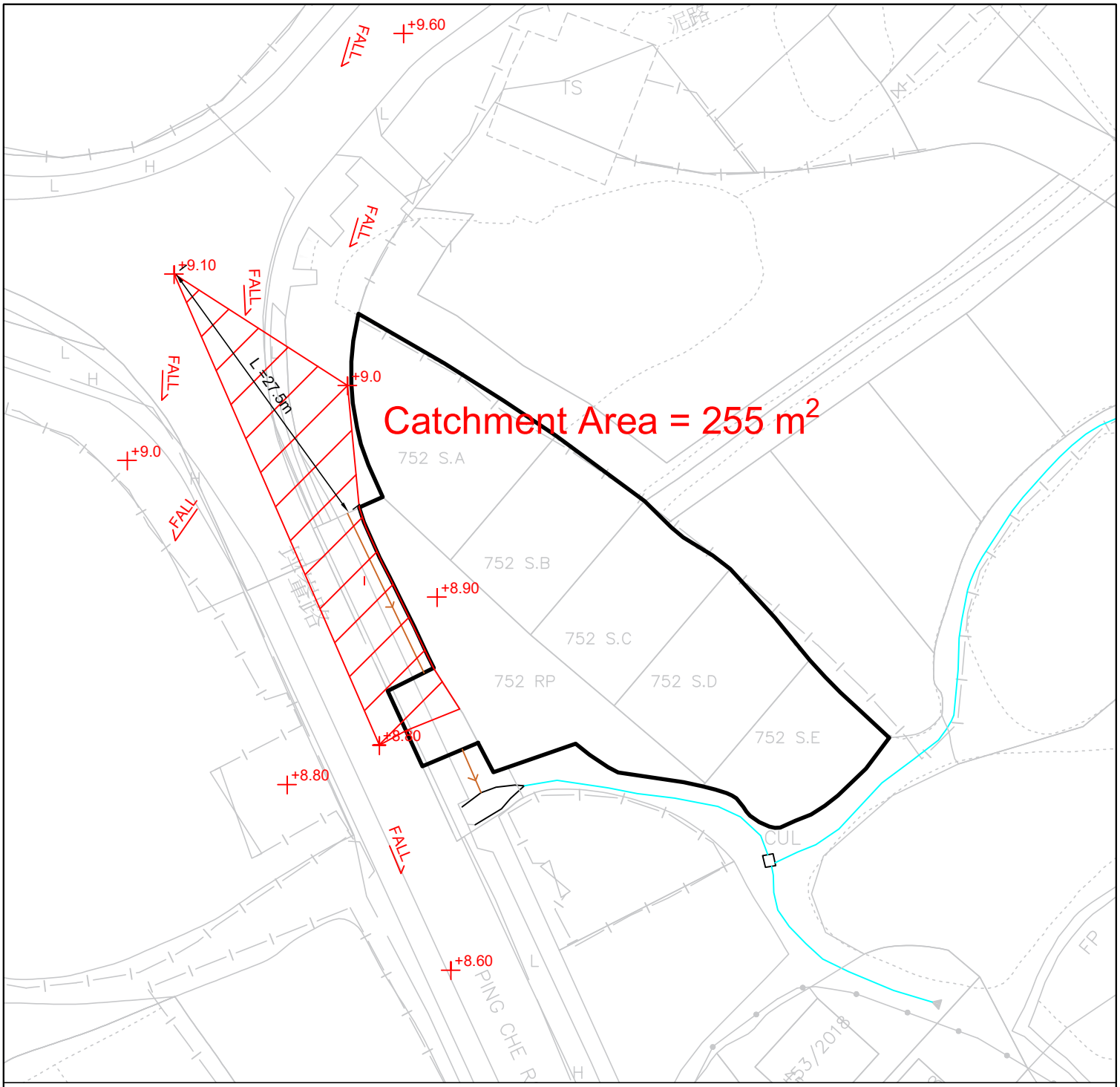
Drainage Proposal - Layout Plan

Lots. 752 S.A,752 S.B,752 S.C,752 S.D,752 S.E,752 RP In D.D. 82

Annex 1



Catchment Area Plan
(Existing U-Channel)

