R-Riches
Property Consultants Ltd.

盈卓物業
顧問有限公司

Our Ref. : DD107 Lot 1291
Your Ref. : TPB/A/YL-KTN/1004

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

By Email

29 July 2024

Dear Sir,

4th Further Information

Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Lot 1291 (Part) in D.D. 107, Fung Kat Heung, Kam Tin, Yuen Long, New Territories

(S.16 Planning Application No. A/YL-KTN/1004)

We are writing to submit further information to address departmental comments of the subject application (**Appendix I**).

Should you require more information regarding the application, please contact our Mr. Christian CHIM at or the undersigned at your convenience. Thank you for your kind attention.

Yours faithfully,

For and on behalf of
R-riches Property Consultants Limited

Louis TSE
Town Planner

cc DPO/FSYLE, PlanD (Attn.: Ms. Andrea YAN email:)
(Attn.: Ms. Olivia NG email:)

Responses-to-Comments

Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Lot 1291 (Part) in D.D. 107, Fung Kat Heung, Kam Tin, Yuen Long, New Territories

(Application No. A/YL-KTN/1004)

(i) A RtoC Table:

Departmental Comments		Applicant's Responses
1. Comments of the Chief Engineer/Mainland North, Drainage Services Department (CE/MN, DSD) (Contact Person: Mr. Terence TANG; Tel.: 2300 1257)		
(a)	Please add the R-to-C in the report text and also drawing.	Noted. Please refer to Section 4.1.2 in the report and **Figure 3C**.
(b)	Please submit a full report with all R-to-C record included as appendix for reference.	Noted. Please refer to the updated full report (**Annex I**).
2. Comments of the Chief Town Planner/Fanling Sheung Shui and Yuen Long East, Planning Department (DPO/FSYLE, PlanD) (Contact Person: Ms. Olivia NG; Tel.: 3168 4045)		
(a)	Noting that an area neat the application site is covered by another planning permission under application No. A/YL-KTN/994 for open storage use submitted by the same applicant as the current application, please clarify the relationship between the current application and the application No. A/YL-KTN/994.	The applicant would like to use the application site (the Site) and the adjacent site (i.e. the application site of S.16 planning application No. A/YL-KTN/994) to alleviate the pressing demand for open storage and warehousing services, as well as to support the local warehousing and logistics industries. After planning approval has been granted by the Town Planning Board, the applicant will be responsible for the construction and management of the proposed development, the Site and the adjacent site will be rented to two business operators to specialise in services providing for 'open storage' and 'warehouse' uses. Therefore, two separate S.16 planning applications were submitted for better management, to create additional employment opportunities, and to boost the local economy.

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Lot 1291 (Part) in D.D. 107, Fung Kat Heung, Kat Tin, Y.L., N.T.

Drainage Appraisal

Jul 2024

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1. Introduction

1.1 Background

1.1.1 The applicant seeks planning permission from the Town Planning Board (the Board) to use Lot 1291 (Part) in D.D. 107, Fung Kat Heung, Kam Tin, Yuen Long, New Territories (the Site) for 'Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond' (Proposed Development).

1.1.2 This Drainage Proposal is to support the planning application for the proposed use.

1.2 The Site

1.2.1 The Application Site at Kam Tin North has an area of about 6,968 m^2. The site is currently an unused grassland with temporary structures and a small dried pond. The site location plan is shown in **Figure 1**.

1.2.2 The existing ground level of the site is approx. +12.4 mPD to 15.6 mPD and it is intended to fill to +12.8 mPD to +15.8 mPD. The ground level is gently falling from east to west.

1.2.3 There is an existing approx.. 7m width channel about 50m at the south of the site. Existing Drainage Plan and Site Photo of existing 7m width channel are shown in **Figure 2** for reference.

1.2.4 Proposed Development Layout plan is shown in **Appendix B** for reference.

2. Development Proposal

2.1 The Proposed Development

2.1.1 The total site area is approximately 6,968 m^2. The indicative development schedule is summarized in **Table 1** below for technical assessment purpose. Catchment plan with external catchment is shown in **Figure 4**.

Proposed Development	
Total Site Area (m^2)	6,968
Paved Area (m^2) Assume all proposed site area as paved area after development for assessment purpose	6,968

Table 1 - Key Development Parameters

3. Assessment Criteria

3.1.1 The Recommended Design Return Period based on Flood Level from SDM (Table 10) is adopted for this DIA. The recommendation is summarized in **Table 2** below.

Description	Design Return Periods
Intensively Used Agricultural Land	2 – 5 Years
Village Drainage Including Internal Drainage System under a polder Scheme	10 Years
Main Rural Catchment Drainage Channels	50 Years
Urban Drainage Trunk System	200 Years
Urban Drainage Branch System	50 Years

Table 2– Design Return Periods under SDM

3.1.2 The proposed village drainage system intended to collect runoff from the internal site and upper catchment to discharge to existing approx. 7m width channel at the south of the site. 1 in 10 years return period is adopted for the drainage design.

3.1.3 Stormwater drainage design will be carried out in accordance with the criteria set out in the Stormwater Drainage Manual published by DSD. The proposed design criteria to be adopted for design of this stormwater drainage system and factors which have been considered are summarised below.

1. Intensity-Duration-Frequency Relationship – The Recommended Intensity-Duration-Frequency relationship is used to estimate the intensity of rainfall. It can be expressed by the following algebraic equation.

$$i = \frac{a}{(t_d + b)^c}$$

The site is located within the HKO Headquarters Rainfall Zone. Therefore, for 10 years return period, the following values are adopted.

a	=	471.9
b	=	3.02
c	=	0.397

2. The peak runoff is calculated by the Rational Method
   i.e. $Q_p = 0.278CiA$

where	Q_p	=	peak runoff in m^3/s
	C	=	runoff coefficient (dimensionless)
	i	=	rainfall intensity in mm/hr
	A	=	catchment area in km^2

3. The run-off coefficient (C) of surface runoff are taken as follows:

- Paved Area: C = 0.95
- Unpaved Area: C = 0.35

4. Manning's Equation is used for calculation of velocity of flow inside the channels:

Manning's Equation: $v = \frac{R^{\frac{1}{6}}}{n} R^{\frac{1}{2}} S_f^{\frac{1}{2}}$

Where,

V = velocity of the pipe flow (m/s)
S_f = hydraulic gradient
n = manning's coefficient
R = hydraulic radius (m)

5. Colebrook-White Equation is used for calculation of velocity of flow inside the pipes:

Colebrook-White Equation: $\underline{v} = -\sqrt{32gRS}\ log\ log\ (\frac{k_s}{14.8R} + \frac{1.255v}{R\sqrt{32gRS_f}})$

where,

V	=	velocity of the pipe flow (m/s)
S_f	=	hydraulic gradient
k_f	=	roughness value (m)
v	=	kinematics viscosity of fluid
D	=	pipe diameter (m)
R	=	hydraulic radius (m)

4. Proposed Drainage System

4.1.1 Proposed drainage system are designed for collection of runoff from the application site and external catchment at the north-east. It is proposed to discharge to existing approx. 7m channel at south of the development. The alignment, size and gradient of the proposed drains are shown in **Figure 3**. The catchment plan is shown in **Figure 4**.

4.1.2 Where any hoarding or wall to be erected, 100mm separation opening from ground level to be provided along the hoarding/wall.

