1. Comments from DSD/MN

	Comments	Response
1.	Please advise with supporting guideline why North District Area is adopted.	Noted and revised to HKO headquarter.
2.	SDM Corrigendum No. 1/2022 and 1/2024 should be considered.	Noted with thanks.
3.	Peripheral drains should be provided for the application site to collect surface runoff.	Noted and surface channel UC3A is added. Please refer to updated Appendix D.
4.	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/ land filling will be carried out.
5.	Please advise and indicate where is CP3.	Noted and appendix D is updated.
6.	Please provide evidence to show the dimension of existing 475UC.	Please refer to updated Appendix C.
7.	The cover and invert levels of the proposed u-channels and catchpits should be shown on the drainage plan.	Noted and appendix D is updated.
8.	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, Drainage Services Department 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 and the owner of the existing drainage facilities will be identified and notified.
9.	Please clarify whether any walls or hoarding would be erected along the site boundary. Where walls or hoarding are erected/ laid along the site boundary, adequate opening should be provided to intercept the existing overland flow passing through the site.	Noted and adequate opening will be provided to intercept the existing overland flow passing through the site
10.	Cross sections showing the existing and proposed ground levels of the captioned site with respect to the adjacent areas should be given.	Noted and please refer to updated Appendix D.
11.	The development should neither obstruct overland flow nor adversely affect existing natural streams, village drains, ditches and the adjacent areas, etc.	Noted with thanks.
12.	The applicant(s) shall resolve any conflict/disagreement with relevant lot owner(s) and seek Lands Department'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 with thanks.

TEMPORARY DRAINAGE PROPOSAL

Temporary Drainage Proposal for
Proposed Temporary Vehicle Repair Workshop with Ancillary Office and Storage Use for a Period of 3 Years at
Lot 3278 RP in D.D 104, Mai Po Yuen Long, New Territories

Approved Drainage Proposal

s16 No. : A/YL-MP/405

Content Page

Appendix

1. Introduction

This report presents the temporary drainage proposal for proposed vehicle repair workshop with ancillary office and storage use for a period of 3 years at Lot 3278 RP in D.D 104, Mai Po, Yuen Long, New Territories. For site location, please refer to **Appendix A**.

1.1. Objectives of the Report

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

1.2. Report Structure

The report contains the following sections:

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

2. Development Proposal

2.1. Existing Site Conditions

The application site is located in Mai Po, Yuen Long, New Territories, with a total area of around 267 m^2. The existing ground level varying between + 5.51 mPD and + 4.38 mPD. The site layout plan is provided in **Appendix B**.

The applied development is for vehicle repair workshop with ancillary office and storage use. The type of application is the temporary use/development in rural areas for a period of 3 years. The application site is located at Lot 3278 RP in D.D 104, Mai Po, Yuen Long, New Territories.

The application site is less than 1 ha in size and neither fall within flood prone areas such as lowlying areas and flooding blackspots nor involve pond filling and substantial earth filling, so it is regarded as simple site. There is an existing 475mm U channel in vicinity of the site that can be discharged to, the location and photos of the existing 475m U channel is shown in **Appendix C** .

3. Assessment Methodology

3.1. Calculation Methodology for Runoff

According to **Section 6.6.2 of the Storm Drainage Manual (SDM)**, an "Urban Drainage Branch System" refers to a network of interconnected drains that collect rainwater runoff from an urban area and transport it to a trunk drain, river, or sea. In simpler terms, 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.

Referring to SDM, since the proposed U-channels have dimensions smaller than 1.8m, the drainage system would be classified as an urban drainage branch. It is recommended to design the system with a return period of 50 years to ensure its adequacy in managing stormwater drainage.

To calculate the peak instantaneous runoff values before and after the development, the Rational Method with recommended physical parameters including runoff coefficient (C) and storm constants for different return periods are adopted referred to the SDM.

The Rational Method is adopted for hydraulic analysis and the peak runoff is calculated based on the following equation:

$$Q_p = 0.278\ Ci\ A$$

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

The total area of the site will account for 267 m^2. The runoff coefficient of 1 is assumed.

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

3.2. Calculation Methodology for Capacity Checking

Since the catchment areas are less than 1ha, surface U-channels are recommended to be constructed to collect the stormwater runoff within the site. The collected stormwater should finally be diverted to the existing 475m U channel and then the urban drainage system in vicinity of the site via the proposed U-channel.

For the worst-case scenario, bad condition of concrete u channel is assumed for the Manning's roughness coefficient i.e coefficient value is 0.016 for calculating capacities of concrete U-channel using Manning's Equation. The recommended roughness values k_s for concrete channels with float finish is 3.3 mm under normal condition.

Manning's Equation for calculating the channel and pipe capacities is adopted for this analysis:

$$\frac{V = R^{2/3}S^{1/2}}{n}$$

where V = mean velocity, m/s
S = slope of the total energy line
n = Manning's roughness coefficient
R = hydraulic radius, m

3.3. Summary of Assessment Assumptions

The assumptions of the Drainage Proposal are summarized below for ease of reference:

- 50 years return period is adopted;
- Runoff coefficient of 1 for the paved area is assumed;
- Storm constants for 50 years return periods of HKO Headquarter
- Manning's roughness coefficient of 0.016 for the proposed concrete U-channels and concrete pipe are adopted; and

4. Potential Drainage Impact

4.1. Change in Drainage Characteristics

There is no recorded existing drainage provision inside the current site, the collected stormwater was discharged as surface runoff leading to the existing U channel near the site before the development.

The total area of the site will account for 267 m^2. For conservative approach, it will count as 1 catchment area for the whole development area and peripheral drains are proposed for the application site.

The adjacent sites have adequate drainage facilities and no record of flooding for the application site has been found. To manage the stormwater flows after developing the site, this drainage proposal detailed the proposed drainage system consisting of a set of U-channels for diverting stormwater flows to avoid causing flooding to the site.

Since there are no changes in drainage characteristics, it is considered that the drainage discharge from the application site will not cause adverse impact to the entire downstream drainage system. For conservative approach, calculation for demonstrating the existing drainage system has adequate spare capacity is attached in **Appendix E2**.

4.2. Potential Drainage Impact

The runoff from the application site is proposed to be collected by U-channels along the boundary of the low sides and discharged to the terminate catchpit with sand trap, and eventually lead to the existing 475mm U channel in vicinity of the site. The details of the proposed drainage works are illustrated in **Appendix D1 and D2**.

For conservative approach, the critical scenario is considered for collecting all the flow in the catchment area leading to the 200 mm U-channel. The design calculations of the proposed U- channels are calculated as detailed in **Appendix E1.** Typical designs of the U-channels and Catchpits are shown in **Appendix F**.

The design runoff arising from the proposed application site is to be discharged into the proposed 200 mm U-channel. The calculations is summarized in **Table 1**

U -channel	Catchment Area[1] (m^2)	Proposed U-channel Size (mm)	Estimated Peak Runoff (m^3/s)	Capacity (%)
UC1	267	200	0.022	26%
UC2	267	200	0.022	45%
UC3A	267	200	0.022	27%
UC3	267	200	0.023	35%
UC4	267	200	0.024	64%

Table 1 Summary of Estimated Runoffs and Proposed U-channel Size

[1]Assume catchment area is equal to site area for conservative approach

5. Conclusion

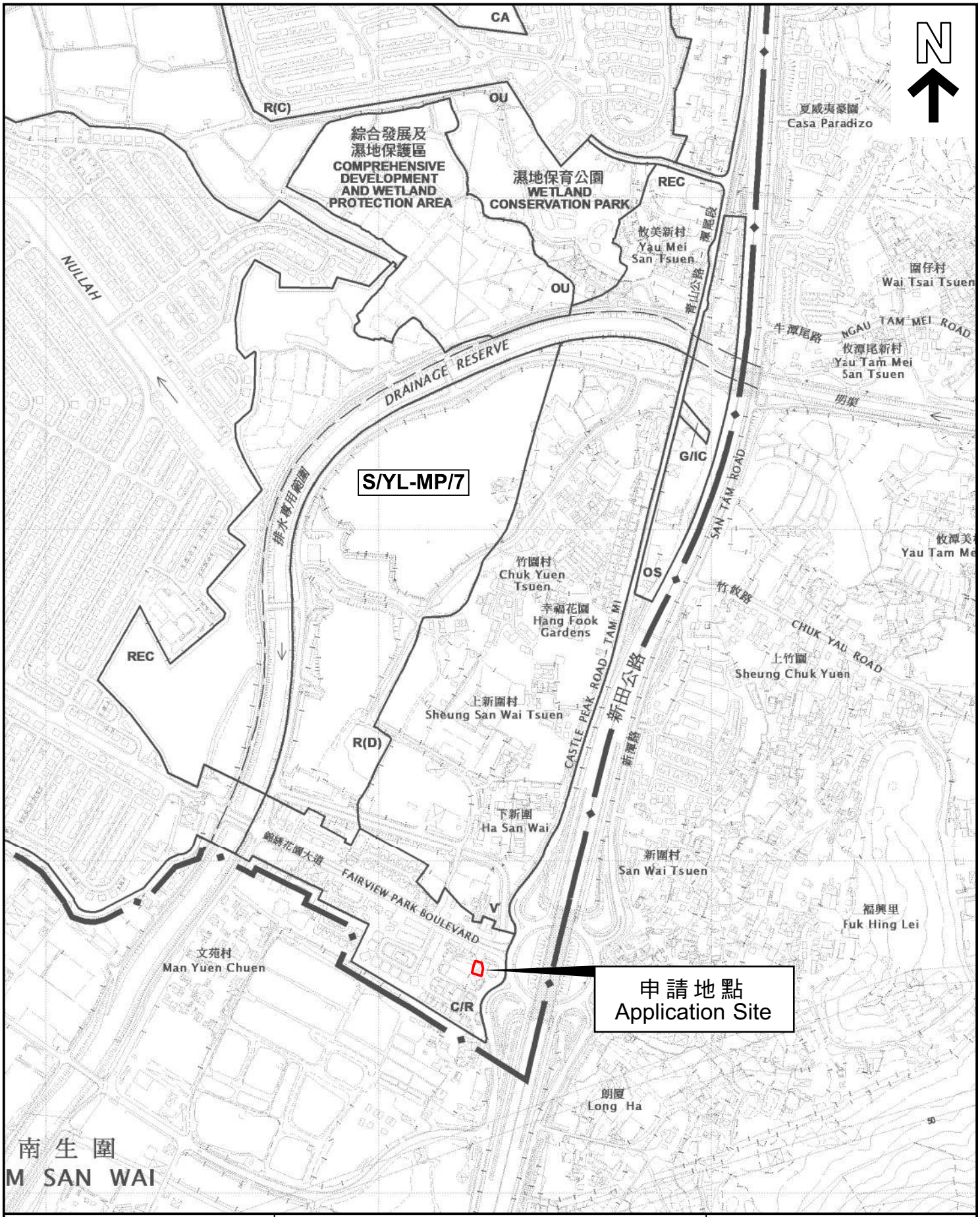
A temporary drainage proposal has been designed for proposed vehicle repair workshop with ancillary office and storage use for a period of 3 years at Lot 3278 RP in D.D 104, Mai Po, Yuen Long, New Territories.

