

寄件者: Chong Hermose [REDACTED]
寄件日期: 2026年10月08日星期四 15:15
收件者: tpbpd/PLAND
副本: Jason Sek Hei WONG/PLAND; Athena Pui Yin LAI/PLAND
主旨: 回覆: S.16 Planning Application No. A/YL-SK/468 - 回應部門意見 (最update)
附件: Temporary Drainage Proposal_SK468_20261008.pdf
類別: Internet Email

城規會/規劃處：

大家好。

有關 **s16 No.A/YL-SK/468**，申請人澄清：這封電郵將取代 2026 年 10 月 8 日早上 9 時多的電郵 & 2026 年 10 月 8 日下午 2 時多的電郵。

附件的排水建議書才是最 **update** 的進一步資料。

請知悉，如有什麼問題，請隨時聯絡我。

謝謝。

Ms Chong
[REDACTED]

寄件者: Chong Hermose [REDACTED]
寄件日期: 2026 年 10 月 8 日 14:57
收件者: tpbpd/PLAND <tpbpd@pland.gov.hk>
副本: Jason Sek Hei WONG/PLAND <jshwong@pland.gov.hk>; Athena Pui Yin LAI/PLAND <apylai@pland.gov.hk>
主旨: S.16 Planning Application No. A/YL-SK/468 - 回應部門意見

城規會/規劃處：

大家好。

有關 **s16 No.A/YL-SK/468**，現附上申請人回應部門意見（DSD），請查收。

這將取代 2026 年 9 月 22 日 10:42 的電郵，謝謝。

如有什麼問題，請隨時聯絡我。

謝謝。

Ms Chong



寄件者: Chong Hermose [REDACTED]
寄件日期: 2026年10月08日星期四 9:08
收件者: tpbpd/PLAND
副本: Jason Sek Hei WONG/PLAND; Athena Pui Yin LAI/PLAND
主旨: S.16 Planning Application No. A/YL-SK/468 - 回應部門意見
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郵件標幟: 待處理
標幟狀態: 已標幟

類別: Internet Email

城規會/規劃處：

大家好。

有關 s16 No.A/YL-SK/468，現附上申請人回應部門意見 (DSD)，請查收。

如有什麼問題，請隨時聯絡我。

謝謝。

Ms Chong
[REDACTED]

	Response to Comment From: Drainage Services Department (Mr. Jeff Tse) Received Date: 23 September 2026	
I.	According to our record, the size of the existing DSD's u-channel (SUP1028353) should be 300mm instead of 600mm. The applicant should check and ensure the hydraulic capacity of the existing drainage facilities would not be adversely affected by the captioned development.	According to the government open data on GEOINFO MAP and our site measurement shown in Appendix C, the SUP1028353 is 600mm. The hydraulic capacity of the existing drainage facilities is included in Appendix F. Please refer to below link: https://www.map.gov.hk/gm/s/dsd/SUP1028353
II.	According to Drawing No. 20250711b, it is noted that levelling works will be carried out under this application. Please be reminded that peripheral surface channels shall be provided along the site boundary at the existing/original ground level (instead of the revised ground level) to collect the surface runoff accrued on the application site and to intercept the overland flow from the adjacent lands. Cross sections showing the existing and proposed ground levels of the captioned site with respect to the adjacent areas should be given. Please also review the level of the proposed peripheral surface channels in cross sections accordingly.	Noted. Peripheral surface channels will be provided along the site boundary at the existing ground level. The hydraulic calculation is reviewed and revised in Appendix E.
III.	Referring to cross sections provided, openings will be provided at the toe of the proposed hoarding along the site boundary. Please provide the details of the proposed openings (i.e. the elevation of the proposed hoarding with opening, etc.) and demonstrate that such openings are sufficient and adequate to intercept the existing overland flow passing through the site.	After reconsideration, no hoarding will be erected.
IV.	Please indicate the invert level at the proposed start points of peripheral surface channels on the drainage plan in Appendix D for reference.	Noted and Appendix D is updated.
V.	Catchpit(s)/manhole(s) should be provided at the proposed intersections of the existing 600mm u-channels. Please also provide the connection details with relevant levels (i.e. C.L., I.L., B.L., G.L., etc.) to the existing 600mm u-channel for review.	Noted and Appendix D is updated.
VI.	Sand trap or provision alike should be provided at the proposed catchpit (TCP3) before the collected runoff is discharged to the public drainage facilities.	Noted, sand trap will be provided.
VII.	The existing 600mm u-channel, to which the applicant proposed to discharge the stormwater from the subject site was not maintained by this office. The applicant(s)	Noted and DLO/YL will be consulted.

	shall resolve any conflict/disagreement arisen for discharging the runoff from the application site(s) to the proposed discharge point(s). In the case that it is a local village drains, DO/YL should be consulted. Moreover, the applicant(s) should ensure that this drainage system and the existing downstream drains/channels/streams have adequate capacity to convey the additional runoff from the application site(s). Regular maintenance should be carried out by the applicant(s) to avoid blockage of the system.	
VIII.	Further to (vii) above, since there is no record of the said discharge path, please provide site photos at different locations and views to demonstrate its presence and existing condition (especially the location between Photos 3 and 4 taken, etc.). In addition, according to Photo 3, it cannot clearly indicate the condition of the existing 600mm u-channel. Please review	Noted and Appendix C is updated with more photos. Vegetation will be cleared and maintained.
IX.	The development should neither obstruct overland flow nor adversely affect existing natural streams, village drains, ditches and the adjacent areas, etc.	Noted with thanks.
X.	The applicant should consult DLO/YL and seek consent from the relevant owners for any drainage works to be carried out outside his lot boundary before commencement of the drainage works.	Noted with thanks.

TEMPORARY DRAINAGE PROPOSAL



TEMPORARY DRAINAGE PROPOSAL FOR THE PROPOSED TEMPORARY SHOP AND SERVICES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS IN LOTS 428 S.A, 428 S.B, 428 S.C AND 428 S.D IN D.D 112, SHEK KONG, YUEN LONG, NEW TERRITORIES

A-YL_SK-468

ISSUE 2 (OCTOBER 2026)

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1. Introduction

This report presents temporary drainage proposal for the proposed temporary shop and services and associated filling of land for a period of 3 years in lots 428 S.A, 428 S.B, 428 S.C And 428 S.D In D.D 112, Shek Kong, Yuen Long, New Territories. The site location is shown in **Appendix A**.

1.1. Objectives of the Report

This report shall be prepared to include the following:

- Identify the potential drainage impact from the proposed Application Site
- Recommend and implement all necessary measures to mitigate adverse drainage impacts arising from the application site

1.2. Report Structure

The report contains the following sections:

- Section 1 on Introduction;
- Section 2 on Development Proposal;
- Section 3 on Assessment Methodology;
- Section 4 on Potential Drainage Impact; and /
- Section 5 on Conclusion

1.3. References

This report has been prepared with reference to the following documents:

- Stormwater Drainage Manual: Planning, Design and Management (Fifth Edition, January 2018)
- Technical Note No.1 Technical Note to Prepare a Drainage Submission (December 2024)
- Stormwater Drainage Manual – Corrigendum No. 1/2022
- Stormwater Drainage Manual – Corrigendum No. 1/2024

2. Development Proposal

2.1. Existing Site Conditions

The application site is located in Shek Kong, Yuen Long, New Territories. The total area of approximately 780 m^2 . The site layout plan is provided in **Appendix B**.

The applied development is a temporary shop and services and associated filling land for a period of 3 years. The zonings are under "Agriculture". The application site is located at lots 428 S.A, 428 S.B, 428 S.C And 428 S.D In D.D 112, Shek Kong, Yuen Long, New Territories.

The application site is less than 1 ha in size and neither fall within flood prone areas such as lowlying areas and flooding blackspots nor involve pond filling and substantial earth filling, so it is regarded as simple site.

Existing 300 mm wide surface channels are located along the boundary of the application site. An existing 600 mm wide village surface channel connects to the existing 600 mm government surface channel (SUP1028353) and 12000 mm government nullah (SCP1007961), which serves as the ultimate discharge point adjacent to the application site. The location and pictures of the existing surface channel are shown in **Appendix C**.

3. Assessment Methodology

3.1. Calculation Methodology for Runoff

According to Section 6.6.2 of *the Stormwater Drainage Manual*, an "Urban Drainage Branch System" refers to a network of interconnected drains that collect rainwater runoff from an urban area and transport it to a trunk drain, river, or sea. In simpler terms, the largest pipe size or the equivalent diameter in case of a box culvert in a branch system will normally be less than 1.8m.

Referring to Stormwater Drainage Manual, since the proposed U-channels have dimensions smaller than 1.8m, the drainage system would be classified as an urban drainage branch. In consideration of the effect of recent climate change in the drainage design, the return period is 50 years with the storm constraints specified in *Stormwater Drainage Manual – Corrigendum No. 1/2024*.

To calculate the peak instantaneous runoff values before and after the development, the Rational Method with recommended physical parameters including runoff coefficient (C) and storm constants for different return periods are adopted referred to the SDM.

The Rational Method is adopted for hydraulic analysis and the peak runoff is calculated based on the following equation:

$$Q_p = 0.278 Ci A$$

where Q_p = Peak Runoff, m^3/s

C = Runoff Coefficient

i = Rainfall Intensity, mm/hr

A = Catchment Area, km^2

The runoff coefficient of 0.85 is assumed. Based on the storm constants for the 50-year return period recommended in the SDM, the appropriate rainfall intensities (i) are calculated as detailed in **Appendix E**.

