GoldRich PLANNERS & SURVEYORS LTD.
金 潤 規 劃 測 量 師 行 有 限 公 司

[redacted]

Your Ref.: A/NE-SSH/155 Our Ref.: P23055B/TL24396 31 July 2024

The Secretary
Town Planning Board
15/F., North Point Government Offices
333 Java Road, North Point, Hong Kong

By Post and E-mail
tpbpd@pland.gov.hk

Dear Sir,

Submission of Further Information

Proposed Temporary Private Vehicle Park (Private Cars) for a Period of 3 Years in "Village Type Development" Zone, Lot Nos. 537 (Part), 538 (Part), 540 S.A (Part) and 541 S.A (Part) in D.D. 218, Ma Kwu Lam Village, Sai Kung North, New Territories

We would like to submit further information to respond to the comments from Drainage Services Department dated 23.7.2024.

Yours faithfully,
For and on behalf of
Goldrich Planners & Surveyors Ltd.

Francis Lau

Encl.

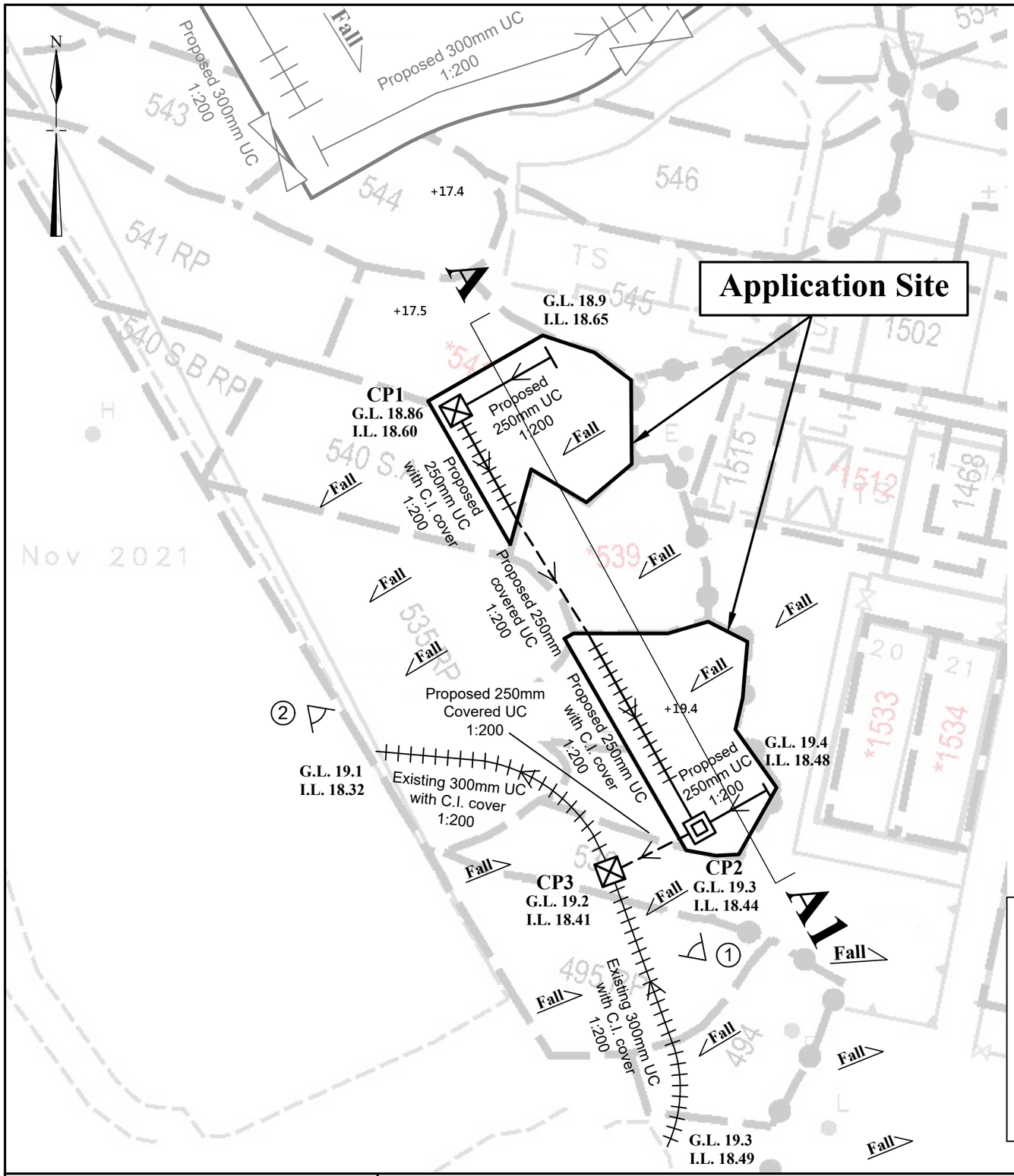
Further Information (5) for Planning Application Nos. A/NE-SSH/155

