寄件者: lo mingkong [redacted]
寄件日期: 2025年10月23日星期四 18:34
收件者: tpbpd/PLAND
副本: Andrea Wing Yin YAN/PLAND; [redacted]
主旨: (A/YL-KTN/1151) Further Information
附件: TPB_L05 Drainage Proposal and FSIs Proposal.pdf; Appendix A-DIA_250911.pdf; Appendix B-FSIs Proposal.REV A.pdf

類別: Internet Email

Dear Sir/Madam,

In response to the comments suggested by the Drainage Services Department dated 4.9.2025 and the Fire Services Department dated 30.9.2025, we would like to submit herewith a Drainage Impact Assessment (DIA) Report (see Appendix A) and a revised FSI proposal (see Appendix B) for your consideration.

Should you have any queries or require further information, please feel free to contact the undersigned at [redacted].

Best Regards,

Lo Ming Kong
Top Bright Consultants Ltd.
[redacted]

才鴻顧問有限公司
TOP BRIGHT CONSULTANTS LIMITED

Your Ref.: A/YL-KTN/1151
Our Ref.: 25/858/L05

October 23, 2025

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

By Email

Dear Sir/Madam,

Temporary Place of Recreation, Sports or Culture with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "Agriculture" and "Village Type Development" Zones, Lots 655(Part), 656(Part), 657(Part), 668(Part), 669(Part), 671(Part), 672SA(Part), 674(Part), 678(Part), 679(Part), 680(Part), 681, 682(Part), 684RP(Part), 763SA(Part), 763RP(Part), 764, 765, 766(Part), 768(Part), 769(Part), 770(Part), 771(Part), 772(Part), 781(Part), 782(Part), 783(Part), 784(Part), 785(Part), 786(Part), 787, 788(Part), 1615(Part) and Adjoining Government Land in DD109, Shui Mei Tsuen, Kam Tin North, Yuen Long, New Territories (Application No.: A/YL-KTN/1151)

In response to the comments suggested by the Drainage Services Department dated 4.9.2025 and the Fire Services Department dated 30.9.2025, we would like to submit herewith a Drainage Impact Assessment (DIA) Report (see Appendix A) and a revised FSI proposal (see Appendix B) for your consideration.

Should you have any queries or require further information, please feel free to contact the undersigned at [redacted].

Yours faithfully,
For and on behalf of
Top Bright Consultants Ltd.

Lo Ming Kong

Encl.
c.c. Kam Tin Country Club Ltd. (the Applicant)

[redacted]

Appendix A

S16 Planning Application for

(Planning Application no.: A/YL-KTN/1151)

Temporary Place of Recreation, Sports or Culture with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "Agriculture" and "Village Type Development" Zones, Lots 655(Part), 656(Part), 657(Part), 668(Part), 669(Part), 671(Part), 672SA(Part), 674(Part), 678(Part), 679(Part), 680(Part), 681, 682(Part), 684RP(Part), 763SA(Part), 763RP(Part), 764, 765, 766(Part), 768(Part), 769(Part), 770(Part), 771(Part), 772(Part), 781(Part), 782(Part), 783(Part), 784(Part), 785(Part), 786(Part), 787, 788(Part), 1615(Part) and Adjoining Government Land in DD109, Shui Mei Tsuen, Kam Tin North, Yuen Long, New Territories

(HT25129)

Drainage Impact Assessment (DIA) Report

September 2025

Prepared & Approved by:	K. C. LEE *MICE, MHKIE*

何田顧問工程師有限公司
HO TIN & ASSOCIATES
CONSULTING ENGINEERS LIMITED

CONTENT

FIGURE (Referenced from the same figures enclosed in the Supplementary Planning Statement of this Application)

PLAN

1. Introduction

1.1 Ho Tin & Associates Consulting Engineers Limited (HTA) was appointed by the client to prepare a Drainage Impact Assessment (DIA) in support of a S16 Planning Application for a Temporary Place of Recreation, Sports or Culture with Ancillary Facilities and Associated Filling of Land for a Period of 3 Years in "Agriculture" and "Village Type Development" Zones (the 'proposed development').

1.2 This report presents the DIA for the proposed development at the Application Site.

1.3 The objectives of this DIA are to:

- indicate any changes/increase in drainage characteristics due to the proposed development;
- assess any potential drainage impacts of the existing/planned drainage facilities nearby due to the proposed development; and
- propose mitigation measures and drainage improvement work, if necessary, to minimize any adverse drainage impact.

1.4 The scope of this DIA includes:-

- site description and existing land use;
- identification of changes in stormwater flow pattern caused by the proposed development;
- assessment of impact on the existing drainage facilities due to the proposed development; and
- proposal of new drainage facilities for the proposed development if found necessary.

2. General Site Description and the Proposed Development

2.1 The Application Site comprises of Lots 655(Part), 656(Part), 657(Part), 668(Part), 669(Part), 671(Part), 672SA(Part), 674(Part), 678(Part), 679(Part), 680(Part), 681, 682(Part), 684RP(Part), 763SA(Part), 763RP(Part), 764, 765, 766(Part), 768(Part), 769(Part), 770(Part), 771(Part), 772(Part), 781(Part), 782(Part), 783(Part), 784(Part), 785(Part), 786(Part), 787, 788(Part), 1615(Part) and Adjoining Government Land in DD109, Shui Mei Tsuen, Kam Tin North, Yuen Long, New Territories. It is located to the east of Shui Mei Village.

2.2 The Application Site falls within "Agriculture" ("AGR") and "Village Type Development" ("V") zones on the Approved Kam Tin North Outline Zoning Plan (OZP) No. S/YL-KTN/11. Its area is about 40,616m^2 including about 875 m^2 of government land. A Site Location Plan and Site Plan is shown in **Figure 1** and **2** respectively.

2.3 The Application Site is currently used for the applied use. The western part of the Application Site is the subject of 6 approved applications (Nos. A/YL-KTN/273, 329, 383, 495, 658 and 830). The last application (No. A/YL-KTN/830) was approved by the Board on 10.6.2022 for a temporary place of recreation (including barbecue spot, picnic area, children playground and handicraft making area) with ancillary facilities for a period of 3 years until 10.6.2025. All approval conditions of the last approved application had been complied with.

2.4 The western part of Application Site is largely the same as the previously approved planning applications and mainly comprises the visitor centre, site office/reception, sports ground, children playground and parking areas.

2.5 The eastern part is the expansion area of Kam Tin Country Club which comprises of barbecue spot, picnic area, electric kiddie ride park, handicraft making area, petting zoo and parking areas. A total of 26 temporary structures, with a floor area of 4,746m^2, will be erected within the Application Site. A total of 51 private car parking spaces for visitors are provided within the Application Site. A total of 15 taxi drop-off spaces and 2 loading and unloading spaces for medium goods vehicles will also be provided at the northern parking area to meet the operation needs of the proposed development.

2.6 Site photos taken in September 2025 are shown below for information and the locations of the photo taken are shown on **Plan 1** of this DIA for easy reference:

	
Photo No. 1 – Existing paved area near the parking spaces for visitors (1)	Photo No. 2 - Existing paved area near the parking spaces for visitors (2)

	
Photo No. 3 – View toward the Shelter for Children Playground	Photo No. 4 – View toward the Petting Zoo
	
Photo No. 5 – View toward the Electric Kiddie Ride Park	Photo No. 6 – View toward the southeast at the southern corner of the Application Site
	
Photo No. 7 - View toward the southeast outside the southern corner of the Application Site showing the existing 450mm channel in the vicinity	Photo No. 8 – Existing channel conveying surface water from the farmland to the south of the Application Site to the existing 450mm channel in the vicinity (1)

	
Photo No. 9 – View eastward at the existing footpath to the south of the Application Site showing the existing 450mm channel collecting surface flows of the area	Photo No. 10 - Existing channel conveying surface flows from the farmland to the south of the Application Site to the existing 450mm channel in the vicinity (2)
	
Photo No. 11 - Existing channel conveying surface flows from the farmland to the south of the Application Site to the existing 450mm channel in the vicinity (3)	Photo No. 12 – Photo showing existence of local drainage/channels receiving surface flows of the area to the south of the Application Site
	
Photo No. 13 – Existing channel conveying surface flows to the existing streamcourse near Bin Mo Kiu	Photo No. 14 – Existing outfall at the existing streamcourse near Bin Mo Kiu

	
Photo No. 15 – View toward the north at the existing track to the east of the Application Site showing the existing channel collecting surface flows of the area	Photo No. 16 - View toward the south at the existing track to the east of the Application Site showing the existing channel collecting surface flows of the area
	
Photo No. 17 - View inside the Application Site from the eastern corner of the Application Site	Photo No. 18 - View of the area at the immediate northeast side of the Application Site
	
Photo No. 19 – View toward the Picnic Area/Lawn (1)	Photo No. 20 - View toward the Picnic Area/Lawn (2)

	
Photo No. 21 – View of the existing local channel to the northwest of the Application Site	Photo No. 22 - View of the existing local channel to the further northwest of the Application Site
	
Photo No. 23 – View of the existing channel/drainage collecting and conveying surface flows of the area to the northwest of the Application Site	Photo No. 24 – Location of the proposed discharge point of the proposed development
	
Photo No. 25 – View of the existing streamcourse near the western corner of the Application Site and to which the stormwater flow from the proposed development is proposed to be discharged into (1)	Photo No. 26 - View of the existing streamcourse near the western corner of the Application Site and to which the stormwater flow from the proposed development is proposed to be discharged into (2)

2.7 The Proposed Development Layout Plan is shown in **Figure 4**. The Applicant seeks planning permission for using the Application Site for temporary place of recreation, sports or culture with ancillary facilities and associated filling of land for a period of 3 years.

3. Existing Drainage System of the Area

3.1 The Application Site is generally located between two streams at the upstreams of Kam Tin Channel. One stream runs to the northwest to join Kam Tin Channel at Tam Mi and the other stream runs to the southwest to join Kam Tin Channel at Kam Tin. Besides, at present, there are lots of local drainage/channels conveying surface water from the subject area into the two streams. The significant local drainage/channels are shown in the site photos in the above Section 2 with the locations of photo taken shown on **Plan 1**.

3.2 The existing local drainage/channels outside the Application Site would not be disturbed and the catchment boundaries and the flow patterns of the concerned area would be generally maintained.

3.3 With respect to the existing topography, surface runoff of the subject area would principally flow westward into the existing local drainage/channels from which into the nearby streamcourses. With respect to the presence of the existing local drainage/channels within the subject area as shown on **Plan 1**, only surface runoff from the catchment area A1 and A2 (refer to **Plan 2**) outside the boundary of the Application Site would flow into the Application Site.

4. Potential Drainage Impact

4.1 It is confirmed in the Supplementary Planning Statement of this planning application that the Application Site is currently used for the applied use. Therefore, no change of use in principle under the proposed development. Besides, there would be no change in drainage patterns of the subject area except the surface water flows within the Application Site would be properly managed by means of properly designed engineering channels between discharged to the adjacent streamcourse. It is considered to be an enhancement of the local drainage conditions.

4.2 However, in accordance with the proposed development, it is proposed to maintain the existing paved area of about 14,000m^2 and fill land for an additional portion (about 480m^2)

with concrete in a depth of not more than 0.2m up to a level of about +6mPD as shown in **Figure 7**. Runoff coefficient of the additional paved area will then be changed from 0.25 (for flat grassland (heavy soil) condition) to 0.95 (for concrete). The increase in surface runoff generated from the proposed development would then be:
[(0.95 – 0.25) x 480]/{(0.95 x 14,000) + [0.25 x (40,616 – 14,000)]} x 100% = 1.68%

4.3 Since the increase in surface runoff generated from the proposed development would be 1.68% only, it is considered to be acceptable from drainage engineering point of view and would not cause any unacceptable adverse drainage effects upon the Application Site and its surroundings.

5. Proposed Drainage Works

5.1 The proposed finished ground levels of the proposed development are generally the existing site levels except those as shown on **Figure 7**. No substantial ground levelling nor site formation works would be carried out. Ground surfaces of the Application Site would be generally flat.

5.2 Existing flow paths of the catchments in the concerned area would be maintained in general. Surface runoff from the Catchment A1 and A2 flowing onto the Application Site would be intercepted by peripheral channels at the Application Site boundary. Total surface runoff received from the Application Site would be conveyed to a discharge point at the existing streamcourse to the west.

5.3 In order to properly manage surface runoff of the Application Site, peripheral U-channels with catchpit at corner will be constructed along the Application Site boundary. The flows inside the channels will be discharged into a proposed terminal manhole TM with desilting trap located near the western corner of the Application Site near the existing streamcourse. The Proposed Stormwater Drainage Layout is shown in **Plan 2**. Proposed Outfall Details at the existing watercourse is shown in **Plan 3**.

5.4 The proposed development is committed to obtain consents from owners of adjacent relevant land/lots prior to commencement of the proposed drainage works outside the subject site and to maintain the completed drainage works to the satisfaction of relevant Government departments. Besides, the proposed development will clear the vegetation at the existing streamcourse to which the surface runoff of the proposed development would be discharged into.

5.5 Details of proposed drainage provisions shall follow relevant details shown in Government departments' Standard Drawings as follows:

Proposed Drainage Provisions	*Standard Drawings*	*Drawing No. & Title*
Terminal manhole with trap	DSD Standard Drawings	DS 1091A - Terminal Manhole Type T2_1
Catchpit	CEDD Standard Drawings	C 2405/1 to /5 – Standard Catchpit Details
U-channel		C2409J – Details of Half-round and U-channels
Channel cover and grating		C2412E – Cover Slab and Cast Iron Grating for Channels

6. Hydraulic Calculation

6.1 Assessment criteria is based on the recommendation set out in the Stormwater Drainage Manual (Fifth edition, Jan 2018) (SDM) and its Corrigendum No. 1/2022, 1/2024 and 2/2024 issued by DSD. Design Return Period of 50 years (recommended for 'Main Rural Catchment Drainage Channel' in SDM) is adopted.

6.2 The corresponding runoffs under rainfall intensity for various return period are worked out with reference to Rational Method. Brandy-Williams method is used in calculation of the time of concentration. A uniformly distributed rainfall with an intensity is determined by the Intensity-Duration-Frequency. With referenced to Table 3a - Storm Constants for different return periods of HKO Headquarters from SDM, the rainfall profiles are derived based on the following equation:

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

where i = mean rainfall intensity (mm/hr)
t = duration time of concentration (min)
a, b and c = storm constants given in Table below

Table : Storm Constants

Return Period (years)	50
a	505.5
b	3.29
c	0.355

A 16.0% rainfall increase is adopted in the hydraulic calculation to cater for effects due to climate change in accordance with the table 28 with projection to End of 21st Century as stipulated in the item (e) and (k) of the SDM - Corrigendum No. 1/2022. Besides, taking into consideration of design allowance in End of 21st Century, a further 12.1% rainfall increase is incorporated into the hydraulic assessment.

