

Further Information for S16 Application Ref.: TPB/A/TM-LTYY/472

The application site (“site”) is proposed to be as a new permitted burial ground (“PBG”) to cater for:

- the immediate need of relocation of graves/urns at PBG No. BURGD 22 (“BURGD22”) which are heavily affected by Route 11 Project;
- burial ground in line with the villagers’ burial custom; and
- the sentiment of the stakeholders.

Although the portal location of the Lam Tei Tunnel and the alignments of the connecting roads were optimised to shift the Route 11 alignment to the western portion of the PBG to minimize the impact, the significant portion of BURGD22 is affected. It is expected that 87 number of graves and 55 numbers of urns will be affected and need to be relocated.

During public consultation of the Route 11 project, requests for optimising existing PBGs for increased burial spaces have been raised by leaders of local rural community, including Hon LAU Ip-keung, Kenneth (ExCo and LegCo Member, Chairman of Heung Yee Kuk, TMDC member, and Chairman of Tuen Mun Rural Committee (“TMRC”)) and Mr TSANG Chin-Hung (1st Vice-chairman of TMRC), at the Traffic and Transport Committee of the TMDC on 9 June 2023, and at a joint meeting on 13 June 2023 attended by TMRC members, Tuen Mun District Office, District Lands Office/ Tuen Mun, and Highways Department. In response to their request, the Government has agreed to provide assistance to local stakeholders with the application for new PBGs at the joint meeting held on 13 June 2023. Highways Department agreed to provide assistance to the local stakeholders to submit planning application.

Home Affairs Department (“HAD”) was consulted for this application and advised that:-

1. HAD has no adverse comment on this this application;
2. BURGD 22 is mainly used by villagers in Nai Wai and Sun Fung Wai. Owing to the Route 11 project, BURGD 22 will be heavily affected;
3. In line with established village traditions, villagers shall conduct hillside burial activities at the PBG closest to their village (or following the customs of their clan), upon obtaining the support from respective indigenous inhabitant representative(s). Villagers of a certain village do not normally

conduct burial activities in other PBGs.

4. With the commencement of the Route 11 project, TMRC and concerned village representatives ("VRs") have expressed grave concerns of insufficient burial spaces for the villages affected and have strongly requested the Government to provide assistance with the application for a PBG.
5. TMRC and VRs support the proposed PBG application. The application site will be roughly the same size as the area of BURGD 22 affected by the Route 11 project.

Impact assessments on various aspects including traffic, environmental, geotechnical, drainage, sewerage and air ventilation have been carried out. It is concluded that there is minor or insignificant impact due to the proposed land use.

Based on the aforementioned considerations and the result of impact assessments, the Town Planning Board is recommended to grant the permission on this application under Section 16 of the Town Planning Ordinance (Cap. 131).

Submission of Further Information for S16 Application Ref.: TPB/A/TM-LTYY/472

Agreement No. CE 13/2021 (HY)

Route 11 (Section between Yuen Long and North Lantau) – Investigation

Responses to Comments on

REP-205-00 S16 for New PBG - Methodology Paper for Traffic Review

Comments received:	Arup Responses:
(1) From: TD/NT Regional Office Ref: Nil (by Email) Date: 19 July 2024 Time: 12:05pm (1) Sect 2.2.1 - Delete "and pedestrian surveys will not be conducted for assessment in this traffic review" in the 2nd paragraph. (2) Sect 3.1.1 - "Chui Fuk Road" instead of "Chiu Fuk Road".	The sentence in Section 2.1.3 is deleted accordingly. Section 3.1.1 and Footnote 1 are revised accordingly.

Major Works Project Management Office
Highways Department of HKSAR

**Agreement No. CE 13/2021 (HY)
Route 11 (Section between Yuen Long and
North Lantau) – Investigation**

Application for Permission under Section 16 of the
Town Planning Ordinance (Cap. 131) for New
Permitted Burial Ground at Lam Tei - Traffic Review
Report

REP-207-00

Issue 1 | 22 July 2024

This report takes into account the particular
instructions and requirements of our client.

It is not intended for and should not be relied
upon by any third party and no responsibility
is undertaken to any third party.

Job number 284104

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Figure 1 Location of New Permitted Burial Ground

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Appendix A Summary of Peak Hour Traffic Flow

Appendix B Detailed Junction Calculation

Nomenclature and Abbreviations

AADT	Annual Average Daily Traffic
ATC	Annual Traffic Census
BURGD22	Permitted Burial Ground Site No. BURGD22
DFC	Design Flow to Capacity
ExCo	Executive Council
LegCo	Legislative Council
NWNT	Northwest New Territories
OVT	Old and Valuable Trees
OZP	Outline Zoning Plan
PBG	Permitted Burial Ground
R11	Route 11
TIA	Traffic Impact Assessment
TMDC	Tuen Mun District Council
TMRC	Tuen Mun Rural Committee
TPEDM	Territorial Population and Employment Data Matrix
TPI	Tree of Particular Interest
TPO	Town Planning Ordinance
V/C	Volume over Capacity

1 Introduction

1.1 Purpose of this Report

1.1.1 Following to the memo ref. TPB/A/TM-LTYY/472 dated 30 April 2024, and Transport Department's reply (memo ref. (NQM7T) in TD NR157/161/TMDD-130 dated 22 May 2024), a traffic review should be conducted to reveal the existing traffic conditions and to estimate the traffic impact brought by the new Permitted Burial Ground (PBG) on Chui Fuk Road and Fu Fuk Road, which is a branch road of Chui Fuk Road.

1.2 Objectives of Traffic Review

1.2.1 The key objective of the traffic review is to support the proposed new PBG as shown in **Figure 1**, which allows relocation of graves/ urns in BURGD22 (affected portion)¹ and new burial certificate applications. Traffic conditions will be appreciated to ensure that the new PBG would be feasible in terms of traffic without causing adverse impacts on Chui Fuk Road and Fu Fuk Road.

1.2.2 To achieve this objective, the major tasks can be summarised as follows:

- to assess the existing traffic conditions on Chui Fuk Road and Fu Fuk Road;
- to estimate traffic generation due to the new PBG, the existing graves/ urns in the vicinity of BURGD22 (affected portion) and the portion of BURGD21 accessed by Chui Fuk Road during Ching Ming Festival;
- to assess the impacts of the generated traffic on Chui Fuk Road and Fu Fuk Road using the forecasted background flows and the aforementioned estimated traffic generation; and
- to recommend improvement measures, if necessary, to alleviate any traffic problems on Chui Fuk Road and Fu Fuk Road.

1.3 Structure of the Report

1.3.1 Following this introductory chapter, there are four further chapters:

Chapter 2 – Describes the existing traffic conditions;

Chapter 3 – Presents the trip generation of the burial grounds and the design year traffic forecasts; reports the results of the junction and link capacity assessments during Ching Ming Festival; and recommends measures to improve the traffic condition, if considered necessary; and

Chapter 4 – Summarises and concludes the study.

¹ BURGD22 (affected portion) is the portion of existing permitted burial ground BURGD22 which is within the Route 11 limit of works, which is likely to be accessed through Chui Fuk Road and planned to be resumed ; hence, the graves/ urns in the BURGD22 (affected portion) are planned to be relocated to new PBG under this application.

2 Existing Traffic Condition

2.1 Existing Traffic Condition

- 2.1.1 The new PBG is served by Chui Fuk Road and Fu Fuk Road, which are feeder roads that connect remote settlements in Fu Tei Ha Tsuen to external road networks. The location of the new PBG and its environs in the vicinity are shown in **Figure 1**.
- 2.1.2 To appreciate the existing traffic conditions, comprehensive classified traffic counts were conducted at the following key junctions and links at AM, Noon, and PM peak hours on a normal weekday and a normal weekend. Locations of these surveyed junctions and links are listed in below **Table 2-1** and illustrated in **Figure 2**. The traffic survey schedule is listed in **Table 2-2** below.
- 2.1.3 Based on the trip estimation in **Table 3-6** (under Section 3.3 of this Report), the anticipated number of 2-way hourly pedestrian trips induced by the concerned PBGs is minimal, i.e. 190 ped/hr which is about 3 ped/min. Therefore, it is expected that there will not be significant pedestrian impact due to the PBG.

Table 2-1 – Assessed Junctions and links

Junction No. / Link No.	Location	Type
J1	Chui Fuk Road / Fuk Hang Tsuen Road	Priority Junction
J2	Chui Fuk Road / Fu Fuk Road	Priority Junction
L1	Chui Fuk Road	Road Link
L2	Fu Fuk Road	Road Link

Table 2-2 – Traffic Survey Schedule

Survey Day	Survey Period	Duration
Weekday - 13 June 2024	07:30 - 09:30; 12:00 - 14:00; 17:30 - 19:30	6 hrs
Weekend - 15 June 2024	07:30 - 09:30; 12:00 - 14:00; 17:30 - 19:30	6 hrs

- 2.1.4 From the observed traffic flows in 2024, the weekday AM, Noon, and PM peak hours were identified as 0730-0830 hours, 1230-1330 hours and 1730-1830 respectively. The weekend AM, Noon, and PM peak hours were identified as 0800-0900 hours, 1215-1315 hours and 1730-1830 respectively. The recorded peak hours traffic flows are enclosed in **Appendix A**.
- 2.1.5 Junction and link capacity assessment was carried out. Results of the capacity assessment are shown in **Table 2-3** to **Table 2-6** below.
- 2.1.6 For priority junctions, the performance indicator is the Design Flow to Capacity (DFC) ratio. A DFC ratio less than 1.0 indicates that the junction is operating within design capacity. A DFC ratio greater than 1.0 indicates that the junction is overloaded, resulting in traffic queues and longer delay time to the minor arm

traffic. As per TPDM Volume 2 Chapter 4.3 Cl. 4.3.6.5 for priority junction, a DFC of 0.85 would indicate a reasonable capacity provision which would prevent queuing in most cases. The junction calculation sheets are enclosed in **Appendix B**.

- 2.1.7 For road links, the performance is evaluated by volume over capacity (V/C) ratio. As per TPDM Volume 1 Chapter 1.4 Cl. 1.4.7.5, a V/C of 0.85 or less indicates a desirable level of traffic on the proposed road with spare capacity for additional traffic in future.

Table 2-3 – Year 2024 Existing Weekday Junction Performance

Junction No.	Location	Junction Performance (DFC)		
		AM	Noon	PM
J1	Chui Fuk Road / Fuk Hang Tsuen Road	0.11	0.12	0.07
J2	Chui Fuk Road / Fu Fuk Road	0.02	0.01	0.01

Table 2-4 – Year 2024 Existing Weekend Junction Performance

Junction No.	Location	Junction Performance (DFC)		
		AM	Noon	PM
J1	Chui Fuk Road / Fuk Hang Tsuen Road	0.08	0.09	0.06
J2	Chui Fuk Road / Fu Fuk Road	0.01	0.01	0.01

Table 2-5 – Year 2024 Existing Weekday Road Link Performance

Link No.	Location	Type	Capacity (veh/hr, 2 way)	AM		Noon		PM	
				Flow (veh/hr, 2 way)	V/C	Flow (veh/hr, 2 way)	V/C	Flow (veh/hr, 2 way)	V/C
L1	Chui Fuk Road	Single-2	800	104	0.13	42	0.05	74	0.09
L2	Fu Fuk Road	Single Track Access Road	100	14	0.14	8	0.08	4	0.04

Table 2-6 – Year 2024 Existing Weekend Road Link Performance

Link No.	Location	Type	Capacity (veh/hr, 2 way)	AM		Noon		PM	
				Flow (veh/hr, 2 way)	V/C	Flow (veh/hr, 2 way)	V/C	Flow (veh/hr, 2 way)	V/C
L1	Chui Fuk Road	Single-2	800	56	0.07	32	0.04	55	0.07
L2	Fu Fuk Road	Single Track Access Road	100	7	0.07	8	0.08	11	0.11

- 2.1.8 Results of the analysis indicate that all assessed junctions and links are operating within capacity. It is noted that the recorded peak hour traffic flows and junction and link performance on weekday are in general more critical than those of weekend. Therefore, a conservative approach is adopted in this traffic review by taking the existing weekday traffic flows for further assessment of the impacts due to the new PBG during Ching Ming Festival in following Section 3.

3 Future Traffic Condition

3.1 Assessment Scenarios and Design Year

3.1.1 For the assessment of the traffic condition with the new PBG in place, Year 2029 is adopted as the design year in this study, which is 3 years after the expected completion of relocation of all affected graves/ urns (i.e. at Year 2026). Two assessment scenarios will be assessed for the design year, namely:

- 2029 Reference Case (2029 Background Traffic Flows, by applying annual growth rate to the 2024 surveyed weekday peak hour traffic flow + generated/attracted traffic related to the existing PBGs in the vicinity (i.e. BURGD21, BURGD22 and its vicinity accessed through Chui Fuk Road) during Ching Ming Festival)
- 2029 Design Case (2029 Reference Case Traffic Flows + generated/attracted traffic related to the new PBG during Ching Ming Festival, with graves and urns in BURGD22 (affected portion) relocated to the new PBG)

3.1.2 The methodology adopted to forecast the traffic for the future years is presented in the next section.

3.1.3 The forecasted design year 2029 peak hours traffic flows of different scenarios are presented in **Appendix A**.

3.2 Traffic Forecast - Background Traffic Growth

3.2.1 The design year 2029 traffic forecasts are derived by applying annual growth rate to the existing year 2024 weekday peak hours traffic flow. The growth factor would be estimated based on the historical traffic data from ATC published by Transport Department and Territorial Population and Employment Data Matrix (TPEDM) data adopted in the Route 11 Investigation Study, as detailed below.

Annual Traffic Census (ATC):

3.2.2 Reference was made to ATC on the historical annual average daily traffic (AADT) recorded for the past 5 years at counting stations of local roads in the vicinity of the proposed site. The corresponding traffic flows are summarised in **Table 3-1** below.

Table 3-1 – Summary of Annual Average Growth Rate by Annual Traffic Census

Station No.	Location	2018 AADT	2019 AADT	2020 AADT	2021 AADT	2022 AADT	Annual Growth Rate (2018 to 2022) p.a.
5296	Castle Peak Rd – Lingnan	10,030	11,350	10,880	11,320	10,980	3.79%
6213	Castle Peak Rd – Hung Shui Kiu	32,740	33,220	34,710	34,800	34,500	1.32%
6604	Lam Tei Main St	880	960	950	1,020	1,070	5.01%

Station No.	Location	2018 AADT	2019 AADT	2020 AADT	2021 AADT	2022 AADT	Annual Growth Rate (2018 to 2022) p.a.
	Total	43,650	45,530	46,540	47,140	46,550	1.62%

- 3.2.3 As revealed in above table, a growth rate of **1.62%** is derived from historical traffic data in ATC.

Territorial Population and Employment Data Matrix (TPEDM):

- 3.2.4 Reference was made to TPEDM data adopted in the Route 11 Investigation Study to obtain the annual growth rate. The growth rate of corresponding Planning Data Zone (PDZ) is summarised in **Table 3-2** below.

Table 3-2 – Summary of Annual Average Growth Rate by TPEDM

Planning Data Zone		Planning Data of 2019	Planning Data of 2031	Annual Growth Rate (2019 to 2031) p.a.
365	Population	8,600	6,600	-2.18%
	Employment	1,500	1,100	-2.55%
	Total	10,100	7,700	-2.24%

- 3.2.5 As revealed in above table, a growth rate of **-2.24%** is derived from TPEDM data.

