N

Existing 1.5m(W)x1.2m(D) Open Channel

CP7
C.L.=+35.80
I.L.=+33.93

CP9
C.L.=+35.80
I.L.=+33.70

CP10
C.L.=+35.80
I.L.=+33.44

CP8
C.L.=+35.80
I.L.=+33.91

CP11 (with desilting facility)
C.L.=+35.80
A1:I.L.=+33.22
A2:I.L.=+34.10
X1: I.L.=+34.09

CP13
C.L.=+35.80
I.L.=+34.16

CP12
C.L.=+35.80
I.L.=+34.14

CP14
C.L.=+35.80
I.L.=+34.24

CP15
C.L.=+35.80
I.L.=+34.25

CP5
C.L.=+35.80
I.L.=+34.76

CP6
C.L.=+35.80
I.L.=+34.65

CP16
C.L.=+35.80
I.L.=+34.39

CP4
C.L.=+35.80
I.L.=+34.91

CP18
C.L.=+35.80
I.L.=+34.58

CP17
C.L.=+35.80
I.L.=+34.41

CP2
C.L.=+35.80
I.L.=+35.10

CP3
C.L.=+35.80
I.L.=+34.96

CP19
C.L.=+35.80
I.L.=+34.70

CP22
C.L.=+35.80
I.L.=+34.91

CP24
C.L.=+35.80
I.L.=+35.11

Start Point
C.L.=+35.80
I.L.=+35.225

CP1
C.L.=+35.80
I.L.=+35.15

CP20
C.L.=+35.80
I.L.=+34.76

CP21
C.L.=+35.80
I.L.=+34.85

CP23
C.L.=+35.80
I.L.=+35.07

FALL

D D 80

Note:
1. Catchpits (CP11) 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. Open-bottom type fence wall to be erected.

4. No site formation/ filling works to be carried out.

2.5m c/c
Fence Wall
Post   Post
Min. 200mm
G.L.
TYPICAL DETAIL OF OPEN-BOTTOM TYPE FENCE WALL
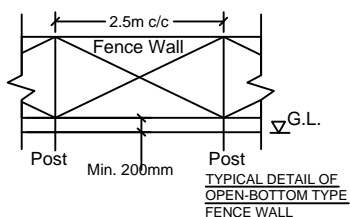
LEGEND

☐ CP   Proposed CatchPit

(a) → Proposed 525UC (1:175) with Cast Iron Cover

(b) → Proposed 750mm dia. concrete pipe (1:150)

← Existing 1.5m(W)x1.2m(D) Open Channel

▽ G.L. +35.00

Proposed 750pipe from CP11

I.L. +34.02 (FROM CP4)
FALL

I.L. +33.80
Existing 1.5m(W)x1.2m(D) Channel
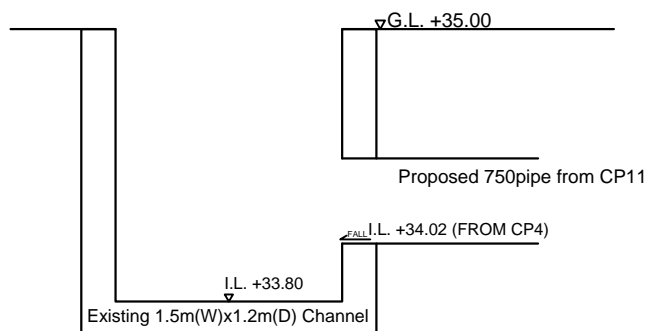
CONNECTION DETAILS

正宏工程顧問公司

CHING WAN ENGINEERING CONSULTANT COMPANY

Project:
Lot 501 and various lots in D.D. 80 , Hung Lung Hang, Ta Kwu Ling, New Territories