Response-to-Comment

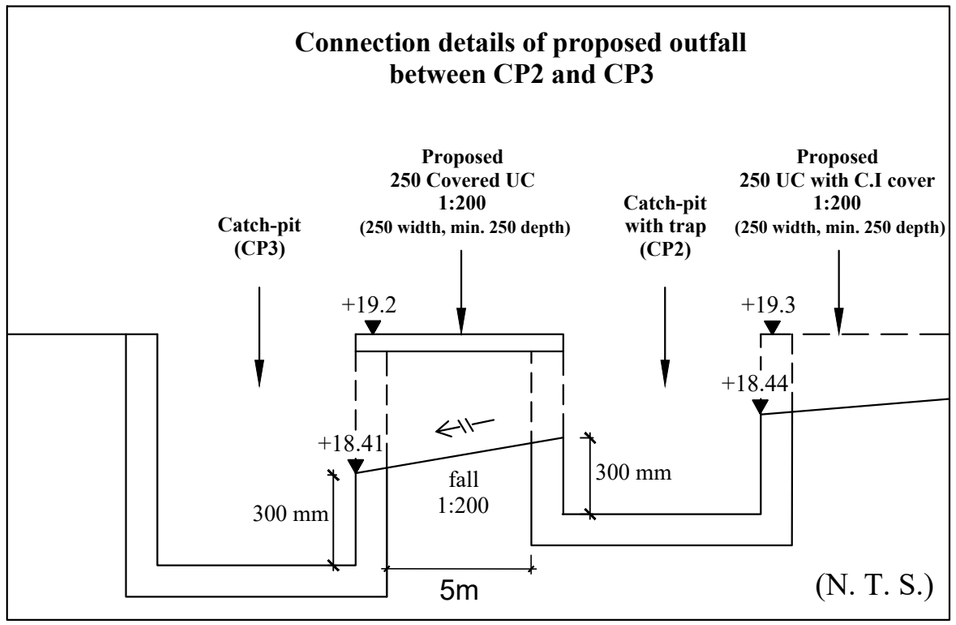
Comments from Drainage Services Department received on 23.7.2024

Contact person: Mr. Justin LAU (Tel.: 2300 1545)

I.	**Comment**		**Response**
(a)	Supporting calculations to demonstrate that the existing downstream drain/channel has adequate capacity to convey the runoff to be discharged arising from the proposed development. (Checking for existing 300UC and its downstream for SSH_155)		Please refer to updated Drainage Proposal (Plan 4.1b and Plan 4.2b) and drainage calculations for details.
(b)	The drainage flow path from the development to the public drainage system / streamcourse / sea / any recognized drainage facilities should be provided in association with supporting site photos for the captioned submission. (Please provide downstream information of existing 300UC for SSH_155)		Please refer to attached site photo (Viewpoint 2) for details.