6.3 Hydraulic assessment is enclosed in the **Appendix**. 10% reduction in flow area has been incorporated to cater for potential deposition of sediment in stormwater channels and pipes as recommended in the SDM. The proposed channels and underground drainage are designed to cater for the estimated runoff under the designed rainstorms. With respect to the calculation, the proposed stormwater drainage system is capable to cater for the surface runoff without causing any adverse drainage impacts on the Application Site and its surroundings.

6.4 Since all drainage would have sufficient spare capacity, no water backup will occur at the upstream under rainstorms of 50-year (or lower) return periods.

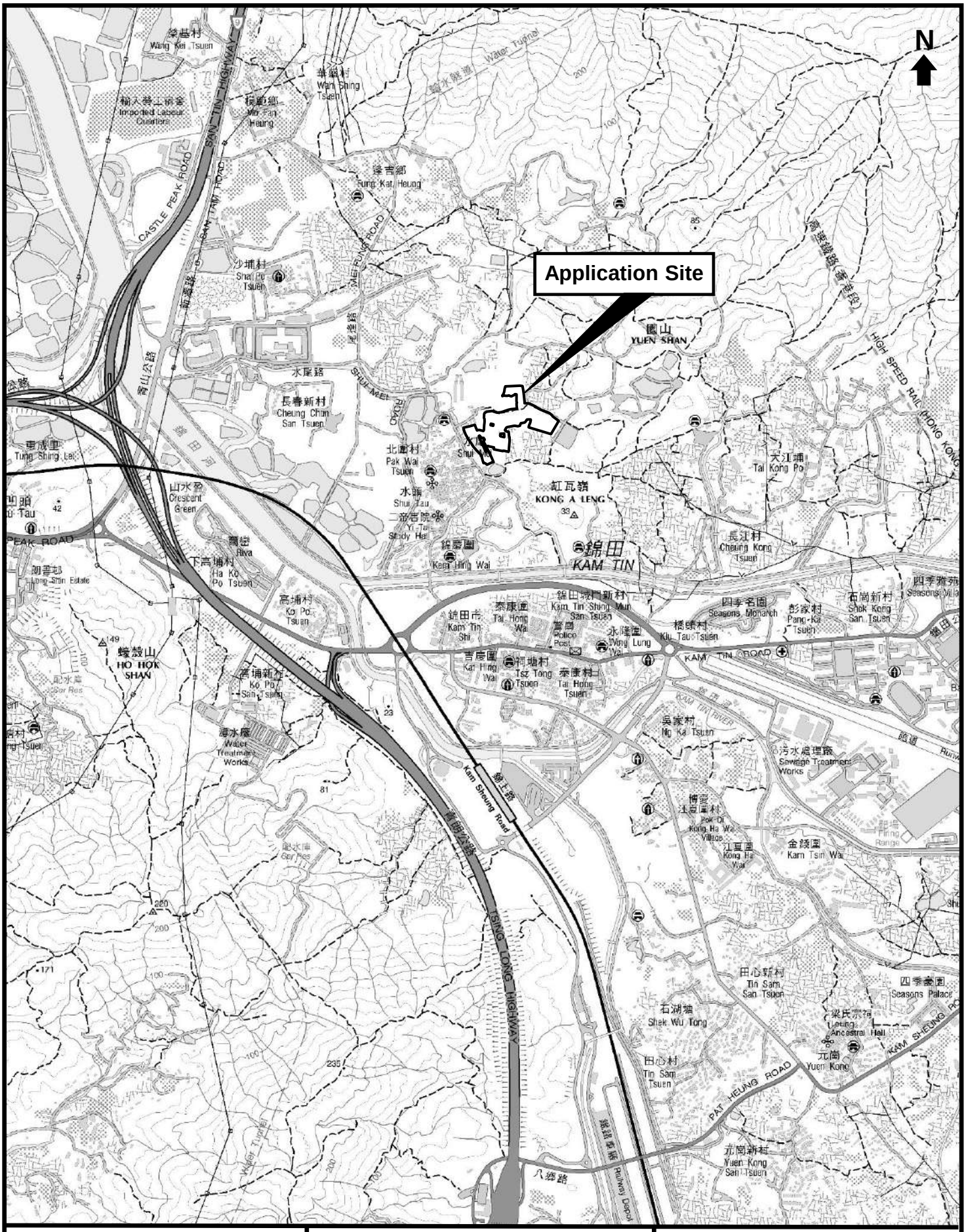
7. Conclusion

7.1 The Application Site is currently used for the applied use. There would be no change in drainage patterns of the subject area except the surface water flows within the Application Site would be properly managed by means of properly designed engineering channels which is considered to be an enhancement of the local drainage conditions.

7.2 Increase in paved area of the proposed development will only be about 480m^2 which will cause only about 1.68% increase in surface runoff from the proposed development. It is considered to be acceptable from drainage engineering point of view and would not cause any unacceptable adverse drainage effects upon the Application Site and its surroundings.

7.3 The proposed development is committed to obtain consents from owners of adjacent relevant land/lots prior to commencement of the proposed drainage works outside the subject site and to maintain the completed drainage works to the satisfaction of relevant Government departments. Besides, the proposed development will clear the vegetation at the existing streamcourse to which the surface runoff of the proposed development would be discharged into.

7.4 In conclusion, the subject proposed development would not cause any adverse drainage impact onto the area.



Top Bright Consultants Ltd.

Extract Plan Based on Map Series HM20C of Sheet 6

Location Plan

Scale 1 : 20 000

FIGURE 1

For Identification Purpose

Date: 30.5.2025

N

Application Site

Legend:

- Government Land (Area = about 875m²)
- Area excluded from the Application Site

Top Bright Consultants Ltd.

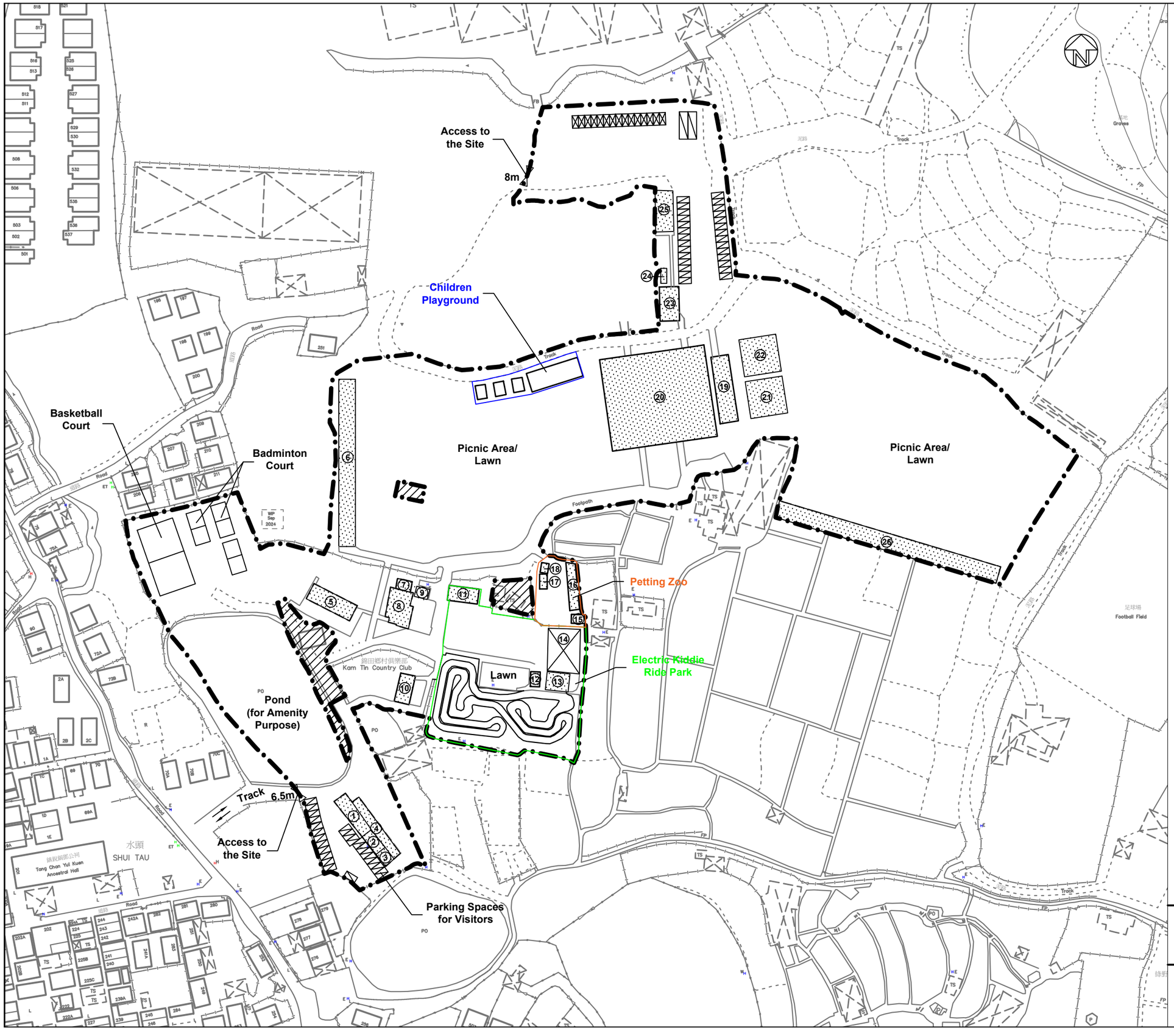
FIGURE 2

For Identification Purpose

Date: 30.5.2025

Site Plan

Scale 1 : 1 500 (A3)



LEGEND:

- Application Site (Area: about 40,616 sq.m.)
- Area Excluded from the Application Site
- Temporary Structures
- Loading/Unloading Spaces for Medium Goods Vehicles (3.5m x 11m) (2 nos.)
- Parking Spaces for Visitors (2.5m x 5m) (51 nos.)
- Drop-off Spaces for Taxis (15 nos.)

Details of Structures:

Structure No.	Uses	No. of Storey	Floor Area (m^2)	Height (m)
1	Visitor Centre	1	104	2.5
2	Site Office/Reception	1	42	2.5
3	Storeroom	1	27	2.5
4	Shade Shelter	1	110	2.5
5	Shelter for Children Playground	1	134	3.5
6	Shade Shelter for Picnic Area	1	450	4.0
7	Washroom	1	26	2.5
8	Storeroom and Shade Shelter	1	136	3.0
9	Shelter for Children Game Area	1	22	3.0
10	Shelter for Handicraft Making	1	71	3.0
11	Shelter for Storage	1	74	3.0
12	Ticket Office and Shelter	1	23	3.0
13	Shelter for Electric Kiddie Ride	1	67	4.5
14	Tent Canopy for Electric Kiddie Ride	1	226	4.5
15	Storeroom	1	20	3.0
16	Shed for Rabbits Petting	1	82	3.0
17	Kiosk	1	18	3.0
18	Shed for Goats Petting	1	12	3.0
19	Food Storage and Serving Area	1	196	4.5
20	Shelter for Barbecue Area	1	1,573	5.0
21	Shelter for Barbecue Area	1	225	5.0
22	Shelter for Barbecue Area	1	225	5.0
23	Washroom	1	107	3.5
24	Nursery Room	1	15	2.5
25	Storeroom	1	120	3.0
26	Shade Shelter for Picnic Area	1	638	4.0
		Total:	4,743	

Top Bright Consultants Ltd.

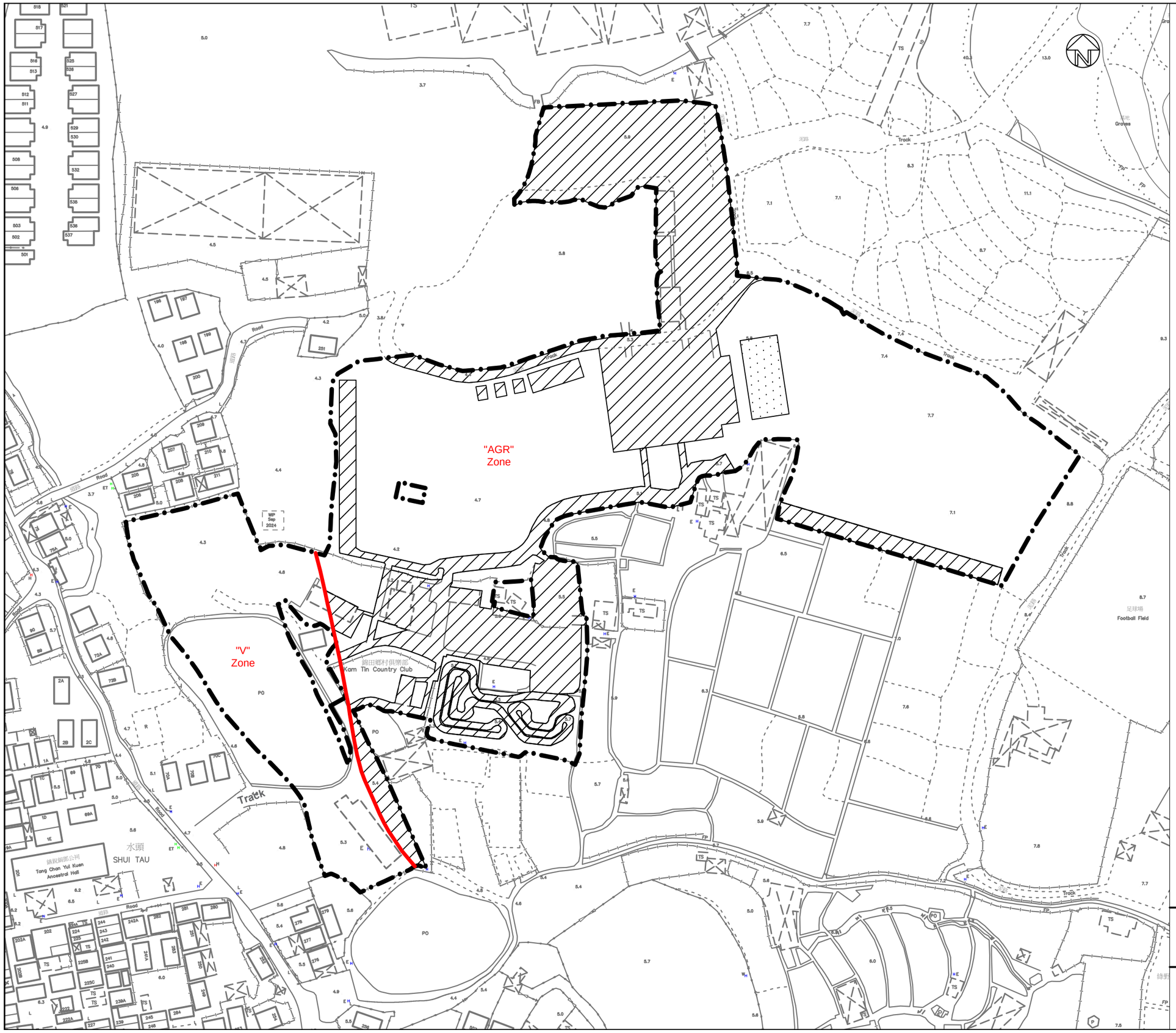
Drawing No. :TB/25/858/06

FIGURE 6

FOR IDENTIFICATION PURPOSE

Scale: 1 : 1 500 (A3)

Layout Plan



LEGEND:

- Application Site (Area: about 40,616 sq.m.)
- Zoning Boundary
- Existing Paved Area
  - Area: about 14,000m²
  - Existing Site Level: +4.3-7mPD (about)
  - Filling Material: Concrete / Asphalt
- Proposed Filling of Land
  - Area: about 480m²
  - Depth: not more than 0.2m
  - Proposed Site Level: +6mPD (about)
  - Filling Material: Concrete

Top Bright Consultants Ltd.