4.1.3 The design calculations of proposed drains are shown in **Appendix A**.

4.1.4 The reference standard drawings of drains are shown in **Appendix C**.

4.1.5 Design checking of existing downstream approx. 7m channel is shown in **Appendix E**.

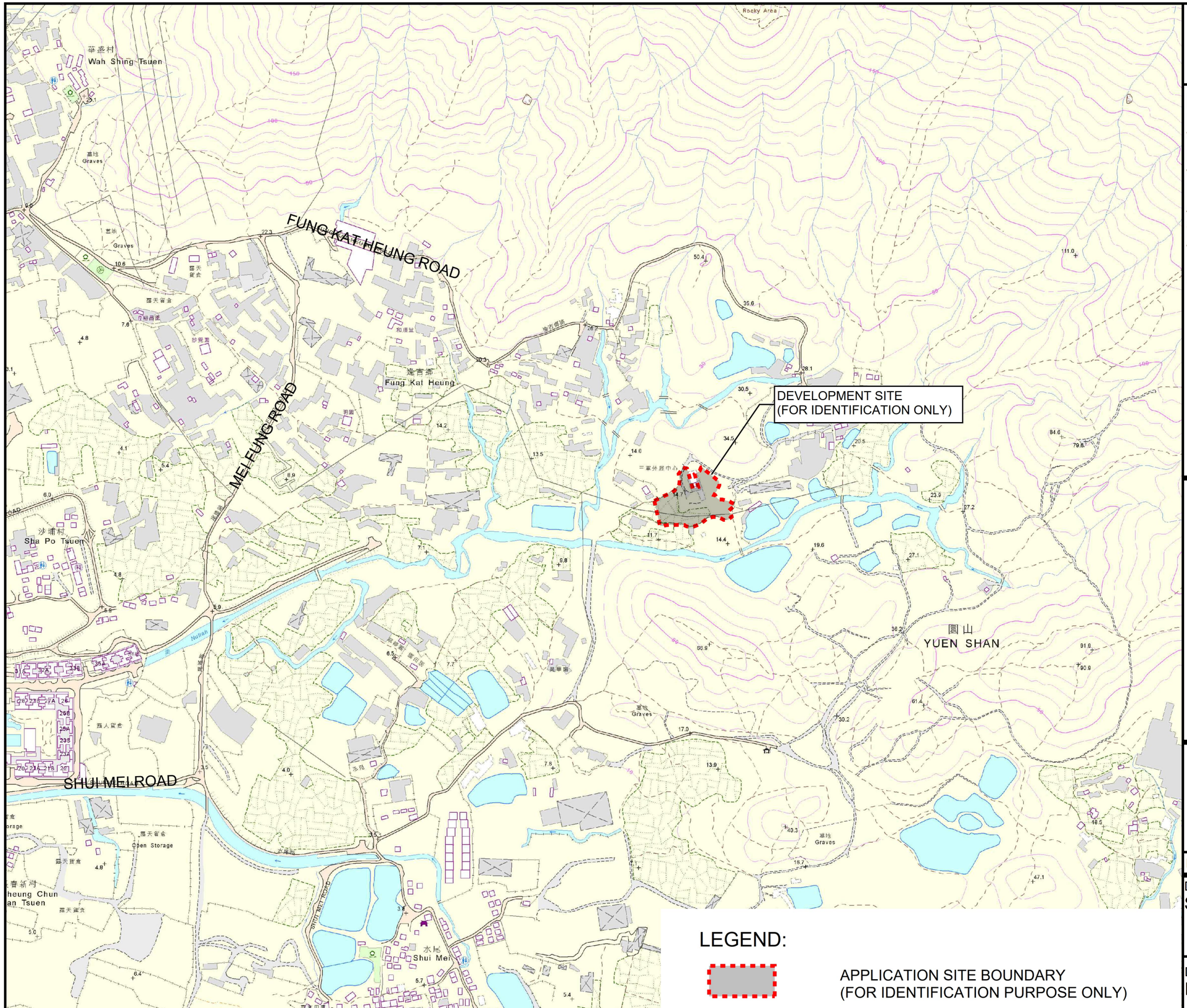
5. Conclusion

5.1.1 A drainage appraisal has been conducted for the Proposed Development. The surface runoff from the Application Site will be collected by the proposed drains and discharged to the existing channel at south.

5.1.2 With the proposed drainage system, it is anticipated that there will be no significant drainage impact to the area after the implementation of the development.

- End of Text -

FIGURES



LEGEND:

APPLICATION SITE BOUNDARY
(FOR IDENTIFICATION PURPOSE ONLY)

PROJECT:
Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Lot 1291 (Part) in D.D. 107, Fung Kat Heung, Kat Tin , Y.L., N.T.

REV	DESCRIPTION	DATE

DRAWING TITLE
SITE LOCATION PLAN

DRAWING NUMBER
FIGURE 1

SITE PHOTO AND EXISTING CONDITIONS

EXISTING 750mm CHANNEL

DEVELOPMENT SITE (FOR INDICATIVE ONLY)

SITE PHOTO LCOATION

EXISTING APPROX. 7m WIDTH CHANNEL

MEI FUNG ROAD

Yuen Shan

50

LEGEND:

Combined Manhole	Tapping Point (Sewer)	Tapping Point (Storm)
Overflow (Combined)	Sewer Terminal Manhole	Storm Water Terminal Manhole
Pipe (Combined)	Catchpit	Tunnel Protection Zone (100m / 200m)
Interface Valve Chamber	Inlet	Tunnel Protection Zone (General Range)
Sewer Manhole	Storm Water Manhole	Tunnel / Box Culvert (Sewer)
Oil / Petrol Interceptor	Outlet	Tunnel / Box Culvert (Storm)
Overflow (Sewer)	Pipe (Storm)	
Pipe (Sewer)	Sand Trap	

EXISTING U CHANNEL

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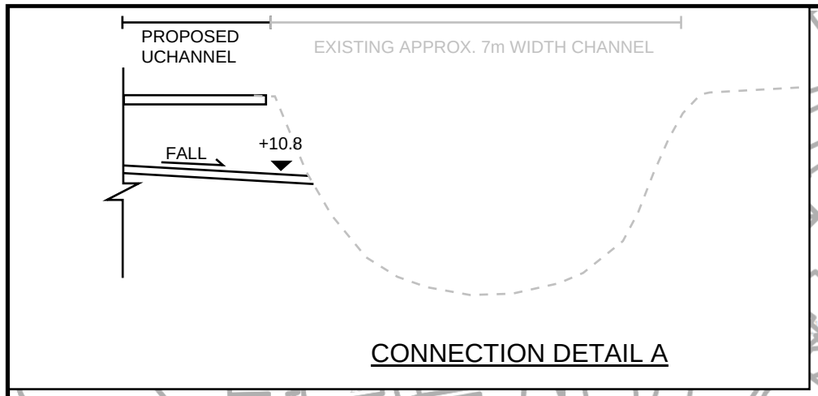
REV	DESCRIPTION	DATE

DRAWING TITLE
EXISTING DRAINAGE PLAN

DRAWING NUMBER
FIGURE 2A



CONNECTION DETAIL A

UCHANNEL TYPE
UCHANNEL 1 (UC1) - 375mm, MIN. 1 IN 200
UCHANNEL 2 (UC2) - 450mm, MIN. 1 IN 200
UCHANNEL 3 (UC3) - 300mm, MIN. 1 IN 200
UCHANNEL 4 (UC4) - 450mm, MIN. 1 IN 200
UCHANNEL 5 (UC5) - 450mm, MIN. 1 IN 100
UCHANNEL 6 (UC6) - 675mm, MIN. 1 IN 200

APPLICATION SITE
(FOR INDICATIVE ONLY)

CP1.1
CL +15.8
IL +15.27

CP1.2
CL +15.8
IL +15.24

CP1.3
CL +15.8
IL +15.19

CP1.4
CL +15.8
IL +15.09

CP1.5
CL +15.8
IL +15.04

CP1.6
CL +15.8
IL +14.87

CP1.7
CL +15.8
IL +14.84

CP1.8
CL +15.8
IL +14.78

CP1.9
CL +12.8
IL +12.35

CP1.10
CL +12.8
IL +12.15

CL +12.8
IL +12.35

CL +15.8
IL +15.35

CL +15.8
IL +15.43

CP2.1
CL +15.8
IL +15.33

CP2.2
CL +15.8
IL +15.31

CP2.3
CL +15.8
IL +15.21

CP2.4
CL +15.8
IL +15.16

CP2.5
CL +15.8
IL +15.03

CP2.6
CL +15.8
IL +14.95

CP2.7
CL +15.8
IL +14.90

CP2.8
CL +13.8
IL +13.35

CL +11.4
IL +10.8

UC1
UC2
UC3
UC4
UC5
UC6

CONNECTION DETAIL A

LEGEND:

APPLICATION SITE BOUNDARY
(FOR IDENTIFICATION PURPOSE ONLY)

EXISTING CHANNEL

PROPOSED SANDTRAP

PROPOSED CATCHPIT W/TRAP

PROPOSED UCHANNEL

NOTES:
1. INVERT LEVEL OF CONNECTION POINT SHOULD BE VERIFIED ON SITE BEFORE CONSTRUCTION.
2. WHERE ANY HOARDING OR WALL TO BE ERECTED, 100mm SEPARATION OPENING FROM GROUND LEVEL TO BE PROVIDED ALONG THE HOARDING/WALL.

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REV	DESCRIPTION	DATE

DRAWING TITLE
PROPOSED DRAINAGE SYSTEM

DRAWING NUMBER
FIGURE 3C

EXISTING 750mm
U CHANNEL

ZONE B1
1,990 m²
(assume 30% paved)

ZONE A1
360 m²

ZONE B2
2,366 m²
(assume 30% paved)

ZONE A4
2,243
m²

ZONE A2
2,210 m²

ZONE A3
1,755 m²

+15.8

+13.8

+12.8

APPLICATION SITE
(FOR INDICATIVE ONLY)

LEGEND:

APPLICATION SITE BOUNDARY
(FOR IDENTIFICATION PURPOSE ONLY)

EXISTING APPROX. 7m WIDTH CHANNEL

+5.8 PROPOSED LEVEL

FALL

EXISTING U CHANNEL

PROJECT:
Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in "Agriculture" Zone, Lot 1291 (Part) in D.D. 107, Fung Kat Heung, Kat Tin , Y.L., N.T.