In the design calculation, 200 mm U-channel found adequate and proposed to convey at the peak runoff under the 50 years return period from the application site.

The adjacent sites have adequate drainage facilities, and no record of flooding has been found. The stormwater collected from this application site is proposed to be discharged to the existing 475 U channel in vicinity of the site without overloading the existing drainage system.

To manage the stormwater flows after developing the site, this drainage proposal detailed the proposed drainage system consisting of a set of U-channels and catchpits diverting stormwater flows to avoid causing flooding to the site.

APPENDIX A



本摘要圖於2024年5月27日擬備，
所根據的資料為於2024年3月8日
展示的分區計劃大綱圖編號 S/YL-MP/7
EXTRACT PLAN PREPARED ON 27.5.2024
BASED ON OUTLINE ZONING PLAN No.
S/YL-MP/7 EXHIBITED ON 8.3.2024

位置圖 LOCATION PLAN

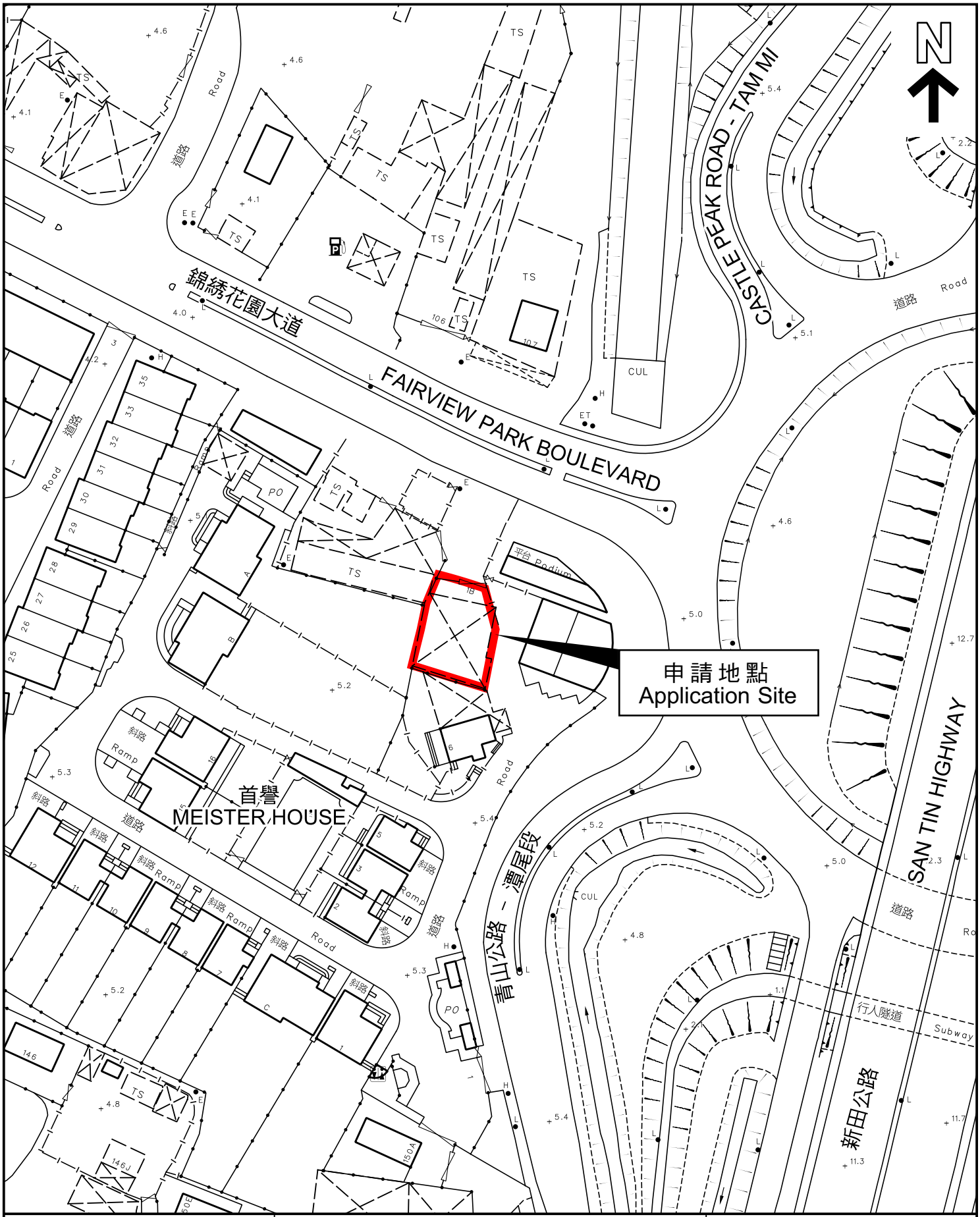
SCALE 1 : 7 500 比例尺

米 METRES 100 0 100 200 300 米 METRES

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/366



本摘要圖於2024年5月27日擬備，
所根據的資料為測量圖編號2-SE-21B

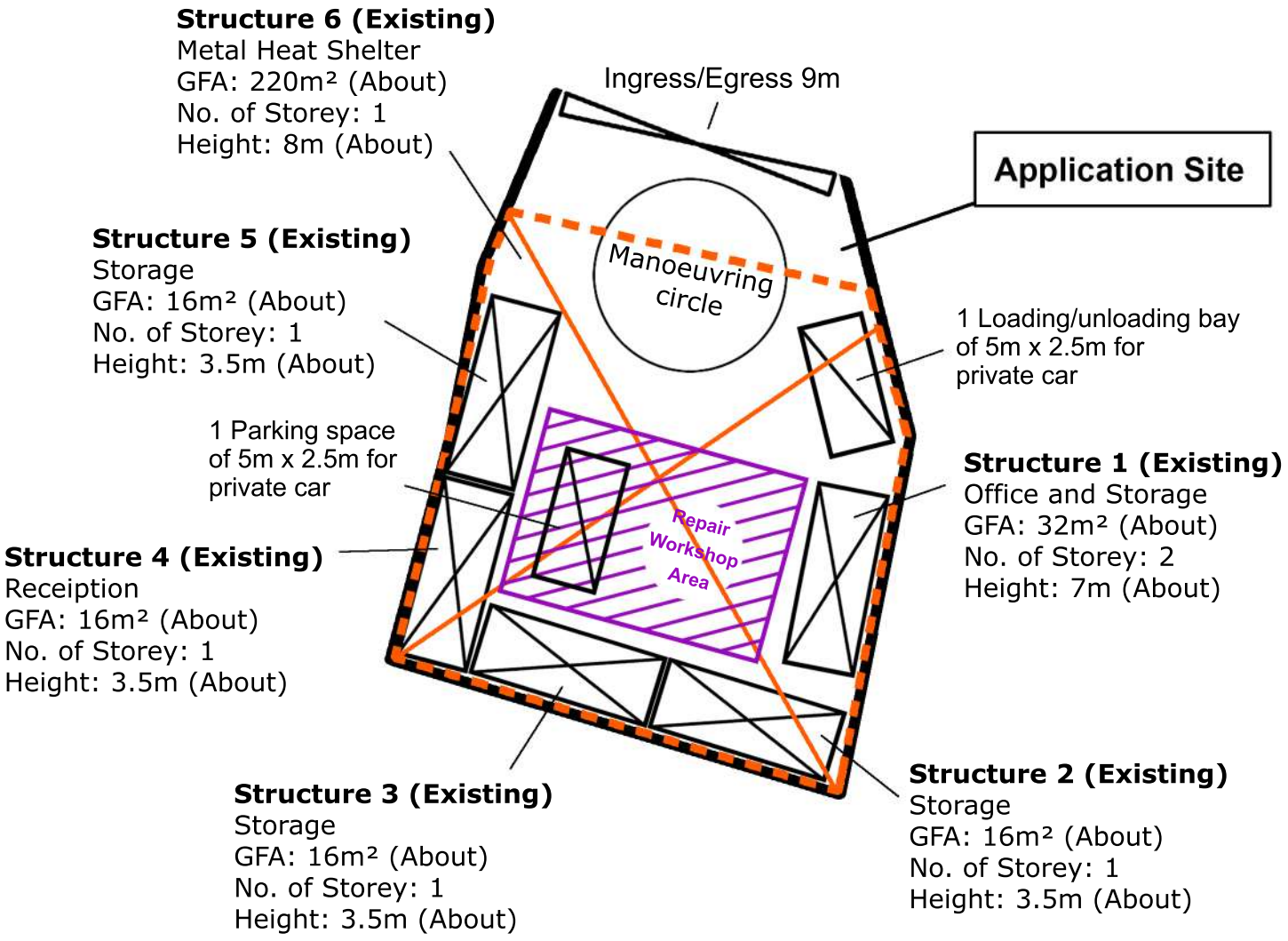
EXTRACT PLAN PREPARED ON
27.5.2024 BASED ON SURVEY SHEET
No. 2-SE-21B

平面圖 SITE PLAN

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/366

APPENDIX B



Allgain Land Planning
全堅土地規劃

Project 項目名稱:
Proposed Temporary Vehicle Repair Workshop with Ancillary Office and Storage Use for a Period of 3 Years at Lot 3278 RP in D.D. 104, Mai Po, Yuen Long