3.2. Calculation Methodology for Capacity Checking

Since the catchment areas are less than 1ha, peripheral surface U-channels are recommended to be constructed to collect the stormwater runoff within the site and to intercept the overland flow from the adjacent lands.

In this scenario, fair condition of concrete U-channel is assumed for the Manning's roughness coefficient i.e coefficient value is 0.015 for calculating capacities of concrete U-channel using Manning's Equation. The recommended roughness values k_s for concrete is 0.6 mm under normal condition.

Manning's Equation for calculating the channel and pipe capacities is adopted for this analysis:

$$V = \frac{R^{2/3} S^{1/2}}{n}$$

where V = mean velocity, m/s

S = slope of the total energy line

n = Manning's roughness coefficient

R = hydraulic radius, m

Deposition of sediment in stormwater drainage system is considered in the hydraulic calculation as required by the SDM. 10% reduction in flow area is adopted to consider the effects to flow capacity due to materials deposited on the bed.

3.3. Summary of Assessment Assumptions

The assumptions of the Drainage Proposal are summarized below for ease of reference:

- Runoff coefficient of 0.85 for the paved area is assumed;
- Storm constants for 50 years return periods of HKO Headquarters
- Manning's roughness coefficient of 0.015 for the proposed concrete U-channels and concrete pipe are adopted; and
- Roughness values k_s of 0.6 mm for concrete is adopted.

4. Potential Drainage Impact

4.1. Change in Drainage Characteristics

The adjacent sites have no record of flooding. Peripheral surface channels are designed to collect the surface runoff accrued on the site and to intercept the overland flow from the adjacent lands.

To manage the stormwater flows after developing the site, this drainage proposal detailed the proposed drainage system consisting of a set of U-channels for diverting stormwater flows to avoid causing flooding to the site.

4.2. Proposed Drainage Works

The runoff from the application site is proposed to be collected by U-channels along the site boundary and discharged to the terminal catchpit with sand trap and eventually discharge to the existing drainage system in vicinity of the site.

There are existing surface U-channel with 300 mm width, which are shown in **Appendix C** and **Appendix D**. Hydraulic calculations proved that they are adequate for this site. The collected stormwater will be diverted to the existing 600 mm village drain and 12000 mm nullah as ultimate discharge point in vicinity of the site.

Cover levels and invert levels of existing drainage facilities were shown on the drainage plan. The invert levels of the upstream drainage facilities were higher than those at the downstream to ensure proper flow direction. In addition, the gradients and sizes of the proposed and existing drainage facilities were also indicated on the drainage plan. The detail of the proposed drainage works in drainage plan are illustrated in **Appendix D1**.

Cross sections showing the proposed drainage facilities and the existing and proposed ground levels of the captioned site with respect to the adjacent areas were provided in **Appendix D2**.

For a conservative approach, the entire site area was considered as a single catchment in the hydraulic assessment, as presented in **Appendix E1**. In addition, an external catchment area of 780 m², including potential overflow from adjacent sites, was also taken into account, resulting in a total contributing catchment area of 1560 m², as shown in **Appendix E2**.

The hydraulic performance of the existing terminal drainage facilities of the village drain and river is also checked under a separate calculation in **Appendix F**. The concerned development will not adversely existing drainage facilities.

The typical designs for the U-channels and catchpits are provided in **Appendix G** as a reference.

4.3. Design Calculation and Result

The design runoff arising from the proposed application site will be discharged into the existing 300 mm U-channel. The hydraulic calculations for U-channel with surface runoff from the application site and adjacent site areas are summarized in **Table 1** and appended in **Appendix E1** and **Appendix E2**.

From	To	U.S I.L	D.S I.L	Width (mm)	Length (m)	Grad.	Vel. Full Bore (m/s)	Capacity (Application Site)	Capacity (Application Site and Adjacent Site)	Check
-	CP1	23.25	22.65	300	19	32	2.44	35.3%	71.1%	OK
CP1	TCP3	22.65	21.50	300	53	46	2.03	41.3%	83.0%	OK
-	CP2	23.25	22.30	300	44	46	2.02	40.4%	81.2%	OK
CP2	TCP3	22.30	21.70	300	15	25	2.75	29.5%	59.3%	OK

Table 1: Drainage Schedule of Proposed U-channel Size

The hydraulic performance of the existing terminal drainage facilities of 600 mm village surface channel was also checked. The proposed development only occupies 8.5% of the capacity of the existing village drain which will not adversely affect the existing drainage facilities. The design checking is appended in **Appendix F**.

5. Conclusion

A temporary drainage proposal has been designed for the proposed temporary shop and services and associated filling of land for a period of 3 years in lots 428 S.A, 428 S.B, 428 S.C And 428 S.D In D.D 112, Shek Kong, Yuen Long, New Territories.

Based on the design calculations, a set U-channel with width of 300 mm has been deemed sufficient to convey peak runoff under a 50-year return period from the application site. The stormwater collected from the site will be discharged into the nearby existing 600 mm village surface channel and the 12000 mm government nullah as ultimate discharge point.

Coordination will be undertaken with relevant stakeholders, and feedback will be sought from appropriate government departments regarding temporary drainage arrangements to ensure the system operates effectively.

Appendix A
Location Plan of Application Site



申請地點
Application Site

本摘要圖於2026年8月25日擬備，
所根據的資料為於2026年6月2日
核准的分區計劃大綱圖編號S/YL-SK/11
EXTRACT PLAN PREPARED ON
25.8.2026 BASED ON OUTLINE ZONING
PLAN No. S/YL-SK/11 APPROVED ON
2.6.2026

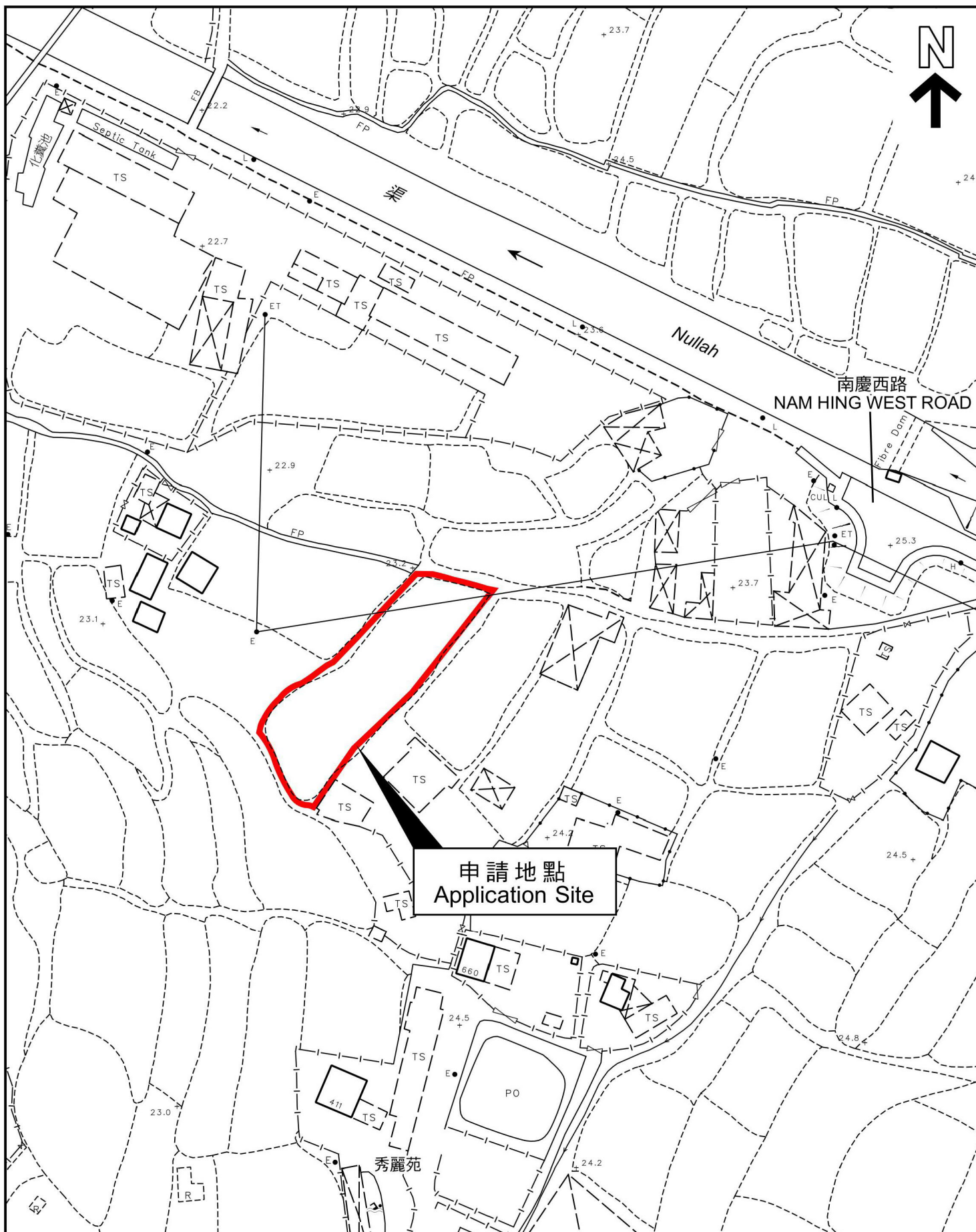
位置圖 LOCATION PLAN

SCALE 1:7 500 比例尺
米 100 0 100 200 300 米
METRES

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

參考編號
REFERENCE No.