REV	DESCRIPTION	DATE

DRAWING TITLE
CATCHMENT PLAN

DRAWING NUMBER
FIGURE 4A

Appendix

Appendix A - Design Calculation

U Channel 1 (Zone A1 + B1)

Runoff Estimation				
Design Return Period		1 in	10	years
Paved Area	360 + 1990 x 0.3 =		957	(m2)
Unpaved Area	1990 x 0.7 =		1393	(m2)
Total Equivalent Area	957 x 0.95 + 1393 x 0.35 =		1397	(m2)
Rainfall Intensity, I *			206	mm/hr
Design Discharge Rate, Q	0.278 x 1397 x 206 / 1000000 =		0.080	m3/s

* $i = \frac{a}{(t_d + b)^c}$

U Channel				
Channel Size			375	(mm)
Gradient		1 in	200	
Area	π x 0.38^2 /8 + 0.38 x 0.38/2 =		0.126	(m2)
Wetted Perimeter	π x 0.38 / 2 + 0.38/2 x 2 =		0.964	(m)
R	0.126 / 0.964 =		0.130	(m)
Velocity			1.30	m/s
Capacity			0.163	m3/s

Utilization 0.08 / 0.163 = **49.22** % OK (less than 90%, for 10% siltation allowance)

U Channel 2 (Zone [A1 + B1] +A4)

Runoff Estimation				
Design Return Period		1 in	10	years
Paved Area	957 + 2243 x 1 =		3200	(m2)
Unpaved Area	1393 =		1393	(m2)
Total Equivalent Area	3200 x 0.95 + 1393 x 0.35 =		3528	(m2)
Rainfall Intensity, I *			206	mm/hr
Design Discharge Rate, Q	0.278 x 1393 x 206 / 1000000 =		0.202	m3/s

* $i = \frac{a}{(t_d + b)^c}$

U Channel				
Channel Size			450	(mm)
Gradient		1 in	200	
Area	π x 0.45^2 /8 + 0.45 x 0.45/2 =		0.181	(m2)
Wetted Perimeter	π x 0.45 / 2 + 0.45/2 x 2 =		1.157	(m)
R	0.181 / 1.157 =		0.156	(m)
Velocity			1.47	m/s
Capacity			0.265	m3/s

Utilization 0.202 / 0.265 = **76.45** % OK (less than 90%, for 10% siltation allowance)

U Channel 3 (Zone B2)

Runoff Estimation				
Design Return Period		1 in	10	years
Paved Area	2366 x 0.3 =		710	(m2)
Unpaved Area	2366 x 0.7 =		1656	(m2)
Total Equivalent Area	710 x 0.95 + 1656 x 0.35 =		1254	(m2)
Rainfall Intensity, I *			206	mm/hr
Design Discharge Rate, Q	0.278 x 1254 x 206 / 1000000 =		0.072	m3/s

* $i = \frac{a}{(t_d + b)^c}$

U Channel (Half round to U)				
Channel Size			300	(mm)
Gradient		1 in	200	
Area	π x 0.3^2 /8 + 0.3 x 0.3/2 =		0.080	(m2)
Wetted Perimeter	π x 0.3 / 2 + 0.3/2 x 2 =		0.771	(m)
R	0.08 / 0.771 =		0.104	(m)
Velocity			1.12	m/s
Capacity			0.090	m3/s

Utilization 0.072 / 0.09 = **80.12** % OK (less than 90%, for 10% siltation allowance)

U Channel 4 (Zone A3 + B2)

Runoff Estimation				
Design Return Period		1 in	10	years
Paved Area	710 + 1755 =		2465	(m2)
Unpaved Area	1656 =		1656	(m2)
Total Equivalent Area	2465 x 0.95 + 1656 x 0.35 =		2921	(m2)
Rainfall Intensity, I *			206	mm/hr
Design Discharge Rate, Q	0.278 x 2921 x 206 / 1000000 =		0.168	m3/s

* $i = \frac{a}{(t_d + b)^c}$

U Channel				
Channel Size			450	(mm)
Gradient		1 in	200	
Area	π x 0.45^2 /8 + 0.45 x 0.45/2 =		0.181	(m2)
Wetted Perimeter	π x 0.45 / 2 + 0.45/2 x 2 =		1.157	(m)
R	0.181 / 1.157 =		0.156	(m)
Velocity			1.47	m/s
Capacity			0.265	m3/s

Utilization 0.168 / 0.265 = **63.31** % OK (less than 90%, for 10% siltation allowance)

U Channel 5 (Zone A2 + [A3 + B2])

Runoff Estimation				
Design Return Period		1 in	10	years
Paved Area	2465 + 2210 x 1 =		4675	(m2)
Unpaved Area	1656 =		1656	(m2)
Total Equivalent Area	4675 x 0.95 + 1656 x 0.35 =		5021	(m2)
Rainfall Intensity, I *			206	mm/hr
Design Discharge Rate, Q	0.278 x 5021 x 206 / 1000000 =		0.288	mm/hr

* $i = \frac{a}{(t_d + b)^c}$

U Channel				
Channel Size			450	(mm)
Gradient		1 in	100	
Area	π x 0.45^2 /8 + 0.45 x 0.45/2 =		0.181	(m2)
Wetted Perimeter	π x 0.45 / 2 + 0.45/2 x 2 =		1.157	(m)
R	0.181 / 1.157 =		0.156	(m)
Velocity			2.07	m/s
Capacity			0.375	m3/s

Utilization 0.288 / 0.375 = **76.94** % OK (less than 90%, for 10% siltation allowance)

U Channel 6 (Combined: Zone [A1 + A4 + B1] +[A2 + A3 + B2])

Runoff Estimation				
Design Return Period		1 in	10	years
Paved Area	4675 + 3200 =		7875	(m2)
Unpaved Area	1656 + 1393 =		3049	(m2)
Total Equivalent Area	7875 x 0.95 + 3049 x 0.35 =		8548	(m2)
Rainfall Intensity, I *			206	mm/hr
Design Discharge Rate, Q	0.278 x 8548 x 206 / 1000000 =		0.781	mm/hr

* $i = \frac{a}{(t_d + b)^c}$

U Channel				
Channel Size			675	(mm)
Gradient		1 in	200	
Area	π x 0.68^2 /8 + 0.68 x 0.68/2 =		0.407	(m2)
Wetted Perimeter	π x 0.68 / 2 + 0.68/2 x 2 =		1.735	(m)
R	0.407 / 1.735 =		0.234	(m)
Velocity			1.92	m/s
Capacity			0.491	m3/s

Utilization 0.781 / 0.491 = **62.83** % OK (less than 90%, for 10% siltation allowance)

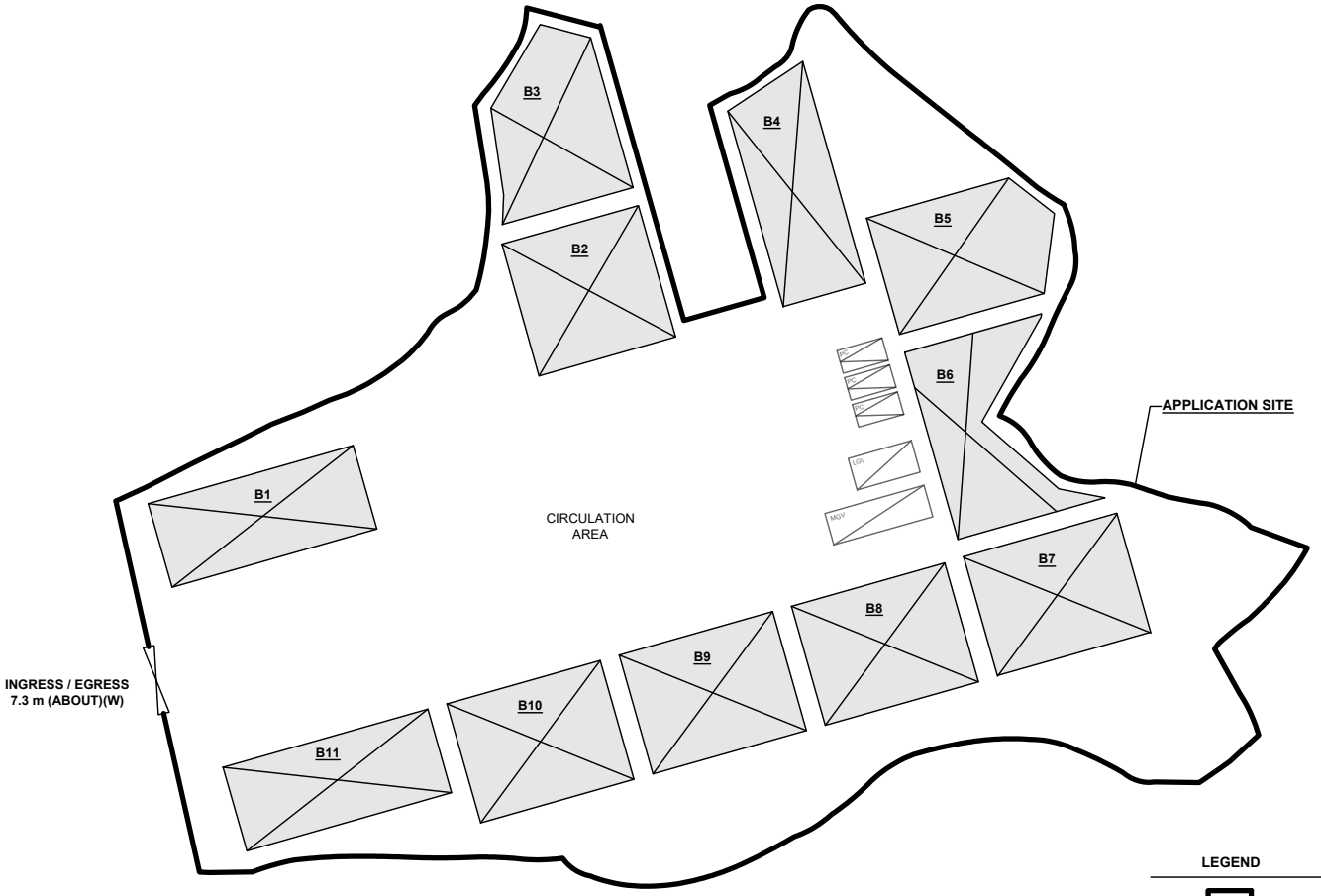
Appendix B - Proposed Development Layout Plan