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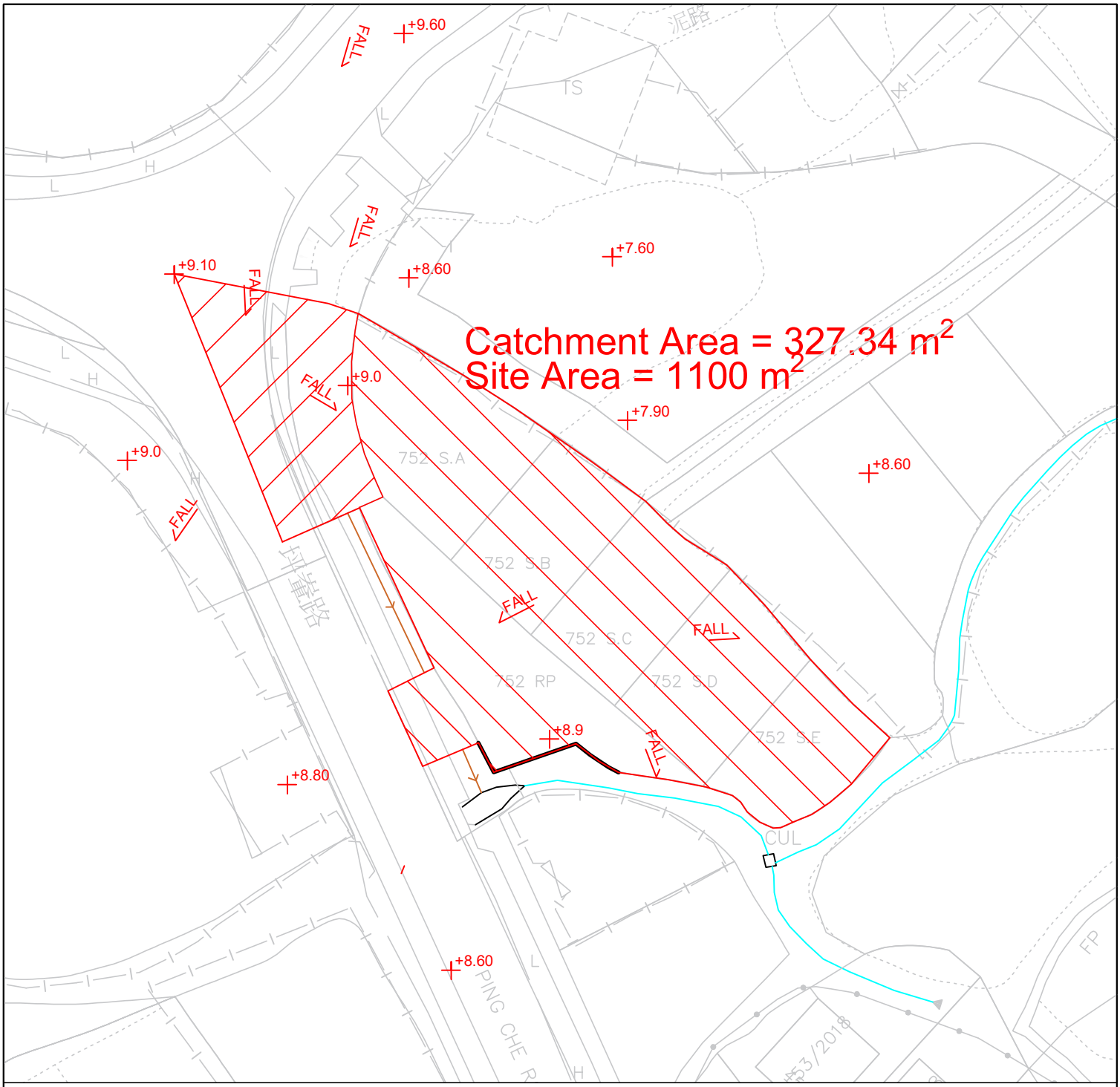
Annex 2



