Your Ref.: A/NE-SSH/155　　　　　Our Ref.: P23055B/TL24465　　　　3 September 2024

The Secretary　　　　　　　　　　　　　　　　　　　　　By Post and E-mail

Town Planning Board　　　　　　　　　　　　　　　tpbpd@pland.gov.hk

15/F., North Point Government Offices

333 Java Road, North Point, Hong Kong

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
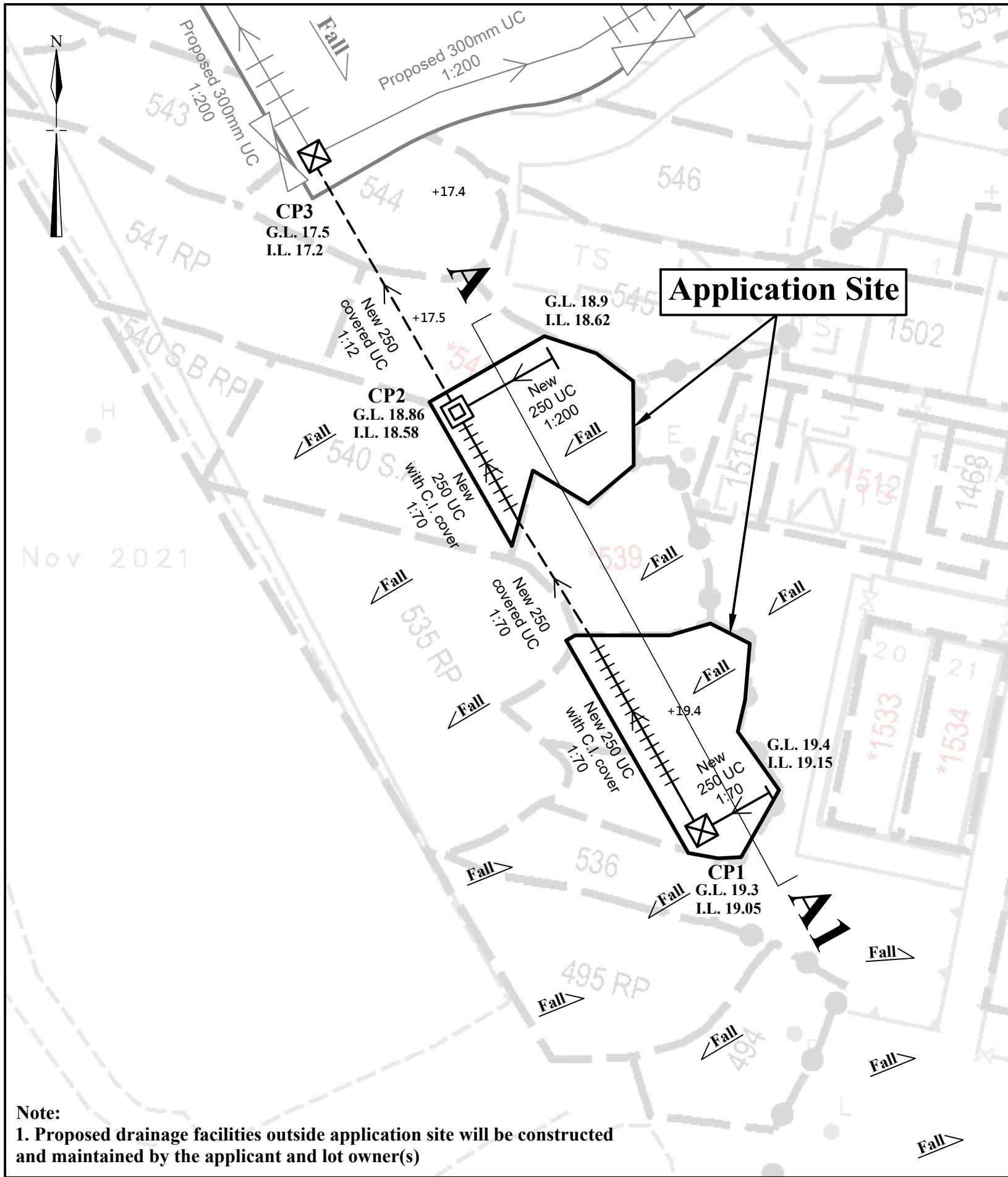
We would like to submit a set of updated drainage proposal for the captioned application.