DEVELOPMENT PARAMETERS

APPLICATION SITE AREA	: 6,968 m^2	(ABOUT)
COVERED AREA	: 2,407 m^2	(ABOUT)
UNCOVERED AREA	: 4,561 m^2	(ABOUT)
PLOT RATIO	: 0.35	(ABOUT)
SITE COVERAGE	: 35 %	(ABOUT)
NO. OF STRUCTURE	: 11	
DOMESTIC GFA	: NOT APPLICABLE	
NON-DOMESTIC GFA	: 2,407 m^2	(ABOUT)
TOTAL GFA	: 2,407 m^2	(ABOUT)
BUILDING HEIGHT	: 6 m	(ABOUT)
NO. OF STOREY	: 1	

STRUCTURE		AREA		HEIGHT
B1	WAREHOUSE (EXCLUDING D.G.G.)	211 m^2 (ABOUT)	211 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
B2	WAREHOUSE (EXCLUDING D.G.G.)	221 m^2 (ABOUT)	221 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
B3	WAREHOUSE (EXCLUDING D.G.G.)	216 m^2 (ABOUT)	216 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
B4	WAREHOUSE (EXCLUDING D.G.G.)	212 m^2 (ABOUT)	212 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
B5	WAREHOUSE (EXCLUDING D.G.G.)	228 m^2 (ABOUT)	228 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
B6	WAREHOUSE (EXCLUDING D.G.G.)	212 m^2 (ABOUT)	212 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
B7	WAREHOUSE (EXCLUDING D.G.G.)	224 m^2 (ABOUT)	224 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
B8	WAREHOUSE (EXCLUDING D.G.G.)	224 m^2 (ABOUT)	224 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
B9	WAREHOUSE (EXCLUDING D.G.G.)	224 m^2 (ABOUT)	224 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
B10	WAREHOUSE (EXCLUDING D.G.G.)	224 m^2 (ABOUT)	224 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
B11	WAREHOUSE (EXCLUDING D.G.G.) AND OFFICE	211 m^2 (ABOUT)	211 m^2 (ABOUT)	6 m (ABOUT)(1-STOREY)
	TOTAL	**2,407 m^2 (ABOUT)**	**2,407 m^2 (ABOUT)**	

**D.G.G. - DANGEROUS GOODS GODOWN*



LEGEND

- APPLICATION SITE
- STRUCTURE
- OPEN STORAGE AREA
- PRIVATE CAR PARKING SPACE
- LOADING / UNLOADING SPACE FOR LGV
- LOADING / UNLOADING SPACE FOR MGV
- INGRESS / EGRESS

PARKING AND LOADING / UNLOADING PROVISIONS

NO. OF PRIVATE CAR PARKING SPACE	: 3
DIMENSION OF L/UL SPACE	: 5 m (L) x 2.5 m (W)
NO. OF L/UL SPACE FOR LIGHT GOODS VEHICLE	: 1
DIMENSION OF L/UL SPACE	: 7 m (L) x 3.5 m (W)
NO. OF L/UL SPACE FOR MEDIUM GOODS VEHICLE	: 1
DIMENSION OF L/UL SPACE	: 11 m (L) x 3.5 m (W)

W — E — S

PLANNING CONSULTANT

R-Riches Property Consultants Ltd.

PROJECT

PROPOSED TEMPORARY WAREHOUSE (EXCLUDING DANGEROUS GOODS GODOWN) WITH ANCILLARY FACILITIES FOR A PERIOD OF 3 YEARS AND ASSOCIATED FILLING OF LAND AND POND

SITE LOCATION

LOT 1291 (PART) IN D.D. 107, FUNG KAT HEUNG, KAM TIN, YUEN LONG, NEW TERRITORIES

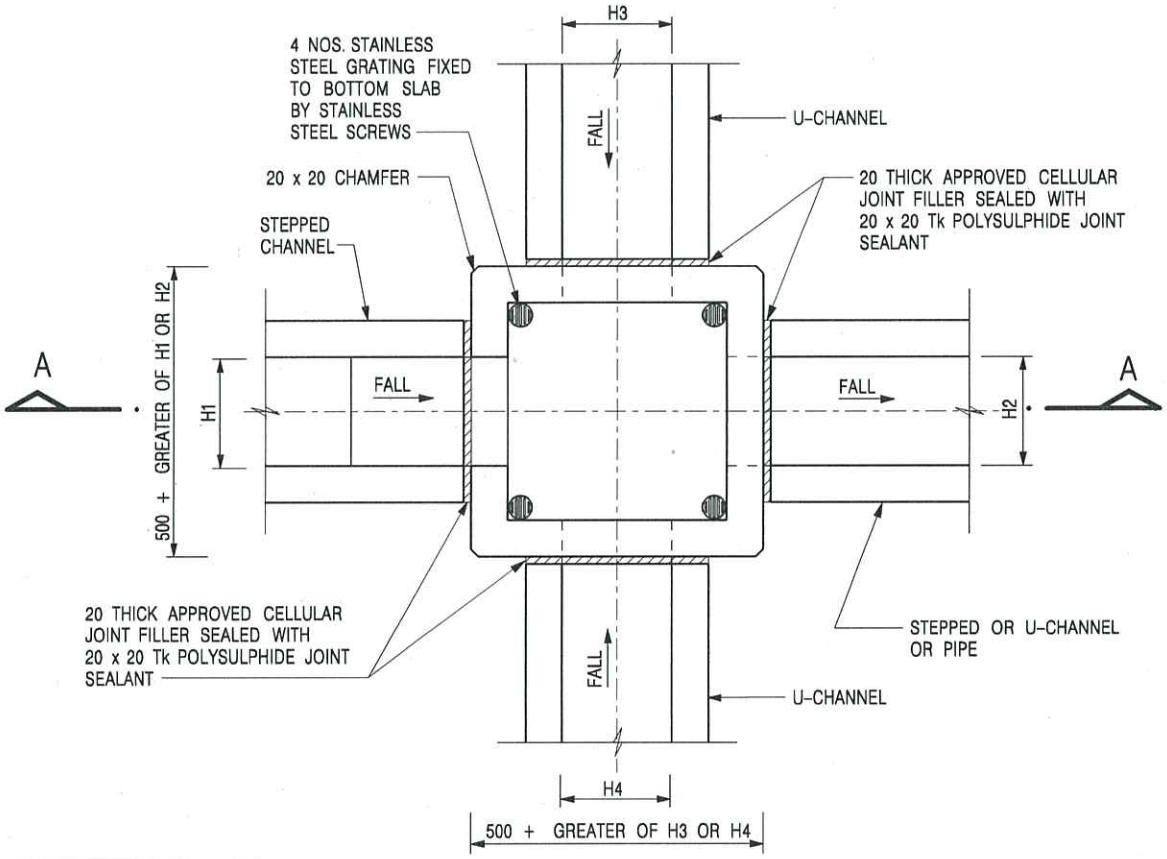
SCALE: 1 : 800 @ A4

DRAWN BY	DATE
MN	11.1.2024
REVISED BY	DATE
APPROVED BY	DATE

DWG. TITLE: LAYOUT PLAN

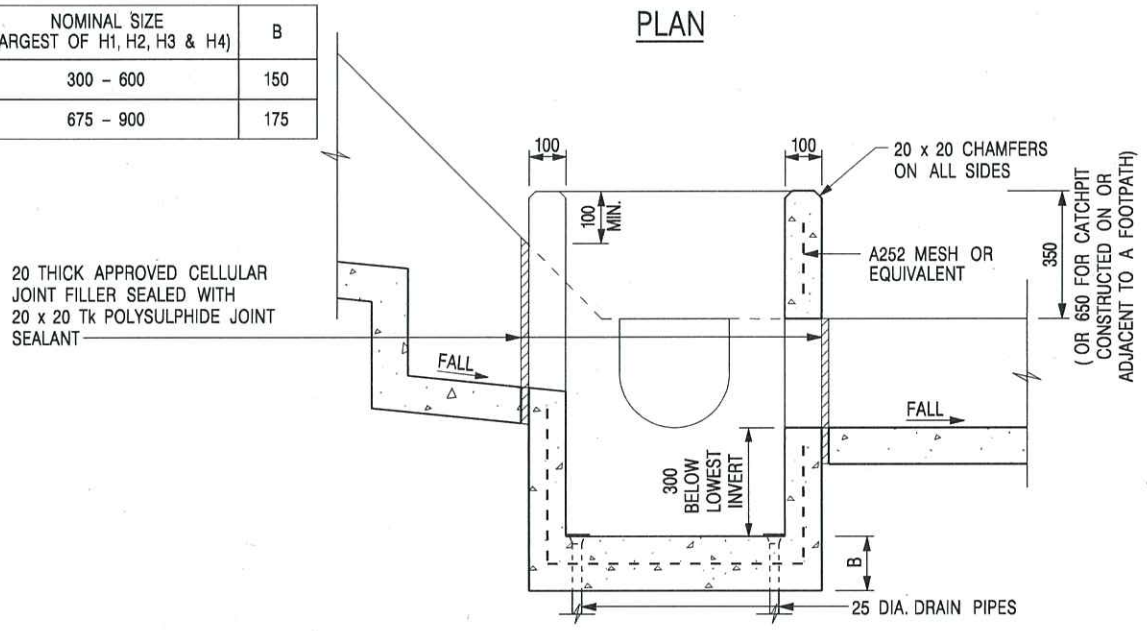
DWG NO.	VER.
PLAN 4	001

Appendix C - Reference Drawings



PLAN

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



SECTION A – A

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 2 FOR OTHER NOTES.