Drawing Title 圖紙標題:
Layout Plan

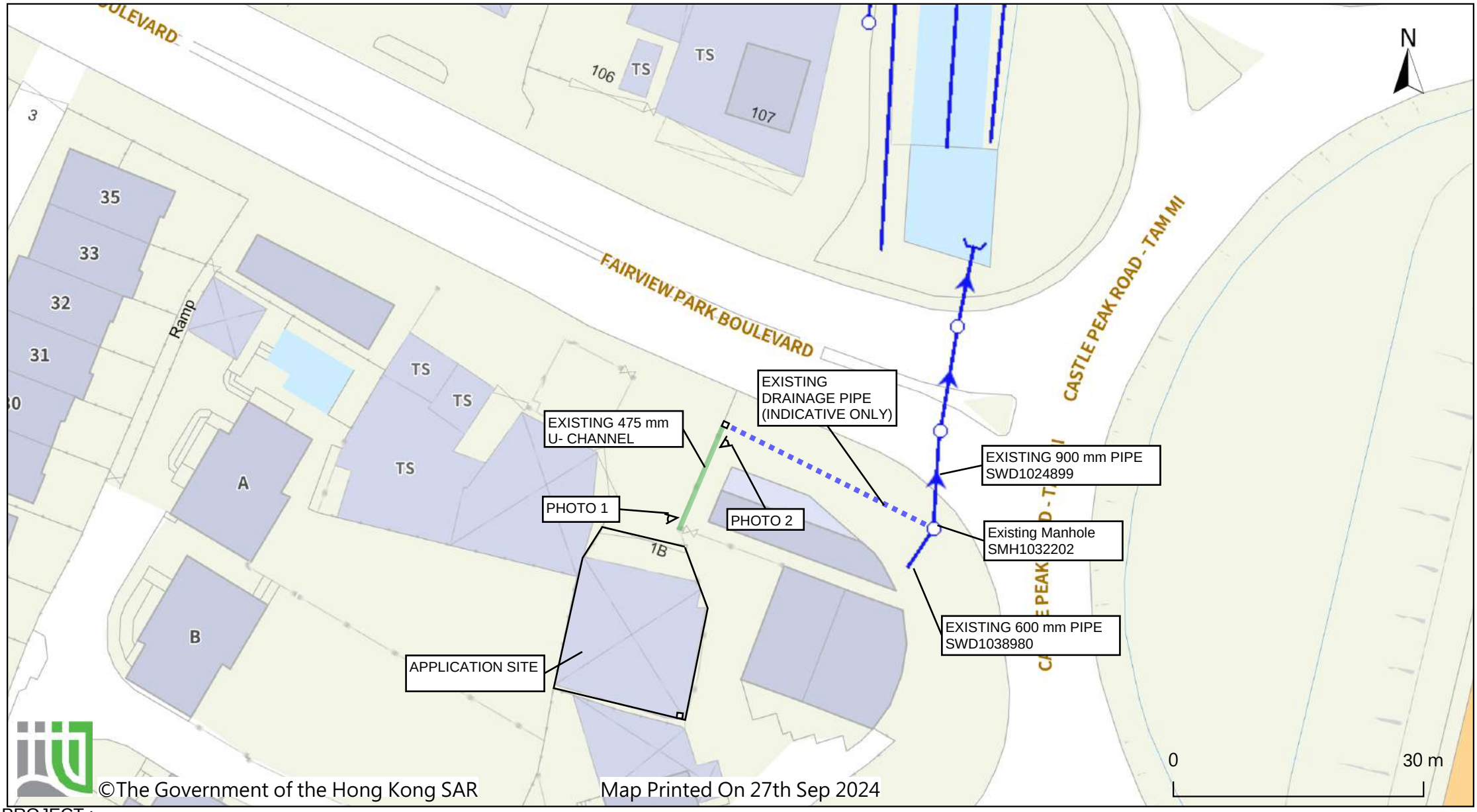
Drawing No. 圖號:
20240322

Remarks 備註:
- Metal Heat Shelter
- Structure
- Private Car

APPENDIX C

GEOINFO MAP
地理資訊地圖

Go to map: https://www.map.gov.hk/gm/geo:22.4712,114.0541?z=564



Map Printed On 27th Sep 2024

PROJECT :
TEMPORARY VEHICLE REPAIR WORKSHOP WITH ANCILLARY OFFICE AND STORAGE USE FOR A PERIOD OF 3 YEARS IN LOT 3278 RP IN D.D. 104, MAI PO, YUEN LONG

APPENDIX : C
TITLE : LOCATION AND PHOTOS OF EXISTING DRAINAGE SYSTEM
DATE: SEP 2024

PHOTO 1

PHOTO 2

HFOUNDRY

井蓋·梳冷渠蓋
及其他產品類

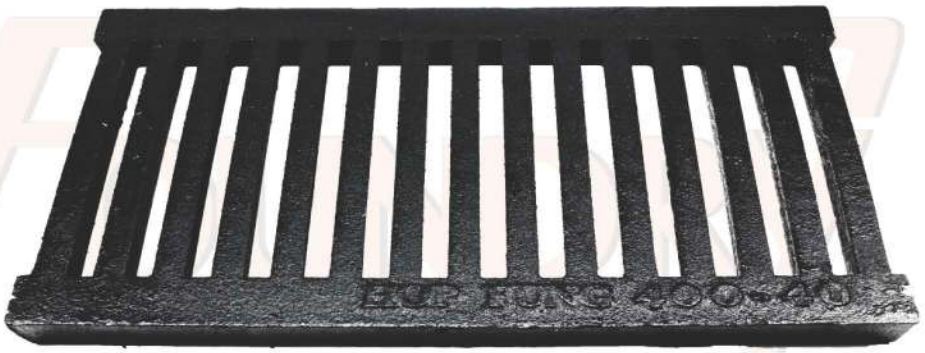
合豐鐵工廠有限公司
HOP FUNG IRON WORKS LTD.

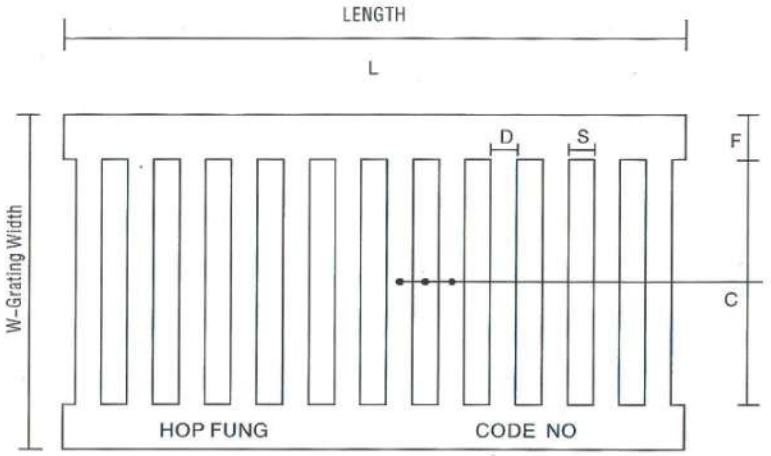
專營生鐵排污產品

Cast Iron Drainage Product Specialist

生鐵排骨型疏冷
Cast iron channel surface grating (slot type)

* Cast iron material conform with tensile test
  BS1452 grade 150
  BSEN 1561 grade EN-GJL 150