(Application No.:   )
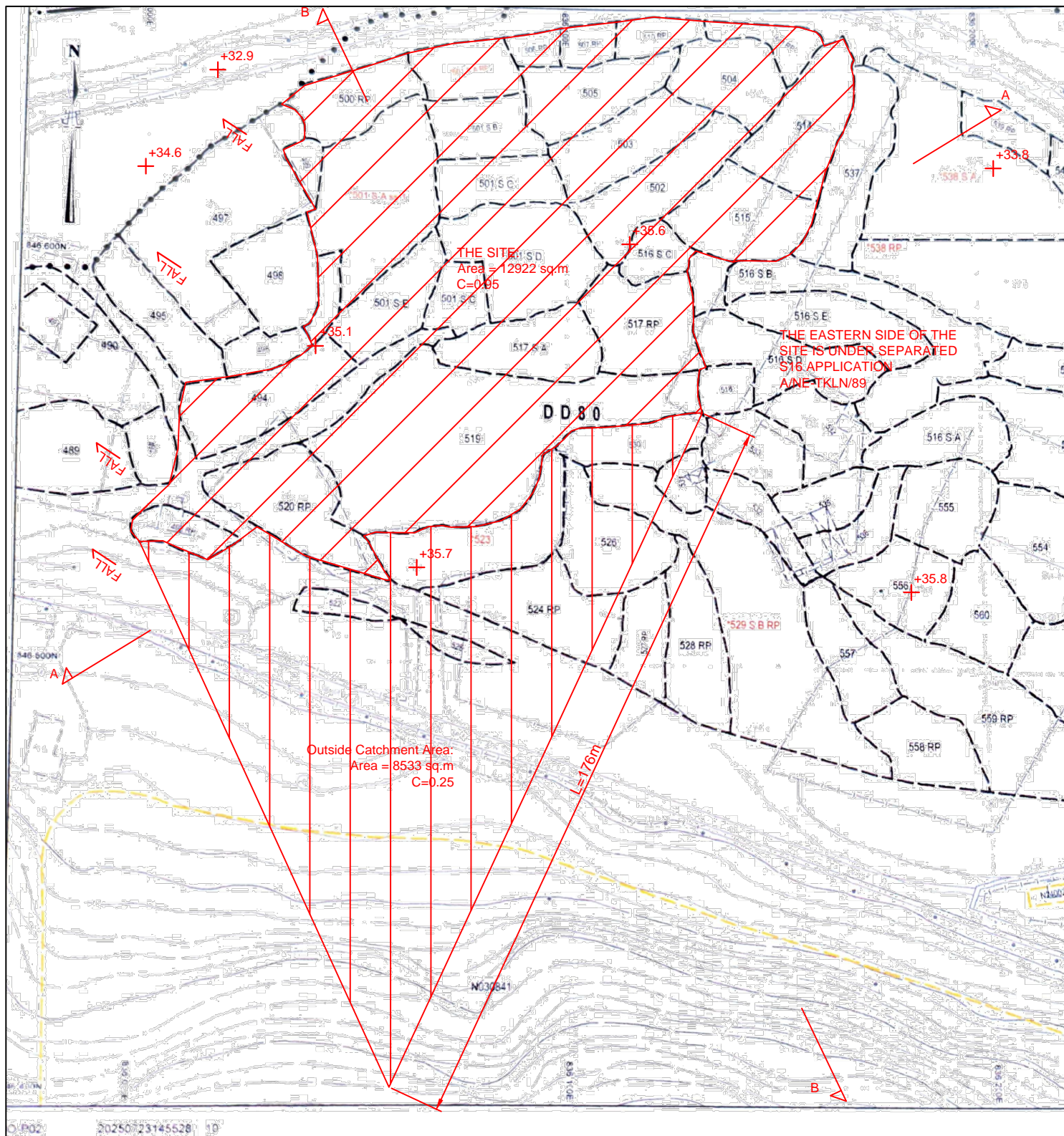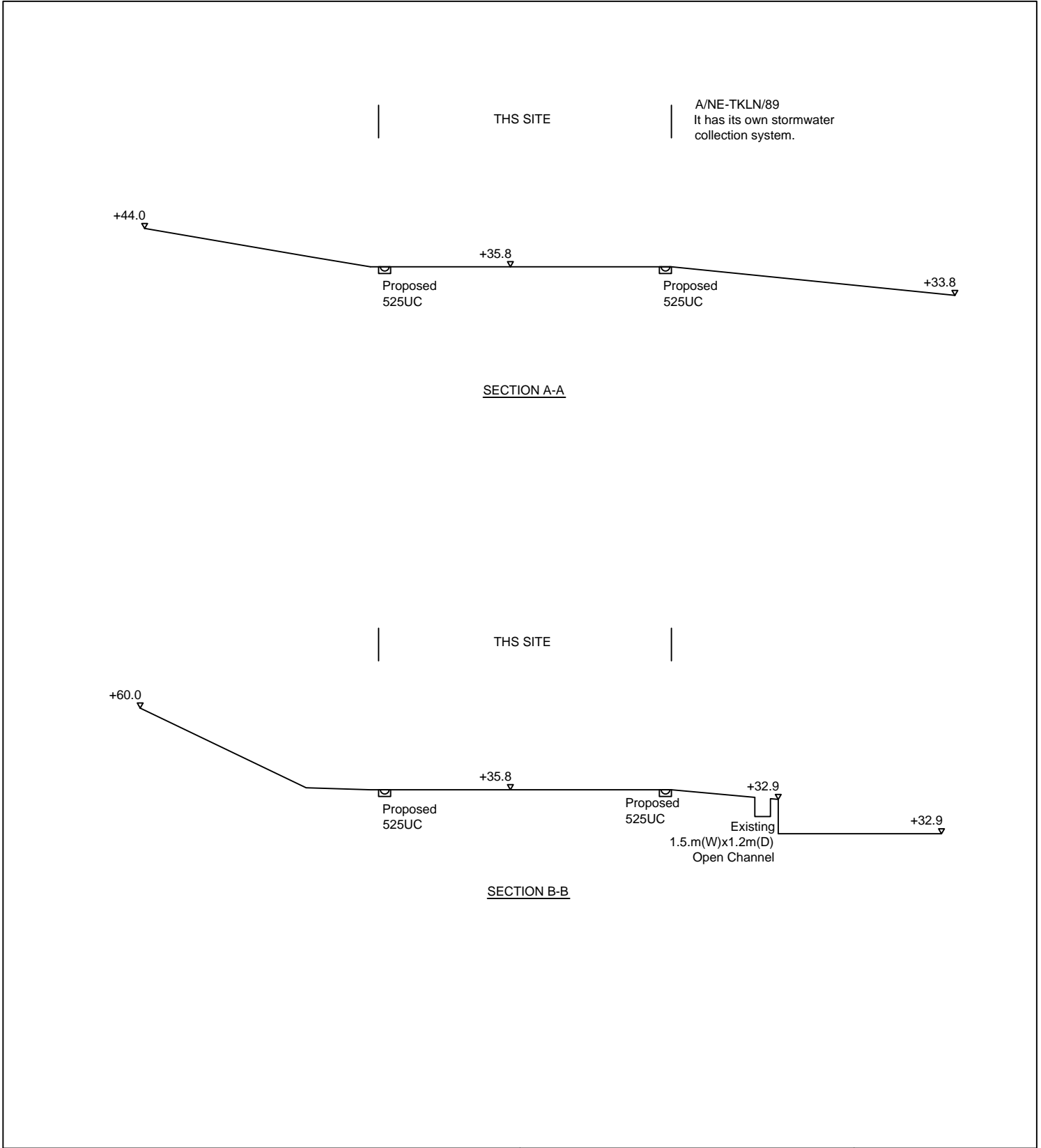
Title:
Drainage Proposal - LAYOUT