A/YL-SK/468



申請地點
Application Site

本摘要圖於2026年8月25日擬備，
所根據的資料為測量圖編號
6-NE-14C 及 19A
EXTRACT PLAN PREPARED ON
25.8.2026 BASED ON SURVEY SHEETS
No. 6-NE-14C & 19A

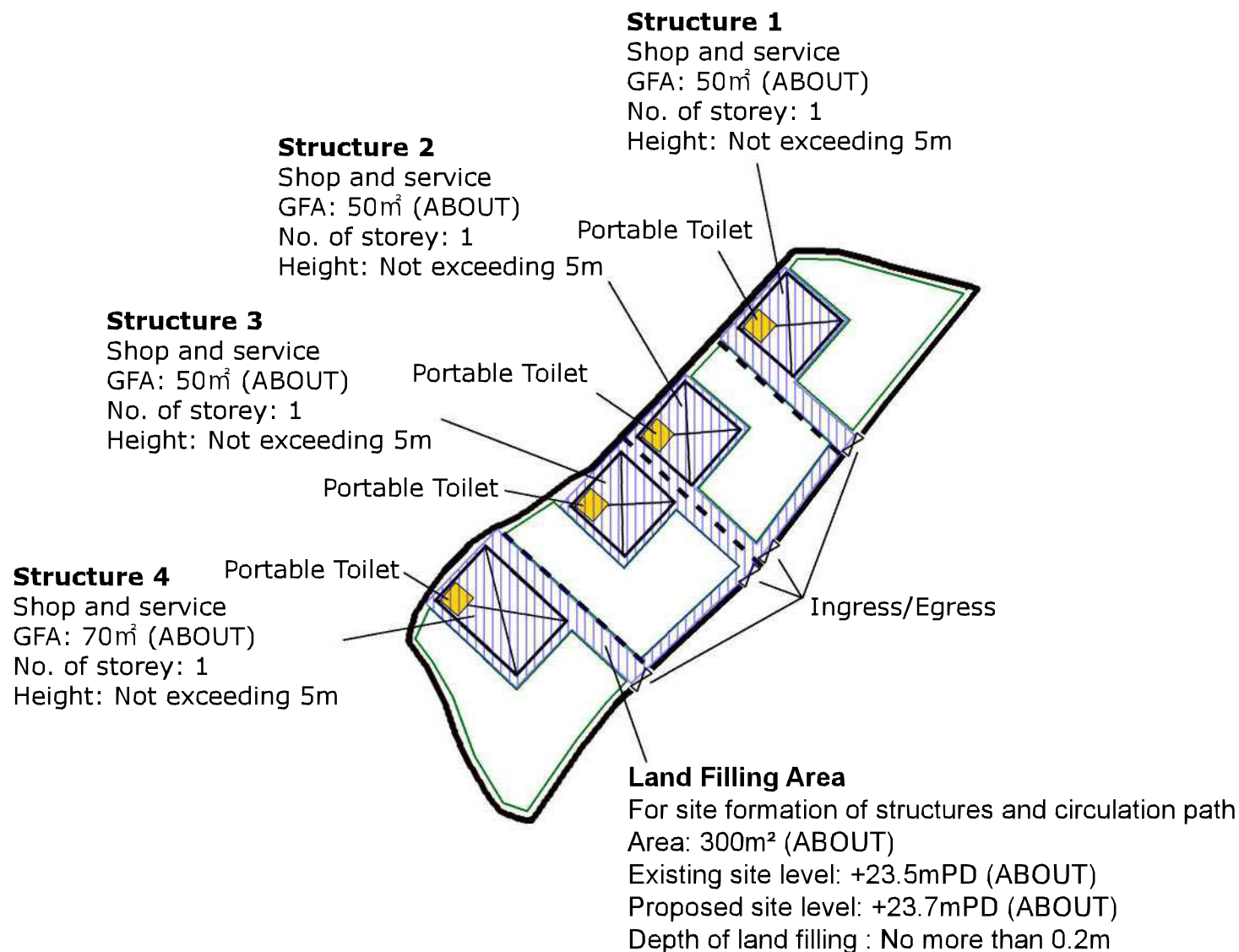
平面圖 SITE PLAN

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

參考編號
REFERENCE No.

A/YL-SK/468

Appendix B
Layout Plan of Application Site





Land Filling Area

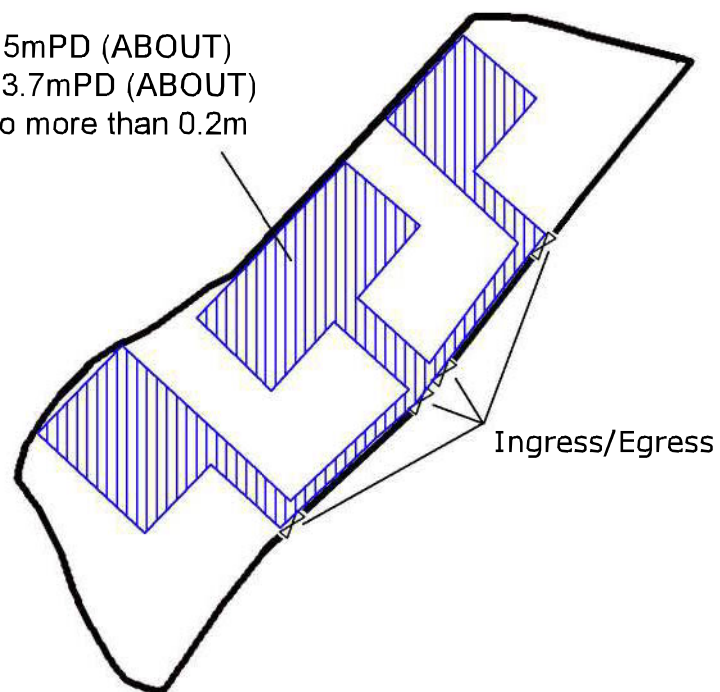
For site formation of structures and circulation path

Area: 300m² (ABOUT)

Existing site level: +23.5mPD (ABOUT)

Proposed site level: +23.7mPD (ABOUT)

Depth of land filling : No more than 0.2m



Project 項目名稱:

Proposed Temporary Shop and Service and Associated Filling of Land for a Period of 3 Years at Lots 428 S.A, 428 S.B, 428 S.C & 428 S.D in D.D.112, Shek Kong, Yuen Long, New Territories

Drawing Title 圖紙標題:

Paved ratio

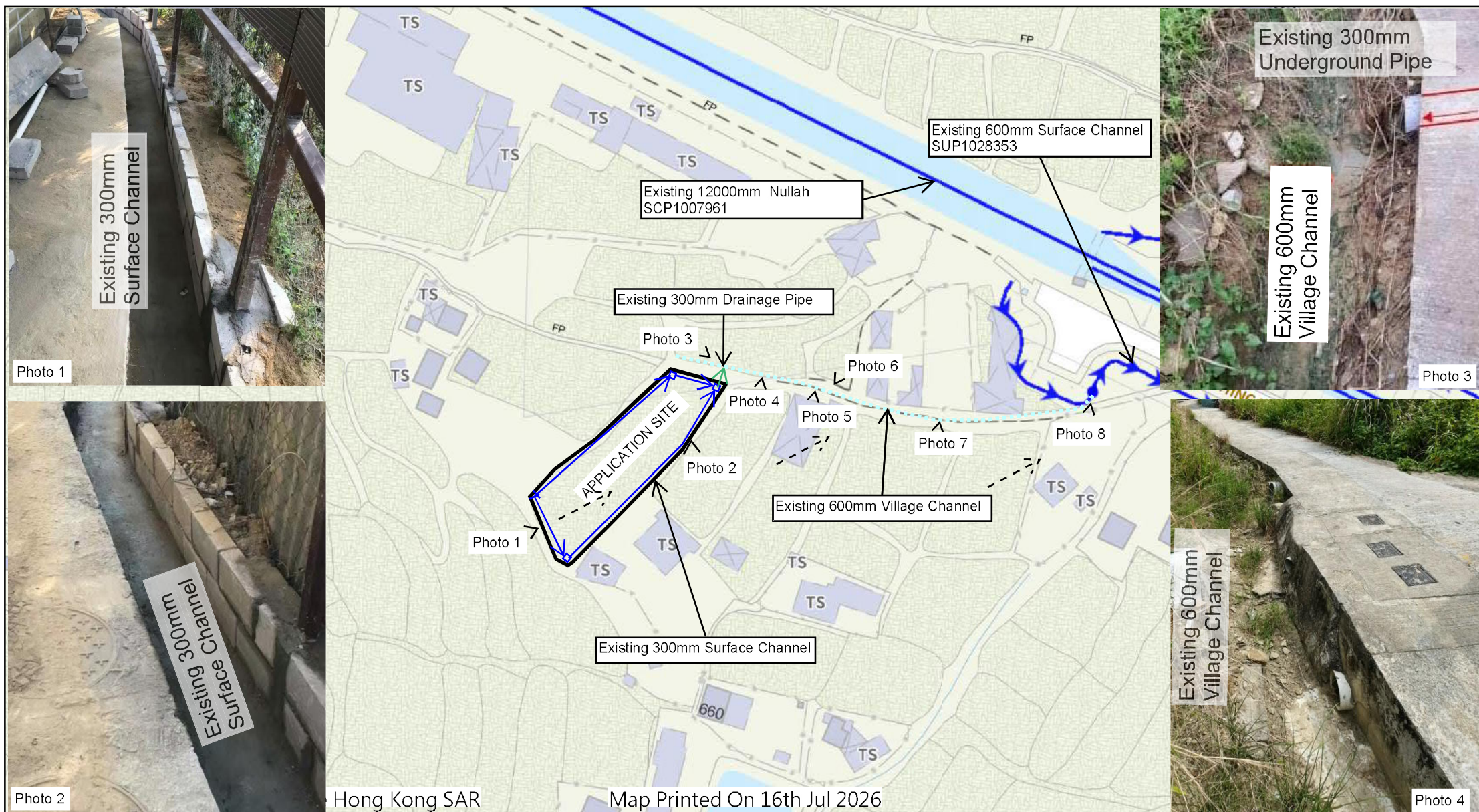
Drawing No. 圖號:

20250711

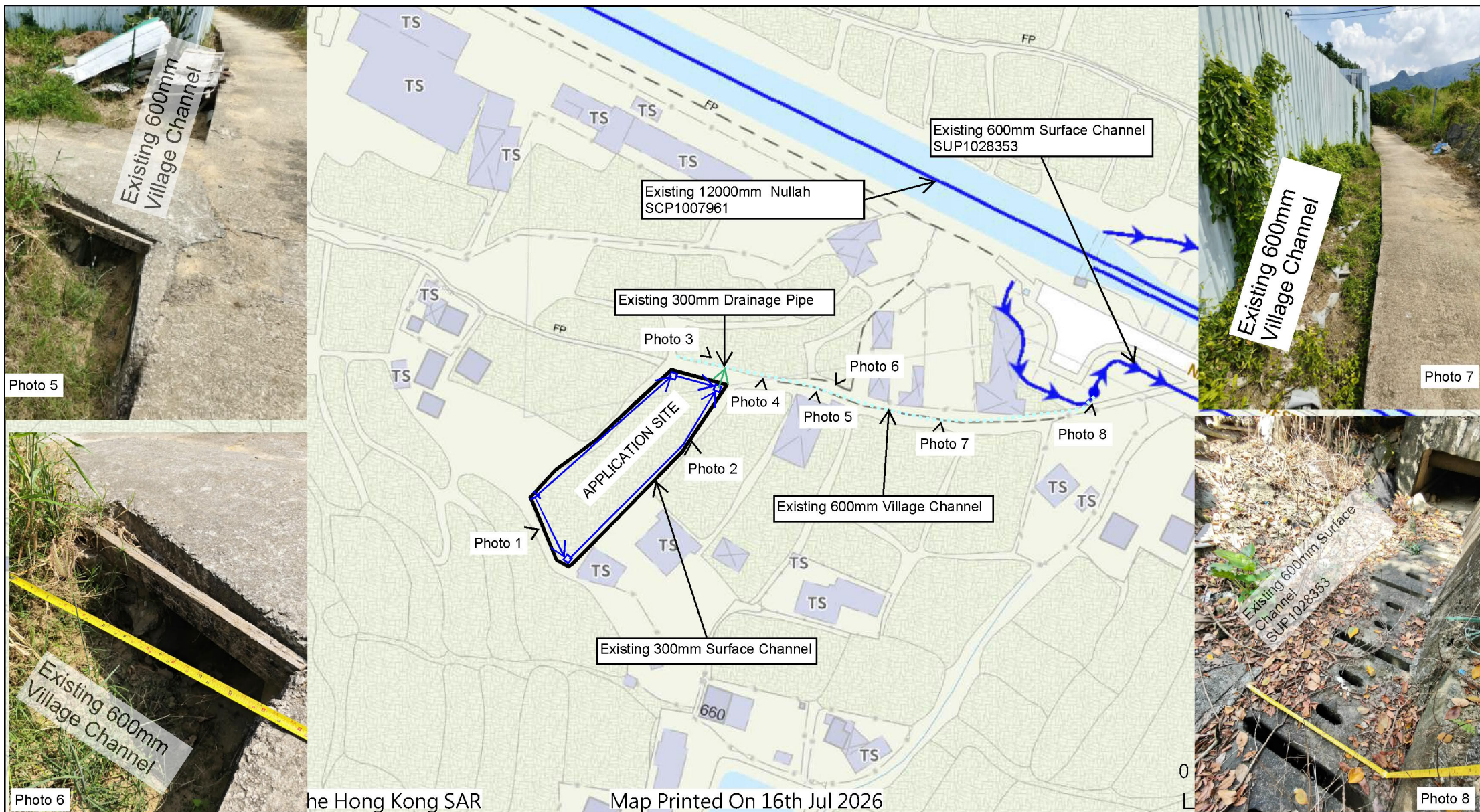
Remarks 備註:

 Land Filling Area

Appendix C
Location Plan and Photos of the Existing Drainage



TEMPORARY DRAINAGE PROPOSAL FOR THE PROPOSED TEMPORARY SHOP AND SERVICES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS IN LOTS 428 S.A, 428 S.B, 428 S.C AND 428 S.D IN D.D 112, SHEK KONG, YUEN LONG, NEW TERRITORIES
OCT 2026



TEMPORARY DRAINAGE PROPOSAL FOR THE PROPOSED TEMPORARY SHOP AND SERVICES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS IN LOTS 428 S.A, 428 S.B, 428 S.C AND 428 S.D IN D.D 112, SHEK KONG, YUEN LONG, NEW TERRITORIES
OCT 2026

Appendix D
Proposed Drainage Arrangement

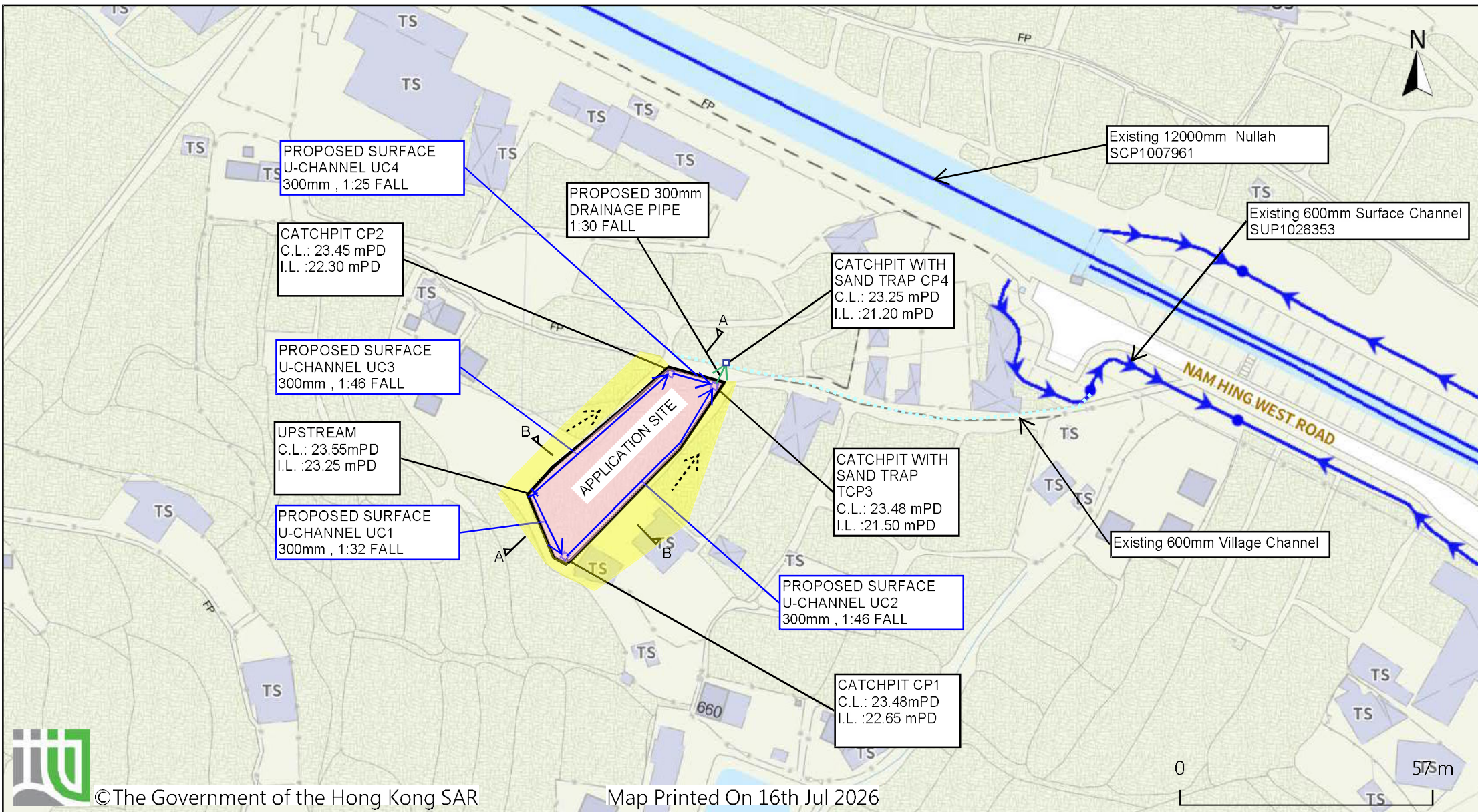
- LEGEND
- SITE BOUNDARY
 - FALL DIRECTION
 - CATCHMENT AREA
 - EXTERNAL CATCHMENT AREA