Drawing No. :TB/25/858/07

FIGURE 7

FOR IDENTIFICATION PURPOSE

Scale: 1 : 1 500 (A3)

Land Filling Plan

824300 E
824400 E
824500 E
824600 E
824700 E
824800 E
824900 E
825000 E
834500 N
834400 N
834300 N
834200 N
834100 N

EXISTING
STREAMCOURSE

FALL

EXISTING
STREAMCOURSE

BIN MO KIU

SHUI MEI

SHUI TAU

PAK WAI TSUEN

Tin Country Club

LEGEND:

THE APPLICATION SITE BOUNDARY

EXISTING STORMWATER DRAINAGE / CHANNEL

(N)→ LOCATION OF PHOTO TAKEN (No.N)

PROJECT

何田顧問工程師有限公司
HO TIN & ASSOCIATES
CONSULTING ENGINEERS LIMITED

TITLE
EXISTING DRAINAGE FLOW PATHS
(WITH LOCATIONS OF PHOTO TAKEN IN SEPTEMBER 2025)

SCALE
1 : 2000 (A3)

DRAWING No.
PLAN 1

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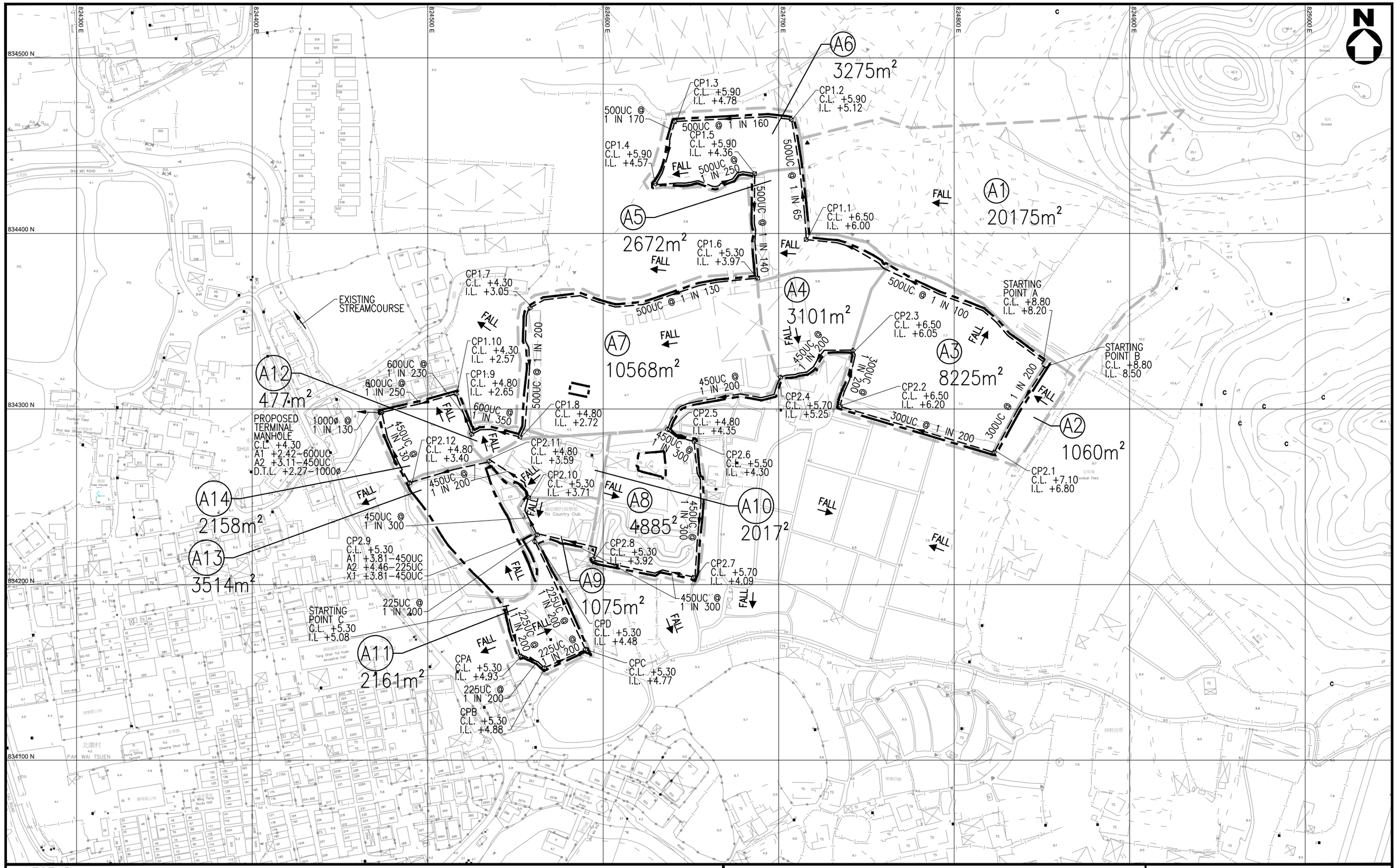

LEGEND:

THE APPLICATION SITE BOUNDARY

STORMWATER CATCHMENT BOUNDARY

PROPOSED CATCHPIT

PROPOSED U-CHANNEL

PROJECT

何田顧問工程師有限公司
HO TIN & ASSOCIATES
CONSULTING ENGINEERS LIMITED

TITLE

PROPOSED STORMWATER DRAINAGE LAYOUT
(WITH SUB-CATCHMENT AREA SHOWN)

SCALE

1 : 2000(A3)

DRAWING No.

PLAN 2

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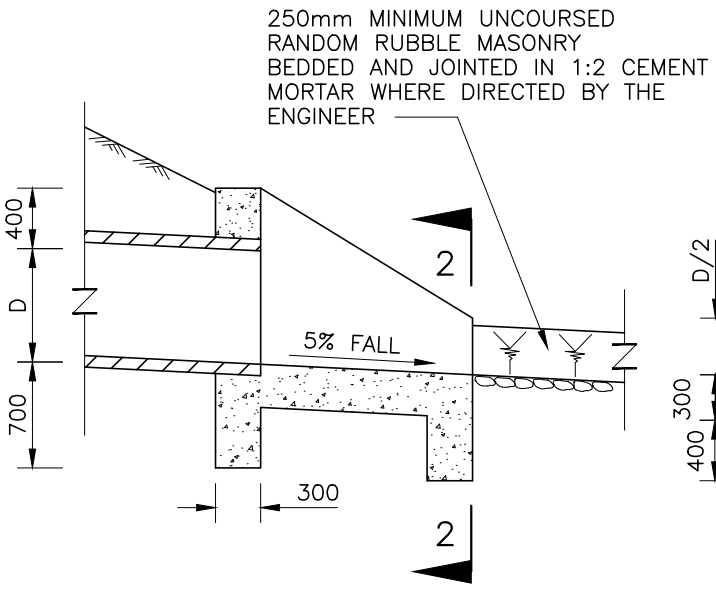

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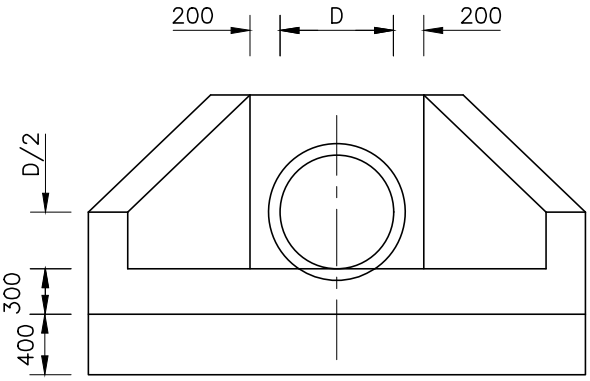
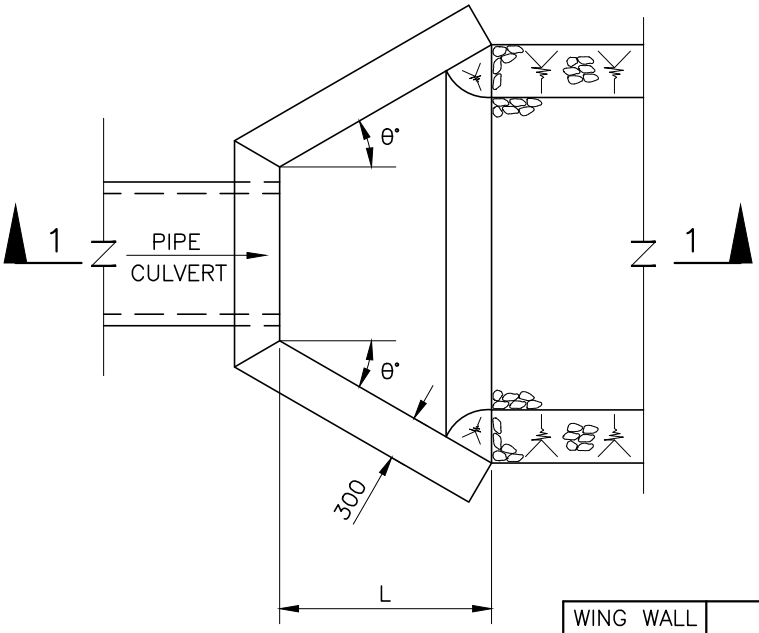


2—2



PLAN

NOTES :

1. CONCRETE : GRADE 30D/20

WING WALL FLARE θ°	DIAMETER OF PIPE CULVERT D			
	450—750	900—1200	1350—1650	1800—1950
	L			
0°	1800	2400	3000	3600
30°	1400	1800	2300	2700
45°	1200	1500	1900	2300

PROJECT

何田顧問工程師有限公司
HO TIN & ASSOCIATES
CONSULTING ENGINEERS LIMITED

TITLE

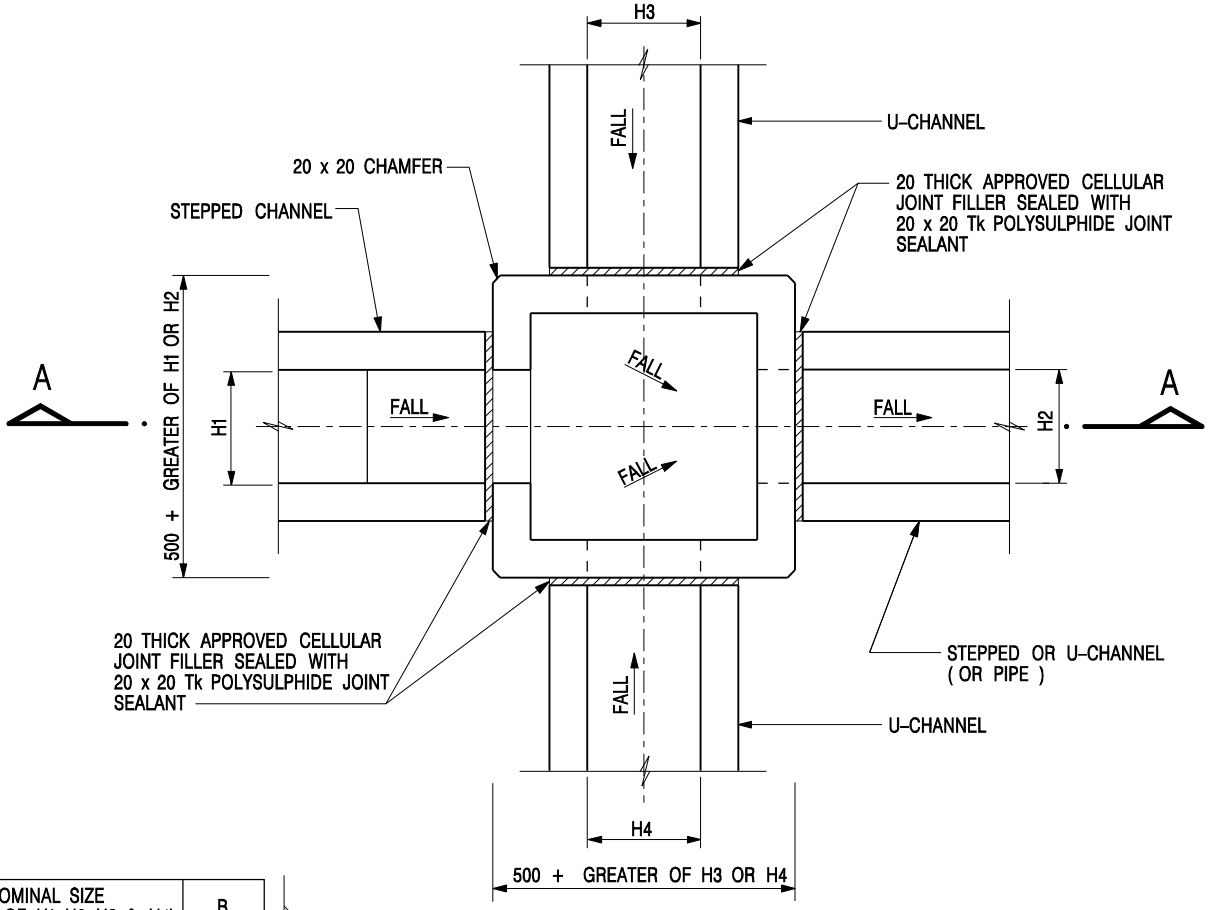
DETAILS OF OUTFALL

SCALE

N. T. S.

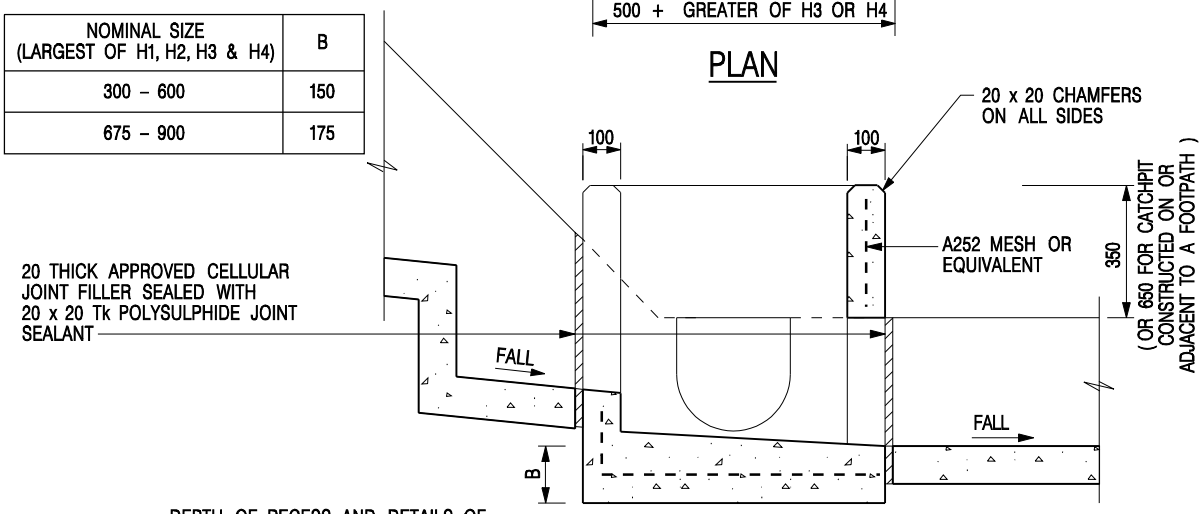
DRAWING No.

