ISSUE 4

TEMPORARY DRAINAGE PROPOSAL (FINAL)

APPLICATION SITE OF PROPOSED TEMPORARY USE / DEVELOPMENT IN RURAL AREAS FOR A PERIOD OF 3 YEARS AT LOTS 3250 S.B. SS. 48 AND 3250 S.B. SS. 49 (PART) IN D.D. 104 AND ADJOINING GOVERNMENT LAND, MAI PO, YUEN LONG

PROJECT NO. AGLA/TDM/013

Application No. : A/YL-MP/361

Table of Contents

LIST OF APPENDICES

LIST OF TABLES

1 Introduction

1.1 Background

1.1.1 This report presents the Drainage Proposal for supporting the Proposed Temporary Use / Development in Rural Areas for a period of 3 years at Lots 3250 S.B. SS. 48 and 3250 S.B. SS 49 (Part) in D.D. 104 and Adjoining Government Land, Mai Po, Yuen Long.

1.2 Objectives of the Report

1.2.1 This report shall be prepared to include the following:

- Identify the potential drainage impact assessment from the proposed Application Site
- recommend and implement all necessary measures to mitigate adverse drainage impacts arising from the application site

1.3 Report Structure

1.3.1 The report contains the following sections:

- Section 1 on Introduction;
- Section 2 on Development Proposal;
- Section 3 on Assessment Criteria;
- Section 4 on Potential Drainage Impact; and
- Section 5 on Conclusion.

2 Development Proposal

2.1 Location of the Application Site

2.1.1 The application Site is located within the Mai Po with an area of around 521m^2 and ground level varying between + 4.5mPD and + 4.1mPD. The layout plan is provided in **Appendix B.**

2.1.2 This application site is "Residential (Group C)" zoning, the type of application is the Temporary Use/Development in Rural Areas for a Period of 3 Years.

3 Assessment Criteria

3.1 Design Return Periods

3.1.1 The drainage system in the Application site is to collect surface flows and convey to downstream village drain. The recommended design return periods based on the flood levels for the various drainage systems depend on the drainage system, land use, hazard to public safety and community expectations. The recommended design return period is reproduced in Table 3-1 below:

Table 3-1 Recommended Design Return Periods based on Flood Levels

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

3.1.2 As per Storm Drainage Manuel (SDM) Section 6.6.2 Urban Drainage Branch and Urban Drainage Trunk Systems *"An 'Urban Drainage Branch System' is defined as a group or network of connecting drains collecting runoff from the urban area and conveying stormwater to a trunk drain, river or sea. For a simple definition, the largest pipe size or the equivalent diameter in case of a box culvert in a branch system will normally be less than 1.8m.*

3.1.3 *An 'Urban Drainage Trunk System' collects stormwater from branch drains and/or river inlets, and conveys the flow to outfalls in river or sea. Pipes with size or diameter equal to or larger than 1.8m are normally considered as trunk drains."*

3.1.4 As per SDM, since the proposed U-channels are sized smaller than 1.8m, the drainage system would be defined as an urban drainage branch with recommended design return period of 50 years.

3.1.5 The 50 years design return period will be considered to ensure adequacy of the stormwater drainage system.

3.2 Calculation Methodology for Runoff

3.2.1 Peak instantaneous runoff values before and after the development were calculated based on the Rational Method and with recommended physical parameters including runoff coefficient (C) and storm constants for different return periods referred to the SDM, based on the following equation:

$$\mathbf{Q_p = 0.278\ C\ i\ A}$$

where

Q_p	=	Peak Runoff, m^3/s
C	=	Runoff Coefficient
i	=	Rainfall Intensity, mm/hr
A	=	Catchment Area, km^2

3.2.2 The paved area of the site will account for 521m². For conservative, the runoff coefficient of 1.0 is assumed, such that the all the run-off would be collected from the catchment area without any infiltration as the critical scenario.

3.2.3 Based on the storm constants for 50-year return period recommended in the SDM, the appropriate rainfall intensities (i) are calculated as detailed in **Appendix D**

3.3 Calculation Methodology for Pipe Capacity Checking

3.3.1 Because the catchment areas are less than 1ha, U-channels are recommended to be constructed to collect the stormwater runoff within the site. The collected stormwater should finally be diverted to the downstream via the proposed U-channel system.

3.3.2 For the worst-case scenario, bad condition of concrete pipe is assumed for the Manning's roughness coefficient (coefficient value is 0.016) for calculating capacities of concrete U-channel using Manning's Equation.

3.3.3 Manning's Equation for calculating the channel and pipe capacities is adopted.

4 Potential Drainage Impact

4.1 Existing Site Condition

4.1.1 The application Site is located within the Mai Po with an area of around 521m² and ground level varying between + 4.4mPD and + 4.1mPD.

4.2 Changes in Drainage Characteristics

4.2.1 From the Appendix C3 - Site Photos, it emphasized that the topography of the application was generally higher than the adjacent site. Also, the overflow from eastern and southern side of the side were leading to the vehicular road and could be properly discharged to the existing village gully system.

4.2.2 However, for conservative, an additional runoff of 100 sq m were considered as external catchment area from the adjacent site. Please refer to the revised Appendix D – hydraulic calculation for your further consideration.

4.2.3 The characteristics of the sub-catchment areas are unchanged. The change in sub-catchment is summarized in Table 4-2.

Table 4-1 Change in sub-catchment within the site

	BEFORE	AFTER
Grassland (m^2)	0	0
Paved Area (m^2)	521	521
External Catchment Area	100	100
Total Catchment Area (m^2)	621	621

4.3 Potential Drainage Impact

4.3.1 The details of the proposed drainage works are illustrated in **Appendix C**.

4.3.2 To effectively convey stormwater away from the application site and minimize the potential impact to the drainage infrastructure of the village area, drainage works consists of U-channels, are proposed to convey the stormwater runoff to the terminate catchpit with sand trap (TCP).

4.3.3 The runoff from the Application site is collected by 225mm U-channels along the boundary and convey to the terminate catchpit with sand trap (TCP), before discharge to the existing village Nullah at the southern direction of the application site, and eventually discharge to the further downstream as indicated in the Appendix C.

4.3.4 The 225 mm U-channel receives stormwater from the surface. For Conservative, the critical scenario is considered for collecting all the flow leading to the 225mm U-channel. The design calculation of the proposed drainage is provided in **Appendix D**. The design calculation is summarized in Table 4-2.

Table 4-2 Design calculation of the proposed drainage work

DRAINAGE SYSTEM	ESTIMATED FLOW (M^3/S)	CAPACITY (M^3/S)	RESERVE CAPACITY
225mm UC	0.040	0.052	23%

Note:

[1] Rainfall increase due to climate change at the end of 21st century is considered according to stormwater drainage manual Table 28.