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

CATCHPIT WITH TRAP

(SHEET 1 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2406 /1

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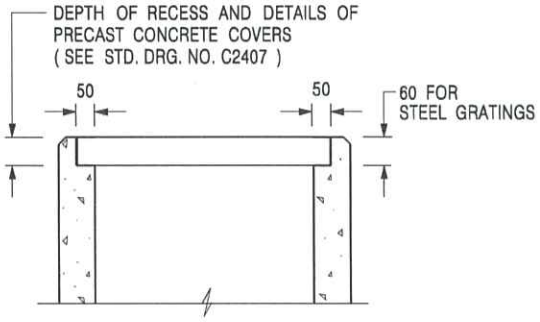


ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS

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

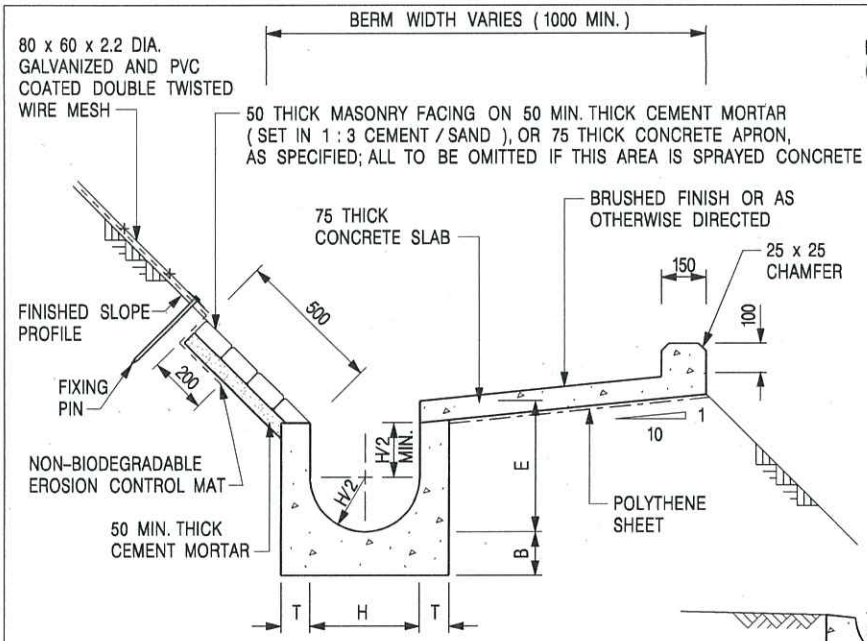
CATCHPIT WITH TRAP
(SHEET 2 OF 2)

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

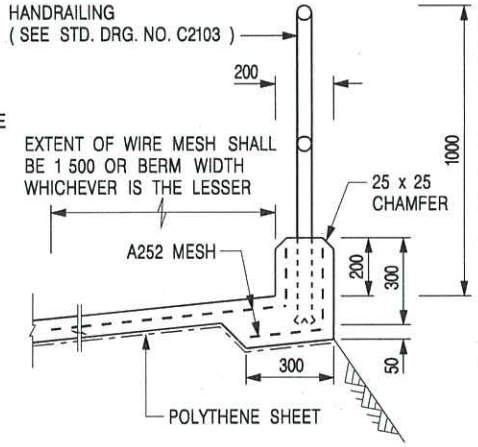
SCALE 1 : 20

DATE JAN 1991

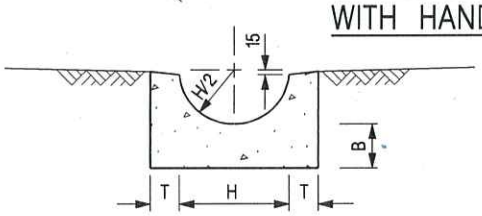
DRAWING NO. C2406 /2A



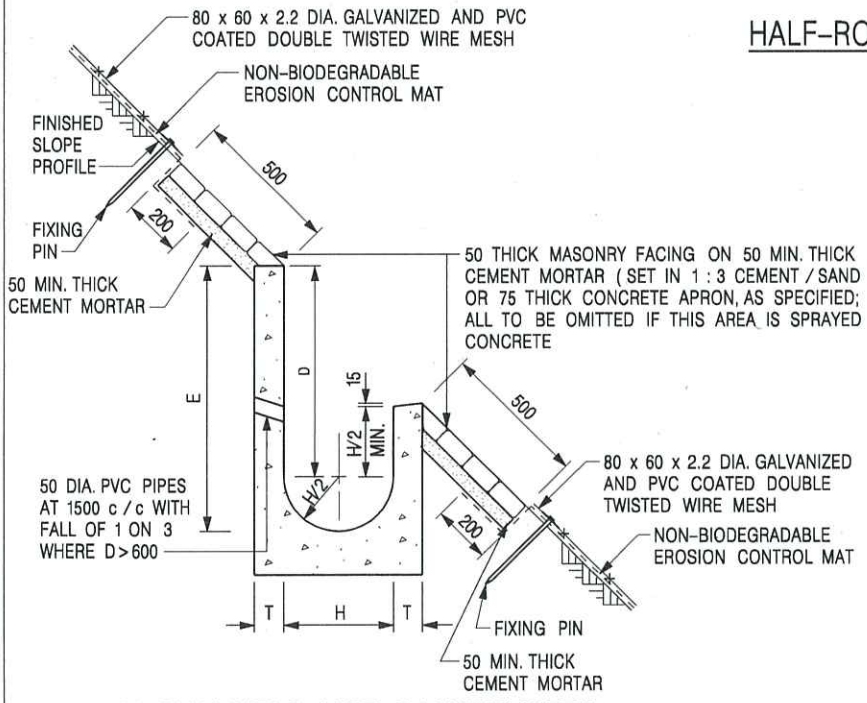
U-CHANNELS CONSTRUCTED ON BERM



DETAILS OF BERM WITH HANDRAILING



HALF-ROUND CHANNEL



U-CHANNELS NOT CONSTRUCTED ON BERM

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE TO BE GRADE 20 / 20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2, F2 OR BRUSHED FINISH AS DIRECTED.
4. SPACING OF EXPANSION JOINT IN CHANNELS, BERM SLABS AND APRONS TO BE 10 METRES MAXIMUM, SEE STD. DRG. NO. C2413 FOR DETAILS.
5. JOINTS FOR CHANNELS, BERM SLABS, APRONS AND WALLS, ETC. TO BE ON THE SAME ALIGNMENT.
6. FOR DIMENSIONS T, H, & B, SEE TABLE BELOW.
7. BIODEGRADABLE EROSION CONTROL MAT IF REQUIRED, SEE STD. DRG. NO. C2511/1E.
8. CONCRETE TO BE COLOURED AS SPECIFIED.
9. CONCRETE U-CHANNEL CAN BE CAST IN-SITU OR PRECAST CONCRETE SUBJECT TO THE ENGINEER'S AGREEMENT ON THE DETAILS.
10. DETAILS OF EROSION CONTROL MAT AND WESH MESH ON BERM. (SEE STD DRG. NO. C2511/1E)

NOMINAL SIZE H	T	B	REINFORCEMENT
300	80	100	A252 MESH PLACED CENTRALLY AND T=100 WHEN E>650
375 - 600	100	150	
675 - 900	125	175	A252 MESH PLACED CENTRALLY

REF.	REVISION	SIGNATURE	DATE
I	MINOR AMENDMENT.	Original Signed	07.2018
H	THICKNESS OF MASONRY FACING AMENDED.	Original Signed	01.2005
G	MINOR AMENDMENT.	Original Signed	01.2004
F	GENERAL REVISION.	Original Signed	12.2002
E	DRAWING TITLE AMENDED.	Original Signed	11.2001
D	MINOR AMENDMENT.	Original Signed	08.2001
C	150 x 100 UPSTAND ADDED AT BERM.	Original Signed	6.99
B	MINOR AMENDMENTS.	Original Signed	3.94

DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE A - WITH MASONRY APRON)