PLAN 3

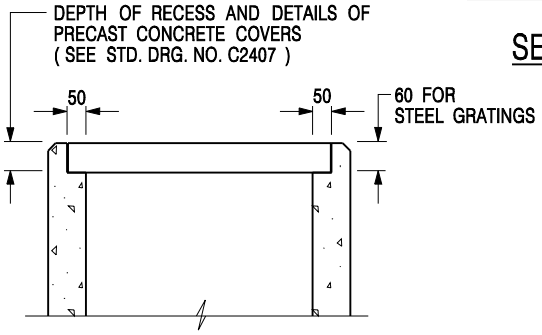


PLAN

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 5 FOR OTHER NOTES.

ALTERNATIVE TOP SECTION FOR PRECAST CONCRETE COVERS / GRATINGS

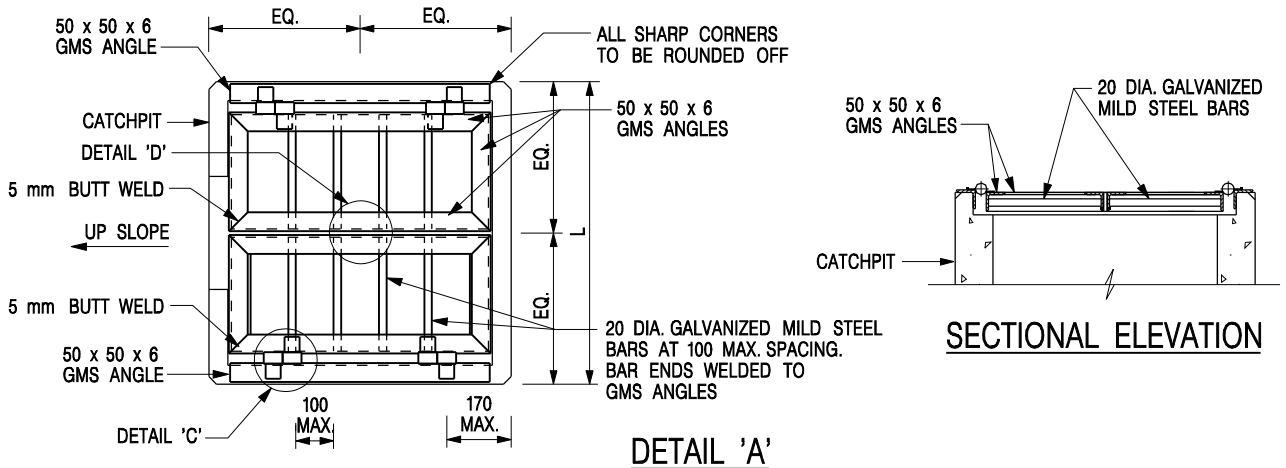
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2405J.	Original Signed	03.2015

STANDARD CATCHPIT DETAILS

(SHEET 1 OF 5)

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

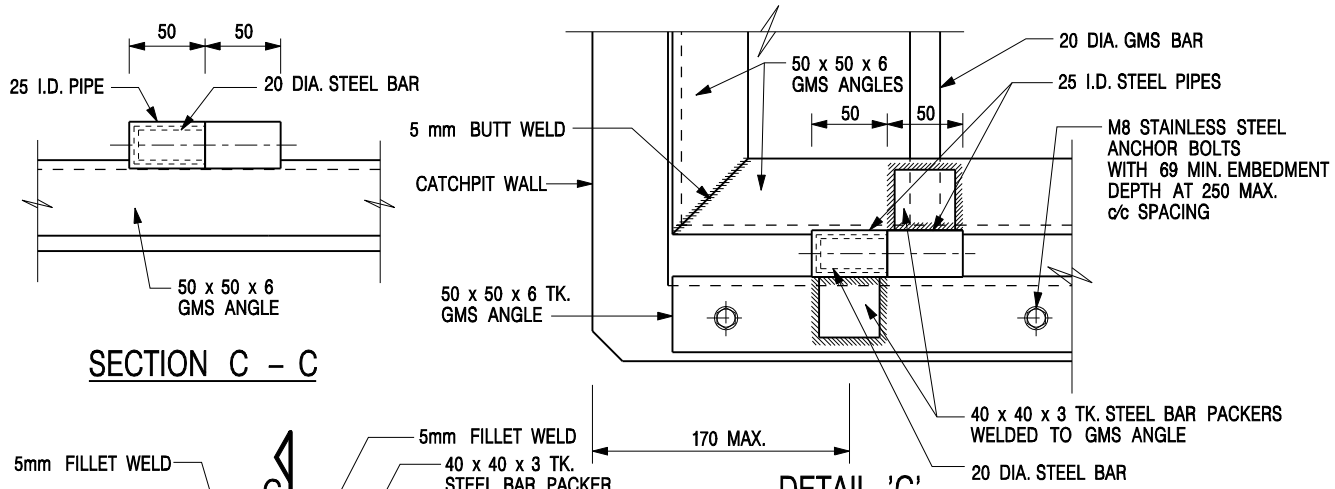
SCALE	1 : 20	DRAWING NO.
DATE	JAN 1991	C2405 /1



DETAIL 'A'

(DETAILS OF DOUBLE SIDE OPENING STEEL GRATING FOR L>900mm)

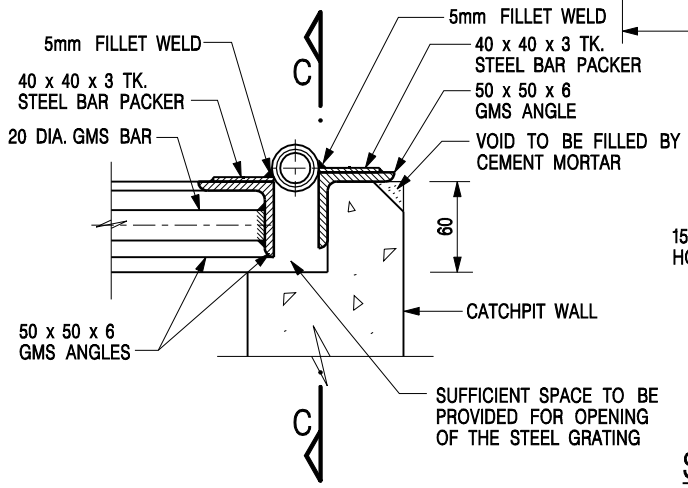
SCALE 1 : 20



DETAIL 'C'

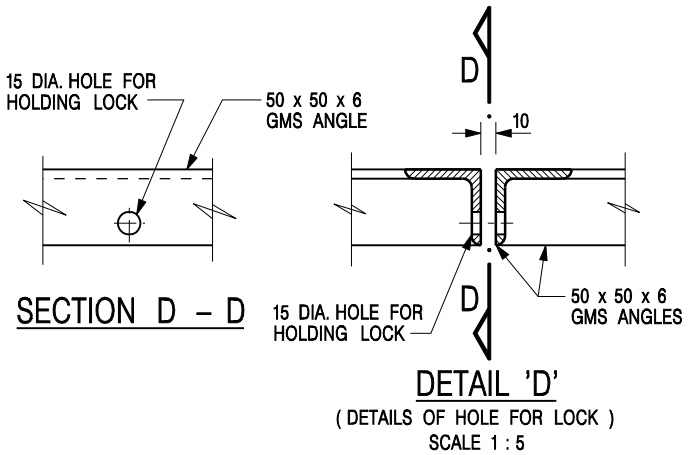
(DETAILS OF HINGE)

SCALE 1 : 5



SECTIONAL ELEVATION

(DETAIL 'C')



DETAIL 'D'

(DETAILS OF HOLE FOR LOCK)

SCALE 1 : 5

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 5 FOR OTHER NOTES.

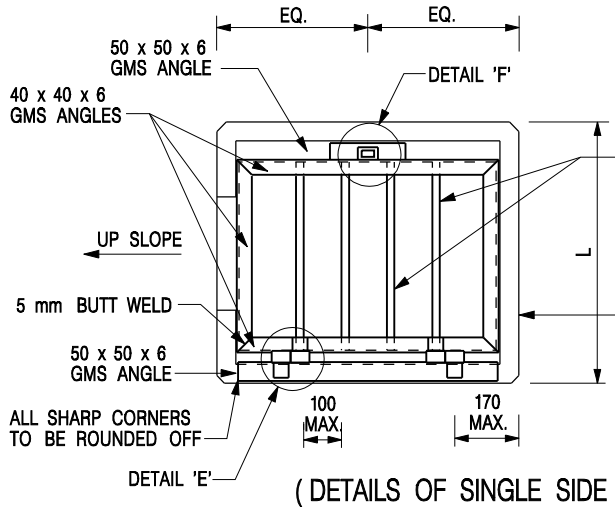
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2405J.	Original Signed	03.2015

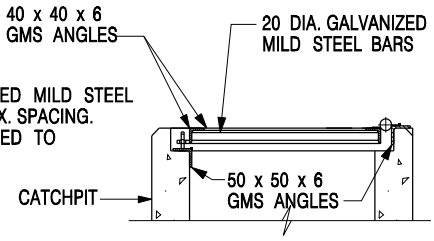
STANDARD CATCHPIT DETAILS

(SHEET 2 OF 5)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE	AS SHOWN	DRAWING NO.
DATE	JAN 1991	C2405 /2



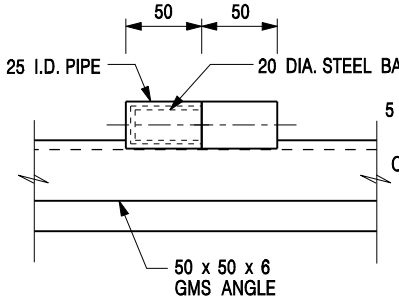


SECTIONAL ELEVATION

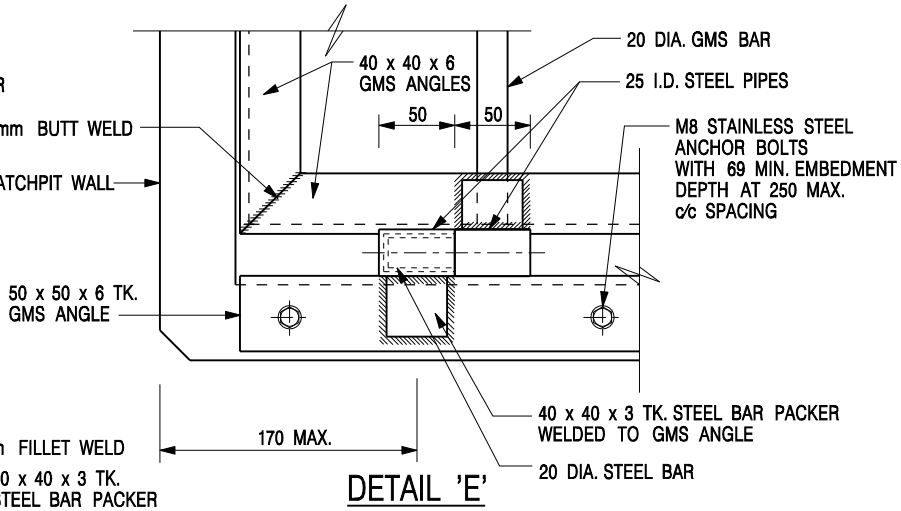
DETAIL 'B'

(DETAILS OF SINGLE SIDE OPENING STEEL GRATING FOR L≤900mm)

SCALE 1 : 20



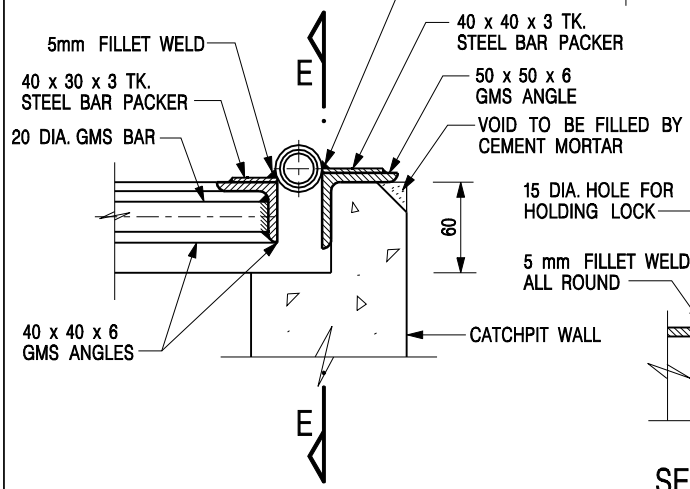
SECTION E – E



DETAIL 'E'

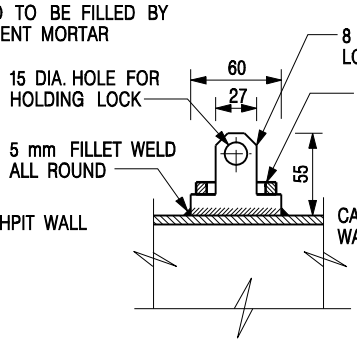
(DETAILS OF HINGE)

SCALE 1 : 5

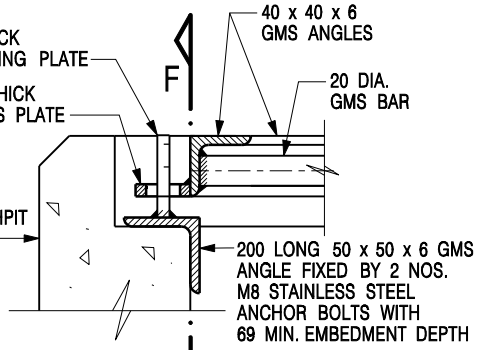


SECTIONAL ELEVATION

(DETAIL 'E')



SECTION F – F



DETAIL 'F'

(DETAILS OF LOCKING PLATE)

SCALE 1 : 5

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 5 FOR OTHER NOTES.

REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2405J.	Original Signed	03.2015

STANDARD CATCHPIT DETAILS

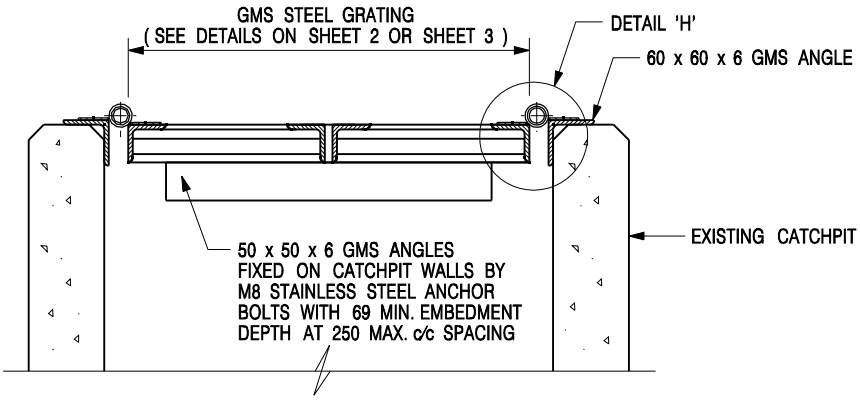
(SHEET 3 OF 5)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE AS SHOWN

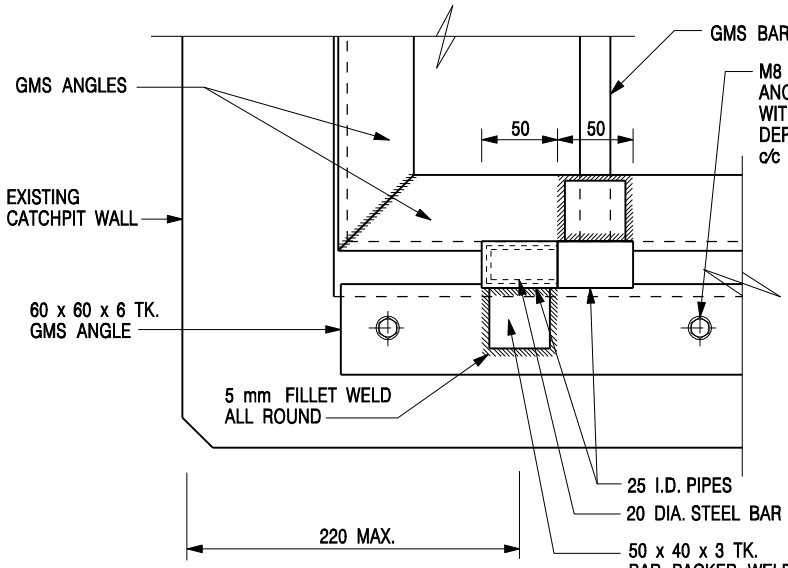
DATE JAN 1991

DRAWING NO. C2405 /3



DETAIL 'G' – DETAILS OF STEEL GRATING CONSTRUCTED ON EXISTING CATCHPIT

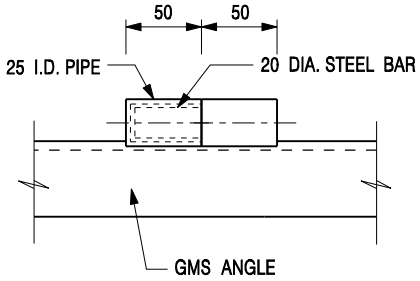
SCALE 1 : 10



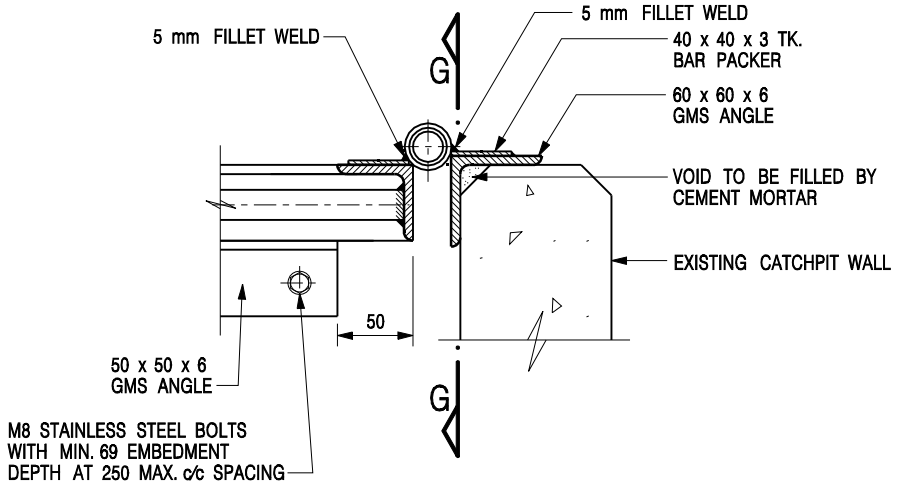
DETAIL 'H'

(DETAILS OF HINGE)

SCALE 1 : 5



SECTION G – G



SECTIONAL ELEVATION

(DETAIL 'H')

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. REFER TO SHEET 5 FOR OTHER NOTES.

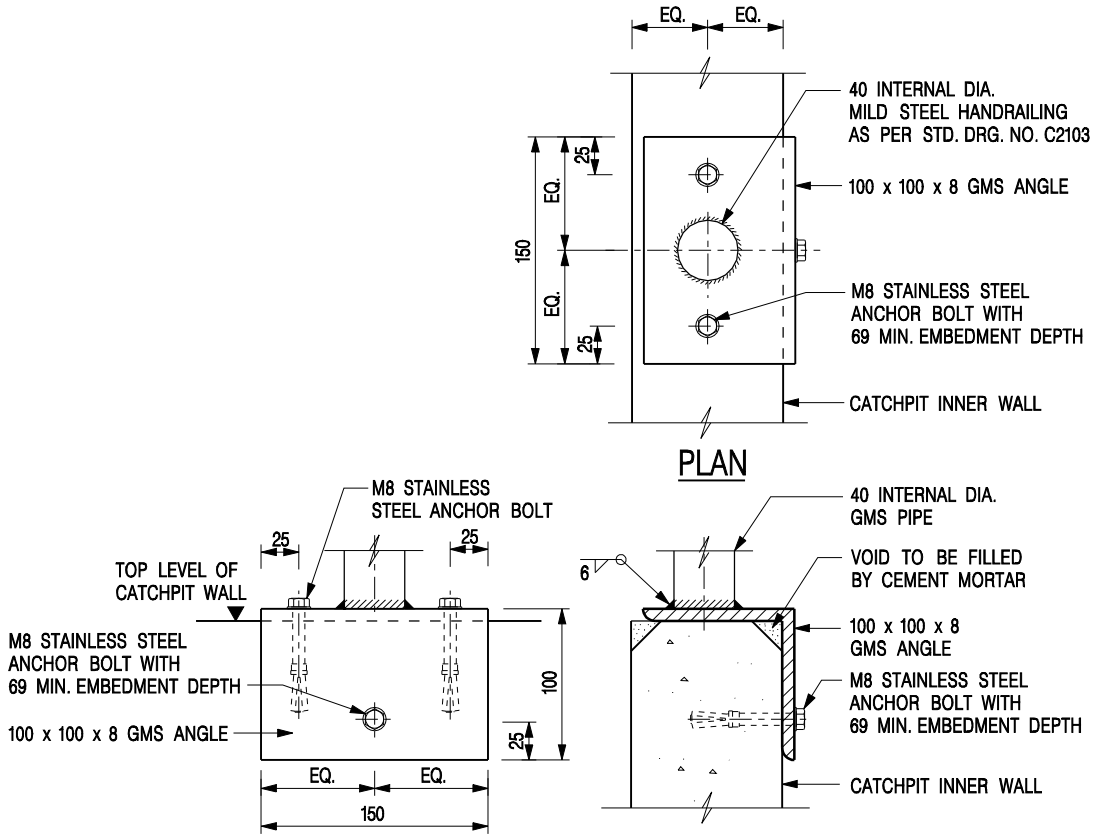
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2405J.	Original Signed	03.2015

STANDARD CATCHPIT DETAILS

(SHEET 4 OF 5)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE AS SHOWN	DRAWING NO. C2405 /4
DATE JAN 1991	



DETAIL 'J' – FIXING DETAILS FOR HANDRAILING ON TOP OF CATCHPIT WALL

SCALE 1 : 5

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. FOR CATCHPITS CONSTRUCTED ON OR ADJACENT TO A FOOTPATH, STEEL GRATINGS (SEE DETAILS ON SHEET 2 OR SHEET 3) OR CONCRETE COVERS (SEE STD. DRG. NO. C2407) SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER.
7. IF INSTRUCTED BY THE ENGINEER, HANDRAILING (SEE DETAIL 'J' ON SHEET 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.
8. 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 mm c/c STAGGERED SHALL BE PROVIDED. THICKNESS OF CATCHPIT WALL FOR INSTALLATION OF STEP IRONS SHALL BE INCREASED TO 150 mm.
9. FOR RETROFITTING AN EXISTING CATCHPIT WITH STEEL GRATING, SEE DETAIL 'G' ON SHEET 4.
10. ALL STEEL ANGLES SHALL COMPLY WITH BS EN 10025 AND BS EN 10056.
11. UNLESS OTHERWISE SPECIFIED, ALL WELDS SHALL BE 5 mm CONTINUOUS FILLET WELDS.
12. ALL WELDS SHALL BE CHIPPED, GROUND SMOOTH, BRUSHED TO REMOVE SLAG PRIOR TO HOT-DIP GALVANIZATION.
13. ALL STEELWORK SHALL BE HOT-DIP GALVANIZED TO BS EN ISO 1461. ALL EXPOSED STEELWORK SURFACES SHALL BE TREATED AND PAINTED IN ACCORDANCE WITH THE GENERAL SPECIFICATION.
14. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2405J.	Original Signed	03.2015

STANDARD CATCHPIT DETAILS

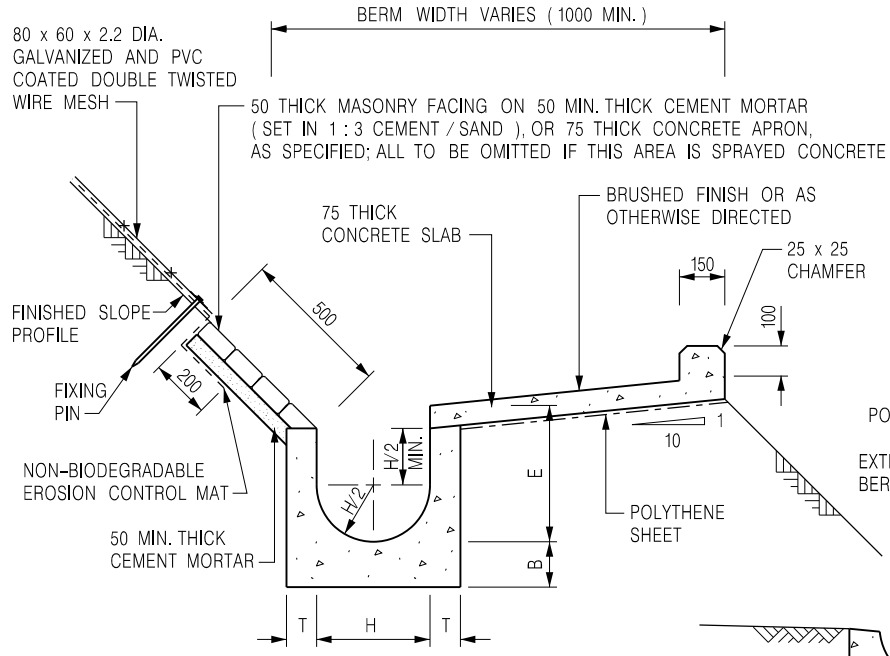
(SHEET 5 OF 5)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

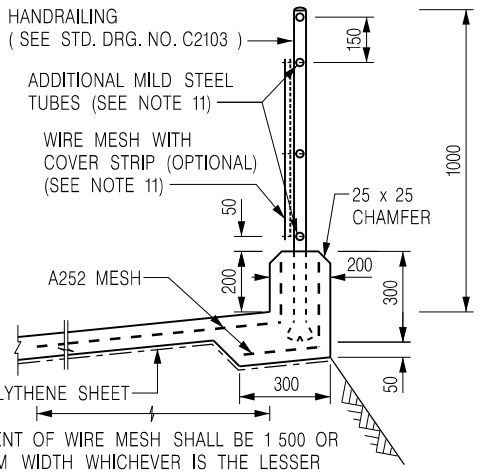
SCALE AS SHOWN

DATE JAN 1991

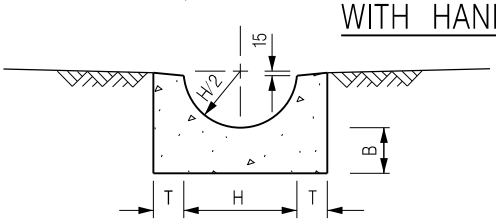
DRAWING NO. C2405 /5



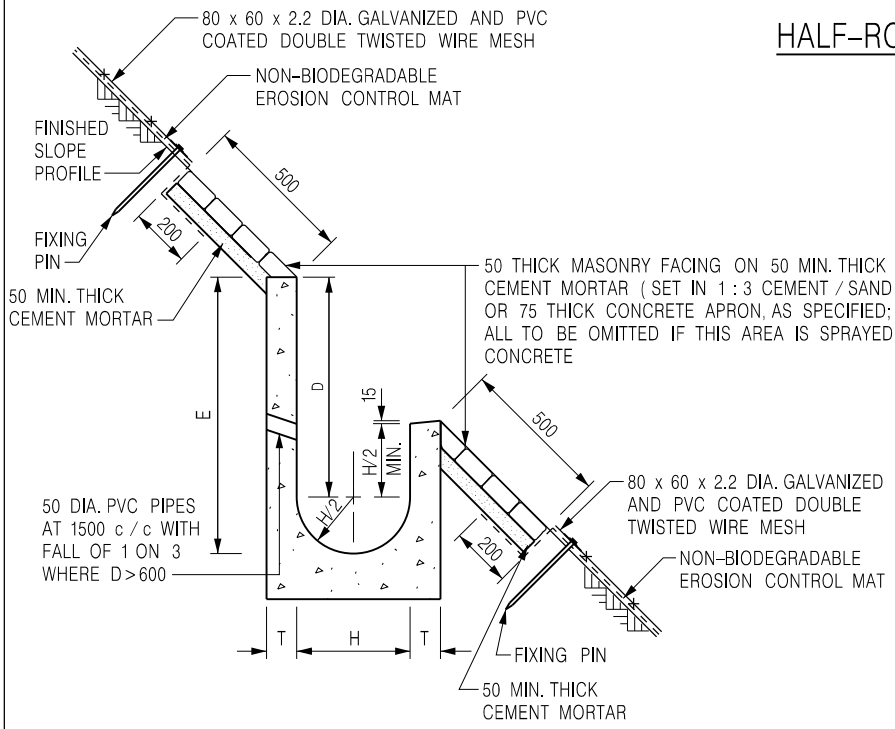
U-CHANNELS CONSTRUCTED ON BERM



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)
11. THE WIRE MESH ON HANDRAILING IS OPTIONAL. THE COVER STRIP AND ADDITIONAL MILD STEEL TUBES ARE NEEDED ONLY IF WIRE MESH IS PROVIDED. (SEE STD. DRG. NO. C2103)