	Catchment Area Plan (Application Site)	YING SHING (HOPEWELL) ENGINEERING CO.LTD.
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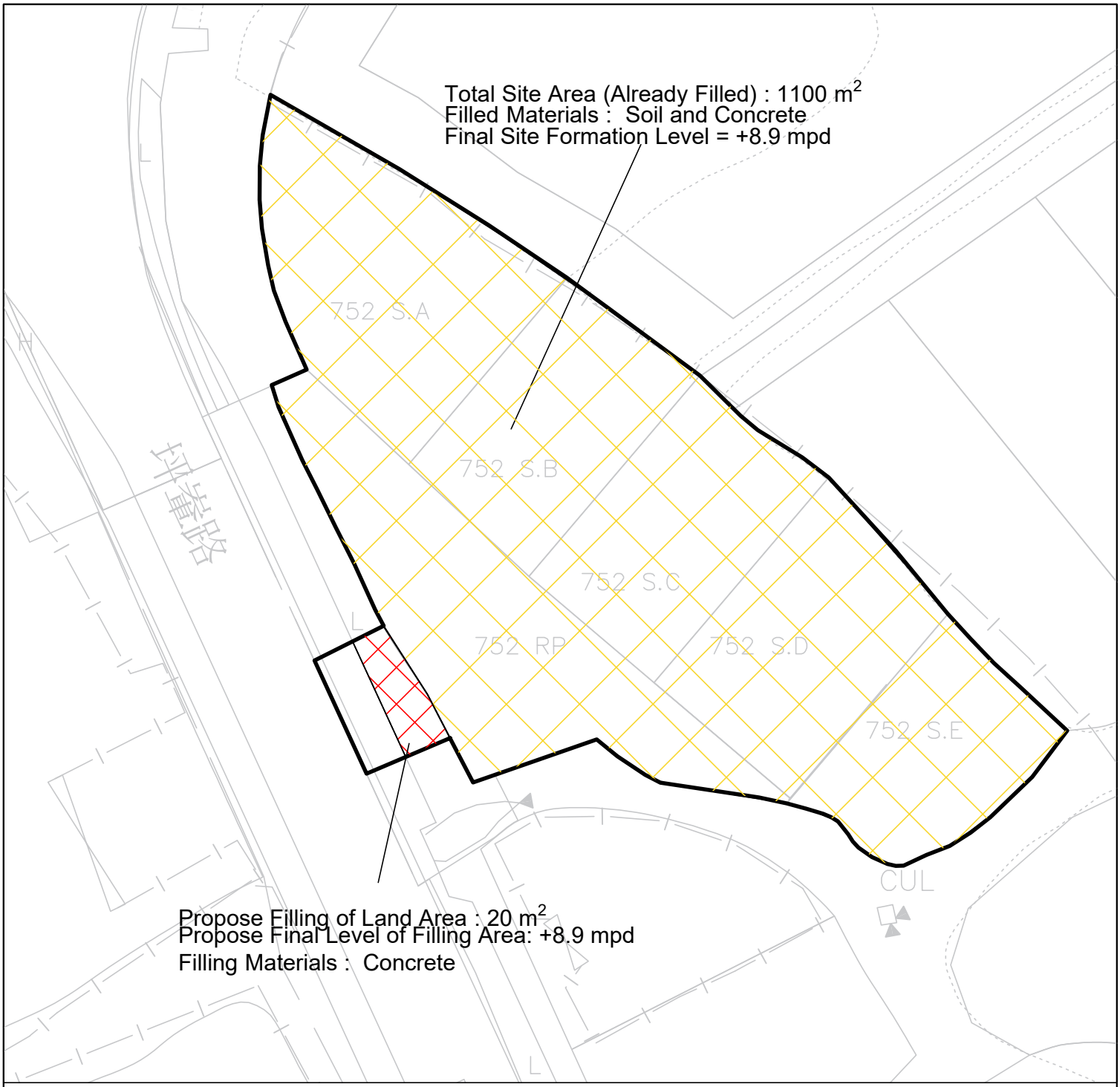

Filling of Land Plan

Lots. 752 S.A,752 S.B,752 S.C,
752 S.D,752 S.E,752 RP In D.D. 82

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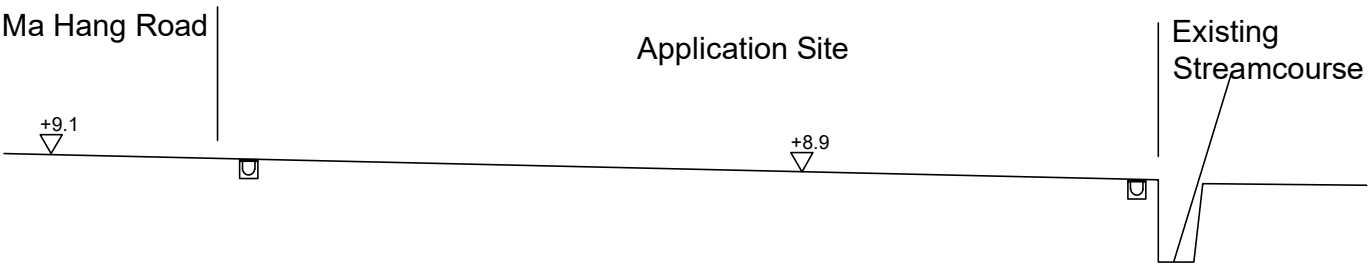
Annex 4