- 3.2.6 In order to achieve a conservative approach to the assessment, the larger growth rate derived from ATC will be taken. The adopted annual growth rate is summarized in **Table 3-3** below. This annual growth rate will be used for estimation of reference case traffic flow in the traffic review.

Table 3-3 – Final Adoption of Annual Growth Rate by Comparison

Annual Growth Rate from ATC	Annual Growth Rate from TPEDM	Adopted Annual Growth Rate	Source
1.62%	-2.24%	1.62%	ATC

3.3

Traffic Generation of the PBGs

- 3.3.1 In order to estimate the vehicle demand to be generated by the new PBG, the existing graves/ urns in the vicinity of BURGD22 (affected portion) and the portion of BURGD21 accessed by Chui Fuk Road during Ching Ming Festival, references are made to Arup's in-house trip rates data of similar facilities. This set of trip rates are derived by observing the peak hour person trips at various private columbarium sites in New Territories on Ching Ming Festival in 2023. The number of niches/graves of the observed columbarium and the associated trip rates are shown in **Table 3-4**.

Table 3-4 – Trip Rate of Surveyed Columbaria on 2023 Ching Ming Festival

Location	No. of Niches	Peak Hour Trip Rate (person/niche/hour)		
		In	Out	Total
Tsing Shan Tsuen, Tuen Mun	13,200	0.087	0.084	0.171
Ching Chung Sin Yuen, Tuen Mun	98,000	0.069	0.066	0.135
Po Fook Hill, Shatin	56,300	0.099	0.099	0.198
To Fung Shan, Shatin	3,000	0.130	0.121	0.251
Lung Shan Temple, Fanling	17,600	0.009	0.010	0.019
Yuen Yuen Institute, Tsuen Wan	50,000	0.120	0.116	0.237
Kwai Chung Columbarium, Kwai Chung	3,300	0.141	0.129	0.269
Fung Ying Sin Koon, Fanling	28,000	0.147	0.142	0.289
Adopted Trip Rate		0.147	0.142	0.289

- 3.3.2 For conservative approach, the highest trip rate observed amongst the surveyed sites will be adopted to estimate the peak hour pedestrian trip flows associated with the PBG. The trip rates are shown in bolded in **Table 3-4**.
- 3.3.3 It is recorded that there are around 180 nos. of graves and 251 nos. of urns in BURGD22 (affected portion) and its vicinity likely to be accessed by Chui Fuk Road up until November 2023. Among them, it is expected that 87 nos. graves and 55 nos. urns will be affected by the works of Route 11 and will be fully relocated to the new PBG by 2026. Assuming BURGD21 has similar grave features distribution as BURGD22, BURGD21 is estimated to have 640 nos. grave features proportional to its area. In addition, it is noted that BURGD21 is accessible from Tuen Kwai Road, Fui Tei Road and Chui Fuk Road. It is assumed that 1/3 of the grave sweepers of BURGD21 (i.e. $640 / 3 = 214$ nos. of grave) would access via Chui Fuk Road.
- 3.3.4 Based on the record from 1983 to 2023, the average number of annual issuance of Burial Certificates for BURGD21 and BURGD22 is 3.5 and 1.5 respectively. To estimate the future number of graves and urns of BURGD21 and the new PBG in the design year, the number of issuance of Burial Certificate will be conservatively taken as 4 and 2 per year for BURGD21 and the new PBG respectively. The anticipated number of graves and urns of the portion of BURGD21 likely to be accessed by Chui Fuk Road (i.e. 1/3 portion), BURGD22 (affected portion) and the new PBG is shown in **Table 3-5**.

Table 3-5 – Anticipated numbers of graves/ urns in the new PBG, BURGD22 (Affected Portion) and the portion of BURGD21 likely to be accessed by Chui Fuk Road (i.e. 1/3 portion)

Location	Year 2024 Number of Graves/ Urns	Year 2026 Number of Graves/ Urns	Year 2029 Number of Graves/ Urns
BURGD21 (1/3 portion)	214 +	217 ++	221 +++
BURGD22 (affected portion) and its vicinity	431 *	289 **	289 **
New PBG	-	146 #	152 ##

Note:

+ 640 / 3

++ 214 + 4x(2026-2024) / 3

+++ 214 + 4x(2029-2024) / 3

* 180+251

** (180+251) - (87+55)

(87+55) + 2x(2026-2024)

(87+55) + 2x(2029-2024)

- 3.3.5 As the closest public transport service is situated in more than 1 km away from the subject burial grounds, it is conservatively assumed that all visitors will access the burial grounds by private vehicles or taxis, with assumption of 2 passengers per vehicle. The associated pedestrian and vehicular trip generated and attracted by the burial grounds in the design year are shown in **Table 3-6**.

Table 3-6 – Anticipated Number of Trips in Peak Hour

Location	Number of Graves/ Urns in Year 2029	Trip Rate (person/niches/hr)		Pedestrian Trips (ped/hr)		No. of Passenger per Vehicle	Vehicular Trips (pcu/hr)	
		In	Out	In	Out		In	Out
BURGD21 (1/3 portion) **	221	0.147	0.142	32	31	2	16	16
BURGD22 (affected portion) and its vicinity *	289	0.147	0.142	42	41	2	21	21
New PBG **	152	0.147	0.142	22	22	2	11	11

Note:

* Accessed via Chui Fuk Road only

** Accessed via Chui Fuk Road & Fu Fuk Road

3.4 Junction and Link Capacity Assessment

3.4.1 Junction and link capacity assessment was undertaken. The performance of the assessed junctions and links for the Year 2029 reference and design scenarios are listed in **Tables 3-7 and 3-8**. The junction calculation sheets are attached in **Appendix B**.

Table 3-7 – Year 2029 Junction Performance during Ching Ming Festival

Junction No.	Location	Junction Performance (DFC)					
		Reference Case			Design Case		
		AM	Noon	PM	AM	Noon	PM
J1	Chui Fuk Road / Fuk Hang Tsuen Road	0.20	0.14	0.16	0.20	0.14	0.16
J2	Chui Fuk Road / Fu Fuk Road	0.06	0.05	0.04	0.07	0.07	0.06

Table 3-8 – Year 2029 Road Link Performance during Ching Ming Festival

Link No.	Location	Type	Capacity (veh/hr, 2 way)	Reference Case						Design Case					
				AM		Noon		PM		AM		Noon		PM	
				Flow (veh/hr, 2 way)	V/C										
L1	Chui Fuk Road	Single-2	800	209	0.26	145	0.18	182	0.23	209	0.26	145	0.18	182	0.23
L2	Fu Fuk Road	Single Track Access Road	100	57	0.57	50	0.50	46	0.46	79	0.79	72	0.72	68	0.68

3.4.2 All analysed results revealed the assessed junctions and links would still be performing with ample capacity in Year 2029 with the new PBG in place during Ching Ming Festival.

4 Summary and Conclusion

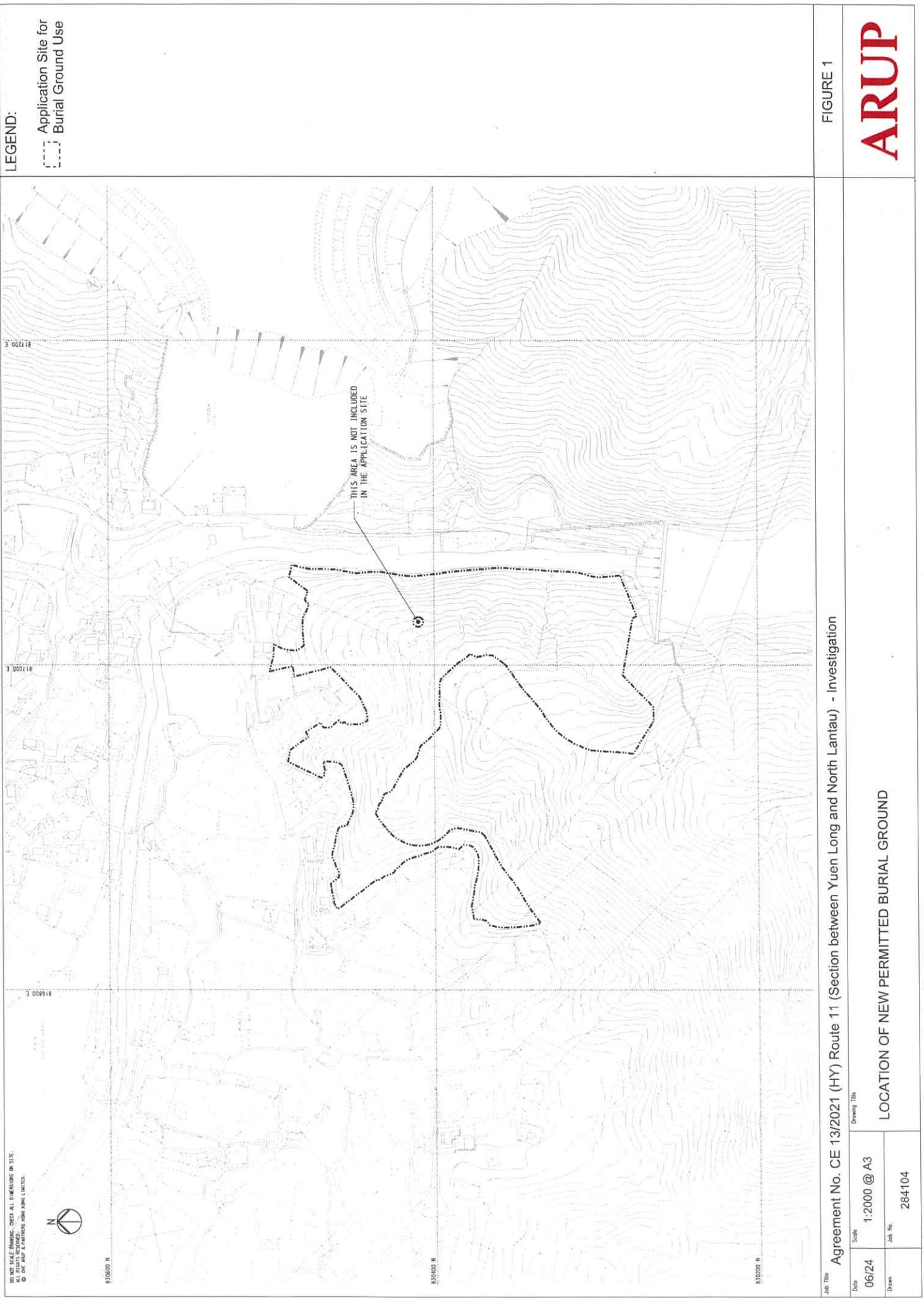
4.1 Summary

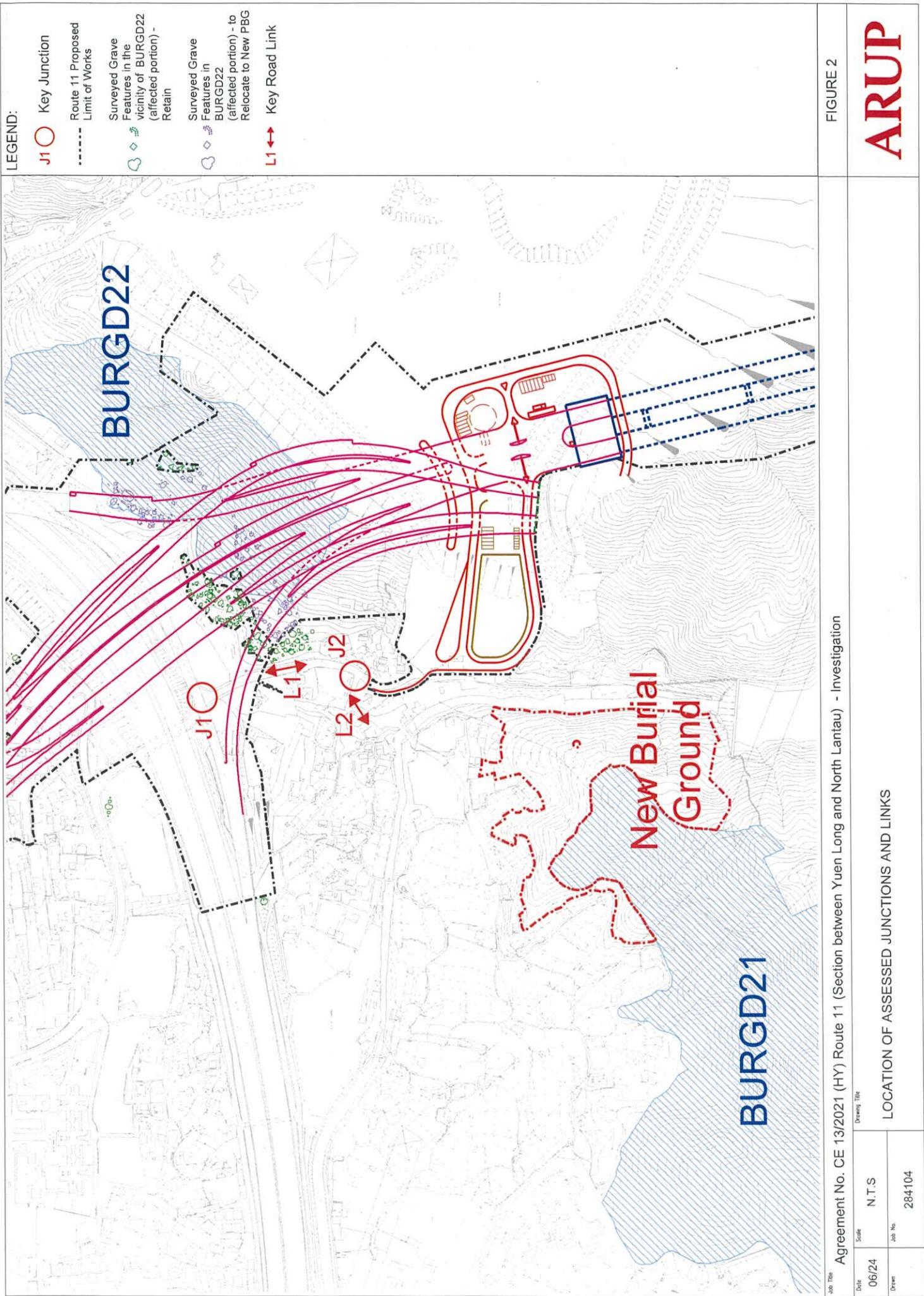
- 4.1.1 Following the memo ref. TPB/A/TM-LTYY/472 dated 30 April 2024, and Transport Department's reply (memo ref. (NQM7T) in TD NR157/161/TMDD-130 dated 22 May 2024), a traffic review was conducted to reveal the existing traffic conditions and to estimate the traffic impact brought by the new PBG on Chui Fuk Road and Fu Fuk Road.
- 4.1.2 To appreciate the existing traffic conditions, comprehensive classified traffic counts were conducted at the key junctions and links. Junction and link capacity analysis have been carried out at the assessed junctions and road links and the results indicated that all assessed junctions and links are currently operating within capacity during both morning, noon and evening peaks on weekday and weekend.
- 4.1.3 Traffic forecast and junction and link capacity assessment were undertaken for scenarios of design year 2029. All analysed results revealed that the assessed junctions and links would be performing with ample capacity with the new PBG in place during Ching Ming Festival.

4.2 Conclusion

- 4.2.1 Based on the above discussion, it is concluded that the new PBG would not induce adverse impact on the surrounding road network. Therefore, the new PBG is considered acceptable in traffic point of view.