- PROPOSED U- CHANNEL
- PROPOSED CATCHPIT
- EXISTING SURFACE CHANNEL

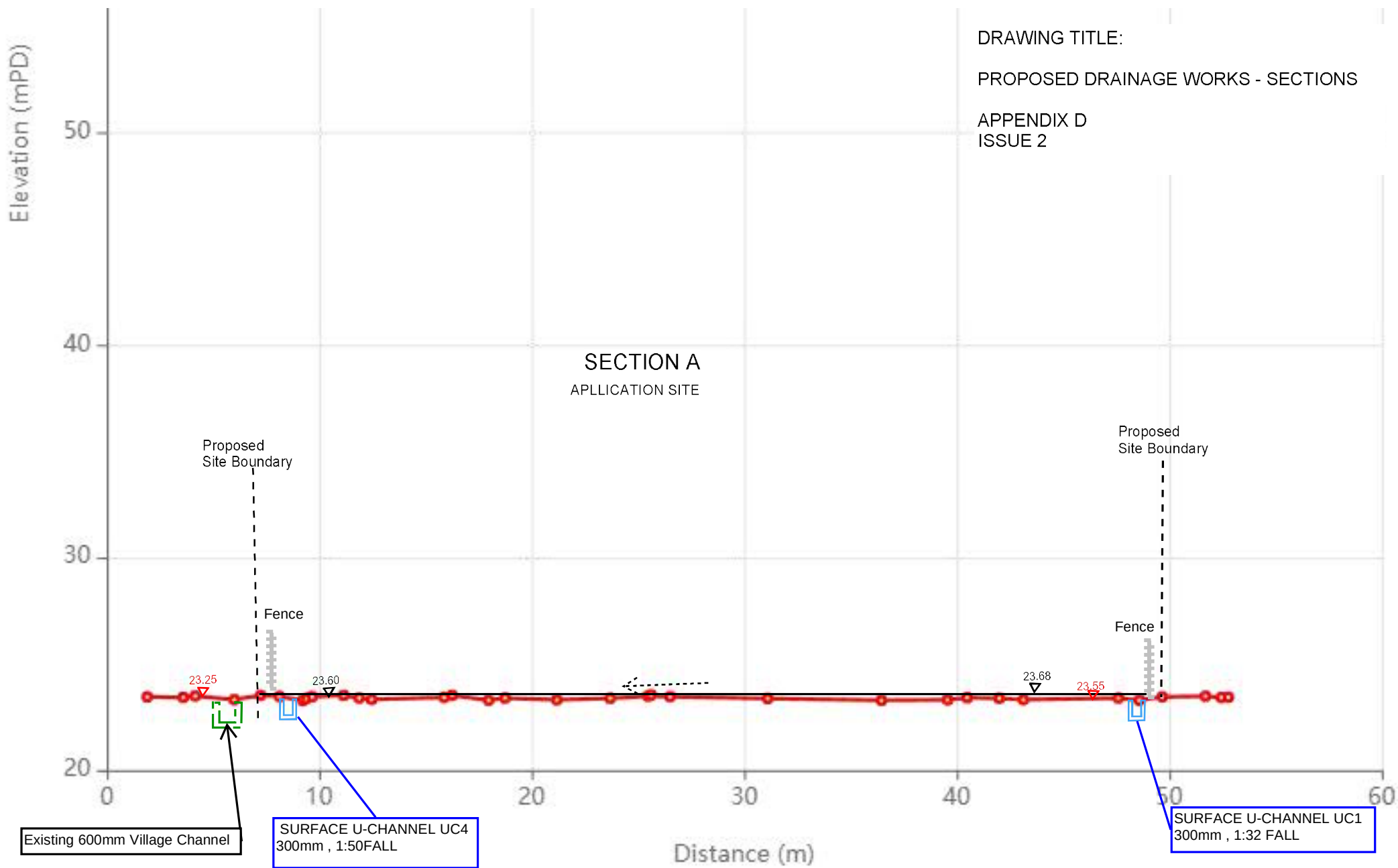
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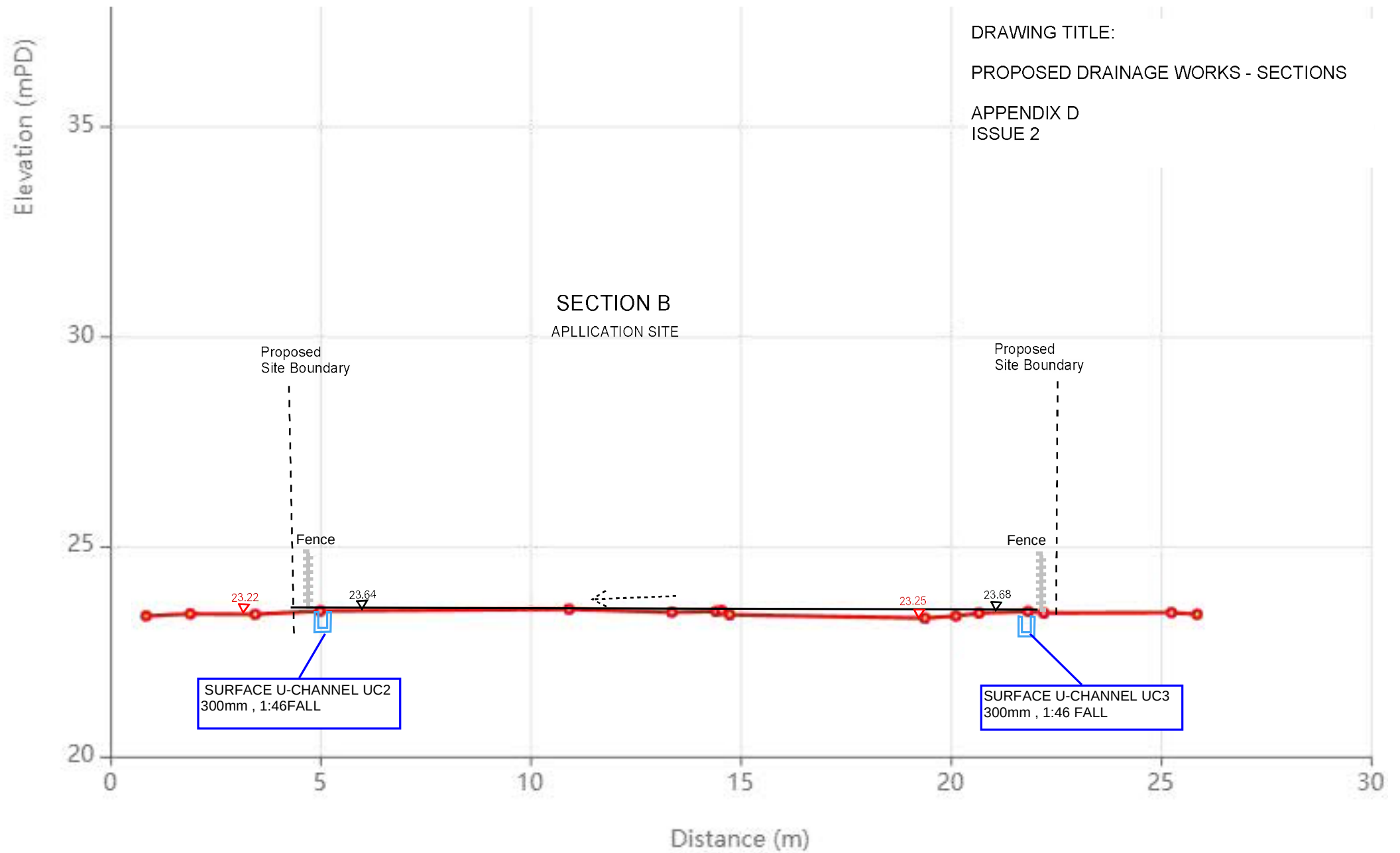
PROPOSED DRAINAGE WORKS

APPENDIX D
ISSUE 2



TEMPORARY DRAINAGE PROPOSAL FOR THE PROPOSED TEMPORARY SHOP AND SERVICES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS IN LOTS428 S.A, 428 S.B, 428 S.C AND 428 S.D IN D.D 112, SHEK KONG, YUEN LONG, NEW TERRITORIES
OCT 2026





Appendix E1

Hydraulic Calculation for Proposed U Channel for Application Site

Calculation Sheet																	Date:	2026-10-07							
Project Title: TEMPORARY DRAINAGE PROPOSAL FOR THE PROPOSED TEMPORARY SHOP AND SERVICES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS IN LOTS 428 S.A, 428 S.B, 428 S.C AND 428 S.D IN D.D 112, SHEK KONG, YUEN LONG, NEW TERRITORIES																	Project No.:		SK-468						
																	Designed by:		RF						
																	Appendix :		E1						
																	Sheet No.:		1						