Section A-A

Section Plan

Lots. 752 S.A,752 S.B,752 S.C,
752 S.D,752 S.E,752 RP In D.D. 82

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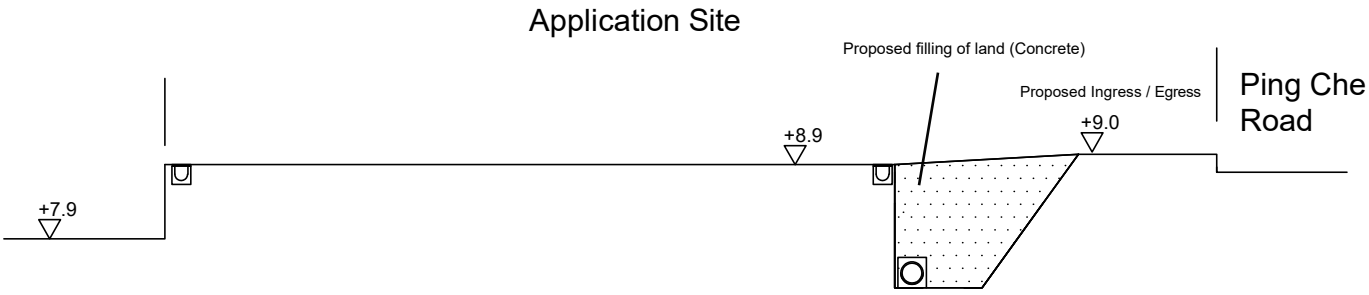
Not to Scale

Annex 5



Section B-B

Section Plan

Lots. 752 S.A,752 S.B,752 S.C,
752 S.D,752 S.E,752 RP In D.D. 82

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Annex 6

2. Design Considerations

2.1 The Recommended Design Return Period based on Flood Level from SDM (Table 10) is adopted for this report. The recommendation is summarized in **Table 1** below:

Description	Design Return Periods
Intensively Used Agricultural Land	2 – 5 Years
Village Drainage Including Internal Drainage System under a polder Scheme	10 Years
Main Rural Catchment Drainage Channels	50 Years
Urban Drainage Trunk System	200 Years
Urban Drainage Branch System	50 Years

The proposed drainage system intended to collect runoff from internal site and external catchment. 1 in 50 years return period is adopted for drainage design.

2.2 Referring to the location plan and the existing ground level, the considered effective catchment area of surface runoff includes: the area of the subject lots and the adjacent area with higher cover level (including uphill and carriageway).