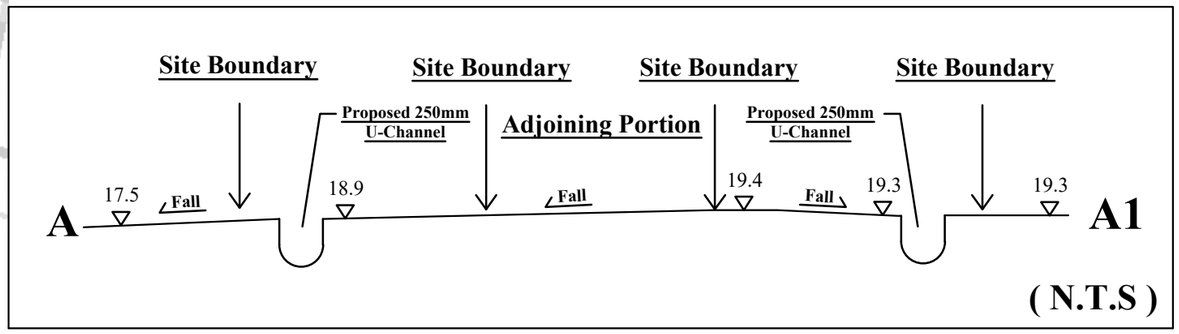


Connection details of proposed outfall between CP2 and CP3

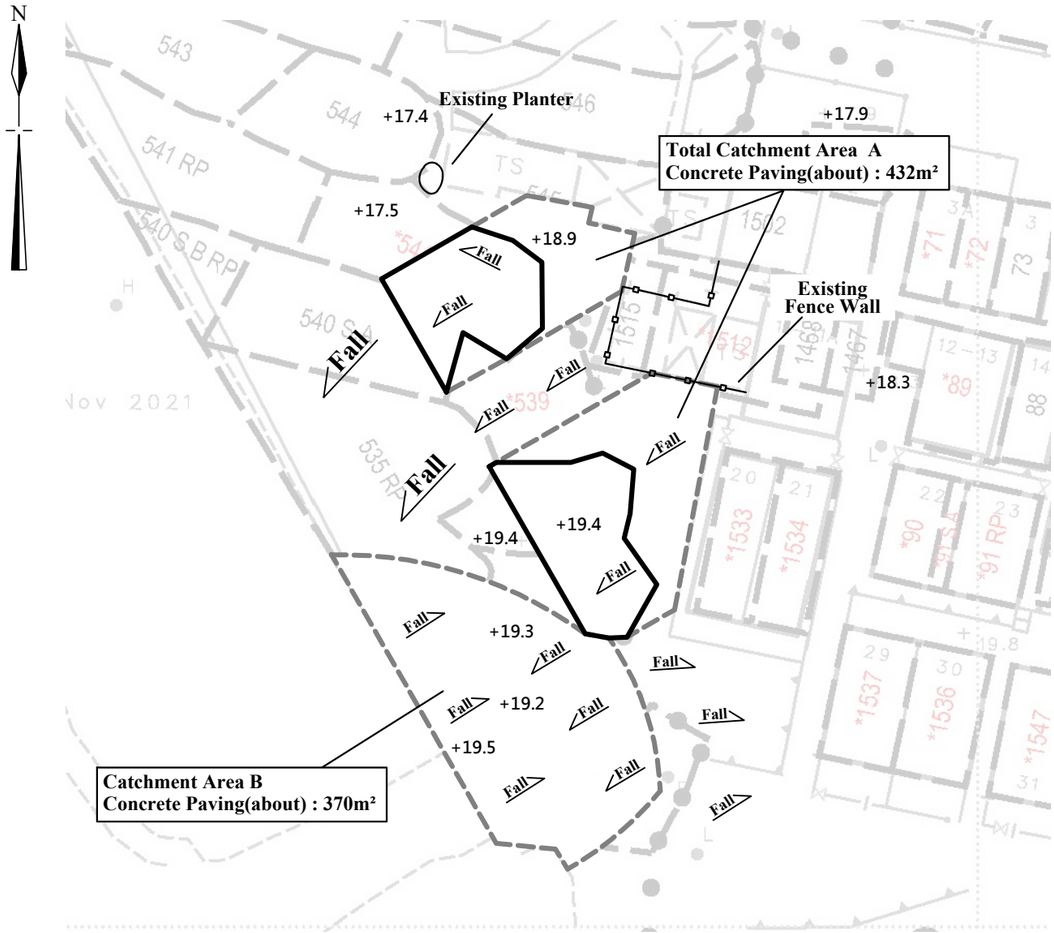


Legend

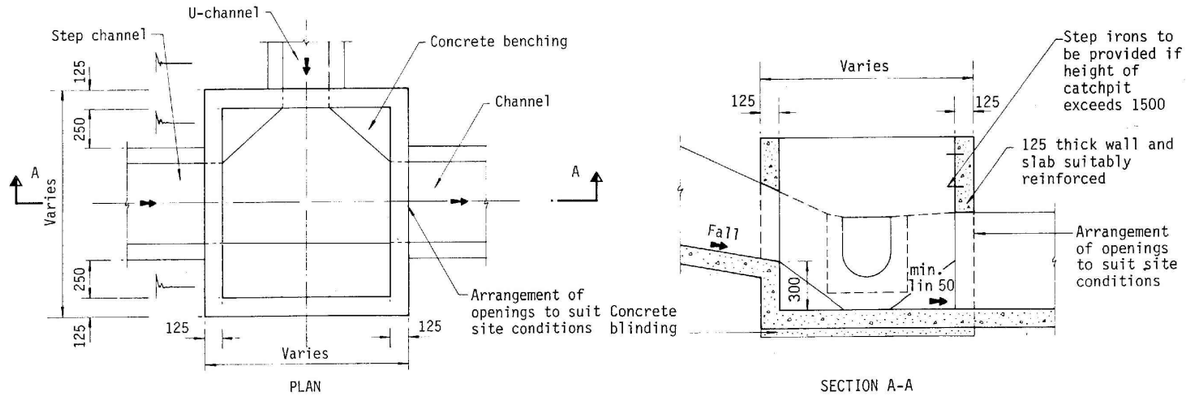
- Proposed Catch-pit
- Proposed Catch-pit with trap
- Proposed U-Channel
- Proposed Covered U-Channel
- U-Channel with C.I. cover
- Vehicular Ingress / Egress
