Start Point 2
CL = + 5.00
IL = + 4.75

Start Point 1
CL = + 5.00
IL = + 4.75

Existing 250UC (1:100)

B

EX CP1
CL = + 5.00
IL = + 4.58

CP1
CL = + 4.700
IL = + 4.500

A

TS

+ 6.5

Existing 250UC (1:100)

Existing 250UC (1:100)

Existing 250UC (1:100)

FALL

+ 5.0

+ 5.4

+ 5.7

Existing 200mm dia underground pipe

EX CP2
CL = + 4.50
IL = + 4.150

CP2
CL = + 4.500
IL = + 3.950

Existing 375UC (1:100)

+ 4.4

EX CP3
CL = + 4.30
IL = + 3.850

Existing 375UC (1:100)

Existing 375UC (1:100)

Existing 250UC (1:100)

Existing 250UC (1:100)

EX CP4
(With Desilting Facility)
CL = + 4.30
IL = + 3.70

Existing 450mm dia. underground pipe

Final Discharge to downstream

EX CP5
CL = + 4.30
IL = + 4.05

+ 7.0

+ 4.8

+ 4.7

+ 4.8

B

LEGEND

▢ CP   Proposed CatchPit

→   Proposed UC (1:100) with Cast Iron Cover

⊠ CP   Existing CatchPit

⇒   Existing UC/SC

⇨   Existing UC covered by concrete desk

Note:
1. Catchpits (EX CP4) with desilting facility shall follow CEDD standard drawing No. C2406I.

2. Catchpit and UC follows Typical Details of Geotechnical Manual for Slope Fig.8.10 and Fig.8.11 respectively.

3. Adjacent area which is developed or occupied , which has their stormwater collection system

Catchment A: Area= 1400m2
Catchment B: Area= 470m2
Catchment D: Area= 720m2
Catchment C: Area= 400m2

Catchment Area

申請地點
Application Site

Nullah

青朗公路

CONNECTION DETAILS

Trim existing UC

Trim existing UC

Proposed Connection Catchpit

Grout All Around Provided with Waterstop Gasket

Trim existing UC

Trim existing UC
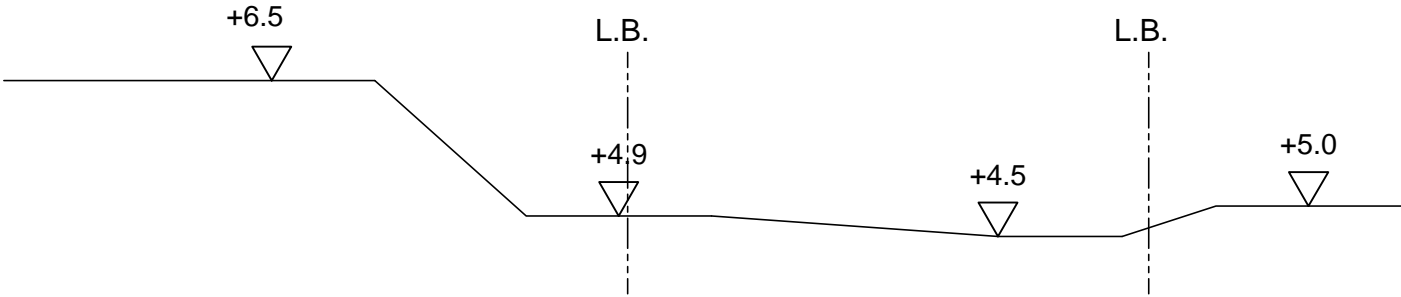
CP1/CP2

150 | 100

100 | 150

100   150+150+150   100

正宏工程顧問公司

CHING WAN ENGINEERING CONSULTANTS CO.