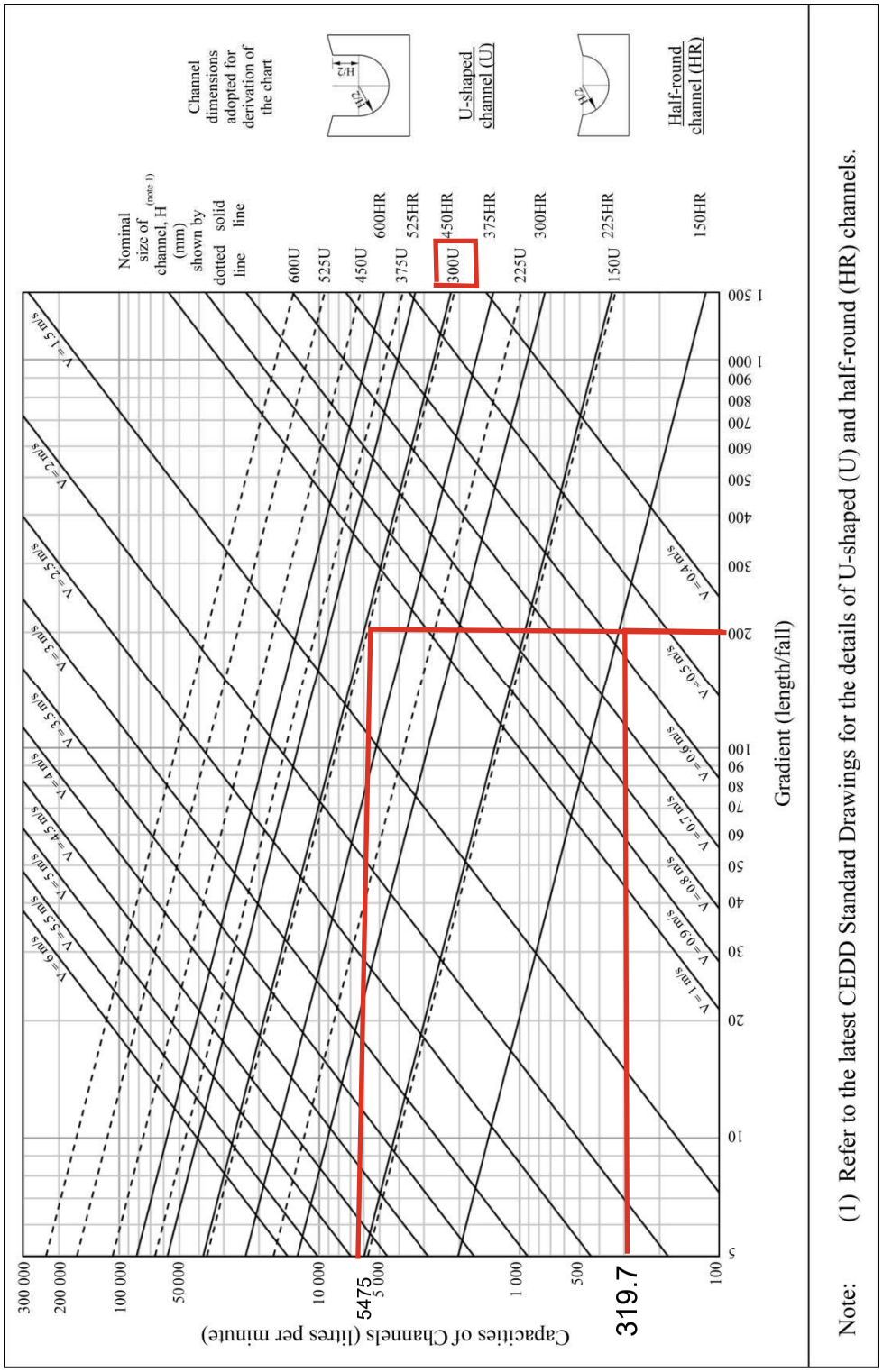


Figure 1 - Chart for the rapid design of U-shaped and half-round channels up to 600 mm

Note: (1) Refer to the latest CEDD Standard Drawings for the details of U-shaped (U) and half-round (HR) channels.

Outside Catchment Area, Area = 225.0 m² (C = 0.250)

THE SITE, Area = 30.0 m² (C = 0.950)

Calculation of Design Runoff of the Proposed Development

For the design of drains inside the site.

$$\Sigma Q = \Sigma 0.278CiA$$

A = 225.0 + 30.0 = 255.0 m²

= 0.000255 km²

H = 100 × (9.100 - 8.800) / 70.000 = 0.429 m/100m

$$t = 0.14465 \times L / (H^{0.2} \times A^{0.1})$$

= 0.14465 × 70.000 / (0.429^0.2 × 255.0^0.1)

= 6.892 min

$$i = \text{multiplier} \times a / (t + b)^c$$

= 1.111 × 474.600 / (6.892 + 2.900)^0.371

= 226.165 mm/hr

(50 years return period, Table 3d, Corrigendum 2024, SDM) and (11.1% increase due to climate change)

Therefore, Q = 0.278 × 0.250 × 226.165 × 0.000225 + 0.278 × 0.950 × 226.165 × 0.000030

= 0.0053 m³/s

= **319.7 L/min**

Provide 225U (1:200) is OK.

Confirm return period, IDF constants, climate multiplier, freeboard, debris and outlet conditions before final issue.

Check 225 mm dia. Pipe by Colebrook-White Equation

$$\mathbf{V = -\sqrt{(8gDS)}\ \log_{10}[ks/(3.7D) + 2.51\nu/(D\sqrt{(2gDS)})]}$$

where:

V	=	1.062 m/s	mean velocity
g	=	9.810 m/s²	gravitational acceleration
D	=	0.225 m	internal pipe diameter
ks	=	0.000150 m	hydraulic pipeline roughness
ν	=	1.14E-06 m²/s	kinematic viscosity of fluid
S	=	0.0050 -	hydraulic gradient (1:200)

Therefore, design velocity of pipe capacity = 1.062 m/s

Qallow = 0.800 × V × A (capacity factor for sedimentation / maintenance allowance)

= 0.0338 m³/s

= 2,027.6 L/min

> 319.7 L/min OK

Capacity utilization = 15.8%

Also check local losses, upstream and downstream water levels, outlet conditions and maintenance requirements.

Outside Catchment Area, Area = 327.3 m² (C = 0.250)

THE SITE, Area = 1,100.0 m² (C = 0.950)

Calculation of Design Runoff of the Proposed Development

For the design of drains inside the site.

$$\Sigma Q = \Sigma 0.278CiA$$

A = 327.3 + 1,100.0 = 1,427.3 m²

= 0.001427 km²

H = 100 × (9.100 - 8.900) / 27.500 = 0.727 m/100m

$$t = 0.14465 \times L / (H^{0.2} \times A^{0.1})$$

= 0.14465 × 27.500 / (0.727^0.2 × 1,427.3^0.1)

= 2.051 min

$$i = \text{multiplier} \times a / (t + b)^c$$

= 1.111 × 474.600 / (2.051 + 2.900)^0.371

= 291.291 mm/hr

(50 years return period, Table 3d, Corrigendum 2024, SDM) and (11.1% increase due to climate change)

Therefore, Q = 0.278 × 0.250 × 291.291 × 0.000327 + 0.278 × 0.950 × 291.291 × 0.001100

= 0.0912 m³/s

= **5,474.9 L/min**

Provide 300U (1:200) is OK.

Confirm return period, IDF constants, climate multiplier, freeboard, debris and outlet conditions before final issue.