- Viewpoint of Drainage Photo



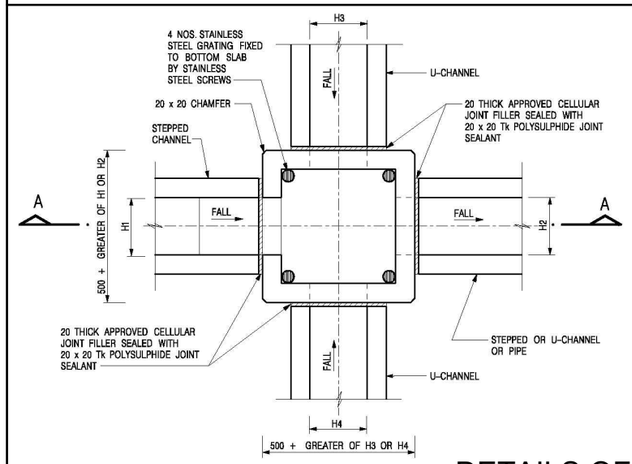
1:300 (A3)	**Drainage Proposal** Lots 537(part), 538(part), 540 S.A(part) and 541 S.A(part) in D.D.218 Ma Kwu Lam, Sai Kung North, N.T	Goldrich Planners & Surveyors Ltd.
July 2024		Plan 4.1b (P 23055B)

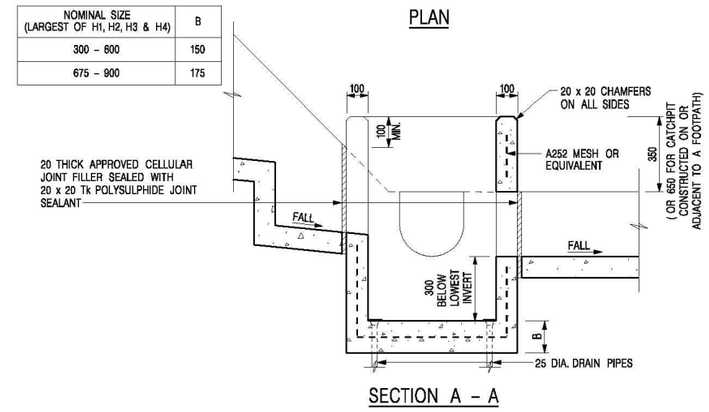


AREA OF CATCHMENT
(N.T.S)