Hydraulic Design for U Channel for Development Area

Catchpit No.		Catchment				Level				U Channel								Manning's Equation									
From (U/S)	To (D/S)	Surface Channel	Catchment Area (m ²)	Runoff Coef. C	Ave. Slope / 100m	U/S C.L. (mPD)	D/S C.L. (mPD)	U/S I.L. (mPD)	D/S I.L. (mPD)	Material	Nominal Width (mm)	Nominal Depth (mm)	Lgth (m)	Grad. (1 in)	Restricted U Channel Area Ar (m2)	Wetted Peri.P (mm)	Hyd. Radius R (mm)	Mng's Coef. n	Vel. V at Full Bore (m/s)	Cap. Q _o (m ³ /s)	Velocity Check	Time of Conc. t _c (min)	Rainfall Intensity i (mm/hr)	Runoff Q (m ³ /s)	Capacity % (Q/Q _o)	Capacity Check	
-	CP1	UC1	780	0.85	1	23.55	23.48	23.25	22.65	CO	300	300	19	32	0.07	0.77	0.09	0.015	2.44	0.18	OK	1.412	338.47	0.06	35.3%	OK	
CP1	TCP3	UC2	780	0.85	1	23.48	23.48	22.65	21.50	CO	300	300	53	46	0.07	0.77	0.09	0.015	2.03	0.15	OK	1.848	327.98	0.06	41.3%	OK	
-	CP2	UC3	780	0.85	1	23.55	23.45	23.25	22.30	CO	300	300	44	46	0.07	0.77	0.09	0.015	2.02	0.15	OK	2.211	320.13	0.06	40.4%	OK	
CP2	TCP3	UC4	780	0.85	1	23.45	23.48	22.30	21.70	CO	300	300	15	25	0.07	0.77	0.09	0.015	2.75	0.20	OK	2.302	318.28	0.06	29.5%	OK	

Hydraulic Design for Drainage Pipe for Development Area

		Catchment			U/S I.L. (mPD)	D/S I.L. (mPD)	Pipe				Colebrook-White Equation						Manning's Equation									
From (U/S)	To (D/S)	Incr. Area (m ²)	Accum. Area (m ²)	Runoff Coef. C			Material	Dia. (mm)	Lgth (m)	Grad. (1 in)	Rough- ness k _s (mm)	Pipe Flow		Time of Conc. t _c (min)	Rainfall Inten-sity i (mm/hr)	Runoff Q (m ³ /s)	Velocit y Check	Mng's Coef. n	Pipe Flow		Capacity Check	Time of Conc. t _c (min)	Rainfall Inten-sity i (mm/hr)	Runoff Q (m ³ /s)	Runoff / Cap. (Q/Q _o)	Capacity Check
												Vel. V (m ³ /s)	Cap. Q _o (m ³ /s)						Vel. V (m/s)	Cap. Q _o (m ³ /s)						
TCP3	TCP4	780	780	1	21.50	21.20	CO	300	9	30	0.60	2.879	0.204	2.354	273	0.059	OK	0.015	2.165	0.153	OK	2.302	274	0.059	38.9%	OK

Formulae:

t_c = Time of Concentration = $t_o + t_f$
where t_o = Inlet Time = 1.412
 t_f = Flow Time = $\frac{L}{V}$ (Pipe Length / Flow Velocity)

V = Pipe Flow Velocity
= $(R)^{2/3} s^{1/2} / n$ for Manning's Equation
where g = Gravitational Acceleration = 9.81 m/s^2
 R = Hydraulic Radius
 s = Frictional Slope
 k_s = Surface Roughness =

0.6	mm for	concrete	CO
0.06	mm for	cast iron	CI
0.6	mm for	ductile iron	DI

 n = Kine. Viscosity = $1.141 \text{ E-}06 \text{ m}^2/\text{s}$
 n = Manning's Coef. =

0.015	for	concrete	CO
0.015	for	cast iron	CI
0.015	for	ductile iron	DI

Ref. DSD SDM Table 14

Ref. DSD SDM Table 13

Q_o = Pipe Flow Capacity = $(\pi D^2 / 4) V$

i = Rainfall Intensity
= $a / (t_c + b)^c$ where a =

505.5
3.29
0.355

 for a return period of

50

 years
 b =

3.29

 c =

0.355

Rainfall Increase = 10 % due to climate change

Ref. DSD Corrigendum No. 1/2024 SDM Table 3a

Q = Runoff = $0.278 * C_i A$
where C = Runoff Coefficient
 A = Catchment Area

Ar = 0.9 Flow Area (10% reduction for Sedimentation)

Ref. DSD SDM Section 9.3

Appendix E2

Hydraulic Calculation or Proposed U Channel with Adjacent Area

Calculation Sheet																	Date:	2026-10-07						
Project Title:																	Project No.:	SK-468						
TEMPORARY DRAINAGE PROPOSAL FOR THE PROPOSED TEMPORARY SHOP AND SERVICES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS IN LOTS 428 S.A, 428 S.B, 428 S.C AND 428 S.D IN D.D 112, SHEK KONG, YUEN LONG, NEW TERRITORIES																	Designed by:	RF						
																	Appendix :	E2						
																	Sheet No.:	1						

Hydraulic Design for U Channel for Development Area

Catchpit No.		Catchment				Level				U Channel								Manning's Equation									
From (U/S)	To (D/S)	Surface Channel	Catchment Area (m ²)	Runoff Coef. C	Ave. Slope / 100m	U/S C.L. (mPD)	D/S C.L. (mPD)	U/S I.L. (mPD)	D/S I.L. (mPD)	Material	Nominal Width (mm)	Nominal Depth (mm)	Lgth (m)	Grad. (1 in)	Restricted U Channel Area Ar (m2)	Wetted Peri.P (mm)	Hyd. Radius R (mm)	Mng's Coef. n	Vel. V at Full Bore (m/s)	Cap. Q _o (m ³ /s)	Velocity Check	Time of Conc. t _c (min)	Rainfall Intensity i (mm/hr)	Runoff Q (m ³ /s)	Capacity % (Q/Q _o)	Capacity Check	
-	CP1	UC1	1560	0.85	1	23.55	23.48	23.25	22.65	CO	300	300	19	32	0.07	0.77	0.09	0.015	2.44	0.18	OK	1.318	340.92	0.13	71.1%	OK	
CP1	TCP3	UC2	1560	0.85	1	23.48	23.48	22.65	21.50	CO	300	300	53	46	0.07	0.77	0.09	0.015	2.03	0.15	OK	1.753	330.15	0.12	83.0%	OK	
-	CP2	UC3	1560	0.85	1	23.55	23.45	23.25	22.30	CO	300	300	44	46	0.07	0.77	0.09	0.015	2.02	0.15	OK	2.116	322.11	0.12	81.2%	OK	
CP2	TCP3	UC4	1560	0.85	1	23.45	23.48	22.30	21.70	CO	300	300	15	25	0.07	0.77	0.09	0.015	2.75	0.20	OK	2.207	320.21	0.12	59.3%	OK	

Hydraulic Design for Drainage Pipe for Development Area

		Catchment			U/S I.L. (mPD)	D/S I.L. (mPD)	Pipe				Colebrook-White Equation							Manning's Equation								
From (U/S)	To (D/S)	Incr. Area (m ²)	Accum. Area (m ²)	Runoff Coef. C			Material	Dia. (mm)	Lgth (m)	Grad. (1 in)	Rough- ness k _s (mm)	Pipe Flow		Time of Conc. t _c (min)	Rainfall Inten-sity i (mm/hr)	Runoff Q (m ³ /s)	Velocit y Check	Mng's Coef. n	Pipe Flow		Capacity Check	Time of Conc. t _c (min)	Rainfall Inten-sity i (mm/hr)	Runoff Q (m ³ /s)	Runoff / Cap. (Q/Q _o)	Capacity Check
												Vel. V (m/s)	Cap. Q _o (m ³ /s)						Vel. V (m/s)	Cap. Q _o (m ³ /s)						
TCP3	TCP4	1560	1560	1	21.50	21.20	CO	300	9	30	0.60	2.879	0.204	2.259	275	0.119	OK	0.015	2.165	0.153	OK	2.207	276	0.120	78.2%	OK

Formulae:

t_c = Time of Concentration = $t_o + t_f$
where t_o = Inlet Time = 1.318
 t_f = Flow Time = $\frac{L}{V}$ (Pipe Length / Flow Velocity)

V = Pipe Flow Velocity
= $(R)^{2/3} s^{1/2} / n$ for Manning's Equation
where g = Gravitational Acceleration = 9.81 m/s²
 R = Hydraulic Radius
 s = Frictional Slope
 k_s = Surface Roughness =

0.6	mm for	concrete	CO
0.06	mm for	cast iron	CI
0.6	mm for	ductile iron	DI

 Ref. DSD SDM Table 14
 n = Kine. Viscosity = 1.141E-06 m²/s
 n = Manning's Coef. =

0.015	for	concrete	CO
0.015	for	cast iron	CI
0.015	for	ductile iron	DI

 Ref. DSD SDM Table 13

Q_o = Pipe Flow Capacity = $(\pi D^2 / 4) V$

i = Rainfall Intensity
= $a / (t_c + b)^c$ where a = 505.5 for a return period of 50 years Ref. DSD Corrigendum No. 1/2024 SDM Table 3a
 b = 3.29
 c = 0.355
Rainfall Increase = 10 % due to climate change

Q = Runoff = 0.278 * C * A
where C = Runoff Coefficient
 A = Catchment Area

Ar = 0.9 Flow Area (10% reduction for Sedimentation)