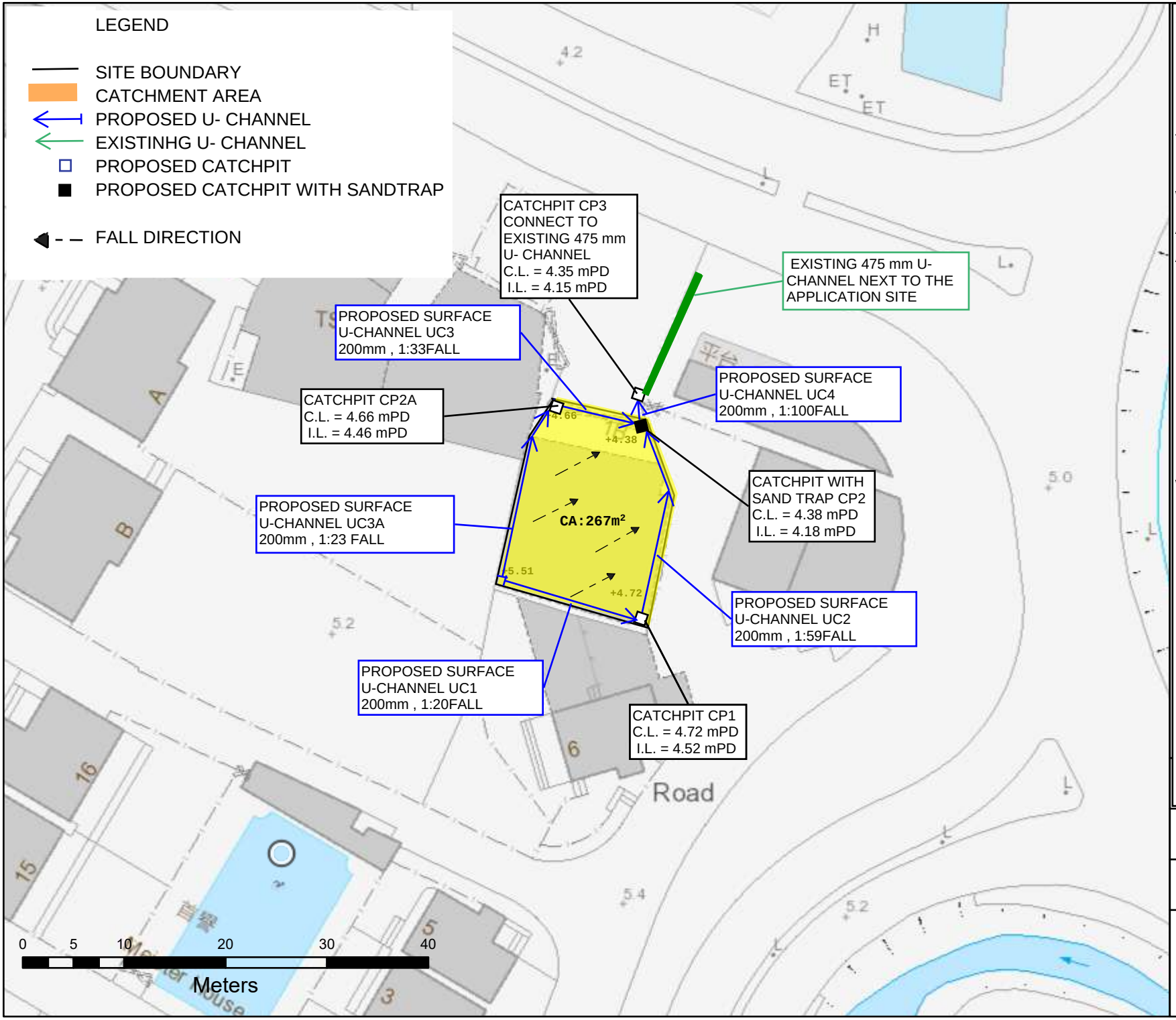


*生 鐵 疏 冷 尺 寸 繁 多 未 能 盡 錄， 歡 迎 來 電 查 詢。

貨品編號 Item code	貨品名稱 Item name	寬 Width (W)	長 Length (L)	厚 Thickness (T)	渠寬 Width of U-Channel (C)	鐵位 Bar (D)	去水 Slot (S)	寢位 Fringe (F)
G15060013	疏冷 150 x 600 x 13mm Cast iron grating (slot type) 150 x 600 x 13mm	150	600	13	110	13	10	20
G15060020	疏冷 150 x 600 x 20mm Cast iron grating (slot type)150 x 600 x 13mm	150	600	20	90	15	17	30
G20060013	疏冷 200 x 600 x 13mm Cast iron grating (slot type) 200 x 600 x 13mm	200	600	13	140	13	10	30
G20060020	疏冷 200 x 600 x 20mm Cast iron grating (slot type) 200 x 600 x 20mm	200	600	20	150	15	15	25
G20060025	疏冷 200 x 600 x 25mm Cast iron grating (slot type) 200 x 600 x 25mm	200	600	25	144	20	20	28
G25060013	疏冷 250 x 600 x 13mm Cast iron grating (slot type) 250 x 600 x 13mm	250	600	13	160	13	10	45
G25060020	疏冷 250 x 600 x 20mm Cast iron grating (slot type) 250 x 600 x 20mm	250	600	20	190	15	17	30
G25060025	疏冷 250 x 600 x 25mm Cast iron grating (slot type) 250 x 600 x 25mm	250	600	25	180	20	20	35
G30060020	疏冷 300 x 600 x 20mm Cast iron grating (slot type) 300 x 600 x 20mm	300	600	20	224	20	20	38
G30060025	疏冷 300 x 600 x 25mm Cast iron grating (slot type) 300 x 600 x 25mm	300	600	25	224	20	20	38
G31560013	疏冷 315 x 600 x 13mm Cast iron grating (slot type) 315 x 600 x 13mm	315	600	13	225	13	10	45
G31560020	疏冷 315 x 600 x 20mm Cast iron grating (slot type) 315 x 600 x 20mm	315	600	20	225	20	20	45
G31560025	疏冷 315 x 600 x 25mm Cast iron grating (slot type) 315 x 600 x 25mm	315	600	25	225	20	20	45
G31560050	疏冷 315 x 600 x 50mm Cast iron grating (slot type) 315 x 600 x 50mm	315	600	50	225	20	20	45
G39060013	疏冷 390 x 600 x 13mm Cast iron grating (slot type) 390 x 600 x 13mm	390	600	13	300	13	10	45
G39060025	疏冷 390 x 600 x 25mm Cast iron grating (slot type) 390 x 600 x 25mm	390	600	25	300	20	20	45
G39060050	疏冷 390 x 600 x 50mm Cast iron grating (slot type) 390 x 600 x 50mm	390	600	50	300	20	20	45
G46560013	疏冷 465 x 600 x 13mm Cast iron grating (slot type) 465 x 600 x 13mm	465	600	13	375	13	10	45
G46560020	疏冷 465 x 600 x 20mm Cast iron grating (slot type) 465 x 600 x 20mm	465	600	20	375	20	20	45
G46560050	疏冷 465 x 600 x 50mm Cast iron grating (slot type) 465 x 600 x 50mm	465	600	50	375	20	20	45
G54060025	疏冷 540 x 600 x 25mm Cast iron grating (slot type) 540 x 600 x 25mm	540	600	25	450	20	20	45
G61560025	疏冷 615 x 600 x 25mm Cast iron grating (slot type) 615 x 600 x 25mm	615	600	25	525	20	20	45

*鑄造產品存在誤差，以上數據僅供參考，所有尺寸以實物為準。

APPENDIX D



SITE PLAN

PROJECT :

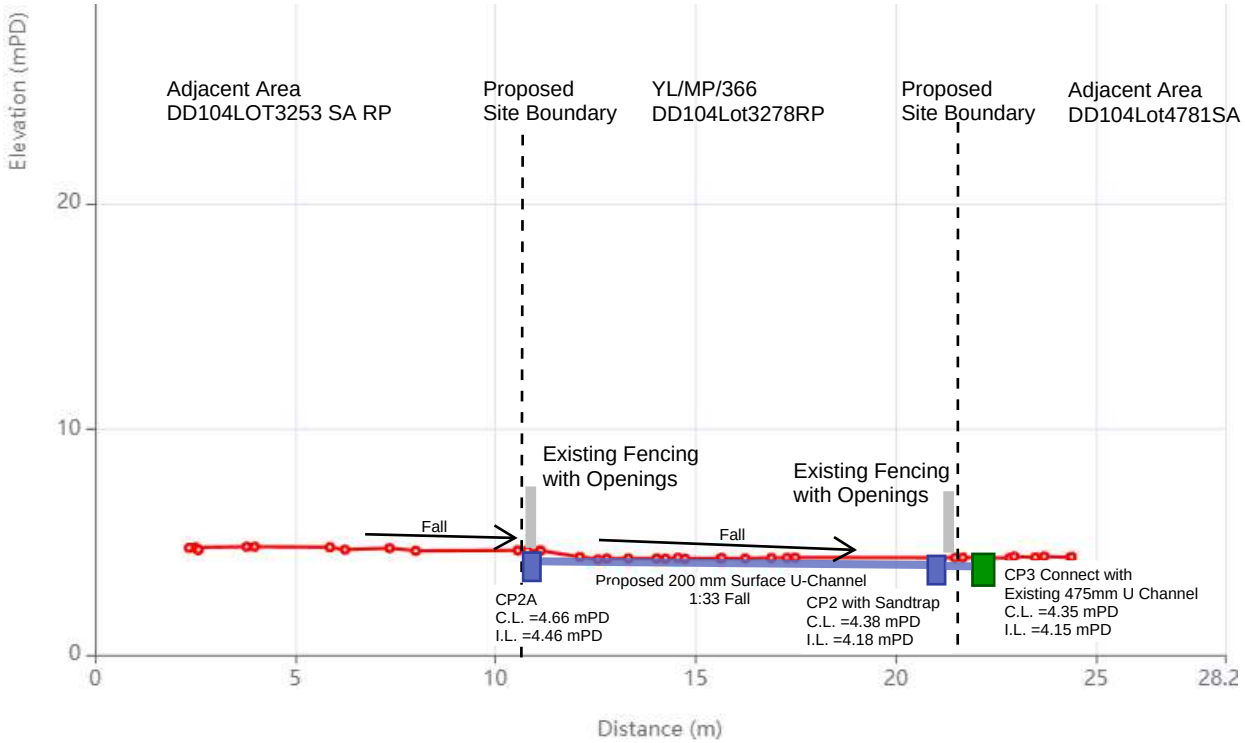
TEMPORARY VEHICLE REPAIR WORKSHOP WITH ANCILLARY OFFICE AND STORAGE USE FOR A PERIOD OF 3 YEARS IN LOT 3278 RP IN D.D. 104, MAI PO, YUEN LONG

DRAWING TITLE:

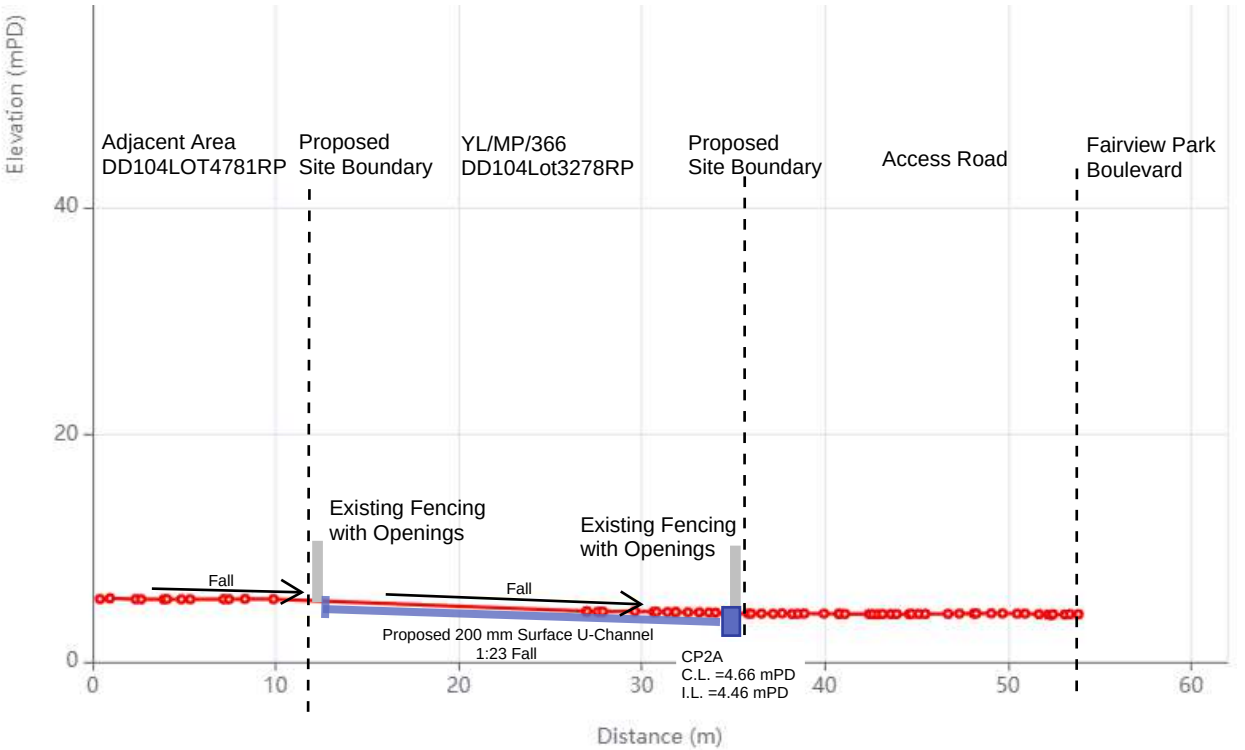
PROPOSED DRAINAGE WORKS

ISSUE 2

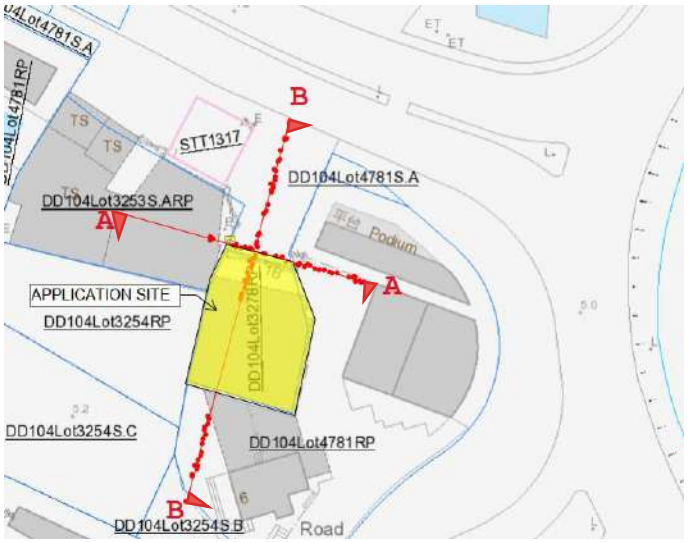
Scale	1:500
Date	25/11/2024



Section A-A



Section B-B



Appendix D2
Sections of Application site

Survey Data from
https://ginfo.cedd.gov.hk/3DGInfo/index.html
30 Nov 2024

APPENDIX E1

Calculation Sheet		
Project Title:	**Date:**	**2024-12-03**
	Project No.:	**YL-MP-336**
Temporary Vehicle Repair Workshop with Ancillary Office and Storage Use for a Period of 3 Years in Lot 3278 RP in D.D. 104, Mai Po, Yuen Long	**Designed by:**	**RF**
	Appendix :	**E**
	Sheet No.:	**1**

Design for Proposed U Channel for Development Area

Catchpit No.		Catchment				Level				U Channel								Manning's Equation								
From (U/S)	To (D/S)	Incre. Area (m^2)	Accum. Area (m^2)	Runoff Coef. C	Ave. Slope / 100m	U/S G.L. (mPD)	D/S G.L. (mPD)	U/S I.L. (mPD)	D/S I.L. (mPD)	Mat-erial	Width (mm)	Depth (mm)	Lgth (m)	Grad. (1 in)	U Channel Area A (m2)	Wetted Peri.P (mm)	Hyd. Radius R (mm)	Mng's Coef. n	Vel. V at Full Bore (m/s)	Cap. Q_o (m^3/s)	Velocity Check	Time of Conc. t_c (min)	Rainfall Intensity i (mm/hr)	Runoff Q (m^3/s)	Capacity % (Q/Q_o)	Capacity Check
-	CP1	0	267	1	2	5.51	4.72	5.31	4.52	CO	200	200	15.6	20	0.04	0.51	0.07	0.016	2.376	0.085	OK	1.124	298.42	0.022	26%	OK
CP1	CP2	0	267	1	1	4.72	4.38	4.52	4.18	CO	200	200	20.1	59	0.04	0.51	0.07	0.016	1.373	0.049	OK	1.152	297.73	0.022	45%	OK
-	CP2A	0	267	1	2	5.51	4.66	5.31	4.46	CO	200	200	19.4	23	0.04	0.51	0.07	0.016	2.210	0.079	OK	1.397	292.11	0.022	27%	OK
CP2A	CP2	0	267	1	1	4.66	4.38	4.46	4.18	CO	200	200	9.3	33	0.04	0.51	0.07	0.016	1.832	0.065	OK	0.769	307.41	0.023	35%	OK
CP2	CP3	0	267	1	1	4.38	4.35	4.18	4.15	CO	200	200	3	100	0.04	0.51	0.07	0.016	1.056	0.038	OK	0.248	322.78	0.024	64%	OK

Formulae:

t_c = Time of Concentration = $t_o + t_f$

where t_o = Inlet Time = 1.124 min

t_f = Flow Time = å (Pipe Length / Flow Velocity)

V = Pipe Flow Velocity

= $(R)^{2/3}s^{1/2}/n$ for Manning's Equation

where g = Gravitational Acceleartion = 9.81 m/s^2

R = Hydraulic Radius

s = Frictional Slope

k_s = Surface Roughness = 3.3 mm for concrete CO — Ref. DSD SDM Table 14

= 0.06 mm for cast iron CI

= 0.6 mm for ductile iron DI

n = Kine. Viscosity = 1.141E-06 m^2/s

n = Manning's Coef. = 0.016 for concrete CO — Ref. DSD SDM Table 13

0.015 for cast iron CI

0.015 for ductile iron DI

Q_o = Pipe Flow Capacity = $(pD^2/4)V$

i = Rainfall Intensity for **HKO Headquarters**

= $a / (t_c + b)^c$ where a = 505.5 for a return period of 50 years — Ref. DSD SDM Table 3d

b = 3.29

c = 0.355

Q = Runoff = 0.278*CiA

where C = Runoff Coefficient

A = Catchment Area

APPENDIX E2

Calculation Sheet	Date:	2024-09-27
Project Title:	Project No.:	YL-MP-336
Temporary Vehicle Repair Workshop with Ancillary Office and Storage Use for a Period of 3 Years in Lot 3278 RP in D.D. 104, Mai Po, Yuen Long	Designed by:	RF
	Appendix :	E
	Sheet No.:	2

Design for Proposed U Channel for Development Area

Catchpit No.		Catchment				Level				U Channel								Manning's Equation								
From (U/S)	To (D/S)	Incre. Area (m^2)	Accum. Area (m^2)	Runoff Coef. C	Ave. Slope / 100m	U/S G.L. (mPD)	D/S G.L. (mPD)	U/S I.L. (mPD)	D/S I.L. (mPD)	Mat-erial	Width (mm)	Depth (mm)	Lgth (m)	Grad. (1 in)	U Channel Area A (m2)	Wetted Peri.P (mm)	Hyd. Radius R (mm)	Mng's Coef. n	Vel. V at Full Bore (m/s)	Cap. Q_o (m^3/s)	Velocity Check	Time of Conc. t_c (min)	Rainfall Intensity i (mm/hr)	Runoff Q (m^3/s)	Capacity % (Q/Q_o)	Capacity Check
EXISTING	EXISTING	800	800	1	5	5	4.89	4.53	3.63	CO	475	475	16.2	18	0.20	1.22	0.16	0.016	4.431	0.892	OK	0.870	233.42	0.052	6%	OK
CP3	EXISTING	267	1067	1	5	5	4.89	4.53	3.63	CO	475	475	16.2	18	0.20	1.22	0.16	0.016	4.431	0.892	OK	0.846	233.61	0.069	8%	OK

Formulae:

t_c = Time of Concentration = $t_o + t_f$

where t_o = Inlet Time = 0.870 min

t_f = Flow Time = å (Pipe Length / Flow Velocity)

V = Pipe Flow Velocity

= $(R)^{2/3}s^{1/2}/n$ for Manning's Equation

where g = Gravitational Acceleartion = 9.81 m/s^2

R = Hydraulic Radius

s = Frictional Slope

k_s = Surface Roughness

=	3.3	mm for	concrete	CO
=	0.06	mm for	cast iron	CI
=	0.6	mm for	ductile iron	DI

Ref. DSD SDM Table 14

n = Kine. Viscosity = 1.141E-06 m^2/s

n = Manning's Coef.

= 0.016	for	concrete	CO
0.015	for	cast iron	CI
0.015	for	ductile iron	DI

Ref. DSD SDM Table 13

Q_o = Pipe Flow Capacity = $(\pi D^2/4)V$

i = Rainfall Intensity for **Northern** District Area

= $a / (t_c + b)^c$ where a = 1167.6 for a return period of 50 years

b = 16.76

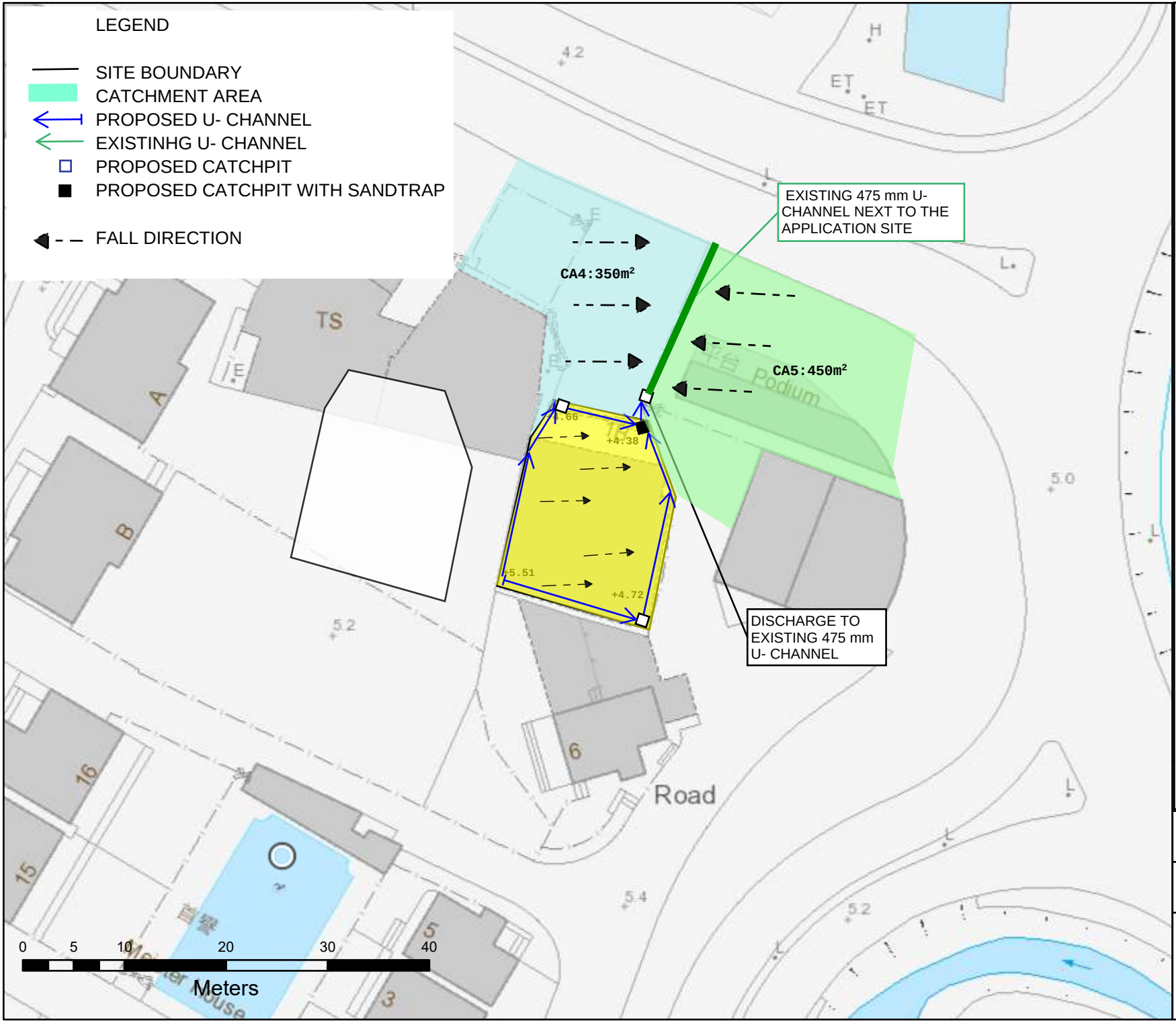
c = 0.561

Ref. DSD SDM Table 3d

Q = Runoff = 0.278*CiA

where C = Runoff Coefficient

A = Catchment Area



SITE PLAN

PROJECT :