Yours faithfully,

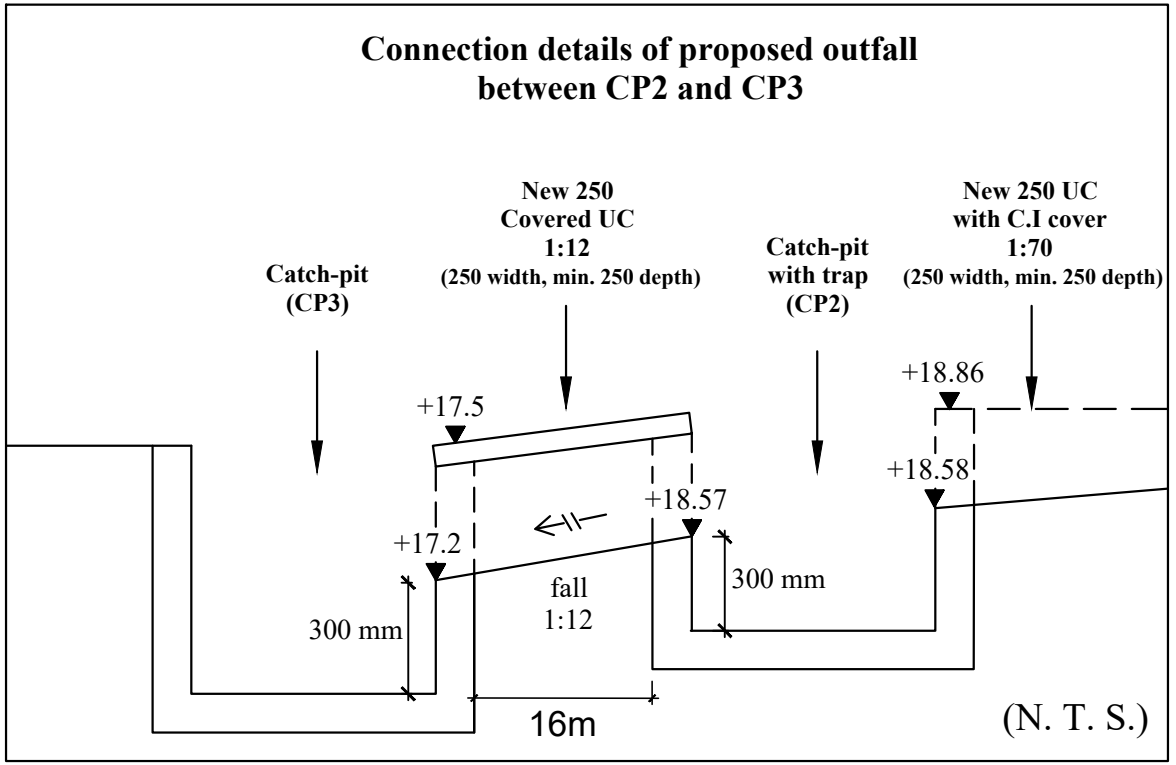For and on behalf of

Goldrich Planners & Surveyors Ltd.

Francis Lau

Encl.

N

Proposed 300mm UC 1:200

Fall

Proposed 300mm UC 1:200

543

544

546

+17.4

CP3
G.L. 17.5
I.L. 17.2

New 250 covered UC 1:12

+17.5

541 RP

540 S.B RP

540 S.

Nov 2021

535 RP

TS

G.L. 18.9
I.L. 18.62

Application Site

CP2
G.L. 18.86
I.L. 18.58

New 250 UC 1:200

New 250 UC with C.I. cover 1:70

Fall

Fall

New 250 covered UC 1:70

Fall

Fall

Fall

1502

1515

*539

*512

Fall

Fall

Fall

Fall

New 250 UC with C.I. cover 1:70

+19.4

Fall

20

21

1468

*1533

*1534

New 250 UC 1:70

G.L. 19.4
I.L. 19.15

CP1
G.L. 19.3
I.L. 19.05

536

A1

Fall

Fall

Fall

Fall

495 RP

494

Fall

Fall

Fall

Fall

Fall

**Connection details of proposed outfall
between CP2 and CP3**

New 250
Covered UC
1:12
(250 width, min. 250 depth)

New 250 UC
with C.I cover
1:70
(250 width, min. 250 depth)

Catch-pit
(CP3)

Catch-pit
with trap
(CP2)

+17.5

+18.86

+17.2

+18.57

+18.58

fall
1:12

300 mm

300 mm

16m

(N. T. S.)