Ref. DSD SDM Section 9.3

Appendix F
Design Checking for Existing Drainage System

Calculation Sheet																				Date:	2026-10-07			
Project Title:																				Project No.:	SK-468			
TEMPORARY DRAINAGE PROPOSAL FOR THE PROPOSED TEMPORARY SHOP AND SERVICES AND ASSOCIATED FILLING OF LAND FOR A PERIOD OF 3 YEARS IN LOTS 428 S.A, 428 S.B, 428 S.C AND 428 S.D IN D.D 112, SHEK KONG, YUEN LONG, NEW TERRITORIES																				Designed by:	RF			
																				Appendix :	F			
																				Sheet No.:	1			

Design Checking for Existing Village Drain

Catchpit No.		Catchment				Level				U Channel							Manning's Equation									
From (U/S)	To (D/S)	Channel	Catchm ent. Area (m ²)	Runoff Coef. C	Ave. Slope/ 100m	U/S G.L. (mPD)	D/S G.L. (mPD)	U/S I.L. (mPD)	D/S I.L. (mPD)	Material	Width (mm)	Lgth (m)	Grad. (1 in)	Restrict ed Flow Area A (m2)	Wetted Peri.P (mm)	Hyd. Radius R (mm)	Mng's Coef. n	Vel. V at Full Bore (m/s)	Cap. Q _o (m ³ /s)	Velocity Check	Time of Conc. t _c (min)	Rainfall Intensity i (mm/hr)	Runoff Q (m ³ /s)	Capacity % (Q/Q _o)	Capacity Check	
TCP4	EXISTING	600U	1560	0.85	1	23.48	21.80	21.40	19.90	CO	600	98	65	0.45	2.74	0.16	0.015	2.48	1.12	OK	6.796	258.15	0.10	8.5%	OK	

Formulae:

t_c = Time of Concentration = $t_o + t_f$
where t_o = Inlet Time = 6.796 min
 t_f = Flow Time = $\frac{L}{V}$ (Pipe Length / Flow Velocity)

V = Pipe Flow Velocity
= $(R)^{2/3} s^{1/2} / n$ for Manning's Equation
where g = Gravitational Acceleration = 9.81 m/s²
 R = Hydraulic Radius
 s = Frictional Slope
 k_s = Surface Roughness =

0.6	mm for	concrete	CO
0.06	mm for	cast iron	CI
0.6	mm for	ductile iron	DI

 Ref. DSD SDM Table 14
 n = Kine. Viscosity = 1.141E-06 m²/s
 n = Manning's Coef. =

0.015	for	concrete	CO
0.015	for	cast iron	CI
0.015	for	ductile iron	DI

 Ref. DSD SDM Table 13

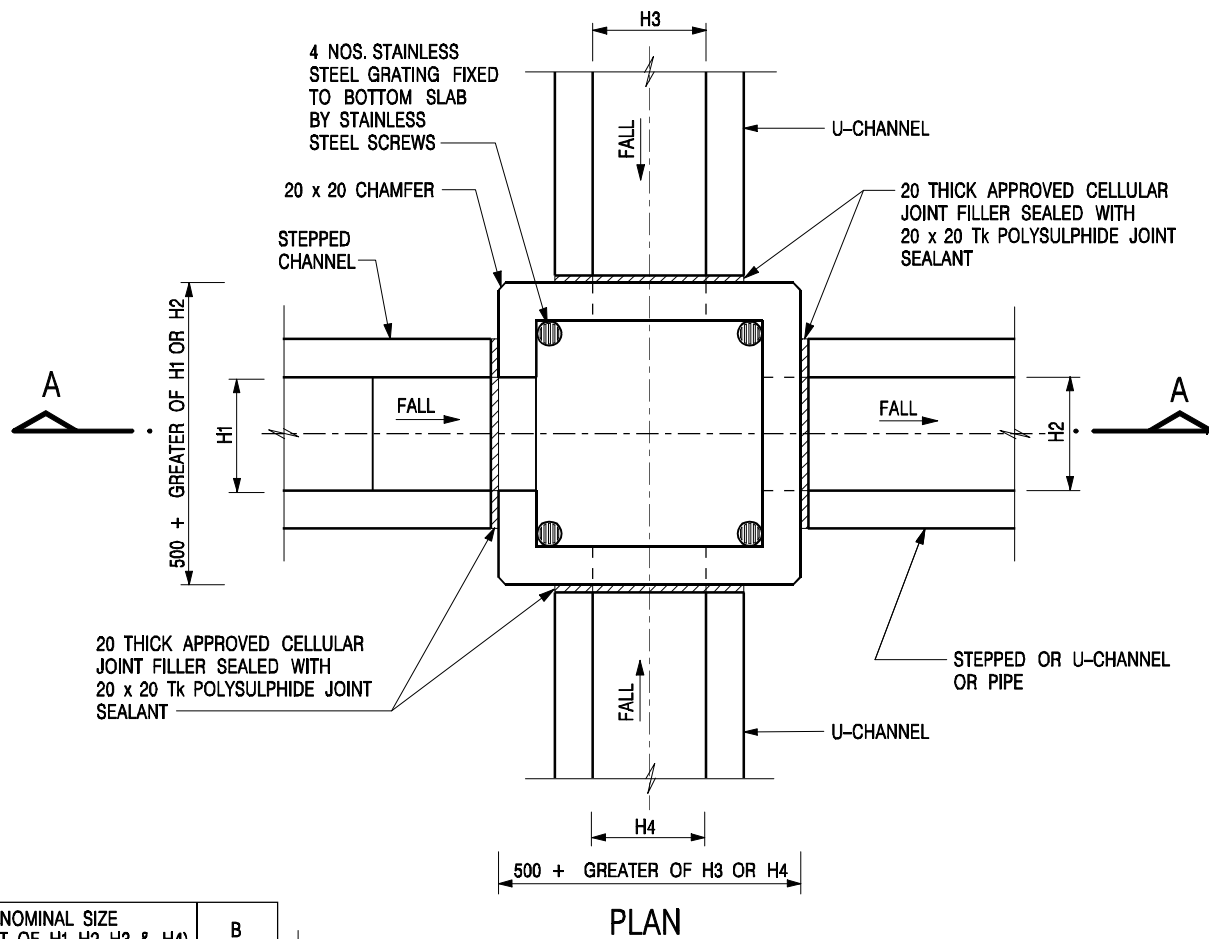
Q_o = Pipe Flow Capacity = $(\pi D^2/4)V$

i = Rainfall Intensity
= $a / (t_c + b)^c$ where a = HKO Headquarters 505.5 for a return period of 50 years Ref. DSD Corrigendum No. 1/2024 SDM Table 3a
 b = 3.29
 c = 0.355
Rainfall Increase = 16 % due to climate change

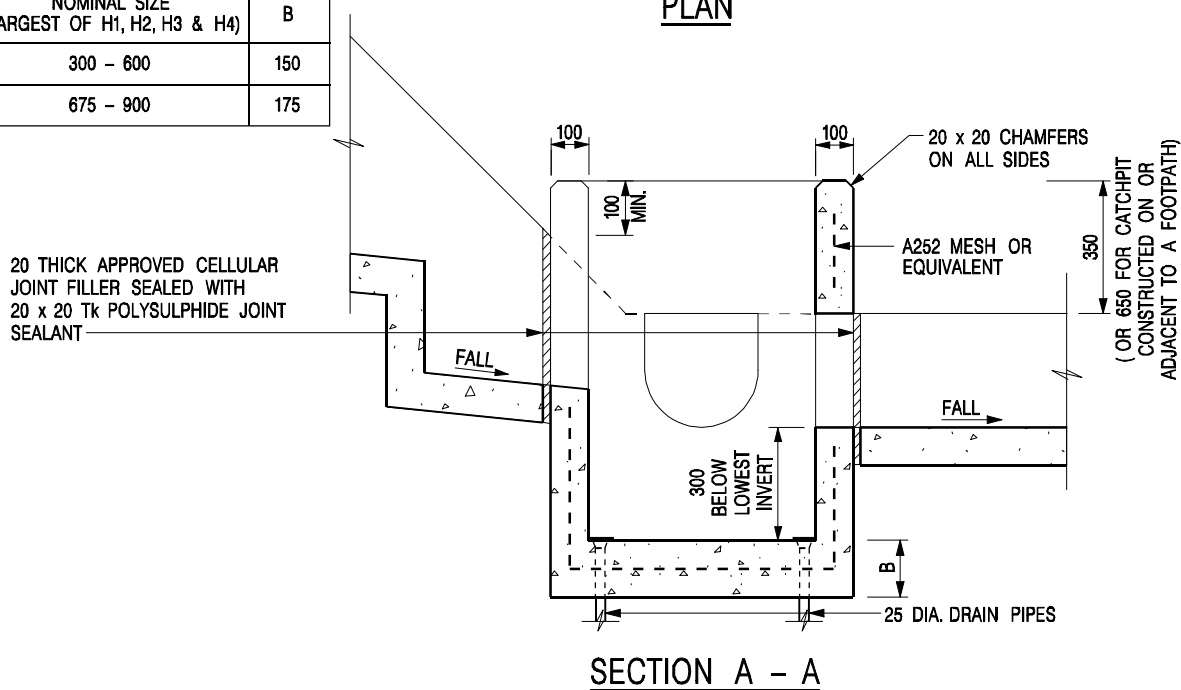
Q = Runoff = 0.278 * C_i A
where C = Runoff Coefficient
 A = Catchment Area Ref. DSD SDM Section 9.3