[2] The reserve capacity is calculated by assuming that the U-channel reach its full capacity.

4.3.5 The design runoff arise from the proposed Application Site is to be discharged into the proposed terminate catchpit with the runoff anticipated to be $0.040m^3/s$, which is within the drainage capacity of the proposed 225mm u-channel of $0.052m^3/s$ with gradient 1:100, the reserve capacity is 23%.

4.3.6 It is considered that the drainage discharge from the Application Site will not cause adverse impact to the entire downstream drainage system.

4.3.7 All u-channels & catch pits will be constructed according to the CEDD's standard drawings, please refer to the **Appendix E.**

5 Construction Stage

5.1 Temporary Drainage Arrangements

5.1.1 Proper measures shall be taken to maintain the existing drainage characteristics of the catchment areas and to minimize drainage impacts associated with the construction works. The principal drainage impacts which are associated with construction of the works have been identified as follows:

(a) Erosion of ground materials;
(b) Sediment transportation to existing downstream drainage system; and
(c) Obstruction to drainage systems.

5.1.2 Regular inspections shall be carried out to ensure integrity of the works. These inspections shall cover works under construction as well as recently completed areas.

5.1.3 To ensure proper operation of the site drainage channels and desilting facilities, inspection of the perimeter drains shall be carried out on a weekly basis and the desilting facilities shall be cleaned on a daily basis.

5.1.4 If excavated materials are not possible to transport away the excavated material within the same day, the material should be covered by tarpaulin/impervious sheets. Stockpiles of construction materials (for examples aggregate, fill materials) of more than 50 m^3 in an open area shall also be covered with tarpaulin or similar fabric during rainstorms.

5.1.5 All runoff discharged into the existing drainage system will be settled in a silt trap to ensure no sediment will be discharged into the channel. Silt traps will normally be provided along the site drainage immediately upstream of the proposed discharge point to the existing Site. The silt traps will be inspected daily and immediately after each rainstorm.

5.1.6 Liaison will be carried out with relevant parties regarding temporary drainage arrangements to ensure that the drainage system is functioning adequately.

6 Conclusions

6.1 Conclusion

6.1.1 The analysed catchment area of 521m^2 consists of the site area of the proposed Application Site only and external catchment area of 100m2 had been identified.

6.1.2 U-channels are proposed to convey runoff from the application site for collection. The proposed U-channels are located along the site boundary which is subject to change to suit the building layout.

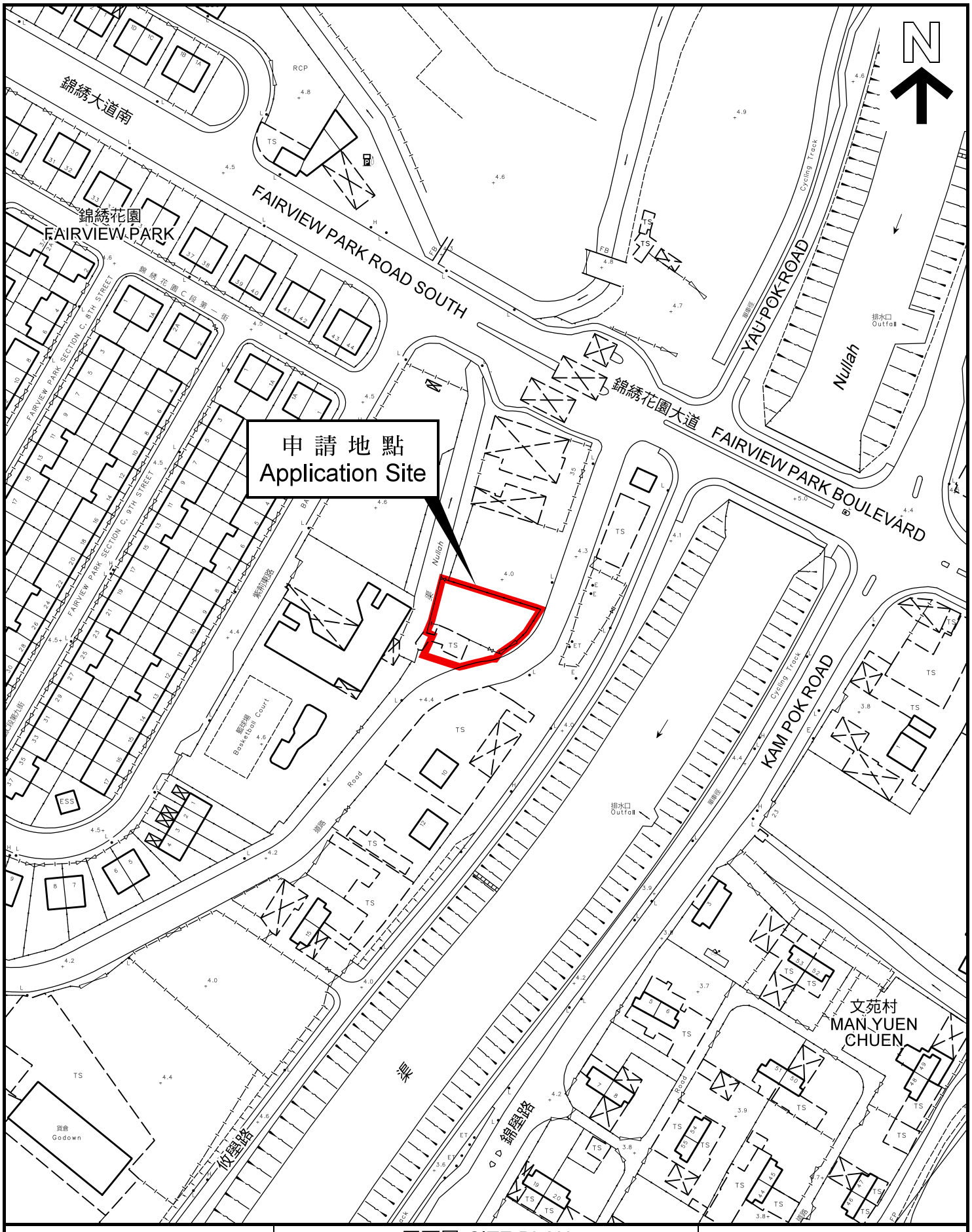
6.1.3 The assessment reviews the drainage system have the sufficient capacity to cater for the drainage flow from the Application Site.

6.1.4 Mitigation measures are proposed during the application site proposed Application Site and to ensure that the existing drainage system within the site will not be affected during the construction stage.

