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SURVEYING · LAND ADVISORY · VALUATION

Prudential Surveyors International Limited
測建行有限公司

19 December 2024

Our Ref: TPB191224OA-B8354

By Post
Secretary
Town Planning Board Secretariat
15/F North Point Government Offices
333 Java Road
North Point
Hong Kong

Dear Sirs,

Re: Planning Application for
Temporary Private Vehicle Park (Medium and Heavy Goods Vehicle) and Open Storage (Operational Tools and Materials) Use for 3 years and Associated Filling of Land at Sub-Section 1 of Section B of Lot No.82 (Part) in DD108, Fan Kam Road, Pat Heung, New Territories (the "Premises")

We act on behalf of the applicant and lot owner of the Premises, HUGE GREAT INTERNATIONAL LIMITED, to submit the application under s.16 of the Town Planning Ordinance for a Temporary Private Vehicle Park (Medium and Heavy Goods Vehicle) and Open Storage (Operational Tools and Materials) Use for 3 years at the Premises and Associated Filling of Land.

Four copies of the application documents are attached. Should you have any queries, please feel free to contact our Mr. Ken Fong at 2531 8706 or the undersigned at 2507 8381.

We look forward to hearing from you soon.

Yours faithfully,
For and on behalf of
PRUDENTIAL SURVEYORS INTERNATIONAL LIMITED

Michael C K Lee
Director
Valuation & Advisory
Encls.

c.c. Client

Supporting Planning Statement

Planning Application under Section 16 of Town Planning Ordinance

For

Temporary Private Vehicle Park (Medium and Heavy Goods Vehicle) and Open Storage (Operational Tools and Materials) Use for 3 years and Associated Filling of Land

At

Sub-Section 1 of Section B of Lot No.82 (Part) in DD108, Fan Kam Road,

Pat Heung, New Territories

Prepared by : Prudential Surveyors International Limited

Date : December 2024

Executive Summary

This Supporting Planning Statement is to supplement the application for permission from Town Planning Board (the "TPB") under Section 16 of the Town Planning Ordinance for temporary private vehicle park (medium and heavy goods vehicle) and open storage (operational tools and materials) use and associated filling of land for 3 years (the "Subject Application") at Sub-Section 1 of Section B of Lot No.82 (Part) in Demarcation District 108, Fan Kam Road, Pat Heung, New Territories (the "Application Site"). The Site falls within an area zoned "Residential (Group D)") under the Approved Pat Heung Outline Zoning Plan No.S/YL-PH/11 whilst temporary use not exceeding a period of three years requires permission from the TPB.

Details of the site/development parameters are listed as follow:-

Application Site Area	2,802 s.m. (about)
Covered Area	104 s.m. (about)
Uncovered Area	2,698 s.m. (about)
Site Coverage	3.71% (about)
No. of Structure	One 2-storey temporary structure for ancillary office and storage use Two single-storey dry toilet Two single-storey container storage
Non-Domestic GFA	148 s.m (about)
Plot Ratio	0.053 (about)
Maximum Building Height	5.61 m (about)
No. of Parking Spaces	15 goods vehicle parking spaces, including 10 nos. of 7.5m x 2.5m spaces and 5 nos. of 9.5m x 2.8m spaces
Main Vehicular Access	via Fan Kam Road

The tentative user of the Application Site is a company provide hygiene related service and the Application Site is proposed to support the operation of the user's business.

To safeguard the enjoyment of nearby residents and having balanced the operational needs, the Applicant proposes the operation hours be limited to Monday to Saturday 7:00 a.m. to 7:00 p.m. whereas no operation will be conducted on Sunday and public holidays.

The Application Site has been filled to a level of about 47.3m above Hong Kong Principal Datum on or before 2004. No additional filling of land will be carried out on site.

In summary of this Supporting Planning Statement, the Subject Application is justified on following grounds:

- In Compliance with the Surrounding Land Use
- Better Utilization of Land Resources
- Would Not Result in Undesirable Precedent Case
- No adverse impact on Visual, Sewerage, Drainage, Noise and Traffic

行政摘要

(內文如有差異，應以英文版本為準)

本規劃許可申請尋求城市規劃委員會(「城規會」)批准於新界八鄉粉錦路丈量約份第 108 約地段第 82 號 B 分段第 1 小分段（部份）(「申請地盤」）用作臨時私人停車場(中型及重型貨車泊車位)及露天貯物用途(業務用工具及物資) 及相關的填土工程（為期 3 年)。現誠根據城市規劃條例第 16 條提交規劃申請。 申請地盤位於八鄉分區計劃大綱核准圖編號 S/YL-PH/11 範圍，被劃作「住宅（丁類）」的用途地帶，而臨時用途為期不超過三年，須向城規會申請規劃許可。

地盤及擬議發展參數如下:

申請地盤面積	約 2,802 平方米
有蓋面積	約 104 平方米
露天面積	約 2,698 平方米
上蓋面積比率	約 3.71%
建築物數目	1 座 2 層高臨時建築物作附屬辦公室及貯物用途 2 座 1 層高旱廁 2 座 1 層高貨櫃儲存倉
非住用樓面面積	約 148 平方米
地積比率	約 0.053
最大建築物高度	約 5.61 米
停車位數目	15 個貨車泊車位, 當中包括 10 個 7.5 米 x 2.5 米泊車位 5 個 9.5 米 x 2.8 米 泊車位
主要行車出入口	粉錦路

申請地盤的使用者為一家提供衛生相關服務的公司，申請地盤會用作支援使用者的業務運作。

為保障附近居民的享受以及平衡了申請人的業務運作需要，申請人提議申請地盤的運作時間為星期一至星期六早上 7 時至晚上 7 時，星期日及公眾假期則不會運作。

申請地點在 2004 年或之前已經填土至大約香港水平基準以上 47.3 米。申請地點不會再進行額外的填土工程。

總括而言，本規劃申請有充分理據支持，是次規劃申請:

- 符合現有周邊環境用途
- 善用珍貴土地資源
- 不會造成不良先例
- 不會對視覺，排污，排水，噪音及交通造成不利影響

基於本規劃所提出的理據支持，我們懇請城規會對本規劃申請作出正面積極的考慮。

1. Background

This application for permission under Section 16 of the Town Planning Ordinance (TPO) is prepared and submitted on behalf of the Applicant to the Town Planning Board (TPB) for a temporary private car park (medium and heavy goods vehicle) and open storage use (operational tools and materials) and associated filling of land for 3 years (the "Subject Application") at Sub-Section 1 of Section B of Lot No.82 (Part) in Demarcation District 108, Fan Kam Road, Pat Heung, New Territories (the "Application Site").

The Subject Application is mainly same as the previous S.16 Approval A/YL-PH/933 on 14 July 2023. Due to some approval conditions related to technical issue are unable to complied before the deadline, the Application would like to re-submit a new S.16 Application together with the full set technical proposal.

2. Site Context

The Application Site, having an area of about 2,802 s.m., is located to the east of and abutting Fan Fam Road in an area locally known as Ta Shek Wu, at its junction with an unnamed local vehicular access branching off Fan Kam Road. The Application Site is located in the midway between Sheung Shui and Pat Heung which are situated at about 15 minutes' driving distance to the northeast and southwest respectively. The vicinity of the Application Site is rural in nature with mixed users including open storage, open car parking, temporary structure for industrial and storage use, intermingled with a small amount of village houses in various forms. Access to the Application Site is via the aforementioned local road branching off Fan Kam Road which is concrete-paved. The Application Site was fenced by mesh wire fencing along its perimeter as per our inspection on 6 November 2024. According to the Lands Department's Survey Sheet, the existing ground level of the Application Site is about 47.5m above Hong Kong Principal Datum. Location Plan of the Site is attached in **Appendix 1**.

3. Planning Context

The Application Site falls within an area zoned "Residential (Group D)" ("R(D)") under the Approved Pat Heung Outline Zoning Plan No.S/YL-PH/11 dated 27 October 2006 (the OZP).

According to the Schedule of Uses of the OZP, planning intention of R(D) zone is primarily for improvement and upgrading of existing temporary structures within the rural areas through redevelopment of existing temporary structures into permanent buildings. It is also intended for low-rise, low-density residential developments subject to planning permission from the Town Planning Board.

As vehicle park and open storage uses are not specified either under Column 1 or Column 2 of the R(D) zone, according to the Notes of the OZP, for temporary uses not exceeding a period of 3 years, permission from the TPB is required.

4. Previous Planning Application relevant to the Application Site

The Application Site (including portions of it) had been involved in 7 planning applications from 1993 to 2023 and the summary of the applications are listed as follow:

No.	Application No.	Applied Use	Location	Zone	Decision Date	Decision
1	A/DPA/YL-PH/19	Open Storage of Vehicles and General Goods	DD 108 LOT 82B, Fan Kam Road, Pat Heung	Undetermined	13/08/1993	**Approved** with condition(s) on a temporary basis
2	A/YL-PH/252	Temporary open storage of private cars and lorries (excluding containers and container vehicles) for a period of 12 months	DD 108 LOT 82B(P) & GOVT LAND, Fan Kam Road, Pat Heung, Yuen Long	Residential (Group D)	08/01/1999	**Approved** with condition(s) on a temporary basis
3	A/YL-PH/354	Proposed temporary open storage of private cars and lorries for a period of 3 years	DD 108 LOT 82SB(P) & GOVT LAND, Fan Kam Road, Pat Heung, Yuen Long	Residential (Group D)	02/02/2001	**Approved** with condition(s) on a temporary basis
4	A/YL-PH/459	Temporary open storage of private cars and lorries and Machinery for a period of 3 years	DD 108 LOT 82B(P), Pat Heung, Yuen Long, N.T.	Residential (Group D)	26/03/2004	**Approved** with condition(s) on a temporary basis
5	A/YL-PH/499	Temporary Open Storage of Private Cars and Lorries for a Period of 3 Years (Minor Amendments to a Previously Approved	DD 108 Lot 82B(Part) and Adjoining Government Land, Pat Heung, Yuen Long	Residential (Group D)	29/07/2005	**Approved** with condition(s) on a temporary basis

		Development Scheme Application No. A/YL-PH/459)				
6	A/YL-PH/459-1	Temporary open storage of private cars and lorries and Machinery for a period of 3 years Class B Amendment - extension of time limit	DD 108 LOT 82B(P), Pat Heung, Yuen Long, N.T.	Residential (Group D)	4/8/2005	**Approved**
7	A/YL-PH/933	Proposed Temporary Vehicle Park (Medium and Heavy Goods Vehicle) and Open Storage (Operation Tools and Materials) for a Period of 3 Years and Filling of Land	Lot 82 S.B ss.1 (Part) in D.D.108, Fan Kam Road, Pat Heung, Yuen Long	Residential (Group D)	14/07/2023	**Approved** with condition(s) on a temporary basis

5. Planning Application for Open Storage or Car Parking (or similar uses) in R(D) Zone

No.	Application No.	Applied Use	Location	Zone	Decision Date	Decision
1	A/YL-PH/965	Renewal of Planning Approval for Temporary Open Storage of Building Materials and Vehicles for Sale for a Period of 3 Years	Lots 100 RP, 101 S.A & B RP and 101 S.C RP in D.D. 111, A Kung Tin, Pat Heung, Yuen Long	"Residential (Group D)"	22/09/2023	**Approved** with condition(s) on a temporary basis
2	A/YL-PH/967	Proposed Temporary Warehouse (excluding Dangerous Goods Godown) with Ancillary Facilities for a Period of 3 Years and Filling of Land	Lots 14 S.B RP, 15 S.B RP, 16, 17, 18, 19 RP and 20 S.B RP (Part) in D.D. 111, Pat Heung, Yuen Long	"Residential (Group D)"	13/10/2023	**Approved** with condition(s) on a temporary basis

3	A/YL-PH/976	Proposed Temporary Public Vehicle Park (Excluding Container Vehicle) for a Period of 3 Years and Filling of Land	Lots 2897 (Part) and 2898 (Part) in D.D.111, Pat Heung, Yuen Long	"Residential (Group D)"	08/12/2023	**Approved** with condition(s) on a temporary basis
4	A/YL-PH/1001	Renewal of Planning Approval for Temporary Open Storage of Construction Material and Vehicle Parts for a Period of 3 Years	Lots 2901 (Part), 2902 (Part), 2904 (Part), 2905 (Part), 2909 (Part) and 2911 (Part) in D.D. 111 and Adjoining Government Land, Pat Heung, Yuen Long	"Residential (Group D)"	10/05/2024	**Approved** with condition(s) on a temporary basis
5	A/YL-PH/1010	Renewal of Planning Approval for Temporary Open Storage of Goods Vehicles for Sale for a Period of 3 Years	Lots 101 S.J (Part), 179 S.A RP (Part), 179 S.E RP (Part) and 179 S.D & S.F & S.G & S.I (Part) in D.D. 111 and Adjoining Government Land, Pat Heung, Yuen Long	"Residential (Group D)"	21/06/2024	**Approved** with condition(s) on a temporary basis

6. Land Status

The Application Site includes only portion of Sub-Section 1 of Section B of Lot No.82 in Demarcation District 108, and is solely owned by the Applicant.

7. Development Proposal

The Application Site is currently vacant and concrete-paved, with vehicular access via an unnamed local road branching off Fan Kam Road at south of the Application Site.

Details of the site/development parameters are listed as follow:-

Application Site Area	2,802 s.m. (about)
Covered Area	104 s.m. (about)
Uncovered Area	2,698s.m. (about)
Site Coverage	3.71% (about)
No. of Structure	One 2-storey temporary structure for office and storage use Two single-storey dry toilet Two single-storey container storage
Non-Domestic GFA	148 s.m (about)
Plot Ratio	0.053 (about)
Maximum Building Height	5.61 m (about)
No. of Parking Spaces	15 goods vehicle parking spaces (including 10 nos. of 7.5m x 2.5m spaces and 5 nos. of 9.5m x 2.8m spaces)
Proposed Operating Hours	Monday to Saturday 7:00am – 7:00pm (Only)

The details on structure are listed below :-

Structure	Use	Covered Area (about)	GFA (about)	Building Height
B1	Office and Storage	44 s.m.	88 s.m.	5.61 m (2-storey)
B2	Dry Toilet	15 s.m.	15 s.m.	2.6 m (1-storey)
B3	Dry Toilet	13 s.m.	13 s.m.	2.5 m (1-storey)
B4	Temporary Storage (Container)	16 s.m.	16 s.m.	2.6 m (1-storey)
B5	Temporary Storage (Container)	16 s.m.	16 s.m.	2.6 m (1-storey)
	Total :	**104 s.m.**	**148 s.m.**	

The Site Layout Plan and Fire Service Installation Plan are attached in **Appendices 2 & 3** respectively.

The type of operational tools and materials to be stored on site is at **Appendix 4**.

8. Technical Issues

8.1 Visual Impact

Major portion of existing site level is about 2m lower than the level of Fan Kam Road. There are some 2-3m height trees growing along the Government land between the Application Site and Fam Kam Road, which serve as a nature visual barrier. Therefore, no adverse visual impact would be created. At the same time, there are numerous similar temporary open storages or car park sites along Fan Kam Road, thus the proposal will not be incompatible to the surrounding visual context. Photos showing the existing conditions of the Application Site is attached in **Appendix 5**.

8.2 Sewerage Impact

Dry toilets are to be used and the waste would be collected and disposed properly and regularly. Therefore, no adverse sewerage impact would be created to the nearby environment.

8.3 Drainage Impact

The drainage arrangement has been reviewed and the proposed design has been shown on the Drainage Proposal in **Appendix 6**.

8.4 Noise Impact

Basically, the operation of the Applicant requires no construction work but involves only parking of motor vehicles and open storage and as such, no construction noise would be generated and the main source of noise would be the maneuvering of vehicles and the loading and unloading activities, which would be similar to the existing road traffic noise. Furthermore, to safeguard the enjoyment of nearby residents and having balanced the operational needs of the Applicant, it is proposed that the operation hours be limited from 7:00 a.m. and 7:00 p.m. only from Monday to Saturday, and no operation would be conducted on Sunday and public holidays. Nuisances induced by noise to the nearby locality at night time could be avoided. Therefore, no adverse noise impact to the surrounding during the operation stage would be generated.

8.5 Traffic Impact

With reference to the Traffic Impact Assessment ("TIA") Report in **Appendix 7**, the proposal would not generate adverse traffic impacts to the adjacent road network. Adequate manoeuvring space is provided within the Application Site whereas no vehicle queueing outside the Application Site is expected.

9. Filling of Land

According to the Notes of the OZP, any filling of land shall be subject to Town Planning Board's approval under section 16 of the Town Planning Ordinance. The existing ground level of the Application Site is about 47.3m above Hong Kong Principal Datum and in Subject Application, no additional filling of land will be carried out on site. However, as advised by the Planning Department, the existing filling of land on the site has not been covered in the previous planning approval, therefore filling of land has be included in this application.

As per the Lands Department's Survey Sheet, the existing ground level of the Application Site is about 47.3m above Hong Kong Principal Datum which is same as in 2004 (no site level of the site has been shown on the Survey Sheets before 2004), therefore the existing filling of land should have been conducted on or before 2004. Also, as refer to the aerial photos, the existing paving of the site was also appeared in 2004. As mentioned in Section 4 above, seven S.16 planning applications for carparking / open storage use have been approved on the Application Site in 1993, 1999, 2001, 2004, 2005 and 2023 respectively, therefore the existing filling of land should have been noted and considered by the Planning Department, as well as the Town Planning Board.

The Historical Survey Sheets and Aerial Photos are attached in **Appendices 8 & 9** respectively.

10. Justification

10.1 <u>In Compliance with the Surrounding Land Use</u>

The adjacent area is dominated by open storage, warehouse, car park and temporary industrial uses. It is anticipated that the area cannot be transformed into a residential area in short period of time in view of the existing mixed brownfield users. Therefore, it is considered that the proposal is in compliance with the current surrounding land use.

10.2 <u>Better Utilization of Land Resources</u>

The R(D) Zone is intended for low-rise, low-density residential developments. However, the area currently is still a mixed user area and is difficult to change into proper residential development and the support utility facility is still insufficient. Therefore, temporary open-air use can better utilize the precious land resources and would not decline the land until the area is suitable for permanent development.

10.3 <u>Would Not Result in Undesirable Precedent Case</u>

With reference to Paras. 4 and 5 above, the desktop review on previous planning cases found that numerous applications similar in nature within the same zonings were approved. Particularly, applications of similar use have been approved within the Site

between 1993-2005. In this connection, the proposal would be unlikely to result in undesirable precedent case.

10.4 Sustainable in Visual, Sewerage, Drainage, Noise and Traffic Impact

As demonstrated in Section 8 above, it was concluded that there will be no insurmountable problems for the implementation of the proposal at the Application Site.

11. Conclusion

In light of this Supporting Planning Statement, the Subject Application is justified on following grounds:

- In Compliance with the Surrounding Land Use
- Better Utilization of Land Resources
- Would Not Result in Undesirable Precedent Case
- Sustainable in Visual, Sewerage, Drainage, Noise and Traffic Impact

This Supporting Planning Statement demonstrates that the Subject Application deserves the favourable consideration by the TPB in light of the justifications provided. We trust that the TPB will see fit to approve the application.

List of Appendices

1. Location Plan
2. Site Layout Plan
3. Fire Service Installation Plan
4. List of Operational Tools and Materials
5. Photo of the Site
6. Drainage Proposal
7. Traffic Impact Assessment Report
8. Historical Survey Sheets
9. Historical Aerial Photos

Appendix 1

Location Plan

申請地點
Application Site

CONSULTANT :

測建行

PRUDENTIAL SURVEYORS (INTL) LTD
TEL. 25078333 FAX. 25986576

PROJECT TITLE :

PROPOSED OPEN STORAGE AND PARKING OF VEHICLE (TEMPORARY BASE) AT SUB-SECTION 1 OF SECTION B OF LOT NO.82 IN DD108, FAN KAM ROAD, PAT HEUNG, YUEN LONG

DRAWING TITLE :

LOCATION PLAN

DATE	DRAWN	DESIGNED	CHECKED	SCALE
21/JUN/22	IY	/	CC	1:1000@A3

JOB NO. : B8354

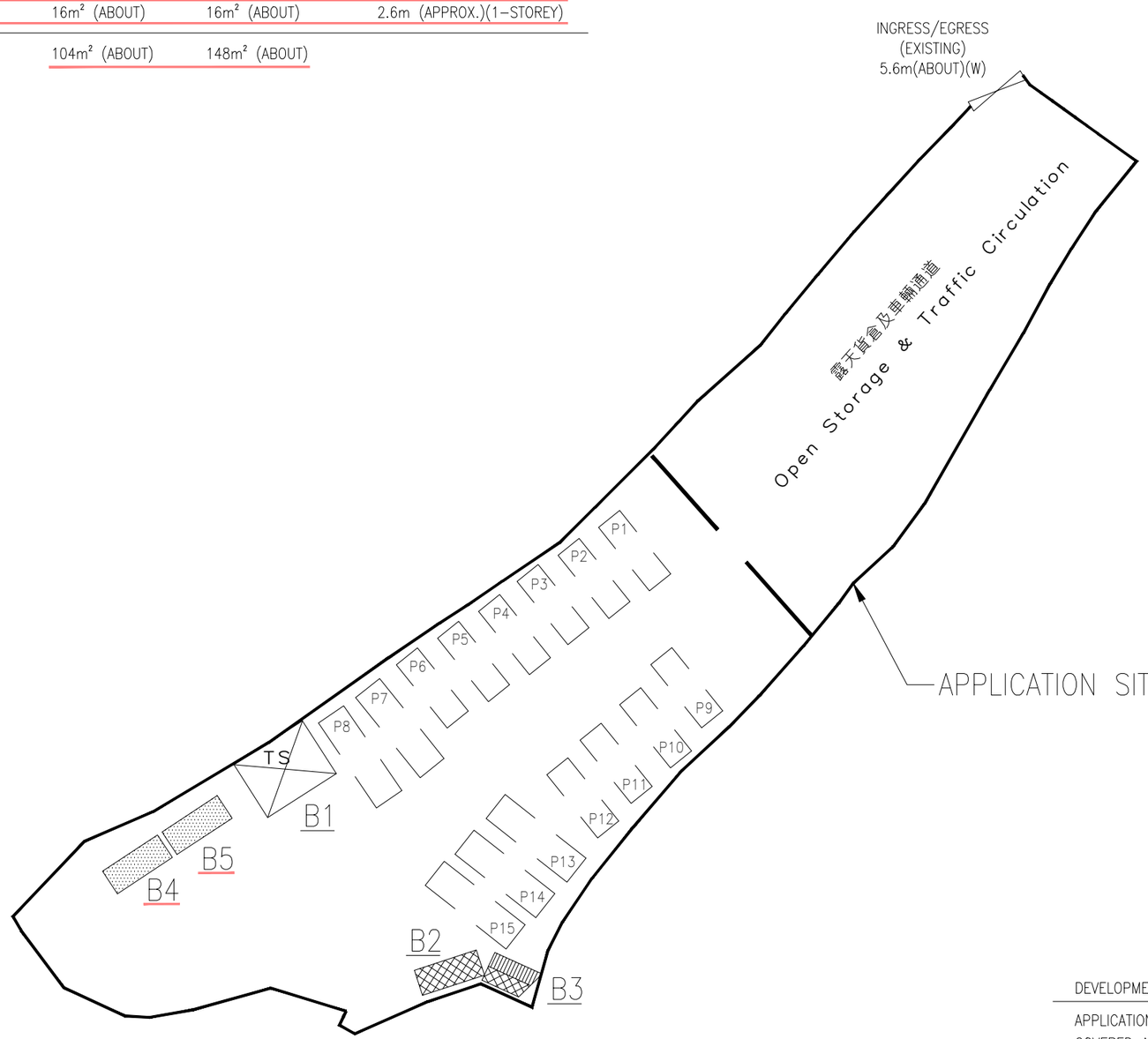
DRAWING NO. : A01

FILING CODE: N:\Advisory Section\Job Files\PSIL\B8354...\Project Team\CAD

Appendix 2

Site Layout Plan

STRUCTURE	USE	COVERED AREA	GFA	BUILDING HEIGHT
B1	SITE OFFICE	44m² (ABOUT)	88m² (ABOUT)	5.61m (APPROX.)(2-STOREY)
B2	DRY TOILET	15m² (ABOUT)	15m² (ABOUT)	2.6m (APPROX.)(1-STOREY)
B3	DRY TOILET	13m² (ABOUT)	13m² (ABOUT)	2.5m (APPROX.)(1-STOREY)
B4	TEMPORARY STORE	16m² (ABOUT)	16m² (ABOUT)	2.6m (APPROX.)(1-STOREY)
B5	TEMPORARY STORE	16m² (ABOUT)	16m² (ABOUT)	2.6m (APPROX.)(1-STOREY)
	TOTAL	104m² (ABOUT)	148m² (ABOUT)	



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LEGEND

- APPLICATION SITE
- STRUCTURE (ENCLOSED)
- STRUCTURE (CANOPY)
- POTABLE FLUSHING TOILETS / PORTABLE DRY TOILETS
- PROPOSED PARKING SPACE
- TEMPORARY STORE

PARKING SPACE

DIMENSIONS

P7,8,13,14,15	9.5M X 2.8M
P7,8,13,14,15	9.5M X 2.8M

DEVELOPMENT PARAMETERS

APPLICATION SITE	: 2802m² (ABOUT)
COVERED AREA	: 104m² (ABOUT)
UNCOVERED AREA	: 2698m² (ABOUT)
NO. OF STRUCTURE	: 5
DOMESTIC GFA	: N/A
NON-DOMESTIC GFA	: 148m² (ABOUT)
BUILDING HEIGHT	: 5.61m (ABOUT)
NO. OF STOREY	: 1 TO 2
PLOT RATIO	: 0.053 (ABOUT)
SITE COVERAGE	: 3.712% (ABOUT)

CONSULTANT :

測建行

PRUDENTIAL SURVEYORS (INTL) LTD

TEL. 25078333 FAX. 25986576

PROJECT TITLE :

PROPOSED OPEN STORAGE AND PARKING OF VEHICLE (TEMPORARY BASE) AT SUB-SECTION 1 OF SECTION B OF LOT NO.82 IN DD108, FAN KAM ROAD, PAT HEUNG, YUEN LONG

DRAWING TITLE :

LAYOUT PLAN

DATE	DRAWN	DESIGNED	CHECKED	SCALE
DEC/24	LW	/	DW	1:500@A3

JOB NO. : B8354

DRAWING NO. : A02

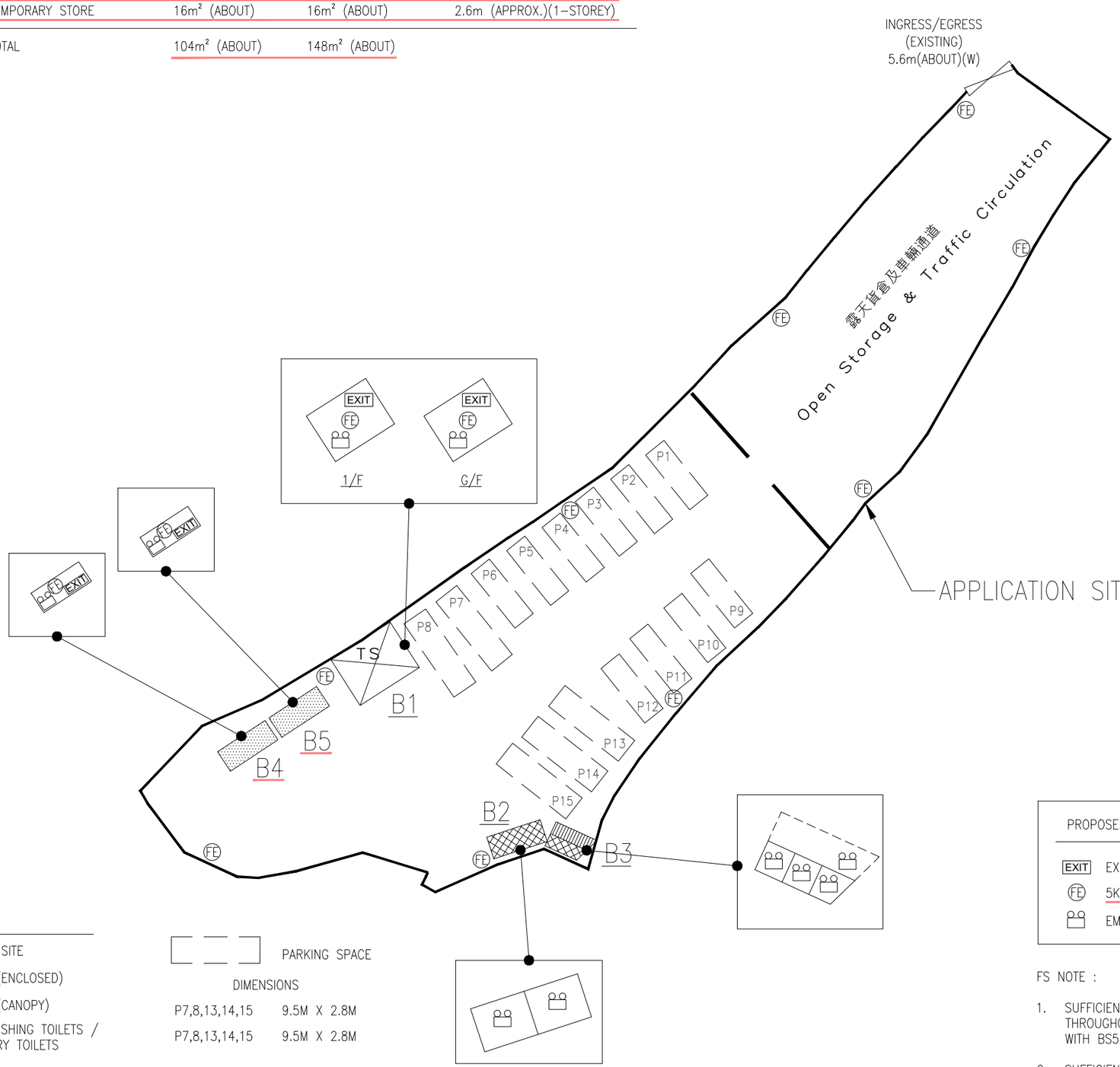
FILING CODE: N:\Advisory Section\Job Files\PSIL\B8354...\Project Team\Topographic survey\2023-01-12\CAD\2024 WORKING FILES\CAD\

STATUS : REVISION 3

Appendix 3

Fire Service Installation Plan

STRUCTURE	USE	COVERED AREA	GFA	BUILDING HEIGHT
B1	SITE OFFICE	44m² (ABOUT)	88m² (ABOUT)	5.61m (APPROX.)(2-STOREY)
B2	DRY TOILET	15m² (ABOUT)	15m² (ABOUT)	2.6m (APPROX.)(1-STOREY)
B3	DRY TOILET	13m² (ABOUT)	13m² (ABOUT)	2.5m (APPROX.)(1-STOREY)
B4	TEMPORARY STORE	16m² (ABOUT)	16m² (ABOUT)	2.6m (APPROX.)(1-STOREY)
B5	TEMPORARY STORE	16m² (ABOUT)	16m² (ABOUT)	2.6m (APPROX.)(1-STOREY)
	TOTAL	104m² (ABOUT)	148m² (ABOUT)	



LEGEND

- APPLICATION SITE
- STRUCTURE (ENCLOSED)
- STRUCTURE (CANOPY)
- POTABLE FLUSHING TOILETS / PORTABLE DRY TOILETS
- PROPOSED PARKING SPACE
- TEMPORARY STORE

PARKING SPACE

DIMENSIONS

P7,8,13,14,15	9.5M X 2.8M
P7,8,13,14,15	9.5M X 2.8M

PROPOSED FIRE SERVICE INSTALLATIONS

- EXIT EXIT SIGN
- FE 5KG GAS TYPE FIRE EXTINGUISHER
- EMERGENCY LIGHTING

FS NOTE :

1. SUFFICIENT EMERGENCY LIGHTING SHALL BE PROVIDED THROUGHOUT THE ENTIRE BUILDING IN ACCORDANCE WITH BS5266: PART 1 AND BS EN 1838.
2. SUFFICIENT DIRECTIONAL AND EXIT SIGN SHALL BE PROVIDED IN ACCORDANCE WITH BS5266: PART 1 AND FSD CIRCULAR LETTER 5/2008.

CONSULTANT :

測建行

PRUDENTIAL SURVEYORS (INTL) LTD

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PROJECT TITLE :

PROPOSED OPEN STORAGE AND PARKING OF VEHICLE (TEMPORARY BASE) AT SUB-SECTION 1 OF SECTION B OF LOT NO.82 IN DD108, FAN KAM ROAD, PAT HEUNG, YUEN LONG

DRAWING TITLE :

FIRE SERVICE INSTALLATIONS LAYOUT

DATE	DRAWN	DESIGNED	CHECKED	SCALE
DEC/24	LW	/	DW	1:500@A3

JOB NO. : B8354

DRAWING NO. : A03

FILING CODE: N:\Advisory Section\Job Files\PSIL\B8354...\Project Team\Topographic survey\2023-01-12\CAD\2024 WORKING FILES\CAD\

STATUS : REVISION 3

Appendix 4

List of Operational Tools and Materials

類別 Category	貨品描述 Item Description
CCTV 裝備	CCTV車仔電池(o)
CCTV 裝備	CCTV鏡頭套(o)
CCTV 裝備	CCTV鏡頭 (大)(o)
CCTV 裝備	CCTV鏡頭 (細)(o)
CCTV 裝備	CCTV車仔(o)
CCTV 裝備	CCTV手推機電腦(o)
CCTV 裝備	CCTV車仔電腦(o)
CCTV 裝備	CCTV40米推藤 (SPP-40)(o)
CCTV 裝備	CCTV60米推藤 (SPP-60)(o)
CCTV 裝備	CCTV80米推藤 (SPP-80)(o)
工具-服務	泊洛(1.5噸)
工具-服務	擋水板
工具-服務	快駁 (2.5吋公)
工具-服務	快駁 (2吋𣏌)
工具-服務	快駁 (2吋公)
工具-服務	快駁 (3吋𣏌)
工具-服務	快駁 (3吋公)
工具-服務	快駁蓋 (放水喉蓋)(4吋)
工具-服務	4吋公外瓦
工具-服務	3吋𣏌外瓦
工具-服務	2.5吋刁2"
工具-服務	3吋刁2.5"
工具-服務	4吋𣏌外瓦
工具-服務	4吋快駁𣏌
工具-服務	4吋快駁公
工具-服務	3吋公外瓦
工具-服務	3吋𣏌內瓦
工具-服務	2.5吋公外瓦
工具-服務	2吋公外瓦
工具-服務	2.5吋𣏌外瓦
工具-服務	三星架 (開井蓋用)
工具-服務	鐵撬
工具-服務	玻璃膠
工具-服務	手提式通渠機機轆
工具-服務	手提式通渠機渠滕
工具-服務	鈎 (通渠用)(短)
工具-服務	鈎 (通渠用)(長)
工具-服務	井匙 (大)
工具-服務	井匙 (中)
工具-服務	井匙 (細)
工具-服務	手搖泊洛
工具-服務	照明燈
工具-服務	18" 元形雙止口輕身沙井(淨蓋面)
工具-服務	高壓水槍(o)
工具-服務	鋁梯 (5級)(o)
工具-服務	鋁梯 (7級)(o)
工具-服務	爬齒(o)
工具-服務	刷(吸油箱仔用)
工具-服務	鐵殼
工具-服務	樹葉杷
工具-服務	膠圈 (4吋)
工具-服務	膠圈 (2吋)
工具-服務	4吋波子閘掣
工具-服務	4齒鋤耙
工具-服務	3吋防漏膠圈

類別 Category	貨品描述 Item Description
工具-服務	淡水泵(細)
工具-服務	剷 (吸井用)(短)
工具-服務	小心地滑牌
制服	高級 / 服務員 - 黑色 長斜布褲 (30碼)
制服	高級 / 服務員 - 黑色 長斜布褲 (32碼)
制服	高級/服務員-黑色長斜布褲(34碼)
制服	高級/服務員-黑色長斜布褲(36碼)
制服	高級/服務員-黑色長斜布褲(42碼)
制服	STI-紅色polo衫(加加加加大碼)
制服	送貨員T-Shirt (大) 短袖
制服	送貨員T-Shirt (大)長袖
制服	送貨員T-Shirt(中) 短袖
制服	送貨員T-Shirt(中) 長袖
制服	送貨員T-Shirt (加大) 短袖
制服	送貨員T-Shirt (加大) 長袖
制服	送貨員T-Shirt (加加大) 短袖
制服	送貨員T-Shirt (加加大) 長袖
消耗品-服務	喉箍 (2吋)
消耗品-服務	喉箍 (2.5吋)
消耗品-服務	喉箍 (3吋)
消耗品-服務	保護衣(藍色)
消耗品-服務	DT215保護衣
消耗品-服務	Fogger - Filter
消耗品-服務	Fogger - Mask
消耗品-服務	黑色膠圈 (2.5吋)
消耗品-服務	油渣手套(藍)
消耗品-服務	馬路膠紙
消耗品-服務	引水帶
消耗品-服務	百潔布-中國(紅)
消耗品-服務	海棉
消耗品-服務	VACUUM HOSE-2
消耗品-服務	VACUUM HOSE-2.5
消耗品-服務	VACUUM HOSE-2-01
消耗品-服務	VACUUM HOSE-3
消耗品-服務	漁夫褲(半身)
消耗品-服務	漁夫褲(全身)
消耗品-輔助	手套 (黑色膠手套)
密閉空間/個人防護裝備	寶露華連風喉 (12吋)
密閉空間/個人防護裝備	寶露華連風喉 (8吋)
密閉空間/個人防護裝備	GAS DETECTOR
密閉空間/個人防護裝備	安全帽(到期日: 2024)
密閉空間/個人防護裝備	安全帽(到期日: 2024/11)
密閉空間/個人防護裝備	醫療急救箱(密閉空間專用)
密閉空間/個人防護裝備	充氣救生衣(一次性)
密閉空間/個人防護裝備	個人警報器(救命鐘)
密閉空間/個人防護裝備	復甦器
密閉空間/個人防護裝備	安全帶
密閉空間/個人防護裝備	眼罩
密閉空間/個人防護裝備	擔架床
機件-服務	發電機(o)
機件-服務	電磨機(o)
機件-服務	電攪機(o)
機件-服務	中國焗霧機件(0)
機件-服務	手提式通渠機(o)
機件-服務	電吊機(o)

類別 Category	貨品描述 Item Description
機件-服務	水泵 (清洗水缸用)(o)
機件-服務	吸水機 (小露寶)
機件-服務	吸水機 3600w,90L(小露寶)
機件-服務	(小露寶)-長駁頭(光嘴)40mm
機件-服務	(小露寶)-短接頭(凹凸嘴)40mm

Appendix 5

Photo of the Site

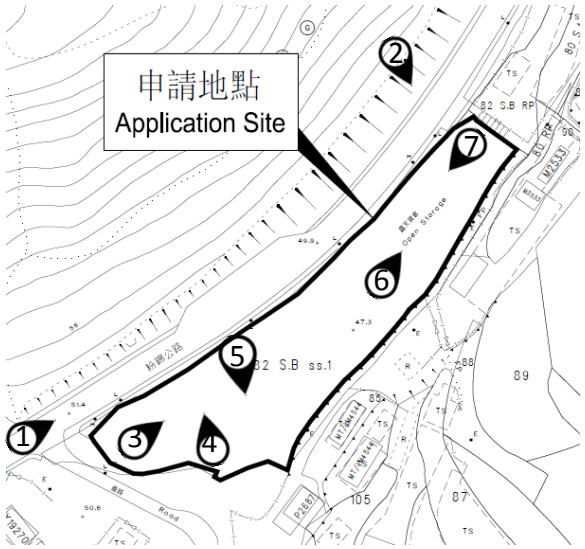
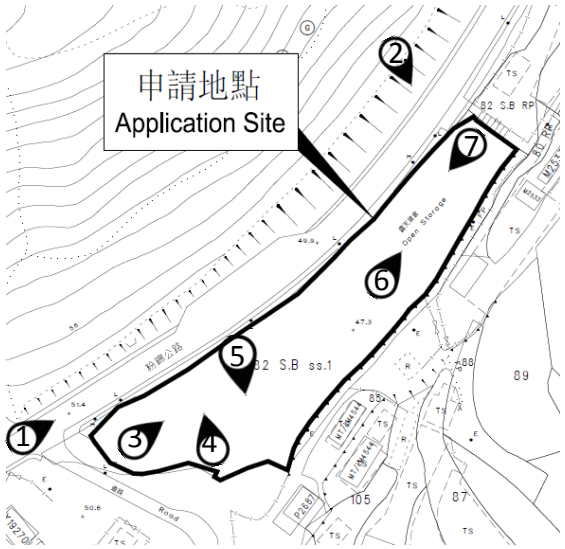


Photo Mark

View Point 1

PRUDENTIAL 測建行
SURVEYING · LAND ADVISORY · VALUATION

Site Photo
Not To Scale – For Identification Only



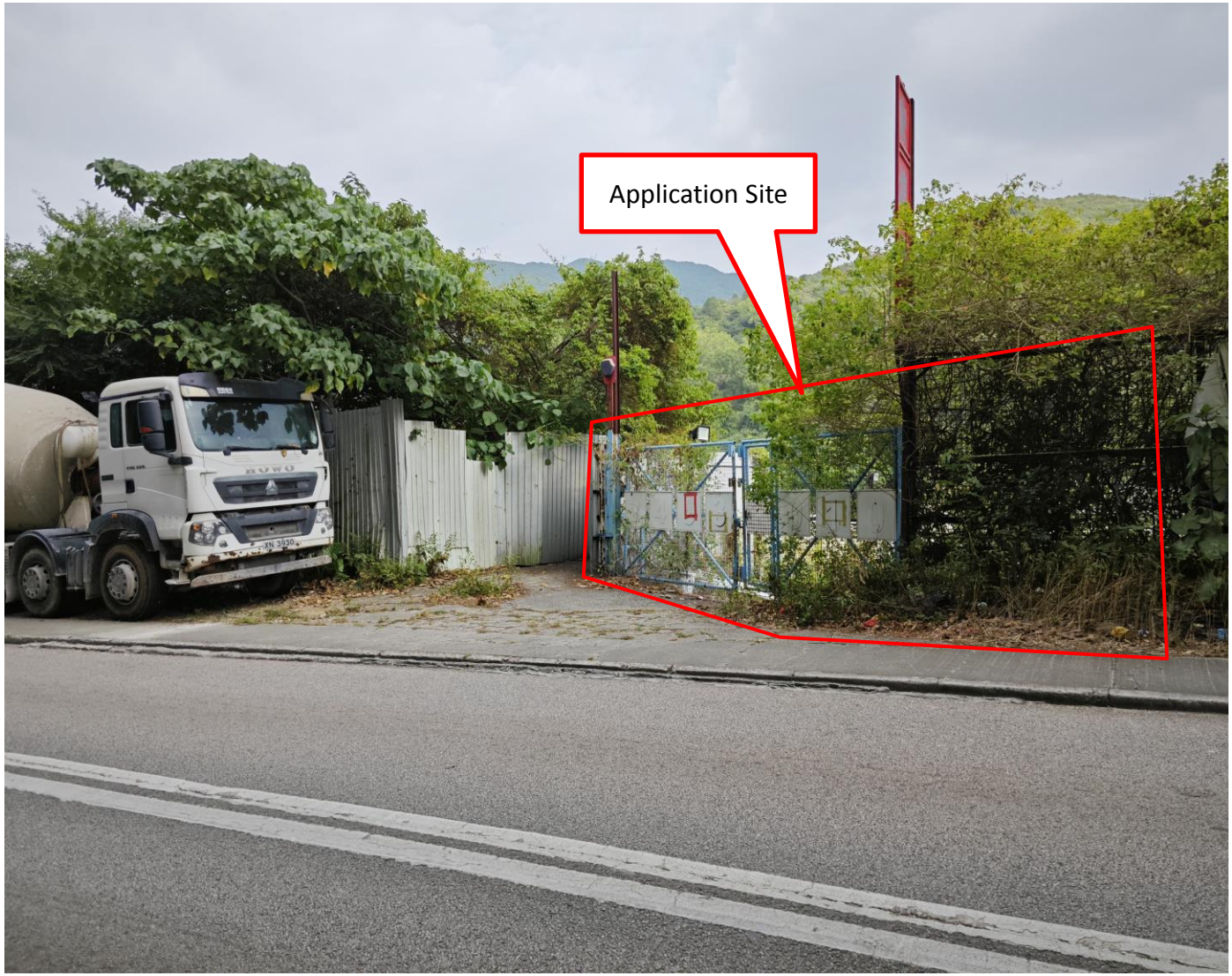


Photo Mark

View Point 2

PRUDENTIAL 測建行
SURVEYING · LAND ADVISORY · VALUATION

Site Photo
Not To Scale – For Identification Only

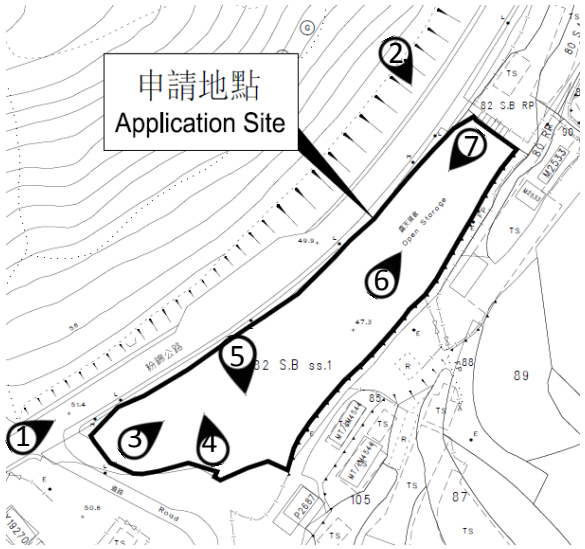


Photo Mark

View Point 3

PRUDENTIAL 測建行
SURVEYING · LAND ADVISORY · VALUATION

Site Photo
Not To Scale – For Identification Only

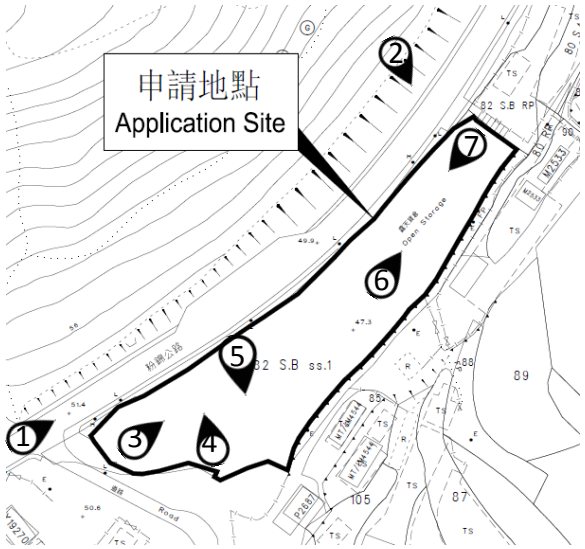


Photo Mark

View Point 4

PRUDENTIAL 測建行
SURVEYING · LAND ADVISORY · VALUATION

Site Photo
Not To Scale – For Identification Only

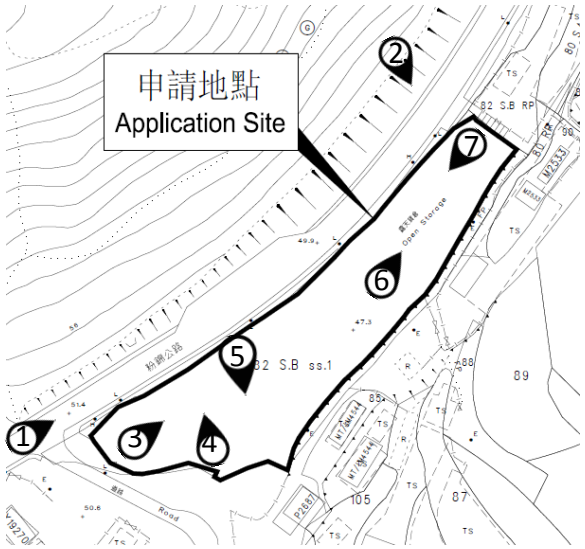


Photo Mark

View Point 5

PRUDENTIAL 測建行
SURVEYING · LAND ADVISORY · VALUATION

Site Photo
Not To Scale – For Identification Only

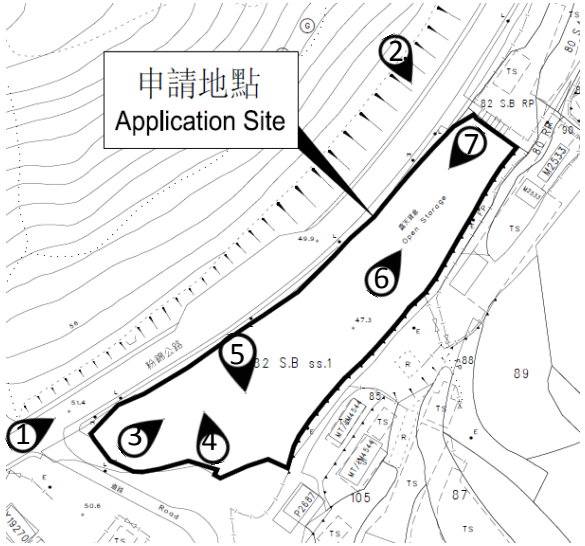


Photo Mark

View Point 6

PRUDENTIAL 測建行
SURVEYING · LAND ADVISORY · VALUATION

Site Photo
Not To Scale – For Identification Only

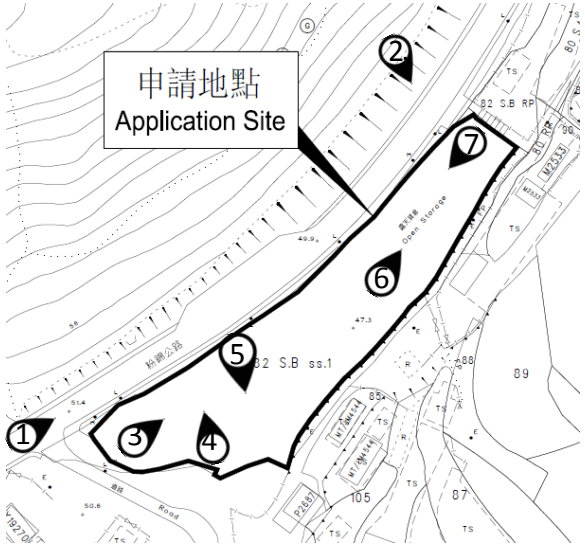


Photo Mark

View Point 7

PRUDENTIAL 測建行
SURVEYING · LAND ADVISORY · VALUATION

Site Photo
Not To Scale – For Identification Only

Appendix 6

Drainage Proposal

DRAINAGE PROPOSAL

TEMPORARY VEHICLE PARK (MEDIUM AND HEAVY GOODS VEHICLE) AND OPEN STORAGE (OPERATIONAL TOOLS AND MATERIALS) USE FOR 3 YEARS AND FILLING OF LAND AT

SUB-SECTION 1 OF SECTION B OF LOT NO. 82 (PART) IN DD108, FAN KAM ROAD, PAT HEUNG, NEW TERRITORIES

PREPARED BY:	**PRUDENTIAL SURVEYORS INTERNATIONAL LIMITED**
DATE:	**DEC 2024**
REVISION:	**3**

1.0 Introduction

To facilitate the temporary parking and open storage of the captioned site, a storm drain system is proposed. Due to the topographical condition and the site area being large, the sewage system cannot completely drain off the storm water by mean of gravity. Catchment area should be divided and sump pump system is adopted in the system to serve several some of the catchment areas.