CEDD **CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

SCALE 1 : 25

DATE JAN 1991

DRAWING NO. C2409I

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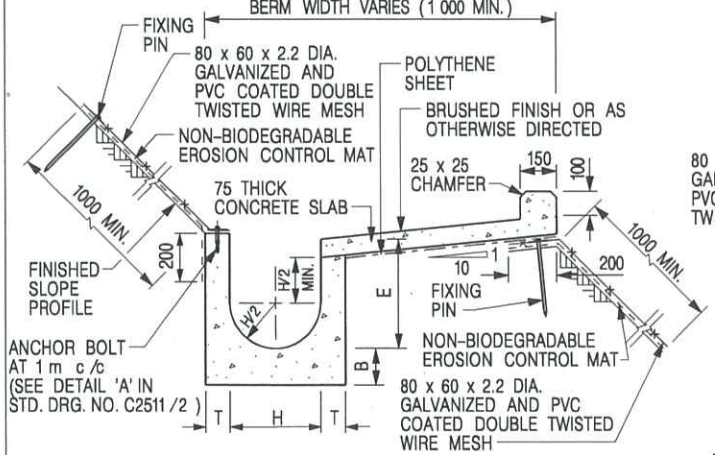
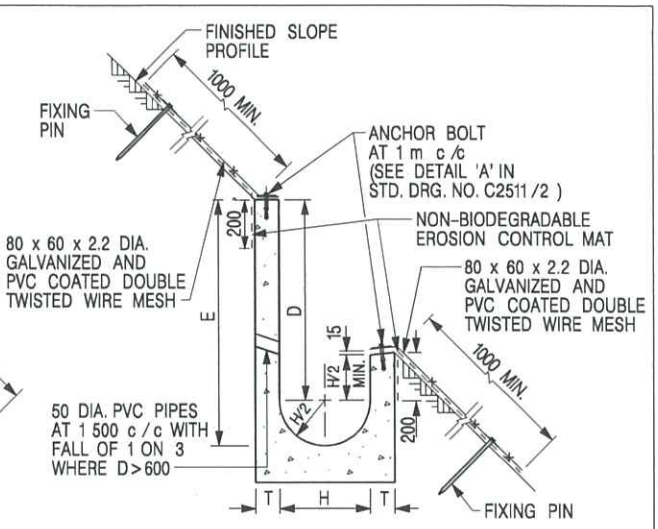
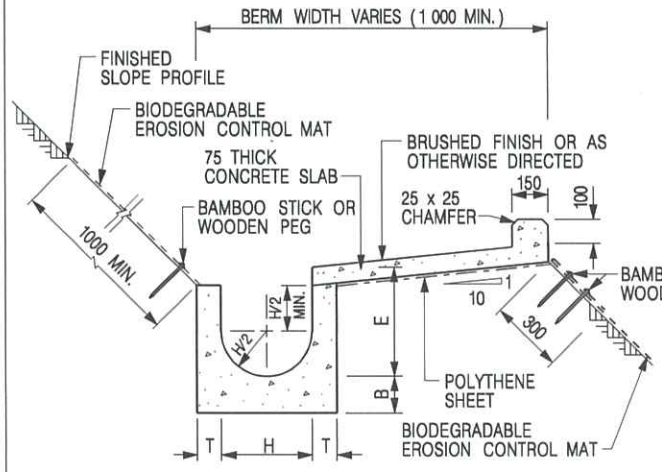


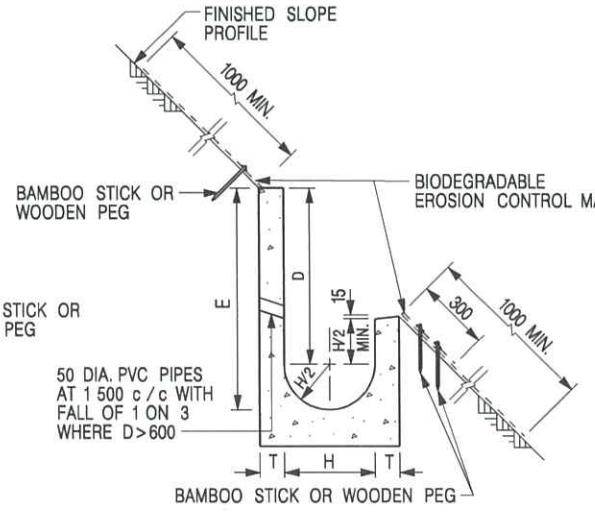
U-CHANNELS CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT



U-CHANNELS NOT CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT



U-CHANNELS CONSTRUCTED ON BERM WITH BIODEGRADABLE EROSION CONTROL MAT



U-CHANNELS NOT CONSTRUCTED ON BERM WITH BIODEGRADABLE EROSION CONTROL MAT

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE TO BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2, F2 OR BRUSHED FINISH AS DIRECTED.
4. SPACING OF EXPANSION JOINT IN CHANNELS, BERM SLABS AND APRONS TO BE 10 METRES MAXIMUM, SEE STD. DRG. NO. C2413 FOR DETAILS.
5. JOINTS FOR CHANNELS, BERM SLABS, APRONS AND WALLS, ETC. TO BE ON THE SAME ALIGNMENT.
6. FOR DIMENSIONS T, H, & B, SEE TABLE BELOW.
7. FOR TYPICAL FIXING PIN DETAILS, SEE STD. DRG. NO. C2511/2.
8. MINIMUM SIZE OF 25 x 50 x 300mm SHALL BE PROVIDED FOR WOODEN PEG.
9. MINIMUM SIZE OF 10mm DIAMETER WITH 200mm LONG SHALL BE PROVIDED FOR BAMBOO STICK.
10. THE FIXING DETAILS OF NON-BIODEGRADABLE AND BIODEGRADABLE EROSION CONTROL MATS ON EXISTING BERM SHALL REFER TO STD. DRG. NO. C2511/1.

NOMINAL SIZE H	T	B	REINFORCEMENT
300	80	100	A252 MESH PLACED CENTRALLY AND T=100 WHEN E>650
375 - 600	100	150	
675 - 900	125	175	A252 MESH PLACED CENTRALLY

REF.	REVISION	SIGNATURE	DATE
I	MINOR AMENDMENT.	Original Signed	07.2018
H	FIXING DETAILS OF BIODEGRADABLE EROSION CONTROL MAT ADDED.	Original Signed	12.2017
G	DIMENSION TABLE AMENDED.	Original Signed	01.2005
F	MINOR AMENDMENT.	Original Signed	01.2004
E	GENERAL REVISION.	Original Signed	12.2002
D	MINOR AMENDMENT.	Original Signed	08.2001
C	150 x 100 UPSTAND ADDED AT BERM.	Original Signed	6.99
B	MINOR AMENDMENT.	Original Signed	3.94
A	MINOR AMENDMENT.	Original Signed	10.92

DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE B - WITH EROSION CONTROL MAT APRON)

CEDD **CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

SCALE DIAGRAMMATIC

DATE JAN 1991

DRAWING NO. C2410I

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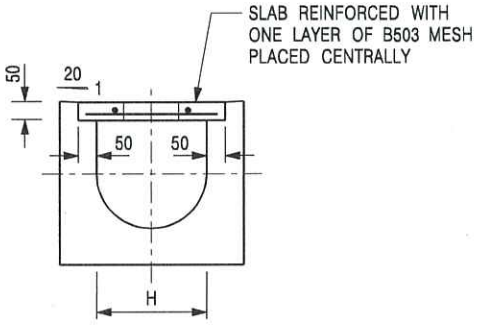
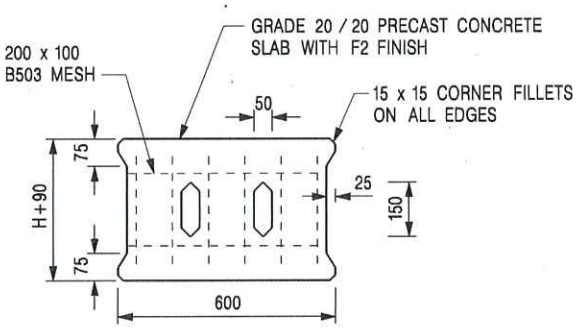


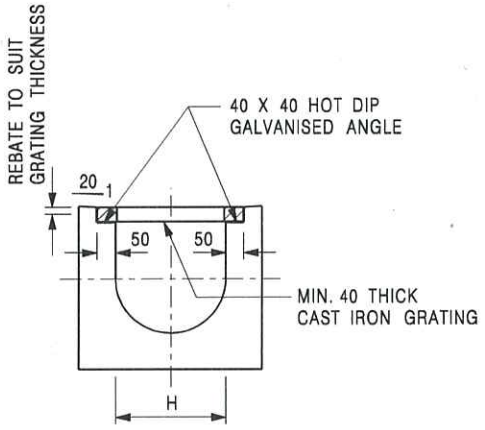
TYPICAL SECTION



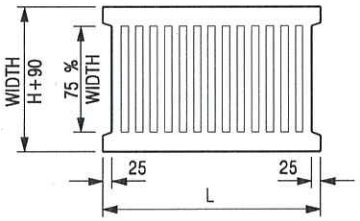
PLAN OF SLAB

U-CHANNELS WITH PRECAST CONCRETE SLABS

(UP TO H OF 525)



TYPICAL SECTION



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

CAST IRON GRATING

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

U-CHANNEL WITH CAST IRON GRATING

(UP TO H OF 525)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. H = NOMINAL CHANNEL SIZE.
3. ALL CAST IRON FOR GRATINGS SHALL BE GRADE EN-GJL-150 COMPLYING WITH BS EN 1561.
4. 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.