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
J	DETAILS OF HANDRAILING AMENDED.	Original Signed	08.2024
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

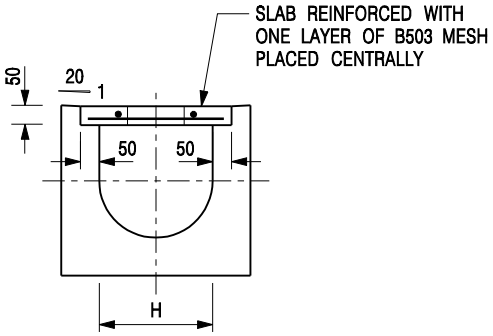
DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE A – WITH MASONRY APRON)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

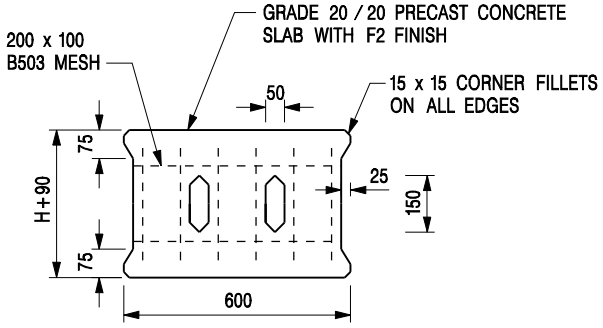
SCALE 1 : 25

DATE JAN 1991

DRAWING NO. C2409J



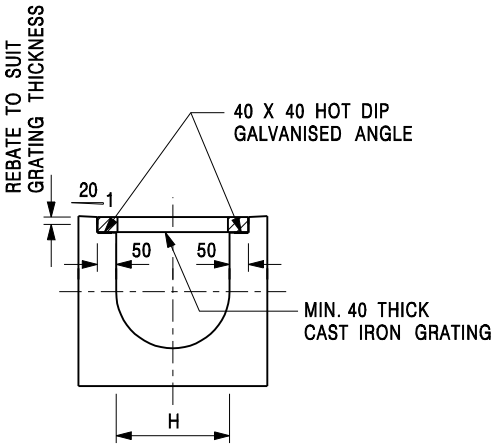
TYPICAL SECTION



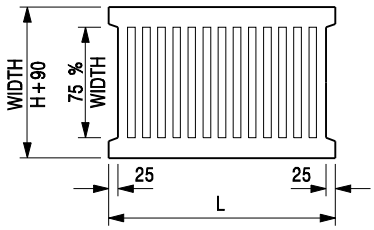
PLAN OF SLAB

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

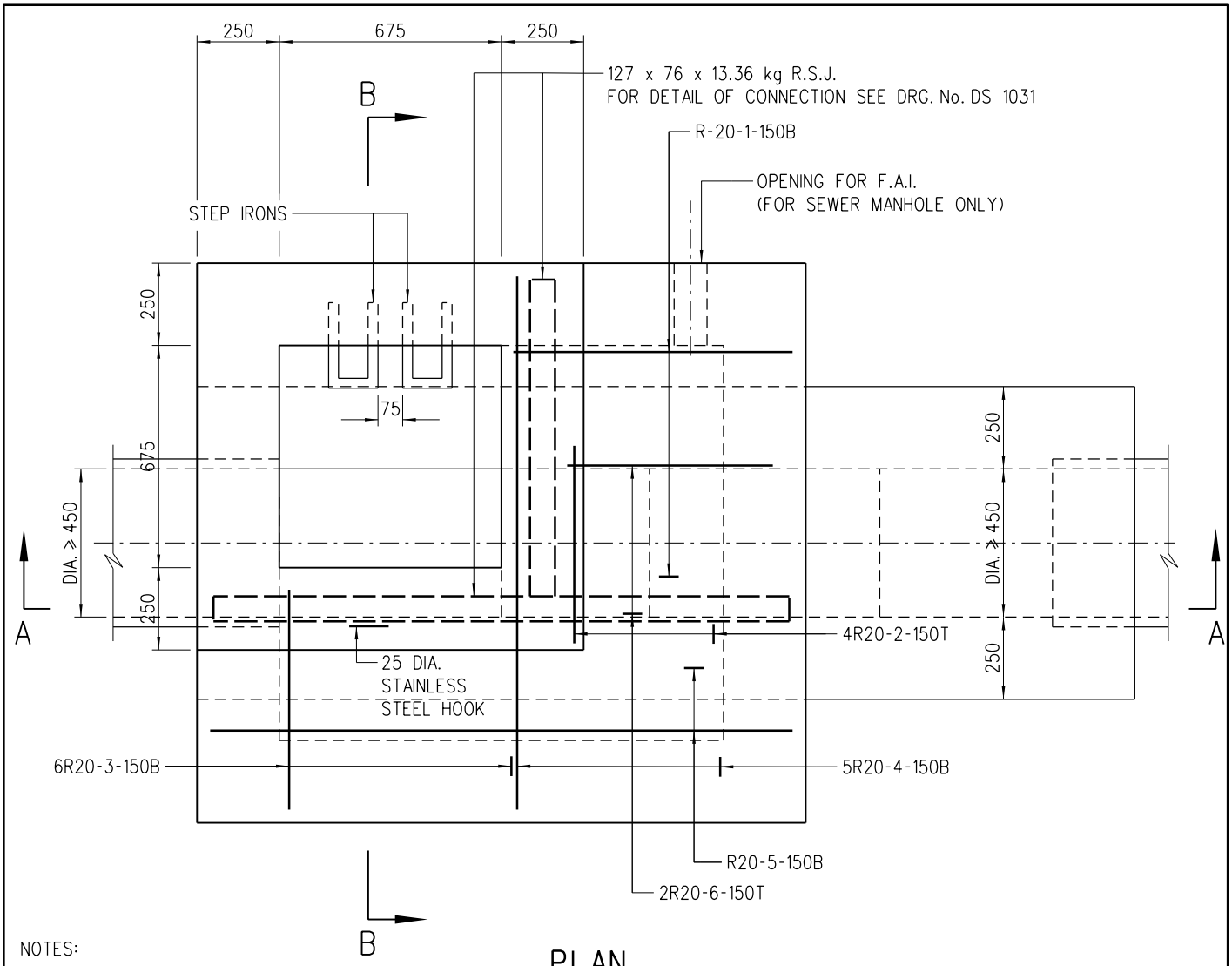
COVER SLAB AND CAST IRON GRATING FOR CHANNELS

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2412E



PLAN

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. NOTATION OF REINFORCEMENT : THE SEQUENCE OF DESCRIPTION OF IDENTIFICATION MARKS ON DRAWINGS FOR STEEL REINFORCING BARS FOR CONCRETE WORK IS AS FOLLOWS (NUMBER, TYPE, SIZE, MARK, SPACING, LOCATION OR COMMENT)
3. B DENOTES GRADE 500B RIBBED REINFORCEMENT.
4. R DENOTES GRADE 250 PLAIN REINFORCEMENT.
5. PIPE DIAMETER : EQUAL OR GREATER THAN 450 mm
6. NORMAL RANGE OF DEPTH : 1 750 TO 4 250 mm (MEASURED FROM ROAD LEVEL TO LOWEST INVERT)
7. USED IN : STORMWATER DRAIN AND SEWER
8. JUNCTION : POSITION OF JUNCTION TO BE DETERMINED IN EACH INDIVIDUAL CASE. CHANNELS IMMEDIATELY UNDER ACCESS TO MANHOLE SHOULD BE AVOIDED.
9. TOP TREATMENT : SEE DRAWING No. DS 1032
10. STEP IRON : SEE DRAWING No. DS 1043
11. FOUNDATION : FOUNDATION OF MANHOLE VARIES WITH SITE CONDITION. THEREFORE, IT SHOULD BE DETERMINED ON SITE BY THE ENGINEER.
12. CONCRETE MIX : GRADE 30/20
13. DIAMETER OF F.A.I. NORMALLY 100 mm
14. MINIMUM COVER AT END OF BARS 40 mm
15. COVER AND FRAME NOT SHOWN ON PLAN FOR CLARITY.
16. RECESS WITH SQUARE STEEL ROD SHALL BE PROVIDED AT TOP OF MANHOLE CHAMBER FOR INSTALLING MONITORING DEVICE(S). DETAILS REFER TO DSD STANDARD DRAWING NO. DS 1099.

REV.	DESCRIPTION	SIGNATURE	DATE
A	NOTE 16 ADDED	ORIGINAL SIGNED	2.8.2022
	NEW ISSUE	ORIGINAL SIGNED	13.1.2016

TERMINAL MANHOLE TYPE T2_1

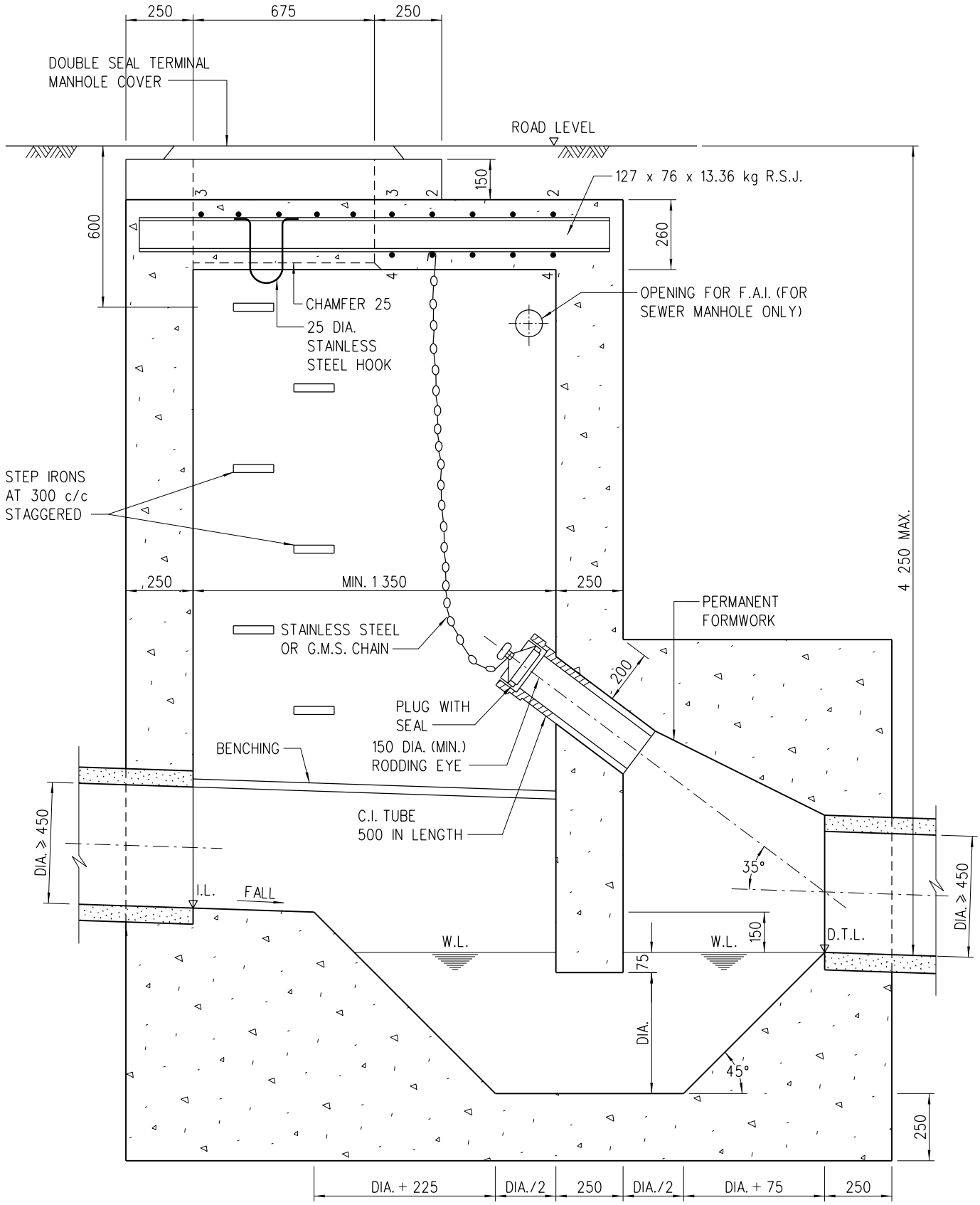
DRAINAGE SERVICES DEPARTMENT

REFERENCE

SCALE 1 : 20

DRAWING No. DS 1091A

(SHEET 1 OF 3)