Figures

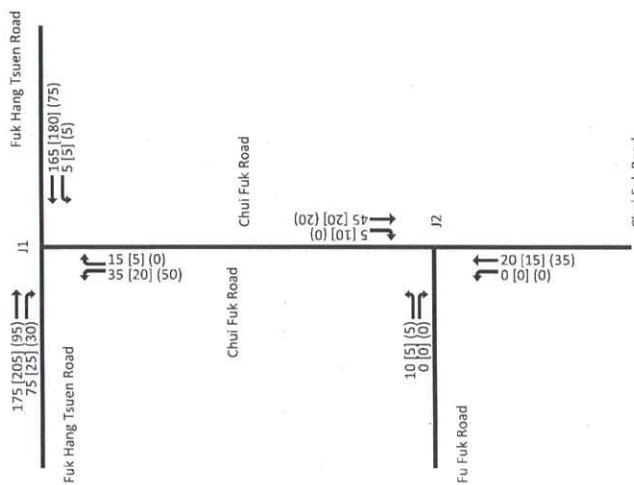




Appendix A

Summary of Peak Hour Traffic Flow

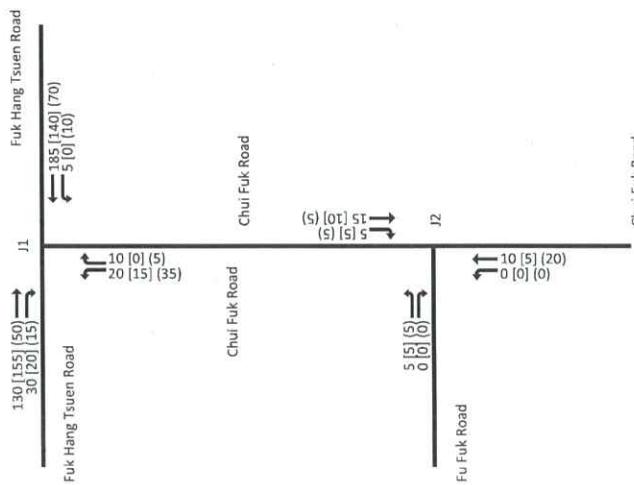
LEGEND:
100 AM PEAK HOUR FLOW (PCU/HR)
(100) Noon PEAK HOUR FLOW (PCU/HR)
(100) PM PEAK HOUR FLOW (PCU/HR)



Project Title:
Agreement No. CE 13/2021 (HY)
Route 11 (Section between Yuen Long and
North Lantau) – Investigation

Drawing Title:
2024 OBSERVED WEEKDAY PEAK HOUR
TRAFFIC FLOW (SHEET 1 OF 1)

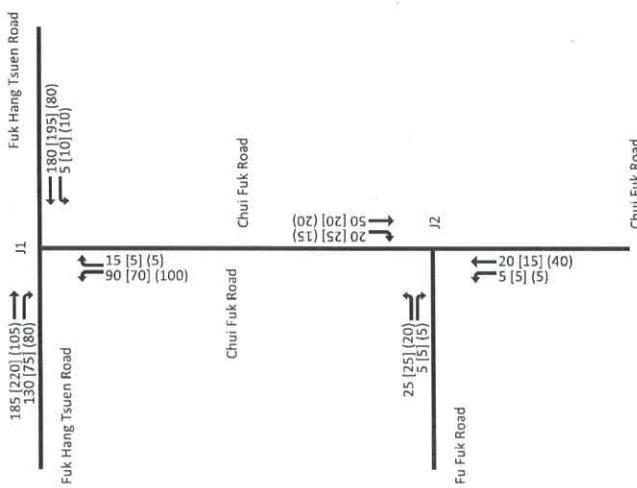
LEGEND:
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(100) PM PEAK HOUR FLOW (PCU/HR)



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Drawing Title:
2024 OBSERVED WEEKEND PEAK HOUR
TRAFFIC FLOW (SHEET 1 OF 1)

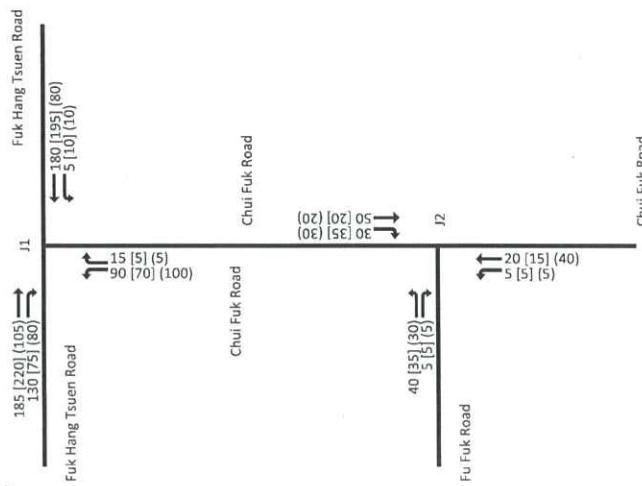
LEGEND:
100 AM PEAK HOUR FLOW (PCU/HR)
[100] Noon PEAK HOUR FLOW (PCU/HR)
(100) PM PEAK HOUR FLOW (PCU/HR)



Project Title:
Agreement No. CE 13/2021 (HY)
Route 11 (Section between Yuen Long and
North Lantau) - Investigation

Drawing Title:
2029 REFERENCE CASE WEEKDAY PEAK HOUR
TRAFFIC FLOW

LEGEND:
100 AM PEAK HOUR FLOW (PCU/HR)
[100] Non PEAK HOUR FLOW (PCU/HR)
(100) PM PEAK HOUR FLOW (PCU/HR)



Project Title:
Agreement No. CE 13/2021 (HY)
Route 11 (Section between Yuen Long and
North Lantau) – Investigation

Drawing Title:
2029 DESIGN CASE WEEKDAY PEAK HOUR
TRAFFIC FLOW

Appendix B

Detailed Junction Calculation

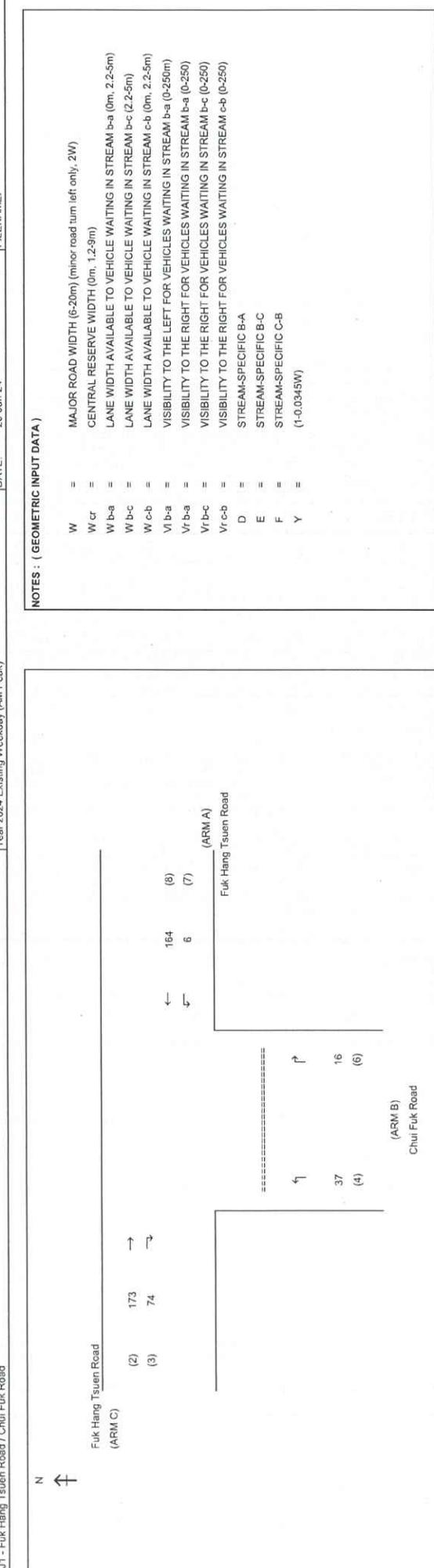
OVE ARUP & PARTNERS

Junction Assessment

J1 - Fuk Hang Tsuen Road / Chui Fuk Road

PRIORITY JUNCTION CALCULATION

Year 2024 Existing Weekday (AM Peak)



GEOMETRIC DETAILS:		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)		D	=	Q _{b-a}	=	DFC _{b-a}	=
W	=	7.50	(metres)	0.887		465	0.0344
W _{cr}	=	0	(metres)	0.949		665	0.0556
q _{a-b}	=	6	(pcu/hr)	0.932		652	0.1135
q _{a-c}	=	164	(pcu/hr)	0.741		589	0.1084
MINOR ROAD (ARM C)		Y	=	Q _{c-a}	=	DFC _{b-c}	=
W _{c-b}	=	3.75	(metres)			1596	0.0900
W _{b-c}	=	35	(metres)				
V _{r-c-b}	=	173	(pcu/hr)				
q _{c-b}	=	74	(pcu/hr)				
MAJOR ROAD (ARM B)						TOTAL FLOW	= 470 (PCU/HR)
W _{b-a}	=	4.00	(metres)			CRITICAL DFC	= 0.11
W _{b-c}	=	4.00	(metres)				
V _{r-b-a}	=	40	(metres)				
V _{r-b-a}	=	30	(metres)				
V _{r-b-c}	=	30	(metres)				
q _{b-a}	=	16	(pcu/hr)				
q _{b-c}	=	37	(pcu/hr)				

OVE ARUP & PARTNERS

Junction Assessment

PRIORITY JUNCTION CALCULATION

J1 - Fuk Hang Tsuen Road / Chui Fuk Road

PROJECT NO:

297978

FILE NAME:

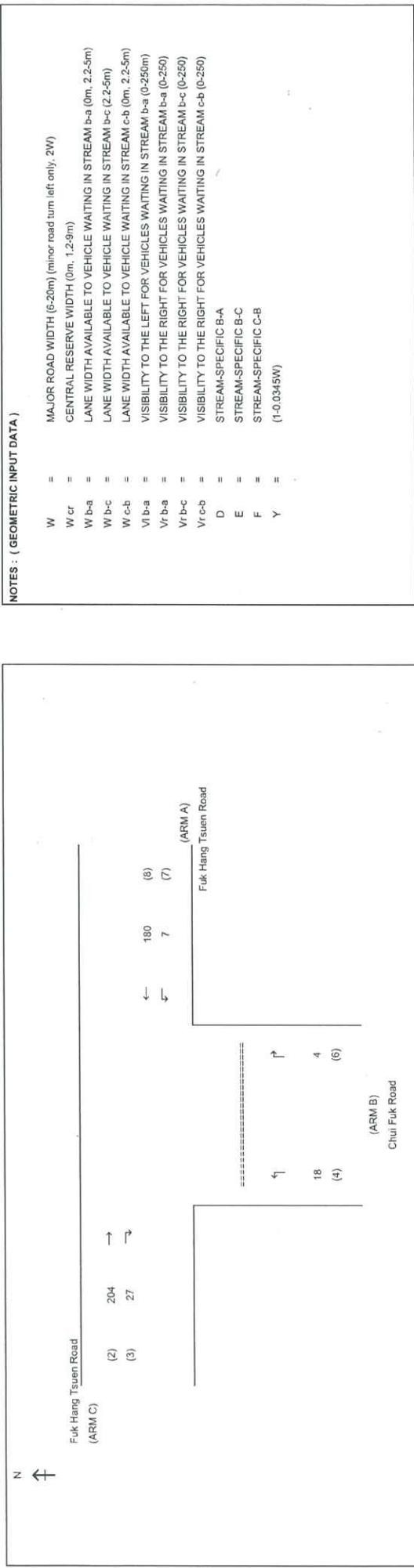
Year 2024 Existing Weekday (Noon Peak)

SHEET:

J1 AM

DATE:

20-Jun-24



GEOMETRIC DETAILS:		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)		D	=	Q_b-a	=	DFC_b-a	=
W	=	(metres)		0.887		472	
W_cr	=	(metres)		0.949		660	
q_a-b	=	(pcu/hr)		0.932		647	
q_a-c	=	(pcu/hr)		0.741		615	
				Q_b-ac	=	1725	
				Q_c-a	=		
MAJOR ROAD (ARM C)							
W_c-b	=	3.75	(metres)				
Vr_c-b	=	35	(metres)				
q_c-a	=	204	(pcu/hr)				
q_c-b	=	27	(pcu/hr)				
MINOR ROAD (ARM B)							
W_b-a	=	4.00	(metres)				
W_b-c	=	4.00	(metres)				
Vl_b-a	=	40	(metres)				
Vr_b-a	=	30	(metres)				
Vr_b-c	=	30	(metres)				
q_b-a	=	4	(pcu/hr)				
q_b-c	=	18	(pcu/hr)				
TOTAL FLOW		= 440 (PCU/HR)					
CRITICAL DFC		= 0.12					

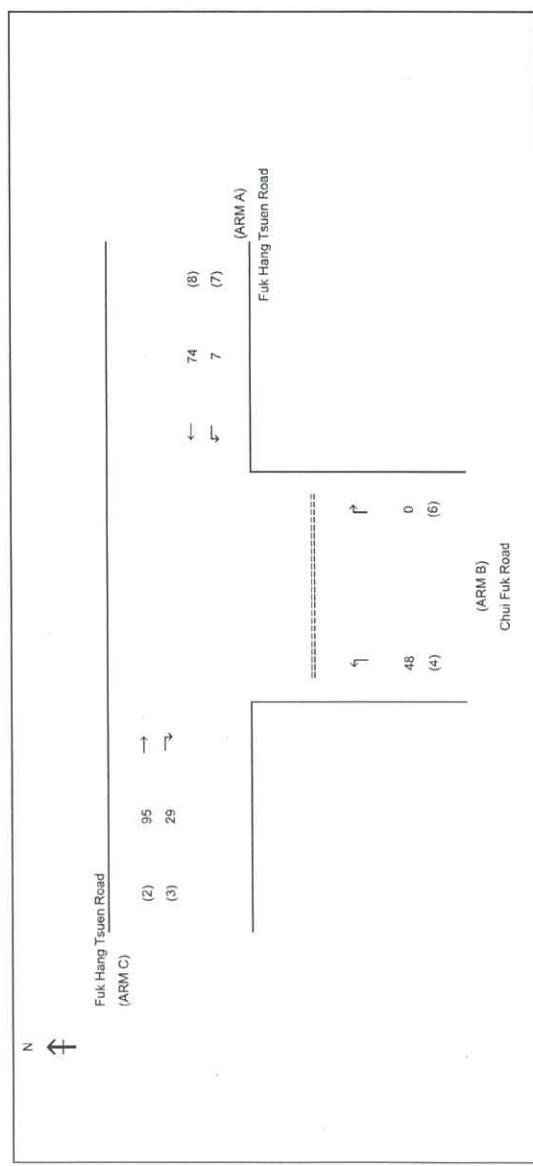
OVE ARUP & PARTNERS

Junction Assessment

J1 - Fuk Hang Tsuen Road / Chui Fuk Road

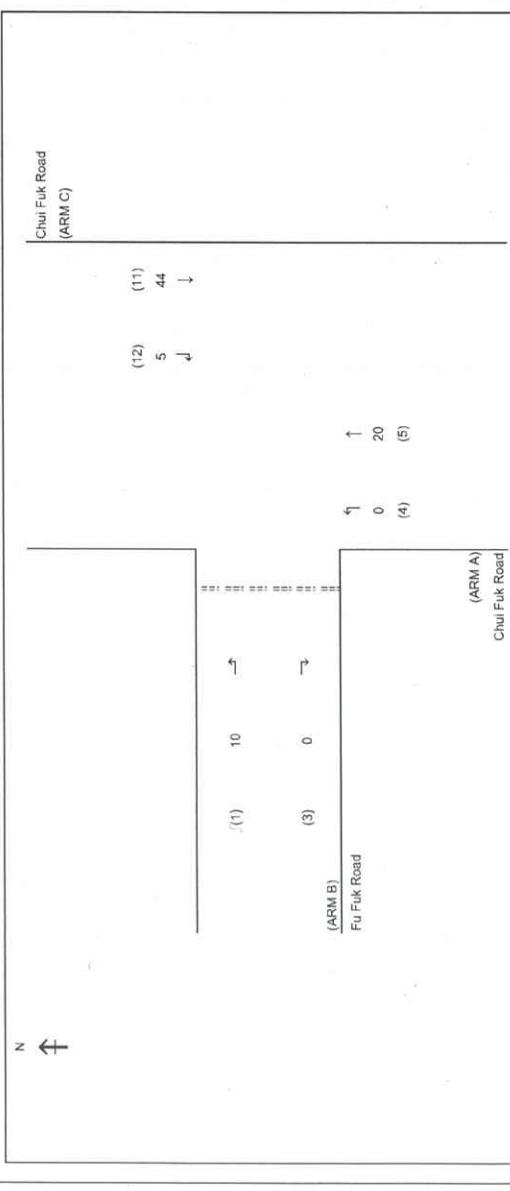
PRIORITY JUNCTION CALCULATION

		PROJECT NO.: 297978	
		SHEET: J1 PM	DATE: 20-Jun-24
FILENAME:			