REF.	REVISION	SIGNATURE	DATE
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

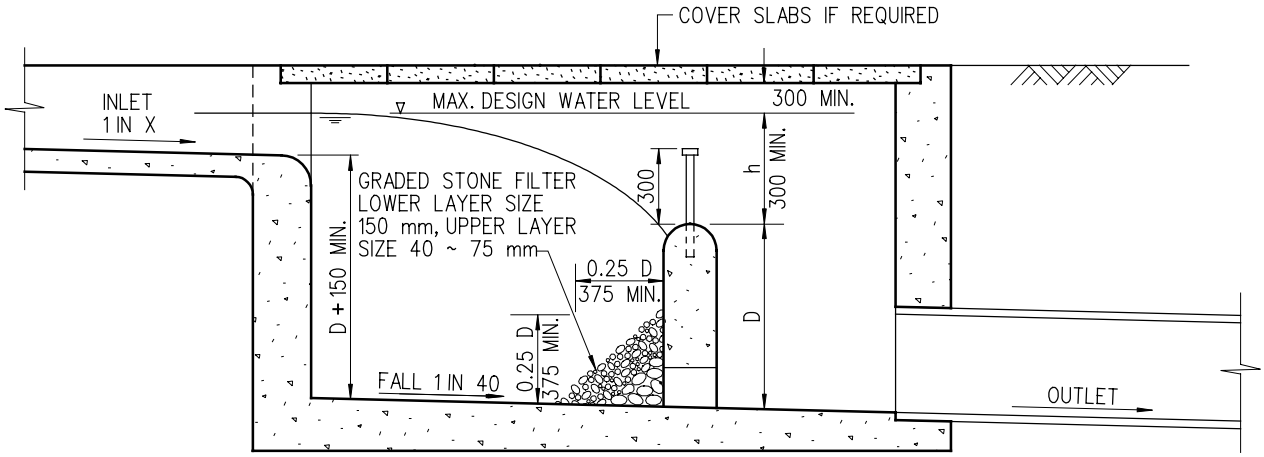
COVER SLAB AND CAST IRON GRATING FOR CHANNELS

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

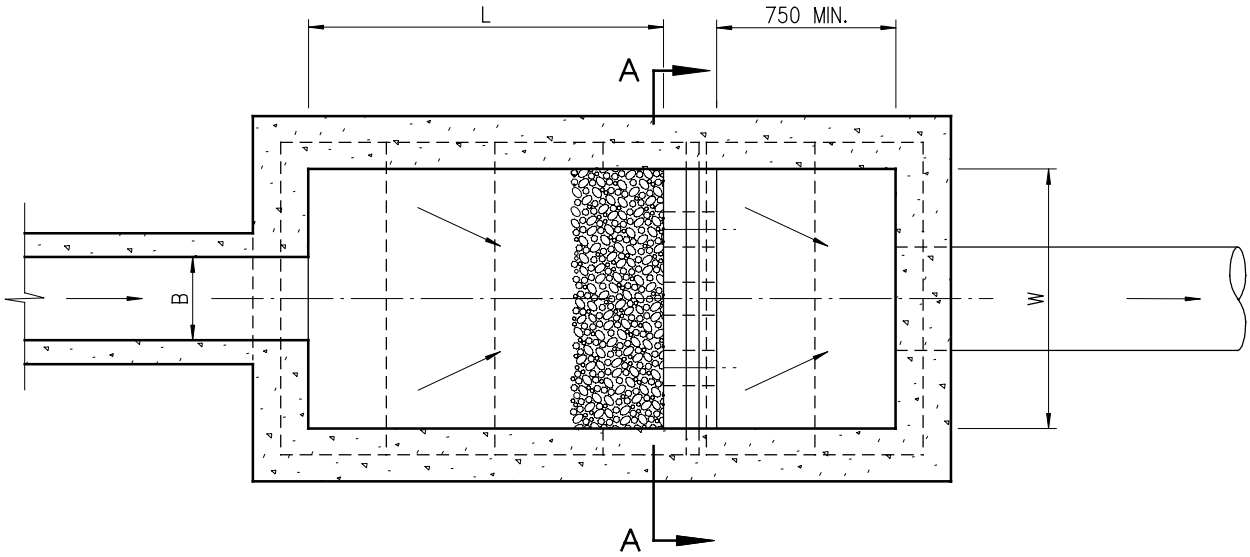
SCALE 1 : 20

DATE JAN 1991

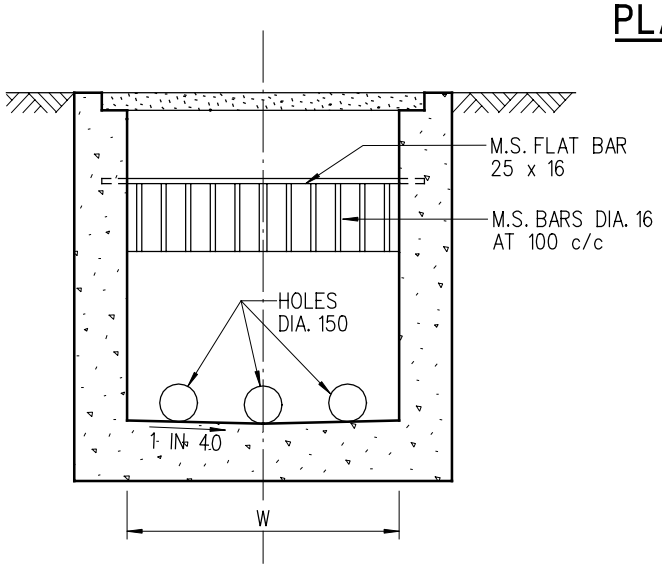
DRAWING NO. C2412E



LONGITUDINAL SECTION



PLAN



SECTION A-A

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. NORMALLY FOR DRAINS OF 900 mm DIA. AND BELOW. FOR BIGGER DRAINS AND STEEP TERRAIN, SAND TRAP SHOULD BE SPECIALLY DESIGNED.
3. SIZE
   DEPTH : $D \leqslant 750$
   WIDTH : $W \geqslant 3B$
   LENGTH : $4.8D^{0.67}\ h^{0.5}\ X^{-0.5} \geqslant 4B$
4. GRADED STONE FILTER SHALL BE CRUSHER RUN GRANITE AGGREGATE.
5. CAPACITY D W L TO BE ACCORDING TO SIZE AND NATURE OF CATCHMENT, PROVIDING DETENTION TIME NOT LESS THAN 5 MINUTES FOR MAX. DESIGN FLOW OF INLET.

REV.	DESCRIPTION	SIGNATURE	DATE
B	REDRAWN BY CAD	ORIGINAL SIGNED	8.8.2001
A	GENERAL REVIEW	ORIGINAL SIGNED	2.2.2001

SAND TRAP

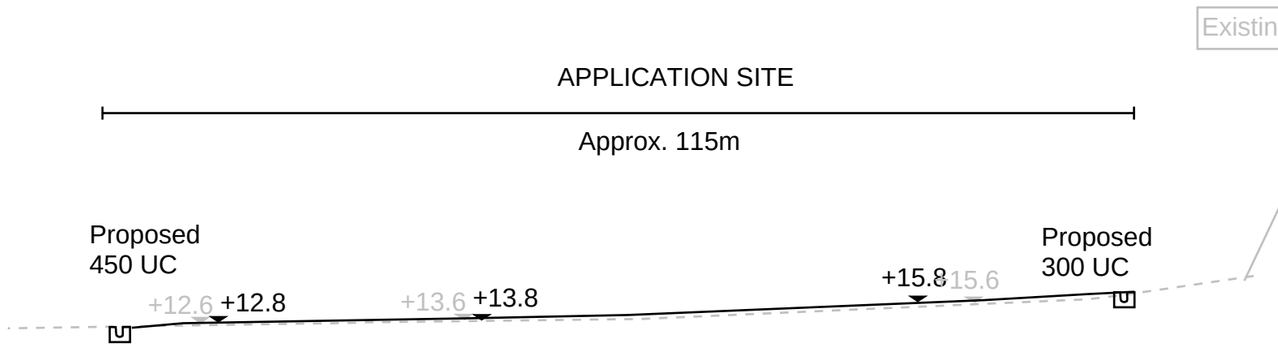
DRAINAGE SERVICES DEPARTMENT

REFERENCE

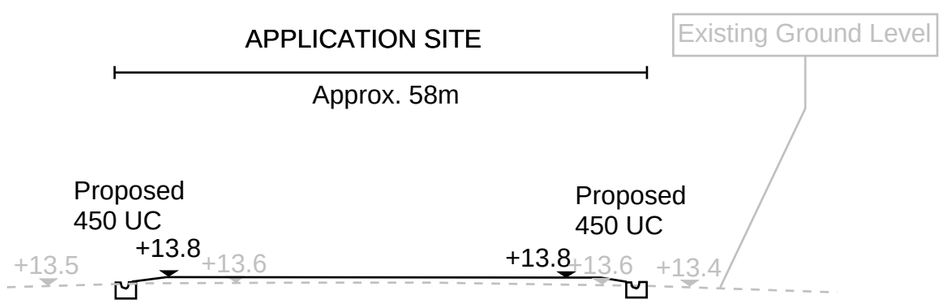
SCALE
DIAGRAMMATIC

DRAWING No.
DS 1025B

PLAN



SECTION 1
NTS



SECTION 2
NTS

PROJECT:
Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in “Agriculture” Zone, Lot 1291 (Part) in D.D. 107, Fung Kat Heung, Kat Tin , Y.L., N.T.