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

Catchpit Schedule

Catchpit No.	G.L.	I.L.
CP1	19.3	19.05
CP2	18.86	18.58
CP3	17.5	17.2

Site Boundary

Site Boundary

Site Boundary

Site Boundary

Proposed 250mm
U-Channel

Adjoining Portion

Proposed 250mm
U-Channel

A

17.5   Fall

18.9

Fall

19.4

Fall

19.3

19.3

A1

(N.T.S)

Note:
1. Proposed drainage facilities outside application site will be constructed
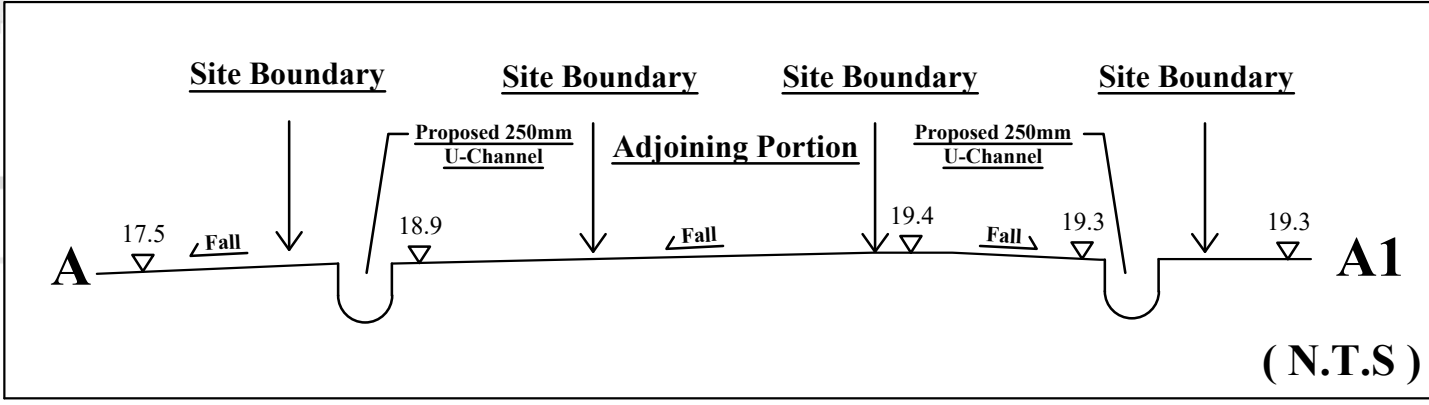and maintained by the applicant and lot owner(s)

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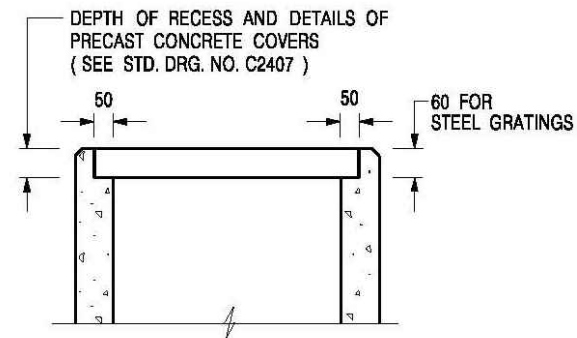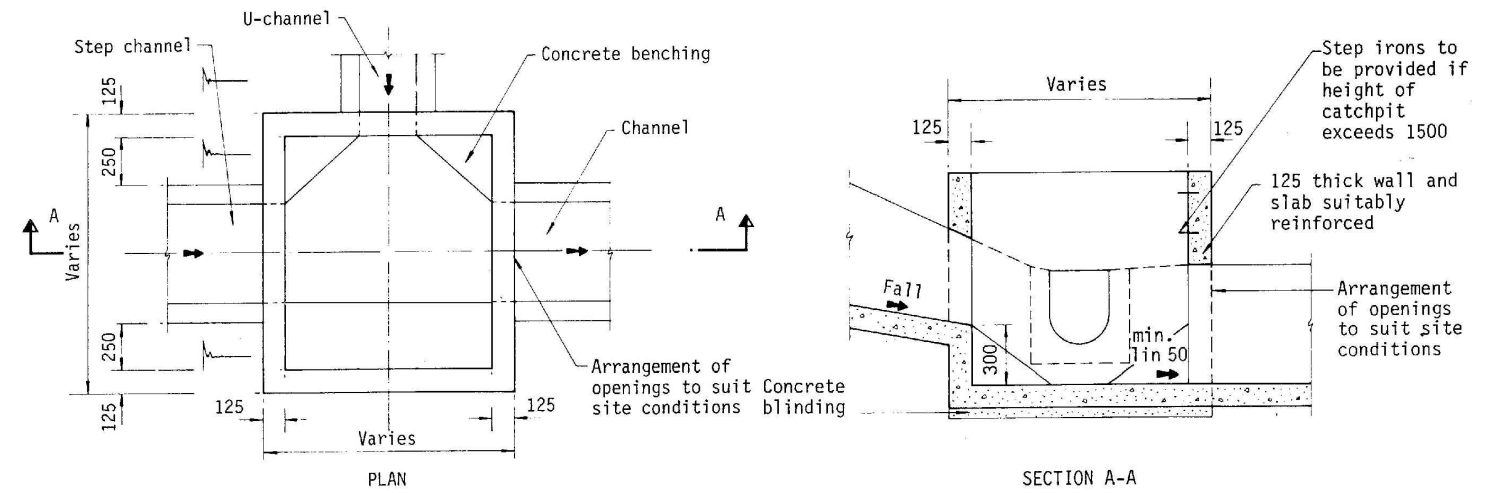| September 2024 | Lots 537(part), 538(part), 540 S.A(part)
and 541 S.A(part) in D.D.218
Ma Kwu Lam, Sai Kung North, N.T | Plan 4.1d
(P 23055B) |

