Form No. S16-I
表格第 S16-I 號

APPLICATION FOR PERMISSION UNDER SECTION 16 OF THE TOWN PLANNING ORDINANCE (CAP. 131)

根據《城市規劃條例》(第131章)第16條遞交的許可申請

Applicable to proposals not involving or not only involving:
適用於建議不涉及或不祇涉及:

(i) Construction of "New Territories Exempted House(s)";
興建「新界豁免管制屋宇」;

(ii) Temporary use/development of land and/or building not exceeding 3 years in rural areas or Regulated Areas; and
位於鄉郊地區或受規管地區土地上及/或建築物內進行為期不超過三年的臨時用途/發展;及

(iii) Renewal of permission for temporary use or development in rural areas or Regulated Areas
位於鄉郊地區或受規管地區的臨時用途或發展的許可續期

Applicant who would like to publish the notice of application in local newspapers to meet one of the Town Planning Board's requirements of taking reasonable steps to obtain consent of or give notification to the current land owner, please refer to the following link regarding publishing the notice in the designated newspapers: https://www.tpb.gov.hk/en/plan_application/apply.html

申請人如欲在本地報章刊登申請通知,以採取城市規劃委員會就取得現行土地擁有人的同意或通知現行土地擁有人所指定的其中一項合理步驟,請瀏覽以下網址有關在指定的報章刊登通知:
https://www.tpb.gov.hk/tc/plan_application/apply.html

General Note and Annotation for the Form
填寫表格的一般指引及註解

\# "Current land owner" means any person whose name is registered in the Land Registry as that of an owner of the land to which the application relates, as at 6 weeks before the application is made
「現行土地擁有人」指在提出申請前六星期,其姓名或名稱已在土地註冊處註冊為該申請所關乎的土地的擁有人的人

& Please attach documentary proof 請夾附證明文件

^ Please insert number where appropriate 請在適當地方註明編號

Please fill "NA" for inapplicable item 請在不適用的項目填寫「不適用」

Please use separate sheets if the space provided is insufficient 如所提供的空間不足,請另頁說明

Please insert a「✔」at the appropriate box 請在適當的方格內上加上「✔」號

2401896 2/8 By hand

Form No. S16-I 表格第 S16-I 號

For Official Use Only 請勿填寫此欄	Application No. 申請編號	A/TSS/299
	Date Received 收到日期	6 AUG 2024

1. The completed form and supporting documents (if any) should be sent to the Secretary, Town Planning Board (the Board), 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong.
申請人須把填妥的申請表格及其他支持申請的文件 (倘有)，送交香港北角渣華道 333 號北角政府合署 15 樓城市規劃委員會(下稱「委員會」)秘書收。

2. Please read the "Guidance Notes" carefully before you fill in this form. The document can be downloaded from the Board's website at http://www.tpb.gov.hk/. It can also be obtained from the Secretariat of the Board at 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong (Tel: 2231 4810 or 2231 4835), and the Planning Enquiry Counters of the Planning Department (Hotline: 2231 5000) (17/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong and 14/F, Sha Tin Government Offices, 1 Sheung Wo Che Road, Sha Tin, New Territories).
請先細閱《申請須知》的資料單張，然後填寫此表格。該份文件可從委員會的網頁下載 (網址：http://www.tpb.gov.hk/)，亦可向委員會秘書處 (香港北角渣華道 333 號北角政府合署 15 樓 – 電話：2231 4810 或 2231 4835)及規劃署的規劃資料查詢處(熱線：2231 5000) (香港北角渣華道 333 號北角政府合署 17 樓及新界沙田上禾輋路 1 號沙田政府合署 14 樓)索取。

3. This form can be downloaded from the Board's website, and obtained from the Secretariat of the Board and the Planning Enquiry Counters of the Planning Department. The form should be typed or completed in block letters. The processing of the application may be refused if the required information or the required copies are incomplete.
此表格可從委員會的網頁下載，亦可向委員會秘書處及規劃署的規劃資料查詢處索取。申請人須以打印方式或以正楷填寫表格。如果申請人所提交的資料或文件副本不齊全，委員會可拒絕處理有關申請。

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1. Name of Applicant 申請人姓名/名稱

(☐ Mr. 先生 / ☐ Mrs. 夫人 / ☐ Miss 小姐 / ☐ Ms. 女士 / ☐ Company 公司 / ☑ Organisation 機構)

Hong Kong Housing Authority

2. Name of Authorised Agent (if applicable) 獲授權代理人姓名/名稱（如適用）

(☐ Mr. 先生 / ☐ Mrs. 夫人 / ☐ Miss 小姐 / ☐ Ms. 女士 / ☐ Company 公司 / ☐ Organisation 機構)

3. Application Site 申請地點

(a) Full address / location / demarcation district and lot number (if applicable) 詳細地址／地點／丈量約份及地段號碼（如適用）	Government Land at Po Shek Wu Road Public Housing Site, Sheung Shui
(b) Site area and/or gross floor area involved 涉及的地盤面積及／或總樓面面積	☑Site area 地盤面積 Gross Site Area: 13,800 Net Site Area: 13,800 sq.m 平方米 ☑About 約 ☐Gross floor area 總樓面面積 ..... sq.m 平方米 ☐About 約
(c) Area of Government land included (if any) 所包括的政府土地面積（倘有）	13,800 sq.m 平方米 ☑About 約

(d)	Name and number of the related statutory plan(s) 有關法定圖則的名稱及編號	Approved Fanling / Sheung Shui OZP No. S/FSS/28
(e)	Land use zone(s) involved 涉及的土地用途地帶	Residential (Group A)5
(f)	Current use(s) 現時用途	Bus Depot (If there are any Government, institution or community facilities, please illustrate on plan and specify the use and gross floor area) (如有任何政府、機構或社區設施，請在圖則上顯示，並註明用途及總樓面面積)

4. "Current Land Owner" of Application Site 申請地點的「現行土地擁有人」

The applicant 申請人 –

☐ is the sole "current land owner"#& (please proceed to Part 6 and attach documentary proof of ownership).
是唯一的「現行土地擁有人」#& (請繼續填寫第 6 部分，並夾附業權證明文件)。

☐ is one of the "current land owners"#& (please attach documentary proof of ownership).
是其中一名「現行土地擁有人」#& (請夾附業權證明文件)。

☐ is not a "current land owner"#.
並不是「現行土地擁有人」#。

☑ The application site is entirely on Government land (please proceed to Part 6).
申請地點完全位於政府土地上（請繼續填寫第 6 部分）。

5. Statement on Owner's Consent/Notification
就土地擁有人的同意/通知土地擁有人的陳述

(a) According to the record(s) of the Land Registry as at ..... (DD/MM/YYYY), this application involves a total of ..... "current land owner(s)"#.
根據土地註冊處截至 ..... 年 ..... 月 ..... 日的記錄，這宗申請共牽涉 ..... 名「現行土地擁有人」#。

(b) The applicant 申請人 –

☐ has obtained consent(s) of ..... "current land owner(s)"#.
已取得 ..... 名「現行土地擁有人」#的同意。

Details of consent of "current land owner(s)"# obtained 取得「現行土地擁有人」#同意的詳情		
No. of 'Current Land Owner(s)' 「現行土地擁有人」數目	Lot number/address of premises as shown in the record of the Land Registry where consent(s) has/have been obtained 根據土地註冊處記錄已獲得同意的地段號碼／處所地址	Date of consent obtained (DD/MM/YYYY) 取得同意的日期 (日/月/年)

(Please use separate sheets if the space of any box above is insufficient. 如上列任何方格的空間不足，請另頁說明)

☐ has notified ..... "current land owner(s)"#
已通知 ..... 名「現行土地擁有人」#。

Details of the "current land owner(s)"# notified 已獲通知「現行土地擁有人」#的詳細資料		
No. of 'Current Land Owner(s)' 「現行土地擁有人」數目	Lot number/address of premises as shown in the record of the Land Registry where notification(s) has/have been given 根據土地註冊處記錄已發出通知的地段號碼／處所地址	Date of notification given (DD/MM/YYYY) 通知日期(日/月/年)

(Please use separate sheets if the space of any box above is insufficient. 如上列任何方格的空間不足，請另頁說明)

☐ has taken reasonable steps to obtain consent of or give notification to owner(s):
已採取合理步驟以取得土地擁有人的同意或向該人發給通知。詳情如下：

Reasonable Steps to Obtain Consent of Owner(s) 取得土地擁有人的同意所採取的合理步驟

☐ sent request for consent to the "current land owner(s)" on _____ (DD/MM/YYYY)#&
於_____(日/月/年)向每一名「現行土地擁有人」#郵遞要求同意書&

Reasonable Steps to Give Notification to Owner(s) 向土地擁有人發出通知所採取的合理步驟

☐ published notices in local newspapers on _____ (DD/MM/YYYY)&
於_____(日/月/年)在指定報章就申請刊登一次通知&

☐ posted notice in a prominent position on or near application site/premises on _____ (DD/MM/YYYY)&
於_____(日/月/年)在申請地點／申請處所或附近的顯明位置貼出關於該申請的通知&

☐ sent notice to relevant owners' corporation(s)/owners' committee(s)/mutual aid committee(s)/management office(s) or rural committee on _____ (DD/MM/YYYY)&
於_____(日/月/年)把通知寄往相關的業主立案法團/業主委員會/互助委員會或管理處，或有關的鄉事委員會&

Others 其他

☐ others (please specify)
其他（請指明）

_____

_____

_____

_____

Note: May insert more than one「✔」.
Information should be provided on the basis of each and every lot (if applicable) and premises (if any) in respect of the application.
註: 可在多於一個方格內加上「✔」號
申請人須就申請涉及的每一地段（倘適用）及處所（倘有）分別提供資料

6. Type(s) of Application 申請類別

☐ Type (i) 第(i)類 Change of use within existing building or part thereof 更改現有建築物或其部分內的用途

☐ Type (ii) 第(ii)類 Diversion of stream / excavation of land / filling of land / filling of pond as required under Notes of Statutory Plan(s) 根據法定圖則《註釋》內所要求的河道改道／挖土／填土／填塘工程

☐ Type (iii) 第(iii)類 Public utility installation / Utility installation for private project 公用事業設施裝置/私人發展計劃的公用設施裝置

☑ Type (iv) 第(iv)類 Minor relaxation of stated development restriction(s) as provided under Notes of Statutory Plan(s) 略為放寬於法定圖則《註釋》內列明的發展限制

☑ Type (v) 第(v)類 Use / development other than (i) to (iii) above 上述的(i)至(iii)項以外的用途／發展

Note 1: May insert more than one「✓」.
註 1： 可在多於一個方格內加上「✓」號
Note 2: For Development involving columbarium use, please complete the table in the Appendix.
註 2： 如發展涉及靈灰安置所用途，請填妥於附件的表格。

(i) For Type (i) application 供第(i)類申請

(a) Total floor area involved 涉及的總樓面面積	sq.m 平方米		
(b) Proposed use(s)/development 擬議用途/發展	(If there are any Government, institution or community facilities, please illustrate on plan and specify the use and gross floor area) (如有任何政府、機構或社區設施，請在圖則上顯示，並註明用途及總樓面面積)		
(c) Number of storeys involved 涉及層數		Number of units involved 涉及單位數目	
(d) Proposed floor area 擬議樓面面積	Domestic part 住用部分 ..... sq.m 平方米 ☐About 約		
	Non-domestic part 非住用部分..... sq.m 平方米 ☐About 約		
	Total 總計 ..... sq.m 平方米 ☐About 約		

(e) Proposed uses of different floors (if applicable) 不同樓層的擬議用途(如適用)
(Please use separate sheets if the space provided is insufficient)
(如所提供的空間不足，請另頁說明)

Floor(s) 樓層	Current use(s) 現時用途	Proposed use(s) 擬議用途

(ii) For Type (ii) application 供第(ii)類申請

(a) Operation involved 涉及工程	☐ Diversion of stream 河道改道 ☐ Filling of pond 填塘 Area of filling 填塘面積 ..... sq.m 平方米 ☐About 約 Depth of filling 填塘深度 ..... m 米 ☐About 約 ☐ Filling of land 填土 Area of filling 填土面積 ..... sq.m 平方米 ☐About 約 Depth of filling 填土厚度 ..... m 米 ☐About 約 ☐ Excavation of land 挖土 Area of excavation 挖土面積 ..... sq.m 平方米 ☐About 約 Depth of excavation 挖土深度 ..... m 米 ☐About 約 (Please indicate on site plan the boundary of concerned land/pond(s), and particulars of stream diversion, the extent of filling of land/pond(s) and/or excavation of land) (請用圖則顯示有關土地／池塘界線，以及河道改道、填塘、填土及／或挖土的細節及/或範圍))
(b) Intended use/development 有意進行的用途／發展	

(iii) For Type (iii) application 供第(iii)類申請

(a) Nature and scale
性質及規模

☐ Public utility installation 公用事業設施裝置

☐ Utility installation for private project 私人發展計劃的公用設施裝置

Please specify the type and number of utility to be provided as well as the dimensions of each building/structure, where appropriate
請註明有關裝置的性質及數量，包括每座建築物/構築物(倘有)的長度、高度和闊度

Name/type of installation 裝置名稱／種類	Number of provision 數量	Dimension of each installation /building/structure (m) (LxWxH) 每個裝置／建築物／構築物的尺寸 (米) (長 x 闊 x 高)

(Please illustrate on plan the layout of the installation 請用圖則顯示裝置的布局)

(iv) For Type (iv) application 供第(iv)類申請

(a) Please specify the proposed minor relaxation of stated development restriction(s) and **also fill in the proposed use/development and development particulars in part (v) below** –
請列明擬議略為放寬的發展限制**並填妥於第(v)部分的擬議用途/發展及發展細節** –

☑	Plot ratio restriction 地積比率限制	From 由 7.0 to 至 7.5
☐	Gross floor area restriction 總樓面面積限制	From 由 .....sq. m 平方米 to 至 .....sq. m 平方米
☐	Site coverage restriction 上蓋面積限制	From 由 .....% to 至 ..... %
☑	Building height restriction 建築物高度限制	From 由 .....m 米 to 至 ..... m 米 From 由 130 ..... mPD 米 (主水平基準上) to 至 149 .....mPD 米 (主水平基準上) From 由 ..... storeys 層 to 至 ..... storeys 層
☐	Non-building area restriction 非建築用地限制	From 由 .....m to 至 ..... m
☐	Others (please specify) 其他（請註明）	.....

(v) For Type (v) application 供第(v)類申請

(a) Proposed use(s)/development 擬議用途/發展	Proposed Minor Relaxation of Maximum Total Plot Ratio and Building Height Restriction for Permitted Public Housing Development (Please illustrate the details of the proposal on a layout plan 請用平面圖說明建議詳情)

(b) Development Schedule 發展細節表

Proposed gross floor area (GFA) 擬議總樓面面積	103,500 sq.m 平方米	☑About 約
Proposed plot ratio 擬議地積比率	7.5	☐About 約
Proposed site coverage 擬議上蓋面積	15m or below: about 70% over 15m: about 38.5% %	☑About 約
Proposed no. of blocks 擬議座數	2 domestic blocks	
Proposed no. of storeys of each block 每座建築物的擬議層數	45 - 46 (including refuge floor) storeys 層 (no basement) ☐ include 包括_____storeys of basements 層地庫 ☐ exclude 不包括_____storeys of basements 層地庫	
Proposed building height of each block 每座建築物的擬議高度	not more than 149 mPD 米(主水平基準上)	☐About 約
	..... m 米	☐About 約

☑ Domestic part 住用部分

GFA 總樓面面積	89,700 sq. m 平方米	☑About 約
number of Units 單位數目	1,904	
average unit size 單位平均面積	47 sq. m 平方米	☑About 約
estimated number of residents 估計住客數目	5,332 (about)	

☑ Non-domestic part 非住用部分

	GFA 總樓面面積	
☐ eating place 食肆	..... sq. m 平方米	☐About 約
☐ hotel 酒店	..... sq. m 平方米	☐About 約
	(please specify the number of rooms 請註明房間數目)	
☐ office 辦公室	..... sq. m 平方米	☐About 約
☐ shop and services 商店及服務行業	..... sq. m 平方米	☐About 約

☑ Government, institution or community facilities 政府、機構或社區設施

(please specify the use(s) and concerned land area(s)/GFA(s) 請註明用途及有關的地面面積／總樓面面積)

Post Office, social welfare facilities (subject to change as per SWD's request at detailed design stage.)

☑ other(s) 其他

(please specify the use(s) and concerned land area(s)/GFA(s) 請註明用途及有關的地面面積／總樓面面積)

Retail and Commercial Facilities, Kindergarten, Estate Management and Ancillary Facilities (not more than 13,800 sq.m)

☑ Open space 休憩用地

(please specify land area(s) 請註明地面面積)

☑ private open space 私人休憩用地	5,332 sq. m 平方米	☑ Not less than 不少於
☐ public open space 公眾休憩用地	..... sq. m 平方米	☐ Not less than 不少於

(c) Use(s) of different floors (if applicable) 各樓層的用途 (如適用)

[Block number] [座數]	[Floor(s)] [層數]	[Proposed use(s)] [擬議用途]
Podium	G/F - 3/F	Entrance lobby, podium garden, retail, kindergarten, parking area, post office, welfare and E&M facilities
Block A	4/F and above	Residential flats
Block B	4/F and above	Residential flats

(d) Proposed use(s) of uncovered area (if any) 露天地方（倘有）的擬議用途

Podium garden, sitting-out area, community play area, estate road/ EVA, circulation area, bicycle parking area, recreational facilities

7. Anticipated Completion Time of the Development Proposal 擬議發展計劃的預計完成時間

Anticipated completion time (in month and year) of the development proposal (by phase (if any)) (e.g. June 2023)
擬議發展計劃預期完成的年份及月份 (分期 (倘有)) (例：2023 年 6 月)
(Separate anticipated completion times (in month and year) should be provided for the proposed public open space and Government, institution or community facilities (if any))
(申請人須就擬議的公眾休憩用地及政府、機構或社區設施 (倘有) 提供個別擬議完成的年份及月份)

2029/30

8. Vehicular Access Arrangement of the Development Proposal 擬議發展計劃的行車通道安排

Any vehicular access to the site/subject building? 是否有車路通往地盤／有關建築物？	Yes 是	☑ There is an existing access. (please indicate the street name, where appropriate) 有一條現有車路。(請註明車路名稱(如適用)) ..... ☐ There is a proposed access. (please illustrate on plan and specify the width) 有一條擬議車路。（請在圖則顯示，並註明車路的闊度）
	No 否	☐
Any provision of parking space for the proposed use(s)? 是否有為擬議用途提供停車位？	Yes 是	☑ (Please specify type(s) and number(s) and illustrate on plan) 請註明種類及數目並於圖則上顯示) Private Car Parking Spaces 私家車車位 — Domestic: 147, Visitors: 10, Retail: 15, Kindergarten: 1 Motorcycle Parking Spaces 電單車車位 — 18 Light Goods Vehicle Parking Spaces 輕型貨車泊車位 — Nil Medium Goods Vehicle Parking Spaces 中型貨車泊車位 — Nil Heavy Goods Vehicle Parking Spaces 重型貨車泊車位 — Nil Others (Please Specify) 其他 (請列明) Bicycle Parking Spaces — 167 Welfare Facilities Public Light Buses Parking Spaces — 2
	No 否	☐
Any provision of loading/unloading space for the proposed use(s)? 是否有為擬議用途提供上落客貨車位？	Yes 是	☑ (Please specify type(s) and number(s) and illustrate on plan) 請註明種類及數目並於圖則上顯示) Taxi Spaces 的士車位 — Nil Coach Spaces 旅遊巴車位 — Nil Light Goods Vehicle Spaces 輕型貨車車位 — Nil Medium Goods Vehicle Spaces 中型貨車車位 — Nil Heavy Goods Vehicle Spaces 重型貨車車位 — Domestic: 4, Retail: 4 Others (Please Specify) 其他 (請列明) Welfare Facilities and Kindergarten Loading/unloading Spaces — 1 Post Office Loading/unloading Spaces — 1
	No 否	☐

9. Impacts of Development Proposal 擬議發展計劃的影響

If necessary, please use separate sheets to indicate the proposed measures to minimise possible adverse impacts or give justifications/reasons for not providing such measures.
如需要的話，請另頁註明可盡量減少可能出現不良影響的措施，否則請提供理據/理由。

Does the development proposal involve alteration of existing building? 擬議發展計劃是否包括現有建築物的改動?	Yes 是	☐ Please provide details 請提供詳情 ....
	No 否	☑
Does the development proposal involve the operation on the right? 擬議發展是否涉及右列的工程? (Note: where Type (ii) application is the subject of application, please skip this section. 註：如申請涉及第(ii)類申請，請跳至下一條問題。)	Yes 是	☐ (Please indicate on site plan the boundary of concerned land/pond(s), and particulars of stream diversion, the extent of filling of land/pond(s) and/or excavation of land) (請用地盤平面圖顯示有關土地／池塘界線，以及河道改道、填塘、填土及／或挖土的細節及/或範圍) ☐ Diversion of stream 河道改道 ☐ Filling of pond 填塘 Area of filling 填塘面積 ..... sq.m 平方米 ☐About 約 Depth of filling 填塘深度 ..... m 米 ☐About 約 ☐ Filling of land 填土 Area of filling 填土面積 ..... sq.m 平方米 ☐About 約 Depth of filling 填土厚度 ..... m 米 ☐About 約 ☐ Excavation of land 挖土 Area of excavation 挖土面積..... sq.m 平方米 ☐About 約 Depth of excavation 挖土深度 .....m 米 ☐About 約
	No 否	☑

Would the development proposal cause any adverse impacts? 擬議發展計劃會否造成不良影響？			
	On environment 對環境	Yes 會 ☐	No 不會 ☑
	On traffic 對交通	Yes 會 ☐	No 不會 ☑
	On water supply 對供水	Yes 會 ☐	No 不會 ☑
	On drainage 對排水	Yes 會 ☐	No 不會 ☑
	On slopes 對斜坡	Yes 會 ☐	No 不會 ☑
	Affected by slopes 受斜坡影響	Yes 會 ☐	No 不會 ☑
	Landscape Impact 構成景觀影響	Yes 會 ☐	No 不會 ☑
	Tree Felling 砍伐樹木	Yes 會 ☐	No 不會 ☑
	Visual Impact 構成視覺影響	Yes 會 ☐	No 不會 ☑
	Others (Please Specify) 其他 (請列明)	Yes 會 ☐	No 不會 ☑
	_____		
	_____		

Please state measure(s) to minimise the impact(s). For tree felling, please state the number, diameter at breast height and species of the affected trees (if possible)
請註明盡量減少影響的措施。如涉及砍伐樹木，請說明受影響樹木的數目、及胸高度的樹幹直徑及品種(倘可)

Please refer to the attached Supporting Planning Statement.
.....
.....
.....
.....
.....

10. Justifications 理由

The applicant is invited to provide justifications in support of the application. Use separate sheets if necessary.
現請申請人提供申請理由及支持其申請的資料。如有需要，請另頁說明。

Please refer to the attached Supporting Planning Statement.

11. Declaration 聲明

I hereby declare that the particulars given in this application are correct and true to the best of my knowledge and belief.
本人謹此聲明，本人就這宗申請提交的資料，據本人所知及所信，均屬真實無誤。

I hereby grant a permission to the Board to copy all the materials submitted in this application and/or to upload such materials to the Board's website for browsing and downloading by the public free-of-charge at the Board's discretion. 本人現准許委員會酌情將本人就此申請所提交的所有資料複製及/或上載至委員會網站，供公眾免費瀏覽或下載。

Signature 簽署 ☑ Applicant 申請人 / ☐ Authorised Agent 獲授權代理人

Mr. CHAN King-kong, Theron — Name in Block Letters 姓名（請以正楷填寫）

Chief Planning Officer/1 — Position (if applicable) 職位 （如適用）

Professional Qualification(s) 專業資格
☑ Member 會員 / ☐ Fellow of 資深會員
☑ HKIP 香港規劃師學會 / ☐ HKIA 香港建築師學會 /
☐ HKIS 香港測量師學會 / ☐ HKIE 香港工程師學會 /
☐ HKILA 香港園境師學會/ ☐ HKIUD 香港城市設計學會
☑ RPP 註冊專業規劃師 RPP 248
Others 其他 .....

on behalf of 代表 Hong Kong Housing Authority

☐ Company 公司 / ☑ Organisation Name and Chop (if applicable) 機構名稱及蓋章（如適用）

HOUSING DEPARTMENT 房屋署

Date 日期 - 2 AUG 2024 (DD/MM/YYYY 日/月/年)

Remark 備註

The materials submitted in this application and the Board's decision on the application would be disclosed to the public. Such materials would also be uploaded to the Board's website for browsing and free downloading by the public where the Board considers appropriate.
委員會會向公眾披露申請人所遞交的申請資料和委員會對申請所作的決定。在委員會認為合適的情況下，有關申請資料亦會上載至委員會網頁供公眾免費瀏覽及下載。

Warning 警告

Any person who knowingly or wilfully makes any statement or furnish any information in connection with this application, which is false in any material particular, shall be liable to an offence under the Crimes Ordinance.
任何人在明知或故意的情況下，就這宗申請提出在任何要項上是虛假的陳述或資料，即屬違反《刑事罪行條例》。

Statement on Personal Data 個人資料的聲明

1. The personal data submitted to the Board in this application will be used by the Secretary of the Board and Government departments for the following purposes:
委員會就這宗申請所收到的個人資料會交給委員會秘書及政府部門，以根據《城市規劃條例》及相關的城市規劃委員會規劃指引的規定作以下用途：
   (a) the processing of this application which includes making available the name of the applicant for public inspection when making available this application for public inspection; and
   處理這宗申請，包括公布這宗申請供公眾查閱，同時公布申請人的姓名供公眾查閱；以及
   (b) facilitating communication between the applicant and the Secretary of the Board/Government departments.
   方便申請人與委員會秘書及政府部門之間進行聯絡。

2. The personal data provided by the applicant in this application may also be disclosed to other persons for the purposes mentioned in paragraph 1 above.
申請人就這宗申請提供的個人資料，或亦會向其他人士披露，以作上述第 1 段提及的用途。

3. An applicant has a right of access and correction with respect to his/her personal data as provided under the Personal Data (Privacy) Ordinance (Cap. 486). Request for personal data access and correction should be addressed to the Secretary of the Board at 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong.
根據《個人資料(私隱)條例》(第 486 章)的規定，申請人有權查閱及更正其個人資料。如欲查閱及更正個人資料，應向委員會秘書提出有關要求，其地址為香港北角渣華道 333 號北角政府合署 15 樓。

For Developments involving Columbarium Use, please also complete the following:
如發展涉及靈灰安置所用途，請另外填妥以下資料:

Ash interment capacity 骨灰安放容量@

Maximum number of sets of ashes that may be interred in the niches
在龕位內最多可安放骨灰的數量 _____
Maximum number of sets of ashes that may be interred other than in niches
在非龕位的範圍內最多可安放骨灰的數量 _____

Total number of niches 龕位總數 _____

Total number of single niches
單人龕位總數 _____

Number of single niches (sold and occupied)
單人龕位數目 (已售並佔用) _____
Number of single niches (sold but unoccupied)
單人龕位數目 (已售但未佔用) _____
Number of single niches (residual for sale)
單人龕位數目 (待售) _____

Total number of double niches
雙人龕位總數 _____

Number of double niches (sold and fully occupied)
雙人龕位數目 (已售並全部佔用) _____
Number of double niches (sold and partially occupied)
雙人龕位數目 (已售並部分佔用) _____
Number of double niches (sold but unoccupied)
雙人龕位數目 (已售但未佔用) _____
Number of double niches (residual for sale)
雙人龕位數目 (待售) _____

Total no. of niches other than single or double niches (please specify type)
除單人及雙人龕位外的其他龕位總數 (請列明類別)
_____

Number. of niches (sold and fully occupied)
龕位數目 (已售並全部佔用) _____
Number of niches (sold and partially occupied)
龕位數目 (已售並部分佔用) _____
Number of niches (sold but unoccupied)
龕位數目 (已售但未佔用) _____
Number of niches (residual for sale)
龕位數目 (待售) _____

Proposed operating hours 擬議營運時間 _____
_____

@ Ash interment capacity in relation to a columbarium means –
就靈灰安置所而言，骨灰安放容量指：
- the maximum number of containers of ashes that may be interred in each niche in the columbarium;
每個龕位內可安放的骨灰容器的最高數目;
- the maximum number of sets of ashes that may be interred other than in niches in any area in the columbarium; and
在該靈灰安置所並非龕位的範圍內，總共最多可安放多少份骨灰；以及
- the total number of sets of ashes that may be interred in the columbarium.
在該骨灰安置所內，總共最多可安放多少份骨灰。

Gist of Application 申請摘要

(Please provide details in both English and Chinese as far as possible. This part will be circulated to relevant consultees, uploaded to the Town Planning Board's Website for browsing and free downloading by the public and available at the Planning Enquiry Counters of the Planning Department for general information.)
(請盡量以英文及中文填寫。此部分將會發送予相關諮詢人士、上載至城市規劃委員會網頁供公眾免費瀏覽及下載及於規劃署規劃資料查詢處供一般參閱。)

Application No. 申請編號	(For Official Use Only) (請勿填寫此欄)
Location/address 位置／地址	Government Land at Po Shek Wu Road Public Housing Site, Sheung Shui 上水寶石湖路公營房屋地盤的政府用地
Site area 地盤面積	Gross Site Area 總地盤面積: 13,800 sq. m 平方米 ☑ About 約 Net Site Area 地盤淨面積: 13,800 (includes Government land of 包括政府土地 13,800 sq. m 平方米 ☑ About 約)
Plan 圖則	Approved Fanling / Sheung Shui OZP No. S/FSS/28 粉嶺/上水分區計劃大綱核准圖編號 S/FSS/28
Zoning 地帶	Residential (Group A)5 住宅(甲類)5
Applied use/ development 申請用途/發展	Proposed Minor Relaxation of Maximum Total Plot Ratio and Building Height Restriction for Permitted Public Housing Development 擬議略為放寬總地積比率及建築物高度限制作准許的公營房屋發展

			sq.m 平方米		Plot Ratio 地積比率	
(i)	Gross floor area and/or plot ratio 總樓面面積及／或地積比率	Domestic 住用	89,700	☐ About 約 ☑ Not more than 不多於	6.5	☐About 約 ☑Not more than 不多於
		Non-domestic 非住用	13,800	☐ About 約 ☑ Not more than 不多於	1.0	☐About 約 ☑Not more than 不多於
(ii)	No. of blocks 幢數	Domestic 住用				
		Non-domestic 非住用				
		Composite 綜合用途	2			

(iii)	Building height/No. of storeys 建築物高度／層數	Domestic 住用	m 米 ☐ (Not more than 不多於)
			mPD 米(主水平基準上) ☐ (Not more than 不多於)
			Storeys(s) 層 ☐ (Not more than 不多於) *(☐Include 包括/☐ Exclude 不包括* ☐ *Carport 停車間* ☐ *Basement 地庫* ☐ *Refuge Floor 防火層* ☐ *Podium 平台)*
		Non-domestic 非住用	m 米 ☐ (Not more than 不多於)
			mPD 米(主水平基準上) ☐ (Not more than 不多於)
			Storeys(s) 層 ☐ (Not more than 不多於) *(☐Include 包括/☐ Exclude 不包括* ☐ *Carport 停車間* ☐ *Basement 地庫* ☐ *Refuge Floor 防火層* ☐ *Podium 平台)*
		Composite 綜合用途	m 米 ☐ (Not more than 不多於)
			149 mPD 米(主水平基準上) ☑ (Not more than 不多於)
			45 - 46 Storeys(s) 層 ☐ (Not more than 不多於) *(☑Include 包括/☐ Exclude 不包括* ☑ *Carport 停車間* ☐ *Basement 地庫* ☑ *Refuge Floor 防火層* ☑ *Podium 平台)*
(iv)	Site coverage 上蓋面積	15m or below: about 70% above 15m: about 38.5%	% ☑ About 約
(v)	No. of units 單位數目	1,904	
(vi)	Open space 休憩用地	Private 私人	5,332 sq.m 平方米 ☑ Not less than 不少於
		Public 公眾	sq.m 平方米 ☐ Not less than 不少於

(vii) No. of parking spaces and loading / unloading spaces 停車位及上落客貨車位數目	Total no. of vehicle parking spaces 停車位總數	Domestic: 147 Visitors: 10 Retail: 15 Kindergarten: 1
	Private Car Parking Spaces 私家車車位	18
	Motorcycle Parking Spaces 電單車車位	Nil
	Light Goods Vehicle Parking Spaces 輕型貨車泊車位	Nil
	Medium Goods Vehicle Parking Spaces 中型貨車泊車位	Nil
	Heavy Goods Vehicle Parking Spaces 重型貨車泊車位	
	Others (Please Specify) 其他 (請列明)	
	Bicycle Parking Spaces	167
	Welfare Facilities Public Light Buses Parking Spaces	2
	Total no. of vehicle loading/unloading bays/lay-bys 上落客貨車位／停車處總數	
	Taxi Spaces 的士車位	Nil
	Coach Spaces 旅遊巴車位	Nil
	Light Goods Vehicle Spaces 輕型貨車車位	Nil
	Medium Goods Vehicle Spaces 中型貨車位	Nil
	Heavy Goods Vehicle Spaces 重型貨車車位	Domestic : 4 Retail: 4
	Others (Please Specify) 其他 (請列明)	
	Welfare Facilities and Kindergarten Loading/unloading Spaces	1
	Post Office Loading/unloading Spaces	1

Submitted Plans, Drawings and Documents 提交的圖則、繪圖及文件

	Chinese 中文	English 英文
Plans and Drawings 圖則及繪圖		
Master layout plan(s)/Layout plan(s) 總綱發展藍圖／布局設計圖	☐	☑
Block plan(s) 樓宇位置圖	☐	☐
Floor plan(s) 樓宇平面圖	☐	☐
Sectional plan(s) 截視圖	☐	☑
Elevation(s) 立視圖	☐	☐
Photomontage(s) showing the proposed development 顯示擬議發展的合成照片	☐	☑
Master landscape plan(s)/Landscape plan(s) 園境設計總圖／園境設計圖	☐	☑
Others (please specify) 其他（請註明）	☐	☐
Reports 報告書		
Planning Statement/Justifications 規劃綱領/理據	☐	☑
Environmental assessment (noise, air and/or water pollutions) 環境評估（噪音、空氣及／或水的污染）	☐	☑
Traffic impact assessment (on vehicles) 就車輛的交通影響評估	☐	☑
Traffic impact assessment (on pedestrians) 就行人的交通影響評估	☐	☐
Visual impact assessment 視覺影響評估	☐	☐
Landscape impact assessment 景觀影響評估	☐	☐
Tree Survey 樹木調查	☐	☐
Geotechnical impact assessment 土力影響評估	☐	☐
Drainage impact assessment 排水影響評估	☐	☐
Sewerage impact assessment 排污影響評估	☐	☐
Risk Assessment 風險評估	☐	☐
Others (please specify) 其他（請註明）	☐	☑
Visual appraisal and air ventilation assessment		

Note: May insert more than one「✔」. 註：可在多於一個方格內加上「✔」號

Note: The information in the Gist of Application above is provided by the applicant for easy reference of the general public. Under no circumstances will the Town Planning Board accept any liabilities for the use of the information nor any inaccuracies or discrepancies of the information provided. In case of doubt, reference should always be made to the submission of the applicant.

註： 上述申請摘要的資料是由申請人提供以方便市民大眾參考。對於所載資料在使用上的問題及文義上的歧異，城市規劃委員會概不負責。若有任何疑問，應查閱申請人提交的文件。

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S16 PLANNING APPLICATION
APPROVED FANLING/SHEUNG SHUI OUTLINE ZONING PLAN
NO. S/FSS/28

Proposed Minor Relaxation of Maximum Total Plot Ratio and Building Height Restriction for Planned Public Housing Development at Po Shek Wu Road, Sheung Shui

SUPPORTING PLANNING STATEMENT

July 2024

香港房屋委員會
Hong Kong Housing Authority

Executive Summary

The Planning Application is submitted by the Hong Kong Housing Authority (HA) as the project proponent to seek approval from the Town Planning Board (TPB) under Section 16 of the Town Planning Ordinance for minor relaxation of maximum total Plot Ratio (PR) from 7.0 to 7.5 (+ around 7.1%) and building height restriction (BHR) from 130mPD to 149mPD (+around 14.6%) for the public housing development at Po Shek Wu Road, Sheung Shui, New Territories (the Application Site). With the proposed increase in development intensity, the flat production will be increased from 1,739 flats to 1,904 flats (+165 flats or + about 9.5%).

The Application Site falls within an area zoned "Residential (Group A)5" ("R(A)5") under the Approved Fanling/Sheung Shui Outline Zoning Plan No. S/FSS/28 (the OZP), subject to a maximum total PR of 7.0 and BHR of 130mPD.

Given the shortage of land for public housing development, the Government has been adopting a multi-pronged approach in increasing public housing land supply, including optimisation of public housing sites where technical feasibility permits. The Planning Application is in line with Government's initiative announced in December 2018 on "Enhancement of the Development Intensity of Public Housing Sites" to increase the maximum domestic PR of the public housing sites in New Towns by up to 30% as appropriate where their technical feasibility permits.

Moreover, in response to the 2020 Policy Address, social welfare facilities equivalent to about 5% of the total attainable domestic Gross Floor Area (GFA) are reserved. As such, HA proposes to increase the maximum total PR of the Application Site from 7.0 to 7.5 and increase the BHR from 130mPD to 149mPD with a view to optimising the use of the public housing land. The development proposal comprises of two housing blocks providing about 1,904 public housing flats, i.e. an increase of 165 flats (+about 9.5%), as well as a four-storey podium with shops, kindergarten, welfare facilities and post office.

The proposed minor relaxation of maximum total PR and BHR is in line with Government's policy on optimisation of public housing sites, meets acute demand for public housing and addresses the space shortfall of the welfare sector while taking into account the site constraints. Relevant technical assessments have indicated that the proposed minor relaxation will not generate any insurmountable impacts in visual, landscape, air ventilation, traffic, sewerage and environmental aspects.

In view of the above, the TPB is sincerely requested to give favourable consideration to the proposed minor relaxation of maximum total PR and BHR of the Application Site.

行政摘要

(聲明：此中文譯本僅供參考，如中文譯本和英文原文有差異時，應以英文原文為準。)

本規劃申請是由香港房屋委員會（下稱「房委會」）向城市規劃委員會（下稱「城規會」）提出，旨在根據《城市規劃條例》第16條，向城規會申請規劃許可，略為放寬於上水寶石湖路公營房屋發展計劃（下稱「申請地盤」）的最高總地積比率由7.0倍增加至7.5倍 (+約7.1%)，建築物高度限制由主水平基準上130米增加至149米(+約14.6%)。擬議增加的發展密度，房屋供應會由1,739 個單位增加至1,904 個單位(增加165個公營房屋單位或增加約9.5%)。

申請地盤位於《粉嶺／上水分區計劃大綱核准圖編號S/FSS/28》（下簡稱「大綱圖」）上的「住宅（甲類）5」地帶內，受限於最高總地積比率7.0倍，以及建築物高度限制的主水平基準以上130米。

有見公營房屋用地短缺，政府一直採取多管齊下的措施以增加公營房屋土地供應，包括在技術可行的情況下善用個別公營房屋地盤增加發展的可行性。本規劃申請配合2018年12月政府公布的「提升公營房屋用地的發展密度」政策，旨在技術可行的情況下可適度提高在新市鎮的最高住宅地積比率約三成。

另外，為配合《2020年施政報告》的建議，擬議的發展預留了等同約 5% 總住用樓面面積的處所作社福用途。房委會建議申請地盤的總地積比率由7.0倍增加至7.5倍，並增加建築物高度限制由主水平基準上130米增至149米，以更有效運用土地資源。擬議發展包括興建2幢住宅大廈，提供約1,904個公營房屋單位，即增加165個單位(+約 9.5%)，以及四層高設有商業、幼稚園、社福設施、郵局等的基座平台。

擬議略為放寬總地積比率及建築物高度限制符合政府政策，在地盤限制下善用土地資源及應付公營房屋和社福設施的殷切需求。各項技術評估顯示擬議發展不會在視覺、景觀、空氣流通、交通、排污及環境方面構成不可克服的影響。

基於以上各點，懇請城規會從優考慮略為放寬申請地盤的最高總地積比率及建築物高度限制。

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1. INTRODUCTION

1.1. This planning application seeks the Town Planning Board (TPB)'s approval under Section 16 of the Town Planning Ordinance for the proposed minor relaxation of maximum total Plot Ratio (PR) from 7.0 to 7.5 and building height restriction (BHR) from 130mPD to 149mPD for the proposed public housing development (the Proposed Development) at Po Shek Wu Road, Sheung Shui, New Territories (**Figure 1**) (the Application Site).

2. SITE CONTEXT

Planning Context

2.1. The Application Site, with a gross area of about 1.38 ha, is located at the junction of Po Shek Wu Road and San Wan Road and currently zoned as "Residential (Group A)5" ("R(A)5") on the Approved Fanling/Sheung Shui Outline Zoning Plan No. S/FSS/28 (the OZP) (**Figure 1** refers). It was rezoned from "Open Space" ("O") to "R(A)5" for public housing development, subject to a maximum total PR of 7.0 and BHR of 130mPD. 'Flat', 'Social Welfare Facility' and 'Government Use' uses are Column 1 uses which are always permitted while 'Eating Place' and 'Shop and Services' uses are always permitted on the lowest three floors under "R(A)5" zone. The planning brief was approved in June 2019.

2.2. The Executive Council agreed in December 2018 that for sites located in Density Zones 2 and 3 of the Main Urban Areas and Density Zones 1, 2 and 3 of New Towns, the maximum domestic PR of the public housing sites will be allowed to increase beyond the then +20% cap by up to +30% where their technical feasibility permits. In pursuit of the policy of "Enhancement of the Development Intensity of Public Housing Sites", the intensification feasibility of public housing development at the Application Site, under Density Zone 1 of the New Towns where the maximum domestic PR is allowed to be increased up to 6.5, has been reviewed.

2.3. In addition, in helping to address the space shortfall of the welfare sector, the 2020 Policy Address has recommended HA to explore in the future public housing projects so that a gross floor area (GFA) equivalent to about 5% attainable domestic GFA can

be set aside for the provision of social welfare facilities. Without affecting the flat production of the project, social welfare facilities equivalent to about 5% of the total attainable domestic GFA will be provided in the Application Site subject to Social Welfare Department (SWD)'s confirmation on funding and detailed design to accommodate the welfare facilities. Having reviewed the intensification feasibility of the Application Site, it is proposed to increase the flat production and welfare facilities provision through minor relaxation of the maximum total PR from 7.0 to 7.5 and BHR from 130mPD to 149mPD. According to the OZP, based on the individual merits of the development proposal, minor relaxation of the PR and BHR may be considered by the TPB on application under Section 16 of the Town Planning Ordinance.

Surrounding Land Uses

2.4. The Application Site is located at the junction of Po Shek Wu Road and San Wan Road, to the northwest of the centre of Sheung Shui New Town and is within 500m from the Sheung Shui MTR Station (**Figure 1**). The site is bounded by Po Shek Wu Road to the northwest, San Wan Road and East Rail to the southwest and a cul-de-sac to the southeast. To its northeast and east are the Shek Wu Hui Jockey Club Playground and the Sheung Shui Cycling Hub respectively, with a cycling track running along the site. To its south and southwest across San Wan Road and the East Rail Line is the existing residential areas including Po Shek Wu Estate (Building Height (BH) of 114mPD), Choi Po Court (BH of 100mPD) and Choi Yuen Estate (BH of 85mPD). To its southwest across East Rail is the planned public housing site, Sheung Shui Areas 4 and 30 Site 1 (approved BH of 144mPD). To its west across Po Shek Wu Road is another planned public housing site, Sheung Shui Areas 4 and 30 Site 2 (approved BH of 149mPD).

3. DEVELOPMENT PROPOSAL

Proposed Scheme

3.1. The Proposed Scheme adopts a maximum BH not exceeding 149mPD and a maximum PR of 7.5, of which PR of 6.5 and 1.0 are for domestic and non-domestic portions respectively. The Proposed Scheme would provide about 1,904 flats with a design population of about 5,332 persons, which are subject to detailed design. The differences in key parameters of the Proposed Scheme as compared against the Current Scheme which is an OZP compliance scheme are summarized in **Table 1** below.

Table 1 Comparison between the Current Scheme and Proposed Scheme

Development Parameters	**Current Scheme*** **[A]**	**Proposed Scheme [B]**	**Difference [B] – [A]**
Maximum Total PR	Overall 7.0 Domestic: 6.0 Non-domestic: 1.0	Overall: 7.5 Domestic: 6.5 Non-domestic: 1.0	Overall: +0.5 (+7.1%) Domestic: +0.5 (+8.3%) Non-domestic: 0 (0%)
Maximum Building Height (main roof level)	Not exceeding +130mPD	Not exceeding +149mPD	+19m (14.6%)
Flat Production	About 1,739	About 1,904	+165 (+9.5%)

* Current Scheme is an OZP compliance scheme

3.2. The Site consists of two housing blocks (40 to 41 domestic storeys and 1 refuge floor) on podium (4 storeys including a podium garden) providing social welfare, communal, retail and associated ancillary facilities and a post office. Not less than 5,332 m^2 local open space in accordance with the Hong Kong Planning Standards and Guidelines (HKPSG) requirement of 1 m^2 per person will be provided. A kindergarten, podium gardens and recreational facilities including one table tennis table and communal play area will also be provided in the public housing development. A set of schematic drawings illustrating the layout and design of the Proposed Scheme are provided in **Figures 2 to 11**.

3.3. The key development parameters of the Proposed Scheme are summarized in **Table 2** below.

Table 2 Key Development Parameters of the Proposed Scheme

Development Parameters	**Proposed Scheme**
Site Area[1] - **Gross Site Area [ha]** - **Net Site Area [ha]**	 About 1.38 About 1.38
Maximum PR - **Overall** - **Domestic** - **Non-domestic**	 7.5 6.5 1.0
Maximum GFA[1]	103,500 m^2
Maximum Building Height (main roof level)	+149mPD
No. of Storey of Housing Blocks	Block A: 40 +1 storeys Block B: 41 +1 storeys
Flat Production	1,904
Design population[2]	About 5,332
Site Coverage[3] (<15m)	Non Domestic: About 70%
(≥15m)	Non Domestic: About 3.5% Domestic: About 35%
Green Coverage (% of Gross Site Area)	At least 20%
Education Facilities	
Kindergarten	One (6-classroom)
Recreation Facilities	
Local Open Space	Not less than 5,332 m^2
Children Play Area	Not less than 427 m^2
Table Tennis Table	1
Social Welfare Facilities[4]	(about 4,500 m^2 GFA) equivalent to about 5 % of attainable domestic GFA and subject to change as per SWD's request at detailed design stage.
Retail and Commercial (R&C) Facilities	About 1,800 m^2
Parking Facilities[45]	
Car Parking Space (Domestic)	147
Car Parking Space (Visitors)	10
Car Parking Space (R&C)	15
Car Parking Space (Kindergarten)	1

Development Parameters	**Proposed Scheme**
Motorcycle Parking Space	18
Private Light Bus Parking Space (Welfare)	2
Loading/Unloading (L/UL) Bay (Domestic)	4
L/UL (R&C)	4
Bicycle Parking Space (Domestic)	167
L/UL Bay (Welfare & Kindergarten)	1
L/UL Bay (Post Office)	1
Pedestrian Connection	
Footbridge	3 nos. For connections to 1) Po Shek Wu Estate 2) Sheung Shui Areas 4 and 30 Site 2; and 3) existing footbridge system

Note-

1 Subject to detailed survey
2 Based on average household size of 2.8 persons per flat.
3 Subject to detailed design
4 In accordance with the OZP No. S/FSS/28, any floor space that is constructed or intended for use solely as ancillary parking facilities as well as public vehicle parks, public transport facilities and Government, institution or community facilities, as required by the Government are exempted from PR/GFA calculation.
5 All parking provisions have been agreed with TD.

Implementation Programme

3.4. Construction works of the Application Site is scheduled to be commenced by HA in 2024/25 for planned building completion in 2029/30 tentatively.

4. JUSTIFICATIONS AND PLANNING MERITS

In line with Government's Policy on Optimisation of Public Housing Sites

4.1. The Executive Council approved in December 2018 the policy on "Enhancement of the Development Intensity of Public Housing Sites". For sites located in Density Zones 2 and 3 of the Main Urban Areas and Density Zones 1, 2 and 3 of New Towns, the maximum domestic PR of the public housing will be allowed to increase up to 30% (versus by up to 20% as announced in the 2014 Policy Address) where their technical feasibility permits. In line with this policy, the maximum domestic PR for the Application Site, which is under Density Zone 1 of the New Towns, is allowed to be increased from 6 to 6.5. Together with a kindergarten, a post office, retail facilities and other ancillary facilities, minor relaxation of maximum total PR from 7.0 to 7.5 and BHR from 130mPD to 149mPD are therefore proposed.

In line with Government's Policy to Address the Space Shortfall of the Welfare Sector

4.2. The 2020 Policy Address has recommended inviting HA to explore setting aside a GFA equivalent to about 5% of attainable domestic GFA in the future public housing projects for the provision of welfare facilities to address the space shortfall of the welfare sector. In response to the 5% initiative, social welfare facilities of about 4,500m^2 equivalent to about 5% of the total attainable domestic GFA will be provided as per SWD's advice and subject to SWD's confirmation on funding and detailed design to accommodate the welfare facilities.

Meet Acute Demand for Public Housing

4.3. Under the Long Term Housing Strategy Annual Progress 2023, the split ratio of public / private housing of 70:30 is adopted continuously, and supply target for public housing is 308,000 for the ten year from 2024/25 to 2033/34. As in the first quarter of 2024, the average waiting time for general applicants was 5.7 years. This application would

increase the public housing production, which is in line with the Government's policy to better utilize land resources in order to meet the imminent housing need.

Optimise Development Potential and Minimise Implications of Building Height with Site Constraints

4.4. The disposition and layout of the housing blocks have been specifically designed in response to site constraints and opportunities to optimise development potential of the Application Site as far as practical, while addressing various environmental and technical aspects in minimizing their impacts.

4.5. A minimum of 15m-wide building gap is proposed to maintain desirable wind environment through the site and to provide visual corridors for the neighbourhood. Also, the residential blocks are positioned away from Po Shek Wu Road, San Wan Road and the East Rail to minimise noise impact to the residents.

4.6. With consideration of the aforementioned physical constraints, two residential blocks with 40 and 41 domestic storeys and 1 refuge floor on top of a four-storey podium consisting of kindergarten, post office, retail facilities, associated ancillary facilities as well as ancillary parking and welfare facilities are proposed. The proposed BH are increased from 130mPD to 149mPD.

Compatible with Surrounding Development Context

4.7. The proposed maximum PR of 7.5 with a maximum BH of 149mPD is compatible with the high-rise public housing developments in the vicinity (**Figure 1**), the planned Sheung Shui Areas 4 and 30 Sites 1 and 2 across Po Shek Wu Road (approved BH of 144mPD and 149mPD) as well as the existing Po Shek Wu Estate (BH of 114mPD) as demonstrated in the Visual Appraisal (VA) (**Appendix 1**).

No Adverse Visual, Landscape, Air Ventilation and Technical Implications

No Adverse Impact on Visual Aspect

4.8. The proposed BH and the building mass of the Proposed Scheme is compatible with high-rise residential development (such as Po Shek Wu Estate, Choi Po Court and Choi Yuen Estate as well as the planned public housing development at Sheung Shui Areas

4 and 30 Sites 1 and 2 sites) in the vicinity. The Proposed Scheme is visually compatible with the surroundings. As demonstrated in the Visual Appraisal (**Appendix 1** refers), a total of six viewpoints are selected pursuant to the requirements in the Town Planning Board Guidelines, TPB PG-No. 41. The proposed revision in building mass and height comparing to the Current Scheme is considered slight and is unlikely to cause any significant adverse visual impact, which received no adverse comments from the Urban Design & Landscape Section of Planning Department.

No Adverse Impact on Air Ventilation Aspect

4.9. An AVA (**Appendix 2** refers) has been conducted to assess the ventilation performance of the Baseline Scheme and Proposed Scheme. To maintain and enhance the wind performance of the Proposed Scheme, the following wind enhancement features have been adopted -

- preserve 15m full height air path between Block A and B;
- provide a permeable podium design;
- provide a 7m G/F empty bay;
- provide a naturally ventilated carpark;
- provide building setback of about 11m from northeastern site boundary;
- provide podium setback of about 16m from southwestern site boundary; and
- provide tower setback of about 25m from southwestern site boundary.

4.10. Overall, the wind environment would be similar under Proposed and Baseline Scheme with a slight enhancement in performance under annual condition in Proposed Scheme. Under annual condition, the prevailing wind is mainly from eastern quadrant direction. A taller building height under Proposed Scheme would enhance the ventilation performance at upwind surroundings due to increased downwashing of prevailing wind on to the street level by the E/ESE/ENE facing facade. The permeable carpark and podium design would help to maintain the wind environment at leeward region. Under summer condition, prevailing wind is from the south-western quadrant direction, an overall calmer wind environment is observed under both schemes as the wind environment would be generally dominated by the relatively dense mid-rise windward surrounding environment. Similar to that of annual condition, a taller building height under Proposed Scheme would enhance the ventilation performance at upwind surrounding such as San Wan Road. While a wind shadow could be cast to the northeast

of the Development, the increased building setbacks, a permeable podium and naturally ventilated carpark would help to alleviate the situation.

No Adverse Impact on Traffic Aspect

4.11. The result of the updated Traffic Review (TR) indicated that the proposal will have no insurmountable traffic impact. Car parking and loading/unloading facilities are provided with reference to the HKPSG requirements, parking demand in the district, and to the satisfaction of Transport Department (TD). Please refer to the TR as accepted by TD at **Appendix 3** for details.

No Adverse Impact on Sewerage Aspect

4.12. Sewerage Impact Assessment (SIA) (**Appendix 4** refers) has been conducted and the study findings concluded that there is no adverse impact on the sewerage system due to the public housing development at the Application Site.

No Adverse Impact on Environmental Aspect

4.13. An Environmental Assessment Study (EAS) has been conducted for the public housing development to evaluate and address the potential road traffic noise, rail noise, fixed noise sources, air quality and land contamination impacts (**Appendix 5** refers). The EAS has concluded that the public housing development will have no insurmountable impact with proper building layout, design and mitigation measures to be incorporated in the development.

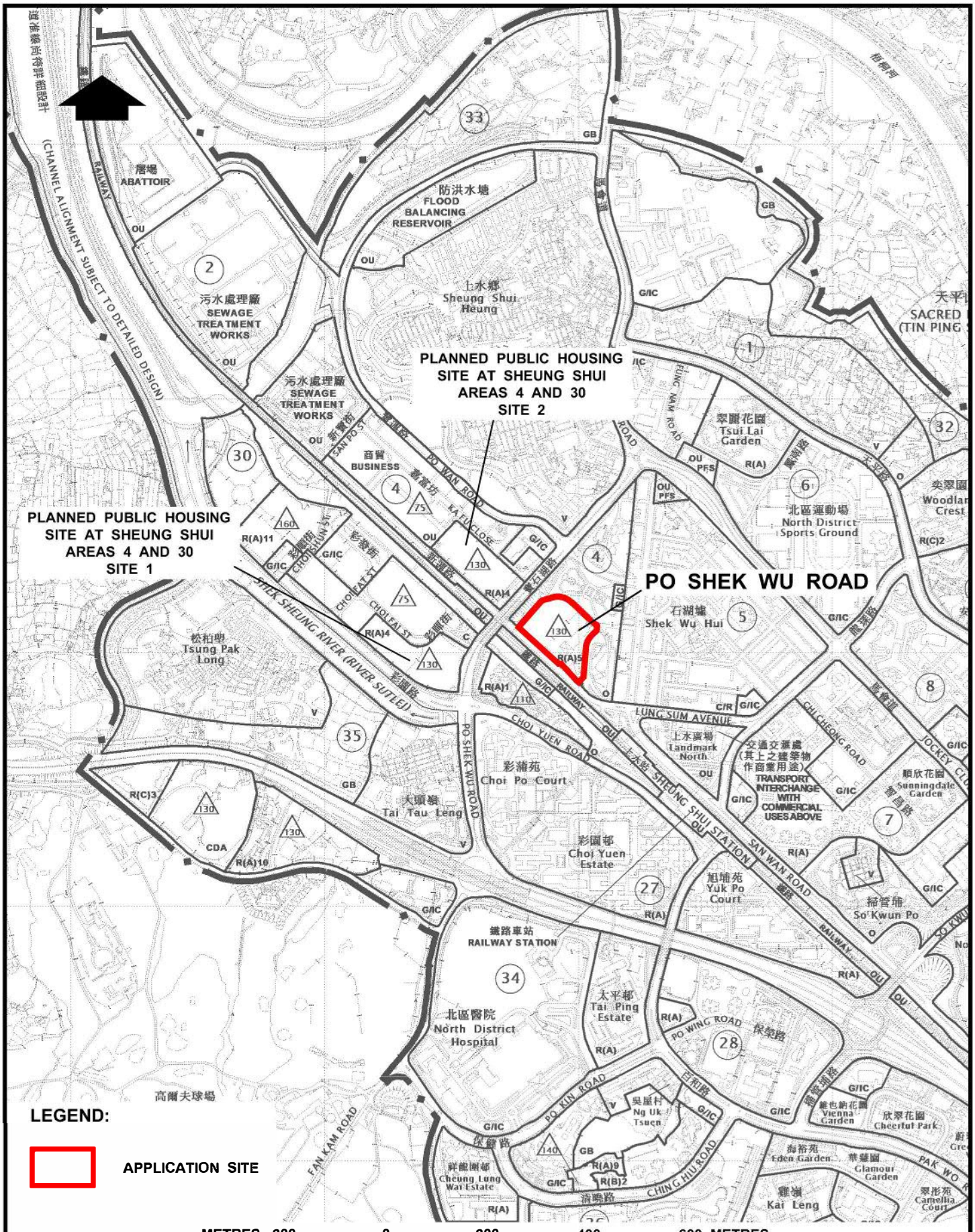
5. CONCLUSION

5.1. This Application is submitted under Section 16 of the Town Planning Ordinance for the proposed minor relaxation of maximum total PR from 7.0 to 7.5 and BHR from 130mPD to 149mPD for public housing development at Po Shek Wu Road. The Proposed Scheme is in line with the Government's initiative on optimising the intensification feasibility of public housing sites with a view to meeting the pressing demand for affordable housing and providing social welfare facilities equivalent to about 5% of the total attainable domestic GFA.

5.2. The development is also in line with the planning intention of the "R(A)5" zone and compatible with the surrounding developments. The proposed BHR of 149mPD is optimised taking in consideration the site constraints and it is compatible with the surrounding area. As demonstrated in the technical assessments, the proposal will have no insurmountable impact on visual, landscape, air ventilation, traffic, sewerage and environmental aspects.

5.3. In view of the above, the TPB is sincerely requested to give favourable consideration on the proposed minor relaxation of maximum total PR and BHR of the Application Site.

Figure 1



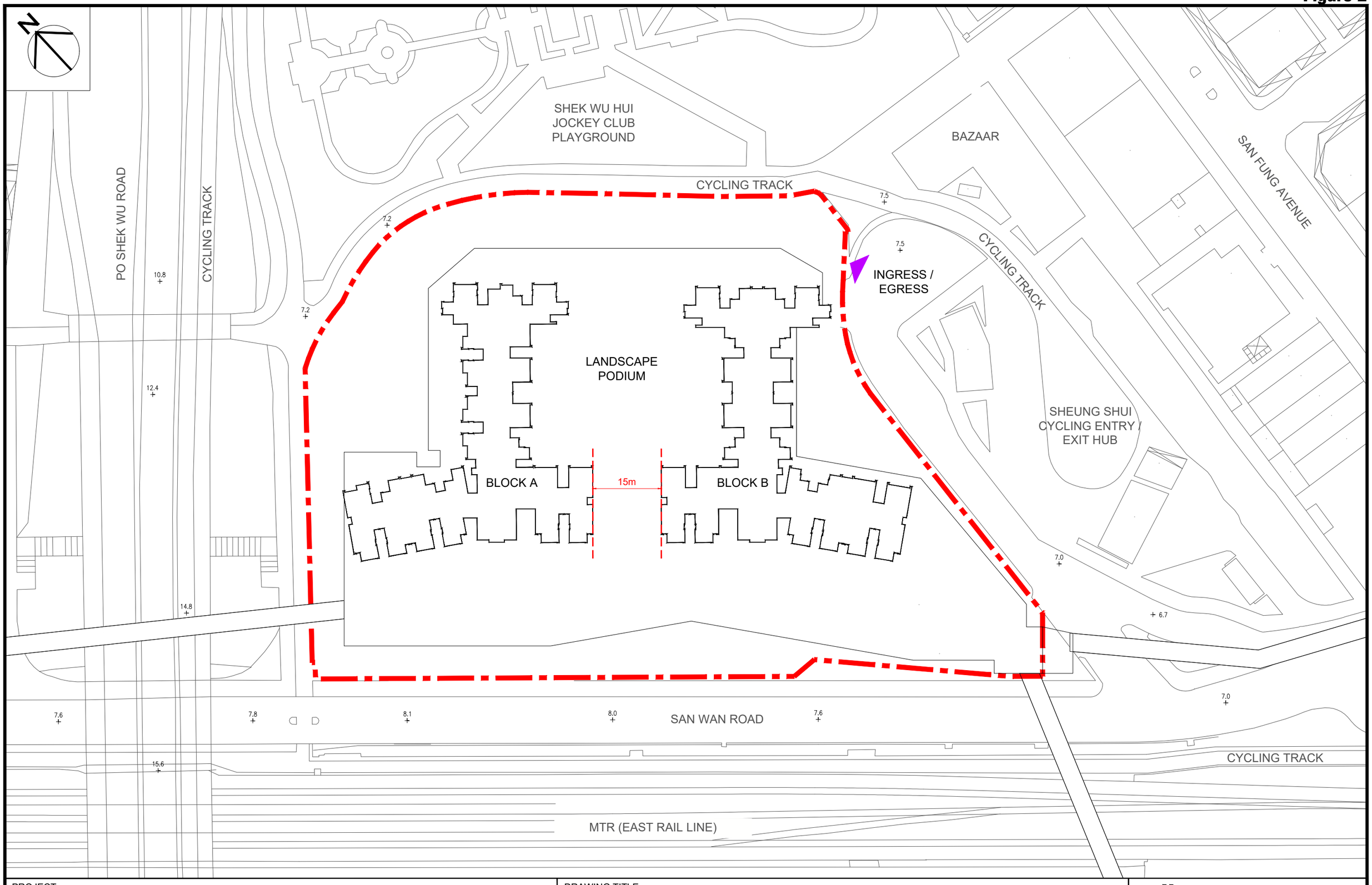
LOCATION PLAN

HOUSING DEPARTMENT
PLANNING SECTIONS

DATE : 29.7.2024

BASE EXTRACTED FROM OZP No. S/FSS/28

24_0313N_OZP



PROJECT

PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE

LAYOUT PLAN

(FOR REFERENCE ONLY & SUBJECT TO DESIGN REVIEW)

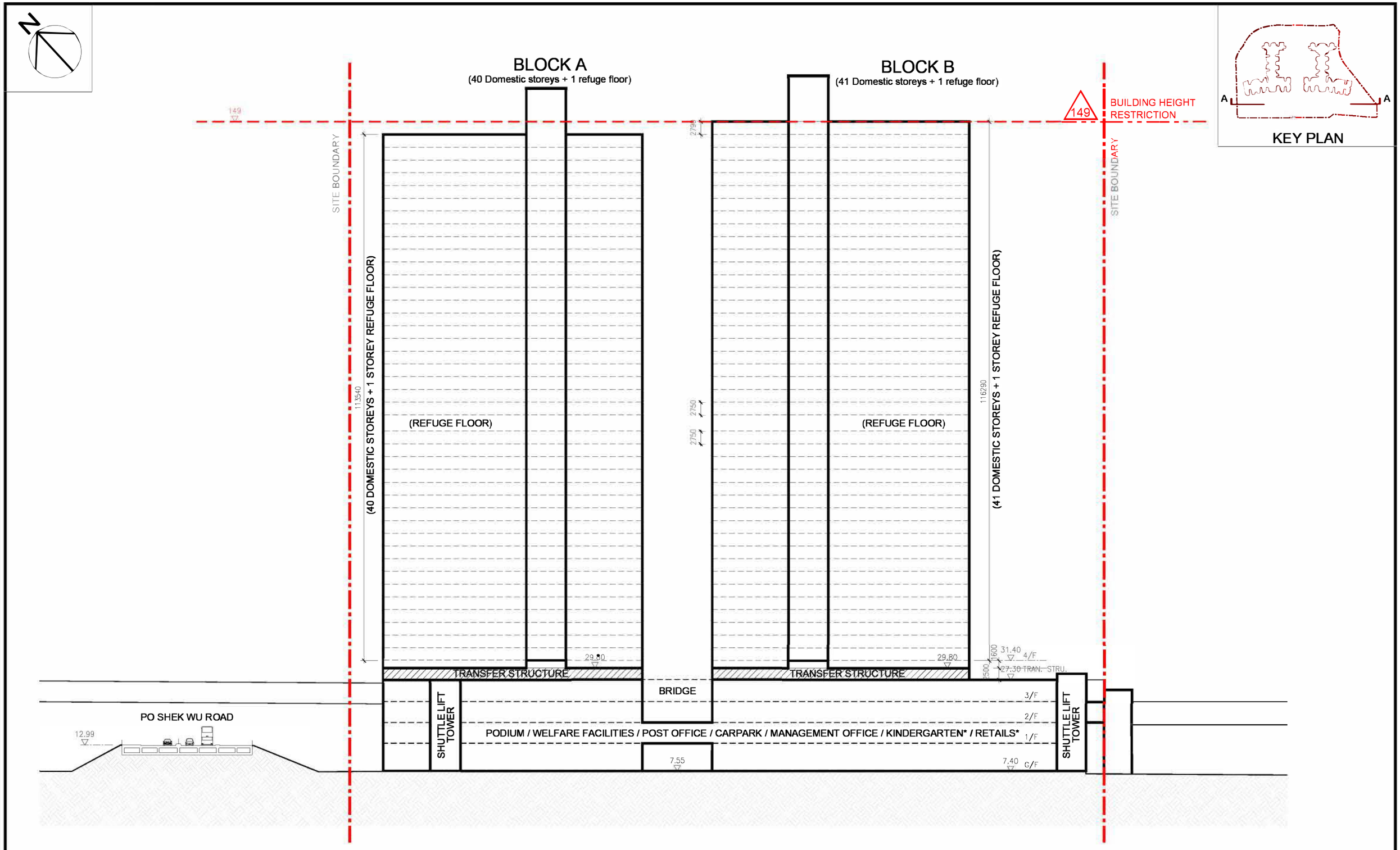
SCALE : 1:750 (A3)

房 屋 署
HOUSING DEPARTMENT

DATE: Jul 2024

PLAN 1

Figure 3



Notes :-
* Kindergarten and retail facilities to be provided at the lowest three floors, excluding floors containing wholly or mainly car parking, loading/ unloading bays and/ or plant room.

PROJECT
PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE
SCHEMATIC SITE SECTION A-A
(FOR REFERENCE ONLY & SUBJECT TO DESIGN REVIEW)

SCALE : 1:750 (A3)

房 屋 署
HOUSING DEPARTMENT

DATE: Jul 2024

PLAN 2 r1

Figure 4

Site Area	about 13000 m²
Proposed number of flats	1904
Design population	about 5330

Items	Required	Provided
Planting area (including uncovered green area and vertical green within primary and non-primary area)	-	about 2520 m²
Covered planting area	-	about 230 m²
Site coverage of greenery	2600 m²	about 2750 m²
Green ratio	20%	21%
Community play area	427 m²	about 460 m²
Local open space	5332 m²	about 6040 m²
Basketball Court	-	-
Badminton Court	-	-
Table Tennis Table	1	1

LEGEND

- Application Site Boundary
- Proposed Architectural Scheme
- Proposed New Tree Planting
- Proposed Shrub Planting
- Proposed Tile Paving at Podium
- Proposed Tile Paving at Ground Floor
- Proposed Seating
- Proposed Pavilion
- Proposed Community Play Area
- Proposed Bicycle Parking Area
- Proposed Vertical Greening

PROJECT: Proposed Development of Public Housing at Po Shek Wu Road, Sheung Shui	**Landscape Master Plan (Overall)**	SCALE: 1:600 (A3)	DATE: JUL 2024	REV: -
		FIGURE NO.		

房屋署 HOUSING DEPARTMENT

Figure 5

LEGEND

- Application Site Boundary
- Proposed Architectural Scheme
- Proposed New Tree Planting
- Proposed Shrub Planting
- Proposed Tile Paving at Ground Floor
- Proposed Seating
- Proposed Pavilion
- Proposed Bicycle Parking Area
- Proposed Timber Effect Tile
- Proposed Feature Paving
- Proposed Block Paving

PROJECT Proposed Development of Public Housing at Po Shek Wu Road, Sheung Shui	**Landscape Master Plan (Ground Floor)**	SCALE	1:600 (A3)	DATE	JUL 2024
		FIGURE NO.		REV	-

房屋署
HOUSING DEPARTMENT

LEGEND

- Application Site Boundary
- Proposed Architectural Scheme
- Proposed Shrub Planting
- Proposed Tile Paving
- Proposed Vertical Greening

PROJECT Proposed Development of Public Housing at Po Shek Wu Road, Sheung Shui	**Landscape Master Plan (1/F)**	SCALE	1:600 (A3)	DATE JUL 2024
		FIGURE NO.		REV -

房屋署
HOUSING DEPARTMENT

Figure 7

LEGEND

- Application Site Boundary
- Proposed Architectural Scheme
- Proposed New Tree Planting
- Proposed Shrub Planting
- Proposed Tile Paving
- Proposed Seating
- Proposed Community Play Area

PROJECT: Proposed Development of Public Housing at Po Shek Wu Road, Sheung Shui	**Landscape Master Plan (2/F)**	SCALE: 1:600 (A3) / DATE: JUL 2024	房屋署 HOUSING DEPARTMENT
		FIGURE NO. / REV: -	

Figure 8

LEGEND

- Application Site Boundary
- Proposed Architectural Scheme
- Proposed New Tree Planting
- Proposed Shrub Planting
- Proposed Tile Paving at Podium
- Proposed Seating
- Proposed Pavilion
- Proposed Community Play Area
- Proposed Jogging Path

PROJECT Proposed Development of Public Housing at Po Shek Wu Road, Sheung Shui	**Landscape Master Plan (Podium)**	SCALE	1:600 (A3)	DATE JUL 2024
		FIGURE NO.		REV -

房屋署
HOUSING DEPARTMENT

Figure 9

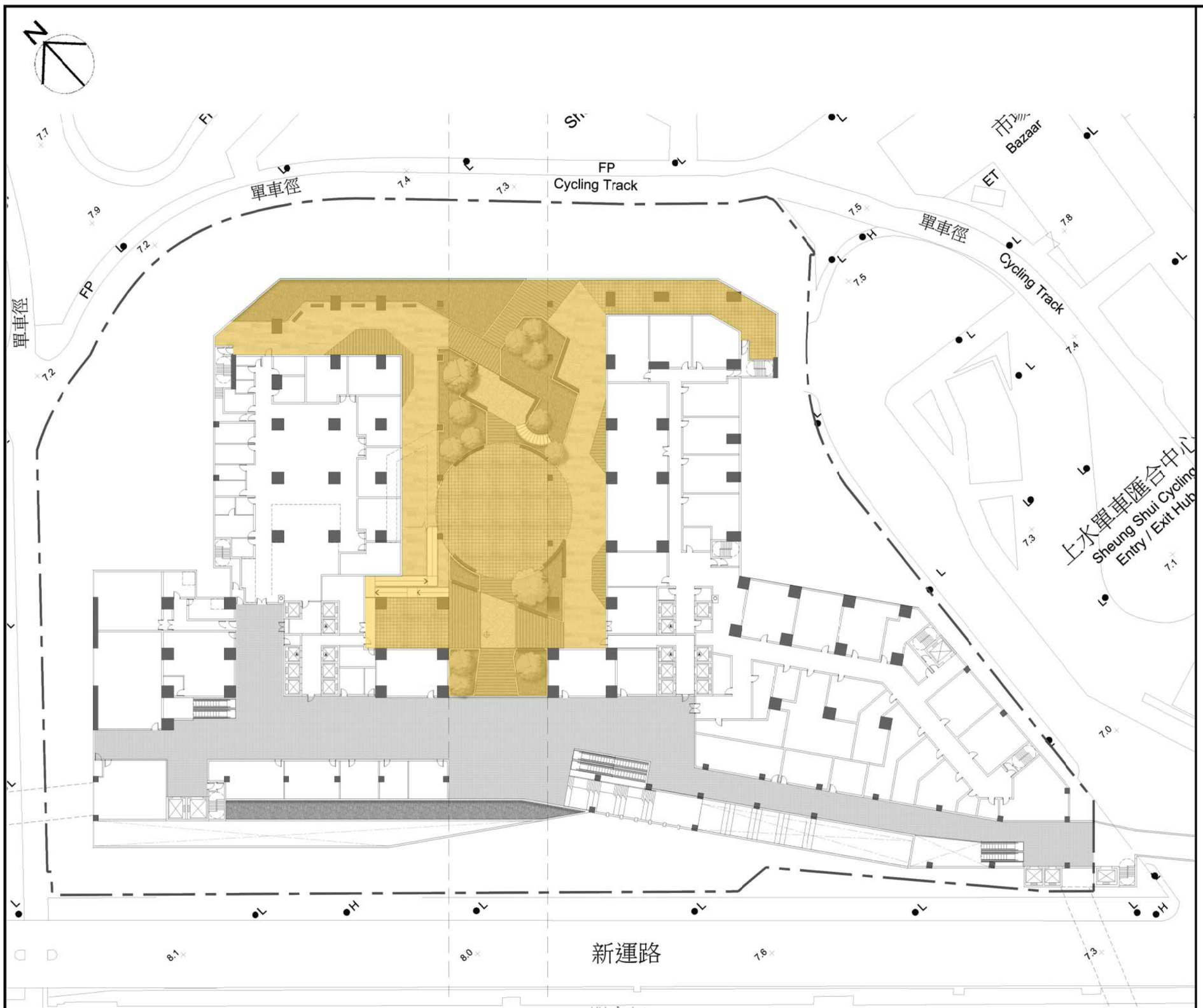
LEGEND

Application Site Boundary

Local Open Space

PROJECT Proposed Development of Public Housing at Po Shek Wu Road, Sheung Shui	**Locap Open Space - Ground Floor**	SCALE 1:600 (A3)	DATE JUL 2024	房屋署 HOUSING DEPARTMENT
		FIGURE NO.	REV -	

Figure 10



LEGEND

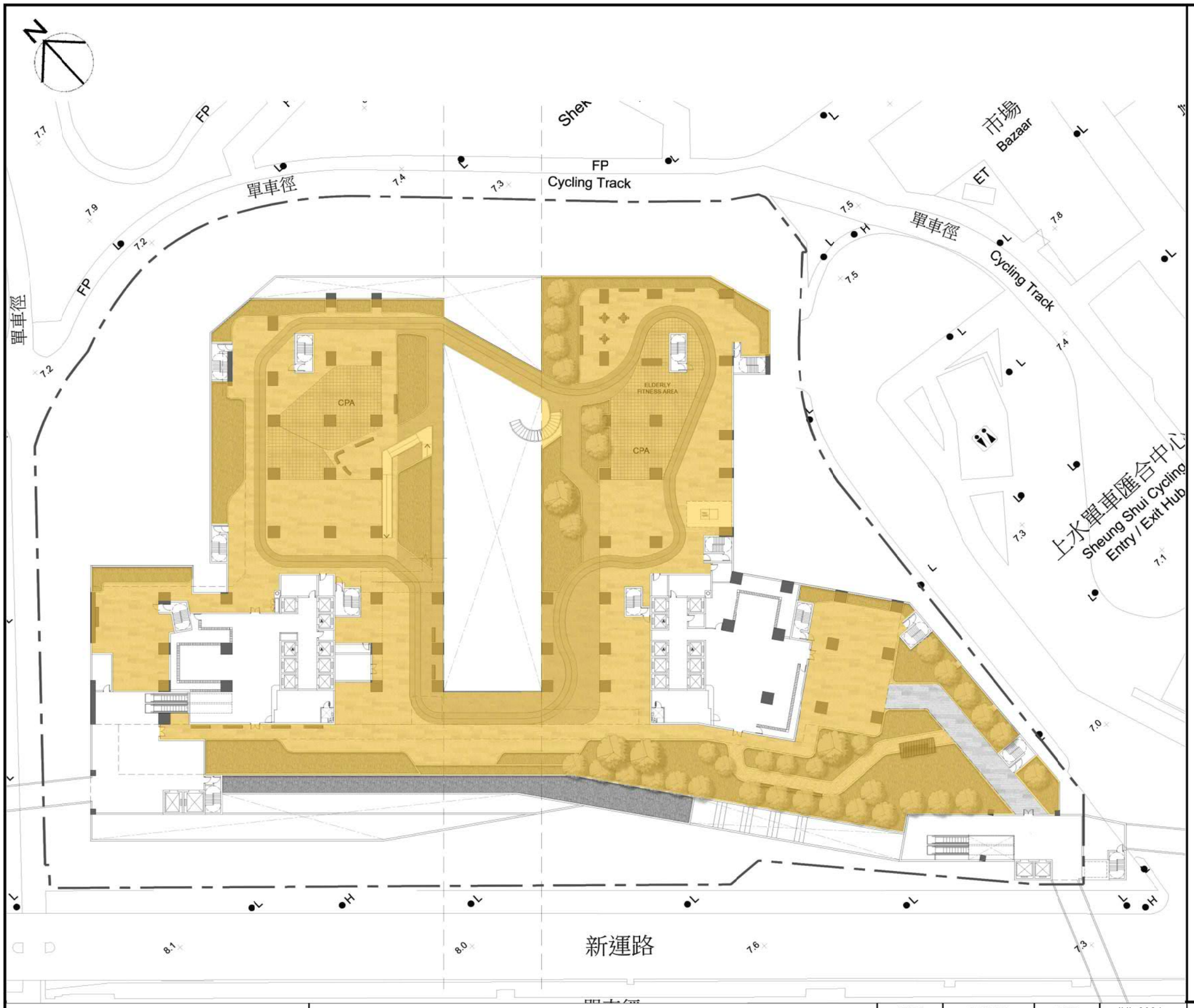
Application Site Boundary

Local Open Space

PROJECT Proposed Development of Public Housing at Po Shek Wu Road, Sheung Shui	**Local Open Space - 2/F**	SCALE	1:600 (A3)	DATE JUL 2024
		FIGURE NO.		REV -

房屋署
HOUSING DEPARTMENT

Figure 11



LEGEND

- Application Site Boundary
- Local Open Space

PROJECT: Proposed Development of Public Housing at Po Shek Wu Road, Sheung Shui	**Local Open Space - 3/F**	SCALE: 1:600 (A3)	DATE: JUL 2024
		FIGURE NO.	REV: -

房屋署
HOUSING DEPARTMENT

Appendix 1

S16 PLANNING APPLICATION
APPROVED FANLING/SHEUNG SHUI OZP NO. S/FSS/28

Proposed Minor Relaxation of Maximum Total Plot Ratio and Building Height Restriction for Planned Public Housing Development at Po Shek Wu Road

Visual Appraisal

July 2024

香港房屋委員會
Hong Kong Housing Authority

Table of Content

Chapter

List of Plans

1. Introduction

1.1 This Visual Appraisal (VA) is prepared by the Hong Kong Housing Authority (HA) as the project proponent in support of a Section 16 Planning Application for minor relaxation of maximum total plot ratio (PR) and building height restriction (BHR) for the public housing development at Po Shek Wu Road (the Application Site) (Figure 1 in the Supporting Planning Statement). The site context and development proposal are presented in Sections 2 and 3 of the Supporting Planning Statement.