SECTIONS

Appendix D

Appendix E

Checking of Existing 7m (W) x 3m (D) Channel [Assume width of channel is 3m for Assessment Purpose]

Runoff Estimation				
Design Return Period		1 in	50	years
Paved Area	136753 =		136,753	(m2)
Unpaved Area	940087 =		940,087	(m2)
Total Equivalent Area	136753 x 0.95 + 940087 x 0.35 =		458,946	(m2)
Rainfall Intensity, I *			133	mm/hr
Design Discharge Rate, Q	0.278 x 458946 x 133 / 1000000 =		41.701	mm/hr

* $i = \frac{a}{(t_d + b)^c}$

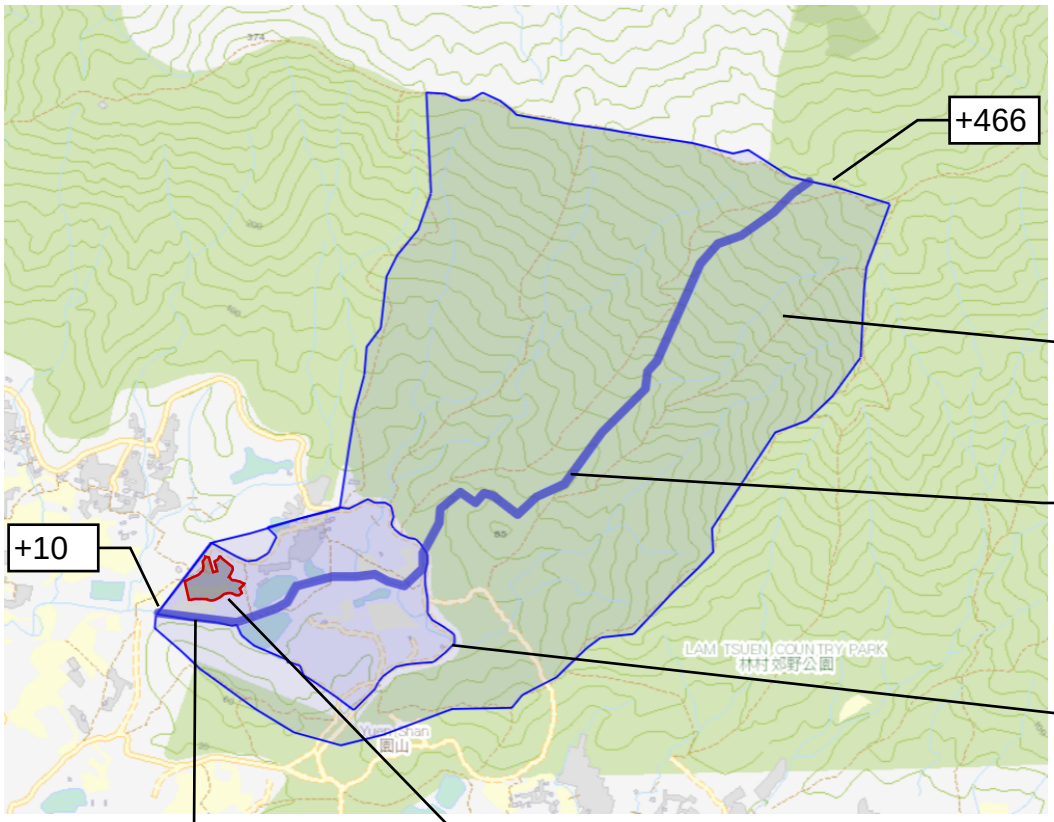
U Channel				
Channel Size			3000	(mm)
Gradient		1 in	200	
Velocity			5.19	m/s
Capacity			16.966	m3/s

Assume the existing channel size is 3m only for Assessment Purpose

Utilization	41.701 / 16.966	=	**40.69**	%	OK	(less than 90%, for 10% siltation allowance)

Time of Concentration for Catchement of Existing

Catchment	Flow Distance	Highest Level	Lowest Level	Gradient (per 100m) = (H1-H2)/L x 100	to (min) = 0.14465L/ ($H^{0.2}A^{0.1}$)	tc = to + tf
A	L			H		
(m2)	(m)	(mPD)	(mPD)		(min)	(min)
1076839.86	1851	466	10	24.635	35.172	35.172



Appendix E - Responses to Comments Tables

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in “Agriculture” Zone, Lot 1291 (Part) in D.D. 107, Fung Kat Heung, Kat Tin, Y.L., N.T. (YL-KTN/1004)

DSD Comment on DA (Contact Person: Mr. Terence TANG; Tel.: 2300 1257)

Item	Comments	Responses
(a)	Please clarify why there are two last catchpits provided.	Please find the updated Figure 3A, the last catchpit is CP1.10. The CL and IL on the right indicate the levels of the uchannel connecting from the right.
(b)	Please review if u-channel connecting CP2.3 and CP2.4 should read UC3 for consistency.	Noted. Please find the updated Figure 3A.
(c)	Please advise if any site formation/ land filling works to be carried out under this application. Please note that the overland flow from the adjacent lands should not be affected.	Please note the site formation level would be slightly filled up to pave area for warehouse purpose. The levels at boundary would match with existing levels and the overland flow from the adjacent lands should not be affected.
(d)	Appendix A: The assumption of 15% paved in Zone B1 and B2 is considered underestimated. Please review and revise.	Noted. The paved ratio is updated to 30% for design purpose. Please note the proposed channels have sufficient after update of the pave ratio. Please refer to updated Appendix A.
(e)	Please submit calculation demonstrating the downstream drainage system receiving the discharge from the development has adequate spare capacity to accommodate the runoff.	Noted. Please refer to Appendix E showing the calculation of downstream drainage.
(f)	The existing drainage facilities, to which the stormwater of the development from the subject site would discharge, are not maintained by this office. The applicant should identify the owner of the existing drainage facilities to which the proposed connection will be made. Also, DSD noticed that the proposed drainage connection(s) to the surrounding/downstream area(s) will run through other private lot(s), The applicant shall demonstrate that the proposed drainage construction / improvement / modification works and the operation of the drainage can be practicably implemented.	Noted.
(g)	The applicant should check and ensure the hydraulic capacity of the existing drainage facilities would not be adversely affected by the captioned development. Please provide site photos to show existing condition of the existing drainage facilities which receives the discharge from the application site. Relevant connection details should be provided for reference.	Noted. Please refer to Figure 2 for condition photo for existing approx. 7m width channel. The proposed conditions details are also shown in detail A in Figure 3.

(h)	Please clarify whether any walls or hoarding would be erected along the site boundary. Where walls or hoarding are erected are laid along the site boundary, adequate opening should be provided to intercept the existing overland flow passing through the site.	Noted.
(i)	Cross sections showing the existing and proposed ground levels of the captioned site with respect to the adjacent areas should be given.	Noted. Please refer to Appendix D.
(j)	The development should neither obstruct overland flow nor adversely affect existing natural streams, village drains, ditches and the adjacent areas, etc,	Noted.
(k)	The applicant(s) shall resolve any conflict/disagreement with relevant lot owner(s) and seek LandsD's permission for laying new drains/channels and/or modifying/upgrading existing ones in other private lots or on Government land (where required) outside the application site(s).	Noted.

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in “Agriculture” Zone, Lot 1291 (Part) in D.D. 107, Fung Kat Heung, Kat Tin, Y.L., N.T. (YL-KTN/1004)

DSD Comment on DA (Contact Person: Mr. Terence TANG; Tel.: 2300 1257)

Item	Comments	Responses
1	As the 30% paved area is a rough estimate, so that the u-channel 1 capacity has been checked up to 89.24% which is considered underestimated. Please upgrade the u-channel size as appropriate.	Noted. The u-channel 1 size is upgraded from 300mm to 375mm. Please refer to revised Appendix A and Figure 3.
2	Similar to Comment 1, please also upgrade the size of u-channel 6 for conservative approach.	Noted. The u-channel 6 size is upgraded from 600mm to 675mm. Please refer to revised Appendix A and Figure 3.
3	Previous comment (h) has not been addressed. Please clarify whether any walls or hoarding would be erected along the site boundary. Where walls or hoarding are erected are laid along the site boundary, adequate opening should be provided to intercept the existing overland flow passing through the site.	Noted. 100mm separation opening from ground level along the hoarding wall where it is to be erected.
4	Cross sections: Adjacent ground levels should be shown on drawings. The extent of north area in Section 2 should also be included.	Noted. Please refer to the revised Appendix D.
5	Design Calculation: Please show the detailed calculation steps of proposed u-channels.	Noted. Please refer to the updated Appendix A.

Proposed Temporary Warehouse (Excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Associated Filling of Land and Pond in “Agriculture” Zone, Lot 1291 (Part) in D.D. 107, Fung Kat Heung, Kat Tin, Y.L., N.T.

DSD Comment on DA (Contact Person: Mr. Terence TANG; Tel.: 2300 1257)

Item	Comments	Responses
1	Please add the R-to-C (c) in the report text and also the drawing.	Noted. Please refer to Section 4.1.2 in the report and Figure 3C.
2	Please submit a full report with all R-to-C record included as appendix for reference.	Noted. Please refer to the updated full report.