DEPTH OF RECESS AND DETAILS OF PRECAST CONCRETE COVERS (SEE STD. DRG. NO. C2407)
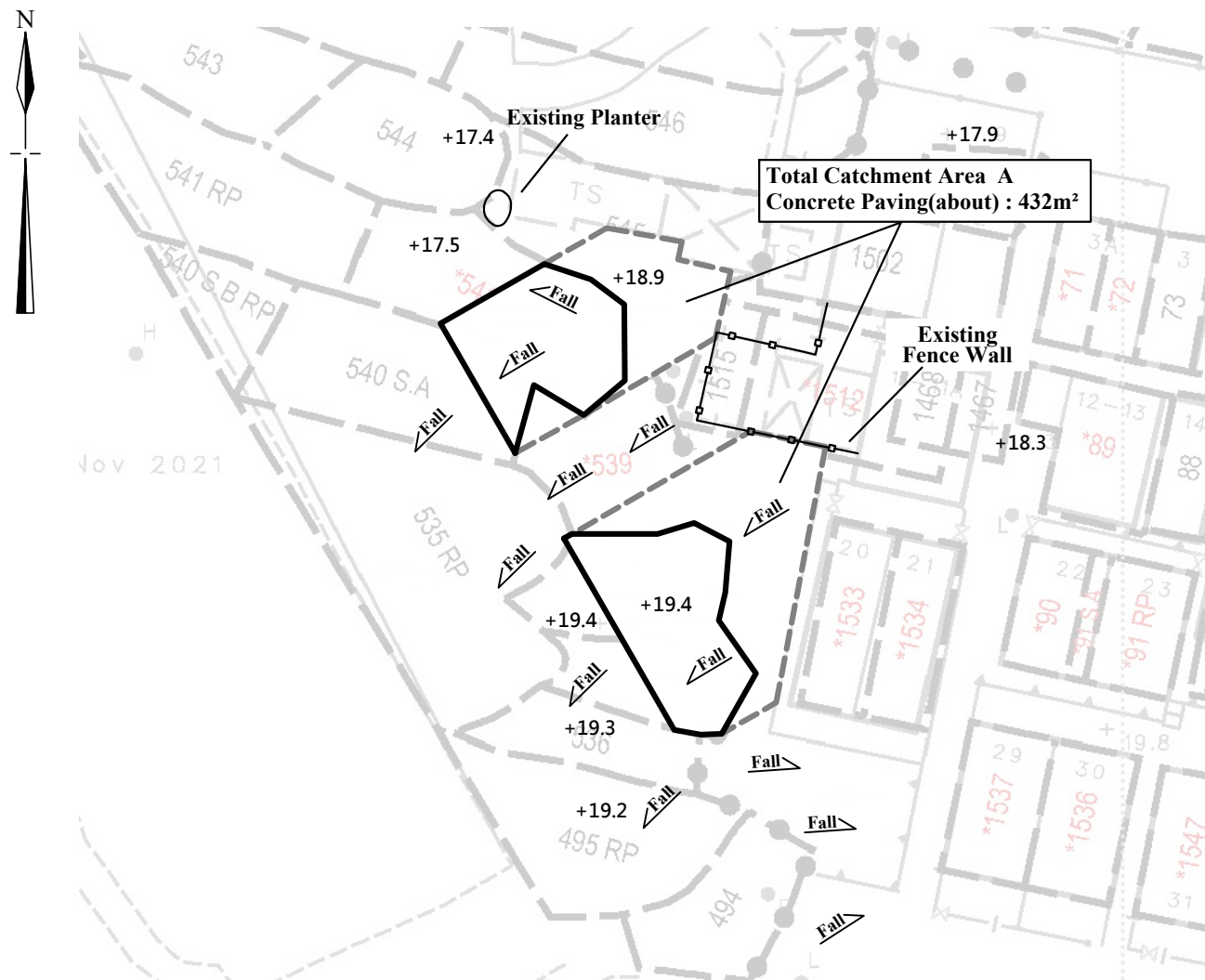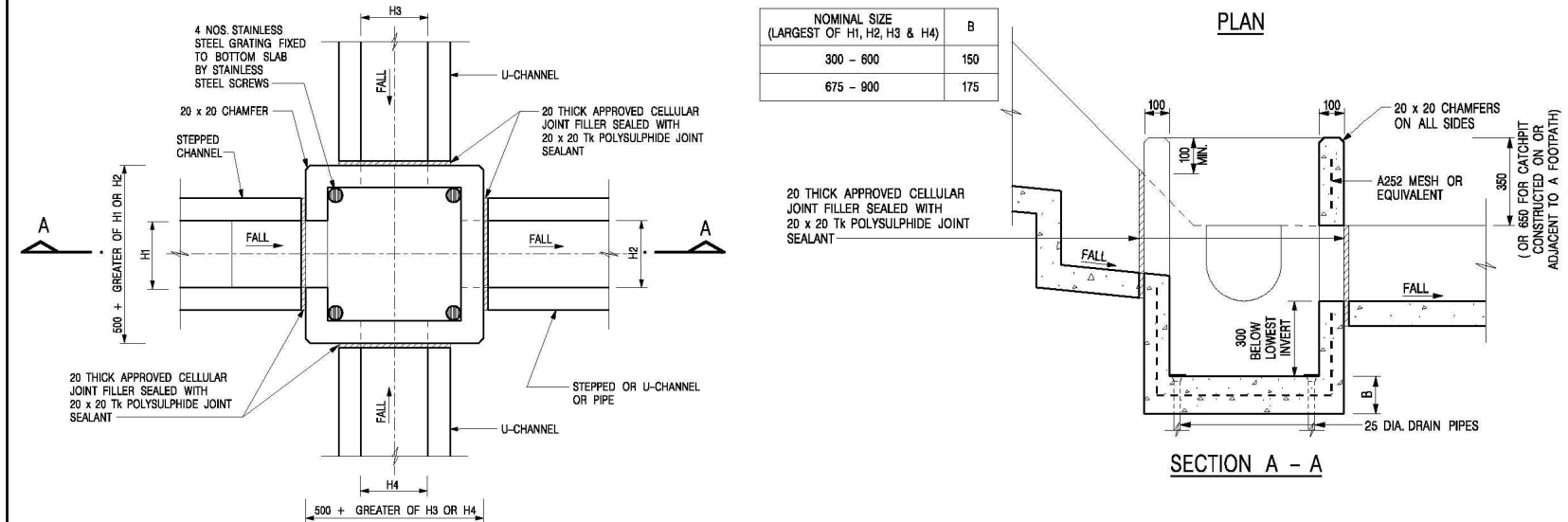
50   50   60 FOR STEEL GRATINGS