END OF TEXT

APPENDIX A

SITE LAYOUT PLAN



平面圖 SITE PLAN

本摘要圖於2021年12月1日擬備，
所根據的資料為測量圖編號
2-SE-21A 及 2-SE-21B
EXTRACT PLAN PREPARED ON 1.12.2021
BASED ON SURVEY SHEETS No.
2-SE-21A & 2-SE-21B

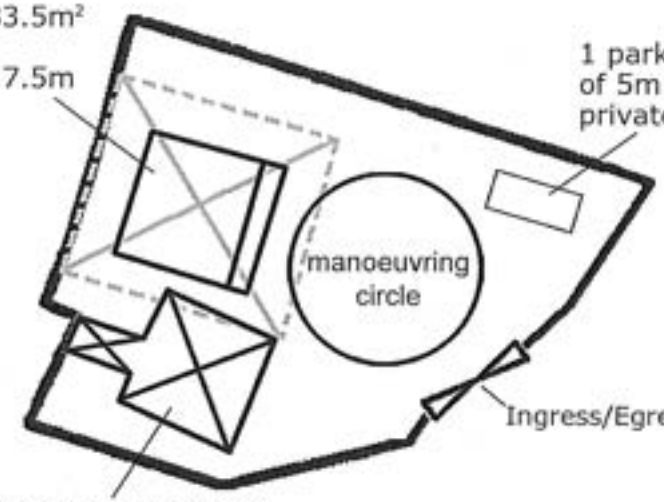
申請地點界線只作識別用
APPLICATION SITE BOUNDARY
FOR IDENTIFICATION PURPOSE ONLY

參考編號
REFERENCE No.
A/YL-MP/324

APPENDIX B

LAYOUT PLAN

Structure 2 (Existing)
Shop
GFA: Not exceeding 183.5m²
No. of storey: 2
Height: Not exceeding 7.5m

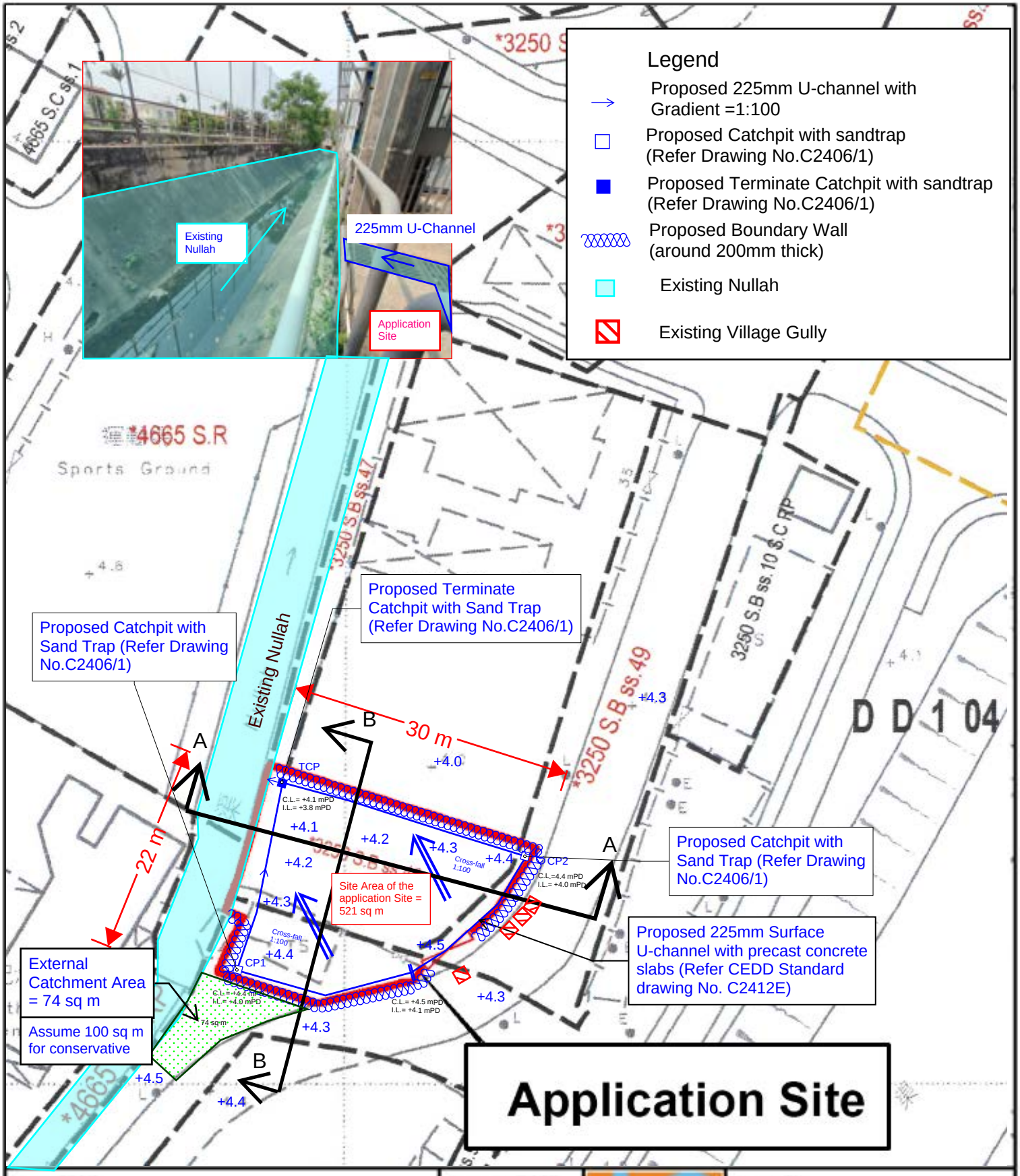


Structure 1 (Existing)
Shop
GFA: Not exceeding 91.5m²
No. of Storey: 2
Height: Not exceeding 5.5m

Project 項目名稱: Proposed Temporary Shop and Services for a Period of 3 Years at Lots 3250 S.B ss. 48, 3250 S.B ss. 49(part) in D.D. 104 and Adjoining Government Land, Mai Po, Yuen Long, N.T.	Drawing Title 圖紙標題: Layout Plan	全堅 9720-3663	Remarks 備註: Metal Heat Shelter
	Drawing No. 圖號: Figure 3		Scale 比例:

APPENDIX C

PROPOSED DRAINAGE PLAN



Project 項目名稱:

Proposed Temporary Shop and Services for a Period of 3 Years at Lots 3250 S.B ss. 48, 3250 S.B ss. 49(part) in D.D. 104 and Adjoining Government Land, Mai Po, Yuen Long, N.T.