Revised drainage design is prepared to address the previous comments issued by Drainage Services Department (DSD) issued via the letter from Planning Department dated 8 October 2024 (Planning Department's Ref: DPO080824OB-B8354) (see **Annex 1**).

2.0 Design

2.1 The revised storm drain design is shown on Dwg No. A01 to A03 whilst the E&M design is shown on Dwg No. E01 to E03 (see **Annex 2**).

2.2 Our responses to address DSD's comments are tabulated below:

	DSD's comment	**PSIL's response**
(a)	The applicant will be responsible for the construction, operation and maintenance of the proposed drainage system from the terminal manhole TMH-01 to proposed discharge point is noted.	Yes, the applicant will be responsible for the construction operation and maintenance of the proposed drainage system from the terminal manhole TMH-01 to the proposed discharge point.
(b)	Please provide calculation details for the run off showed in design report.	The detail design is shown on the design drawings in **Annex 2** whilst the calculation details for the run off is provided in **Table 1 - Runoff Calculation** of the design report in **Annex 4**.
(c)	U-channel are not provided at the north-west side of Bays 1	The drainage layout design has been amended to provide U-

	and 2. Please advise how the overland flow from the above area of the site could be properly intercepted and discharged. In general, peripheral surface channels shall be provided along the site boundary to collect surface runoff accrued on the application site and to intercept the overland flow from the adjacent lands.	channels at the north-west side of Bays 1 and 2 (Refer to **drawing no. A01** in **Annex 2**) and the associated calculations can be found in **Table 4a - Hydraulic Calculations (Bay 1-5** in **Annex 4)**.
(d)	The proposal should indicate how the runoff (the flow direction) within the site would be discharged to the proposed u-channel.	The flow directions within the site are shown on **drawing no. A01** in **Annex 2**.
(e)	Please show the flow rate and velocity in channels in table 2a.	The flow rate and velocity in channels are shown in **Table 4a - Hydraulic Calculations (Bay 1-5)** in **Annex 4**.
(f)	Please provide hydraulic calculations for the proposed discharge drainage facility from TMN-01 to the discharge point demonstrating its capacity to cater for the surface runoff. In particular, please show the related flow rates and velocity for the hydraulic calculations.	The related flow rates and velocity for the hydraulic calculations for the proposed discharge drainage facility from TMH-01 to the discharge point are shown in **Table 4b - Hydraulic Calculations (Outside Site Boundary)** in **Annex 4**.
(g)	Please demonstrate that 300mm freeboard for a storm with 10-year return period has been take into account for design of the proposed sump pit.	The freeboards of the proposed sump pits are shown in **Table 2 - Sump Pit Design Calculation** in **Annex 4**. All proposed sump pits have more than 300mm of freeboard for a storm with 50-year return period.
(h)	Please advise the on/off frequency of each pumps.	Please refer to attached **Annex 5 - Design calculation for storm**

		water pump discharge. Please refer **drawing no.E-02** - Section B-B. details as follows:- - 1st duty water pump to the specified water level will be operated. - 2nd duty water pump to be operated when the water level high than or exceeding the specified water level of the 1st pump.
(i)	Please advise whether emergency power generator will be provided for the proposed drainage system and indicate the location for installation of the generator.	Yes. The emergency power generator will be provided for drainage pump system. The location of the proposed Generator as shown in **drawing no. E01** in **Annex 2.**
(j)	Please advise the size of the fuel oil storage tank for supplying fuel oil to the emergency power generator and indicate the fuel oil storage tank in the drawing.	460 lit. capacity of the fuel oil tank will be provided and the tank is cast / built-in the emergency power generator container. Please refer to attached information from the Generator's supplier shown in **Appendix D of Maintenance and Contingency Plan** (**Annex 6)**.
(k)	Please seek FSD's comment on the fuel oil storage tank at location within the proposed development.	Noted and to be submitted for FSD's review. Exemption can be applied for under Cap. 295E Dangerous Goods (Application and Exemption) Regulation 2012 capacity not exceeding 500 L i.e. a receptacle permanently

		installed in any machinery / forming part of any machinery and its capacity not exceeding 500 Lit.
(l)	Two stage pumping will be operated at each sump pit. Please include the performance curve for tow stage pumping in the submission.	Two stage pumping operation procedure as stated in **drawing no. E-02** - Section B-B. details as follows:- - 1st duty water pump to the specified water level will be operated. - 2nd duty water pump to be operated when the water level high than or exceeding the specified water level of the 1st pump. The performance of selected water pump (each pump) remains unchanged. Please refer attached pump curve extracted from the manufacturer.
(m)	Standard details should be provided to indicate the sectional details of the proposed u-channel and the catchpit.	Standard details indicating the sectional details of the proposed u-channel can be found in **drawing no. A02** (**Annex 2**) and in **CEDD standard drawings no. C 2409J, C 2410I and C 2412E (Annex 3).** Standard details indicating the sectional details of the proposed catchpits can be found in **CEDD standard drawings no. C 2405/1 to C 2405/5** (see **Annex 3**).
(n)	Please show the connection details including the C.L. I.L. and	The connection details at proposed discharge point can be

	B.L. at proposed discharge point.	found in **Table 3 - Manholes, Catchpits and Sand Traps Levels** in **Annex 2** and **drawings no. A01** and **A02** in **Annex 2**.

2.2 The engineer's report for the storm drain design is shown in **Annex 4** whilst the pump set calculation design is shown in **Annex 5**.

2.3 The maintenance and contingency plan for the pumping system can be referred to **Annex 6**.

2.4 Photo record for the surrounding and the site can be referred to **Annex 7**.

ANNEX 1

PLANNING DEPARTMENT'S LETTER DATED 8 OCTOBER 2024 (PLANNING DEPARTMENT'S REF: DPO080824OB-B8354) SHOWING PREVIOUS COMMENTS FROM DRAINAGE SERVICES DEPARTMENT (DSD)

規 劃 署
粉嶺、上水及元朗東規劃處
新界荃灣青山公路 388 號
中染大廈 22 樓 2202 室

Planning Department
Fanling, Sheung Shui & Yuen Long East
District Planning Office
Unit 2202, 22/F, CDW Building,
388 Castle Peak Road, Tsuen Wan, N.T.

By Post and Fax (2531 8888)

來函檔號	Your Reference :	DPO080824OB-B8354
本署檔號	Our Reference :	TPB/A/YL-PH/933
電話號碼	Tel. No. :	3168 4044
傳真機號碼	Fax No. :	3168 4074 / 3168 4075

8 October 2024

Prudential Surveyors International Limited
3/F and 2/F, Tung Hip Commercial Building
244 Des Voeux Road Central
Hong Kong
(Attn.: Michael C K LEE)

Dear Sir/Madam,

Proposed Temporary Vehicle Park (Medium and Heavy Goods Vehicle) and Open Storage (Operation Tools and Materials) for a Period of 3 Years and Filling of Land in "Residential (Group D)", Lot 82 S.B ss.1 (Part) in D.D.108, Fan Kam Road, Pat Heung, Yuen Long (Planning Application No. A/YL-PH/933)

Compliance with Approval Condition (e)
Submission of a Revised Drainage Proposal

I refer to your submission via letter dated 8.8.2024 for compliance with the captioned approval condition. Relevant department has been consulted on your submission. Your submission is considered:

☐ Acceptable. The captioned condition **has been complied with**.

☐ Acceptable. Since the captioned condition requires both the submission and implementation of the proposal, it **has not been fully complied with**. Please proceed to implement the accepted proposal for full compliance with the approval condition.

☑ Not acceptable. The captioned condition **has not been complied with**. Please find detailed departmental comment(s) in **Appendix**.

Should you have any enquiries, please contact Ms Winsome LEE of this office at 3168 4044, or Mr Kenneth CHAN of the Drainage Services Department at 2300 1259.

Yours faithfully,

Winsome

(Winsome LEE)
for District Planning Officer/
Fanling, Sheung Shui and Yuen Long East
Planning Department

c.c.
CE/MN, DSD (Attn.: Mr Kenneth CHAN) (Fax: 2770 4761)
CTP/TPB(3)

Appendix

Detailed Comments of the Chief Engineer/Mainland North of Drainage Services Department

(a) The applicant will be responsible for the construction, operation and maintenance of the proposed drainage system from the terminal manhole TMH-01 to proposed discharge point is noted.

(b) Please provide calculation details for the run off showed in design report.

(c) U-channels are not provided at the north-west side of Bays 1 and 2. Please advise how the overland flow from the above area of the site could be properly intercepted and discharged. In general, peripheral surface channels shall be provided along the site boundary to collect the surface runoff accrued on the application site and to intercept the overland flow from the adjacent lands.

(d) The proposal should indicate how the runoff (the flow direction) within the site would be discharged to the proposed u-channel.

(e) Please show the flow rate and velocity in channels in table 2a.

(f) Please provide hydraulic calculations for the proposed discharging drainage facility from TMN-01 to the discharge point demonstrating its capacity to cater for the surface runoff. In particular, please show the related flow rates and velocities for the hydraulic calculations

(g) Please demonstrate that 300mm freeboard for a storm with 10-year return period has been take into account for design of the proposed sump pit.

(h) Please advise the on/off frequency of each pumps.

(i) Please advise whether emergency power generator will be provided for the proposed drainage system and indicate the location for installation of the generator.

(j) Please advise the size of the fuel oil storage tank for supplying fuel oil to the emergency power generator and indicate the fuel oil storage tank in drawing.

(k) Please seek FSD's comment on the fuel oil storage tank at location within the proposed development.

(l) Two stage pumping will be operated at each sump pit. Please include the performance curve for two stage pumping in the submission.

(m) Standard details should be provided to indicate the sectional details of the proposed u-channel and the catchpit.

(n) Please show the connection details including the C.L. I.L. and B.L. at proposed discharge point.

ANNEX 2

DESIGN DRAWINGS

DRAWING NO.	DRAWING TITLE	REVISION NO.
A01	SITE DRAINAGE LAYOUT	3
A02	SCHEMATIC DIAGRAM OF DRAINAGE SYSTEM	3
A03	TYPICAL DETAILS OF SAND TRAP & TERMINAL MANHOLE, TYPICAL DETAILS OF U-CHANNEL	3
A04	TOPOGRAPHY SECTION VIEW	3
E01	E&M INSTALLATIONS (1)	3
E02	E&M INSTALLATIONS (2) – SUMP PUMP SCHEMATIC	3
E03	E&M INSTALLATIONS (3) -	3

GENERAL NOTES:

1. SAND TRAP DETAIL –
   PLEASE REFER TO DSD'S STANDARD DRAWING NO. DS1025B.
   TYPICAL DETAIL OF CATCHPIT –
   PLEASE REFER TO CEDD'S STANDARD DRAWING NO. C2405/1, C2405/2, C2405/3, C2405/4, C2405/5, C2406/1 AND C2406/2A, EXCEPT OTHERWISE SPECIFIED IN DWG NO.A03.
2. TYPICAL U-CHANNEL DETAIL –
   PLEASE REFER TO CEDD'S STANDARD DRAWING NO. C2409I, C2410I, C2411G, C2412E & C2413D EXCEPT OTHERWISE SPECIFIED IN DWG NO.A03.
3. TYPICAL METAL GRATING FOR U-CHANNEL –
   PLEASE REFER TO HyD'S STANDARD DRAWING NO. H3156B.
4. MAINTENANCE AND CONTINGENCY PLAN FOR PROPOSED PUMP SYSTEM

FOR MAINTENANCE PLANNING

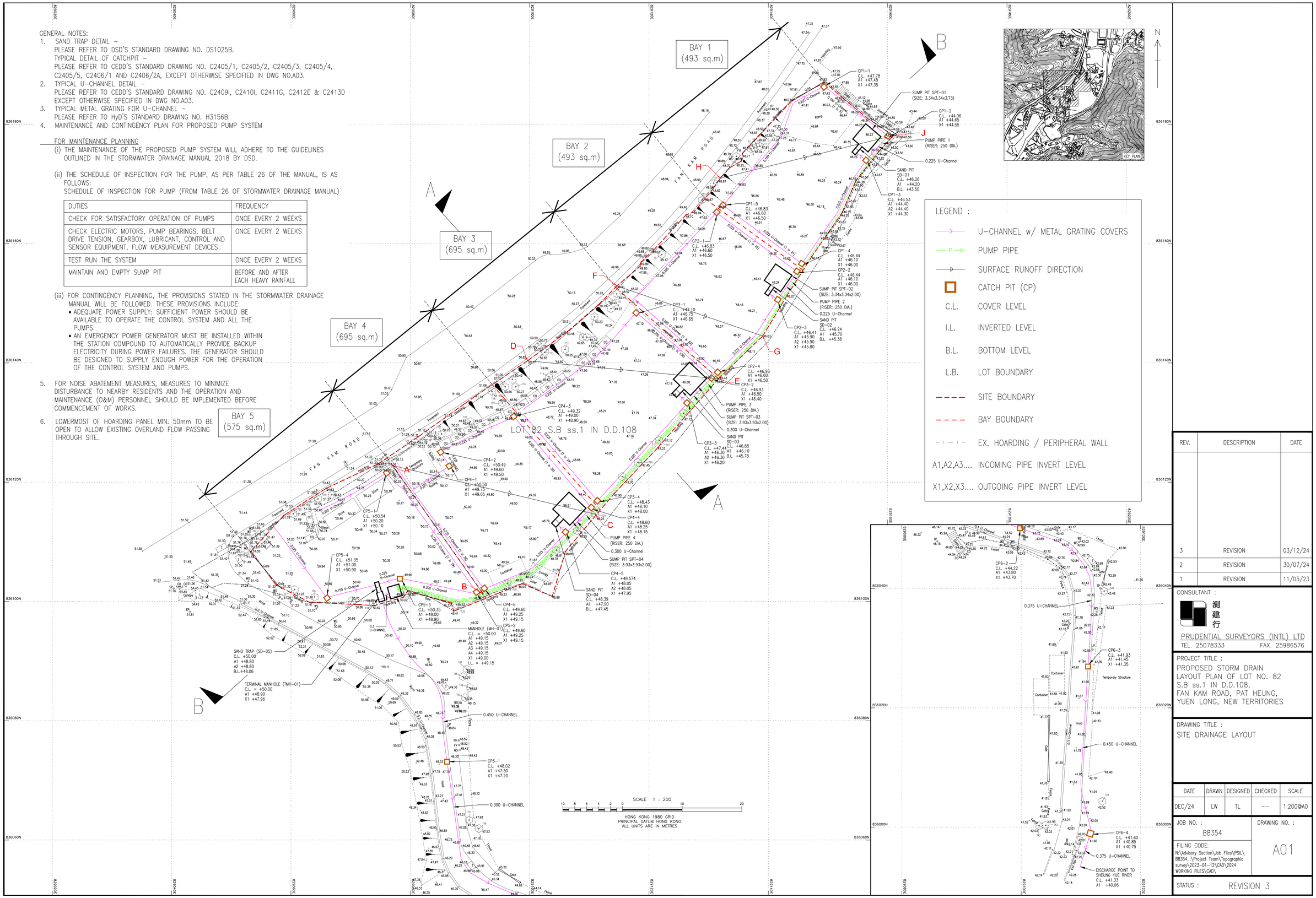
(i) THE MAINTENANCE OF THE PROPOSED PUMP SYSTEM WILL ADHERE TO THE GUIDELINES OUTLINED IN THE STORMWATER DRAINAGE MANUAL 2018 BY DSD.

(ii) THE SCHEDULE OF INSPECTION FOR THE PUMP, AS PER TABLE 26 OF THE MANUAL, IS AS FOLLOWS:
SCHEDULE OF INSPECTION FOR PUMP (FROM TABLE 26 OF STORMWATER DRAINAGE MANUAL)

DUTIES	FREQUENCY
CHECK FOR SATISFACTORY OPERATION OF PUMPS	ONCE EVERY 2 WEEKS
CHECK ELECTRIC MOTORS, PUMP BEARINGS, BELT DRIVE TENSION, GEARBOX, LUBRICANT, CONTROL AND SENSOR EQUIPMENT, FLOW MEASUREMENT DEVICES	ONCE EVERY 2 WEEKS
TEST RUN THE SYSTEM	ONCE EVERY 2 WEEKS
MAINTAIN AND EMPTY SUMP PIT	BEFORE AND AFTER EACH HEAVY RAINFALL

(iii) FOR CONTINGENCY PLANNING, THE PROVISIONS STATED IN THE STORMWATER DRAINAGE MANUAL WILL BE FOLLOWED. THESE PROVISIONS INCLUDE:
- ADEQUATE POWER SUPPLY: SUFFICIENT POWER SHOULD BE AVAILABLE TO OPERATE THE CONTROL SYSTEM AND ALL THE PUMPS.
- AN EMERGENCY POWER GENERATOR MUST BE INSTALLED WITHIN THE STATION COMPOUND TO AUTOMATICALLY PROVIDE BACKUP ELECTRICITY DURING POWER FAILURES. THE GENERATOR SHOULD BE DESIGNED TO SUPPLY ENOUGH POWER FOR THE OPERATION OF THE CONTROL SYSTEM AND PUMPS.

5. FOR NOISE ABATEMENT MEASURES, MEASURES TO MINIMIZE DISTURBANCE TO NEARBY RESIDENTS AND THE OPERATION AND MAINTENANCE (O&M) PERSONNEL SHOULD BE IMPLEMENTED BEFORE COMMENCEMENT OF WORKS.
6. LOWERMOST OF HOARDING PANEL MIN. 50mm TO BE OPEN TO ALLOW EXISTING OVERLAND FLOW PASSING THROUGH SITE.



LEGEND :

- U-CHANNEL w/ METAL GRATING COVERS
- PUMP PIPE
- SURFACE RUNOFF DIRECTION
- CATCH PIT (CP)
- C.L. COVER LEVEL
- I.L. INVERTED LEVEL
- B.L. BOTTOM LEVEL
- L.B. LOT BOUNDARY
- SITE BOUNDARY
- BAY BOUNDARY
- EX. HOARDING / PERIPHERAL WALL
- A1,A2,A3.... INCOMING PIPE INVERT LEVEL
- X1,X2,X3.... OUTGOING PIPE INVERT LEVEL

REV.	DESCRIPTION	DATE
3	REVISION	03/12/24
2	REVISION	30/07/24
1	REVISION	11/05/23

CONSULTANT :

測建行

PRUDENTIAL SURVEYORS (INTL) LTD
TEL. 25078333 FAX. 25986576

PROJECT TITLE :
PROPOSED STORM DRAIN LAYOUT PLAN OF LOT NO. 82 S.B ss.1 IN D.D.108, FAN KAM ROAD, PAT HEUNG, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :
SITE DRAINAGE LAYOUT

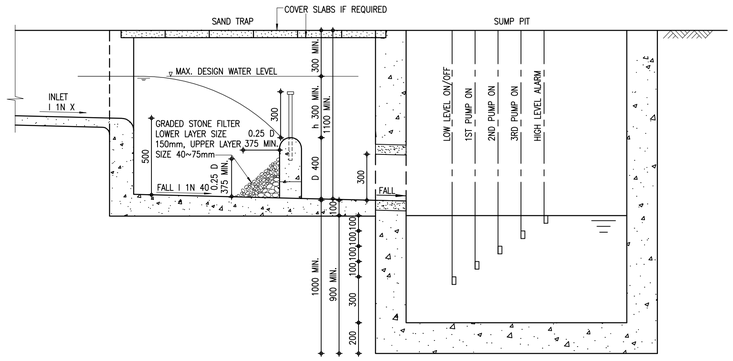
DATE	DRAWN	DESIGNED	CHECKED	SCALE
DEC/24	LW	TL	--	1:200@A0

JOB NO. : B8354

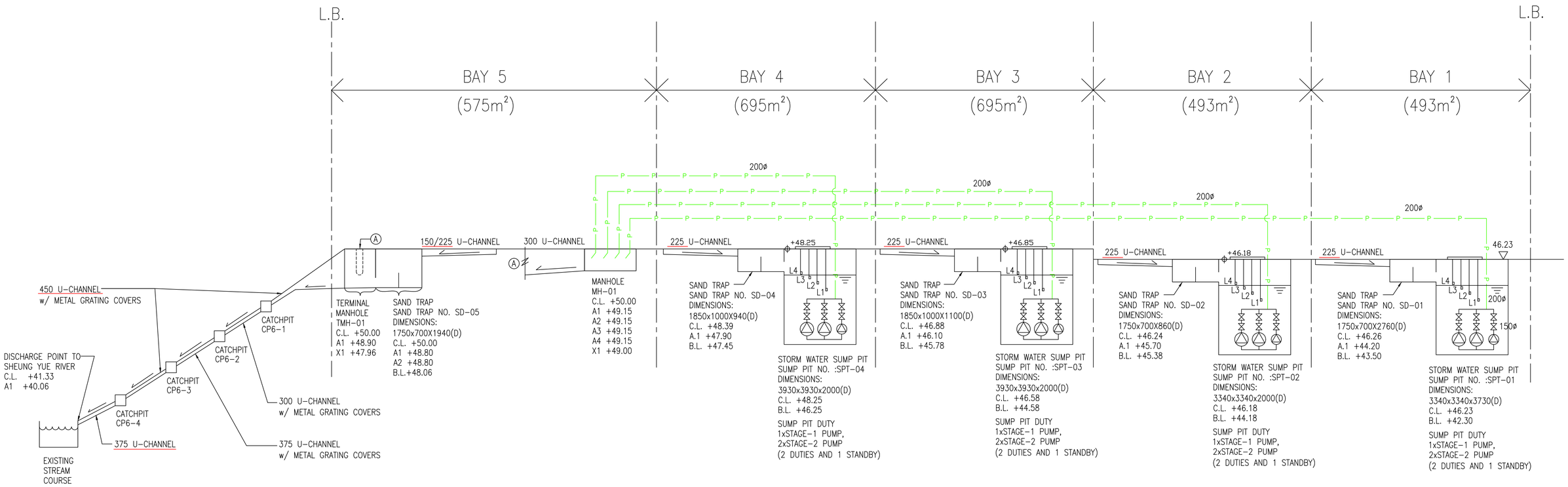
DRAWING NO. : A01

FILING CODE: N:\Advisory Section\Job Files\PSIL\B8354...\Project Team\Topographic survey\2023-01-12\CAD\2024 WORKING FILES\CAD\

STATUS : REVISION 3

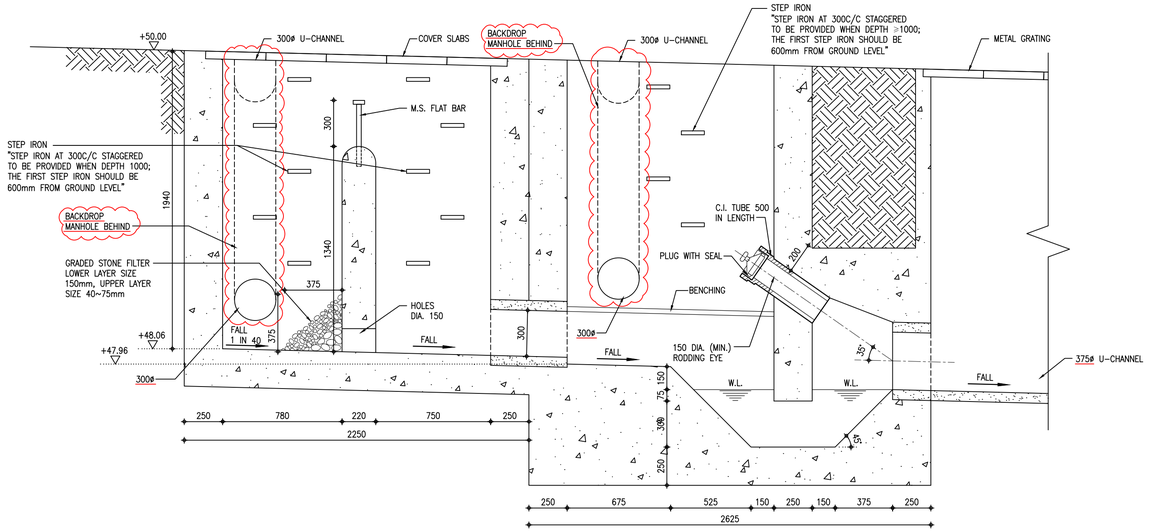


TYPICAL SECTION

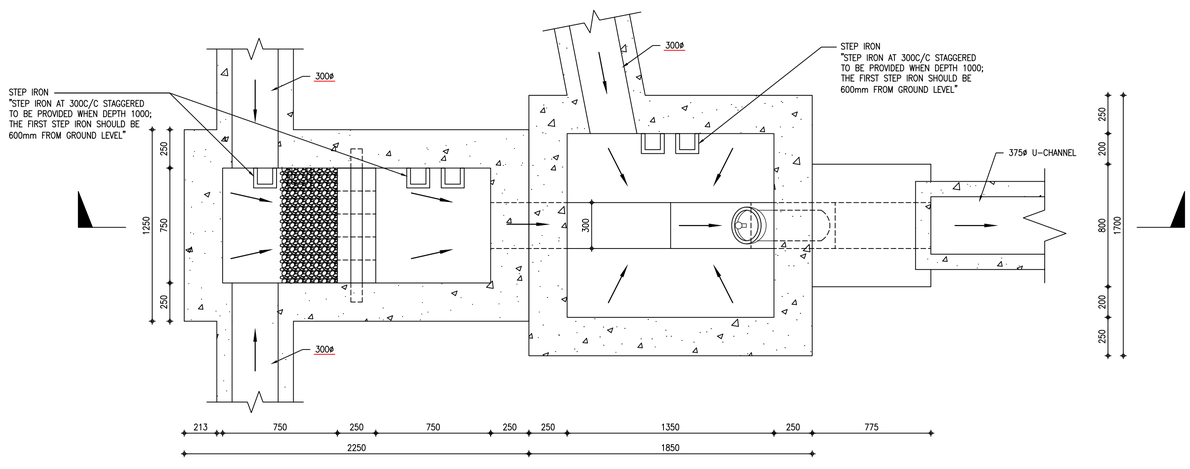


(NOT TO SCALE)

CONSULTANT : 測建行 PRUDENTIAL SURVEYORS (INTL) LTD TEL. 25078333 FAX. 25986576	PROJECT TITLE : PROPOSED STORM DRAIN LAYOUT PLAN OF LOT NO. 82 S.B ss.1 IN D.D.108, FAN KAM ROAD, PAT HEUNG, YUEN LONG, NEW TERRITORIES	DRAWING TITLE : SCHEMATIC DIAGRAM OF DRAINAGE SYSTEM	JOB NO. : B8354 FILING CODE : N:\Advisory Section\Job Files\PSIL\B8354...\Project Team\Topographic survey\2023-01-12\CAD\2024 WORKING FILES\CAD\	DRAWING NO. : A02	DATE: DEC/24 · DRAWN: LW · DESIGNED: TL · CHECKED: -- · SCALE: N.T.S. STATUS : REVISION 3

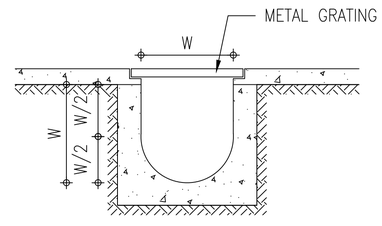


SECTION



PLAN

DETAIL OF SAND TRAP & TERMINAL MANHOLE



W = WIDTH OF U-CHANNEL

TYPICAL DETAILS OF U-CHANNEL

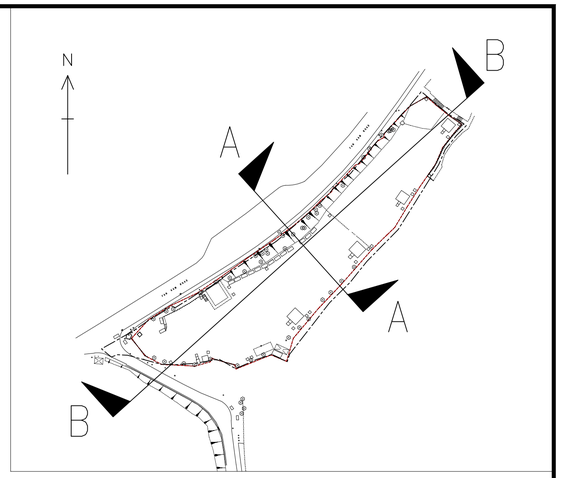
N.T.S

(PLEASE ALSO REFER TO CEDD'S STANDARD DRAWING NO. C2411G & C2413g FOR STEPPED U-CHANNEL FOR DETAIL)

CONSULTANT : 測建行 PRUDENTIAL SURVEYORS (INTL) LTD TEL. 25078333 FAX. 25986576	PROJECT TITLE : PROPOSED STORM DRAIN LAYOUT PLAN OF LOT NO. 82 S.B ss.1 IN D.D.108, FAN KAM ROAD, PAT HEUNG, YUEN LONG, NEW TERRITORIES	DRAWING TITLE : TYPICAL DETAILS OF SAND TRAP & TERMINAL MANHOLE, TYPICAL DETAILS OF U-CHANNEL	JOB NO. : B8354	DRAWING NO. : A03	
			FILING CODE : N:\Advisory Section\Job Files\ PSIL\B8354...\Project Team\ Topographic survey\2023-01-12 \CAD\2024 WORKING FILES\CAD\		

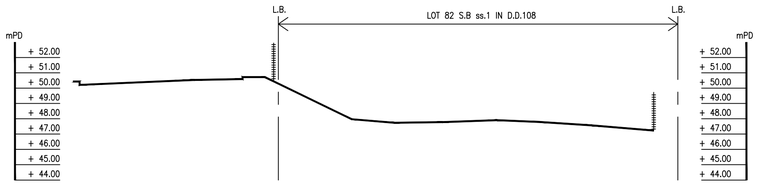
DATE	DRAWN	DESIGNED	CHECKED	SCALE
DEC/24	LW	TL	--	N.T.S.

STATUS : REVISION 3



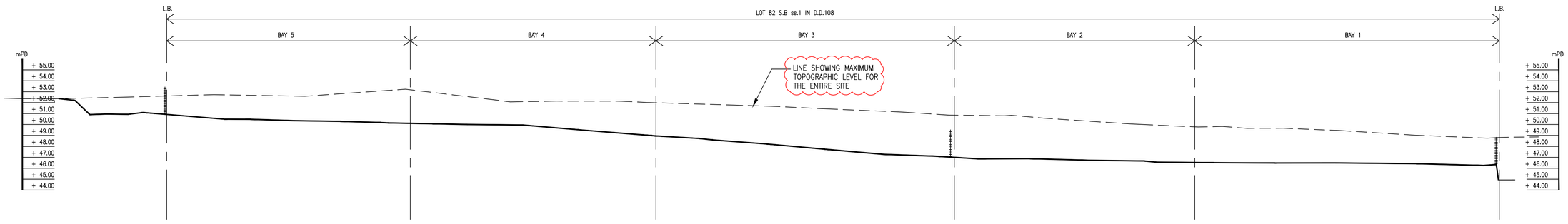
KEY PLAN

N.T.S



SECTION A–A

0 5 10 m
1 : 200 SCALE BAR



SECTION B–B

0 5 10 m
1 : 200 SCALE BAR

CONSULTANT :
測建行
PRUDENTIAL SURVEYORS (INTL) LTD
TEL. 25078333 FAX. 25986576

PROJECT TITLE :
PROPOSED STORM DRAIN LAYOUT PLAN OF LOT NO. 82 S.B ss.1 IN D.D.108, FAN KAM ROAD, PAT HEUNG, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :
TOPOGRAPHY SECTION VIEW

JOB NO. : B8354

FILING CODE : N:\Advisory Section\Job Files\PSIL\B8354...\Project Team\Topographic survey\2023-01-12\CAD\2024 WORKING FILES\CAD\

DRAWING NO. : A04

DATE	DRAWN	DESIGNED	CHECKED	SCALE
JUNE/23	LW	TL	--	1:200 @ A1

STATUS : REVISION 3

GENERAL NOTES:

1. SAND TRAP DETAIL –
   PLEASE REFER TO DSD'S STANDARD DRAWING NO. DS1025B.
   TYPICAL DETAIL OF CATCHPIT –
   PLEASE REFER TO CEDD'S STANDARD DRAWING NO. C2405/1, C2405/2, C2405/3, C2405/4, C2405/5, C2406/1 AND C2406/2A, EXCEPT OTHERWISE SPECIFIED IN DWG NO.A03.
2. TYPICAL U–CHANNEL DETAIL –
   PLEASE REFER TO CEDD'S STANDARD DRAWING NO. C2409I, C2410I, C2411G, C2412E & C2413D EXCEPT OTHERWISE SPECIFIED IN DWG NO.A03.
3. TYPICAL METAL GRATING FOR U–CHANNEL –
   PLEASE REFER TO HyD'S STANDARD DRAWING NO. H3156B.
4. MAINTENANCE AND CONTINGENCY PLAN FOR PROPOSED PUMP SYSTEM

   FOR MAINTENANCE PLANNING

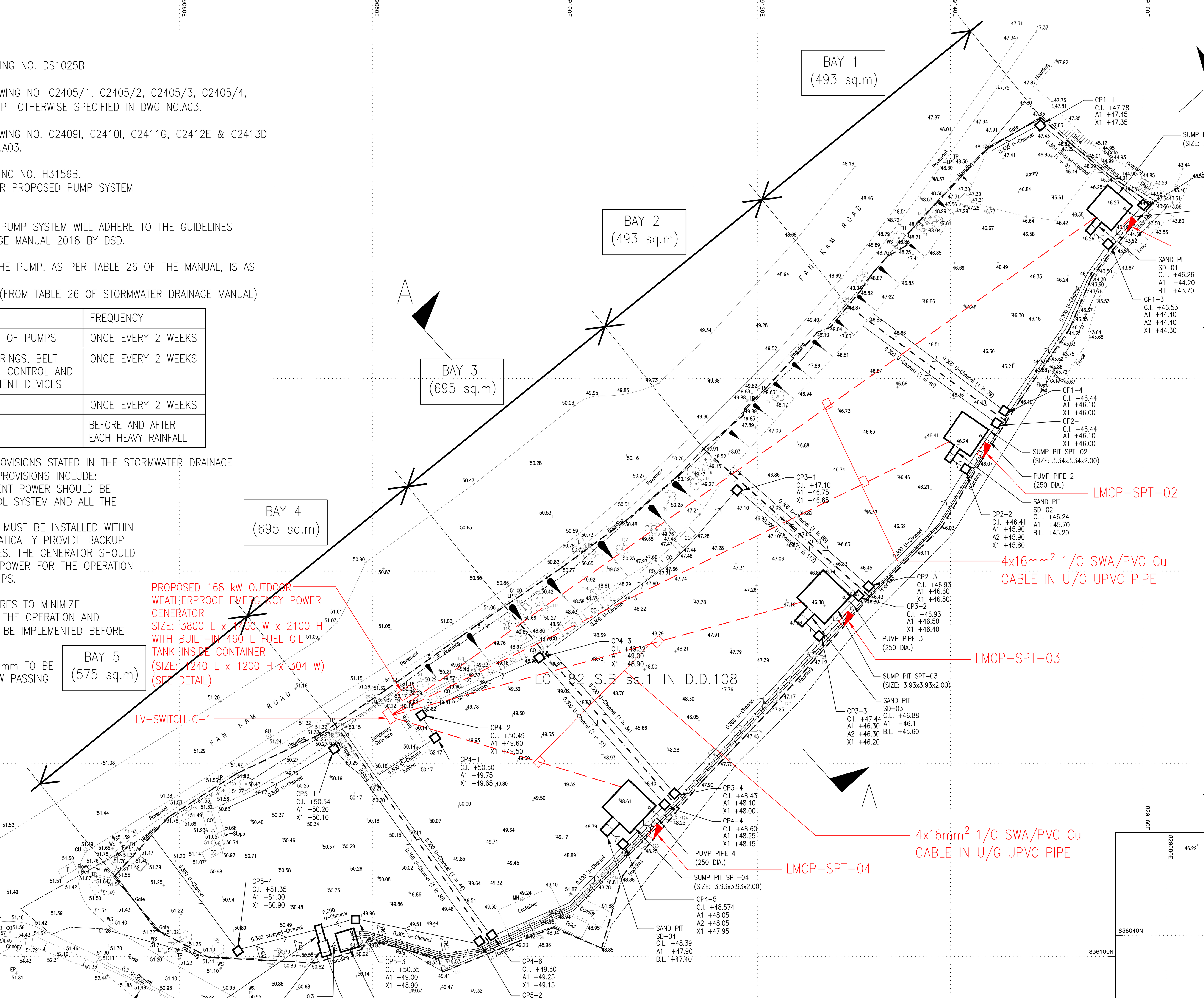
   (i) THE MAINTENANCE OF THE PROPOSED PUMP SYSTEM WILL ADHERE TO THE GUIDELINES OUTLINED IN THE STORMWATER DRAINAGE MANUAL 2018 BY DSD.

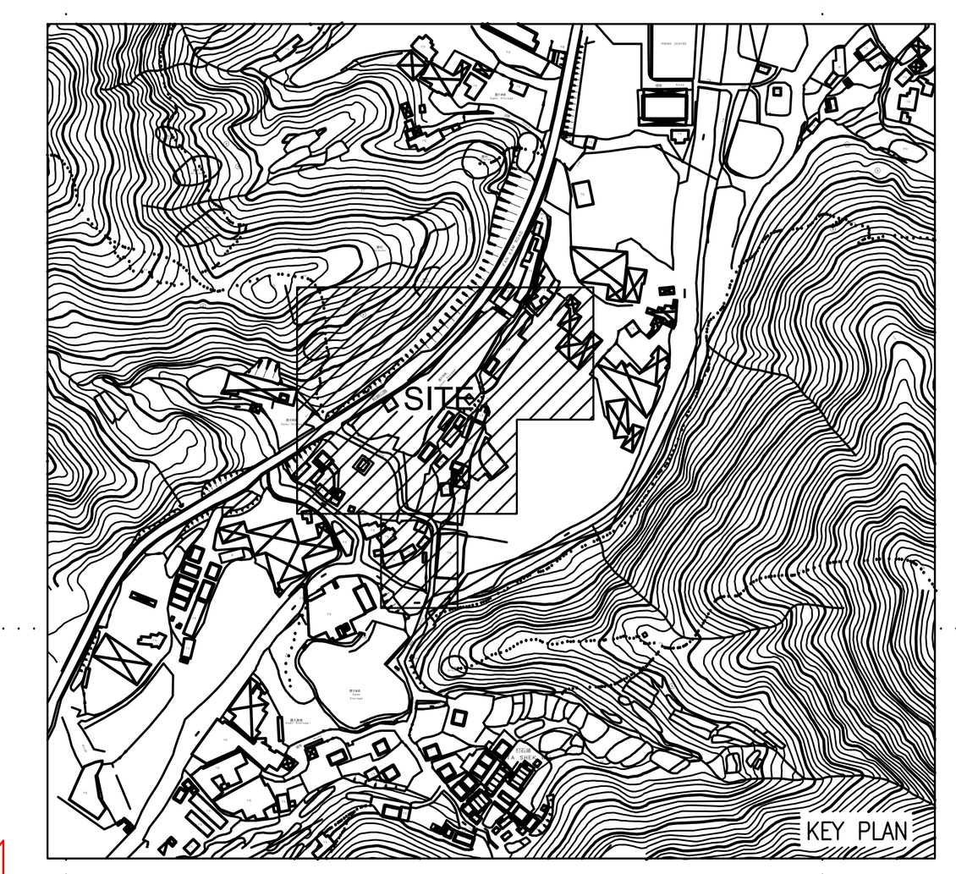
   (ii) THE SCHEDULE OF INSPECTION FOR THE PUMP, AS PER TABLE 26 OF THE MANUAL, IS AS FOLLOWS:
   SCHEDULE OF INSPECTION FOR PUMP (FROM TABLE 26 OF STORMWATER DRAINAGE MANUAL)

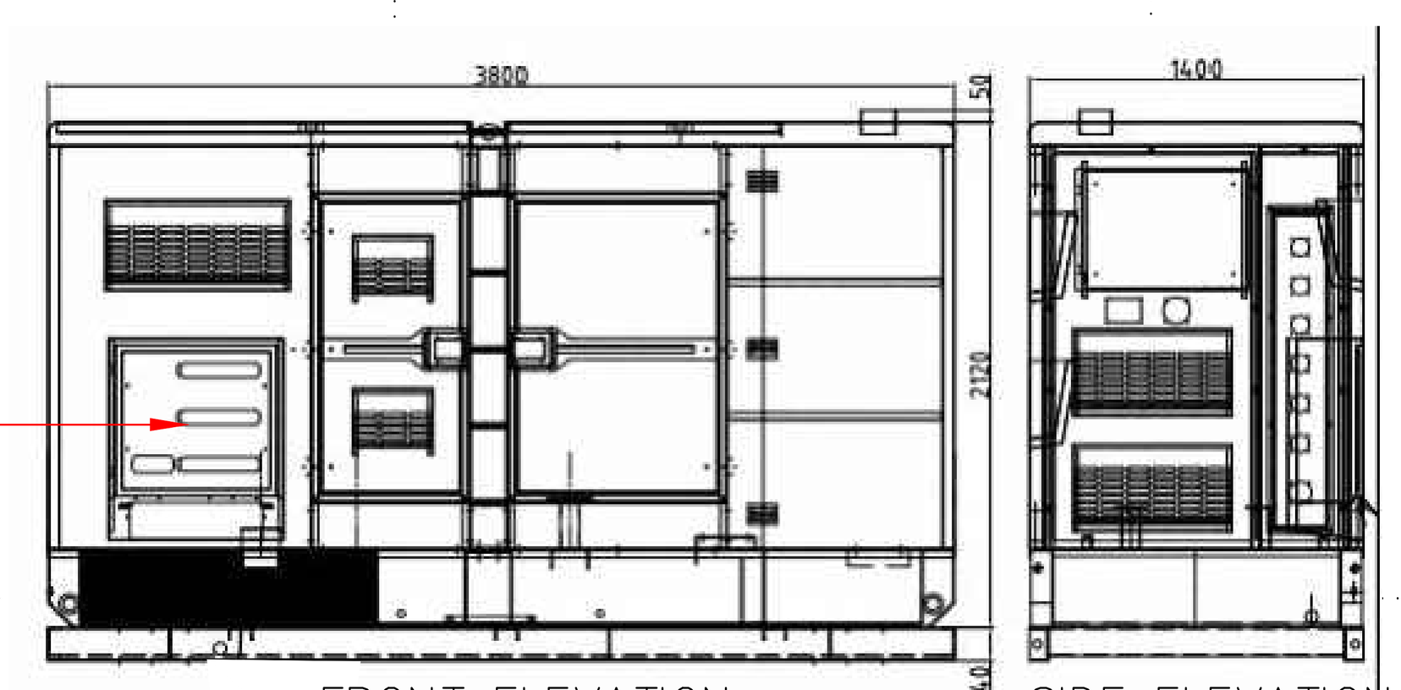
DUTIES	FREQUENCY
CHECK FOR SATISFACTORY OPERATION OF PUMPS	ONCE EVERY 2 WEEKS
CHECK ELECTRIC MOTORS, PUMP BEARINGS, BELT DRIVE TENSION, GEARBOX, LUBRICANT, CONTROL AND SENSOR EQUIPMENT, FLOW MEASUREMENT DEVICES	ONCE EVERY 2 WEEKS
TEST RUN THE SYSTEM	ONCE EVERY 2 WEEKS
MAINTAIN AND EMPTY SUMP PIT	BEFORE AND AFTER EACH HEAVY RAINFALL

   (iii) FOR CONTINGENCY PLANNING, THE PROVISIONS STATED IN THE STORMWATER DRAINAGE MANUAL WILL BE FOLLOWED. THESE PROVISIONS INCLUDE:
   - ADEQUATE POWER SUPPLY: SUFFICIENT POWER SHOULD BE AVAILABLE TO OPERATE THE CONTROL SYSTEM AND ALL THE PUMPS.
   - AN EMERGENCY POWER GENERATOR MUST BE INSTALLED WITHIN THE STATION COMPOUND TO AUTOMATICALLY PROVIDE BACKUP ELECTRICITY DURING POWER FAILURES. THE GENERATOR SHOULD BE DESIGNED TO SUPPLY ENOUGH POWER FOR THE OPERATION OF THE CONTROL SYSTEM AND PUMPS.

5. FOR NOISE ABATEMENT MEASURES, MEASURES TO MINIMIZE DISTURBANCE TO NEARBY RESIDENTS AND THE OPERATION AND MAINTENANCE (O&M) PERSONNEL SHOULD BE IMPLEMENTED BEFORE COMMENCEMENT OF WORKS.
6. LOWERMOST OF HOARDING PANEL MIN. 50mm TO BE OPEN TO ALLOW EXISTING OVERLAND FLOW PASSING THROUGH SITE.



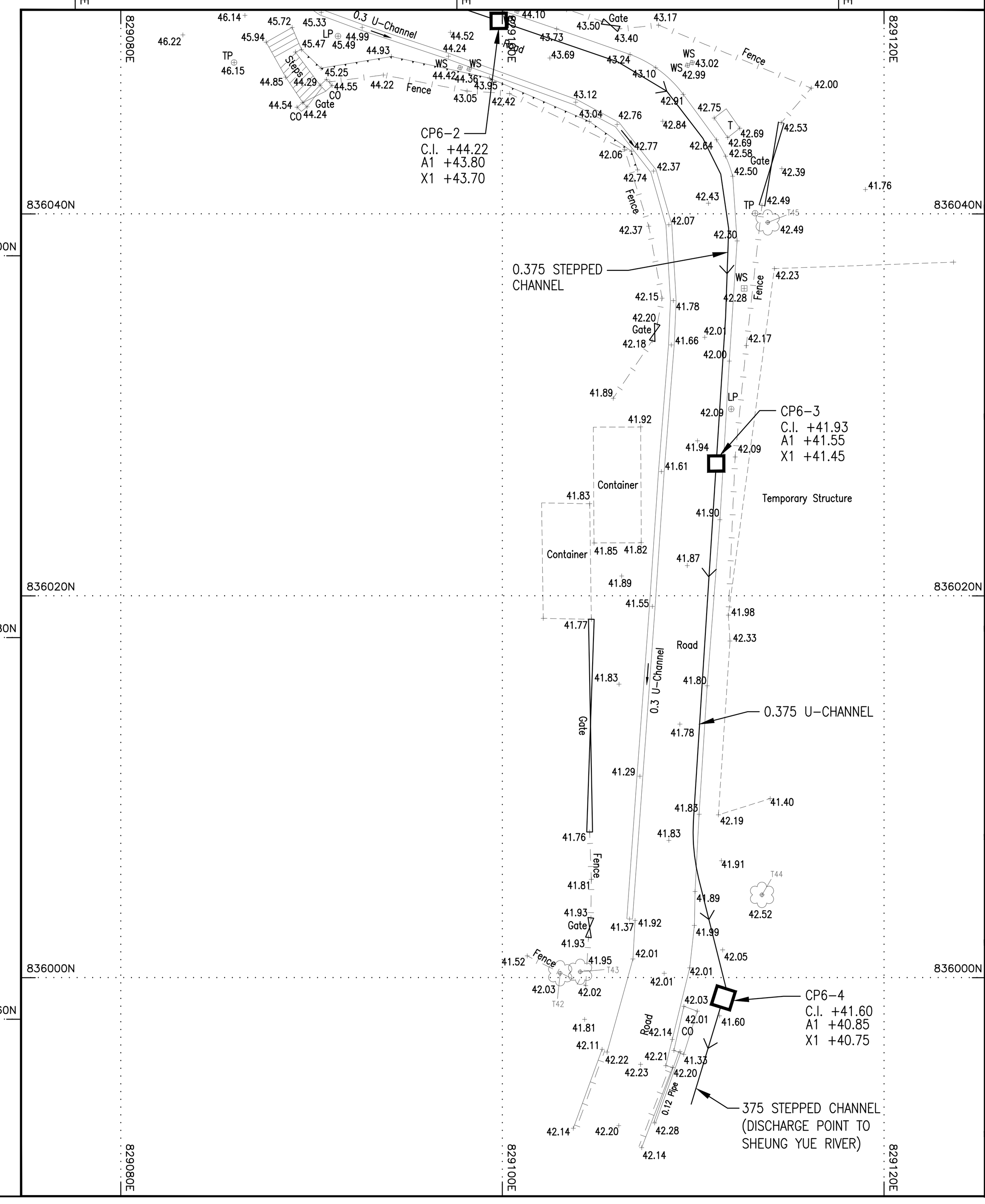




DETAIL FOR WEATHERPROOF EMERGENCY POWER GENERATOR

SCALE 1 : 200

HONG KONG 1980 GRID
PRINCIPAL DATUM HONG KONG
ALL UNITS ARE IN METRES



LEGEND :

—→—	U–CHANNEL w/ METAL GRATING COVERS
—P→	PUMP PIPE
■	CATCH PIT (CP)
C.L.	COVER LEVEL
I.L.	INVERTED LEVEL
B.L.	BOTTOM LEVEL
L.B.	LOT BOUNDARY
————	SITE BOUNDARY
– – – –	BAY BOUNDARY
–I–I–	EX. HOARDING / PERIPHERAL WALL
A1,A2,A3....	INCOMING PIPE INVERT LEVEL
X1,X2,X3....	OUTGOING PIPE INVERT LEVEL

REV.	DESCRIPTION	DATE

CONSULTANT :

測建行

PRUDENTIAL SURVEYORS (INTL) LTD
TEL. 25078333 FAX. 25986576

PROJECT TITLE :
PROPOSED STORM DRAIN LAYOUT PLAN OF LOT NO. 82 S.B ss.1 IN D.D.108, FAN KAM ROAD, PAT HEUNG, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :
E&M INSTALLATIONS (1)

Telephone : 2544 8939 Facsimile : 2544 1669 E–mail : gland@biznetvigator.com

DATE	DRAWN	DESIGNED	CHECKED	SCALE
JUNE/23	LW	TL	--	1:200@A0

JOB NO. : B8354

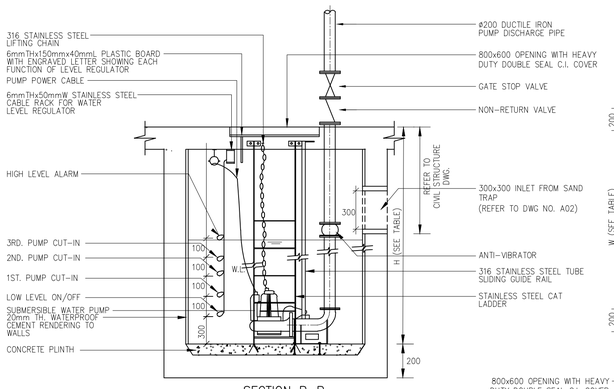
DRAWING NO. : E01

FILING CODE: N:\Advisory Section\Job Files\PSIL\B8354...\Project Team\Topographic survey\2023-01-12\CAD\2024 WORKING FILES\CAD\

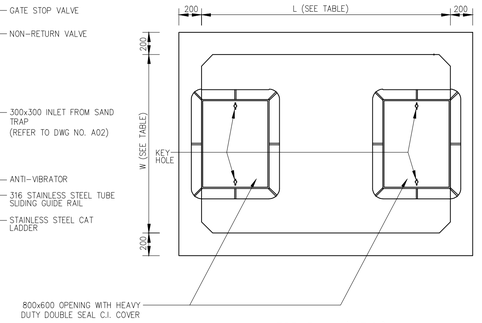
STATUS : REV. 3

PUMP SCHEDULE

EQUIPMENT NO.	SPT-01-1 TO SPT-01-3	SPT-02-1 TO SPT-02-3	SPT-03-1 TO SPT-03-3	SPT-04-1 TO SPT-04-3
LOCATION	SPT-01 SUMP PIT	SPT-02 SUMP PIT	SPT-03 SUMP PIT	SPT-04 SUMP PIT
NO. OFF	3 PER EACH SUMP PIT			
FLOW (L/S)	30			
HYDRAULIC HEAD (m)	22			
SPEED (rpm)	1450			
TYPE	VERTICAL CENTRIFUGAL SUBMERSIBLE PUMP			
DRIVE	DIRECT			
FLUID HANDLED	STORM WATER			
FLUID TEMPERATURE (°C)	28			
WORKING PRESSURE (kPa)	1000			
TESTING PRESSURE	1200			
MINIMUM EFFICIENCY	80			
BREAK POWER	7.5			
MOTOR DATA:				
TYPE	TEFC			
SPEED (rpm)	1450			
RATING (kW)	11			
POWER SUPPLY (PHASE/CYCLE/VOLT)	3/50/380			
OPERATING WEIGHT (kg)	150			
REMARKS	- ONE AS STAND-BY FOR EACH SUMP PIT			



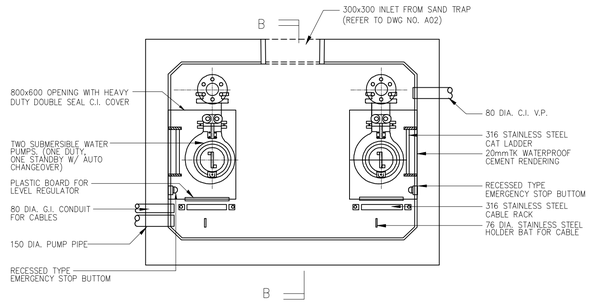
SECTION B-B
DETAIL OF R.C. SUMP PIT



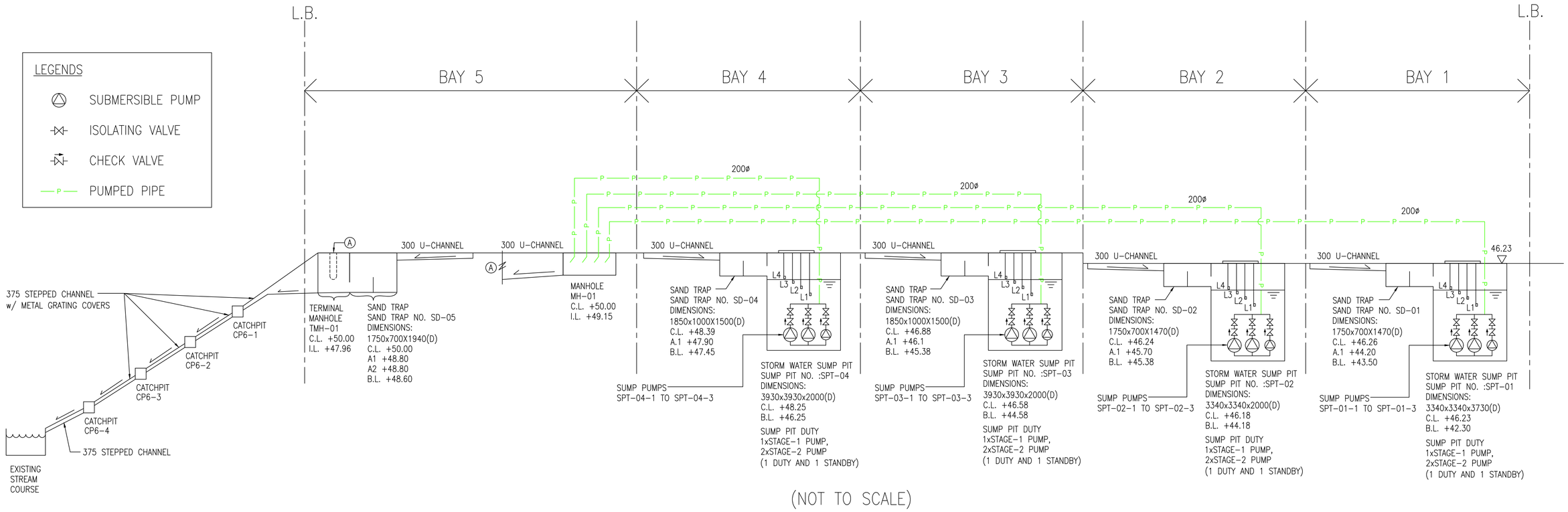
TOP PLAN (N.T.S.)