ALTERNATIVE TOP SECTION FOR PRECAST CONCRETE COVERS / GRATINGS
(REFER TO CEDD'S STANDARD DWG. C2405/1 & C2406/2A)

TYPICAL DETAILS OF CATCHPIT
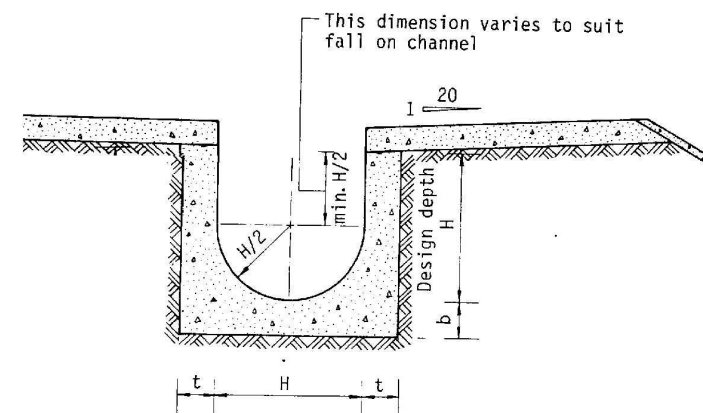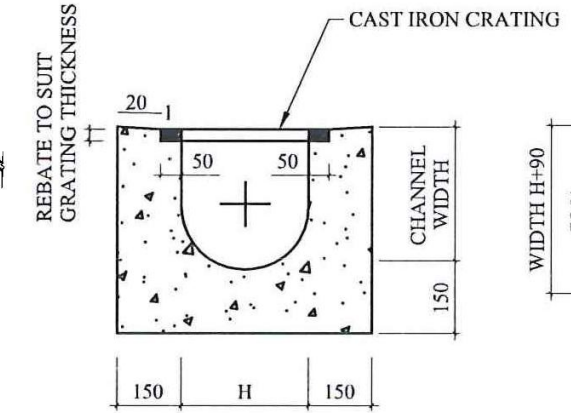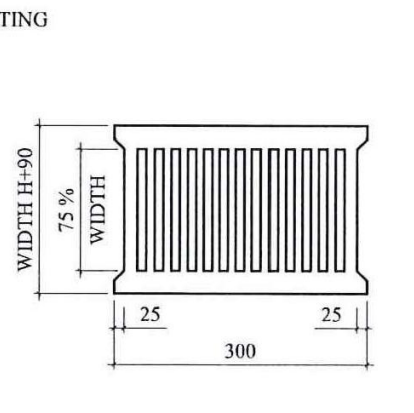
Step channel — U-channel — Concrete benching — Channel