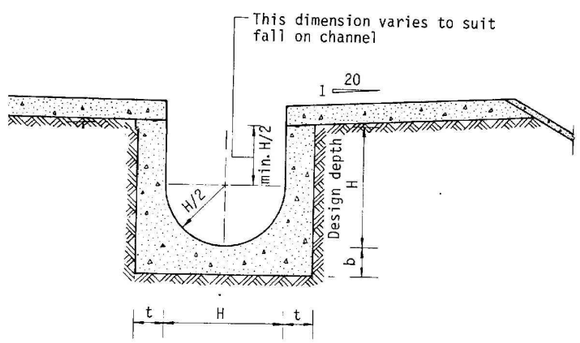
TYPICAL DETAILS OF CATCHPIT



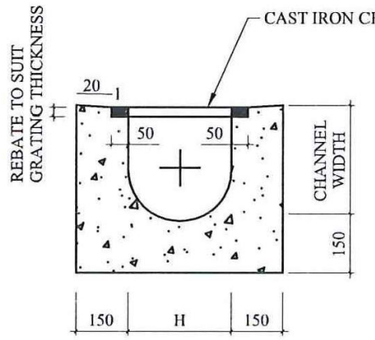


NOMINAL SIZE (LARGEST OF H1, H2, H3 & H4)	B
300 - 600	150
675 - 900	175

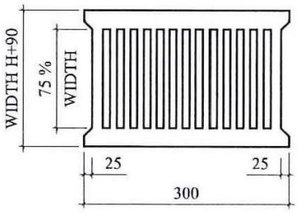
DETAILS OF CATCHPIT WITH TRAP
(REFER TO CEDD'S STANDARD DWG. C2406/1)



TYPICAL DETAILS OF U CHANNEL



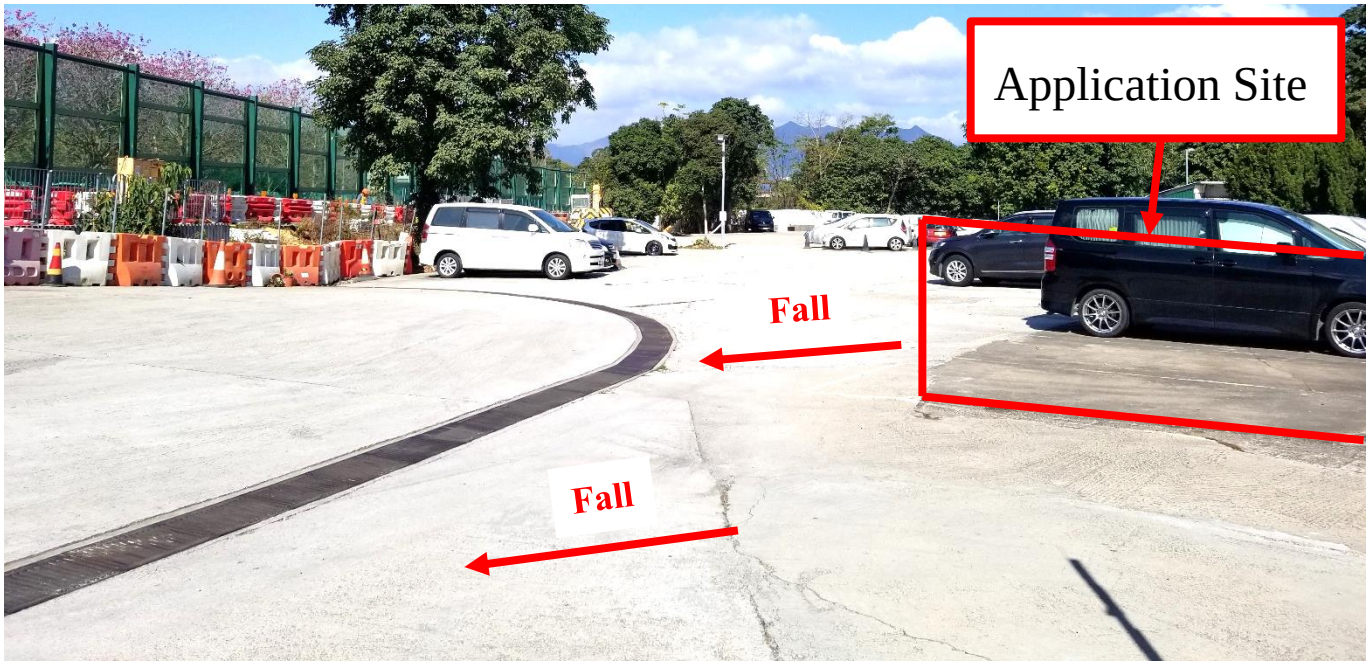
TYPICAL SECTION OF
U-CHANNEL WITH COVER
(N.T.S.)



CAST IRON CRATING
(HEAVY DUTY)

1:500 (A3)	**Drainage Proposal** Lots 537(part), 538(part), 540 S.A(part) and 541 S.A(part) in D.D.218 Ma Kwu Lam, Sai Kung North, N.T	Goldrich Planners & Surveyors Ltd.
July 2024		Plan 4.2b (P 23055B)

Viewpoint 1



Viewpoint 2

Space reserved for public drainage system. The existing 300mm UC will connected to the public drainage system which will be constructed by HyD.