2. Viewpoints

2.1 A total of six viewpoints (VPs) from different directions and distances, which were used in the approved Visual Appraisal during the previous OZP amendments, are adopted (**Plan 1** refers). These VPs represent the view of pedestrian nodes which are accessible by the public and/or from key public open spaces:

VP1: Sheung Shui MTR Station (**Plan 2** refers)
VP2: North District Sports Ground (**Plan 3** refers)
VP3: Sheung Shui Tung Hing Road Sitting-out Area (**Plan 4** refers)
VP4: Footbridge at Choi Yuen Road (**Plan 5** refers)
VP5: Footbridge linking Tai Tau Leng and Hak Ka Wai (**Plan 6** refers)
VP6: Wu Tip Shan (**Plan 7** refers)

3. Visual Appraisal

3.1 The objective of this appraisal is to evaluate the visual impact of the proposed minor relaxation of maximum total PR from 7.0 to 7.5 and BHR from 130mPD to 149mPD for the proposed public housing development at Po Shek Wu Road. Six photomontages (**Plans 2 to 7**) are prepared to illustrate the visual changes between the Proposed Scheme and Current Scheme at the above VPs.

3.2 To demonstrate the comprehensive picture upon development, the planned public housing developments at Sheung Shui Areas 4 and 30 Site 1 and Site 2 which are not under the present application and subject to detailed design, are also shown on the photomontages, when visible.

VP1: Sheung Shui MTR Station (**Plan 2** refers)

3.3 This VP is located at about 200m to the southeast of the Application Site at the

footbridge connecting from Choi Yuen Estate to Sheung Shui MTR station, representing the visual impact of the proposed developments to the southeast of the Application Site. The visual content consists of the ancillary facilities block at Po Shek Wu Estate and the high-rise residential development at Po Shek Wu Estate in the front and other residential buildings in surrounding neighbourhood.

3.4 High-rise residential development at Po Shek Wu Estate, dominated the view at this VP. The proposed development will be partially blocked by the footbridge and the ancillary facilities block at Po Shek Wu Estate in the foreground. As illustrated in the photomontages, the view will be generally dominated by the Po Shek Wu Estate in the foreground whereas the proposed development situated at its east will be of similar scale and height. Visual changes between the Proposed Scheme and the Current Scheme are minor with similar impact on the visual composition and resources. The visual impact from the minor relaxation is slight from this VP.

VP2: North District Sports Ground (**Plan 3** refers)

3.5 This VP is located at about 400m to the northeast of the Application Site at North District Sports Ground, one of the largest sport centres in the neighbourhoods, representing the visual impact of the proposed development to the northeast of the Application Site. The view is taken at the edge of the Sports Ground near the parking lot, which consists of parking facilities and vegetation. The visual context is characterized by low-rise buildings with two high-rise buildings in the background.

3.6 The proposed development will be partially blocked by residential buildings in the foreground. The Proposed Scheme, with minor relaxation of PR and BHR, will not cause adverse visual impact to the users of the sports ground as compared with the Current Scheme. The photomontage shows that the visual changes from the minor relaxation of PR and BHR are slight.

VP3: Sheung Shui Tung Hing Road Sitting-out Area (**Plan 4** refers)

3.7 This VP is located at about 450m to the northwest of the Application Site at the parking lot of Sheung Shui Wai Loi Tsuen, representing the visual impact of the proposed development to the northwest of the Application Site. The visual context of this view consists of some low-rise village housings at Po Sheung Tsuen and also vegetation in the sitting out area.

3.8 The view is partially dominated by vegetation and the village houses. As illustrated in the photomontages, the proposed development will be entirely screened off by the

village houses and vegetation. The Proposed Scheme, with minor relaxation of PR and BHR, will have negligible changes to the visual openness.

VP4: Footbridge at Choi Yuen Road (**Plan 5** refers)

3.9 This VP is located at about 450m to the west of the Application Site at the footbridge across Shek Sheung River connecting to Choi Yuen Road, representing the visual impact of the proposed development to the west of the Application Site. The visual context consists of two medium-rise industrial buildings on the left and some residential buildings (i.e. Choi Yuen Estate) on the right with vegetation and Shek Sheung River in the foreground.

3.10 The existing industrial building on the left and the planned high-rise residential development at Sheung Shui Areas 4 and 30 Site 1 dominated the view at this VP. The proposed development will be mostly blocked by the industrial building in the foreground. As illustrated in the photomontages, the view will be generally dominated by the industrial building and the planned public housing development at Sheung Shui Areas 4 and 30 Site 1 in the foreground whereas the proposed development will be mostly screened off. Visual changes between the Proposed Scheme and the Current Scheme are minor with similar impact on the visual composition and resources. The visual impact from the minor relaxation is slight from this VP.

VP5: Footbridge linking Tai Tau Leng and Hak Ka Wai (**Plan 6** refers)

3.11 This VP is located at about 600m to the southwest of the Application Site at the footbridge linking Tai Tau Leng and Hak Ka Wai, representing the visual impact of the proposed development to southwest of the Application Sites. The view context consists of some vegetation along the Fanling Highway and few residential buildings on the right. This VP captures an open view towards the proposed development.

3.12 Although the proposed development would slightly reduce the visual openness and creating moderate visual impact, the photomontage demonstrated that the proposed development will blend in well with the nearby existing and planned high-rise residential developments and could be considered as an extension of the high-rise building clusters around Sheung Shui Town Centre. The Proposed Scheme, with minor relaxation of PR and BHR, will not result in significant visual impact.

VP6: Wu Tip Shan (**Plan 7** refers)

3.13 This VP is located at about 2.3km to the southeast of the Application Site at the Wu Tip Shan Path, representing the visual impact of the proposed development to the southeast

of the Application Site. The path is one of the popular hiking trail and is easily accessible to the public. The photomontage shows that the proposed developments will be largely screened off by the surrounding residential buildings. The building height and massing of the proposed development are compatible with the surrounding buildings, and blend with the existing view, thus the proposed development will not create significant difference to the visual character. The Proposed Scheme, with minor relaxation of PR and BHR, does not result in significant visual obstruction and will have negligible changes to the visual openness.

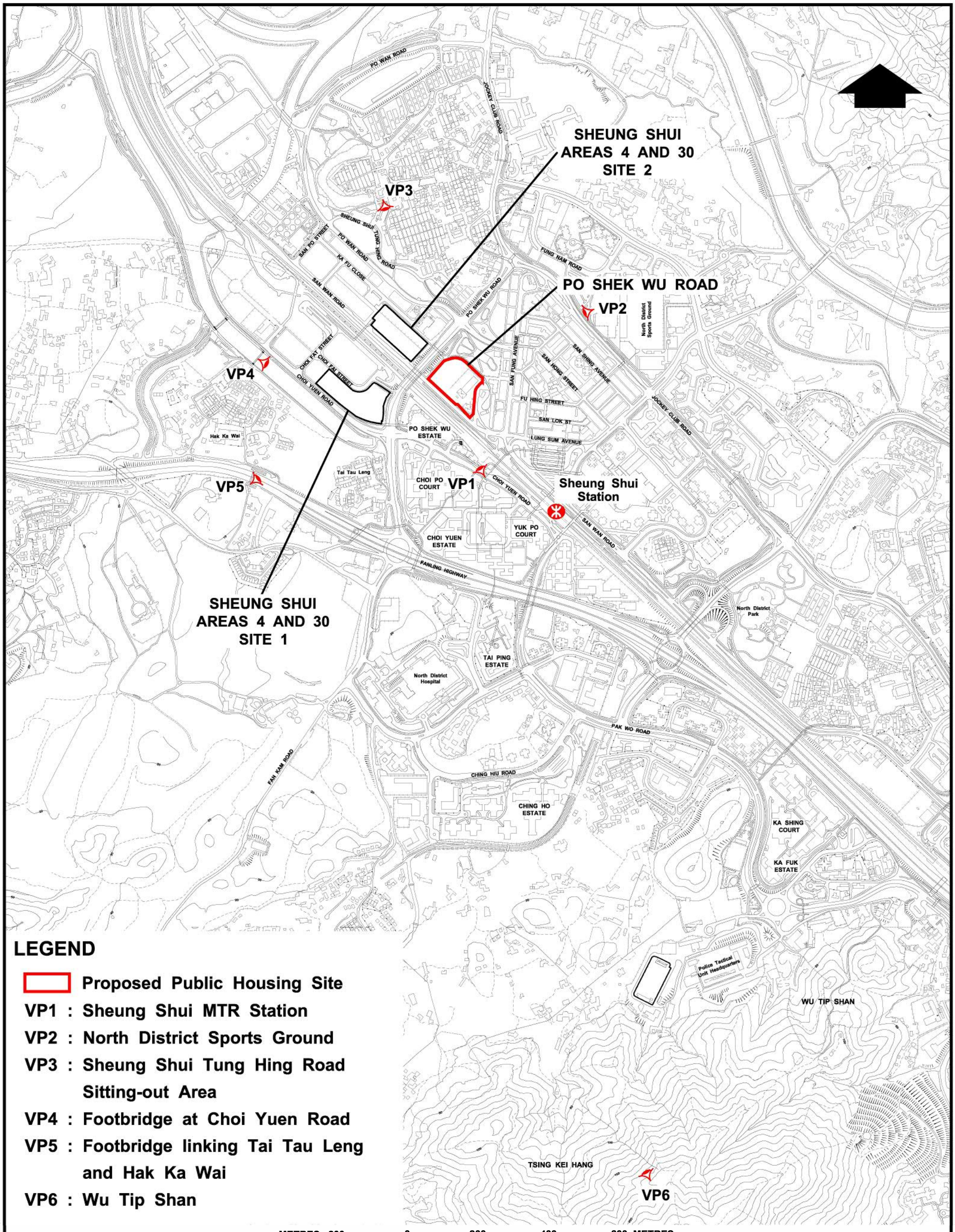
4. Mitigation Measures

4.1 The above appraisal demonstrated that the visual impact of the proposed minor relaxation of the maximum total PR from 7.0 to 7.5 and BHR from 130mPD to 149mPD is insignificant. Nevertheless, efforts have been made to mitigate the impact to a more acceptable level. Measures to reduce the building bulk will further be explored as far as practicable at the detailed design stage. The design measures to improve the schemes are summarized as below:

- The building blocks will be positioned to facilitate the 15m building separation requirement for ventilation and visual considerations.
- The colour scheme of the domestic blocks should be in harmony with the neighbouring estates with similar colour to be adopted to create a residential complex with coherent appearance. Light beige or white colour will be adopted as the main background colour of the building blocks, with highlighted colour at strategic location such as the lift core or rooftop plant rooms. Carefully planned colour pattern would be introduced on the main elevations or end wall in order to break down the scale of the building blocks and add visual interest to the development.
- Permeable podium structure will be provided with maximised naturally ventilated spaces, empty bays and visual corridors at G/F and upper podium floors to help break down the continuity and bulkiness of the podium visual scale and hence to improve the permeability for better visual and ventilation performance of the proposed development.
- Minimum 20% green coverage with half of the at-grade planting will be provided through providing landscape elements at various levels. Vertical greening at fence wall and external planters at the facades of the domestic blocks will be introduced to enhance the aesthetic value of the proposed development.

5. Conclusion

5.1 This VA is prepared in support of a Section 16 Planning Application for minor relaxation of maximum total PR from 7.0 to 7.5 and BHR from 130mPD to 149mPD for the public housing development at Po Shek Wu Road. The six VPs chosen for this VA are consistent with those in the previously approved VA during the plan amendment process. Comparing the Current Scheme and Proposed Scheme, the visual impact of the proposed revision in building mass and height is considered slight.



LEGEND

- Proposed Public Housing Site
- VP1 : Sheung Shui MTR Station
- VP2 : North District Sports Ground
- VP3 : Sheung Shui Tung Hing Road Sitting-out Area
- VP4 : Footbridge at Choi Yuen Road
- VP5 : Footbridge linking Tai Tau Leng and Hak Ka Wai
- VP6 : Wu Tip Shan

VIEWPOINTS LOCATION PLAN FOR PO SHEK WU ROAD

HOUSING DEPARTMENT
PLANNING SECTIONS

PLAN 1

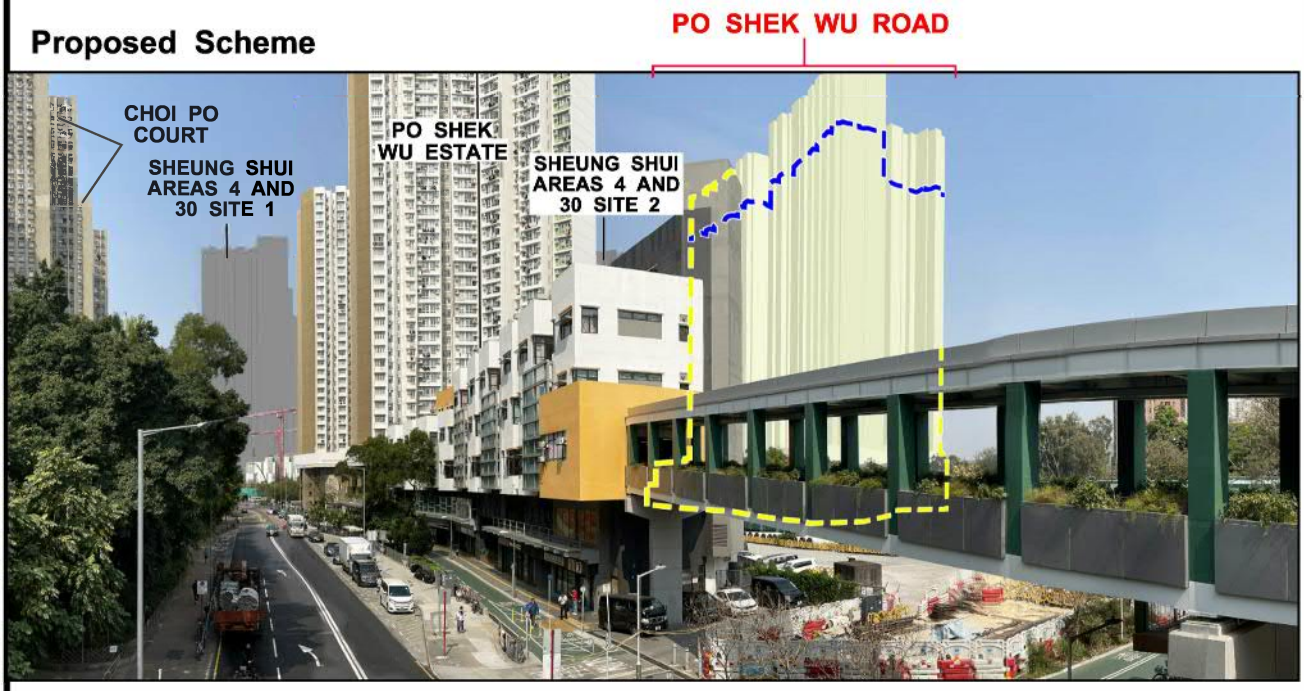
DATE : 29. 7. 2024

BASE EXTRACTED FROM SHT. Nos. 2-SE-B, 2-SE-D, 3-SW-A & 3-SW-C

23_0401N_LocationPlan

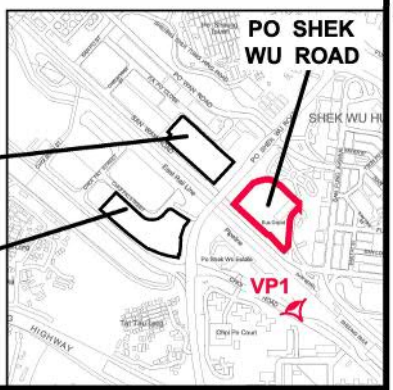
Existing View

Proposed Scheme



LEGEND:

- Proposed Scheme (Max. 149mPD)
- Current Scheme (Max. 130mPD)
- Planned Public Housing Site at Sheung Shui Areas 4 and 30 Sites 1 and 2
- Application Site



PHOTOMONTAGE AT VIEWPOINT 1 (VIEW FROM SHEUNG SHUI MTR STATION)

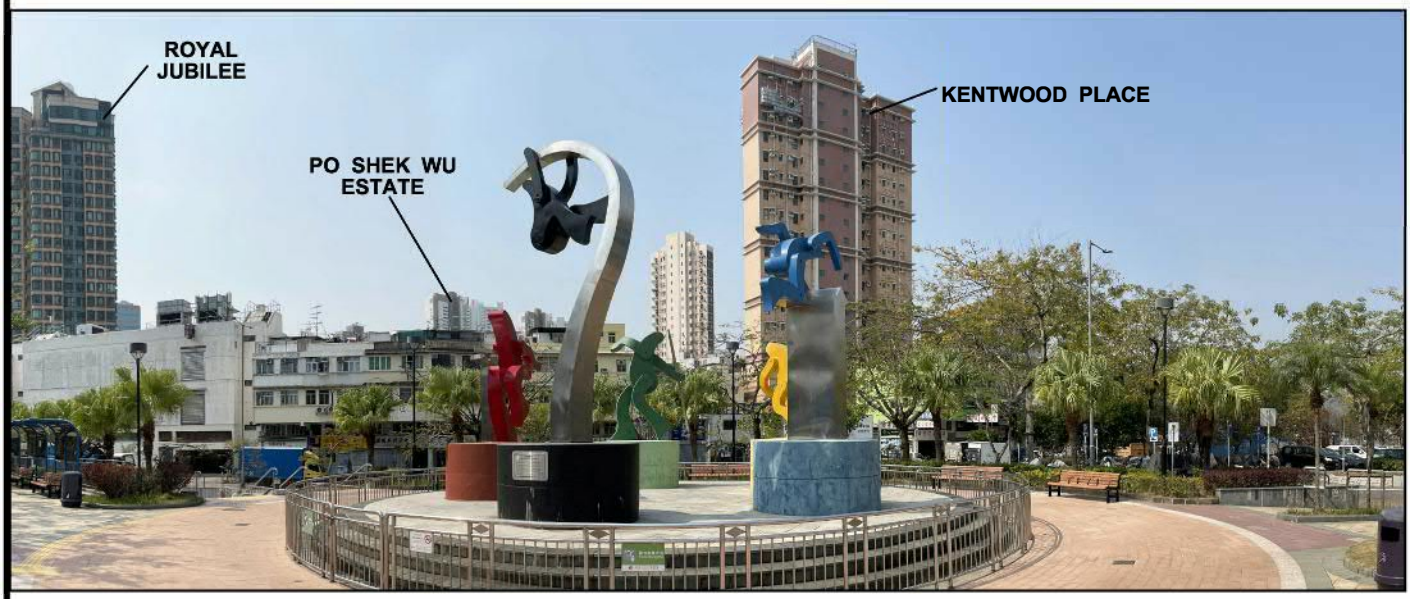
HOUSING DEPARTMENT
PLANNING SECTIONS

PLAN 2

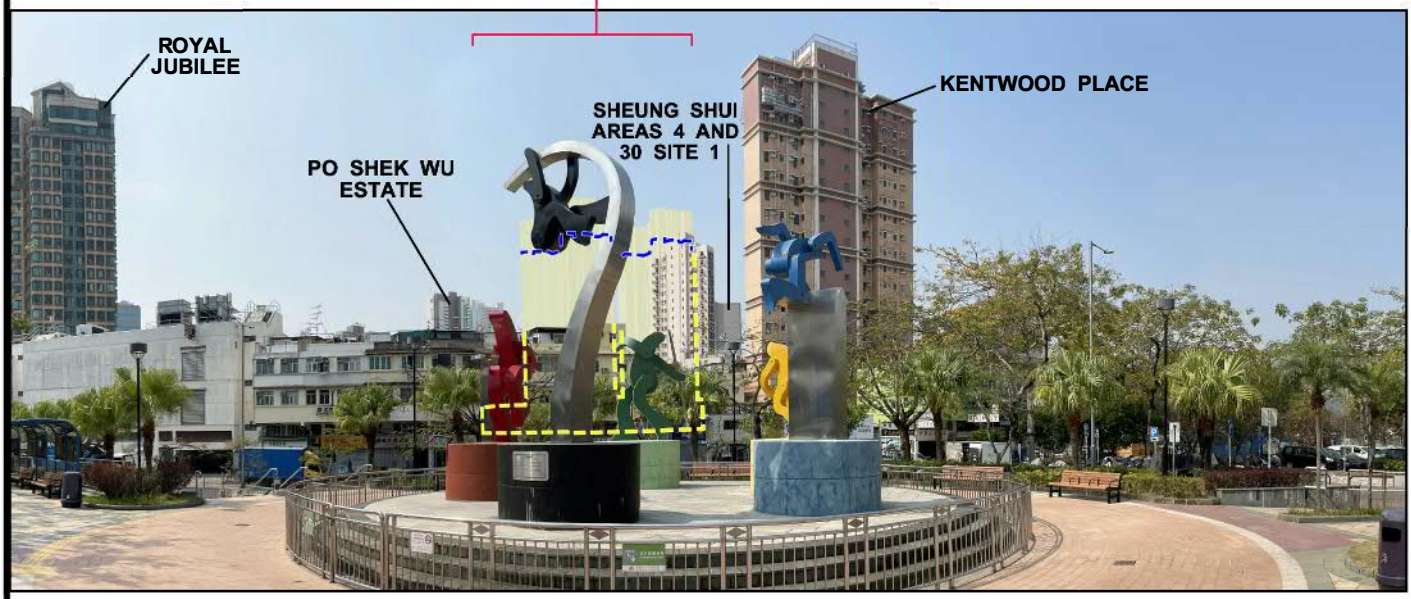
DATE : 29.7.2024

23_0401N_VP1

Existing View

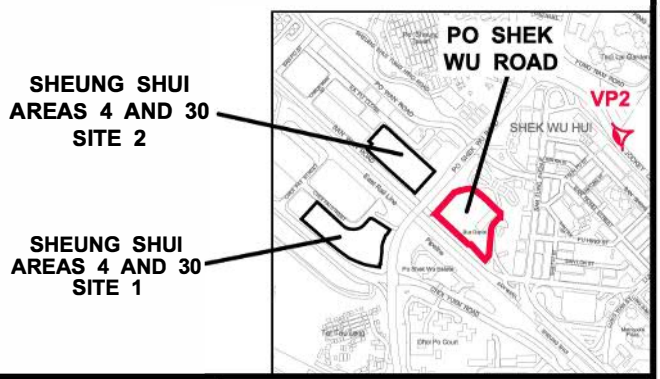


Proposed Scheme



LEGEND:

- Proposed Scheme (Max. 149mPD)
- Current Scheme (Max. 130mPD)
- Planned Public Housing Site at Sheung Shui Areas 4 and 30 Sites 1 and 2
- Application Site



PHOTOMONTAGE AT VIEWPOINT 2 (VIEW FROM NORTH DISTRICT SPORTS GROUND)

HOUSING DEPARTMENT
PLANNING SECTIONS

PLAN 3

DATE : 29.7.2024

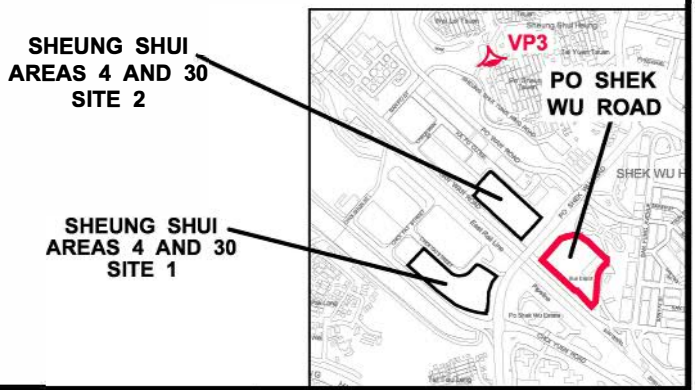
23_0401N_VP2

Existing View

Proposed Scheme

LEGEND:

- Proposed Scheme (Max. 149mPD)
- Current Scheme (Max. 130mPD)
- Planned Public Housing Site at Sheung Shui Areas 4 and 30 Sites 1 and 2
- Application Site



PHOTOMONTAGE AT VIEWPOINT 3 (VIEW FROM SHEUNG SHUI TUNG HING ROAD SITTING-OUT AREA)

HOUSING DEPARTMENT
PLANNING SECTIONS

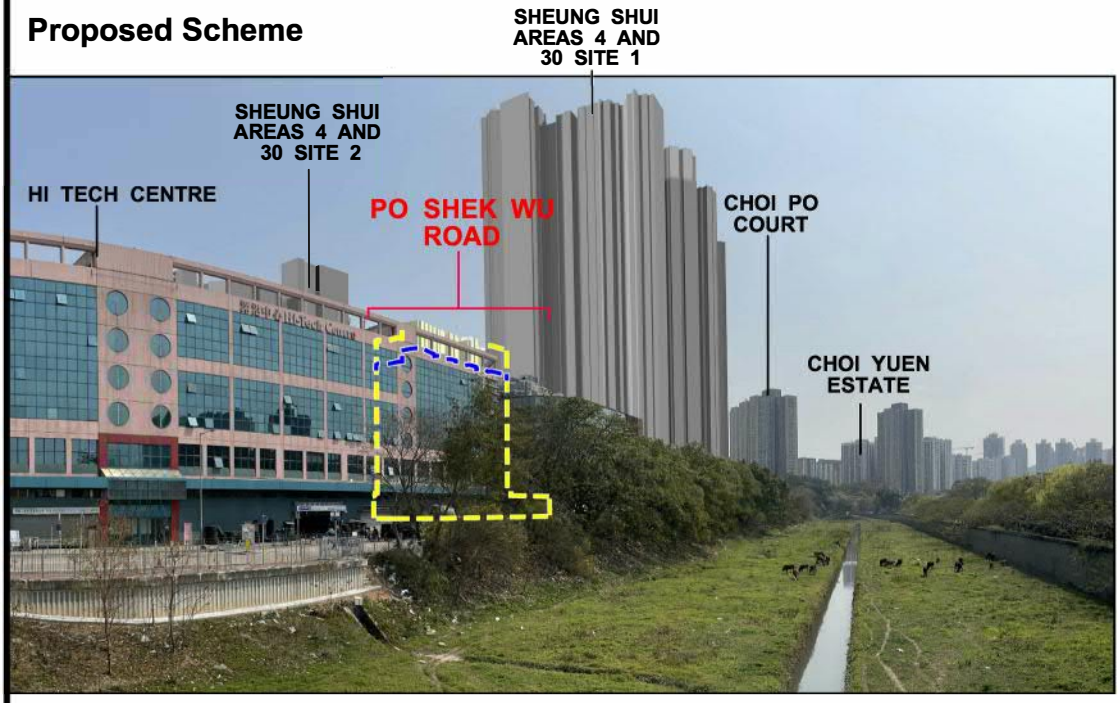
PLAN 4

DATE : 29.7.2024

23_0401N_VP3

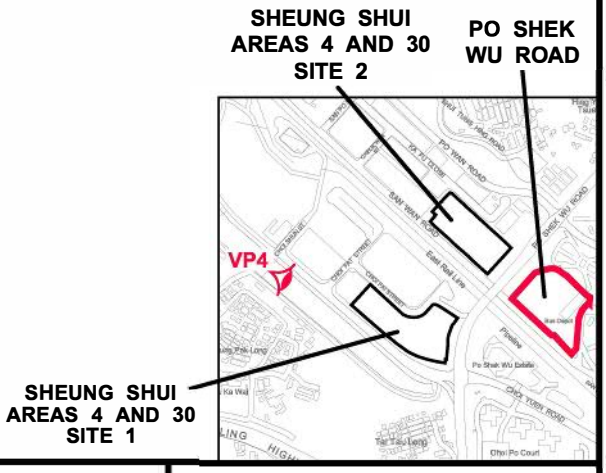
Existing View

Proposed Scheme



LEGEND:

- Proposed Scheme (Max. 149mPD)
- Current Scheme (Max. 130mPD)
- Planned Public Housing Site at Sheung Shui Areas 4 and 30 Sites 1 and 2
- Application Site



PHOTOMONTAGE AT VIEWPOINT 4 (VIEW FROM FOOTBRIDGE AT CHOI YUEN ROAD)

HOUSING DEPARTMENT
PLANNING SECTIONS

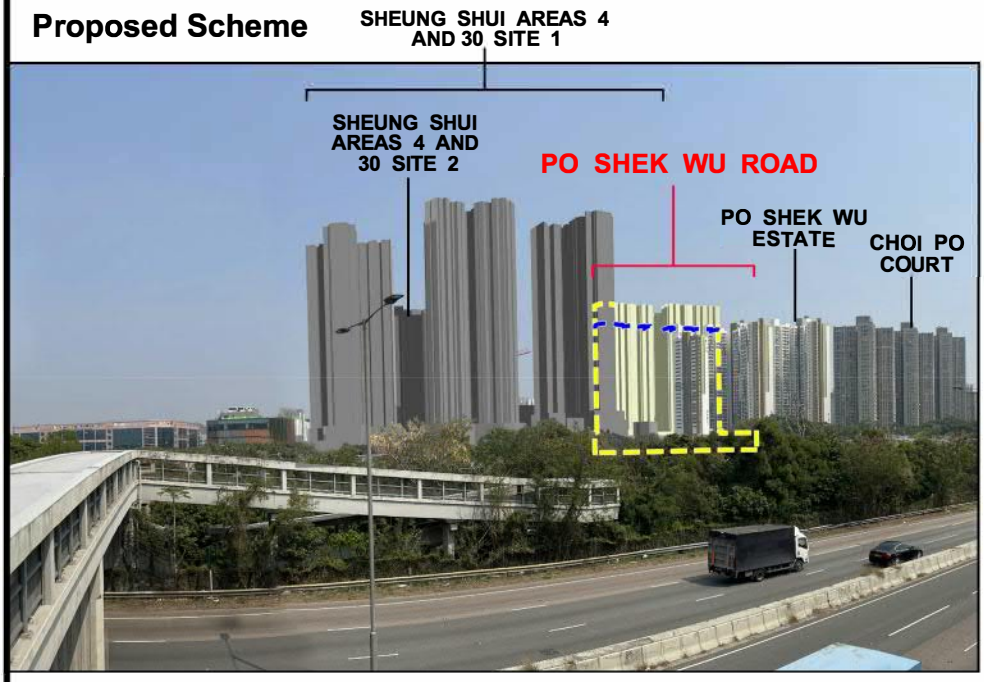
PLAN 5

DATE : 29.7.2024

23_0401N_VP4

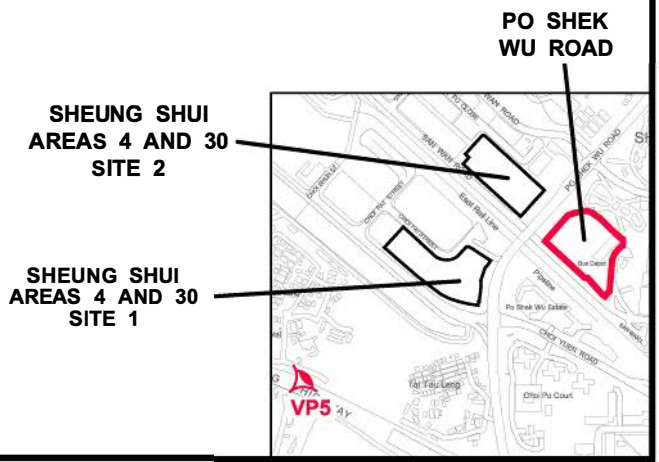
Existing View

Proposed Scheme



LEGEND:

- Proposed Scheme (Max. 149mPD)
- Current Scheme (Max. 130mPD)
- Planned Public Housing Site at Sheung Shui Areas 4 and 30 Sites 1 and 2
- Application Site



PHOTOMONTAGE AT VIEWPOINT 5 (VIEW FROM FOOTBRIDGE LINKING TAI TAU LENG AND HAK KA WAI)

HOUSING DEPARTMENT
PLANNING SECTIONS

PLAN 6

DATE : 29.7.2024

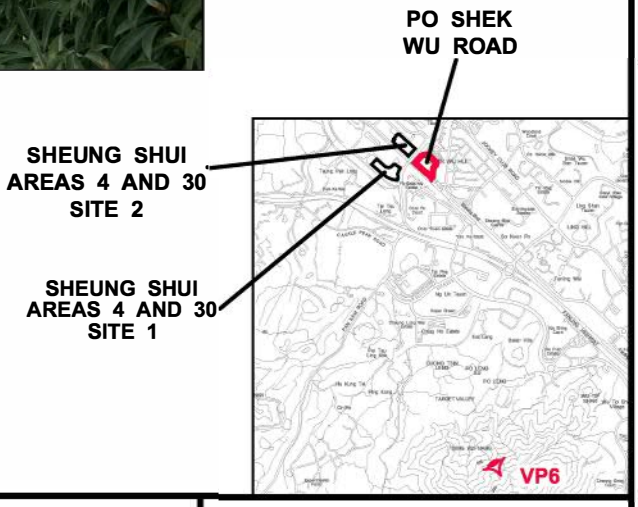
23_0401N_VP5

Existing View

Proposed Scheme

LEGEND:

- Proposed Scheme (Max. 149mPD)
- Current Scheme (Max. 130mPD)
- Planned Public Housing Site at Sheung Shui Areas 4 and 30 Sites 1 and 2
- Application Site



PHOTOMONTAGE AT VIEWPOINT 6 (VIEW FROM WU TIP SHAN)

HOUSING DEPARTMENT
PLANNING SECTIONS

PLAN 7

DATE : 29.7.2024

23_0401N_VP6

ARUP

Hong Kong Housing Authority

Public Housing Development at Po Shek Wu Road, Sheung Shui

Air Ventilation Assessment - Initial Study

Reference:

| 16 June 2024 r1

Job number

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Contents

1. Introduction

1.1 Background

Ove Arup & Partners Hong Kong Limited (Arup) has conducted an Air Ventilation Assessment (AVA) – Initial Study for the planning application of the proposed public housing developments at Po Shek Wu Road, Sheung Shui (The Development) in the North District.

The application site is currently zoned "Residential (Group A)" ("R(A)5") on the Approved Fanling/Sheung Shui Outline Zoning Plan (OZP) No. S/FSS/28 with maximum building height restriction of 130mPD and plot ratio 7.0. This document is to support the section 16 application for minor relaxation of building height restriction from 130mPD to 149mPD and plot ratio from 7.0 to 7.5.

The Technical Guide for Air Ventilation Assessment for the Developments in Hong Kong *(Annex A of Technical Circular No.1/06 for Air Ventilation Assessments)* [1] *(termed as AVA Technical Circular hereafter)* dated 19 July 2006 lay down the foundation of this methodology statement.

1.2 Objective of AVA Initial Study

Among all available wind data, an Initial Study will be conducted by using Computational Fluid Dynamics (CFD) techniques. It aims to achieve the following tasks:

- Initially assesses the characteristics of the wind availability of the Study Site;
- Gives a general pattern and a rough quantitative estimate of the wind performance at the pedestrian level using Velocity Ratio VR;
- Identify the air paths within the site ascertain their effectiveness; and
- Identify good design features and problematic areas if any and recommend mitigation measures.

2. Location and Site Characteristics

Development is located in Sheung Shui Area in the North District. The Development is sited on a flat topology and situated at the junction of Po Shek Wu Road (**Orange Dotted Line**) and San Wan Road (**Green Dotted Line**).

The Development is surrounded by mid-rise industrial clusters to the north to southwest, high-rise future residential developments, including planned Sheung Shui Areas 4 and 30 Site 1 and 2 (SS Site1 and Site 2) and completed Po Shek Wu Estate (PSWE) from northwest to south. At the north of the Development are the open spaces Shek Wu Hui Jockey Club Playground and at the west is a large cluster of mid-rise developments. The location of the Development and its surroundings are shown in Figure 1.

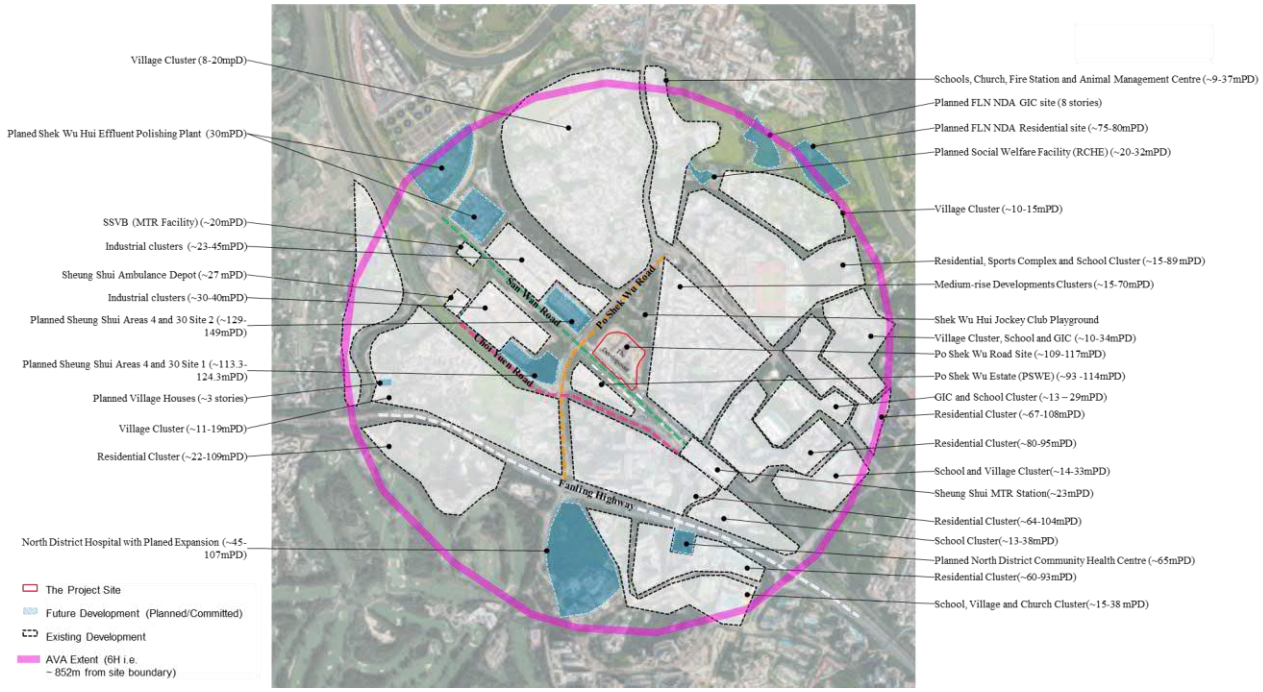


Figure 1 Site Location of the Development and Surroundings (Source: Google Map)

2.1 Proposed Development, Noise Barrier and Elevated Structure

There are several planned developments, noise barriers and elevated structures around the study sites, which will be considered in this AVA – Initial Study. Their locations are shown below.

Future Development

The planned developments, are indicated in Figure 1.

Noise Barrier

Future semi-enclosures, future full-enclosures, existing noise barriers and future noise barriers would be located adjacent to the Development, as well as further south along Po Shek Wu Road, as well as Fanling Highway, in order to mitigate the noise impact, subject to detailed design.

Elevated Structure

There are multiple elevated structures located within the surrounding area, including elevated walkways, covered walkways and elevated roads. There are 4 future elevated walkways, connected to SS Site 1, SS Site2, Po Shek Wu Road and Sheung Shui MTR Station to the Development. There is also a future elevated road above Po Shek Wu Road connecting to Fanling Highway, subject to detailed design.

Figure 2 Elevated Structures and Noise Barriers

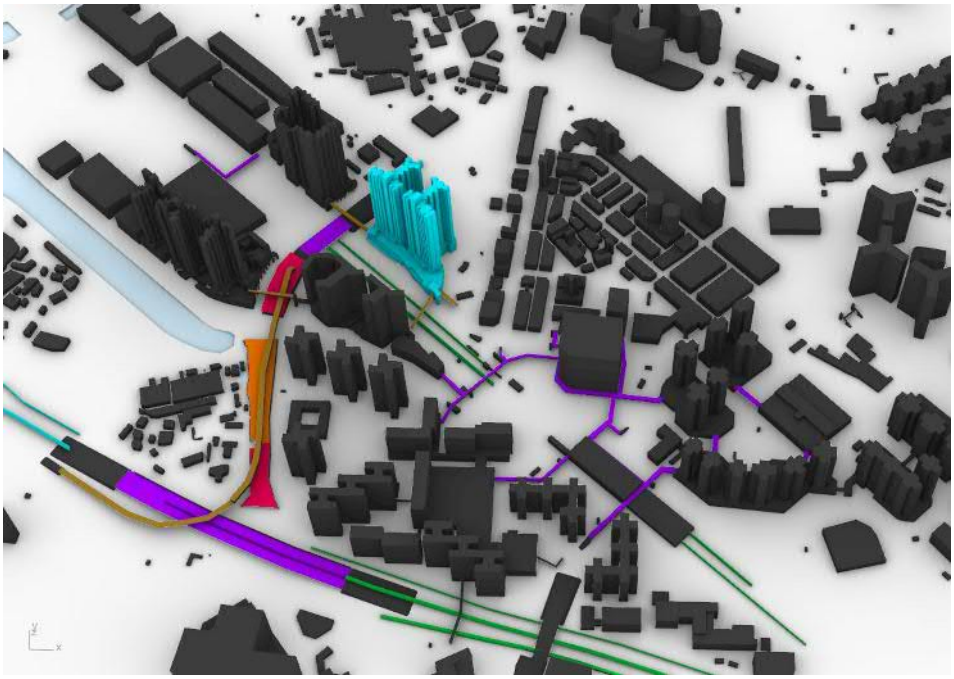
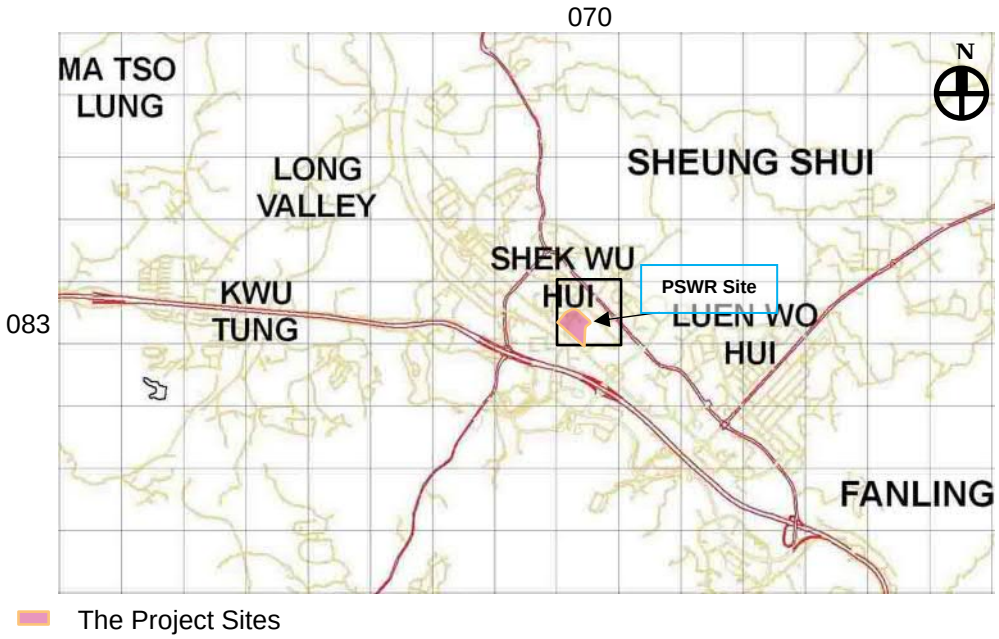


Figure 3 3D model of the Elevated Structures and Noise Barriers

3. Wind Availability Data

As per the *AVA Technical Circular,* at least 75% of the time in a typical reference year (frequency of occurrence) would be studied under both annual and summer wind condition in the Initial Study when using a Computational Fluid Dynamics (CFD) modelling technique. Since the CFD approach is adopted for the present project's AVA, this criterion together with the following selected wind data are to be applied as the methodology.

The site wind availability of the application site and its surrounding is an essential parameter for AVA. As stipulated in the *AVA Technical Circular. The* site wind availability would be presented by using appropriate mathematical models. Planning Department (PlanD) has set up a set of simulated meso-scale data of Regional Atmospheric Modelling System (RAMS) of the territory for AVA study, which could be downloaded at Planning Department Website. Simulated meso-scale data of Regional Atmospheric Modelling System (RAMS) from PlanD [2] will therefore be adopted in this AVA Study. The location of the Development falls within the location grid (x: 070, y:083) in the RAMS database as indicated below.



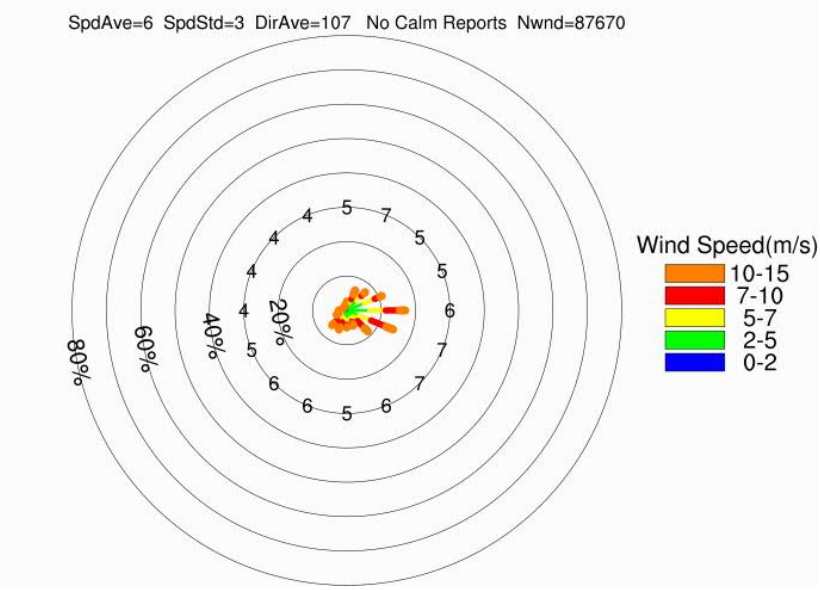


Figure 4 RAMS annual wind rose at 500mPD

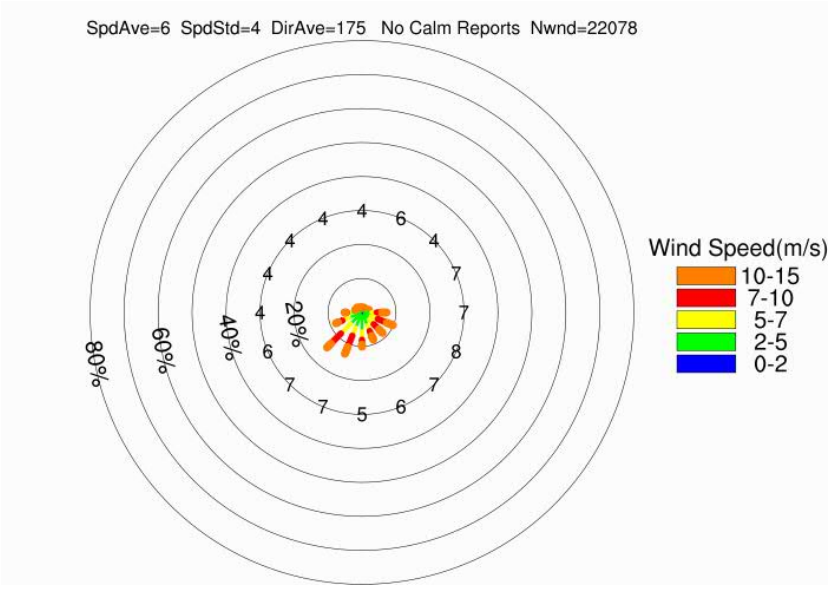


Figure 5 RAMS summer wind rose at 500mPD

3.1 Prevailing Wind Directions

As mentioned above, the RAMS wind data of location grid (x:070, y:083) is adopted for the site wind availability in this study.

3.1.1 Annual Prevailing Wind

Eight prevailing wind directions (highlighted in red colour in Table 1) are considered in this AVA Study which covers 77.8% of the total annual wind frequency. They are north-north-easterly (6.4%), north-easterly (7.5%), east-north-easterly (11.1%), easterly (17.2%), east-south-easterly (14.7%), south-easterly (8.7%), south-south-westerly (6.1%) and south-westerly (6.1%) winds.

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	
Frequency	2.6%	6.4%	7.5%	11.1%	17.2%	14.7%	8.7%	4.8%	
Wind Direction	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
Frequency	5.0%	6.1%	6.1%	3.3%	2.4%	1.2%	1.2%	1.5%	77.8%

Table 1 Annual Wind Frequency

**** The wind frequency showing in red colour represents the selected winds for the CFD simulation.***

3.1.2 Summer Prevailing Wind

Eight prevailing wind directions (highlighted in red colour in Table 2) are considered in this AVA Study which covers 81.9% of the total summer wind frequency. They are easterly (7.6%), east-south-easterly (10.2%), south-easterly (8.7%), south-south-easterly (8.7%), southerly (10.2%), south-south-westerly (13.4%), south-westerly (14.7%) and west-south-westerly (8.4%) winds.

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	
Frequency	1.5%	1.6%	1.5%	2.3%	7.6%	10.2%	8.7%	8.7%	
Wind Direction	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
Frequency	10.2%	13.4%	14.7%	8.4%	5.1%	2.1%	2.0%	1.7%	81.9%

Table 2 Summer Wind Frequency

**** The wind frequency showing in red colour represents the recommended wind direction for the CFD simulation.***

3.2 Wind Profiles

The profiles of wind speed from the PlanD RAMS database (x:070, y:083) is studied and the selected extracted. In the RAMS data the vertical profiles of the normalised mean wind speed were provided and the exact profile will be modelled in the CFD model for each corresponding wind directions to be studied. The vertical wind profile for all wind directions to be studied are shown in Figure 6 through Figure 8.

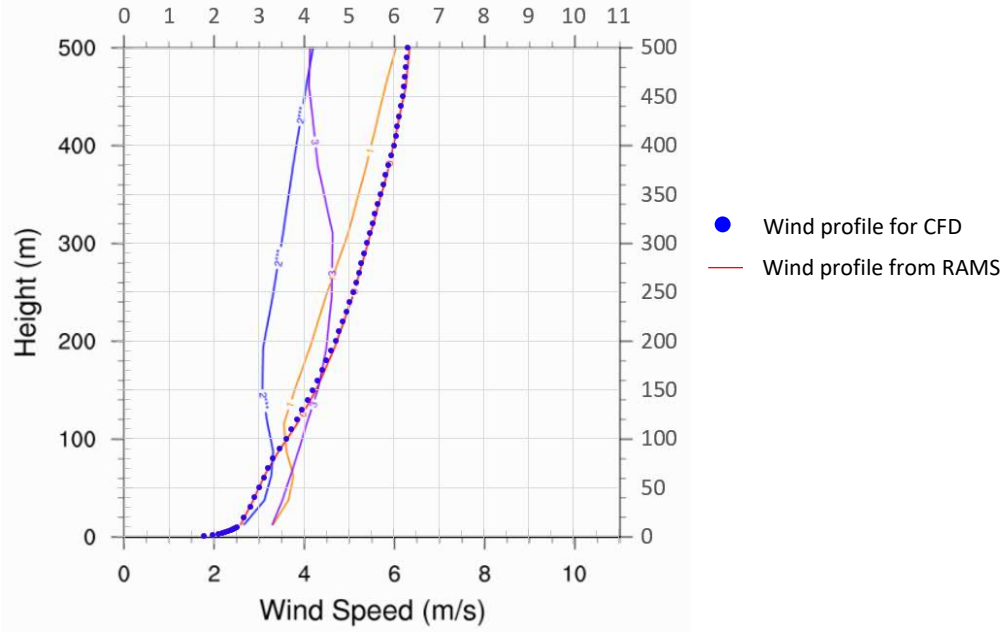


Figure 6 Vertical Wind Speed Profile of 22.5° - 112.4° winds

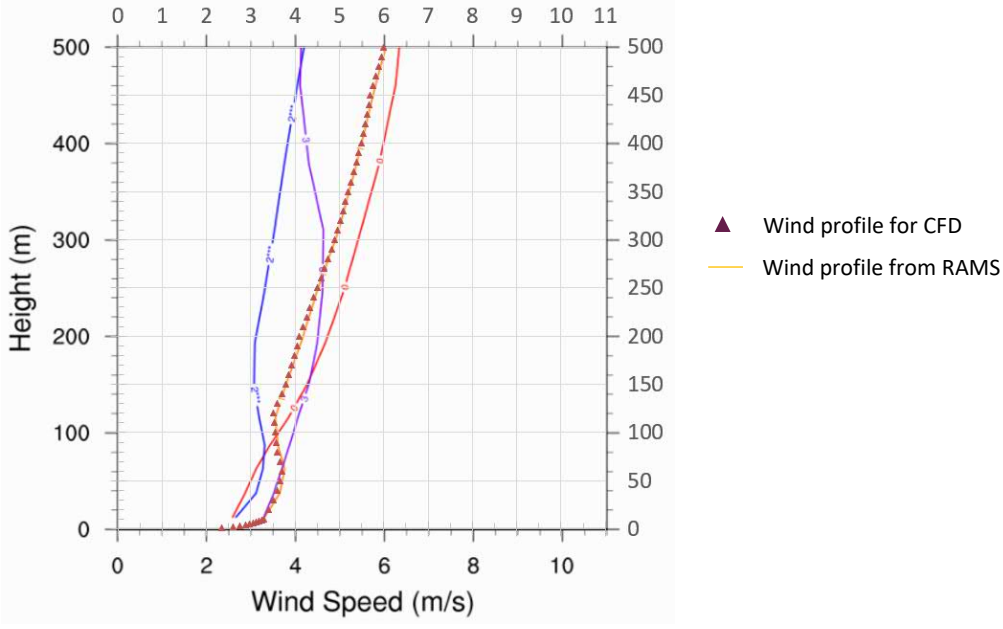


Figure 7 Vertical Wind Speed Profile of 112.5° - 202.4° winds

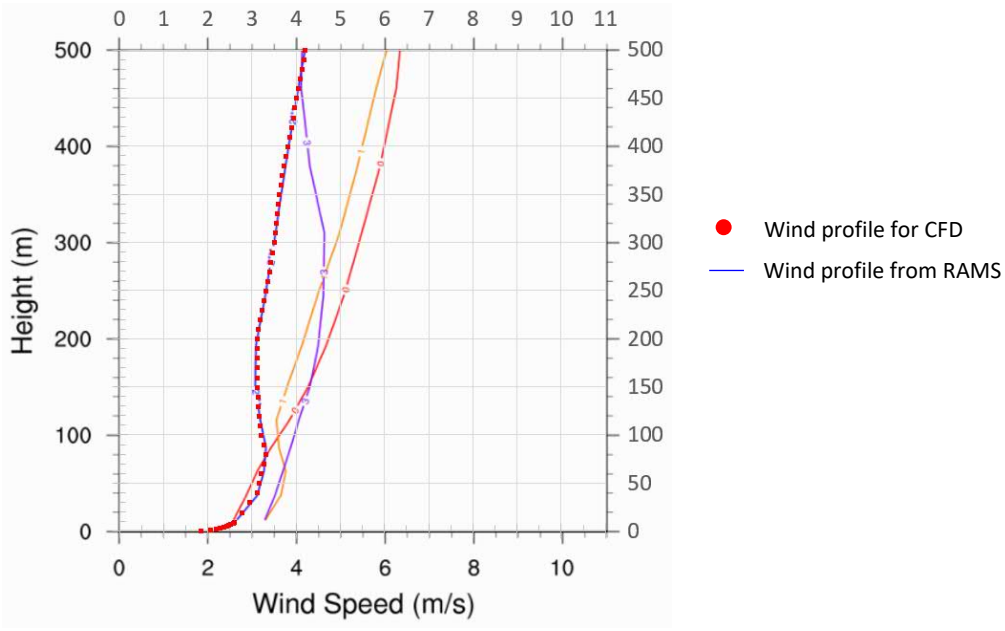


Figure 8 Vertical Wind Speed Profile of 202.5° - 292.4° winds

4. Design Schemes for Initial Study

To investigate the ventilation impacts of the Development and effectiveness of wind enhancement features. Two schemes, the Baseline Scheme and the Proposed Scheme are to be analysed and compared in this AVA Initial Study.

4.1 Baseline Scheme

The Baseline Scheme is an OZP-compliant scheme with a building height at +128mPD and a single aspect wing facing the railway. The Baseline Scheme consists of two 36-storey domestic towers atop a 4-storey podium structure and a basement carpark. It has incorporated two 15m on-site air paths, one through the building separation between the domestic towers and the other between Block B and the lift tower. There is also a G/F empty bay (~14m wide), building setbacks from the northwestern and northeastern site boundary from ~8 to 22m, and a tower setback from the southwestern site boundary of ~16m.

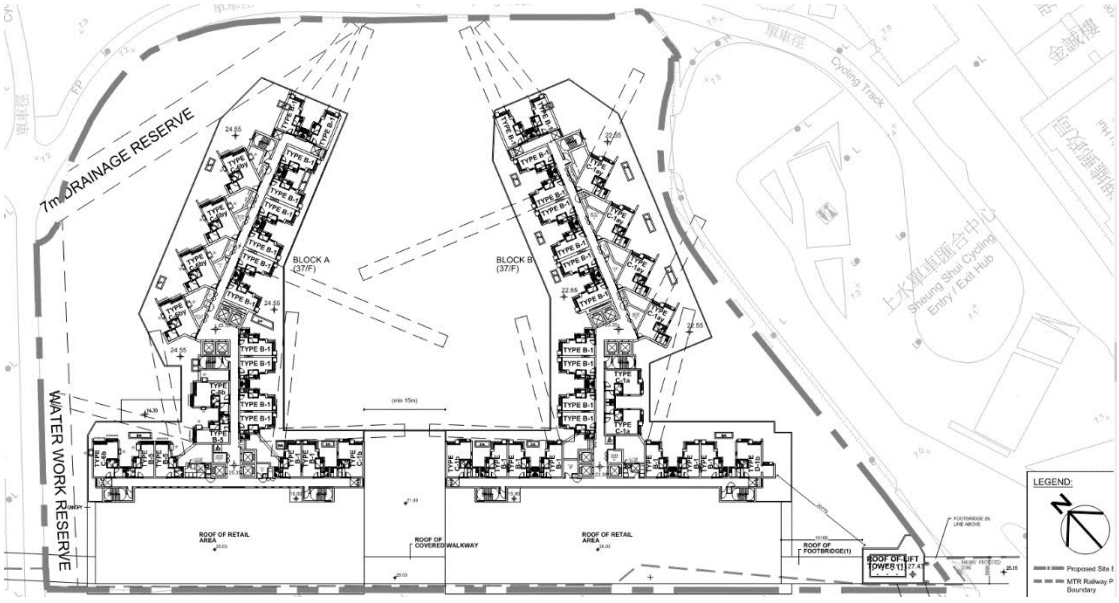


Figure 9 Baseline Scheme MLP

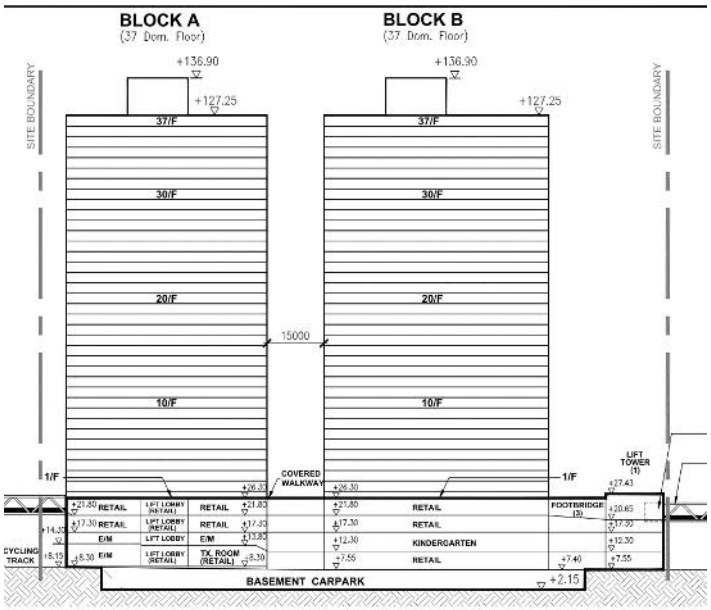


Figure 10 Baseline Scheme Section

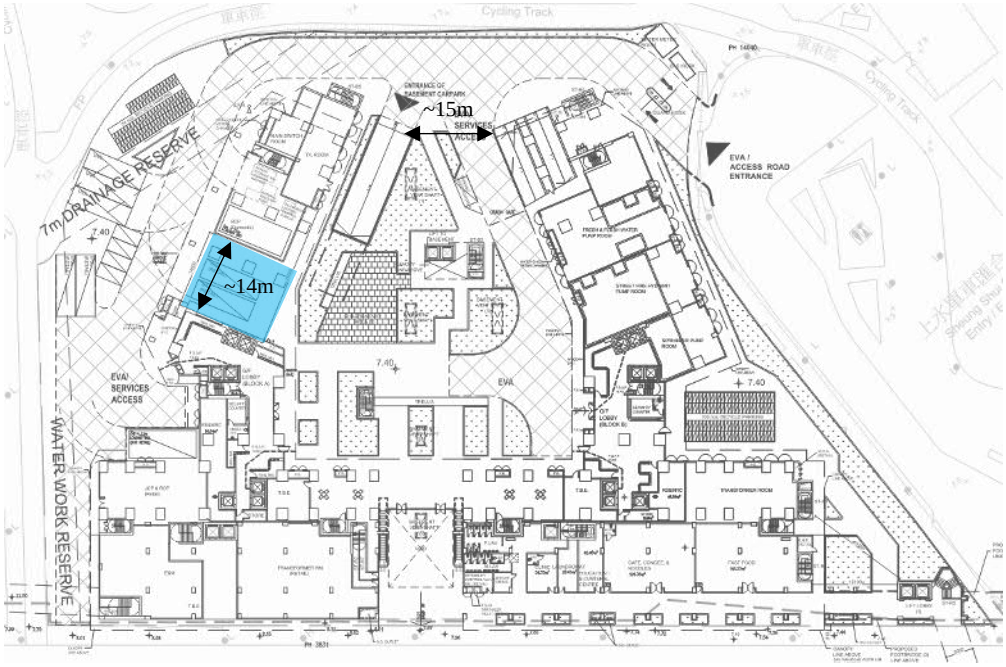


Figure 11 Baseline Scheme Wind Enhancement Features (GF)

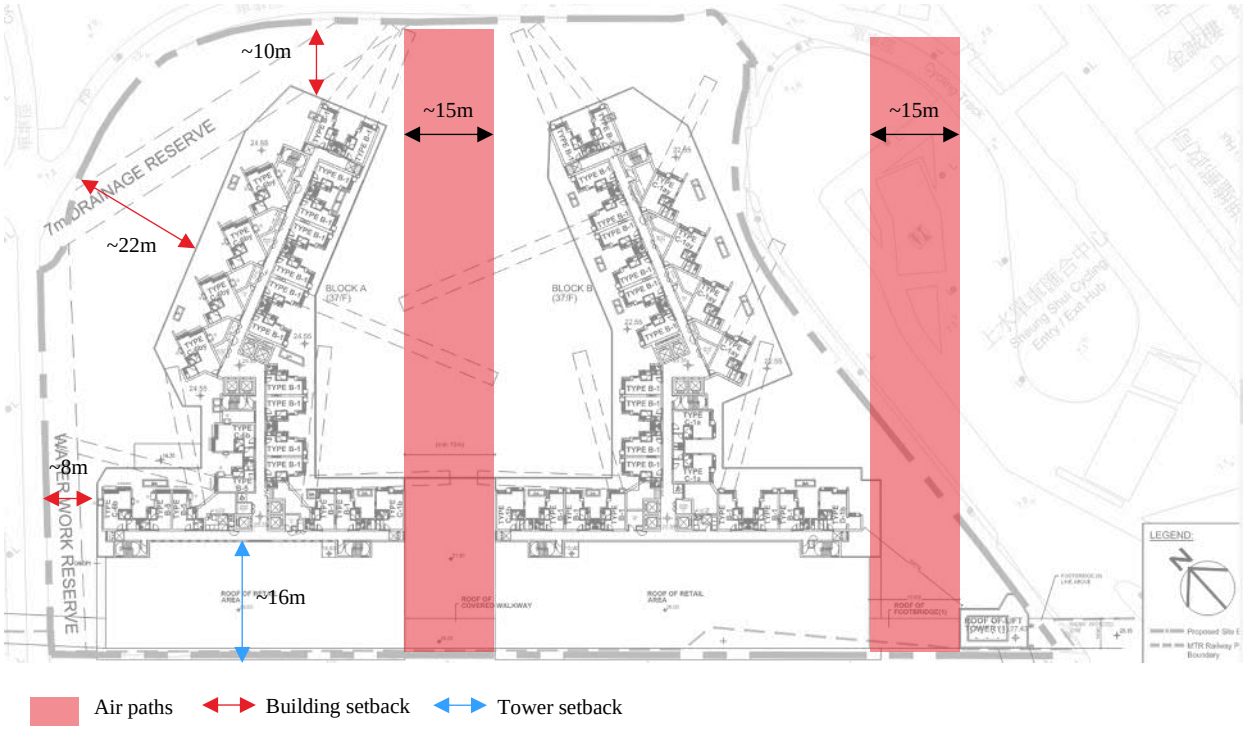


Figure 12 Baseline Scheme Wind Enhancement Features (Typical Floor)

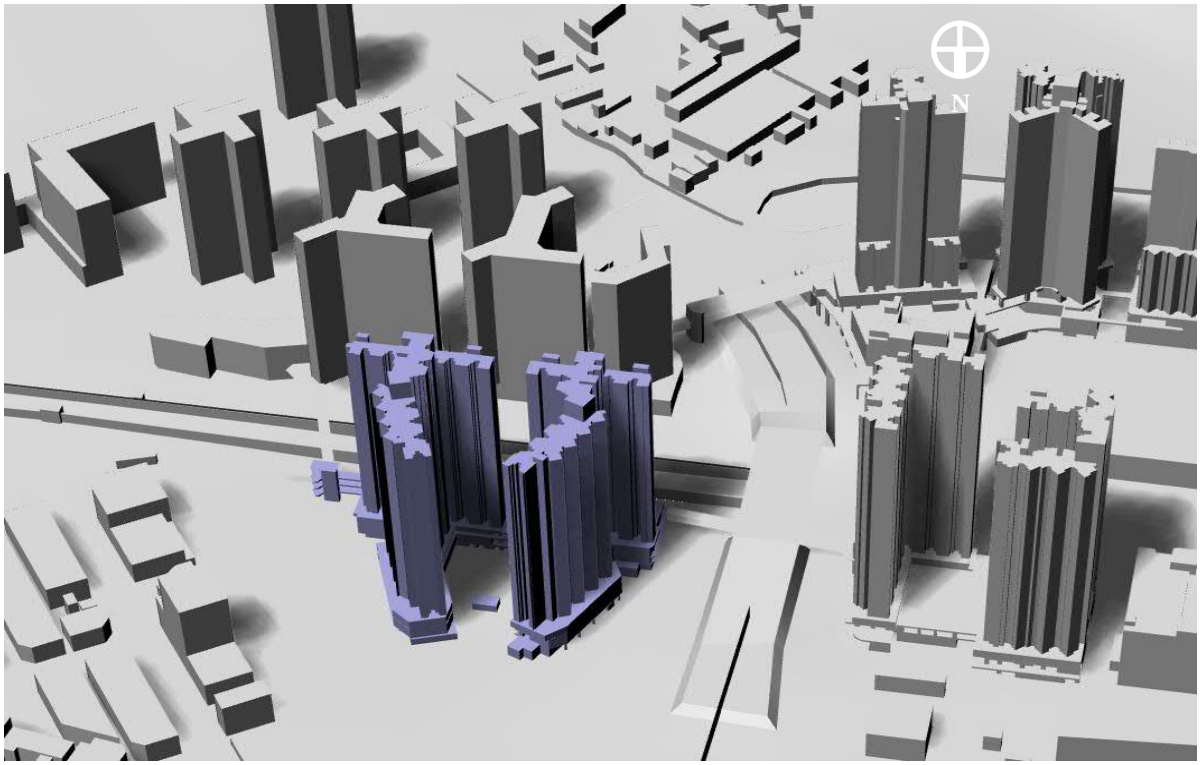


Figure 13 Northerly view of Baseline Scheme

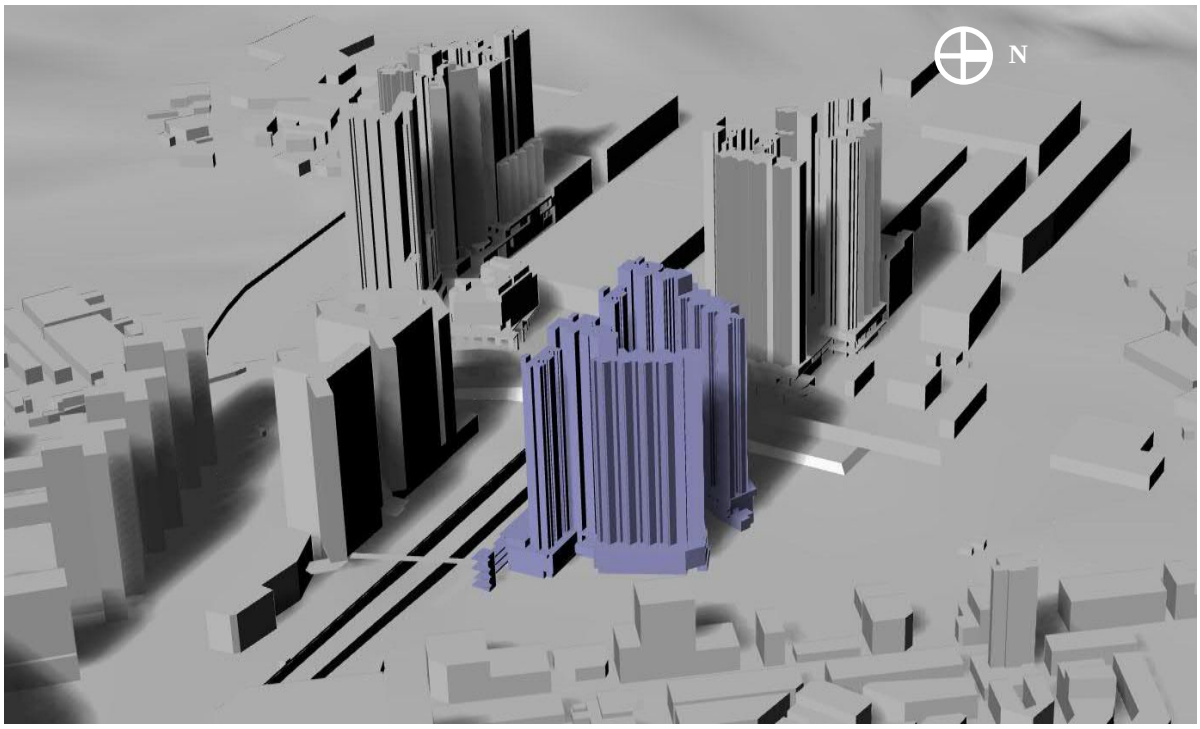


Figure 14 Easterly view of Baseline Scheme

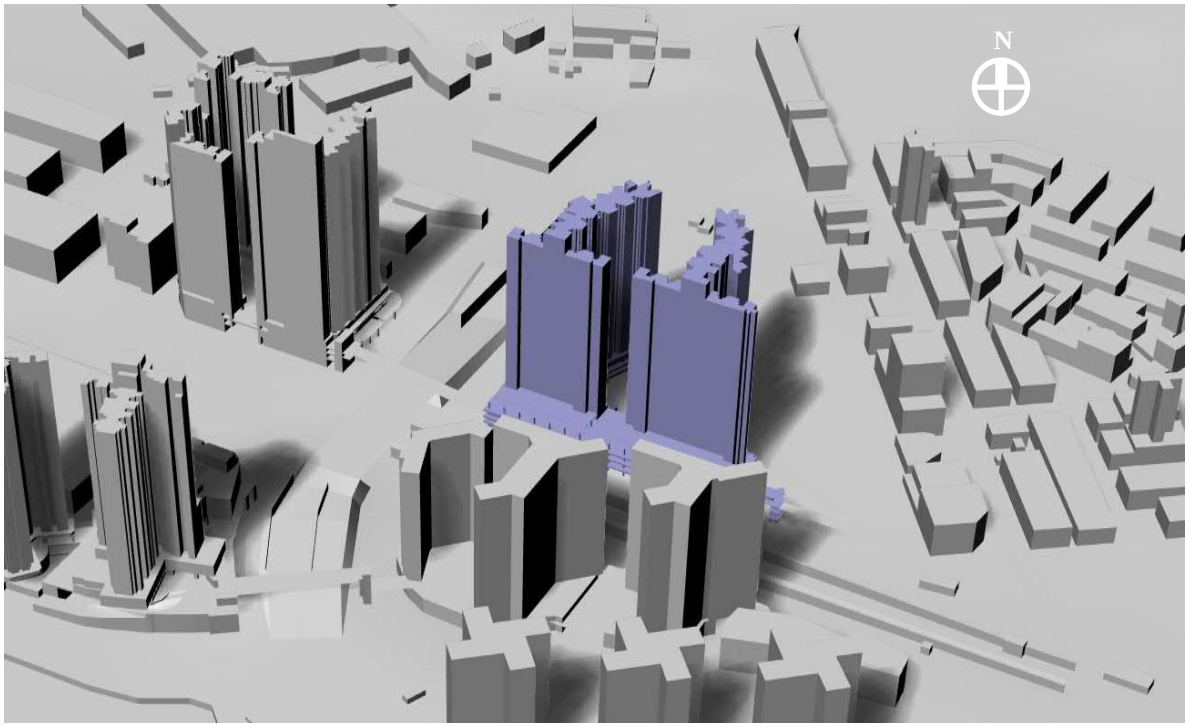


Figure 15 Southerly view of Baseline Scheme

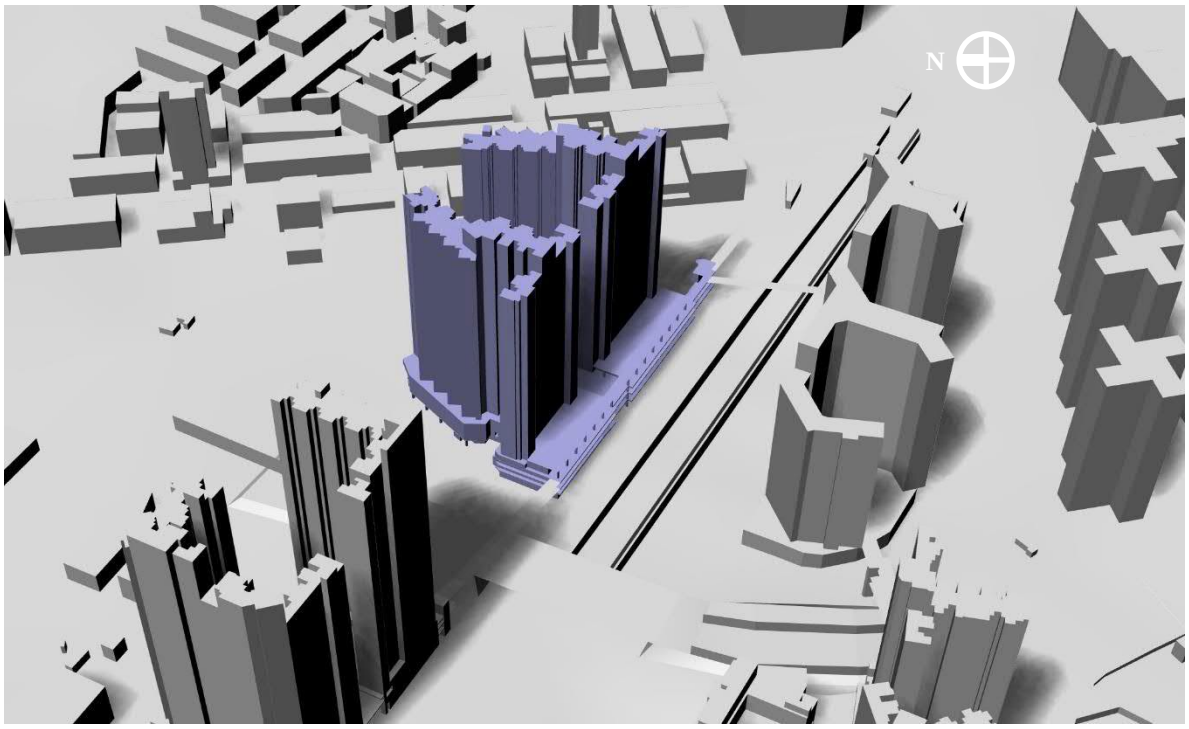


Figure 16 Westerly view of Baseline Scheme

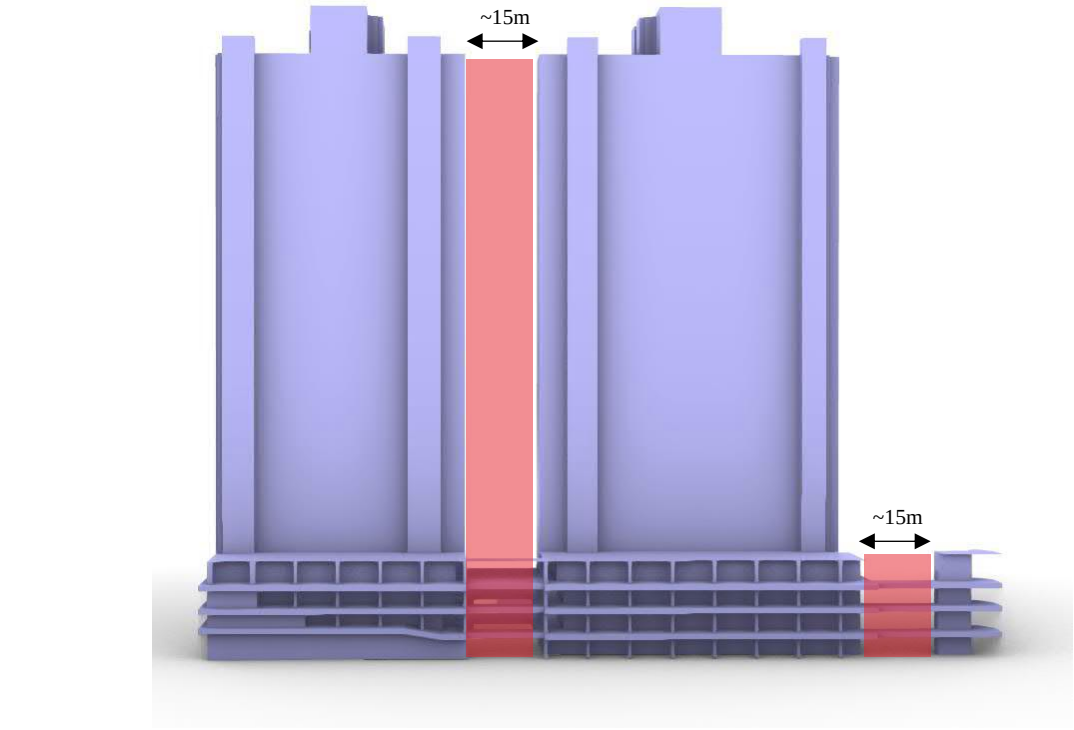


Figure 17 Wind Enhancement Features (Airpaths)

Figure 18 Wind Enhancement Features (Empty Bay)

4.2 Proposed Scheme

The Proposed Scheme consists of two domestic blocks (Block A and Block B) with 40 and 41 domestic storeys respectively atop a 4-storey podium structure which includes a naturally ventilated carpark. The Proposed Scheme consist of a full height building separation of ~15m, a G/F empty bay of ~7m wide It also has a tower setback from the southwestern site boundary of ~25m, as well as building setbacks from ~8m to 25m. The naturally ventilated carpark as well as a permeable podium design would also assist the enhancement of ventilation performance.