TEMPORARY VEHICLE REPAIR WORKSHOP WITH ANCILLARY OFFICE AND STORAGE USE FOR A PERIOD OF 3 YEARS IN LOT 3278 RP IN D.D. 104, MAI PO, YUEN LONG

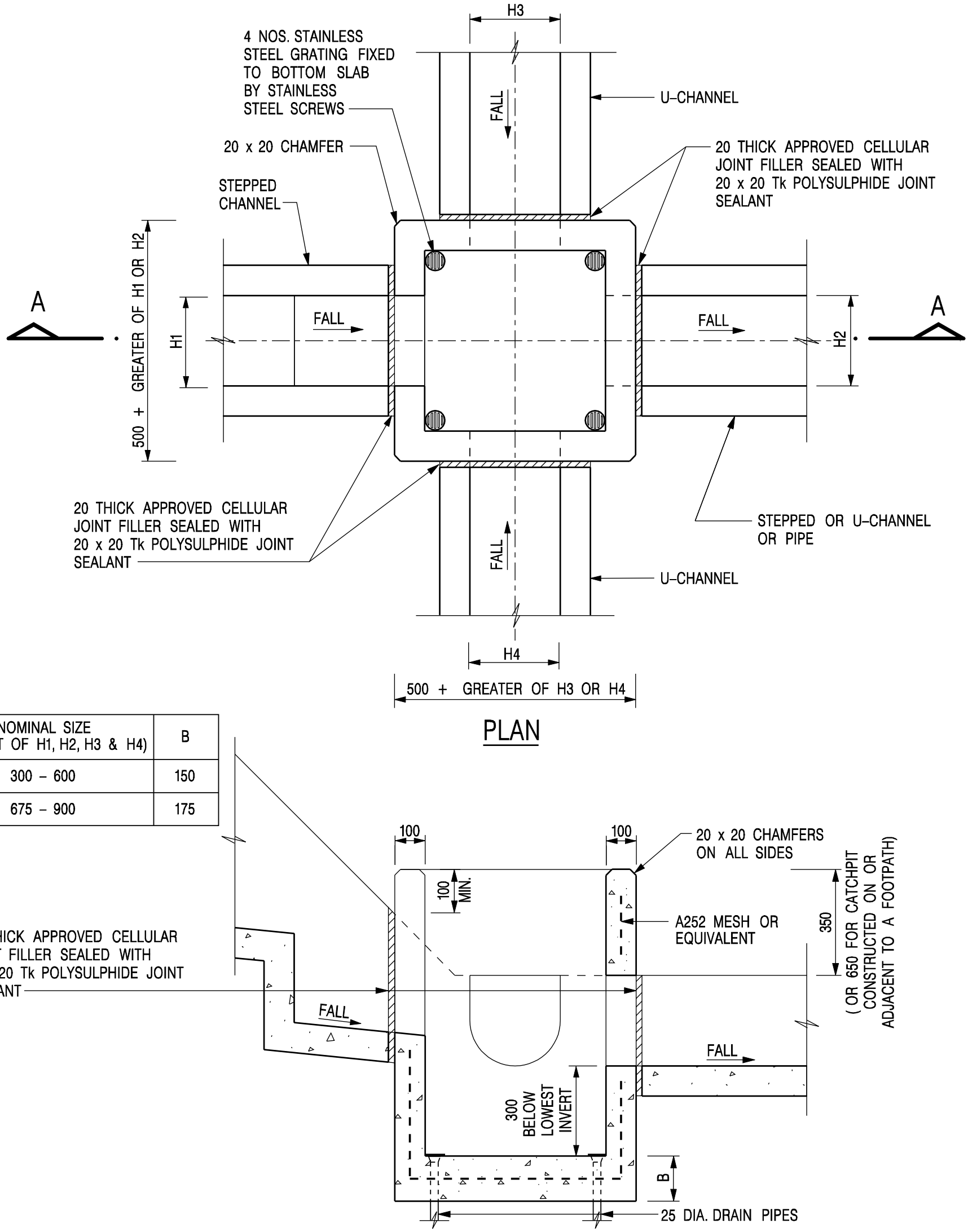
DRAWING TITLE:

CAPACITY CHECKING OF EXISTING 475MM U - CHENNEL

ISSUE 1

Scale	1:500
Date	25/9/2024

APPENDIX F



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

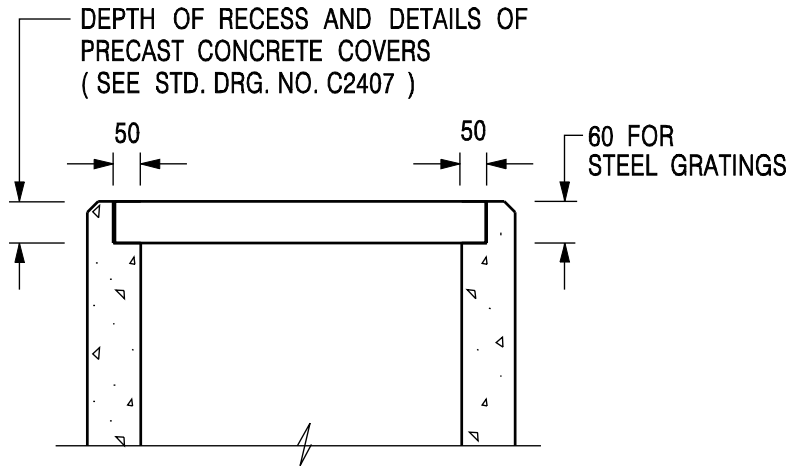
(SHEET 1 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2406 /1



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

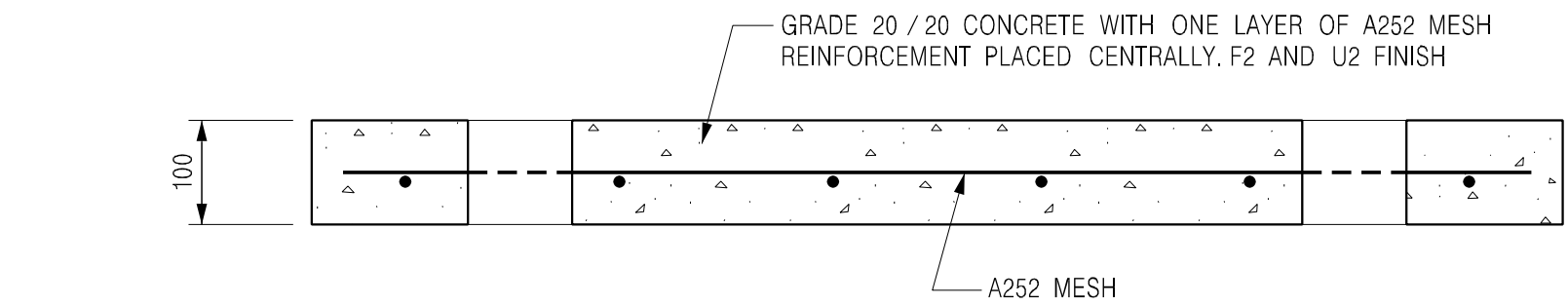
CATCHPIT WITH TRAP
(SHEET 2 OF 2)