Drawing Title 圖紙標題:

Site Plan

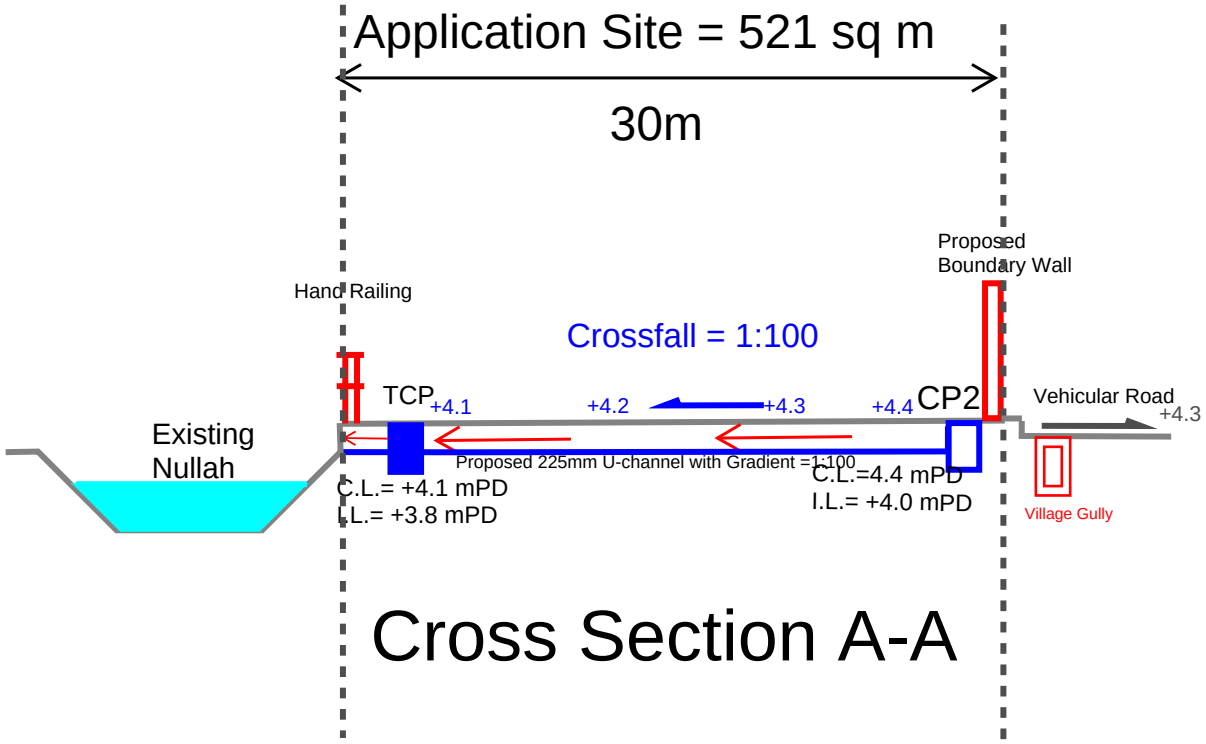
AGA 全堅 9720-3663

Remarks 備註:

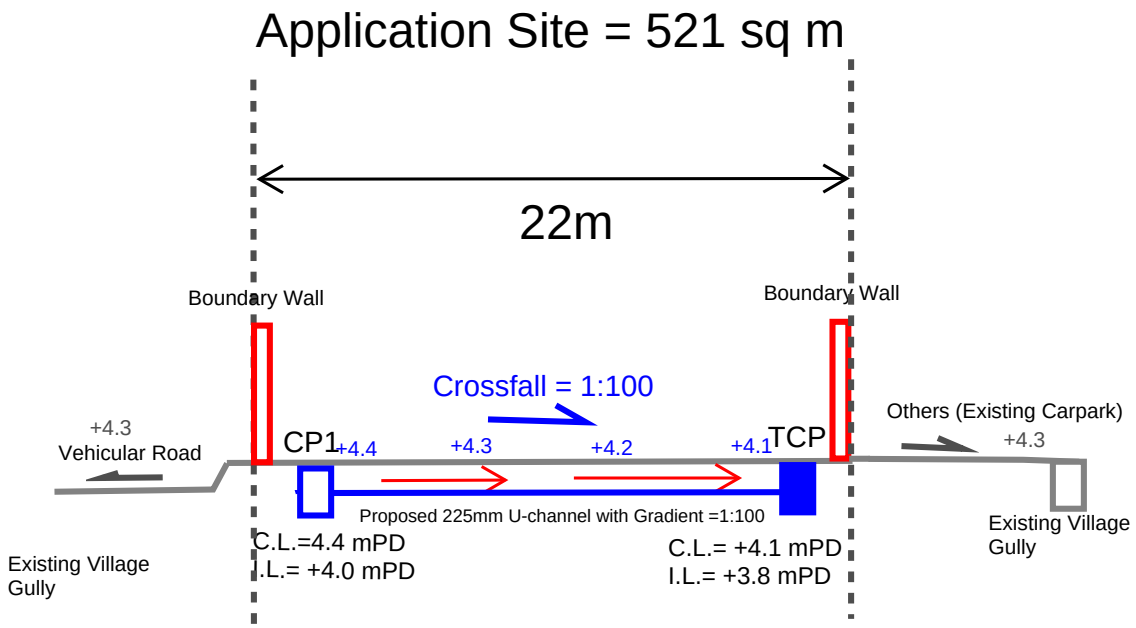
Drawing No. 圖號:

Appendix C - Proposed Drainage Plan

Scale 比例:



Cross Section A-A



Cross Section B-B

Project 項目名稱:

Proposed Temporary Shop and Services for a Period of 3 Years at Lots 3250 S.B ss. 48, 3250 S.B ss. 49(part) in D.D. 104 and Adjoining Government Land, Mai Po, Yuen Long, N.T.

Drawing Title 圖紙標題:

Site Plan

AGA 全堅 9720-3663

Remarks 備註:

Drawing No. 圖號:

Appendix C1 -
Cross Section AA BB

Scale 比例:

*3250 S.B RP
*3250 S.B ss.33 S.A
*3250 S.B ss.
4665 S.C ss.1
*4665 S.R
Sports Ground
3250 S.B ss.22
3250 S.B ss.10
*3250 S.B ss.49
Nullah
D D 1 04
*3250 S.B ss.48
TS
*4665 S.A RP
①
②
③
④
⑤
⑥
⑦
Application Site

Project 項目名稱:

Proposed Temporary Shop and Services for a Period of 3 Years at Lots 3250 S.B ss. 48, 3250 S.B ss. 49(part) in D.D. 104 and Adjoining Government Land, Mai Po, Yuen Long, N.T.