NOTES : (GEOMETRIC INPUT DATA)	
W	= MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	= CENTRAL RESERVE WIDTH (0m, 12.5m)
W b-a	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl ba	= VISIBILITY TO THE LEFT FOR VEHICLE WAITING IN STREAM b-a (0-250m)
Vr ba	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr c-c	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)
Vr c-b	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250m)
D	= STREAM-SPECIFIC B-A
E	= STREAM-SPECIFIC B-C
F	= STREAM-SPECIFIC C-B
Y	= (1-0.0345W)

GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)					
W	= 7.50 (metres)	D	= 0.887	Q b-a	= 513
W cr	= 0 (metres)	E	= 0.949	Q b-c	= 688
q a-b	= 7 (pcu/hr)	F	= 0.932	Q c-b	= 674
q a-c	= 74 (pcu/hr)	Y	= 0.741	Q b-ac	= 688
				Q c-a	= 1723
MAJOR ROAD (ARM C)					
W c-b	= 3.75 (metres)				
Vr c-b	= 35 (metres)				
q c-a	= 95 (pcu/hr)				
q c-b	= 29 (pcu/hr)				
MINOR ROAD (ARM B)					
W b-a	= 4.00 (metres)				
W b-c	= 4.00 (metres)				
Vl b-a	= 40 (metres)				
Vr b-a	= 30 (metres)				
Vr b-c	= 30 (metres)				
q b-a	= 0 (pcu/hr)				
q b-c	= 48 (pcu/hr)				
TOTAL FLOW		= 253 (PCU/HR)			
CRITICAL DFC		= 0.07			



NOTES : (GEOMETRIC INPUT DATA)

W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
 W cr = CENTRAL RESERVE WIDTH (0m, 12.9m)
 W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
 W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
 W c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
 Vl ba = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-25m)
 Vl bc = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-25m)
 Vr ba = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-25m)
 Vr bc = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-25m)
 Vr cb = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-25m)
 D = STREAM-SPECIFIC C-B-A
 E = STREAM-SPECIFIC B-C
 F = STREAM-SPECIFIC C-B
 Y = (1.0-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	6.50	(metres)
Vl cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	20	(pcu/hr)

MINOR ROAD (ARM C)

W b-a	=	3.25	(metres)
Vl b-c	=	40	(metres)
q c-a	=	44	(pcu/hr)
q c-b	=	5	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	2.50	(metres)
W b-c	=	2.50	(metres)
Vl b-a	=	15	(metres)
Vl b-c	=	40	(metres)
q b-a	=	0	(pcu/hr)
q b-c	=	10	(pcu/hr)

THE CAPACITY OF MOVEMENT :

GEOMETRIC FACTORS :

D	=	0.761	Q b-a	=	465
E	=	0.828	Q b-c	=	612
F	=	0.893	Q c-b	=	660
Y	=	0.776	Q b-ac	=	612
			Q c-a	=	1786

COMPARISON OF DESIGN FLOW

TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0163
DFC c-b	=	0.0076
DFC c-a	=	0.0246
DFC b-c-a	=	0.0163

TOTAL FLOW = 79 (PCU/HR)

CRITICAL DFC = 0.02

OVE ARUP & PARTNERS

Junction Assessment

J2 - Chui Fuk Road/Fu Fuk Road

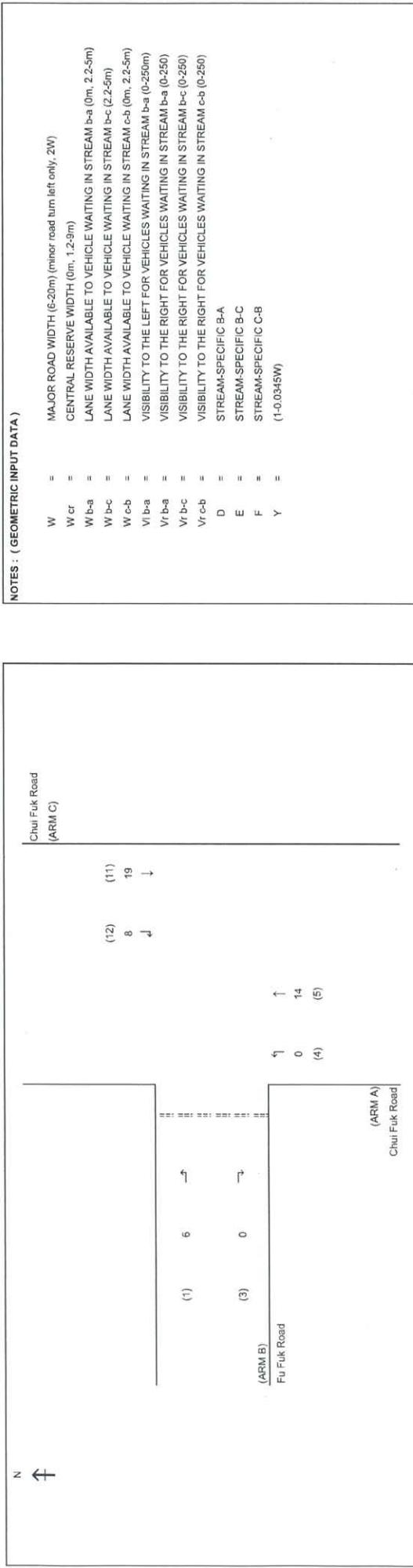
PRIORITY JUNCTION CALCULATION

Year 2024 Existing Weekday (Noon Peak)

PROJECT NO:

297978

FILENAME:



NOTES : (GEOMETRIC INPUT DATA)		SHEET: J2_AM		DATE: 20-Jun-24		PROJECT NO: 297978	
W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)					
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-3m)					
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)					
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)					
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.5-5m)					
Vl ba	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)					
Vr ba	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250m)					
Vr bc	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)					
Vr cb	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250m)					
D	=	STREAM-SPECIFIC B-A					
E	=	STREAM-SPECIFIC B-C					
F	=	STREAM-SPECIFIC C-B					
Y	=	(1-0.0345W)					

OVE ARUP & PARTNERS

Junction Assessment
J2 - Chu Fuk Road/Fu Fuk Road

PRIORITY JUNCTION CALCULATION

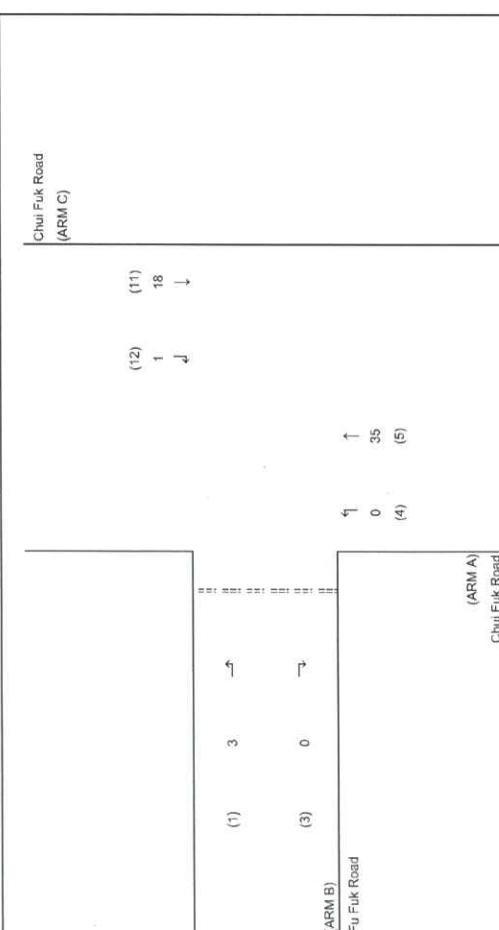
Year 2024 Existing Weekday (PM Peak)

J2 PM

PROJECT NO:

297978

FILE NAME:



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-3m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.5-5m)
Vl b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0-25m)
Vr b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-25m)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-25m)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-25m)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

THE CAPACITY OF MOVEMENT :

**COMPARISON OF DESIGN FLOW
TO CAPACITY:**

Q b-a	=	467
Q b-c	=	608
Q c-b	=	657
Q b-ac	=	608
Q ca	=	1797

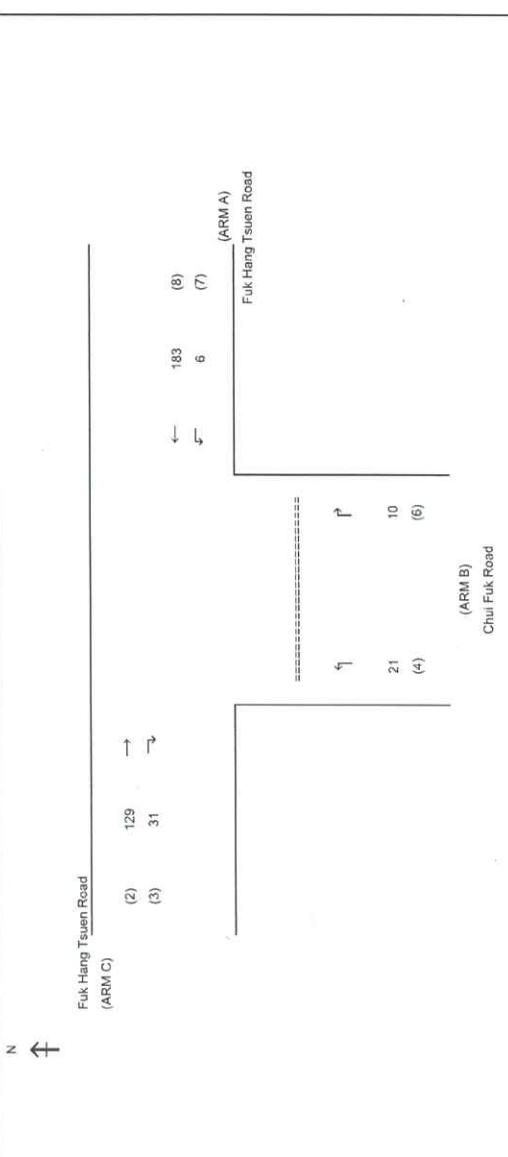
GEOMETRIC FACTORS :

D	=	0.761
E	=	0.828
F	=	0.893
Y	=	0.776

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)		
W	=	6.50 (metres)
W cr	=	0 (metres)
q a-b	=	0 (pcu/hr)
q a-c	=	35 (pcu/hr)
MAJOR ROAD (ARM C)		
W c-b	=	3.25 (metres)
W b-c	=	40 (metres)
q ca	=	18 (pcu/hr)
q c-b	=	1 (pcu/hr)
MINOR ROAD (ARM B)		
W b-a	=	2.50 (metres)
W b-c	=	2.50 (metres)
Vl b-a	=	15 (metres)
Vr b-a	=	40 (metres)
Vr b-c	=	40 (metres)
q b-a	=	0 (pcu/hr)
q b-c	=	3 (pcu/hr)

$$\begin{aligned} \text{TOTAL FLOW} &= 57 (\text{PCU/HR}) \\ \text{CRITICAL DFC} &= 0.01 \end{aligned}$$



NOTES : (GEOMETRIC INPUT DATA)

N
 ↑
 Fuk Hang Tsuen Road (ARM C)
 (2) 129 →
 (3) 31 ←
 ← 183 (8)
 ← 6 (7) (ARM A)
 ← 21 10 (6)
 ↑
 Fuk Hang Tsuen Road
 (ARM B)
 Chui Fuk Road
 (1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.50	(metres)
W_cr	=	0	(metres)
q_a-b	=	6	(pcu/hr)
q_a-c	=	183	(pcu/hr)

MINOR ROAD (ARM B)

W_b-a	=	4.00	(metres)
W_b-c	=	4.00	(metres)
V_b-a	=	40	(metres)
V_b-b	=	30	(metres)
V_b-c	=	30	(metres)
q_b-a	=	10	(pcu/hr)
q_b-c	=	21	(pcu/hr)

THE CAPACITY OF MOVEMENT :

COMPARISON OF DESIGN FLOW
TO CAPACITY:

D	=	0.887	Q_b-a	=	482
E	=	0.949	Q_b-c	=	660
F	=	0.932	Q_c-b	=	647
Y	=	0.741	Q_b-ac	=	590
			Q_c-a	=	1714

$$\begin{aligned}
 \text{TOTAL FLOW} &= 380 \text{ (PCU/HR)} \\
 \text{CRITICAL DFC} &= 0.08
 \end{aligned}$$

OVE ARUP & PARTNERS

Junction Assessment

J1 - Fuk Hang Tsuen Road / Chui Fuk Road

PRIORITY JUNCTION CALCULATION

Year 2024 Existing Weekend (Noon Peak)