Project:
Proposed Temporary Open Storage of Vehicles for Sale (including New and Used Vehicles) for a Period of 3 Years at Lots 512 RP (Part) and 515 (Part) in D.D. 103 and Adjoining Government Land, Kam Tin, Yuen Long, New Territories

Title:		
Drainage Proposal		D01
Drawn by:		Date:
DM		10th Jan 2022
Check by:		Scale:
DM		– – – –

+6.5

L.B.

L.B.

+4.9

+4.5

+5.0

Section A-A

L.B.

L.B.

+5.0

+4.5

+4.3

+4.8
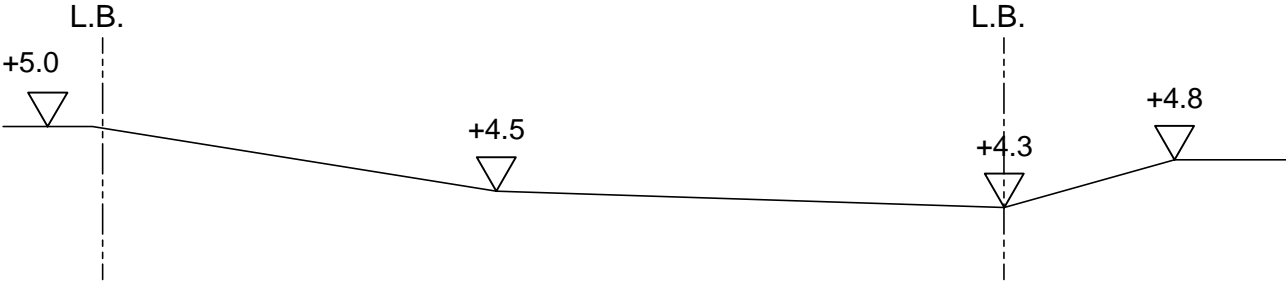
Section B-B

Company:
Project :

Date: 9/1/2022

Calculation for channels:

Catchment Area of site

Catchment Area A   =   1100   m^2
                        =   0.0011   km^2

Peak runoff in m^3/s   =   0.278   x   0.95   x   250   mm/hr   x 0.0011   km^2
                        =   0.072628   m^3/s
                        =   4358   liter/min

According to (Figure 8.7 - Chart for the Rapid Design of Channels),
For gradient 1:100, existing 250UC will be suitable.

Catchment Area B+C   =   470   m^2   +   400   m^2
                        =   0.00087   km^2

Peak runoff in m^3/s   =   0.278   x   0.95   x   250   mm/hr   x 0.00087   km^2
                        =   0.057442   m^3/s
                        =   3447   liter/min

According to (Figure 8.7 - Chart for the Rapid Design of Channels),
For gradient 1:100, existing 250UC will be suitable.

Catchment Area A+B+C+D   =   1100   m^2   +   470   m^2   +   400   m^2   +   720   m^2
                        =   0.00269   km^2

Peak runoff in m^3/s   =   0.278   x   0.95   x   250   mm/hr   x 0.00269   km^2
                        =   0.177607   m^3/s
                        =   10656   liter/min