SUMP PIT DIMENSIONS

SUMP PIT NO.	L	W	H
SPT-01	3340	3340	3730
SPT-02	3340	3340	2000
SPT-03	3930	3930	2000
SPT-04	3930	3930	2000



SECTION PLAN
TYPICAL DETAIL FOR SUMP PIT



(NOT TO SCALE)

CONSULTANT :
測建行
PRUDENTIAL SURVEYORS (INTL) LTD
TEL. 25078333 FAX. 25986576

PROJECT TITLE :
PROPOSED STORM DRAIN LAYOUT PLAN OF LOT NO. 82 S.B ss.1 IN D.D.108, FAN KAM ROAD, PAT HEUNG, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :
E&M INSTALLATIONS (2) - SUMP PUMP SCHEMATIC

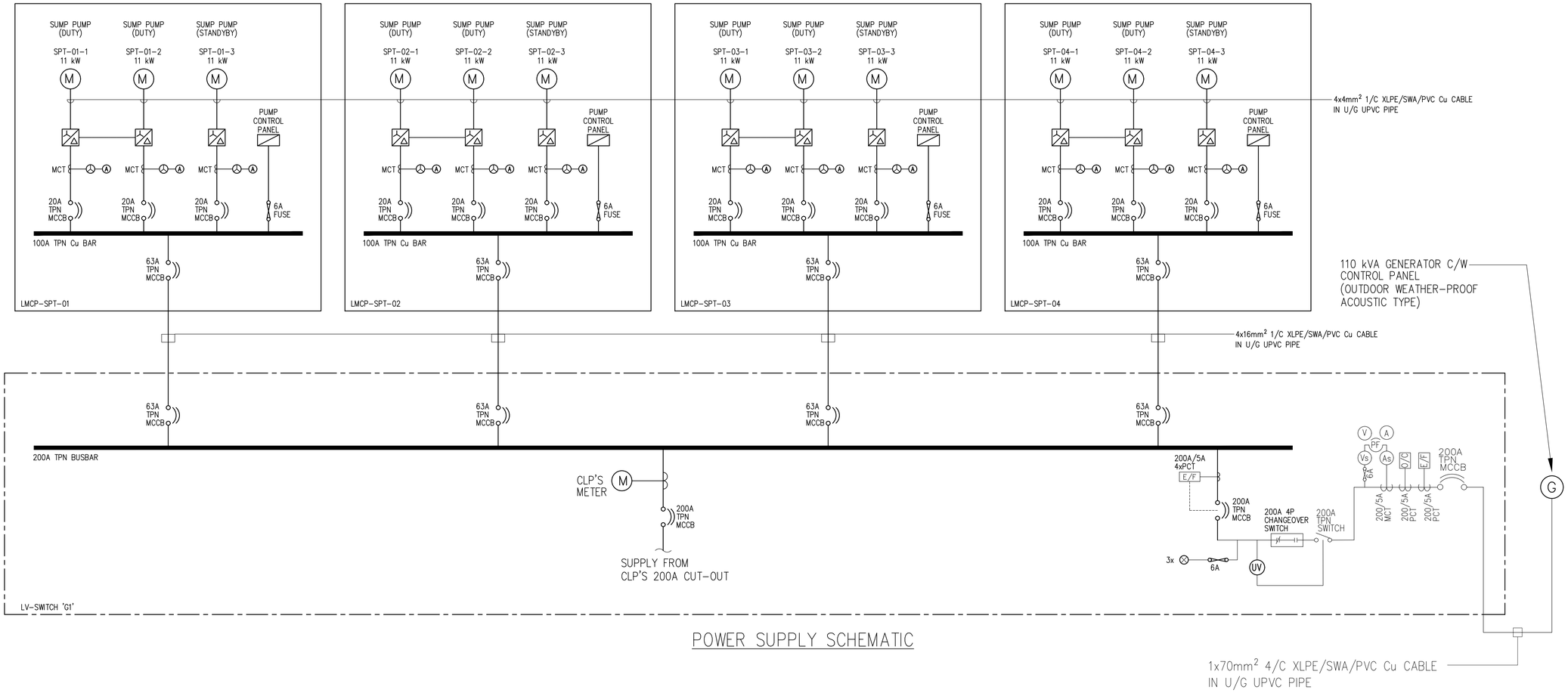
JOB NO. : B8354

FILING CODE : N:\Advisory Section\Job Files\PSIL\B8354...\Project Team\ Topographic survey\2023-01-12\CAD\2024 WORKING FILES\CAD\E01-E03.dwg

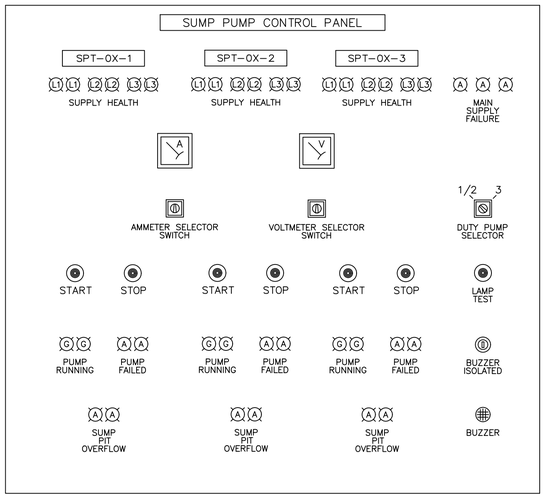
DRAWING NO. : E02

DATE	DRAWN	DESIGNED	CHECKED	SCALE
11/MAY/23	LW	TL	--	N.T.S.

STATUS : REV. 3



POWER SUPPLY SCHEMATIC



TYPICAL LMCP DETAILS

LEGEND

SYMBOL	DISCRIPTION		
	AUTOMATIC CHANGEOVER SWITCH (C/W M&E INTERLOCK DEVICE)	RPCR	REACTIVE POWER CONTROL RELAY
	DISTRIBUTION BOARD		CAPACITOR BANK
	ISOLATOR	EP	EARTH PIT
	TRANSFORMER	MCCB	MCCB BOARD
	ACB		FUSE SWITCH
M	CLP kWhr METER		SWITCH
As	AMMETER SELECTOR		MCCB
Vs	VOLTMETER SELECTOR		MCB
A	AMMETER	BBC	COPPER BUSBAR CHAMBER
V	VOLTMETER	PF	POWER FACTOR METER
	CURRENT TRANSFORMER	CM	CHECK METER
E/F	I.D.M.T. EARTH FAULT RELAY	T	TIMER
O/C	I.D.M.T. OVERCURRENT RELAY	TMC	METER SYSTEM
N/A	NETWORK ANALYSER		
	CABLE CHANGING BOX		
U	UNDER VOLT RELAY		

CONSULTANT :

測建行

PRUDENTIAL SURVEYORS (INTL) LTD
TEL. 25078333 FAX. 25986576

PROJECT TITLE :

PROPOSED STORM DRAIN LAYOUT PLAN OF LOT NO. 82 S.B ss.1 IN D.D.108, FAN KAM ROAD, PAT HEUNG, YUEN LONG, NEW TERRITORIES

DRAWING TITLE :

E&M INSTALLATIONS (3) – ELECTRICAL INSTALLATIONS

JOB NO. : B8354

FILING CODE : N:\Advisory Section\Job Files\PSIL\B8354...\Project Team\ Topographic survey\2023-01-12\CAD\2024 WORKING FILES\CAD\E01-E03.dwg

DRAWING NO. : E03

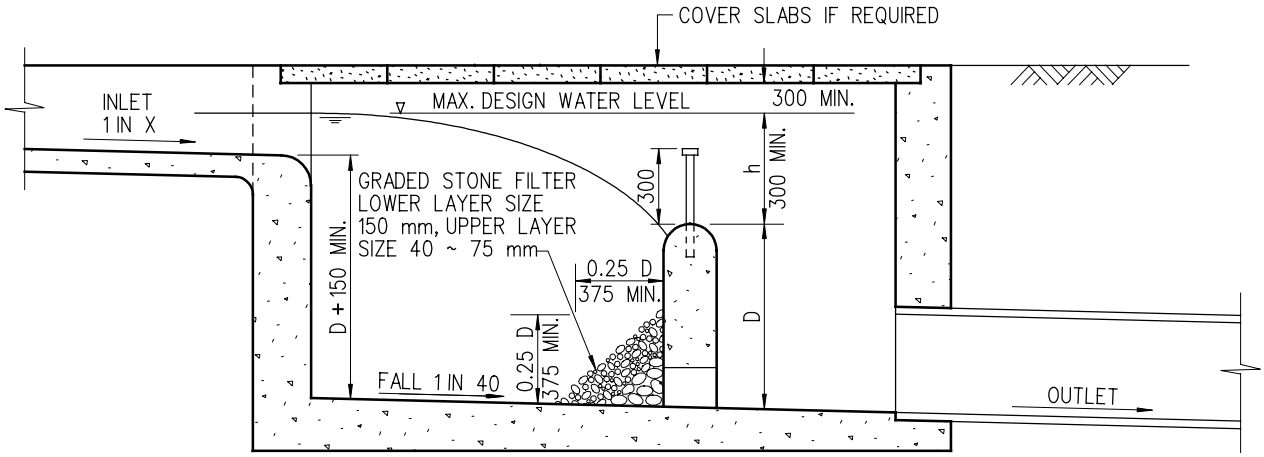
DATE	DRAWN	DESIGNED	CHECKED	SCALE
JUNE/23	LW	TL	--	N.T.S.

STATUS : REV. 3

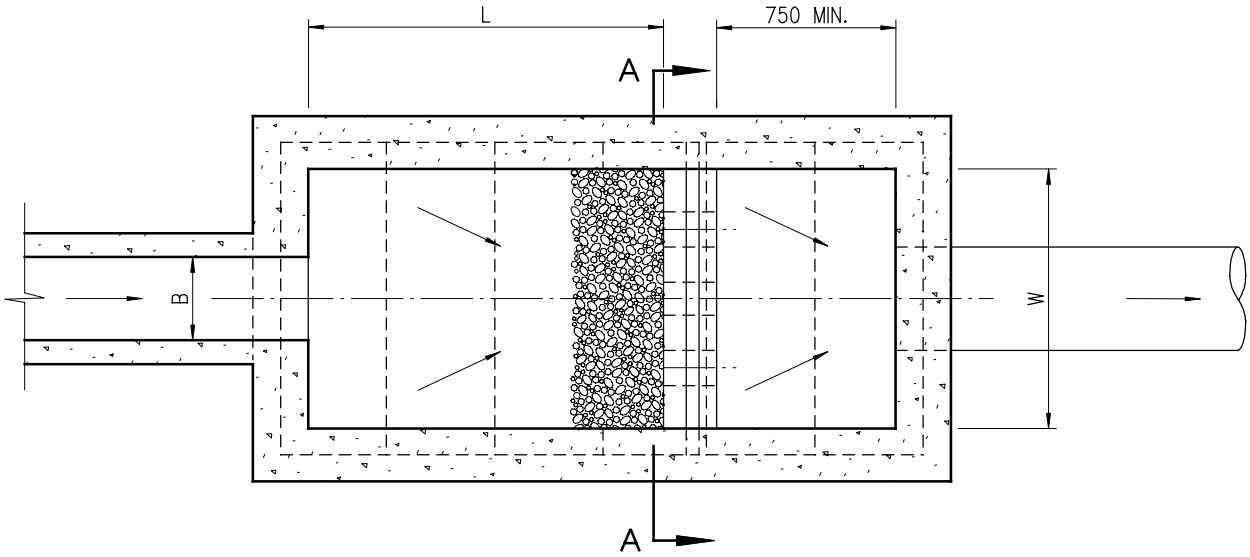
ANNEX 3

REFERENCE DRAWINGS – STANDARD DRAWINGS FROM DRAINAGE SERVICES DEPARTMENT (DSD), HIGHWAYS DEPARTMENT (HYD) & CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT (CED)

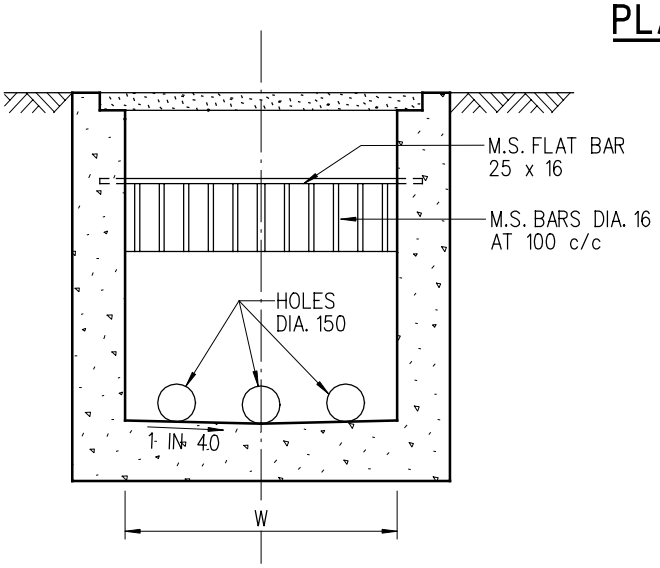
DRAWING NO.	DRAWING TITLE	ISSUED BY
DS 1025B	SAND TRAP	DSD
H3156B	CAST IRON CHANNEL GRATING NOT SUBJECT TO VEHICULAR LOAD	HYD
C2405/1	STANDARD CATCHPIT DETAILS (SHEET 1 OF 5)	CED
C2405/2	STANDARD CATCHPIT DETAILS (SHEET 2 OF 5)	CED
C2405/3	STANDARD CATCHPIT DETAILS (SHEET 3 OF 5)	CED
C2405/F	STANDARD CATCHPIT DETAILS (SHEET 4 OF 5)	CED
C2405/5	STANDARD CATCHPIT DETAILS (SHEET 5 OF 5)	CED
C2406/1	CATCHPIT WITH TRAP (SHEET 1 OF 2)	CED
C2406/2A	CATCHPIT WITH TRAP (SHEET 2 OF 2)	CED
C2409I	DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE A – WITH MASONRY APRON)	CED
C2410	DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE B – WITH EROSION CONTROL MAT APRON)	CED
C2411G	DETAILS OF STEPPED CHANNEL	CED
C2412E	COVER SLAB AND CAST IRON GRATING FOR CHANNELS	CED
C2513D	JUNCTION OF STEPPED AND U-CHANNELS	CED



LONGITUDINAL SECTION



PLAN



SECTION A-A

NOTES:

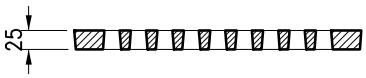
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. NORMALLY FOR DRAINS OF 900 mm DIA. AND BELOW. FOR BIGGER DRAINS AND STEEP TERRAIN, SAND TRAP SHOULD BE SPECIALLY DESIGNED.
3. SIZE
   DEPTH : $D \leqslant 750$
   WIDTH : $W \geqslant 3B$
   LENGTH : $4.8D^{0.67}\ h^{0.5}\ X^{-0.5} \geqslant 4B$
4. GRADED STONE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

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

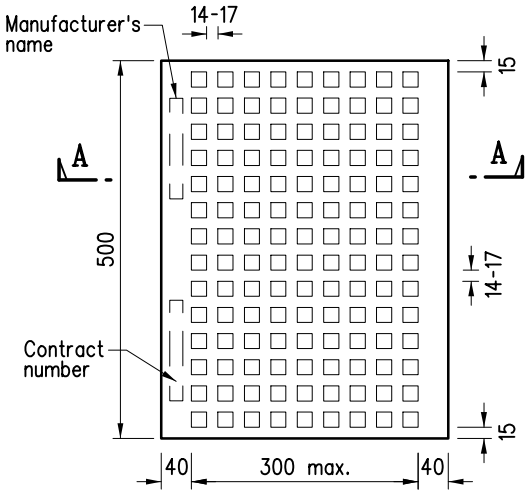
SAND TRAP

DRAINAGE SERVICES DEPARTMENT

REFERENCE	DRAWING No.
	DS 1025B
SCALE: DIAGRAMMATIC	

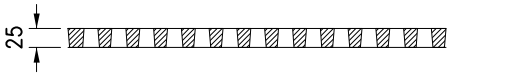


SECTION A-A

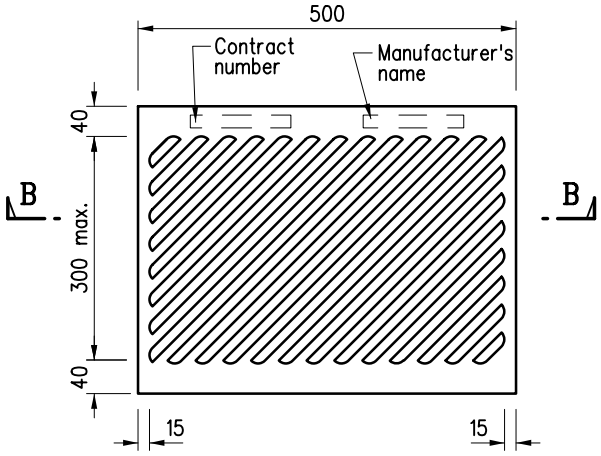


GRATING - SQUARE HOLES PATTERN

(All holes are 20x20 in size and all ribs are of equal width. Exact no. of holes and ribs to be adjusted to suit channel width)

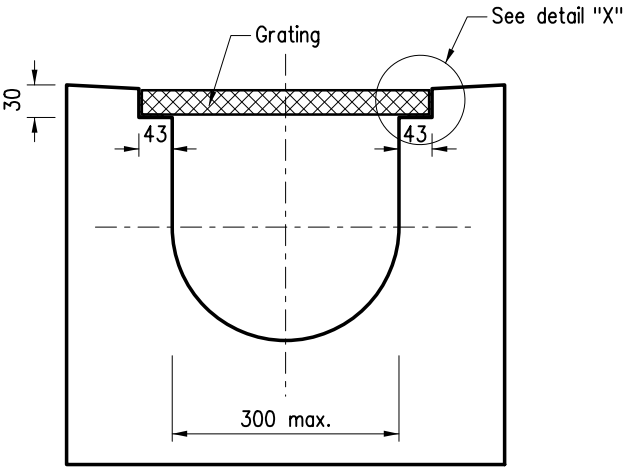


SECTION B-B

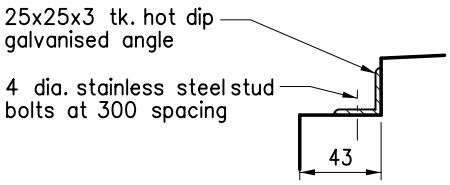


GRATING - OBLIQUE BARS PATTERN

(All slots and ribs are 13 in width. Exact no. of slots and ribs to be adjusted to suit channel width)



TYPICAL CROSS SECTION OF CHANNEL



DETAIL "X"

(Scale 1:5)

Notes:

1. All dimensions are in millimetres.
2. Gratings are cast iron to conform with grade EN-GJL-150 of BS EN 1561.
3. All cast iron units shall be coated with a bitumen coating.
4. All grating corners shall be rounded to approximately 2mm.
5. Gratings with square holes pattern are suitable for use on cycle tracks. Gratings with oblique bars pattern are suitable for use along the back of footpaths or along verges.
6. Surface channel shall be planned on 500mm modules with special pieces purposely manufactured to suit actual site conditions and to avoid on-site cutting of gratings.
7. For hinged channel gratings on highway structures, refer to Structures Standard Drg. no. SSD94.
8. Lettering for the contract no. and manufacturer's name shall be raised 2mm above normal surface.

REF.	REVISION	SIGNATURE	DATE
B	Note 2 Revised	Original signed	Nov 21
A	Revise the width of slots and ribs and the size of holes	–	Aug 18
	New Issue	–	Oct 11

CAST IRON CHANNEL GRATING NOT SUBJECT TO VEHICULAR LOAD

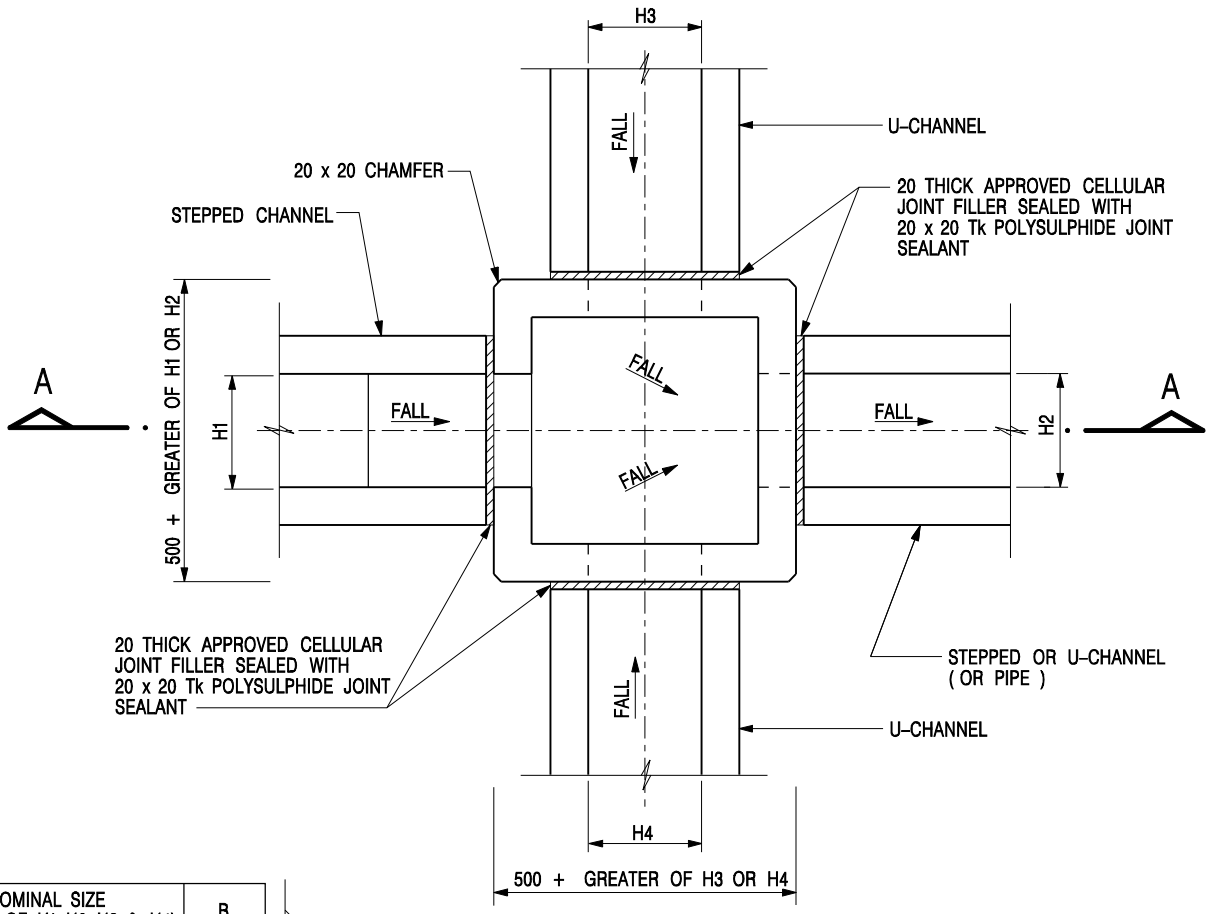
HIGHWAYS DEPARTMENT

REFERENCE
Obsolate Drg. H2233

SCALE
1 : 10 or As Shown

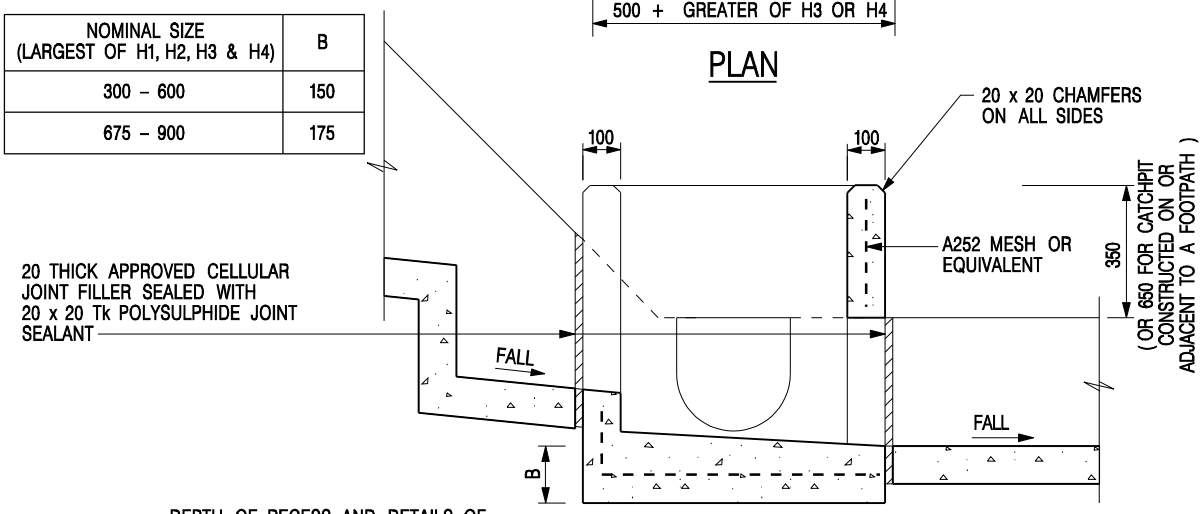
DRAWING No.
H 3156B

CAD

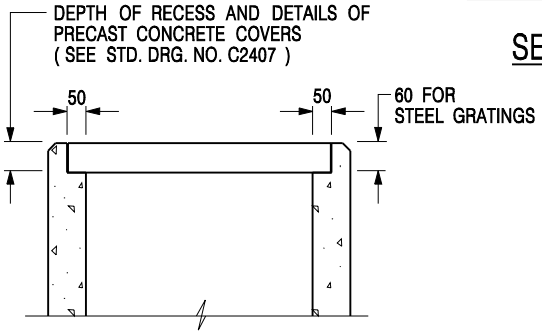


PLAN

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

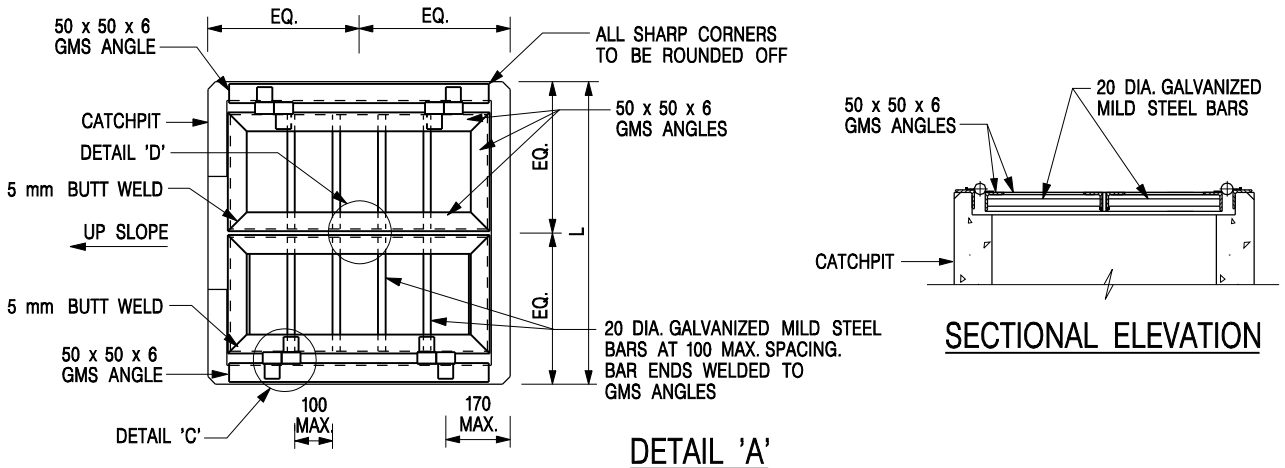
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2405J.	Original Signed	03.2015

STANDARD CATCHPIT DETAILS

(SHEET 1 OF 5)

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

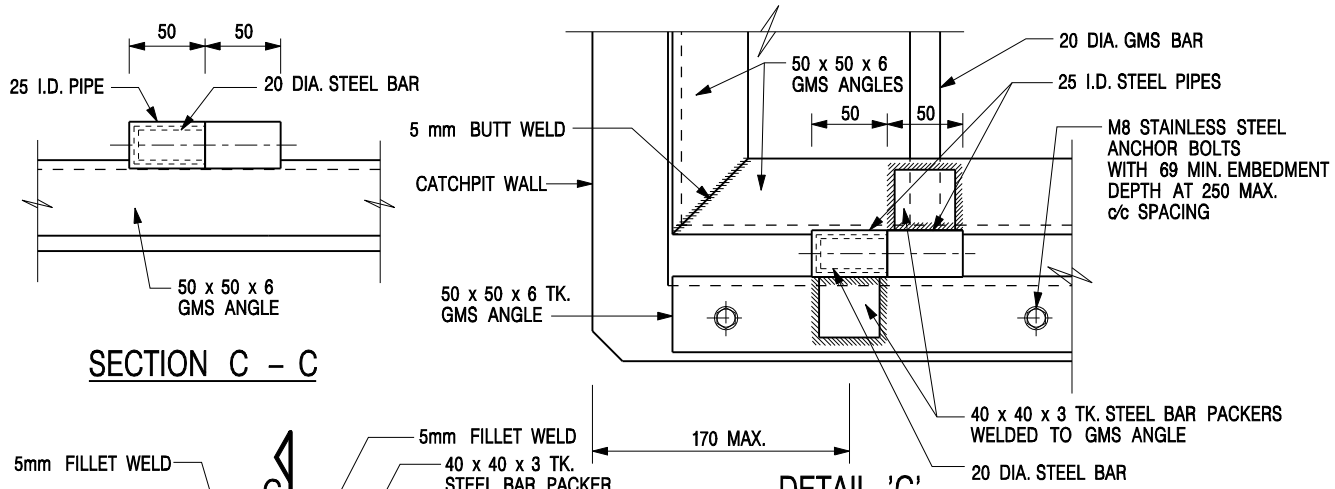
SCALE	1 : 20	DRAWING NO.
DATE	JAN 1991	C2405 /1



DETAIL 'A'

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

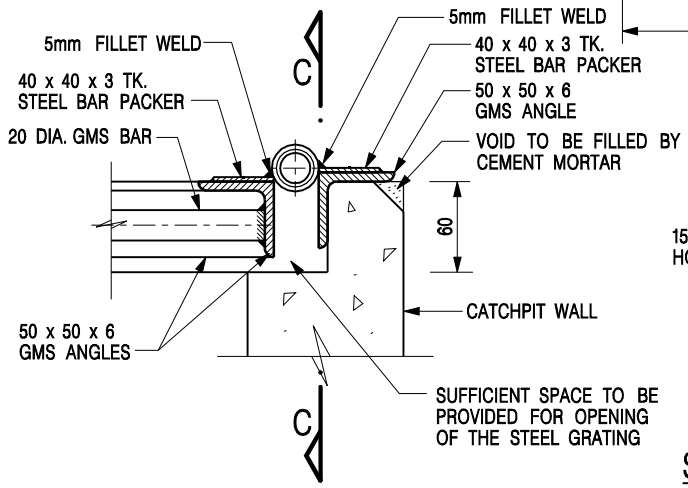
SCALE 1 : 20



DETAIL 'C'

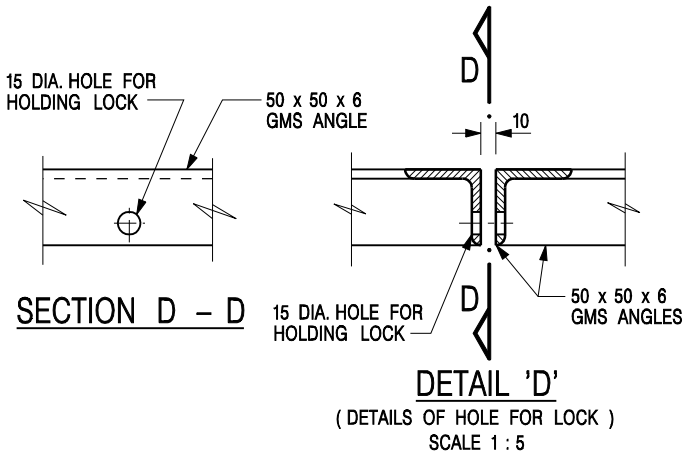
(DETAILS OF HINGE)

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.

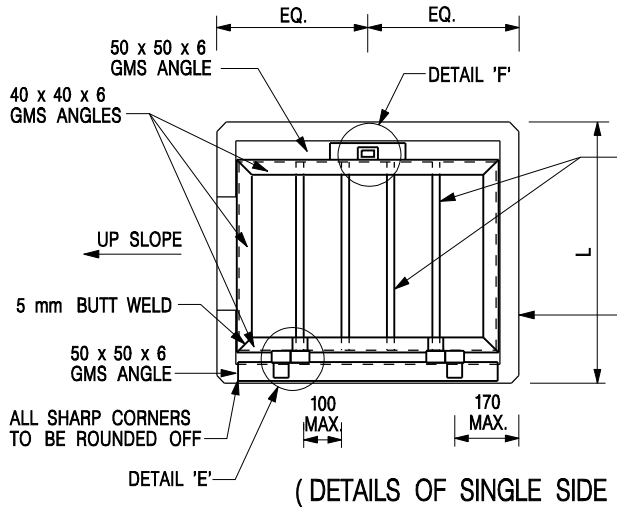
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2405J.	Original Signed	03.2015

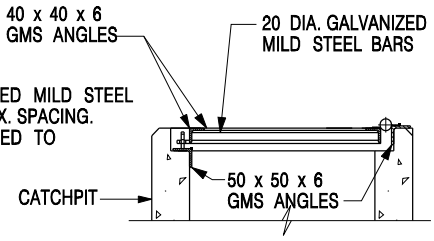
STANDARD CATCHPIT DETAILS

(SHEET 2 OF 5)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

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



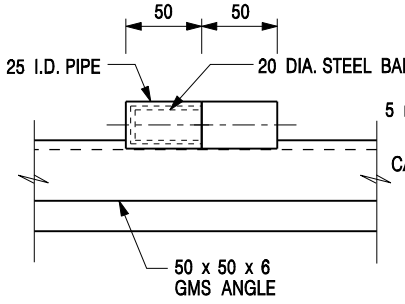


SECTIONAL ELEVATION

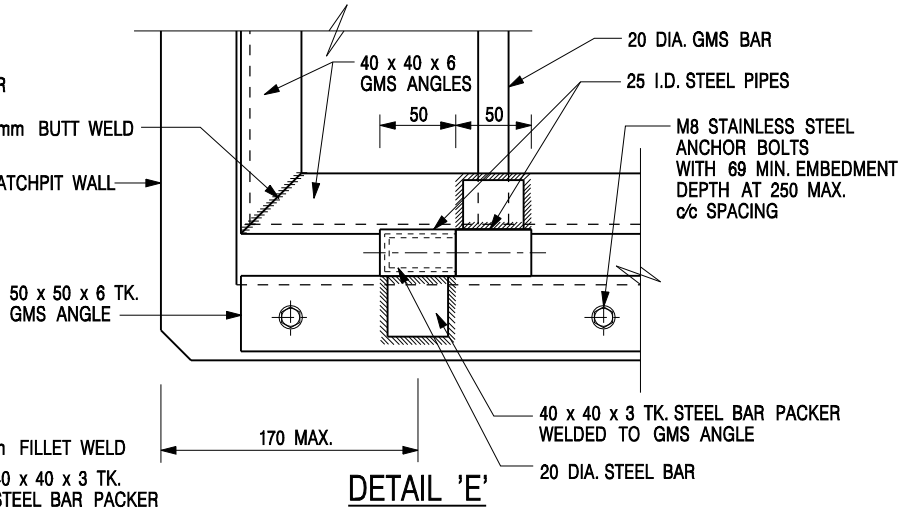
DETAIL 'B'

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

SCALE 1 : 20



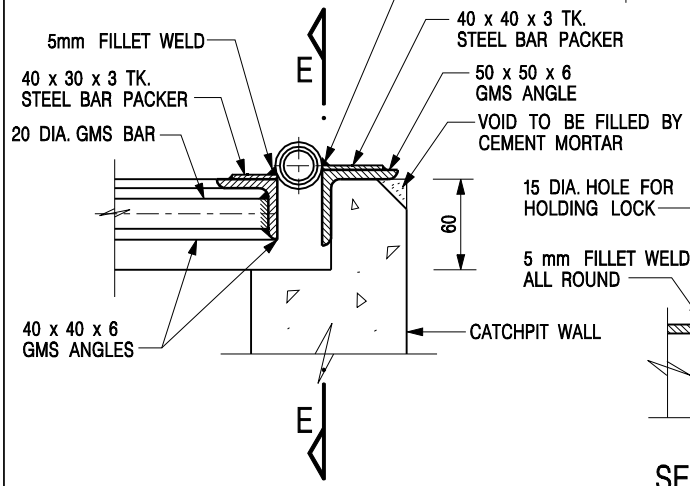
SECTION E – E



DETAIL 'E'

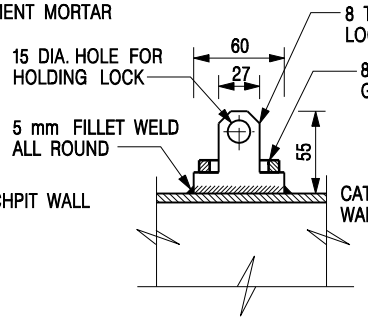
(DETAILS OF HINGE)

SCALE 1 : 5

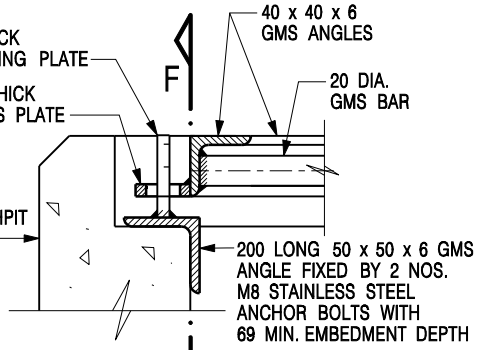


SECTIONAL ELEVATION

(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.

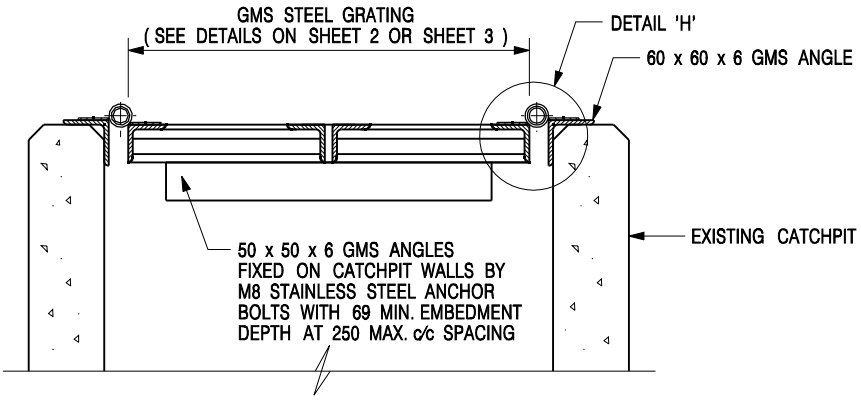
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2405J.	Original Signed	03.2015

STANDARD CATCHPIT DETAILS

(SHEET 3 OF 5)

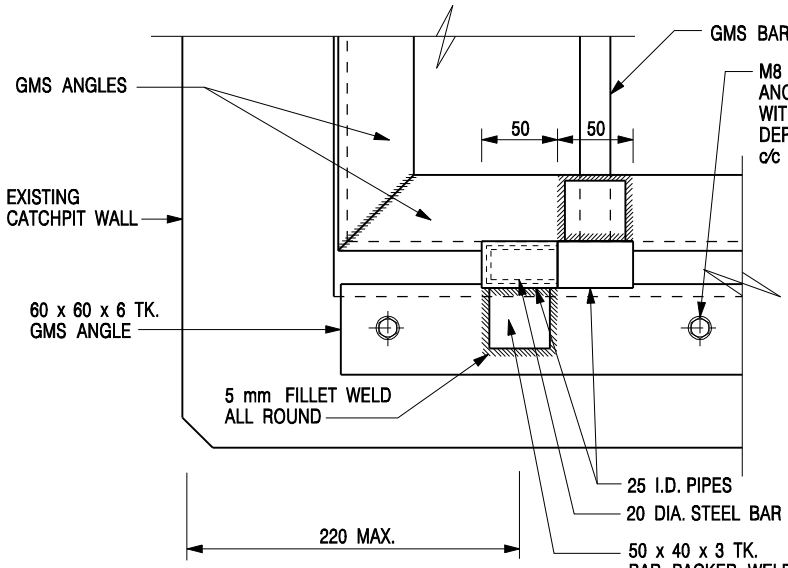
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE AS SHOWN	DRAWING NO. C2405 /3
DATE JAN 1991	



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

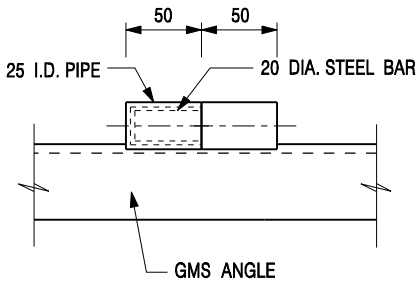
SCALE 1 : 10



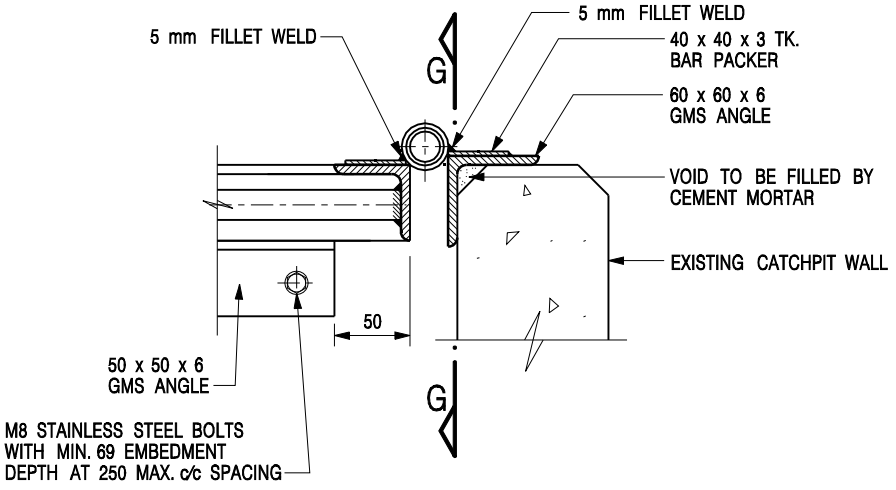
DETAIL 'H'

(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.