		SHEET: J1 PM		PROJECT NO: 297978																																																																																		
		DATE: 20-Jun-24		FILENAME:																																																																																		
<p>NOTES : (GEOMETRIC INPUT DATA)</p> <table border="1"> <tr> <td>W</td> <td>=</td> <td>MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)</td> </tr> <tr> <td>W cr</td> <td>=</td> <td>CENTRAL RESERVE WIDTH (0m, 12.9m)</td> </tr> <tr> <td>W/b-a</td> <td>=</td> <td>LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.25m)</td> </tr> <tr> <td>W/b-c</td> <td>=</td> <td>LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.25m)</td> </tr> <tr> <td>W/c-b</td> <td>=</td> <td>LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.25m)</td> </tr> <tr> <td>V/b-a</td> <td>=</td> <td>VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)</td> </tr> <tr> <td>Vr/b-a</td> <td>=</td> <td>VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250m)</td> </tr> <tr> <td>Vr/b-c</td> <td>=</td> <td>VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)</td> </tr> <tr> <td>Vr/c-b</td> <td>=</td> <td>VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250m)</td> </tr> <tr> <td>D</td> <td>=</td> <td>STREAM-SPECIFIC B-A</td> </tr> <tr> <td>E</td> <td>=</td> <td>STREAM-SPECIFIC B-C</td> </tr> <tr> <td>F</td> <td>=</td> <td>STREAM-SPECIFIC C-B</td> </tr> <tr> <td>Y</td> <td>=</td> <td>(1-0.0345W)</td> </tr> </table>						W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)	W cr	=	CENTRAL RESERVE WIDTH (0m, 12.9m)	W/b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.25m)	W/b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.25m)	W/c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.25m)	V/b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)	Vr/b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250m)	Vr/b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)	Vr/c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250m)	D	=	STREAM-SPECIFIC B-A	E	=	STREAM-SPECIFIC B-C	F	=	STREAM-SPECIFIC C-B	Y	=	(1-0.0345W)																																										
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<p>GEOMETRIC FACTORS :</p> <table border="1"> <tr> <td>D</td> <td>=</td> <td>0.887</td> <td>Q/b-a</td> <td>=</td> <td>492</td> </tr> <tr> <td>E</td> <td>=</td> <td>0.949</td> <td>Q/b-c</td> <td>=</td> <td>671</td> </tr> <tr> <td>F</td> <td>=</td> <td>0.932</td> <td>Q/c-b</td> <td>=</td> <td>659</td> </tr> <tr> <td>Y</td> <td>=</td> <td>0.741</td> <td>Q/bac</td> <td>=</td> <td>655</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Q/c-a</td> <td>=</td> <td>1743</td> </tr> </table>						D	=	0.887	Q/b-a	=	492	E	=	0.949	Q/b-c	=	671	F	=	0.932	Q/c-b	=	659	Y	=	0.741	Q/bac	=	655				Q/c-a	=	1743																																																			
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			Q/c-a	=	1743																																																																																	
<p>THE CAPACITY OF MOVEMENT :</p> <table border="1"> <tr> <td>Q/b-a</td> <td>=</td> <td>492</td> <td>DFC b-a</td> <td>=</td> <td>0.0020</td> </tr> <tr> <td>Q/b-c</td> <td>=</td> <td>671</td> <td>DFC b-c</td> <td>=</td> <td>0.0209</td> </tr> <tr> <td>Q/c-b</td> <td>=</td> <td>659</td> <td>DFC c-b</td> <td>=</td> <td>0.0319</td> </tr> <tr> <td>Q/bac</td> <td>=</td> <td>655</td> <td>DFC c-a</td> <td>=</td> <td>0.0901</td> </tr> <tr> <td>Q/c-a</td> <td>=</td> <td>1743</td> <td>DFC b-c-a</td> <td>=</td> <td>0.0229</td> </tr> </table>						Q/b-a	=	492	DFC b-a	=	0.0020	Q/b-c	=	671	DFC b-c	=	0.0209	Q/c-b	=	659	DFC c-b	=	0.0319	Q/bac	=	655	DFC c-a	=	0.0901	Q/c-a	=	1743	DFC b-c-a	=	0.0229																																																			
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Q/c-a	=	1743	DFC b-c-a	=	0.0229																																																																																	
<p>COMPARISON OF DESIGN FLOW TO CAPACITY:</p> <table border="1"> <tr> <td>TOTAL FLOW</td> <td>=</td> <td>334 (PCU/HR)</td> </tr> <tr> <td>CRITICAL DFC</td> <td>=</td> <td>0.09</td> </tr> </table>						TOTAL FLOW	=	334 (PCU/HR)	CRITICAL DFC	=	0.09																																																																											
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<p>GEOMETRIC DETAILS:</p> <table border="1"> <tr> <td colspan="2">MAJOR ROAD (ARM A)</td> </tr> <tr> <td>W</td> <td>=</td> <td>7.50</td> <td>(metres)</td> <td>D</td> <td>=</td> <td>0.887</td> </tr> <tr> <td>W cr</td> <td>=</td> <td>0</td> <td>(metres)</td> <td>E</td> <td>=</td> <td>0.949</td> </tr> <tr> <td>q a-b</td> <td>=</td> <td>2</td> <td>(pcu/hr)</td> <td>F</td> <td>=</td> <td>0.932</td> </tr> <tr> <td>q a-c</td> <td>=</td> <td>139</td> <td>(pcu/hr)</td> <td>Y</td> <td>=</td> <td>0.741</td> </tr> <tr> <td>q c-b</td> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">MINOR ROAD (ARM B)</td> </tr> <tr> <td>W b-a</td> <td>=</td> <td>3.75</td> <td>(metres)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>W b-c</td> <td>=</td> <td>35</td> <td>(metres)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Vr/c-b</td> <td>=</td> <td>157</td> <td>(pcu/hr)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>q c-b</td> <td>=</td> <td>21</td> <td>(pcu/hr)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>q b-a</td> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>q b-c</td> <td>=</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						MAJOR ROAD (ARM A)		W	=	7.50	(metres)	D	=	0.887	W cr	=	0	(metres)	E	=	0.949	q a-b	=	2	(pcu/hr)	F	=	0.932	q a-c	=	139	(pcu/hr)	Y	=	0.741	q c-b	=						MINOR ROAD (ARM B)		W b-a	=	3.75	(metres)				W b-c	=	35	(metres)				Vr/c-b	=	157	(pcu/hr)				q c-b	=	21	(pcu/hr)				q b-a	=						q b-c	=					
MAJOR ROAD (ARM A)																																																																																						
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q b-c	=																																																																																					

OVE ARUP & PARTNERS

Junction Assessment

J1 - Fuk Hang Tsuen Road / Chui Fuk Road

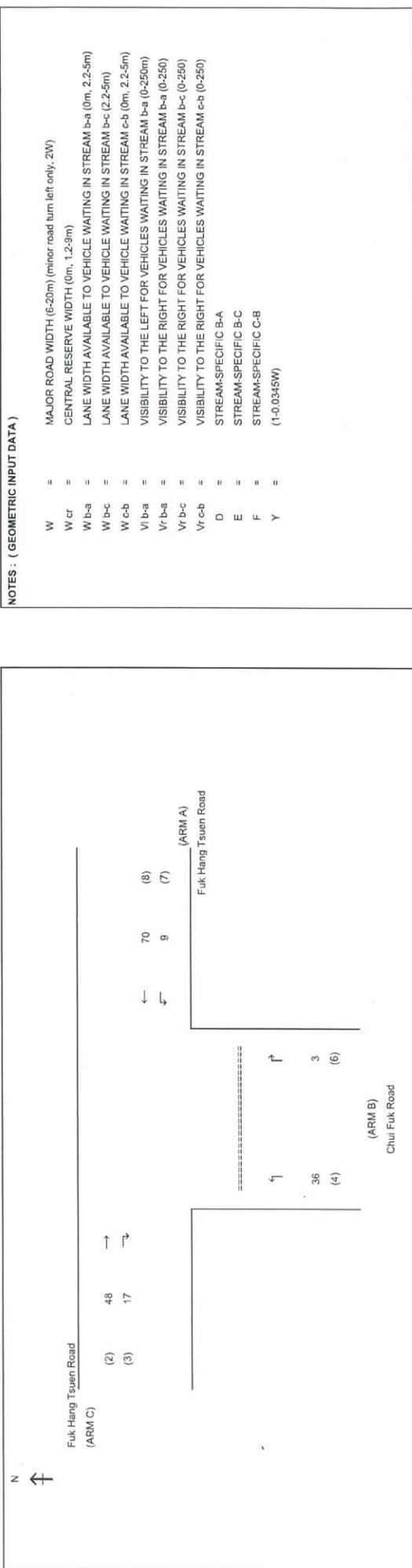
PRIORITY JUNCTION CALCULATION

Year 2024 Existing Weekend (PM Peak)

SHEET: J1 PM
DATE: 20-Jun-24

PROJECT NO:
297978

FILENAME:



GEOMETRIC DETAILS:		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)		D	=	0.887	Q _{b-a}	=	525 DFC _{b-a}
W	=	(metres)		0.949	Q _{b-c}	=	688 DFC _{b-c}
W _{c-r}	=	(metres)		0.932	Q _{c-b}	=	675 DFC _{c-b}
q _{a-b}	=	(pcu/hr)		0.741	Q _{b-c}	=	672 DFC _{c-a}
q _{a-c}	=	(pcu/hr)			Q _{c-a}	=	1755 DFC _{b-c}
MAJOR ROAD (ARM C)							
W _{c-b}	=	3.75	(metres)				
W _{b-c}	=	35	(metres)				
V _{b-a}	=	4.00	(metres)				
V _{r-b-a}	=	4.00	(metres)				
V _{r-b-c}	=	30	(metres)				
V _{r-b-c}	=	30	(metres)				
q _{b-a}	=	3	(pcu/hr)				
q _{b-c}	=	36	(pcu/hr)				
MINOR ROAD (ARM B)		TOTAL FLOW		= 183 (PCU/HR)		CRITICAL DFC	

OVE ARUP & PARTNERS

Junction Assessment

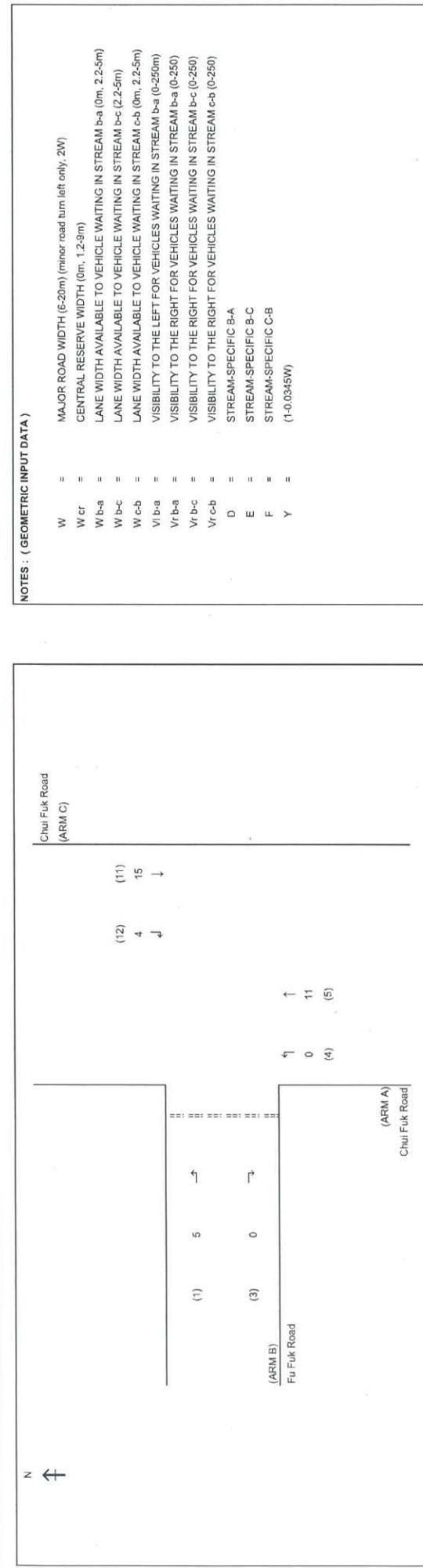
J2 - Chu Fuk Road/Fu Fuk Road

PRIORITY JUNCTION CALCULATION

Year 2024 Existing Weekend (AM Peak)

PROJECT NO.: 297978

FILENAME:



NOTES : (GEOMETRIC INPUT DATA)		COMPARISON OF DESIGN FLOW TO CAPACITY:	
W	= MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)	W cr	= CENTRAL RESERVE WIDTH (0m, 1.2-3m)
W b-a	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)	W b-c	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W b-c	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.5-5m)	W c-b	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-a (0m, 2.5-5m)
Vl ba	= VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)	Vl bc	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)
Vr ba	= VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)	Vr bc	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)
Vr c-b	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250m)	D	= STREAM-SPECIFIC B-A
D	= STREAM-SPECIFIC B-C	E	= STREAM-SPECIFIC C-B
F	= STREAM-SPECIFIC C-B	Y	= (1-0.0345W)

GEOMETRIC INPUT DATA:

DATE: 20-Jun-24	SHEET: J2_AM	DATE: 20-Jun-24	SHEET: J2_AM
NOTES : (GEOMETRIC INPUT DATA)			

OVE ARUP & PARTNERS

Junction Assessment

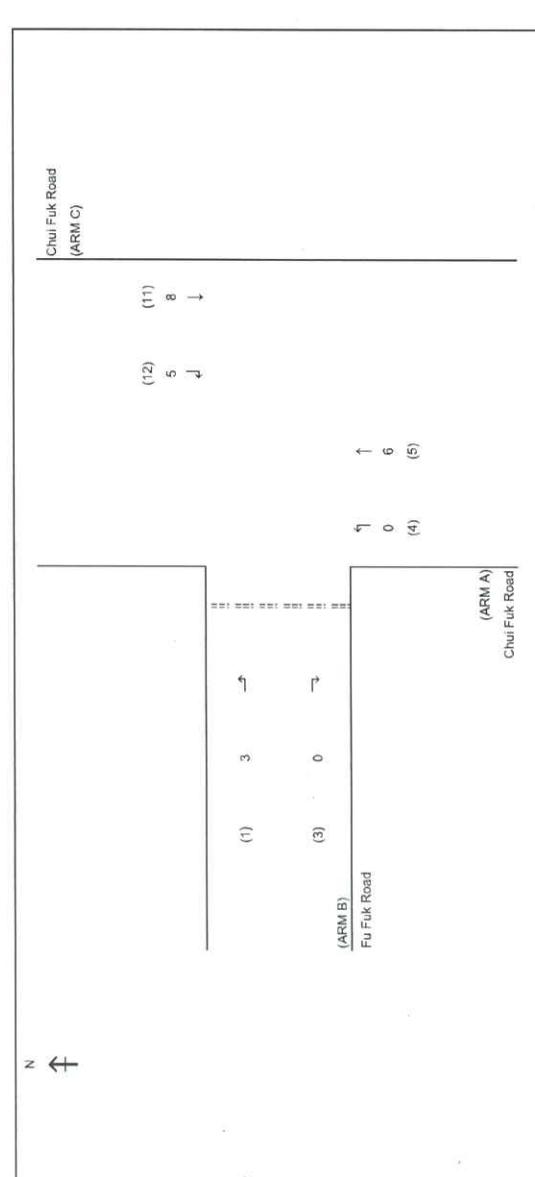
J2 - Chui Fuk Road/Fu Fuk Road

PRIORITY JUNCTION CALCULATION

Year 2024 Existing Weekend (Non Peak)

J2 PM

PROJECT NO:
297978
FILENAME:



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W_cr	=	CENTRAL RESERVE WIDTH (0m, 1-2.9m)
W_b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2-2.5m)
W_b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2-2.5m)
W_c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2-2.5m)
V_b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
V_b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)
V_c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250m)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC FACTORS :

THE CAPACITY OF MOVEMENT :