Drawing Title 圖紙標題:

Site Plan

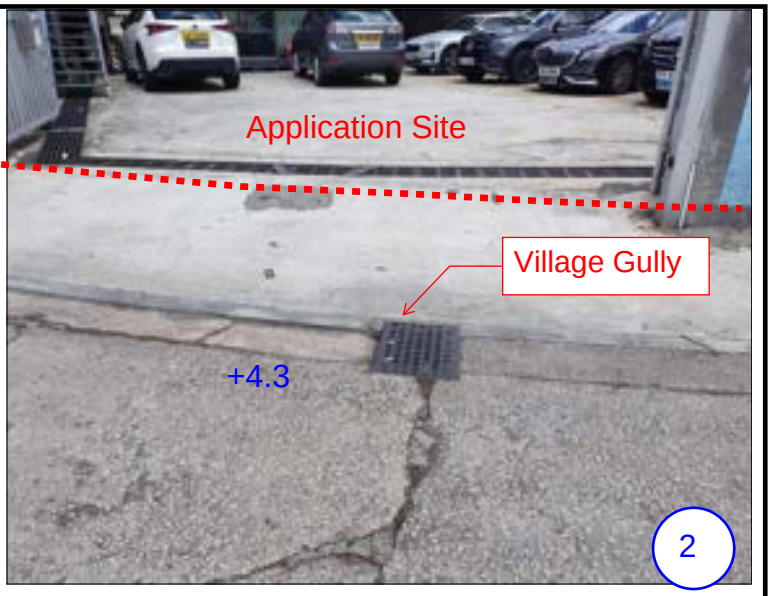
AGA 全堅 9720-3663

Remarks 備註:

Drawing No. 圖號:

Appendix C2 - View Point

Scale 比例:



Project 項目名稱:

Proposed Temporary Shop and Services for a Period of 3 Years at Lots 3250 S.B ss. 48, 3250 S.B ss. 49(part) in D.D. 104 and Adjoining Government Land, Mai Po, Yuen Long, N.T.

Drawing Title 圖紙標題:

Site Plan

AGA 全設 9720-3663

Remarks 備註:

Drawing No. 圖號:

Appendix C3 - Site Photos

Scale 比例:

APPENDIX D

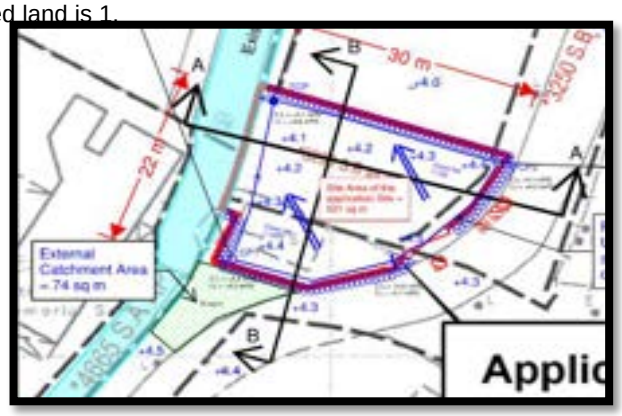
DESIGN CALCULATION OF THE PROPOSED DRAINAGE

Project

Subject Application Site

Design Data

1. Design follows the Rational Method in accordance with Stormwater Drainage Manual 2018 (DSD)
2. For conservative, Runoff coefficient for paved / unpaved land is 1.
3. Design return period is 50 years.
4. For manning's equation coeffient n is 0.016.



Check for Hydraulic Capacity:

Catchment	K	Area (A)
Application Site Area	1.00	521.0
External Catchment Area	1.00	100.0 m^2
Total Catchment Area	1.00	621.0 m^2

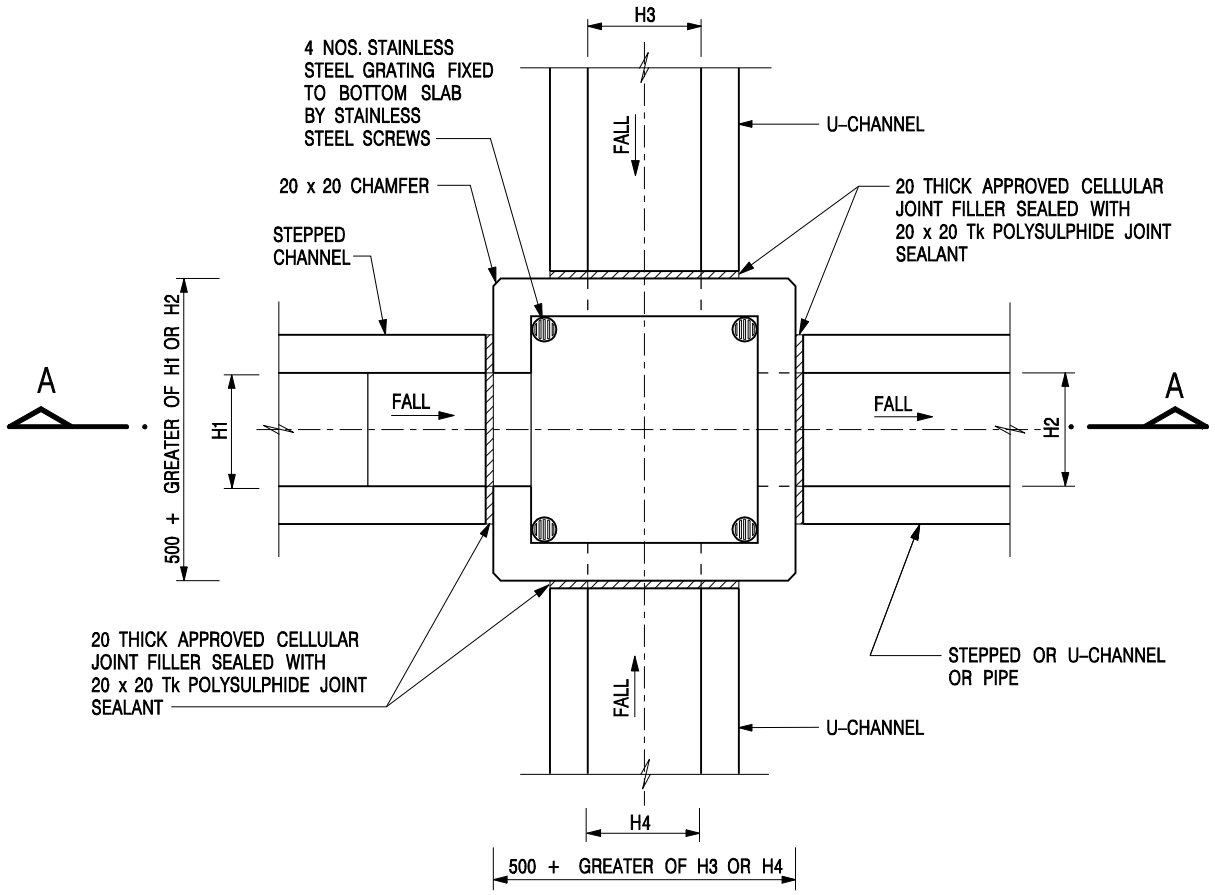
	Runoff estimation					
	Average slope, H		=	1	/100m	
	Catchment area, A		=	621	m^2	
	Distance between summit and point under consideration, L		=	30	m	
SDM 7.5.2	Time of concentration of natural catchment, t_o		=	0.14465 x L / ($H^{0.2}$ x $A^{0.1}$)		
			=	2.28	min.	
	Length of drain, L_j		=	30	m	
	Velocity, V_j		=	1.142	m/s	
SDM 7.5.2	Flow time, t_f		=	Σ (L_j / V_j)		
			=	0.4377337	min.	
	Time of concentration, t_c		=	t_o + t_f		
			=	2.72	min.	
SDM Table 3	Storm constants for 200-year return period:	a	=	451.3		
		b	=	2.46		
		c	=	0.337		
SDM 4.3.2	Extreme mean intensity, i_{200yr}		=	a / (t_d + b)^c		
			=	229.27489	mm/hr	
GMS Fig 8.2			<	405.000	mm/hr	
SDM 7.5.2	Design flow, Q		=	0.278 i Σ K A		
			=	0.040	m^3/s	
	225mm u-channel capacity					
	Diameter		=	225	mm	
	Cross-sectional area of 225mm U-channel		=	. 0.0452	m^2	
	Gradient		=	0.01		
Manning's Eq.	flow velocity		=	1.142	m/s	
	Design Capacity		=	0.052	m^3/s	
			>	0.040	m^3/s	OK
	Reserve capacity		=	23%		