According to (Figure 8.7 - Chart for the Rapid Design of Channels),
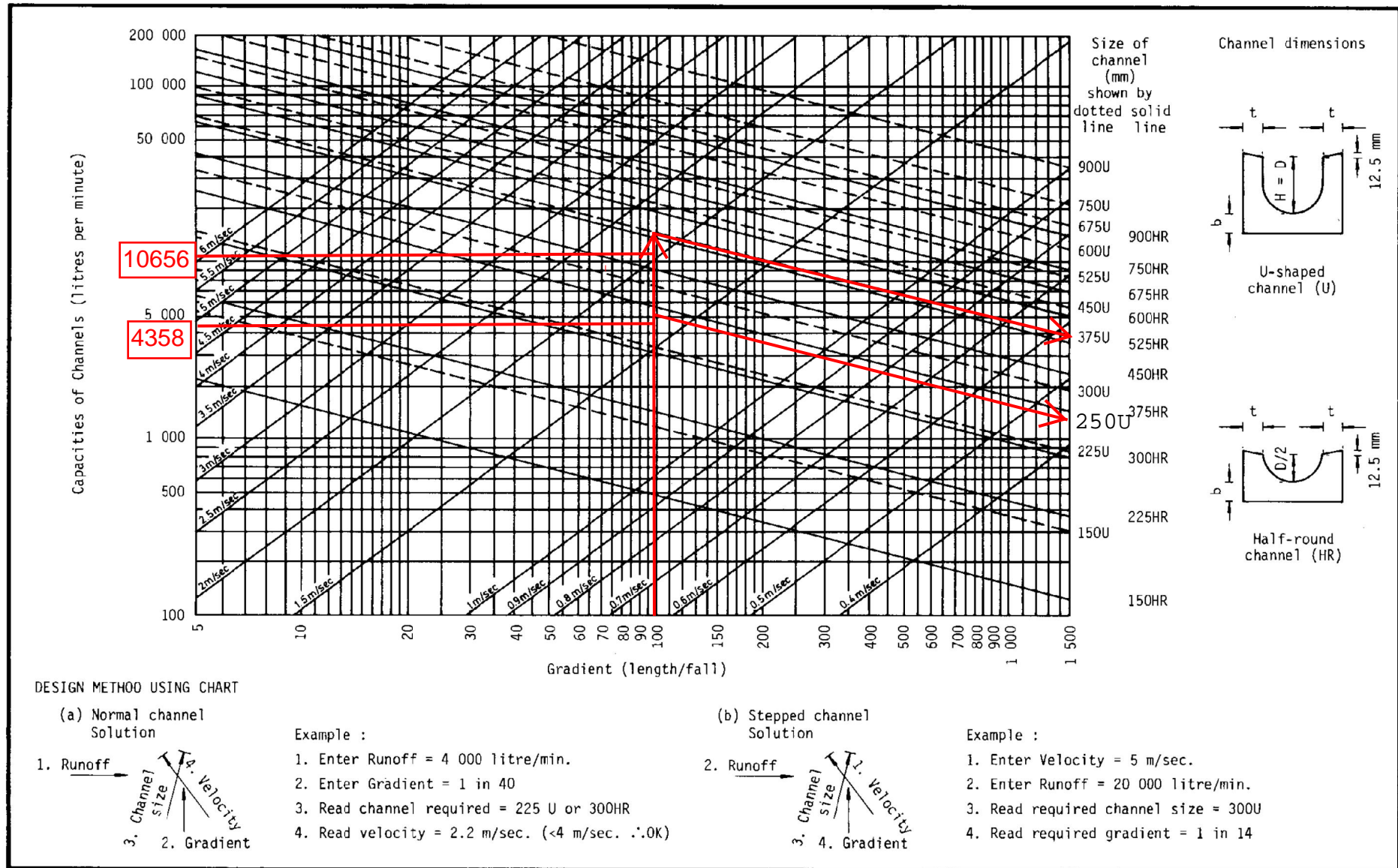For gradient 1:100, existing 375UC will be suitable.

Figure 8.7 - Chart for the Rapid Design of Channels

Check existing 450mm dia. Pipes (1:100)   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/s2	gravitational acceleration (m/s2)	
D	=	0.45	m	internal pipe diameter (m)	
ks	=	0.00015	m	hydraulic pipeline roughness (m)	(Table 5, from DSD Sewerage Manual, concrete pipe)
v	=	1.14E-06	m2/s	kinematic viscosity of fluid (m2/s)	
s	=	0.005		hydraulic gradient	
Area A	=	0.159043	m2		

Therefore, design V of pipe   =   1.6470   m/s   >   Design velocity from   = 0.1776   m3/s /   0.159043128
                                                                catchment area   = 1.116724   m/s   ===>O.K.