Pedestrian walkway constructed by HyD.

1 For Catchment Area A

				Ref.
Area, A	=	432	m^2	
Average slope, H	=	0.1	m per 100m	
Distance on the line of natural flow, L	=	18.6	m	
Time of concentraction, t_o	= 0.14465L / ($H^{0.2}A^{0.1}$)	=	0.14465 (18.6) / (0.1^0.2*432^0.1)	SDM 7.5.2 (d)
	= 2.3	min		

2 For Proposed U-Channel in catchment area A

	From	To
Ground level (mPD)	18.90	19.30
Invert level (mPD)	18.65	18.44

Width of u-channel, w	=	250	mm
Length of u-channel, L_c	=	38.4	m
Depth of vertical part of u-channel, d	=	735	mm
Gradient of u-channel, S_f	= (18.65-18.44)/38.4	=	0.005
Cross-Section Area, a	= 0.5 πr^2 + w d	=	0.5 x 3.14 x 125^2 + 250 x 735
	= 0.208	m^2	
Wetted Perimeter, p	= π r + 2 d	=	3.14 x 125 + 2 x 735
	= 1.863	m	
Hydralic radius, R	= a / p		SDM 8.2.1
	= 0.112	m	

3 Use Manning Equation for estimating velocity of stormwater

Take n	= 0.016	for concrete lined channels:-		SDM Table 13
Allowable velocity, v	= $R^{1/6}$x $(RS_f)^{1/2}$/n	=	(0.112)^1/6 x (0.112 x 0.005)^1/2 / 0.016	SDM Table 12
	= 1.07	m/s		
Time of flow, t_f	= 0.6	min		

4 Use "Rational Method" for calculation of design flow

Design intensity, i	= a / (t_o + t_f +b)^c			SDM 4.3.2
	= 505.5 / (2.3+0.6+3.29)^0.355	for return period T = 50 years		SDM Table 3(a)
	= 264			

Type of surface	Runoff Coefficient C	Catchment Area A (m^2)	C x A	SDM 7.5.2 (b)
Flat Glassland(heavy soil)	0.25	0.0	0.0	
Concrete Paving	0.95	432.0	410.4	
		SUM =	410.4	

Upstream flow, Q_u	= 0	m^3/s		
Design flow, Q_d	= 0.278i Σ C_jA_j + Q_u	where A_j is in km^2		SDM 7.5.2 (a)
	= 0.278 x 264 x 410.4 / 1000000 + 0			
	= 0.030	m^3/s		
Allowable flow, Q_a	= a x v			
	= 0.208 x 1.07			
	= 0.223	m^3/s		
	> Q_d (O.K.)			

Reference was made to Stormwater Drainage Manual (SDM) by DSD

Scale: NA	**Drainage Calculation**	Goldrich Planners & Surveyors Ltd.
June 2024	Lots 537(part), 538(part), 540 S.A(part) and 541 S.A(part) in D.D.218 Ma Kwu Lam, Sai Kung North, N.T	Page 1 (P23055B)

1 For Channel Section S1

				Ref.
Area, A	=	0	m^2	
Average slope, H	=	0.1	m per 100m	
Distance on the line of natural flow, L	=	0	m	
Time of concentraction, t_o	=	$0.14465L / (H^{0.2}A^{0.1})$ = 0.14465 (0) / (0.1^0.2*0^0.1)		SDM 7.5.2 (d)
	=	0.0	min	

2 For Proposed U-Channel Section S1

	From	To
Ground level (mPD)	19.30	19.20
Invert level (mPD)	18.44	18.41

Width of u-channel, w	=	250	mm	
Length of u-channel, L_c	=	5	m	
Depth of vertical part of u-channel, d	=	662	mm	
Gradient of u-channel, S_f	=	(18.44-18.41)/5 = 0.005		
Cross-Section Area, a	=	$0.5 \pi r^2 + w d$ = 0.5 x 3.14 x 125^2 + 250 x 662		
	=	0.190	m^2	
Wetted Perimeter, p	=	$\pi r + 2 d$ = 3.14 x 125 + 2 x 662		
	=	1.717	m	
Hydralic radius, R	=	a / p		SDM 8.2.1
	=	0.111	m	