	D	E	F	Y	Q_b-a	Q_b-c	Q_c-b	Q_b-ac	Q_c-a
					0.761	0.828	0.893	0.776	0.776

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW	
W	=	6.50	(metres)	D	=	0.761	Q_b-a
W_cr	=	0	(metres)	E	=	0.828	Q_b-c
q_a-b	=	0	(pcu/hr)	F	=	0.893	Q_c-b
q_a-c	=	6	(pcu/hr)	Y	=	0.776	Q_b-ac
							Q_c-a
MAJOR ROAD (ARM C)		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW	
W_b-a	=	3.25	(metres)	D	=	0.761	DFC_b-a
W_b-c	=	2.50	(metres)	E	=	0.828	DFC_b-c
V_b-a	=	15	(metres)	F	=	0.893	DFC_c-b
V_b-c	=	40	(metres)	Y	=	0.776	DFC_c-a
V_c-b	=	40	(metres)				DFC_b-c/a
q_b-a	=	0	(pcu/hr)				
q_b-c	=	3	(pcu/hr)				
MINOR ROAD (ARM B)		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW	
W_b-a	=	2.50	(metres)	D	=	0.761	DFC_b-a
W_b-c	=	2.50	(metres)	E	=	0.828	DFC_b-c
V_b-a	=	40	(metres)	F	=	0.893	DFC_c-b
V_b-c	=	40	(metres)	Y	=	0.776	DFC_c-a
V_c-b	=	40	(metres)				DFC_b-c/a
q_b-a	=	0	(pcu/hr)				
q_b-c	=	3	(pcu/hr)				

TOTAL FLOW = 22 (PCU/HR)

CRITICAL DFC = 0.01

OVE ARUP & PARTNERS

Junction Assessment

J2 - Chu Fuk Road/Fu Fuk Road

PRIORITY JUNCTION CALCULATION

Year:2024 Existing Weekend (PM Peak)

SHEET: J2 PM

PROJECT NO:

297978

FILENAME:



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0-25m)
Vr b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-25m)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-25m)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-25m)
D	=	STREAM-SPECIFIC BA
E	=	STREAM-SPECIFIC BC
F	=	STREAM-SPECIFIC CB
Y	=	(1-0.0345W)

THE CAPACITY OF MOVEMENT :

**COMPARISON OF DESIGN FLOW
TO CAPACITY:**

Q b-a	=	470
Q b-c	=	612
Q c-b	=	660
Q bac	=	612
Q ca	=	1781

GEOMETRIC FACTORS :

W	=	MAJOR ROAD (ARM A)
W cr	=	(metres)
q a-b	=	0
q a-c	=	0
q c-b	=	21
q c-a	=	5
q b-a	=	7
q b-c	=	0
q c-b	=	4

GEOMETRIC DETAILS:

W	=	MINOR ROAD (ARM B)
W b-a	=	(metres)
W b-c	=	(metres)
Vl b-a	=	(metres)
Vr b-a	=	(metres)
Vr b-c	=	(metres)
q b-a	=	(pcu/hr)
q b-c	=	(pcu/hr)

$$\begin{aligned} \text{TOTAL FLOW} &= 37 \\ \text{CRITICAL DFC} &= 0.01 \end{aligned}$$

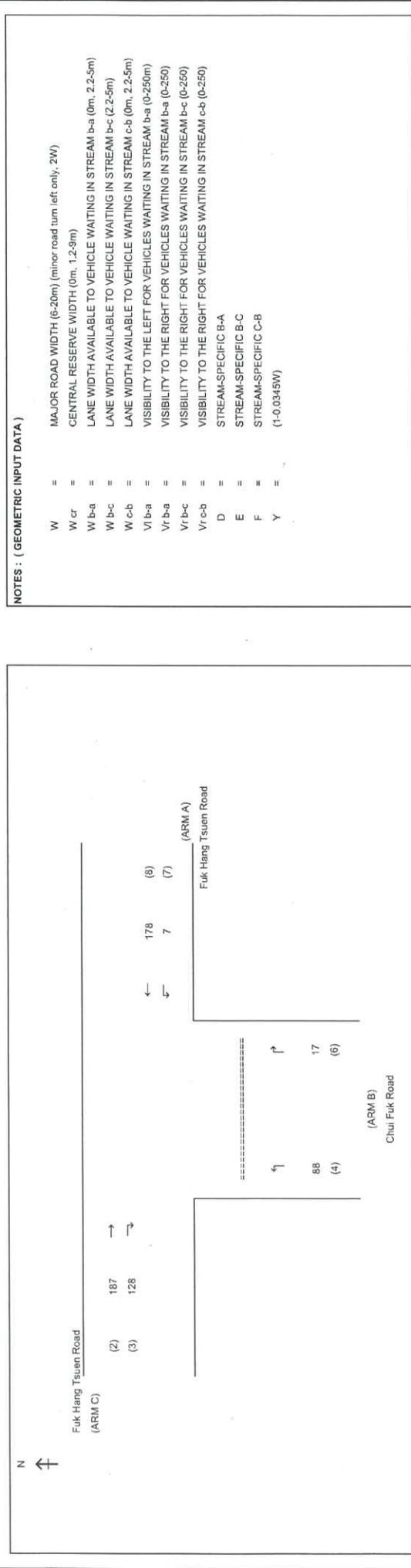
OVE ARUP & PARTNERS

Junction Assessment

J1 - Fuk Hang Tsuen Road / Chui Fuk Road

PRIORITY JUNCTION CALCULATION

PROJECT NO:		J1 AM	
FILE NAME:		297978	



GEOMETRIC DETAILS:		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)		D	=	Q b-a	=	DFC b-a	=
W	=	7.50	(metres)	0.887		0.885	0.0385
W cr	=	0	(metres)	0.949		DFC b-c	=
q a-b	=	7	(pcu/hr)	0.932		DFC c-b	=
q a-c	=	178	(pcu/hr)	0.741		DFC c-a	=
				Q b-ac	=	0.1295	0.1975
				Q c-a	=	DFC b-ca	=
				1444		0.1717	
MAJOR ROAD (ARM C)		D	=	Q b-a	=	DFC b-a	=
W b-b	=	3.75	(metres)	0.887		0.885	0.0385
W b-c	=	35	(metres)	0.949		DFC b-c	=
q b-a	=	187	(pcu/hr)	0.932		DFC c-b	=
q b-c	=	128	(pcu/hr)	0.741		DFC c-a	=
				Q b-ac	=	0.1295	0.1975
				Q c-a	=	DFC b-ca	=
				1444		0.1717	
MINOR ROAD (ARM B)		D	=	Q b-a	=	DFC b-a	=
W b-a	=	4.00	(metres)	0.887		0.885	0.0385
W b-c	=	4.00	(metres)	0.949		DFC b-c	=
Vl b-a	=	40	(metres)	0.932		DFC c-b	=
Vl b-a	=	30	(metres)	0.741		DFC c-a	=
Vl b-c	=	30	(metres)	0.887		DFC b-ca	=
q b-a	=	17	(pcu/hr)	0.949		0.1295	0.1975
q b-c	=	88	(pcu/hr)	0.741		0.1717	
				Q b-ac	=	DFC b-ca	=
				1444		0.1717	
TOTAL FLOW	=	605	(PCU/HR)				
CRITICAL DFC	=	0.20					

OVE ARUP & PARTNERS

Junction Assessment

PRIORITY JUNCTION CALCULATION

J1 - Fuk Hang Tsuen Road / Chui Fuk Road

Year 2023 Reference Weekday (Noon Peak)

29/9/78

FILE NAME:

J1_AM

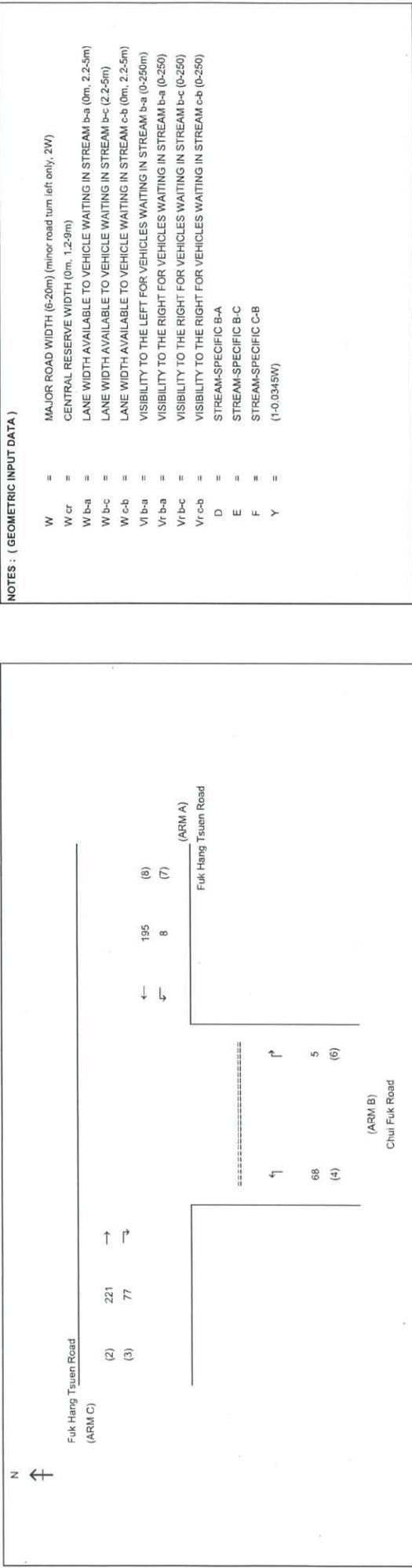
PROJECT NO:

29/9/78

SHEET:

DATE:

04-Jul-24



GEOMETRIC DETAILS:		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)							
W	=	7.50	(metres)	D	=	0.887	DfC_b-a = 0.0111
W_cr	=	0	(metres)	E	=	0.949	DfC_b-c = 0.1037
q_a-b	=	8	(pcu/hr)	F	=	0.932	DfC_c-b = 0.1198
q_a-c	=	195	(pcu/hr)	Y	=	0.741	DfC_c-a = 0.1395
MINOR ROAD (ARM C)				Q_b-a	=	449	DfC_b-c-a = 0.1148
W_b-a	=	3.75	(metres)	Q_b-c	=	656	
W_b-c	=	3.5	(metres)	Q_c-b	=	643	
q_c-a	=	221	(pcu/hr)	Q_b-ac	=	636	
q_c-b	=	77	(pcu/hr)	Q_c-a	=	1584	
MINOR ROAD (ARM B)							
W_b-a	=	4.00	(metres)				
W_b-c	=	4.00	(metres)				
Vr_b-a	=	40	(metres)				
Vr_b-c	=	30	(metres)				
q_b-a	=	5	(pcu/hr)				
q_b-c	=	68	(pcu/hr)				
TOTAL FLOW		= 574 (PCU/HR)					
CRITICAL DFC		= 0.14					

OVE ARUP & PARTNERS

Junction Assessment

PRIORITY JUNCTION CALCULATION

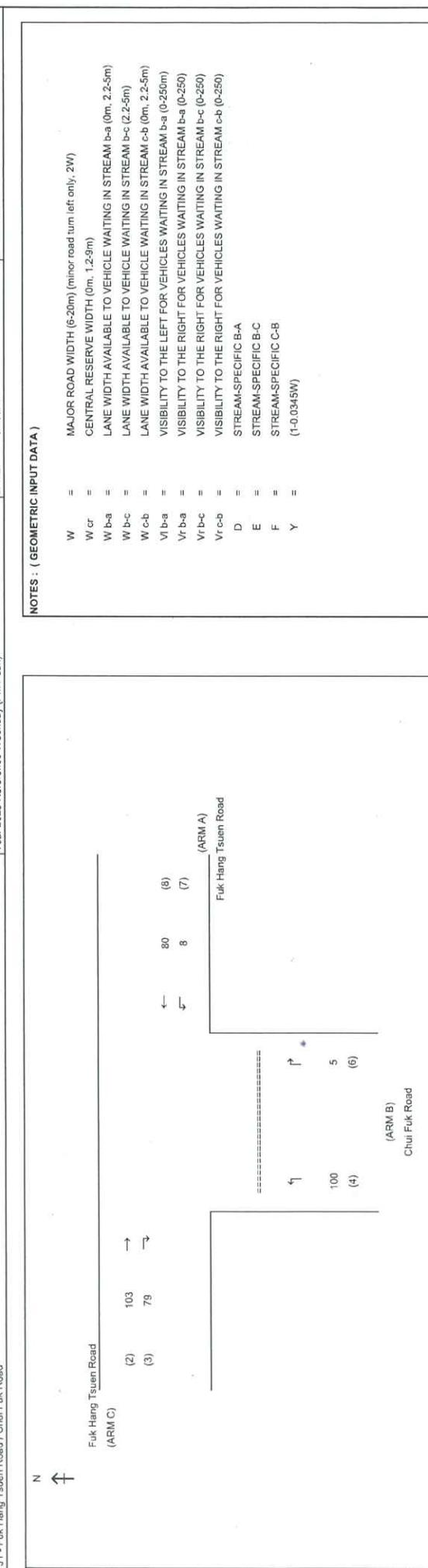
J1 - Fuk Hang Tsuen Road / Chui Fuk Road

Year 2029 Reference Weekday (PM Peak)

PROJECT NO:

297978

FILE NAME:



NOTES : (GEOMETRIC INPUT DATA)		SHEET: J1 PM	DATE: 04-Jul-24	PROJECT NO: 297978
W	= MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)	W _{cr}	= CENTRAL RESERVE WIDTH (0m, 1.2-9m)	
W _{b-a}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)	W _{b-c}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)	
W _{c-b}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)	V _{b-a}	= VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)	
V _{r-b-a}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250m)	V _{r-b-c}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)	
V _{r-c-b}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250m)	D	= STREAM-SPECIFIC BA	
		E	= STREAM-SPECIFIC BC	
		F	= STREAM-SPECIFIC CB	
		Y	= (-0.0345m)	

GEOMETRIC FACTORS :

D	E	F	Y
= 0.887	= 0.949	= 0.932	= 0.741

THE CAPACITY OF MOVEMENT :

Q _{b-a}	Q _{b-c}	Q _{c-b}	Q _{c-a}
= 493	= 686	= 672	= 673
			= 1588

COMPARISON OF DESIGN FLOW TO CAPACITY:

DFC _{b-a}	DFC _{b-c}	DFC _{c-b}	DFC _{c-a}
= 0.0101	= 0.1458	= 0.1176	= 0.0648
			= 0.1559

TOTAL FLOW = 375 (PCU/HR)

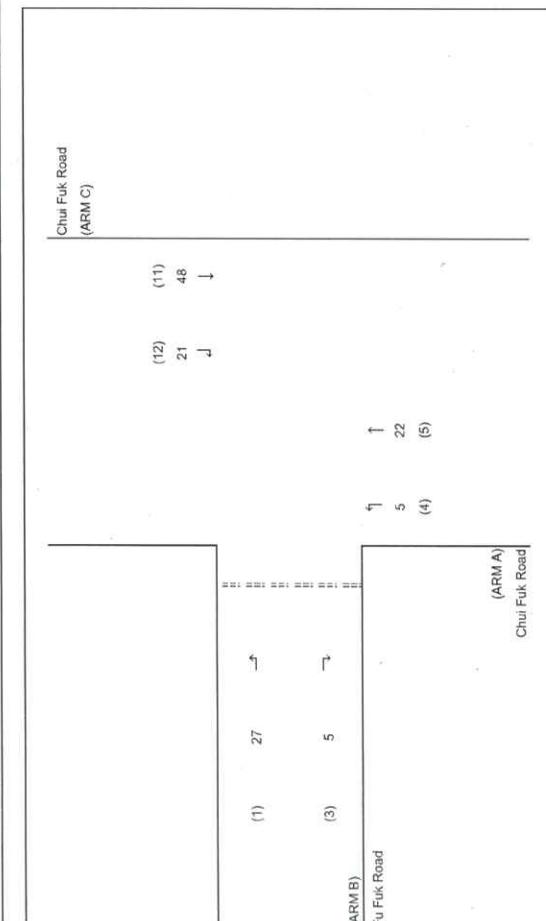
CRITICAL DFC = 0.16

PRIORITY JUNCTION CALCULATION

Year 2029 Reference Weekday (AM Peak)