Therefore, 450mm dia. pipe (1:100) will be adopted for connection bewteen site and final discharge

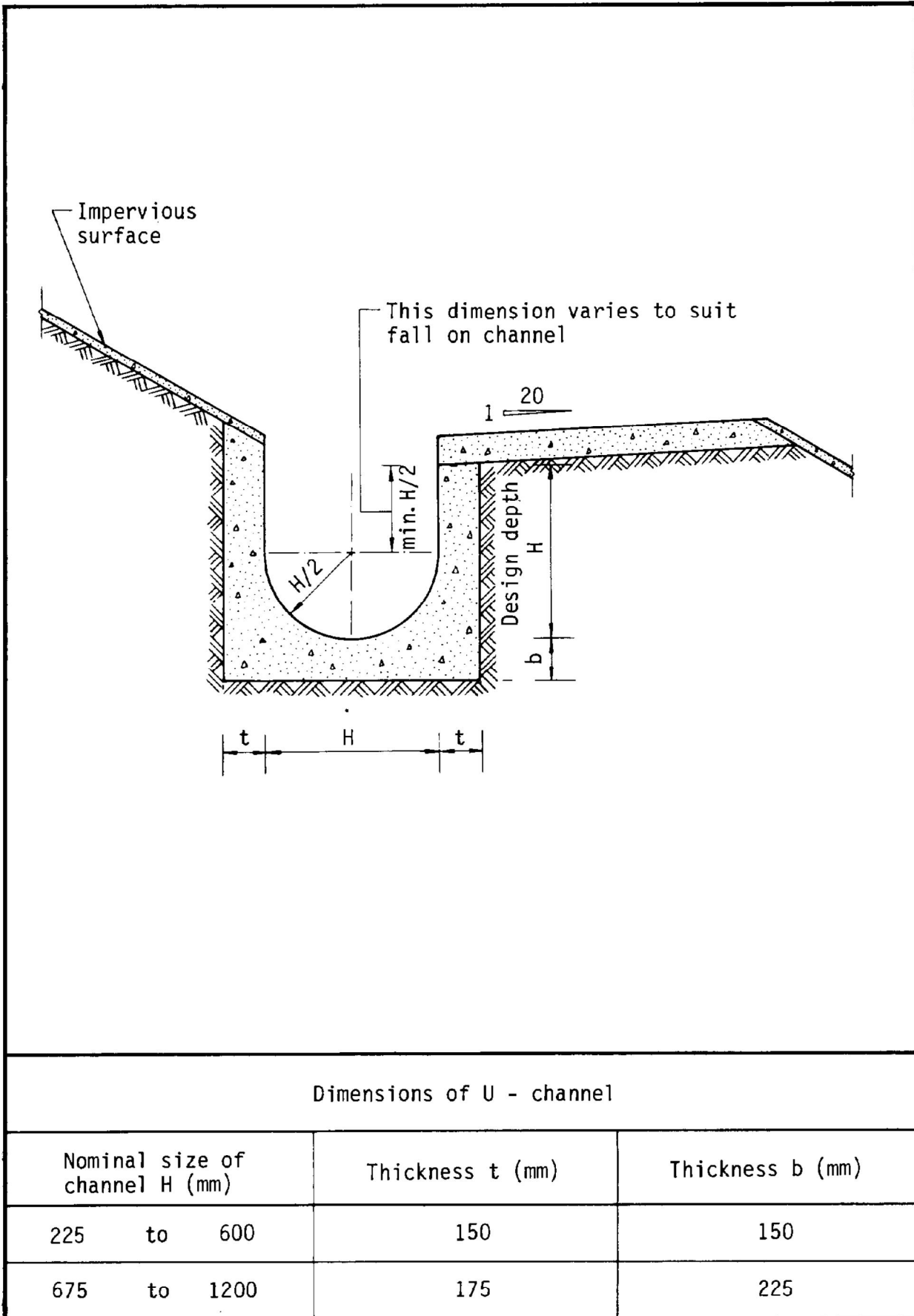Figure 8.11 - Typical U-channel Details