Step irons to be provided if height of catchpit exceeds 1500

125 thick wall and slab suitably reinforced

Arrangement of openings to suit site conditions

Arrangement of openings to suit site conditions

Concrete blinding

PLAN   SECTION A-A

AREA OF CATCHMENT (N.T.S)

N

543
544
546
541 RP
+17.4   Existing Planter
+17.9
540 S.B RP
+17.5
540 S.A
+18.9
Total Catchment Area A
Concrete Paving(about) : 432m²

Existing Fence Wall
+18.3

Fall

535 RP
+19.4   +19.4

+19.3
536
+19.2

495 RP
494

Nov 2021

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

4 NOS. STAINLESS STEEL GRATING FIXED TO BOTTOM SLAB BY STAINLESS STEEL SCREWS

U-CHANNEL
20 x 20 CHAMFER
STEPPED CHANNEL
20 THICK APPROVED CELLULAR JOINT FILLER SEALED WITH 20 x 20 Tk POLYSULPHIDE JOINT SEALANT

20 THICK APPROVED CELLULAR JOINT FILLER SEALED WITH 20 x 20 Tk POLYSULPHIDE JOINT SEALANT

STEPPED OR U-CHANNEL OR PIPE

U-CHANNEL

500 + GREATER OF H3 OR H4

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

PLAN

100   100   20 x 20 CHAMFERS ON ALL SIDES
A252 MESH OR EQUIVALENT
20 THICK APPROVED CELLULAR JOINT FILLER SEALED WITH 20 x 20 Tk POLYSULPHIDE JOINT SEALANT

300 BELOW LOWEST INVERT

25 DIA. DRAIN PIPES

SECTION A – A

TYPICAL DETAILS OF U CHANNEL

This dimension varies to suit fall on channel
1   20
min. H/2
H/2
Design depth
t   H   t

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

REBATE TO SUIT GRATING THICKNESS
CAST IRON CRATING
20
50   50
CHANNEL WIDTH
150
150   H   150

CAST IRON CRATING (HEAVY DUTY)