For conservative, all the U-channel along the site boundary shall be 225mm.

APPENDIX E

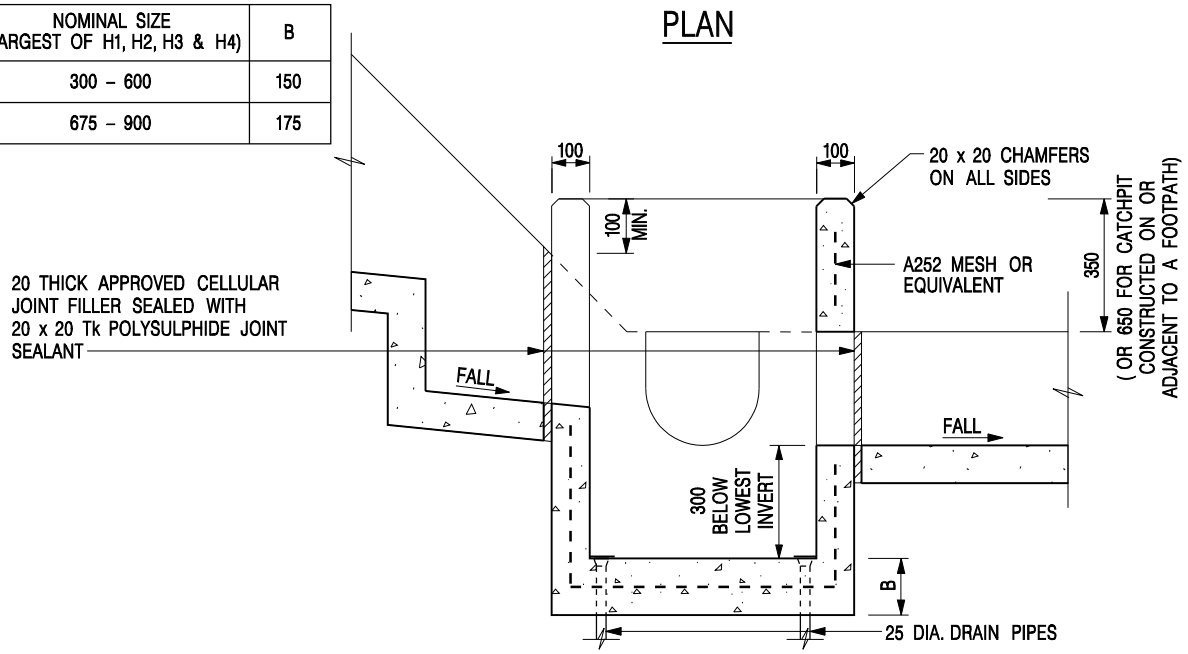
TYPICAL STANDARD DRAWINGS OF U-CHANNEL AND CATCHPIT

(EXTRACTED FROM CEDD, FOR REFERNCE ONLY)



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)

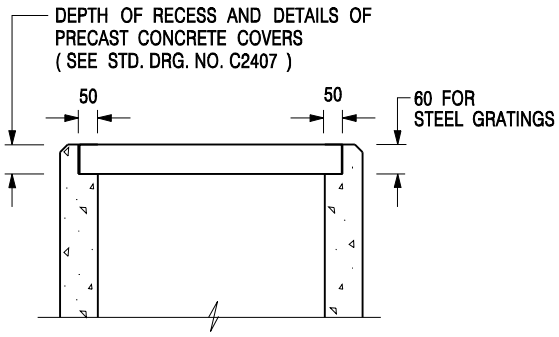
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2406 /1

卓越工程 建設香港 We Engineer Hong Kong's Development



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

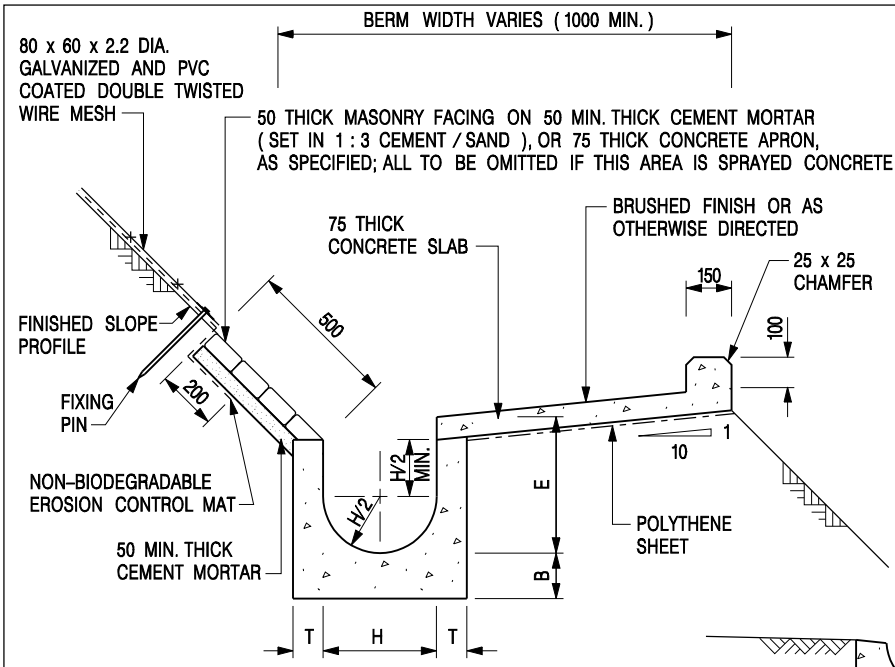
CATCHPIT WITH TRAP
(SHEET 2 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