3 Use Manning Equation for estimating velocity of stormwater

Take n	=	0.016	for concrete lined channels:-	SDM Table 13
Allowable velocity, v	=	$R^{1/6} x (RS_f)^{1/2}/n$ = (0.111)^1/6 x (0.111 x 0.005)^1/2 / 0.016		SDM Table 12
	=	1.06	m/s	
Time of flow, t_f	=	0.08	min	

4 Use "Rational Method" for calculation of design flow

Design intensity, i	=	$a / (t_o + t_f + b)^c$		SDM 4.3.2
	=	505.5 / (0+0.1+3.29)^0.35	for return period T = 50 years	SDM Table 3(a)
	=	328		

Type of surface	Runoff Coefficient C	Catchment Area A (m^2)	C x A	SDM 7.5.2 (b)
Flat Glassland(heavy soil)	0.25	0.0	0.0	
Concrete Paving	0.95	0.0	0.0	
		SUM =	0.0	

Upstream flow, Q_u	=	0.03	m^3/s	
Design flow, Q_d	=	$0.278i \Sigma C_j A_j + Q_u$ where A_j is in km^2		SDM 7.5.2 (a)
	=	0.278 x 328 x 0 / 1000000 + 0.03		
	=	0.030	m^3/s	
Allowable flow, Q_a	=	a x v		
	=	0.19 x 1.06		
	=	0.201	m^3/s	
	>	Q_d (O.K.)		

Reference was made to Stormwater Drainage Manual (SDM) by DSD

1 For Catchment Area B

Ref.

Area, A = 370 m^2
Average slope, H = 1.33 m per 100m
Distance on the line of natural flow, L = 15 m

Time of concentration, t_o = $0.14465L / (H^{0.2}A^{0.1})$ = 0.14465 (15) / (1.33^0.2*370^0.1) — SDM 7.5.2 (d)
= 1.1 min

2 For Proposed U-Channel in catchment area B

	From	To
Ground level (mPD)	19.30	19.10
Invert level (mPD)	18.49	18.32

Width of u-channel, w = 300 mm
Length of u-channel, L_c = 35.5 m
Depth of vertical part of u-channel, d = 630 mm
Gradient of u-channel, S_f = 18.49-18.32)/35.5 = 0.005

Cross-Section Area, a = $0.5\ \pi r^2 + w\,d$ = 0.5 x 3.14 x 150^2 + 300 x 630
= 0.224 m^2
Wetted Perimeter, p = $\pi\ r + 2\,d$ = 3.14 x 150 + 2 x 630
= 1.731 m
Hydralic radius, R = a / p — SDM 8.2.1
= 0.130 m

3 Use Manning Equation for estimating velocity of stormwater

Take n = 0.016 for concrete lined channels:- — SDM Table 13
Allowable velocity, v = $R^{1/6} x (RS_f)^{1/2}/n$ = (0.13)^1/6 x (0.13 x 0.005)^1/2 / 0.016 — SDM Table 12
= 1.11 m/s
Time of flow, t_f = 0.5 min

4 Use "Rational Method" for calculation of design flow

Design intensity, i = $a / (t_o + t_f + b)^c$ — SDM 4.3.2
= 505.5 / (1.1+0.5+3.29)^0.355 for return period T = 50 years — SDM Table 3(a)
= 286

Type of surface	Runoff Coefficient C	Catchment Area A (m^2)	C x A
Flat Glassland(heavy soil)	0.25	0.0	0.0
Concrete Paving	0.95	370.0	351.5
		SUM =	351.5

SDM 7.5.2 (b)

Upstream flow, Q_u = 0.03 m^3/s

Design flow, Q_d = $0.278i\ \Sigma\ C_jA_j + Q_u$ where A_j is in km^2 — SDM 7.5.2 (a)
= 0.278 x 286 x 351.5 / 1000000 + 0.03
= 0.058 m^3/s

Allowable flow, Q_a = a x v
= 0.224 x 1.11
= 0.248 m^3/s

> Q_d (O.K.)

Reference was made to Stormwater Drainage Manual (SDM) by DSD

Scale: NA	**Drainage Calculation**	Goldrich Planners & Surveyors Ltd.
July 2024	Lots 537(part), 538(part), 540 S.A(part) and 541 S.A(part) in D.D.218 Ma Kwu Lam, Sai Kung North, N.T	Page 3 (P23055B)