WIDTH H+90
75%   WIDTH
25   25
300

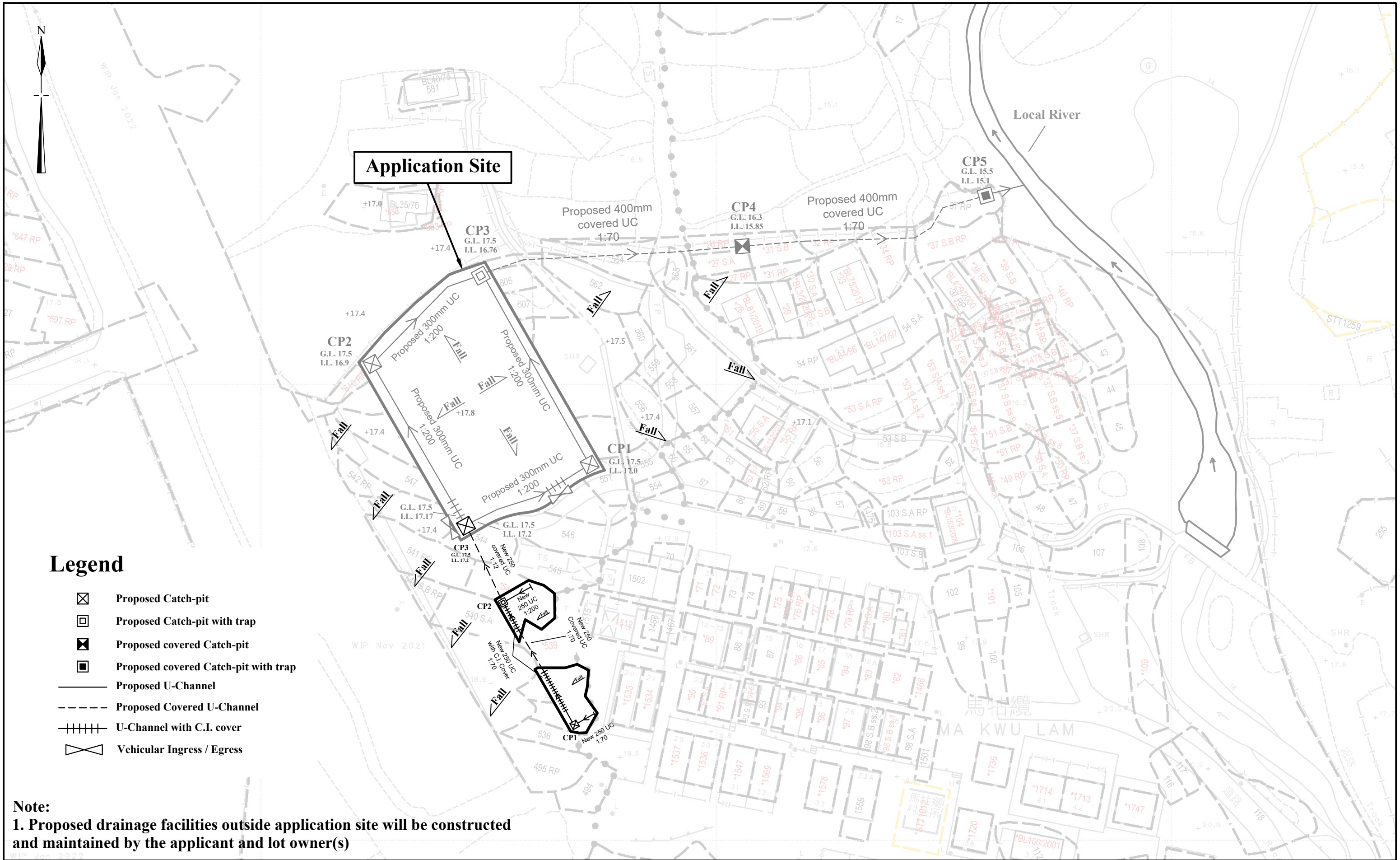| N.T.S	**Drainage Proposal**	**Goldrich Planners & Surveyors Ltd.**
September 2024	Lots 537(part), 538(part), 540 S.A(part) and 541 S.A(part) in D.D.218 Ma Kwu Lam, Sai Kung North, N.T	**Plan 4.2d** (P 23055B)

N

Local River

Application Site

CP5
G.L. 15.5
I.L. 15.1

Proposed 400mm covered UC 1:70

CP4
G.L. 16.3
I.L. 15.85

Proposed 400mm covered UC 1:70

CP3
G.L. 17.5
I.L. 16.76

Proposed 300mm UC 1:200

Fall

CP2
G.L. 17.5
I.L. 16.9

Fall

Fall

Proposed 300mm UC 1:200

Fall

Proposed 300mm UC 1:200

Fall

Fall

Fall

CP1
G.L. 17.5
I.L. 17.0

Fall

Proposed 300mm UC 1:200

Fall

G.L. 17.5
I.L. 17.17

G.L. 17.5
I.L. 17.2

CP3
G.L. 17.5
I.L. 17.2

Fall

New 250 covered UC 1:2

CP2

New 250 UC 1:200

Fall

New 250 Covered UC 1:70

New 250 UC with C.I. Cover 1:70

Fall

Fall

CP1   New 250 UC 1:70

MA KWU LAM

Legend

⊠ Proposed Catch-pit

▢ Proposed Catch-pit with trap

◪ Proposed covered Catch-pit

◼ Proposed covered Catch-pit with trap

—— Proposed U-Channel

- - - Proposed Covered U-Channel

┼┼┼┼┼ U-Channel with C.I. cover

▷◁ Vehicular Ingress / Egress

Note:
1. Proposed drainage facilities outside application site will be constructed
and maintained by the applicant and lot owner(s)

1:750 (A3)	**Drainage Proposal**	**Goldrich Planners & Surveyors Ltd.**
August 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	**Plan 4.3a (P 23055B)**

				Ref.