Check 375 mm dia. Pipe by Colebrook-White Equation

$$\mathbf{V = -\sqrt{(8gDS)}\ \log_{10}[ks/(3.7D) + 2.51\nu/(D\sqrt{(2gDS)})]}$$

where:

V	=	1.469 m/s	mean velocity
g	=	9.810 m/s²	gravitational acceleration
D	=	0.375 m	internal pipe diameter
ks	=	0.000150 m	hydraulic pipeline roughness
ν	=	1.14E-06 m²/s	kinematic viscosity of fluid
S	=	0.0050 -	hydraulic gradient (1:200)

Therefore, design velocity of pipe capacity = 1.469 m/s

Qallow = 0.800 × V × A (capacity factor for sedimentation / maintenance allowance)

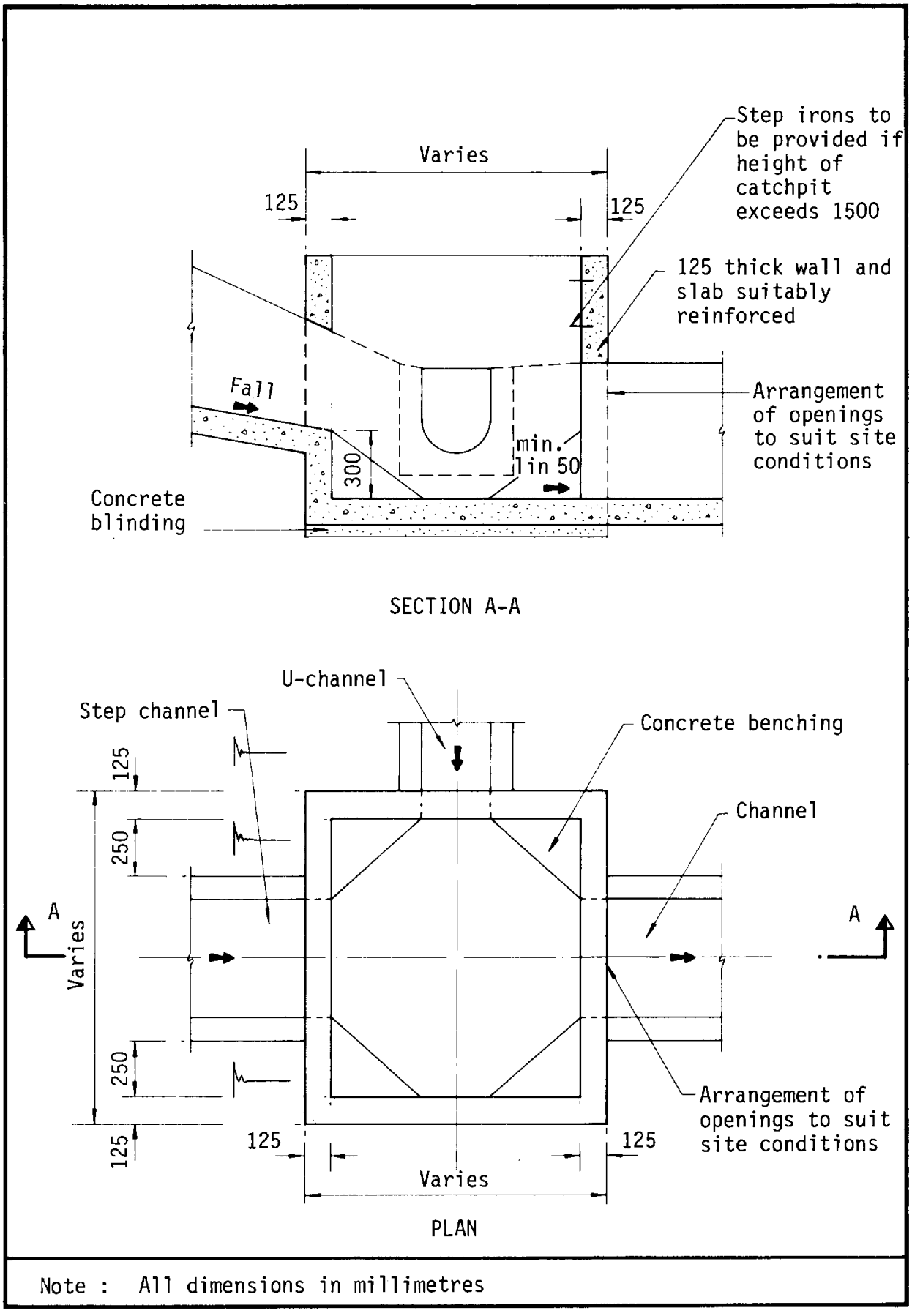
= 0.1298 m³/s

= 7,789.0 L/min

> 5,474.9 L/min OK

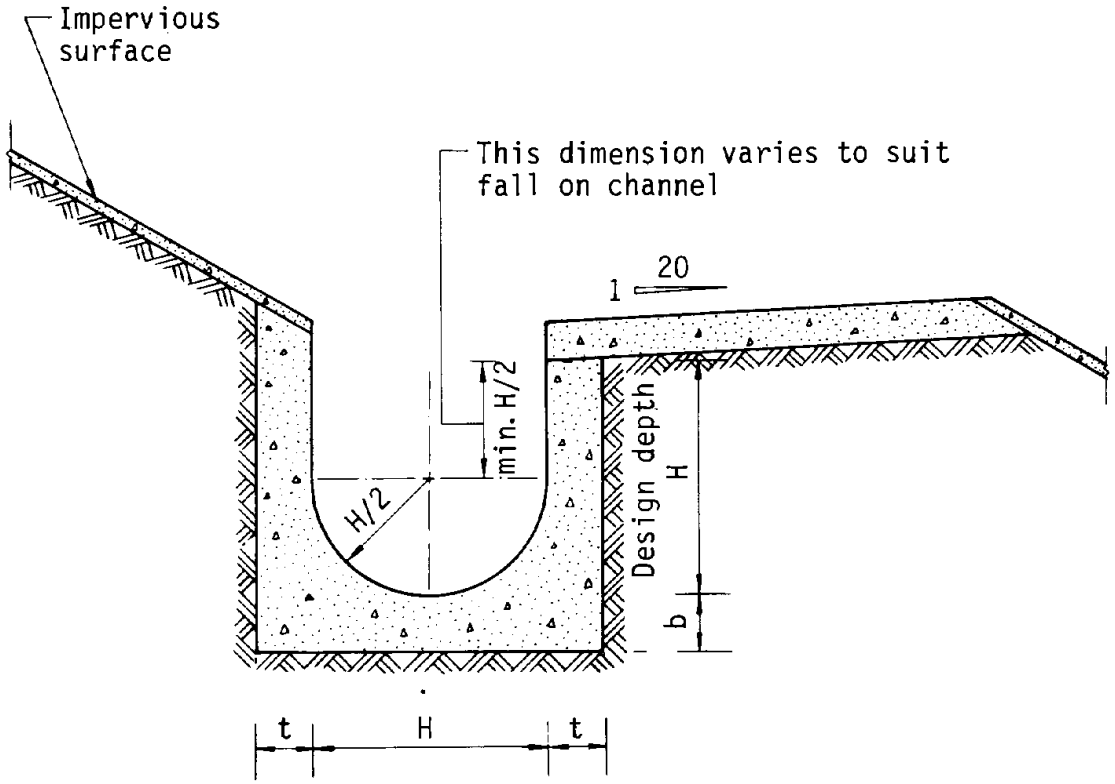
Capacity utilization = 70.3%

Also check local losses, upstream and downstream water levels, outlet conditions and maintenance requirements.