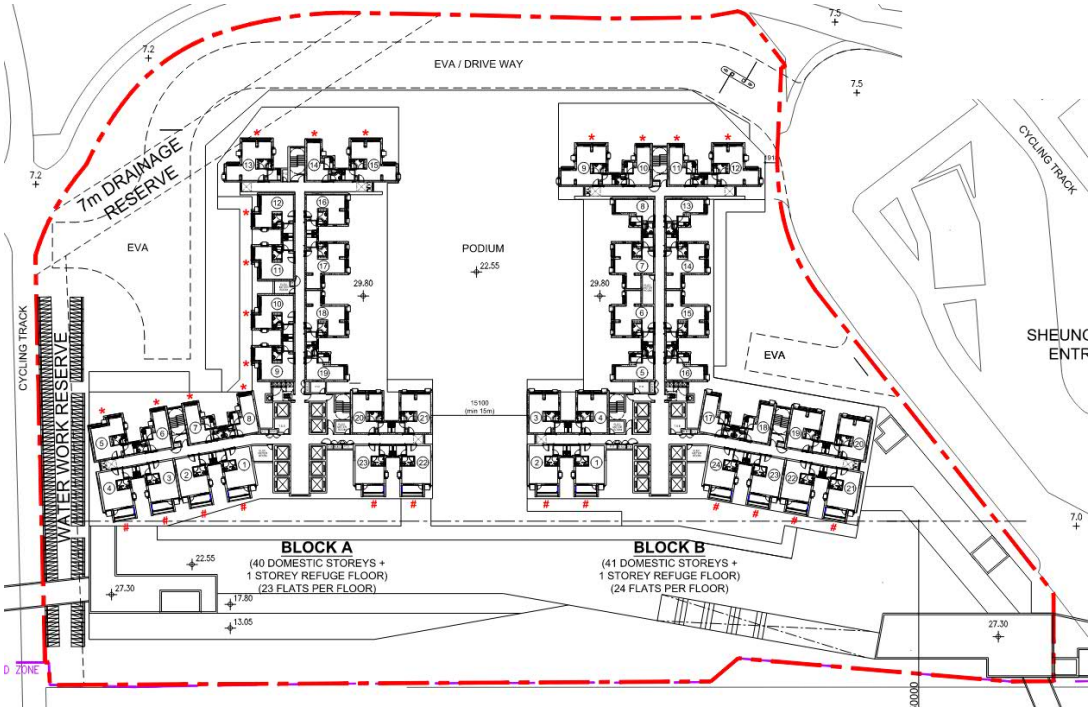


Figure 19 Proposed Scheme MLP

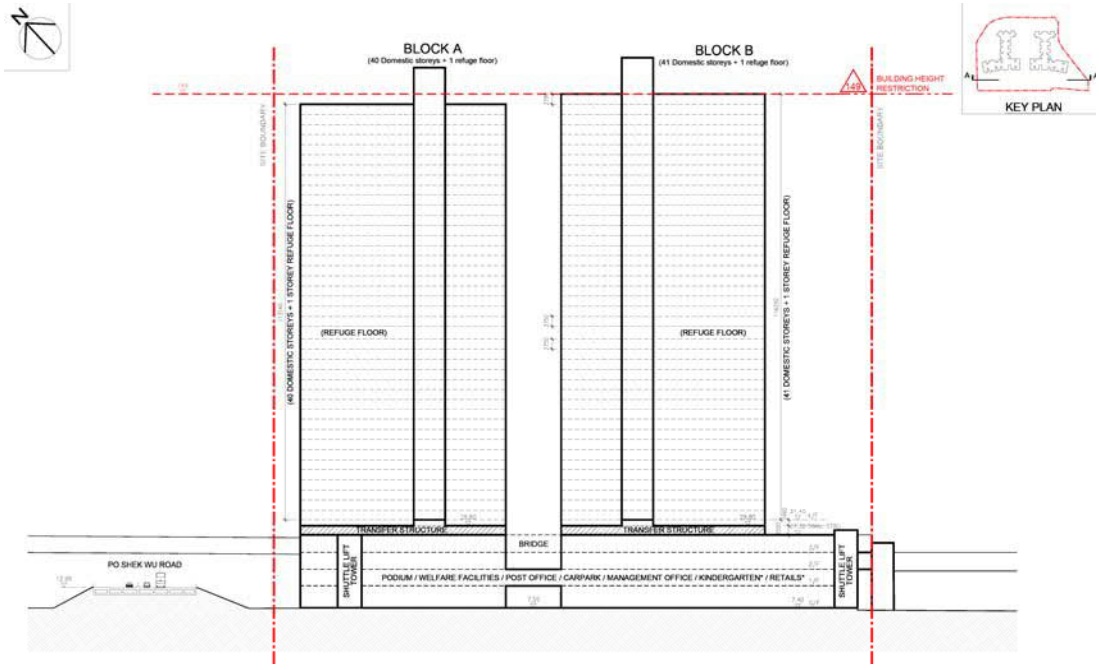


Figure 20 Proposed Scheme Section

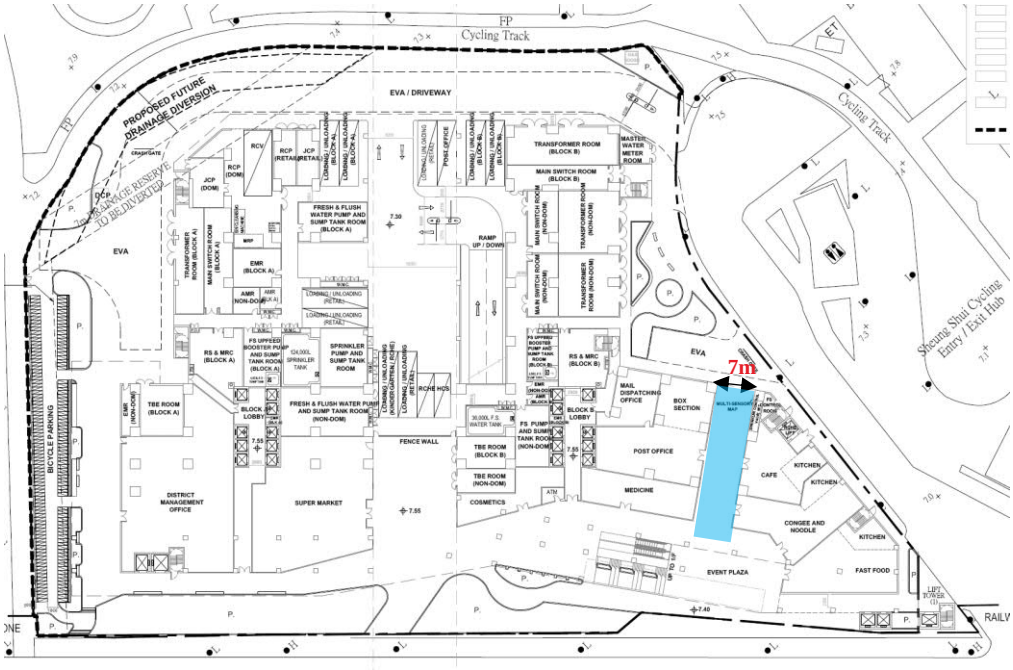


Figure 21 Proposed Scheme Wind Enhancement Features (GF)

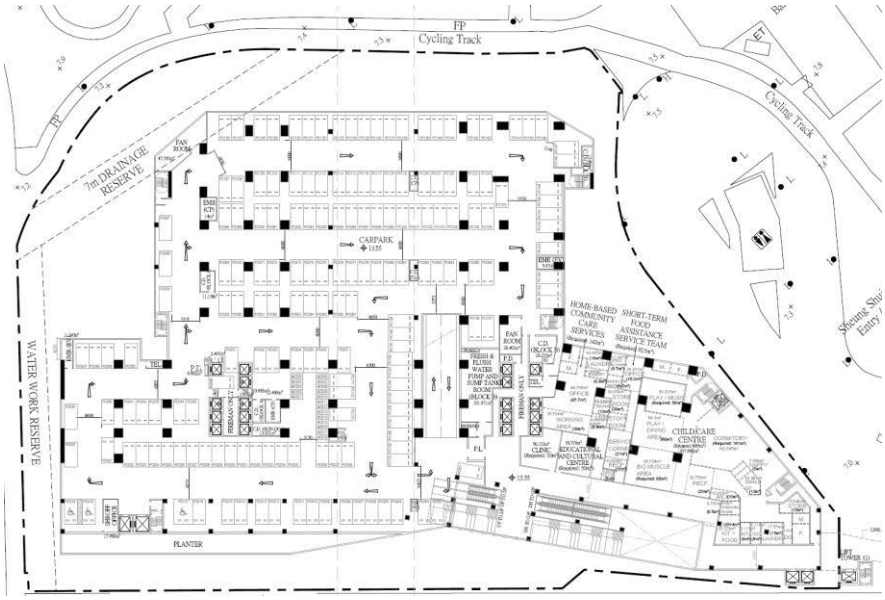


Figure 22 Proposed Scheme Wind Enhancement Features (Naturally ventilated carpark on 1/F)

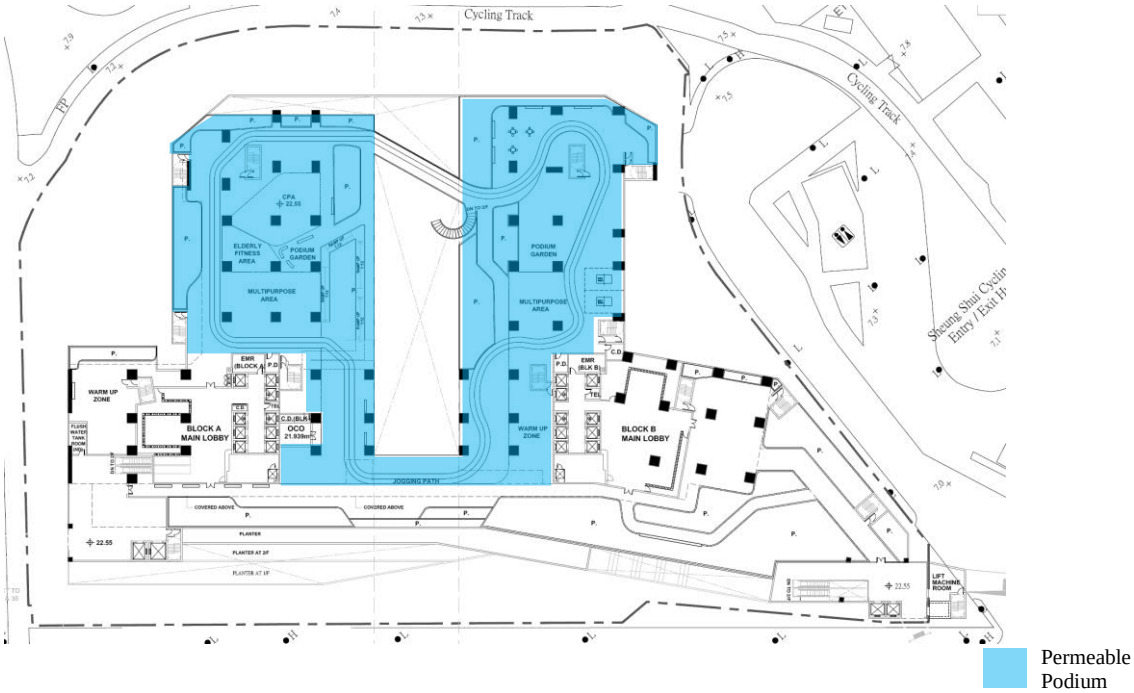


Figure 23 Proposed Scheme Wind Enhancement Features (3/F)

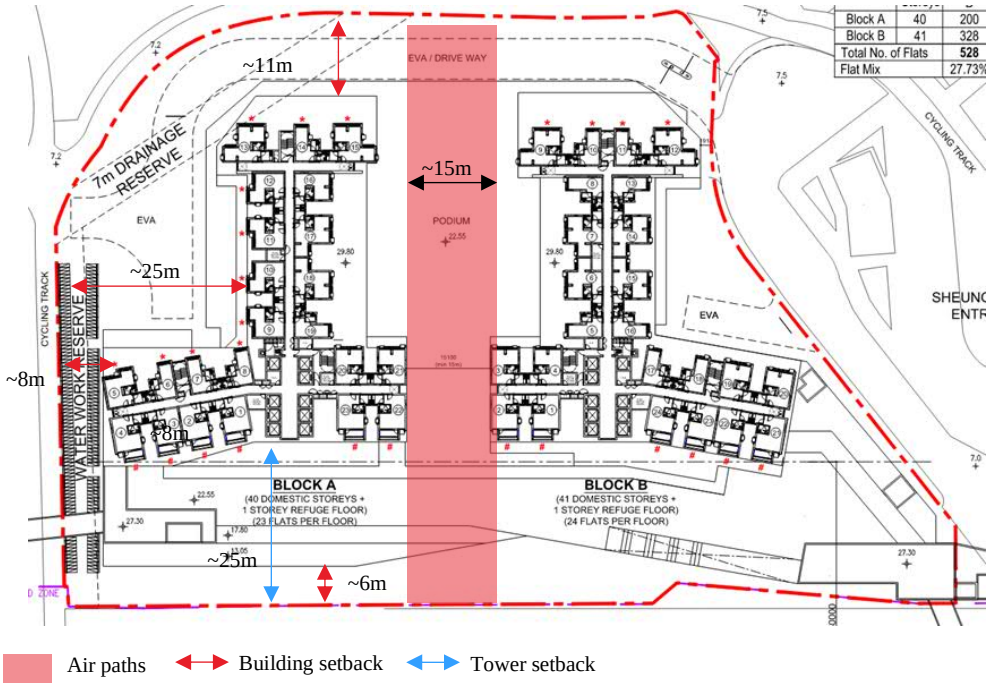


Figure 24 Proposed Scheme Wind Enhancement Features (Typical Floor)

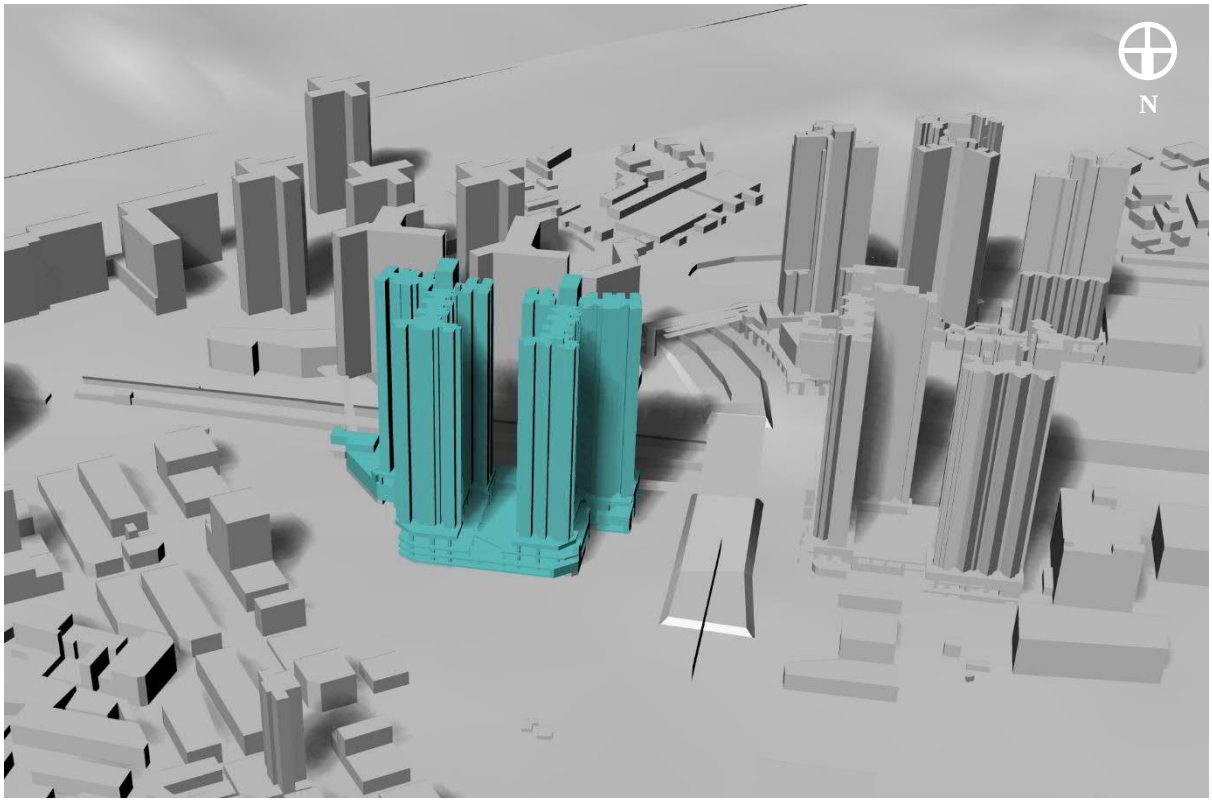


Figure 25 Northerly view of Proposed Scheme

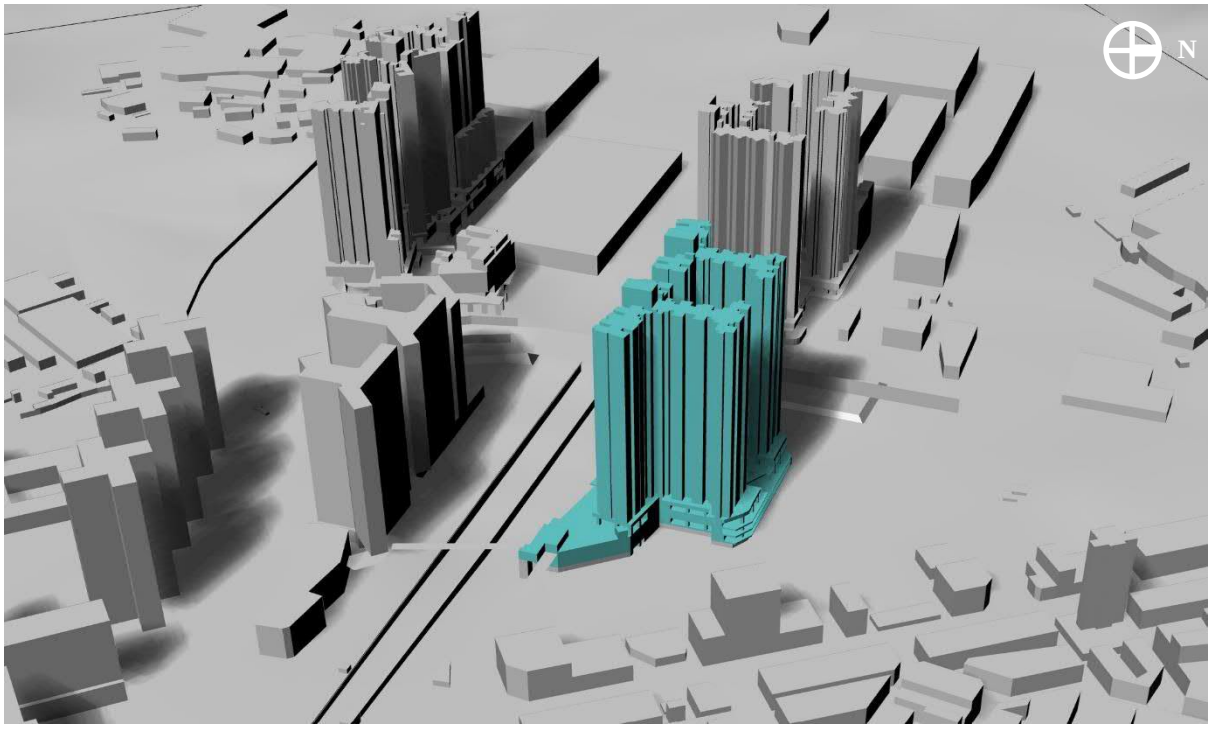


Figure 26 Easterly view of Proposed Scheme

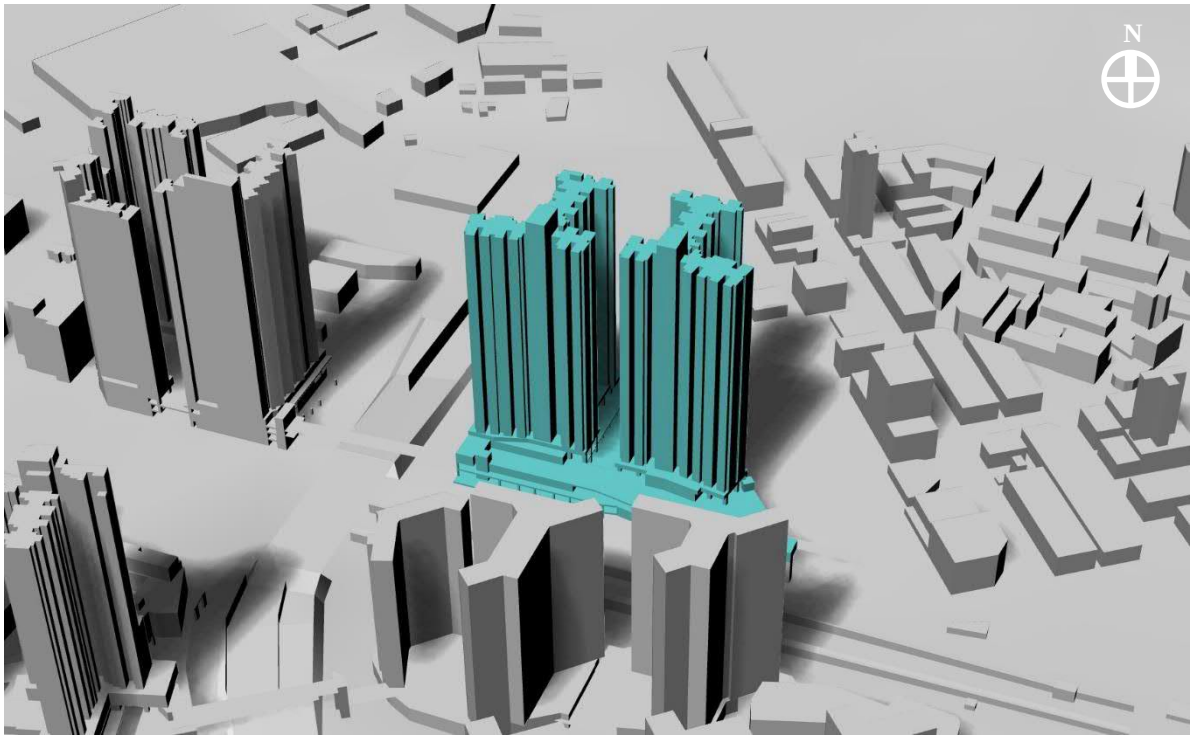


Figure 27 Southerly view of Proposed Scheme

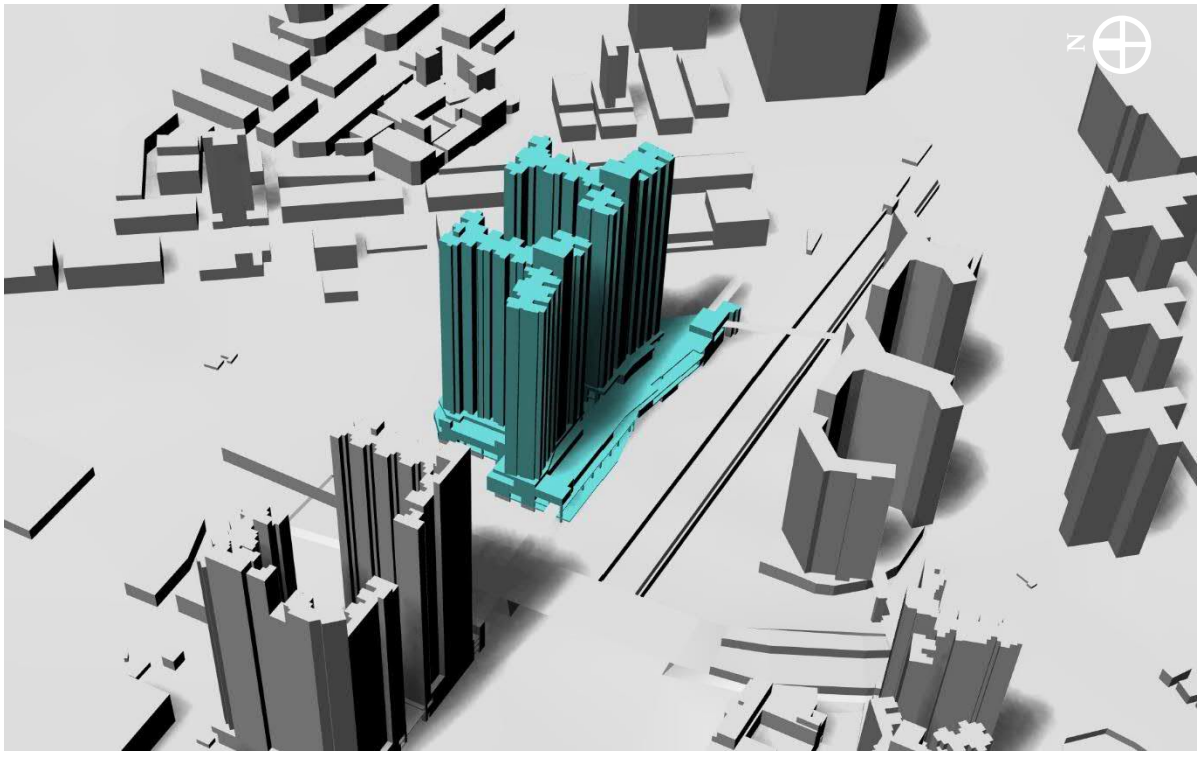


Figure 28 Westerly view of Proposed Scheme

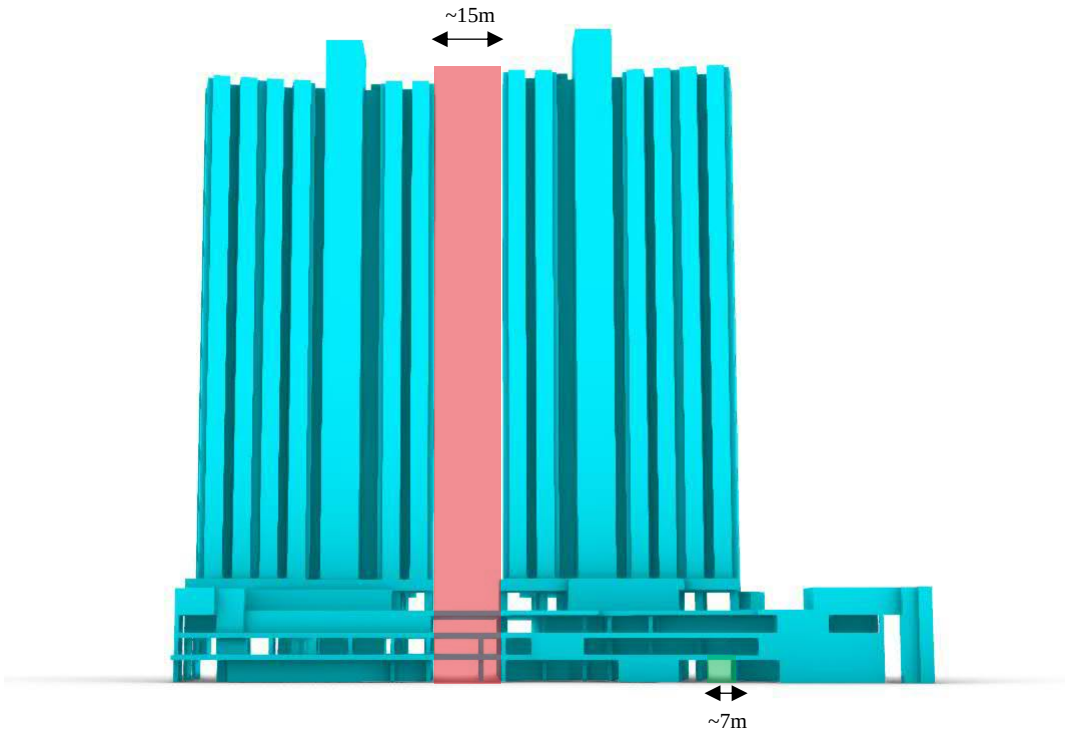


Figure 29 Wind Enhancement Features (Airpath and empty bay)

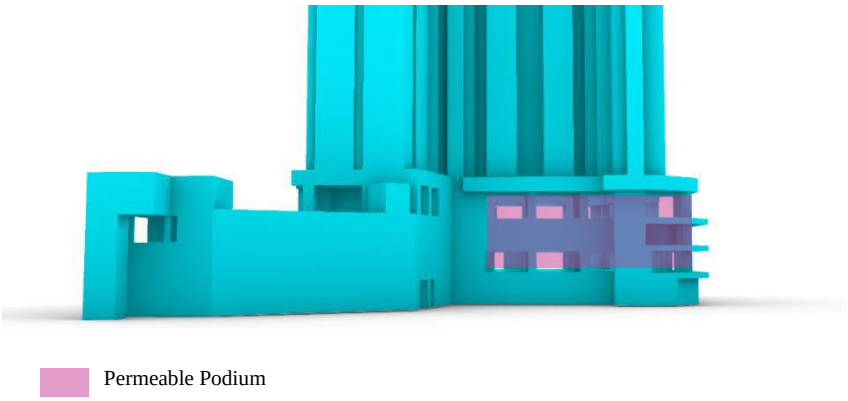


Figure 30 Wind Enhancement Features (Permeable Podium)

5. Methodology

5.1 Assessment and Surrounding Areas

The building height of the Development is around 142m, therefore the Assessment Area and the Surrounding Area are respectively 426m (3H) and 852m (6H) away from the site boundary of the Development Area. The proposed Assessment Area and the Surrounding Area are indicated in Figure 37. The computational domain would be about 6000m (L) x 6000m (W) x 1250m (H) as shown in Figure 31.

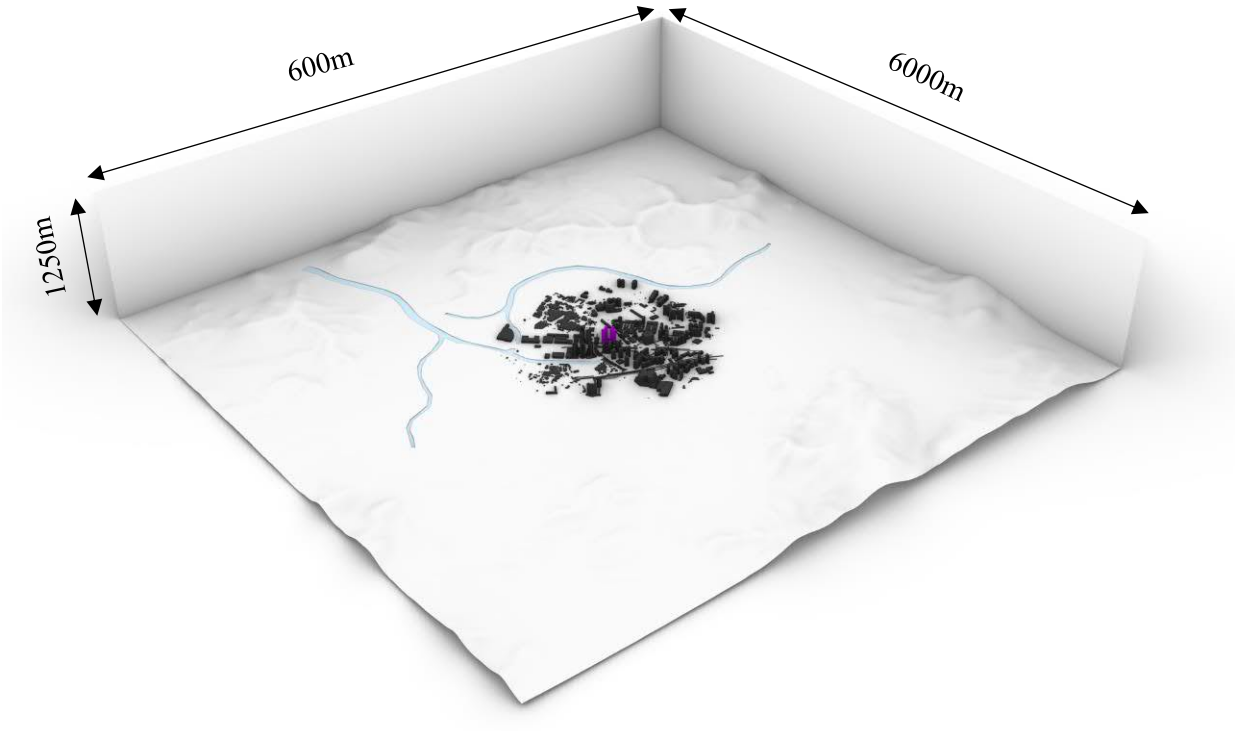


Figure 31 3D View of the Domain

5.2 Technical Details for CFD simulation

5.2.1 Assessment Tools

Computational Fluid Dynamics (CFD) technique is utilized for this AVA study. With the use of three-dimensional CFD method, the local airflow distribution can be visualized in details. The velocity distribution within the flow domain, being affected by the site-specific design and the nearby topography, will be simulated under selected wind directions for annual and summer wind conditions.

5.2.2 CFD Model

Following the AVA Technical Circular, buildings within Surrounding Area shall be built in the CFD model. In order to simulate the approaching wind turbulence effect in a more accurate manner, the CFD model is built to include the highways or bridges as they may affect the approaching wind, even it is falling outside the Surrounding Area. In addition, the model domain is built far beyond the Surrounding Area as required in the Technical Circular in order to eliminate the boundary effects. Therefore, the studied size of CFD model of the development is approximately 6000m (Length) x 6000m (Width) x 1250m (Height) which contains more than 9,000,000 cells as shown in Figure 32.

The computational domain covers the site of the Development and provides sufficient consideration on surrounding topography. The model contains information of the surrounding buildings and site topography via Geographical Information System (GIS) platform. The site topography would be modelled within the whole computational domain. Body-fitted unstructured grid technique is used to fit the geometry and reflect the complexity of the development geometry. A prism layer of 3m above ground (totally 6 layers and each layer of 0.5m thick, shown in Figure 33 is incorporated in the meshing so as to better capture the approaching wind and wind condition at pedestrian level. A mesh expansion ratio of 1.3 is adopted and the blockage ratio was less than 2%.

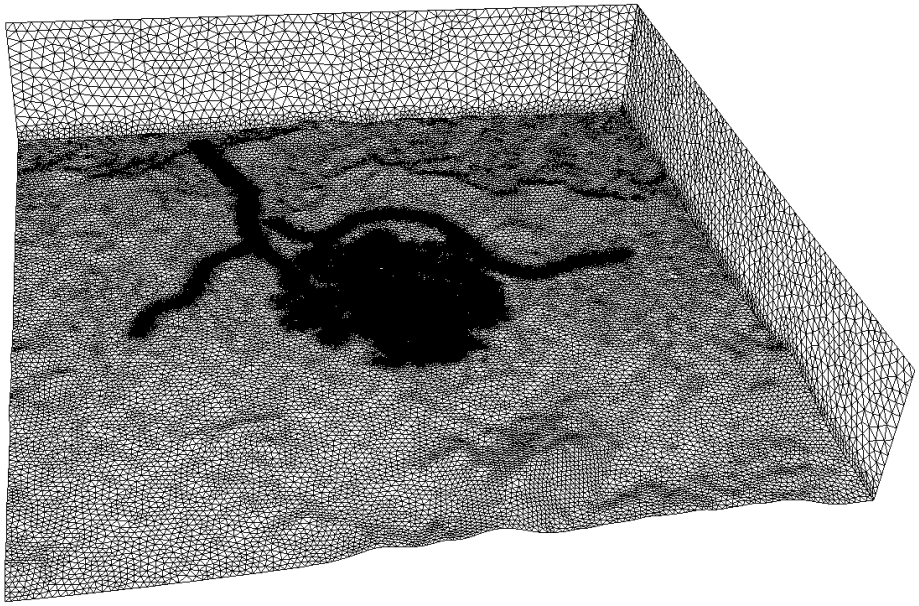


Figure 32 Mesh of Computational Domain

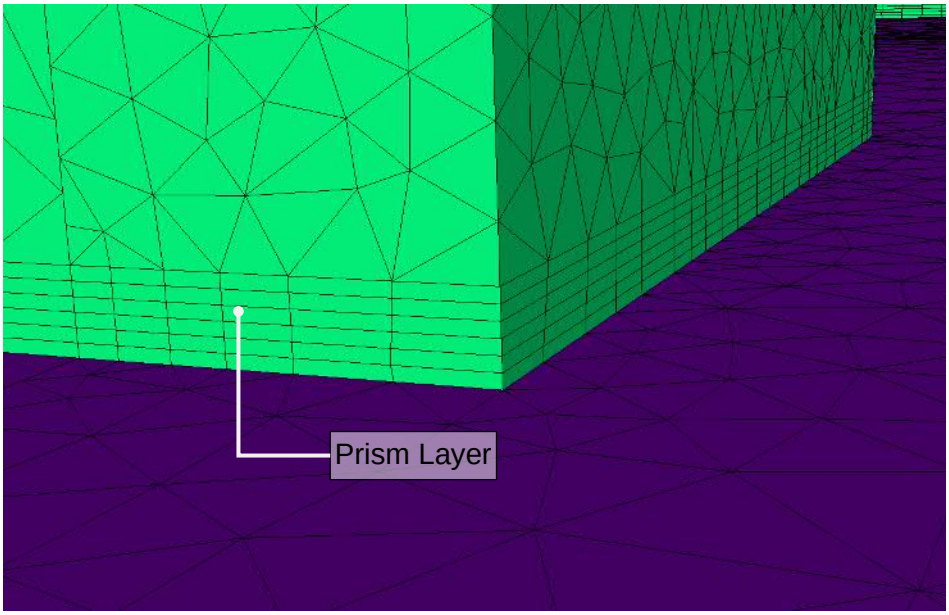


Figure 33 Prism Layers

Table 3 Detail parameters to be adopted in the CFD

	CFD Model
Model Scale	Real Scale model
Model details	Only include Topography, Buildings blocks, Streets/Highways, no landscape is included
Domain	6000m(L) x 6000m(W) x 1250m(H)
Assessment Area	≥ 3H area
Surrounding building Area	≥ 6H area
Grid Expansion Ratio	The grid should satisfy the grid resolution requirement with maximum expansion ratio = 1.3
Prismatic layer	6 layer of prismatic layers and 0.5m each (i.e. total 3m above ground)
Inflow boundary Condition	Incoming wind profile as measured from RAMS
Outflow boundary	Pressure boundary condition with dynamic pressure equal to zero
Wall boundary condition	Logarithmic law boundary
Turbulence Model	Realisable k-ε turbulence model
Solving algorithms	Rhie and Chow SIMPLE for momentum equation Hybrid model for all other equations
Blockage ratio	< 2%
Convergence criteria	Below 1.0E-4

5.3 AVA Indicator

5.3.1 5.3.1 Assessment Parameters

CFD simulations will be conducted to study the wind environment. As specified in the Technical Circular, indicator of ventilation performance should be the Wind Velocity Ratio (VR), defined as the ratio of the wind velocity at the pedestrian level (2m above ground) to the wind velocity at the top of the wind boundary layer. Site spatial average velocity ratio (SVR) and a Local spatial average velocity ratio (LVR) should be determined.

Table 4 Terminology of the AVA Initial

Terminology	Description
Velocity Ratio (VR)	The velocity ratio (VR) represents the ratio of the air velocity at the measurement position to the value at the reference points.
Site spatial average velocity ratio (SVR)	The SVR represent the average VR of all perimeter test points at the site boundary which identified in the report.
Local spatial average velocity ratio (LVR)	The LVR represent the average VR of all points, i.e. perimeter and overall test points at the site boundary which identified in the report.

5.4 Locations of Test Points

As per the technical circular, two types of test points – perimeter test point and overall test point will be adopted to assess the wind performance within the Assessment Area. Special test points are supplemented to assess the effectiveness of the air paths. The allocation of these test points will be distributed evenly as stated in the AVA Technical Circular.

5.4.1 Perimeter Test Points

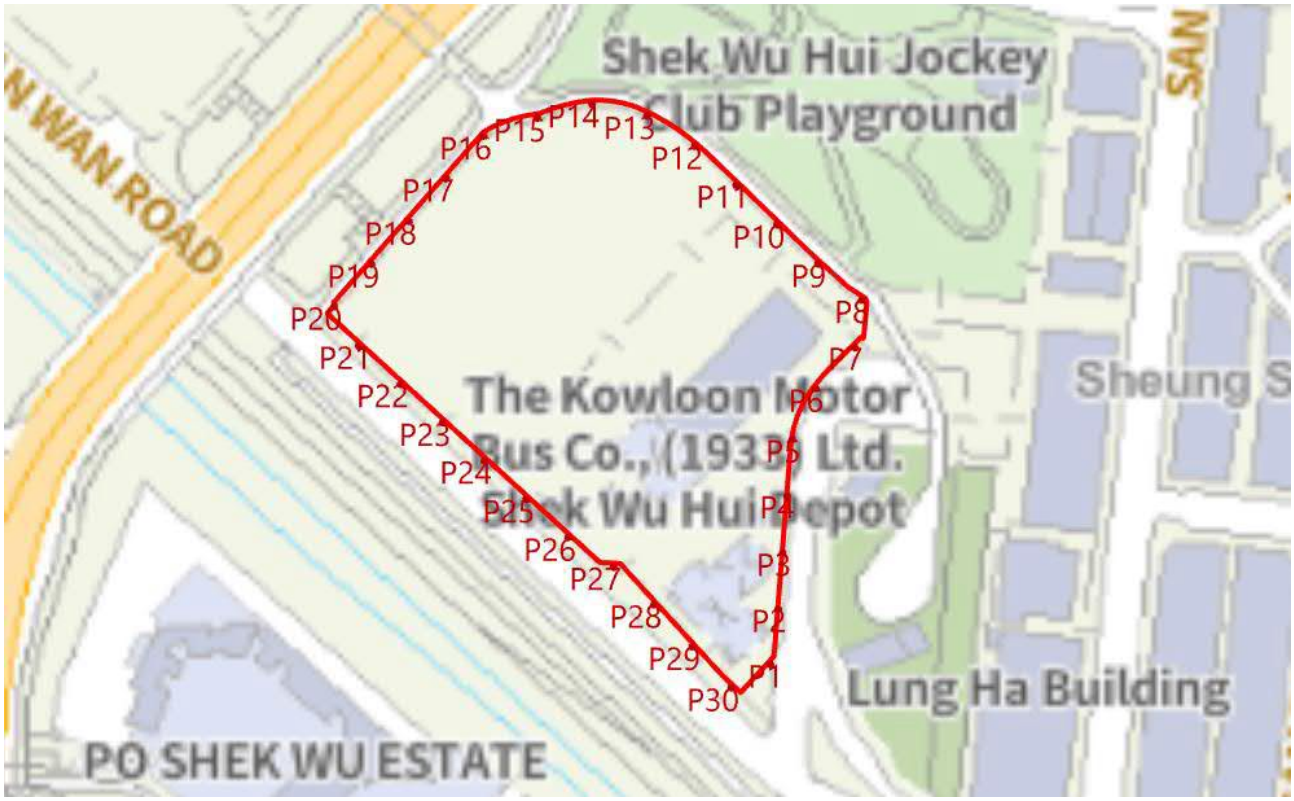
A total number of 30 perimeter test points (red spots), namely P points, are positioned at intervals of around 15m along the project site boundary in accordance with AVA Technical Circular. The locations of perimeter test points are shown below.

5.4.2 Overall Test Points

A total number of 566 overall test points (blue spots), namely O points, are evenly distributed in open areas within the assessment area, such as the streets and places where pedestrian frequently access. Their locations are shown below.

5.4.2 Special Test Points

A total number of 14 special test points (green spots), namely S points, are evenly distributed at pedestrian levels of wind enhancement features such as the air paths and empty bay. Their locations are shown below.



Site Boundary

P21 Perimeter Test Points

Figure 34 Location of Perimeter Points

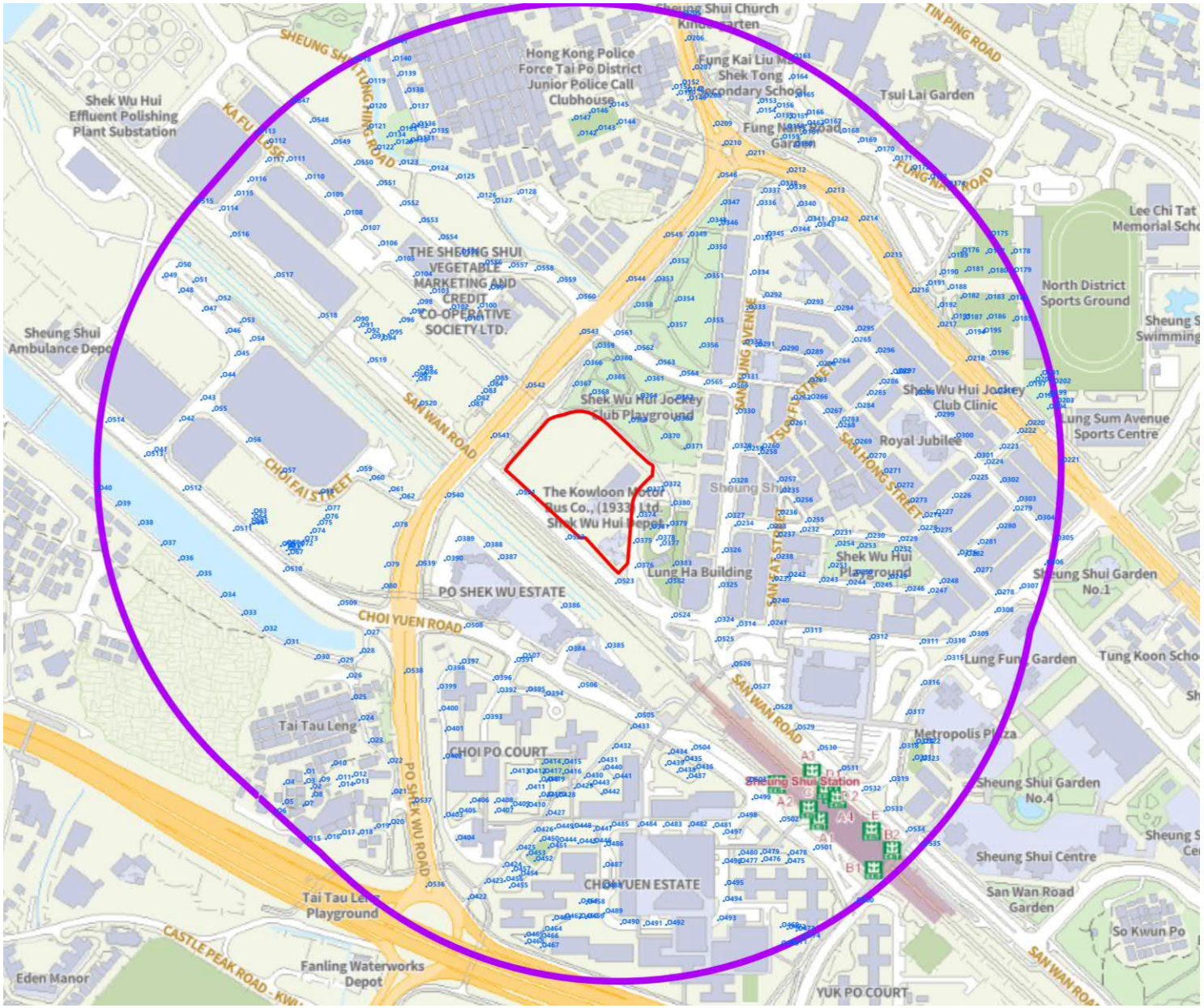
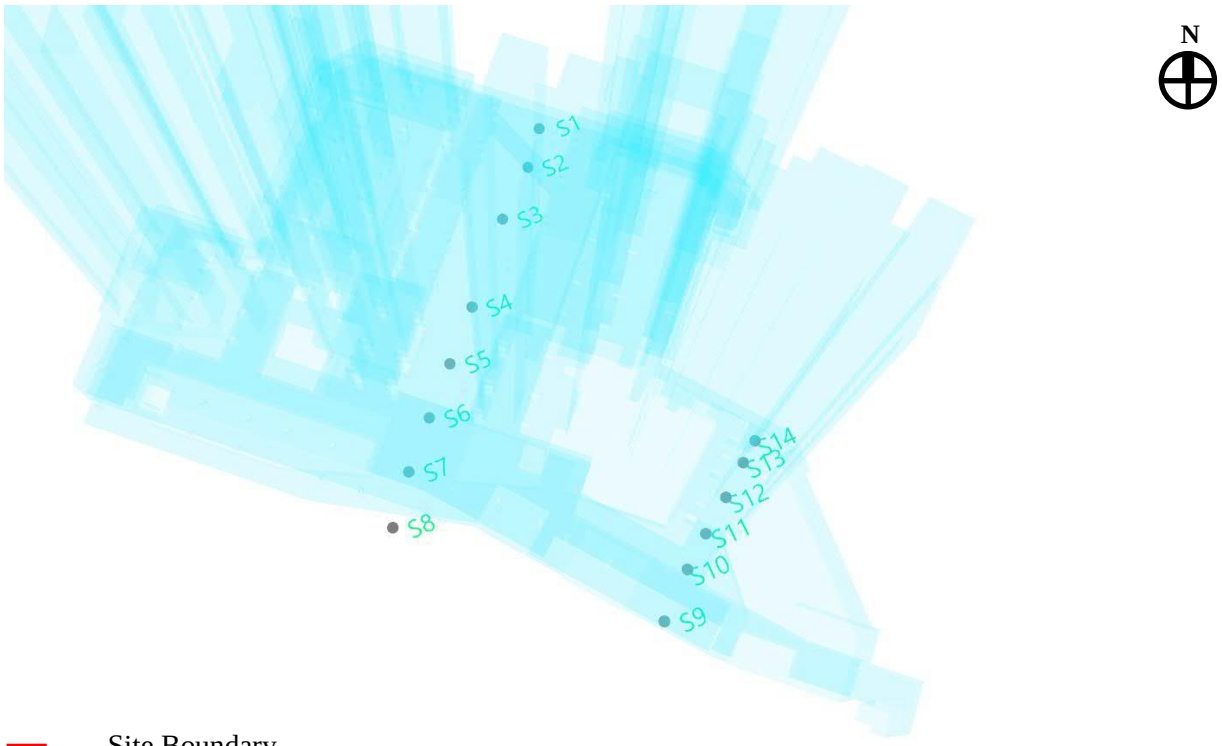

Site Boundary
Assessment Area (1H)
O13 Overall Test Points
Hong Kong Police Force Tai Po District Junior Police Call Clubhouse
Shek Wu Hui Effluent Polishing Plant Substation
THE SHEUNG SHUI VEGETABLE MARKETING AND CREDIT CO-OPERATIVE SOCIETY LTD.
Sheung Shui Ambulance Depot
Shek Wu Hui Jockey Club Playground
The Kowloon Motor Bus Co., (1933) Ltd. Shek Wu Hui Depot
Lung Ha Building
PO SHEK WU ESTATE
CHOI PO COURT
CHOI YUEN ESTATE
YUK PO COURT
Tai Tau Leng
Tai Tau Leng Playground
Fanling Waterworks Depot
Eden Manor
Tsui Lai Garden
Fung Nam Road Garden
North District Sports Ground
Shek Wu Hui Jockey Club Clinic
Lung Sum Avenue Sports Centre
Royal Jubilee
Shek Wu Hui Playground
Sheung Shui Garden No.1
Lung Fung Garden
Metropolis Plaza
Sheung Shui Station
Sheung Shui Garden No.4
Sheung Shui Centre
San Wan Road Garden
So Kwun Po
SHEUNG SHUI TUNG NING ROAD
KA FU ESTATE
TIN PING ROAD
FUNG KAI ROAD
SANG NGAI AVENUE
SAN FUNG STREET
SAN TONG STREET
SAN WAN ROAD
CHOI FAI STREET
CHOI YUEN ROAD
PO SHEK WU ROAD
CASTLE PEAK ROAD - KWU

Figure 35 Location of Overall Points



Site Boundary

S3 Special Test Points

Figure 36 Location of Special Points

5.5 Focus Area

There are a total of 38 focus areas are within the assessment area. The associated test points for focus areas are tabulated below. The location of the focus areas area shown in Figure 37.

Table 5 Focus Areas and Corresponding Test Points

	Focus Area	Test Points
1	Tai Tau Leng	O1-O27
2	Village Road	O28-O40
3	Choi Fat Street	O41-O52
4	Choi Fai Street	O53-O62
5	Planned Sheung Shui Areas 4 and 30 Site 1	O63-O80
6	Planned Sheung Shui Areas 4 and 30 Site 2	O81-O98
7	Ka Fu Close	O99-O113
8	Cheuk Wan St	O114-O117
9	Po Sheung Tsuen	O118-O152
10	Fung Kai Liu Man Shek Tong Secondary Shool	O153-O156
11	Fung Nam Road Garden	O157-O162
12	Fu Nam Rd	O163-O174
13	North District Sports Ground Playground	O175-O204
14	Jockey Club Rd	O205-O221
15	Fu Hing St	O222-O234
16	San Fat St	O235-O241
17	San Lok St	O242-O248
18	Shek Wu Hui Playground	O249-O254
19	San Tsoi St	O255-O259
20	Tsun Fu St	O260-O265
21	San Hong St	O266-O278
22	San Cheung St	O279-O282
23	San Kung St	O283-O287
24	San Kin St	O288-O291
25	San Shing Ave	O292-O305
26	Lung Sum Avenue	O306-O314

	Focus Area	Test Points
27	Lung Wan St	O315-O319
28	North District Town Hall Basketball Court	O320-O323
29	Sun Fung Ave	O324-O345
30	Shek Wu Hui Jockey Club Playground	O346-O371
31	Bike Kiosk	O372-O383
32	Po Shek Wu Estate	O384-O390
33	Choi Po Court	O391-O421
34	Choi Yuen Estate	O422-O499
35	Choi Yuen Rd	O500-O514
36	San Wan Rd	O515-O535
37	Po Shek Wu Rd	O536-O546
38	Po Wan Rd	O547-O566
39	Wind Enhancement Measure 1	S1-S8
40	Wind Enhancement Measure 2	S9-S14

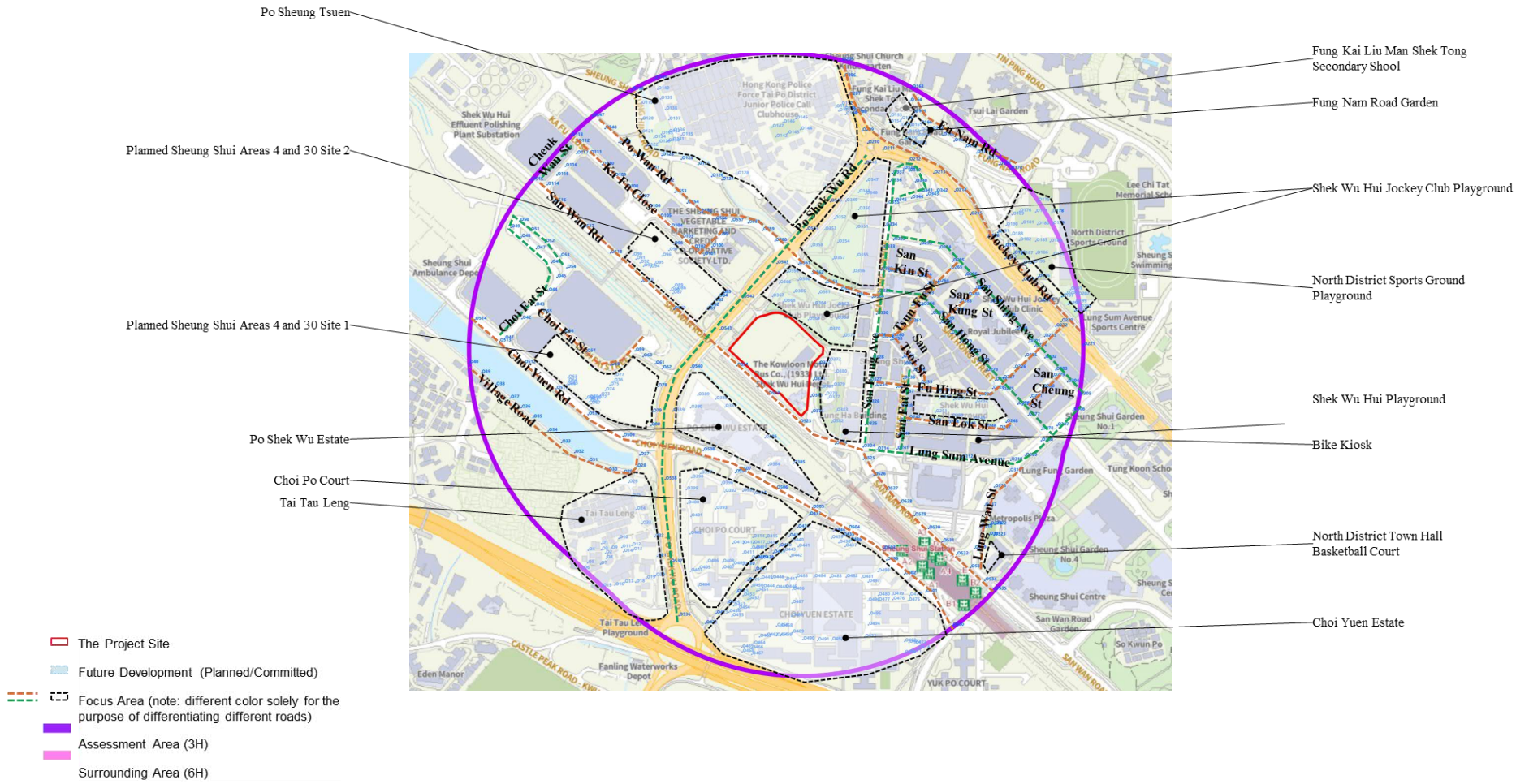


Figure 37 Location of Focus Areas outside the Application Site

6. Results and Discussion

6.1 Overview

The full set of contour and vector plots for are presented in Appendix C of the report.

6.1.1 Overall Ventilation Performance under Annual Wind Condition

The contour plots of annual weighted VR for the Baseline Scheme and Proposed Scheme are shown in Figure 38 and Figure 39.

Under annual condition, the majority of the prevailing wind would arrive at the Development from the eastern quadrant flowing over the generally low-rise eastern surroundings of the Development. A few mid-rise eastern surrounding buildings would impede a small portion of prevailing wind. Overall, the prevailing wind could reach the Development relatively freely.

The taller building under Proposed Scheme would be able to downwash more prevailing wind reaching the eastern facades of the Development, which would in turn allow for more ventilation at its immediate upwind surroundings, such as the Bike Kiosk, Shek Wu Hui Jockey Club Playgrounds etc.

Under both schemes the 15m air path between the two towers would enhance permeability of the Development and allow for prevailing to penetrate to the leeward area. However, under Proposed Scheme, the narrower tower separation in the northeastrern portion of the Development would increase the channelling effect for prevailing wind passing through, thereby accelerating the wind penetrating to the leeward area. The wind environment at the leeward area could therefore be enhanced, such as San Wan Road.

On the other hand, the provision of a 15m wide air path between Block B and the lift tower under Baseline Scheme, as compared to a 7m empty bay under Proposed Scheme, would allow for more pedestrian level wind flowing from the eastern site boundary to San Wan Road, providing a slightly higher VR there. This would however be mitigated by the naturally ventilated carpark under Proposed Scheme, which would enhance the permeability of the Development, allowing more prevailing to penetrate through the Development at low level.

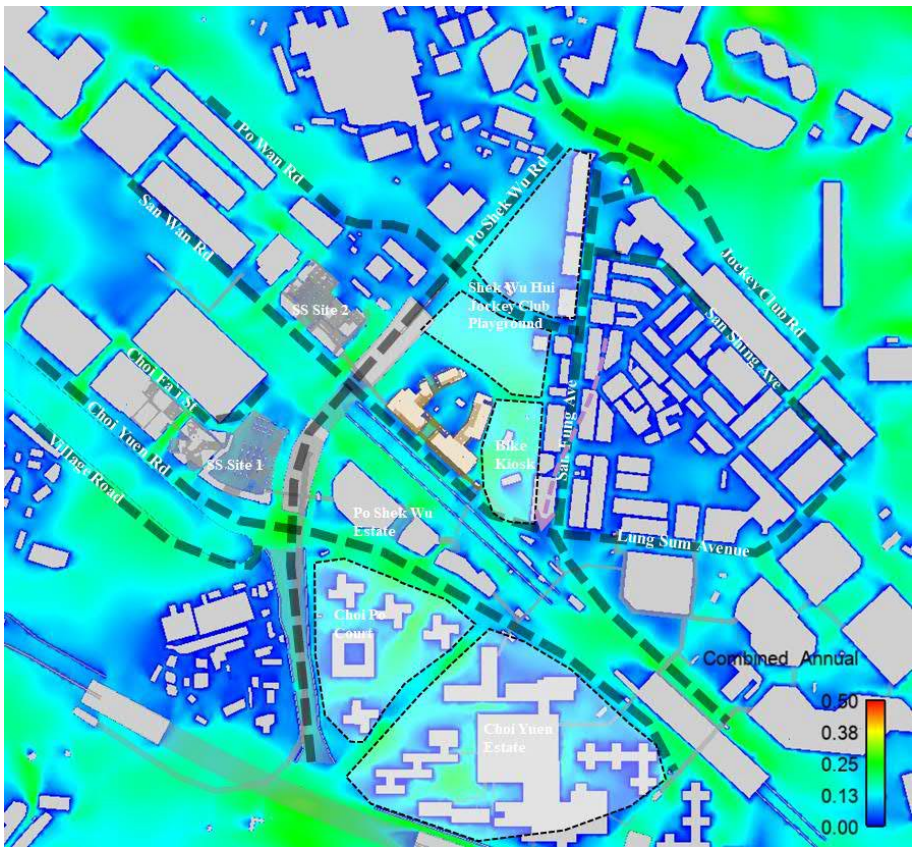


Figure 38 Contour Plot for Annual Weighted Average VR for Baseline Scheme

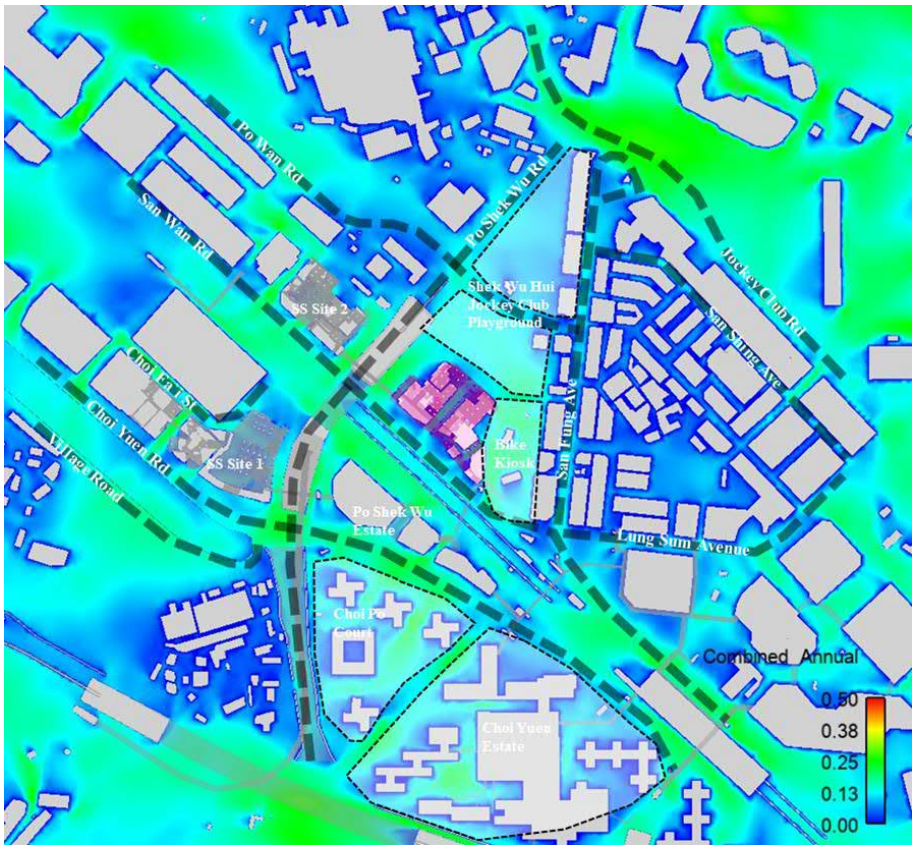


Figure 39 Contour Plot for Annual Weighted Average VR for Proposed Scheme

6.1.2 Overall Ventilation Performance under Summer Wind Condition

The contour plots of summer weighted VR for the Baseline Scheme and Proposed Scheme are shown in Figure 40 and Figure 41.

Under summer condition, prevailing wind would arrive mainly from the southwestern quadrant. As compared to annual condition, the wind environment would be relatively dominated by the windward surrounding environment as it comprises mainly of mid-rise and high-rise buildings including SS Site 1, Po Shek Wu Estate etc. A wind shadow would be created to the northeast of the Development. The wind environment would be overall relatively calm, and similar between Baseline and Proposed.

The taller building under Proposed Scheme would be able to downwash more prevailing wind reaching the southern facades of the Development, which would in turn allow for more ventilation at its immediate surroundings such as a localised portion of San Wan Road.

On the other hand, the building disposition of Baseline Scheme would allow for more wind to be diverted towards northeast, which would in ventilate the immediate northeastern surroundings of the Development such as Shek Wu Hui Jockey Club Playground and a localised portion of Po Wan Road under southwestern summer prevailing wind.

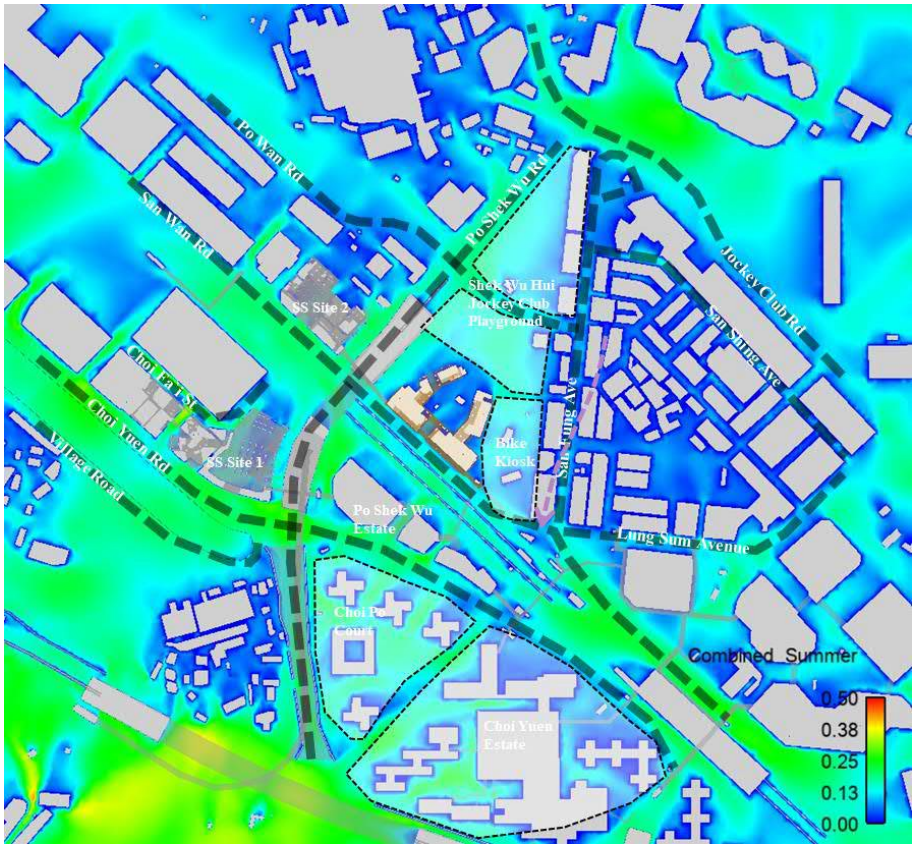


Figure 40 Contour Plot for Summer Weighted Average VR for Baseline Scheme

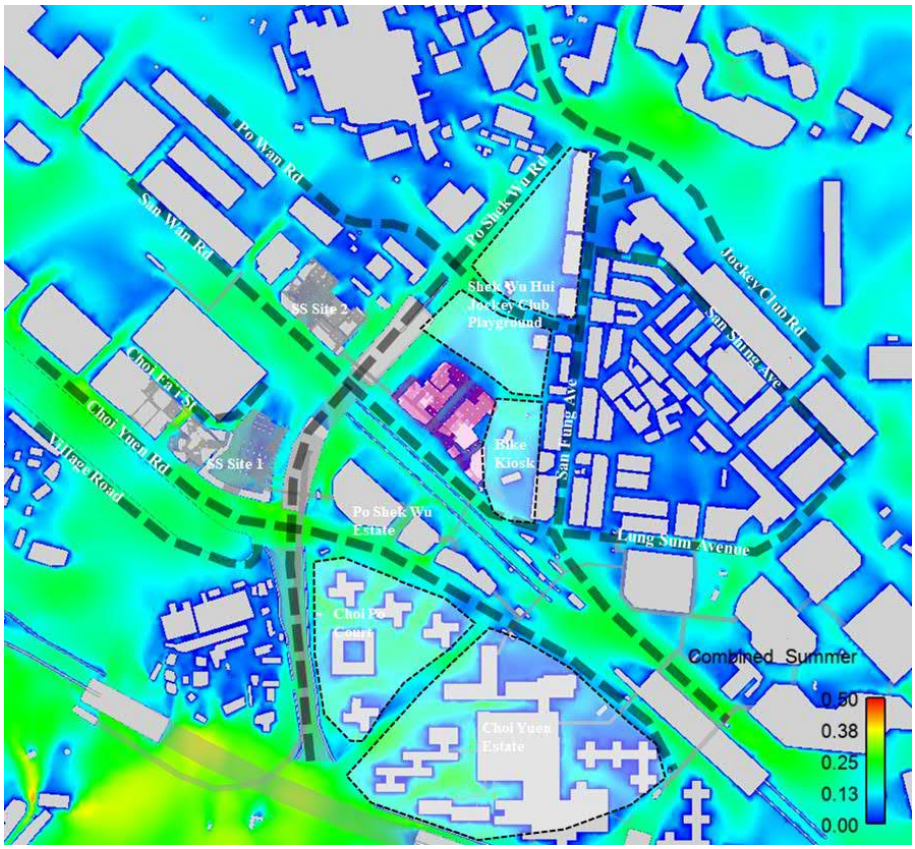


Figure 41 Contour Plot for Summer Weighted Average VR for Proposed Scheme

6.2 Directional Analysis

6.2.1 NNE Wind Direction

The NNE wind contributes to 6.4% of the annual wind and 2.3% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under NNE wind are presented below.