D01

Drawn by:
DM

Date:
24−7−2025

Check by:
DM

Scale:
−−−−

N

+32.9

+34.6

+35.1

THE SITE:
Area = 12922 sq.m
C=0.95

+35.6

+33.8

THE EASTERN SIDE OF THE
SITE IS UNDER SEPARATED
S16 APPLICATION
A/NE-TKLN/89

D D 8 0

+35.7

+35.8

Outside Catchment Area:
Area = 8533 sq.m
C=0.25

L=176m

A

B

正宏工程顧問公司	Title: Drainage Proposal - CATCHEMTN AREA PLAN	D02
CHING WAN ENGINEERING CONSULTANT COMPANY		

Drawn by: DM	Date: 24−7−2025
Project: Lot 501 and various lots in D.D. 80 , Hung Lung Hang, Ta Kwu Ling, New Territories	
Check by: DM	Scale: − − − −
(Application No.:)	

THS SITE

A/NE-TKLN/89
It has its own stormwater
collection system.

+44.0

+35.8

+33.8

Proposed
525UC

Proposed
525UC

SECTION A-A

THS SITE

+60.0

+35.8

+32.9

Proposed
525UC

Proposed
525UC

Existing
1.5.m(W)x1.2m(D)
Open Channel

+32.9

SECTION B-B

正宏工程顧問公司

CHING WAN ENGINEERING CONSULTANT COMPANY

Project:
Lot 501 and various lots in D.D. 80 , Hung Lung Hang, Ta Kwu Ling, New Territories

(Application No.:   )

Title:
Drainage Proposal - SECTIONS

D03

Drawn by:
DM

Date:
24-7-2025

Check by:
DM

Scale:
————

Outside Catchment Area, Area	= 8533	m^2	(C=	0.25	)
THE SITE, Area	= 12922	m^2	(C=	0.95	)