1 For Catchment Area A

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)	19.30	18.86
Invert level (mPD)	19.05	18.58

Width of u-channel, w = 250 mm

Length of u-channel, L_c = 33 m

Depth of vertical part of u-channel, d = 155 mm

Gradient of u-channel, S_f = (19.05-18.58)/33 = 0.014

Cross-Section Area, a = $0.5\,\pi r^2 + w\,d$ = 0.5 x 3.14 x 125^2 + 250 x 155

= 0.063 m^2

Wetted Perimeter, p = $\pi r + 2d$ = 3.14 x 125 + 2 x 155

= 0.703 m

Hydralic radius, R = a / p **SDM 8.2.1**

= 0.090 m

3 Use Manning Equation for estimating velocity of stormwater

Take n = 0.016   for concrete lined channels:-   **SDM Table 13**

Allowable velocity, v = $R^{1/6} \times (RS_f)^{1/2}/n$ = (0.09)^1/6 x (0.09 x 0.014)^1/2 / 0.016   **SDM Table 12**

= 1.50 m/s

Time of flow, t_f = 0.4 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+0.4+3.29)^0.355   for return period T = 50 years   **SDM Table 3(a)**

= 268

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	432.0	410.4	
			SUM = 410.4	**SDM 7.5.2 (b)**

Upstream flow, Q_u = 0 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 268 x 410.4 / 1000000 + 0

= 0.031 m^3/s

Allowable flow, Q_a = $a \times v$

= 0.063 x 1.5

= 0.095 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.
August 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)

	Ref.

1 For Catchment Area B

$$\text{Area, } A = 0 \text{ m}^2$$
$$\text{Average slope, } H = 0.1 \text{ m per 100m}$$
$$\text{Distance on the line of natural flow, } L = 0 \text{ m}$$

$$\text{Time of concentraction, } t_o = 0.14465L / (H^{0.2}A^{0.1}) = 0.14465 (0) / (0.1\char`\^0.2*0\char`\^0.1)$$
$$= 0.0 \text{ min}$$

<div align="right">SDM 7.5.2 (d)</div>

2 For Proposed U-Channel in catchment area B

	From	To
Ground level (mPD)	18.86	17.50
Invert level (mPD)	18.58	17.20

$$\text{Width of u-channel, } w = 250 \text{ mm}$$
$$\text{Length of u-channel, } L_c = 16 \text{ m}$$
$$\text{Depth of vertical part of u-channel, } d = 175 \text{ mm}$$
$$\text{Gradient of u-channel, } S_f = (18.58-17.2)/16 = 0.086$$

$$\text{Cross-Section Area, } a = 0.5\,\pi r^2 + w\,d = 0.5 \times 3.14 \times 125\char`\^2 + 250 \times 175$$
$$= 0.068 \text{ m}^2$$
$$\text{Wetted Perimeter, } p = \pi\,r + 2\,d = 3.14 \times 125 + 2 \times 175$$
$$= 0.743 \text{ m}$$
$$\text{Hydralic radius, } R = a / p$$
$$= 0.092 \text{ m}$$

<div align="right">SDM 8.2.1</div>

3 Use Manning Equation for estimating velocity of stormwater

$$\text{Take } n = 0.016 \quad \text{for concrete lined channels:-}$$
$$\text{Allowable velocity, } v = R^{1/6} \times (RS_f)^{1/2}/n = (0.092)\char`\^1/6 \times (0.092 \times 0.086)\char`\^1/2 / 0.016$$
$$= 3.74 \text{ m/s}$$
$$\text{Time of flow, } t_f = 0.1 \text{ min}$$

<div align="right">SDM Table 13
SDM Table 12</div>

4 Use "Rational Method" for calculation of design flow

$$\text{Design intensity, } i = a / (t_o + t_f + b)^c$$
$$= 505.5 / (0+0.1+3.29)\char`\^0.355 \quad \text{for return period T = 50 years}$$
$$= 329$$

<div align="right">SDM 4.3.2
SDM Table 3(a)</div>

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	0.0	0.0
		SUM =	0.0

<div align="right">SDM 7.5.2 (b)</div>

$$\text{Upstream flow, } Q_u = 0.031 \text{ m}^3/\text{s}$$

$$\text{Design flow, } Q_d = 0.278i\,\Sigma\,C_jA_j + Q_u \quad \text{where } A_j \text{ is in km}^2$$
$$= 0.278 \times 329 \times 0 / 1000000 + 0.031$$
$$= 0.031 \text{ m}^3/\text{s}$$

<div align="right">SDM 7.5.2 (a)</div>

$$\text{Allowable flow, } Q_a = a \times v$$
$$= 0.068 \times 3.74$$
$$= 0.255 \text{ m}^3/\text{s}$$

$$> Q_d \text{ (O.K.)}$$

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

Scale: NA	**Drainage Calculation**	Goldrich Planners & Surveyors Ltd.
August 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 2 (P23055B)