SECTION A-A

REV.	DESCRIPTION	SIGNATURE	DATE
A	NOTE 16 ADDED	ORIGINAL SIGNED	2.8.2022
	NEW ISSUE	ORIGINAL SIGNED	13.1.2016

TERMINAL MANHOLE TYPE T2_1

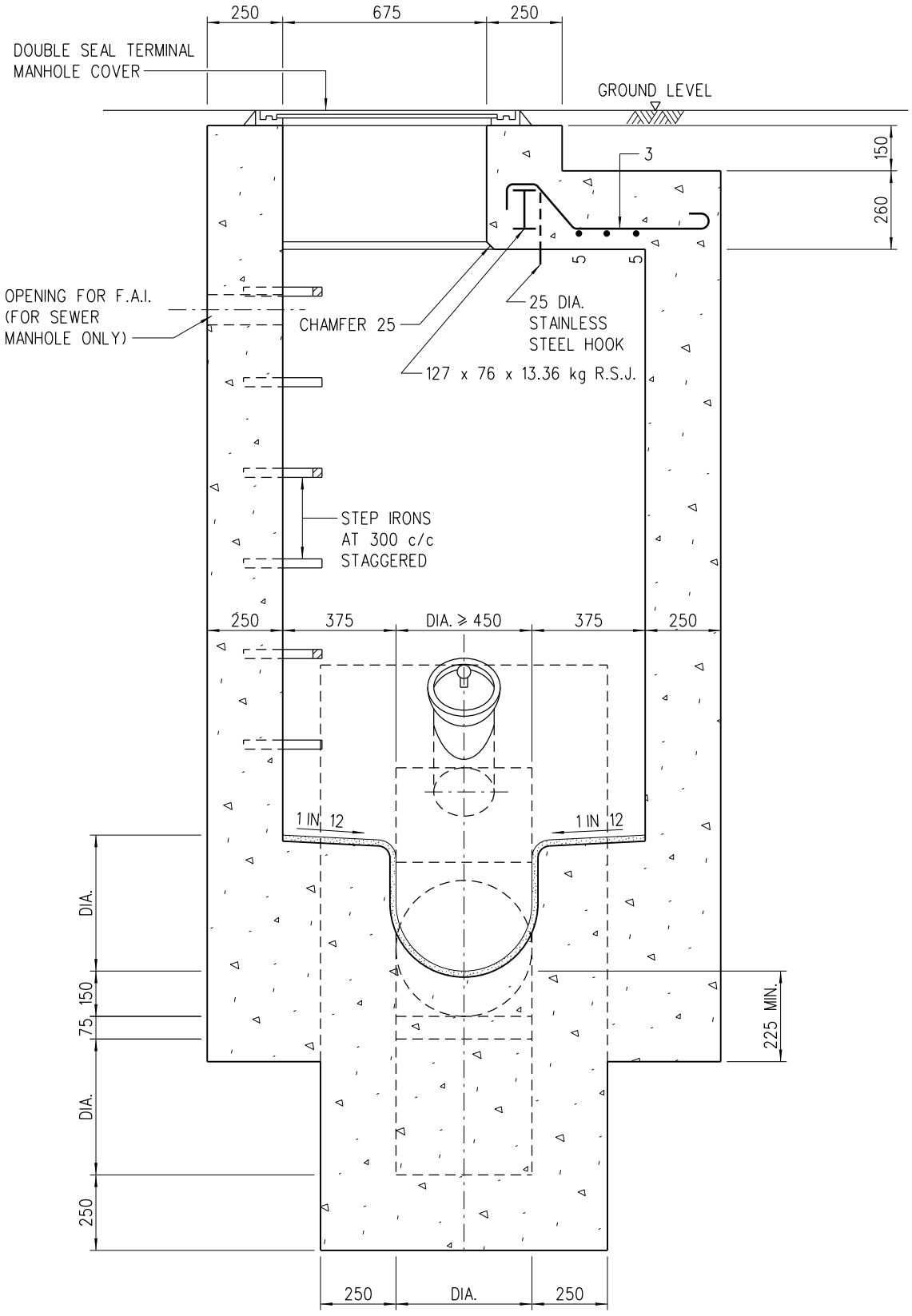
DRAINAGE SERVICES DEPARTMENT

REFERENCE

SCALE 1 : 20

DRAWING No. DS 1091A

(SHEET 2 OF 3)



SECTION B-B

REV.	DESCRIPTION	SIGNATURE	DATE
A	NOTE 16 ADDED	ORIGINAL SIGNED	2.8.2022
	NEW ISSUE	ORIGINAL SIGNED	13.1.2016

TERMINAL MANHOLE TYPE T2_1

DRAINAGE SERVICES DEPARTMENT

REFERENCE

SCALE 1 : 20

DRAWING No. DS 1091A

(SHEET 3 OF 3)

Assessment of Hydraulic Capacities of the Proposed Drainage System for 1 in 50 year design return period

Using Rational Method

Design Flow = 0.278CiA m^3/s for grassland (heavy soil) - flat, C = 0.25
for concrete surface, C = 0.95
equivalent C within the Application Site = [[0.95 x (14,000 + 480)] + [0.25 x [40,616 –(14,000 + 480)]]] / 40,616 = 0.50

Using Manning Equation

Design Mean Velocity = $R^{1/6}/n(RS_f)^{1/2}$ where n = 0.016 for concrete-lined open channel with fair surface
0.045 for natural stream channels, winding some pools and shoals with some weeds and stones with fair surface
(ref. Table13 in SDM)

Using Gumbel Solution in frequency analysis

Rainfall intensity = $a / (t_d+b)^c$ where a = 505.5 , b= 3.29 and c= 0.355 in 50 year design return period
referenced from Table 3a in SDM - Storm Constants for Different Return Periods of HKO Headquarters

Using Bransby William's Equation (for channel flow)

Inlet time t_0 = $0.14465L/ (H^{0.2}A^{0.1})$ or 2 when the distance is too short

Using Colebrook's White Equation (for pipe flow)

V = - Sqt (8gDs) x log [(k_s / 3.7D) + (2.51v / D x Sqt (2gDs))]

For precast concrete pipes with 'O' ring joints with poor condition,
k_s (mm) = 0.6 k_s (m) = 0.0006
v (m^2/s) = 1.00E-06
g (m^2/s) = 9.81

* - conservative, as the subject proposed development is for temporary use for 3 years only

(1) USCP/USMH	(2) DSCP/DSMH	(3) Collected Runoff from Catchment (refer to Figure 3 and 4)	(4) USGL (mPD)	(5) DSGL (mPD)	(6) USIL (mPD)	(7) DSIL (mPD)	(8) INVERT DIFF. (m)	(9) LENGTH OF CHANNEL / DRAIN l (m)	(10) SLOPE s	(11) SLOPE 1 IN	(12) LENGTH FOR CALCULATION OF INLET TIME L (m)	(13) AVERAGE SLOPE OF GROUND FOR CALCULATION OF INLET TIME H (m per 100m)	(14) INLET TIME t_0(min) = 0.14465 x [L/($H^{0.2}$ $A^{0.1}$)]	(15) TIME OF FLOW INSIDE CHANNEL/ DRAIN t_t (min) = l/V (i.e. Column (9) ÷ Column (26) ÷ 60)	(16) TIME OF CONCENTRATION t_c (min) = t_0 + t_t	(17) RAINFALL INTENSITY i (mm/hr)	(18) RAINFALL INTENSITY INCLUDING EFFECT OF CLIMATE CHANGE (+16.0%*) (mm/hr) [refer to item (e) and (k) in SDM Corrigendum No. 1/2022]	(19) ADOPTED RAINFALL INTENSITY INCLUDING EFFECT OF CLIMATE CHANGE (+16.0%) & DESIGN ALLOWANCE (12.1%) (mm/hr) [refer to item (e), (k) and (n) in SDM Corrigendum No. 1/2022]	(20) RUNOFF COEF. C	(21) SUB-CATCHMENT AREA A (m^2)	(22) EFF. AREA (m^2)	(23) CUM. EFF. AREA (m^2)	(24) DESIGN FLOW (m^3/s)	(25) SIZE (mm)	(26) CHANNEL TYPE	(27) VELOCITY (m/s)	(28) FLOW CAPACITY (m^3/s)	(29) 90% FLOW CAPACITY (m^3/s) (to cater for potential deposition of sediment)	(30) SPARE CAPACITY (m^3/s)	(31) Occupancy of the Proposed Pipe / Channel	
Starting Point A	CP1.1	A3	8.80	6.50	8.20	6.00	1.46	146.00	0.010	100	218.00	8.95	8.26	1.25	9.51	204.49	237.21	265.91	0.50	8,225	4,109	4,109	0.304	500	UC	1.95	0.43	0.39	0.087	77.7%	OK!
CP1.1	CP1.2	A3 + A1	6.50	5.90	6.00	5.12	0.88	57.00	0.015	65	-	-	9.51	0.36	9.87	202.47	234.87	263.29	0.25	20,175	5,044	9,153	0.670	500	UC	2.62	0.95	0.85	0.183	78.5%	OK!
CP1.2	CP1.3	ditto	5.90	5.90	5.12	4.78	0.34	55.00	0.006	160	-	-	9.87	0.52	10.40	199.69	231.64	259.67	0.50	0	0	9,153	0.661	500	UC	1.75	0.93	0.84	0.181	78.5%	OK!
CP1.3	CP1.4	A3 + A1 + A6	5.90	5.90	4.78	4.57	0.21	36.00	0.006	170	-	-	10.40	0.35	10.74	197.92	229.59	257.37	0.50	3,275	1,636	10,789	0.772	500	UC	1.73	1.11	1.00	0.223	77.6%	OK!
CP1.4	CP1.5	ditto	5.90	5.90	4.57	4.36	0.21	52.00	0.004	250	-	-	10.74	0.60	11.34	195.00	226.20	253.57	0.50	0	0	10,789	0.761	500	UC	1.44	1.07	0.97	0.206	78.7%	OK!
CP1.5	CP1.6	A3 + A1 + A6 + A5	5.90	5.30	4.36	3.97	0.39	54.00	0.007	140	-	-	11.34	0.47	11.81	192.81	223.66	250.73	0.50	2,672	1,335	12,123	0.845	500	UC	1.91	1.21	1.09	0.246	77.5%	OK!
CP1.6	CP1.7	ditto	5.30	4.30	3.97	3.05	0.92	120.00	0.008	130	-	-	11.81	1.02	12.83	188.40	218.55	244.99	0.50	0	0	12,123	0.826	500	UC	1.97	1.18	1.06	0.232	78.1%	OK!
CP1.7	CP1.8	A3 + A1 + A6 + A5 + A7	4.30	4.80	3.05	2.72	0.33	66.00	0.005	200	-	-	11.81	0.67	12.48	189.88	220.26	246.91	0.50	10,568	5,279	17,403	1.195	500	UC	1.65	1.67	1.50	0.308	79.5%	OK!
CP1.8	CP1.9	A3 + A1 + A6 + A5 + A7 + A12	4.80	4.80	2.72	2.65	0.07	24.00	0.003	350	-	-	11.81	0.29	12.10	191.53	222.17	249.06	0.50	477	238	17,641	1.221	600	UC	1.39	1.74	1.57	0.347	77.9%	OK!
CP1.9	CP1.10	ditto	4.80	4.30	2.65	2.57	0.09	20.00	0.004	230	-	-	12.83	0.20	13.03	187.59	217.61	243.94	0.50	0	0	17,641	1.196	600	UC	1.69	1.70	1.53	0.329	78.4%	OK!
CP1.10	TM	A3 + A1 + A6 + A5 + A7 + A12 + A14	4.30	4.30	2.57	2.42	0.14	36.00	0.004	250	-	-	12.83	0.37	13.20	186.90	216.81	243.04	0.50	2,158	1,078	18,719	1.265	600	UC	1.63	1.78	1.60	0.335	79.1%	OK!
Starting Point C	CP A	nominal	5.30	5.30	5.08	4.93	0.15	30.00	0.005	200	15.00	0.50	4.97	0.56	5.54	233.32	270.66	303.41	0.50	0	0	0	0.000	225	UC	0.89	0.07	0.06	0.063	0.0%	OK!
CP A	CP B	nominal	5.30	5.30	4.93	4.88	0.05	10.00	0.005	200	-	-	5.54	0.18	5.72	231.61	268.67	301.18	0.50	0	0	0	0.000	225	UC	0.90	0.08	0.07	0.073	0.0%	OK!
CP B	CP C	nominal	5.30	5.30	4.88	4.77	0.11	22.00	0.005	200	-	-	5.72	0.40	6.12	228.11	264.60	296.62	0.50	0	0	0	0.000	225	UC	0.93	0.11	0.10	0.096	0.0%	OK!
CP C	CP D	nominal	5.30	5.30	4.77	4.48	0.29	57.00	0.005	200	-	-	6.12	0.99	7.11	220.15	255.37	286.27	0.50	0	0	0	0.000	225	UC	0.96	0.17	0.15	0.155	0.0%	OK!
CP D	CP2.9	A11	5.30	5.30	4.48	4.46	0.02	4.00	0.005	200	-	-	7.11	0.07	7.18	219.63	254.77	285.60	0.50	2,161	1,080	1,080	0.086	225	UC	0.96	0.18	0.16	0.073	53.9%	OK!
Starting Point B	CP2.1	A2	8.80	7.10	8.50	6.80	0.25	50.00	0.005	200	14.00	0.50	1.16	0.85	2.01	279.63	324.37	363.62	0.25	1,060	265	265	0.027	300	UC	0.98	0.08	0.07	0.044	37.9%	OK!
CP2.1	CP2.2	ditto	7.10	6.50	6.80	6.20	0.43	85.00	0.005	200	-	-	2.01	1.45	3.46	256.65	297.72	333.74	0.50	0	0	265	0.025	300	UC	0.98	0.08	0.07	0.046	34.8%	OK!
CP2.2	CP2.3	ditto	6.50	6.50	6.20	6.05	0.15	30.00	0.005	200	-	-	3.46	0.47	3.93	250.56	290.65	325.81	0.50	0	0	265	0.024	300	UC	1.06	0.13	0.12	0.095	20.1%	OK!
CP2.3	CP2.4	A2 + A4	6.50	5.70	6.05	5.25	0.21	42.00	0.005	200	-	-	3.93	0.55	4.48	244.16	283.22	317.49	0.50	3,101	1,549	1,814	0.160	450	UC	1.28	0.23	0.21	0.048	76.8%	OK!
CP2.4	CP2.5	ditto	5.70	4.80	5.25	4.35	0.30	60.00	0.005	200	-	-	4.48	0.78	5.26	236.00	273.76	306.89	0.50	0	0	1,814	0.155	450	UC	1.28	0.23	0.21	0.054	74.2%	OK!
CP2.5	CP2.6	ditto	4.80	5.50	4.35	4.30	0.05	14.00	0.003	300	-	-	5.26	0.19	5.45	234.15	271.61	304.47	0.50	0	0	1,814	0.154	450	UC	1.21	0.63	0.56	0.411	27.2%	OK!
CP2.6	CP2.7	A2 + A4 + A8	5.50	5.70	4.30	4.09	0.21	64.00	0.003	300	-	-	5.45	0.86	6.31	226.49	262.73	294.52	0.50	4,885	2,440	4,254	0.348	450	UC	1.24	0.87	0.79	0.438	44.3%	OK!
CP2.7	CP2.8	ditto	5.70	5.30	4.09	3.92	0.17	52.00	0.003	300	-	-	6.31	0.71	7.01	220.86	256.19	287.19	0.50	0	0	4,254	0.340	450	UC	1.23	0.74	0.66	0.325	51.1%	OK!
CP2.8	CP2.9	A2 + A4 + A8 + A9	5.30	5.30	3.92	3.81	0.11	32.00	0.003	300	-	-	7.01	0.43	7.44	217.66	252.49	283.04	0.50	1,075	537	4,791	0.377	450	UC	1.24	0.80	0.72	0.345	52.2%	OK!
CP2.9	CP2.10	A2 + A4 + A8 + A9 + CP D	5.30	5.30	3.81	3.71	0.10	30.00	0.003	300	-	-	7.44	0.40	7.85	214.84	249.21	279.37	0.50	0	0	5,871	0.456	450	UC	1.24	0.86	0.78	0.319	58.8%	OK!
CP2.10	CP2.11	A2 + A4 + A8 + A9 + CP D + A10	5.30	4.80	3.71	3.59	0.12	24.00	0.005	200	-	-	7.85	0.27	8.12	213.03	247.11	277.01	0.50	2,017	1,008	6,879	0.530	450	UC	1.49	0.78	0.70	0.170	75.7%	OK!
CP2.11	CP2.12	A2 + A4 + A8 + A9 + CP D + A10 + A13	4.80	4.80	3.59	3.40	0.19	38.00	0.005	200	-	-	8.12	0.42	8.54	210.31	243.95	273.47	0.50	3,514	1,755	8,634	0.656	450	UC	1.51	0.92	0.82	0.168	79.6%	OK!
CP2.12	TM	ditto	4.80	4.30	3.40	3.11	0.29	38.00	0.008	130	-	-	8.54	0.34	8.88	208.18	241.49	270.71	0.50	0	0	8,634	0.650	450	UC	1.84	0.95	0.85	0.204	76.1%	OK!
Discharge Point																																
TM	Streamcourse	A1 to A14	4.30	3.70	2.27	2.23	0.05	6.00	0.008	130			13.20	0.03	13.23	186.76	216.65	242.86	0.50	0	0	27,353	1.647	1000	pipe	2.93	2.30	2.07	0.425	79.5%	OK!
																			total =	65,363											

subcatchment

A1	20,175
A2	1,060
A3	8,225
A4	3,101
A5	2,672
A6	3,275
A7	10,568
A8	4,885
A9	1,075
A10	2,017
A11	2,161
A12	477
A13	3,514
A14	2,158
total =	65,363