Calculation of Design Runoff of the Proposed Development,
For the design of drains inside of the site, Catchment Area + The Site/2

$$\Sigma Q = \Sigma\, 0.278\, C\, i\, A$$

$$A = 8533/2+12922/2 \quad m^2$$
$$= 10727.5$$
$$= 0.0107275 \quad km^2$$

$$t = 0.14465\, L/H^{0.2}A^{0.1}$$
$$= 0.14465*176/1^{0.2}*10727.5^{0.1}$$
$$= 10.064 \quad min$$

$$i = 1.111*a/(t+b)^c \qquad \text{(50 yrs return period, Table 3a, Corrigendum 2024,}$$
$$= 1.111*505.5/(10.064+3.29)^{0.355} \qquad \text{SDM) and (11.1\% increase due to climate change)}$$
$$= 223.8 \quad mm/hr$$

Therefore,
$$Q = 0.278*0.25*223.8*0.0042665+0.278*0.95*223.8*0.006461$$
$$= 0.4482 \quad m^3/sec$$
$$= \underline{\textbf{26893}} \quad lit/min$$

<u>Provide 525UC (1:175) is OK</u>

For Outfall

Therefore,
$$Q = 0.4482*2$$
$$= 0.8964 \quad m^3/sec$$
$$= \underline{\textbf{53787}} \quad lit/min$$

<u>Provide 750mm dia concrete pipe (1:150) is OK (refer to next page)</u>

Geotechnical Engineering Office, Civil Engineering and Development Department
The Government of the Hong Kong Special Administrative Region

GEO Technical Guidance Note No. 43 (TGN 43)
Guidelines on Hydraulic Design of U-shaped and Half-round Channels on Slopes

| Issue No.: 1 | Revision: - | Date: 05.06.2014 | Page: 3 of 3 |

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.
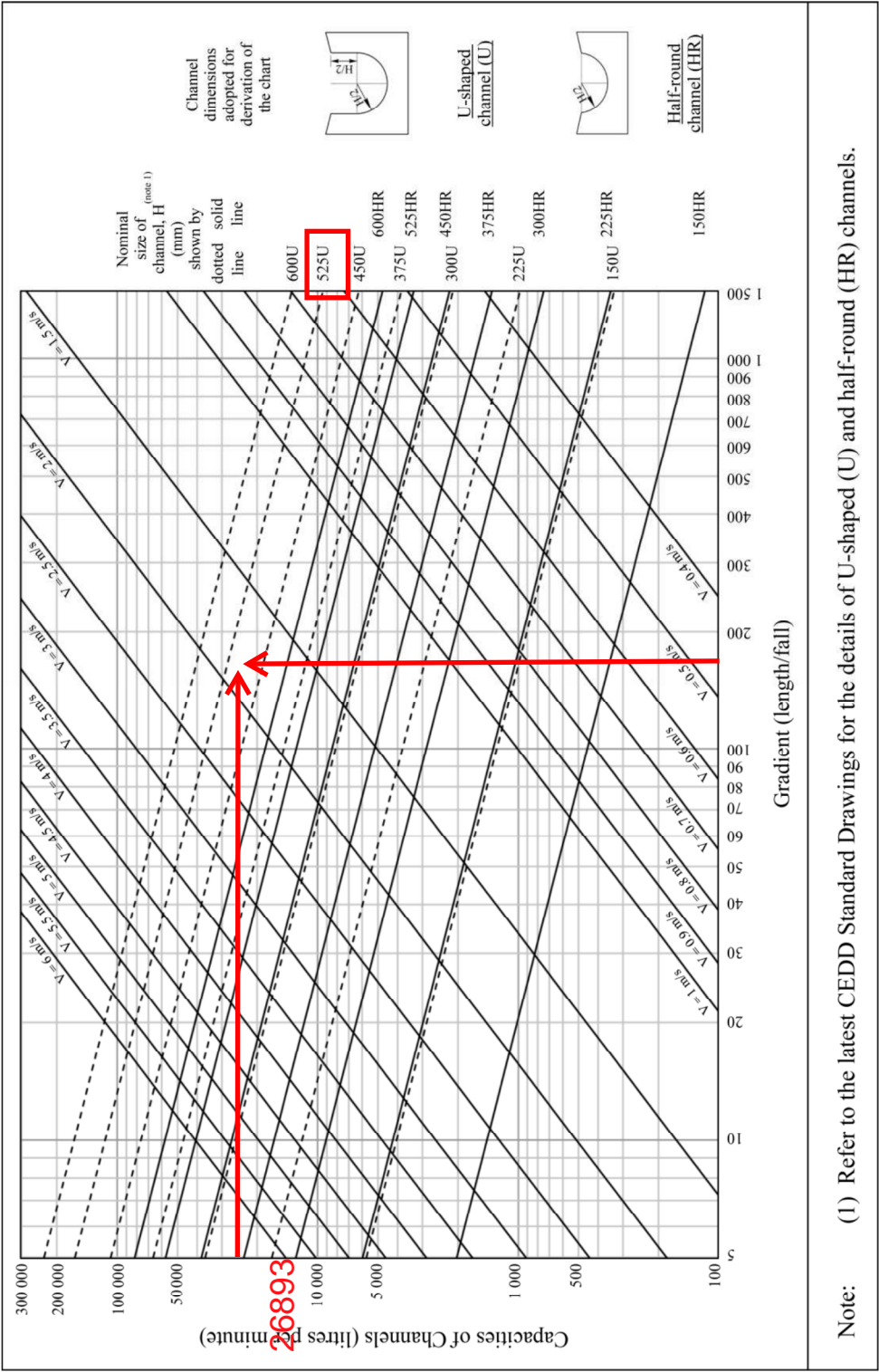
Check 750mm dia. Pipes by Colebrook-White Equation