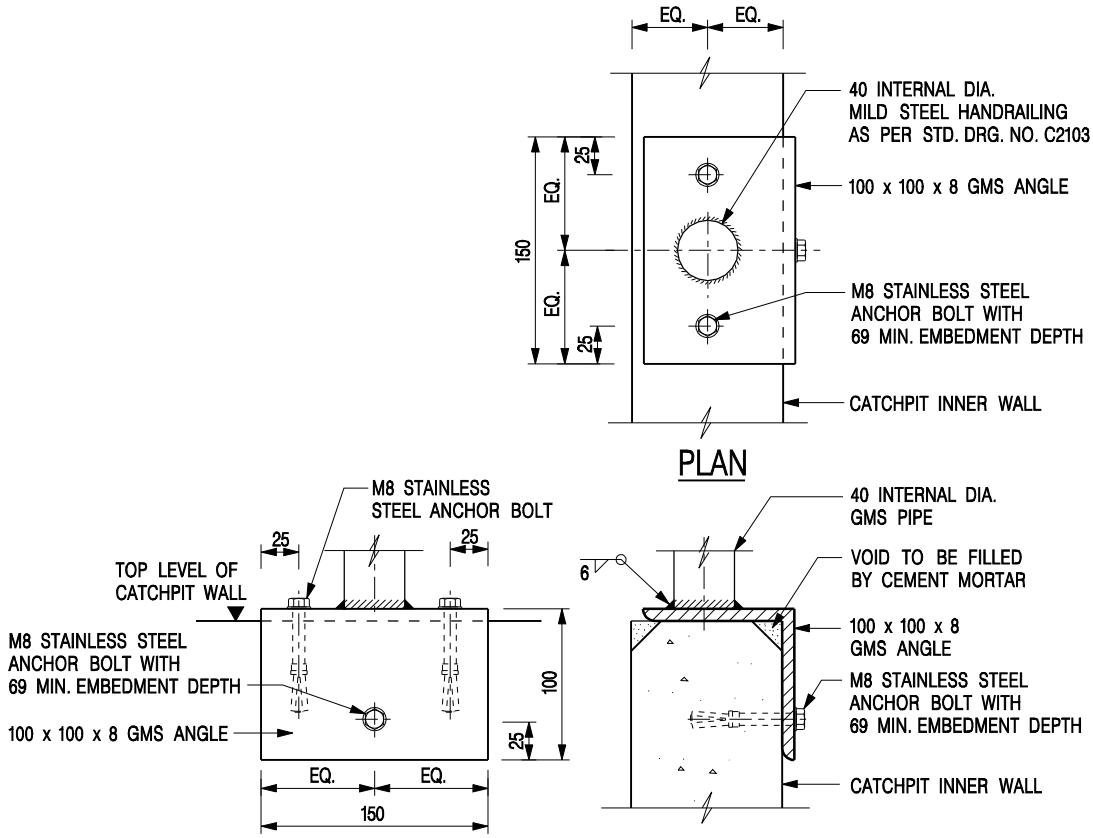
REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2405J.	Original Signed	03.2015

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

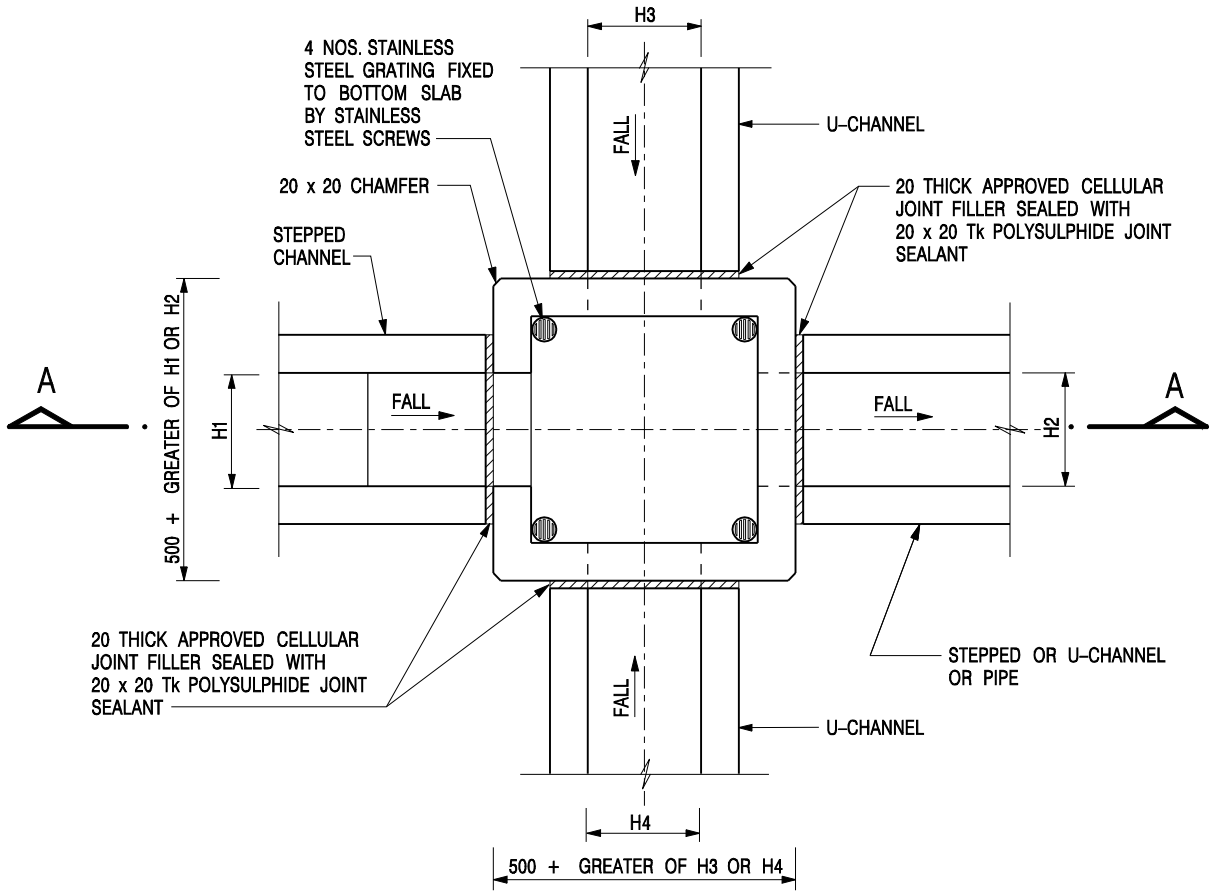
(SHEET 5 OF 5)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE AS SHOWN

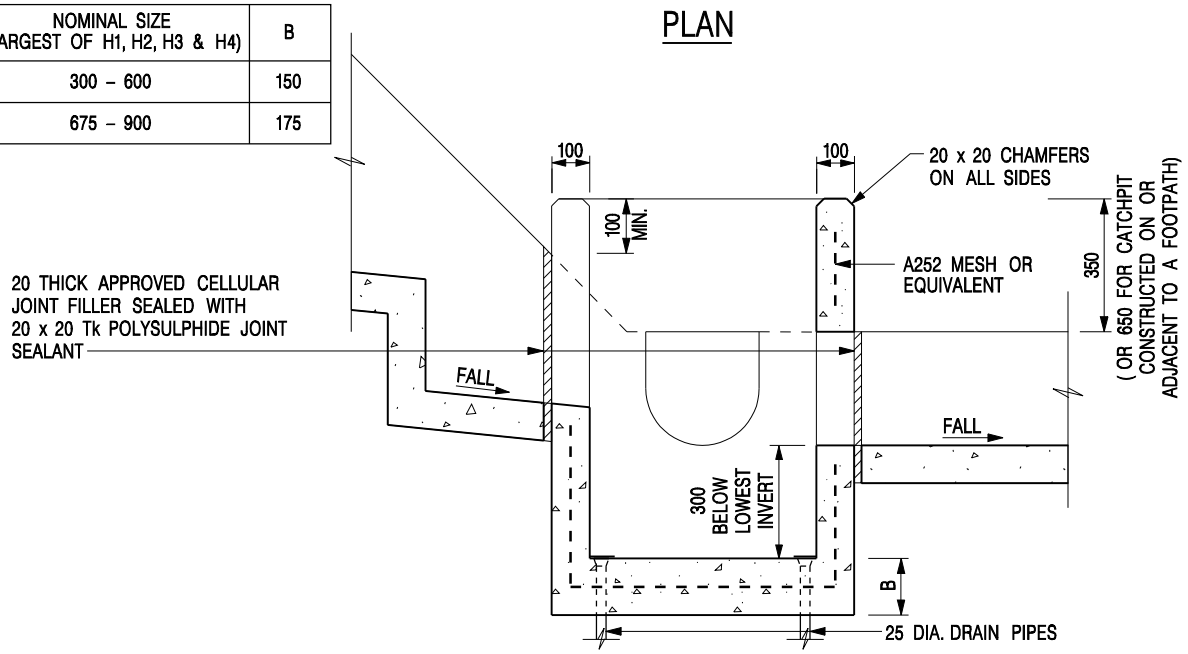
DATE JAN 1991

DRAWING NO. C2405 /5



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

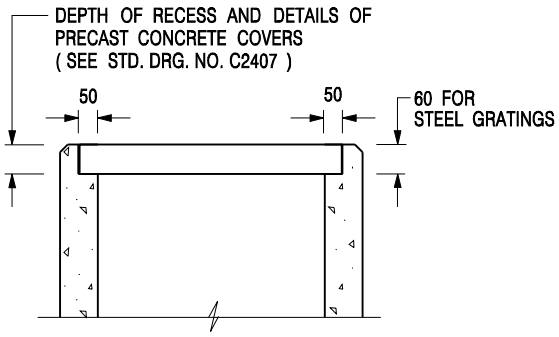
(SHEET 1 OF 2)

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

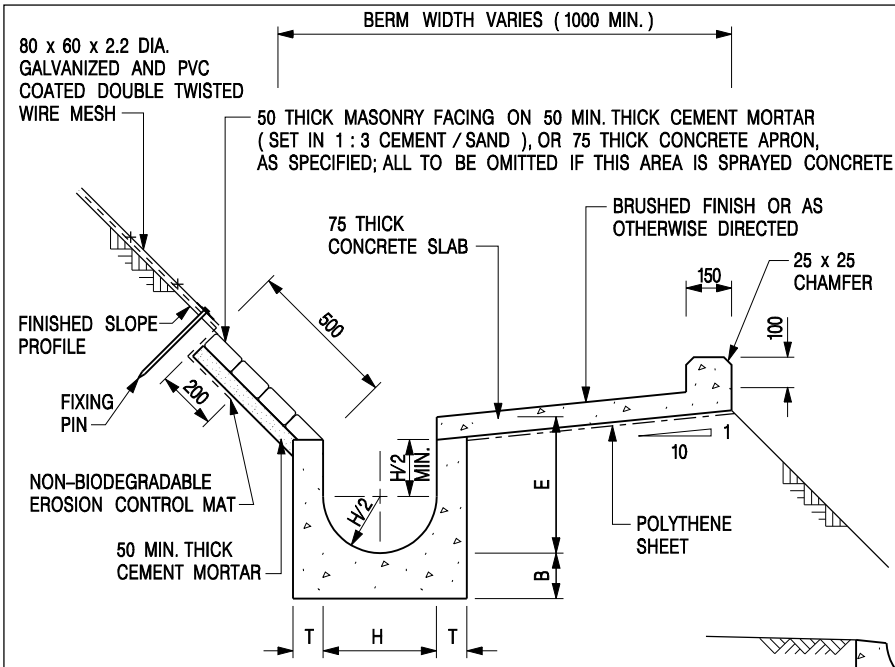
CATCHPIT WITH TRAP
(SHEET 2 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

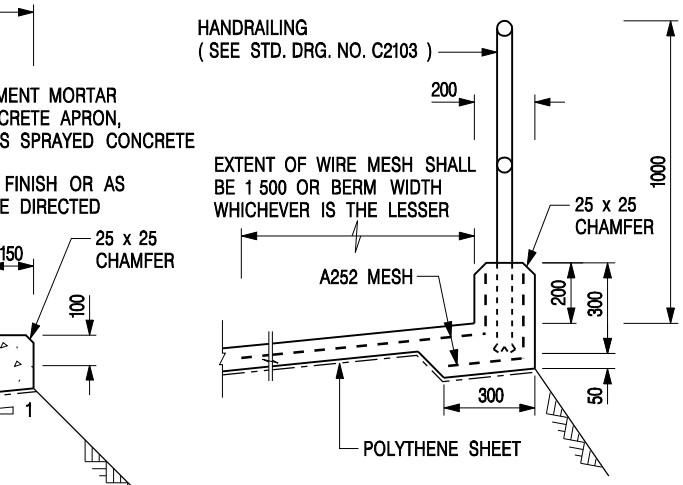
SCALE 1 : 20

DATE JAN 1991

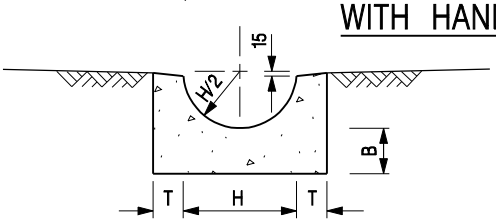
DRAWING NO. C2406 /2A



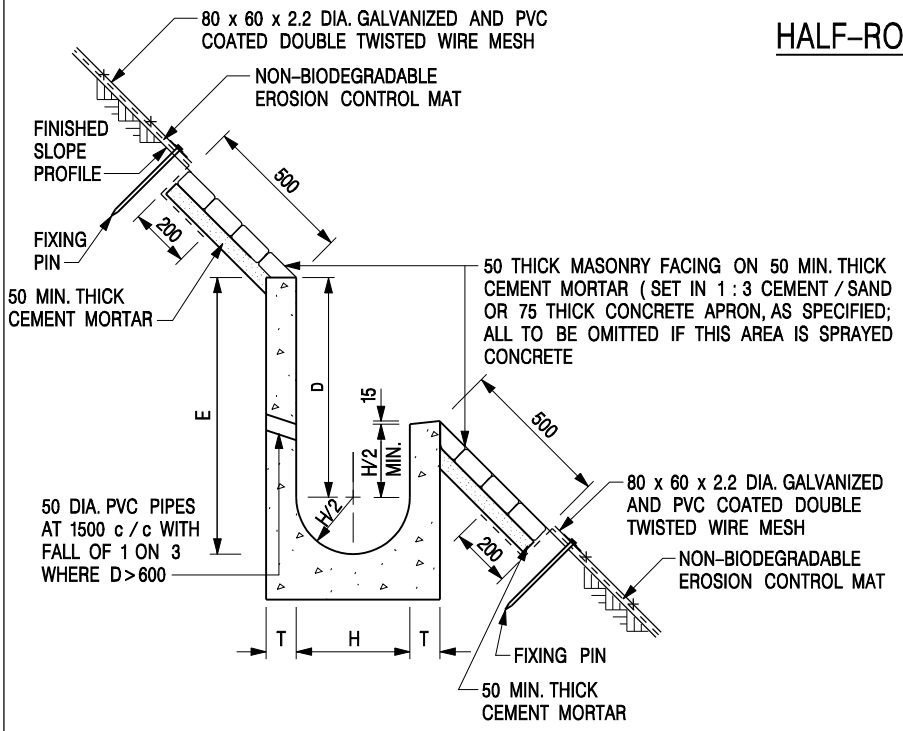
U-CHANNELS CONSTRUCTED ON BERM



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

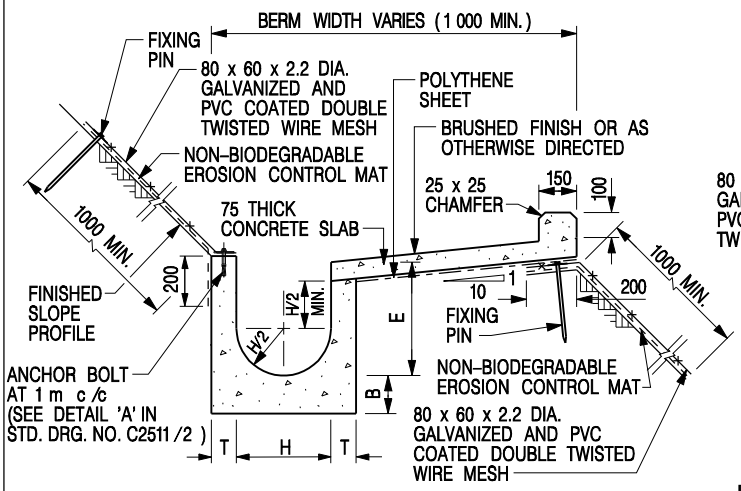
DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE A - WITH MASONRY APRON)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

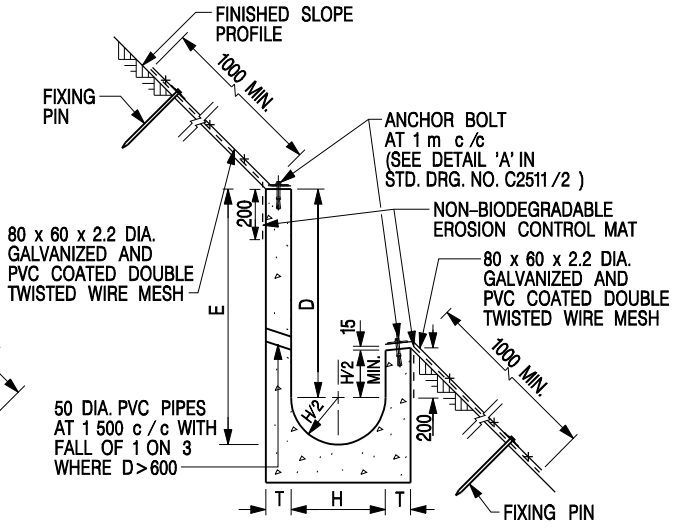
SCALE 1 : 25

DATE JAN 1991

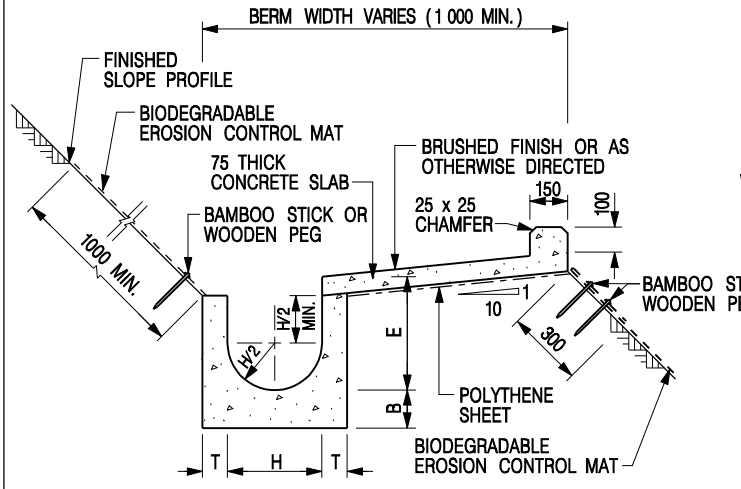
DRAWING NO. C2409I



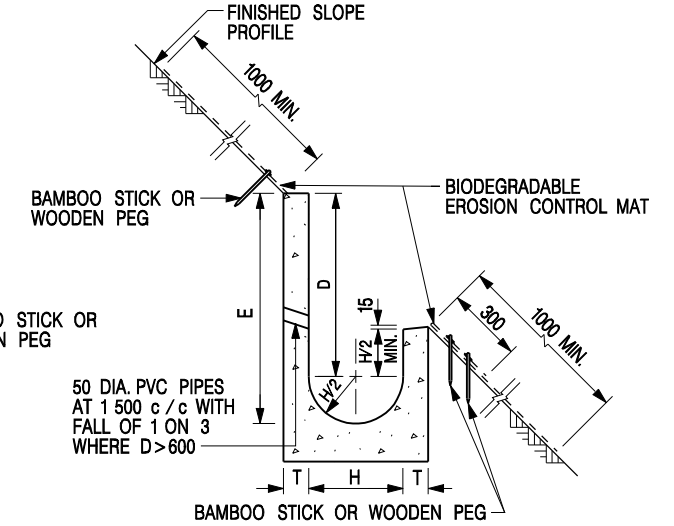
U-CHANNELS CONSTRUCTED ON BERM WITH NON-BIODEGRADABLE EROSION CONTROL MAT



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

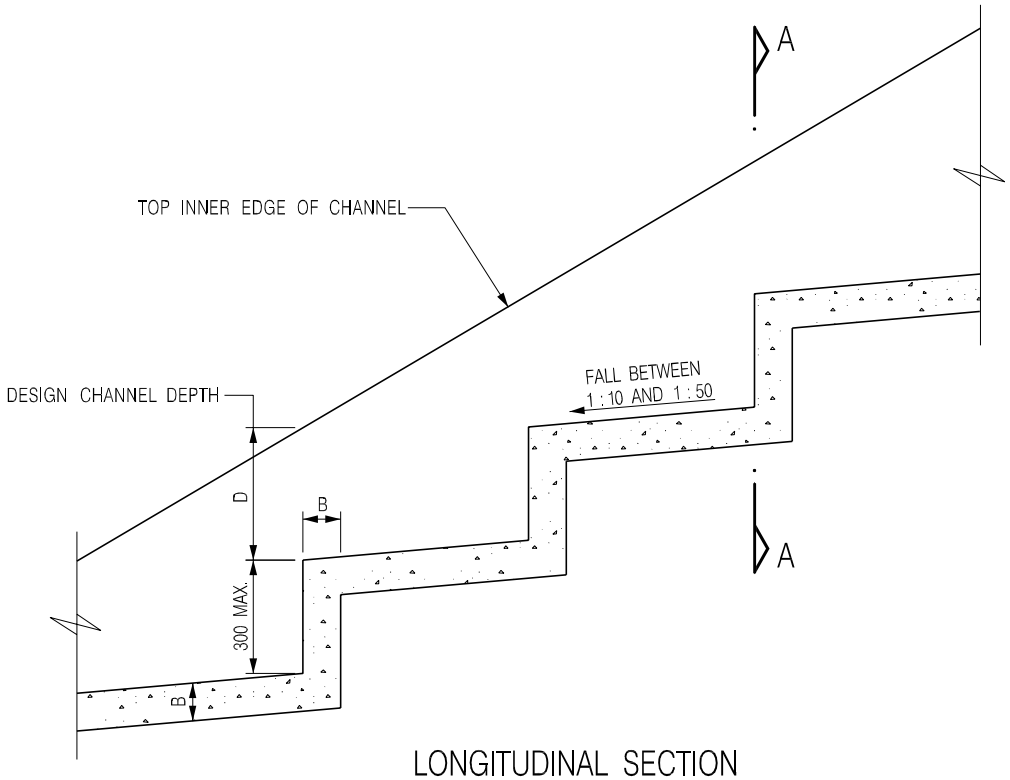
DETAILS OF HALF-ROUND AND U-CHANNELS (TYPE B - WITH EROSION CONTROL MAT APRON)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

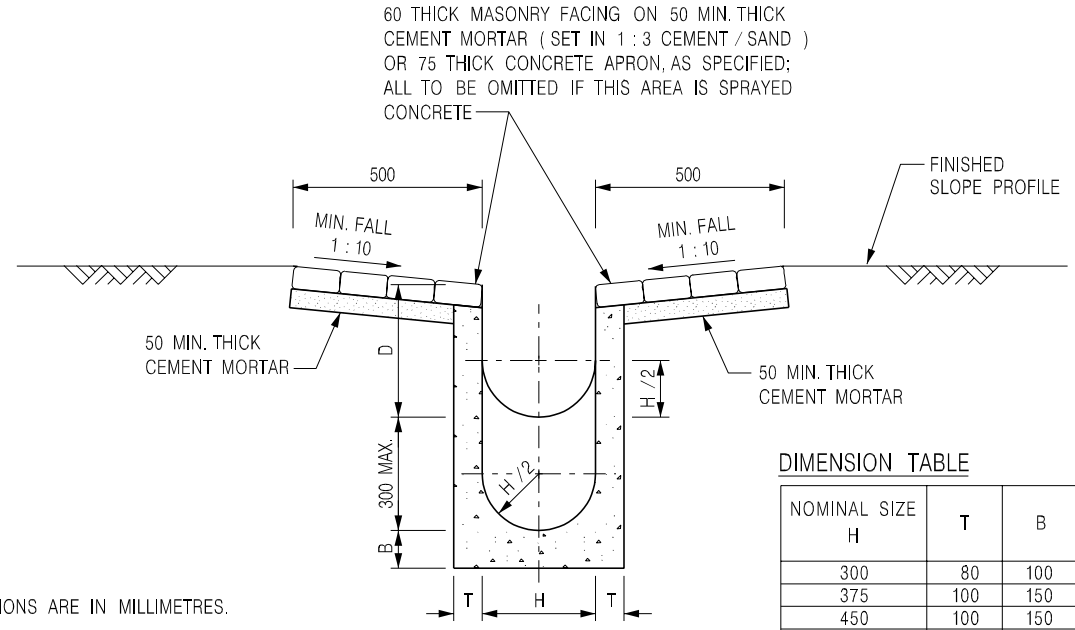
SCALE DIAGRAMMATIC

DATE JAN 1991

DRAWING NO. C2410I



LONGITUDINAL SECTION



SECTION A – A

DIMENSION TABLE

NOMINAL SIZE H	T	B	D
300	80	100	350
375	100	150	540
450	100	150	575
525	100	150	615
600	100	150	650
675	125	175	740
750	125	175	775
900	125	175	850

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. FOR DIMENSIONS OF CHANNELS SEE TABLE.
3. ALL CONCRETE SHALL BE GRADE 20 / 20.
4. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
5. EXPANSION JOINTS SHALL BE PROVIDED AT A MAXIMUM SPACING OF 10 METRES WITH DETAILS AS SHOWN ON STD. DRG. NO. C2413.
6. 675 – 900 CHANNELS SHALL BE REINFORCED AS SHOWN ON STD. DRG. NO. C2410.

REF.	REVISION	SIGNATURE	DATE
G	GENERAL REVISION.	Original Signed	08.2006
F	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
E	NOTE 6 AMENDED.	Original Signed	01.2004
D	GENERAL REVISION.	Original Signed	12.2002
C	MINOR AMENDMENT.	Original Signed	08.2001
B	MINOR AMENDMENT.	Original Signed	3.94
A	MINOR AMENDMENT.	Original Signed	11.92

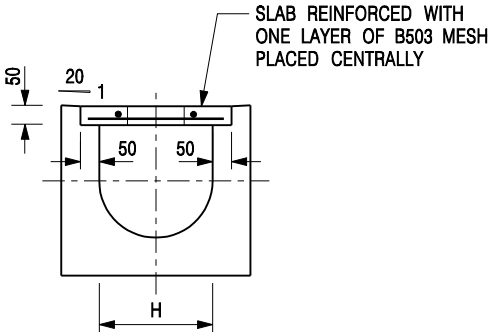
DETAILS OF STEPPED CHANNEL

CEDD **CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT**

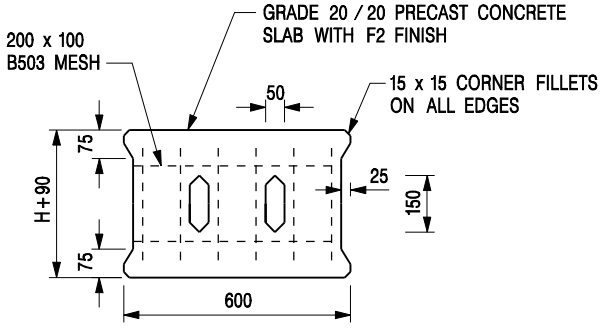
SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2411G



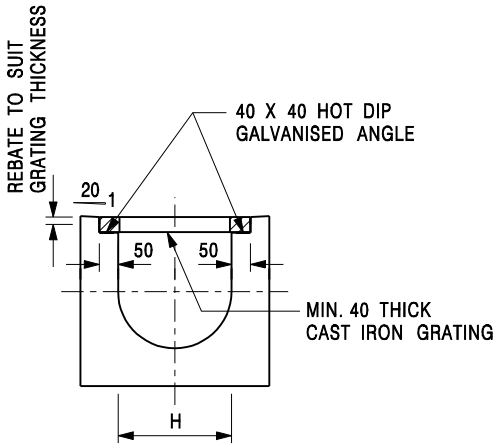
TYPICAL SECTION



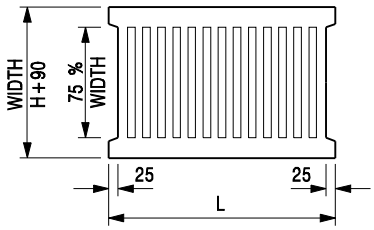
PLAN OF SLAB

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

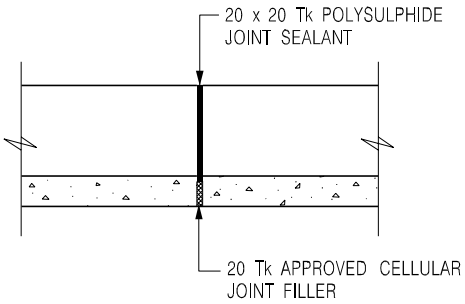
COVER SLAB AND CAST IRON GRATING FOR CHANNELS

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

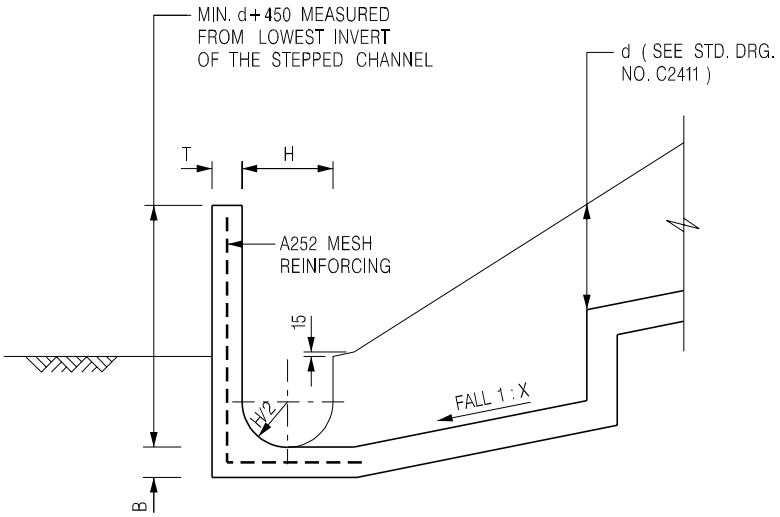
SCALE 1 : 20

DATE JAN 1991

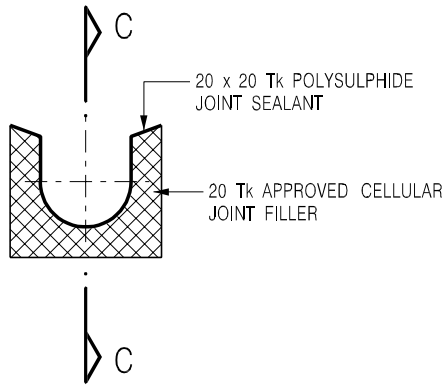
DRAWING NO. C2412E



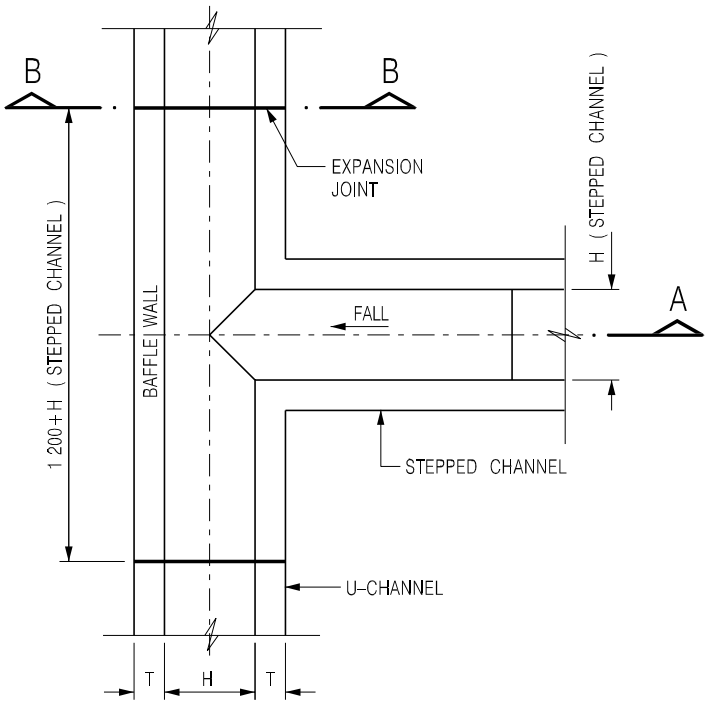
SECTION C – C

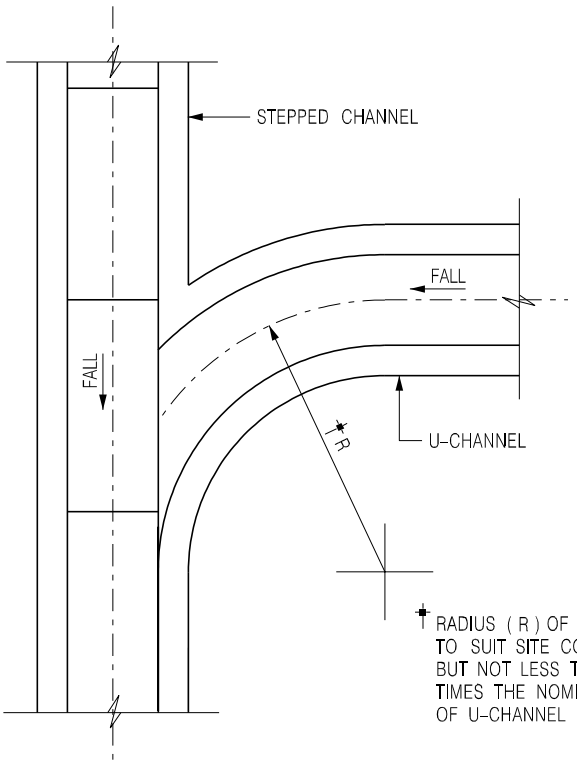


SECTION A – A



SECTION B – B
(DETAILS OF EXPANSION JOINT)





† RADIUS (R) OF BEND VARIES TO SUIT SITE CONDITIONS BUT NOT LESS THAN THREE TIMES THE NOMINAL SIZE (H) OF U-CHANNEL

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. EXPANSION JOINTS SHALL BE PROVIDED AT A MAXIMUM INTERVAL OF 10 METRES.
3. CONCRETE SURFACE SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DIMENSIONS B, T, H AND d, REFER TO RELEVANT CHANNEL DETAIL DRAWINGS.
5. $20 \leqslant X \leqslant 50$ UNLESS OTHERWISE SPECIFIED.
6. CONCRETE TO BE COLOURED AS SPECIFIED.

REF.	REVISION	SIGNATURE	DATE
D	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
C	MINOR AMENDMENT.	Original Signed	08.2001
B	MINOR AMENDMENT.	Original Signed	3.94
A	MINOR AMENDMENT.	Original Signed	11.92

JUNCTION OF STEPPED AND U-CHANNELS

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 25

DATE JAN 1991

DRAWING NO. C2413D

興土木 利民生 齊拓展 創明天

We bring the best engineering to life

ANNEX 4

DRINAGE DESIGN REPORT

	Maximum Run Off (L/s)	Maximum Run Off (L/min)	Area (m^2)	Min. Sump Pit's Volume (m^3)
Bay 1	48.84	2930.29	493	14.65
Bay 2	49.59	2975.15	493	14.88
Bay 3	68.54	4112.40	695	20.56
Bay 4	67.62	4057.21	695	20.29
Bay 5	57.54	3452.18	575	-
Total	292.12	17527.22	2951	-

Table 1 - Runoff Calculation

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

Surface Characteristics	Concrete
Runoff Coefficient, C	0.95

Climate Change	
Time	End of 21st Century
Rainfall Increase	16.0%
Design Allowance	12.1%
Total Increase	28.1%

Bay	Area A		Distance (On Plan) L_{area} (m)	Elevation (mPD)		Average Slope H (m/100m)	Inlet Time $t_0=0.14465L/(H^{0.2}A^{0.1})$ (min)	Time of Concentration $t_c=t_0$ (min)	Extreme Mean Intensity $i=a/(t_d+b)^c$ (mm/hr)	Extreme Mean Intensity With Climate Change i' (mm/hr)	Peak Runoff Q=0.278Ci'A	
	(m^2)	(km^2)		Upstream	Downstream						(m^3/s)	(L/s)
1	493	0.000493	29.861	48.87	44.61	14.27	1.37	1.37	292.82	375.10	0.049	48.84
2	493	0.000493	25.856	49.91	46.03	15.01	1.17	1.17	297.30	380.84	0.050	49.59
3	695	0.000695	32.153	50.82	46.3	14.06	1.42	1.42	291.50	373.41	0.069	68.54
4	695	0.000695	34.927	52.31	48.25	11.62	1.61	1.61	287.59	368.40	0.068	67.62
5	575	0.000575	26.336	52.31	49.25	11.62	1.24	1.24	295.77	378.88	0.058	57.54

Table 2 - Sump Pit Design Calculation

Bay	Min. Sump Pit Volume (To Retain 5mins of Water) V_{min} (m^3)	Sump Pit Bottom Area A_p (m^2)	Max. Design Water Level $D_{max}=V_{min}/A_p$ (m)	Sump Pit Depth D (m)	Freeboard $D_f=D-D_{max}$ (m)	Check if Freeboard Is More Than 0.3m
1	14.65	11.16	1.31	3.73	2.42	Okay!
2	14.88	11.16	1.33	2	0.67	Okay!
3	20.56	15.44	1.33	2	0.67	Okay!
4	20.29	15.44	1.31	2	0.69	Okay!

Table 3 - Manholes, Catchpits and Sand Traps Levels

Bay	Item	C.L.	A1	A2	X1/B.L.	Level Difference Between CL and A1	Level Difference Between CL and A2	Checking For Space For Channel	Max. Channel Size	Level Difference Between A1 and X1	Level Difference Between A2 and X1	If Backdrop Is Required?	Drop Limit
1	CP1-1	47.78	47.45	-	47.35	0.33	-	Okay!	0.150	0.1	-	No need!	0.6
	CP1-2	44.96	44.65	-	44.55	0.31	-	Okay!	0.225	0.1	-	No need!	
	CP1-3	46.53	44.4	44.4	44.3	2.13	2.13	Okay!		0.1	0.1	No need!	
	CP1-4	46.44	46.1	-	46	0.34	-	Okay!		0.1	-	No need!	
	CP1-5	46.83	46.6	-	46.5	0.23	-	Okay!		0.1	-	No need!	
	SD-01	46.26	44.2	-	43.5	2.06	-	Okay!		0.7	-	Needed!	
2	CP2-1	46.83	46.6	-	46.5	0.23	-	Okay!		0.1	-	No need!	
	CP2-2	46.44	46.1	-	46	0.34	-	Okay!		0.1	-	No need!	
	CP2-3	46.41	45.9	45.9	45.8	0.51	0.51	Okay!		0.1	0.1	No need!	
	CP2-4	46.93	46.6	-	46.5	0.33	-	Okay!		0.1	-	No need!	
	SD-02	46.24	45.7	-	45.38	0.54	-	Okay!		0.3	-	No need!	
3	CP3-1	47.1	46.75	-	46.65	0.35	-	Okay!	0.3	0.1	-	No need!	
	CP3-2	46.93	46.5	-	46.4	0.43	-	Okay!		0.1	-	No need!	
	CP3-3	47.44	46.3	46.3	46.2	1.14	1.14	Okay!		0.1	0.1	No need!	
	CP3-4	48.43	48.1	-	48	0.33	-	Okay!	0.225	0.1	-	No need!	
	SD-03	46.88	46.1	-	45.78	0.78	-	Okay!		0.3	-	No need!	
4	CP4-1	50.5	49.75	-	49.65	0.75	-	Okay!		0.1	-	No need!	
	CP4-2	50.49	49.6	-	49.5	0.89	-	Okay!		0.1	-	No need!	
	CP4-3	49.32	49	-	48.9	0.32	-	Okay!		0.1	-	No need!	
	CP4-4	48.6	48.25	-	48.15	0.35	-	Okay!	0.3	0.1	-	No need!	
	CP4-5	48.574	48.05	48.05	47.95	0.524	0.524	Okay!		0.1	0.1	No need!	
	CP4-6	49.6	49.25	-	49.15	0.35	-	Okay!	0.225	0.1	-	No need!	
	SD-04	48.39	47.9	-	47.45	0.49	-	Okay!		0.4	-	No need!	
5	CP5-1	50.54	50.2	-	50.1	0.34	-	Okay!		0.1	-	No need!	
	CP5-2	49.6	49.25	-	49.15	0.35	-	Okay!	0.3	0.1	-	No need!	
	CP5-3	50.35	49	-	48.9	1.35	-	Okay!		0.1	-	No need!	
	CP5-4	51.35	51	-	50.9	0.35	-	Okay!	0.225	0.1	-	No need!	
	SD-05	50	48.8	48.8	48.06	1.2	1.2	Okay!		0.7	0.7	Needed!	
	MH-01	50	49.15	49.15	49	0.85	0.85	Okay!	0.300	0.1	0.1	No need!	
	TMH-01	50	48.9	-	47.96	1.1	-	Okay!	0.450	0.9	-	Needed!	
Outside Site Boundary	CP6-1	48.02	47.3	-	47.2	0.72	-	Okay!	0.45	0.1	-	No need!	
	CP6-2	44.22	43.8	-	43.7	0.42	-	Okay!	0.375	0.1	-	No need!	
	CP6-3	41.93	41.45	-	41.35	0.48	-	Okay!	0.45	0.1	-	No need!	
	CP6-4	41.6	40.85	-	40.75	0.75	-	Okay!	0.45	0.1	-	No need!	
	Discharge Point	41.33	40.6	-	-	0.73	-	Okay!	0.375	-	-	-	

Table 4a - Hydraulic Calculations (Bay 1-5)

Bay	Upstream	Downstream	Length L (m)	I.L. (mPD) Upstream	I.L. (mPD) Downstream	Gradient S (m/m)	Gradient S (1 in)	Open U-Shaped Channel Size D (mm)	Roughness Factor n	Wetted Cross-Sectional Area A (m^2)	Wetted Perimeter P (m)	Hydraulic Radius R=A/P (m)	Velocity $V=R^{2/3}S^{1/2}/n$ (m/s)	Capacity Q=AV (m^3/s)	Reduced Capacity for Sedimentation (m^3/s)	Runoff (m^3/s)	Check if Designed Capacity is Sufficient
	-	CP1-1	5.206	47.92	47.45	0.090	11	150	0.016	0.02	0.39	0.05	2.62	0.053	0.050		Okay!
	CP1-1	CP1-2	12.662	47.35	44.65	0.213	5						4.03	0.081	0.077		Okay!
	CP1-2	CP1-3	4.705	44.55	44.4	0.032	31	225		0.05	0.58	0.08	2.04	0.092	0.083		Okay!
1	-	CP1-5	20.582	47.845	46.6	0.060	17						2.81	0.127	0.121	0.049	Okay!
	CP1-5	CP1-4	16.492	46.5	46.1	0.024	41						1.78	0.080	0.072		Okay!
	CP1-4	CP1-3	19.657	46	44.4	0.081	12						3.26	0.147	0.140		Okay!
	CP1-3	SD-01	1.544	44.3	44.2	0.065	15						2.91	0.131	0.125		Okay!
	-	CP2-1	19.267	46.895	46.6	0.015	65						1.41	0.064	0.057		Okay!
	CP2-1	CP2-2	16.791	46.5	46.1	0.024	42						1.76	0.080	0.072		Okay!
2	CP2-2	CP2-3	4.926	46	45.9	0.020	49						1.63	0.074	0.066	0.050	Okay!
	-	CP2-4	18.359	46.895	46.6	0.016	62						1.45	0.065	0.059		Okay!
	CP2-4	CP2-3	15.122	46.5	45.9	0.040	25						2.28	0.103	0.093		Okay!
	CP2-3	SD-02	1.288	45.8	45.7	0.078	13						3.18	0.144	0.137		Okay!
	-	CP3-1	24.626	48.535	46.75	0.072	14						3.08	0.139	0.132		Okay!
	CP3-1	CP3-2	15.897	46.65	46.5	0.009	106	300		0.08	0.77	0.10	1.34	0.108	0.097		Okay!
3	CP3-2	CP3-3	5.053	46.4	46.3	0.020	51						1.95	0.156	0.141	0.069	Okay!
	-	CP3-4	18.782	48.745	48.1	0.034	29	225		0.05	0.58	0.08	2.12	0.096	0.086		Okay!
	CP3-4	CP3-3	21.419	48	46.3	0.079	13						3.22	0.145	0.138		Okay!
	CP3-3	SD-03	1.524	46.2	46.1	0.066	15						2.93	0.132	0.126		Okay!
	-	CP4-1	6.72	49.935	49.75	0.028	36						1.90	0.086	0.077		Okay!
	CP4-1	CP4-2	1.948	49.65	49.6	0.026	39						1.83	0.083	0.074		Okay!
	CP4-2	CP4-3	12.858	49.5	49	0.039	26						2.25	0.102	0.092		Okay!
4	CP4-3	CP4-4	19.245	48.9	48.25	0.034	30						2.10	0.095	0.085	0.068	Okay!
	CP4-4	CP4-5	5.159	48.15	48.05	0.019	52	300		0.08	0.77	0.10	1.93	0.155	0.139		Okay!
	-	CP4-6	26.083	49.925	49.25	0.026	39						1.84	0.083	0.075		Okay!
	CP4-6	CP4-5	12.914	49.15	48.05	0.085	12	225		0.05	0.58	0.08	3.33	0.151	0.143		Okay!
	CP4-5	SD-04	1.322	47.95	47.9	0.038	26						2.22	0.100	0.090		Okay!
	-	CP5-1	12.572	50.405	50.2	0.016	61						1.46	0.066	0.059		Okay!
	CP5-1	CP5-2	24.24	50.1	49.25	0.035	29						2.14	0.097	0.087		Okay!
	CP5-2	CP5-3	12.367	49.15	49	0.012	82	300		0.08	0.77	0.10	1.52	0.122	0.110		Okay!
5	CP5-3	SD-05	3.214	48.9	48.8	0.031	32	225		0.05	0.58	0.08	2.01	0.091	0.082	0.058	Okay!
	-	CP5-4	14.566	51.63	51	0.043	23						2.38	0.107	0.102		Okay!
	CP5-4	SD-05	7.987	50.9	48.8	0.263	4	150		0.02	0.39	0.05	4.47	0.090	0.085		Okay!
	MH-01	TMH-01	0.997	49	48.9	0.100	10	300		0.08	0.77	0.10	4.38	0.352	0.334	0.235	Okay!
												min	1.34				
												max	4.47				
												min. req.	1.30				
												max. allow.	5.00				

Table 4b - Hydraulic Calculations (Outside Site Boundary)

	Upstream	Downstream	Length L (m)	I.L. (mPD) Upstream	I.L. (mPD) Downstream	Gradient S (m/m)	Gradient S (1 in)	Open U-Shaped Channel Size D (mm)	Roughness Factor n	Wetted Cross-Sectional Area A (m^2)	Wetted Perimeter P (m)	Hydraulic Radius R=A/P (m)	Velocity $V=R^{2/3}S^{1/2}/n$ (m/s)	Capacity Q=AV (m^3/s)	Reduced Capacity for Sedimentation (m^3/s)	Runoff (m^3/s)	Check if Designed Capacity is Sufficient
	TMH-01	CP6-1	29.98	47.96	47.3	0.022	45	450		0.18	1.16	0.16	2.69	0.486	0.438		Okay!
Outside Site Boundary	CP6-1	CP6-2	29.9	47.2	43.8	0.114	9	300		0.08	0.77	0.10	4.67	0.375	0.356		Okay!
	CP6-2	CP6-3	30.02	43.7	41.45	0.075	13	375	0.016	0.13	0.96	0.13	4.40	0.552	0.524	0.292	Okay!
	CP6-3	CP6-4	27.86	41.35	40.85	0.018	56	450		0.18	1.16	0.16	2.43	0.439	0.395		Okay!
	CP6-4	Discharge Point	5.77	40.75	40.6	0.026	38	375		0.13	0.96	0.13	2.59	0.325	0.293		Okay!
												min	2.43				
												max	4.67				
												min. req.	1.30				
												max. allow.	5.00				

Table 5 - Runoff Summary

Bay	Runoff (L/s)	Runoff (m^3/s)
1	48.84	0.049
2	49.59	0.050
3	68.54	0.069
4	67.62	0.068
5	57.54	0.058
max	68.54	0.069
Total	292.12	0.292
Total (1-4)	234.58	0.235

ANNEX 5

DESIGN CALCULATION FOR STORM WATER PUMP DISCHARGE

Proposed Temporary Vehicle Park (Medium and Heavy Goods Vehicle)
Fan Kam Road, Pat Heung, Yuen Long

Design calculation for storm water pump discharge

Design calculation for storm water pump discharge

A. Summary of Bay 1 to Bay 4 using by storm water sump pump Discharge

Bay	Maximum Run Off (L/s)	Maximum Run Off (L/min)	Catchment Area (m^2)	Sump Pit's Volume (m^3)
Bay 1	48.84	2930.29	493	14.65
Bay 2	49.59	2975.15	493	14.88
Bay 3	68.54	4112.40	695	20.56
Bay 4	67.62	4057.21	695	20.29

1. Discharge from Area **Bay 1**
   - (i) Total catchment area = 493 m^2
   - (ii) Total maximum runoff capacity = 48.84 lit/sec(l/s)
   - (iii) Storm water sump pit size = 3340 x 3340 x 3730 D
   - (iv) Effective volume of sump pit = 14.65 m^3
   - (v) Total discharge collected
     a. Design Maximum runoff capacity = 48.84 lit/sec.
     b. Selected storm water pump duty = each 30 lit/sec
        = 60 lit/sec.(2 duties pump, 1 standby)
   - (vi) Time interval for start

     a. T = [Eff. vol./(select pump duty – max. runoff)] + [Eff. vol./max. runoff]
        = [14.65 m^3/11.16] +[14.65 m^3/48.84]
        =1611 sec
        = 26.86 minutes

     b. Nos. of cycle for pump on/off in one hour
        = 60 minutes / 26.86 minutes
        =2.24 times / hour

   - (vii) Result
     a. On/off cycles is less than 10 times in one hour
     b. Acceptable

Proposed Temporary Vehicle Park (Medium and Heavy Goods Vehicle)
Fan Kam Road, Pat Heung, Yuen Long

Design calculation for storm water pump discharge

2. Discharge from Area **Bay 2**

(i)	Total catchment area	= 493 m^2
(ii)	Total maximum runoff capacity	= 49.59 lit/sec(l/s)
(iii)	Storm water sump pit size	= 3340 x 3340 x 2000 D
(iv)	Effective volume of sump pit	= 14.88 m^3
(v)	Total discharge collected	
	c. Design Maximum runoff capacity	= 49.59 lit/sec.
	d. Selected storm water pump duty	= each 30 lit/sec = 60 lit/sec.(2 duties pump, 1 standby)

(vi) Time interval for start

c. T = [Eff. vol./(select pump duty – max. runoff)] + [Eff. vol./max. runoff]
= [14.88 m^3/10.41] +[14.88 m^3/49.59]
=1729 sec
= 28.82 minutes

d. Nos. of cycle for pump on/off in one hour
= 60 minutes / 27.30 minutes
=2.08 times / hour

(vii) Result

c. On/off cycles is less than 10 times in one hour
d. Acceptable

Proposed Temporary Vehicle Park (Medium and Heavy Goods Vehicle)
Fan Kam Road, Pat Heung, Yuen Long

Design calculation for storm water pump discharge

3. Discharge from Area **Bay 3**

(i)	Total catchment area	= 695 m^2
(ii)	Total maximum runoff capacity	= 68.54 lit/sec(l/s)
(iii)	Storm water sump pit size	= 3930 x 3930 x 2000 D
(iv)	Effective volume of sump pit	= 20.56 m^3
(v)	Total discharge collected	
	a. Design Maximum runoff capacity	= 68.54 lit/sec.
	b. Selected storm water pump duty	= each 40 lit/sec = 80 lit/sec.(2 duties pump, 1 standby)

(vi) Time interval for start

a. T = [Eff. vol./(select pump duty – max. runoff)] + [Eff. vol./max. runoff]
   = [20.56 m^3/11.46] +[20.56 m^3/68.54]
   =2094 sec
   = 34.90 minutes

b. Nos. of cycle for pump on/off in one hour
   = 60 minutes / 34.90 minutes
   =1.72 times /hour

(vii) Result

a. On/off cycles is less than 10 times in one hour
b. Acceptable

Proposed Temporary Vehicle Park (Medium and Heavy Goods Vehicle)
Fan Kam Road, Pat Heung, Yuen Long

Design calculation for storm water pump discharge

4. Discharge from Area **Bay 4**

(i)	Total catchment area	= 695 m^2
(ii)	Total maximum runoff capacity	= 67.62 lit/sec(l/s)
(iii)	Storm water sump pit size	= 3930 x 3930 x 2000 D
(iv)	Effective volume of sump pit	= 20.29 m^3
(v)	Total discharge collected	
	a. Design Maximum runoff capacity	= 67.62 lit/sec.
	b. Selected storm water pump duty	= each 40 lit/sec = 80 lit/sec.(2 duties pump, 1 standby)

(vi) Time interval for start

a. T = [Eff. vol./(select pump duty – max. runoff)] + [Eff. vol./max. runoff]
   = [20.29 m^3/12.38] +[20.29 m^3/67.62]
   =1936 sec
   = 32.27 minutes

b. Nos. of cycle for pump on/off in one hour
   = 60 minutes / 32.27 minutes
   =1.86 times /hour

(vii) Result

a. On/off cycles is less than 10 times in one hour
b. Acceptable

Project: **Appendix 4**

Proposed Storm water Drain

Fan Kam Road, Pat Heung

Equipment Catalogue

1. **Proposed Storm water sump pump**

   Capacity: @30 l/s @22 m head

2. **Diesel Generator**

   Total Capacity; 200 KW (250 KVA)

Submersible Heavy Duty Solids Handling Pumps

Model SH

To meet your submersible pump needs and assure the lowest possible cost over the life · · ·

Applications:

- Sewage Lift Stations
- Treated Sewage System
- Waste Water Transfer
- Dewatering
- General Industrial Service

ISO 9001 Certificate

LLOYD'S REGISTER QUALITY ASSURANCE · ISO9001 · UKAS QUALITY MANAGEMENT 001

EIM ELECTRIC CO.,LTD.

With over 50 years of proven experience in the design and the difficult applications of heavy duty submersible pumps handling sewage, solids, sludge and slurries, EIM has been providing pumping solutions which permit customers to continuously improve pumping system reliability and cost efficient performance.
The SH series pumps with non-clogging, single-vane, closed impeller have proven successful operation in the toughest applications handling large solids and stringy material.