As the Development has an open northeastern surrounding environment, NNE wind could flow relatively freely to across open spaces such as the Shek Wu Hui Jockey Club Playground and stream along Po Shek Wu Road (**Grey Arrows**) and reach the northeast boundary of the Development.

In general the wind environment is enhanced along the site boundary under Proposed Scheme as compared to Baseline Scheme due to the increased downwashed effect from a taller Proposed Scheme; the leeward area would see a slightly calmer wind environment under Proposed Scheme as compared to Baseline Scheme.

Baseline Scheme

Under both schemes, prevailing wind would be diverted by the buildings to flow along its eastern site boundary and reach the eastern tower of Choi Po Court and be downwashed. However, under Proposed Scheme, a longer façade area along the northeastern site boundary would divert wind away from the eastern site boundary, thus allowing less wind flow to directly towards the eastern tower of Choi Po Court to be downwashed, which would in turn result in a higher VR in Choi Po court itself and Choi Yuen Road under Baseline Scheme (**Purple Arrows** & **White Circle**).

Proposed Scheme

Under both schemes, the northeastern façade of the Development would capture and downwash mid and high level prevailing wind to the pedestrian level, which would then flow around the Development on the western and eastern site boundary. Under Proposed Scheme, with taller towers, more prevailing wind could be downwashed to the pedestrian level, hence an enhanced wind environment at areas abutting the western and eastern site boundary such as Bike Kiosk and Shek Wu Hui Jockey Club Playground (**Black Circles and Black Arrows**). A portion of increased downwashed wind would also be able to penetrate through the permeable podium of the Development and reach San Wan Road to ventilate the portion of it immediate southwest of the Development (**Black Arrow**).

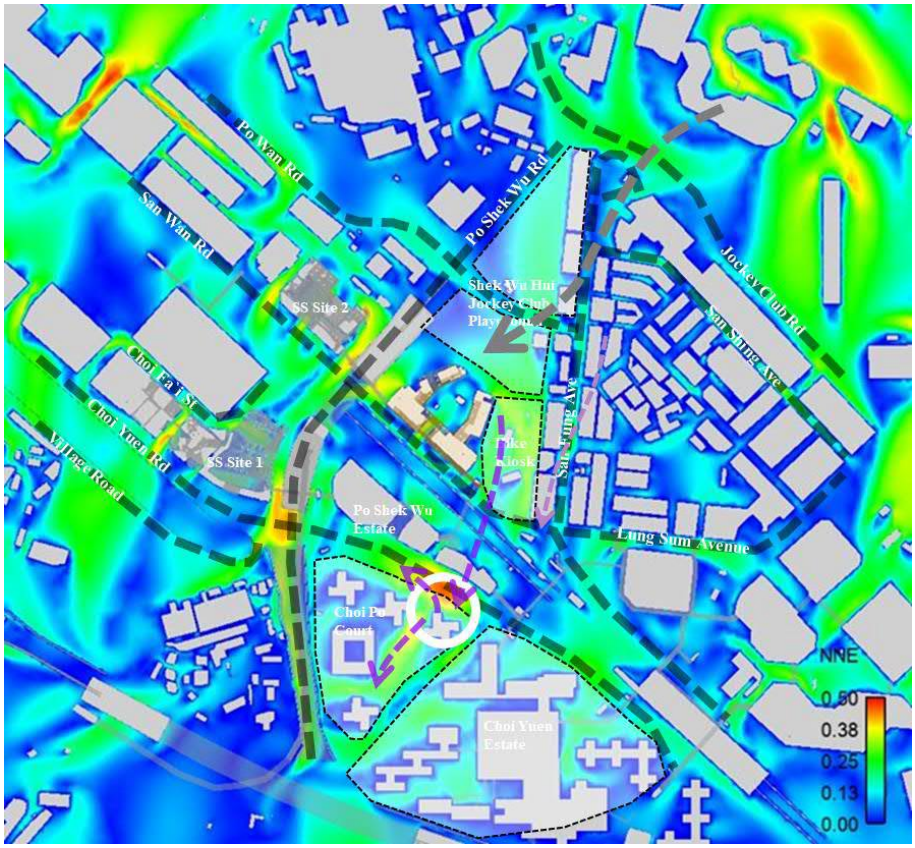


Figure 42 Contour Plot of VR for Baseline Scheme under NNE Wind

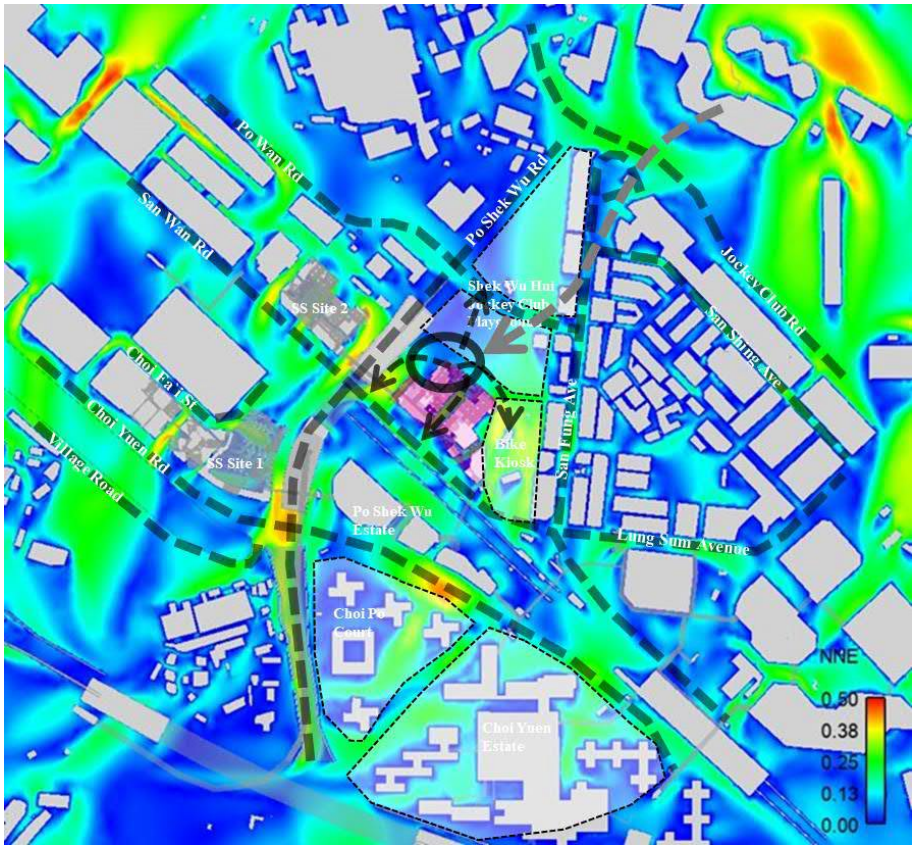


Figure 43 Contour Plot of VR for Proposed Scheme under NNE Wind

6.2.2 NE Wind Direction

The NE wind contributes to 7.5% of the annual wind and 1.5% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under NNE wind are presented below.

As the Development has an open northeastern surrounding environment, NE wind would generally reach the northeast boundary of the Development freely, from mainly Po Shek Wu Road, atop the northeastern low-rise cluster, as well as the open spaces such as the Shek Wu Hui Jockey Club Playground (**Grey Arrows**).

The general wind environment is found to be similar between the Baseline Scheme and Proposed Scheme. A different building height and disposition between the two schemes would nevertheless induce localised differences in performance in the leeward area as well as some immediate upwind locations.

Baseline Scheme

Under both schemes, a portion of prevailing wind reaching the Development would be downwashed to the pedestrian level by the northeastern façade, which would be diverted to flow along eastern site boundary of the Development and then further to San Wan Road. Under Baseline Scheme, the podium structure would be relatively less bulky with a 15m wide air path open from ground level between the lift tower and the podium, as compared to the 7m wide G/F empty bay under Proposed Scheme. Hence, under Baseline Scheme, more pedestrian level wind could penetrate through the Development to reach San Wan Road (**White Arrows**), creating a slightly higher VR there.

In addition, under both schemes, prevailing wind would be diverted by the buildings to flow along its eastern site boundary and reach the eastern portion of Po Shek Wu Estate and be downwashed. However, under Proposed Scheme, a longer façade area along the northeastern site boundary would divert wind away from the eastern site boundary, thus allowing less wind flow to directly towards the eastern tower of Choi Po Court to be downwashed, which would in turn result in a higher VR at a localised portion of San Wan Road under Baseline Scheme (**Purple Arrows** & **White Circle**).

On the other hand, under both schemes, high level prevailing wind would flow on the west of the Development and

Proposed Scheme

Under both schemes, the said downwashed wind at the northeastern façade of the Development would ventilate the immediate surroundings such as Bike Kiosk and Shek Wu Hui Jockey Club Playground. With a higher building height and a longer northeastern tower façade under Proposed Scheme, the downwash effect would be more significant (**Black Circle and Arrow**), providing said area with more ventilation.

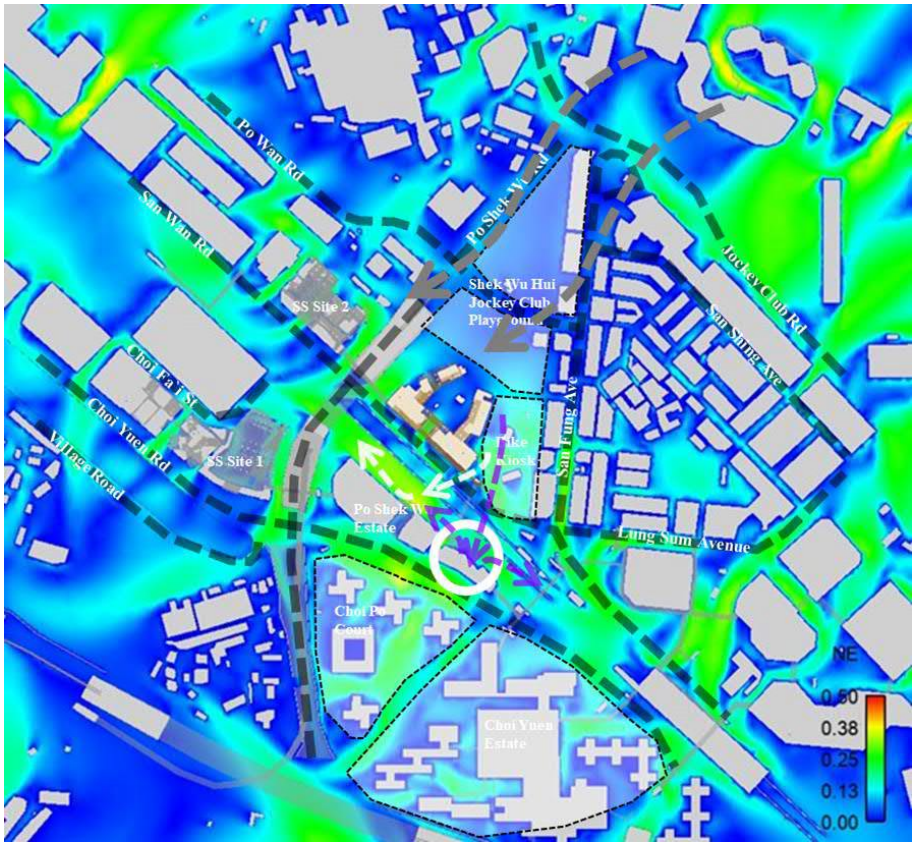


Figure 44 Contour Plot of VR for Baseline Scheme under NE Wind

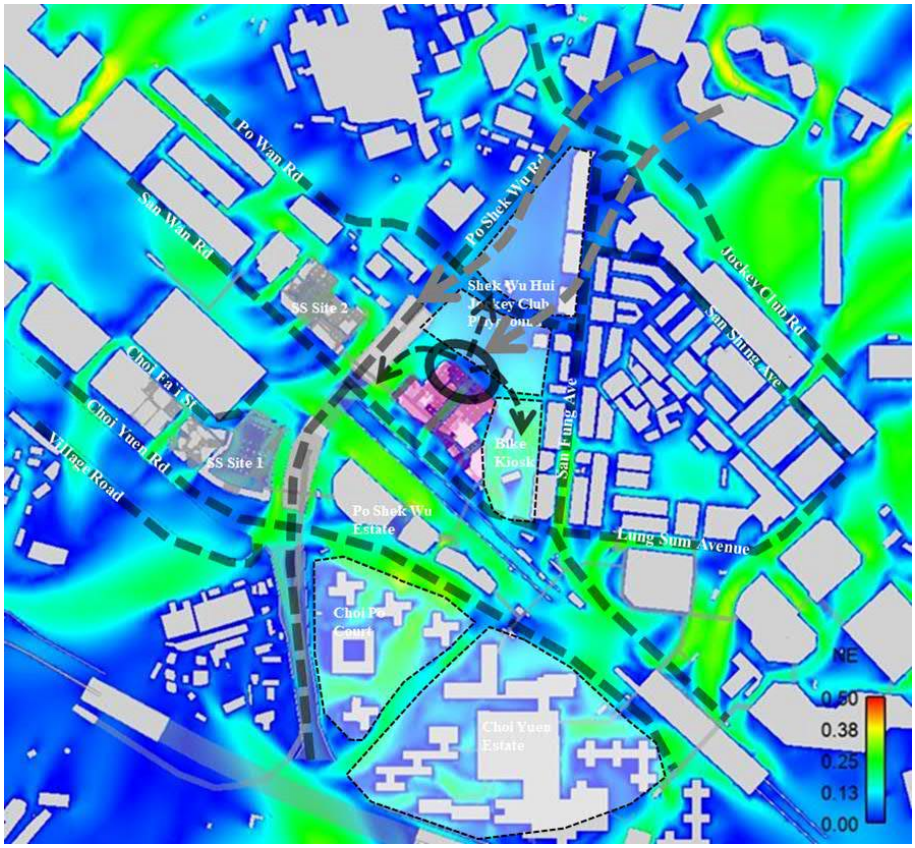


Figure 45 Contour Plot of VR for Proposed Scheme under NE Wind

6.2.3 ENE Wind Direction

The ENE wind contributes to 11.1% of the annual wind and 2.3% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under ENE wind are presented below.

Under ENE wind, a portion of incoming wind would skim over the generally low-rise cluster to the east-northeast of the Development and reach the development (**Grey Arrows**).

In general, a similar pattern and performance is found between Baseline and Proposed Scheme, a slightly enhanced wind environment can be observed under Proposed Scheme along the western and eastern site boundary.

Baseline Scheme

Under both scheme a portion of mid and high level incoming wind would penetrate through the tower separation in the development. A narrower tower separation at the center and northeast of the Development under Proposed Scheme would increase the channelling effect, thereby allowing for more mid and high level prevailing wind to pass through the tower separation (**Red Arrow**). In contrast, under Baseline Scheme, with less prevailing wind being channelled through the tower separation, more wind would be diverted to travel on the northwest of the Development; it would travel further towards the southwest where Tai Tau Leng and Village Road are located (**Purple Arrow**), thereby increasing the VR there under Baseline Scheme.

Proposed Scheme

Under both schemes, a portion of mid and high level incoming wind would be downwashed by the northeastern façade of the development to pedestrian level and would be diverted towards Bike Kiosk and San Wan Road. With a taller building height under Proposed Scheme, more downwashed wind would stream along Bike Kiosk and eastern part of San Wan Road, as well as stream towards Shek Wu hui Jockey Club Playground (**Black Arrow** & **Black circle**).

In addition, under both schemes, pedestrian level wind arriving at the Development would be diverted by Block A of the Devleopment to travel along its northwestern side. Under Proposed Scheme, the bulkier podium as comapred to that under Baselien Scheme would divert more wind towards said area, a larger acceleration around the corner of Block A is also observed. Coupled with said increased downwash effect, the VR is would be higher at tthe northwestern site boudnary as well as a localised portion of San Wan Road (**White Arrow**).

On the other hand, the aforementioned increased amount of previaling wind travelling through the tower separation under Baselien Scheme would be downwashed by Po Shek Wu Estate onto San Wan Road, thereby providing ventialtion for a localised portion of it, increasing the VR there (**Red Circle & Red Arrows**).

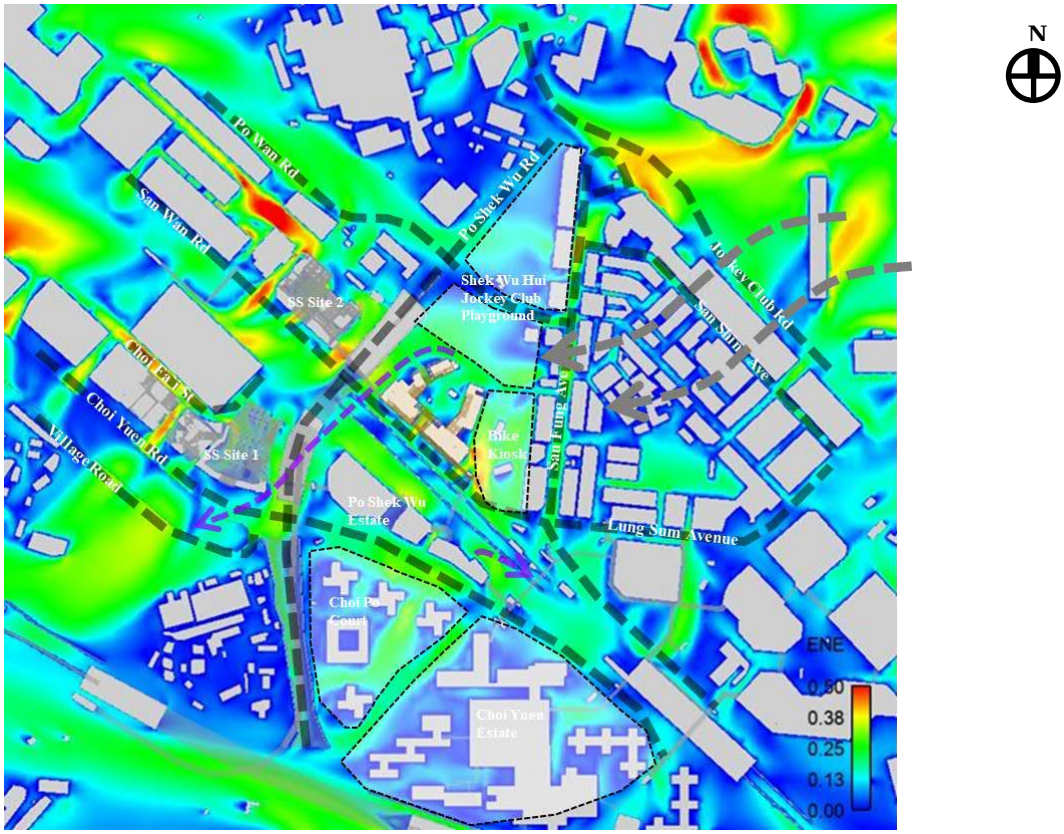


Figure 46 Contour Plot of VR for Baseline Scheme under ENE Wind

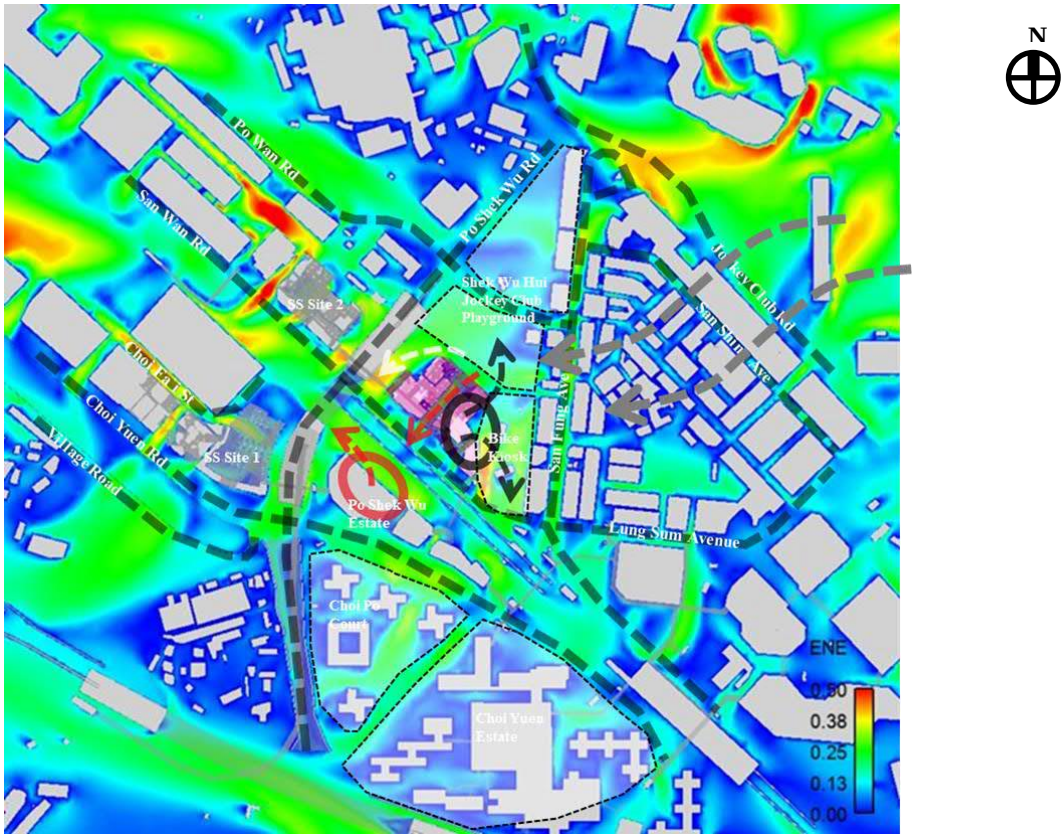


Figure 47 Contour Plot of VR for Proposed Scheme under ENE Wind

6.2.4 E Wind Direction

The E wind contributes to 17.2% of the annual wind and 7.6% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under E wind are presented below.

To the east of the Development would be mainly low-rise buildings and open area such as Bike Kiosk and Shek Wu Hui Jockey Club Playground; despite the presence of a few mid-rise buildings, prevailing wind could generally flow freely to reach the Development.

In generally the two schemes have similar flow patterns, however, the VR is observed to be slightly higher at the focus areas under Baseline Scheme.

Baseline Scheme

Better wind environment is observed along San Wan Road in Baseline Scheme. Under both schemes, a portion of prevailing wind reaching the Development would be downwashed by the eastern façade to the pedestrian level, a portion of which would be diverted to flow towards San Wan Road. Under Baseline Scheme, the downwashed wind could reach San Wan Road through a 15m wide full height air path (**White Arrows**), as compared to a 7m wide G/F empty bay under Proposed Scheme; this would allow for more wind under Baseline Scheme to penetrate through the Development to reach San Wan Road and enhance the environment there. This could be mitigated under Proposed Scheme through its permeable podium and naturally ventilated carpark design.

As the orientation of the Baseline Scheme Block B eastern façade places it against E wind more directly than it would in Proposed Scheme, the aforementioned downwashing would be relatively more significant. Because portion of the downwashed wind would flow towards the immediate eastern surroundings of the Development, including the Bike Kiosk and Shek Wu Hui Jockey Club Playground, these areas would have an increased VR under Baseline Scheme (**Black Circle and Arrow**).

Under both schemes, prevailing wind would flow across the North District Sports Ground and reach Jockey Club Road as well as Fung Kai Liu Man Shek Tong Secondary School and Fung Nam Road Garden; however, simultaneously, a portion of aforementioned downwashed wind would travel from the Development across the Shek Wu Hui Jockey Club Playground towards north, and limit the flow. Due it's the increased downwash under Baseline Scheme, the limiting effect would be greater, hence a slightly lower VR in said areas such as Fung Nam Road Garden under Baseline Scheme (**Pink Arrows** & **Pink Circle**).

Proposed Scheme

Under Proposed Scheme, however, more downwashing would be observed on the northern part of the Development (White Arrow and Circle), where the façade is facing relatively away from the prevailing wind and the height of the tower has a more significant effect. In this case, more wind would be available to northwester site boundary of the Development, thereby enhancing the wind environment there (**Purple Circle and Arrows**).

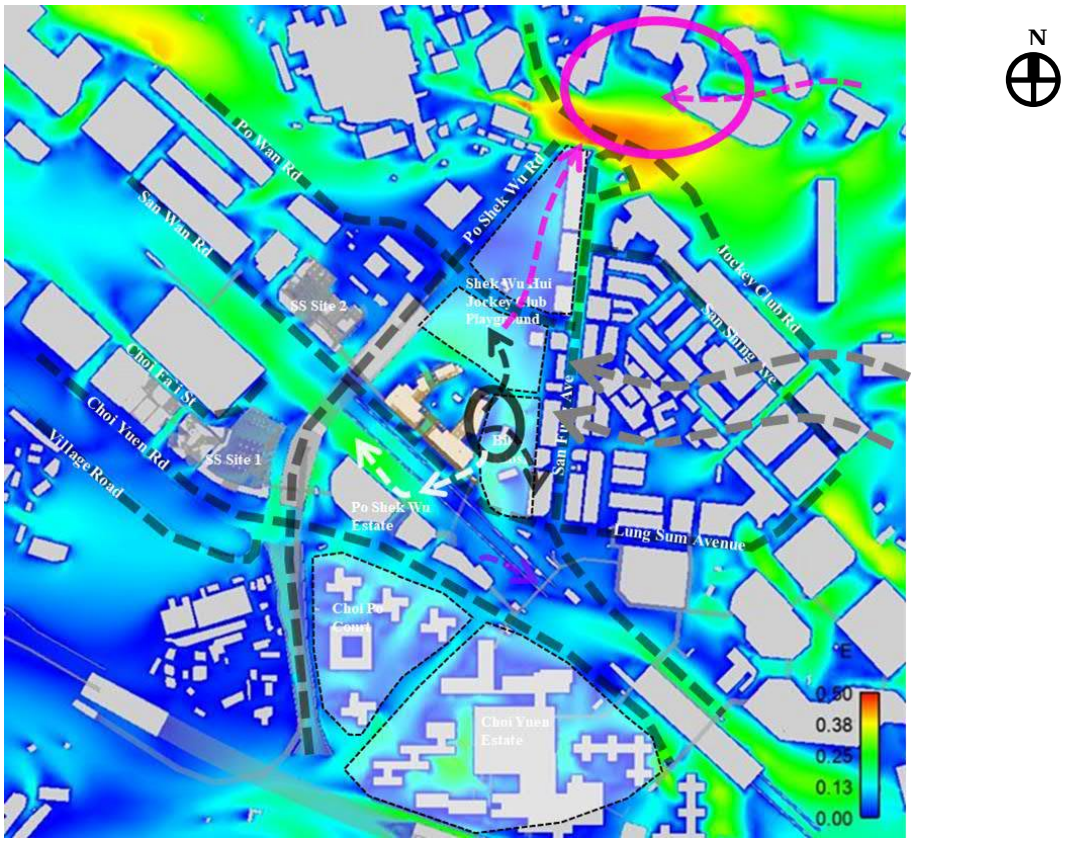


Figure 48 Contour Plot of VR for Baseline Scheme under E Wind

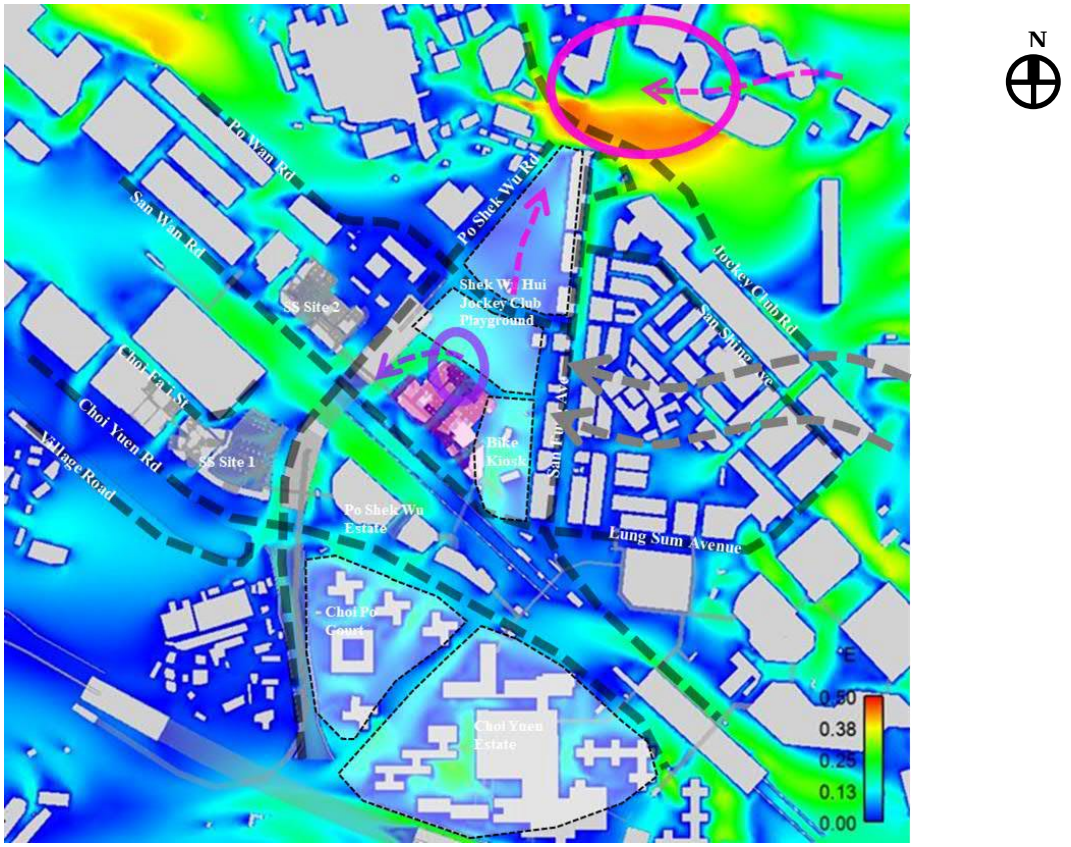


Figure 49 Contour Plot of VR for Proposed Scheme under E Wind

6.2.5 ESE Wind Direction

The ESE wind contributes to 14.7% of the annual wind and 10.2% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under ESE wind are presented below.

ESE wind would flow around the mid-rise to the east-southeast of the Development and flow towards the Development in two ways. While a portion of the ESE incoming wind would travel along San Wan Road to reach the southern boundary of the development, another portion would flow over the low-rise buildings to the east of the Development to reach it (**Grey Arrows**).

In general, the ventilation performance would be slightly enhanced under Proposed Scheme.

Proposed Scheme

Under both schemes, prevailing would be captured and downwashed by the eastern façade of Block B to the pedestrian level and be diverted towards its immediate surrounding such as the Bike Kiosk, Shek Wu Hui Jockey Club Playground, and San Fung Avenue. Since Proposed Scheme is taller than Baseline Scheme, the said downwash effect would be more significant, thus more wind would be available at the mentioned areas, creating a higher VR there (**Green Circle & Arrows**).

On the other hand, under both schemes, prevailing wind would flow on southwest of the Development along San Wan Road and on northeast of the Development across the Shek Wu Hui Jockey Club Playground towards northwest surroundings such as SS Site 2. Due to the fact that under Proposed Scheme there is increased building setback at both southwest and northeast site boundaries, increased amount of said flow would be observed, thereby increasing VR at locations reached by said flow (**Pink Arrows**), such as San Wan Road itself as well as SS Site 2 and Ka Fu Close.

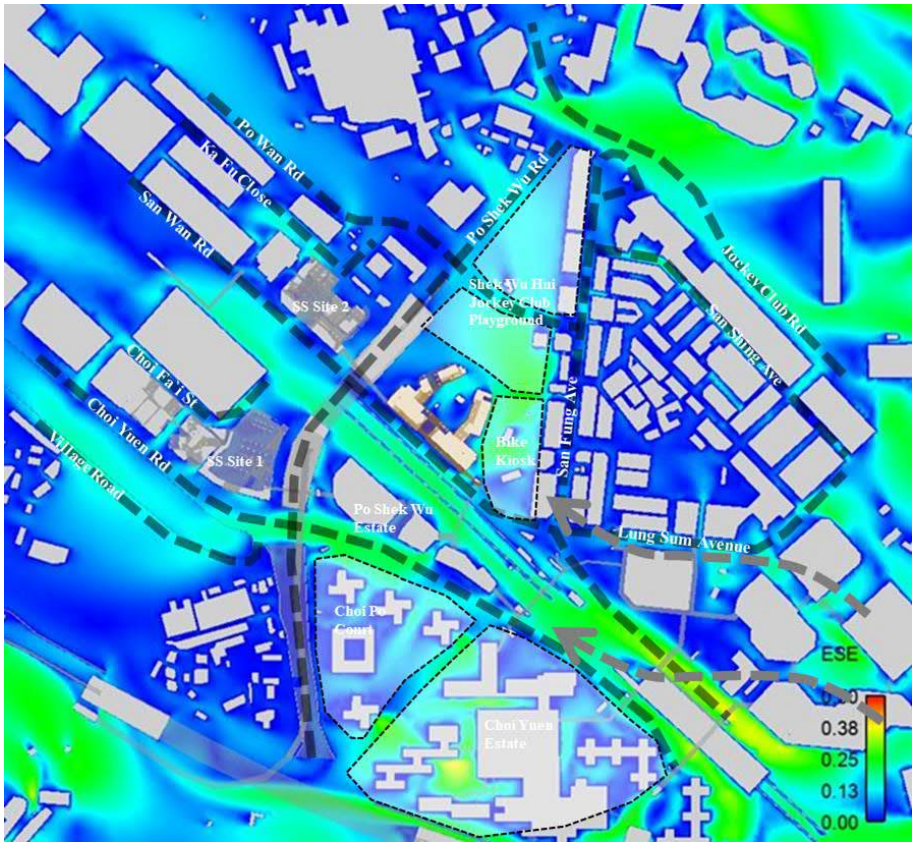


Figure 50 Contour Plot of VR for Baseline Scheme under ESE Wind.

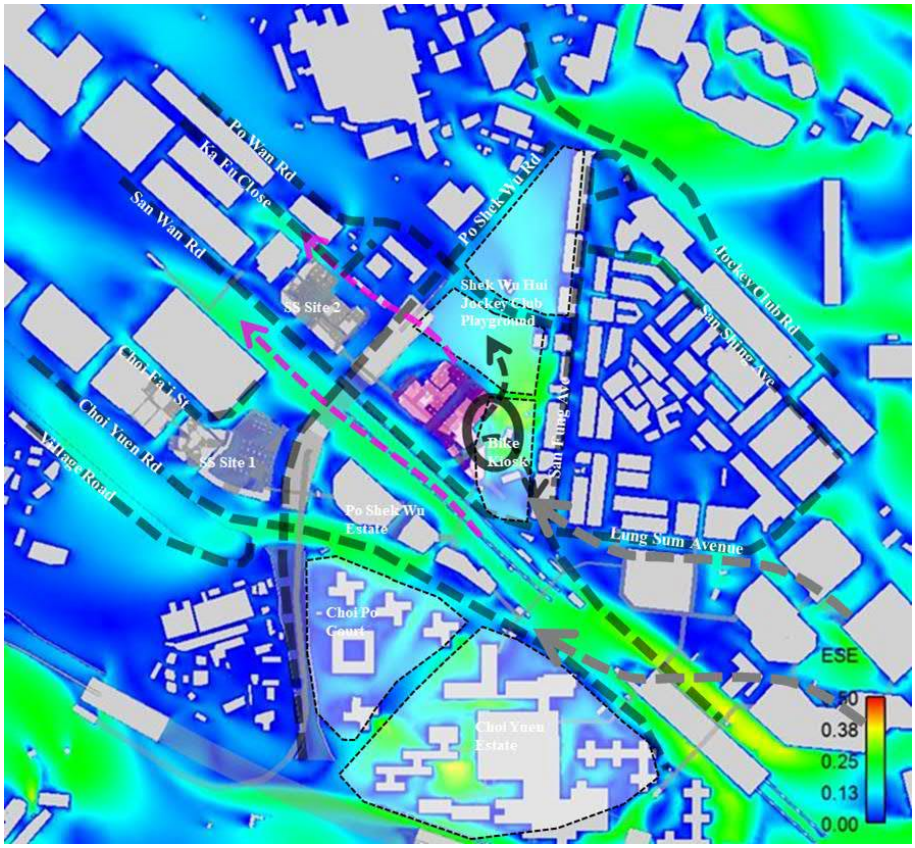


Figure 51 Contour Plot of VR for Proposed Scheme under ESE Wind

6.2.6 SE Wind Direction

The SE wind contributes to 8.7% of the annual wind and 8.7% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under SE wind are presented below.

Under SE wind conditions, the incoming wind would skim over mid-rise buildings as well as travel along San Wan Road to reach the Development (**Grey Arrows**). Leeward area is expected to have a slightly enhanced wind environment under Proposed Scheme whereas localised immediate upwind area would have a slightly higher VR under Baseline Scheme..

Baseline Scheme

In both schemes, mid and high level incoming wind could would be captured and downwashed by the eastern façade of the Development to the pedestrian level to ventilate the immediate eastern surroundings such as Bike Kiosk and a localised portion of San Wan Road. Under Proposed Scheme, due to an increased setback from the southwestern site boundary, the prevailing wind is relatively more hindered by the southwestern mid and high-rises as compared to Baseline Scheme, in that under Baseline Scheme, the prevailing could reach the eastern façade of the Development more directly (**Red Arrows**). Therefore, the downwash effect would be more significant under Baseline Scheme (**Black Circle** & **Black Arrows**), creating a higher VR at said areas.

Proposed Scheme

Similar to ESE wind, under both schemes, prevailing wind would flow on southwest of the Development along San Wan Road and on northeast of the Development across the Shek Wu Hui Jockey Club Playground towards northwest surroundings such as SS Site 2. Due to the fact that under Proposed Scheme there is increased building setback at both southwest and northeast site boundaries, increased amount of said flow would be observed, thereby increasing VR at locations reached by said flow (**Pink Arrows**), such as San Wan Road itself as well as SS Site 2 and Ka Fu Close.

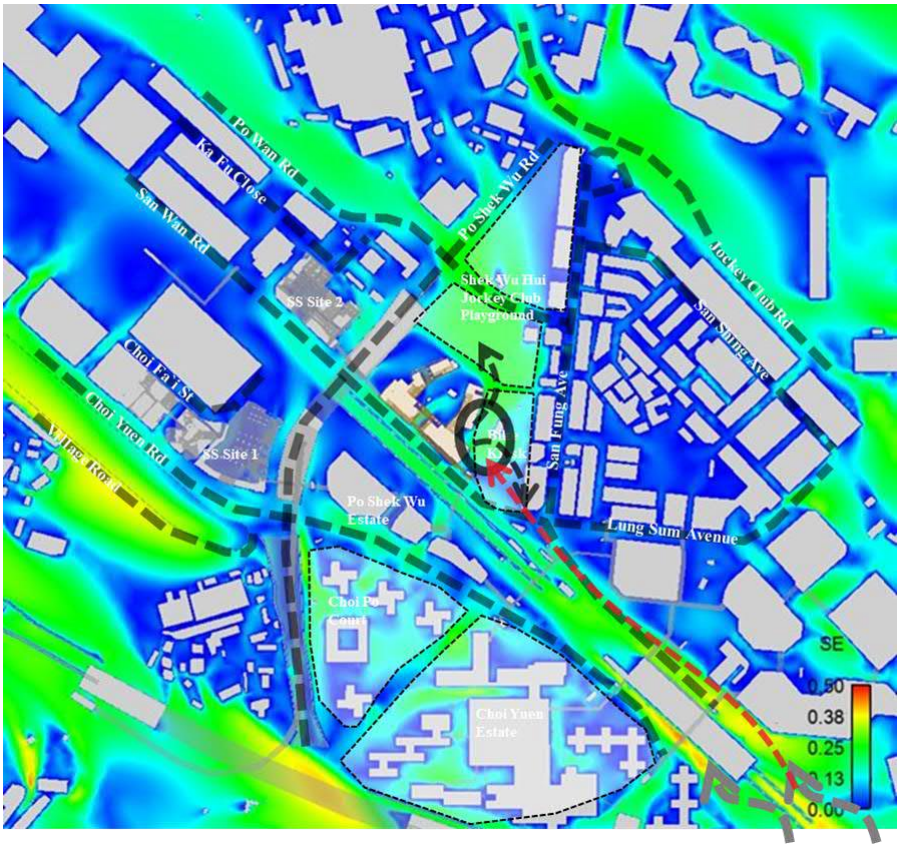


Figure 52 Contour Plot of VR for Baseline Scheme under SE Wind

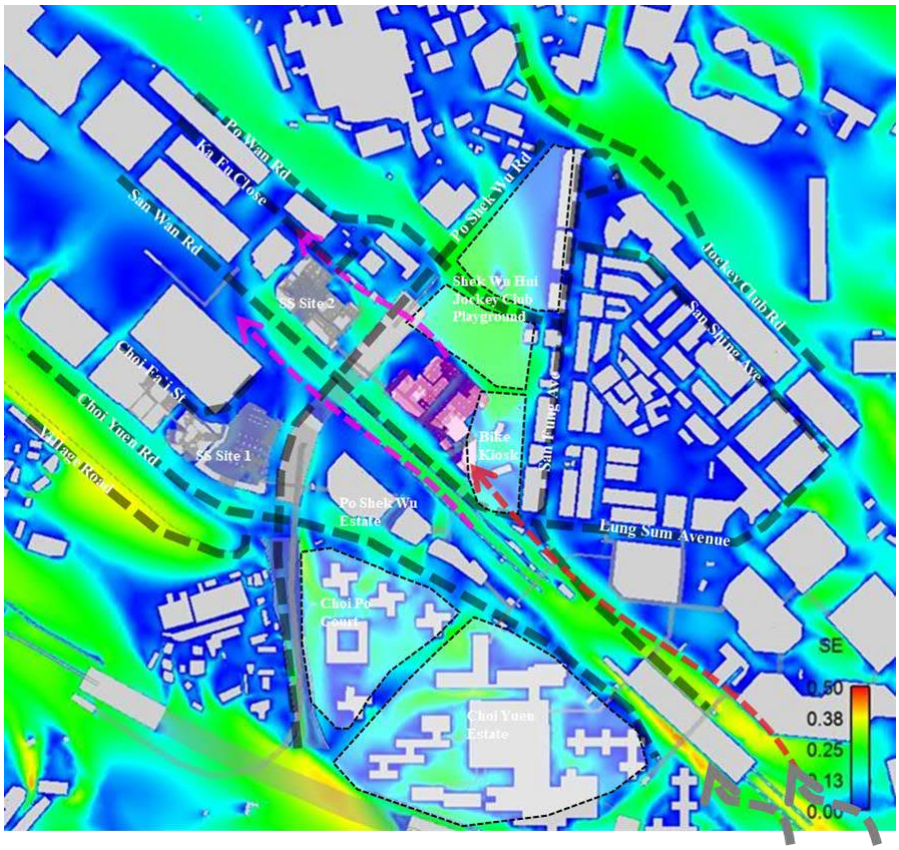


Figure 53 Contour Plot of VR for Proposed Scheme under SE Wind

6.2.7 SSE and S Wind Direction

The SSE and S wind contributes to 4.8% and 5% of the annual wind, and 8.7% and 10.2% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under SSE and S wind are presented below.

Under SSE and S wind conditions, the incoming wind would be diverted by Sheung Shui Centre to stream along San Wan Road to reach the development. On the other hand, mid and high level wind could reach the southwestern and eastern site boundary of the Development directly (**Grey Arrows**).

Baseline Scheme

On the other hand, under both schemes, prevailing wind would flow along San Wan Road. However, under Proposed Scheme, a stream of wind downwashed by Block B eastern façade would flow through 7m G/F empty bay to reach San Wan Road, which would then limit the prevailing wind along San Wan Road to flow only near the noise barrier; whereas, under Baseline Scheme the prevailing wind on San Wan Road could flow more freely (**White Arrow**). Therefore, San Wan Road would have a slightly higher VR under Baseline Scheme.

Under both scheme a portion of prevailing wind flowing along San Wan Road would be diverted to penetrate through the tower separation as well as the permeable podium structure in the development. A narrower tower separation at the center and northeast of the Development under Proposed Scheme would increase the channelling effect, thereby allowing for more mid and high level prevailing wind to pass through the tower separation (**Red Arrow**). The effect is further enhacned by the more permeable podium design under Proposed Scheme. In contrast, under Baseline Scheme, with less prevailing wind being channelled through the Development, more wind would travel along San Wan Road further, subusequently diverted to travel along the northwest site boundary and Po Shek Wu Road towards Po Sheung Tseun (**Purple Arrow**), thereby increasing the VR in areas including localised portions of Po Wan Road and Po Shek Wu Road, as well as Po Sheung Tsuen. under Baseline Scheme.

Proposed Scheme

In both schemes, mid and high level incoming wind along San Wan Road would be captured and downwashed by the eastern façade of the Development to the pedestrian level to ventilate the immediate eastern surroundings such as Bike Kiosk and a localised portion of San Wan Road. Since Proposed Scheme is taller than Baseline Scheme, the said downwash effect would be more significant, thus more wind would be available at the mentioned areas, creating a higher VR there (**Black Circle & Arrows**).

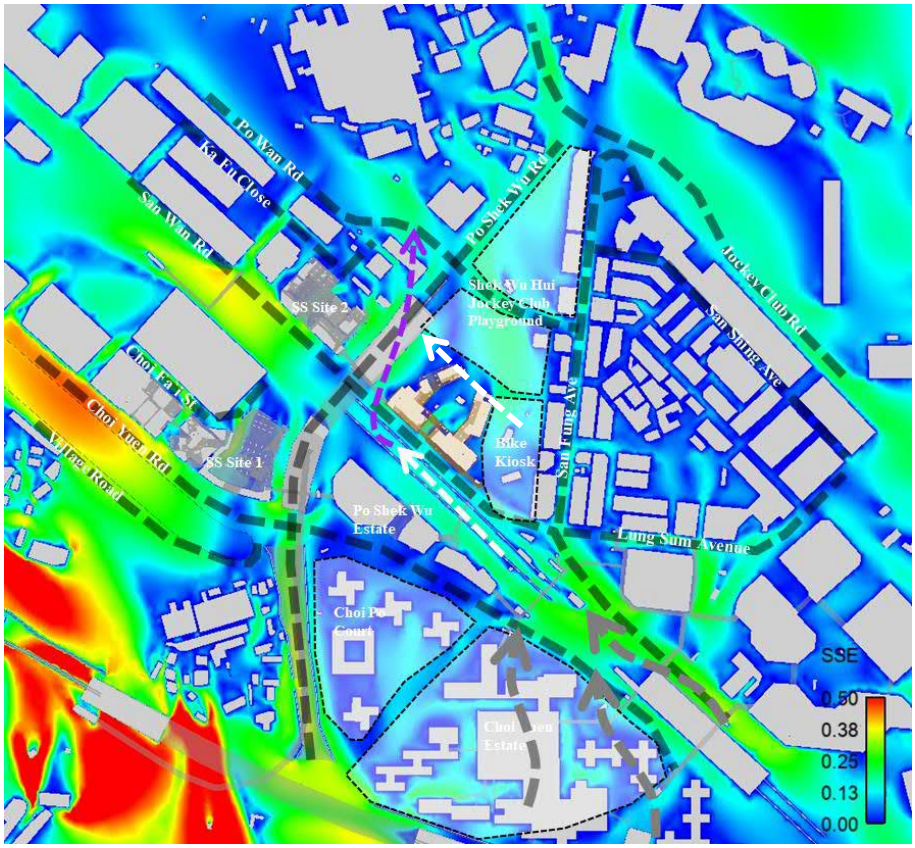


Figure 54 Contour Plot of VR for Baseline Scheme under SSE Wind

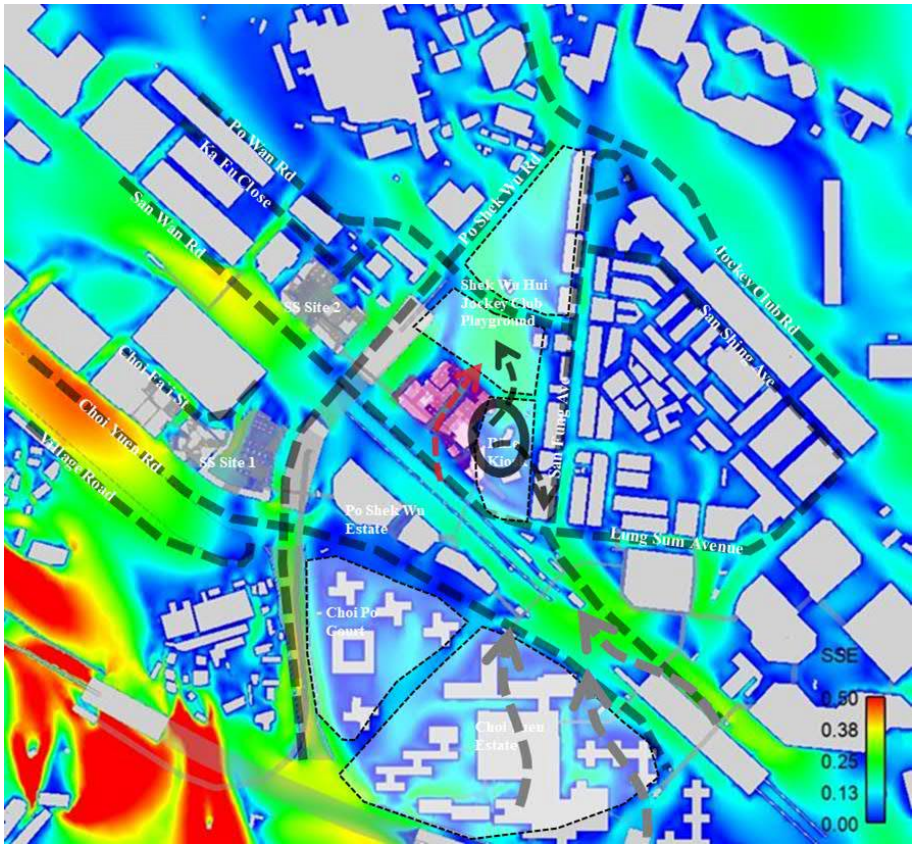


Figure 55 Contour Plot of VR for Proposed Scheme under SSE Wind

6.2.8 SSW Wind Direction

The the SSW wind contributes to 6.1% of the annual wind and 13.4% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under S wind are presented below.

The incoming SSW wind would be hindered by the mid-rise southwestern surroundings, prevailing wind at these levels would flow around the mid-rise buildings on their west to reach the southwest boundary of the development, they would then continue to flow around the Development on its west. High level wind, on the other hand, would reach the Development freely flowing over the mid-rise surroundings. In addition, a portion of mid-level wind would be captured by Landmark North and downwashed onto San Wan Road, which would then flow northwest along San Wan Road to reach the Development (**Grey Arrows**)

Overall, the ventilation performance of the Baseline and Proposed Schemes under S and SSW wind conditions would be dominated by the mid-rise southern surroundings such as Po Shek Wu Estate and Chui Po Court, which would cast a wind shadow over the Development. The wind environment would generally be similar under both schemes.

Baseline Scheme

Under both schemes, a portion of high level S and SSW wind reaching the Development would be captured and downwashed to the pedestrian level, ventilating San Wan Road. As the Proposed Scheme is taller, creating a larger height difference between it and its southwestern surroundings such as Po Shek Wu Estate, more high level wind would be captured and downwashed. The downwashed wind would, however, limit the prevailing wind flowing along San Wan Road under Proposed Scheme, therefore a slightly higher VR at a localised portion of San Wan Road immediate southwest of the Development would be observed under Baseline Scheme (**Black Circle**).

Proposed Scheme

Under both schemes, prevailing wind flowing along San Wan Road would be diverted north towards Bike Kiosk and Shek Wu Hui Jockey Club Playground. The aforementioned increased downdating effect under Proposed Scheme would limit prevailing travelling further down San Wan Road, consequentially, more wind would be diverted north towards said area, increasing the VR there (**Red Arrow**)

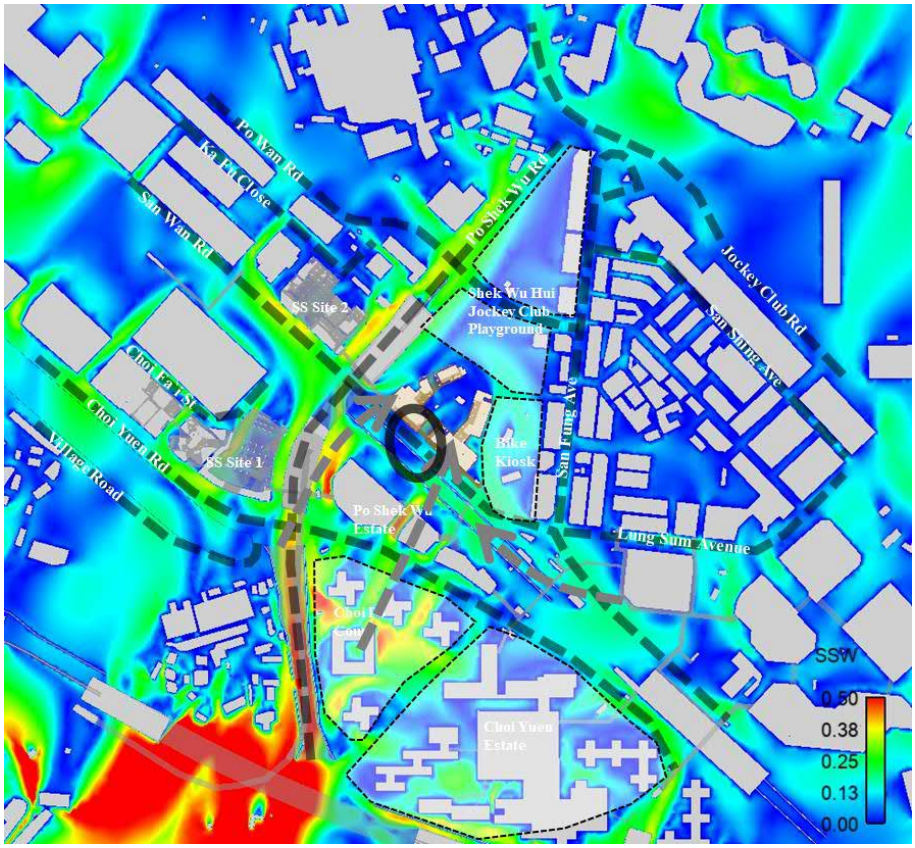


Figure 56 Contour Plot of VR for Baseline Scheme under SSW Wind

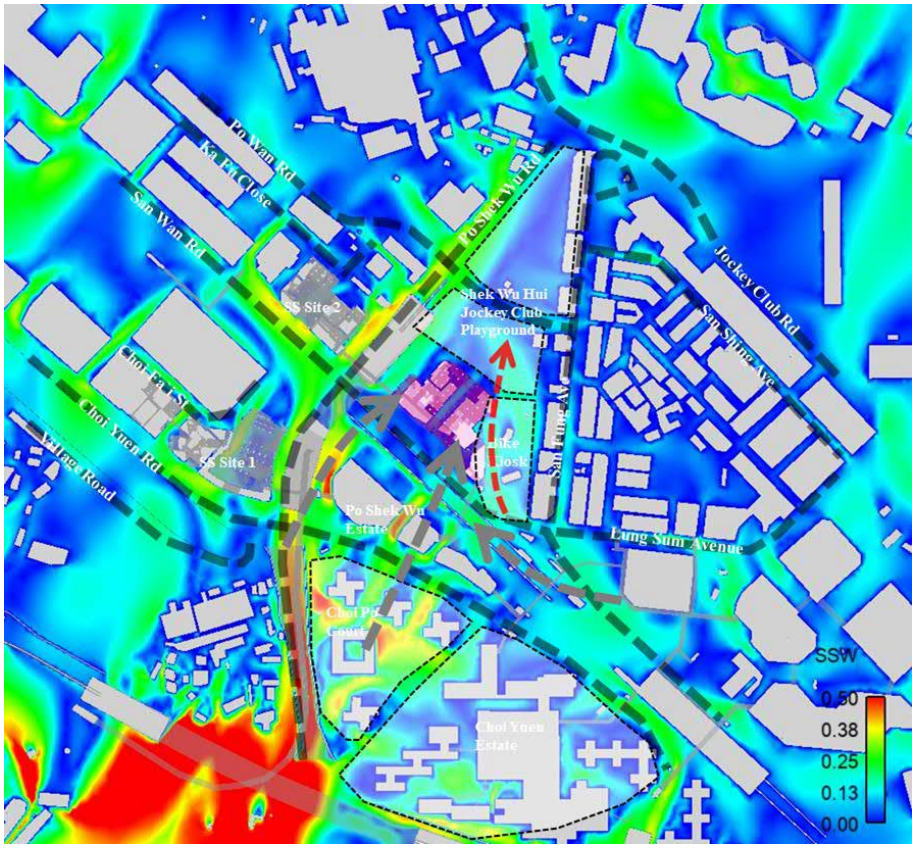


Figure 57 Contour Plot of VR for Proposed Scheme under SSW Wind

6.2.9 SW Wind Direction

The SW wind contributes to 3.3% of the annual wind and 8.4% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under SW wind are presented below.

The incoming SW wind would be hindered by the mid-rise Choi Po Court and Po Shek Wu Estate at low and mid-level, prevailing wind would mainly stream along Po Shek Wu Road to reach the Development at its western site boundary. A small portion of low and mid-level SW wind could on the other hand flow between the towers of Po Shek Wu Estate to reach San Wan Road and the Development. In addition, high level SW wind could reach the Development freely flowing over the mid-rise surroundings. Furthermore, a portion of mid-level wind would be captured by Landmark North and downwashed onto San Wan Road, which would then flow northwest along San Wan Road to reach the Development (**Grey Arrows**)

Similar to S and SSW wind, the overall ventilation performance would be comparable under the two schemes as the wind environment would be dominated by the upwind surrounding environment consisting of said mid-rise buildings.

Baseline Scheme

Under both schemes, wind reaching the Development from Po Shek Wu Road can flow further towards the northeastern surrounding of the Development such as the Shek Wu Hui Jockey Club Playground. The tower disposition under Baseline Scheme would allow for more wind to flow northeast, thereby creating a higher VR at Shek Wu Hui Jocket Club Playground as well as areas further downwind such as Jockey Club Road and Fung Nam Road Garden (**Black Arrows**).

Proposed Scheme

Under SW wind, a portion of high level incoming wind would be captured and downwashed by the southwest façade of the Development to the pedestrian level, which would then be diverted to flow along San Wan Road. Since the taller Proposed Scheme would be produce a more significant downwash effect, an enhanced wind environment at a localised portion of San Wan Road would be observed in Proposed Scheme (**White Circle and Arrow**). This however would in turn limit some prevailing wind on San Wan Road from flowing towards the Development. Localised upwind portion of San Wan Road and the Bike Kiosk would therefore have a slightly higher VR under Baseline Scheme (**Red Circle**). A stream of prevailing wind flowing along Po Shek Wu Road towards SS Site 2 would be affected by said phenomenon, thereby creating a higher VR under Baseline Scheme at San Wan Road immediate southwest of SS Site 2 (**Purplr Circle**).

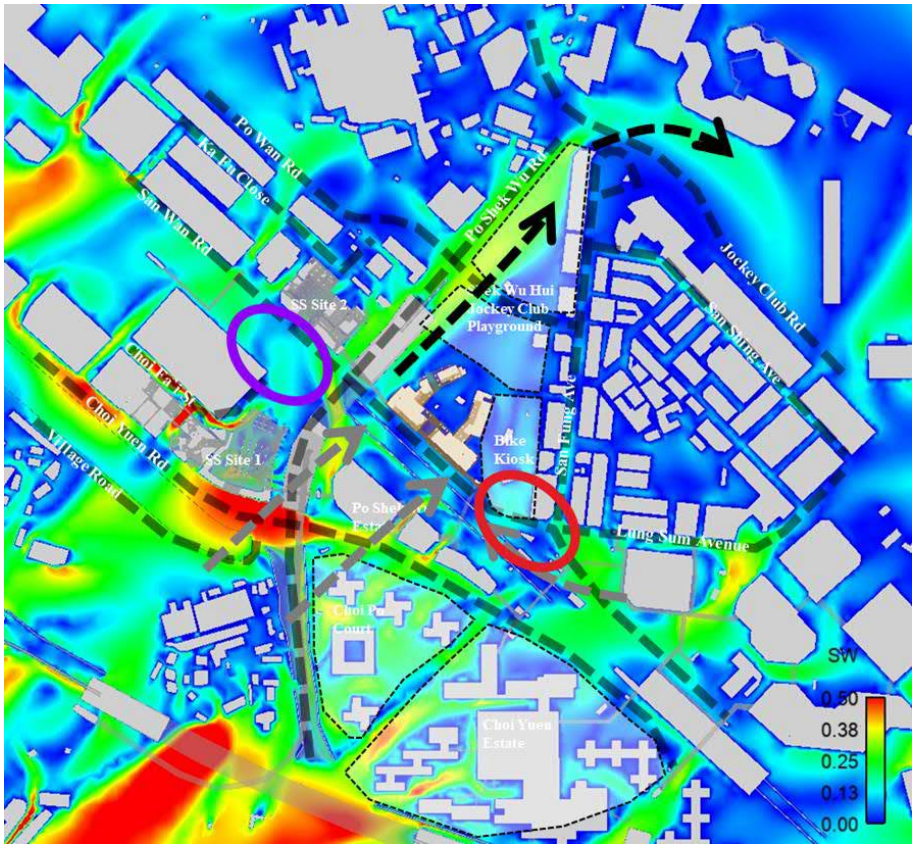


Figure 58 Contour Plot of VR for Baseline Scheme under SW Wind

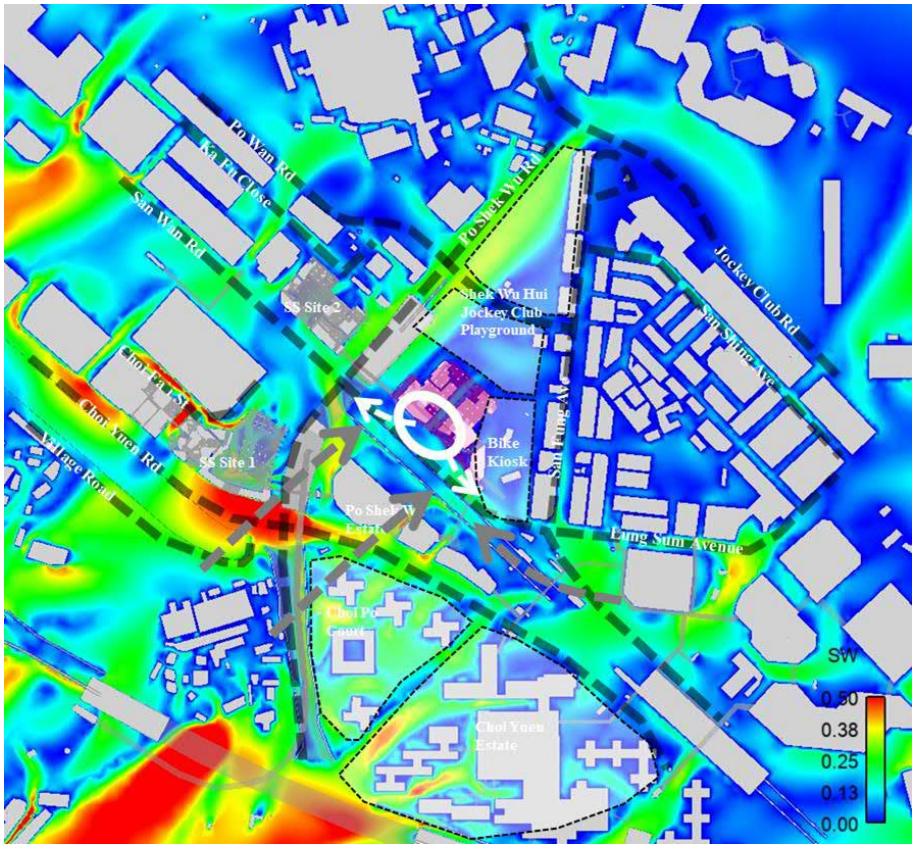


Figure 59 Contour Plot of VR for Proposed Scheme under SW Wind

6.2.10 WSW Wind Direction

The WSW wind contributes to 3.3% of the annual wind and 8.4% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under WSW wind are presented below.

Under WSW wind condition, the incoming wind would first reach SS Site 1 and Po Shek Wu Estate, which would then flow between the two Development to enter Po Shek Wu Road, subsequently reaching the southwestern site boundary of the Development. On the other hand, a small portion of wind could flow between the towers of Po Shek Wu Estate and stream across San Wan Road to reach the southwestern site boundary of the Development. In addition, some incoming high level wind would be able to flow over Po Shek Estate to reach the Development directly. (**Grey Arrows**)

Baseline Scheme and Proposed Scheme

Under both scheme, a portion of wind arriving at the southwestern site boundary would flow further northeast along the site boundary and another portion would be diverted by the southwestern façade of the Development to be diverted into San Wan Road. Under Proposed Scheme, there is a larger building setback from the southwestern site boundary, which would allow for more prevailing wind to be diverted into San Wan Road, creating a higher VR there under Proposed Scheme (**White Circle and Arrows**). A portion of wind would continue to flow along San Wan Road and diverted north into the Bike Kiosk after passing the Development, creating also a higher VR there. Areas further southwest such as Lung Sum Avenue and Lung Wan Street would experience an enhanced VR under Proposed Scheme as well (**White Arrows**).

Consequently, under Baseline Scheme, as less wind would be diverted into San Wan Road, more wind would continue to flow along the western site boundary of the Development and continue east-northeast, ventilating Shek Wu Hui Jockey Club Playground. It should be noted the disposition of Block A would divert the wind more towards east-northeast under Baseline Scheme, as compared to the Proposed Scheme where the wind would flow to the northeast. This would result in a higher VR at Shek Wu Hui Jockey Club Playground and San Fung Avenue under Proposed Scheme (**Black Arrow**). The disposition of Proposed Scheme, on the other hand, would direct the wind more towards northeast, the wind would travel along Po Shek Wu Road and the western portion of the Shek Wu Hui Jockey Club Playground, and would eventually be captured and downwashed by the development northeast of Jockey Club Road, enhancing the VR at areas there such as Fung Nam Road Garden and a localised portion of Jockey Club Road (**Purple Circle and Arrows**).

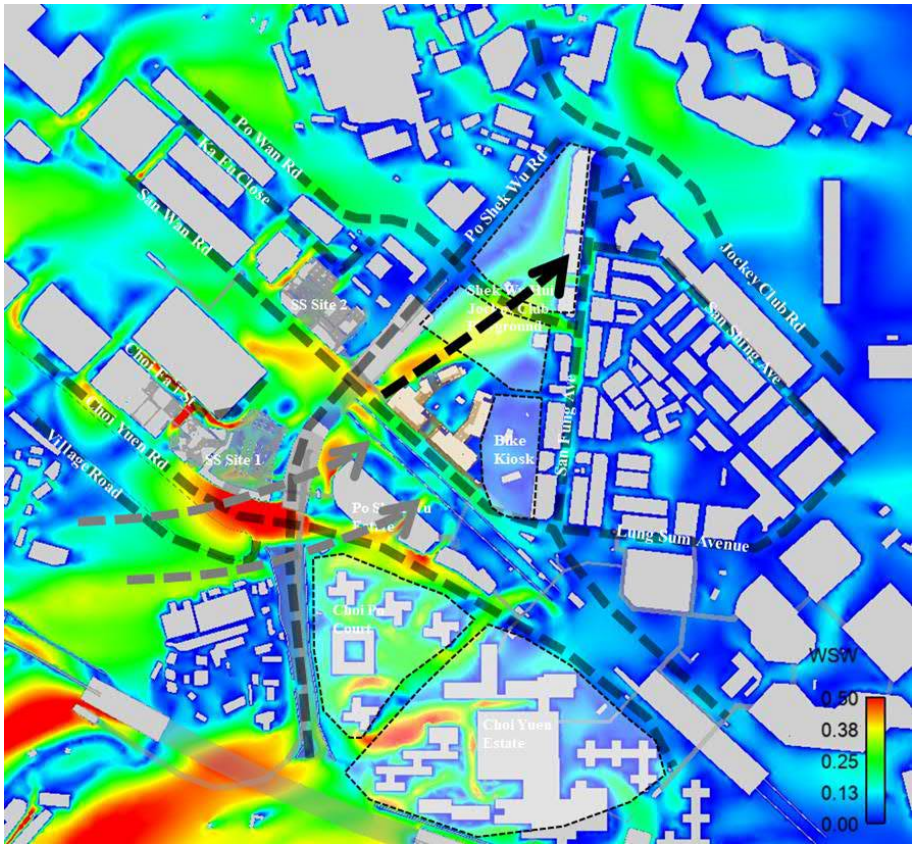


Figure 60 Contour Plot of VR for Baseline Scheme under WSW Wind

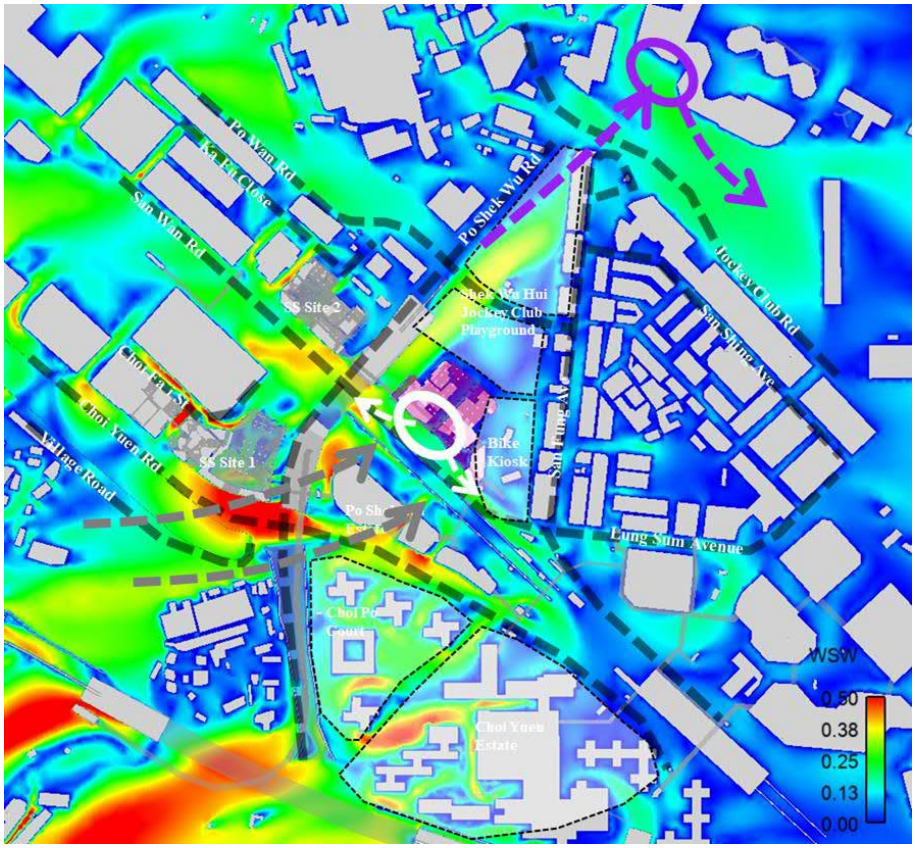


Figure 61 Contour Plot of VR for Proposed Scheme under WSW Wind

6.3 VR Results of Test Points

Table 6 summarises the value of SVR and LVR among Baseline Scheme and Proposed Scheme. The VR of individual test points may be referred to in Appendix.

Table 6 Comparison of the SVR and LVR among Baseline Scheme and Proposed Scheme

	Annual Weighted VR		Summer Weighted VR	
	Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
SVR	0.12	0.13	0.11	0.11
LVR	0.12	0.13	0.13	0.13

Under annual condition, the Proposed Scheme would obtain a slightly higher SVR and LVR as compared to Baseline Scheme. The result indicate that the Proposed Scheme would achieve a slightly better wind environment at close proximity and within the Assessment Area.

Under summer condition, the Proposed Scheme and the Baseline Scheme would obtain the same SVR and LVR, indicating a similar ventilation performance eat close proximity and within the Assessment Area.

6.4 Focus Areas

There are a total of 38 focus areas identified in this study, which are summarised below the Spatial Average VR (SAVR) for each focus areas under annual and summer conditions.

Focus Area		Annual Condition		Summer Condition	
		Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
1	Tai Tau Leng	0.06	0.06	0.10	0.10
2	Village Road	0.15	0.15	0.17	0.17
3	Choi Fat Street	0.12	0.12	0.13	0.13
4	Choi Fai Street	0.12	0.12	0.13	0.13
5	Planned Sheung Shui Areas 4 and 30 Site 1	0.15	0.15	0.17	0.17
6	Planned Sheung Shui Areas 4 and 30 Site 2	0.15	0.16	0.16	0.16
7	Ka Fu Close	0.14	0.14	0.09	0.09
8	Cheuk Wan St	0.11	0.11	0.15	0.15
9	Po Sheung Tsuen	0.11	0.11	0.10	0.10
10	Fung Kai Liu Man Shek Tong Secondary Shool	0.11	0.12	0.13	0.13
11	Fung Nam Road Garden	0.22	0.23	0.23	0.22

Focus Area		Annual Condition		Summer Condition	
		Baseline Scheme	Proposed Scheme	Baseline Scheme	Proposed Scheme
12	Fu Nam Rd	0.19	0.20	0.20	0.20
13	North District Sports Ground Playground	0.15	0.15	0.11	0.11
14	Jockey Club Rd	0.17	0.17	0.14	0.15
15	Fu Hing St	0.11	0.11	0.08	0.08
16	San Fat St	0.06	0.06	0.06	0.06
17	San Lok St	0.07	0.07	0.05	0.05
18	Shek Wu Hui Playground	0.09	0.09	0.07	0.07
19	San Tsoi St	0.07	0.07	0.05	0.05
20	Tsun Fu St	0.07	0.07	0.06	0.06
21	San Hong St	0.08	0.08	0.07	0.07
22	San Cheung St	0.06	0.06	0.05	0.05
23	San Kung St	0.07	0.07	0.08	0.08
24	San Kin St	0.07	0.07	0.07	0.07
25	San Shing Ave	0.12	0.11	0.10	0.10
26	Lung Sum Avenue	0.11	0.11	0.13	0.13
27	Lung Wan St	0.11	0.12	0.14	0.15
28	North District Town Hall Basketball Court	0.09	0.09	0.10	0.10
29	Sun Fung Ave	0.13	0.13	0.09	0.09
30	Shek Wu Hui Jockey Club Playground	0.12	0.12	0.13	0.13
31	Bike Kiosk	0.16	0.17	0.11	0.11
32	Po Shek Wu Estate	0.15	0.16	0.15	0.15
33	Choi Po Court	0.14	0.13	0.15	0.15
34	Choi Yuen Estate	0.13	0.13	0.14	0.14
35	Choi Yuen Rd	0.15	0.15	0.17	0.17
36	San Wan Rd	0.14	0.14	0.18	0.18
37	Po Shek Wu Rd	0.14	0.14	0.19	0.19

Focus Area		Annual Condition		Summer Condition	
		Baseline Scheme	Proposed Scheme	Baseline Scheme	Proposed Scheme
38	Po Wan Rd	0.11	0.11	0.11	0.10
39	Wind Enhancement Feature 1	0.12	0.13	0.08	0.10
40	Wind Enhancement Feature 2	0.18	0.16	0.09	0.10

6.4.1 Annual Condition

Under annual condition, generally the focus areas exhibit a similar VR, indicating a similar ventilation performance in most focus areas.

It could however be observed that Planned Sheung Shui Areas 4 and 30 Site 2, Fung Kai Liu Man Shek Tong Secondary School, Fung Nam Road Garden, Fu Nam Road, Lung Wan Street, Bike Kiosk and Po Shek Wu Estate would have a slightly higher VR under Proposed Scheme. This indicates that the ventilation would be slightly enhanced in these areas under Proposed Scheme.

It can also be observed the Baseline Scheme would have a slightly higher VR at San Shing Avenue and Choi Po Court. This indicates that the ventilation would be slightly calmer in these areas under Proposed Scheme.

It can be observed that under annual condition, the wind enhancement feature 1, which is the airpath between the two towers, would perform better under Proposed Scheme, this is due to the relatively narrower tower separation in the central portion of the Development accelerating the wind flow along the air path. However, Wind Enhancement Feature 2, which is the air path between Block B and Lift tower in Baseline Scheme and a G/F empty bay in Proposed Scheme, the ventilation performance would be relatively calmer under Proposed Scheme, this is due to the wider separation provided under Baseline Scheme (~15m) as compared to Proposed Scheme (~7m) .

6.4.2 Summer Condition

Under summer condition, the majority of focus areas exhibit a similar VR, indicating a similar ventilation performance in most focus areas. The greatly similar wind environment is due to the wind environment being mainly dominated by the southwestern surrounding development which are mostly mid and high rises.