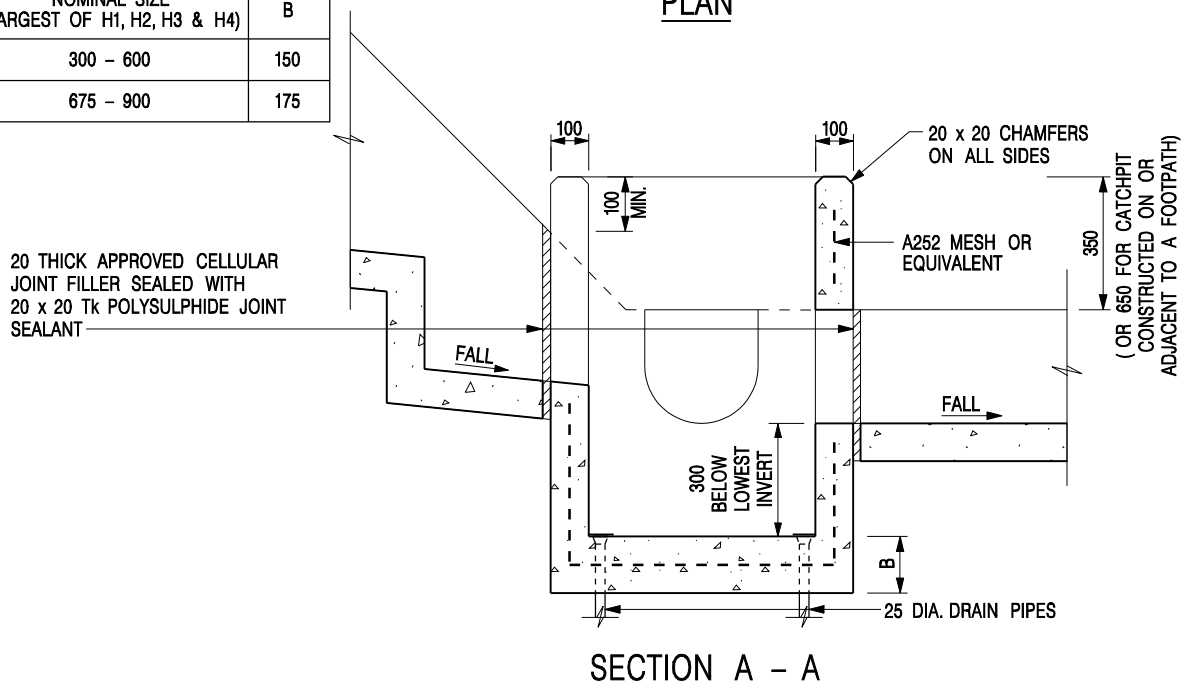$$V = -\sqrt{(8gDs)} \log\left(\frac{ks}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}}\right)$$

where :

V	=		mean velocity (m/s)	
g	=	9.81	m/s2 gravitational acceleration (m/s2)	
D	=	0.75	m internal pipe diameter (m)	
ks	=	0.00015	m hydraulic pipeline roughness (m)	(Table14, from DSD SDM 2018, concrete pipe)
v	=	1.14E-06	m2/s kinematic viscosity of fluid (m2/s)	
s	=	0.006667	hydraulic gradient	(1: 150)