General Description

	Standard	Option
Pump	Free Standing Models	Guide Rail System
Discharge Diameter	80, 100 and 150 mm	
Flow and TDH	See performance curves on the back page.	
Impeller	Non-clogging, single-vane, closed impeller	
Max. Solids Size	75 mm sphere	
Max. Submergence	20 m	
Liquid Temperature	-10˚C to 40˚C	High temperature designs up to 80˚C.
Materials		
Impeller/Pump Casing /Suction Cover	Cast Iron	
Hardware	304 Stainless Steel	
Motor		
Configuration	Flange mounted, air-filled submersible vertical AC motor	
Synchronous Speed	1500RPM (50Hz)/1800RPM (60Hz)	
Insulation Class / SF	F / 1.15	Insulation Class H
Voltages / Phase / Hertz	200, 380, 400 Volts / 3 ϕ / 50 Hz 220, 380, 440 Volts / 3 ϕ / 60 Hz	Special voltages in the range of 200-600 Volts
Thermal Protection Device	up to 7.5KW: Bimetallic over current switch 11KW and above: Two normally closed thermostats embedded in windings	
Cable Length	10 m	Extra length cable
Materials		
Motor Housing	Cast Iron	
Motor Shaft	403 Stainless Steel	
Shaft Seals	Double shaft seals [Outer seal (process side)] Silicon Carbide faces (both rotating and stationary faces) [Inner seal (motor side)] Carbon against Ceramic faces	Silicon Carbide faces (both rotating and stationary faces) inner and outer seals and VITON seal elastomers
Bearings	Deep groove ball bearings	
O-Rings	Nitrile Butadiene Rubber (NBR)	VITON O-rings

Available Models

Discharge Diameter (mm)	Model No.		BHP	
	Free Standing	Guide Rail System	KW	HP
80	SH-82E	SH-82B	1.5	2
	SH-83E	SH-83B	2.2	3
	SH-85E	SH-85B	3.7	5
	SH-88DE	SH-88DB	5.5	7.5
	SH-810DE	SH-810DB	7.5	10
	SH-815DE	SH-815DB	11	15
	SH-820DE	SH-820DB	15	20

Discharge Diameter (mm)	Model No.		BHP	
	Free Standing	Guide Rail System	KW	HP
100	SH-105E	SH-105B	3.7	5
	SH-108DE	SH-108DB	5.5	7.5
	SH-1010DE	SH-1010DB	7.5	10
	SH-1015DE	SH-1015DB	11	15
	SH-1020DE	SH-1020DB	15	20
150	SH-158DE	SH-158DB	5.5	7.5
	SH-1510DE	SH-1510DB	7.5	10
	SH-1515DE	SH-1515DB	11	15
	SH-1520DE	SH-1520DB	15	20

Features

1 CABLE
Extra hard usage, water-resistant vinyl cable is used for electric cable.

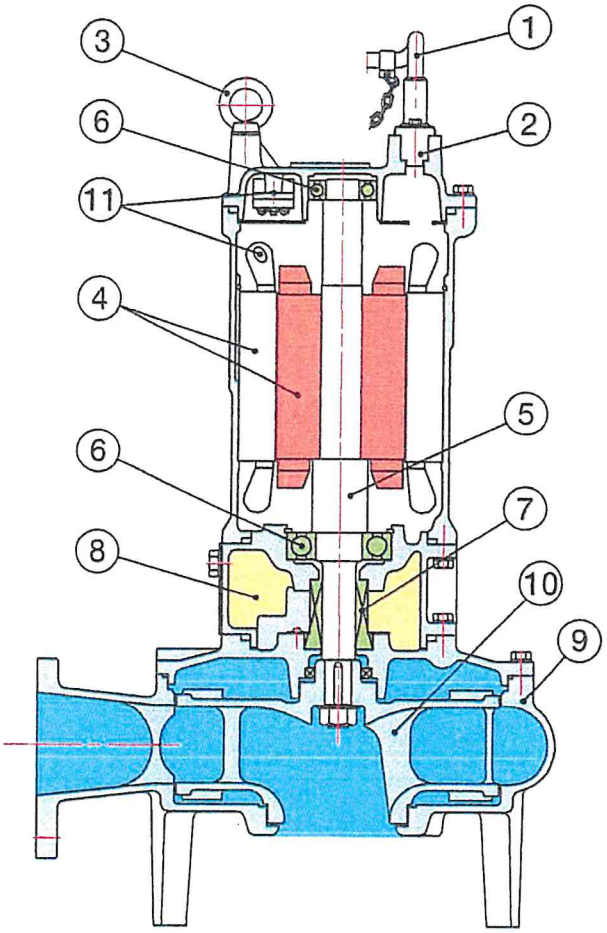
2 CABLE ENTRY
Strain relief rubber bushing integrated with cable sheath at the entry point is tightly compressed to the motor housing cover. In addition, each cable strand at the entry point is formed into a solid conductor for a true non-wicking cable entry. This double sealing system completely prevents water from entering into the motor housing.

3 LIFTING DEVICE
Lifting eye-bolts of 304 stainless steel are of adequate strength to lift the entire pump assembly.

4 MOTOR
An air-filled, induction motor with specially treated class F (155°C) nonhygroscopic insulation and rated with 1.15 service factor is used as standard. The motor housing of heavy duty cast iron is sealed using O-rings.

5 SHAFT
The high quality, one-piece, oversized shaft made of 403 stainless steel is designed so as to lengthen bearing and seal life reducing shaft deflection and vibration.

6 BEARINGS
Both main and support bearings packed with lithium grease for high temperature usage consist of oversized deep groove ball bearings, countering both radial and axial forces.



7 SHAFT SEAL
Double mechanical seal system for maximum resistance to corrosion, abrasion and thermal shock prevents water from penetrating into the oil chamber and the motor housing. The outer seal (process side) uses Silicon Carbide faces (both rotating and stationary fases). Carbon against ceramic faces are used for the inner seal (motor side). In addition, to prevent dust, sand, mud, sludge, slurry, etc. from entering into the seal area, the dust seal is mounted on the outside of the shaft seal, facing to process liquid.

8 OIL CHAMBER
Oil in the oil chamber lubricates and cools the shaft seals and functions as a buffer to prevent water penetration into the motor.

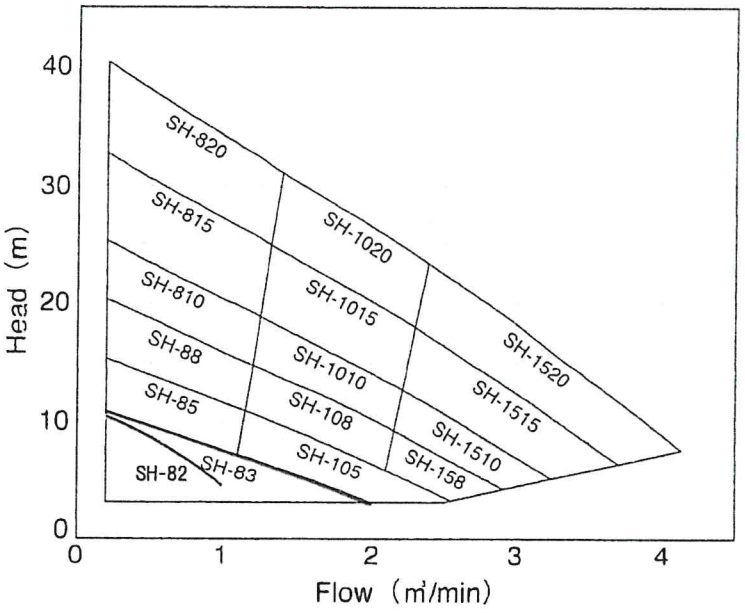
9 PUMP CASING
Owing to the specially designed pump casing with large opening at motor side, motor unit and wet end are easily separated for fast access to impeller and shaft seals. This results in true savings, greatly reducing maintenance and downtime costs.

10 IMPELLER
Single-vane, closed impeller with large opening assures passage of large solis and stringy material along with high pump efficiency.

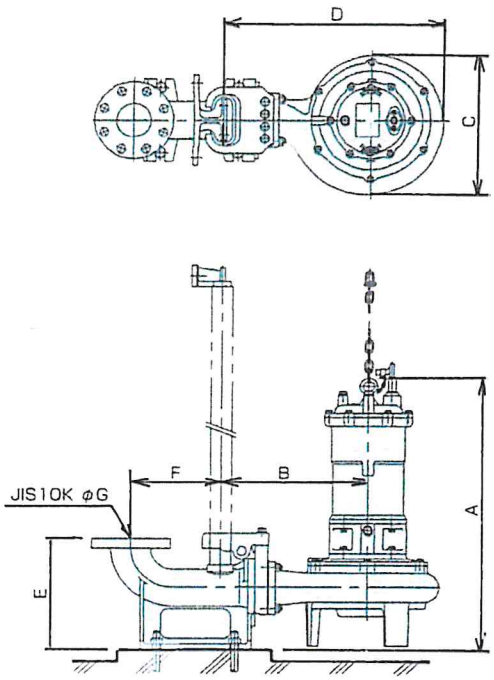
11 THERMAL PROTECTOR
To protect over heating, bimetallic over current switch is built in the motor housing cover (discharge ϕ 80 mm) or two normally closed thermostats are embedded in the motor windings (discharge ϕ 100 mm).

12 HARDWARE
All the external hardware are made of heavy duty 304 stainless steel.

Pump Performance Curves



Dimensions



(All dimensions in mm)

Discharge Diameter	Model	A	B		C		D		E	F	G	w't(kg)	
			50Hz	60Hz	50Hz	60Hz	50Hz	60Hz				Pump	Discharge Elbow
80	SH-82B	675	352	352	335	335	525	525	270	209	80	65	25
	SH-83B	675	352	352	335	335	525	525				65	
	SH-85B	675	352	352	335	335	525	525				75	
	SH-88DB	830	412	352	440	335	635	525				140	
	SH-810DB	830	412	412	440	440	635	635				150	
	SH-815DB	830	412	412	440	440	635	635				160	
	SH-820DB	1090	462	412	530	440	730	635				240	
100	SH-105B	705	352	352	335	335	525	525	325	239	100	75	31
	SH-108DB	860	412	352	440	335	635	525				140	
	SH-1010DB	860	412	412	440	440	635	635				150	
	SH-1015DB	860	412	412	440	440	635	635				160	
	SH-1020DB	1120	462	412	530	440	730	635				240	
150	SH-158DB	930	439	379	440	335	665	555	460	282	150	140	65
	SH-1510DB	930	439	439	440	440	665	665				150	
	SH-1515DB	930	439	439	440	440	665	665				160	
	SH-1520DB	1190	489	439	530	440	760	665				240	

SAFETY PRECAUTIONS

- Before operating our pumps, read the operation manual carefuly.
- All the pictures shown in this catalog have been taken after removing all the safety devices legally required, to make the products easier to see.
- Pump and pump installations drawings are only for explanatory and descriptive purposes.

- The designs or specifications of the models in this catalog are subject to change without prior notice due to continual improvement.

EIM ELECTRIC CO.,LTD.
URL http://www.eimpump.co.jp
412, Katsushika 2-chome, Funabashi City, Chiba, 273-0032 Japan
Phone : +81-47-437-2711 Telefax : +81-47-437-3969
E-mail:overseas@eimpump.co.jp

PCE-2017HK
Printed in Japan March 2009 09-3 1Ya

Estimate No.
Order No.

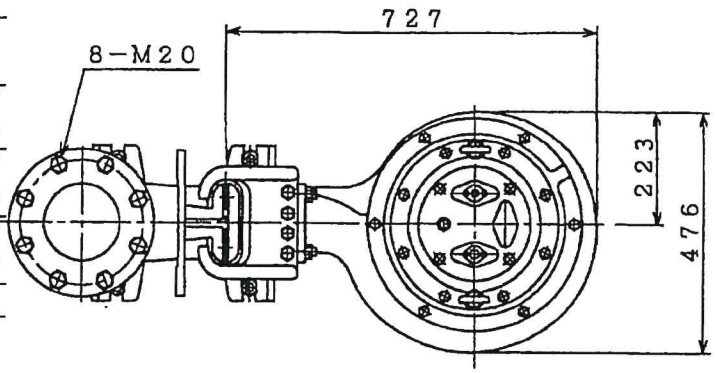
EIM SUBMERSIBLE PUMPS

DIMENSIONAL DRAWING

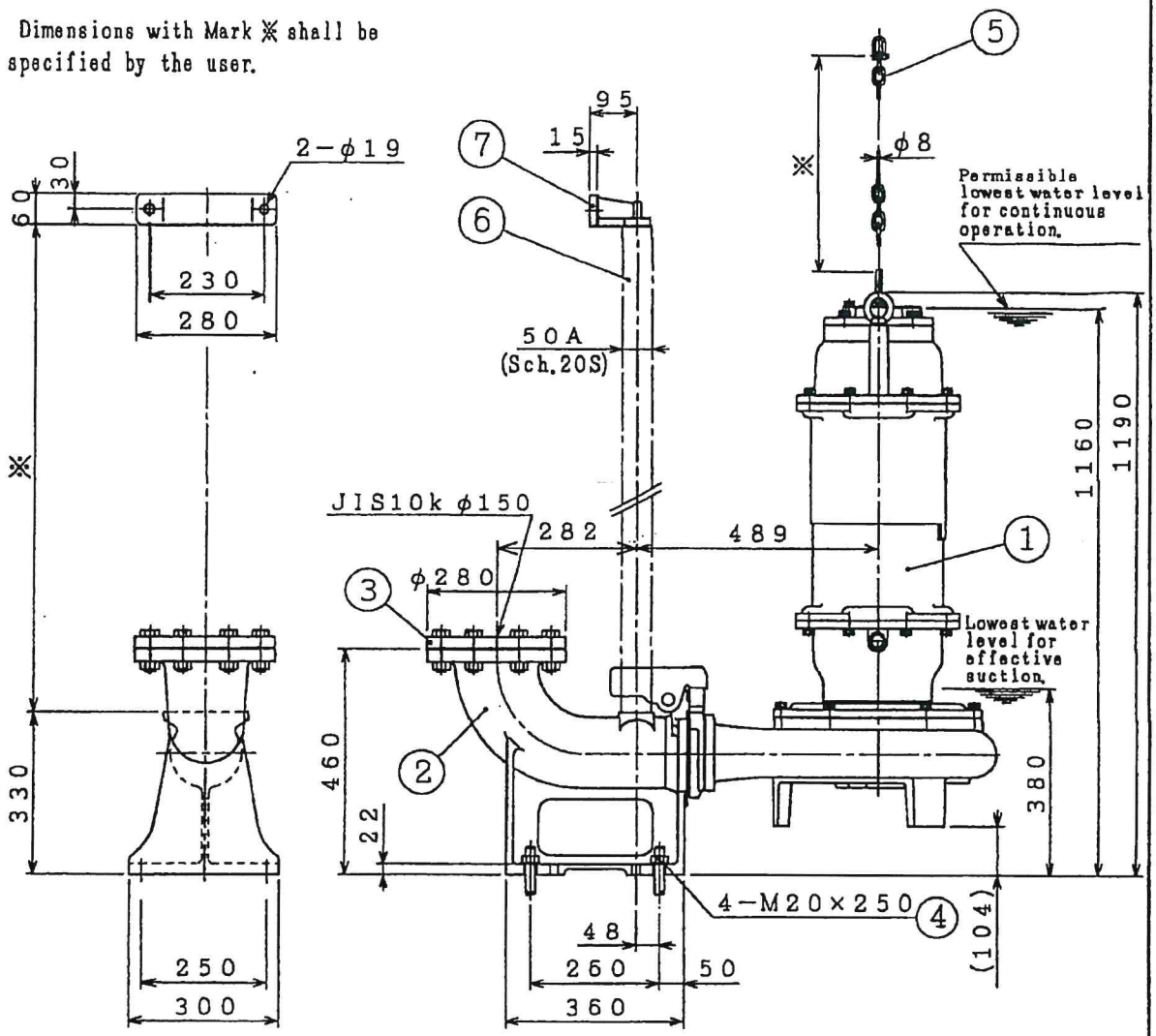
MODEL: SH-1520DB

Standard

① PUMP		1set
② ELBOW ASSEMBLY	Cast Iron	1set
③ COMPNIONS FLANGE	Carbon Steel	1set
④ FOUNDATION BOLTS		Out of Supply
⑤ LIFTING CHAIN		Out of Supply
⑥ GUIDE PIPE		Out of Supply
⑦ GUIDE HOLDER	Cast Iron	1set



Dimensions with Mark ※ shall be specified by the user.



All dimensions in mm

Item No.	EIM ELECTRIC CO., LTD.	DWG.NO.B-T1151132-0

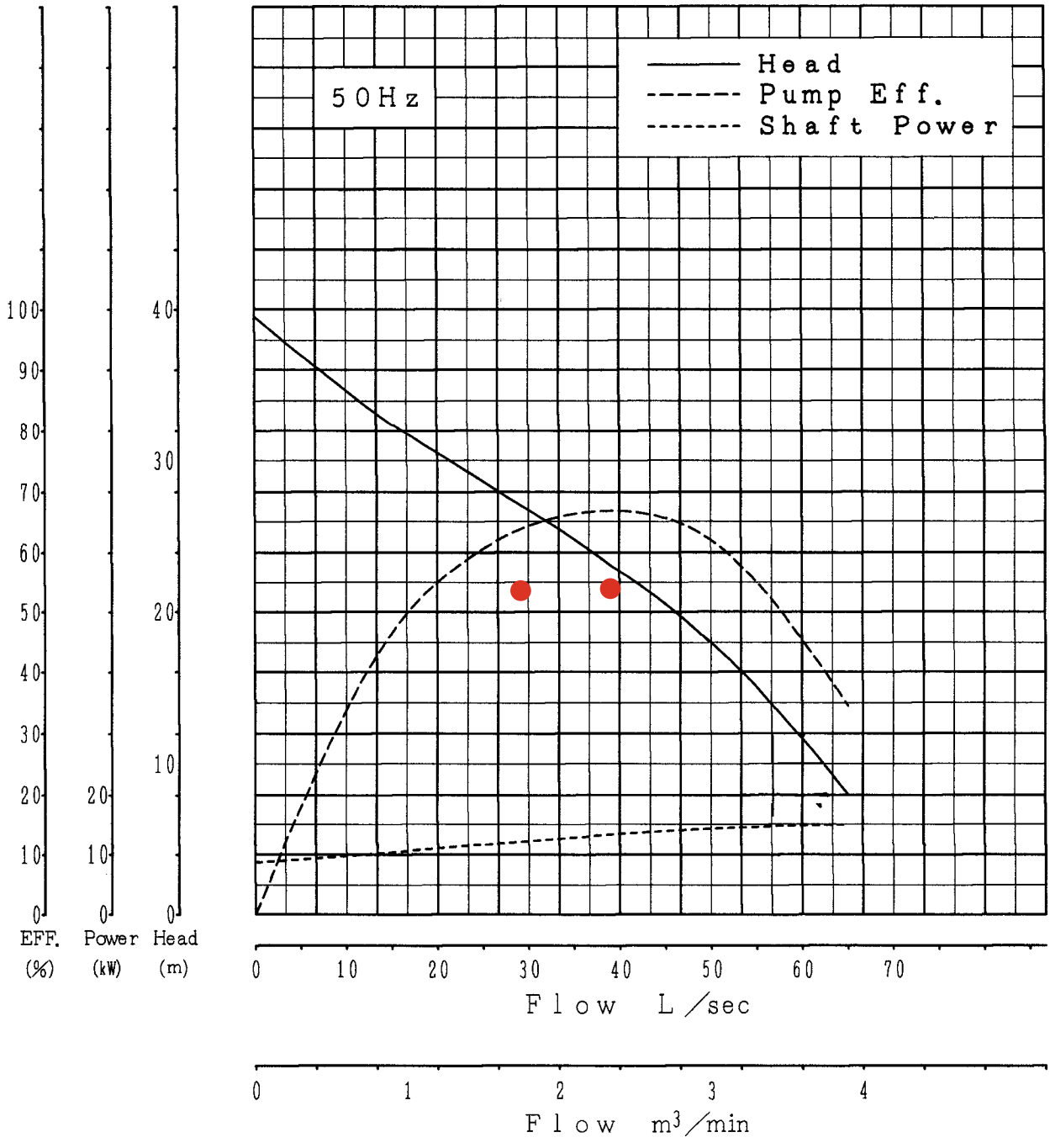
Estimate No.
Order No.

EIM SUBMERSIBLE PUMPS

PERFORMANCE CURVE

MODEL: SH-1520DB

Duty: 30 and 40 L/S x 22 M
Motor: 15 KW x 1450 RPM



Item No.	EIM Electric Co., Ltd.	DWG.NO.PC-T1151132-0

Estimate No.
Order No.

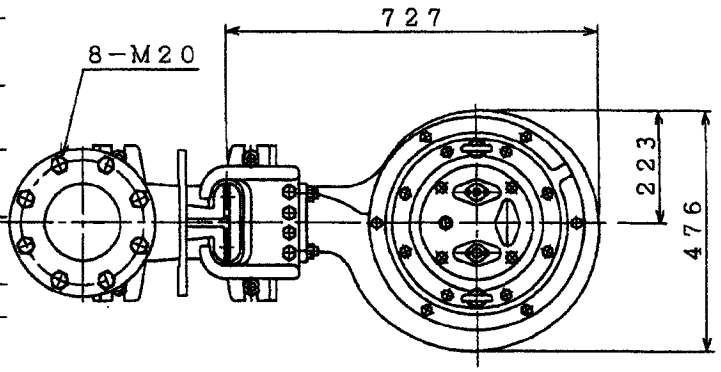
EIM SUBMERSIBLE PUMPS

DIMENSIONAL DRAWING

MODEL: SH-1520DB

Standard

①PUMP		1set
②ELBOW ASSEMBLY	Cast Iron	1set
③COMPNIONS FLANGE	Carbon Steel	1set
④FOUNDATION BOLTS		Out of Supply
⑤LIFTING CHAIN		Out of Supply
⑥GUIDE PIPE		Out of Supply
⑦GUIDE HOLDER	Cast Iron	1set



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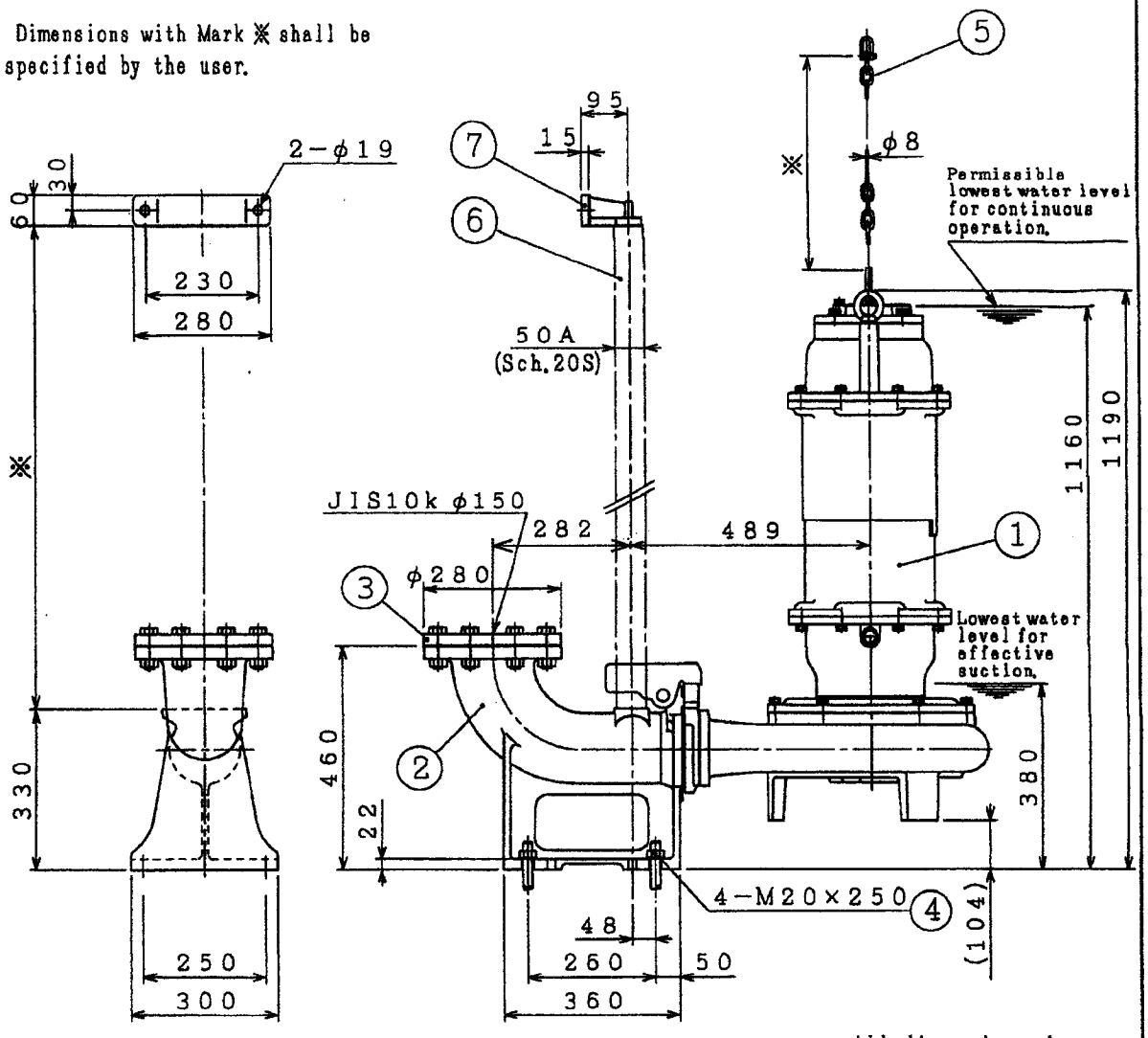


All dimensions in mm

Item No.	EIM ELECTRIC CO., LTD.	DWG.NO.B-T1151132-0

EIM SUBMERSIBLE PUMP JOB REFERENCE

LOCATION	MODEL(DRY PIT)	KW	QTY
Tseung Kwan O Swimming Pool	SU5-2015DTBH	11	1
TKO Hospital Expansion	UGAD-85ET(DRY PIT)	3.7	12
	UGAD-810EDT	7.5	4
Lai Chi Kok Swimming Pool	SU2-51B1	0.75	3
	SE-85LTB	3.7	7
North Lantau Hospital Phase 1, Tung Chung - Plumbing	UGAD-83ET (18M) (DRY PIT)	2.2	2
	SH-85B (18M)	3.7	8
Indoor Velodrome-cum-sports Centre in Area 45, TKO	SH-88DB	5.5	8
	SH-815DB	11	6
	SH-810DB	7.5	4
	SL-82BH	1.5	2
HOMANTIN GOVERNMENT OFFICES	SU-82E	1.5	1
CAS TRANING POOLSAI KUNG ,TAI TAN	SE-51G	0.75	2
	SE-83LB	2.2	1
SWIMMING POOL AT CSD RECREATION CLUB LAI CHI LOK	SE-82LTB	1.5	2
JORDEN VALLEY SWIMMING POOL	SU-1530DTB	22	2
	SE-83LTB	2.2	6
HAMMER HILL SWIMMING POOL	SE-83LTB	2.2	5
	SU-1520DTB	15	3
TEXACO RD, TSUN WAN SWIMMING POOL	SU-85TB	3.7	2
	SU-815DTB	11	9
	SU-108DTB	7.5	2

EIM SUBMERSIBLE PUMP JOB REFERENCE

AREA 100,.MA ON SHAN SWIMMING POOL COMPLEX		3.7	6
	SU-1535DTB	25	6
LOK KWAN ST. PARK	SU-82B	1.5	2
NORTH POINT GOVERNMENT OFFICE	SE-51E	0.75	8
	SU-82E	1.5	1
BUTTERFLY BEACH LAUNDRY S.T.P.	AK2-10DB	7.5	1
MA PO PING PRISON S.T.P.	SU-158DTB	5.5	2
	SU-2015DTB	11	2
KOWLOON MEDICAL REHABILATION CENTRE	SU-2015DTB	11	2
	SU-88DTB	5.5	8
HO MAN TIN RECREATION GROUND	SE-82HTB	1.5	4
SO KONG PO SWIMMING POOL	SU-1530DB	22	2
SAI KUNG SWIMMING POOL	SU2-82TB	1.5	2
MAN KAM TO STP	SU2-51TB	0.75	4
	SU2-82TB	1.5	4
	SU2-85TB	3.7	2
	AK2-3TB	2.2	2
	AK2-10DTB	7.5	2

EIM SUBMERSIBLE PUMP JOB REFERENCE

CHI MA WAN PRISON STP	SU2-108DTB	5.5	2
	SU2-51TB	0.75	8
	SU2-82TB	1.5	4
	SU2-83B	2.2	2
	SU-820DTB	15	2
	AK2-10DTB	7.5	4
	AK2-5TB	3.7	2
	AK2-8TB	5.5	2
PIK UK PRISON STP	AK2-10DTB	7.5	2
	AK2-5TB	3.7	4
	AK2-8DTB	5.5	2
	SE-505TB1	0.4	6
	SU2-51TB	0.75	2
	SU2-82TB	1.5	2
	SU-820DTB	15	2
	SU-1010DTB	7.5	2
SHEK WU HUI STP	SL-83BH	2.2	1
	SL-85BH	3.7	2

Current issue date:	1 August 2023	Original approval(s):
Expiry date:	31 July 2026	ISO 9001 - 9 July 1999
Certificate identity number:	10533088	

Certificate of Approval

This is to certify that the Management System of:

EIM ELECTRIC CO., LTD.

10-2-16, Inokuma, Mizumaki-machi, Onga-gun, Fukuoka-ken 807-0001, Japan

has been approved by LRQA to the following standards:

ISO 9001:2015
JIS Q 9001:2015

Approval number(s): ISO 9001 – 0065341

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:
Design, manufacture, sales and after sales service (repair and installation work) of submersible electric motors, pumps, mixers and slurry pumps.

Yasushi Horikawa

Japan Operations Manager

Issued by: LRQA Limited

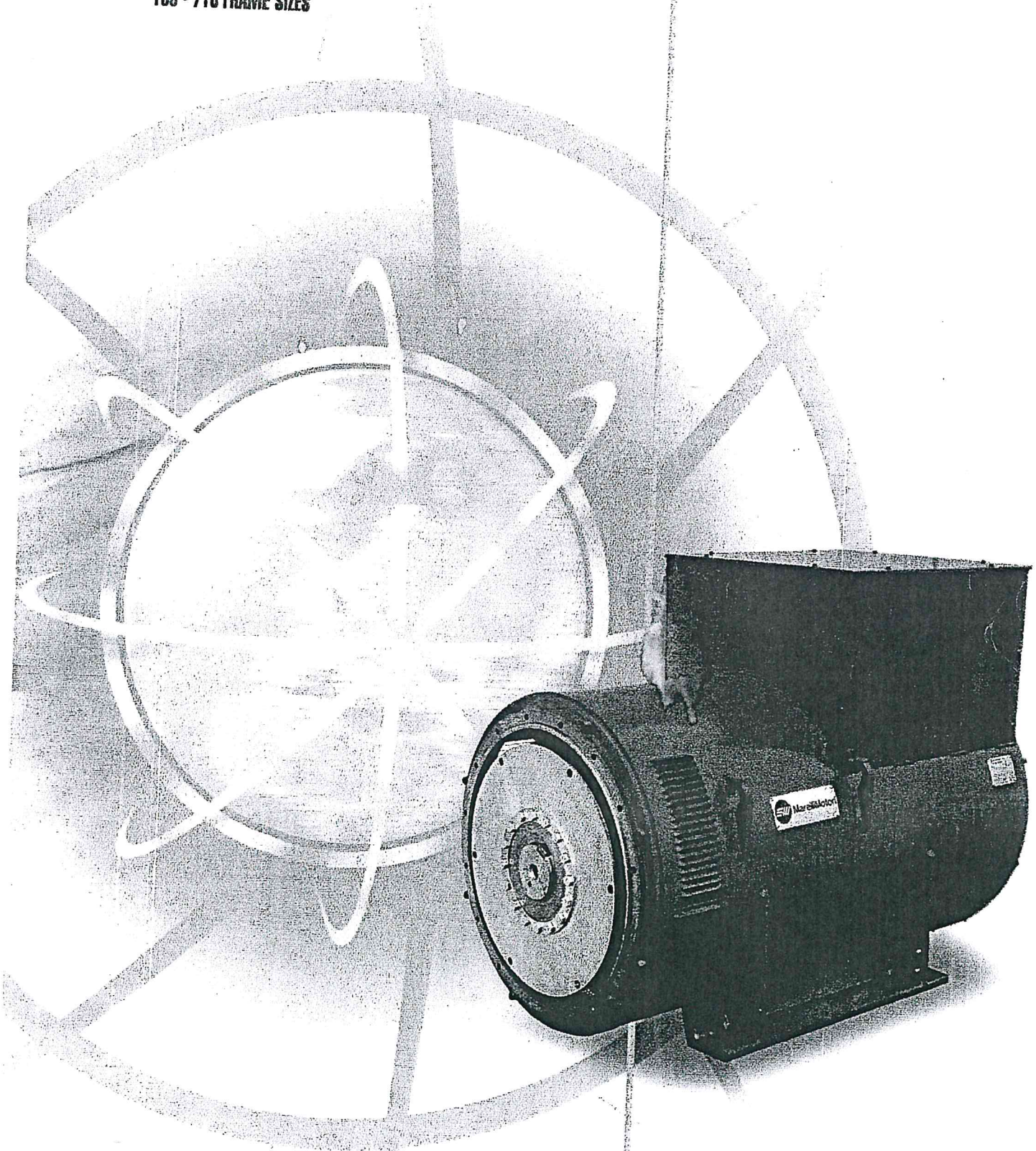
Certificate Schedule

Location	Activities
EIM ELECTRIC CO., LTD. Mizumaki Works 10-2-16, Inokuma, Mizumaki-machi, Onga-gun, Fukuoka-ken 807-0001, Japan	**ISO 9001:2015** As main scope.
EIM ELECTRIC CO., LTD. Headquarter 3-4, Kurosakishiroishi, Yahatanishi-ku, Kitakyushu-shi, Fukuoka-ken 806-0004, Japan	**ISO 9001:2015** Headquarter.
EIM ELECTRIC CO., LTD. Kyushu Branch 3-4, Kurosakishiroishi, Yahatanishi-ku, Kitakyushu-shi, Fukuoka-ken 806-0004, Japan	**ISO 9001:2015** Sales and after sales service (repair and installation work).
EIM ELECTRIC CO., LTD. Tokyo Branch 3-1-2, Kandamisaki-cho, Chiyoda-ku, Tokyo 101-0061, Japan	**ISO 9001:2015** Sales.
EIM ELECTRIC CO., LTD. Osaka Branch 4-3-8, Nishi-Nakajima, Yodogawa-ku, Osaka-shi, Osaka-fu 532-0011, Japan	**ISO 9001:2015** Sales.

Three Phase Synchronous Generators

M8B - M8H - M8T SERIES
160 - 710 FRAME SIZES

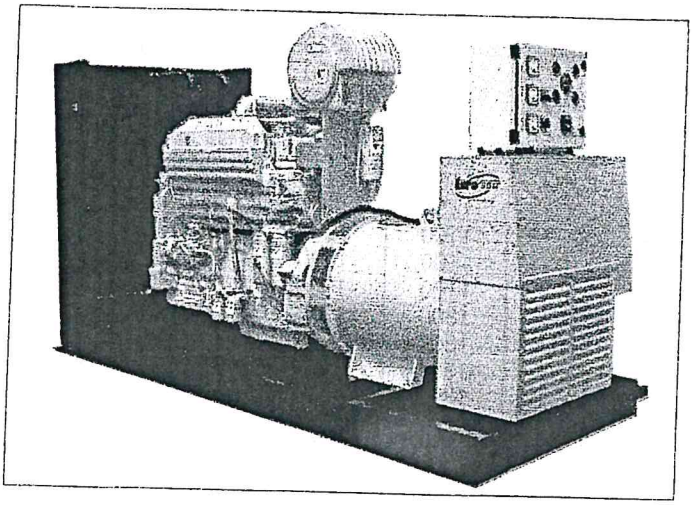
FKI Energy Techno



MarelliMotori

SIN.CT.024.2 E

EuroPower Diesel Generator Sets powered by Cummins



EuroPower generator sets offer a wide range of continuous & emergency power suitable for residential, commercial & industrial applications. Our standard genset includes set mounted heavy duty tropicalised radiator c/w protection guards to cool the engine up to 52°C air-on temperature.

All our equipment are warranted against manufacturing defects for a period of 12 months or 1500 operating hours from date of initial start-up, or 18 months from date of shipment, whichever is earlier.

Cummins Engine

- World renowned, heavy duty, 4-stroke, water cooled engine
- Direct fuel injection pump
- Multi-cylinder in-line or vee engine
- Naturally aspirated or turbocharged
- With replaceable air, oil & fuel filters, starter motor, charging alternator
- B, C series are 12V electrical system with mechanical governor. The rest are 24V electrical system with electronic governor

Alternator

- 4-pole, brushless, self exciting, self regulating
- Drip proof, IP21 protection, class H insulation
- Industrial standard, single bearing type
- Self ventilated, screen protected
- Voltage regulation ±1% at any fixed load

Scope of Supply

- Heavy duty steel channel base frame
- Vibration-damping supports between engine/alternator & base frame
- High capacity lead-acid starting batteries
- Heavy duty industrial type silencer & stainless steel flexible exhaust bellow
- Manual start set mounted control panel c/w voltmeter, ammeter, frequency/rpm meter, hour run counter, lube oil pressure gauge, water temperature gauge & safety shutdown protections for low oil pressure, high water temperature & engine overspeed

Optional Supply

- Weatherproof / Soundproof / Super soundproof enclosure
- Mobile trailer
- Remote radiator cooling
- Engine / alternator heaters
- Auto load sharing & synchronising panel
- Auto Start / Auto Mains Failure (AMF) / ATS control panel, circuit breaker

EuroPower Diesel Generator Sets powered by Cummins

1500rpm, 50Hz, 380 - 415V

Genset Model	Prime kW	Prime kVA	Standby kW	Standby kVA	Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption L (mm)	W (mm)	H (mm)	kg	l/h
EPC38	30	38	34	42	4B3.9G2	1800	700	1450	650	8.0
EPC50	40	50	44	55	4BT3.9G3	1800	700	1450	700	9.6
EPC60	48	60	53	66	4BT3.9G4	1800	700	1450	800	11.3
EPC70	56	70	62	77	4BTA3.9G1	1800	700	1450	850	12.0
EPC85	68	85	75	94	6BT5.9G5	2050	750	1500	950	15.0
EPC100	80	100	88	110	6BT5.9G6	2050	750	1500	1000	18.0
EPC120	96	120	104	130	6BTA5.9G1	2100	750	1500	1100	19.0
EPC135	108	135	118	148	6CT8.3G2	2400	920	1600	1300	23.0
EPC180	144	180	160	200	6CTA8.3G2	2400	920	1600	1400	30.0
EPC200	160	200	176	220	6CTAA8.3G1	2400	920	1600	1500	33.4
EPC230	184	230	200	250	LTA10G2	3000	1100	1750	2300	37.1
EPC250	200	250	220	275	LTA10G3	3000	1100	1750	2400	39.0
EPC312	250	312	280	350	NT855G6	3000	1100	1900	2700	52.0
EPC318	255	318	290	362	NTA855G2	3100	1100	1900	2800	53.0
EPC350	280	350	308	385	NTA855G4	3100	1100	1900	2900	55.4
EPC380	304	380	334	418	KTA19G2	3300	1300	1900	3500	63.0
EPC450	360	450	400	500	KTA19G3	3300	1300	2000	3600	73.0
EPC500	400	500	440	550	KTA19G4	3300	1300	2000	3700	81.0
EPC500	400	500	440	550	QSX15G8	3300	1300	2000	3500	79.0
EPC630	504	630	557	697	VTA28G5	3800	1500	2000	6000	104.0
EPC725	580	725	640	800	QST30G1	4500	1780	2200	6400	116.0
EPC750	600	750	660	825	VTA28G6	3900	1500	2000	6400	110.0
EPC800	640	800	704	880	QST30G2	4500	1780	2200	6600	128.0
EPC900	720	900	800	1000	QST30G3	4600	1880	2300	6800	140.0
EPC1000	800	1000	888	1110	QST30G4	4600	1880	2300	7000	151.0
EPC1000	800	1000	888	1110	KTA38G5	4800	1880	2400	8000	155.0
EPC1275	1020	1275	1120	1400	KTA50G3	5400	1900	2500	10000	200.0
EPC1400	1120	1400	1320	1650	KTA50G8	5600	2000	2500	11000	222.0
EPC1800	1440	1800	1600	2000	QSK60G3	5900	2200	3000	13000	269.0
EPC2000	1600	2000	1760	2200	QSK60G4	5900	2200	3000	14000	295.0

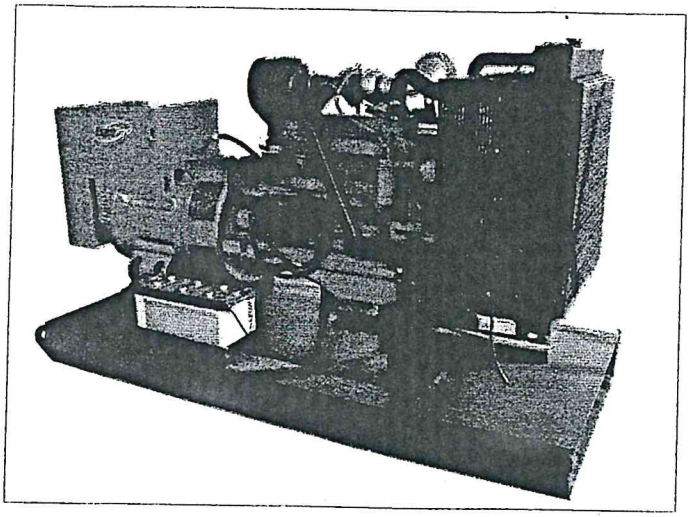
1800rpm, 60Hz, 220 - 480V*

EPC38	36	46	40	50	4B3.9G2	1800	700	1450	650	9.0
EPC50	48	60	54	68	4BT3.9G3	1800	700	1450	700	11.7
EPC60	59	74	65	81	4BT3.9G4	1800	700	1450	800	13.5
EPC70	67	83	73	91	4BTA3.9G2	1800	700	1450	850	14.0
EPC85	80	100	90	112	6BT5.9G5	2050	750	1500	950	18.0
EPC100	100	125	110	137	6BT5.9G6	2050	750	1500	1000	21.0
EPC120	104	130	117	146	6BTA5.9G1	2100	750	1500	1100	22.0
EPC135	120	150	135	168	6CT8.3G2	2400	920	1600	1300	28.0
EPC180	165	206	184	230	6CTA8.3G2	2400	920	1600	1400	35.0
EPC200	184	230	200	250	6CTAA8.3G1	2400	920	1600	1500	37.8
EPC230	200	250	220	275	LTA10G2	3000	1100	1750	2300	43.1
EPC250	225	281	250	312	LTA10G1	3000	1100	1750	2400	46.0
EPC312	260	325	288	360	NT855G6	3000	1100	1900	2700	56.0
EPC318	277	346	300	375	NTA855G2	3100	1100	1900	2800	61.0
EPC350	320	400	350	438	NTA855G3	3100	1100	1900	2900	66.0
EPC380	350	437	400	500	KTA19G2	3300	1300	1900	3500	76.0
EPC450	400	500	445	557	KTA19G3	3300	1300	2000	3600	86.0
EPC500	440	550	500	625	KTA19G4	3300	1300	2000	3700	91.0
EPC500	440	550	500	625	QSX15G9	3300	1300	2000	3500	87.0
EPC630	540	675	600	750	VTA28G5	3800	1600	2000	5500	118.0
EPC725	690	862	760	950	QST30G1	4500	1780	2200	6400	137.0
EPC800	729	911	800	1000	QST30G2	4500	1780	2200	6600	145.0
EPC900	800	1000	900	1125	QST30G3	4600	1880	2300	7000	154.0
EPC1000	917	1146	1015	1269	QST30G4	4600	1880	2300	7000	177.0
EPC1000	922	1153	1022	1278	KTA38G4	4800	1880	2400	8000	180.0
EPC1275	1135	1418	1288	1610	KTA50G3	5400	1900	2500	10000	222.0
EPC1400	1295	1619	1500	1875	KTA50G9	5600	2000	2500	11000	257.0
EPC1800	1600	2000	1760	2200	QSK60G5	5900	2200	3000	13000	310.0
EPC2000	1836	2296	2033	2542	QSK60G6	5900	2200	3000	14000	360.0

Ratings based on ISO3046, BS5514, DIN 6271, ± 5% tolerance. Standard reference conditions: air inlet temperature 27°C, altitude 100m asl, fuel weight 0.85kg/l, fuel consumption @75% prime load. **Prime rating:** Continuous running at variable load. No limit to the annual hours of operation. 10% overload capability for 1 hour in any 12 hours. **Standby rating:** Emergency power at variable load in the event of utility power failure. No overload is permitted. *Deration may be necessary at certain voltages.

Due to continually improved products, we reserve the right to make changes in model, technical specs, colours and without

EuroPower Diesel Generator Sets powered by John Deere



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All our equipment are warranted against manufacturing defects for a period of 12 months or 1500 operating hours from date of initial start-up, or 18 months from date of shipment, whichever is earlier.

John Deere Engine

- Reliable, low maintenance, water cooled engine
- Quick starting & smooth running
- 3, 4 or 6 in-line
- Naturally aspirated or turbocharged
- With replaceable air, oil & fuel filters, starter motor, charging alternator
- 24V electrical system. 6125 series with electronic control (ECU)

Alternator

- 4-pole, brushless, self exciting, self regulating
- Drip proof, IP21 protection, class H insulation
- Industrial standard, single bearing type
- Self ventilated, screen protected
- Voltage regulation ±1% at any fixed load

Scope of Supply

- Heavy duty steel channel base frame
- Vibration-damping supports between engine/alternator & base frame
- High capacity lead-acid starting batteries
- Heavy duty industrial type silencer & stainless steel flexible exhaust bellow
- Manual start set mounted control panel c/w voltmeter, ammeter, frequency/rpm meter, hour run counter, lube oil pressure gauge, water temperature gauge & safety shutdown protections for low oil pressure, high water temperature & engine overspeed

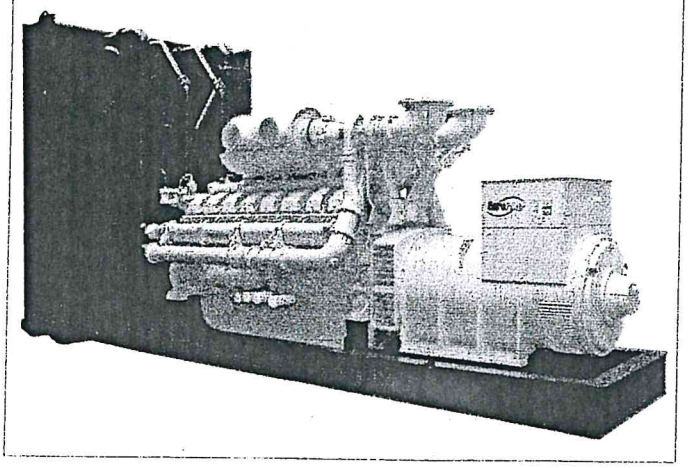
Optional Supply

- Weatherproof / Soundproof / Super soundproof enclosure
- Mobile trailer
- Remote radiator cooling
- Engine / alternator heaters
- Auto load sharing & synchronising panel
- Auto Start / Auto Mains Failure (AMF) / ATS control panel, circuit breaker

Your local EuroPower genset distributor

EuroPower Diesel Generator Sets powered by Perkins

EuroPower



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Perkins Engine

- Proven, dependable, fuel efficient combustion system
- Rugged strength, comprehensive engine range
- Improved load acceptance capability
- Multi-cylinder, 4-stroke, water cooled
- Operator & environment friendly
- EPP150 & above with 24V electrical system. EPP135 & above with electronic governor

Alternator

- 4-pole, brushless, self exciting, self regulating
- Drip proof, IP21 protection, class H insulation
- Industrial standard, single bearing type
- Self ventilated, screen protected
- Voltage regulation ±1% at any fixed load

Scope of Supply

- Heavy duty steel channel base frame
- Vibration-damping supports between engine/alternator & base frame
- High capacity lead-acid starting batteries
- Heavy duty industrial type silencer & stainless steel flexible exhaust bellow
- Manual start set mounted control panel c/w voltmeter, ammeter, frequency/rpm meter, hour run counter, lube oil pressure gauge, water temperature gauge & safety shutdown protections for low oil pressure, high water temperature & engine overspeed

Optional Supply

- Weatherproof / Soundproof / Super soundproof enclosure
- Mobile trailer
- Remote radiator cooling
- Engine / alternator heaters
- Auto load sharing & synchronising panel
- Auto Start / Auto Mains Failure (AMF) / ATS control panel, circuit breaker

EuroPower Diesel Generator Sets powered by Perkins

1500rpm, 50Hz, 380 - 415V

Genset Model	Prime kW	Prime kVA	Standby kW	Standby kVA	Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption L (mm)	W (mm)	H (mm)	kg	l/h
EPP9	7	9	8	10	403C-11G	1200	700	1100	300	2.0
EPP13	10	13	12	15	403C-15G	1300	700	1100	400	2.8
EPP20	16	20	18	23	404C-22G	1300	700	1200	500	4.0
EPP27	22	27	24	30	3.1524	1800	710	1250	700	5.0
EPP45	36	45	40	50	1004G	2000	750	1250	950	8.3
EPP65	52	65	57	72	1004TG1	2000	750	1350	980	10.9
EPP75	60	75	66	83	1004TG2	2000	750	1350	1000	13.3
EPP90	72	90	80	100	1006TG1A	2400	750	1450	1300	15.7
EPP100	80	100	88	110	1006TG2A	2400	750	1450	1350	17.2
EPP135	108	135	120	150	1006TAG	2400	750	1450	1800	24.0
EPP150	120	150	132	165	1306-E87TG1	2850	950	1700	2200	26.0
EPP175	140	175	154	192	1306-E87TAG1	2850	950	1700	2350	29.5
EPP200	160	200	176	220	1306-E87TAG3	2850	950	1700	2400	32.0
EPP225	180	225	198	248	1306-E87TAG4	2850	950	1700	2400	35.0
EPP235	188	235	207	259	1306-E87TAG5	2850	950	1700	2400	36.6
EPP250	200	250	220	275	1306-E87TAG6	2850	950	1700	2450	40.0
EPP300	240	300	264	330	2306C-E14TAG1	3400	1380	1730	3300	46.9
EPP350	280	350	308	385	2306C-E14TAG2	3400	1380	1730	3500	54.3
EPP400	320	400	352	440	2306C-E14TAG3	3400	1380	1730	3600	65.4
EPP450	360	450	396	495	2806C-E16TAG1	3400	1380	2000	4000	74.0
EPP500	400	500	440	550	2806C-E16TAG2	3400	1380	2000	4200	81.0
EPP650	520	650	580	725	4006C-23TAG1A	3500	1400	2100	5000	103.0
EPP730	584	730	640	800	4006C-23TAG2A	3500	1400	2100	5200	116.0
EPP800	640	800	720	900	4006C-23TAG3A	3500	1400	2100	5400	127.0
EPP900	720	900	792	990	4008TAG1	5000	2100	2220	7100	150.0
EPP1000	800	1000	880	1100	4008TAG2	5100	2100	2220	7300	166.0
EPP1270	1016	1270	1120	1400	4012TAG/TWG2	5300	2150	2250	9400	200.0
EPP1350	1080	1350	1200	1500	4012TAG1	5300	2150	2250	9500	217.0
EPP1500	1200	1500	1320	1650	4012TAG2	5300	2150	2250	9700	237.0
EPP1750	1400	1750	1540	1925	4016TAG	6700	2750	3500	13200	277.0
EPP1845	1476	1845	1622	2028	4016TAG1	6700	2800	3500	13300	290.0
EPP2000	1600	2000	1760	2200	4016TAG2	6700	2800	3500	13800	329.0

1800rpm, 60Hz, 220 - 480V*

EPP9	9	11	10	13	403C-11G	1200	700	1100	300	2.4
EPP13	13	16	14	18	403C-15G	1300	700	1100	400	3.3
EPP20	19	24	20	25	404C-22G	1300	700	1200	500	4.8
EPP27	24	30	27	34	3.1524	1750	710	1250	700	6.2
EPP45	40	50	45	56	1004G	2000	750	1250	950	9.5
EPP65	57	71	62	77	1004TG1	2000	750	1350	980	13.2
EPP75	71	88	78	97	1004TG2	2000	750	1350	1000	15.7
EPP90	87	109	96	120	1006TG1A	2400	750	1450	1300	19.8
EPP100	97	121	106	133	1006TG2A	2400	750	1450	1350	21.5
EPP135	120	150	132	165	1006TAG	2400	750	1450	1800	26.0
EPP150	139	174	154	192	1306-E87TG1	2850	950	1700	2200	30.5
EPP175	151	189	166	207	1306-E87TAG1	2850	950	1700	2300	33.6
EPP190	164	205	178	223	1306-E87TAG2	2850	950	1700	2350	36.9
EPP200	185	231	200	250	1306-E87TAG3	2850	950	1700	2400	38.4
EPP225	196	245	216	270	1306-E87TAG4	2850	950	1700	2400	42.6
EPP300	275	344	300	375	2306C-E14TAG1	3400	1380	1730	3300	58.0
EPP350	320	400	350	438	2306C-E14TAG2	3400	1380	1730	3500	63.3
EPP400	350	438	400	500	2306C-E14TAG3	3400	1380	1730	3600	75.9
EPP450	460	575	500	625	2806C-E16TAG1	3400	1380	2100	4000	89.0
EPP500	500	625	560	700	2806C-E16TAG2	3400	1380	2150	4200	96.0
EPP650	540	675	600	750	4006C-23TAG1A	3500	1400	2100	5000	116.0
EPP730	600	750	675	844	4006C-23TAG2A	3500	1400	2100	5200	120.0
EPP800	675	844	750	938	4006C-23TAG3A	3500	1400	2100	5400	143.0
EPP900	704	880	788	975	4008TAG1	5000	2100	2220	7100	140.0
EPP1000	796	995	878	1098	4008TAG2	5100	2100	2220	7300	154.5
EPP1270	992	1240	1100	1375	4012TWG2	5300	2150	2250	9400	201.0
EPP1350	1090	1363	1200	1500	4012TAG1	5300	2150	2250	9500	221.0
EPP1500	1200	1500	1325	1656	4012TAG2	5300	2150	2250	9700	249.0

Ratings based on ISO3046, BS5514, DIN 6271, ± 5% tolerance. Standard reference conditions: air inlet temperature 27°C, altitude 100m asl, fuel weight 0.85kg/l, fuel consumption @75% prime load. **Prime rating:** Continuous running at variable load. No limit to the annual hours of operation. 10% overload capability for 1 hour in any 12 hours. **Standby rating:** Emergency power at variable load in the event of utility power failure. No overload is permitted. *Deration may be necessary at certain voltages.