FIRE SERVICES NOTES:

1. EMERGENCY LIGHTING

1.1 SUFFICIENT EMERGENCY LIGHTING WITH 2 HOURS BATTERY BACKUP SHALL BE PROVIDED THROUGHOUT THE ENTIRE BUILDINGS/STRUCTURES IN ACCORDANCE WITH BS 5266:-1:2016 AND BS EN 1838:2013 AND THE FSD CIRCULAR LETTER NO. 4/2021.

2. EXIT SIGN

2.1 SUFFICIENT DIRECTIONAL AND EXIT SIGN SHALL BE PROVIDED IN ACCORDANCE WITH BS 5266:-1:2016 AND FSD CIRCULAR LETTER 5/2008.

3. DETECTION SYSTEM

3.1 STAND-ALONE FIRE DETECTORS ARE INSTALLED IN AN ENCLOSED STRUCTURE, ALL STAND-ALONE DETECTORS SHALL BE INTERCONNECTED (EITHER WIRED OR WIRELESSLY) SUCH THAT WHEN ONE OF THE STAND-ALONE FIRE DETECTOR IS TRIGGERED, ALL CONNECTED STAND-ALONE FIRE DETECTORS SHALL SOUND AN ALARM SIMULTANEOUSLY.

3.2 THE STAND-ALONE FIRE DETECTOR SHALL BE PROVIDED IN ACCORDANCE WITH THE "STAND-ALONE FIRE DETECTOR GENERAL GUIDELINES ON PURCHASE, INSTALLATION & MAINTENANCE [SEP 2021].

4. MISCELLANEOUS F.S. INSTALLATION

4.1 PORTABLE FIRE EXTINGUISHERS WITH SPECIFIED TYPE AND CAPACITY TO BE PROVIDED AT LOCATION AS INDICATED ON PLAN.

4.2 NO EMERGENCY GENERATOR TO BE PROVIDED FOR SERVING THE EMERGENCY POWER. DUPLICATED POWER SUPPLIES FOR ALL FIRE SERVICES INSTALLATIONS COMPRISING A CABLE CONNECTED FROM ELECTRICITY MAINS DIRECTLY BEFORE THE MAIN SWITCH.

4.2 WHEN A VENTILATION / AIR CONDITIONING CONTROL SYSTEM TO A BUILDING IS PROVIDED, IT SHALL STOP MECHANICALLY INDUCED AIR MOVEMENT WITHIN A DESIGNATED FIRE COMPARTMENT.

4.3 NO DYNAMIC SMOKE EXTRACTION SYSTEM SHALL BE PROVIDED SINCE FIRE COMPARTMENT EXCEEDING 7000 CUBIC METRES AND THE AGGREGATE AREA OF OPENABLE WINDOWS OF THE RESPECTIVE COMPARTMENT EXCEEDS 6.25% OF THE FLOOR AREA OF THAT COMPARTMENT.

LEGEND (FOR LAYOUT PLAN)

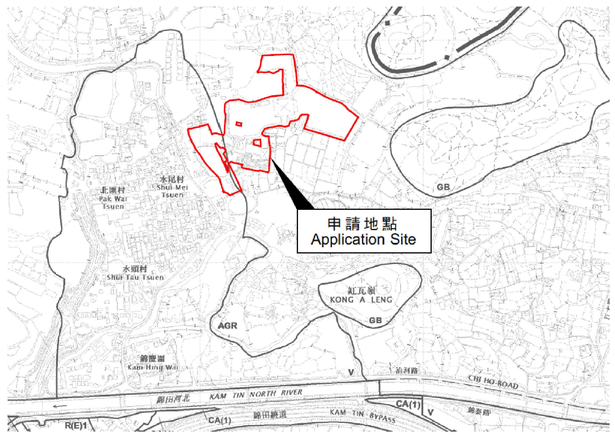
F.E.$_{Co2}$	5Kg CO2 TYPE FIRE EXTINGUISHER
F.E.$_{D.P}$	4Kg DRY POWDER TYPE FIRE EXTINGUISHER
S.B.	SAND BUCKET
S	STAND-ALONE SMOKE DETECTORS
	EMERGENCY LIGHTING
EXIT	EXIT SIGN

ABBREVIATION

SPR.	SPRINKLER
H.R.	HOSE REEL
F.E.	FIRE EXTINGUISHER
CO_2	CARBON DIOXIDE
L.P.C.	LOSS PREVENTION COUNCIL
F.S.I.	FIRE SERVICES INSTALLATION
H/L	HIGH LEVEL
M/L	MID LEVEL
L/L	LOW LEVEL
F/B	FROM BELOW
F/A	FROM ABOVE
T/A	TO ABOVE
T/B	TO BELOW
U/G	UNDERGROUND
F.S.	FIRE SERVICES

DRAWING LIST

DRAWING NO	DESCRIPTION
EP-20349-FS01	FS NOTES, LEGEND, ABBREVIATIONS AND DRAWING LIST
EP-20349-FS02	PROPOSED FSI LAYOUT PLAN



LOCATION PLAN (SCALE : N.T.S)

Appendix B

REV	DESCRIPTION	DATE	BY
B	FSD SUBMISSION	11-10-2025	WC
A	FSD SUBMISSION	07-09-2025	WC

FSI CONTRACTOR

East Power Engineering Limited

Flat A, 7/F., Hop Shing Commercial Building
41 Chi Kiang Street, Tokwawan, Kowloon

Fax. : 2394-3772 Tel. : 2397-3238

PROJECT

VARIOUS LOTS IN D.D.109 AND ADJOINING GOVERNMENT LAND, SHUI MEI TSUEN, KAM TIN NORTH, YUEN LONG, NEW TERRITORIES

DRAWING TITLE

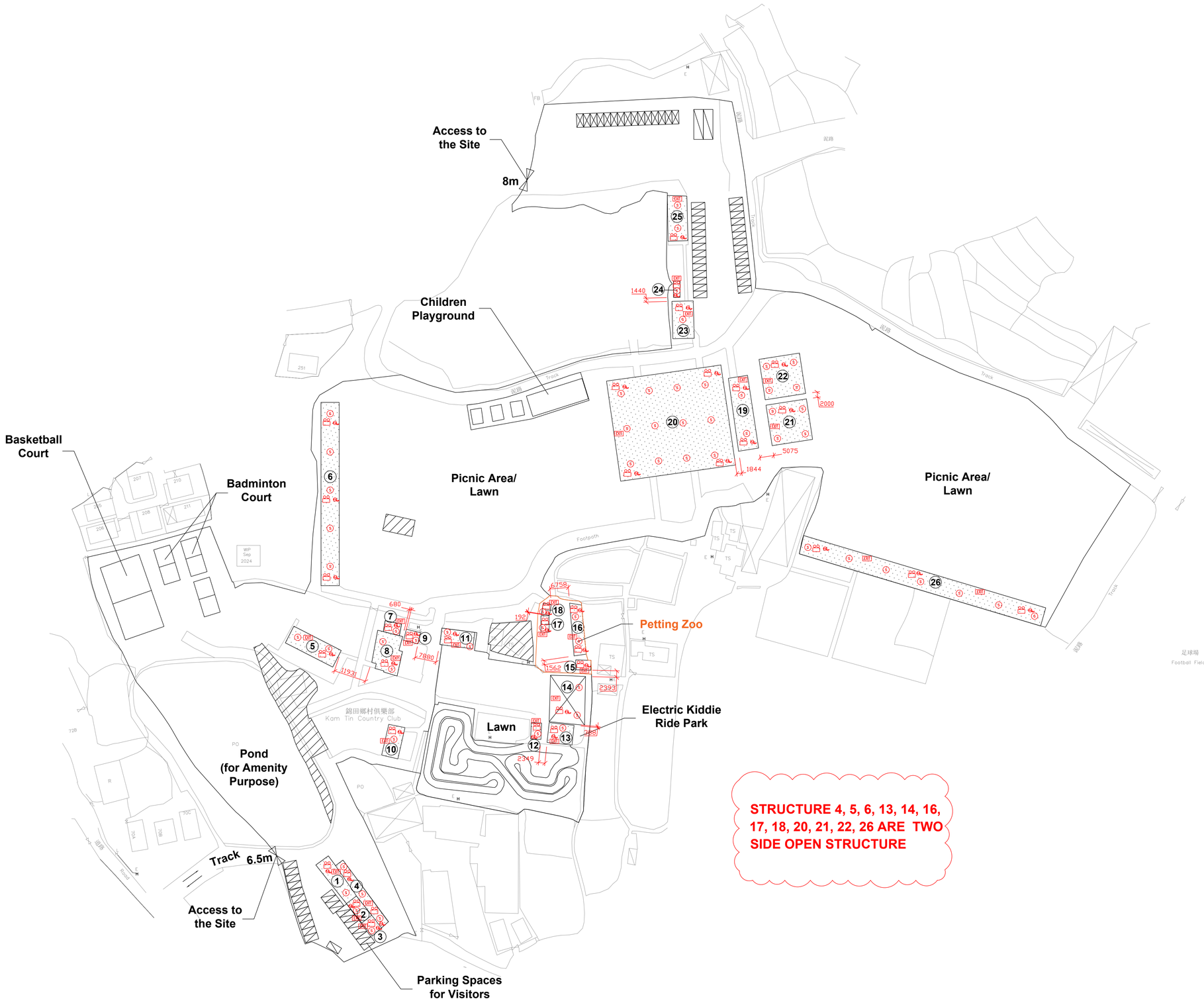
FS NOTES, LEGEND, ABBREVIATIONS AND DRAWING LIST

	INITIAL	DESIGNATION	DATE
DRAWN BY	CAD	CAD	07-09-2025
DESIGNED BY	JN	SEng	07-09-2025
CHECKED BY	CM	PM	07-09-2025
APPROVED BY	-	-	-
PROJECT NO.	A/YL-KTN/1151		
PAPER SIZE	A3	PLOT SCALE	1 : 1

DRAWING NO.

EP-20349-FS01

SCALE	N. T. S.	REVISION	B



LEGEND:

- Application Site (Area: about 40,616 sq.m.)
- Area Excluded from the Application Site
- Temporary Structures
- Loading/Unloading Spaces for Medium Goods Vehicles (3.5m x 11m) (2 nos.)
- Parking Spaces for Visitors (2.5m x 5m) (51 nos.)
- Drop-off Spaces for Taxis (15 nos.)

Details of Structures:

Structure No.	Uses	No. of Storey	Floor Area (m^2)	Height (m)
1	Visitor Centre	1	104	2.5
2	Site Office/Reception	1	42	2.5
3	Storeroom	1	27	2.5
4	Shade Shelter	1	110	2.5
5	Shelter for Children Playground	1	134	3.5
6	Shade Shelter for Picnic Area	1	450	4.0
7	Washroom	1	26	2.5
8	Storeroom and Shade Shelter	1	136	3.0
9	Shelter for Children Game Area	1	22	3.0
10	Shelter for Handicraft Making	1	71	3.0
11	Shelter for Storage	1	74	3.0
12	Ticket Office and Shelter	1	23	3.0
13	Shelter for Electric Kiddie Ride	1	67	4.5
14	Tent Canopy for Electric Kiddie Ride	1	226	4.5
15	Storeroom	1	20	3.0
16	Shed for Rabbits Petting	1	82	3.0
17	Kiosk	1	18	3.0
18	Shed for Goats Petting	1	12	3.0
19	Food Storage and Serving Area	1	196	4.5
20	Shelter for Barbecue Area	1	1,573	5.0
21	Shelter for Barbecue Area	1	225	5.0
22	Shelter for Barbecue Area	1	225	5.0
23	Washroom	1	107	3.5
24	Nursery Room	1	15	2.5
25	Storeroom	1	120	3.0
26	Shade Shelter for Picnic Area	1	638	4.0
		Total:	4,743	

REV	DESCRIPTION	DATE	BY
B	FSD SUBMISSION	11-10-2025	WC
A	FSD SUBMISSION	07-09-2025	WC

FSI CONTRACTOR

East Power Engineering Limited

Flat A, 7/F., Hop Shing Commercial Building
41 Chi Kiang Street, Tokwawan, Kowloon
Fax. : 2394-3772 Tel. : 2397-3238

PROJECT

VARIOUS LOTS IN D.D.109 AND ADJOINING GOVERNMENT LAND, SHUI MEI TSUEN, KAM TIN NORTH, YUEN LONG, NEW TERRITORIES

DRAWING TITLE

PROPOSED FIRE SERVICE INSTALLATION LAYOUT PLAN

	INITIAL	DESIGNATION	DATE
DRAWN BY	CAD	CAD	07-09-2025
DESIGNED BY	JN	SEng	07-09-2025
CHECKED BY	CM	PM	07-09-2025
APPROVED BY	-	-	-
PROJECT NO.	A/YL-KTN/1151		
PAPER SIZE	A3	PLOT SCALE	1 : 1
DRAWING NO.	EP-20349-FS02		
SCALE	1 : 400@A3	REVISION	B