CEDD **CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

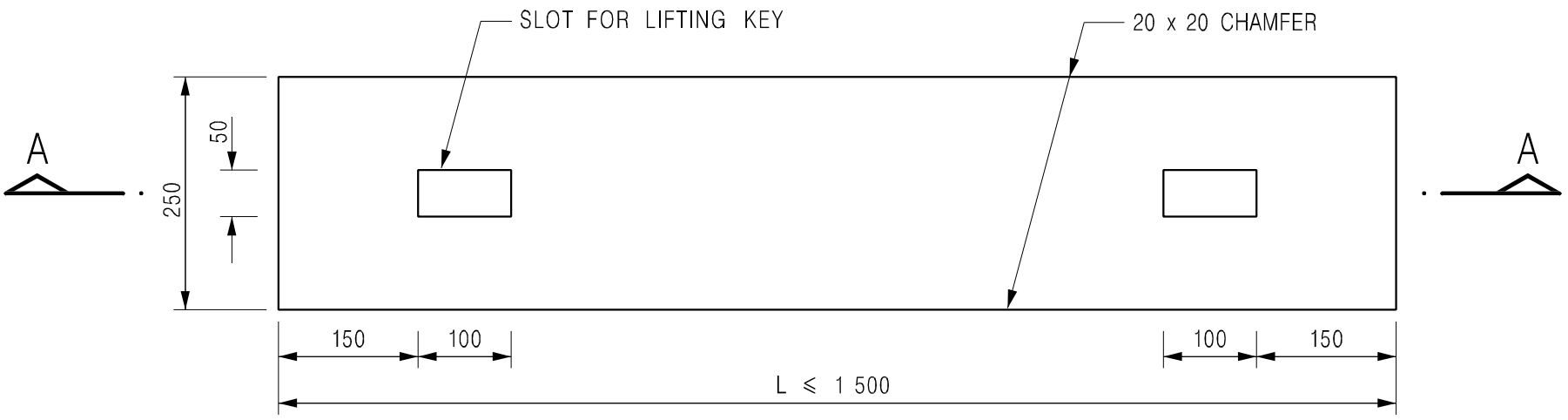
SCALE 1 : 20

DATE JAN 1991

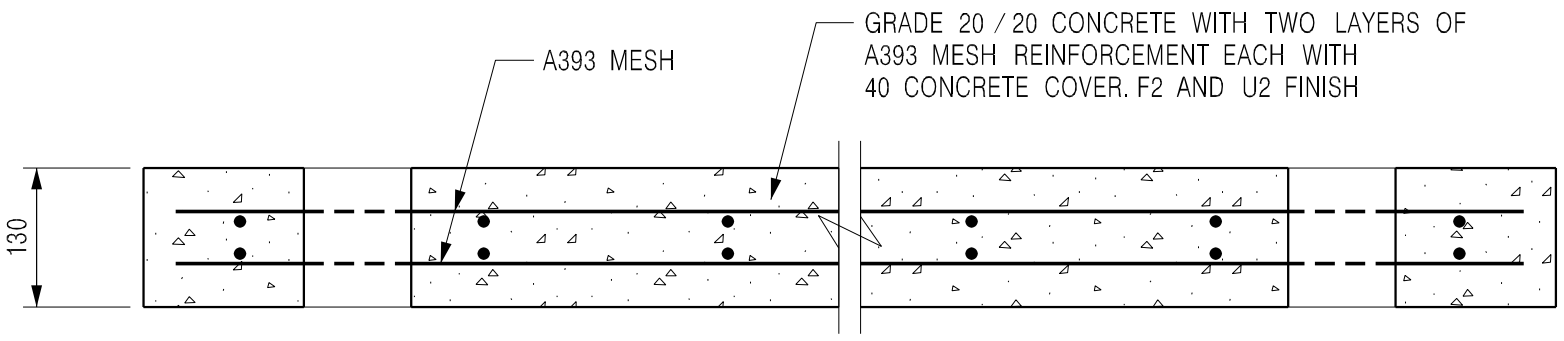
DRAWING NO. C2406 /2A



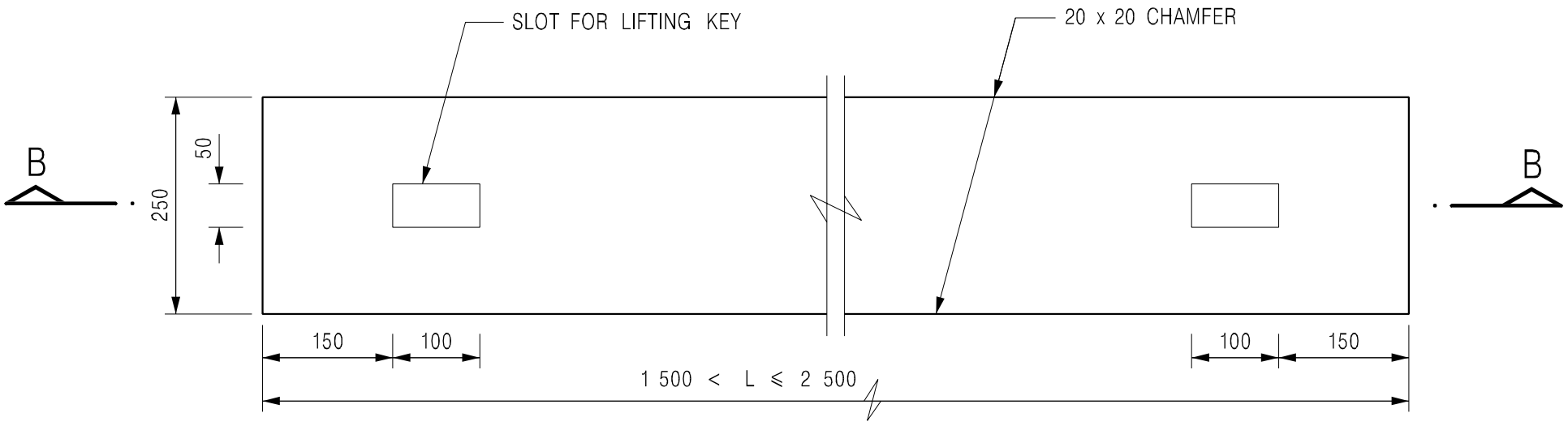
SECTION A – A



PLAN
TYPE 1 – FOR SPAN UP TO 1.5 m



SECTION B – B



PLAN
TYPE 2 – FOR SPANS 1.5 m TO 2.5 m

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EXTERNAL EDGES OF THE COVERS SHALL BE 20mm CHAMFERED.

REF.	REVISION	SIGNATURE	DATE
B	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
A	GENERAL REVISION	Original Signed	12.2002

PRECAST CONCRETE COVERS FOR CATCHPIT AND SAND TRAP

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 10

DATE JAN 1991

DRAWING NO. C2407B

興土木 利民生 齊拓展 創明天

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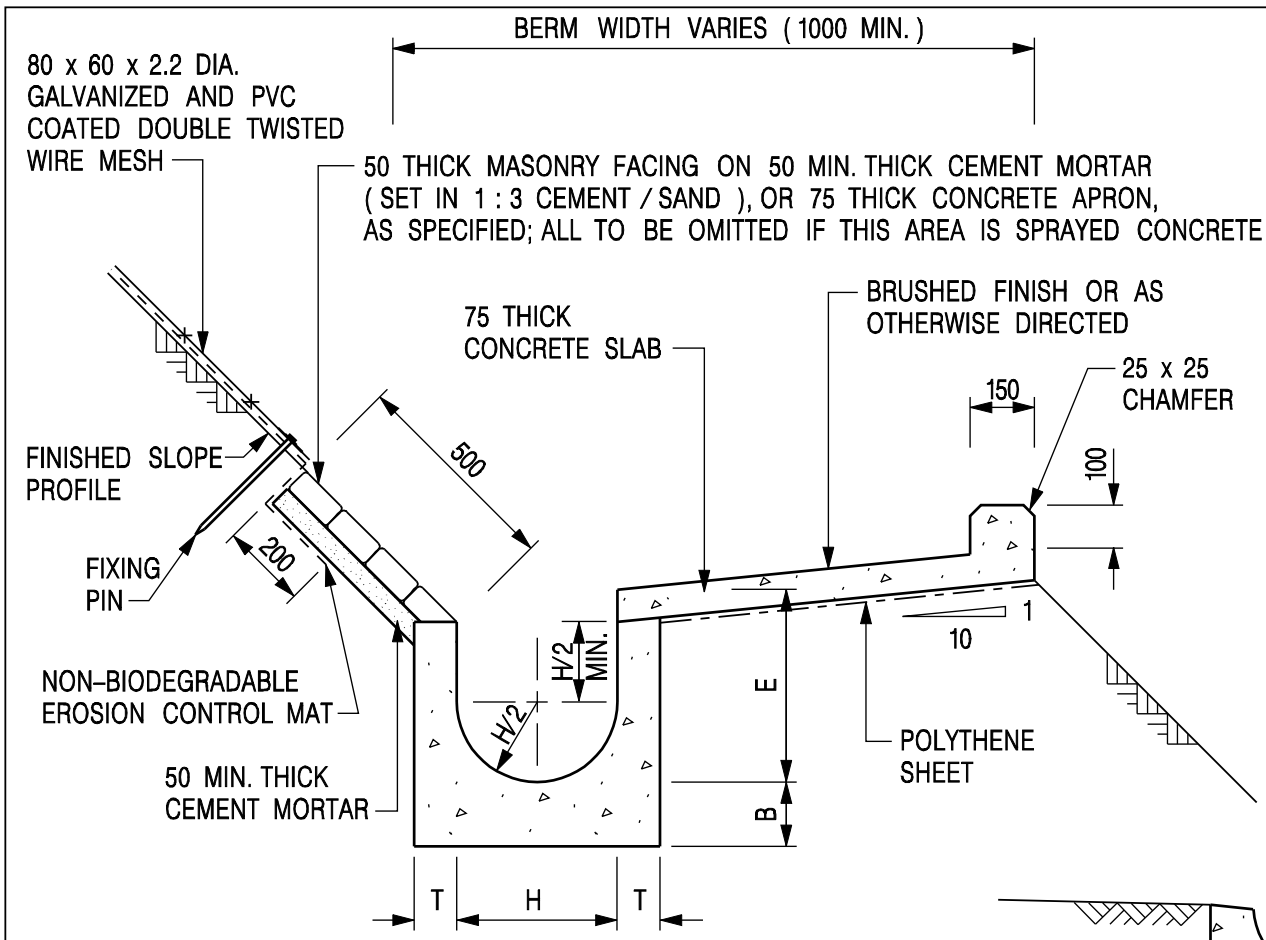
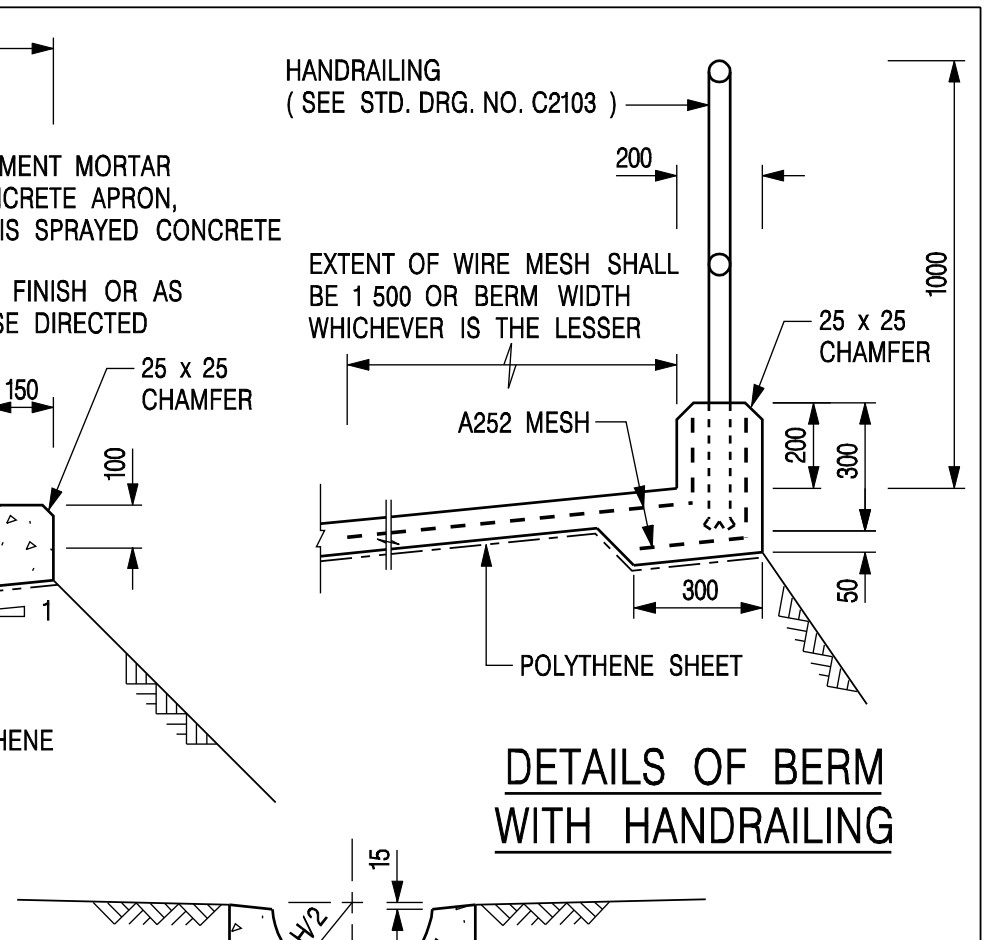
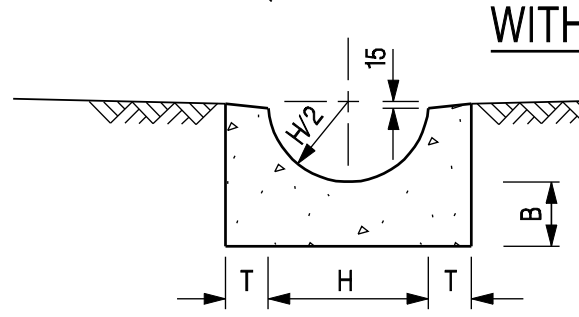