29/978

PROJECT NO.: FILENAME:



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl ba	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-25m)
Vr ba	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
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	= 6.50 (metres)
W cr	= 0 (metres)
q a-b	= 5 (pcu/hr)
q a-c	= 22 (pcu/hr)

MINOR ROAD (ARM C)	
W b-a	= 3.25 (metres)
W b-c	= 40 (metres)
Vl b-a	= 15 (metres)
Vr b-a	= 40 (metres)
Vr b-c	= 40 (metres)
q b-a	= 5 (pcu/hr)
q b-c	= 27 (pcu/hr)

THE CAPACITY OF MOVEMENT :

COMPARISON OF DESIGN FLOW
TO CAPACITY:

D	= 0.761	Q b-a	= 459	DFC b-a	= 0.0109
E	= 0.828	Q b-c	= 611	DFC b-c	= 0.0442
F	= 0.893	Q c-b	= 659	DFC c-b	= 0.0319
Y	= 0.776	Q b-ac	= 581	DFC c-a	= 0.0275
		Q c-a	= 1743	DFC b-ca	= 0.0551

$$\begin{aligned} \text{TOTAL FLOW} &= 128 (\text{PCU/HR}) \\ \text{CRITICAL DFC} &= 0.06 \end{aligned}$$

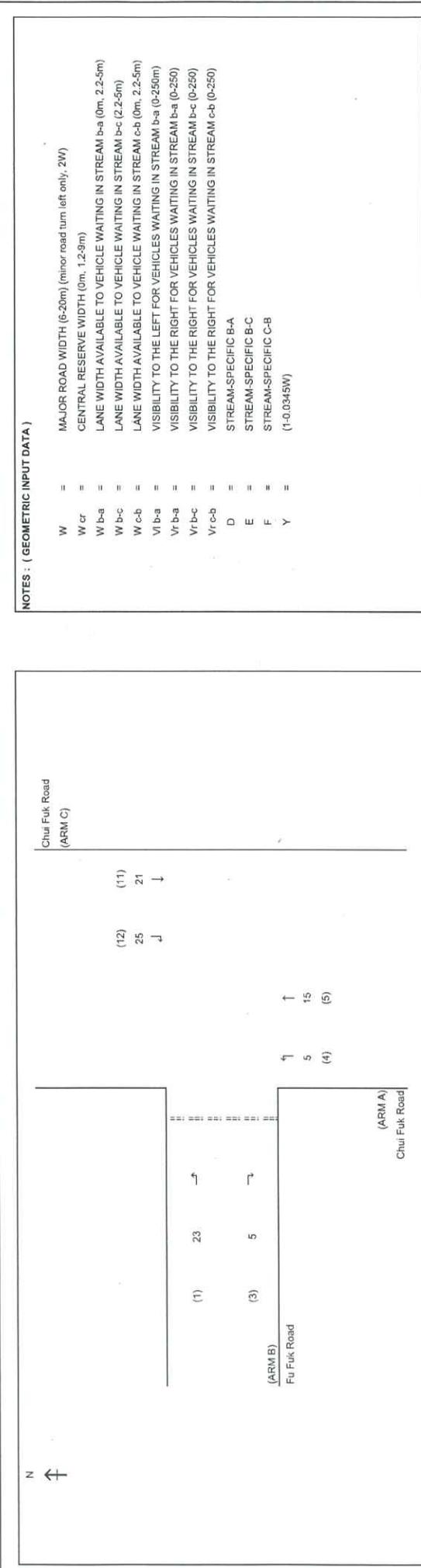
OVE ARUP & PARTNERS

Junction Assessment

J2 - Chui Fuk Road/Fu Fuk Road

PRIORITY JUNCTION CALCULATION

		SHEET: J2_AM	
DATE: 04-Jul-24		PROJECT NO: 297978	



GEOMETRIC DETAILS:		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)		D	=	Q b-a	=	DFC b-a	=
W =	6.50	(metres)		0.761		463	0.0108
W cr =	0	(metres)		0.828		613	0.0375
q a-b =	5	(pcu/hr)		0.893		660	0.0379
q a-c =	15	(pcu/hr)		0.776		579	0.0121
MAJOR ROAD (ARM C)		Y	=	Q b-ac	=	DFC c-a	=
W b-b =	3.25	(metres)		Q a-a	=	1732	0.0483
W b-c =	0	(metres)					
Vl b-a =	40	(metres)					
q c-b =	21	(pcu/hr)					
q c-d =	25	(pcu/hr)					
MINOR ROAD (ARM B)							
W b-a =	2.50	(metres)					
W b-c =	2.50	(metres)					
Vl b-a =	15	(metres)					
Vr b-a =	40	(metres)					
Vr b-c =	40	(metres)					
q b-a =	5	(pcu/hr)					
q b-c =	23	(pcu/hr)					
TOTAL FLOW		= 94 (PCU/HR)					
CRITICAL DFC		= 0.05					

OVE ARUP & PARTNERS

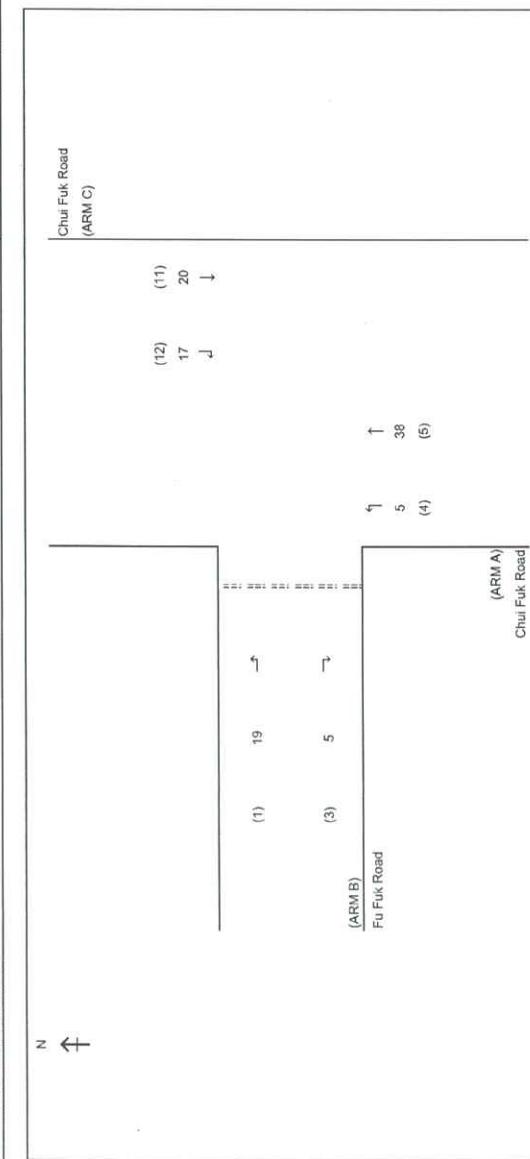
Junction Assessment

PRIORITY JUNCTION CALCULATION

J2 - Chui Fuk Road/ Fu Fuk Road

PRIORITY JUNCTION CALCULATION

Year 2029 Reference Weekday [PM Peak]



NOTES : (GEOMETRIC INPUT DATA)		SHEET:	J2 PM	DATE:	04-Jul-24
W	=	MAJOR ROAD WIDTH (8-20m) (minor road turn left only, 2W)			
Wcr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)			
Wb-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2-2.5m)			
Wb-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)			
Wc-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2-2.5m)			
Vrba	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)			
Vrb-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250m)			
Vrb-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)			
Vrc-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250m)			
D	=	STREAM-SPECIFIC B-A			
E	=	STREAM-SPECIFIC B-C			
F	=	STREAM-SPECIFIC C-B			
Y	=	(f=0.0345W)			

GEOMETRIC DETAILS:		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)		D	=	Qba	=	DFC b-a	=
W	=	(metres)	0.761	480		0.0109	
Wcr	=	(metres)	0.828	607		0.0313	
q-a-b	=	(pcu/hr)	0.893	655		0.0260	
q-a-c	=	(pcu/hr)	0.776	569		0.0114	
				1753		0.0422	
MAJOR ROAD (ARM C)		Qbc	=	Qca	=	DFC b-c	=
Wc-b	=	(metres)	0.761	480		0.0109	
Vr-c-b	=	(metres)	0.828	607		0.0313	
q-c-b	=	(pcu/hr)	0.893	655		0.0260	
q-c-d	=	(pcu/hr)	0.776	569		0.0114	
				1753		0.0422	
MINOR ROAD (ARM B)		Qcb	=	Qca	=	DFC b-c	=
Wb-a	=	(metres)	0.761	480		0.0109	
Vr-b-a	=	(metres)	0.828	607		0.0313	
q-b-a	=	(pcu/hr)	0.893	655		0.0260	
q-b-c	=	(pcu/hr)	0.776	569		0.0114	
				1753		0.0422	
TOTAL FLOW							
CRITICAL DFC							

OVE ARUP & PARTNERS

PRIORITY JUNCTION CALCULATION

Junction Assessment

J1 - Fuk Hang Tsuen Road / Chui Fuk Road

Notes:

Year 2029 Design Weekday (AM Peak)

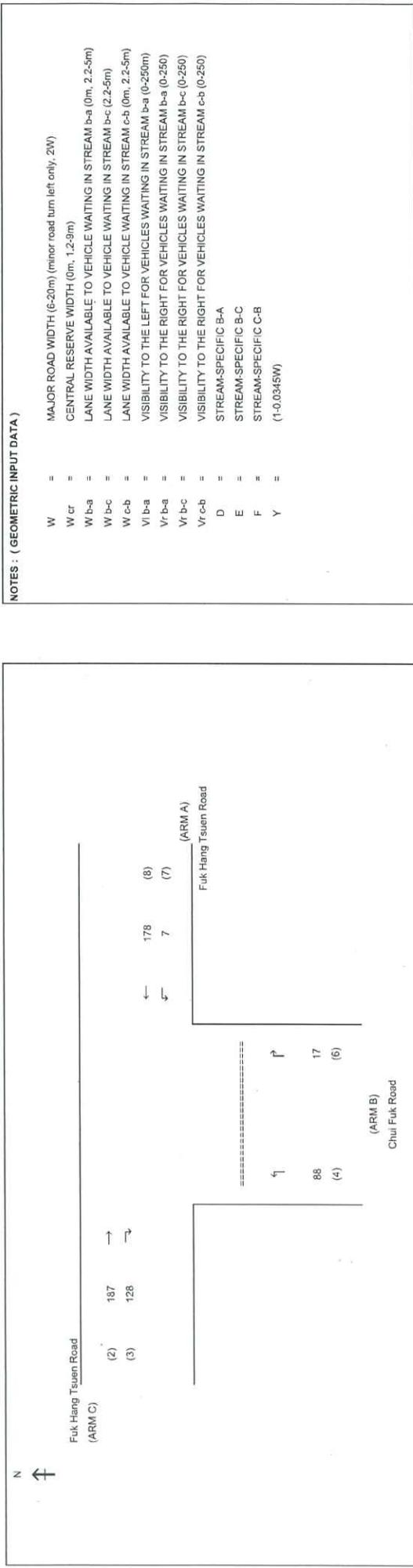
PROJECT NO:

297978

FILENAME:

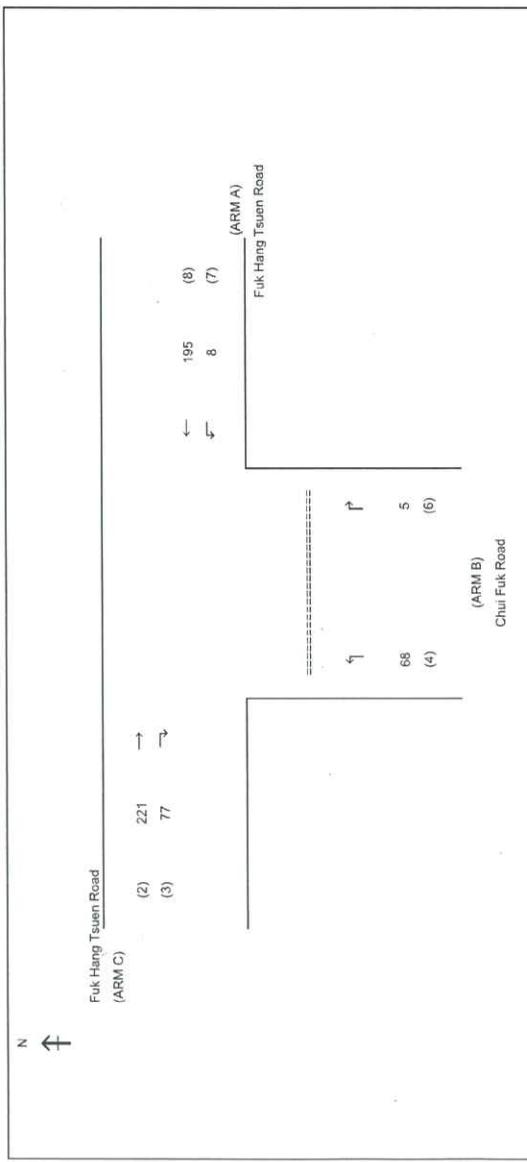
DATE:

28-Jun-24



GEOMETRIC DETAILS:		GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)							
W	=	7.50	(metres)	D	=	0.887	Q b-a
W cr	=	0	(metres)	E	=	0.949	Q b-c
q a-b	=	7	(pcu/hr)	F	=	0.932	Q c-b
q a-c	=	178	(pcu/hr)	Y	=	0.741	Q b-ac
							Q c-a
							1444
MINOR ROAD (ARM C)							
W b-b	=	3.75	(metres)	Vl b-a	=	441	DFC b-a
W b-c	=	35	(metres)	Vr b-a	=	661	DFC b-c
q c-a	=	187	(pcu/hr)	Vr b-c	=	648	DFC c-b
q c-b	=	128	(pcu/hr)	q b-a	=	612	DFC c-a
							1444
MAJOR ROAD (ARM B)							
W b-a	=	4.00	(metres)	Vl b-a	=	441	DFC b-a
W b-c	=	4.00	(metres)	Vr b-a	=	661	DFC b-c
Vl b-a	=	40	(metres)	Vr b-c	=	648	DFC c-b
Vr b-a	=	30	(metres)	q b-a	=	612	DFC c-a
Vr b-c	=	30	(metres)	q b-c	=	1444	DFC b-c
q b-a	=	17	(pcu/hr)				
q b-c	=	88	(pcu/hr)				

$$\begin{aligned} \text{TOTAL FLOW} &= 605 \quad (\text{PCU/HR}) \\ \text{CRITICAL DFC} &= 0.20 \end{aligned}$$



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl ba	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-25m)
Vr ba	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-25m)
Vl bc	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-c (0-25m)
Vr bc	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-25m)
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)		MINOR ROAD (ARM C)	
W	=	7.50	(metres)
W cr	=	0	(metres)
q a-b	=	8	(pcu/hr)
q a-c	=	195	(pcu/hr)
W b-a	=	3.75	(metres)
W b-c	=	35	(metres)
q b-a	=	221	(pcu/hr)
q b-c	=	77	(pcu/hr)
Vl b-a	=	4.00	(metres)
Vl b-c	=	4.00	(metres)
Vr b-a	=	40	(metres)
Vr b-c	=	30	(metres)
q b-a	=	5	(pcu/hr)
q b-c	=	68	(pcu/hr)