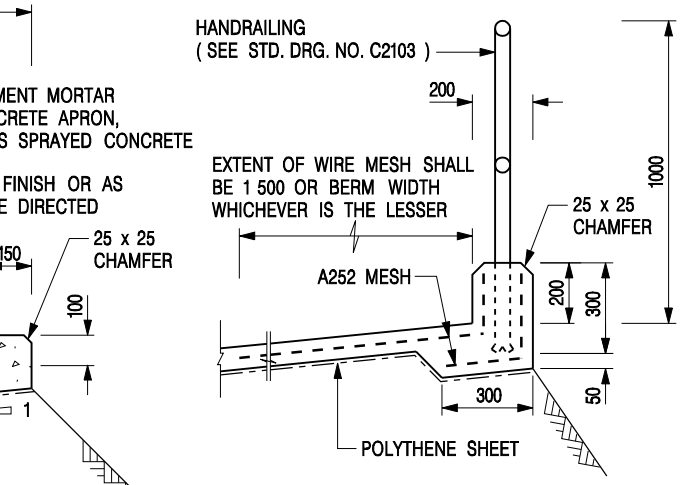
SCALE 1 : 20

DATE JAN 1991

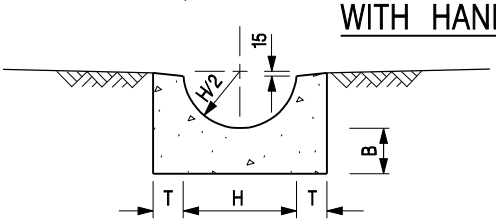
DRAWING NO. C2406 /2A



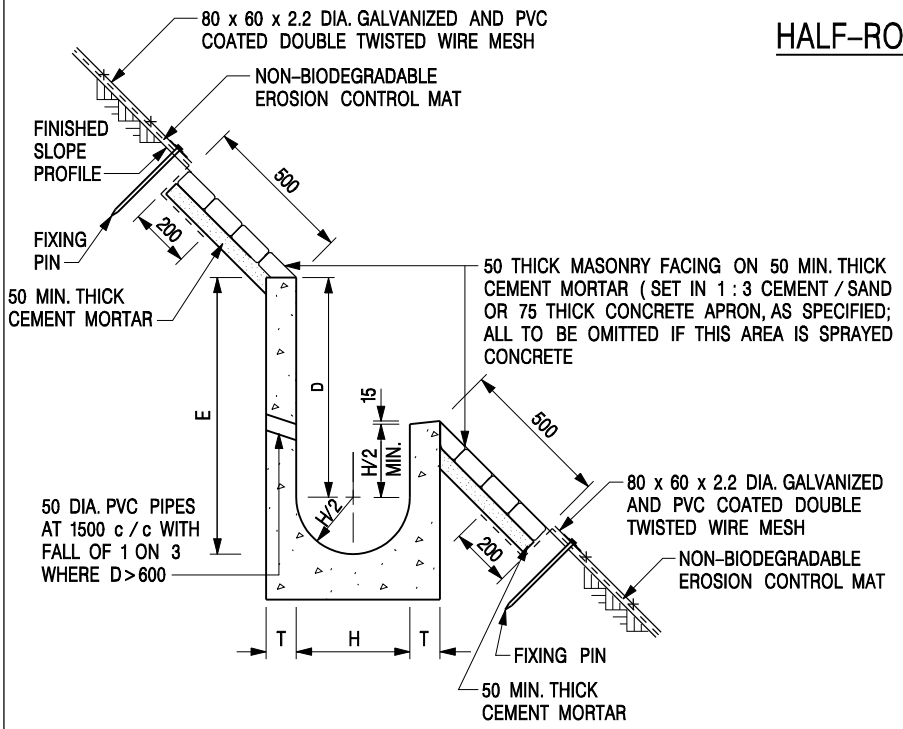
U-CHANNELS CONSTRUCTED ON BERM



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)

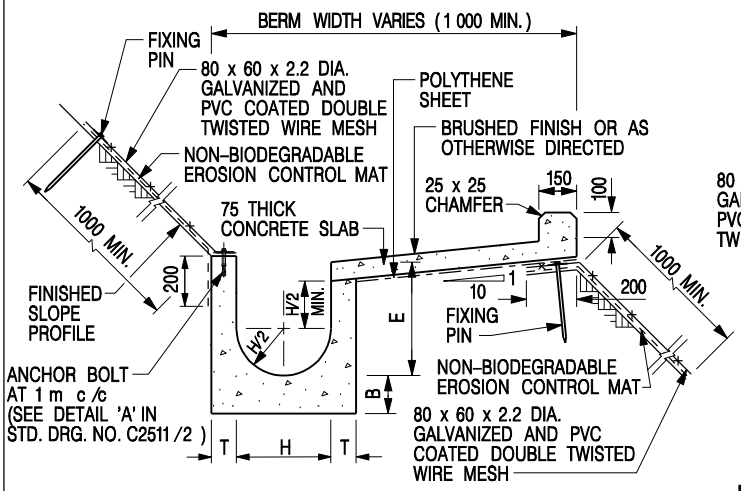
CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 25