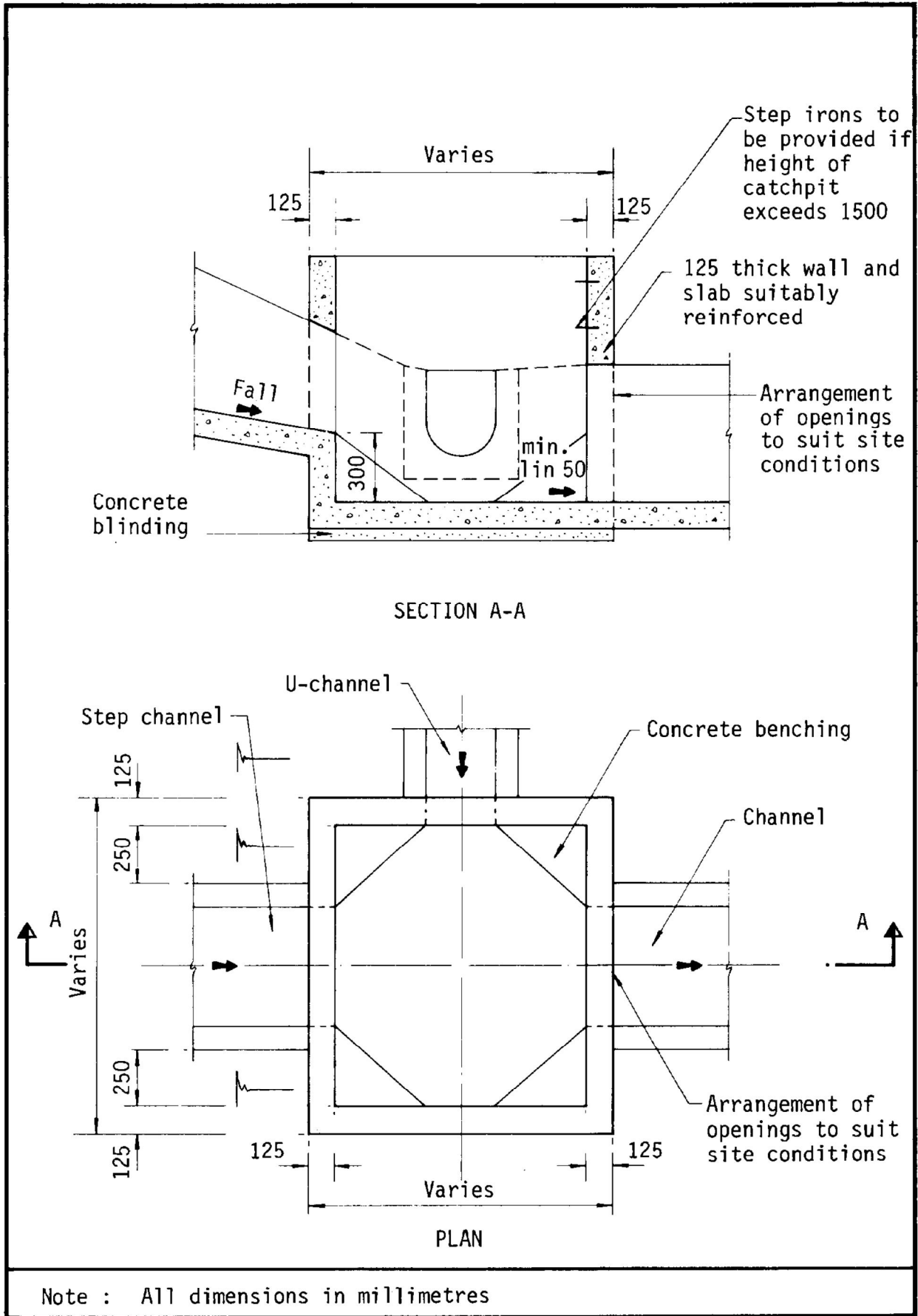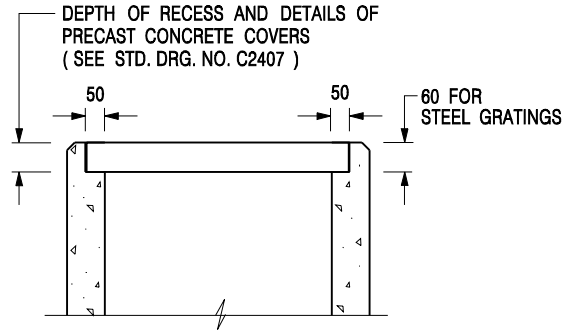| Dimensions of U - channel		
Nominal size of channel H (mm)	Thickness t (mm)	Thickness b (mm)
225 to 600	150	150
675 to 1200	175	225