Due to continually improved products, we reserve the right to make changes in model, technical specs, colour, etc without prior notice.

EuroPower Diesel Generator Sets powered by John Deere

1500rpm, 50Hz, 380 - 415V

Genset Model	Prime		Standby		Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption				
	kW	kVA	kW	kVA		L (mm)	W (mm)	H (mm)	kg	l/h
EPJ25	20	25	22	28	3029TF158	1600	800	1300	650	4.0
EPJ40	32	40	35	44	3029TF158	1600	800	1300	800	6.0
EPJ60	48	60	53	66	4039TF008	2300	1000	1300	900	11.0
EPJ80	64	80	70	88	4045TF258	2300	1000	1300	1000	14.5
EPJ100	80	100	88	110	6068TF158	2300	1000	1500	1200	17.0
EPJ120	96	120	106	132	6068TF258	2300	1000	1500	1300	20.0
EPJ150	120	150	132	165	6068HF158	2600	1000	1500	1450	25.5
EPJ180	144	180	160	200	6068HF258	2600	1000	1500	1500	30.0
EPJ200	160	200	176	220	6081HF001A	3000	1300	1600	1600	33.0
EPJ250	200	250	220	275	6081HF001B	3000	1300	1600	1850	41.0
EPJ300	240	300	264	330	6125HF070A	3000	1300	1700	2400	47.0
EPJ350	280	350	308	385	6125HF070B	3000	1300	1700	2500	55.0
EPJ380	304	380	336	420	6125HF070C	3000	1300	1700	2600	60.0

1800rpm, 60Hz, 220 - 480V*

Genset Model	Prime		Standby		Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption				
	kW	kVA	kW	kVA		L (mm)	W (mm)	H (mm)	kg	l/h
EPJ25	28	35	30	38	3029TF158	1600	800	1300	650	5.0
EPJ40	36	45	40	50	3029TF158	1600	800	1300	800	7.2
EPJ60	60	75	65	82	4039TF008	2300	1000	1300	900	13.6
EPJ80	72	90	80	100	4045TF258	2300	1000	1300	1000	15.8
EPJ100	96	120	105	131	6068TF158	2300	1000	1500	1200	23.6
EPJ120	110	138	125	156	6068TF258	2300	1000	1500	1300	24.0
EPJ150	150	188	165	206	6068HF158	2600	1000	1500	1450	26.3
EPJ180	160	200	180	225	6068HF258	2600	1000	1500	1500	30.0
EPJ200	190	238	220	275	6081HF001A	3000	1300	1600	1600	33.0
EPJ250	228	285	250	313	6081HF001B	3000	1300	1600	1850	39.2
EPJ300	260	325	285	356	6125HF070A	3000	1300	1700	2400	56.0
EPJ350	285	356	315	394	6125HF070B	3000	1300	1700	2500	61.5
EPJ380	320	400	360	450	6125HF070C	3000	1300	1700	2600	72.5
EPJ400	320	400	400	500	6125HF070C	3000	1300	1700	2700	72.5

Ratings based on ISO3046, BS5514, DIN 6271, ± 5% tolerance. Standard reference conditions: air inlet temperature 27°C, altitude 100m asl, fuel weight 0.85kg/l, fuel consumption @75% prime load. **Prime rating:** Continuous running at variable load. No limit to the annual hours of operation. 10% overload capability for 1 hour in any 12 hours. **Standby rating:** Emergency power at variable load in the event of utility power failure. No overload is permitted. *Deration may be necessary at certain voltages.

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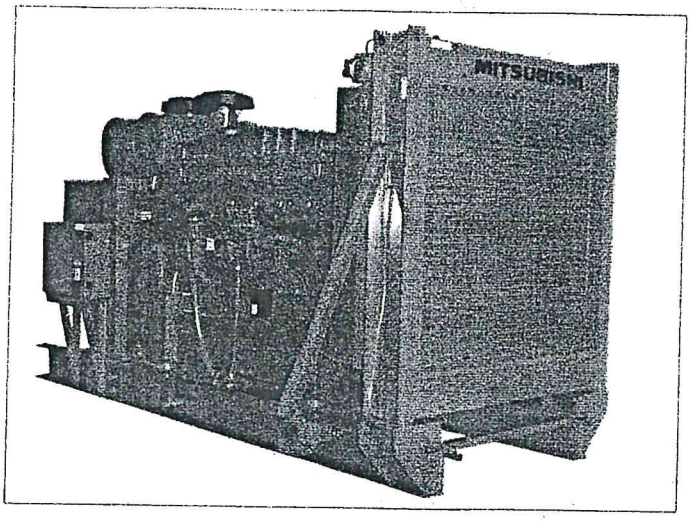
EuroPower Diesel Generator Sets powered by Mitsubishi



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All our equipment are warranted against manufacturing defects for a period of 12 months or 1500 operating hours from date of initial start-up, or 18 months from date of shipment, whichever is earlier.

Mitsubishi Engine

- Advance design, low maintenance, durable
- Direct fuel injection pump
- High power to weight ratio
- Multi-cylinder in-line 4, 6 up to vee 12, 16
- Naturally aspirated or turbocharged
- 12/24V electrical system. Mechanical/hydraulic/electronic governor

Alternator

- 4-pole, brushless, self exciting, self regulating
- Drip proof, IP21 protection, class H insulation
- Industrial standard, single bearing type
- Self ventilated, screen protected
- Voltage regulation ±1% at any fixed load

Scope of Supply

- Heavy duty steel channel base frame
- Vibration-damping supports between engine/alternator & base frame
- High capacity lead-acid starting batteries
- Heavy duty industrial type silencer & stainless steel flexible exhaust bellow
- Manual start set mounted control panel c/w voltmeter, ammeter, frequency/rpm meter, hour run counter, lube oil pressure gauge, water temperature gauge & safety shutdown protections for low oil pressure, high water temperature & engine overspeed

Optional Supply

- Weatherproof / Soundproof / Super soundproof enclosure
- Mobile trailer
- Remote radiator cooling
- Engine / alternator heaters
- Auto load sharing & synchronising panel
- Auto Start / Auto Mains Failure (AMF) / ATS control panel, circuit breaker

Your local EuroPower genset distributor

EuroPower Diesel Generator Sets powered by Mitsubishi

1500rpm, 50Hz, 380 - 415V

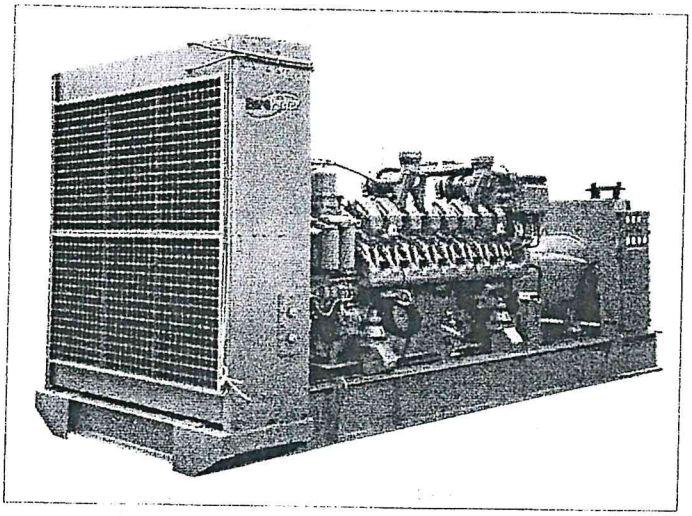
Genset Model	Prime		Standby		Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption				
	kW	kVA	kW	kVA		L (mm)	W (mm)	H (mm)	kg	l/h
EPMIT20	16	20	18	22	S4Q2	1480	650	860	400	4.3
EPMIT40	32	40	34	43	S4S-T	1650	720	1100	650	7.0
EPMIT50	40	50	44	55	S4K-T	1800	820	1120	800	10.3
EPMIT70	56	70	62	77	S6K-T	2060	820	1170	1100	12.5
EPMIT85	68	85	75	94	S6K-T	2060	820	1170	1100	15.3
EPMIT118	94	118	100	125	6D16-T	2360	820	1300	1400	22.0
EPMIT200	160	200	–	–	6D22-TC	2780	1090	1400	2150	35.0
EPMIT250	200	250	220	275	S6B-PTA	2780	1180	1560	2500	44.0
EPMIT300	240	300	252	315	S6B-PTA2	2900	1180	1560	2600	50.0
EPMIT375	300	375	330	413	S6B3-PTA	3000	1400	1700	2900	61.0
EPMIT450	360	450	400	500	S6A3-PTA	3000	1480	1900	3700	74.0
EPMIT500	400	500	440	550	S6A3-PTAA	3300	1600	1900	4000	82.0
EPMIT600	480	600	525	656	S6R-PTA	3500	1600	2000	5400	94.0
EPMIT650	520	650	600	750	S6R2-PTA	3800	1600	2000	5500	104.0
EPMIT750	600	750	660	825	S6R2-PTAA	4000	1800	2000	5700	123.0
EPMIT750	600	750	680	850	S12A2-PTA	4000	1800	2000	6500	119.0
EPMIT1000	800	1000	840	1050	S12H-PTA	4300	1800	2450	8100	168.0
EPMIT1275	1020	1275	1120	1400	S12R-PTA	4700	2300	2450	10900	202.0
EPMIT1375	1100	1375	1224	1530	S12R-PTA2	4950	2300	2900	11000	224.0
EPMIT1500	1200	1500	1320	1650	S12R-PTAA2	5100	2300	3050	13000	240.0
EPMIT1735	1388	1735	1520	1900	S16R-PTA	5550	2750	3050	13300	270.0
EPMIT1900	1520	1900	1680	2100	S16R-PTA2	5650	2750	3050	14000	301.0
EPMIT2000	1600	2000	1800	2250	S16R-PTAA2	6000	2750	3500	16000	321.0

1800rpm, 60Hz, 220 - 480V*

Genset Model	Prime		Standby		Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption				
	kW	kVA	kW	kVA		L (mm)	W (mm)	H (mm)	kg	l/h
EPMIT20	20	25	22	28	S4Q2	1480	650	860	400	5.3
EPMIT40	37	46	40	50	S4S-T	1650	720	1100	650	8.3
EPMIT50	50	63	55	69	S4K-T	1800	820	1120	800	11.5
EPMIT85	78	98	85	106	S6K-T	2060	820	1170	1100	17.5
EPMIT118	110	138	120	150	6D16-T	2400	820	1300	1400	26.0
EPMIT180	170	213	184	230	6D22-T	2780	1090	1400	2100	40.0
EPMIT200	185	231	200	250	6D22-TC	2780	1090	1400	2150	43.0
EPMIT250	240	300	265	331	S6B-PTA	2780	1180	1560	2500	50.0
EPMIT300	275	344	300	375	S6B-PTA2	2900	1180	1560	2600	57.0
EPMIT375	336	420	372	465	S6B3-PTA	3000	1400	1700	2900	69.0
EPMIT450	400	500	460	575	S6A3-PTA	3000	1480	1900	3700	81.0
EPMIT500	428	535	480	600	S6A3-PTAA	3300	1600	1900	3800	91.0
EPMIT600	545	681	600	750	S6R-PTA	3500	1600	2000	5400	112.0
EPMIT750	672	840	700	875	S12A2-PTA	4050	1750	2000	6300	137.0
EPMIT800	700	875	800	1000	S12A2-PTA	4050	1750	2050	6500	143.0
EPMIT1000	896	1120	920	1150	S12H-PTA	4300	1800	2500	8000	181.5
EPMIT1100	932	1165	1000	1250	S12H-PTA	4300	1800	2500	8100	189.0
EPMIT1275	1100	1357	1200	1500	S12R-PTA	4700	2250	2500	11000	227.0
EPMIT1375	1236	1545	1380	1725	S12R-PTA2	5000	2250	2900	11000	252.0
EPMIT1500	1304	1630	1500	1875	S12R-PTAA2	5100	2250	3060	13000	276.0
EPMIT1735	1476	1845	1625	2031	S16R-PTA	5600	2750	3050	13500	295.0
EPMIT1900	1660	2075	1800	2250	S16R-PTA2	5650	2750	3050	14000	329.0
EPMIT2000	1800	2250	2000	2500	S16R-PTAA2	6000	2750	3500	16000	365.0

Ratings based on ISO3046, BS5514, DIN 6271, ± 5% tolerance. Standard reference conditions: air inlet temperature 27°C, altitude 100m asl, fuel weight 0.85kg/l, fuel consumption @75% prime load. **Prime rating:** Continuous running at variable load. No limit to the annual hours of operation. 10% overload capability for 1 hour in any 12 hours. **Standby rating:** Emergency power at variable load in the event of utility power failure. No overload is permitted. *Deration may be necessary at certain voltages.

EuroPower Diesel Generator Sets powered by MTU



EuroPower generator sets offer a wide range of continuous & emergency power suitable for residential, commercial & industrial applications. Our standard genset includes set mounted heavy duty tropicalised radiator c/w protection guards to cool the engine up to 52°C air-on temperature.

All our equipment are warranted against manufacturing defects for a period of 12 months or 1500 operating hours from date of initial start-up, or 18 months from date of shipment, whichever is earlier.

MTU Engine

- Advance technology, environment friendly
- Heavy duty, 4-stroke, water cooled
- Naturally aspirated or turbocharged
- Multi-cylinder in-line 6 up to vee 20
- 183 series with mechanical governor. 2000 & 4000 series with electronic governor
- 24V electrical system. 4000 series with remote radiator

Alternator

- 4-pole, brushless, self exciting, self regulating
- Drip proof, IP21 protection, class H insulation
- Industrial standard, single bearing type
- Self ventilated, screen protected
- Voltage regulation ±1% at any fixed load

Scope of Supply

- Heavy duty steel channel base frame
- Vibration-damping supports between engine/alternator & base frame
- High capacity lead-acid starting batteries
- Heavy duty industrial type silencer & stainless steel flexible exhaust bellow
- Manual start set mounted control panel c/w voltmeter, ammeter, frequency/rpm meter, hour run counter, lube oil pressure gauge, water temperature gauge & safety shutdown protections for low oil pressure, high water temperature & engine overspeed

Optional Supply

- Weatherproof / Soundproof / Super soundproof enclosure
- Mobile trailer
- Remote radiator cooling
- Engine / alternator heaters
- Auto load sharing & synchronising panel
- Auto Start / Auto Mains Failure (AMF) / ATS control panel, circuit breaker

Your local EuroPower genset distributor

EuroPower Diesel Generator Sets powered by MTU

1500rpm, 50Hz, 380 - 415V

Genset Model	Prime		Standby		Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption				
	kW	kVA	kW	kVA		L (mm)	W (mm)	H (mm)	kg	l/h
EPMTU140	112	140	123	154	6R183AA32	2600	1000	1470	1950	24.0
EPMTU200	160	200	176	220	6R183TA32	2600	1000	1470	2170	32.9
EPMTU250	200	250	220	275	8V183TA32	3000	1300	1500	2470	43.0
EPMTU285	228	285	252	315	8V183TE32	3000	1300	1600	2700	45.2
EPMTU400	320	400	352	440	12V183TA32	3300	1500	1650	3200	65.4
EPMTU450	360	450	400	500	12V183TE32	3300	1500	1650	3400	71.0
EPMTU500	400	500	440	550	12V183TB32	3700	1600	1750	3600	77.8
EPMTU550	440	550	480	600	12V183TB32L	3700	1600	1750	4300	87.0
EPMTU600	480	600	528	660	12V2000G22	4050	1600	1950	4400	90.0
EPMTU650	520	650	576	720	12V2000G22	4050	1600	1950	4800	97.0
EPMTU720	576	720	628	785	12V2000G62	4050	1600	1950	4900	107.5
EPMTU830	664	830	740	925	16V2000G22	4400	1800	2300	5000	128.0
EPMTU925	740	925	824	1030	16V2000G62	4400	1800	2300	5800	137.0
EPMTU1000	800	1000	880	1100	18V2000G62	5000	2000	2400	6000	154.8
EPMTU1400	1120	1400	1232	1540	12V4000G20	5800	2100	2450	8000	214.0
EPMTU1540	1232	1540	1360	1700	12V4000G60	6000	2200	2450	10700	230.0
EPMTU1850	1480	1850	1600	2000	16V4000G20	6000	2200	2750	11300	281.0
EPMTU2000	1600	2000	1760	2200	16V4000G60	6050	2200	2750	15500	298.0
EPMTU2500	2000	2500	2200	2750	20V4000G22	8500	3400	2850	19500	380.0
EPMTU2800	2240	2800	2464	3080	20V4000G62	8500	3500	2850	19800	415.3

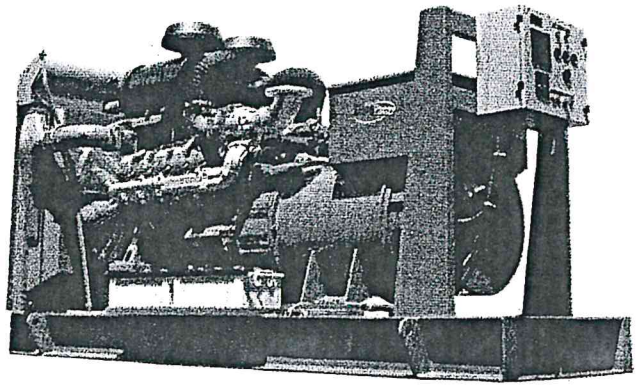
1800rpm, 60Hz, 220 - 480V*

Genset Model	Prime		Standby		Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption				
	kW	kVA	kW	kVA		L (mm)	W (mm)	H (mm)	kg	l/h
EPMTU140	135	169	140	175	6R183AA32	2600	1000	1470	1950	29.2
EPMTU200	175	219	190	238	6R183TA32	2600	1000	1470	2170	30.8
EPMTU250	215	269	240	300	8V183TA32	3000	1300	1500	2470	37.8
EPMTU285	250	313	280	350	8V183TE32	3000	1300	1500	2500	54.1
EPMTU400	335	419	375	469	12V183TA32	3300	1500	1650	3200	71.5
EPMTU450	400	500	450	563	12V183TE32	3300	1500	1650	3400	77.0
EPMTU500	470	588	520	650	12V183TB32	3700	1600	1750	3600	93.0
EPMTU550	–	–	530	663	12V183TB32L	3700	1600	1750	4300	95.0
EPMTU650	–	–	670	838	12V2000G42	4050	1600	1950	4400	120.0
EPMTU720	630	788	760	950	12V2000G82	4050	1600	1950	4900	122.0
EPMTU830	–	–	920	1150	16V2000G42	4400	1800	2300	5000	160.0
EPMTU925	850	1063	1020	1275	16V2000G82	4400	1800	2300	5800	163.2
EPMTU1000	950	1188	1140	1425	18V2000G82	5000	2000	2400	6000	183.0
EPMTU1400	–	–	1400	1750	12V4000G40	5800	2100	2450	8000	238.0
EPMTU1540	1400	1750	1500	1875	12V4000G80	6000	2200	2450	10700	262.0
EPMTU1850	–	–	1850	2313	16V4000G40	6000	2200	2750	11300	310.5
EPMTU2000	1850	2313	2000	2500	16V4000G80	6000	2200	2750	15500	342.0
EPMTU2500	2300	2875	2500	3125	20V4000G42	8500	3400	2850	19500	423.4
EPMTU2800	2500	3125	2800	3500	20V4000G82	8500	3500	2850	19800	495.0

Ratings based on ISO3046, BS5514, DIN 6271, ± 5% tolerance. Standard reference conditions: air inlet temperature 27°C, altitude 100m asl, fuel weight 0.85kg/l, fuel consumption @75% prime load. **Prime rating:** Continuous running at variable load. No limit to the annual hours of operation. 10% overload capability for 1 hour in any 12 hours. **Standby rating:** Emergency power at variable load in the event of utility power failure. No overload is permitted. *Deration may be necessary at certain voltages.

Due to continually improved products, we reserve the right to make changes in model, technical specs, colour, etc without prior notice

EuroPower Diesel Generator Sets powered by MAN



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All our equipment are warranted against manufacturing defects for a period of 12 months or 1500 operating hours from date of initial start-up, or 18 months from date of shipment, whichever is earlier.

MAN Engine

- Environment friendly, low pollutant emission
- Compact & robust design, durable
- Water cooled, 4-stroke with either 6 in-line, V8, V10 or V12
- Direct fuel injection, turbocharging & intercooling
- Maintenance free Bosch in-line injection pump
- 24V electrical system with electronic governor

Alternator

- 4-pole, brushless, self exciting, self regulating
- Drip proof, IP21 protection, class H insulation
- Industrial standard, single bearing type
- Self ventilated, screen protected
- Voltage regulation ±1% at any fixed load

Scope of Supply

- Heavy duty steel channel base frame
- Vibration-damping supports between engine/alternator & base frame
- High capacity lead-acid starting batteries
- Heavy duty industrial type silencer & stainless steel flexible exhaust bellow
- Manual start set mounted control panel c/w voltmeter, ammeter, frequency/rpm meter, hour run counter, lube oil pressure gauge, water temperature gauge & safety shutdown protections for low oil pressure, high water temperature & engine overspeed

Optional Supply

- Weatherproof / Soundproof / Super soundproof enclosure
- Mobile trailer
- Remote radiator cooling
- Engine / alternator heaters
- Auto load sharing & synchronising panel
- Auto Start / Auto Mains Failure (AMF) / ATS control panel, circuit breaker

Your local EuroPower genset distributor

EuroPower Diesel Generator Sets powered by MAN

1500rpm, 50Hz, 380 - 415V

Genset Model	Prime		Standby		Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption				
	kW	kVA	kW	kVA		L (mm)	W (mm)	H (mm)	kg	l/h
EPMAN170	136	170	150	188	D0826LE201	3000	1200	1800	2300	28.0
EPMAN250	200	250	220	275	D2866LE201	3200	1200	1900	2400	42.0
EPMAN300	240	300	275	344	D2866LE201	3200	1200	1900	2500	52.0
EPMAN400E	–	–	320	400	D2866LE203	3500	1200	1900	2700	62.0
EPMAN400	320	400	352	440	D2876LE201	3500	1420	1900	3000	72.0
EPMAN500E	–	–	400	500	D2876LE203	3500	1420	1900	3000	83.0
EPMAN400	320	400	352	440	D2848LE201	3500	1420	1900	3500	72.0
EPMAN500E	–	–	400	500	D2848LE203	3500	1420	1900	3500	83.0
EPMAN500	400	500	440	550	D2840LE201	3500	1440	1950	4000	84.0
EPMAN625E	–	–	500	625	D2840LE203	3500	1440	1950	4000	97.0
EPMAN635	508	635	560	700	D2842LE201	3800	1620	2130	4500	104.0
EPMAN725E	–	–	580	725	D2842LE203	3800	1620	2130	4500	110.5

1800rpm, 60Hz, 220 - 480V*

Genset Model	Prime		Standby		Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption				
	kW	kVA	kW	kVA		L (mm)	W (mm)	H (mm)	kg	l/h
EPMAN170	152	190	168	210	D0826LE201	3000	1200	1800	2300	35.0
EPMAN250	232	290	250	313	D2866LE201	3200	1200	1900	2400	54.0
EPMAN300	288	360	315	394	D2866LE201	3200	1200	1900	2500	60.0
EPMAN400E	–	–	360	450	D2866LE203	3500	1200	1900	2500	62.0
EPMAN400	360	450	400	500	D2876LE201	3500	1420	1900	3000	77.5
EPMAN500E	–	–	450	563	D2876LE203	3500	1420	1900	3000	90.0
EPMAN400	370	463	400	500	D2848LE201	3500	1420	1900	3500	80.0
EPMAN500E	–	–	450	563	D2848LE203	3500	1420	1900	3500	88.0
EPMAN500	471	589	520	650	D2840LE201	3500	1440	1950	4000	95.0
EPMAN625E	–	–	520	650	D2840LE203	3500	1440	1950	4000	98.0
EPMAN635	572	715	630	787	D2842LE201	3800	1620	2130	4500	122.0
EPMAN725E	–	–	650	813	D2842LE203	3800	1620	2130	4500	128.0

Ratings based on ISO3046, BS5514, DIN 6271, ± 5% tolerance. Standard reference conditions: air inlet temperature 27°C, altitude 100m asl, fuel weight 0.85kg/l, fuel consumption @75% prime load. **Prime rating:** Continuous running at variable load. No limit to the annual hours of operation. 10% overload capability for 1 hour in any 12 hours. **Standby rating:** Emergency power at variable load in the event of utility power failure. No overload is permitted. *Deration may be necessary at certain voltages.

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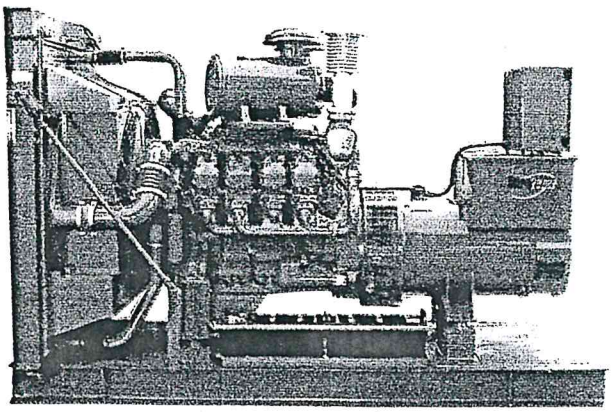
EuroPower Diesel Generator Sets powered by Deutz



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Deutz Engine

- Powerful, compact, high power to weight radio
- Water cooled or air cooled (models in *italic*)
- Advance fuel injection & combustion system
- Multi-cylinder in-line or vee engine
- TBD series come with remote radiators
- 1015 series & above are 24V electrical system with electronic governor

Alternator

- 4-pole, brushless, self exciting, self regulating
- Drip proof, IP21 protection, class H insulation
- Industrial standard, single bearing type
- Self ventilated, screen protected
- Voltage regulation ±1% at any fixed load

Scope of Supply

- Heavy duty steel channel base frame
- Vibration-damping supports between engine/alternator & base frame
- High capacity lead-acid starting batteries
- Heavy duty industrial type silencer & stainless steel flexible exhaust bellow
- Manual start set mounted control panel c/w voltmeter, ammeter, frequency/rpm meter, hour run counter, lube oil pressure gauge, water temperature gauge & safety shutdown protections for low oil pressure, high water temperature & engine overspeed

Optional Supply

- Weatherproof / Soundproof / Super soundproof enclosure
- Mobile trailer
- Remote radiator cooling
- Engine / alternator heaters
- Auto load sharing & synchronising panel
- Auto Start / Auto Mains Failure (AMF) / ATS control panel, circuit breaker

Your local EuroPower genset distributor

EuroPower Diesel Generator Sets powered by Deutz

DEUTZ

1500rpm, 50Hz, 380 - 415V

Genset Model	Prime		Standby		Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption				
	kW	kVA	kW	kVA		L (mm)	W (mm)	H (mm)	kg	l/h
EPDA24	19	24	20	25	*F2L1011F/3000rpm*	1400	800	1200	600	4.5
EPDA18	14	18	15	19	*F3L1011F*	1400	800	1200	600	4.0
EPDA25	20	25	22	27	*F4L1011F*	1400	800	1200	700	5.0
EPDA30	24	30	26	33	*BF4L1011F*	1400	800	1200	700	6.0
EPDA30	24	30	25	31	*F3L912*	1600	850	1200	700	5.0
EPDA40	32	40	34	42	*F4L912*	1800	850	1200	800	7.0
EPDA60	48	60	52	65	*F6L912*	2300	850	1200	900	10.5
EPDA100	80	100	88	110	*BF6L913*	2300	850	1400	1000	18.0
EPDA135	108	135	116	145	*BF6L913C*	2600	1000	1500	1100	23.0
EPD60	48	60	50	62	BF4M1012E	2300	850	1200	900	10.5
EPD75	60	75	62	78	BF4M1012EC	2300	850	1300	1000	12.5
EPD90	72	90	77	96	BF4M1013E	2300	850	1500	1150	15.5
EPD100	80	100	88	110	BF4M1013EC	2300	850	1500	1250	18.0
EPD135	108	135	116	145	BF6M1013E	2600	1100	1600	1500	23.0
EPD165	132	165	138	173	BF6M1013EC	2600	1100	1600	1650	26.0
EPD230	184	230	200	250	BF6M1015	3000	1400	2000	2150	42.0
EPD313	250	313	276	345	BF6M1015C	3000	1400	2000	2300	51.5
EPD380	304	380	330	412	BF6M1015CP	3000	1400	2000	2300	60.0
EPD450	360	450	380	475	BF8M1015C	3500	1400	2000	2600	70.0
EPD500	400	500	440	550	BF8M1015CP	3500	1400	2000	2700	80.0
EPD800	640	800	684	855	TBD616V12	5000	1900	2400	5800	120.0
EPD1000	800	1000	880	1100	TBD616V16	5000	1950	2500	7000	150.0
EPD1600	1280	1600	1360	1700	TBD620V12	6000	2100	2600	10000	230.0
EPD2000	1600	2000	1760	2200	TBD620V16	6800	2800	2600	14000	293.0
EPD2150	1720	2150	1812	2265	TBD620V16	6800	2850	2600	14600	315.5

1800rpm, 60Hz, 220 - 480V*

Genset Model	Prime		Standby		Engine Model	Approx. Dimensions, Dry Weight & Fuel Consumption				
	kW	kVA	kW	kVA		L (mm)	W (mm)	H (mm)	kg	l/h
EPDA18	18	23	20	25	*F3L1011F*	1400	800	1200	700	5.0
EPDA25	26	33	29	36	*F4L1011F*	1400	800	1200	700	6.0
EPDA30	34	43	36	45	*BF4L1011F*	1400	800	1200	700	7.5
EPDA30	28	35	30	38	*F3L912*	1600	850	1200	700	6.5
EPDA40	38	48	40	50	*F4L912*	1800	850	1200	800	8.5
EPDA60	58	73	60	75	*F6L912*	2300	850	1200	900	13.0
EPDA100	100	125	108	135	*BF6L913*	2300	850	1400	1000	22.0
EPDA135	134	168	140	175	*BF6L913C*	2600	850	1500	1000	27.0
EPD60	48	60	50	63	BF4M1012E	2300	850	1200	900	11.0
EPD75	60	75	65	81	BF4M1012EC	2300	850	1300	1000	13.5
EPD90	75	94	80	100	BF4M1013E	2300	850	1500	1150	17.0
EPD100	92	115	96	120	BF4M1013EC	2300	850	1500	1250	20.0
EPD135	116	145	125	156	BF6M1013E	2600	1100	1600	1500	25.0
EPD165	138	173	145	181	BF6M1013EC	2600	1100	1600	1650	30.0
EPD230	200	250	225	281	BF6M1015	3000	1400	2000	2150	48.0
EPD313	280	350	300	375	BF6M1015C	3000	1400	2000	2300	59.0
EPD380	315	394	345	431	BF6M1015CP	3000	1400	2000	2300	67.0
EPD450	372	465	400	500	BF8M1015C	3500	1400	2000	2600	78.0
EPD500	430	538	468	585	BF8M1015CP	3500	1400	2000	2700	88.0
EPD800	692	865	760	950	TBD616V12	5000	1900	2400	5800	138.0
EPD1000	922	1153	1000	1250	TBD616V16	5000	1950	2500	7000	170.0
EPD1600	1390	1738	1480	1850	TBD620V12	6000	2100	2600	10000	260.0
EPD2150	1888	2360	2000	2500	TBD620V16	6800	2850	2600	14600	354.0

Ratings based on ISO3046, BS5514, DIN 6271, ± 5% tolerance. Standard reference conditions: air inlet temperature 27°C, altitude 100m asl, fuel weight 0.85kg/l, fuel consumption @75% prime load. **Prime rating:** Continuous running at variable load. No limit to the annual hours of operation. 10% overload capability for 1 hour in any 12 hours. **Standby rating:** Emergency power at variable load in the event of utility power failure. No overload is permitted. *Deration may be necessary at certain voltages.

Due to continually improved products, we reserve the right to make changes in model, technical

ANNEX 6

MAINTENANCE AND CONTINGENCY PLAN FOR THE PUMPING SYSTEM

Maintenance and Contingency Plan for Proposed Pump System -
Planning Application –
Temporary Vehicle Park (Medium and Heavy Goods Vehicle) and Open Storage (Operational Tools and Materials) Use for 3 years and Filling of Land at
Sub-Section 1 of Section B of Lot No.82 (Part) in DD108, Fan Kam Road, Pat Heung, New Territories (the "Premises") (Rev.1)

Responsibilities and Duties

The applicant/ Land owner should be responsible for the maintenance of the storm drainage system associated with the sump pump system not only within site but also the pipework, U-channels, stepped channels and catch pits outside site boundary.

For Maintenance Plan

The maintenance and operation of the storm drainage system associated with the proposed pump system is as follows.

Responsibilities and Duties	Frequency
Check whether there debris/ obstruction of all surface channels/ U- channels, catch pits and sand traps (including the U-channels, stepped channels and catch pits outside site boundary) . Clear the debris/ obstruction immediately to avoid blockage of the drainage system.	Once every 2 weeks
Check the satisfactory operation of sump pumps.	Once every 2 weeks
Check electric motors, pump bearings, belt drive tension, gearbox, lubricant, control and sensor equipment, flow measurement devices	Once every 2 weeks
Test run the system	Once every 2 weeks
Maintain and empty sump pit	Before and after each heavy rainfall

Please refer to Maintenance Instruction for Storm Water Sump Pump in **Appendix A**.

For Contingency Plan

The provisions stated in the STORMWATER DRAINAGE MANUAL will be followed. These provisions include:

- Adequate power supply: Sufficient power should be available to operate the control system and all the pumps.
- An emergency power generator must be installed within the station compound to automatically provide backup electricity during power failures. The generator should be designed to supply enough power for the operation of the control system and pumps.
- A spare manual pump must be installed within the station compound in case the electric power system is malfunction.

For Noise abatement measures, Measures to minimize disturbance to nearby residents and the operation and maintenance (O&M) personnel should be implemented before commencement of works.

Template of the O&M Manual of Storm Drain System is shown in **Appendix B**.

For Equipment Catalogue, please refer to **Appendix C**.

1.0 Routine Operation

Once the submersible storm drain system has been set up for service, it is advisable to carry out periodic physical checks on the system equipment to ensure availability and serviceability:-

1.1 Visual inspection of sump pit

- Clean the inlet pipe and pump discharge pipe in good condition
- Remove all debris from the bottom of the pit
- Remove all debris floating in the water
- Remove all debris from the float switch
- Fill the pit with water. Make sure pump turns on at the intended level
- Make sure the tether float switch is moving freely
- While the pump is running, make sure pump is evacuating water at a good pace

1.1.1 Pump control panel

1.1.2 Lamp Test

- Operate the “Lamp Test” switch. All lamps should light
- Identify any failed lamp replace as necessary

1.2.2 Functional Check (using by Manual Mode)

Turn the “Auto/Off/Manuel” selector switch on the control panel to Manual position for testing

1.2.3 Test the Manual “On “function by press the “start” button

1.2.4 Test the Manual “Off” function by press “stop” button

1.2.5 Test the “Emergency stop” function by press the “E-stop” button

When the duty pump is functioning correctly, proceed to testing the standby pump using the same above procedures.

Storm Water Sump and Pump System

Log Sheet: Record of Storm water sump pump system

Frequency: Weekly / Monthly

Item	Task	Done		Result
		Date	Time	(Y/N)
1	Review log: Review log kept by operators. Observe for any abnormal record. Review any alarm logged by Management team			
2	Visual inspection of sump pit (incl. all debris inside pit (see routine operation)			
3	Motor condition: Check motor against excessive noise, vibration and overheating			
4	Pipe / pump fixing-Bolt & Bracket Check all mounting and accessories against rust and loosened bolts			
5	Motor cable termination : Open motor terminal box and inspect the cable connection. Repair as necessary			
6	Lamp test: Press the lamp test switch. All indication lamps should light immediately. If not, check and repair / replace as necessary			
7	Level control: Check settings and test functionally			
8	Control & safety switches: Test for correct operation and rectify any fault			
9	O/L protection: Check that the O/L protection setting agrees with motor full load current			
10	Others			

Comments:

Checked by: Endorsed by

_____ _____

Signature / Date Signature /Date

Storm Water Sump and Pump System

Log Sheet: Record of Storm water sump pump system

Frequency: Annually

Item	Task	Done		Result
		Date	Time	(Y/N)
1	Flexible joints: Check suction and delivery flexible joints against leaks. Replace in case of leakage			
2	Motor mega test: Perform insulation test to the motor			
3	Motor condition: Check motor against excessive noise, vibration and overheating			
4	Pipe / pump fixing-Bolt & Bracket Check all mounting and accessories against rust and loosened bolts			
5	Motor cable termination : Open motor terminal box and inspect the cable connection. Repair as necessary			
6	Lamp test: Press the lamp test switch. All indication lamps should light immediately. If not, check and repair / replace as necessary			
7	Level controls: Check settings and test functionally			
8	Control & safety switches: Test for correct operation and rectify any fault			
9	O/L protection function: Oress the test switch at the O/L protection relay. Pump should stop immediately. If not, check protection relay and control circuit and repair /replace			
10	Surface finish: Inspect the equipment surface finish against damage to coating, rust etc. Touch up as necessary			

Comments:

Checked by: Endorsed by:

_____ _____

Signature / Date Signature / Date

Operation & Maintenance Instruction Manual of Storm Drain System For Sub-Section 1 of Section B of Lot No.82 (Part) in DD108, Fan Kam Road, Pat Heung, New Territories

To: Client
From: Contractor
Date: XX-XX-202X

TABLE OF CONTENT

1 Introduction

1.1 The site is located at Sub-Section 1 of Section B of Lot No.82 (Part) in DD108, Fan Kam Road, Pat Heung, New Territories (see Location Plan in **Appendix 1**).

1.2 This manual is for client's routine maintenance and operation of the drainage system.

2 System Description

Please read in conjunction with the as-fitted drawings in **Appendix 3**.

2.1 This manual explains the storm drain system, list out major equipment and provide information for the operation and maintenance of the system.

2.2 The storm drain system consists of collection of storm water of the site by dividing into 5 bays and discharge the storm water to Sheung Yue River through one terminal manhole.

2.3 The storm water at Bay 1 to Bay 4 is collected through the surface channels/ U-channels by means of gravity flowing to sand-trap and then to the sump pit. Sump pump system is used for pumping the collected storm water to Manhole No. MH-01, then through MH-01 to the terminal manhole no. TMH-01 and finally to Sheung Yue River.

2.4 The storm water at Bay 5 is also the surface channels/ U-channels by means of gravity flowing to the sand-trap, then to the terminal manhole no. TMH-01 and subsequently to Sheung Yue River.

2.5 The sump pumps for each sump pit can be operated automatic mode or manually. Totally 3 nos. of pump sets are installed at each sump pit. For automatic mode, the pump at Stage 1 will be operated under a pre-set water level. If the water level rises to certain higher level, especially when heavy rainfall, the pump set will be started to Stage 2.

2.6 Portable emergency generator(s) will be allowed for connection of the pumping system. In case of power failure, the pumps can still be operated manually with the use of emergency power supply.

3.0 Operation and Maintenance

3.1 Recommended Inspection Frequency is as follows:

Item	Duties	Frequency
1	Check whether there debris/ obstruction of all surface channels/ U- channels, catch pits and sand traps (including the U-channels, stepped channels and catch pits outside site boundary). Clear the debris/ obstruction immediately to avoid blockage of the drainage system.	Once every 2 weeks
2	Check the satisfactory operation of pumps.	Once every 2 weeks
3	Check electric motors, pump bearings, belt drive tension, gearbox, lubricant, control and sensor equipment, flow measurement devices	Once every 2 weeks
4	Test run the system	Once every 2 weeks
5	Maintain and empty sump pit	Before and after each heavy rainfall
6	Switch off the pumps whenever there is abnormal noise, heat or vibration.	

3.2 The above checking is recommended by a licensed plumber.

3.3 Training will be provided to client or his assigned representative upon completion of testing and commissioning.

3.4 In case of emergency maintenance, the client/ his representative can contact the emergency contact point as marked in **Appendix 4**.

3.5 For operation:

I) Auto Running Procedure

a. Turn the main switch on.
b. Turn the "AUTO-OFF-MANUAL" to "AUTO" position for standby mode.
c. One of the two pumps will operate automatically at 30 minute interval. The pump will start when the water reaches to the required pressure and stop.

II) Manual Running Procedure (For maintenance & functional test purposes.

a) Turn the main switch on.
b) Turn the "AUTO-OFF-MANUAL" to "MANUAL" position for manual mode.
c) Press the start button the pumps will start. d. Press the stop button the pumps will stop

III) Emergency Stop Procedure

a) When at auto mode
b) Either pump is running
c) Press the emergency button inside the cabinet
d) Pumps stop automatically, standby pump will start to run and alarm will buzzing
e) Reset the buttons by turning the caps of the emergency button, and pressing buzzer reset button on panel
f) When at manual mode
g) Select the pump and press start button to run
h) Press the emergency button inside cabinet
i) Pumps stop automatically, standby pump will not start and alarm will buzzing.
j) Reset the buttons by turning the caps of the emergency button, and pressing buzzer reset button on panel, selected pump will start again.

4.0 Equipment Schedule

Equipment No.	SPT-01-1 To SPT-01-3	SPT-02-1 To SPT-02-3	SPT-03-1 To SPT-03-3	SPT-04-1 To SPT-04-3
Location	SPT-01 Sump Pit	SPT-02 Sump Pit	SPT-03 Sump Pit	SPT-04 Sump Pit
No. of pump	3 per each sump pit			
Flow (L/S)	30			
Hydraulic Head (m)	22			
Speed (rpm)	1450			
Type	Vertical centrifugal submersible pump			
Drive	Direct			
Fluid handled	Storm water			
Fluid temperature (℃)	28			
Working pressure (kPa)	1000			
Testing Pressure (kPa)	1200			
Minimum efficiency	80			
Break Power	7.5			
Motor Data:				
Type	TEFC			
Speed (rpm)	1450			
Rating (kW)	11			
Power supply (Phase/ Cycle/ Volt)	3/50/380			
Operating Weight (kg)	150			
Remarks	- One as stand-by for each sump pit			

4.1 Please see for Catalogue of material/ equipment (E&M) in **Appendix 4** for information of the material and equipment.

For Appendix 5 - Record of Testing & Commissioning.

Hydraulic Test for Piping of Sump Pumps

Method Statement – Hydraulic Pressure Testing

1. Testing sequence as below:

   From sump pit tank to swp tee-off point

2. After this testing, the section of the tested pipe would be link to the water supply system for easily observation whether the pipework has been damaged.

3. Testing Requirement
   The testing pressure should be 1.5 times of the maximum working preseeure or not less than 150psi (1030 kPa), whichever is the greater. The testing period should be not less than six (6) hours.

4. Equipment for hydraulic test
   a) Manual pump
   b) Flexible hose
   c) Gate valve and pressure guage set on upsteam side calibrate in bar or psi

5. Testing procedure
   a) Preliminary checks
      i) Check the pipe-works are complete
      ii) Check and flush the pipe-works system to ensure it is internally clean
      iii) Isolate valve is equipped to the tested section
   b) Plug off the section of pipework under test, fit the hand pump together with pressure gauge to the individual water pipe end points
   c) Discharge water to the test section and all air liberated.
   d) Pressurize the section of the pipwork by manual pump to testing pressure.
   e) Observe the test section and pressure gauge for a period of not less than 1 hour.
   f) If water pressure drop, check for leaks. Take appropriate action to rectify the defect and then repeat the test until found satisfactory. Pre-test is finish. Proceed the formal T&C.
   g) Submit inspection forms to client/ client's representative 1 day in advance for joint inspection.
   h) Re-pressurize the section of the pipework by manual pump to testing pressure.
   i) Close the isolate valve to lock and keep the testing pressure within the tested section.
   j) Observe the test section and pressure gauge for a period not less than 2 hours.

k) Test shall be witness by the contractor and certified the client/ client's representative.

APPENDIX C

Project:

Proposed Storm water Drain

Fan Kam Road, Pat Heung

Equipment Catalogue

1. Proposed Storm water sump pump

Capacity: @30 l/s @22 m head

2. Diesel Generator

Total Capacity; 200 KW (250 KVA)

Submersible Heavy Duty Solids Handling Pumps

Model SH

To meet your submersible pump needs and assure the lowest possible cost over the life · · ·

Applications:

- Sewage Lift Stations
- Treated Sewage System
- Waste Water Transfer
- Dewatering
- General Industrial Service

ISO 9001 Certificate

LLOYD'S REGISTER QUALITY ASSURANCE · ISO9001 · UKAS QUALITY MANAGEMENT 001

EIM ELECTRIC CO.,LTD.

With over 50 years of proven experience in the design and the difficult applications of heavy duty submersible pumps handling sewage, solids, sludge and slurries, EIM has been providing pumping solutions which permit customers to continuously improve pumping system reliability and cost efficient performance.
The SH series pumps with non-clogging, single-vane, closed impeller have proven successful operation in the toughest applications handling large solids and stringy material.

General Description

	Standard	Option
Pump	Free Standing Models	Guide Rail System
Discharge Diameter	80, 100 and 150 mm	
Flow and TDH	See performance curves on the back page.	
Impeller	Non-clogging, single-vane, closed impeller	
Max. Solids Size	75 mm sphere	
Max. Submergence	20 m	
Liquid Temperature	-10˚C to 40˚C	High temperature designs up to 80˚C.
Materials		
Impeller/Pump Casing /Suction Cover	Cast Iron	
Hardware	304 Stainless Steel	
Motor		
Configuration	Flange mounted, air-filled submersible vertical AC motor	
Synchronous Speed	1500RPM (50Hz)/1800RPM (60Hz)	
Insulation Class / SF	F / 1.15	Insulation Class H
Voltages / Phase / Hertz	200, 380, 400 Volts / 3 ϕ / 50 Hz 220, 380, 440 Volts / 3 ϕ / 60 Hz	Special voltages in the range of 200-600 Volts
Thermal Protection Device	up to 7.5KW: Bimetallic over current switch 11KW and above: Two normally closed thermostats embedded in windings	
Cable Length	10 m	Extra length cable
Materials		
Motor Housing	Cast Iron	
Motor Shaft	403 Stainless Steel	
Shaft Seals	Double shaft seals [Outer seal (process side)] Silicon Carbide faces (both rotating and stationary faces) [Inner seal (motor side)] Carbon against Ceramic faces	Silicon Carbide faces (both rotating and stationary faces) inner and outer seals and VITON seal elastomers
Bearings	Deep groove ball bearings	
O-Rings	Nitrile Butadiene Rubber (NBR)	VITON O-rings

Available Models

Discharge Diameter (mm)	Model No.		BHP	
	Free Standing	Guide Rail System	KW	HP
80	SH-82E	SH-82B	1.5	2
	SH-83E	SH-83B	2.2	3
	SH-85E	SH-85B	3.7	5
	SH-88DE	SH-88DB	5.5	7.5
	SH-810DE	SH-810DB	7.5	10
	SH-815DE	SH-815DB	11	15
	SH-820DE	SH-820DB	15	20

Discharge Diameter (mm)	Model No.		BHP	
	Free Standing	Guide Rail System	KW	HP
100	SH-105E	SH-105B	3.7	5
	SH-108DE	SH-108DB	5.5	7.5
	SH-1010DE	SH-1010DB	7.5	10
	SH-1015DE	SH-1015DB	11	15
	SH-1020DE	SH-1020DB	15	20
150	SH-158DE	SH-158DB	5.5	7.5
	SH-1510DE	SH-1510DB	7.5	10
	SH-1515DE	SH-1515DB	11	15
	SH-1520DE	SH-1520DB	15	20

Features

1 CABLE
Extra hard usage, water-resistant vinyl cable is used for electric cable.

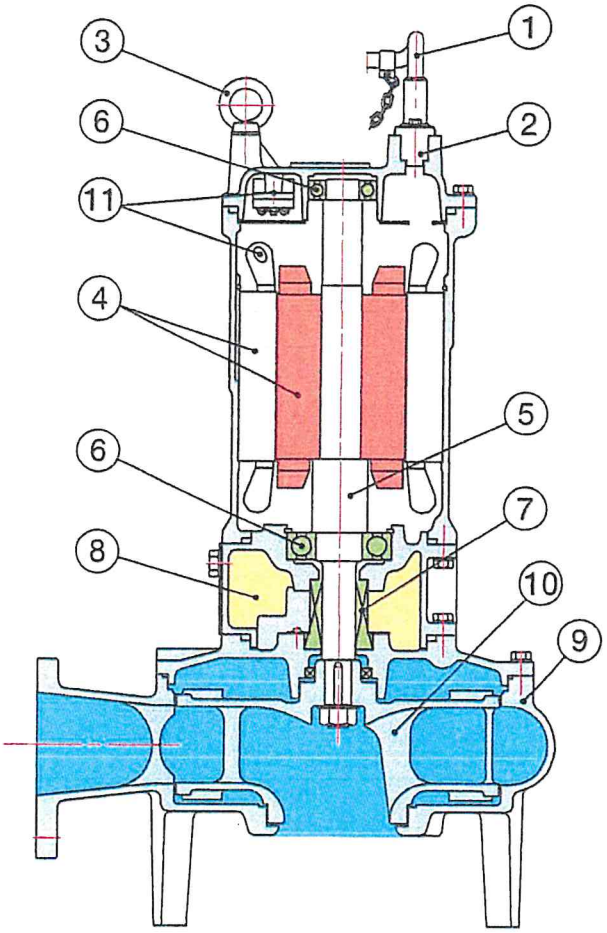
2 CABLE ENTRY
Strain relief rubber bushing integrated with cable sheath at the entry point is tightly compressed to the motor housing cover. In addition, each cable strand at the entry point is formed into a solid conductor for a true non-wicking cable entry. This double sealing system completely prevents water from entering into the motor housing.