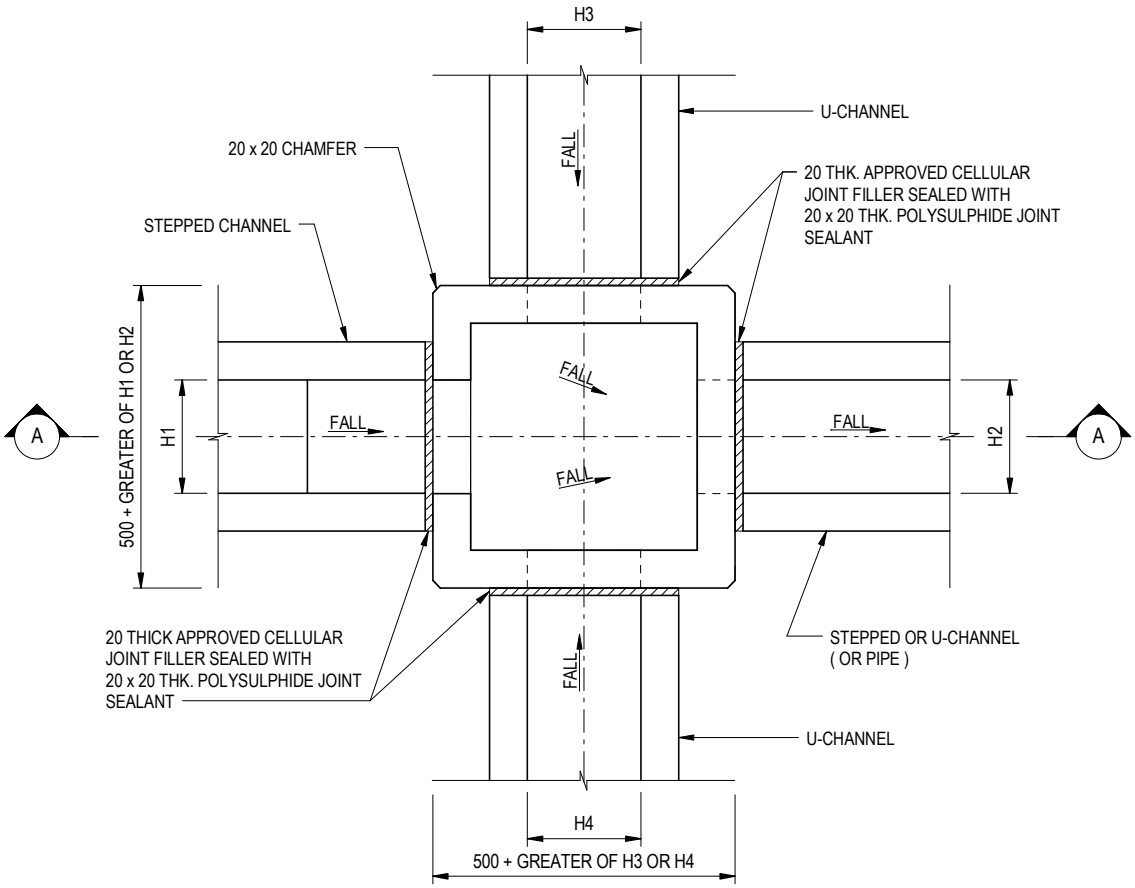
Note : All dimensions in millimetres

Figure 8.10 - Typical Details of Catchpits



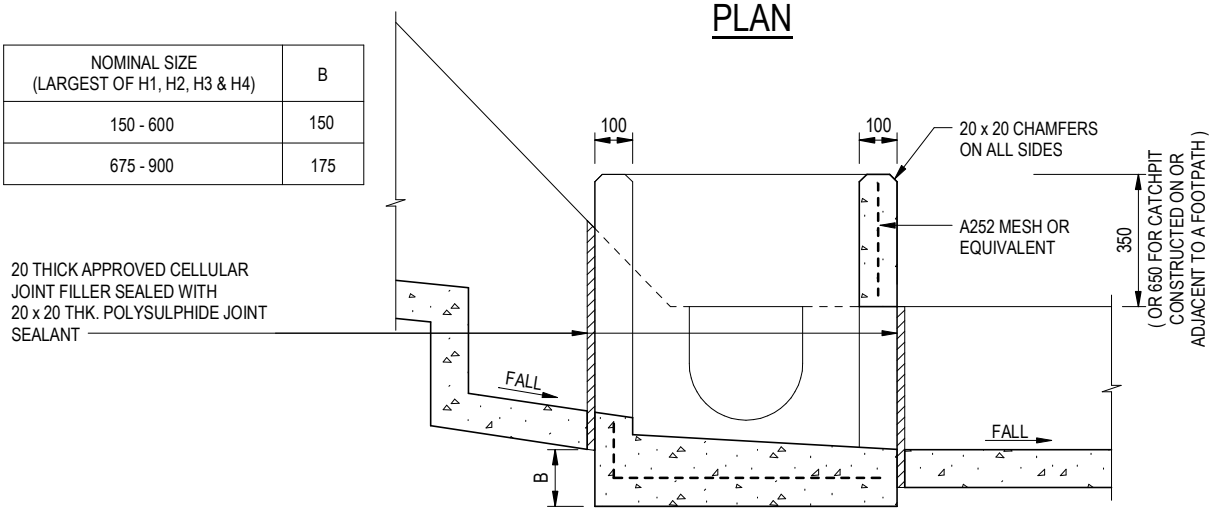
Dimensions of U - channel		
Nominal size of channel H (mm)	Thickness t (mm)	Thickness b (mm)
225 to 600	150	150
675 to 1200	175	225

Figure 8.11 - Typical U-channel Details

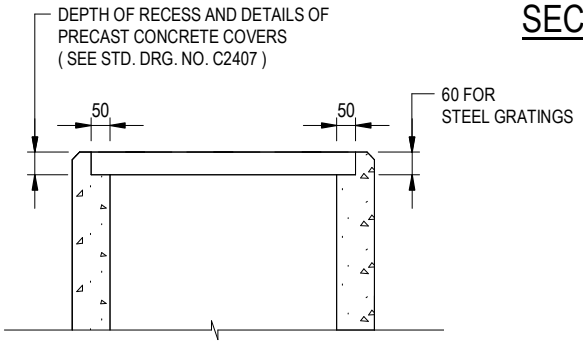


PLAN

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



SECTION A - A



ALTERNATIVE TOP SECTION FOR PRECAST CONCRETE COVERS / GRATINGS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 5 FOR OTHER NOTES.

REF.	REVISION	SIGNATURE	DATE
A	BIM OBJECT REVISION.	Original Signed	12.2025
–	FORMER DRG. NO. C2405J.	Original Signed	03.2015

STANDARD CATCHPIT DETAILS (SHEET 1 OF 5)

CEDD

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2405 /1A