Ar = 0.9 Flow Area

Appendix G
Construction Details and
Typical designs of the U-channels and Catchpits



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

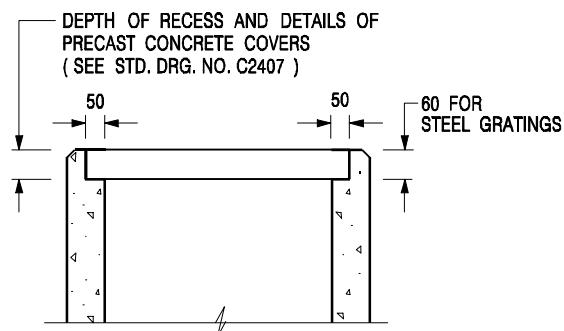


NOTES:

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



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 /2) 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 'J' ON STD. DRG. NO. C2405 /5; 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 'G' ON STD. DRG. NO. C2405 /4.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

A	MINOR AMENDMENT.	Original Signed	04.2016
-	FORMER DRG. NO. C2406J.	Original Signed	03.2015
REF.	REVISION	SIGNATURE	DATE

CATCHPIT WITH TRAP
(SHEET 2 OF 2)



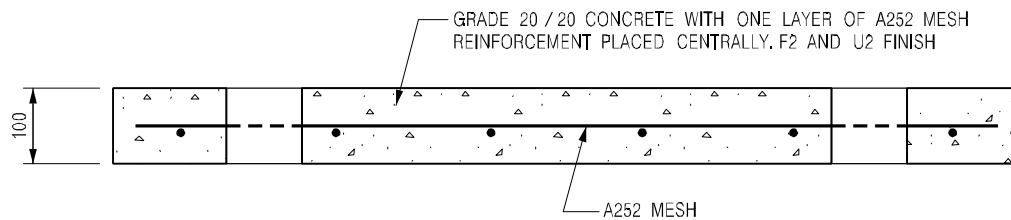
**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

SCALE 1 : 20

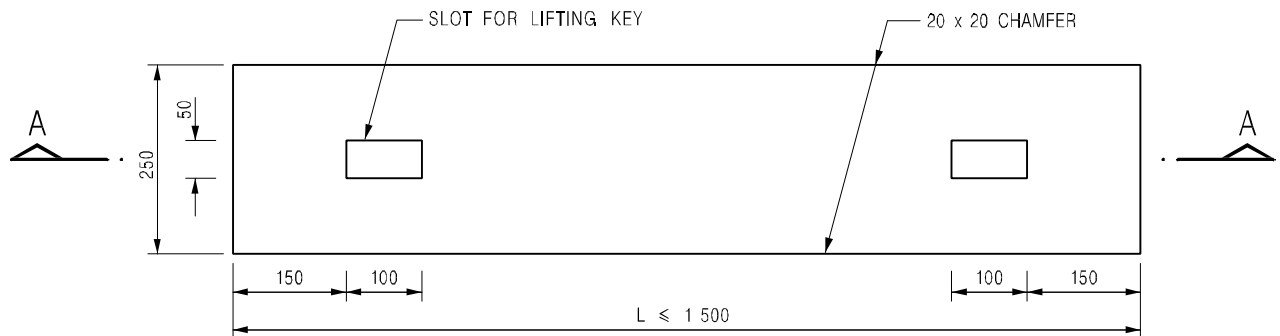
DATE JAN 1991

DRAWING NO.

C2406 /2A

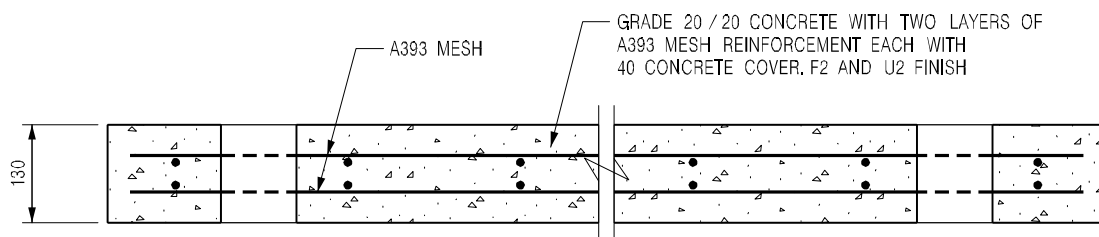


SECTION A - A

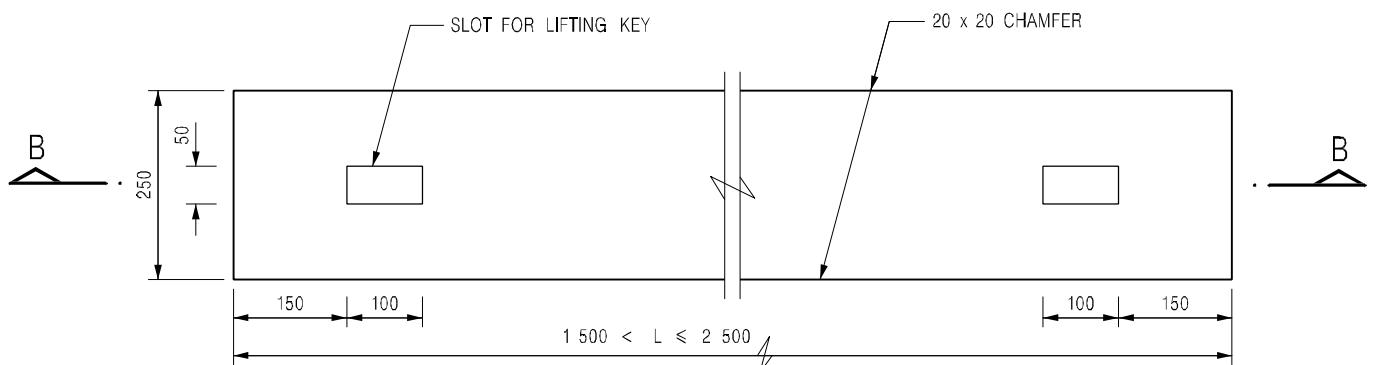


PLAN

TYPE 1 - FOR SPAN UP TO 1.5 m



SECTION B - B



PLAN

TYPE 2 - FOR SPANS 1.5 m TO 2.5 m

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EXTERNAL EDGES OF THE COVERS SHALL BE 20mm CHAMFERED.

B	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
A	GENERAL REVISION	Original Signed	12.2002
REF.	REVISION	SIGNATURE	DATE

**PRECAST CONCRETE COVERS
FOR CATCHPIT AND SAND TRAP**

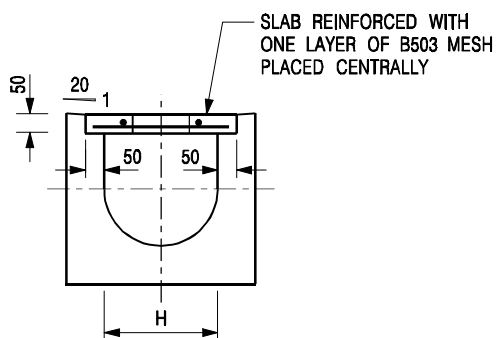


**CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT**

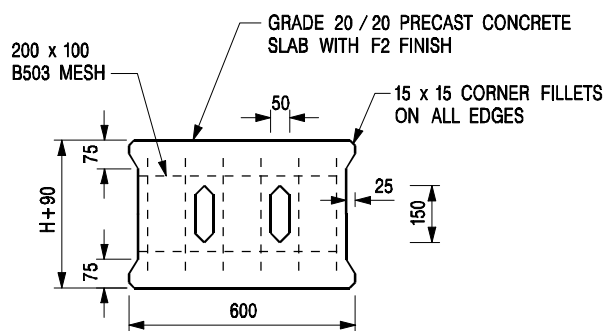
SCALE 1 : 10

DATE JAN 1991

DRAWING NO.
C2407B



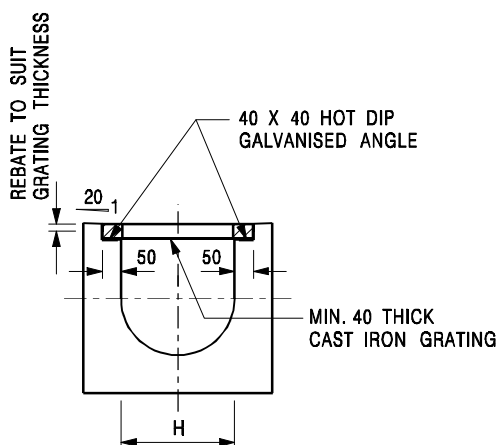
TYPICAL SECTION



PLAN OF SLAB

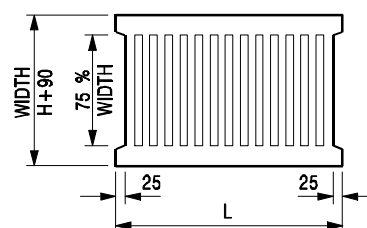
U-CHANNELS WITH PRECAST CONCRETE SLABS

(UP TO H OF 525)



TYPICAL SECTION

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



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

CAST IRON GRATING

U-CHANNEL WITH CAST IRON GRATING

(UP TO H OF 525)

NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES.
- H=NOMINAL CHANNEL SIZE.
- ALL CAST IRON FOR GRATINGS SHALL BE GRADE EN-GJL-150 COMPLYING WITH BS EN 1561.
- 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