3 LIFTING DEVICE
Lifting eye-bolts of 304 stainless steel are of adequate strength to lift the entire pump assembly.

4 MOTOR
An air-filled, induction motor with specially treated class F (155°C) nonhygroscopic insulation and rated with 1.15 service factor is used as standard. The motor housing of heavy duty cast iron is sealed using O-rings.

5 SHAFT
The high quality, one-piece, oversized shaft made of 403 stainless steel is designed so as to lengthen bearing and seal life reducing shaft deflection and vibration.

6 BEARINGS
Both main and support bearings packed with lithium grease for high temperature usage consist of oversized deep groove ball bearings, countering both radial and axial forces.



7 SHAFT SEAL
Double mechanical seal system for maximum resistance to corrosion, abrasion and thermal shock prevents water from penetrating into the oil chamber and the motor housing. The outer seal (process side) uses Silicon Carbide faces (both rotating and stationary fases). Carbon against ceramic faces are used for the inner seal (motor side). In addition, to prevent dust, sand, mud, sludge, slurry, etc. from entering into the seal area, the dust seal is mounted on the outside of the shaft seal, facing to process liquid.

8 OIL CHAMBER
Oil in the oil chamber lubricates and cools the shaft seals and functions as a buffer to prevent water penetration into the motor.

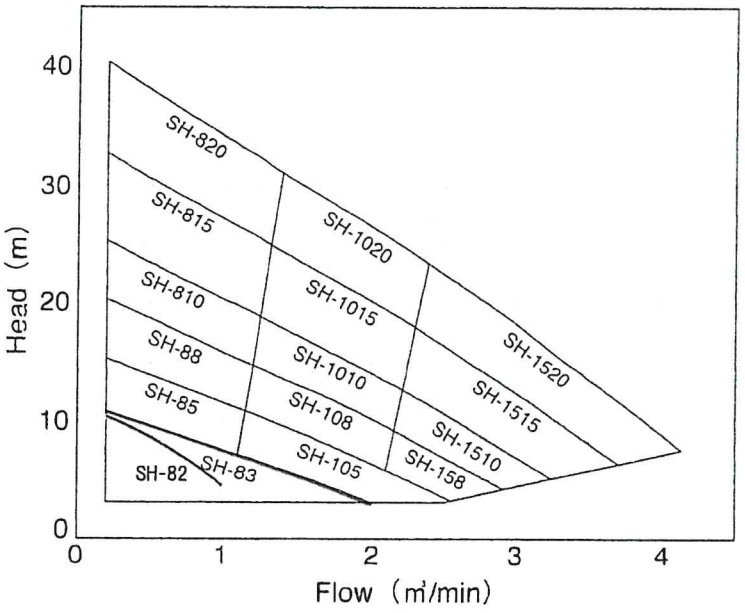
9 PUMP CASING
Owing to the specially designed pump casing with large opening at motor side, motor unit and wet end are easily separated for fast access to impeller and shaft seals. This results in true savings, greatly reducing maintenance and downtime costs.

10 IMPELLER
Single-vane, closed impeller with large opening assures passage of large solis and stringy material along with high pump efficiency.

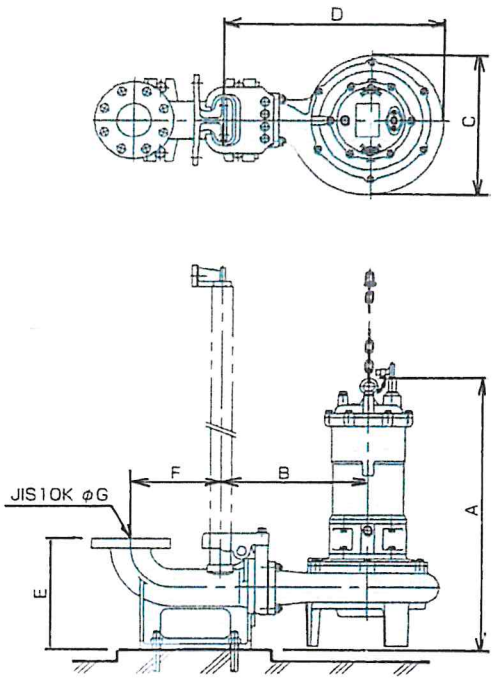
11 THERMAL PROTECTOR
To protect over heating, bimetallic over current switch is built in the motor housing cover (discharge ϕ 80 mm) or two normally closed thermostats are embedded in the motor windings (discharge ϕ 100 mm).

12 HARDWARE
All the external hardware are made of heavy duty 304 stainless steel.

Pump Performance Curves



Dimensions



(All dimensions in mm)

Discharge Diameter	Model	A	B		C		D		E	F	G	w't(kg)	
			50Hz	60Hz	50Hz	60Hz	50Hz	60Hz				Pump	Discharge Elbow
80	SH-82B	675	352	352	335	335	525	525	270	209	80	65	25
	SH-83B	675	352	352	335	335	525	525				65	
	SH-85B	675	352	352	335	335	525	525				75	
	SH-88DB	830	412	352	440	335	635	525				140	
	SH-810DB	830	412	412	440	440	635	635				150	
	SH-815DB	830	412	412	440	440	635	635				160	
	SH-820DB	1090	462	412	530	440	730	635				240	
100	SH-105B	705	352	352	335	335	525	525	325	239	100	75	31
	SH-108DB	860	412	352	440	335	635	525				140	
	SH-1010DB	860	412	412	440	440	635	635				150	
	SH-1015DB	860	412	412	440	440	635	635				160	
	SH-1020DB	1120	462	412	530	440	730	635				240	
150	SH-158DB	930	439	379	440	335	665	555	460	282	150	140	65
	SH-1510DB	930	439	439	440	440	665	665				150	
	SH-1515DB	930	439	439	440	440	665	665				160	
	SH-1520DB	1190	489	439	530	440	760	665				240	

SAFETY PRECAUTIONS

- Before operating our pumps, read the operation manual carefuly.
- All the pictures shown in this catalog have been taken after removing all the safety devices legally required, to make the products easier to see.
- Pump and pump installations drawings are only for explanatory and descriptive purposes.

- The designs or specifications of the models in this catalog are subject to change without prior notice due to continual improvement.

EIM ELECTRIC CO.,LTD.
URL http://www.eimpump.co.jp
412, Katsushika 2-chome, Funabashi City, Chiba, 273-0032 Japan
Phone : +81-47-437-2711 Telefax : +81-47-437-3969
E-mail:overseas@eimpump.co.jp

PCE-2017HK
Printed in Japan March 2009 09-3 1Ya

Estimate No.
Order No.

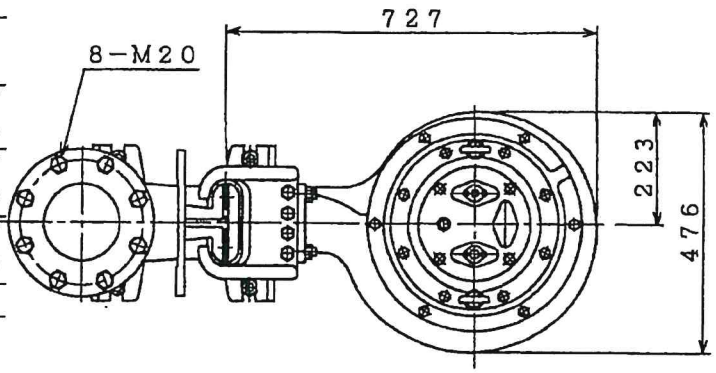
EIM SUBMERSIBLE PUMPS

DIMENSIONAL DRAWING

MODEL: SH-1520DB

Standard

① PUMP		1set
② ELBOW ASSEMBLY	Cast Iron	1set
③ COMPNIONS FLANGE	Carbon Steel	1set
④ FOUNDATION BOLTS		Out of Supply
⑤ LIFTING CHAIN		Out of Supply
⑥ GUIDE PIPE		Out of Supply
⑦ GUIDE HOLDER	Cast Iron	1set



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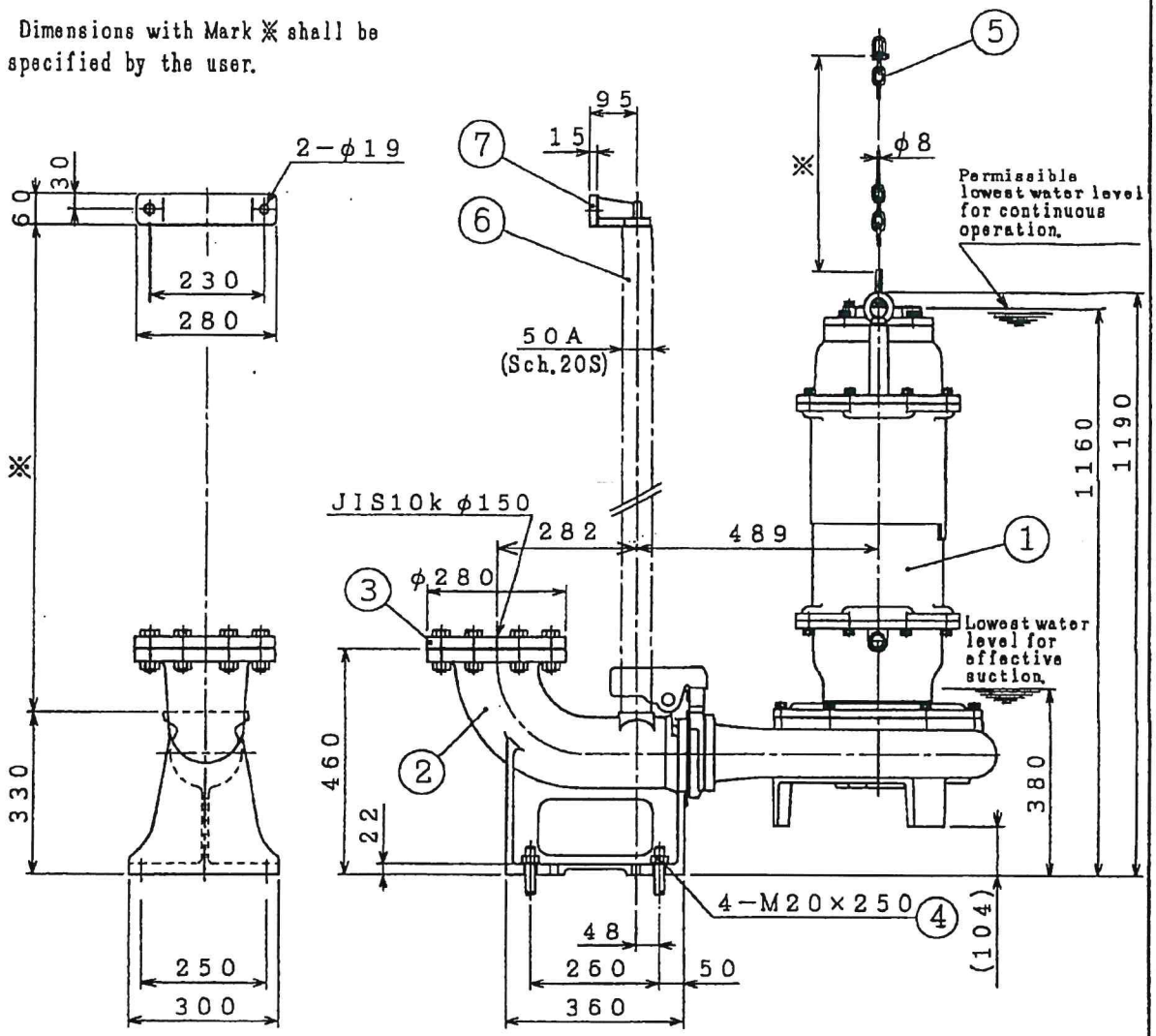


All dimensions in mm

Item No.	EIM ELECTRIC CO., LTD.	DWG.NO.B-T1151132-0

Estimate No.
Order No.

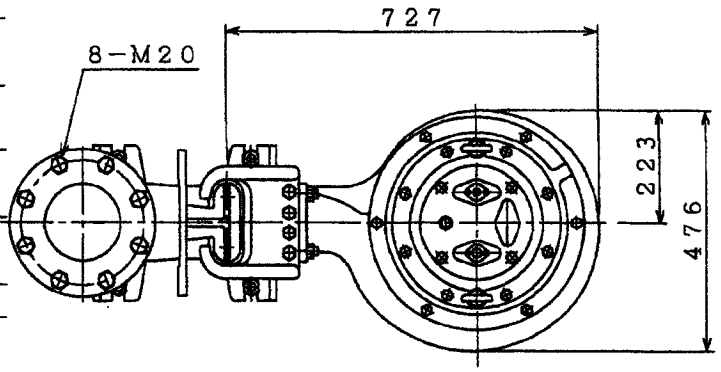
EIM SUBMERSIBLE PUMPS

DIMENSIONAL DRAWING

MODEL: SH-1520DB

Standard

①PUMP		1set
②ELBOW ASSEMBLY	Cast Iron	1set
③COMPNIONS FLANGE	Carbon Steel	1set
④FOUNDATION BOLTS		Out of Supply
⑤LIFTING CHAIN		Out of Supply
⑥GUIDE PIPE		Out of Supply
⑦GUIDE HOLDER	Cast Iron	1set



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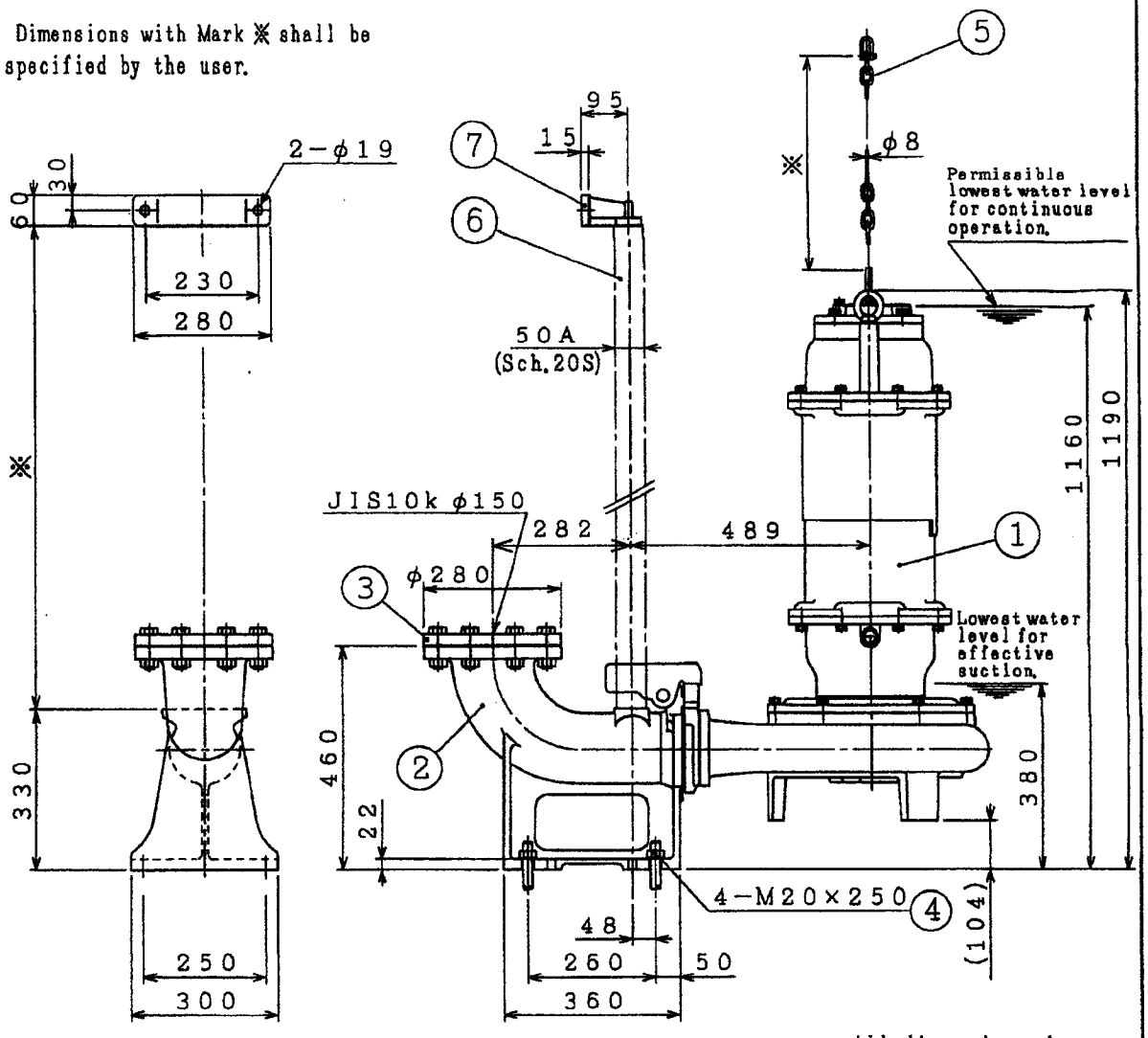


All dimensions in mm

Item No.	EIM ELECTRIC CO., LTD.	DWG.NO.B-T1151132-0

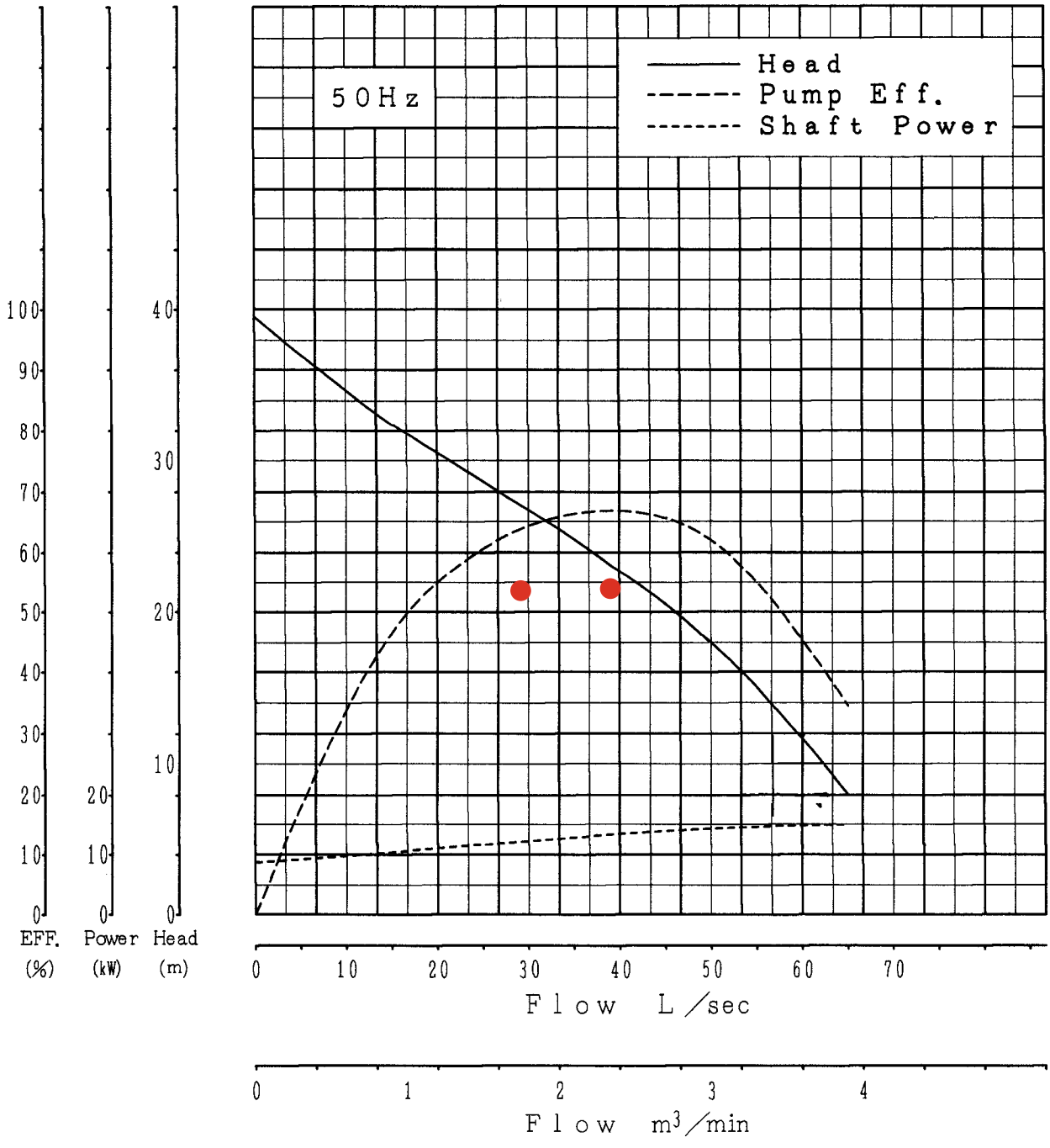
Estimate No.
Order No.

EIM SUBMERSIBLE PUMPS

PERFORMANCE CURVE

MODEL: SH-1520DB

Duty: 30 and 40 L/S x 22 M
Motor: 15 KW x 1450 RPM



Item No.	EIM Electric Co., Ltd.	DWG.NO.PC-T1151132-0

EIM SUBMERSIBLE PUMP JOB REFERENCE

LOCATION	MODEL(DRY PIT)	KW	QTY
Tseung Kwan O Swimming Pool	SU5-2015DTBH	11	1
TKO Hospital Expansion	UGAD-85ET(DRY PIT)	3.7	12
	UGAD-810EDT	7.5	4
Lai Chi Kok Swimming Pool	SU2-51B1	0.75	3
	SE-85LTB	3.7	7
North Lantau Hospital Phase 1, Tung Chung - Plumbing	UGAD-83ET (18M) (DRY PIT)	2.2	2
	SH-85B (18M)	3.7	8
Indoor Velodrome-cum-sports Centre in Area 45, TKO	SH-88DB	5.5	8
	SH-815DB	11	6
	SH-810DB	7.5	4
	SL-82BH	1.5	2
HOMANTIN GOVERNMENT OFFICES	SU-82E	1.5	1
CAS TRANING POOLSAI KUNG ,TAI TAN	SE-51G	0.75	2
	SE-83LB	2.2	1
SWIMMING POOL AT CSD RECREATION CLUB LAI CHI LOK	SE-82LTB	1.5	2
JORDEN VALLEY SWIMMING POOL	SU-1530DTB	22	2
	SE-83LTB	2.2	6
HAMMER HILL SWIMMING POOL	SE-83LTB	2.2	5
	SU-1520DTB	15	3
TEXACO RD, TSUN WAN SWIMMING POOL	SU-85TB	3.7	2
	SU-815DTB	11	9
	SU-108DTB	7.5	2

EIM SUBMERSIBLE PUMP JOB REFERENCE

AREA 100,.MA ON SHAN SWIMMING POOL COMPLEX		3.7	6
	SU-1535DTB	25	6
LOK KWAN ST. PARK	SU-82B	1.5	2
NORTH POINT GOVERNMENT OFFICE	SE-51E	0.75	8
	SU-82E	1.5	1
BUTTERFLY BEACH LAUNDRY S.T.P.	AK2-10DB	7.5	1
MA PO PING PRISON S.T.P.	SU-158DTB	5.5	2
	SU-2015DTB	11	2
KOWLOON MEDICAL REHABILATION CENTRE	SU-2015DTB	11	2
	SU-88DTB	5.5	8
HO MAN TIN RECREATION GROUND	SE-82HTB	1.5	4
SO KONG PO SWIMMING POOL	SU-1530DB	22	2
SAI KUNG SWIMMING POOL	SU2-82TB	1.5	2
MAN KAM TO STP	SU2-51TB	0.75	4
	SU2-82TB	1.5	4
	SU2-85TB	3.7	2
	AK2-3TB	2.2	2
	AK2-10DTB	7.5	2

EIM SUBMERSIBLE PUMP JOB REFERENCE

CHI MA WAN PRISON STP	SU2-108DTB	5.5	2
	SU2-51TB	0.75	8
	SU2-82TB	1.5	4
	SU2-83B	2.2	2
	SU-820DTB	15	2
	AK2-10DTB	7.5	4
	AK2-5TB	3.7	2
	AK2-8TB	5.5	2
PIK UK PRISON STP	AK2-10DTB	7.5	2
	AK2-5TB	3.7	4
	AK2-8DTB	5.5	2
	SE-505TB1	0.4	6
	SU2-51TB	0.75	2
	SU2-82TB	1.5	2
	SU-820DTB	15	2
	SU-1010DTB	7.5	2
SHEK WU HUI STP	SL-83BH	2.2	1
	SL-85BH	3.7	2

Current issue date:	1 August 2023	Original approval(s):
Expiry date:	31 July 2026	ISO 9001 - 9 July 1999
Certificate identity number:	10533088	

Certificate of Approval

This is to certify that the Management System of:

EIM ELECTRIC CO., LTD.

10-2-16, Inokuma, Mizumaki-machi, Onga-gun, Fukuoka-ken 807-0001, Japan

has been approved by LRQA to the following standards:

ISO 9001:2015
JIS Q 9001:2015

Approval number(s): ISO 9001 – 0065341

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:
Design, manufacture, sales and after sales service (repair and installation work) of submersible electric motors, pumps, mixers and slurry pumps.

Yasushi Horikawa

Japan Operations Manager

Issued by: LRQA Limited

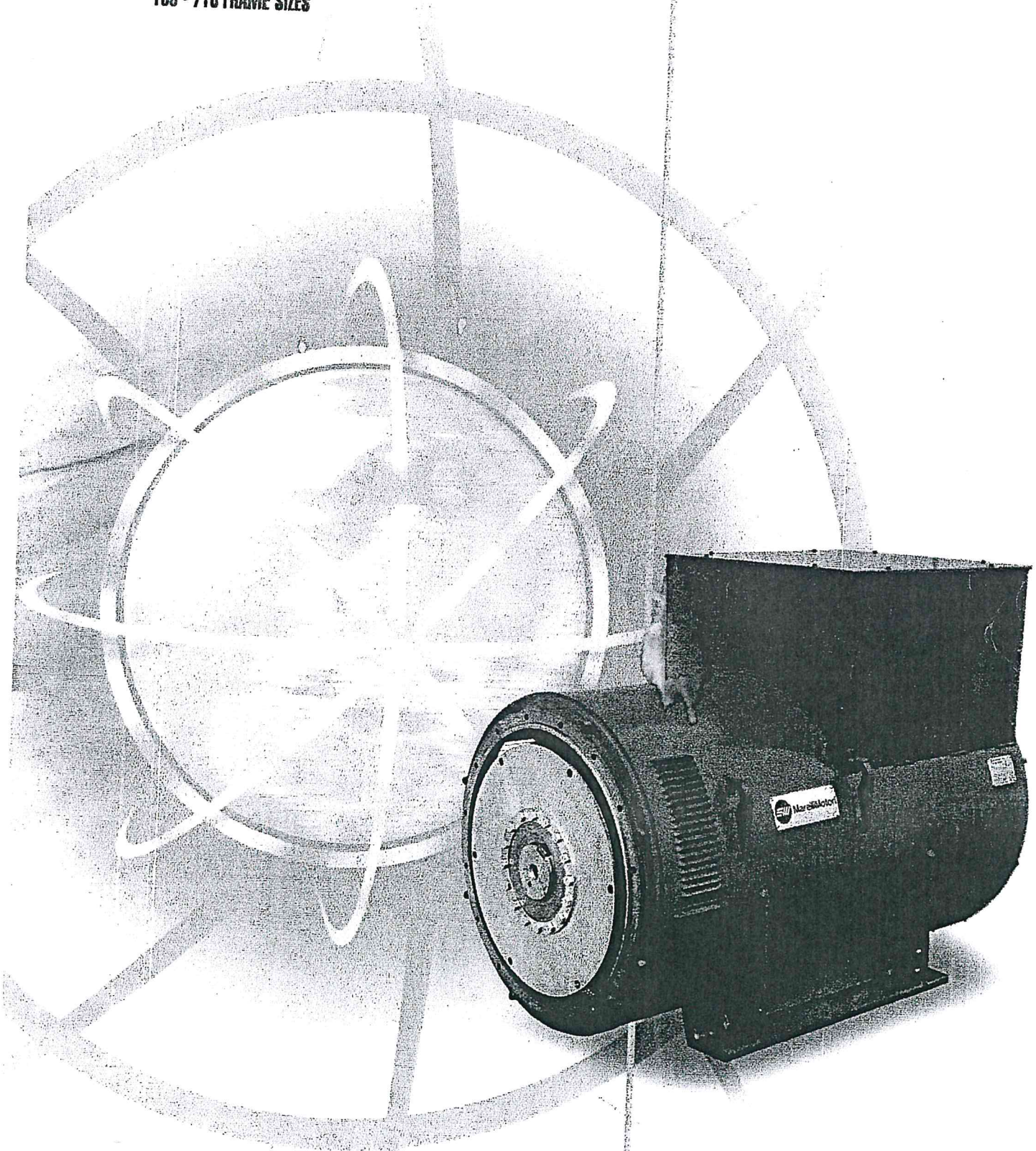
Certificate Schedule

Location	Activities
EIM ELECTRIC CO., LTD. Mizumaki Works 10-2-16, Inokuma, Mizumaki-machi, Onga-gun, Fukuoka-ken 807-0001, Japan	**ISO 9001:2015** As main scope.
EIM ELECTRIC CO., LTD. Headquarter 3-4, Kurosakishiroishi, Yahatanishi-ku, Kitakyushu-shi, Fukuoka-ken 806-0004, Japan	**ISO 9001:2015** Headquarter.
EIM ELECTRIC CO., LTD. Kyushu Branch 3-4, Kurosakishiroishi, Yahatanishi-ku, Kitakyushu-shi, Fukuoka-ken 806-0004, Japan	**ISO 9001:2015** Sales and after sales service (repair and installation work).
EIM ELECTRIC CO., LTD. Tokyo Branch 3-1-2, Kandamisaki-cho, Chiyoda-ku, Tokyo 101-0061, Japan	**ISO 9001:2015** Sales.
EIM ELECTRIC CO., LTD. Osaka Branch 4-3-8, Nishi-Nakajima, Yodogawa-ku, Osaka-shi, Osaka-fu 532-0011, Japan	**ISO 9001:2015** Sales.

Three Phase Synchronous Generators

M8B - M8H - M8T SERIES
160 - 710 FRAME SIZES

FKI Energy Techno



MarelliMotori

SIN.CT.024.2 E

APPENDIX D

PROPOSED PORTABLE EMERGENCY GENSET CATALOGUE

YIP SHING 信心標誌

Yip Shing Diesel Engineering Co., Ltd.

Top One Power Ltd

TOP ONE POWER

POWER GENERATION FOR GLOBAL MARKETS

Engine Model: QSL8.9-G2 - Driven by Joint-venture Cummins Engine

2023 Version

	Genset Model	Prime Rating	Standby Rating
50 Hz	TOP220Q	160 kW 200 kVA	168 kW 210 kVA
60 Hz	/	/	/

- Authorized Genset Original Equipment Manufacturer (GOEM) of Cummins Inc. and Chongqing Cummins
- Fully load tested and checked under standard procedures
- Tailor fit specific operational needs (please turn over)

Specifications

Engine	50 Hz	60Hz
Engine Model - Joint-venture Cummins	QSL8.9-G2	
Engine Speed	1500rpm	/
Fuel consumption (Standby) Litre/hour 100%	59	/
Fuel consumption (Prime) Litre/hour		
100%	55	/
75%	45	/
50%	31	/
25%	16	/
Engine Type	6-Cylinder	
Aspiration	Turbocharged & Aftercooled	
Bore x Stroke	114mm x 144.5mm	
Displacement	6.7 Litre	
Compression Ratio	17.73:1	
Lubrication System - Total System Capacity	28.1 Litre	
Cranking Motor	24 Volt	
Fuel injection System	Electronically controlled high voltage common rail	

Control System

Standard Control Panel System

- ComAp Control: single gen-set controllers, paralleling gen-set controllers
- Deep Sea Electronics: key start, auto start, synchronising
- Analog Instrument Panel

Alternator

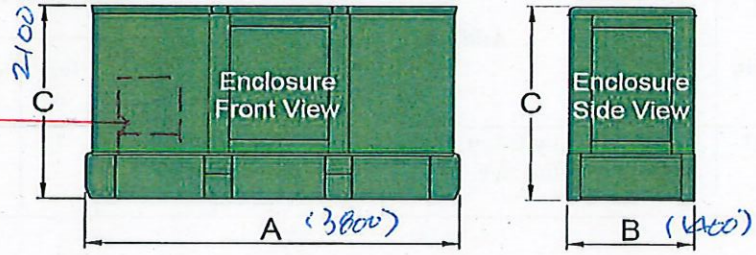
Alternator Model - STAMFORD Alternators	UCI274H
Rated Power Factor	0.8
Insulation System	Class H
Winding Pitch	Two Thirds
Winding Leads	12
Protection	IP23

Control System - Separately Excited By P.M.G.

A.V.R.	MX321	MX341	
Voltage Regulation	± 0.5 %	± 1.0 %	With 4% Engine Governing

Dimensions and Weights

460 Lit. Fuel Oil Storage Tank. Size: 1240(L)x 1200(H)x 305(W)



	A: Length(mm)	B: Width(mm)	C: Height(mm)	Gross Weight (kgs)
Open-set	/	/	/	/
Enclosure-set	3800	1400	2100	3000

** Dimensions and weights are for guidance only. Do not use for installation design.*

Available Options

We offer a wide range of optional equipment to tailor your generating sets so as to meet your operational needs. Options include:

- Alternator heater, engine heater or panel heater
- Circuit breaker 3P/4P
- Customisation of the fuel tank size
- Silencer
- Tailor-made enclosure sets
- Waterproof socket: 16A x3 32A x3 63A x1

For further information on the standard or optional equipment accompanying this product, please feel free to contact us.

Documentation

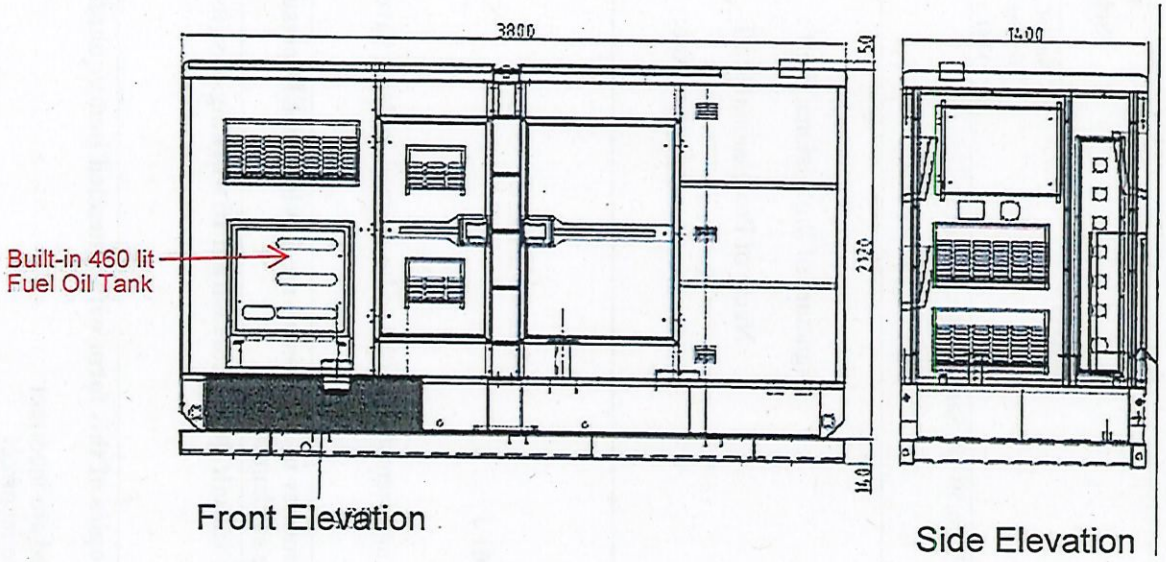
A full set of operation and maintenance manuals as well as circuit wiring diagrams.

Warranty

Parts warranty up to 1500 hours or a year of operation whichever comes first. Please contact us for full details on warranty cover.

**All specifications are subject to change without notice.*

Tel: 852-2479 9386 | Fax: 852-2477 8180
Yip Shing Diesel Engineering Co., Ltd. www.ysdiesel.com.hk | sales@ysdiesel.com.hk
No.1 Fuk Hang Street, Yuen Long Industrial Estate, Yuen Long, N.T., Hong Kong
Top One Power Ltd www.topone-power.com | sales@topone-power.com

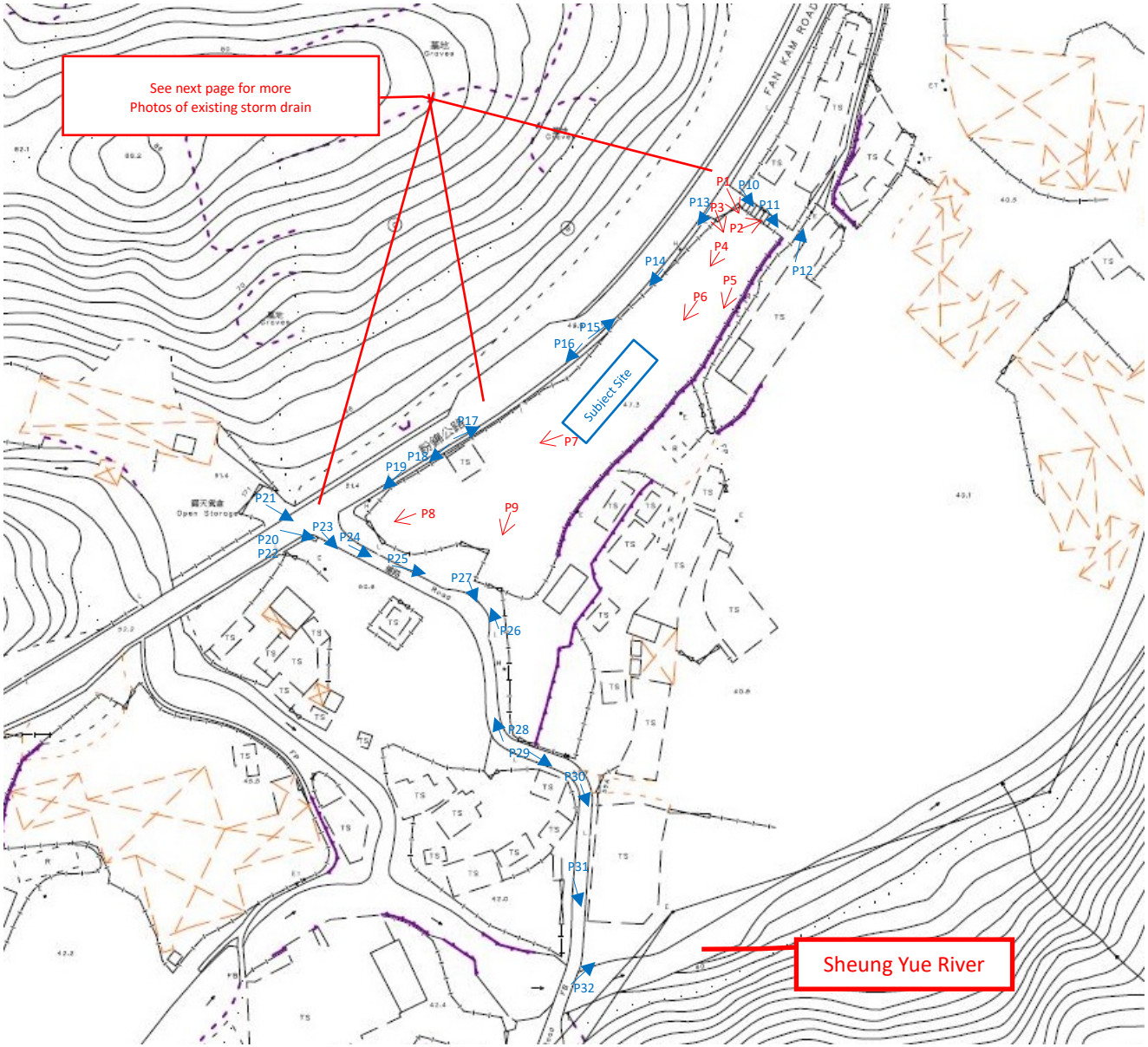


Emergency Power Generator (Package Type)

Detail - 01

ANNEX 7

PHOTOS



Locations of Photo Taken

ANNEX 4

	P1
	P2

ANNEX 4

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ANNEX 4

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ANNEX 4

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Appendix P - Photo Record showing gullies along fan kam road

50cm x 45cm

Channel 35cm (Dia) x 40c

墓地

露天貨倉

粉錦公路

TS

R

20 m

Appendix 7

Traffic Impact Assessment Report

Traffic Impact Assessment

For

Section 16 Application

For

Proposed Open Storage and Parking of Vehicle (Temporary Base)

at Sub-Section 1 of Section B of Lot No.82 in DD108,

Fan Kam Road, Pat Heung, Yuen Long

Proposed by:	**Prudential Surveyors International Limited**
Revision:	**-**
Date:	**Nov 2024**

TABLE OF CONTENT

LIST OF FIGURES

APPENDIX

1. Introduction

1.1 Purpose of this Report

1.1.1 The Site falls within an area zoned "Government, Institute or Community" ("G/IC") under the Approved Kwai Chung Zoning Plan No. S/KC/30 (the Approved OZP). [**Figure 1**]

1.1.2 This Traffic Impact Assessment is to support a planning permission from the Town Planning Board (TPB) under Section 16 of the Town Planning Ordinance (CAP. 131) for Proposed Open Storage and Parking of Vehicle (Temporary Base) (the Proposed Development) at Sub-Section 1 of Section B of Lot No.82 in DD108, Fan Kam Road, Pat Heung, Yuen Long (the Site).

1.1.3 The applicant has the intention to operate the Site as an Open Storage and Parking of Vehicle (Temporary Base).

1.2 Structure of this Report

1.2.1 Following this introductory section, the TIA Report is structured as follows:

- **Chapter 2** – The Preferred Development Scheme, presents the Site and internal transport facilities;
- **Chapter 3** – Existing Traffic Context, describes the road network and traffic condition in the vicinity;
- **Chapter 4** – Traffic Forecasts, describes the methodology of traffic forecasting;
- **Chapter 5** – Traffic Impact Assessment, presents the assessment results of the TIA at the adopted design year and recommend any improvement measure to alleviate the foreseeable problems, if considered necessary;
- **Chapter 6** – Summary and Conclusion, summarizes the findings of the study and presents the conclusion accordingly.

2. The Preferred Development Scheme

2.1 Site Location

2.1.1 The subject site is located at the junction of Fan Kam Road and local road to Ta Shek Wu Tsuen. The location of the subject site is indicated in **Figure 1**.

2.2 Development Schedule

2.2.1 The area of subject site is about 2,943 m^2. It was previously used as parking site for vacuum pumping vehicles.

2.2.2 The northern part of the site is proposed for "Open Storage" use.

2.2.3 The southern part of the site would contain 10 numbers of 7.2-metre goods vehicle parking spaces of 7.5m X 2.5m in dimensions and 5 numbers of 9.3-metre goods vehicle parking spaces of 9.5m x 2.8m in dimensions to accommodate 15 numbers of dedicated vehicles as shown in **Table 2.1.**

Table 2.1: List of Parking Vehicles

Vehicle#	License Plate	Dimensions			
		Length (m)	Width (m)	Height (m)	Weight (tonne)
1	SX2534	9.3	2.5	2.9	24
2	WD5200	8.9	2.5	3.25	24
3	UR1333	8.38	2.49	3.02	24
4	WM7737	8.3	2.5	3.15	24
5	SL5808	8.6	2.5	2.9	24
6	RB8146	7.2	2.2	2.5	14
7	UX1398	7.04	2.39	2.51	14
8	WK6901	6.9	2.3	2.7	14
9	UX2055	6.3	2.03	2.11	9
10	VZ5526	6.5	2	2.2	9
11	VC4421	6.78	2.16	2.24	7
12	WD564	5	1.9	1.97	VAN
13	XH3313	5	1.9	1.97	VAN
14	UE4390	5	1.9	1.97	VAN

2.3 Vehicular Access Arrangement

2.3.1 The vehicular access to the site is directly located at Fan Kam Road, which serves as run-in/out of vehicles as listed in **Table 2.1**.

2.3.2 There are two existing run-in/out for southern part of the Site along access road to Ta Shek Wu Tsuen. For ease of management, neither run-in/out will be used, and only one run-in/out on the northern side of the site will be utilized for access.

3. Existing Traffic Context

3.1 Study Area

3.1.1 In order to assess the junction(s) and link(s) which may be affected by the proposed development, the extent of study area is therefore proposed to cover the junction(s) and link(s) that along the major vehicular access routes of the Site. The extent of study area for the TIA are indicated on **Figure 2**.

3.2 Existing Road Network

3.2.1 The anticipated vehicular traffic trips of the Site would pass through the following key road links:

- Fan Kam Road, is a rural road connecting Kam Tin Road in south and Fanling Highway in north. The carriageway of Fan Kam Road along the site is single- 2 with about 6m width.

3.3 Existing Public Transport Services

3.3.1 The Site is covered by the existing public transport facilities serving the adjacent local area. Bus stops for Fanling bound and Yuen Long bound are located within 100m walking distance from the subject site. The service details are summarized in **Table 3.1**.

Table 3.1: Existing Public Transport Services

RouteNo.	Destinations	Peak Frequency (mins)	Remarks
Franchised Bus			
KMB			
77K	Sheung Shui <> Yuen Long	20-30	-

3.4 Traffic Survey

3.4.1 Manual classified traffic count surveys have been conducted on a normal weekday in November 2024 during the morning and evening peak period (0700 to 1000 and 1600 to 1900 hours) at the identified key junction, i.e. priority junction of Fan Kam Road and local road to Ta Shek Wu Tsuen.

3.4.2 As indicated by the survey results, the peak hour traffic of the local area would occur during 0800 to 0900 and 1700 to 1800 in the morning and evening periods respectively.

3.5 Existing Traffic Conditions

3.5.1 Junction capacity assessments were carried out at the key junctions as listed in Table 3.3 based on the observed peak hour traffic flows. The results are summarized in below **Table 3.2** and the detailed calculation sheets are shown in **Appendix B**.

Table 3.2: Existing Junction Performance

Junction	Location	Control Method	Reserved Capacity	
			AM Peak	PM Peak
J1	Fan Kam Road / Local Road to Ta Shek Wu Tsuen	Priority	0.01	0.01

3.5.2 The road link(s) were assessed based on the capacity of nearest width stipulated in Ch.2.4, Vol.2 of TPDM and the Volume to Capacity (V/C) ratio are shown in **Table 3.3**:

Table 3.3: Existing Link Performance

Road	Section	Capacity (veh/hr)	2024 AM Peak		2024 PM Peak	
			Flow (veh/hr)	V/C ratio	Flow (veh/hr)	V/C ratio
Fan Kam Road	Outside the Site	1,400	873	0.62	944	0.67

3.5.3 The assessment result showed that the identified key junction and road link are currently operating with spare capacities during peak hour periods.

4. Traffic Forecast

4.1 Methodology

4.1.1 The construction works of the Site is limited for proposed use and expected to be completed by 2025. Therefore, it is proposed to adopt 2028 (3 years after completion) as the design year for this TIA study.

4.1.2 The background traffic forecasts for the design year 2028 were derived according to the existing traffic flows obtained from traffic survey and then projected by applying a growth rate. The growth rate used was derived by referring to the past traffic growth trend and the latest Territorial Population and Employment Data Matrix (TPEDM).

4.1.3 Trip generation of the Site were estimated based on the proposed development schedule and actual operation as advised by the Client. The traffic generations were then assigned to the surrounding road network based on the existing traffic pattern and superimposed onto the reference traffic forecasts to create the design year forecasts for assessment use.

4.2 Growth Rate Determination

4.2.1 The background traffic forecasts at design year 2028 were projected by applying a growth rate to the observed traffic flow. The growth rates were determined with reference to the Annual Traffic Census (ATC) Reports published by TD and 2019- based TPEDM planning data published on the website of Planning Department (PlanD). The derivation of the growth rate is presented in the following paragraphs.

Annual Traffic Census

4.2.2 The historical traffic growth trend of the major roads in the vicinity of the Site was reviewed by making reference to the ATC reports. The Annual Average Daily Traffic (AADT) data from year 2016 to year 2022 were extracted and the estimated average annual growth rate is given in **Table 4.1**.

Table 4.1: Annual Traffic Census Data

Station No.	Road Link	Average Annual Daily Traffic (AADT)							Growth Rate (p.a.)
		2016	2017	2018	2019	2020	2021	2022	
6212	Fan Kam Road	11900	10780	11570	11660	12250	12450	12400	+0.69%

4.2.3 The average annual growth rate determined from ATC data is about +0.69% p.a. from year 2016 to year 2022.

Territorial Population and Employment Data Matrix

4.2.4 Reference was also made to the open version of the latest 2019-based TPEDM from year 2019 to year 2031 in the Northwest and Northeast of New Territories. The average annual growth rates in terms of population and employment from year 2019 to 2031 and the estimated growth rates are illustrated in **Table 4.2**.

Table 4.2: Territorial Population and Employment Data

District	Population		Employment		Population + Employment	
	2019	2031	2019	2031	2019	2031
NORTHWEST NEW TERRITORIES	222 800	353 900	58 400	140 150	281 200	494 050
NORTHEAST NEW TERRITORIES	105 400	240 600	36 050	65 550	141 450	306 150
Total	328 200	594 500	94 450	205 700	422 650	800 200
Growth rate (p.a.)	5.08%		6.70%		5.46%	

4.2.5 The annual growth rate determined from sum of TPEDM population and employment are about +5.46% p.a. from year 2019 to year 2031.

Adopted Growth Rate

4.2.6 From the derived growth rates from ATC and the annual growth rate determined from TPEDM, a growth rate of +5.46% per annum will be adopted to produce the year 2028 background traffic flows in order to conduct a conservative assessment.

4.3 Background Traffic Forecast

4.3.1 Applying the adopted growth rate of +5.46% p.a. to the year 2024 observed traffic flow, the 2028 background traffic forecasts during the peak hours are derived.

4.4 Development Traffic Generation

4.4.1 As advised by the Client, the assignment of the vehicles is by-appointment basis and mainly occur in late-night period, after opening hours of shops and restaurants. For conservative assessment, 1 time of moving in/out for each of the 15 dedicated vehicles as listed in Table 2.1 is assumed during AM/PM peak hour.

4.4.2 Also, for conservative assessment, same number of traffic generation is assumed for "Open Storage" in north part of the Site since the site area is similar. The actual generated traffic is expected lower in certain extend, depends on the exact usage of the spaces.