Therefore, design V of pipe capacity = 2.62 m/s

Q= 0.8VA   (0.8 factor for sedimentation)
= 0.925 m3/s
= 55511 lit/min
> 53787 lit/min   Ok

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

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

STEPPED OR U-CHANNEL OR PIPE

U-CHANNEL

H3

FALL

FALL

H1

FALL

500 + GREATER OF H1 OR H2

H2

H4

500 + GREATER OF H3 OR H4

PLAN

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

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

100

100

100 MIN.

20 x 20 CHAMFERS ON ALL SIDES

A252 MESH OR EQUIVALENT

350

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

FALL

300 BELOW LOWEST INVERT

FALL

B

25 DIA. DRAIN PIPES

SECTION A - A

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.

2. REFER TO SHEET 2 FOR OTHER NOTES.

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 /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.

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

CATCHPIT WITH TRAP
(SHEET 2 OF 2)

CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO.
C2406 /2A

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

min.
1 in 50

300

Concrete
blinding

SECTION A-A

U-channel

Step channel

Concrete benching

125

250

Channel

A   A

Varies

250

Arrangement of
openings to suit
site conditions

125

125   125

Varies

PLAN

Note :   All dimensions in millimetres

Figure 8.10 - Typical Details of Catchpits

Figure 8.11 – Typical U-channel Details
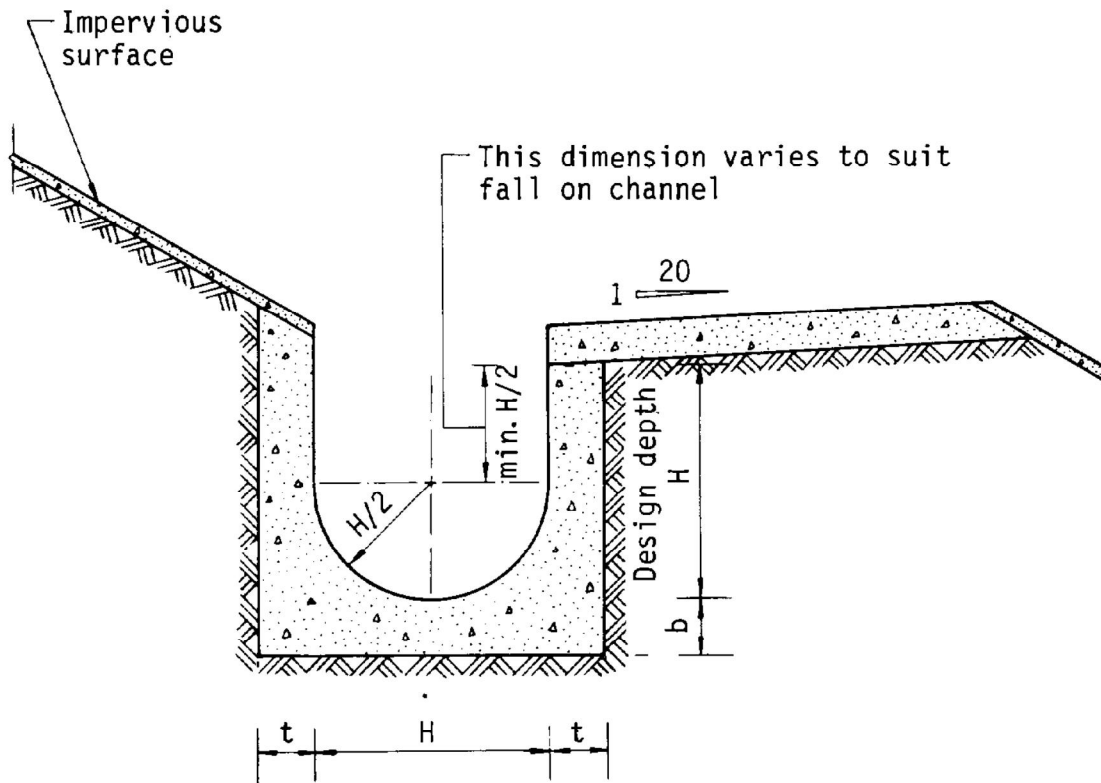
Dimensions of U - channel		
Nominal size of channel H (mm)	Thickness t (mm)	Thickness b (mm)
225 to 600	150	150
675 to 1200	175	225