It could however be observed that Lung Wan Street and Jockey Club Road would have a slightly higher VR under Proposed Scheme. This indicates that the ventilation would be slightly enhanced in these areas under Proposed Scheme.

It can also be observed that Po Wan Road and Fung Nam Road Garden would have a slightly higher VR under Baseline Scheme. This indicates that the ventilation would be slightly calmer in these areas under Proposed Scheme.

It can be observed that under summer condition, similar to annual condition, the wind enhancement feature 1, which is the airpath between the two towers, would perform better under Proposed Scheme, this is due to the relatively narrower tower separation in the central portion of the Development accelerating the wind flow along the air path. Wind Enhancement Feature 2, under summer condition, would also have a relatively enhanced ventilation performance under Proposed Scheme. This is due to the increased tower height under Proposed Scheme inducing more downwashed wind, thereby allowing for more wind to reach the Wind Enhancement Feature 2 of Proposed Scheme, whereas under Baseline Scheme, the wind flow available to flow through the Wind Enhancement Feature 2 would be mostly hindered by the southwester surroundings.

7. Conclusion

7.1 Overview

An Air Ventilation Assessment (AVA) – Initial Study was conducted to assess the ventilation performance of Baseline Scheme and Proposed Scheme in accordance with the AVA Technical Circular No. 1/06.

Two schemes were assessed using Computational Fluid Dynamics (CFD) techniques. A series of CFD simulation using Realizable k-ε turbulence model was performed under annual and summer wind conditions with reference to the AVA Technical Circular No. 1/06. For annual wind condition, NNE, NE, ENE, E, ESE, SE, SSW and SW were selected which gives total wind frequency of 77.8% over a year while E, ESE, SE, SSE, S, SSW, SW and WSW were selected for summer condition, which gives total wind frequency of 81.9%.

The Velocity Ratio (VR) as proposed by the AVA Technical Circular No.1/06 was employed to assess the ventilation performance under different schemes and its impact to the surroundings.

With reference to the AVA Technical Circular No. 1/06, 30 perimeter test points and 176 overall test points were allocated to assess the local and overall ventilation performance in the Assessment Area.

7.2 Results

Upon the CFD simulation Proposed Scheme achieved higher SVR and LVR both by 0.01 comparing to Baseline Scheme under annual condition and a similar SVR and LVR under summer condition respectively.

The results of the SVR, LVR are summarized as below.

Table 7 SVR and LVR Summary

	Annual Weighted VR		Summer Weighted VR	
	Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
SVR	0.12	0.13	0.11	0.11
LVR	0.12	0.13	0.12	0.13

8. Reference

[1] “Annex A of Technical Circular No. 1/06 issued by the Housing, Planning and Lands Bureau pertaining specifically to Air Ventilation Assessments, 19th July, 2006,” [Online]. Available: https://www.devb.gov.hk/filemanager/en/content_679/hplb-etwb-tc-01-06.pdf.

[2] “Planning Department RAMS Data,” [Online]. Available: http://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/.

Technical Note

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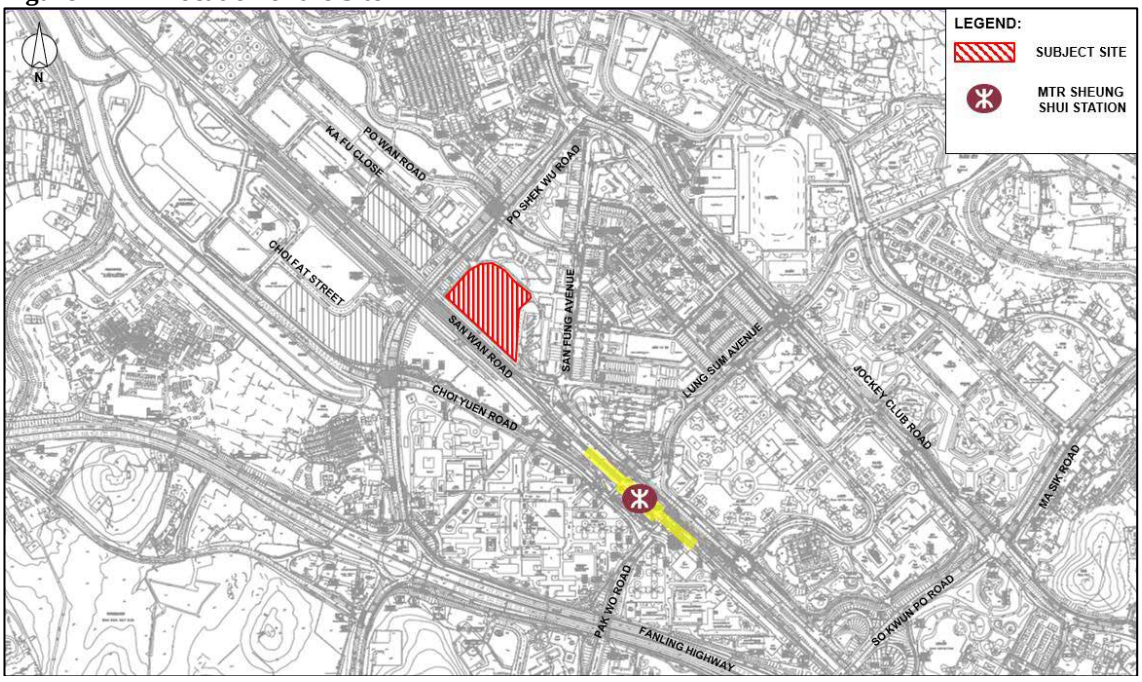
Project title	Instruction No. A20 - Proposed Public Housing Development at Po Shek Wu Road, Traffic Review	Job number	277177-07
cc		File reference	TN_Traffic Review
Prepared by	Various	Date	18 April 2024
Subject	Technical Note - Traffic Review		

1. Background

1.1.1 Arup was appointed by Hong Kong Housing Authority (HKHA) to carry out a study to review the traffic impact due to change in development plan of the proposed public housing development at Po Shek Wu Road (i.e. the Site). **Figure 1** shows the location of the Site.

Figure 1 Location of the Site



2. Comparison of Development Plan of the Site

2.1.1 According to the latest development parameters provided by HKHA on 2 May 2023, the parameters of the proposed public housing development in the Po Shek Wu Road Site has been updated, as compared to the parameters previously adopted in the approved Traffic Impact Assessment Report dated January 2019 (hereafter called "the previous assessment"). The number of public housing flats are increased and welfare facilities are added in the latest development parameters. **Table 2.1** summarizes the development parameters of the Site.

Table 2.1: Comparison of Development Schedule of the Po Shek Wu Site

Development Type	Adopted parameters in the previous assessment	HKHA's latest parameters
Subsidised Sale Flats (SSF)	1,850 flats	1,904 flats
Retail	3,000 sqm GFA	3,000 sqm GFA
Kindergarten	6 classrooms	6 classrooms
Welfare	N/A	4,484 sqm GFA
Population Intake Year	2026/27	2029/30

2.1.2 Based on the information in **Table 2.1**, the trips related to the proposed public housing development, comparing two set of development parameters, are provided in the following sections.

3. Review of Trip Rates

3.1.1 The trip generation and attraction of the subject development are reviewed in this Technical Note and compared with those in the previous assessment.

3.1.2 For SSF, supplementary peak hour trip rate surveys were conducted on normal weekday at selected existing SSF developments. Those selected developments are also located in the North District (i.e. same as the Subject Site), they are Choi Po Court and Tsui Lai Garden. **Figure 2** shows the locations of Choi Po Court and Tsui Lai Garden. The results of the supplementary peak hour trip rate surveys are summarised in **Table 3.1**. The trip rates obtained from survey were compared against the trip rates stated in Transport Planning and Design Manual (TPDM) as shown in **Table 3.2**.

Figure 2 Locations of Surveyed SSF Developments

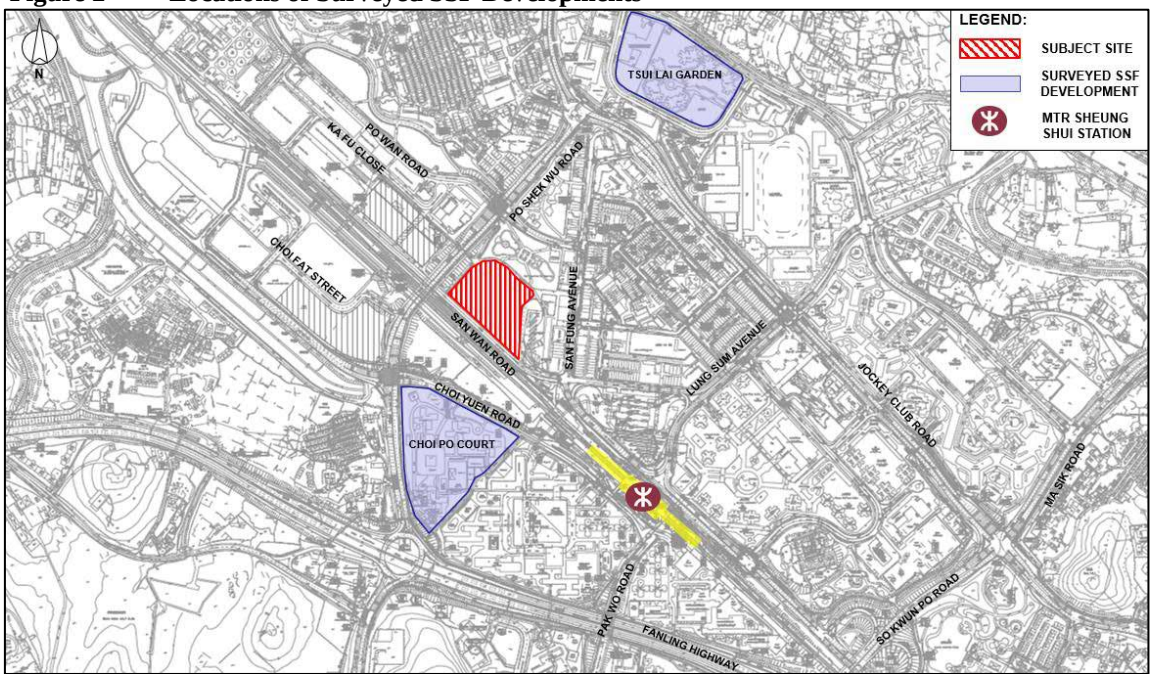


Table 3.1: Trip Rate Survey Results at Existing SSF Developments (pcu/hr/flat)

Development	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Choi Po Court - 2,112 flats	0.0203	0.0103	0.0142	0.0220
Tsui Lai Garden - 2,012 flats	0.0252	0.0134	0.0080	0.0218

Table 3.2 Summary on Trips Rates Stated in TPDM (pcu/hr/flat)

Development Type	Upper Limit/ Mean / Lower Limit	AM Peak		PM Peak	
		Generation Rate	Attraction Rate	Generation Rate	Attraction Rate
HOS (Average Flat Size 50 sqm)	Upper Limit	0.0761	0.0573	0.035	0.0451
	Mean	0.0622	0.0426	0.0297	0.0401
	Lower Limit	0.0483	0.0279	0.0244	0.0351

Note: The values underlined indicate the trip rate adopted in the previous assessment.

3.1.3 Based on **Tables 3.1 and 3.2**, it is revealed that the surveyed trips rates were lower than the values of TPDM for both AM and PM peaks. It is recommended to adopt the mean

values of TPDM for this traffic review exercise to maintain consistency with the previous assessment.

3.1.4 For retail facilities and kindergarten, the estimated trips in the previous assessment would also be maintained and adopted in this Technical Note.

3.1.5 For welfare facilities which is newly added in the latest development parameters, they will mainly serve the local community and are expected to induce minimal trips on the road network, a nominal traffic of total 10 pcu/hr each way is therefore assumed for these facilities.

4. Comparison Results of Trip Generation and Attraction

4.1.1 A summary of the trips related to the proposed public housing development in the Po Shek Wu Site is shown in **Table 4.1** below. For assessment purpose, additional 10% increase in flat number (i.e. 1,904 flats x 1.1 = 2,094 flats) is adopted to estimate the traffic generated/ attracted by the Site in this Traffic Review. Additional traffic, not higher than 1-way 25pcu/hr for AM peak hour and 20pcu/hr for PM peak hour are observed. It is anticipated that the change of development parameter should not deteriorate the traffic condition in view of the minimal increase of Site traffic.

Table 4.1: Comparison of Estimated Trip Generation for the Po Shek Wu Site (PCUs / hr)

Development	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Adopted in the previous assessment				
SSF (1,850 flats)	115	79	55	74
Retail (3,000 m^2 GFA)	7	7	9	11
Kindergarten (767 m^2 GFA)	30	30	30	30
Sub-total (A)	***152***	***116***	***94***	***115***
Based on HKHA's latest parameters, and trip rates as mentioned in above Section 3				
SSF (2,094 flats) *	130	89	62	84
Retail (3,000 m^2 GFA)	7	7	9	11
Kindergarten (767 m^2 GFA)	30	30	30	30
Welfare (4,484 m^2 GFA)	10	10	10	10
Sub-total (B)	***177***	***136***	***111***	***135***
Difference, (B) - (A)	**25**	**20**	**17**	**20**

Notes:
*With additional 10% allowance for the proposed number of flats for assessment purpose, i.e. 1,904 flats x 1.1 = 2,094 flats.

5. Junction and Link Capacity Assessment

5.1.1 To evaluate the associated traffic impact likely to be induced by the proposed change in population intake year (i.e. change from 2026/27 to 2029/30), year 2033 were adopted as the design year in this traffic review study to demonstrate the traffic condition in the study area 3 years after completion of the proposed development.

5.1.2 Years 2031 and 2036 planning data of 2019-based Territorial Population and Employment Data Matrix (TPEDM) was referenced to identify the change in population in the vicinity, i.e. Fanling/Sheung Shui and Rural NENT districts. It was revealed that there would be a positive increase in population and employment from years 2031 to 2036, i.e. +1.35% per annum.

5.1.3 Year 2033 junction and link capacity assessment was undertaken according to (i) the estimated year 2033 traffic flows by adopting the aforesaid annual growth rate of +1.35% to the year 2031 traffic flows in the previous assessment as mentioned in above para 2.1.1; (ii) the estimated trip generation based on HKHA's latest parameters as mentioned in above Section 4; and (iii) the new infrastructure, i.e. North South Link for improvement to So Kwun Po Interchange. The results are shown in **Tables 5.1 and 5.2**. The location of assessed junctions and links are illustrated in below **Figure 3**. The detailed calculation sheets are shown in **Appendix A**.

Figure 3 Locations of Assessed Junctions and Links

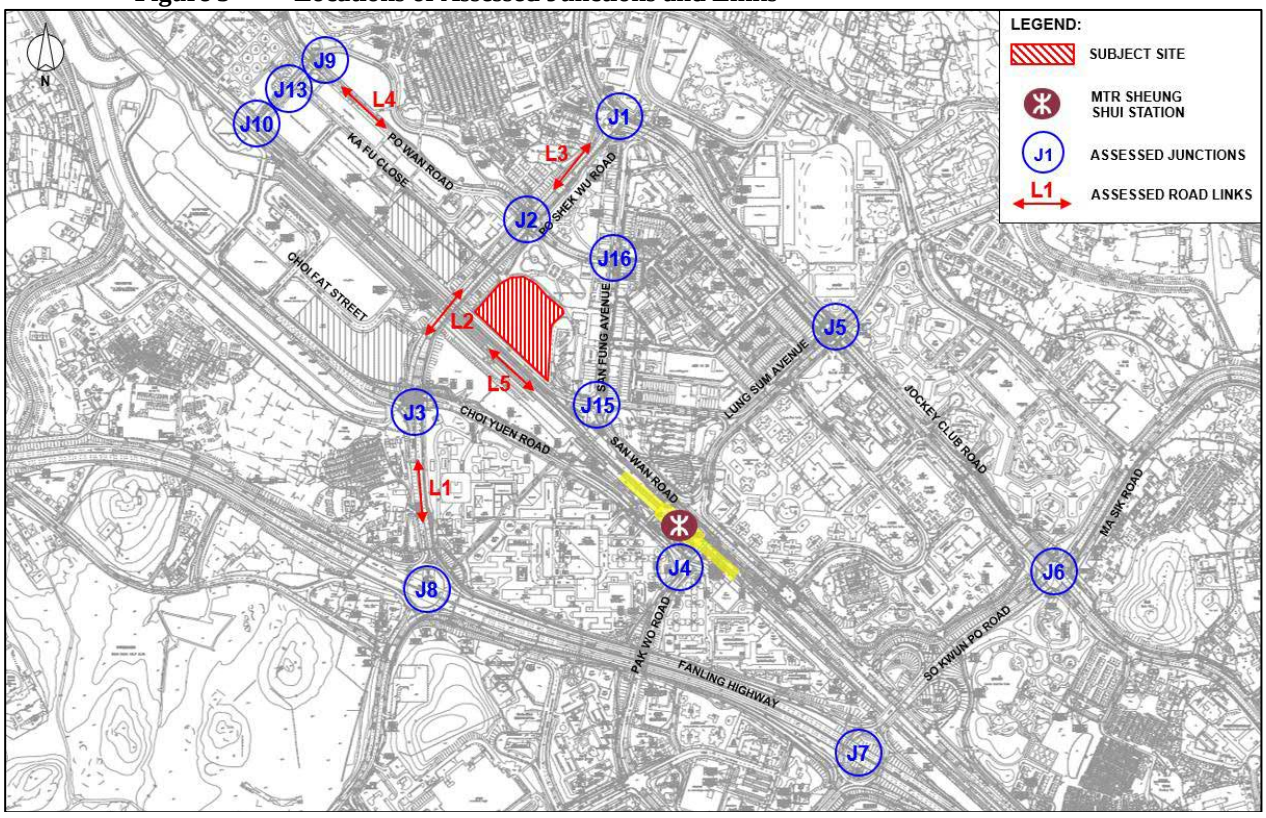


Table 5.1 Summary of Junction Performance – Year 2033

Junction [1]		Type	Junction Performance			
			Design Case (Original - based on the original development parameter in the pervious assessment)		Design Case (New – based on the latest development parameter)	
			AM	PM	AM	PM
J1	Jockey Club Road / Po Shek Wu Road	Roundabout	0.57	0.57	0.57	0.57
J2	Po Shek Wu Road / Po Wan Road [2]	Signal	12%	9%	11%	8%
J3	Po Shek Wu Road / Choi Yuen Road [2]	Signal	9%	10%	8%	9%
J4	Choi Yuen Road / Pak Wo Road	Roundabout	0.50	0.45	0.50	0.45
J5	Jockey Club Road / Lung Sum Avenue [2]	Signal	14%	46%	14%	46%
J6	Jockey Club Road / So Kwun Po Road [2]	Signal	8%	23%	8%	23%
J7	So Kwun Po Road Interchange [3]	Roundabout	0.89	0.85	0.89	0.85
J8	Po Shek Wu Road Interchange	Roundabout	0.85	0.80	0.86	0.80
J9	Po Wan Road / San Po Street	Signal	71%	>100%	71%	>100%
J10	San Wan Road / San Po Street	Priority	0.32	0.10	0.32	0.10
J13	Ka Fu Close / San Po Street	Priority	0.10	0.07	0.10	0.07
J15	San Fan Avenue / Lung Sum Avenue	Signal	65%	>100%	59%	>100%
J16	San Fung Avenue / Po Wan Road	Signal	60%	94%	54%	87%

Notes:

(1) Please refer to **Figure 3** for the location of the assessed junctions.

(2) With implementation of junction improvement schemes as proposed in the approved Traffic Impact Assessment Report dated January 2019.

(3) With implementation of the new infrastructure, i.e. North South Link.

Table 5.2 Summary of Road Link Performance – Year 2033

Road Links (1)		Direction	Capacity (pcu/hr)	Road Link Performance							
				Design Case (Original - based on the original development parameter in the pervious assessment)				Design Case (New – based on the latest development parameter)			
				Flow (pcu/hr)		V/C Ratio		Flow (pcu/hr)		V/C Ratio	
				AM	PM	AM	PM	AM	PM	AM	PM
L1	Po Shek Wu Road – Section between Choi Yuen Road and Fanling Highway	NB	3,000	2,290	2,715	0.76	0.91	2,310	2,735	0.77	0.91
		SB (2)	4,700	1,970	2,105	0.42	0.45	2,000	2,120	0.43	0.45
L2	Po Shek Wu Road – Section between Choi Yuen Road and Po Wan Road	NB	2,800	1,910	1,925	0.68	0.69	1,930	1,945	0.69	0.69
		SB	2,800	1,105	1,140	0.39	0.41	1,140	1,155	0.41	0.41
L3	Po Shek Wu Road – Section between Jockey Club Road and Po Wan Road	NB	2,800	1,190	1,505	0.43	0.54	1,190	1,505	0.43	0.54
		SB	2,800	1,745	1,780	0.62	0.64	1,745	1,780	0.62	0.64
L4	Po Wan Road	EB	900	320	310	0.36	0.34	320	310	0.36	0.34
		WB	1,800	600	225	0.33	0.13	600	225	0.33	0.13
L5	San Wan Road	EB	1,800	220	140	0.12	0.08	220	140	0.12	0.08
		WB	1,800	130	150	0.07	0.08	130	150	0.07	0.08

Notes:
(1) Please refer to **Figure 3** for the location of the assessed links.
(2) With implementation of junction improvement schemes as proposed in the approved Traffic Impact Assessment Report dated January 2019.

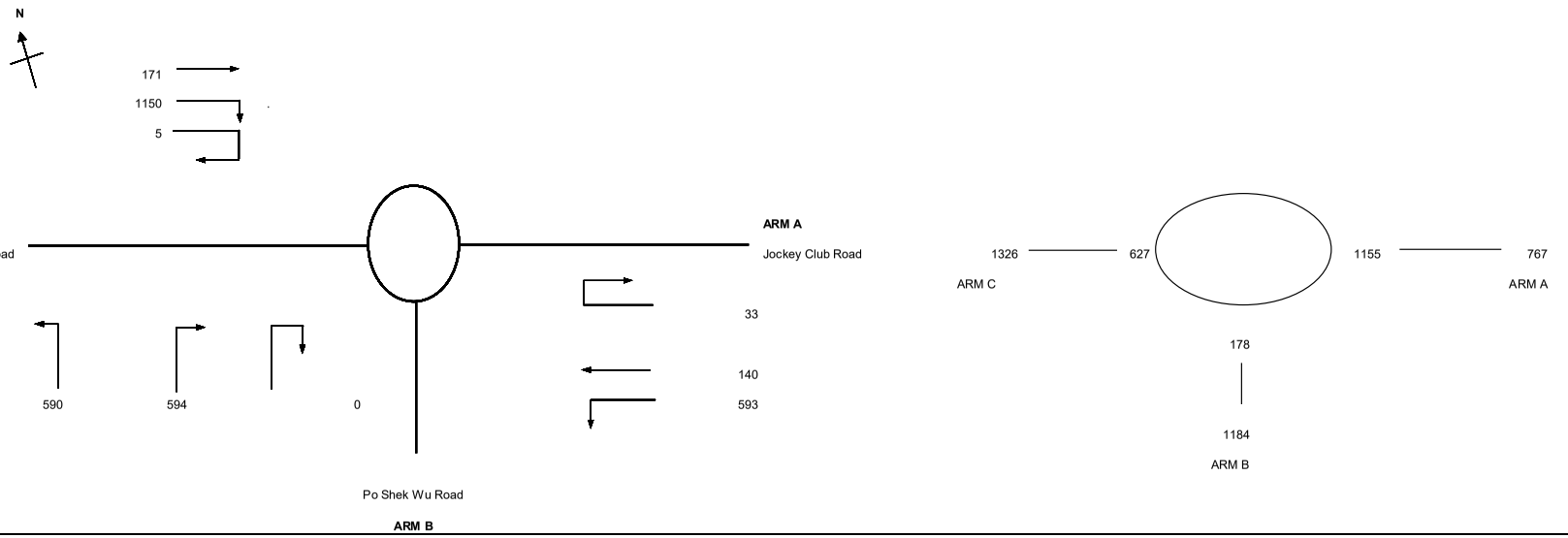
5.1.4 The analysed results revealed the performance of assessed junctions and links would not be deteriorated by the change of development parameter of the Site.

6. Conclusion

6.1.1 In view of the review of trip generation and attraction induced by Po Shek Wu Site as shown in above Section 4, as well as junction and link capacity assessment in above Section 5, it is anticipated that the change of development parameter should not deteriorate the traffic condition.

Appendix A

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 236072-09	SCENARIO:
J1 - Po Shek Wu Road / Jockey Club Road	2033_AM_Design	DATE:	FILENAME:

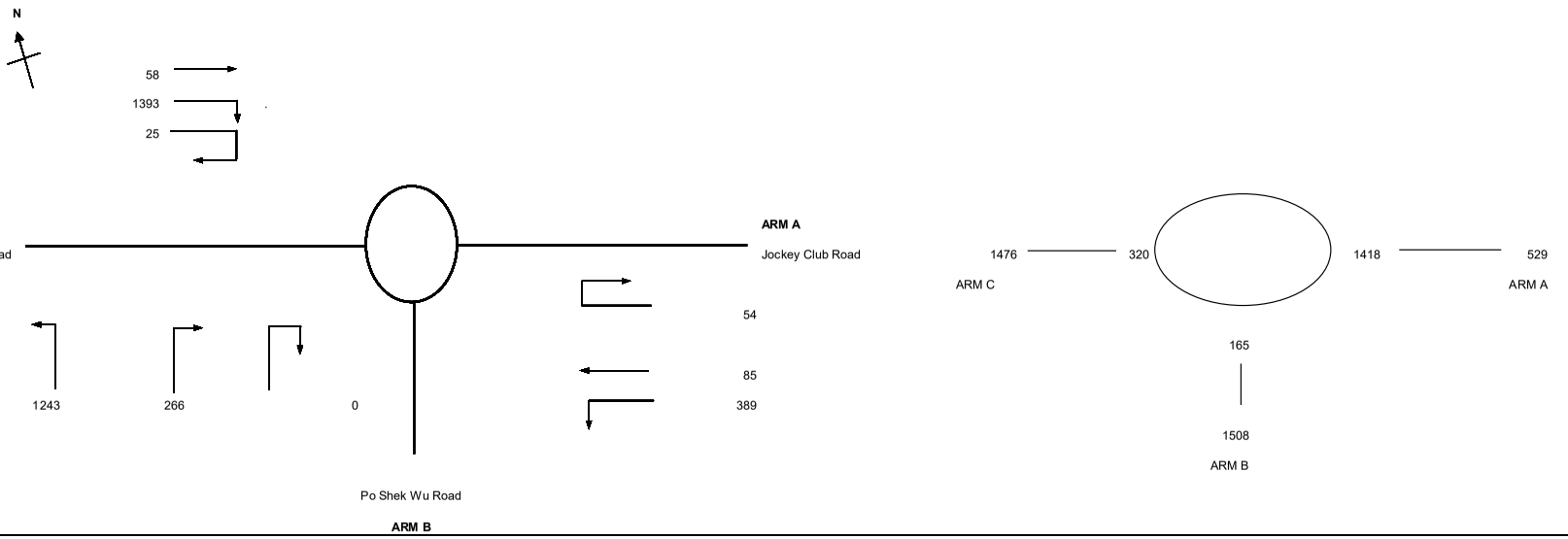


ARM			A	B	C
INPUT PARAMETERS:					
V	=	Approach half width (m)	6.80	7.00	7.50
E	=	Entry width (m)	10.50	10.50	9.50
L	=	Effective length of flare (m)	13.00	12.00	9.50
R	=	Entry radius (m)	10.00	75.00	100.00
D	=	Inscribed circle diameter (m)	41.00	41.00	41.00
A	=	Entry angle (degree)	29.40	17.00	12.70
Q	=	Entry flow (pcu/h)	767	1184	1326
Qc	=	Circulating flow across entry (pcu/h)	1155	178	627
OUTPUT PARAMETERS:					
S	=	Sharpness of flare = 1.6(E-V)/L	0.46	0.47	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.08	1.10
X2	=	V + ((E-V)/(1+2S))	8.74	8.81	8.69
M	=	EXP((D-60)/10)	0.15	0.15	0.15
F	=	303*X2	2647	2670	2635
Td	=	1+(0.5/(1+M))	1.43	1.43	1.43
Fc	=	0.21*Td(1+0.2*X2)	0.83	0.83	0.83
Qe	=	K(F-Fc*Qc)	1612	2725	2327
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.43	0.57

Total In Sum = **3276** **PCU**

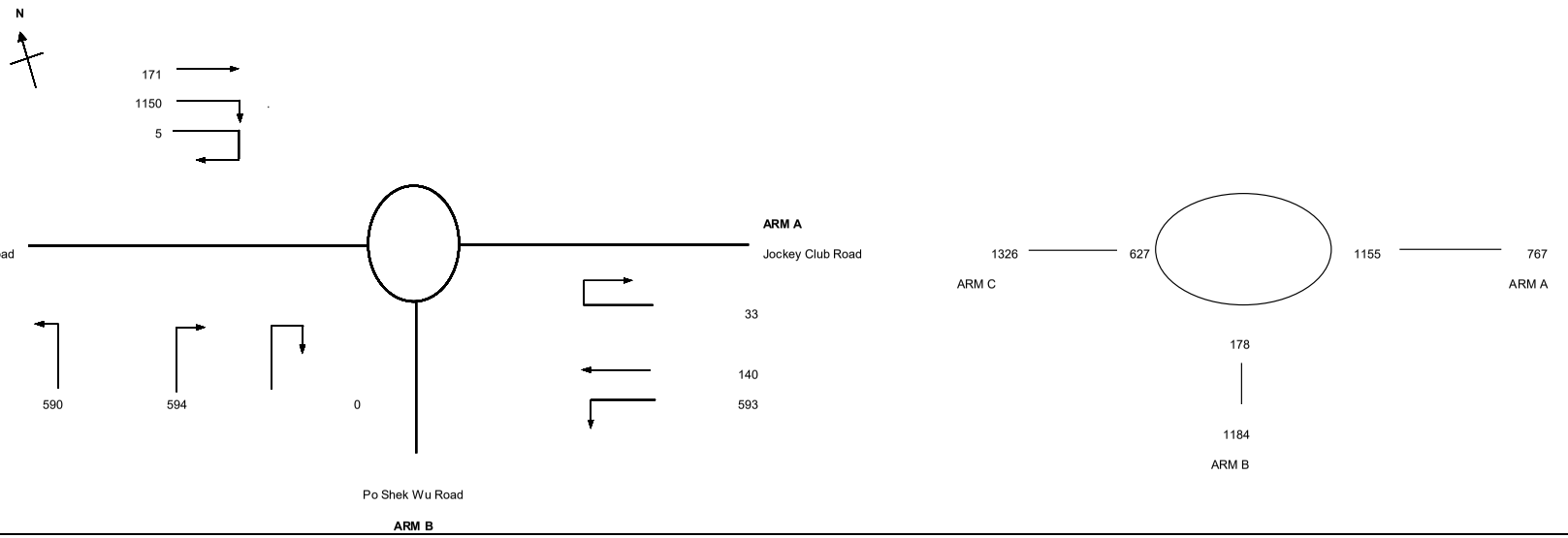
DFC of Critical Approach = **0.57**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 236072-09	SCENARIO:
J1 - Po Shek Wu Road / Jockey Club Road	2033_PM_Design	DATE:	FILENAME:



ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	6.80	7.00	7.50			
E	=	Entry width (m)	10.50	10.50	9.50			
L	=	Effective length of flare (m)	13.00	12.00	9.50			
R	=	Entry radius (m)	10.00	75.00	100.00			
D	=	Inscribed circle diameter (m)	41.00	41.00	41.00			
A	=	Entry angle (degree)	29.40	17.00	12.70			
Q	=	Entry flow (pcu/h)	529	1508	1476			
Qc	=	Circulating flow across entry (pcu/h)	1418	165	320			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.46	0.47	0.34			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.08	1.10			
X2	=	V + ((E-V)/(1+2S))	8.74	8.81	8.69			
M	=	EXP((D-60)/10)	0.15	0.15	0.15			
F	=	303*X2	2647	2670	2635			
Td	=	1+(0.5/(1+M))	1.43	1.43	1.43			
Fc	=	0.21*Td(1+0.2*X2)	0.83	0.83	0.83			
Qe	=	K(F-Fc*Qc)	1404	2737	2606	**Total In Sum =**	**3513**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.38	0.55	0.57	**DFC of Critical Approach =**	**0.57**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 236072-09	SCENARIO:
J1 - Po Shek Wu Road / Jockey Club Road	2033_AM_Design (new)	DATE:	FILENAME:

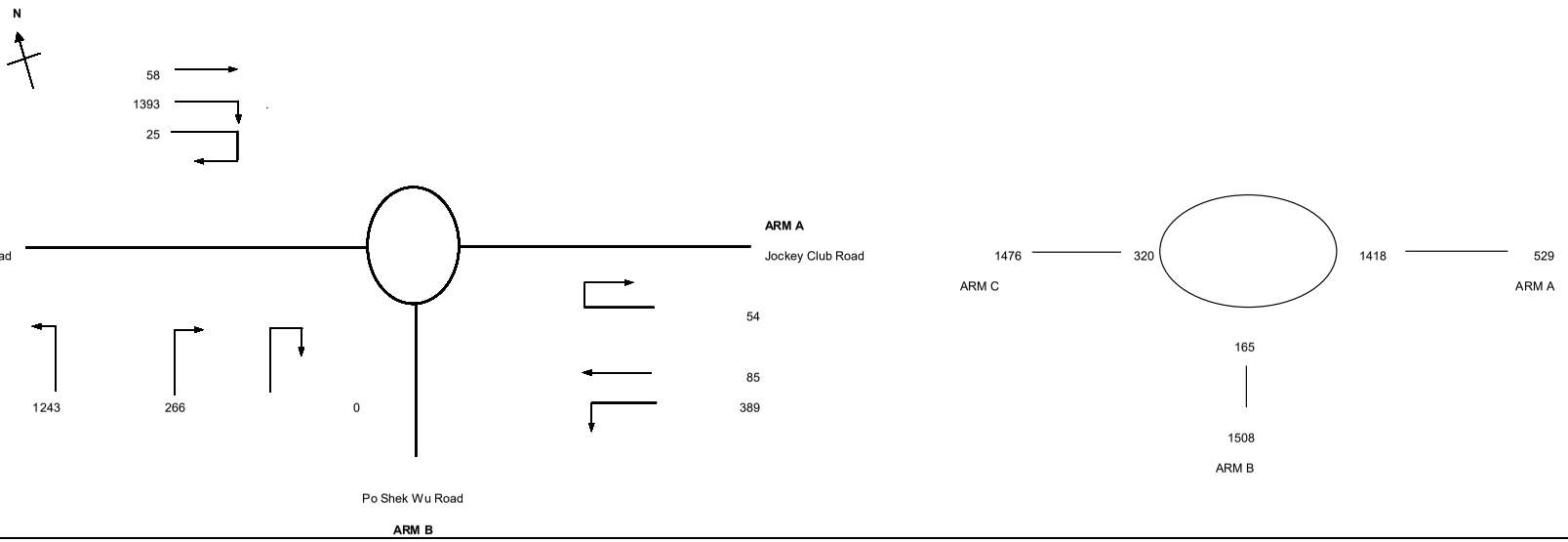


ARM			A	B	C
INPUT PARAMETERS:					
V	=	Approach half width (m)	6.80	7.00	7.50
E	=	Entry width (m)	10.50	10.50	9.50
L	=	Effective length of flare (m)	13.00	12.00	9.50
R	=	Entry radius (m)	10.00	75.00	100.00
D	=	Inscribed circle diameter (m)	41.00	41.00	41.00
A	=	Entry angle (degree)	29.40	17.00	12.70
Q	=	Entry flow (pcu/h)	767	1184	1326
Qc	=	Circulating flow across entry (pcu/h)	1155	178	627
OUTPUT PARAMETERS:					
S	=	Sharpness of flare = 1.6(E-V)/L	0.46	0.47	0.34
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.08	1.10
X2	=	V + ((E-V)/(1+2S))	8.74	8.81	8.69
M	=	EXP((D-60)/10)	0.15	0.15	0.15
F	=	303*X2	2647	2670	2635
Td	=	1+(0.5/(1+M))	1.43	1.43	1.43
Fc	=	0.21*Td(1+0.2*X2)	0.83	0.83	0.83
Qe	=	K(F-Fc*Qc)	1612	2725	2327
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.43	0.57

Total In Sum = **3276** **PCU**

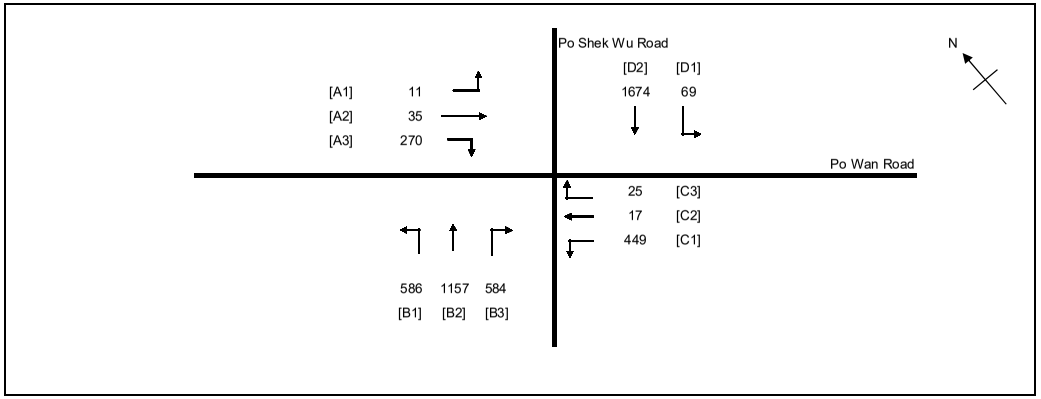
DFC of Critical Approach = **0.57**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 236072-09	SCENARIO:
J1 - Po Shek Wu Road / Jockey Club Road	2033_PM_Design (new)	DATE:	FILENAME:

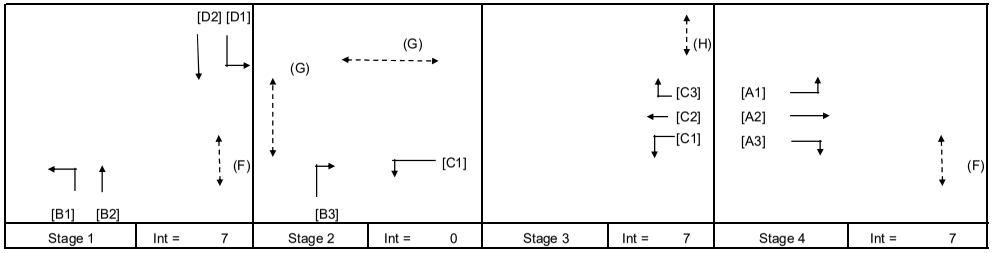


ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	6.80	7.00	7.50			
E	=	Entry width (m)	10.50	10.50	9.50			
L	=	Effective length of flare (m)	13.00	12.00	9.50			
R	=	Entry radius (m)	10.00	75.00	100.00			
D	=	Inscribed circle diameter (m)	41.00	41.00	41.00			
A	=	Entry angle (degree)	29.40	17.00	12.70			
Q	=	Entry flow (pcu/h)	529	1508	1476			
Qc	=	Circulating flow across entry (pcu/h)	1418	165	320			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.46	0.47	0.34			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.08	1.10			
X2	=	V + ((E-V)/(1+2S))	8.74	8.81	8.69			
M	=	EXP((D-60)/10)	0.15	0.15	0.15			
F	=	303*X2	2647	2670	2635			
Td	=	1+(0.5/(1+M))	1.43	1.43	1.43			
Fc	=	0.21*Td(1+0.2*X2)	0.83	0.83	0.83			
Qe	=	K(F-Fc*Qc)	1404	2737	2606	**Total In Sum =**	**3513**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.38	0.55	0.57	**DFC of Critical Approach =**	**0.57**	

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J2 - Po Shek Wu Road / Po Wan Road	2033 AM Design_Imp	DATE :	FILENAME:



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.642	
Loss time		L =	24	sec
Total Flow		=	4878	pcu
Co	= (1.5*L+5)/(1-Y)	=	114.5	sec
Cm	= L/(1-Y)	=	67.0	sec
Yult		=	0.720	
R.C.ult	= (Yult-Y)/Y*100%	=	12.2	%
Cp	= 0.9*L/(0.9-Y)	=	83.7	sec
Ymax	= 1-L/C	=	0.800	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	12	%



Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
F	10.50	5	2	9	57	2	9	OK
G	12.00	5	6	9	13	6	9	OK
H	9.00	5	10	8	6	10	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
A1, A2, A3	4	3.30	E	1	15		N	1945	11	35	106	152	0.77	1806			1806	0.084	0.084		13	12	0.808	27
A3	4	3.30	E	1	25			2085			164	164	1.00	1967			1967	0.083			12	12	0.802	29
B1	1	3.30	A	1	12		N	1945	513			513	1.00	1729			1729	0.297	0.297		44	44	0.801	65
B1,B2	1	3.30	A	1	12			2085	73	538		611	0.12	2054			2054	0.297			44	44	0.802	77
B2	1	3.30	A	1				2085		619		619	0.00	2085			2085	0.297			44	44	0.801	78
B3	2	3.30	B	2	20			4170			584	584	1.00	3879			3879	0.150			23	23	0.802	47
C1	2,3	3.20	C	1	12		N	1935	449			449	1.00	1720			1720	0.261	0.261	6	39	45	0.695	56
C2,C3	3	3.20	D	1	15			2075		17	25	43	0.60	1958			1958	0.022			3	18	0.149	7
D1,D2	1	3.80	A	1	15		N	1995	69	481		550	0.13	1970			1970	0.279			42	44	0.754	69
D2	1	3.80	A	2				4270		1193		1193	0.00	4270			4270	0.279			42	44	0.754	75

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
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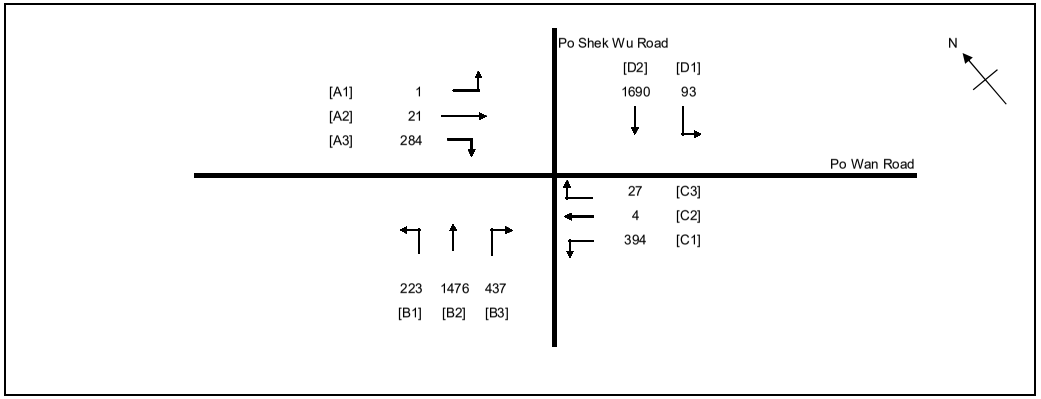
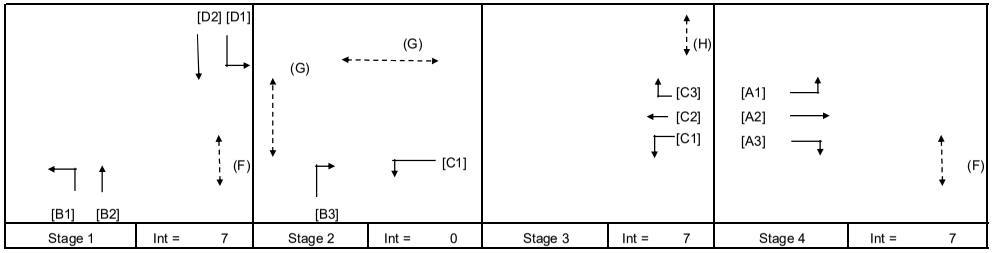


No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.665	
Loss time		L =	23	sec
Total Flow		=	4650	pcu
Co	= (1.5*L+5)/(1-Y)	=	117.8	sec
Cm	= L/(1-Y)	=	68.6	sec
Yult		=	0.728	
R.C.ult	= (Yult-Y)/Y*100%	=	9.5	%
Cp	= 0.9*L/(0.9-Y)	=	88.0	sec
Ymax	= 1-L/C	=	0.808	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	9	%



Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
F	10.50	5	2	9	63	2	9	OK
G	12.00	5	6	9	6	6	9	OK
H	9.00	5	10	8	5	10	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
A1, A2, A3	4	3.30	E	1	15		N	1945	1	21	124	146	0.85	1792			1792	0.082	0.082		12	12	0.827	26
A3	4	3.30	E	1	25			2085			160	160	1.00	1967			1967	0.081			12	12	0.822	29
B1	1	3.30	A	1	12		N	1945	223			223	1.00	1729			1729	0.129			19	52	0.300	25
B1,B2	1	3.30	A	1	12			2085	0	738		738	0.00	2085			2085	0.354	0.354		52	52	0.822	84
B2	1	3.30	A	1				2085		738		738	0.00	2085			2085	0.354			52	52	0.822	84
B3	2	3.30	B	2	20			4170			437	437	1.00	3879			3879	0.113			16	16	0.822	38
C1	2,3	3.20	C	1	12		N	1935	394			394	1.00	1720			1720	0.229	0.229	5	33	38	0.715	54
C2,C3	3	3.20	D	1	15			2075		4	27	31	0.88	1907			1907	0.016			2	17	0.116	5
D1,D2	1	3.80	A	1	15		N	1995	93	470		563	0.17	1963			1963	0.287			42	52	0.667	64
D2	1	3.80	A	2				4270		1220		1220	0.00	4270			4270	0.286			42	52	0.664	69

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
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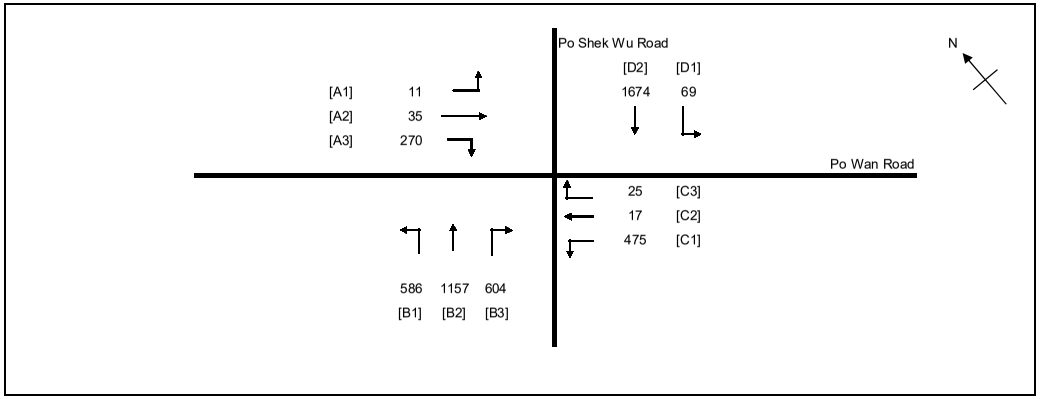
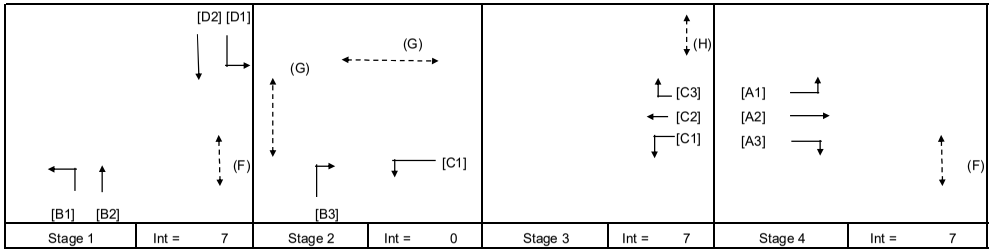


No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	3	
Cycle time	C =	120	sec
Sum(y)	Y =	0.657	
Loss time	L =	23	sec
Total Flow	=	4924	pcu
Co = (1.5*L+5)/(1-Y)	=	115.1	sec
Cm = L/(1-Y)	=	67.0	sec
Yult	=	0.728	
R.C.ult = (Yult-Y)/Y*100%	=	10.8	%
Cp = 0.9*L/(0.9-Y)	=	85.1	sec
Ymax = 1-L/C	=	0.808	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	11	%



Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
F	10.50	5	2	9	56	2	9	OK
G	12.00	5	6	9	13	6	9	OK
H	9.00	5	10	8	6	10	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
A1, A2, A3	4	3.30	E	1	15		N	1945	11	35	106	152	0.77	1806			1806	0.084	0.084		12	12	0.819	27
A3	4	3.30	E	1	25			2085			164	164	1.00	1967			1967	0.083			12	12	0.812	29
B1	1	3.30	A	1	12		N	1945	513			513	1.00	1729			1729	0.297	0.297		44	44	0.811	65
B1,B2	1	3.30	A	1	12			2085	73	538		611	0.12	2054			2054	0.297			44	44	0.812	77
B2	1	3.30	A	1				2085		619		619	0.00	2085			2085	0.297			44	44	0.812	79
B3	2	3.30	B	2	20			4170			604	604	1.00	3879			3879	0.156			23	23	0.812	49
C1	2,3	3.20	C	1	12		N	1935	475			475	1.00	1720			1720	0.276	0.276	5	41	46	0.724	59
C2,C3	3	3.20	D	1	15			2075		17	25	43	0.60	1958			1958	0.022			3	18	0.147	7
D1,D2	1	3.80	A	1	15		N	1995	69	481		550	0.13	1970			1970	0.279			41	44	0.763	70
D2	1	3.80	A	2				4270		1193		1193	0.00	4270			4270	0.279			41	44	0.764	76

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
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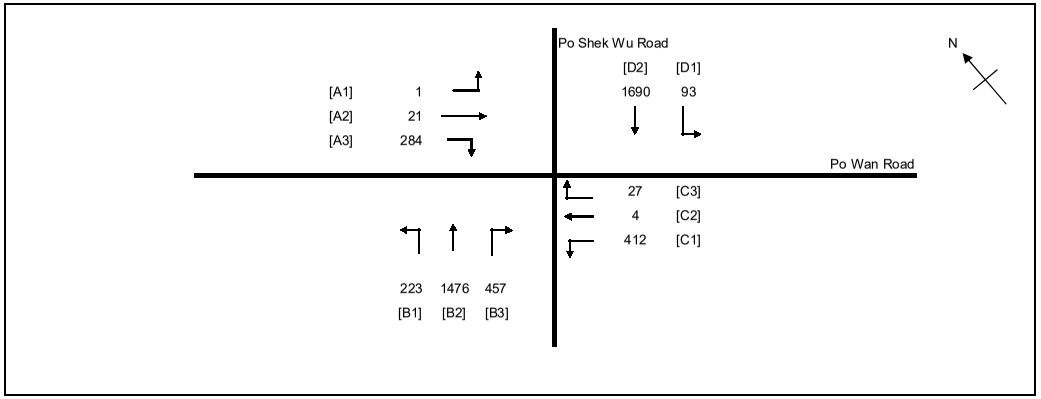
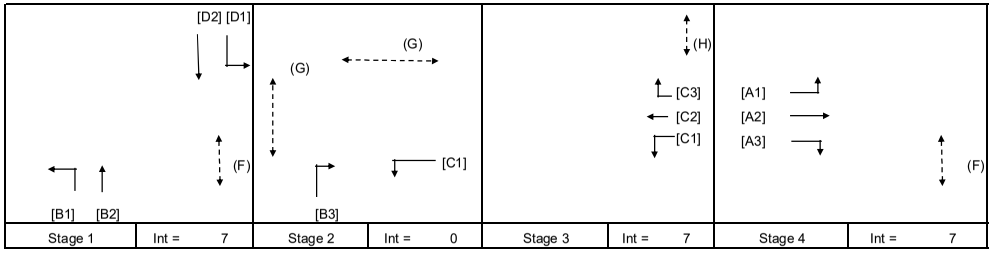


No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.675	
Loss time		L =	23	sec
Total Flow		=	4688	pcu
Co	= (1.5*L+5)/(1-Y)	=	121.5	sec
Cm	= L/(1-Y)	=	70.7	sec
Yult		=	0.728	
R.C.ult	= (Yult-Y)/Y*100%	=	7.8	%
Cp	= 0.9*L/(0.9-Y)	=	91.9	sec
Ymax	= 1-L/C	=	0.808	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	8	%



Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
F	10.50	5	2	9	63	2	9	OK
G	12.00	5	6	9	7	6	9	OK
H	9.00	5	10	8	5	10	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				18				
A1, A2, A3	4	3.30	E	1	15		N	1945	1	21	124	146	0.85	1792			1792	0.082	0.082		12	12	0.839	26
A3	4	3.30	E	1	25			2085			160	160	1.00	1967			1967	0.081			12	12	0.835	29
B1	1	3.30	A	1	12		N	1945	223			223	1.00	1729			1729	0.129			19	51	0.304	26
B1,B2	1	3.30	A	1	12			2085	0	738		738	0.00	2085			2085	0.354	0.354		51	51	0.835	85
B2	1	3.30	A	1				2085		738		738	0.00	2085			2085	0.354			51	51	0.835	85
B3	2	3.30	B	2	20			4170			457	457	1.00	3879			3879	0.118			17	17	0.835	39
C1	2,3	3.20	C	1	12		N	1935	412			412	1.00	1720			1720	0.239	0.239	5	34	39	0.729	55
C2,C3	3	3.20	D	1	15			2075		4	27	31	0.88	1907			1907	0.016			2	17	0.113	5
D1,D2	1	3.80	A	1	15		N	1995	93	470		563	0.17	1963			1963	0.287			41	51	0.677	65
D2	1	3.80	A	2				4270		1220		1220	0.00	4270			4270	0.286			41	51	0.674	70

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
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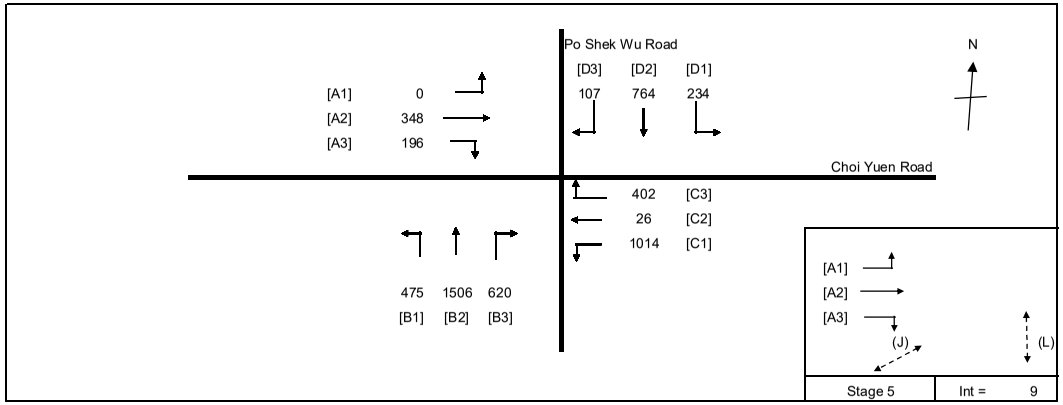
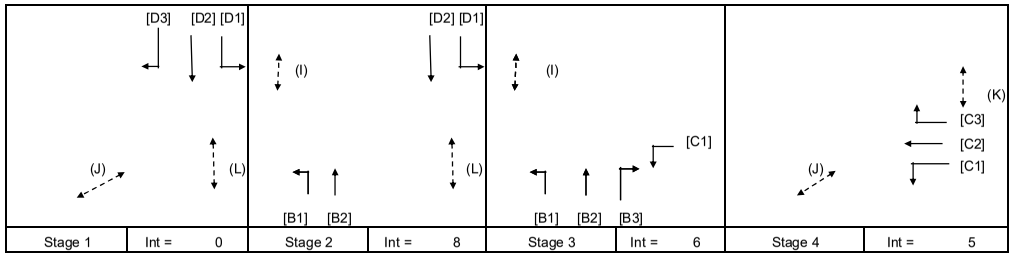


No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.649
Loss time	L =	26 sec
Total Flow	=	5692 pcu
Co = (1.5*L+5)/(1-Y)	=	125.2 sec
Cm = L/(1-Y)	=	74.0 sec
Yult	=	0.705
R.C.ult = (Yult-Y)/Y*100%	=	8.7 %
Cp = 0.9*L/(0.9-Y)	=	93.0 sec
Ymax = 1-L/C	=	0.783
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	9 %



Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
I	15.00	13	8	11	39	8	11	OK
J	5.50	5	1	5	56	1	5	OK
K	11.00	5	10	9	12	10	9	OK
L	14.00	6	1	12	45	1	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				24				
A1,A2	5	3.30	H	1	15		N	1945	0	175		175	0.00	1945			1945	0.090			13	13	0.824	31
A2,A3	5	3.30	H	1	35			2085		173	16	189	0.08	2077			2077	0.091			13	13	0.831	34
A3	5	3.30	H	1	30			2085			180	180	1.00	1986			1986	0.090	0.091		13	13	0.828	32
B1	2,3	4.00	D	1	40		N	2015	475			475	1.00	1942			1942	0.244			35	52	0.567	54
B2	2,3	3.50	C	2				4210		1506		1506	0.00	4210			4210	0.358			52	52	0.830	86
B3	3	3.50	E	2	20			4210			620	620	1.00	3916			3916	0.158	0.158	2	23	25	0.762	49
C1	3,4	3.30	G	2	15		N	4030	1014			1014	1.00	3664			3664	0.277			40	62	0.534	49
C2,C3	4	3.30	G	1	30			2085		26	402	429	0.94	1991			1991	0.215	0.215		31	31	0.828	63
D1	1,2	3.20	B	1	20		N	1935	234			234	1.00	1800			1800	0.130			19	27	0.586	36
D2	1,2	3.20	B	2				4150		764		764	0.00	4150			4150	0.184	0.184		27	27	0.828	59
D3	1	3.20	A	1	25			2075			107	107	1.00	1958			1958	0.055			8	8	0.828	20

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
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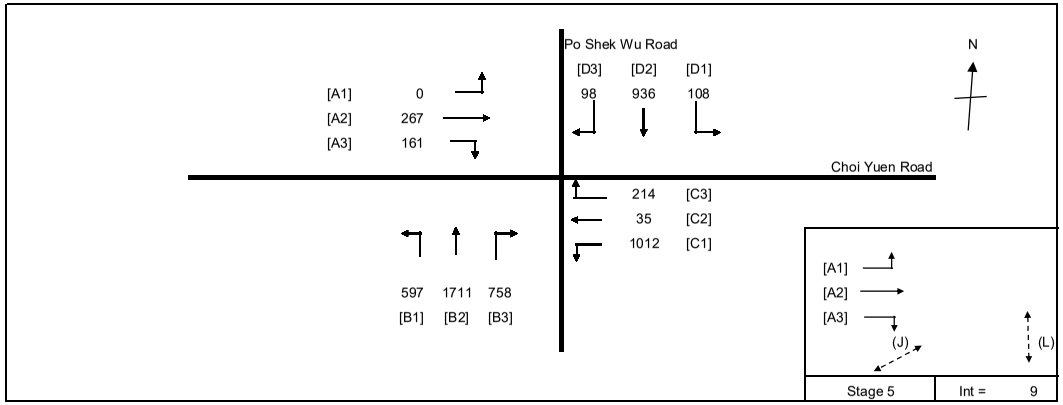
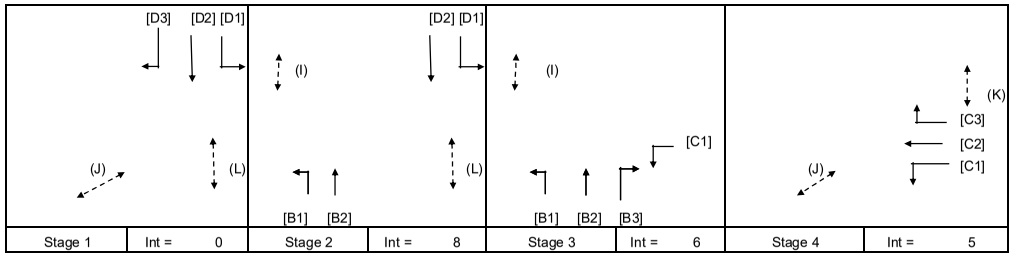


No. of stages per cycle		N =	5
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.615
Loss time		L =	30 sec
Total Flow		=	5897 pcu
Co	= (1.5*L+5)/(1-Y)	=	129.9 sec
Cm	= L/(1-Y)	=	77.9 sec
Yult		=	0.675
R.C.ult	= (Yult-Y)/Y*100%	=	9.8 %
Cp	= 0.9*L/(0.9-Y)	=	94.7 sec
Ymax	= 1-L/C	=	0.750
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	10 %



Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
I	15.00	13	8	11	49	8	11	OK
J	5.50	5	1	5	46	1	5	OK
K	11.00	5	10	9	5	10	9	OK
L	14.00	6	1	12	48	1	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				24				
A1,A2	5	3.30	H	1	15		N	1945	0	139		139	0.00	1945			1945	0.071			10	10	0.822	25
A2,A3	5	3.30	H	1	35			2085		128	19	147	0.13	2073			2073	0.071			10	10	0.813	27
A3	5	3.30	H	1	30			2085			142	142	1.00	1986			1986	0.071	0.071		10	10	0.820	26
B1	2,3	4.00	D	1	40		N	2015	597			597	1.00	1942			1942	0.308			45	62	0.595	58
B2	2,3	3.50	C	2				4210		1711		1711	0.00	4210			4210	0.406			59	62	0.787	83
B3	3	3.50	E	2	20			4210			758	758	1.00	3916			3916	0.194	0.194		28	28	0.820	58
C1	3,4	3.30	G	2	15		N	4030	1012			1012	1.00	3664			3664	0.276			40	59	0.566	52
C2,C3	4	3.30	G	1	30			2085		35	214	249	0.86	1999			1999	0.124	0.124	6	18	24	0.617	40
D1	1,2	3.20	B	1	20		N	1935	108			108	1.00	1800			1800	0.060			9	33	0.219	16
D2	1,2	3.20	B	2				4150		936		936	0.00	4150			4150	0.226	0.226		33	33	0.820	68
D3	1	3.20	A	1	25			2075			98	98	1.00	1958			1958	0.050			7	7	0.820	18

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
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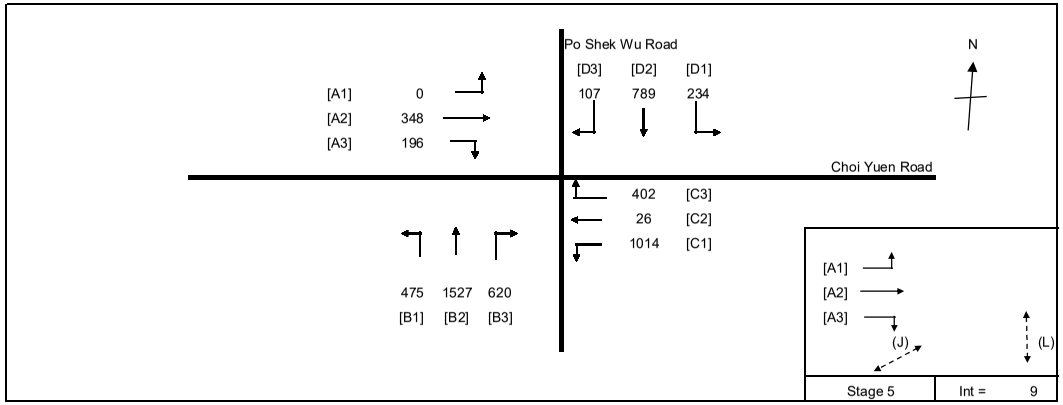
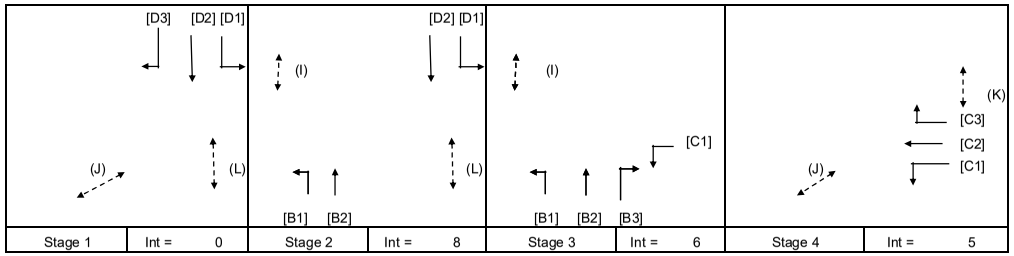


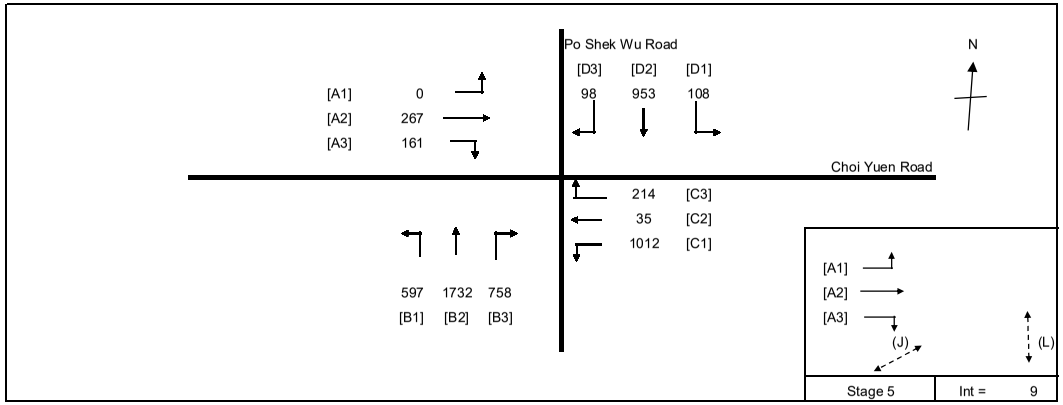
No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.655
Loss time	L =	26 sec
Total Flow	=	5738 pcu
Co = (1.5*L+5)/(1-Y)	=	127.4 sec
Cm = L/(1-Y)	=	75.3 sec
Yult	=	0.705
R.C.ult = (Yult-Y)/Y*100%	=	7.7 %
Cp = 0.9*L/(0.9-Y)	=	95.4 sec
Ymax = 1-L/C	=	0.783
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	8 %



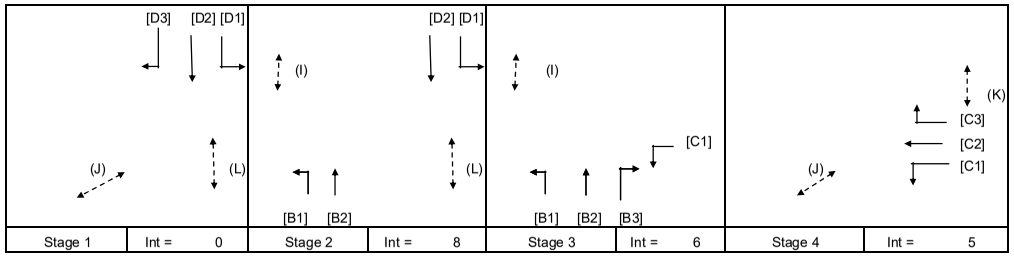
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
I	15.00	13	8	11	39	8	11	OK
J	5.50	5	1	5	56	1	5	OK
K	11.00	5	10	9	12	10	9	OK
L	14.00	6	1	12	45	1	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				24				
A1,A2	5	3.30	H	1	15		N	1945	0	175		175	0.00	1945			1945	0.090			13	13	0.831	31
A2,A3	5	3.30	H	1	35			2085		173	16	189	0.08	2077			2077	0.091			13	13	0.839	34
A3	5	3.30	H	1	30			2085			180	180	1.00	1986			1986	0.090	0.091		13	13	0.836	32
B1	2,3	4.00	D	1	40		N	2015	475			475	1.00	1942			1942	0.244			35	52	0.562	54
B2	2,3	3.50	C	2				4210		1527		1527	0.00	4210			4210	0.363			52	52	0.833	86
B3	3	3.50	E	2	20			4210			620	620	1.00	3916			3916	0.158	0.158	2	23	25	0.768	49
C1	3,4	3.30	G	2	15		N	4030	1014			1014	1.00	3664			3664	0.277			40	62	0.539	49
C2,C3	4	3.30	G	1	30			2085		26	402	429	0.94	1991			1991	0.215	0.215		31	31	0.836	64
D1	1,2	3.20	B	1	20		N	1935	234			234	1.00	1800			1800	0.130			19	27	0.572	36
D2	1,2	3.20	B	2				4150		789		789	0.00	4150			4150	0.190	0.190		27	27	0.836	61
D3	1	3.20	A	1	25			2075			107	107	1.00	1958			1958	0.055			8	8	0.836	20

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J3 - Po Shek Wu Road / Choi Yuen Road	2033_PM_Design_Imp (new)	DATE :	FILENAME:



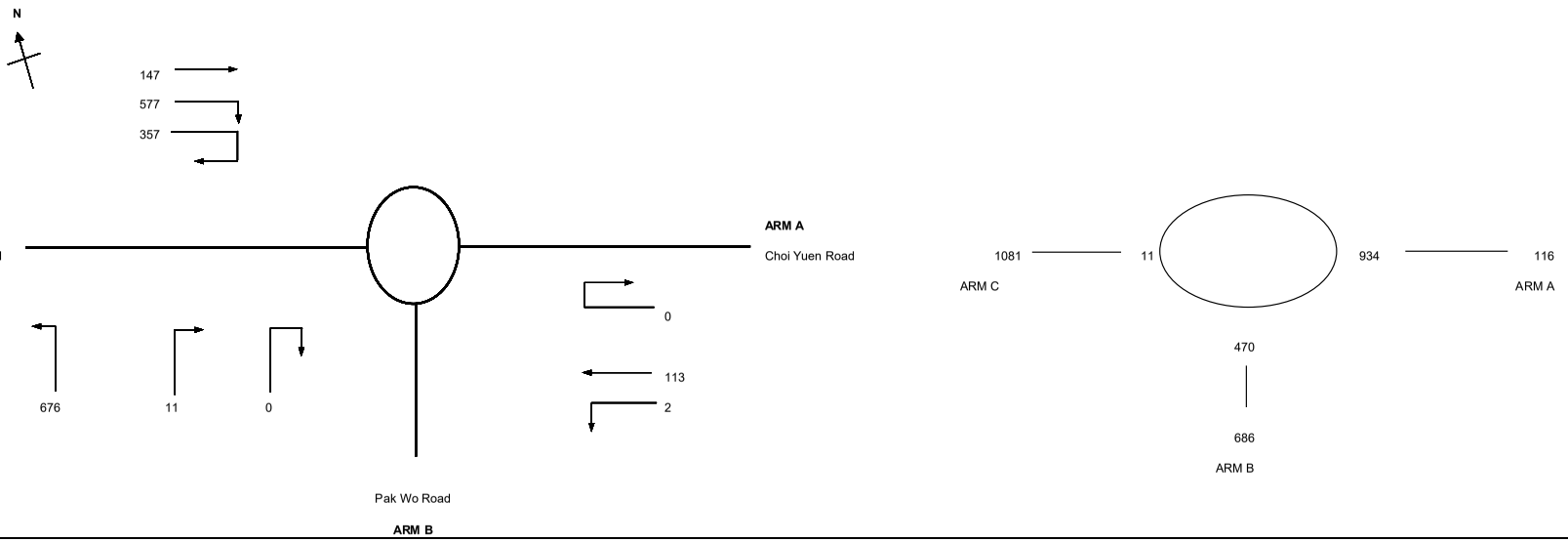
No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.619
Loss time	L =	30 sec
Total Flow	=	5935 pcu
Co = (1.5*L+5)/(1-Y)	=	131.3 sec
Cm = L/(1-Y)	=	78.8 sec
Yult	=	0.675
R.C.ult = (Yult-Y)/Y*100%	=	9.0 %
Cp = 0.9*L/(0.9-Y)	=	96.1 sec
Ymax = 1-L/C	=	0.750
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	9 %



Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
I	15.00	13	8	11	49	8	11	OK
J	5.50	5	1	5	46	1	5	OK
K	11.00	5	10	9	5	10	9	OK
L	14.00	6	1	12	49	1	12	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				24				
A1,A2	5	3.30	H	1	15		N	1945	0	139		139	0.00	1945			1945	0.071			10	10	0.828	25
A2,A3	5	3.30	H	1	35			2085		128	19	147	0.13	2073			2073	0.071			10	10	0.819	27
A3	5	3.30	H	1	30			2085			142	142	1.00	1986			1986	0.071	0.071		10	10	0.826	26
B1	2,3	4.00	D	1	40		N	2015	597			597	1.00	1942			1942	0.308			45	62	0.593	58
B2	2,3	3.50	C	2				4210		1732		1732	0.00	4210			4210	0.411			60	62	0.793	83
B3	3	3.50	E	2	20			4210			758	758	1.00	3916			3916	0.194	0.194		28	28	0.826	58
C1	3,4	3.30	G	2	15		N	4030	1012			1012	1.00	3664			3664	0.276			40	58	0.569	52
C2,C3	4	3.30	G	1	30			2085		35	214	249	0.86	1999			1999	0.124	0.124	6	18	24	0.620	40
D1	1,2	3.20	B	1	20		N	1935	108			108	1.00	1800			1800	0.060			9	33	0.216	16
D2	1,2	3.20	B	2				4150		953		953	0.00	4150			4150	0.230	0.230		33	33	0.826	69
D3	1	3.20	A	1	25			2075			98	98	1.00	1958			1958	0.050			7	7	0.826	18

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J4 - Choi Yuen Road / Pak Wo Road	2033_AM_Design	DATE:	FILENAME:

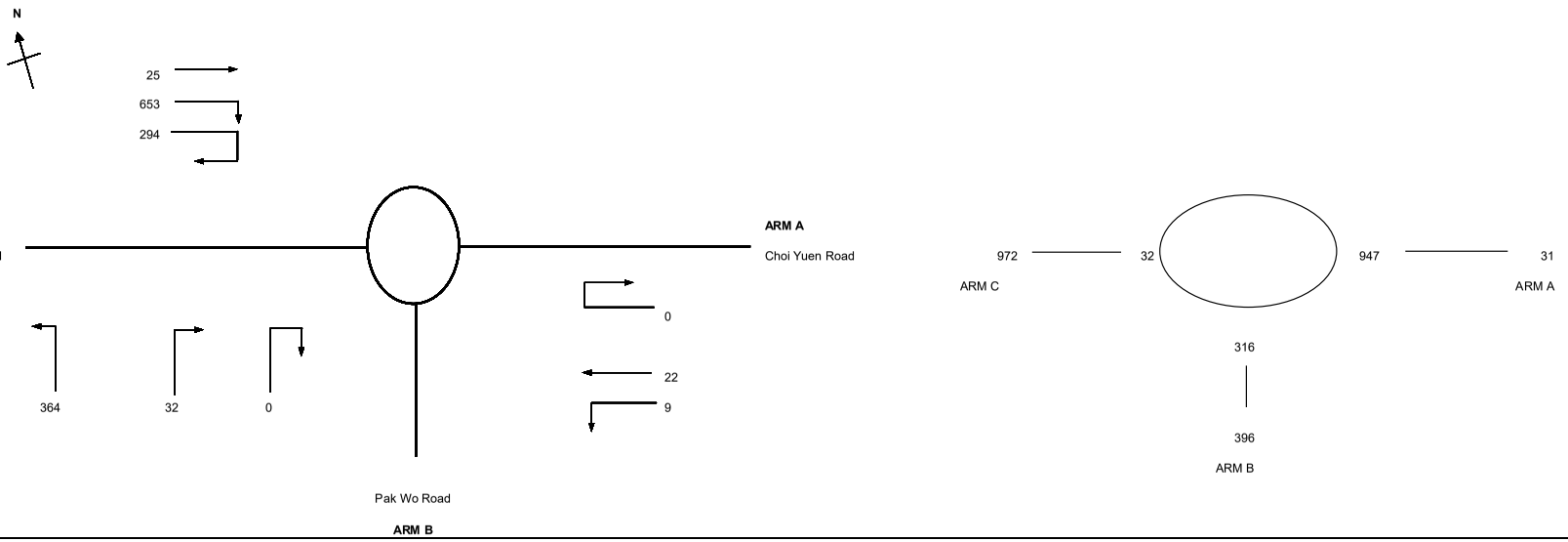


ARM			A	B	C
INPUT PARAMETERS:					
V	=	Approach half width (m)	5.00	5.00	5.00
E	=	Entry width (m)	5.40	5.80	7.70
L	=	Effective length of flare (m)	5.00	5.00	23.00
R	=	Entry radius (m)	15.00	20.00	77.00
D	=	Inscribed circle diameter (m)	25.00	25.00	25.00
A	=	Entry angle (degree)	31.00	25.00	30.00
Q	=	Entry flow (pcu/h)	116	686	1081
Qc	=	Circulating flow across entry (pcu/h)	934	470	11
OUTPUT PARAMETERS:					
S	=	Sharpness of flare = 1.6(E-V)/L	0.13	0.26	0.19
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.02	1.04
X2	=	V + ((E-V)/(1+2S))	5.32	5.53	6.96
M	=	EXP((D-60)/10)	0.03	0.03	0.03
F	=	303*X2	1611	1675	2110
Td	=	1+(0.5/(1+M))	1.49	1.49	1.49
Fc	=	0.21*Td(1+0.2*X2)	0.64	0.66	0.75
Qe	=	K(F-Fc*Qc)	990	1390	2178
DFC	=	Design flow/Capacity = Q/Qe	0.12	0.49	0.50