THE CAPACITY OF MOVEMENT :

COMPARISON OF DESIGN FLOW
TO CAPACITY:

D	=	Q b-a	=	449
E	=	Q b-c	=	656
F	=	Q c-b	=	643
Y	=	Q b-ac	=	636
		Q c-a	=	1584

$$\begin{aligned} \text{TOTAL FLOW} &= 574 \quad (\text{PCU/HR}) \\ \text{CRITICAL DFC} &= 0.14 \end{aligned}$$

PRIORITY JUNCTION CALCULATION

Year 2029 Design Weekday (PM Peak)

29/7/978

FILENAME:

J1 PM

DATE:

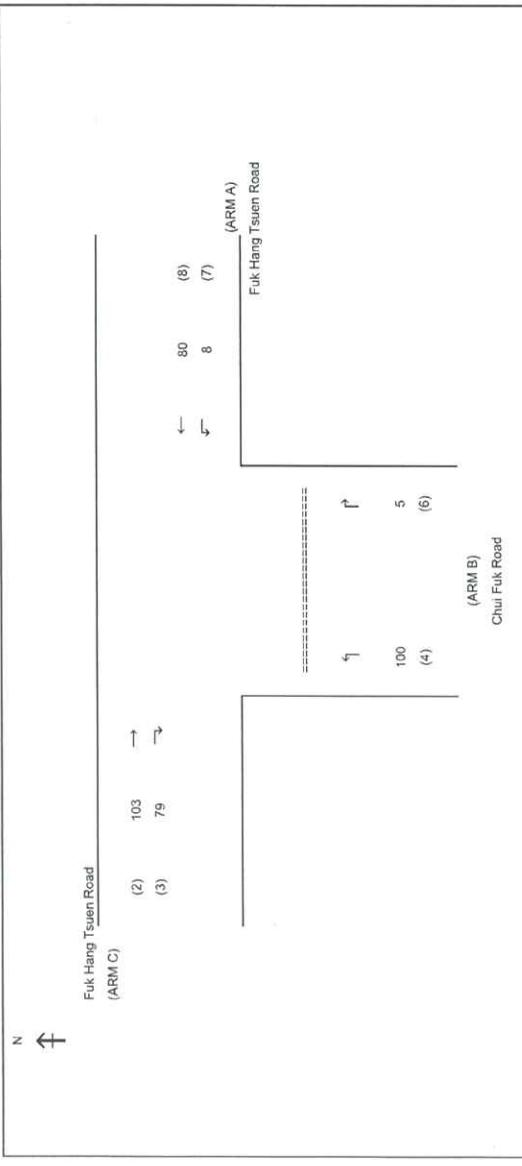
28-Jun-24

PROJECT NO:

297978

NOTES : (GEOMETRIC INPUT DATA)

W = MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
 Wcr = CENTRAL RESERVE WIDTH (0m, 1-2-9m)
 Wba = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2-2-5m)
 Wbc = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2-2-5m)
 Wcb = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2-2-5m)
 Vlba = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
 Vrba = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
 Vlbc = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-c (0-250m)
 Vrbc = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)
 Vrcb = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250m)
 D = STREAM-SPECIFIC C-B-A
 E = STREAM-SPECIFIC B-C
 F = STREAM-SPECIFIC C-B
 Y = (1-0-034SW)



GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 7.50 (metres)
 Wcr = 0 (metres)
 q a-b = 8 (pcu/hr)
 q a-c = 80 (pcu/hr)

MINOR ROAD (ARM C)
 W c-b = 3.75 (metres)
 W b-c = 35 (metres)
 q c-a = 103 (pcu/hr)
 q c-b = 79 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.887
 E = 0.949
 F = 0.932
 Y = 0.741

THE CAPACITY OF MOVEMENT :

O b-a = 493
 O b-c = 686
 O c-b = 672
 O b-ac = 673
 O c-a = 1588

COMPARISON OF DESIGN FLOW
TO CAPACITY:

DFC b-a = 0.0101
 DFC b-c = 0.1458
 DFC c-b = 0.1176
 DFC c-a = 0.0648
 DFC b-ca = 0.1559

$$\begin{aligned} \text{TOTAL FLOW} &= 375 (\text{PCU/HR}) \\ \text{CRITICAL DFC} &= 0.16 \end{aligned}$$

OVE ARUP & PARTNERS

Junction Assessment

J2 - Chui Fuk Road/Fu Fuk Road

PRIORITY JUNCTION CALCULATION

Year 2029 Design Weekday (AM Peak)

SHEET: J2_AM

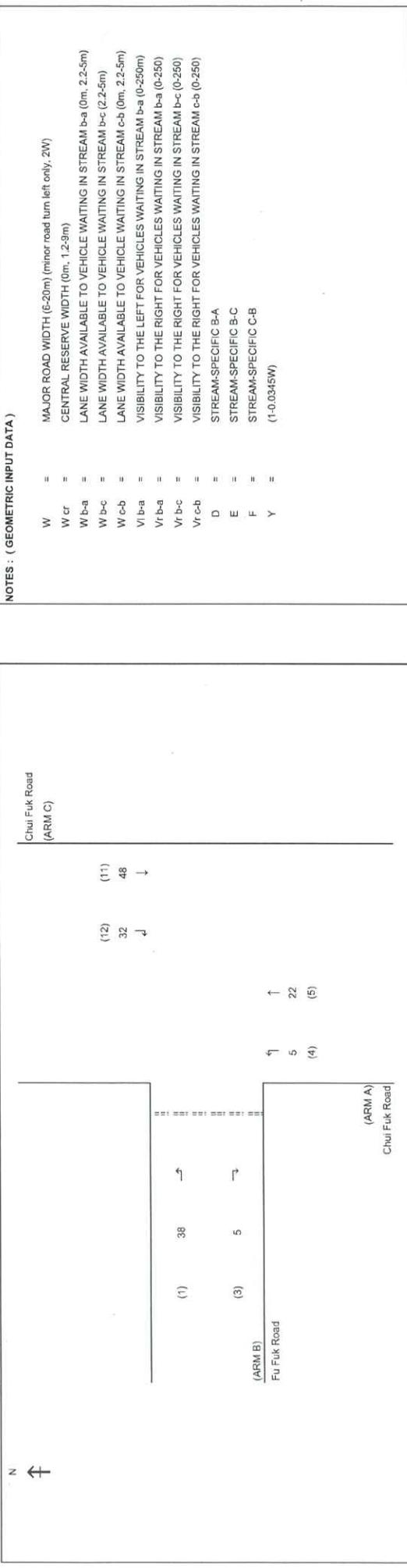
PROJECT NO:

29/9/78

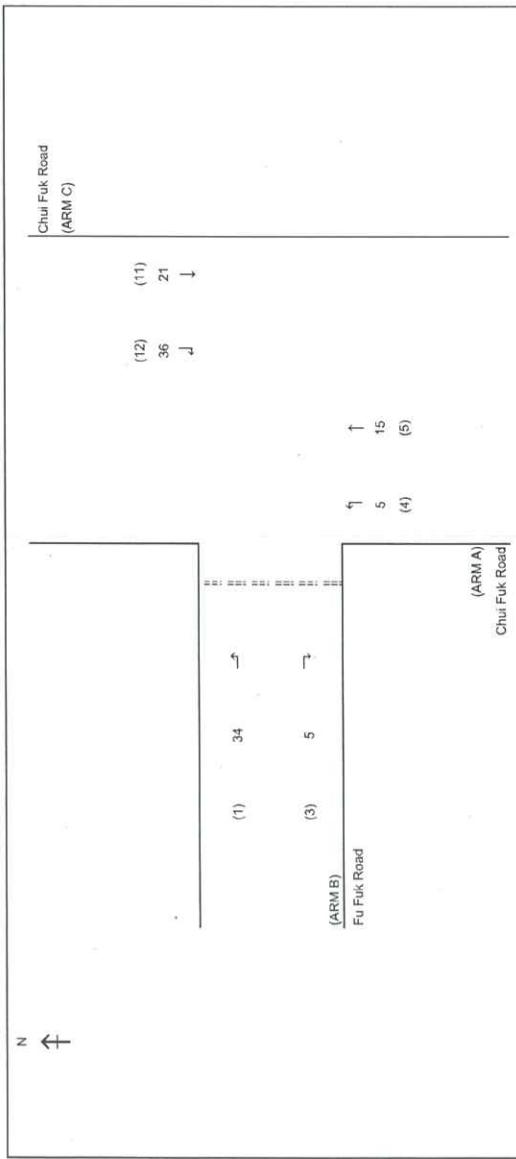
DATE:

28-Jun-24

FILENAME:



GEOMETRIC DETAILS:		GEOMETRIC FACTORS:		THE CAPACITY OF MOVEMENT:		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)							
W	=	6.50	(metres)	D	=	0.761	Q _{b-a}
W _{cr}	=	0	(metres)	E	=	0.828	Q _{b-c}
q _{a-b}	=	5	(pcu/hr)	F	=	0.893	Q _{c-b}
q _{a-c}	=	22	(pcu/hr)	Y	=	0.776	Q _{b-aC}
							Q _{c-a}
MAJOR ROAD (ARM C)							
W _{b-a}	=	3.25	(metres)			455	DfC _{b-a}
W _{b-c}	=	40	(metres)			611	DfC _{b-c}
V _{b-a}	=	48	(pcu/hr)			659	DfC _{c-b}
V _{b-c}	=	32	(pcu/hr)			588	DfC _{c-a}
						1713	DfC _{b-cA}
MINOR ROAD (ARM B)							
W _{b-a}	=	2.50	(metres)				
W _{b-c}	=	2.50	(metres)				
V _{b-a}	=	15	(metres)				
V _{b-c}	=	40	(metres)				
V _{c-b}	=	40	(metres)				
q _{b-a}	=	5	(pcu/hr)				
q _{b-c}	=	38	(pcu/hr)				
TOTAL FLOW		= 150 (PCU/HR)		CRITICAL DFC		= 0.07	



GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)
 W = 6.50 (metres)
 W_cr = 0 (metres)
 q_a-b = 5 (pcu/hr)
 q_a-c = 15 (pcu/hr)

MINOR ROAD (ARM B)
 W_c-b = 3.25 (metres)
 W_b-c = 2.50 (metres)
 Vl_b-a = 15 (metres)
 Vr_b-a = 40 (metres)
 Vr_b-c = 40 (metres)
 q_b-a = 5 (pcu/hr)
 q_b-c = 34 (pcu/hr)

GEOMETRIC FACTORS :

D = 0.761
 E = 0.828
 F = 0.893
 Y = 0.776

Q_b-a = 459
 Q_b-c = 613
 Q_c-b = 660
 Q_b-ac = 588
 Q_c-a = 1702

THE CAPACITY OF MOVEMENT :

DFC b-a = 0.0109
 DFC b-c = 0.0555
 DFC c-b = 0.0545
 DFC c-a = 0.0123
 DFC b-ca = 0.0664

NOTES : (GEOMETRIC INPUT DATA)

W = MAJOR ROAD WIDTH (6-20m) (left only, 2W)
 W_cr = CENTRAL RESERVE WIDTH (0m, 1-2-9m)
 W_b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2-2-5m)
 W_b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2-2-5m)
 W_c-b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2-2-5m)
 Vl_b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
 Vr_b-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
 Vr_b-c = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250m)
 Vr_c-a = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250m)
 D = STREAM-SPECIFIC C-B-A
 E = STREAM-SPECIFIC B-C
 F = STREAM-SPECIFIC C-B
 Y = (1-0.0345W)

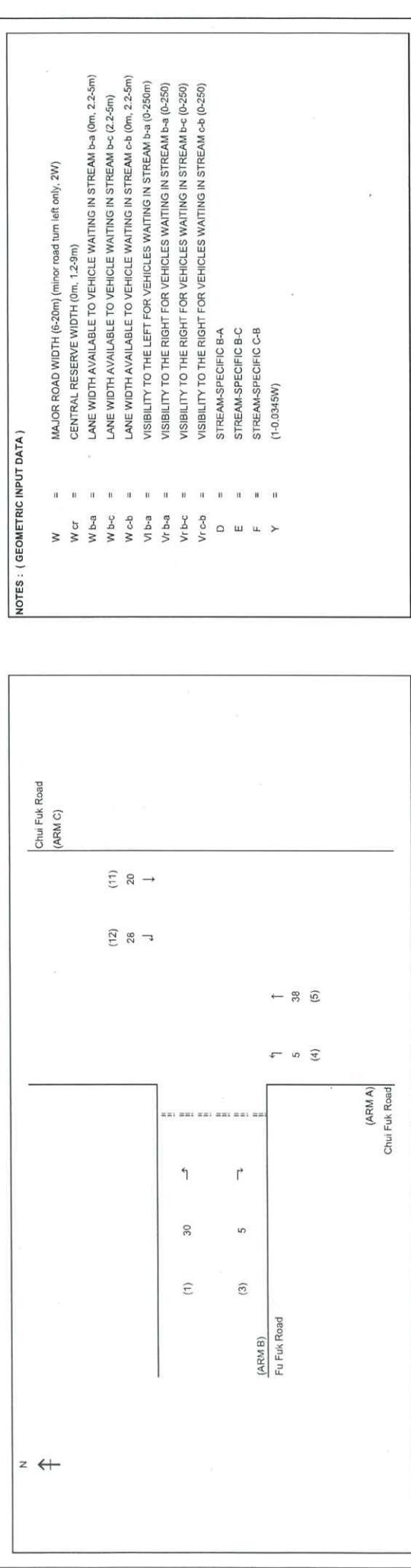
COMPARISON OF DESIGN FLOW
TO CAPACITY:

DFC b-a = 0.0109
 DFC b-c = 0.0555
 DFC c-b = 0.0545
 DFC c-a = 0.0123
 DFC b-ca = 0.0664

TOTAL FLOW = 116 (PCU/HR)

CRITICAL DFC = 0.07

PROJECT NO:	297978
FILE NAME:	



GEOMETRIC FACTORS :		THE CAPACITY OF MOVEMENT :		COMPARISON OF DESIGN FLOW TO CAPACITY:	
MAJOR ROAD (ARM A)		D	=	0.761	Q b-a = 457
W	=	E	=	0.828	Q b-c = 607
W cr	=	F	=	0.893	Q c-b = 655
q a-b	=	Y	=	0.776	Q b-ac = 580
q a-c	=				Q c-a = 1723
MAJOR ROAD (ARM C)					
W c-b	=	3.25	(metres)	Q b-a = 457	DFC b-a = 0.0109
W b-c	=	0	(metres)	Q b-c = 607	DFC b-c = 0.0494
Vl c-b	=	40	(pcu/hr)	Q c-b = 655	DFC c-b = 0.0427
q c-b	=	5	(pcu/hr)	Q b-ac = 580	DFC c-a = 0.0116
q a-c	=	38	(pcu/hr)	Q c-a = 1723	DFC b-c-a = 0.0604
MINOR ROAD (ARM B)					
W b-a	=	2.50	(metres)		
W b-c	=	2.50	(metres)		
Vl b-a	=	15	(metres)		
Vr b-a	=	40	(metres)		
Vr b-c	=	40	(metres)		
q b-a	=	5	(pcu/hr)		
q b-c	=	30	(pcu/hr)		
TOTAL FLOW	=	126	(PCU/HR)		
CRITICAL DFC	=	0.06			