Varies

125   125

Step irons to
be provided if
height of
catchpit
exceeds 1500

125 thick wall and
slab suitably
reinforced

Fall

Arrangement
of openings
to suit site
conditions

300

min.
1 in 50

Concrete
blinding

SECTION A-A

Step channel

U-channel

Concrete benching

Channel

125

250

A

Varies

250

125

125   125

Varies

Arrangement of
openings to suit
site conditions

A

PLAN

Note : All dimensions in millimetres

Figure 8.10 - Typical Details of Catchpits

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
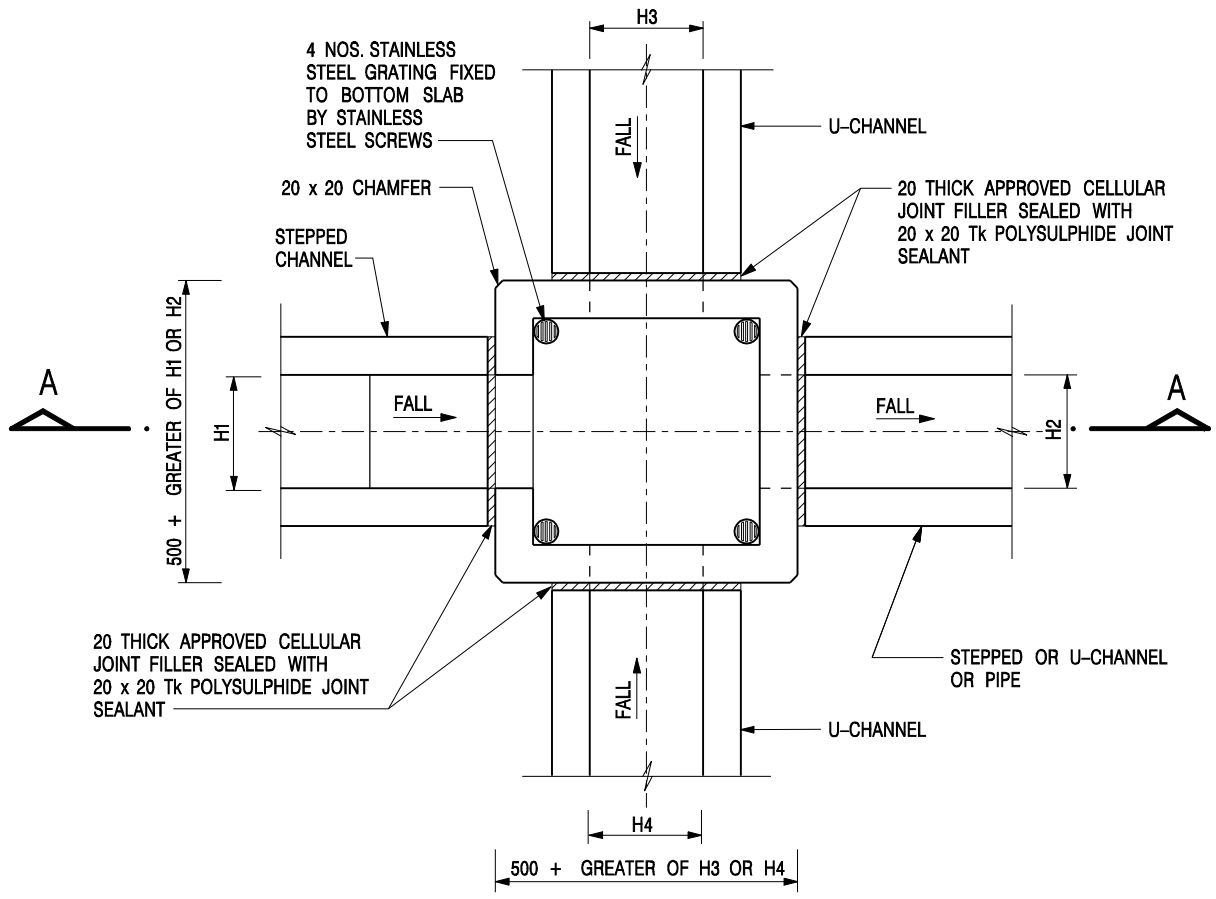
NOTES:

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.

PLAN

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

20 x 20 CHAMFER

STEPPED CHANNEL

U-CHANNEL

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

STEPPED OR U-CHANNEL OR PIPE

U-CHANNEL

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

500 + GREATER OF H1 OR H2

500 + GREATER OF H3 OR H4

FALL

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

SECTION A – A

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

350 (OR 650 FOR CATCHPIT CONSTRUCTED ON OR ADJACENT TO A FOOTPATH)

300 BELOW LOWEST INVERT

FALL

25 DIA. DRAIN PIPES

100 MIN.
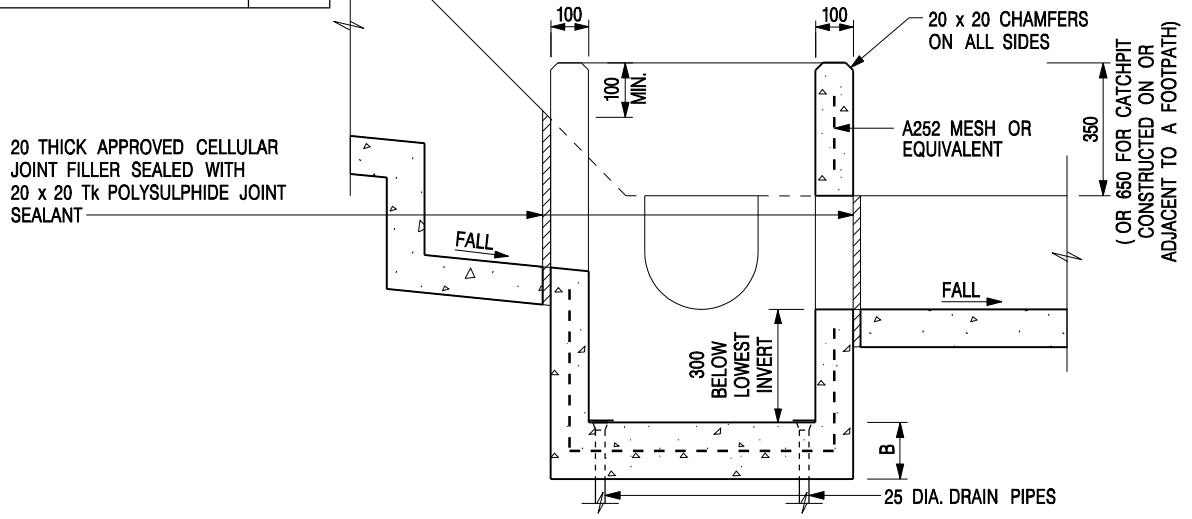
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.

2. REFER TO SHEET 2 FOR OTHER NOTES.

CATCHPIT WITH TRAP

(SHEET 1 OF 2)

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

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2406 /1

卓越工程 建設香港

We Engineer Hong Kong's Development