Total In Sum = **1883** **PCU**

DFC of Critical Approach = **0.50**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J4 - Choi Yuen Road / Pak Wo Road	2033_PM_Design	DATE:	FILENAME:

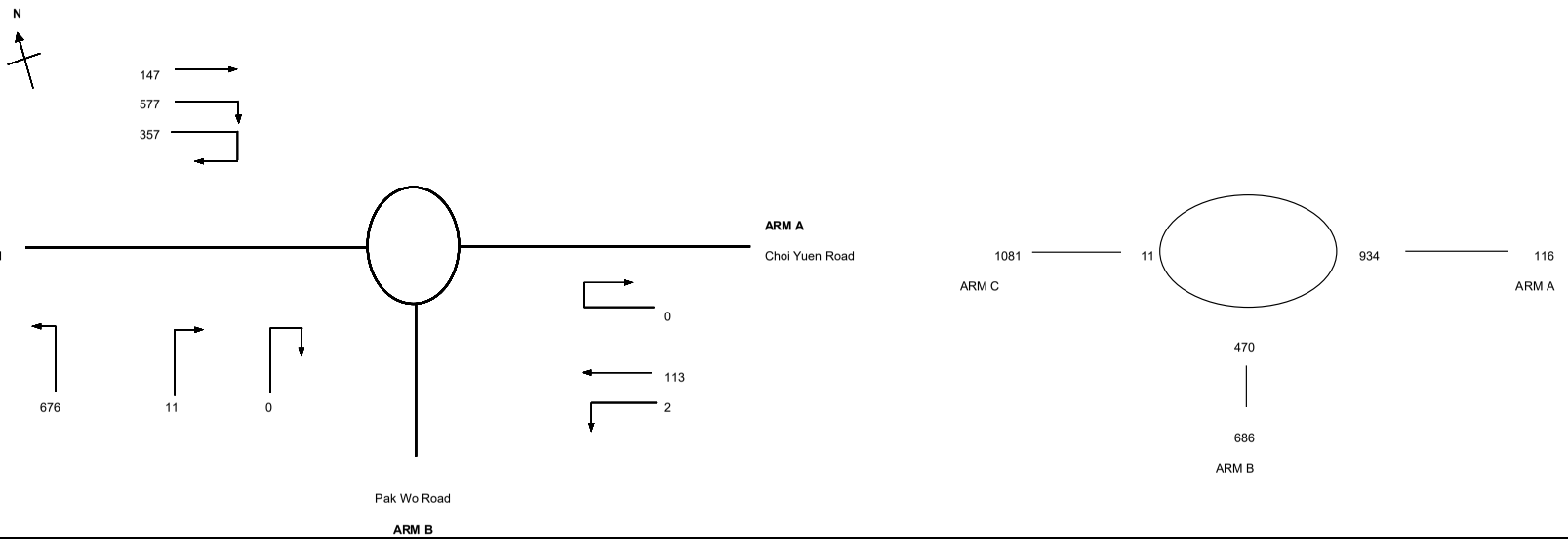


ARM			A	B	C
INPUT PARAMETERS:					
V	=	Approach half width (m)	5.00	5.00	5.00
E	=	Entry width (m)	5.40	5.80	7.70
L	=	Effective length of flare (m)	5.00	5.00	23.00
R	=	Entry radius (m)	15.00	20.00	77.00
D	=	Inscribed circle diameter (m)	25.00	25.00	25.00
A	=	Entry angle (degree)	31.00	25.00	30.00
Q	=	Entry flow (pcu/h)	31	396	972
Qc	=	Circulating flow across entry (pcu/h)	947	316	32
OUTPUT PARAMETERS:					
S	=	Sharpness of flare = 1.6(E-V)/L	0.13	0.26	0.19
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.02	1.04
X2	=	V + ((E-V)/(1+2S))	5.32	5.53	6.96
M	=	EXP((D-60)/10)	0.03	0.03	0.03
F	=	303*X2	1611	1675	2110
Td	=	1+(0.5/(1+M))	1.49	1.49	1.49
Fc	=	0.21*Td(1+0.2*X2)	0.64	0.66	0.75
Qe	=	K(F-Fc*Qc)	982	1493	2161
DFC	=	Design flow/Capacity = Q/Qe	0.03	0.26	0.45

Total In Sum = **1398** **PCU**

DFC of Critical Approach = **0.45**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J4 - Choi Yuen Road / Pak Wo Road	2033_AM_Design (new)	DATE:	FILENAME:

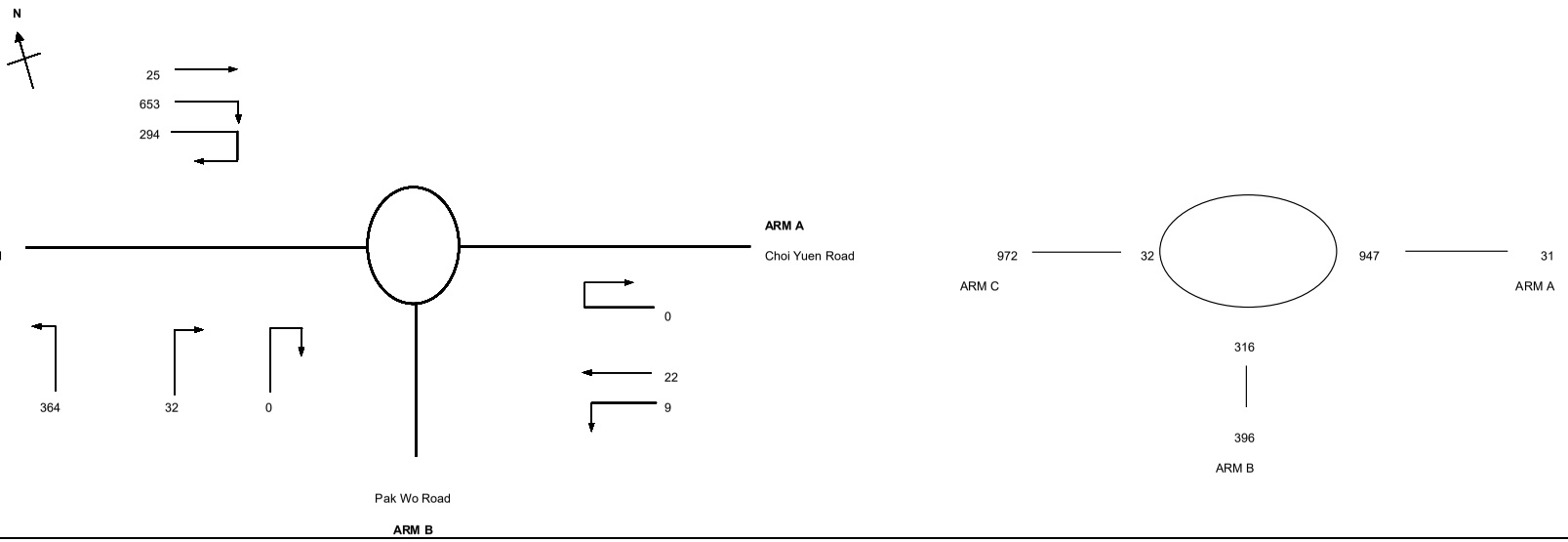


ARM			A	B	C
INPUT PARAMETERS:					
V	=	Approach half width (m)	5.00	5.00	5.00
E	=	Entry width (m)	5.40	5.80	7.70
L	=	Effective length of flare (m)	5.00	5.00	23.00
R	=	Entry radius (m)	15.00	20.00	77.00
D	=	Inscribed circle diameter (m)	25.00	25.00	25.00
A	=	Entry angle (degree)	31.00	25.00	30.00
Q	=	Entry flow (pcu/h)	116	686	1081
Qc	=	Circulating flow across entry (pcu/h)	934	470	11
OUTPUT PARAMETERS:					
S	=	Sharpness of flare = 1.6(E-V)/L	0.13	0.26	0.19
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.02	1.04
X2	=	V + ((E-V)/(1+2S))	5.32	5.53	6.96
M	=	EXP((D-60)/10)	0.03	0.03	0.03
F	=	303*X2	1611	1675	2110
Td	=	1+(0.5/(1+M))	1.49	1.49	1.49
Fc	=	0.21*Td(1+0.2*X2)	0.64	0.66	0.75
Qe	=	K(F-Fc*Qc)	990	1390	2178
DFC	=	Design flow/Capacity = Q/Qe	0.12	0.49	0.50

Total In Sum = **1883** **PCU**

DFC of Critical Approach = **0.50**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J4 - Choi Yuen Road / Pak Wo Road	2033_PM_Design (new)	DATE:	FILENAME:

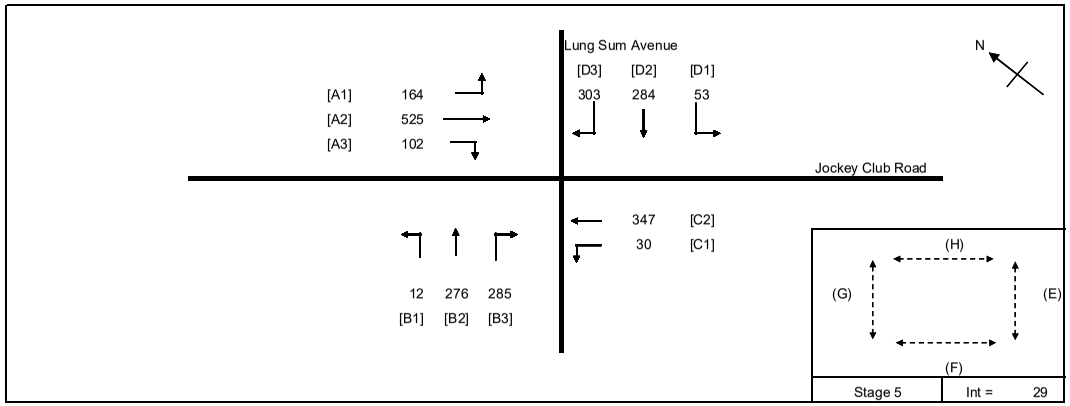


ARM			A	B	C
INPUT PARAMETERS:					
V	=	Approach half width (m)	5.00	5.00	5.00
E	=	Entry width (m)	5.40	5.80	7.70
L	=	Effective length of flare (m)	5.00	5.00	23.00
R	=	Entry radius (m)	15.00	20.00	77.00
D	=	Inscribed circle diameter (m)	25.00	25.00	25.00
A	=	Entry angle (degree)	31.00	25.00	30.00
Q	=	Entry flow (pcu/h)	31	396	972
Qc	=	Circulating flow across entry (pcu/h)	947	316	32
OUTPUT PARAMETERS:					
S	=	Sharpness of flare = 1.6(E-V)/L	0.13	0.26	0.19
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.02	1.04
X2	=	V + ((E-V)/(1+2S))	5.32	5.53	6.96
M	=	EXP((D-60)/10)	0.03	0.03	0.03
F	=	303*X2	1611	1675	2110
Td	=	1+(0.5/(1+M))	1.49	1.49	1.49
Fc	=	0.21*Td(1+0.2*X2)	0.64	0.66	0.75
Qe	=	K(F-Fc*Qc)	982	1493	2161
DFC	=	Design flow/Capacity = Q/Qe	0.03	0.26	0.45

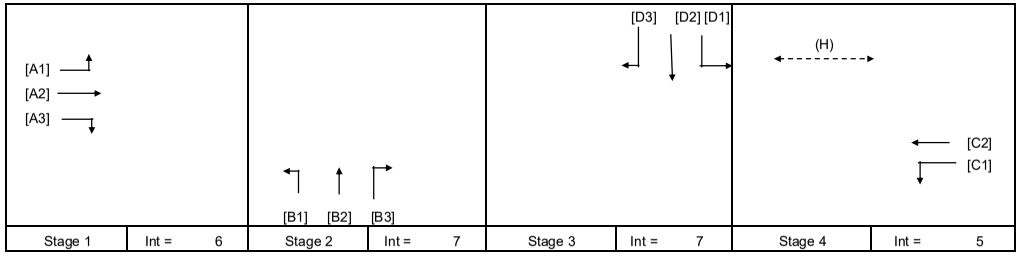
Total In Sum = **1398** **PCU**

DFC of Critical Approach = **0.45**

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J5 - Jockey Club Road / Lung Sum Avenue	2033 AM Design_Imp	DATE :	FILENAME:



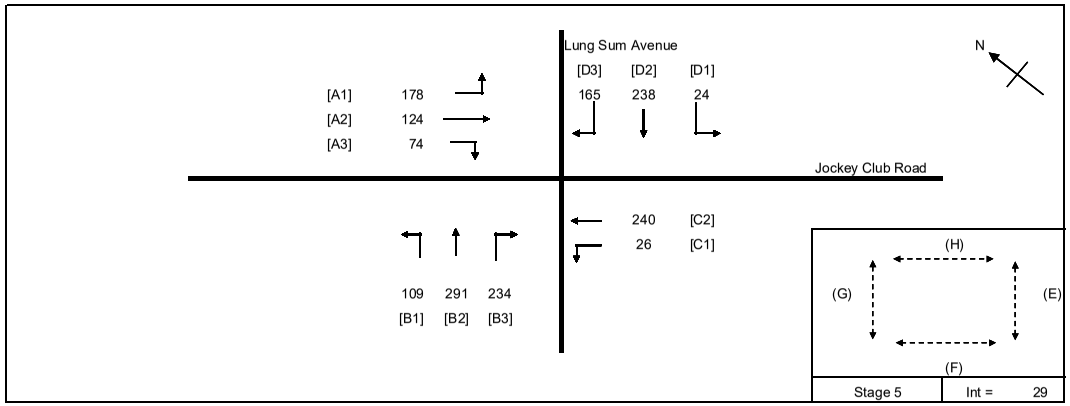
No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	136 sec
Sum(y)	Y =	0.503
Loss time	L =	49 sec
Total Flow	=	2380.674 pcu
Co = (1.5*L+5)/(1-Y)	=	158.0 sec
Cm = L/(1-Y)	=	98.6 sec
Yult	=	0.533
R.C.ult = (Yult-Y)/Y*100%	=	5.8 %
Cp = 0.9*L/(0.9-Y)	=	111.1 sec
Ymax = 1-L/C	=	0.640
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	14 %



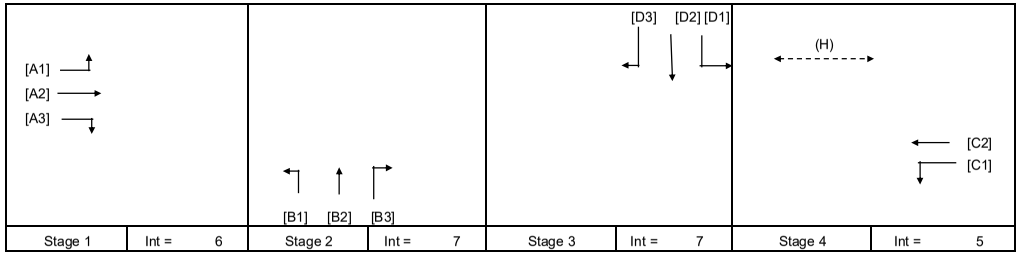
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
E	9.50	8	1	7	11	1	17	OK
F	8.50	7	5	6	7	5	17	OK
G	8.50	7	7	6	7	7	15	OK
H	8.50	7	1	6	29	1	17	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				49				
A1	1	3.50	A	1	15		N	1965	164			164	1.00	1786			1786	0.092	0.150		16	26	0.480	30
A2	1	3.50	A	1				2105		315		315	0.00	2105			2105	0.150			26	26	0.784	58
A2,A3	1	3.50	A	1	35			2105		210	102	312	0.33	2076			2076	0.150			26	26	0.787	57
B1,B2	2	3.50	D	1	40		N	1965	12	175		187	0.06	1960			1960	0.095	0.096		16	17	0.778	37
B2,B3	2	3.50	D	1	30			2105		101	96	197	0.49	2055			2055	0.096			17	17	0.782	39
B3	2	3.50	D	1	20			2105			189	189	1.00	1958			1958	0.096			17	17	0.787	38
C1,C2	4	3.50	B	1	15		N	1965	30	151		181	0.17	1933			1933	0.094	0.094		16	16	0.787	36
C2	4	3.50	B	1				2105		196		196	0.00	2105			2105	0.093			16	16	0.782	39
D1,D2	3	3.50	C	1	20		N	1965	53	263		316	0.17	1940			1940	0.163	0.163		28	28	0.787	57
D2,D3	3	3.50	C	1	25			2105		21	303	324	0.94	1993			1993	0.163			28	28	0.785	58

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J5 - Jockey Club Road / Lung Sum Avenue	2033 PM Design_Imp	DATE :	FILENAME:



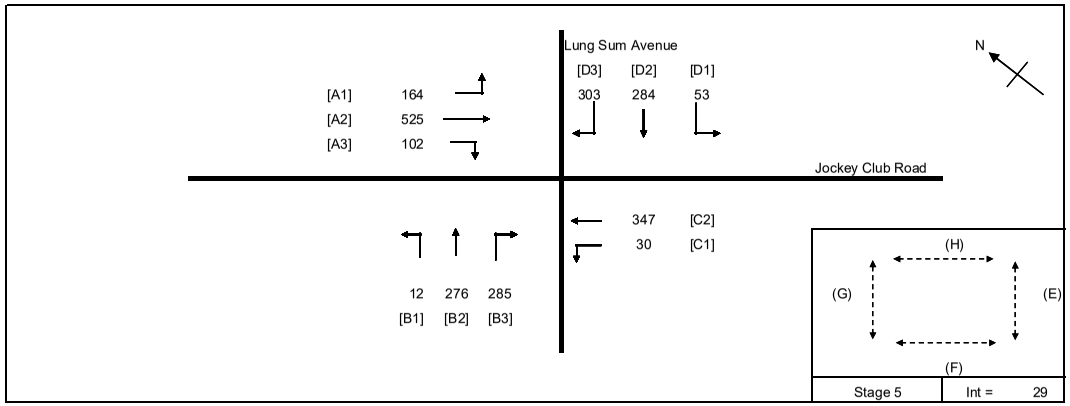
No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	128 sec
Sum(y)	Y =	0.380
Loss time	L =	49 sec
Total Flow	=	1701.825 pcu
Co = (1.5*L+5)/(1-Y)	=	126.6 sec
Cm = L/(1-Y)	=	79.0 sec
Yult	=	0.533
R.C.ult = (Yult-Y)/Y*100%	=	40.2 %
Cp = 0.9*L/(0.9-Y)	=	84.8 sec
Ymax = 1-L/C	=	0.617
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	46 %



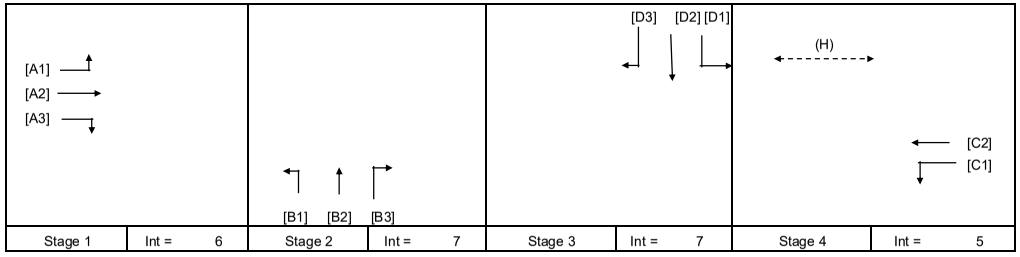
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
E	9.50	8	1	7	11	1	17	OK
F	8.50	7	5	6	7	5	17	OK
G	8.50	7	7	6	7	7	15	OK
H	8.50	7	1	6	34	1	17	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				49				
A1	1	3.50	A	1	15		N	1965	178			178	1.00	1786			1786	0.100	0.100		21	21	0.615	32
A2	1	3.50	A	1				2105		100		100	0.00	2105			2105	0.048			10	21	0.293	18
A2,A3	1	3.50	A	1	35			2105		24	74	98	0.75	2039			2039	0.048			10	21	0.297	18
B1,B2	2	3.50	D	1	40		N	1965	109	95		204	0.53	1926			1926	0.106	0.106		22	22	0.613	36
B2,B3	2	3.50	D	1	30			2105		196	26	222	0.12	2093			2093	0.106			22	22	0.615	39
B3	2	3.50	D	1	20			2105			208	208	1.00	1958			1958	0.106			22	22	0.615	37
C1,C2	4	3.50	B	1	15		N	1965	26	102		128	0.20	1926			1926	0.066	0.066		14	14	0.615	24
C2	4	3.50	B	1				2105		138		138	0.00	2105			2105	0.066			14	14	0.608	26
D1,D2	3	3.50	C	1	20		N	1965	24	186		210	0.11	1948			1948	0.108	0.108		22	22	0.615	37
D2,D3	3	3.50	C	1	25			2105		52	165	217	0.76	2013			2013	0.108			22	22	0.615	38

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J5 - Jockey Club Road / Lung Sum Avenue	2033 AM Design_Imp (new)	DATE :	FILENAME:



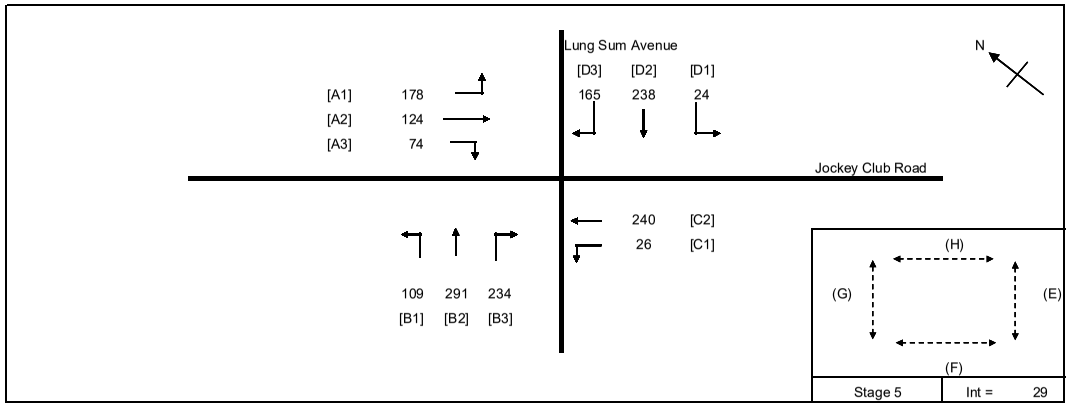
No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	136 sec
Sum(y)	Y =	0.503
Loss time	L =	49 sec
Total Flow	=	2380.674 pcu
Co = (1.5*L+5)/(1-Y)	=	158.0 sec
Cm = L/(1-Y)	=	98.6 sec
Yult	=	0.533
R.C.ult = (Yult-Y)/Y*100%	=	5.8 %
Cp = 0.9*L/(0.9-Y)	=	111.1 sec
Ymax = 1-L/C	=	0.640
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	14 %



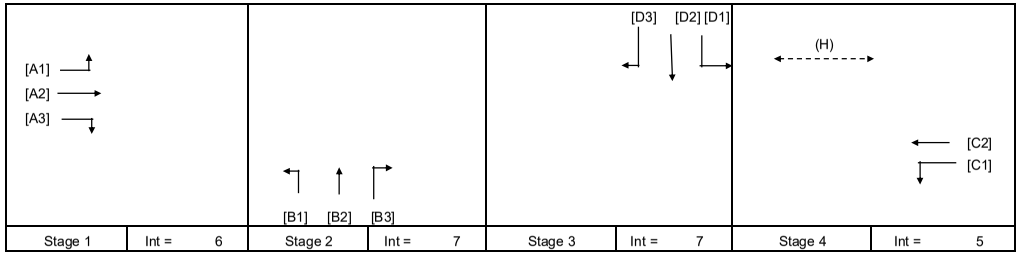
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
E	9.50	8	1	7	11	1	17	OK
F	8.50	7	5	6	7	5	17	OK
G	8.50	7	7	6	7	7	15	OK
H	8.50	7	1	6	29	1	17	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				49				
A1	1	3.50	A	1	15		N	1965	164			164	1.00	1786			1786	0.092	0.150		16	26	0.480	30
A2	1	3.50	A	1				2105		315		315	0.00	2105			2105	0.150			26	26	0.784	58
A2,A3	1	3.50	A	1	35			2105		210	102	312	0.33	2076			2076	0.150			26	26	0.787	57
B1,B2	2	3.50	D	1	40		N	1965	12	175		187	0.06	1960			1960	0.095	0.096		16	17	0.778	37
B2,B3	2	3.50	D	1	30			2105		101	96	197	0.49	2055			2055	0.096			17	17	0.782	39
B3	2	3.50	D	1	20			2105			189	189	1.00	1958			1958	0.096			17	17	0.787	38
C1,C2	4	3.50	B	1	15		N	1965	30	151		181	0.17	1933			1933	0.094	0.094		16	16	0.787	36
C2	4	3.50	B	1				2105		196		196	0.00	2105			2105	0.093			16	16	0.782	39
D1,D2	3	3.50	C	1	20		N	1965	53	263		316	0.17	1940			1940	0.163	0.163		28	28	0.787	57
D2,D3	3	3.50	C	1	25			2105		21	303	324	0.94	1993			1993	0.163			28	28	0.785	58

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J5 - Jockey Club Road / Lung Sum Avenue	2033 PM Design_Imp (new)	DATE :	FILENAME:



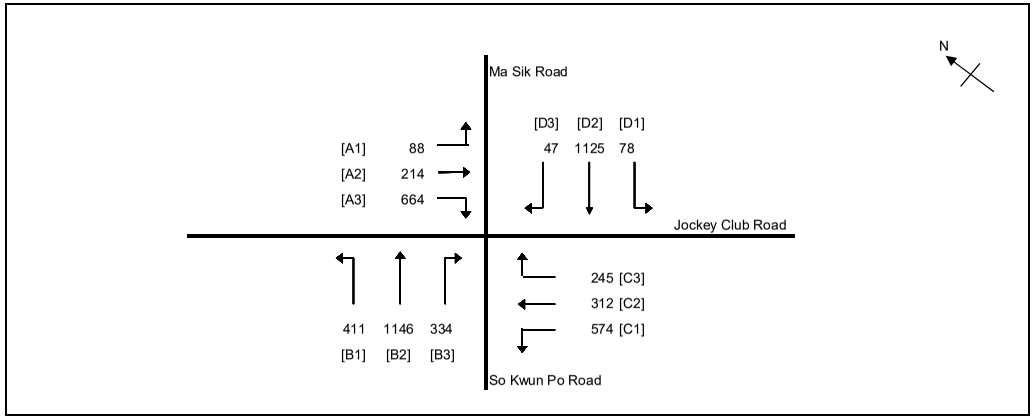
No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	128 sec
Sum(y)	Y =	0.380
Loss time	L =	49 sec
Total Flow	=	1701.825 pcu
Co = (1.5*L+5)/(1-Y)	=	126.6 sec
Cm = L/(1-Y)	=	79.0 sec
Yult	=	0.533
R.C.ult = (Yult-Y)/Y*100%	=	40.2 %
Cp = 0.9*L/(0.9-Y)	=	84.8 sec
Ymax = 1-L/C	=	0.617
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	46 %



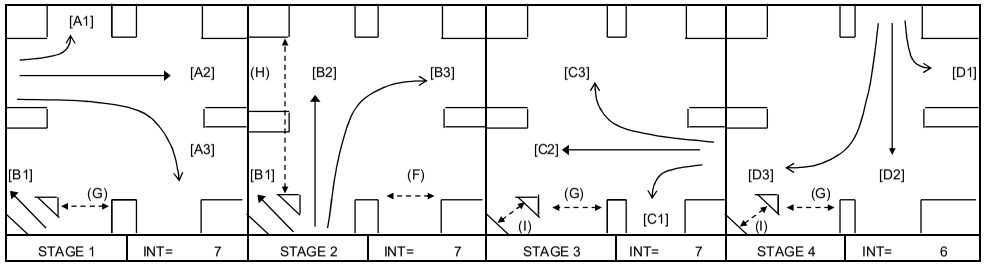
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
E	9.50	8	1	7	11	1	17	OK
F	8.50	7	5	6	7	5	17	OK
G	8.50	7	7	6	7	7	15	OK
H	8.50	7	1	6	34	1	17	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				49				
A1	1	3.50	A	1	15		N	1965	178			178	1.00	1786			1786	0.100	0.100		21	21	0.615	32
A2	1	3.50	A	1				2105		100		100	0.00	2105			2105	0.048			10	21	0.293	18
A2,A3	1	3.50	A	1	35			2105		24	74	98	0.75	2039			2039	0.048			10	21	0.297	18
B1,B2	2	3.50	D	1	40		N	1965	109	95		204	0.53	1926			1926	0.106	0.106		22	22	0.613	36
B2,B3	2	3.50	D	1	30			2105		196	26	222	0.12	2093			2093	0.106			22	22	0.615	39
B3	2	3.50	D	1	20			2105			208	208	1.00	1958			1958	0.106			22	22	0.615	37
C1,C2	4	3.50	B	1	15		N	1965	26	102		128	0.20	1926			1926	0.066	0.066		14	14	0.615	24
C2	4	3.50	B	1				2105		138		138	0.00	2105			2105	0.066			14	14	0.608	26
D1,D2	3	3.50	C	1	20		N	1965	24	186		210	0.11	1948			1948	0.108	0.108		22	22	0.615	37
D2,D3	3	3.50	C	1	25			2105		52	165	217	0.76	2013			2013	0.108			22	22	0.615	38

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J6 - Jockey Club Road / So Kwun Po Road	2033_AM_Design_Imp	DATE :	FILENAME:



No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.676	
Loss time	L =	23	sec
Total Flow	=	5237	pcu
Co = (1.5*L+5)/(1-Y)	=	122.1	sec
Cm = L/(1-Y)	=	71.1	sec
Yult	=	0.728	
R.C.ult = (Yult-Y)/Y*100%	=	7.6	%
Cp = 0.9*L/(0.9-Y)	=	92.6	sec
Ymax = 1-L/C	=	0.808	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	8	%

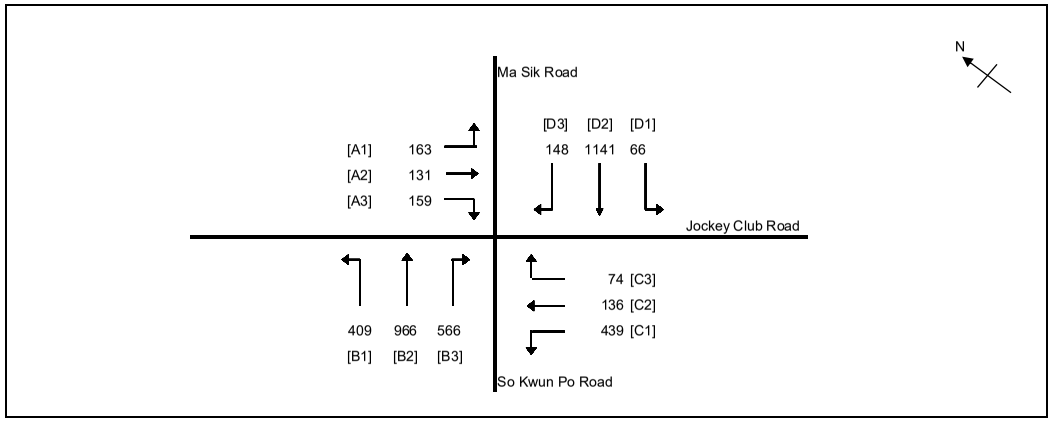


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
F	13	5	9	11	12	9	11	OK
G	11	5	2	9	74	2	9	OK
H	18	8	2	15	15	2	15	OK
I	7	5	2	6	47	2	6	OK

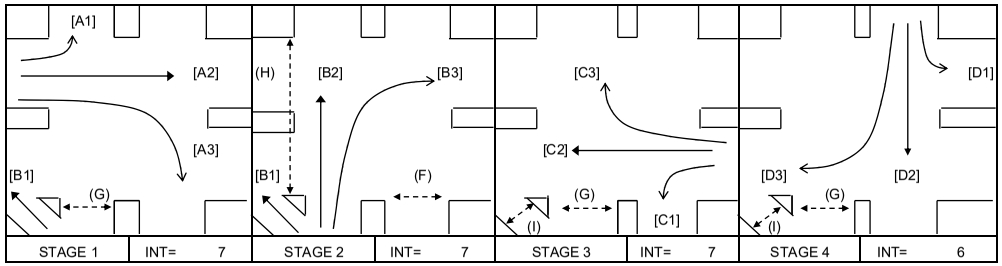
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
A1	1	3.50	A	1	15		N	1965	88			88	1.00	1786			1786	0.049			7	24	0.250	14
A2	1	3.50	A	2				4210		214		214	0.00	4210			4210	0.051			7	24	0.257	17
A3	1	3.50	A	2	32			4210			664	664	1.00	4021			4021	0.165	0.165		24	24	0.837	53
B1	1,2	5.00	B	1	45		N	2115	411			411	1.00	2047			2047	0.201			29	57	0.424	43
B2	2	3.50	C	2				4210		765		765	0.00	4210			4210	0.182	0.182		26	26	0.837	60
B2,B3	2	3.50	C	1	30			2105		381	0	381	0.00	2105			2105	0.181			26	26	0.834	60
B3	2	3.50	C	1	27.5			2105			334	334	1.00	1996			1996	0.168			24	26	0.772	52
C1	3	3.80	D	2	22.5		N	4130	574			574	1.00	3872			3872	0.148			21	21	0.837	47
C2	3	3.60	D	1				2115		285		285	0.00	2115			2115	0.135	0.148		19	21	0.760	47
C2,C3	3	3.60	D	1	27.5			2115		27	245	272	0.90	2016			2016	0.135			19	21	0.761	45
D1	4	3.80	E	1	15		N	1995	78			78	1.00	1814			1814	0.043			6	26	0.198	12
D2	4	4.20	E	2				4350		788		788	0.00	4350			4350	0.181	0.181		26	26	0.837	62
D2,D3	4	3.80	E	1	22.5			2135		337	47	384	0.12	2118			2118	0.181			26	26	0.837	60

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J6 - Jockey Club Road / So Kwun Po Road	2033_PM_Design_Imp	DATE :	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.591
Loss time		L =	23 sec
Total Flow		=	4398 pcu
Co	= (1.5*L+5)/(1-Y)	=	96.6 sec
Cm	= L/(1-Y)	=	56.3 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	23.1 %
Cp	= 0.9*L/(0.9-Y)	=	67.0 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	23 %

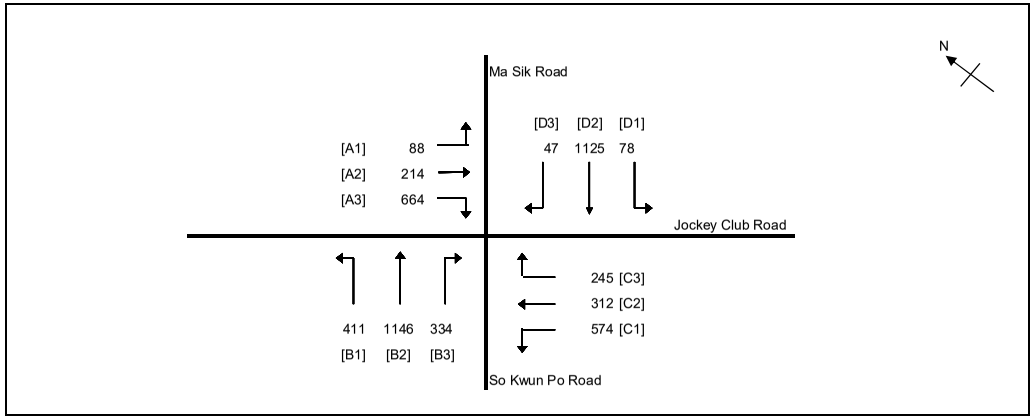


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
F	13	5	9	11	17	9	11	OK
G	11	5	2	9	69	2	9	OK
H	18	8	2	15	20	2	15	OK
I	7	5	2	6	52	2	6	OK

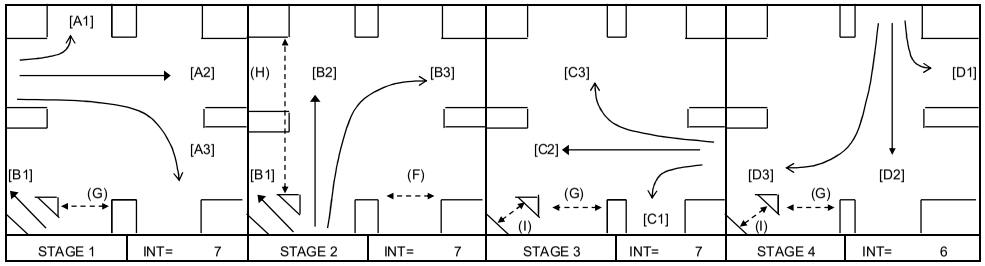
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
A1	1	3.50	A	1	15		N	1965	163			163	1.00	1786			1786	0.091	0.091		15	15	0.731	29
A2	1	3.50	A	2				4210		131		131	0.00	4210			4210	0.031			5	15	0.250	11
A3	1	3.50	A	2	32			4210			159	159	1.00	4021			4021	0.040			6	15	0.316	14
B1	1,2	5.00	B	1	45		N	2115	409			409	1.00	2047			2047	0.200			33	52	0.456	46
B2	2	3.50	C	2				4210		780		780	0.00	4210			4210	0.185			30	31	0.729	58
B2,B3	2	3.50	C	1	30			2105		186	196	382	0.51	2052			2052	0.186	0.186		31	31	0.731	57
B3	2	3.50	C	1	27.5			2105			370	370	1.00	1996			1996	0.185			30	31	0.729	55
C1	3	3.80	D	2	22.5		N	4130	439			439	1.00	3872			3872	0.113			19	19	0.731	37
C2	3	3.60	D	1				2115		108		108	0.00	2115			2115	0.051	0.113		8	19	0.328	18
C2,C3	3	3.60	D	1	27.5			2115		28	74	102	0.73	2034			2034	0.050			8	19	0.324	17
D1	4	3.80	E	1	15		N	1995	66			66	1.00	1814			1814	0.036			6	33	0.132	10
D2	4	4.20	E	2				4350		872		872	0.00	4350			4350	0.200	0.200		33	33	0.731	63
D2,D3	4	3.80	E	1	22.5			2135		269	148	417	0.36	2086			2086	0.200			33	33	0.731	61

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J6 - Jockey Club Road / So Kwun Po Road	2033_AM_Design_Imp (new)	DATE :	FILENAME:



No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.676	
Loss time	L =	23	sec
Total Flow	=	5237	pcu
Co = (1.5*L+5)/(1-Y)	=	122.1	sec
Cm = L/(1-Y)	=	71.1	sec
Yult	=	0.728	
R.C.ult = (Yult-Y)/Y*100%	=	7.6	%
Cp = 0.9*L/(0.9-Y)	=	92.6	sec
Ymax = 1-L/C	=	0.808	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	8	%

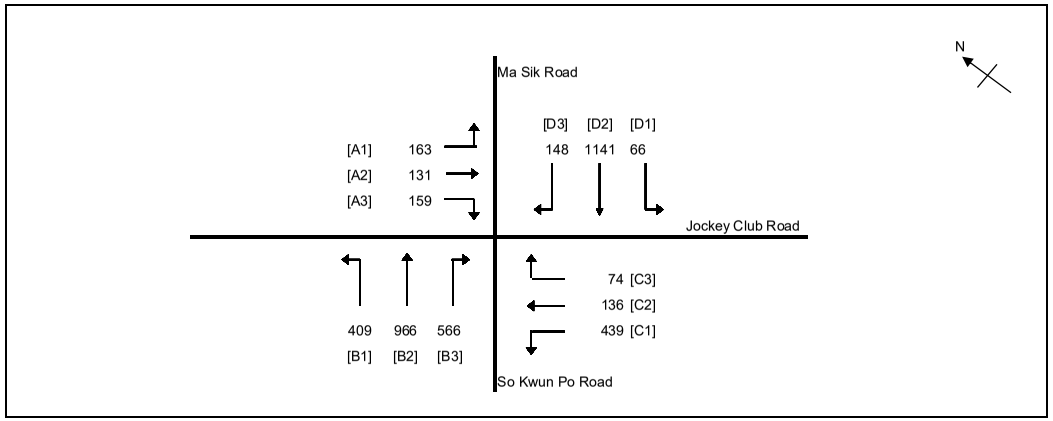


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
F	13	5	9	11	12	9	11	OK
G	11	5	2	9	74	2	9	OK
H	18	8	2	15	15	2	15	OK
I	7	5	2	6	47	2	6	OK

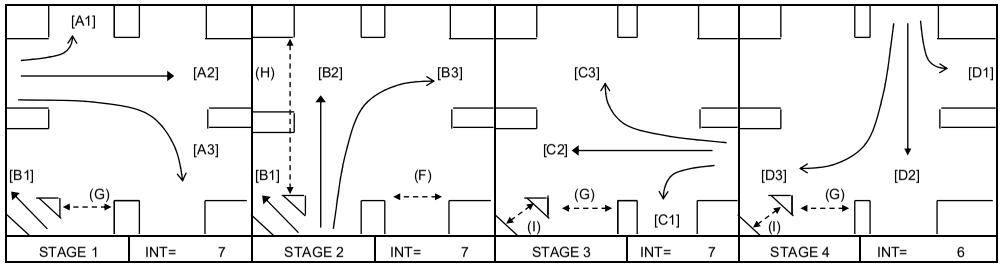
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
A1	1	3.50	A	1	15		N	1965	88			88	1.00	1786			1786	0.049			7	24	0.250	14
A2	1	3.50	A	2				4210		214		214	0.00	4210			4210	0.051			7	24	0.257	17
A3	1	3.50	A	2	32			4210			664	664	1.00	4021			4021	0.165	0.165		24	24	0.837	53
B1	1,2	5.00	B	1	45		N	2115	411			411	1.00	2047			2047	0.201			29	57	0.424	43
B2	2	3.50	C	2				4210		765		765	0.00	4210			4210	0.182	0.182		26	26	0.837	60
B2,B3	2	3.50	C	1	30			2105		381	0	381	0.00	2105			2105	0.181			26	26	0.834	60
B3	2	3.50	C	1	27.5			2105			334	334	1.00	1996			1996	0.168			24	26	0.772	52
C1	3	3.80	D	2	22.5		N	4130	574			574	1.00	3872			3872	0.148			21	21	0.837	47
C2	3	3.60	D	1				2115		285		285	0.00	2115			2115	0.135	0.148		19	21	0.760	47
C2,C3	3	3.60	D	1	27.5			2115		27	245	272	0.90	2016			2016	0.135			19	21	0.761	45
D1	4	3.80	E	1	15		N	1995	78			78	1.00	1814			1814	0.043			6	26	0.198	12
D2	4	4.20	E	2				4350		788		788	0.00	4350			4350	0.181	0.181		26	26	0.837	62
D2,D3	4	3.80	E	1	22.5			2135		337	47	384	0.12	2118			2118	0.181			26	26	0.837	60

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J6 - Jockey Club Road / So Kwun Po Road	2033_PM_Design_Imp (new)	DATE :	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.591
Loss time		L =	23 sec
Total Flow		=	4398 pcu
Co	= (1.5*L+5)/(1-Y)	=	96.6 sec
Cm	= L/(1-Y)	=	56.3 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	23.1 %
Cp	= 0.9*L/(0.9-Y)	=	67.0 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	23 %

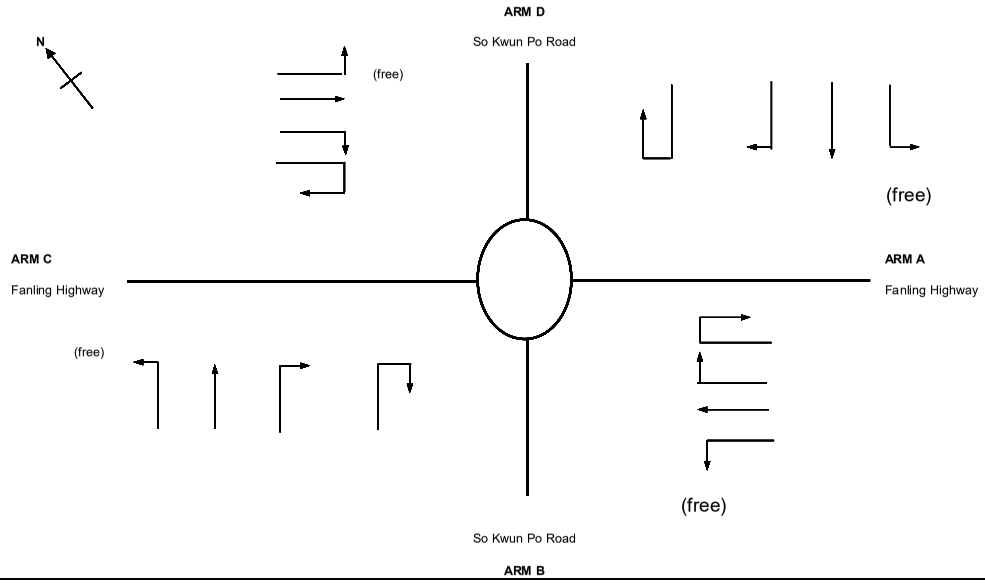


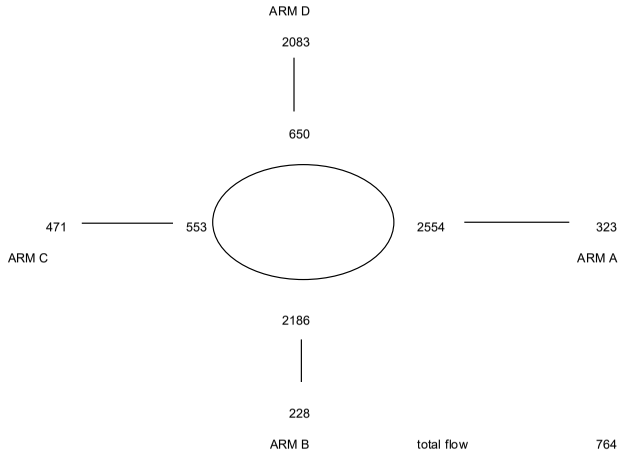
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
F	13	5	9	11	17	9	11	OK
G	11	5	2	9	69	2	9	OK
H	18	8	2	15	20	2	15	OK
I	7	5	2	6	52	2	6	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
A1	1	3.50	A	1	15		N	1965	163			163	1.00	1786			1786	0.091	0.091		15	15	0.731	29
A2	1	3.50	A	2				4210		131		131	0.00	4210			4210	0.031			5	15	0.250	11
A3	1	3.50	A	2	32			4210			159	159	1.00	4021			4021	0.040			6	15	0.316	14
B1	1,2	5.00	B	1	45		N	2115	409			409	1.00	2047			2047	0.200			33	52	0.456	46
B2	2	3.50	C	2				4210		780		780	0.00	4210			4210	0.185			30	31	0.729	58
B2,B3	2	3.50	C	1	30			2105		186	196	382	0.51	2052			2052	0.186	0.186		31	31	0.731	57
B3	2	3.50	C	1	27.5			2105			370	370	1.00	1996			1996	0.185			30	31	0.729	55
C1	3	3.80	D	2	22.5		N	4130	439			439	1.00	3872			3872	0.113			19	19	0.731	37
C2	3	3.60	D	1				2115		108		108	0.00	2115			2115	0.051	0.113		8	19	0.328	18
C2,C3	3	3.60	D	1	27.5			2115		28	74	102	0.73	2034			2034	0.050			8	19	0.324	17
D1	4	3.80	E	1	15		N	1995	66			66	1.00	1814			1814	0.036			6	33	0.132	10
D2	4	4.20	E	2				4350		872		872	0.00	4350			4350	0.200	0.200		33	33	0.731	63
D2,D3	4	3.80	E	1	22.5			2135		269	148	417	0.36	2086			2086	0.200			33	33	0.731	61

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J7 - Fanling Highway_So Kwun Po Rd	2033_AM_Design	DATE:	FILENAME:



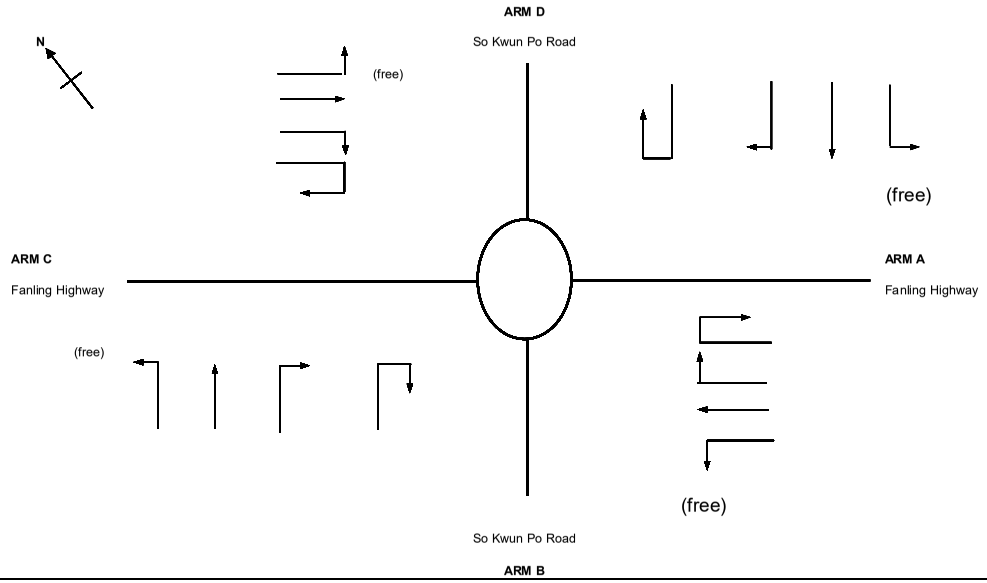


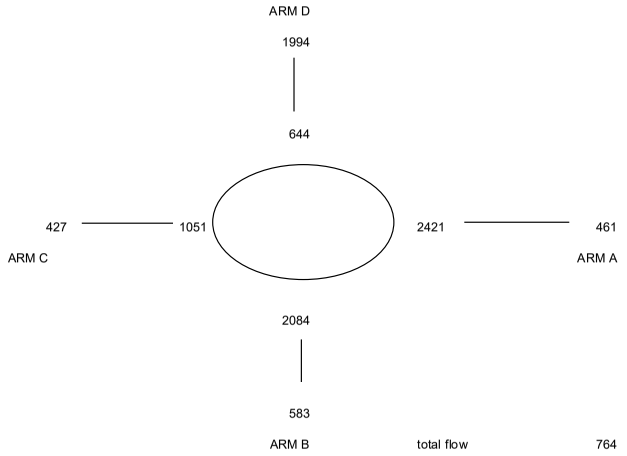
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	4.70	6.70	2.70	7.30
E	=	Entry width (m)	6.60	9.50	7.50	11.50
L	=	Effective length of flare (m)	38.00	8.20	14.00	12.00
R	=	Entry radius (m)	65.00	35.00	50.00	18.00
D	=	Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A	=	Entry angle (degree)	22.00	30.00	15.00	35.00
Q	=	Entry flow (pcu/h)	323	228	471	2083
Qc	=	Circulating flow across entry (pcu/h)	2554	2186	553	650
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.08	0.55	0.55	0.56
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.02	1.08	0.98
X2	=	V + ((E-V)/(1+2S))	6.34	8.04	4.99	9.28
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39
F	=	303*X2	1920	2436	1512	2812
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc	=	0.21*Td(1+0.2*X2)	0.50	0.58	0.44	0.64
Qe	=	K(F-Fc*Qc)	671	1192	1369	2345
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.19	0.34	0.89

Total In Sum = **3104** **PCU**

DFC of Critical Approach = **0.89**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J7 - Fanling Highway_So Kwun Po Rd	2033_PM_Design	DATE:	FILENAME:



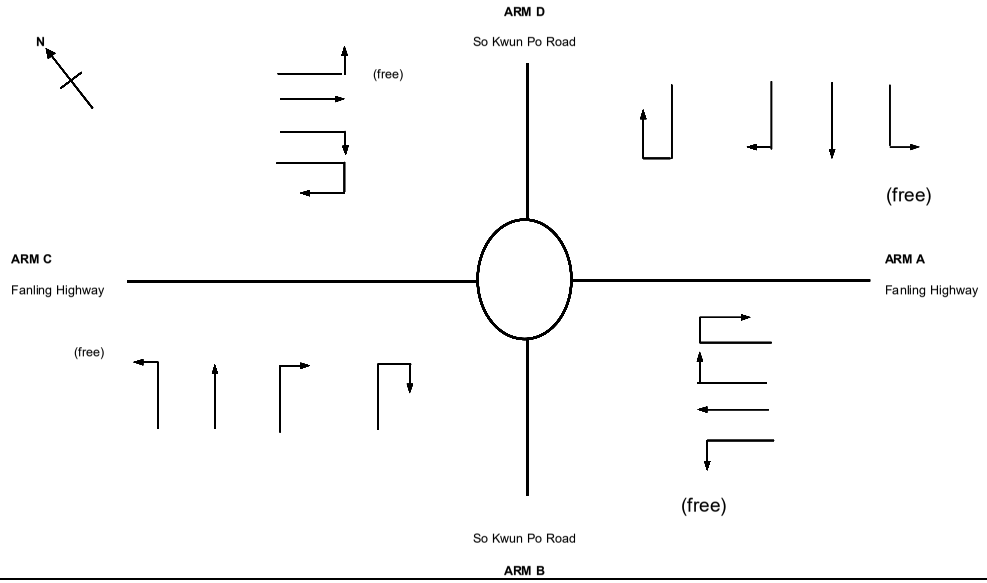


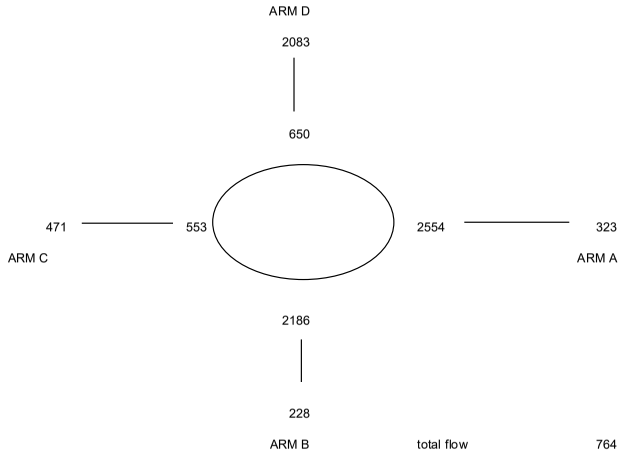
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	4.70	6.70	2.70	7.30
E	=	Entry width (m)	6.60	9.50	7.50	11.50
L	=	Effective length of flare (m)	38.00	8.20	14.00	12.00
R	=	Entry radius (m)	65.00	35.00	50.00	18.00
D	=	Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A	=	Entry angle (degree)	22.00	30.00	15.00	35.00
Q	=	Entry flow (pcu/h)	461	583	427	1994
Qc	=	Circulating flow across entry (pcu/h)	2421	2084	1051	644
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.08	0.55	0.55	0.56
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.02	1.08	0.98
X2	=	V + ((E-V)/(1+2S))	6.34	8.04	4.99	9.28
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39
F	=	303*X2	1920	2436	1512	2812
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc	=	0.21*Td(1+0.2*X2)	0.50	0.58	0.44	0.64
Qe	=	K(F-Fc*Qc)	742	1252	1130	2348
DFC	=	Design flow/Capacity = Q/Qe	0.62	0.47	0.38	0.85

Total In Sum = **3465** **PCU**

DFC of Critical Approach = **0.85**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J7 - Fanling Highway_So Kwun Po Rd	2033_AM_Design (new)	DATE:	FILENAME:



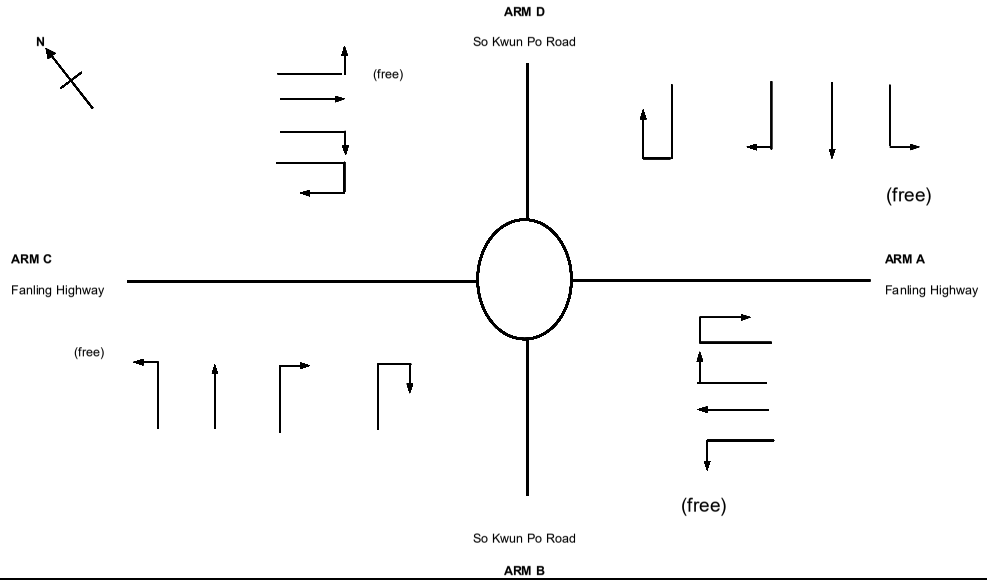


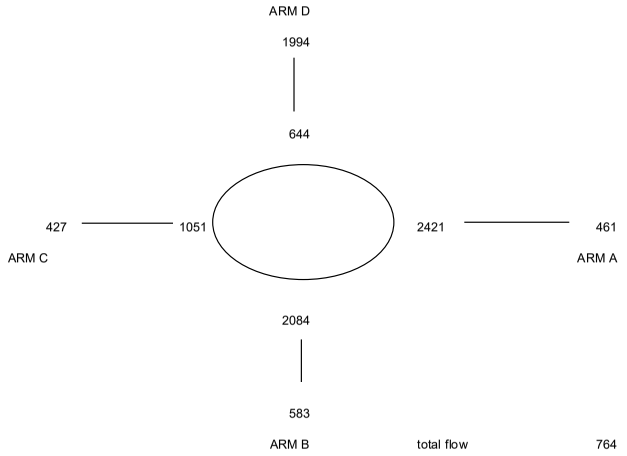
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	4.70	6.70	2.70	7.30
E	=	Entry width (m)	6.60	9.50	7.50	11.50
L	=	Effective length of flare (m)	38.00	8.20	14.00	12.00
R	=	Entry radius (m)	65.00	35.00	50.00	18.00
D	=	Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A	=	Entry angle (degree)	22.00	30.00	15.00	35.00
Q	=	Entry flow (pcu/h)	323	228	471	2083
Qc	=	Circulating flow across entry (pcu/h)	2554	2186	553	650
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.08	0.55	0.55	0.56
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.02	1.08	0.98
X2	=	V + ((E-V)/(1+2S))	6.34	8.04	4.99	9.28
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39
F	=	303*X2	1920	2436	1512	2812
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc	=	0.21*Td(1+0.2*X2)	0.50	0.58	0.44	0.64
Qe	=	K(F-Fc*Qc)	671	1192	1369	2345
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.19	0.34	0.89

Total In Sum = **3104** **PCU**

DFC of Critical Approach = **0.89**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J7 - Fanling Highway_So Kwun Po Rd	2033_PM_Design (new)	DATE:	FILENAME:



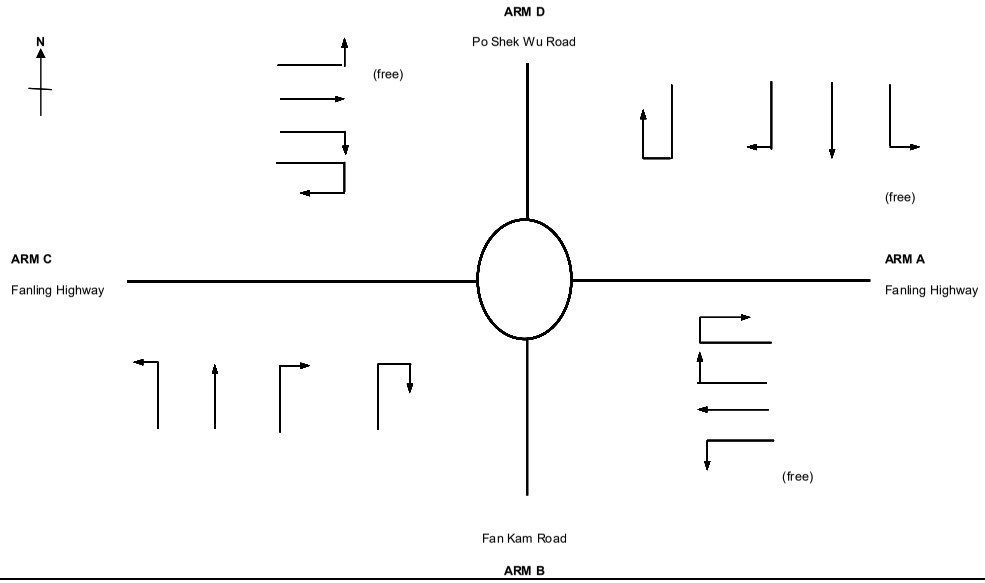


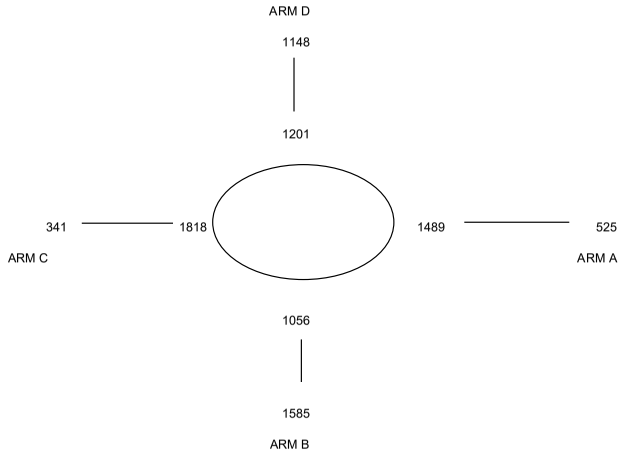
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	4.70	6.70	2.70	7.30
E	=	Entry width (m)	6.60	9.50	7.50	11.50
L	=	Effective length of flare (m)	38.00	8.20	14.00	12.00
R	=	Entry radius (m)	65.00	35.00	50.00	18.00
D	=	Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A	=	Entry angle (degree)	22.00	30.00	15.00	35.00
Q	=	Entry flow (pcu/h)	461	583	427	1994
Qc	=	Circulating flow across entry (pcu/h)	2421	2084	1051	644
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.08	0.55	0.55	0.56
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	1.02	1.08	0.98
X2	=	V + ((E-V)/(1+2S))	6.34	8.04	4.99	9.28
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39
F	=	303*X2	1920	2436	1512	2812
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc	=	0.21*Td(1+0.2*X2)	0.50	0.58	0.44	0.64
Qe	=	K(F-Fc*Qc)	742	1252	1130	2348
DFC	=	Design flow/Capacity = Q/Qe	0.62	0.47	0.38	0.85

Total In Sum = **3465** **PCU**

DFC of Critical Approach = **0.85**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J8 - Fanling Highway_Po Shek Wu Rd	2033_AM_Design	DATE:	FILENAME:



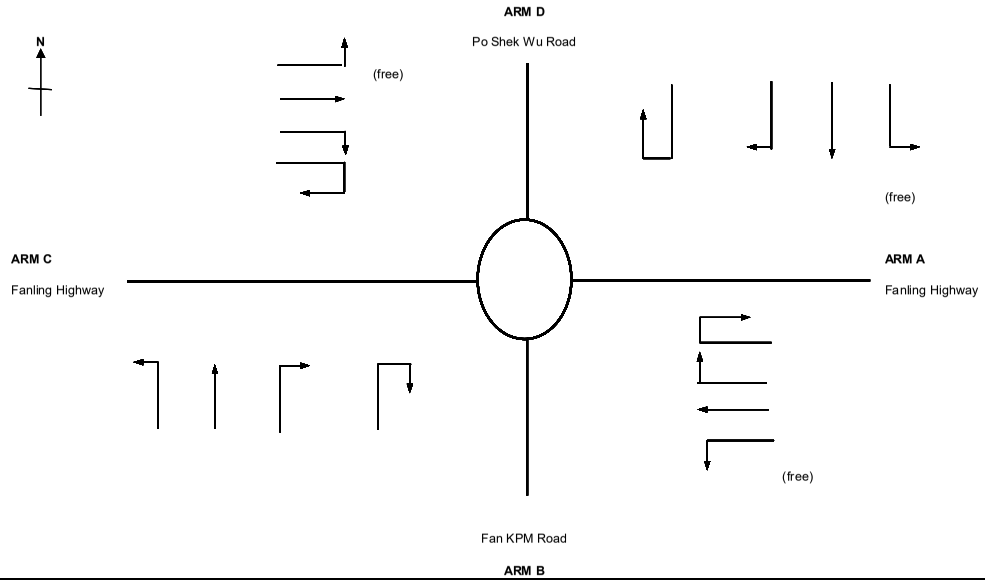


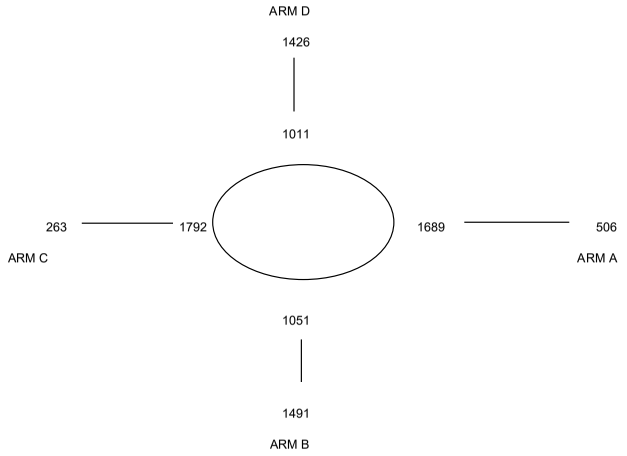
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	4.10	7.00	6.60	7.00
E	=	Entry width (m)	9.00	9.50	8.10	9.00
L	=	Effective length of flare (m)	17.00	5.20	30.00	8.40
R	=	Entry radius (m)	70.00	30.00	20.00	100.00
D	=	Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A	=	Entry angle (degree)	13.00	26.00	21.00	15.00
Q	=	Entry flow (pcu/h)	525	1585	341	1148
Qc	=	Circulating flow across entry (pcu/h)	1489	1056	1818	1201
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.46	0.77	0.08	0.38
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.09	1.03	1.03	1.09
X2	=	V + ((E-V)/(1+2S))	6.65	7.98	7.89	8.14
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39
F	=	303*X2	2015	2419	2392	2465
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc	=	0.21*Td(1+0.2*X2)	0.52	0.58	0.57	0.58
Qe	=	K(F-Fc*Qc)	1359	1864	1391	1924
DFC	=	Design flow/Capacity = Q/Qe	0.39	0.85	0.25	0.60

Total In Sum = **3599** **PCU**

DFC of Critical Approach = **0.85**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J8 - Fanling Highway_Po Shek Wu Rd	2033_PM_Design	DATE:	FILENAME:



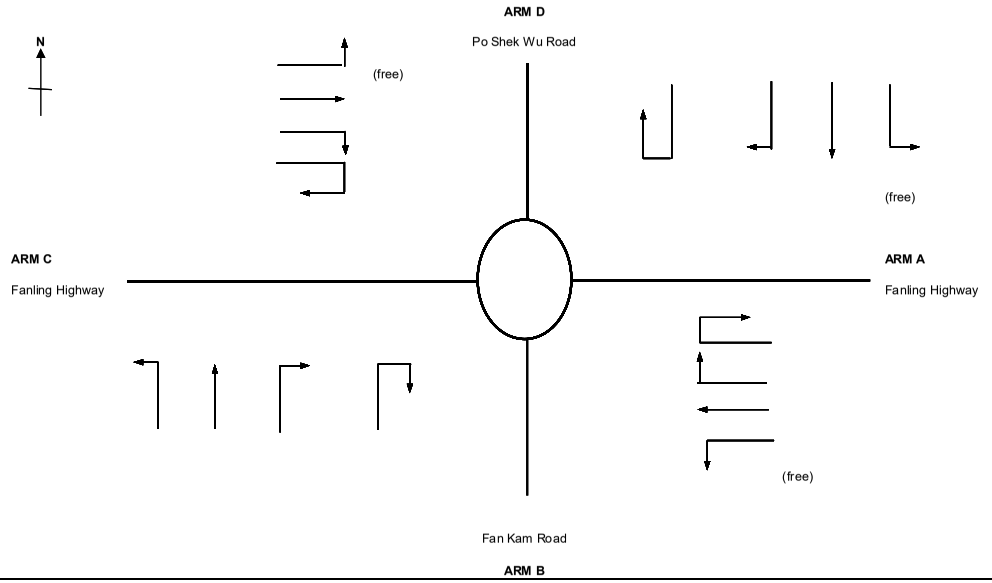


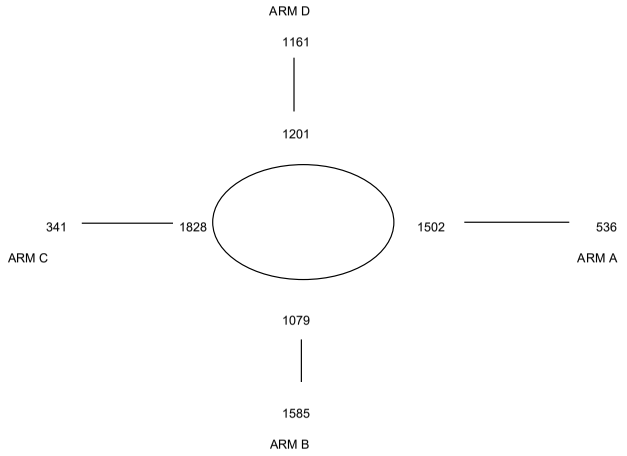
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	4.10	7.00	6.60	7.00
E	=	Entry width (m)	9.00	9.50	8.10	9.00
L	=	Effective length of flare (m)	17.00	5.20	30.00	8.40
R	=	Entry radius (m)	70.00	30.00	20.00	100.00
D	=	Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A	=	Entry angle (degree)	13.00	26.00	21.00	15.00
Q	=	Entry flow (pcu/h)	506	1491	263	1426
Qc	=	Circulating flow across entry (pcu/h)	1689	1051	1792	1011
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.46	0.77	0.08	0.38
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.09	1.03	1.03	1.09
X2	=	V + ((E-V)/(1+2S))	6.65	7.98	7.89	8.14
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39
F	=	303*X2	2015	2419	2392	2465
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc	=	0.21*Td(1+0.2*X2)	0.52	0.58	0.57	0.58
Qe	=	K(F-Fc*Qc)	1246	1867	1406	2045
DFC	=	Design flow/Capacity = Q/Qe	0.41	0.80	0.19	0.70

Total In Sum = **3686** **PCU**

DFC of Critical Approach = **0.80**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J8 - Fanling Highway_Po Shek Wu Rd	2033_AM_Design (new)	DATE:	FILENAME:



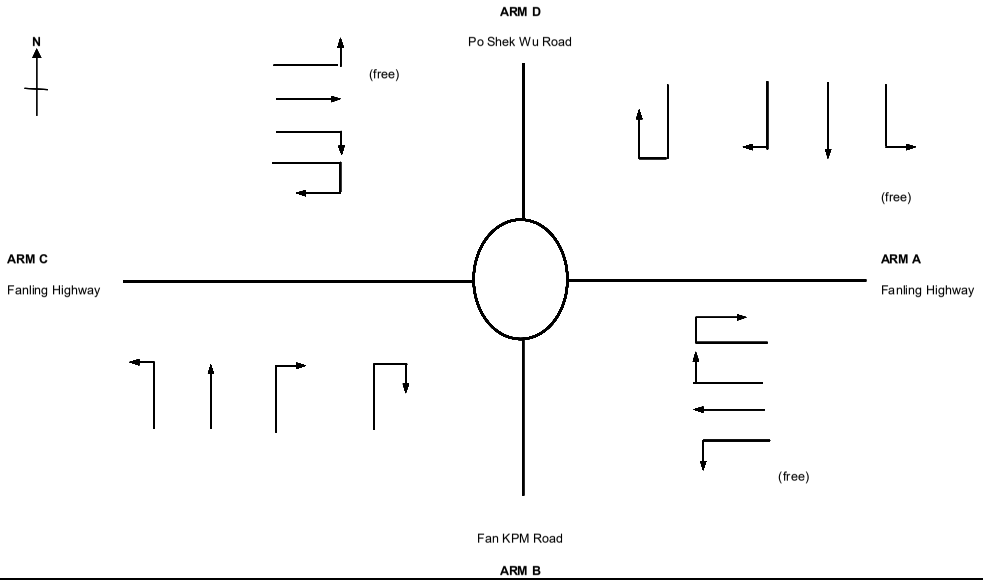


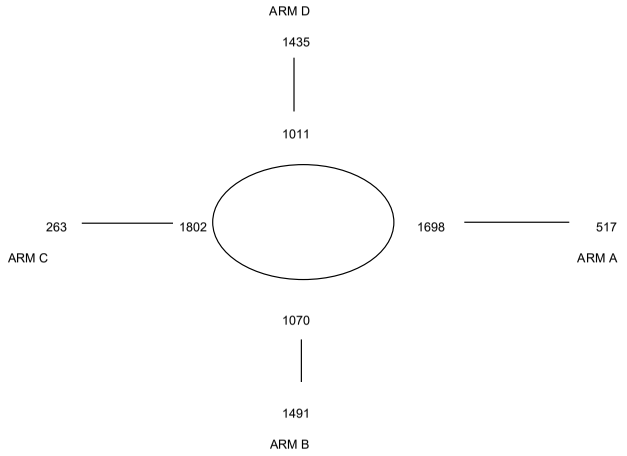
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	4.10	7.00	6.60	7.00
E	=	Entry width (m)	9.00	9.50	8.10	9.00
L	=	Effective length of flare (m)	17.00	5.20	30.00	8.40
R	=	Entry radius (m)	70.00	30.00	20.00	100.00
D	=	Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A	=	Entry angle (degree)	13.00	26.00	21.00	15.00
Q	=	Entry flow (pcu/h)	536	1585	341	1161
Qc	=	Circulating flow across entry (pcu/h)	1502	1079	1828	1201
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.46	0.77	0.08	0.38
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.09	1.03	1.03	1.09
X2	=	V + ((E-V)/(1+2S))	6.65	7.98	7.89	8.14
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39
F	=	303*X2	2015	2419	2392	2465
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc	=	0.21*Td(1+0.2*X2)	0.52	0.58	0.57	0.58
Qe	=	K(F-Fc*Qc)	1352	1850	1385	1924
DFC	=	Design flow/Capacity = Q/Qe	0.40	0.86	0.25	0.60

Total In Sum = **3623** **PCU**

DFC of Critical Approach = **0.86**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J8 - Fanling Highway_Po Shek Wu Rd	2033_PM_Design (new)	DATE:	FILENAME:



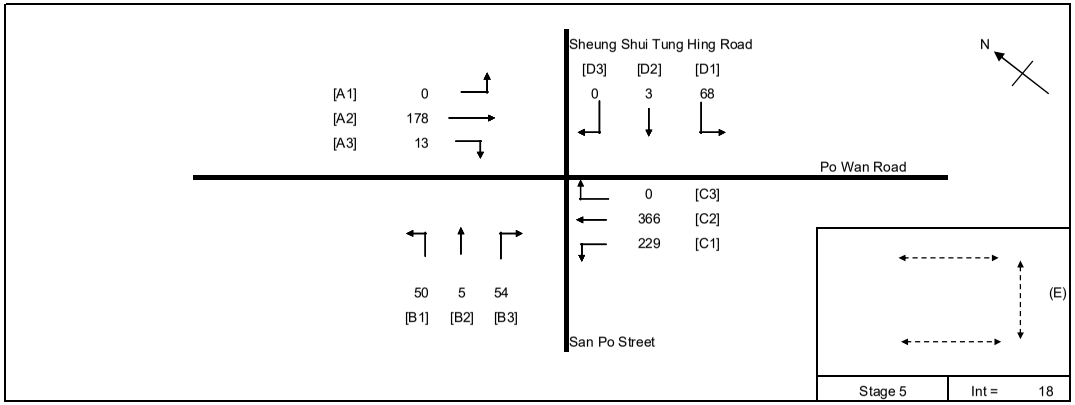


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	4.10	7.00	6.60	7.00
E	=	Entry width (m)	9.00	9.50	8.10	9.00
L	=	Effective length of flare (m)	17.00	5.20	30.00	8.40
R	=	Entry radius (m)	70.00	30.00	20.00	100.00
D	=	Inscribed circle diameter (m)	80.00	80.00	80.00	80.00
A	=	Entry angle (degree)	13.00	26.00	21.00	15.00
Q	=	Entry flow (pcu/h)	517	1491	263	1435
Qc	=	Circulating flow across entry (pcu/h)	1698	1070	1802	1011
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.46	0.77	0.08	0.38
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.09	1.03	1.03	1.09
X2	=	V + ((E-V)/(1+2S))	6.65	7.98	7.89	8.14
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39
F	=	303*X2	2015	2419	2392	2465
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06
Fc	=	0.21*Td(1+0.2*X2)	0.52	0.58	0.57	0.58
Qe	=	K(F-Fc*Qc)	1241	1856	1400	2045
DFC	=	Design flow/Capacity = Q/Qe	0.42	0.80	0.19	0.70

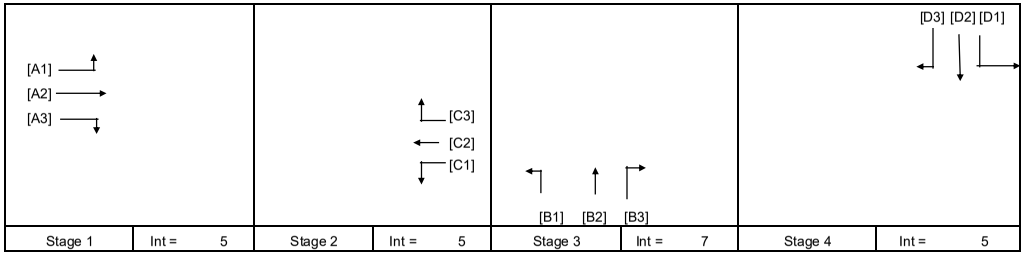
Total In Sum = **3705** **PCU**

DFC of Critical Approach = **0.80**

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J9 - Sheung Shui Tung Hing Road / Po Wan Road / San Po Street	2033_AM_Design	DATE :	FILENAME:



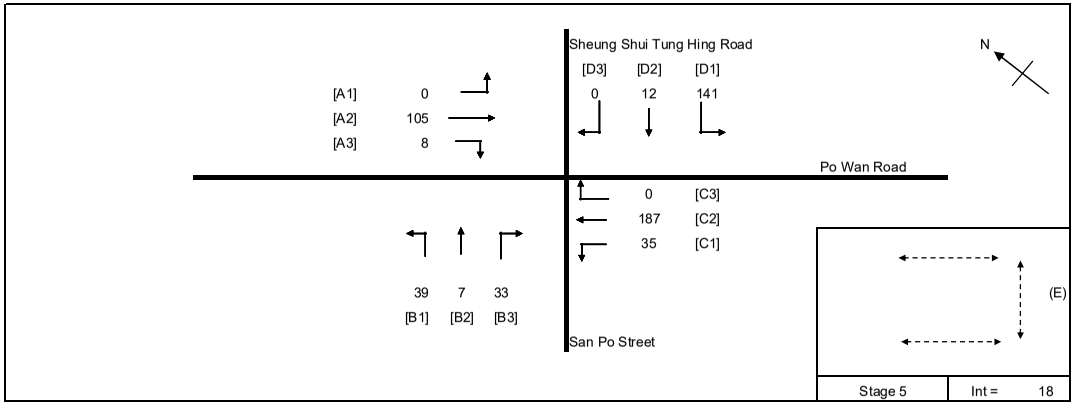
No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.372
Loss time	L =	35 sec
Total Flow	=	965.5864 pcu
Co = (1.5*L+5)/(1-Y)	=	91.5 sec
Cm = L/(1-Y)	=	55.7 sec
Yult	=	0.638
R.C.ult = (Yult-Y)/Y*100%	=	71.4 %
Cp = 0.9*L/(0.9-Y)	=	59.6 sec
Ymax = 1-L/C	=	0.708
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	71 %



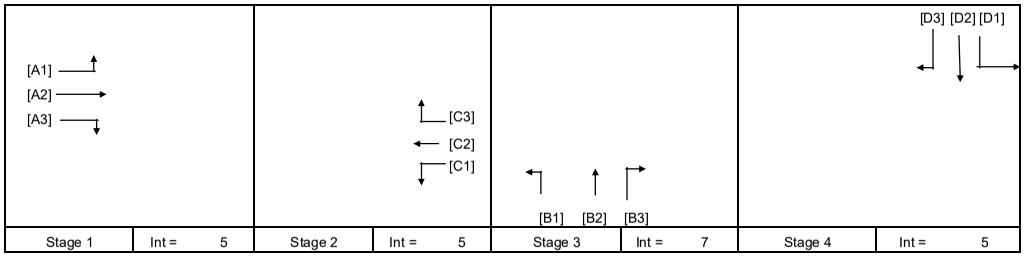
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
E	9.50	5	5	8	5	5	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				35				
A1,A2,A3	1	3.50	A	1	15		N	1965	0	178	13	191	0.07	1951			1951	0.098	0.098		22	22	0.525	31
B1,B2,B3	3	3.50	C	1	15		N	1965	50	5	54	109	0.95	1794			1794	0.061	0.061		14	14	0.525	19
C1	2	3.50	B	1	15		N	1965	229			229	1.00	1786			1786	0.128	0.174		29	40	0.387	31
C2,C3	2	3.50	B	1	20			2105		366	0	366	0.00	2105			2105	0.174			40	40	0.525	49
D1,D2,D3	4	3.50	D	1	15		N	1965	68	3	0	71	0.95	1794			1794	0.040	0.040		9	9	0.525	13

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J9 - Sheung Shui Tung Hing Road / Po Wan Road / San Po Street	2033_PM_Design	DATE :	FILENAME:



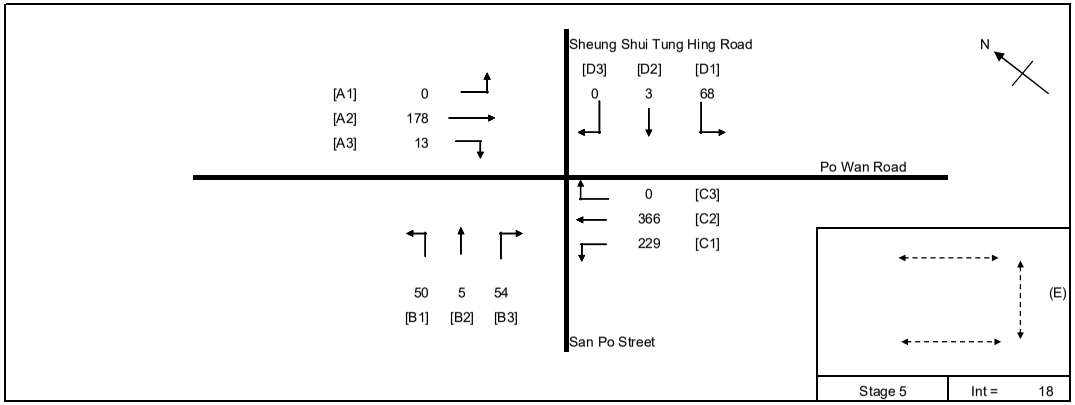
No. of stages per cycle	N =	5	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.277	
Loss time	L =	35	sec
Total Flow	=	568.958	pcu
Co = (1.5*L+5)/(1-Y)	=	79.5	sec
Cm = L/(1-Y)	=	48.4	sec
Yult	=	0.638	
R.C.ult = (Yult-Y)/Y*100%	=	130.4	%
Cp = 0.9*L/(0.9-Y)	=	50.5	sec
Ymax = 1-L/C	=	0.708	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	130	%



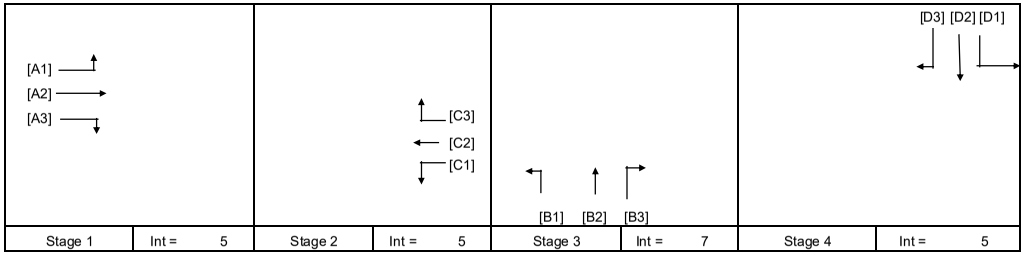
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
E	9.50	5	5	8	5	5	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				35				
A1,A2,A3	1	3.50	A	1	15		N	1965	0	105	8	113	0.07	1951			1951	0.058	0.058		18	18	0.391	19
B1,B2,B3	3	3.50	C	1	15		N	1965	39	7	33	80	0.91	1801			1801	0.044	0.044		14	14	0.391	14
C1	2	3.50	B	1	15		N	1965	35			35	1.00	1786			1786	0.020	0.089		6	27	0.086	5
C2,C3	2	3.50	B	1	20			2105		187	0	187	0.00	2105			2105	0.089			27	27	0.391	29
D1,D2,D3	4	3.50	D	1	15		N	1965	141	12	0	154	0.92	1800			1800	0.085	0.085		26	26	0.391	24

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J9 - Sheung Shui Tung Hing Road / Po Wan Road / San Po Street	2033_AM_Design (new)	DATE :	FILENAME:



No. of stages per cycle	N =	5	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.372	
Loss time	L =	35	sec
Total Flow	=	965.5864	pcu
Co = (1.5*L+5)/(1-Y)	=	91.5	sec
Cm = L/(1-Y)	=	55.7	sec
Yult	=	0.638	
R.C.ult = (Yult-Y)/Y*100%	=	71.4	%
Cp = 0.9*L/(0.9-Y)	=	59.6	sec
Ymax = 1-L/C	=	0.708	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	71	%



Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
E	9.50	5	5	8	5	5	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				35				
A1,A2,A3	1	3.50	A	1	15		N	1965	0	178	13	191	0.07	1951			1951	0.098	0.098		22	22	0.525	31
B1,B2,B3	3	3.50	C	1	15		N	1965	50	5	54	109	0.95	1794			1794	0.061	0.061		14	14	0.525	19
C1	2	3.50	B	1	15		N	1965	229			229	1.00	1786			1786	0.128	0.174		29	40	0.387	31
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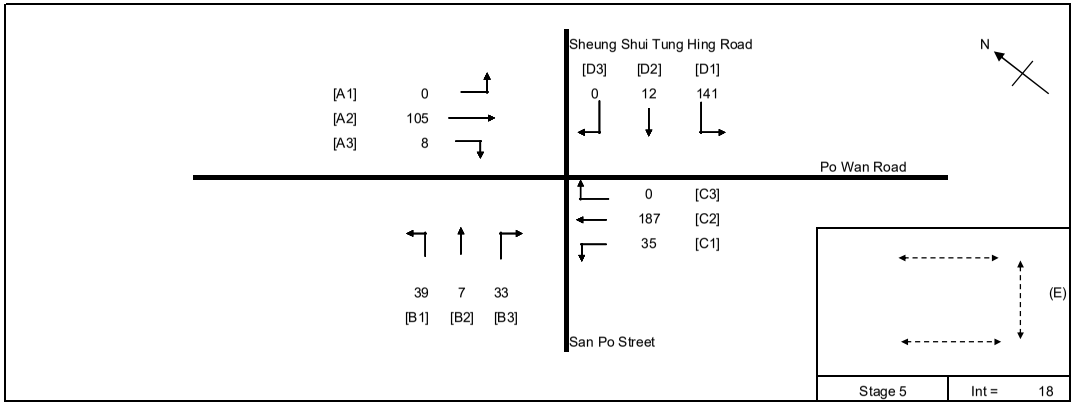
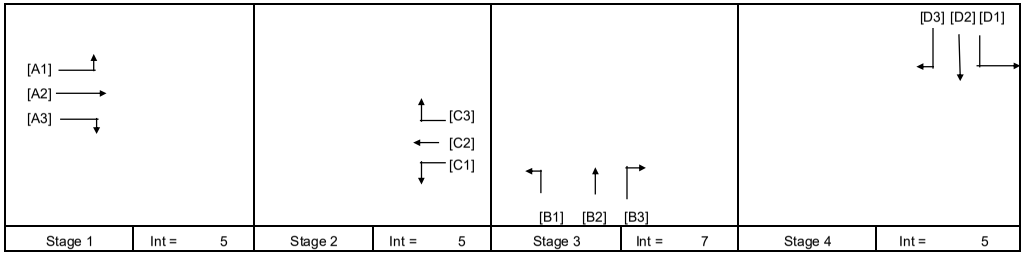
D1,D2,D3	4	3.50	D	1	15		N	1965	68	3	0	71	0.95	1794			1794	0.040	0.040		9	9	0.525	13

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J9 - Sheung Shui Tung Hing Road / Po Wan Road / San Po Street	2033_PM_Design (new)	DATE :	FILENAME:



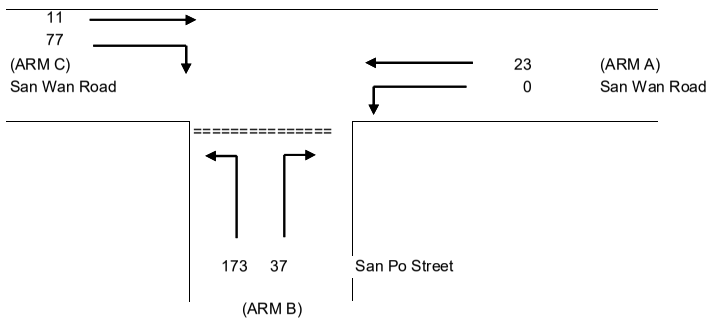
No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.277
Loss time	L =	35 sec
Total Flow	=	568.958 pcu
Co = (1.5*L+5)/(1-Y)	=	79.5 sec
Cm = L/(1-Y)	=	48.4 sec
Yult	=	0.638
R.C.ult = (Yult-Y)/Y*100%	=	130.4 %
Cp = 0.9*L/(0.9-Y)	=	50.5 sec
Ymax = 1-L/C	=	0.708
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	130 %



Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
E	9.50	5	5	8	5	5	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				35				
A1,A2,A3	1	3.50	A	1	15		N	1965	0	105	8	113	0.07	1951			1951	0.058	0.058		18	18	0.391	19
B1,B2,B3	3	3.50	C	1	15		N	1965	39	7	33	80	0.91	1801			1801	0.044	0.044		14	14	0.391	14
C1	2	3.50	B	1	15		N	1965	35			35	1.00	1786			1786	0.020	0.089		6	27	0.086	5
C2,C3	2	3.50	B	1	20			2105		187	0	187	0.00	2105			2105	0.089			27	27	0.391	29
D1,D2,D3	4	3.50	D	1	15		N	1965	141	12	0	154	0.92	1800			1800	0.085	0.085		26	26	0.391	24

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		Project No. : 277170	
J10 - San Wan Road / San Po Street	2033_AM_Design	DATE :	FILENAME :



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	=	5.00	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	23	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.40	(metres)
Vr c-b	=	50	(metres)
q c-a	=	11	(pcu/hr)
q c-b	=	76.81	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.00	(metres)
W b-c	=	4.00	(metres)
Vl b-a	=	30	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	35	(metres)
q b-a	=	37	(pcu/hr)
q b-c	=	173	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.881
E	=	0.954
F	=	0.827
Y	=	0.828

THE CAPACITY OF MOVEMENT :

Q b-a	=	515
Q b-c	=	704
Q c-b	=	610
Q b-ac	=	661

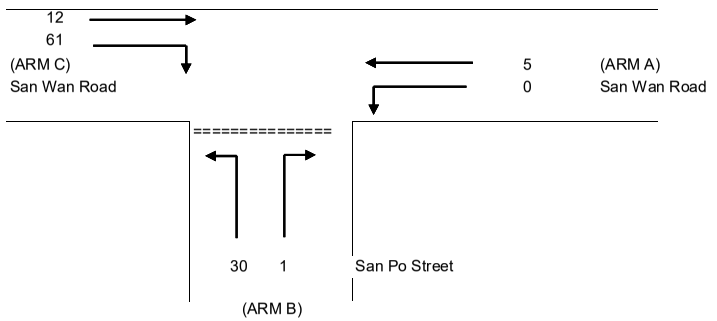
TOTAL FLOW = 284 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.2462
DFC c-b	=	0.1259
DFC b-ac	=	0.3188

CRITICAL DFC = 0.32

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		Project No. : 277170	
J10 - San Wan Road / San Po Street	2033_PM_Design	DATE :	FILENAME :



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	=	5.00	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	5	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.40	(metres)
Vr c-b	=	50	(metres)
q c-a	=	12	(pcu/hr)
q c-b	=	61.24	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.00	(metres)
W b-c	=	4.00	(metres)
Vl b-a	=	30	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	35	(metres)
q b-a	=	1	(pcu/hr)
q b-c	=	30	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.881
E	=	0.954
F	=	0.827
Y	=	0.828

THE CAPACITY OF MOVEMENT :

Q b-a	=	526
Q b-c	=	709
Q c-b	=	615
Q b-ac	=	700.9

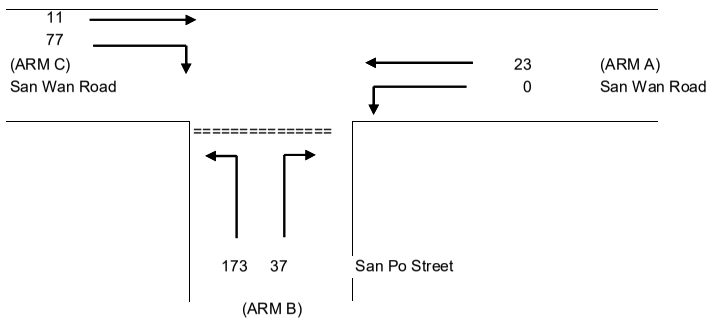
TOTAL FLOW = 109 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0425
DFC c-b	=	0.0996
DFC b-ac	=	0.0444

CRITICAL DFC = 0.10

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		Project No. : 277170	
J10 - San Wan Road / San Po Street	2033_AM_Design (new)	DATE :	FILENAME :



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	=	5.00	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	23	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.40	(metres)
Vr c-b	=	50	(metres)
q c-a	=	11	(pcu/hr)
q c-b	=	76.81	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.00	(metres)
W b-c	=	4.00	(metres)
Vl b-a	=	30	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	35	(metres)
q b-a	=	37	(pcu/hr)
q b-c	=	173	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.881
E	=	0.954
F	=	0.827
Y	=	0.828

THE CAPACITY OF MOVEMENT :

Q b-a	=	515
Q b-c	=	704
Q c-b	=	610
Q b-ac	=	661

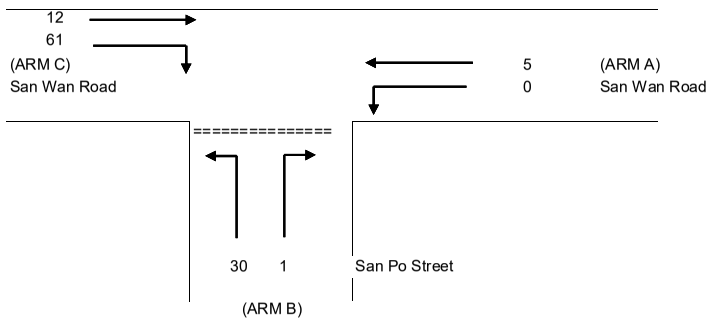
TOTAL FLOW = 284 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.2462
DFC c-b	=	0.1259
DFC b-ac	=	0.3188

CRITICAL DFC = 0.32

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		Project No. : 277170	
J10 - San Wan Road / San Po Street	2033_PM_Design (new)	DATE :	FILENAME :



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	=	5.00	(metres)
W cr	=	0	(metres)
q a-b	=	0	(pcu/hr)
q a-c	=	5	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.40	(metres)
Vr c-b	=	50	(metres)
q c-a	=	12	(pcu/hr)
q c-b	=	61.24	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.00	(metres)
W b-c	=	4.00	(metres)
Vl b-a	=	30	(metres)
Vr b-a	=	30	(metres)
Vr b-c	=	35	(metres)
q b-a	=	1	(pcu/hr)
q b-c	=	30	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.881
E	=	0.954
F	=	0.827
Y	=	0.828

THE CAPACITY OF MOVEMENT :

Q b-a	=	526
Q b-c	=	709
Q c-b	=	615
Q b-ac	=	700.9

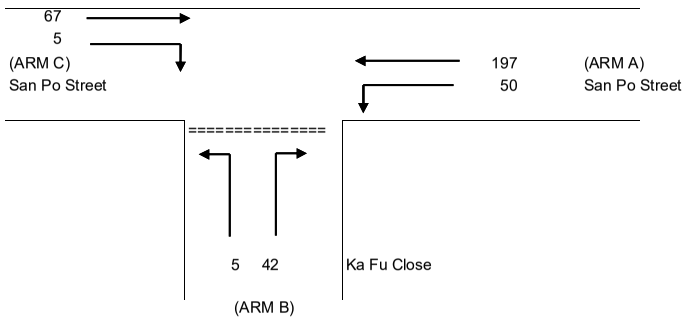
TOTAL FLOW = 109 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0425
DFC c-b	=	0.0996
DFC b-ac	=	0.0444

CRITICAL DFC = 0.10

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		Project No. : 277177-07	
J13 - Ka Fu Close / San Po Street	2033_AM_Design	DATE :	FILENAME :



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	=	10.60	(metres)
W cr	=	0	(metres)
q a-b	=	50	(pcu/hr)
q a-c	=	197	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.80	(metres)
Vr c-b	=	60	(metres)
q c-a	=	67	(pcu/hr)
q c-b	=	5.19	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	30	(metres)
Vr b-a	=	40	(metres)
Vr b-c	=	55	(metres)
q b-a	=	42	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.809
E	=	0.884
F	=	0.87
Y	=	0.634

THE CAPACITY OF MOVEMENT :

Q b-a	=	457
Q b-c	=	614
Q c-b	=	599
Q b-ac	=	470.2

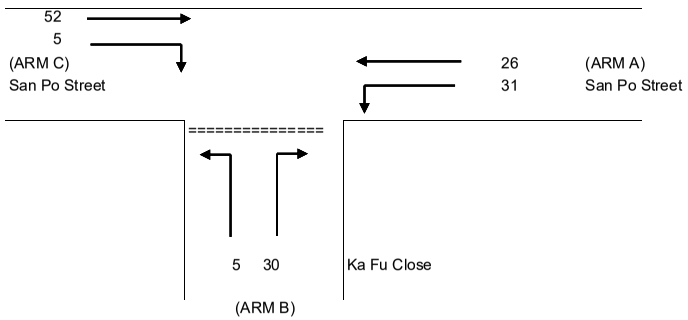
TOTAL FLOW = 325.5684896 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0085
DFC c-b	=	0.0087
DFC b-ac	=	0.1008

CRITICAL DFC = 0.10

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		Project No. : 277177-07	
J13 - Ka Fu Close / San Po Street	2033_PM_Design	DATE :	FILENAME :



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	=	10.60	(metres)
W cr	=	0	(metres)
q a-b	=	31	(pcu/hr)
q a-c	=	26	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.80	(metres)
Vr c-b	=	60	(metres)
q c-a	=	52	(pcu/hr)
q c-b	=	5.19	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	30	(metres)
Vr b-a	=	40	(metres)
Vr b-c	=	55	(metres)
q b-a	=	30	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.809
E	=	0.884
F	=	0.87
Y	=	0.634

THE CAPACITY OF MOVEMENT :

Q b-a	=	492
Q b-c	=	651
Q c-b	=	637
Q b-ac	=	510.4

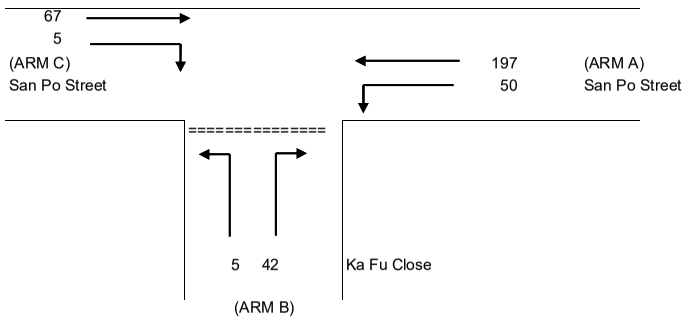
TOTAL FLOW = 119.0996806 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0080
DFC c-b	=	0.0081
DFC b-ac	=	0.0687

CRITICAL DFC = 0.07

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		Project No. : 277177-07	
J13 - Ka Fu Close / San Po Street	2033_AM_Design (new)	DATE :	FILENAME :



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	=	10.60	(metres)
W cr	=	0	(metres)
q a-b	=	50	(pcu/hr)
q a-c	=	197	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.80	(metres)
Vr c-b	=	60	(metres)
q c-a	=	67	(pcu/hr)
q c-b	=	5.19	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	30	(metres)
Vr b-a	=	40	(metres)
Vr b-c	=	55	(metres)
q b-a	=	42	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.809
E	=	0.884
F	=	0.87
Y	=	0.634

THE CAPACITY OF MOVEMENT :

Q b-a	=	457
Q b-c	=	614
Q c-b	=	599
Q b-ac	=	470.2

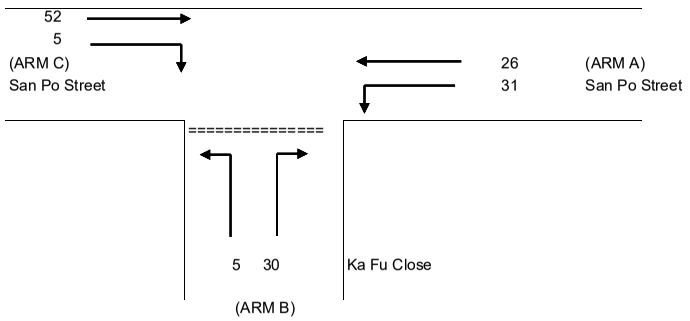
TOTAL FLOW = 325.5684896 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.0000
DFC b-c	=	0.0085
DFC c-b	=	0.0087
DFC b-ac	=	0.1008

CRITICAL DFC = 0.10

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		Project No. : 277177-07	
J13 - Ka Fu Close / San Po Street	2033_PM_Design (new)	DATE :	FILENAME :



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	=	10.60	(metres)
W cr	=	0	(metres)
q a-b	=	31	(pcu/hr)
q a-c	=	26	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	2.80	(metres)
Vr c-b	=	60	(metres)
q c-a	=	52	(pcu/hr)
q c-b	=	5.19	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	30	(metres)
Vr b-a	=	40	(metres)
Vr b-c	=	55	(metres)
q b-a	=	30	(pcu/hr)
q b-c	=	5	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.809
E	=	0.884
F	=	0.87
Y	=	0.634

THE CAPACITY OF MOVEMENT :

Q b-a	=	492
Q b-c	=	651
Q c-b	=	637
Q b-ac	=	510.4

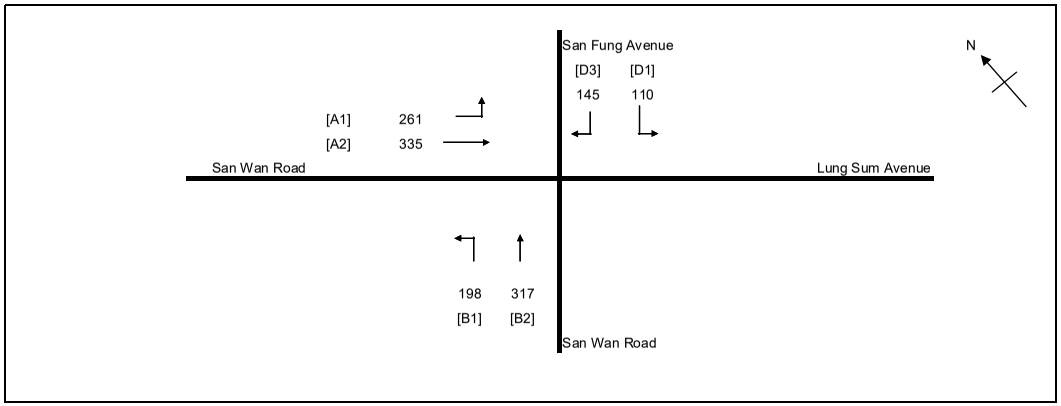
TOTAL FLOW = 119.0996806 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

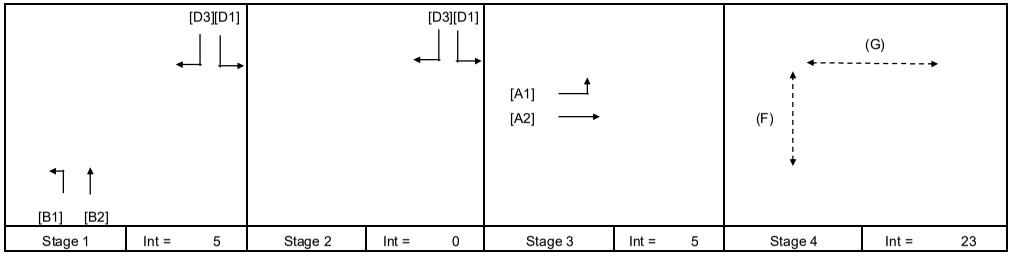
DFC b-a	=	0.0000
DFC b-c	=	0.0080
DFC c-b	=	0.0081
DFC b-ac	=	0.0687

CRITICAL DFC = 0.07

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J15 - San Fung Avenue / Lung Sum Avenue	2033_AM_Design	DATE :	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	92 sec
Sum(y)		Y =	0.308
Loss time		L =	40 sec
Total Flow		=	1366 pcu
Co	= (1.5*L+5)/(1-Y)	=	94.0 sec
Cm	= L/(1-Y)	=	57.8 sec
Yult		=	0.600
R.C.ult	= (Yult-Y)/Y*100%	=	94.7 %
Cp	= 0.9*L/(0.9-Y)	=	60.8 sec
Ymax	= 1-L/C	=	0.565
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	65 %

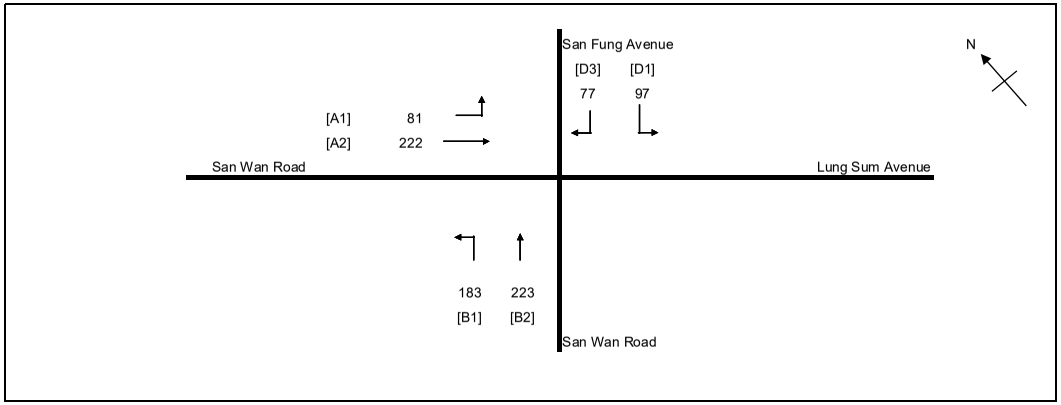


Stage 1	Int = 5	Stage 2	Int = 0	Stage 3	Int = 5	Stage 4	Int = 23

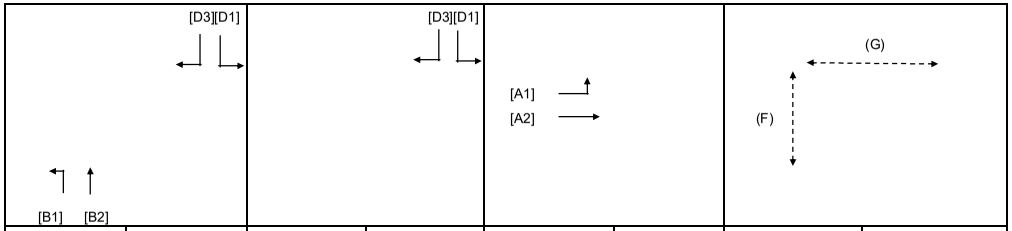
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
F	9.50	8	7	7	8	7	8	OK
G	9.50	8	7	7	8	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				31				
A1	3	2.60	D	1	12		N	1875	261			261	1.00	1667			1667	0.157			26	27	0.535	28
A2	3	3.40	D	1				2095		335		335	0.00	2095			2095	0.160	0.160		27	27	0.545	36
B1	1	3.80	B	1	15		N	1995	198			198	1.00	1814			1814	0.109			18	25	0.401	22
B2	1	3.80	B	1				2135		317		317	0.00	2135			2135	0.148	0.148		25	25	0.545	35
D1	1,2	3.10	C	1	12		N	1925	110			110	1.00	1711			1711	0.064			11	34	0.174	11
D3	1,2	3.40	C	1	25	O		2095			145	145	1.00	1759			1759	0.082			14	34	0.223	14
	2																			9				

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J15 - San Fung Avenue / Lung Sum Avenue	2033_PM_Design	DATE :	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	92 sec
Sum(y)		Y =	0.210
Loss time		L =	40 sec
Total Flow		=	883 pcu
Co	= (1.5*L+5)/(1-Y)	=	82.3 sec
Cm	= L/(1-Y)	=	50.7 sec
Yult		=	0.600
R.C.ult	= (Yult-Y)/Y*100%	=	185.3 %
Cp	= 0.9*L/(0.9-Y)	=	52.2 sec
Ymax	= 1-L/C	=	0.565
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	142 %

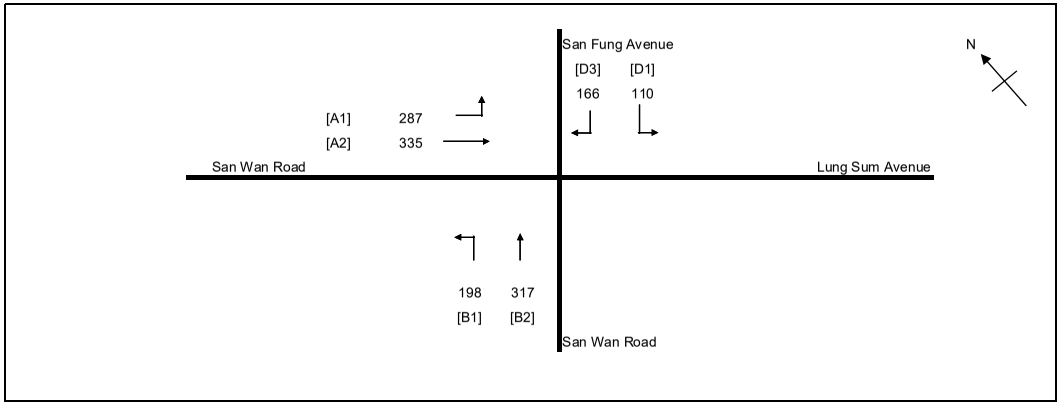


Stage 1	Int = 5	Stage 2	Int = 0	Stage 3	Int = 5	Stage 4	Int = 23

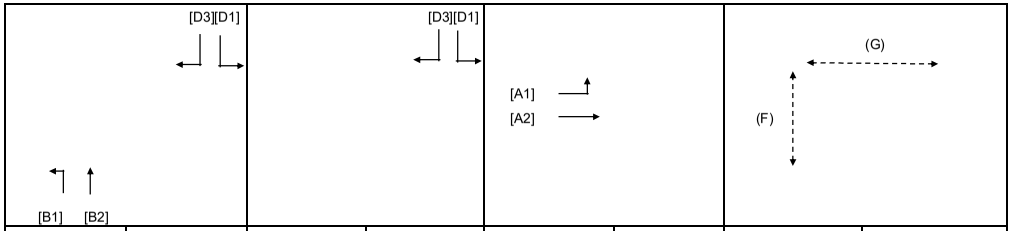
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
F	9.50	8	7	7	8	7	8	OK
G	9.50	8	7	7	8	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				31				
A1	3	2.60	D	1	12		N	1875	81			81	1.00	1667			1667	0.049			12	26	0.171	9
A2	3	3.40	D	1				2095		222		222	0.00	2095			2095	0.106	0.106		26	26	0.372	24
B1	1	3.80	B	1	15		N	1995	183			183	1.00	1814			1814	0.101			25	26	0.359	20
B2	1	3.80	B	1				2135		223		223	0.00	2135			2135	0.104	0.104		26	26	0.372	25
D1	1,2	3.10	C	1	12		N	1925	97			97	1.00	1711			1711	0.057			14	35	0.150	9
D3	1,2	3.40	C	1	25	O		2095			77	77	1.00	1759			1759	0.044			11	35	0.116	7
	2																			9				

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J15 - San Fung Avenue / Lung Sum Avenue	2033_AM_Design (new)	DATE :	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	92 sec
Sum(y)		Y =	0.321
Loss time		L =	40 sec
Total Flow		=	1412 pcu
Co	= (1.5*L+5)/(1-Y)	=	95.7 sec
Cm	= L/(1-Y)	=	58.9 sec
Yult		=	0.600
R.C.ult	= (Yult-Y)/Y*100%	=	87.2 %
Cp	= 0.9*L/(0.9-Y)	=	62.1 sec
Ymax	= 1-L/C	=	0.565
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	59 %

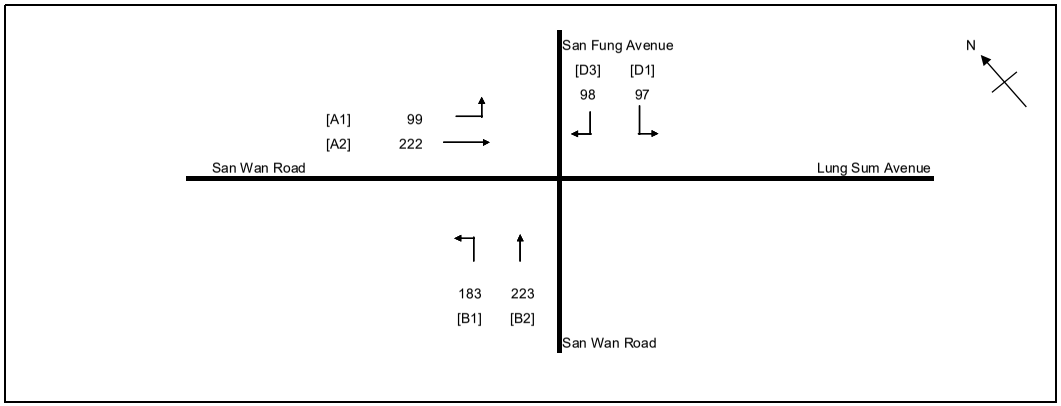


Stage 1	Int = 5	Stage 2	Int = 0	Stage 3	Int = 5	Stage 4	Int = 23

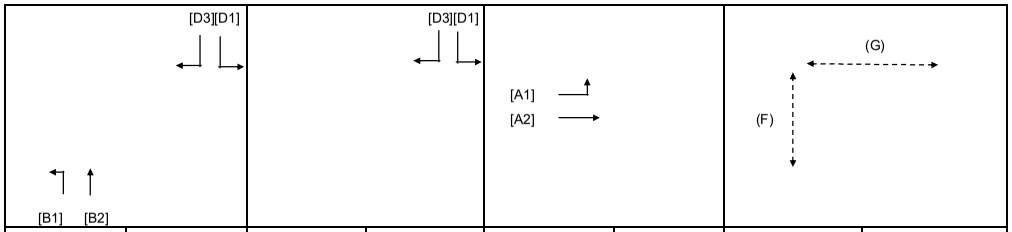
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
F	9.50	8	7	7	8	7	8	OK
G	9.50	8	7	7	8	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				31				
A1	3	2.60	D	1	12		N	1875	287			287	1.00	1667			1667	0.172			28	28	0.567	31
A2	3	3.40	D	1				2095		335		335	0.00	2095			2095	0.160	0.172		26	28	0.527	36
B1	1	3.80	B	1	15		N	1995	198			198	1.00	1814			1814	0.109			18	24	0.417	22
B2	1	3.80	B	1				2135		317		317	0.00	2135			2135	0.148	0.148		24	24	0.567	36
D1	1,2	3.10	C	1	12		N	1925	110			110	1.00	1711			1711	0.064			10	33	0.179	11
D3	1,2	3.40	C	1	25	O		2095			166	166	1.00	1759			1759	0.094			15	33	0.262	16
	2																			9				

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J15 - San Fung Avenue / Lung Sum Avenue	2033_PM_Design (new)	DATE :	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	92 sec
Sum(y)		Y =	0.210
Loss time		L =	40 sec
Total Flow		=	921 pcu
Co	= (1.5*L+5)/(1-Y)	=	82.3 sec
Cm	= L/(1-Y)	=	50.7 sec
Yult		=	0.600
R.C.ult	= (Yult-Y)/Y*100%	=	185.3 %
Cp	= 0.9*L/(0.9-Y)	=	52.2 sec
Ymax	= 1-L/C	=	0.565
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	142 %

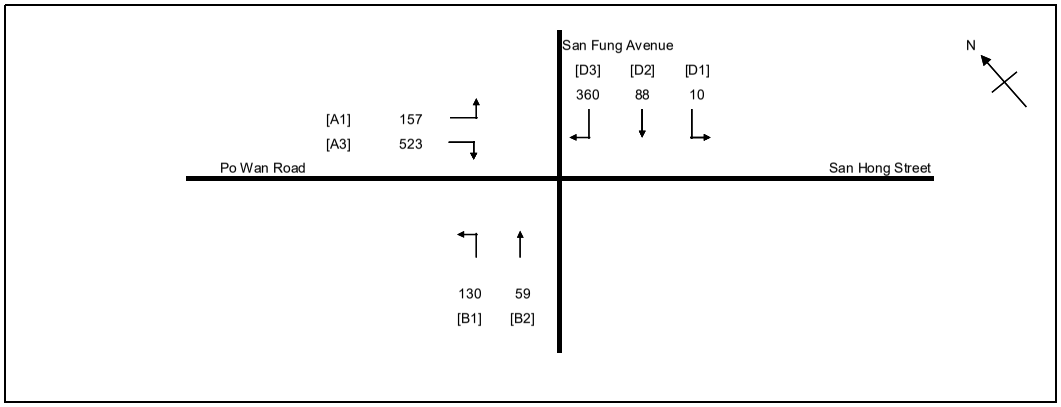


Stage 1	Int = 5	Stage 2	Int = 0	Stage 3	Int = 5	Stage 4	Int = 23

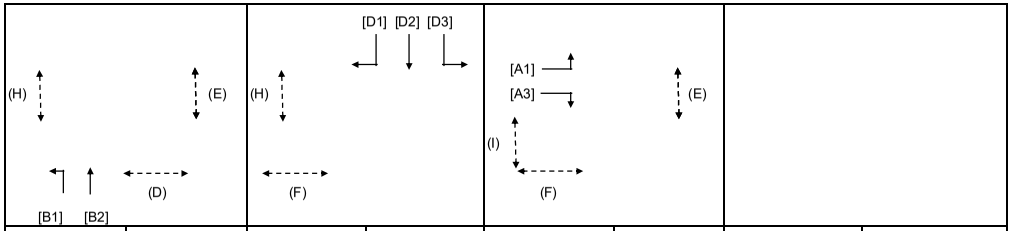
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
F	9.50	8	7	7	8	7	8	OK
G	9.50	8	7	7	8	7	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				31				
A1	3	2.60	D	1	12		N	1875	99			99	1.00	1667			1667	0.059			15	26	0.208	11
A2	3	3.40	D	1				2095		222		222	0.00	2095			2095	0.106	0.106		26	26	0.372	24
B1	1	3.80	B	1	15		N	1995	183			183	1.00	1814			1814	0.101			25	26	0.359	20
B2	1	3.80	B	1				2135		223		223	0.00	2135			2135	0.104	0.104		26	26	0.372	25
D1	1,2	3.10	C	1	12		N	1925	97			97	1.00	1711			1711	0.057			14	35	0.150	9
D3	1,2	3.40	C	1	25	O		2095			98	98	1.00	1759			1759	0.055			14	35	0.147	9
	2																			9				

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J16 - San Fung Avenue / Po Wan Road	2033_AM_Design	DATE :	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	92 sec
Sum(y)		Y =	0.459
Loss time		L =	17 sec
Total Flow		=	1328 pcu
Co	= (1.5*L+5)/(1-Y)	=	56.4 sec
Cm	= L/(1-Y)	=	31.4 sec
Yult		=	0.773
R.C.ult	= (Yult-Y)/Y*100%	=	68.3 %
Cp	= 0.9*L/(0.9-Y)	=	34.7 sec
Ymax	= 1-L/C	=	0.815
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	60 %

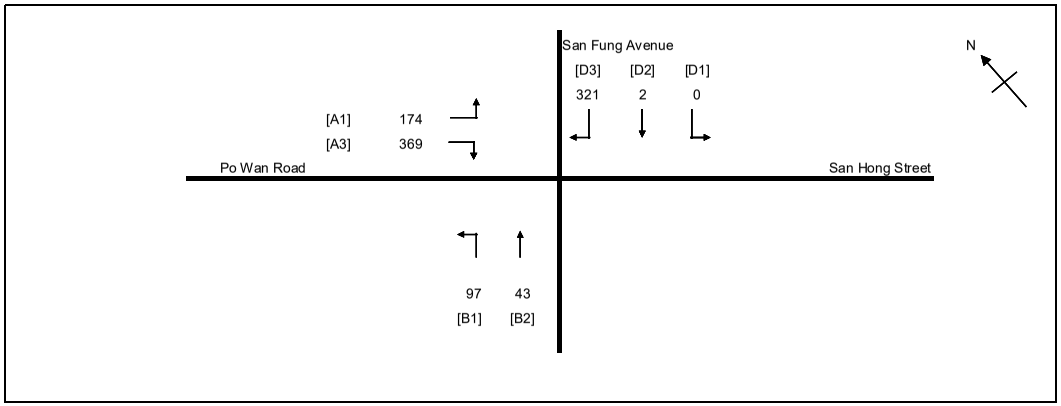


Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int = 6	Stage 4	Int =

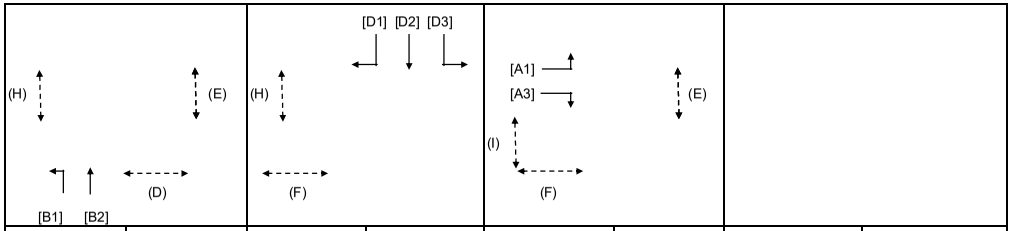
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
D	6.30	5	7	5	7	7	5	OK
E	4.50	5	5	5	44	5	5	OK
F	3.70	5	8	5	60	8	5	OK
H	7.30	5	2	6	49	2	6	OK
I	4.80	5	8	5	22	8	5	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
A1,A3	3	3.20	C	1	15		N	1935	157		165	322	1.00	1759			1759	0.183	0.183		30	30	0.563	33
A3	3	3.20	C	1	25			2075			358	358	1.00	1958			1958	0.183			30	30	0.562	37
B1,B2	1	5.50	A	1	15		N	2165	130	59		189	0.69	2026			2026	0.093	0.093		15	15	0.563	24
D1,D2	2	3.20	B	1	12		N	1935	10	88		98	0.11	1910			1910	0.051			8	30	0.159	10
D3	2	3.40	B	1	25			2095			360	360	1.00	1976			1976	0.182	0.182		30	30	0.563	37

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J16 - San Fung Avenue / Po Wan Road	2033_PM_Design	DATE :	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	92 sec
Sum(y)		Y =	0.378
Loss time		L =	17 sec
Total Flow		=	1006 pcu
Co	= (1.5*L+5)/(1-Y)	=	49.0 sec
Cm	= L/(1-Y)	=	27.3 sec
Yult		=	0.773
R.C.ult	= (Yult-Y)/Y*100%	=	104.5 %
Cp	= 0.9*L/(0.9-Y)	=	29.3 sec
Ymax	= 1-L/C	=	0.815
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	94 %



Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int = 6	Stage 4	Int =

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
D	6.30	5	7	5	6	7	5	OK
E	4.50	5	5	5	42	5	5	OK
F	3.70	5	8	5	61	8	5	OK
H	7.30	5	2	6	50	2	6	OK
I	4.80	5	8	5	21	8	5	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
A1,A3	3	3.20	C	1	15		N	1935	174		83	257	1.00	1759			1759	0.146	0.146		29	29	0.463	27
A3	3	3.20	C	1	25			2075			286	286	1.00	1958			1958	0.146			29	29	0.463	30
B1,B2	1	5.50	A	1	15		N	2165	97	43		141	0.69	2025			2025	0.069	0.069		14	14	0.463	18
D1,D2	2	3.20	B	1	12		N	1935	0	2		2	0.08	1916			1916	0.001			0	32	0.003	0
D3	2	3.40	B	1	25			2095			321	321	1.00	1976			1976	0.162	0.162		32	32	0.463	32

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
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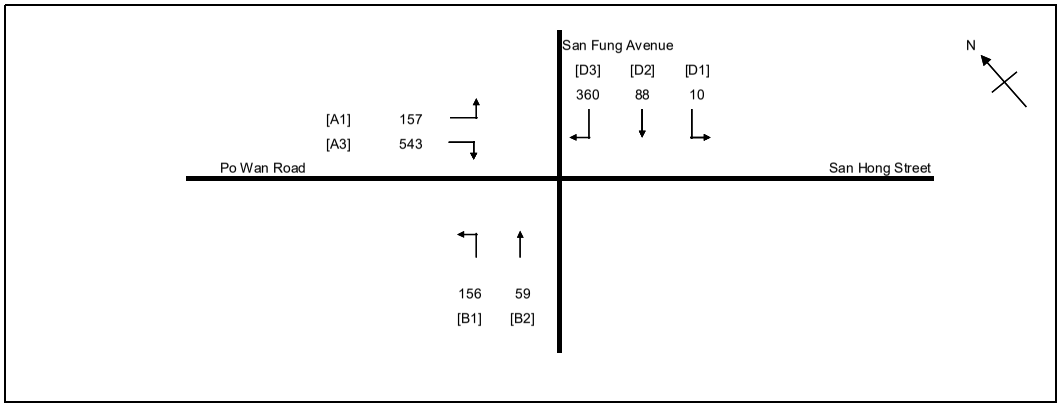
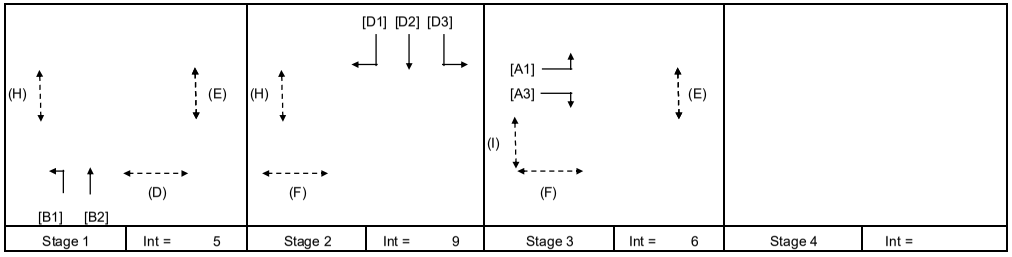
J16 - San Fung Avenue / Po Wan Road	2033_AM_Design (new)	DATE :	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	92 sec
Sum(y)		Y =	0.478
Loss time		L =	17 sec
Total Flow		=	1374 pcu
Co	= (1.5*L+5)/(1-Y)	=	58.4 sec
Cm	= L/(1-Y)	=	32.5 sec
Yult		=	0.773
R.C.ult	= (Yult-Y)/Y*100%	=	61.7 %
Cp	= 0.9*L/(0.9-Y)	=	36.2 sec
Ymax	= 1-L/C	=	0.815
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	54 %

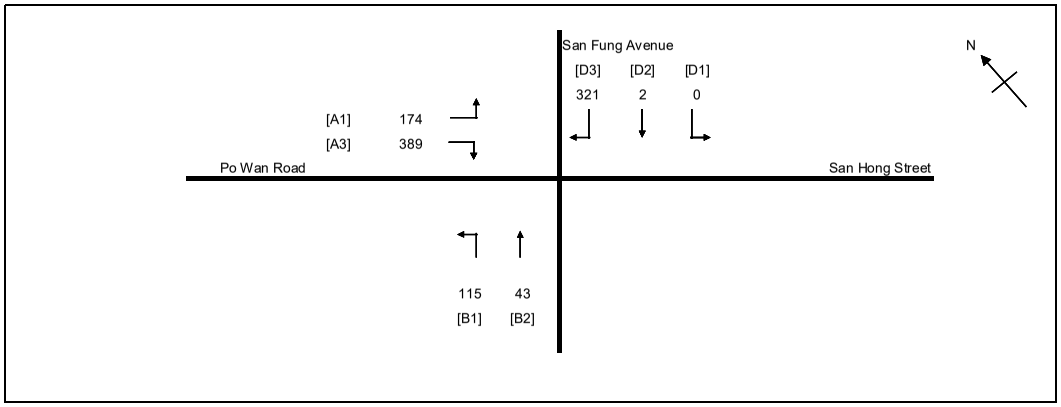


Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int = 6	Stage 4	Int =

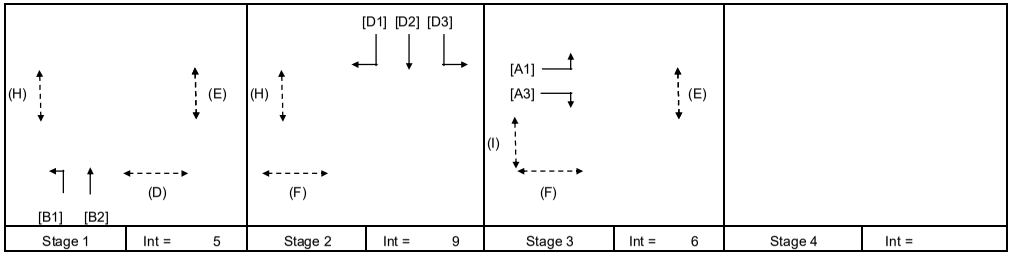
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
D	6.30	5	7	5	9	7	5	OK
E	4.50	5	5	5	45	5	5	OK
F	3.70	5	8	5	58	8	5	OK
H	7.30	5	2	6	49	2	6	OK
I	4.80	5	8	5	22	8	5	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
A1,A3	3	3.20	C	1	15		N	1935	157		175	332	1.00	1759			1759	0.189	0.189		30	30	0.586	35
A3	3	3.20	C	1	25			2075			368	368	1.00	1958			1958	0.188			30	30	0.584	38
B1,B2	1	5.50	A	1	15		N	2165	156	59		215	0.72	2019			2019	0.107	0.107		17	17	0.586	27
D1,D2	2	3.20	B	1	12		N	1935	10	88		98	0.11	1910			1910	0.051			8	29	0.166	10
D3	2	3.40	B	1	25			2095			360	360	1.00	1976			1976	0.182	0.182		29	29	0.586	38

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 277177-07	SCENARIO:
J16 - San Fung Avenue / Po Wan Road	2033_PM_Design (new)	DATE :	FILENAME:



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	92 sec
Sum(y)		Y =	0.392
Loss time		L =	17 sec
Total Flow		=	1044 pcu
Co	= (1.5*L+5)/(1-Y)	=	50.2 sec
Cm	= L/(1-Y)	=	28.0 sec
Yult		=	0.773
R.C.ult	= (Yult-Y)/Y*100%	=	96.9 %
Cp	= 0.9*L/(0.9-Y)	=	30.1 sec
Ymax	= 1-L/C	=	0.815
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	87 %



Stage 1	Int = 5	Stage 2	Int = 9	Stage 3	Int = 6	Stage 4	Int =

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
D	6.30	5	7	5	7	7	5	OK
E	4.50	5	5	5	43	5	5	OK
F	3.70	5	8	5	60	8	5	OK
H	7.30	5	2	6	50	2	6	OK
I	4.80	5	8	5	21	8	5	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
A1,A3	3	3.20	C	1	15		N	1935	174		93	267	1.00	1759			1759	0.152	0.152		29	29	0.481	28
A3	3	3.20	C	1	25			2075			296	296	1.00	1958			1958	0.151			29	29	0.480	31
B1,B2	1	5.50	A	1	15		N	2165	115	43		158	0.73	2018			2018	0.078	0.078		15	15	0.481	20
D1,D2	2	3.20	B	1	12		N	1935	0	2		2	0.08	1916			1916	0.001			0	31	0.004	0
D3	2	3.40	B	1	25			2095			321	321	1.00	1976			1976	0.162	0.162		31	31	0.481	33

[RESTRICTED]

Hong Kong Housing Authority

AGREEMENT NO. CB20210448 -
Term Engineering Consultancy Services for
New Territories East Region (2021-2023)

Proposed Public Housing Development Site at Po Shek Wu Road

Sewerage Impact Assessment (SIA) Report (Issue 6.0)

SEWERAGE IMPACT ASSESSMENT

CONTENTS

Page

LIST OF APPENDICES

LIST OF ABBREVIATIONS

Abbreviation	Full title
ADWF	Average Dry Weather Flow
DSD	Drainage Services Department
DCC	Day Care Centre
EPD	Environmental Protection Department
GESF	Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning
HD	Housing Department
HKHA	Hong Kong Housing Authority
HKPSG	Hong Kong Planning Standard and Guidelines
HCS	Home Care Services
OZP	Outline Zoning Plan
SIA	Sewerage Impact Assessment
UFF	Unit Flow Factor
WSP	WSP (Asia) Limited

1. INTRODUCTION

1.1 General

1.1.1 WSP (Asia) Ltd (WSP) had been commissioned by HKHA, under Term Engineering Consultancy Services for New Area (2021-2023), to carry out the civil engineering consultancy services in respect of SIA for the proposed public housing site at Po Shek Wu Road (hereafter referred to as "the Site" or "the Proposed Development").

1.2 Background

1.2.1 The Site is located at the northwest of Sheung Shui Town Centre. It is bounded by San Wan Road and Po Shek Wu Road, opposite to Shek Wu Hui Jockey Club Playground. It is zoned for "Other Use" ("OU") and as temporary bus depot under Short Term Tenancy (STT). The Site is for Subsidised Sale Flats (SSF) Development. It comprises of about 1904 Flats and is envisaged to be complete by Year 2029/30.The site is zoned "Residential (Group A)5. The Site location plan is in **Appendix A.**

1.2.2 Existing sewerage provision is available along San Wan Road. There are two trunk sewers with size DN1800 that were laid along San Wan Road conveying sewage to Shek Wu Hui Sewage Treatment Works (SWHSTW). The sewerage layout plans of the existing sewerage system are in **Appendix A.**

1.2.3 The sewage from the Site will be discharged to the existing sewerage system in San Wan Road. Based on the original development parameters provided by HKHA, JACOBS has prepared and submitted the SIA (Report Ref. R/3509/016 Revision 0), which was approved by EPD and DSD.

1.2.4 Subsequent to the approval of original SIA, HKHA advised that there would be some changes of key development parameters for Po Shek Wu Road. An updated SIA would therefore be required.

1.3 Objective

1.3.1 The purpose of this SIA is to update the key development parameters and assess the impact to the existing sewers for the additional flow generated. In general, the design principle and assumption will follow the approved SIA. Mitigation measures to the existing sewerage system including modification or upgrading works will be recommended if necessary.

The scope of the assessment includes:

- Estimate the sewage generated from the proposed development;
- Assess the capacity of the existing sewerage systems downstream to the Site;
- Analyse the impact to the existing sewerage systems downstream to the Site subjected to the discharge due to the proposed development; and
- Propose mitigation measures (i.e. Modification or upgrading works), if any.

1.4 Structure of this Report

1.4.1 This SIA report contains the following sections in addition to this introduction:

Section 2 Introduces the general information of the Site.

Section 3 Discusses the methodology and design parameters for the SIA.

Section 4 Presents the sewage flow of existing development and capacity checking of the existing sewage system.

Section 5 Presents the proposed sewerage discharge points and capacity checking of the sewage system.

Section 6 Proposes mitigation measures of the Site.

Section 7 Summarizes the results, conclusions and recommendation of the SIA.

2. PROJECT INFORMATION

2.1 Existing Project Information

2.1.1 According to the information provided by HKHA, the Site consists of the followings:

HA-funded Items:

a) two blocks (Block A and Block B) with 40 and 41 domestic storeys respectively and with an intermediate refuge floor, providing a total of 1 904 flats;
b) a four-storey podium with shops of approximately 1 800m^2 internal floor area (IFA), ancillary carpark for private cars and motorcycles, loading/unloading (L/UL) bays, building services plant rooms and a landscaped garden at its roof;
c) a six-classroom kindergarten;
d) a post office;
e) a district management office and a management office for this PHD;
f) associated ancillary facilities and external works, including open parking spaces for bicycles;
g) a footbridge No. 1 (FB1) connecting the development and Sheung Shui Areas 4 & 30 Site 2 (SSS2); and
h) a footbridge No. 2 (FB2) connecting the development and Po Shek Wu Estate (PSWE) across the East Rail.

Government-funded Items (welfare facilities):

a) a 100-place Child Care Centre (CCC);
b) a 100-place Residential Care Home for the Elderly (RCHE);
c) a main base of Short-term Food Assistance Service Team (STFAST);
d) one team of Home Care Services (HCS) for Frail Elderly Persons; and
e) public footbridge – a footbridge No. 3 (FB3) with lift tower and staircase along San Wan Road connecting to the existing footbridge network leading to Sheung Shui MTR Station to be handed over to the Transport Department (TD) and the Highways Department (HyD) for management and maintenance, with agreement with TD and HyD obtained.

3. METHODOLOGY AND DESIGN PARAMETERS FOR SEWERAGE IMPACT ASSESSMENT

3.1 Methodology

Assessment Approach

3.1.1 The following approach and methodology have been adopted in this sewerage impact assessment:-

- Carry out the desktop study to collect the relevant information for the assessment;
- Investigate and review the existing and planned sewerage networks and determine the sewage flow generated from the existing development; and
- Determine the potential sewage arising from the proposed development.

3.1.2 For the existing sewers and proposed sewers design, Colebrook-White equation has been used to assess the hydraulic performance.

Collection Information

3.1.3 Desktop study has been undertaken to collect the relevant information for the assessment. The relevant information collected is summarised below:

- Planned Sewerage Layout in the vicinity of the proposed Development; and
- Sewage flow generation from the existing buildings.

Design Standards, Guidelines and Reference

3.1.4 The sewage flow generated from the proposed development is based on the following standards, guidelines and reference for the sewerage and sewage treatment design:-

- Sewerage Manual Part 1 – Key Planning Issues and Gravity Collection System, Third Edition, May 2013 published by DSD;
- Sewerage Manual Part 2 – Pumping Stations and Rising Mains, Second Edition, May 2013 published by DSD;
- Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (GESF) published by EPD; and
- Commercial and Industrial Floor Space Utilization Survey published by PlanD.

Hydraulic Analysis

3.1.5 The hydraulic conditions of the proposed **sewage system** are designed with spreadsheet calculations. The full-bore flow shall be taken as the design capacity of a sewer. The capacity for gravity sewers is assessed using the Colebrook–White equation.

$$V = -\sqrt{(8gDs)}\log\left(\frac{k_s}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}}\right)$$

3.2 Basic Design Parameters

Unit Flow Factors

3.2.1 The Unit Flow Factors (UFF) for Domestic Flow and Commercial and Institutional Flow have been adopted in accordance with Table T-1, Table T-2 and Table T-3 of the GESF. The category of the components and the Unit Flow Factors adopted in the assessment are indicated in **Table 3.2.1** below.

Table 3.2.1 – Unit Flow Factors for Domestic and Commercial Flow

Component	Category/ Use	UFF (m^3/person/day)
Domestic Flow	Public Rental / Private housing (R1)	0.19
	Private housing (R2)	0.27
	Private housing (R3)	0.37
	Modern village	0.27
	Temporary and non-domestic	0.15
Commercial Flow (Note)	J1 Manufacturing (North District)	0.63
	J3 Transport, Storage & Communication	0.18
	J4 Wholesale & Retail	0.28
	J6 Finance, Insurance, Real Estate & Business Services	0.08
	J10 Restaurants & Hotels	1.58
	J11 Community, Social & Personal Services	0.28

Note: The unit flow factor of commercial employee 0.08 m^3/h/d is added into the Commercial Flow Factor.

3.2.2 According to the information from HKHA, the Site is seeking the relaxation of the maximum total PR from 7.0 to 7.5 which exceeds the maximum plot ratio residential density zone R2 for New Territories (5). Thus, the Site is assumed to be equivalent to R1 housing and the unit flow factor of the resident adopted in the Site is 0.270m^3/person/day. For commercial flow of the Site, several categories will be applied for the estimation. Please refer to **Appendix D** for more details.

3.2.3 An extra 10% population will be applied to the total sewage generation of the Site.

3.2.4 The Catchment Inflow Factors (P_{cif}) cater for the net overall ingress of water or wastewater to the sewage system. They are catchment-dependent and applicable to major sewerage facilities of a catchment. They are not applicable to new catchments which are deemed to be free from misconnections and pipe defects. Therefore, the P_{cif} are not applicable in estimating the total flows from the new development areas.

3.2.5 For the existing sewage system in North District, P_{cif} of 1.0 will be adopted in accordance with Table T-4 of the GESF.

Table 3.2.5 - Catchment Inflow Factors, P_{cif}

Catchment	Catchment Inflow Factor, P_{cif}
Central, North Point, Sandy Bay, Wan Chai, Wah Fu, Stanley, Cental Kowloon, Yuen Long, San Wai, North District, Tai Po, North Lantau, Mui Wo	1.00
Chai Wan, Tuen Mun, Kwai Chung, Tsing Yi, East Kowloon	1.10
Sha Tin	1.15
Tseung Kwan O	1.20
Shau Kei Wan	1.25
Aberdeen, Ap Lei Chau, Sai Kung, North West Kowloon	1.30
Cheung Chau, Shek O	1.50

3.2.6 The average sewage flow, $Q_{average}$, is as follows:

$$Q_{average} = (Q_{domestic} + Q_{commercial} + Q_{other}) \times P_{cif}$$

Peaking Factors

3.2.7 Peaking factors cater for seasonal / diurnal fluctuation and normal amount of infiltration and inflow. The peaking factors shall be in accordance with Table T-5 of GESF and are shown in the **Table 3.2.7**.

Table 3.2.7 – Peaking Factors for Various Population Ranges

Population Range	Peaking Factor (including Stormwater allowance) for facility with existing upstream sewerage	Peaking Factor (excluding Stormwater allowance) for facility with new upstream sewerage
(a) For sewers		
<1,000	8	6
1,000 – 5,000	6	5
5,000 – 10,000	5	4
10,000 – 50,000	4	3
>50,000	Max (7.3/ $N^{0.15}$, 2.4)	Max (6/ $N^{0.175}$, 1.6)
(b) Sewage Treatment Works, Preliminary Treatment Works and Pumping Stations		
<10,000	4	3
10,000 – 25,000	3.5	2.5
25,000 – 50,000	3	2
>50,000	Max (3.9/ $N^{0.065}$, 2.4)	Max (2.6/ $N^{0.065}$, 1.6)

Notes: N is the contributing population in thousands.

3.2.8 Peaking factors (including stormwater allowance) used in this report are usually applied to design sewerage facilities receiving flow from new upstream **sewage system**s which rarely has misconnections and defects for infiltration.

3.2.9 The peak sewage flow, Q_{peak}, is calculated as follows:

$$Q_{peak} = Q_{average} \times P$$

Where $Q_{average}$ is the average sewage flow and,

P is the peaking factor

Material

3.2.10 The roughness coefficient for newly concrete sewers used for Colebrook-White (k_s) is based on values provided in the Table 5 of DSD Sewerage Manual Part 1 2013. The roughness coefficient for existing concrete sewer used for Colebrook-White (k_s) is based on values calculated by the trial-and-error basis. Details refer to **Appendix C. Table 3.2.10** summarized the roughness coefficients for the sewerage design.

Table 3.2.10 – Roughness Coefficients for Sewerage Design

Material	Roughness Coefficients, k_s
Concrete (DSD Sewerage Manual)	3.0 mm
Concrete (Trial-and-error Basis)	3.1mm

3.3 Design Assumptions for Existing System Capacity Estimation

3.3.1 An extra 10% population will be applied to the total sewage generation of the Site.

3.3.2 All of the non-domestic facilities will be assumed to be operated by the time when the construction is completed.

3.3.3 Teachers in the kindergarten will be assumed to be community service (J11) employees. Each classroom will hold 1 class with 30 students on average.

3.3.4 The car park staff will be classified to be transport, storage (J3) employees. The worker density of transport will be adopted for the car park.

3.3.5 Since manhole FMH1004664 locates at the most upstream of a pipe section and the original depot will be demolished, the base flow of pipe section between manhole FMH1004664 and manhole FMH1004662 will be assumed to be 0 before the completion of the Site.

3.3.6 Peak wet weather baseline flows of concerned sewer sections were provided by EPD and no adjustment factors on the data are required.

3.3.7 All existing peak flows provided by DSD has been multiplied by catchment inflow factor P_{CIF} and peak factor P. No further factor is required to be imposed on the data provided.

3.3.8 Sewers at downstream of the scope are considered to have sufficient spare capacity for the new development.

3.3.9 Kinematic viscosity of sewage is assumed to be equal to the kinematic viscosity of water. (i.e. $1 \cdot 10^{-6}$ m^2/s).

3.4 Other Design Considerations

3.4.1 The existing drainage plans (Plan nos.: 3-SW-6A-2, 3-SW-6A-4, 3-SW-6B-1, 3-SW-6B-3, 3-SW-1C-4 and 3-SW-1C-4) were obtained from the Drainage Services Department (DSD) in September 2016 to gather the background information on existing sewerage system in the vicinity of the Sites. The sewerage layout of the above plans have been redrawn and illustrated in Appendix A.

3.4.2 All capacity and projected peak flows under ultimate scenarios illustrated in Appendix E were obtained from EPD in November 2016 to gather the existing condition of the sewerage system in the vicinity of the Site.

3.4.3 Based on the DSD drainage plans, there is an existing manhole (FMH1004664) connected to a DN225 sewer located inside the Site boundary. This section can be modified into a terminal manhole connect to the existing sewerage system from the Site. The sewage flow generated from the Site will be conveyed to the SWHSTW by a DN1800 existing sewage main trunk along San Wan Road.

3.4.4 There is planned expansion works at the Shek Wu Hui Sewage Treatment Works (SWHSTW) to increase its capacity for meeting the projected district demand. HD had agreed with EPD that sewage arising from the proposed housing development at Sheung Shui Area 30 and Po Shek Wu Road sites could be accommodated by the SWHSTW.

3.4.5 There are several planning developments from the upstream sewerage and will discharge to the sewerage treatment works via the existing 1800dia main trunk. The sewerage flow from the planning developments have been provided by EPD (refer to the **Appendix G**) and the amount will be included into the assessment.

4. CAPACITY AND ADEQUACY ASSESSMENT

4.1 Introduction

4.1.1 In this assessment, the following flow scenario will be presented: -

1) Condition of the existing sewerage system after the construction of the proposed development with all sewage generated from the proposed development is discharged to FMH1004664 by using the existing sewer FWD1005561

4.2 Sewage Discharge Estimation

4.2.1 Population

This SIA divides all population into three cohorts: domestic, transport, storage (J3), commercial (J11) employees and students. The average household size and total domestic population of the two blocks are given by HKHA, whereas the population of the commercial employees is estimated according to the usage ratio in "Commercial and Industrial Floor Space Utilization Survey" conducted by Planning Department.

4.2.2 Flow Generation

Sewage generation in this SIA is estimated by unit flow generation stated in GESF. Each population cohort has a unique unit flow factor listed Table T-1 and Table T-2 in GESF. After retrieving the unit flow of each cohort, total discharge flow generation can be calculated by multiplying the unit flow to the corresponding population.

4.2.3 Peak Factor

From GESF, peaking factor P is determined by contributing population. In this report, peak factor of the flow generated from the Site follows Table T-5 (including stormwater allowance) of GESF, which P=5 are adopted for the SIA.

4.2.4 Estimated Sewerage Discharge Flow

Table 4.2.4 summarized the sewerage discharge flow from the Site after the completion. The details breakdown could refer to **Appendix D.**

Table 4.2.4 – Estimated Sewerage Discharge Flow from the Site

Categories	**Item**	**UFF (m^3/day)**
Domestic Flow	Public Residential Building Block:	1583.8
Commercial and Institutional Flow	Retail	23.5
	Kindergarten	17.0
	Post office	5.0
	A district management office and A management office for the Site	7.0
	Associated ancillary facilities and external works, including open parking spaces for bicycles;	52.6
	A 100-place Child Care Centre (CCC);	28.3
	A 100-place Residential Care Home for the Elderly (RCHE);	34.1
	A main base of Short-term Food Assistance Service Team (STFAST);	1.4
	Home Care Services (HCS) for Frail Elderly Persons	25.2
Total		**1778.0**

4.3 Capacity Checking for the Existing Sewerage System

4.3.1 Capacity Calculation

The baseline sewage flow and full-bore capacity of the existing gravity sewers in the vicinity of the proposed development were given by EPD in **Appendix B** and used as baseline information in the assessment. The baseline sewage flow was estimated using computer hydraulic modelling taking into account the sewage flow from the existing and planned developments in the catchment. However, for proposed sewers and sewers with missing data, capacity should be clarified. The capacity of the existing drainage pipes were estimated by Colebrook-White equation stated in the Section 3.1.5.

For the hydraulic pipeline roughness k_s, from **Section 5.2.1** of Sewerage Manual, published by DSD, the roughness of slimed sewers shall be adopted from Table 5 in the manual. Assume all sewers are concrete sewers, the k_s value of the sewer will then be estimated by trial and error basis based on the manhole data provided by EPD, and the value with minimal error along the main trunk (i.e. 0.0031m) will be adopted in this report. The detail estimation is shown in **Appendix C** in this report.

4.3.2 Utilization Rate

In the context of computer hydraulic modelling, the utilization rate of gravity sewer is defined as the running water depth divided by the sewer diameter. A sewer section is under surcharge if its utilization rate is greater than 1. In this assignment, the estimated sewage flow from the proposed development calculated in **Appendix D** is added to the baseline sewage flow provided by EPD shown in **Appendix B** to project the ultimate flow of concerned sewer sections illustrated in **Appendix E**. The projected flow is then compared against the full-bore capacity. The sewer is expected to have sufficient capacity if its projected flow is lower than the full-bore capacity. **Table 4.3.2a** summarized existing condition of the existing sewerage networks. **Table 4.3.2b** summarized the result of the assessment under Scenario 1. Detail of the result refer to the **Appendix E**.

Table 4.3.2a – Existing Utilization Rate of Existing Sewerage System before the Development (Including other Planning Developments)

Sewers Between Manholes		Utilization
US MH	**DS MH**	**(%)**
FMH1004664	FMH1004663	31.1
FMH1004663	FMH1004662	25.8
FMH1004662	FMH1004661	47.1
FMH1004661	FMH1004660	48.8
FMH1004660	FMH1004659	N/A
FMH1004659	FMH1004658	N/A
FMH1004658	FMH1004657	61.9
FMH1004657	FMH1004629	39.3
FMH1004629	FMH1004030	47.9
FMH1004030	FMH1004031	68.6

Table 4.3.2b – Utilization Rate of Existing Sewerage System after the Development

Sewers Between Manholes		Utilization
US MH	**DS MH**	**(%)**
FMH1004664	FMH1004663	180.8
FMH1004663	FMH1004662	151.3
FMH1004662	FMH1004661	59.9
FMH1004661	FMH1004660	62.0
FMH1004660	FMH1004659	N/A
FMH1004659	FMH1004658	N/A
FMH1004658	FMH1004657	78.6
FMH1004657	FMH1004629	50.0
FMH1004629	FMH1004030	59.3
FMH1004030	FMH1004031	84.9

5. SEWERAGE IMPACT ASSESSMENT

5.1.1 Under Scenario 1 in Section 4.1.1, the estimated peak flow in the sewer sections between manholes FMH1004664 and FMH1004662 exceed 100% of full-bore capacity. There is significant sewerage impact of the existing sewerage system. Mitigation measures for the existing sewerage system are needed.