5. Traffic Impact Assessment

5.1 Methodology

5.1.1 The operational performance of junction(s) has been assessed based on the traffic forecast produced in Section 4 according to the procedures outlined in TPDM under both Reference (without the Site) and Design (with the Site) scenarios at the design year 2028.

5.2 Junction and Link Operational Assessment

5.2.1 Junction operational assessment has been carried out at the key junction(s) for the year 2028 Reference and Design scenarios. The results of different assessment scenarios are shown in **Table 5.1** and the detail calculation sheets are shown in **Appendix B**.

Table 5.1: Year 2028 Junction Performance

Junction	Location	Control Method	Junction Capacity			
			Reference		Design	
			AM Peak	PM Peak	AM Peak	PM Peak
J1	Fan Kam Road / Local Road to Ta Shek Wu Tsuen	Priority	0.01	0.01	0.09	0.09

5.2.2 The road links performance for the year 2028 Reference and Design scenarios are summarized in **Table 5.2**:

Table 5.2: Year 2028 Link Performance

Road	Section	Capacity (veh/hr)	2028 Reference Scenario				2028 Design Scenario			
			AM Peak		PM Peak		AM Peak		PM Peak	
			Flow (veh/hr)	V/C ratio	Flow (veh/hr)	V/C ratio	Flow (veh/hr)	V/C ratio	Flow (veh/hr)	V/C ratio
Fan Kam Road	Outside the Site	1,400	1081	0.77	1168	0.83	1096	0.78	1183	0.84

5.2.3 As shown in above tables, all of the identified key junctions and links are still operated within its capacity limit even with the operation of the Site in design year 2028.

6. Summary and Conclusions

6.1 Summary

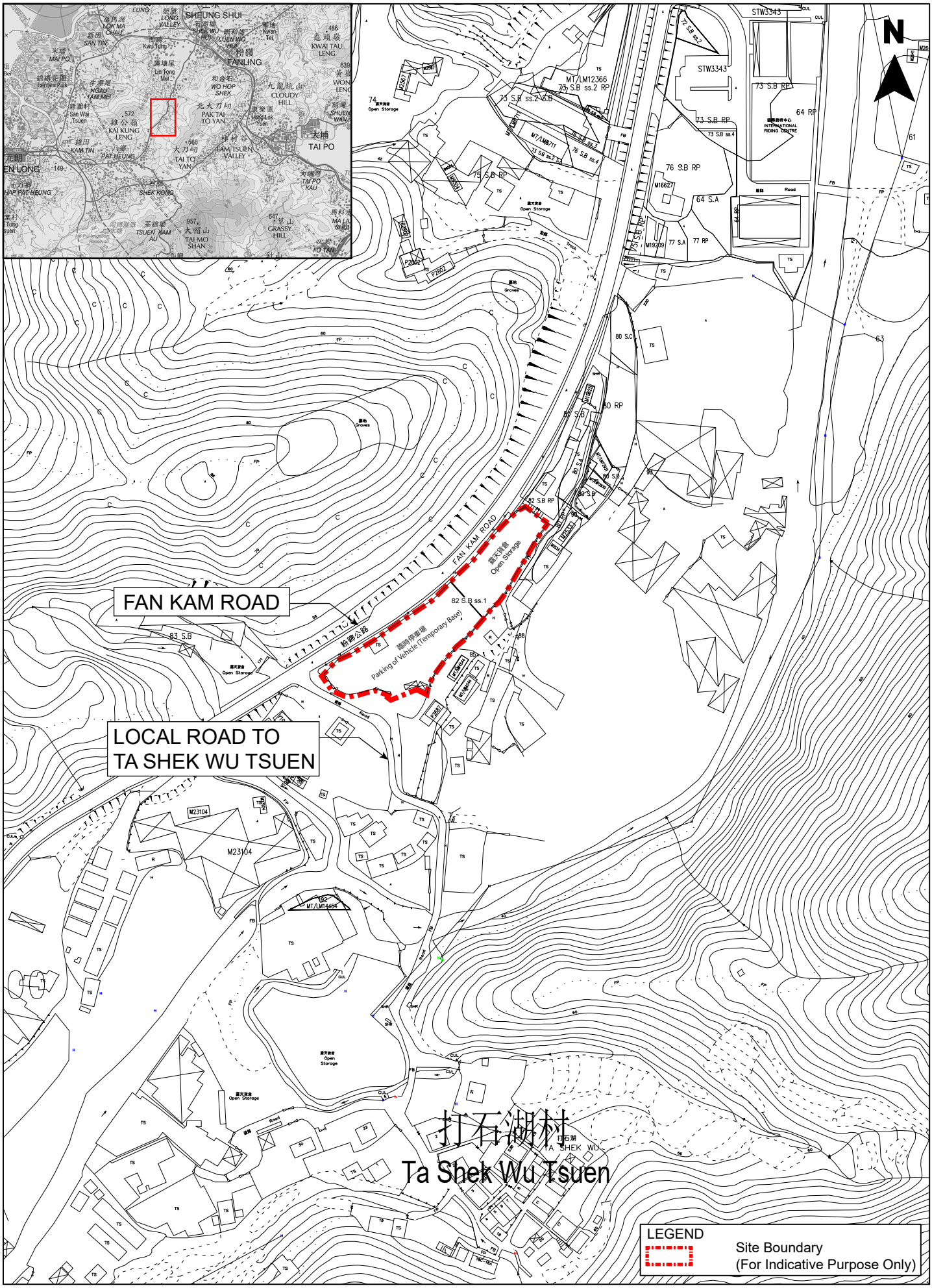
6.1.1 The applicant has the intention to operate the Site as Open Storage and Temporary Private Car Park containing ten 7.2-metre goods vehicle parking spaces and five 9.3-metre goods vehicle parking spaces.

6.1.2 The Site is served by village access road currently with limited local traffic. With the estimated traffic generated by the proposed carpark, the local road and its junction with Fan Kam Road shall perform properly in design scenario.

6.2 Conclusion

6.2.1 It is concluded that the Proposed Development would not generate adverse traffic impacts to the adjacent road network and therefore supported from engineering point of view.

Figures



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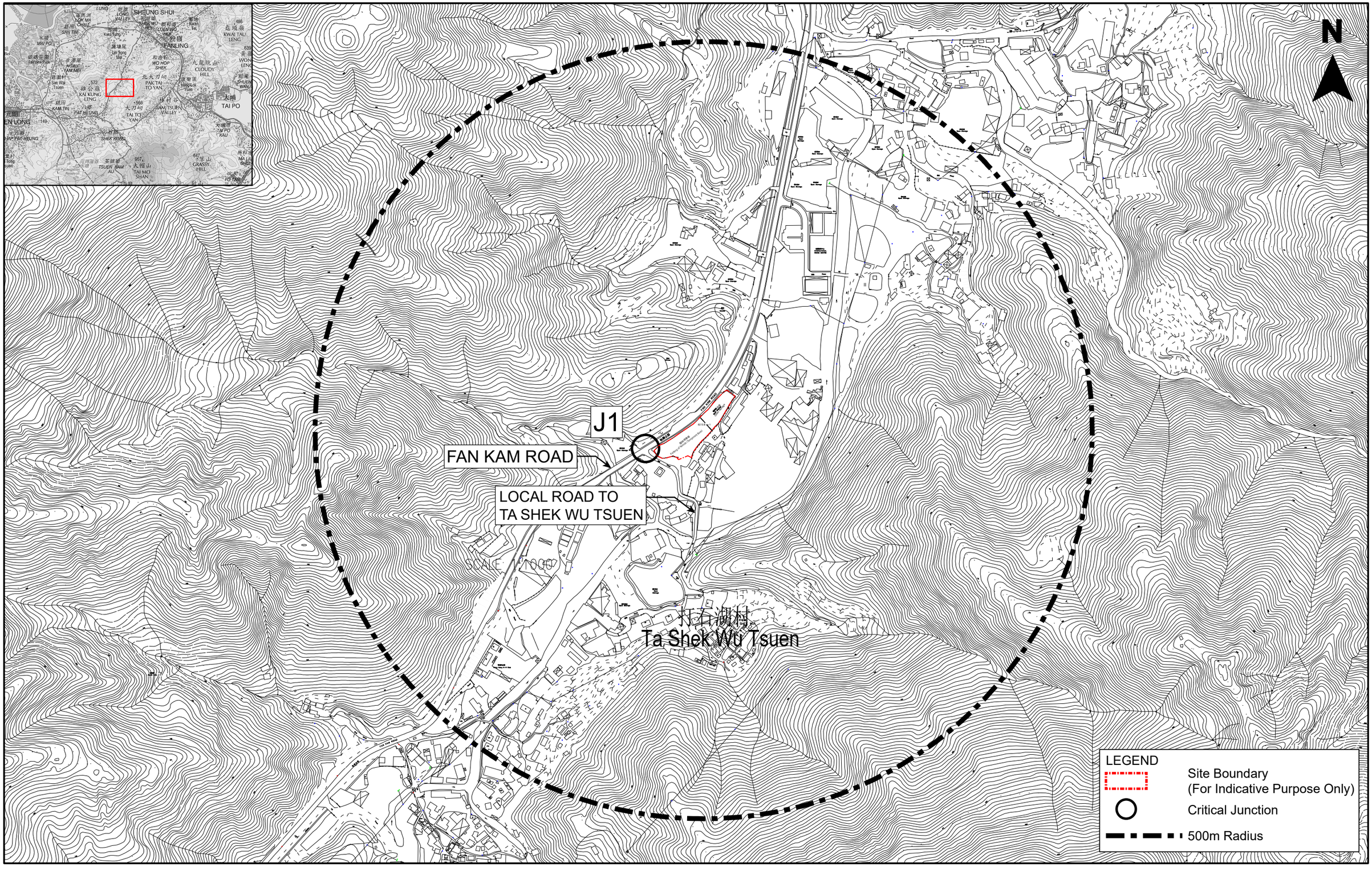
PRUDENTIAL SURVEYING & ADVISORY LIMITED	ADDRESS: 2/F & 3/F TUNG HIP COMMERCIAL BUILDING 244 DES VOEUX ROAD CENTRAL HONG KONG TEL: 2507 8333 FAX: 2598 6576	JOB TITLE: TEMPORARY VEHICLE PARK (MEDIUM AND HEAVY GOODS VEHICLE) AND OPEN STORAG (OPERATIONAL TOOLS AND MATERIALS) USE FOR 3 YEARS AND FILLING OF LAND AT SUB-SECTION 1 OF SECTION B OF LOT NO.82 (PART) IN DD108, FAN KAM ROAD, PAT HEUNG, NEW TERRITORIES	Drawing Title: FIGURE 1 SITE LOCATION PLAN

Rev	Description	Date

Drawn	Date	Drawing No.
IY	14/07/22	TKYLCP_TIA_01
Checked	Approved	
CH	CH	
Scale		Rev.
NTS		-



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JOB TITLE:
TEMPORARY VEHICLE PARK (MEDIUM AND HEAVY GOODS VEHICLE) AND OPEN STORAG (OPERATIONAL TOOLS AND MATERIALS) USE FOR 3 YEARS AND FILLING OF LAND AT SUB-SECTION 1 OF SECTION B OF LOT NO.82 (PART) IN DD108, FAN KAM ROAD, PAT HEUNG, NEW TERRITORIES

Drawing Title
FIGURE 2
STUDY AREA AND CRITICAL JUNCTION

Rev	Description	Date

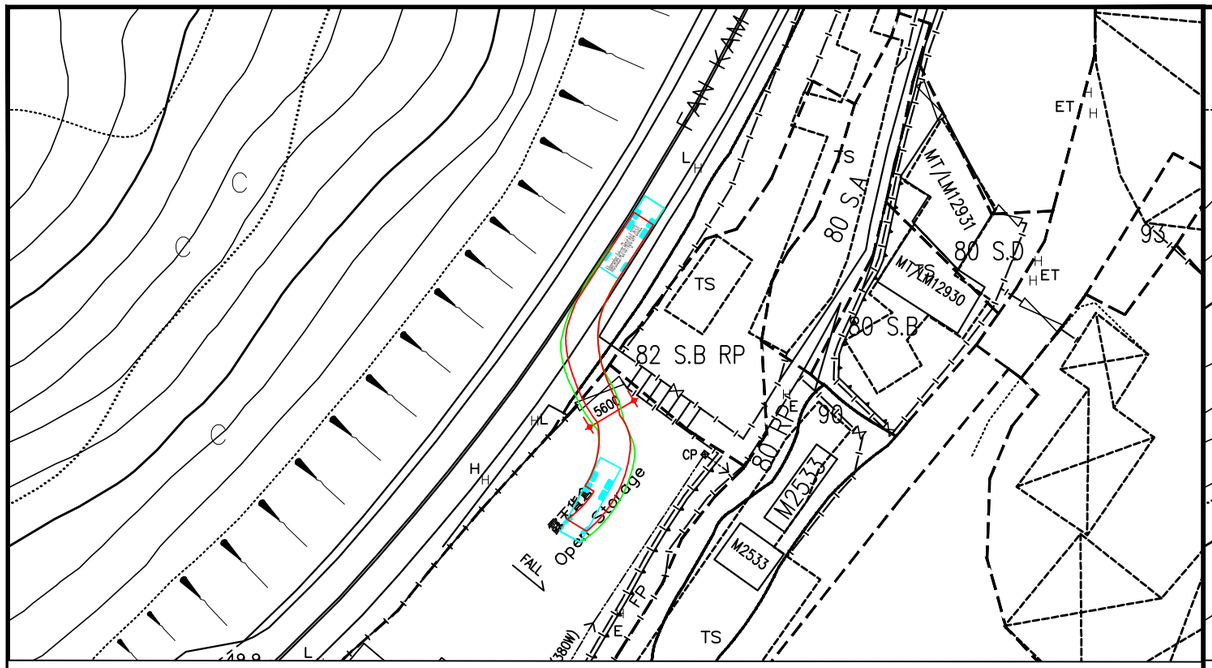
Drawn	IY	Date	15/07/22
Checked	CH	Approved	CH
Scale	1:1000 @ A3		

Drawing No.
TKYLCP_TIA_02

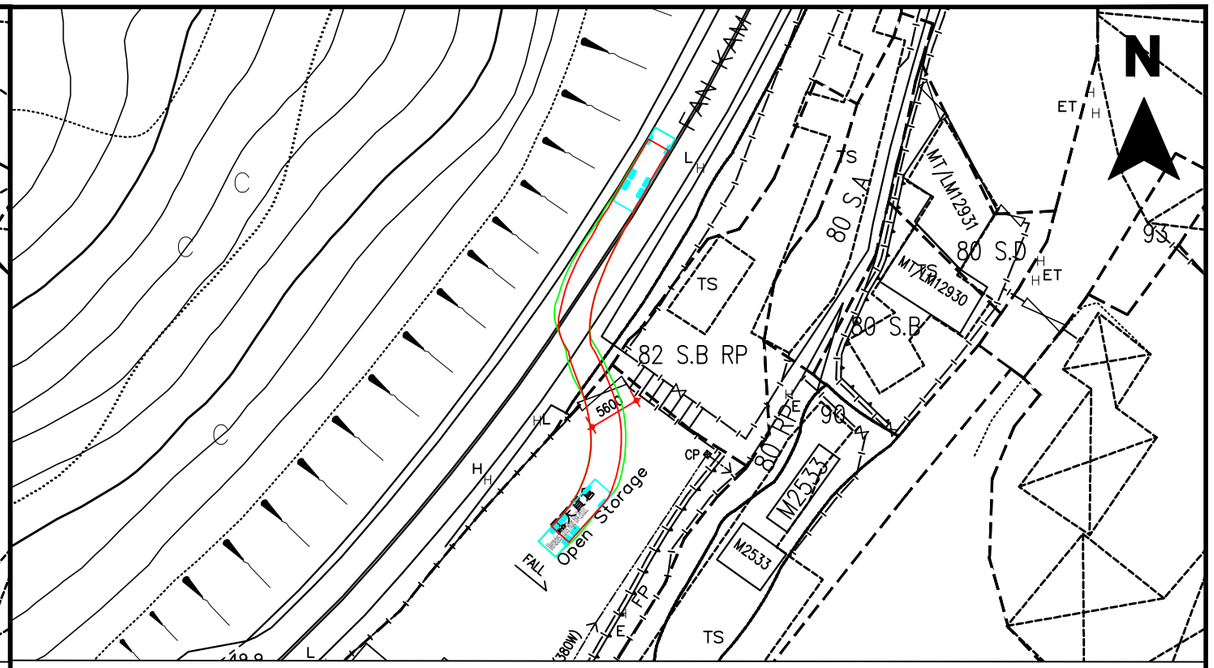
Rev.

Appendix A

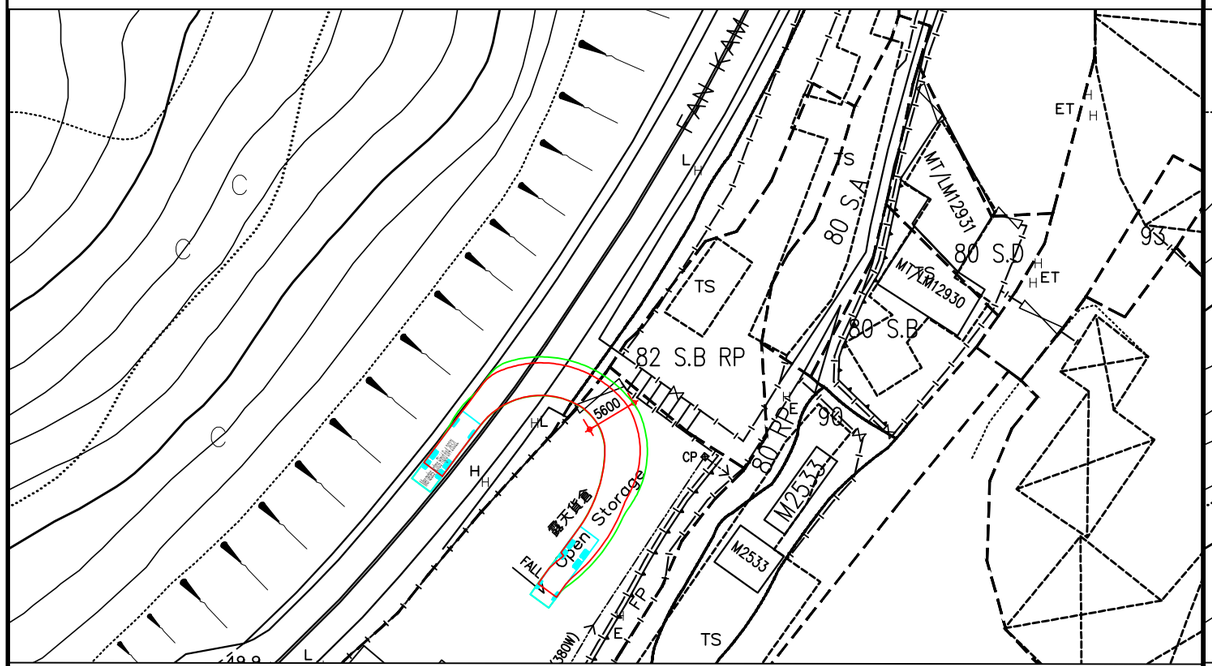
Swept Path Analysis



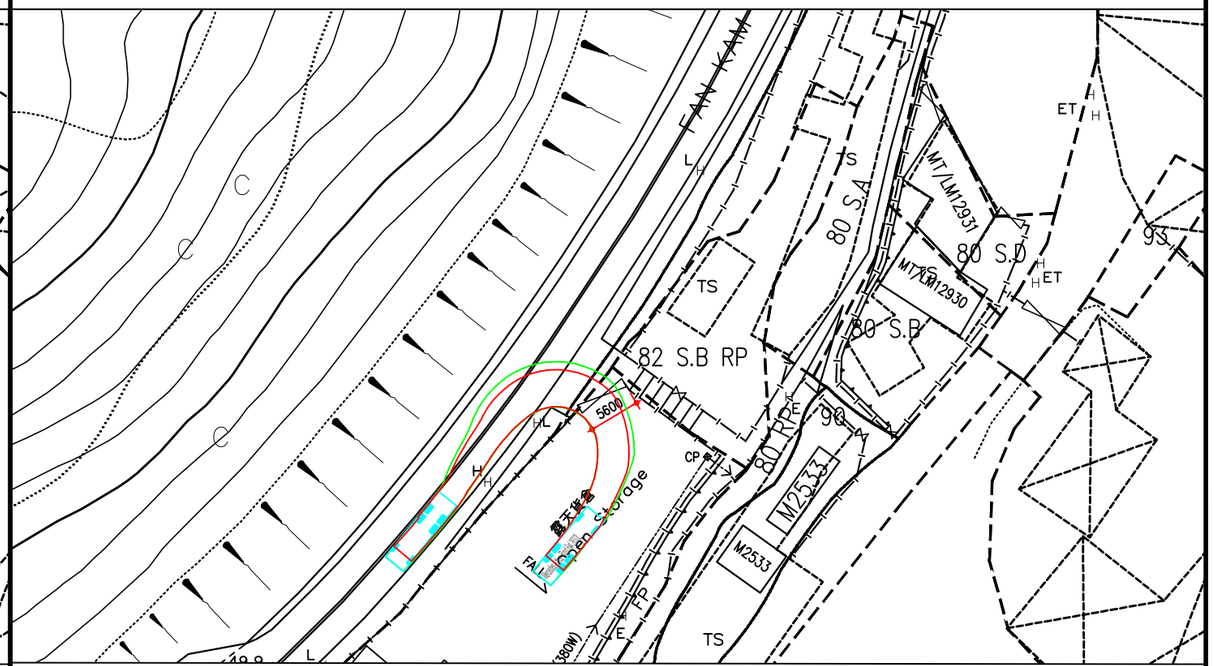
9.3–METRE GOODS VEHICLE MANOEUVRING (ENTER FROM THE RIGHT)
SPEED: 5KM/HR



9.3–METRE GOODS VEHICLE MANOEUVRING (EXIT TO THE RIGHT)
SPEED: 5KM/HR



9.3–METRE GOODS VEHICLE MANOEUVRING (ENTER FROM THE LEFT)
SPEED: 5KM/HR



9.3–METRE GOODS VEHICLE MANOEUVRING (EXIT TO THE LEFT)
SPEED: 5KM/HR

Printed by :
Filename :

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ADDRESS: 2/F & 3/F TUNG HIP COMMERCIAL BUILDING
244 DES VOEUX ROAD CENTRAL HONG KONG
TEL: 2507 8333
FAX: 2598 6576

JOB TITLE:
PROPOSED OPEN STORAGE AND PARKING OF VEHICLE (TEMPORARY BASE) AT SUB-SECTION 1 OF SECTION B OF LOT NO.82 IN DD108, FAN KAM ROAD, PAT HEUNG, YUEN LONG

Drawing Title
SWEPT PATH DEMONSTRATION –
ENTRANCE AND EXIT (OPEN STORAGE PORTION)

Rev	Description	Date

Drawn	IY	Date	05/07/22
Checked	CH	Approved	CH
Scale	1:1000 @ A3		

Drawing No.
TKYLCP_SP_ENTRANCE AND EXIT (OPEN STORAGE PORTION)

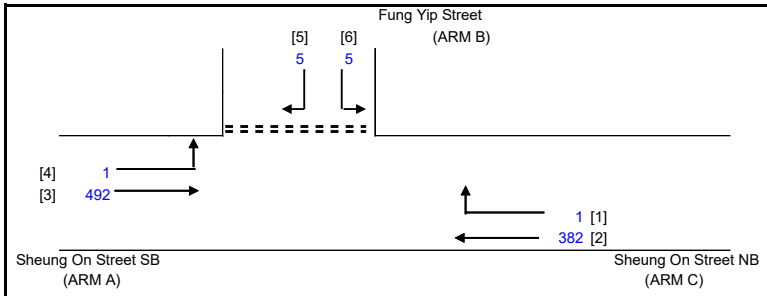
Rev. -

Appendix B

Junction Calculations

PRIORITY JUNCTION CALCULATION

			INITIALS	DATE
S16 for DD108 (Section) Fan Kam Road, Pat Heung, Yuen Long	2024AM	PROJECT NO.: PREPARED BY:	IY	Nov-24
J1: Fan Kam Road / Local Road to Ta Shek Wu Tsuen		FILENAME : CHECKED BY:	HY	Nov-24
		J1_FKR-TSWT.xls REVIEWED BY:	CH	Nov-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.00	(metres)
W cr	=	0	(metres)
q a-b	=	1	(pcu/hr)
q a-c	=	492	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.00	(metres)
Vr c-b	=	250	(metres)
q c-a	=	381.5	(pcu/hr)
q c-b	=	1	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	250	(metres)
Vr b-a	=	250	(metres)
Vr b-c	=	250	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.1116764
E	=	1.0487513
F	=	1.0487513
Y	=	0.793

THE CAPACITY OF MOVEMENT :

Q b-a	=	462		
Q b-c	=	632	Q b-c (O) =	630.3
Q c-b	=	632		
Q b-ac	=	533.8		

TOTAL FLOW = 885.48 (PCU/HR)

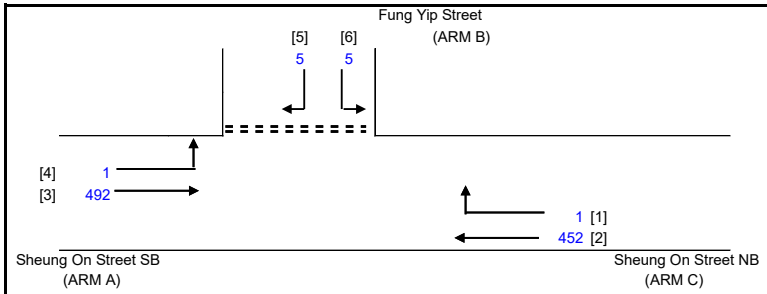
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0108
DFC b-c	=	0.0079
DFC c-b	=	0.0016
DFC b-c (share lane)	=	0.0094

CRITICAL DFC = 0.01

PRIORITY JUNCTION CALCULATION

					INITIALS	DATE
S16 for DD108 (Section) Fan Kam Road, Pat Heung, Yuen Long		2024PM	PROJECT NO.:	PREPARED BY:	IY	Nov-24
J1: Fan Kam Road / Local Road to Ta Shek Wu Tsuen			FILENAME :	CHECKED BY:	HY	Nov-24
			J1_FKR-TSWT.xls	REVIEWED BY:	CH	Nov-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.00	(metres)
W cr	=	0	(metres)
q a-b	=	1	(pcu/hr)
q a-c	=	492	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.00	(metres)
Vr c-b	=	250	(metres)
q c-a	=	451.8	(pcu/hr)
q c-b	=	1	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	250	(metres)
Vr b-a	=	250	(metres)
Vr b-c	=	250	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.1116764
E	=	1.0487513
F	=	1.0487513
Y	=	0.793

THE CAPACITY OF MOVEMENT :

Q b-a	=	447			
Q b-c	=	632	Q b-c (O) =	630.2	
Q c-b	=	632			
Q b-ac	=	523.6			

TOTAL FLOW = 955.76 (PCU/HR)

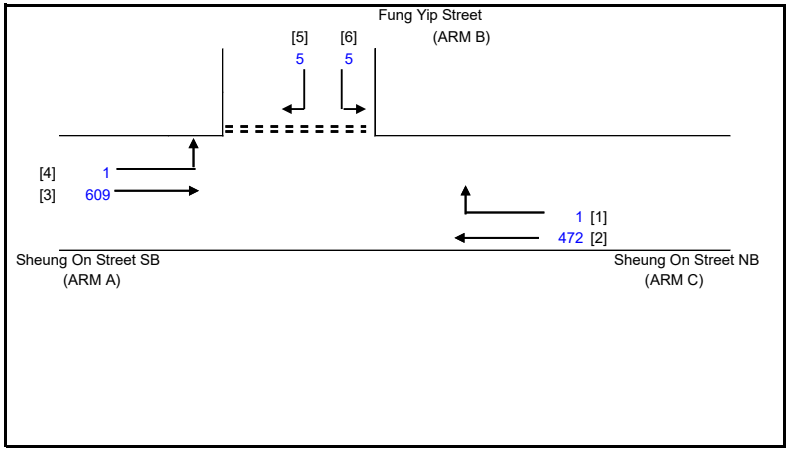
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0112
DFC b-c	=	0.0079
DFC c-b	=	0.0016
DFC b-c (share lane)	=	0.0095

CRITICAL DFC = 0.01

PRIORITY JUNCTION CALCULATION

					INITIALS	DATE
S16 for DD108 (Section) Fan Kam Road, Pat Heung, Yuen Long		2028AMref	PROJECT NO.:	PREPARED BY:	IY	Nov-24
J1: Fan Kam Road / Local Road to Ta Shek Wu Tsuen			FILENAME :	CHECKED BY:	HY	Nov-24
			J1_FKR-TSWT.xls	REVIEWED BY:	CH	Nov-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.00	(metres)
W cr	=	0	(metres)
q a-b	=	1	(pcu/hr)
q a-c	=	609	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.00	(metres)
Vr c-b	=	250	(metres)
q c-a	=	472	(pcu/hr)
q c-b	=	1	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	250	(metres)
Vr b-a	=	250	(metres)
Vr b-c	=	250	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.1116764
E	=	1.0487513
F	=	1.0487513
Y	=	0.793

THE CAPACITY OF MOVEMENT :

Q b-a	=	406		
Q b-c	=	597	Q b-c (O) =	595.2
Q c-b	=	597		
Q b-ac	=	483.3		

TOTAL FLOW = 1092.584806 (PCU/HR)

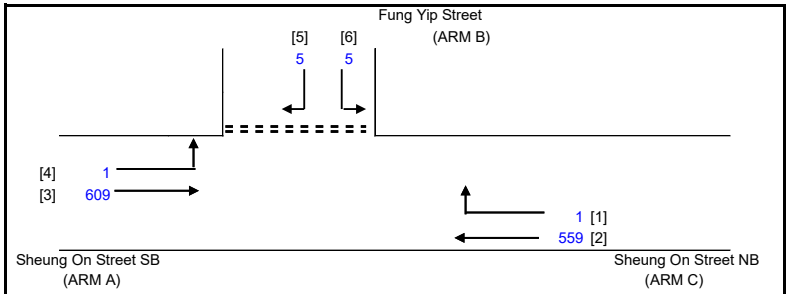
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0123
DFC b-c	=	0.0084
DFC c-b	=	0.0017
DFC b-c (share lane)	=	0.0103

CRITICAL DFC = 0.01

PRIORITY JUNCTION CALCULATION

					INITIALS	DATE
S16 for DD108 (Section) Fan Kam Road, Pat Heung, Yuen Long		2028PMref	PROJECT NO.:	PREPARED BY:	IY	Nov-24
J1: Fan Kam Road / Local Road to Ta Shek Wu Tsuen			FILENAME :	CHECKED BY:	HY	Nov-24
			J1_FKR-TSWT.xls	REVIEWED BY:	CH	Nov-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.00	(metres)
W cr	=	0	(metres)
q a-b	=	1	(pcu/hr)
q a-c	=	609	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.00	(metres)
Vr c-b	=	250	(metres)
q c-a	=	558.9	(pcu/hr)
q c-b	=	1	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	250	(metres)
Vr b-a	=	250	(metres)
Vr b-c	=	250	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.1116764
E	=	1.0487513
F	=	1.0487513
Y	=	0.793

THE CAPACITY OF MOVEMENT :

Q b-a	=	388			
Q b-c	=	597	Q b-c (O) =	595.1	
Q c-b	=	597			
Q b-ac	=	470.3			

TOTAL FLOW = 1179.528411 (PCU/HR)

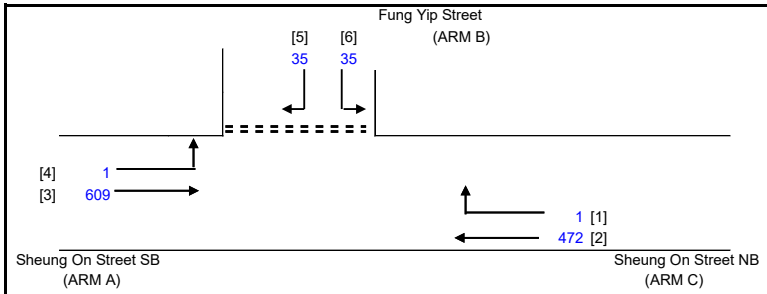
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0129
DFC b-c	=	0.0084
DFC c-b	=	0.0017
DFC b-c (share lane)	=	0.0106

CRITICAL DFC = 0.01

PRIORITY JUNCTION CALCULATION

					INITIALS	DATE
S16 for DD108 (Section) Fan Kam Road, Pat Heung, Yuen Long		2028AMdes	PROJECT NO.:	PREPARED BY:	IY	Nov-24
J1: Fan Kam Road / Local Road to Ta Shek Wu Tsuen			FILENAME :	CHECKED BY:	HY	Nov-24
			J1_FKR-TSWT.xls	REVIEWED BY:	CH	Nov-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.00	(metres)
W cr	=	0	(metres)
q a-b	=	1	(pcu/hr)
q a-c	=	609	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.00	(metres)
Vr c-b	=	250	(metres)
q c-a	=	472	(pcu/hr)
q c-b	=	1	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	250	(metres)
Vr b-a	=	250	(metres)
Vr b-c	=	250	(metres)
q b-a	=	35	(pcu/hr)
q b-c	=	35	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.1116764
E	=	1.0487513
F	=	1.0487513
Y	=	0.793

THE CAPACITY OF MOVEMENT :

Q b-a	=	406			
Q b-c	=	597	Q b-c (O) =	584.1	
Q c-b	=	597			
Q b-ac	=	483.3			

TOTAL FLOW = 1152.584806 (PCU/HR)

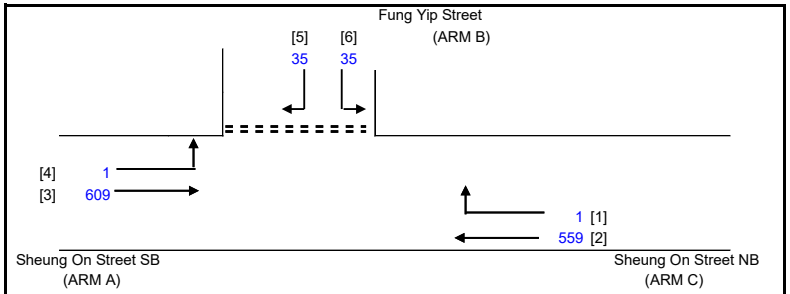
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0862
DFC b-c	=	0.0586
DFC c-b	=	0.0017
DFC b-c (share lane)	=	0.0724

CRITICAL DFC = 0.09

PRIORITY JUNCTION CALCULATION

					INITIALS	DATE
S16 for DD108 (Section) Fan Kam Road, Pat Heung, Yuen Long		2028PMdes	PROJECT NO.:	PREPARED BY:	IY	Nov-24
J1: Fan Kam Road / Local Road to Ta Shek Wu Tsuen			FILENAME :	CHECKED BY:	HY	Nov-24
			J1_FKR-TSWT.xls	REVIEWED BY:	CH	Nov-24



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH
W cr	=	CENTRAL RESERVE WIDTH
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.00	(metres)
W cr	=	0	(metres)
q a-b	=	1	(pcu/hr)
q a-c	=	609	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.00	(metres)
Vr c-b	=	250	(metres)
q c-a	=	558.9	(pcu/hr)
q c-b	=	1	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	250	(metres)
Vr b-a	=	250	(metres)
Vr b-c	=	250	(metres)
q b-a	=	35	(pcu/hr)
q b-c	=	35	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.1116764
E	=	1.0487513
F	=	1.0487513
Y	=	0.793

THE CAPACITY OF MOVEMENT :

Q b-a	=	388			
Q b-c	=	597	Q b-c (O) =	583.5	
Q c-b	=	597			
Q b-ac	=	470.3			

TOTAL FLOW = 1239.528411 (PCU/HR)

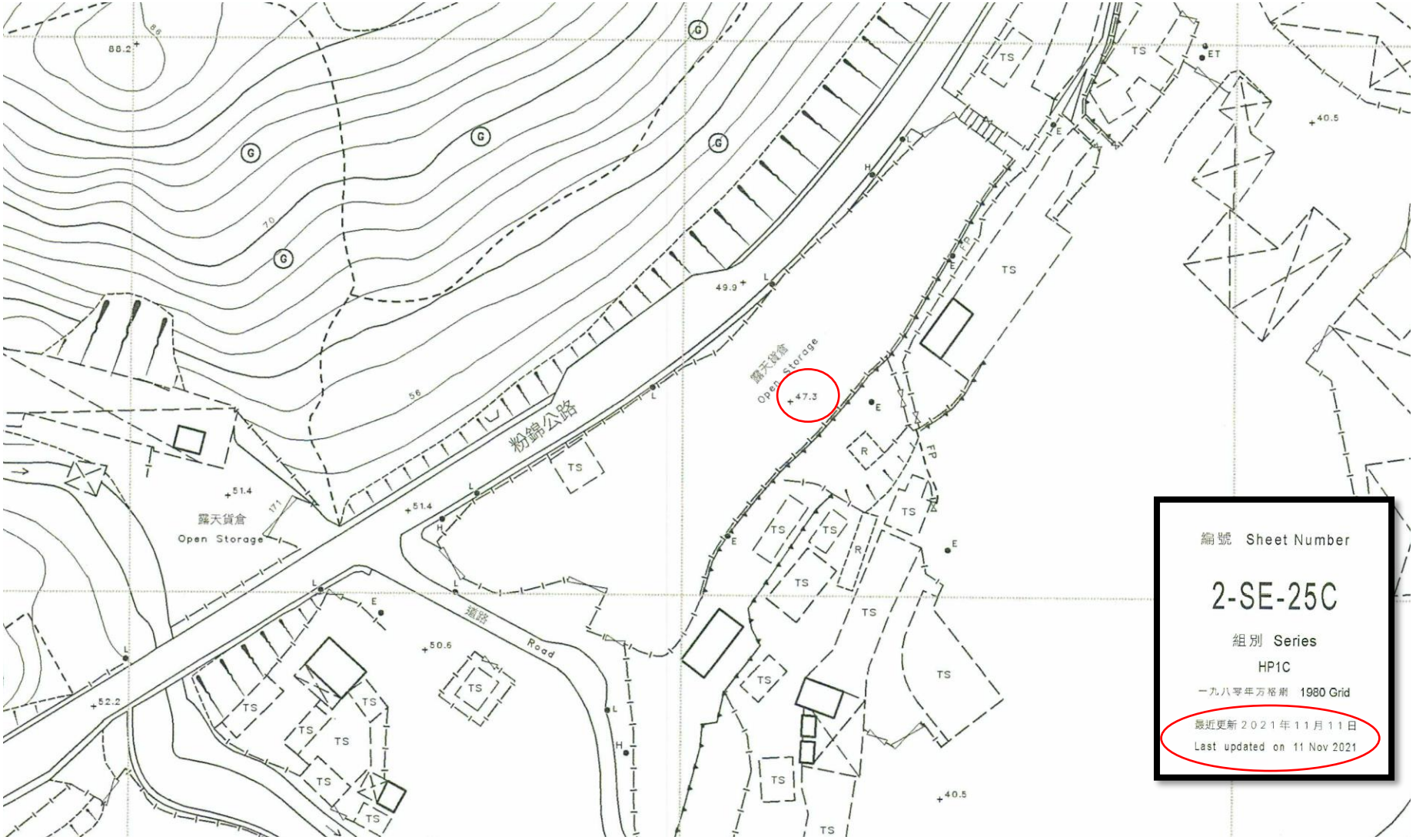
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0902
DFC b-c	=	0.0586
DFC c-b	=	0.0017
DFC b-c (share lane)	=	0.0744

CRITICAL DFC = 0.09

Appendix 8

Historical Survey Sheets



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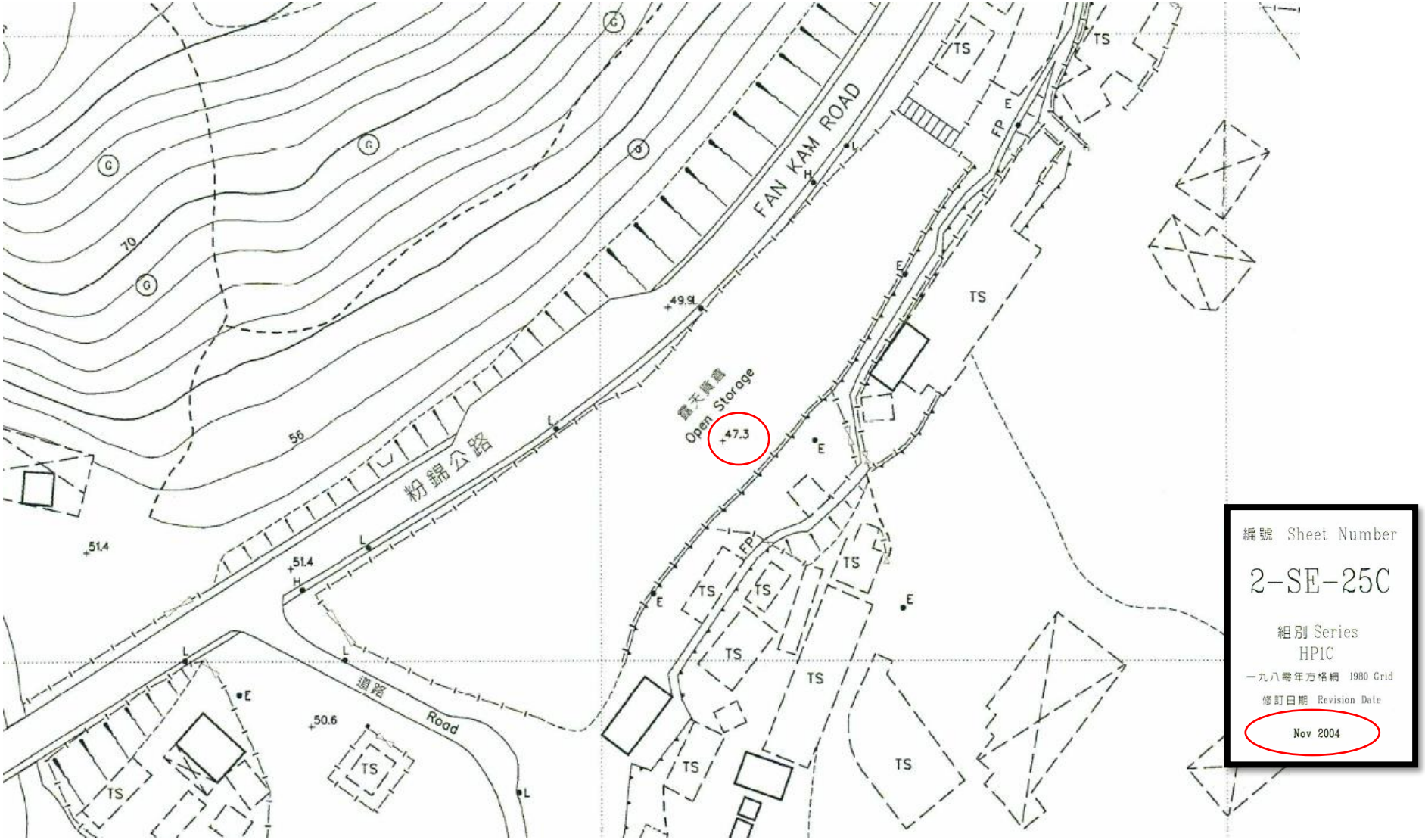
Historical Survey Sheet



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Historical Survey Sheet

Appendix 9

Historical Aerial Photos

A/YL-PH/499
(15/01/2021)

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Historical Aerial Photo

A/YL-PH/499
(29/07/2005)

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Historical Aerial Photo

A/YL-PH/459
(26/03/2004)

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Historical Aerial Photo

A/YL-PH/354
(02/02/2001)

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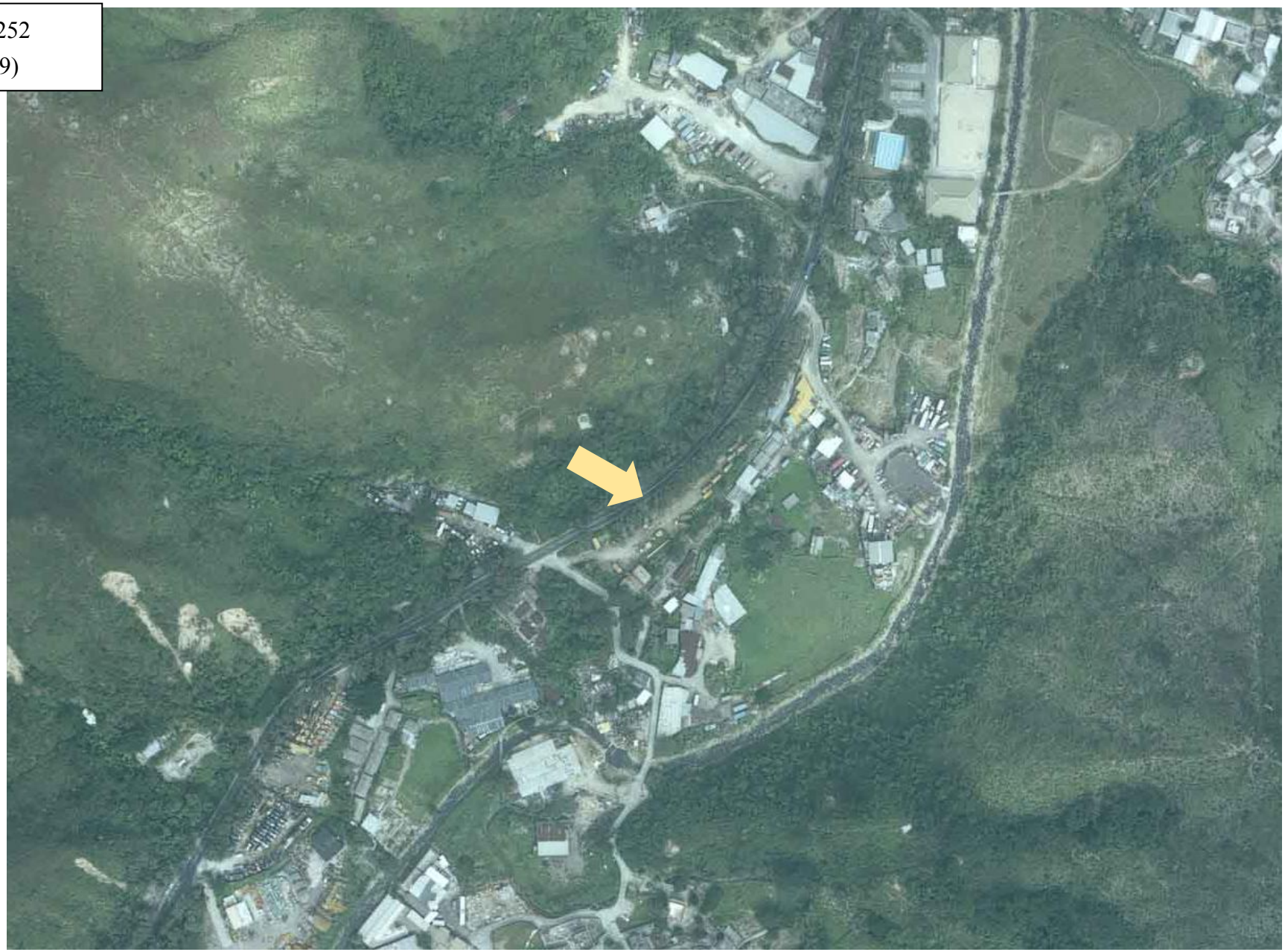
Historical Aerial Photo

A/YL-PH/252
(08/01/1999)



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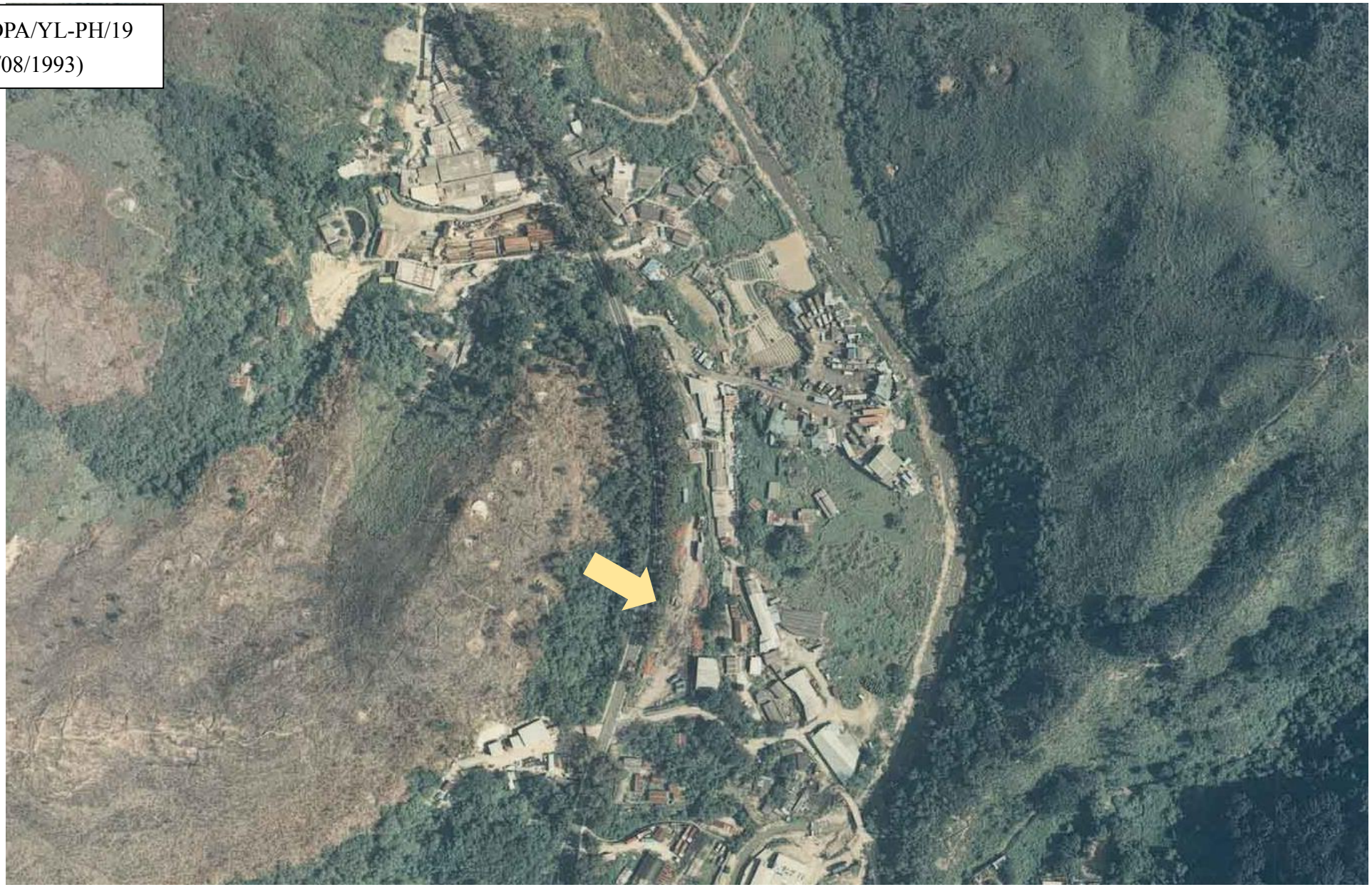
Historical Aerial Photo

A/DPA/YL-PH/19
(13/08/1993)



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Historical Aerial Photo