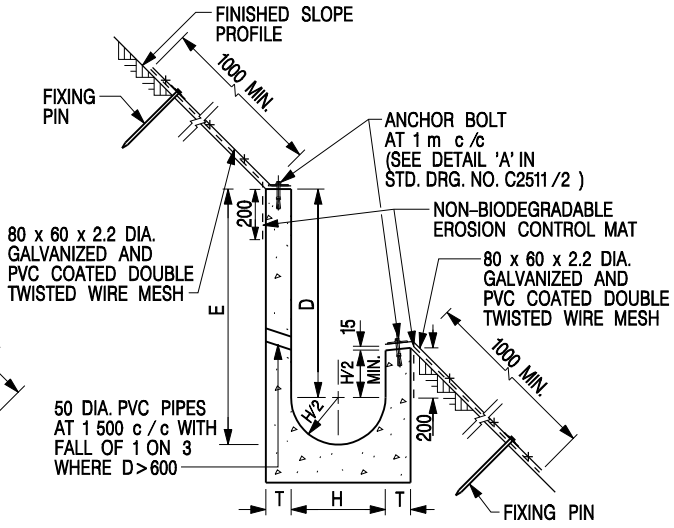
DATE JAN 1991

DRAWING NO. C2409I

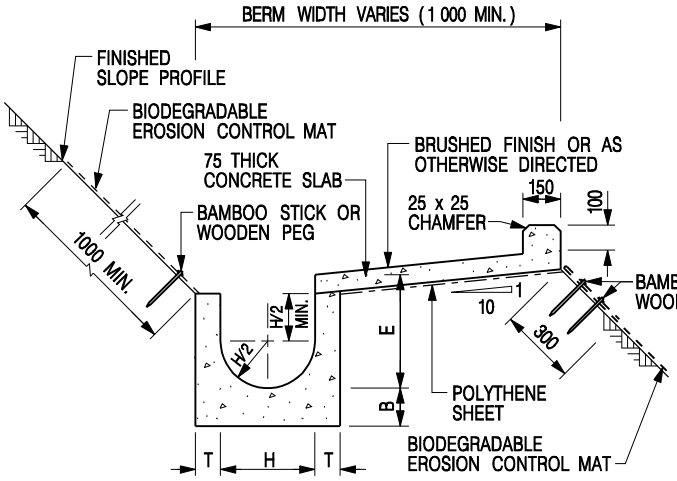
卓越工程 建設香港 We Engineer Hong Kong's Development



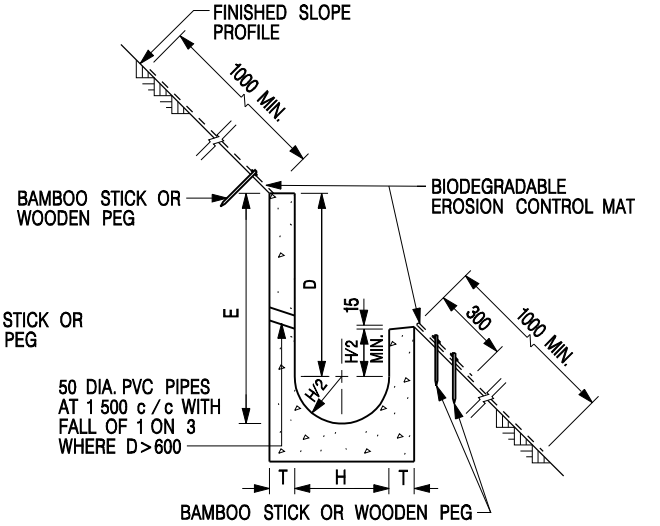
U-CHANNELS CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT



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

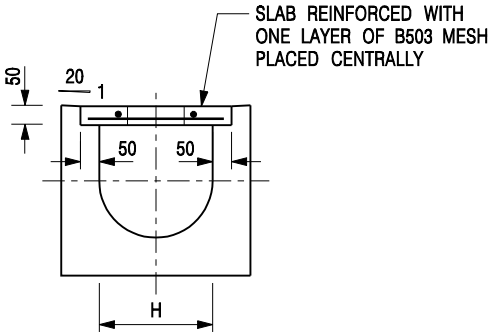
DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE B - WITH EROSION CONTROL MAT APRON)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

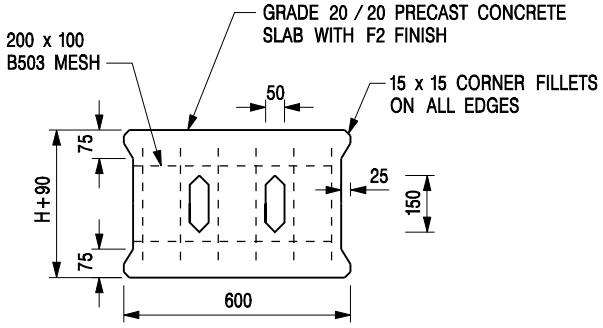
SCALE DIAGRAMMATIC

DATE JAN 1991

DRAWING NO. C2410I



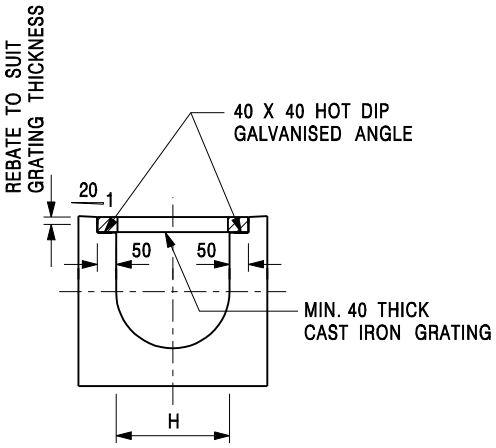
TYPICAL SECTION



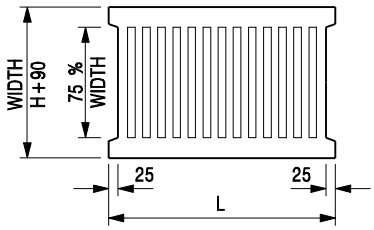
PLAN OF SLAB

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

APPENDIX F

RESPONSE TO COMMENTS

Response to Comments on Temporary Drainage Proposal

1. Comments from DSD/YL on 19-7-2023

No.	Comments	Response
1.	The levels in cross section A-A and B-B are not correct. All ground levels should be provided. Also, there shall be additional catchment area to be included considering the topography of adjacent site/road, please review the hydraulic calculations accordingly.	Noted and the corresponding spot levels are provided in the sections. Please be clarified that the runoff collected from the adjacent road could be discharge to the existing village gully system. Para 4.2.1: From the Appendix C3 - Site Photos, it emphasized that the topography of the application was generally higher than the adjacent site. Also, the overflow from eastern and southern side of the side were leading to the vehicular road and could be properly discharged to the existing village gully system. Para 4.2.2: However, for conservative, an additional runoff of 100 sq m were considered as external catchment area from the adjacent site. Please refer to the revised Appendix D – hydraulic calculation for your further consideration. Please refer to the appendix C, C1, C2 and C3 of the Proposed Drainage Plan, cross section, viewpoints and Site Photos for your information.
2.	Please provide photo record of the existing village gully for reference, and explain in detail how the overflow from eastern and southern side of the side could be properly discharged.	Please refer to the revised para. 4.2.1. From the Appendix C3 - Site Photos, it emphasized that the topography of the application was generally higher than the adjacent site. Also, the overflow from eastern and southern side of the side were leading to the vehicular road and could be properly discharged to the existing village gully system.

2. Comments from DSD/YL on 30-5-2023

No.	Comments	Response
1.	RtC (k): Please provide another cross section along North-South direction.	Noted and provided. Please refer to the section B-B of the revised Appendix C – Proposed Drainage Plan.
2.	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 be advised that no site formation would be carried out in this application. Please note that the overland flow from the adjacent lands would be collected and discharged to the existing village gully.
3.	Pease advise how the overland flow from the eastern and southern side of the site could be properly intercepted and discharged.	Please note that the overflow from the eastern and southern side of the site could be properly discharge to the existing village gully.