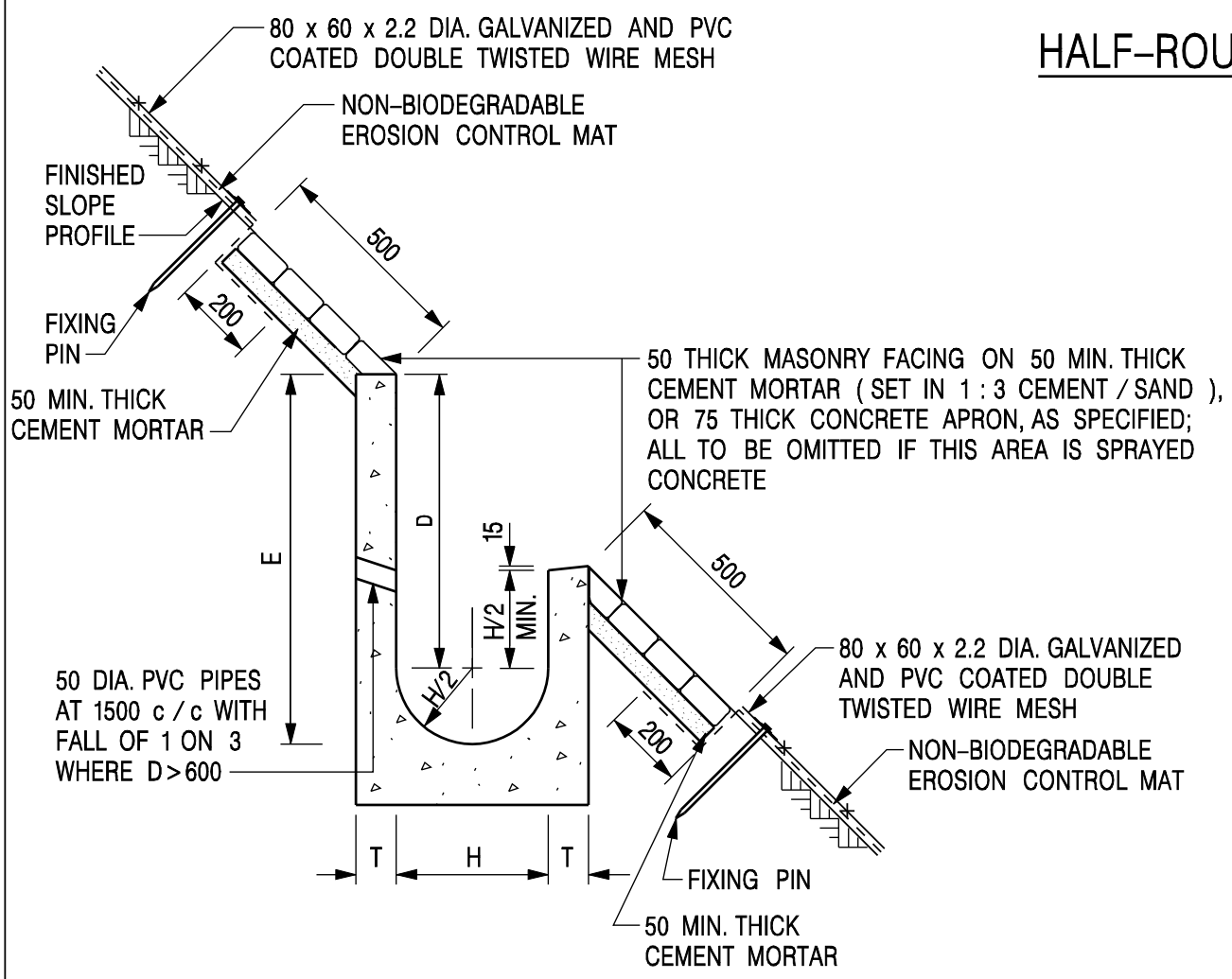
U-CHANNELS CONSTRUCTED ON BERM



DETAILS OF BERM WITH HANDRAILING



HALF-ROUND CHANNEL



U-CHANNELS NOT CONSTRUCTED ON BERM

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

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)

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)

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 25

DATE JAN 1991

DRAWING NO. C2409I

卓越工程 建設香港

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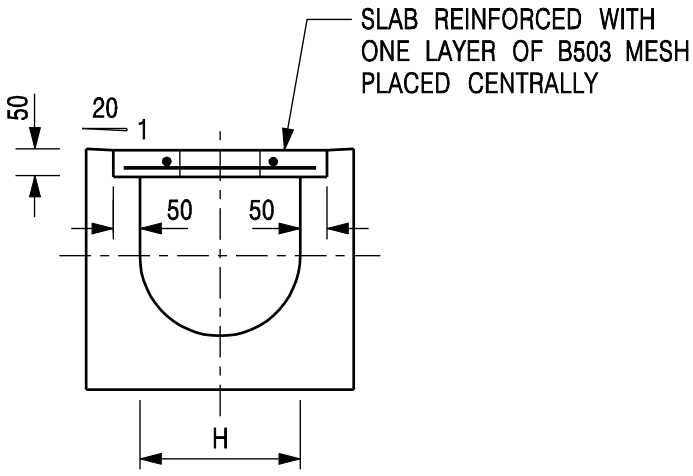
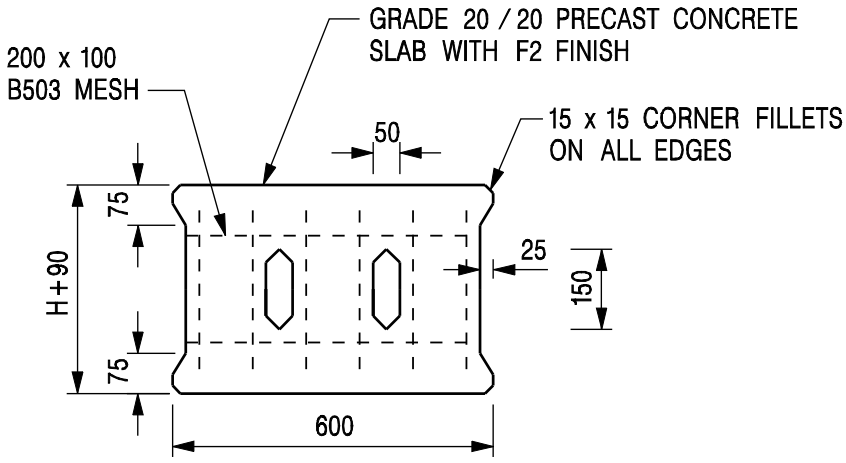


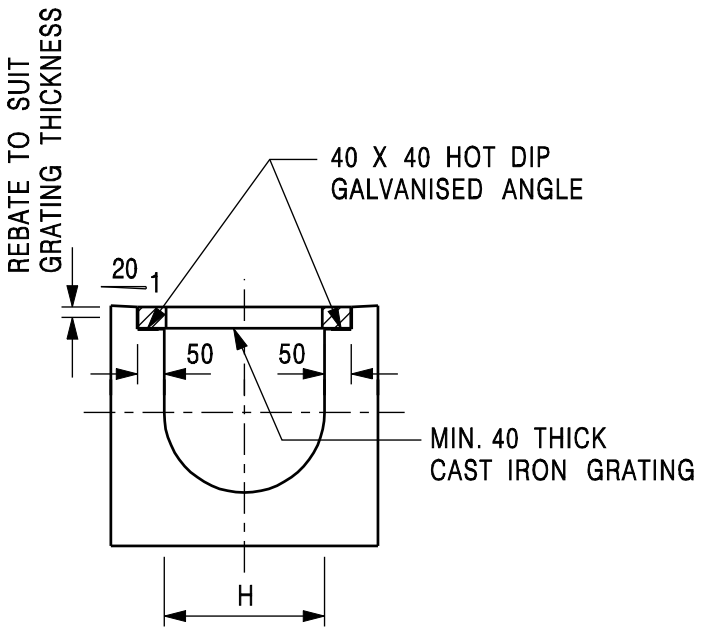
TYPICAL SECTION



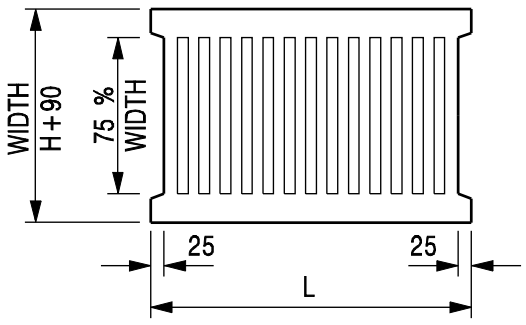
PLAN OF SLAB

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

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