5.1.2 Apart from the sewer FWD1005561 between the manhole FMH1004664 and FMH1004662, the downstream sewerage systems are capable to cater the increased sewerage flow form the Site after the completion.

5.1.3 The full-bore capacity of the DN1800 sewer section between manholes FMH1004651 and FMH1004650 is lower than other DN1800 sewer sections in the vicinity due to gentle gradient.

5.1.4 Sewer sections from manhole FMH1004660 to FMH1004658 are at level according to the Drainage Record. Hence, the full-bore capacity could not be determined by the Colebrook-White equation. Computer hydraulic modelling indicated that the baseline utilization rate of the sewer sections ranges from 62 to 63% under previous submission. Although the sewerage flow from the Site have been increase by about 1.5L/s, the impact of the increased flow should be minor. The existing sewers from manhole FMH1004660 to FMH1004658 is capable to cater the increased sewerage flow.

5.1.5 The checking on the existing pipes up to FMH1004031 shows that the DN1800 main trunk provides sufficient capacity to cater for the sewage generated from the housing development and the base flow. Hence, no further checking on the downstream is required.

6. MITIGATION MEASURES

6.1 Sewerage Impact After the Completion of the Site

6.1.1 As mentioned in **Section 5.1.1**, the utilization of the sewer sections between manholes FMH1004664 and FMH1004662 would exceed 100% of the full-bore capacity. Mitigation measures should be proposed to cater the insufficient capacity of the existing sewerage system between the site and the DSD main sewerage networks.

6.2 Upgrading Works for Sewer from FMH1004664 to FMH1004662

6.2.1 To raise the capacity of the section, a pipe with larger nominal diameter shall replace the original DN225 sewers. The existing sewer FWD1005561 shall be upgraded to accommodate sewage arising from the Site.

6.2.2 This section will justify the adequacy of capacity of installing DN300 concrete sewers to replace the original sewers.

6.2.3 **Appendix E** and **Table 6.1.4a** showed the detail calculation of the section, while **Appendix F** and **Table 6.1.4b** illustrate the capacity change of the sewer section before and after adopting the DN300 pipes.

Table 6.1.4a – Initial Condition of Sewer Sections FMH1004664 to FMH1004662

Sewer	Pipe Diameter	US IL	DS IL	Increased Sewage Flow	Cumulative Peak Flow	Pipe Capacity	Utilization
	(mm)	(mPD)	(mPD)	(L/sec)	(L/sec)	(L/sec)	(%)
FWD1005561	225.0	6.42	6.03	20.58	102.89	56.92	180.8
FWD1005560	225.0	6.03	5.47	20.58	102.89	68.01	151.3

Table 6.1.4b – Results of the Sewer Sections Adopting DN300 Pipes

Sewer	Pipe Diameter	US IL	DS IL	Increased Sewage Flow	Cumulative Peak Flow	Pipe Capacity	Utilization
	(mm)	(mPD)	(mPD)	(L/sec)	(L/sec)	(L/sec)	(%)
FWD1005561	300.0	6.42	6.03	20.58	102.89	123.59	83.3
FWD1005560	300.0	6.03	5.47	20.58	102.89	147.66	69.7

6.2.4 **Table 6.1.4a** and **Table 6.1.4b** show clearly that the capacity has risen more than double when the original sewers by DN300 concrete pipes. Thus, to summarize, the inadequacy occurs in the sewer sections between manholes FMH1004664 to FMH1004662 can be resolved with replacing the original sewers by DN300 concrete pipes.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1.1 The Sewerage Impact Assessment (SIA) has been conducted to evaluate the possible impact on the existing sewerage system due to additional flow generated from the proposed public housing developments.

7.1.2 The main trunk is mainly responsible for transferring the sewage flow of the residential buildings and commercial buildings of Sheung Shui region to SWHSTW. The additional flow generated from the Site would only occupy about 1.5% of the utilization of the main trunk. The main trunk contains about 10% capacity for the further planning. Therefore, the sewage generation from the Site has minimal effect to the existing sewerage system.

7.1.3 Under Scenario 1 in Section 4.1.1, the estimated peak flow in the sewer section between manholes FMH1004664 and FMH1004662 exceeds 100% of full-bore capacity. It is recommended to upgrade the sewer section to 300dia concrete sewer.

7.1.4 The full-bore capacity of the DN1800 sewer section between manholes FMH1004651 and FMH1004650 is lower than other DN1800 sewer sections in the vicinity due to gentle gradient.

8. REFERENCES

- Site Layout Plan (with Typical Floor) (Option 10) (Drawing No. NO09/SCHEME B/LO-00/K), HKHA
- EPD/TP1/05 “Guidelines for Estimating Sewerage Flows for Sewage Infrastructure Planning”
- The Hong Kong Planning Standards and Guidelines (HKPSG), PlanD
- Sewerage Manual Part 1, Key Planning Issues and Gravity Collection System, DSD
- Commercial and Industrial Floor Space Utilization Survey, PD
- Guidelines for Registration of a New School, EDB
- Manhole and Flow Data, EPD
- Po Shek Wu Road Sewerage Impact Assessment Report (Report no. R3509/009)

Appendix A

Sewerage Layout Plans near the Site

ICU Ref : HD(ICU)S .....

LEGEND:

- SITE BOUNDARY
- EXISTING SEWER

REVISIONS		INITIAL AND DESIGNATION		
NO	DESCRIPTION AND DATE	DWN	CKD	AUTH

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AUTHORISED	-- --		--/--
ENDORSED	-- --		--/--
CHECKED	-- --		--/--
DRAWN	-- --		--/--

AGREEMENT NO. CB 20210448

PROJECT
Term Engineering Consultancy Services for New Territories East Region (2021-2023) - Instruction No. WP04 - Potential Public Housing at Po Shek Wu Road, Sheung Shui – Investigation

JOB NO. 2512243A

DRAWING TITLE
SEWERAGE LAYOUT PLAN (SHEET 1 OF 2)

SCALE 1 : 1000 @ A3

DRAWING NO. WP04/SIA/001

SOURCE

ICU Ref:

AutoCAD 2000 A1 841 x 594

HOUSING DEPARTMENT

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ICU Ref : HD(ICU)S .....

LEGEND:

- SITE BOUNDARY
- EXISTING SEWER

REVISIONS		INITIAL AND DESIGNATION		
NO	DESCRIPTION AND DATE	DWN	CKD	AUTH

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AGREEMENT NO. CB 20210448

PROJECT
Term Engineering Consultancy Services for New Territories East Region (2021-2023) - Instruction No. WP04 - Potential Public Housing at Po Shek Wu Road, Sheung Shui – Investigation

JOB NO. 2512243A

DRAWING TITLE
SEWERAGE LAYOUT PLAN (SHEET 2 OF 2)

SCALE 1 : 1000 @ A3

DRAWING NO. WP04/SIA/002

SOURCE

ICU Ref:

AutoCAD 2000 A1 841 x 594

HOUSING DEPARTMENT

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Appendix B

Manhole and Flow Data Provided by EPD (Extracted from Previous SIA Report)

Job Title: Sewerage Impact Assessment of Po Shek Wu Road

Location: **San Wan Road**
Condition: **Peak Wet Weather Flow**

		Sewer								Full-bore values		Base Flow at Upstream Manhole				Base Flow at Downstream Manhole			
Upstream Manhole No.	Downstream Manhole No.	Diameter (mm)	Length (m)	Upstream G.L. (mPD)	Downstream G.L. (mPD)	Upstream I.L. (mPD)	Downstream I.L. (mPD)	Gradient (abs.)	Grad (1 in)	Capacity (m^3/s)	Capacity (l/s)	Water Level (m)	Velocity (m/s)	Flow (m^3/s)	Flow (l/s)	Depth (m)	Velocity (m/s)	Flow (m^3/s)	Flow (l/s)
FMH1004754	FMH1004753	375	9.22	7.80	7.85	6.34	6.39	N/A	N/A	N/A	N/A	0.121	0.015	0.00038	0.38	0.072	0.042	0.00038	0.38
FMH1004753	FMH1004752	375	7.07	12.85	7.85	6.39	5.00	0.1966	5	0.7077	708	0.072	0.042	0.00038	0.00	0.072	0.042	0.00038	0.38
FMH1004752	FMH1004667	1350	34.71	7.85	7.61	1.59	1.11	0.0138	72	5.5767		0.415	1.789	0.61818	618.18	0.810	0.842	0.61984	619.84
FMH1004667	FMH1004666	1800	89.14	7.61	7.14	0.81	0.73	0.0009	1114	3.0243	3024	1.110	0.711	1.04336	1043.36	1.141	0.685	1.03666	1036.66
FMH1004666	FMH1004665	1800	63.70	7.14	7.85	0.73	0.72	0.0002	6370	1.2604	1260	1.140	0.685	1.03645	1036.45	1.114	0.707	1.03206	1032.06
FMH1004665	FMH1004662	1800	4.4714	7.85	7.89	0.72	0.68	0.0089	112	9.5648	9565	1.11	0.71	1.03183	1031.83	1.148	0.679	1.03154	1031.54
FMH1004664	FMH1004663	225	19.7226	7.03	7.82	6.42	6.03	0.0198	51	0.0573	57	0.111	1.014	0.01771	17.71	0.111	1.011	0.01761	17.61
FMH1004663	FMH1004662	225	19.8499	7.82	7.89	6.03	5.47	0.0282	35	0.0684	68	0.103	1.132	0.01758	17.58	0.103	1.132	0.01757	17.57
FMH1004662	FMH1004661	1800	84.148	7.89	7.78	0.68	0.64	0.0005	2104	2.1989	2199	1.144	0.681	1.03149	1031.49	1.139	0.686	1.02903	1029.03
FMH1004661	FMH1004660	1800	67.941	7.78	7.31	0.64	0.61	0.0004	2265	2.1191	2119	1.138	0.686	1.029	1029	1.131	0.693	1.02905	1029.05
FMH1004660	FMH1004659	1800	14.7651	7.31	7.23	0.61	0.61	0	N/A	N/A	N/A	1.13	0.693	1.02907	1029.07	1.122	0.701	1.02917	1029.17
FMH1004659	FMH1004658	1800	5.3849	7.23	7.32	0.61	0.61	0	N/A	N/A	N/A	1.118	0.704	1.02918	1029.18	1.115	0.706	1.02921	1029.21
FMH1004658	FMH1004657	1800	36.3597	7.32	7.19	0.61	0.6	0.0003	3636	1.6708	1671	1.111	0.709	1.02922	1029.22	1.099	0.721	1.02979	1029.79
FMH1004657	FMH1004629	1800	132.4572	7.19	7.2	0.59	0.5	0.0007	1472	2.6305	2630	1.108	0.713	1.02983	1029.83	1.121	0.708	1.03299	1032.99
FMH1004629	FMH1004030	1800	135.2077	7.2	7.09	0.49	0.41	0.0006	1690	2.4542	2454	1.13	0.767	1.16964	1169.64	1.113	0.785	1.17184	1171.84
FMH1004752	FMH1004749	1350	4.9997	7.85	7.77	3.31	3.31	0	N/A	N/A	N/A	0.068	0	0	0	0.068	0	0	0
FMH1036568	FMH1004748	600	28.8367	7.8	7.61	1.84	1.73	0.0038	262	0.343	343	0.352	0.945	0.11815	118.15	0.259	1.369	0.11815	118.15
FMH1004751	FMH1004748	450	27.0741	7.88	7.61	2.81	2.83	N/A	N/A	N/A	N/A	0.081	0.368	0.00428	4.28	0.076	0.419	0.00427	4.27
FMH1004748	FMH1004749	1350	12.8059	7.61	7.77	1.73	1.63	0.0078	128	4.1898	4190	0.5	2.499	1.20464	1204.64	0.5	2.499	1.20464	1204.64
FMH1004749	FMH1004656	1800	36.1251	7.77	7.86	1.18	1.11	0.0019	516	4.4474	4447	0.928	0.925	1.20455	1204.55	0.986	0.854	1.20359	1203.59
FMH1004656	FMH1004655	1800	114.5511	7.86	7.65	1.11	1.02	0.0008	1273	2.8292	2829	0.985	0.947	1.20352	1203.52	0.901	1.25	1.20264	1202.64
FMH1004655	FMH1004652	1800	115.2603	7.65	7.85	1.02	0.65	0.0032	312	5.7266	5727	0.901	1.012	1.20263	1202.63	1.242	0.656	1.20212	1202.12
FMH1004654	FMH1004653	225	58.7284	6.46	6.32	4.73	3.8	0.0158	63	0.0512	51	0.064	0.449	0.0032	3.2	0.095	0.23	0.00316	3.16
FMH1004653	FMH1004652	450	8.602	6.32	7.85	3.8	3.7	0.0116	86	0.2792	279	0.095	0.196	0.00315	3.15	0.095	0.196	0.00315	3.15
FMH1004652	FMH1004651	1800	61.555	7.85	7.41	0.65	0.63	0.0003	3078	1.8167	1817	1.241	0.71	1.20309	1203.09	1.226	0.724	1.20265	1202.65
FMH1004651	FMH1004650	1800	65.4373	7.41	7.02	0.63	0.62	0.0002	6544	1.2435	1244	1.225	0.724	1.20263	1202.63	1.195	0.752	1.20443	1204.43
FMH1004650	FMH1004630	1800	133.2058	7.02	7.57	0.62	0.53	0.0007	1480	2.6231	2623	1.194	0.816	1.35298	1352.98	1.176	0.837	1.35562	1355.62
FMH1004630	FMH1004026	1800	138.0332	7.57	7.72	0.53	0.44	0.0007	1534	2.5766	2577	1.175	0.839	1.35667	1356.67	1.144	0.879	1.3637	1363.7
FMH1004026	FMH1004027	1800	101.1782	7.72	7.12	0.44	0.37	0.0007	1445	2.6544	2654	1.143	0.881	1.365	1365	1.122	0.931	1.37278	1372.78
FMH1004027	FMH1004029	1800	101.9799	7.12	5.4	0.37	0.29	0.0008	1275	2.827	2827	1.121	0.977	1.48	1480	1.104	1.107	1.48242	1482.42
FMH1004029	FMH1004111	1800	67.9412	5.4	7	0.29	0.22	0.001	971	3.2409	3241	1.104	0.821	1.15233	1152.33	1.136	0.823	1.15485	1154.85
FMH1004111	FMH1004113	1800	12.5305	7		0.22	0.21	0.0008	1253	2.8514	2851	1.133	0.826	1.15499	1154.99	1.136	0.83	1.15561	1155.61
FMH1004113	FMH1004115	1500	61.6195			0.21	0.12	0.0015	685	2.3887	2389	1.133	0.832	1.15575	1155.75	1.195	0.805	1.15951	1159.51
FMH1004030	FMH1004031	1800	103.2766	7.09	5	0.39	0.36	0.0003	3443	1.7173	1717	1.132	0.766	1.17188	1171.88	1.097	0.835	1.17336	1173.36
FMH1004031	FMH1004032	1800	104.6893	5	6.99	0.3	0.29	0.0001	10469	0.9816	982	1.156	0.771	1.17341	1173.41	1.104	0.88	1.17991	1179.91
FMH1004032	FMH1004112	1800	67.9412	6.99		0.25	0.18	0.001	971	3.2409	3241	1.135	1.064	1.56029	1560.29	1.14	1.15	1.56335	1563.35
FMH1004112	FMH1004114	1500	62.3701			0.18	0.12	0.001	1040	1.9376	1938	1.139	1.04	1.56352	1563.52	1.178	1.017	1.56752	1567.52
FMH1004114	FMH1004117	1800	37.5897			0.12	0.08	0.0011	940	3.2938	3294	1.102	2.446	3.99102	3991.02	0.988	2.789	3.99063	3990.63
FMH1004029	FMH1004032	1800	5.3851	5.4	6.99	0.29	0.29	0	N/A	N/A	N/A	1.104	0.376	0.35111	351.11	1.104	0.378	0.3516	351.6
FMH1004115	FMH1004114	1500	9.2193			0.12	0.12	0	N/A	N/A	N/A	1.184	0.931	1.15973	1159.73	1.178	0.947	1.16029	1160.29

Appendix C

Estimation of Pipeline Roughness Coefficient (Extracted from Previous SIA Report)

Project : Sewerage Impact Assessment for Po Shek Wu Road
Project No.: 3509

	INITIAL	DATE	REV.
CHECKED BY	AK	Mar-17	1
PREPARED BY	LE	Mar-17	1

Hydraulic pipeline roughness (m) = 0.00312

Manhole		Pipe Diameter (mm)	Cover Level (mPD)		Invert Level (mPD)		Pipe Length (m)	Hydraulic Gradient (1 in)	Capacity by Colebrood-White Equation (l/s)	Capacity Provided by EPD (l/s)	Error (%)
From	To		Upstream manhole	Downstream manhole	From	To					
FMH1004664	FMH1004663	225	7.03	7.82	6.42	6.03	19.72	50.6	57.00	57.00	0.01
FMH1004663	FMH1004662	225	7.82	7.89	6.03	5.47	19.8	35.4	68.09	68.00	0.13
FMH1004662	FMH1004661	1800	7.89	7.78	0.68	0.64	84.15	2103.7	2195.40	2199.00	-0.16
FMH1004661	FMH1004660	1800	7.78	7.31	0.64	0.61	67.94	2264.7	2115.92	2119.00	-0.15
FMH1004658	FMH1004657	1800	7.32	7.19	0.61	0.60	36.36	3636.0	1669.91	1671.00	-0.06
FMH1004657	FMH1004629	1800	7.19	7.20	0.59	0.50	132.46	1471.7	2624.75	2630.00	-0.20
FMH1004629	FMH1004030	1800	7.20	7.09	0.49	0.41	135.21	1690.1	2449.34	2454.00	-0.19
FMH1004030	FMH1004031	1800	7.09	5.00	0.39	0.36	103.28	3442.55	1716.19	1717.00	-0.05
									Total Absolute Error =		0.95

Hydraulic pipeline roughness (m) = 0.00311

Manhole		Pipe Diameter (mm)	Cover Level (mPD)		Invert Level (mPD)		Pipe Length (m)	Hydraulic Gradient (1 in)	Capacity by Colebrood-White Equation (l/s)	Capacity Provided by EPD (l/s)	Error (%)
From	To		Upstream manhole	Downstream manhole	From	To					
FMH1004664	FMH1004663	225	7.03	7.82	6.42	6.03	19.72	50.6	57.04	57.00	0.06
FMH1004663	FMH1004662	225	7.82	7.89	6.03	5.47	19.8	35.4	68.13	68.00	0.19
FMH1004662	FMH1004661	1800	7.89	7.78	0.68	0.64	84.15	2103.7	2196.32	2199.00	-0.12
FMH1004661	FMH1004660	1800	7.78	7.31	0.64	0.61	67.94	2264.7	2116.81	2119.00	-0.10
FMH1004658	FMH1004657	1800	7.32	7.19	0.61	0.60	36.36	3636.0	1670.61	1671.00	-0.02
FMH1004657	FMH1004629	1800	7.19	7.20	0.59	0.50	132.46	1471.7	2625.85	2630.00	-0.16
FMH1004629	FMH1004030	1800	7.20	7.09	0.49	0.41	135.21	1690.1	2450.37	2454.00	-0.15
FMH1004030	FMH1004031	1800	7.09	5.00	0.39	0.36	103.28	3442.55	1716.90	1717.00	-0.01
									Total Absolute Error =		0.81

Hydraulic pipeline roughness (m) = 0.00310

Manhole		Pipe Diameter (mm)	Cover Level (mPD)		Invert Level (mPD)		Pipe Length (m)	Hydraulic Gradient (1 in)	Capacity by Colebrood-White Equation (l/s)	Capacity Provided by EPD (l/s)	Error (%)
From	To		Upstream manhole	Downstream manhole	From	To					
FMH1004664	FMH1004663	225	7.03	7.82	6.42	6.03	19.72	50.6	57.07	57.00	0.12
FMH1004663	FMH1004662	225	7.82	7.89	6.03	5.47	19.8	35.4	68.17	68.00	0.24
FMH1004662	FMH1004661	1800	7.89	7.78	0.68	0.64	84.15	2103.7	2197.24	2199.00	-0.08
FMH1004661	FMH1004660	1800	7.78	7.31	0.64	0.61	67.94	2264.7	2117.70	2119.00	-0.06
FMH1004658	FMH1004657	1800	7.32	7.19	0.61	0.60	36.36	3636.0	1671.32	1671.00	0.02
FMH1004657	FMH1004629	1800	7.19	7.20	0.59	0.50	132.46	1471.7	2626.96	2630.00	-0.12
FMH1004629	FMH1004030	1800	7.20	7.09	0.49	0.41	135.21	1690.1	2451.40	2454.00	-0.11
FMH1004030	FMH1004031	1800.00	7.09	5.00	0.39	0.36	103.28	3442.55	1717.62	1717.00	0.04
									Total Absolute Error =		0.79

Hydraulic pipeline roughness (m) = 0.00309

Manhole		Pipe Diameter (mm)	Cover Level (mPD)		Invert Level (mPD)		Pipe Length (m)	Hydraulic Gradient (1 in)	Capacity by Colebrood-White Equation (l/s)	Capacity Provided by EPD (l/s)	Error (%)
From	To		Upstream manhole	Downstream manhole	From	To					
FMH1004664	FMH1004663	225	7.03	7.82	6.42	6.03	19.72	50.6	57.10	57.00	0.18
FMH1004663	FMH1004662	225	7.82	7.89	6.03	5.47	19.8	35.4	68.21	68.00	0.30
FMH1004662	FMH1004661	1800	7.89	7.78	0.68	0.64	84.15	2103.7	2198.16	2199.00	-0.04
FMH1004661	FMH1004660	1800	7.78	7.31	0.64	0.61	67.94	2264.7	2118.59	2119.00	-0.02
FMH1004658	FMH1004657	1800	7.32	7.19	0.61	0.60	36.36	3636.0	1672.02	1671.00	0.06
FMH1004657	FMH1004629	1800	7.19	7.20	0.59	0.50	132.46	1471.7	2628.06	2630.00	-0.07
FMH1004629	FMH1004030	1800	7.20	7.09	0.49	0.41	135.21	1690.1	2452.43	2454.00	-0.06
FMH1004030	FMH1004031	1800	7.09	5.00	0.39	0.36	103.28	3442.55	1718.35	1717.00	0.08
									Total Absolute Error =		0.82

Hydraulic pipeline roughness (m) = 0.00308

Manhole		Pipe Diameter (mm)	Cover Level (mPD)		Invert Level (mPD)		Pipe Length (m)	Hydraulic Gradient (1 in)	Capacity by Colebrood-White Equation (l/s)	Capacity Provided by EPD (l/s)	Error (%)
From	To		Upstream manhole	Downstream manhole	From	To					
FMH1004664	FMH1004663	225	7.03	7.82	6.42	6.03	19.72	50.6	57.14	57.00	0.24
FMH1004663	FMH1004662	225	7.82	7.89	6.03	5.47	19.8	35.4	68.25	68.00	0.36
FMH1004662	FMH1004661	1800	7.89	7.78	0.68	0.64	84.15	2103.7	2199.09	2199.00	0.00
FMH1004661	FMH1004660	1800	7.78	7.31	0.64	0.61	67.94	2264.7	2119.48	2119.00	0.02
FMH1004658	FMH1004657	1800	7.32	7.19	0.61	0.60	36.36	3636.0	1672.73	1671.00	0.10
FMH1004657	FMH1004629	1800	7.19	7.20	0.59	0.50	132.46	1471.7	2629.17	2630.00	-0.03
FMH1004629	FMH1004030	1800	7.20	7.09	0.49	0.41	135.21	1690.1	2453.46	2454.00	-0.02
FMH1004030	FMH1004031	1800	7.09	5.00	0.39	0.36	103.28	3442.55	1719.07	1717.00	0.12
									Total Absolute Error =		0.90

Note: The highlighted cells represent the hydraulic pipeline roughness with the calculated capacities best fit the data provided by EPD.

Appendix D

Sewerage Flow Generated by the Site

Appendix D - Estimation of Sewage Flow from the Development

Pcif = 1.0 **UFF Workers =** 0.28

1) Domestic Flow

1.1 Public Residential Building Block:

Total Flat	=	1904	flat				
Assumed Household Size	=	2.8	persons/household				
Total Population	=	5332					
Factored Total Population	=	5866	people	(with	10%	allowence)	
Unit Flow Factor	=	0.27	m^3/d/person	(Unit flow for	Subsidised Sales Flats	)	
Estimated ADWF	=	5866 x 0.27	=	**1583.8**	m^3/day		
Total ADWF with CIF 1				**1583.8**	m^3/day		

2) Commerical and Institutional Flow

2.1 Retail

Total Floor Area (Internal Floor Area)	=	1800	m^2				
GFA	=	2394	m^2	(Assume = 1.33*NOFA)			
Worker Density	=	3.5	staff/100m^2	(Assumed	Retail Trade	(Commercial and Industrial Floor Space Utilization Survey)	
Total numbers of staff	=	84	staff				
Unit Flow Factor for workers	=	0.28	m^3/d/person	(Unit flow for	J4 Wholesale & Retail	in GEFS)	
Estimated ADWF	=		=	**23.5**	m^3/day		
Total ADWF with CIF 1				**23.5**	m^3/day		

2.2 Kindergarten

Number of Classroom	=	6	rooms				
GFA	=	985	m^2				
Students / Classroom	=	30	per classroom				
Number of Students	=	180	students				
Factored Student's Number	=	198	people	(with	10%	allowence)	
Staffs Number	=	3.3	staff/100m^2	(Assumed	Community, Social & Personal Services	(Commercial and Industrial Floor Space Utilization Survey)	
Total numbers of staffs	=	33	staff				
Unit Flow Factor for staffs	=	0.28	m^3/d/person	(Unit flow for	J11 Community, Social & Personal Services	in GEFS)	
Unit Flow Factor for students	=	0.04	m^3/d/person	(Unit flow for	School student	in GEFS)	
Estimated ADWF	=		=	**17.0**	m^3/day		
Total ADWF with CIF 1				**17.0**	m^3/day		

2.3 Post office

Total Floor Area (Internal Floor Area)	=	400	m^2				
GFA	=	532	m^2	(Assume = 1.33*NOFA)			
Worker Density	=	3.3	staff/100m^2	(Assumed	Community, Social & Personal Services	(Commercial and Industrial Floor Space Utilization Survey)	
Total numbers of staff	=	18	staff				
Unit Flow Factor for workers	=	0.28	m^3/d/person	(Unit flow for	J11 Community, Social & Personal Services	in GEFS)	
Estimated ADWF	=		=	**5.0**	m^3/day		
Total ADWF with CIF 1				**5.0**	m^3/day		

2.4 A district management office and A management office for the Site

Total Floor Area (Internal Floor Area)	=	558	m^2				
GFA	=	742.14	m^2	(Assume = 1.33*NOFA)			
Worker Density	=	3.3	staff/100m^2	(Assumed	Community, Social & Personal Services	(Commercial and Industrial Floor Space Utilization Survey)	
Total numbers of staff	=	25	staff				
Unit Flow Factor for workers	=	0.28	m^3/d/person	(Unit flow for	J11 Community, Social & Personal Services	in GEFS)	
Estimated ADWF	=		=	**7.0**	m^3/day		
Total ADWF with CIF 1				**7.0**	m^3/day		

2.5 Associated ancillary facilities and external works, including open parking spaces for bicycles;

Total Floor Area (Internal Floor Area)	=	5759	m^2				
GFA	=	7659.47	m^2	(Assume = 1.33*NOFA)			
Worker Density	=	3.8	staff/100m^2	(Assumed	Transport	(Commercial and Industrial Floor Space Utilization Survey)	
Total numbers of staff	=	292	staff				
Unit Flow Factor for workers	=	0.18	m^3/d/person	(Unit flow for	J3 Transport, Storage & Communication	in GEFS)	
Estimated ADWF	=		=	**52.6**	m^3/day		
Total ADWF with CIF 1				**52.6**	m^3/day		

2.6 A 100-place Child Care Centre (CCC);

Total Floor Area (Internal Floor Area)	=	530	m^2				
GFA	=	704.9	m^2	(Assume = 1.33*NOFA)			
Total numbers of Child	=	100	persons				
Total numbers of staff	=	33	staff	(From Notional Staffing Establishments of Social Welfare Department, 1 workers for 3 places)			
Unit Flow Factor for Child	=	0.19	m^3/d/person				
Unit Flow Factor for workers	=	0.28	m^3/d/person	(Unit flow for	J11 Community, Social & Personal Services	in GEFS)	
Estimated ADWF	=		=	**28.3**	m^3/day		
Total ADWF with CIF 1				**28.3**	m^3/day		

2.7 A 100-place Residential Care Home for the Elderly (RCHE);

Total Floor Area (Internal Floor Area)	=	1354	m^2				
GFA	=	1800.82	m^2	(Assume = 1.33*NOFA)			
Total numbers of Elderly Persons	=	100	persons				
Total numbers of staff	=	54	staff	(From Notional Staffing Establishments of Social Welfare Department, 108 workers for 200 places)			
Unit Flow Factor for Elderly	=	0.19	m^3/d/person				
Unit Flow Factor for workers	=	0.28	m^3/d/person	(Unit flow for	J11 Community, Social & Personal Services	in GEFS)	
Estimated ADWF	=		=	**34.1**	m^3/day		
Total ADWF with CIF 1				**34.1**	m^3/day		

2.8 A main base of Short-term Food Assistance Service Team (STFAST);

Total Floor Area (Internal Floor Area)	=	92.5	m^2				
GFA	=	123.025	m^2	(Assume = 1.33*NOFA)			
Worker Density	=	3.3	staff/100m^2	(Assumed	Community, Social & Personal Services	(Commercial and Industrial Floor Space Utilization Survey)	
Total numbers of staff	=	5	staff				
Unit Flow Factor for workers	=	0.28	m^3/d/person	(Unit flow for	J11 Community, Social & Personal Services	in GEFS)	
Estimated ADWF	=		=	**1.4**	m^3/day		
Total ADWF with CIF 1				**1.4**	m^3/day		

2.9 Home Care Services (HCS) for Frail Elderly Persons

Total Floor Area (Internal Floor Area)	=	142	m^2				
GFA	=	188.86	m^2	(Assume = 1.33*NOFA)			
Total numbers of Elderly Persons	=	100	persons				
Total numbers of staff	=	22	staff	(From Notional Staffing Establishments of Social Welfare Department, 15.51 workers for 70 places)			
Unit Flow Factor for Elderly	=	0.19	m^3/d/person				
Unit Flow Factor for staffs	=	0.28	m^3/d/person	(Unit flow for	J11 Community, Social & Personal Services	in GEFS)	
Estimated ADWF	=		=	**25.2**	m^3/day		
Total ADWF with CIF 1				**25.2**	m^3/day		

Appendix E

Hydraulic Analysis for Existing Sewers

	Job No. 2512243A	Sheet No.	Rev.
	Proposed Housing Development at Po Shek Wu Road		A
	Member/ Location		
Proposed Housing Development at Po Shek Wu Road	Drg. Ref.		
Appendix E1 - Hydraulic Analysis for Existing Sewers (Including other Planning Developments)	Made by: TC / Date: 10-Aug-2023		

Colebrook-White Equation:

$$V = -\sqrt{(8gDs)}\,\log\left(\frac{ks}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}}\right)$$

kinematic viscosity of water = 0.00000114 m2/s
Vitrified clay pipe: **ks=** 0.600 mm
HDPE pipe: **ks=** 0.300 mm
Concrete pipe (Existing) **ks=** 3.100 mm
g= 9.81 m/s-2

Existing Sewerage System

US MH	DS MH	Length	Dia.	Pipe Material	Roughness	US GL	DS GL	US IL	DS IL	US Cover	DS Cover	Gradient	Gradient	Pipe Area	Perimeter	R =A/P	Vel.@ full bore	Contributing Zones	Sewage Flow Increased due to the Site	Existing Peak Flow	Cumulative Sewage Flow	Cumulative Sewage Flow	Contributing Population	Peaking Factor[1]	Cumulative Peak Flow	Pipe Capacity	Utilization (%)	Flow Capacity Check	Remark
No.	No.	(m)	(mm)		(mm)	(mPD)	(mPD)	(mPD)	(mPD)	(m)	(m)		(1 in x)	(m^2)	(m)	(m)	(m/sec)		(L/sec)	(L/sec)	(L/sec)	(m^3/day)			(L/sec)	(L/sec)			
FMH1004664	FMH1004663	19.72	225	Concrete pipe (Existing)	3.10	7.03	7.82	6.42	6.03	0.36	1.54	0.0198	51	0.04	0.71	0.06	1.43	EPD's Data	0.00	17.7	17.71	1530.14	5667	1.00	17.71	56.92	31.1	YES	
FMH1004663	FMH1004662	19.85	225	Concrete pipe (Existing)	3.10	7.82	7.89	6.03	5.47	1.54	2.17	0.0282	35	0.04	0.71	0.06	1.71	EPD's Data	0.00	17.6	17.58	1518.91	5626	1.00	17.58	68.01	25.8	YES	
FMH1004662	FMH1004661	84.15	1800	Concrete pipe (Existing)	3.10	7.89	7.78	0.68	0.64	5.19	5.12	0.0005	2104	2.54	5.65	0.45	0.86	EPD's Data	0.00	1031.5	1031.49	89120.74	330077	1.00	1031.49	2188.68	47.1	YES	
FMH1004661	FMH1004660	67.94	1800	Concrete pipe (Existing)	3.10	7.78	7.31	0.64	0.61	5.12	4.68	0.0004	2265	2.54	5.65	0.45	0.83	EPD's Data	0.00	1029.0	1029.00	88905.60	329280	1.00	1029.00	2109.19	48.8	YES	
FMH1004660	FMH1004659	14.77	1800	Concrete pipe (Existing)	3.10	7.31	7.23	0.61	0.61	4.68	4.60	N/A	N/A	2.54	5.65	0.45	N/A	EPD's Data	0.00	1029.1	1029.07	88911.65	329302	1.00	1029.07	N/A	N/A	N/A	
FMH1004659	FMH1004658	5.38	1800	Concrete pipe (Existing)	3.10	7.23	7.32	0.61	0.61	4.60	4.69	N/A	N/A	2.54	5.65	0.45	N/A	EPD's Data	0.00	1029.2	1029.18	88921.15	329338	1.00	1029.18	N/A	N/A	N/A	
FMH1004658	FMH1004657	36.36	1800	Concrete pipe (Existing)	3.10	7.32	7.19	0.61	0.60	4.69	4.57	0.0003	3636	2.54	5.65	0.45	0.65	EPD's Data	0.00	1029.2	1029.22	88924.61	329350	1.00	1029.22	1663.06	61.9	YES	
FMH1004657	FMH1004629	132.46	1800	Concrete pipe (Existing)	3.10	7.19	7.20	0.59	0.50	4.58	4.68	0.0007	1472	2.54	5.65	0.45	1.03	EPD's Data	0.00	1029.8	1029.83	88977.31	329546	1.00	1029.83	2618.17	39.3	YES	
FMH1004629	FMH1004030	135.21	1800	Concrete pipe (Existing)	3.10	7.20	7.09	0.49	0.41	4.69	4.66	0.0006	1690	2.54	5.65	0.45	0.96	EPD's Data	0.00	1169.6	1169.64	101056.90	374285	1.00	1169.64	2442.70	47.9	YES	
FMH1004030	FMH1004031	103.28	1800	Concrete pipe (Existing)	3.10	7.09	5.00	0.39	0.36	4.68	2.62	0.0003	3443	2.54	5.65	0.45	0.67	EPD's Data	0.00	1171.9	1171.88	101250.43	375002	1.00	1171.88	1709.34	68.6	YES	

1. Peaking factor (including stormwater allowance) is used for existing sewer. Peaking factor is 1 because the existing flow data from EPD has already included peaking factor.

2. The assumption on the basline upstream peak flow is based on EPD's data for the exact sewerage flow from the upstream of the FMH1004662.

3. The sewerage amount from the upstream of manhole FMH1004662 is based on the information from EPD

	Job No. 2512243A	Sheet No.
	Proposed Housing Development at Po Shek Wu Road	Rev. A
	Member/ Location	
Proposed Housing Development at Po Shek Wu Road	Drg. Ref.	
Appendix E2 - Hydraulic Analysis for Sewers After Development without Mitigation Measures	Made by TC / Date 10-Aug-2023	

Colebrook-White Equation:

$$V = -\sqrt{(8gDs)}\log\left(\frac{ks}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}}\right)$$

kinematic viscosity of water = 0.00000114 m2/s
Vitrified clay pipe: **ks=** 0.600 mm
HDPE pipe: **ks=** 0.300 mm
Concrete pipe (Existing) **ks=** 3.100 mm
g= 9.81 m/s-2

Existing Sewerage System After the Completion of the Development

US MH	DS MH	Length	Dia.	Pipe Material	Roughness	US GL	DS GL	US IL	DS IL	US Cover	DS Cover	Gradient	Gradient	Pipe Area	Perimeter	R =A/P	VeL@ full bore	Contributing Zones	Sewage Flow Increased due to the Site	Existing Peak Flow	Cumulative Sewage Flow	Cumulative Sewage Flow	Contributing Population	Peaking Factor[1]	Cumulative Peak Flow	Pipe Capacity	Utilization (%)	Flow Capacity Check	Remark
No.	No.	(m)	(mm)		(mm)	(mPD)	(mPD)	(mPD)	(mPD)	(m)	(m)		(1 in x)	(m^2)	(m)	(m)	(m/sec)		(L/sec)	(L/s ec)	(L/sec)	(m^3/day)			(L/sec)	(L/sec)			
FMH1004664	FMH1004663	19.72	225	Concrete pipe (Existing)	3.10	7.03	7.82	6.42	6.03	0.36	1.54	0.0198	51	0.04	0.71	0.06	1.43	the Site	20.58	0.00	20.58	1778.02	6585	5.00	102.89	56.92	180.8	NO!!!	
FMH1004663	FMH1004662	19.85	225	Concrete pipe (Existing)	3.10	7.82	7.89	6.03	5.47	1.54	2.17	0.0282	35	0.04	0.71	0.06	1.71	the Site	20.58	0.00	20.58	1778.02	6585	5.00	102.89	68.01	151.3	NO!!!	
FMH1004662	FMH1004661	84.15	1800	Concrete pipe (Existing)	3.10	7.89	7.78	0.68	0.64	5.19	5.12	0.0005	2104	2.54	5.65	0.45	0.86	Planning Developments/ Applications (EPD's Info)	283.92	1031.49	1315.41	113650.99	420930	2.40	3156.97	2188.68	144.2	NO!!!	
FMH1004661	FMH1004660	67.94	1800	Concrete pipe (Existing)	3.10	7.78	7.31	0.64	0.61	5.12	4.68	0.0004	2265	2.54	5.65	0.45	0.83		283.92	1029.00	1312.92	113435.86	420133	1.00	1312.92	2109.19	62.2	YES	
FMH1004660	FMH1004659	14.77	1800	Concrete pipe (Existing)	3.10	7.31	7.23	0.61	0.61	4.68	4.60	N/A	N/A	2.54	5.65	0.45	N/A		283.92	1029.07	1312.99	113441.91	420155	1.00	1312.99	N/A	N/A	N/A	
FMH1004659	FMH1004658	5.38	1800	Concrete pipe (Existing)	3.10	7.23	7.32	0.61	0.61	4.60	4.69	N/A	N/A	2.54	5.65	0.45	N/A		283.92	1029.18	1313.10	113451.41	420190	1.00	1313.10	N/A	N/A	N/A	
FMH1004658	FMH1004657	36.36	1800	Concrete pipe (Existing)	3.10	7.32	7.19	0.61	0.60	4.69	4.57	0.0003	3636	2.54	5.65	0.45	0.65		283.92	1029.22	1313.14	113454.87	420203	1.00	1313.14	1663.06	79.0	YES	
FMH1004657	FMH1004629	132.46	1800	Concrete pipe (Existing)	3.10	7.19	7.20	0.59	0.50	4.58	4.68	0.0007	1472	2.54	5.65	0.45	1.03		283.92	1029.83	1313.75	113507.57	420398	1.00	1313.75	2618.17	50.2	YES	
FMH1004630	FMH1004629	135.21	1800	Concrete pipe (Existing)	3.10	7.20	7.09	0.49	0.41	4.69	4.66	0.0006	1690	2.54	5.65	0.45	0.96		283.92	1169.64	1453.56	125587.15	465138	1.00	1453.56	2442.70	59.5	YES	
FMH1004031	FMH1004030	103.28	1800	Concrete pipe (Existing)	3.10	7.09	5.00	0.39	0.36	4.68	2.62	0.0003	3443	2.54	5.65	0.45	0.67		283.92	1171.88	1455.80	125780.69	465854	1.00	1455.80	1709.34	85.2	YES	

1. Peaking factor (including stormwater allowance) is used for existing sewer. Peaking factor is 1 because the existing flow data from EPD has already included peaking factor.
2. The assumption on the basline upstream peak flow is based on EPD's data for the exact sewerage flow from the upstream of the FMH1004662.
3. The sewerage amount from the upstream of manhole FMH1004662 is based on the information from EPD

Appendix F

Sewerage Layout Plan and Hydraulic Analysis for Mitigation Measures

	Job No. 2512243A	Sheet No.	Rev.
	Proposed Housing Development at Po Shek Wu Road		A
	Member/ Location		
Proposed Housing Development at Po Shek Wu Road	Drg. Ref.		
Appendix F1 - Hydraulic Analysis for Sewers After Development with Mitigation Measures	Made by TC / Date 10-Aug-2023		

Colebrook-White Equation: $V = -\sqrt{(8gDs)}\,\log\left(\frac{ks}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}}\right)$

kinematic viscosity of water = 0.00000114 m2/s
Vitrified clay pipe **ks=** 0.600 mm
HDPE pipe **ks=** 0.300 mm
Concrete pipe (Existing) **ks=** 3.100 mm
Concrete pipe (Proposed) **ks=** 3.000 mm
g= 9.81 m/s-2

Existing Sewerage System After Upgrading Works

US MH	DS MH	Length	Dia.	Pipe Material	Roughness	US GL	DS GL	US IL	DS IL	US Cover	DS Cover	Gradient	Gradient	Pipe Area	Perimeter	R =A/P	Vel.@ full bore	Contributing Zones	Sewage Flow Increased due to the Site	Existing Peak Flow	Cumulative Sewage Flow	Cumulative Sewage Flow	Contributing Population	Peaking Factor(1)	Cumulative Peak Flow	Pipe Capacity	Utilization (%)	Flow Capacity Check	Remark
No.	No.	(m)	(mm)		(mm)	(mPD)	(mPD)	(mPD)	(mPD)	(m)	(m)		(1 in x)	(m^2)	(m)	(m)	(m/sec)		(L/sec)	(L/sec)	(L/sec)	(m^3/day)			(L/sec)	(L/sec)			
FMH1004664	FMH1004663	19.72	300	Concrete pipe (Proposed)	3.00	7.30	7.82	6.42	6.03	0.54	1.45	0.0198	51	0.07	0.94	0.08	1.75	the Site	20.58	0.00	20.58	1778.02	6585	5.00	102.89	123.59	83.3	YES	Upgraded to 300dia pipe
FMH1004663	FMH1004662	19.85	300	Concrete pipe (Proposed)	3.00	7.82	7.89	6.03	5.47	1.45	2.08	0.0282	35	0.07	0.94	0.08	2.09	the Site	20.58	0.00	20.58	1778.02	6585	5.00	102.89	147.66	69.7	YES	Upgraded to 300dia pipe
FMH1004662	FMH1004661	84.15	1800	Concrete pipe (Existing)	3.10	7.89	7.78	0.68	0.64	5.19	5.12	0.0005	2104	2.54	5.65	0.45	0.86		283.92	1031.49	1315.41	113650.99	420930	1.00	1315.41	2188.68	60.1	YES	
FMH1004661	FMH1004660	67.94	1800	Concrete pipe (Existing)	3.10	7.78	7.31	0.64	0.61	5.12	4.68	0.0004	2265	2.54	5.65	0.45	0.83		283.92	1029.00	1312.92	113435.86	420133	1.00	1312.92	2109.19	62.2	YES	
FMH1004660	FMH1004659	14.77	1800	Concrete pipe (Existing)	3.10	7.31	7.23	0.61	0.61	4.68	4.60	N/A	N/A	2.54	5.65	0.45	N/A	Planning Developments/ Applications (EPD's Info)	283.92	1029.07	1312.99	113441.91	420155	1.00	1312.99	N/A	N/A	N/A	
FMH1004659	FMH1004658	5.38	1800	Concrete pipe (Existing)	3.10	7.23	7.32	0.61	0.61	4.60	4.69	N/A	N/A	2.54	5.65	0.45	N/A		283.92	1029.18	1313.10	113451.41	420190	1.00	1313.10	N/A	N/A	N/A	
FMH1004658	FMH1004657	36.36	1800	Concrete pipe (Existing)	3.10	7.32	7.19	0.61	0.60	4.69	4.57	0.0003	3636	2.54	5.65	0.45	0.65		283.92	1029.22	1313.14	113454.87	420203	1.00	1313.14	1663.06	79.0	YES	
FMH1004657	FMH1004629	132.46	1800	Concrete pipe (Existing)	3.10	7.19	7.20	0.59	0.50	4.58	4.68	0.0007	1472	2.54	5.65	0.45	1.03		283.92	1029.83	1313.75	113507.57	420398	1.00	1313.75	2618.17	50.2	YES	
FMH1004629	FMH1004030	135.21	1800	Concrete pipe (Existing)	3.10	7.20	7.09	0.49	0.41	4.69	4.66	0.0006	1690	2.54	5.65	0.45	0.96		283.92	1169.64	1453.56	125587.15	465138	1.00	1453.56	2442.70	59.5	YES	
FMH1004030	FMH1004031	103.28	1800	Concrete pipe (Existing)	3.10	7.09	5.00	0.39	0.36	4.68	2.62	0.0003	3443	2.54	5.65	0.45	0.67		283.92	1171.88	1455.80	125780.69	465854	1.00	1455.80	1709.34	85.2	YES	

1. Peaking factor (including stormwater allowance) is used for existing sewer. Peaking factor is 1 because the existing flow data from EPD has already included peaking factor.
2. Existing Sewer from FMH1004664 to FMH1004662 will be upgraded to 300 dia pipe
3. The assumption on the basline upstream peak flow is based on EPD's data for the exact sewerage flow from the upstream of the FMH1004662.
4. The sewerage amount from the upstream of manhole FMH1004662 is based on the information from EPD

ICU Ref : HD(ICU)S .....

LEGEND:

- SITE BOUNDARY
- EXISTING SEWER
- PROPOSED SEWER

REVISIONS		INITIAL AND DESIGNATION		
NO	DESCRIPTION AND DATE	DWN	CKD	AUTH.

wsp

AUTHORISED	--		--/--
ENDORSED	--		--/--
CHECKED	--		--/--
DRAWN	--		--/--

AGREEMENT NO. CB 20210448

PROJECT
Term Engineering Consultancy Services for New Territories East Region (2021-2023) - Instruction No. WP04 - Potential Public Housing at Po Shek Wu Road, Sheung Shui – Investigation

JOB NO. 2512243A

DRAWING TITLE
PROPOSED MITIGATION MEASURE

SCALE 1 : 1000 @ A3

DRAWING NO. WP04/SIA/003

SOURCE

ICU Ref:

AutoCAD 2000 A1 841 x 594

HOUSING DEPARTMENT

COUNTERCHECKED ☐

REF/S.I. No. : _____ DATE: _____

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Plot File by :chow, tony kwok-yiu Date : 2023-04-25
Path : \\DCAS3000\AT20\PROJECTS2\2512243A - HKHA TERM ENG NTE 2021-23\13_WORKING\WP04 PO SHEK WU ROAD SIA\WORKING\DRAWINGS\CAD\WP04-SIADWG

Appendix G

Sewerage Amount from the Planning Development / Applications (EPD's Information)

Appendix G - Sewerage Amount from the Planning Development / Applications (EPD's Information)

Planning Developments/ Applications	ADWF (m3/day)	Peak Flow (l/s)	Discharge Manhole
Public Housing Development at Ching Hui Road	628	43.3	FMH1025202
Community Health Centre Cum Social Welfare Facilities	237	22	FMH1003889
Expansion of North District Hospital	1892	110	FMH1003880
Residential Development at Lot no. 4076 in DD 91	610.9	42.4	FMH1003863
A/NE-KTS/460	2.2	0.2	FMH1029682
Y/NE-KTS/13	343	37.8	FMH1029683
Y/KTN/2	492	38	FMH1021543
A/KTS/506	2007	124	FMH1030384
A/NE-KTS/466	49	5	FMH1029681
A/NE-KTS/484	704	50	FMH1030364
Beas River Equestrian Centre	272	19	FMH1028616
Y/FSS/19	799	56	FMH1023220
Y/NE-KTS/14	1153	80	FMH1030367
Y/NE-KTS/17	291	20	FMH1030367
Total Sewerage Flow (m3/day)	9480.1		
Total Sewerage Flow (L/s) [1]	109.7		
Peaking Factor	2.4		
Total Sewerage Flow (L/s) [1]	263.3		

1. The peaking factors for the planning development will adopt 2.4

Hong Kong Housing Authority

Po Shek Wu Road, Sheung Shui

Environmental Assessment Study
Draft Final Report

276006-12

Draft Final Report | January 2024

Job number 276006-12

Ove Arup & Partners Hong Kong Ltd
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ARUP

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Executive Summary

Ove Arup & Partners Hong Kong Ltd (Arup) was commissioned by the Hong Kong Housing Authority (HKHA) to conduct an Environmental Assessment Study (EAS) for the proposed public housing development in Po Shek Wu Road (Scheme received on 3 November 2023) with respect to the Hong Kong Planning Standards and Guidelines (HKPSG).

The subject site is located to the north of Po Shek Wu Estate with a gross site area of about 1.4 hectares. According to the Fanling / Sheung Shui Outline Zoning Plan (OZP) S/FSS/27, the current land use zoning of the site is "Residential (Group A)5" ("R(A)5"). This EAS is conducted to support the Section 16 Planning Application of this site.

Road traffic noise assessment results indicate that a total of 749 residential flats will be exposed to noise level in excess of the 70dB(A) criterion with a noise compliance rate is 61.1% for Scenario A (before commissioning of Po Shek Wu Interchange improvement works to be carried out by Civil Engineering and Development Department (CEDD)); and a total of 869 residential flats is predicted to exceed the 70dB(A) criterion with a noise compliance rate of 54.9% for Scenario B (after commissioning of Po Shek Wu Interchange improvement works and within 15 years upon occupation of the development). Various forms of noise mitigation measures have been investigated. In order to alleviate potential road traffic noise impacts, acoustic window, enhanced acoustic balcony (EAB) 3.0 and fixed glazing are proposed. With all these mitigation measures in place, a 100% noise compliance rate could be achieved.

East Rail Line (EAL) is running parallel to San Wan Road to the south of the subject site. Rail noise assessments indicate that with provision of EAB 3.0 in the residential units facing the rail line, the development could comply with the respective Acceptable Noise Level (ANL) under Noise Control Ordinance (NCO) and HKPSG's standard.

There are a number of fixed noise sources in the vicinity of the subject site. Assessment results indicate that the southeastern and northeastern facades of Block B facing the bazaar will exceed the noise criterion during daytime when the street washing vehicle is in use. A 2.5m high movable barrier to screen the pump for the water tank on the vehicle during the street washing activity is recommended. With installation of the movable barrier, no adverse fixed noise impact on the proposed housing site is anticipated.

A Public Transport Interchange (PTI) is planned at Sheung Shui Areas 4 & 30 at about 130m to the southwest of the subject site. The proposed PTI will be designed with due consideration to the HKPSG. It will be covered under a podium decking with full height side walls. The existing PTI at Landmark North is completely decked under the podium and at about 200m away. Potential noise nuisance arising from the existing and planned PTI is therefore not anticipated.

Kindergarten, management offices and social welfare activities are planned at G/F, 1/F and 2/F. Their locations and layout plans are being studied and yet to be available at this stage. Hence, noise assessments on the kindergarten and social welfare facilities will be supplemented when the layout is confirmed in the next stage.

The current scheme has allowed sufficient setback distances to meet the minimum requirement as stipulated in HKPSG. The internal layout plans for kindergarten, management offices and social

welfare facilities at G/F, 1/F and 2/F are yet to be available at this stage. It is recommended that any planned air sensitive rooms shall be provided with the setback distance requirements as stipulated in HKPSG. No chimney is identified within 500m of the subject site. It is concluded that no adverse air quality impact is anticipated.

Potential land contamination may occur within the subject site due to the operation of existing bus depot. HKHA has confirmed that detailed land contamination assessment is being carried out by CEDD in accordance with the EPD's Practice Guide for Investigation and Remediation of Contaminated Land and any necessary remediation works will be implemented. Hence, potential land contamination issue is not anticipated.

It is concluded that with proper building layout, design and mitigation measures, there are no insurmountable environmental impacts on the subject site at Po Shek Wu Road, Sheung Shui, for public housing development.

1 Introduction

1.1.1.1 Ove Arup & Partners Hong Kong Ltd (Arup) was commissioned by the Hong Kong Housing Authority (HKHA) to conduct an Environmental Assessment Study (EAS) on the potential public housing development at Po Shek Wu Road, Sheung Shui.

1.1.1.2 The subject site is located to the north of Po Shek Wu Estate. It is bounded by Po Shek Wu Road to the northwest and San Wan Road to the southwest. The gross site area is about 1.4 hectares.

1.1.1.3 The first EAS for this proposed public housing site was conducted in 2017 and the last submission of the Final EAS Report and Preliminary Environmental Assessment (PEA) Report for supporting the landuse rezoning was prepared and approved in 2018/2019. In accordance with the Fanling / Sheung Shui Outline Zoning Plan (OZP) S/FSS/27, the current land use zoning of the site is "Residential (Group A)5" ("R(A)5").

1.1.1.4 This EAS is conducted on the updated Scheme received on 3 November 2023 provided by HKHA to support the Section 16 planning application of this site. It evaluates the potential environmental impacts on the proposed development with respect to guidance for environmental considerations provided in Chapter 9 – Environment of the Hong Kong Planning Standards & Guidelines (HKPSG). Road traffic noise impact, rail noise impact and fixed noise impact are the major environmental concerns for the development site. In addition, potential noise nuisance arising from the existing bus terminus, planned PTI, potential air quality impacts as well as land contamination issue have also been reviewed.

1.1.1.5 The site is located adjacent to Po Shek Wu Road and it will interface with the planned Fanling North (FLN) New Development Area (NDA) and its associated road infrastructures (including new slip road of Fanling Highway and realigned Po Shek Wu Road) under the Agreement No. CE 61/2007 North East New Territories NDA (NENT-NDA) Planning and Engineering Study undertaken by Civil Engineering and Development Department (CEDD) and Planning Department (PlanD). According to the latest implementation programme under the CE20/2019 (HY) – "Improvement of Tai Tau Leng Roundabout and Fanling Highway (Kwu Tung Section) – Design and Construction" as advised by CEDD, the Po Shek Wu Interchange improvement work is planned to be commissioned by 2031. The EAS has conducted with consideration of the latest updated information on the proposed Po Shek Wu Interchange improvement works.

1.1.1.6 The EAS was previously conducted on the following scheme:

Scheme	EAS version	Submission date
Scheme dated 22 March 2023	Draft EAS Report	27 April 2023

1.1.1.7 After submission of the Draft EAS Report for Scheme dated 22 March 2023 in April 2023, the building layout plan has been slightly modified and the anticipated occupation year of population of the development has been shifted from Year 2028 to Year 2030. This EAS has been updated using the updated traffic forecast for the Scheme dated 3 November 2023 with incorporation of EPD's comments provided on 23 June 2023. Besides, the road layout and at-source mitigation measures on Po Shek Wu Road improvement work have been

updated by CEDD, the latest provided information has been also incorporated into the current EAS.

2 Site Location and Preliminary Building Layout

2.1 Site Location and Description

2.1.1.1 The subject site is located to the north of Po Shek Wu Estate and adjacent to the south of Shek Wu Hui Jockey Club Playground. It has a gross site area of about 1.4 hectares (**Figure 2.1**). It is bounded by Po Shek Wu Road to the northwest and San Wan Road to the southwest. The site was being occupied by KMB bus depot. The area to the east of the site is Shek Wu Hui where a number of residential and commercial buildings are found.

2.1.1.2 The East Rail Line (EAL) is running parallel with San Wan Road and the Sheung Shui MTR Station is located at approximately 200m to southeast from the site. There are two public housing development sites planned in its vicinity, namely Sheung Shui Areas 4 & 30 Site 1 and Site 2 to the west across Po Shek Wu Road.

2.1.1.3 In accordance with the Fanling / Sheung Shui Outline Zoning Plan (OZP) S/FSS/27, the existing land use zoning of the subject site is "Residential (Group A)5" ("R(A)5"). (see **Figure 2.2**). The areas in vicinity of the site are mainly zoned as "Commercial" ("C"), "Commercial/Residential" ("C/R"), "Residential (Group A)" ("R(A)"), "Government, Institution or Community" ("G/IC"), "Green Belt" ("GB"), "Open Space" ("O"), "Village Type Development" ("V") and "Other Specified Uses" ("OU").

Figure 2.1: Site location

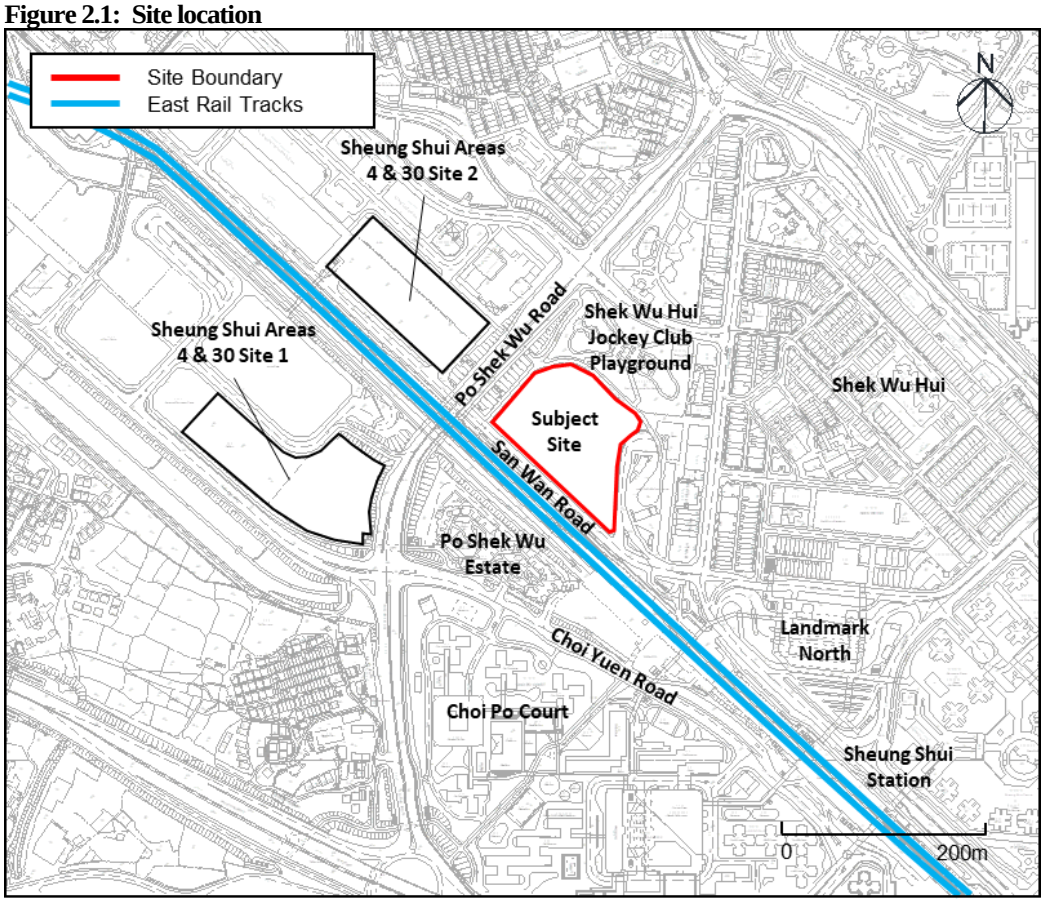
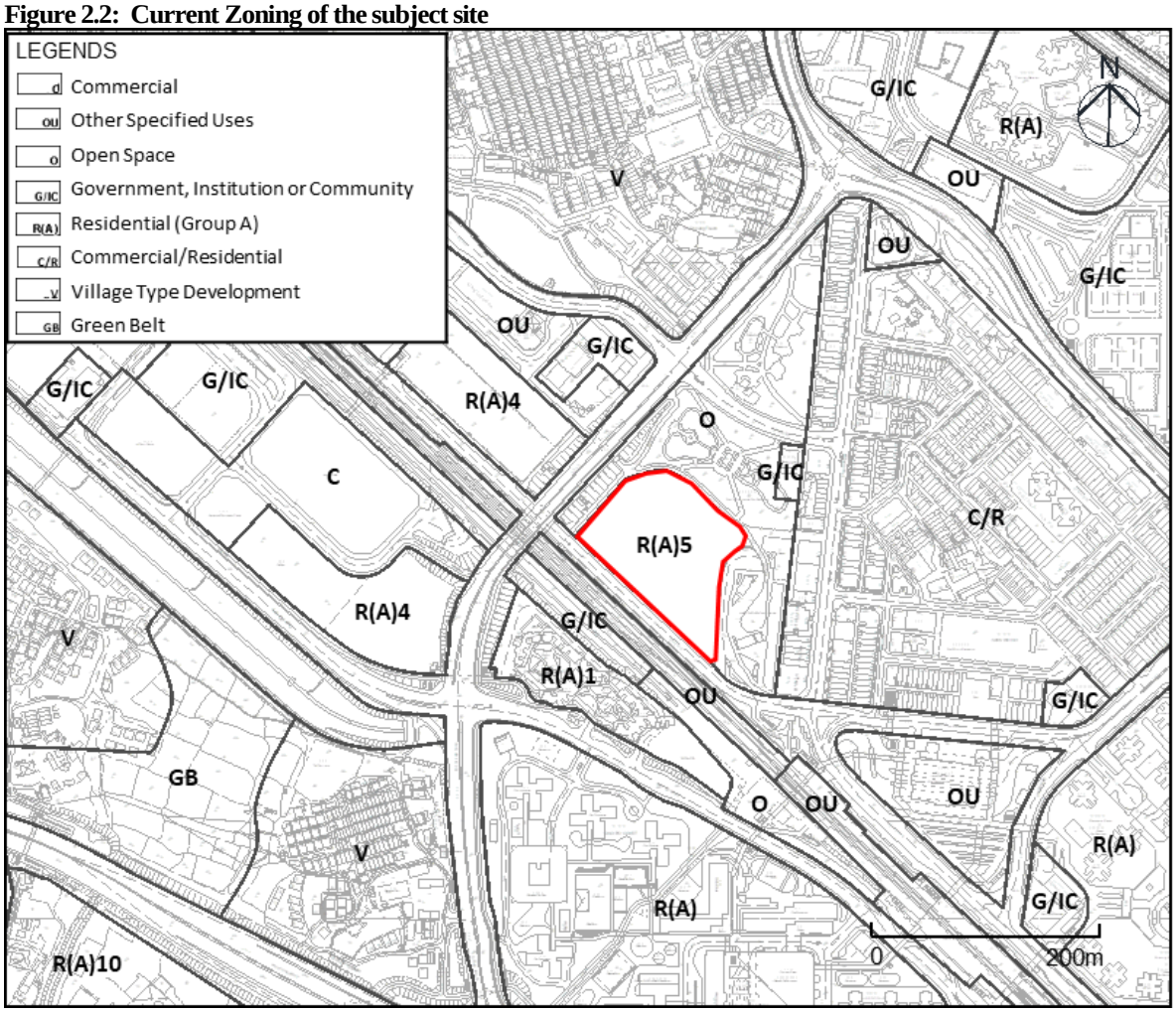


Figure 2.2: Current Zoning of the subject site



2.2 Building Design

2.2.1.1 The latest site layout plan (Scheme received on 3 November 2023) is illustrated in **Figure 2.3**. The proposed development consists of two quasi-T shaped domestic blocks with a total of 1,927 residential flats. **Figure 2.4 to Figure 2.5** illustrate the typical floor plans of the residential blocks. In consideration of potential noise reverberance at the semi-enclosed cavities at flats facing the railway, fixed glazing at side windows has been adopted in the building design (**Figure 2.5**).

2.2.1.2 Kindergarten, management offices and social welfare facilities are planned on G/F, 1/F and 2/F of the proposed development. Their locations and layout plans are still being investigated. Hence, assessments on the kindergarten, management offices and social welfare facilities will be supplemented when the layout is confirmed in the next stage.

2.2.1.3 The anticipated occupation year of population of the development is Year 2030. The key development parameters for the current scheme are given in **Table 2.1**. The detailed layout plan and schematic section plan are provided in **Appendix 2.1**.

Table 2.1: Key development parameters

Parameters	Block A	Block B
No. of Storeys	41 domestic storeys + 1 storey refuge floor	41 domestic storeys + 1 storey refuge floor
Floor to Floor Height (m) [1]	2.75	2.75
First NSR Level (mPD)	33.0	33.0
Main Roof Level (mPD)	148.115[2]	148.115[2]
Number of Flats per Storey	23	24
Total of Flats	943	984
Total Number of Flats	1,927	
Proposed Occupation of Population	2030	

Note:
[1] For modeling purpose, a floor-to-floor height of 2.7m is assumed for domestic block.
[2] For modeling purpose, the main roof level is round down to one decimal place for Block A and Block B.

Figure 2.3: Site layout plan (Scheme received on 3 November 2023)

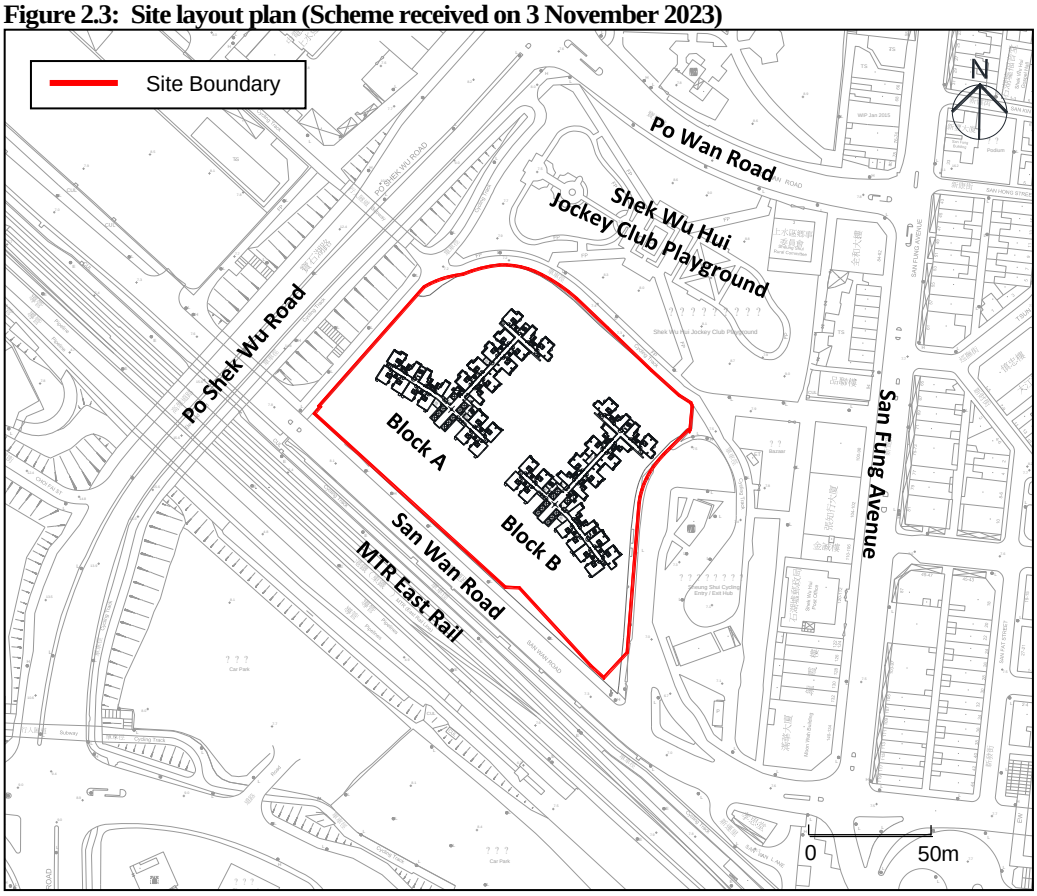


Figure 2.4: Typical floor plan of Block A (Scheme received on 3 November 2023)

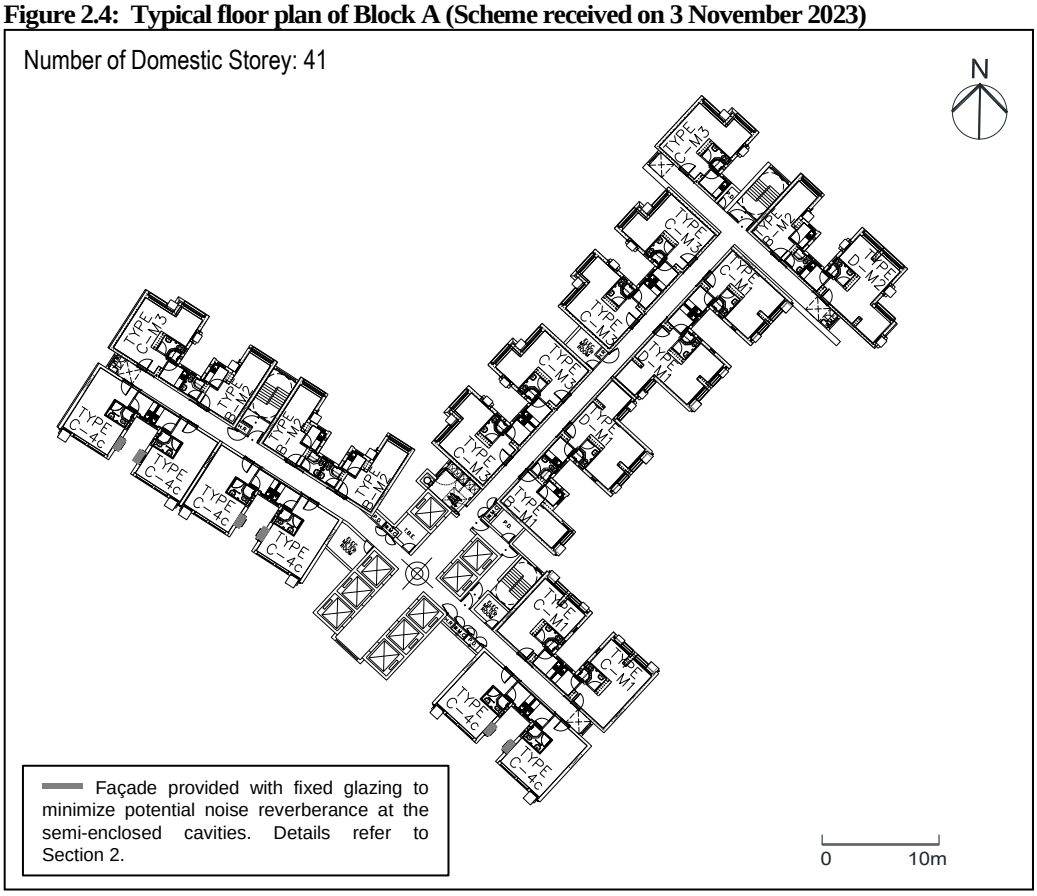
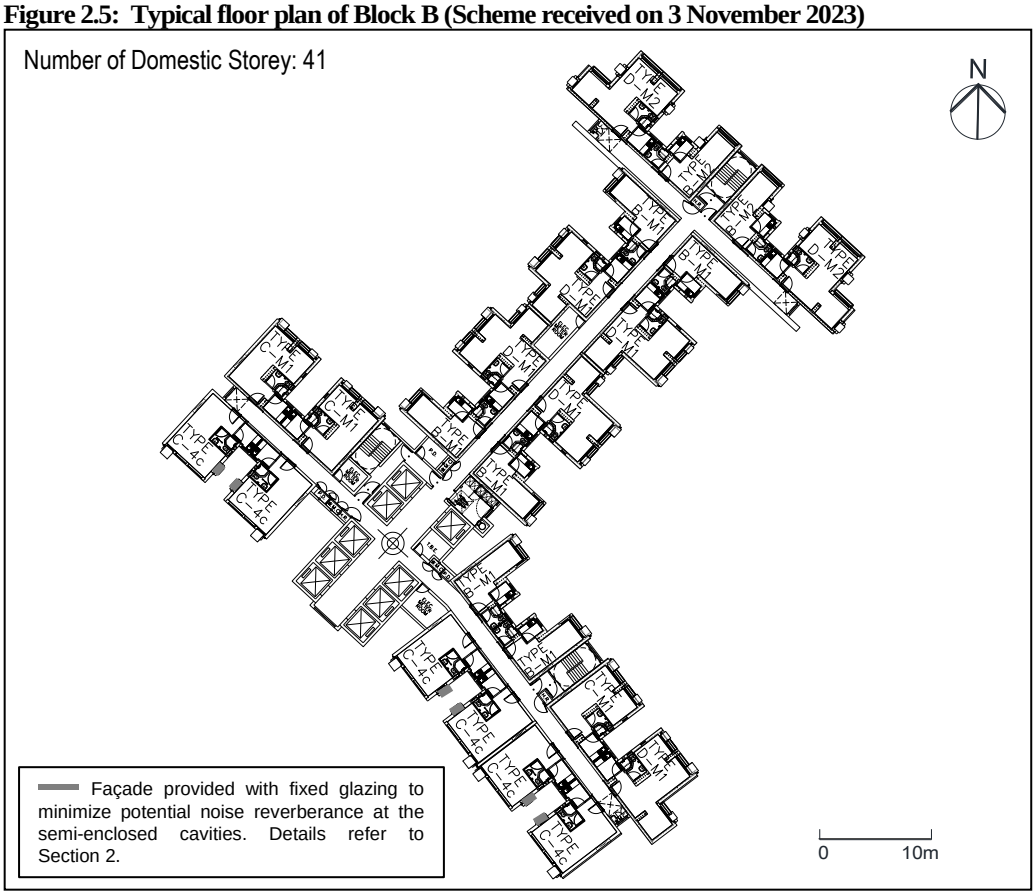


Figure 2.5: Typical floor plan of Block B (Scheme received on 3 November 2023)



3 Site Inspection

3.1.1.1 Site visits were carried out in December 2021, January 2022 and August 2022. Photographs taken at site and the neighbouring areas are given in **Photo 1** to **Photo 8** below.

3.1.1.2 The site was currently being occupied by the KMB Bus Depot. Immediately adjacent to the north of the site is the Shek Wu Hui Jockey Club Playground. The Sheung Shui Cycling Entry/ Exit Hub and Shek Wu Hui Agricultural Produce Bazaar are located adjacent to the east of the site. A number of industrial and commercial buildings are located at Shek Wu Hui and an industrial area is found across Po Shek Wu Road. Some fixed noise sources were observed in vicinity of the site, including chillers and condensers on podium level or rooftop of the nearby industrial/commercial buildings and retails, as well as some loading and unloading activities at Sheung Shui Agricultural Produce Bazaar.

3.1.1.3 The EAL is running at-grade on a ballast track parallel with San Wan Road and the Sheung Shui MTR Station is located at about 200m southeast from the site. Vertical barrier is installed along the nearside track of the rail section between Sheung Shui Station and Po Shek Wu Road.

3.1.1.4 Based on site observation, the noise climate in vicinity of the site was generally dominated by road traffic noise from the nearby Po Shek Wu Road and rail noise from the EAL. The Shek Wu Hui Agricultural Produce Bazaar was found to be operated in the morning. No noticeable noisy activities from the bazaar were observed, except the street washing truck to be operated after the bazaar is closed at 1100.

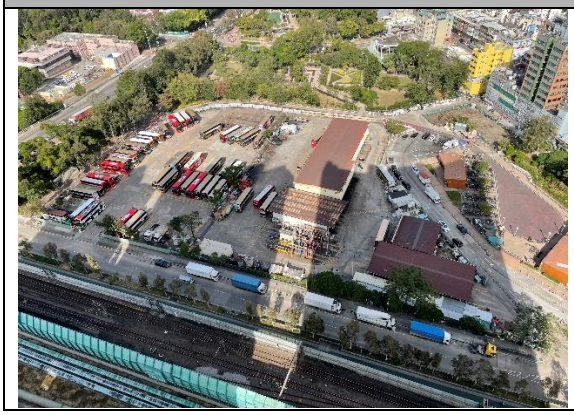
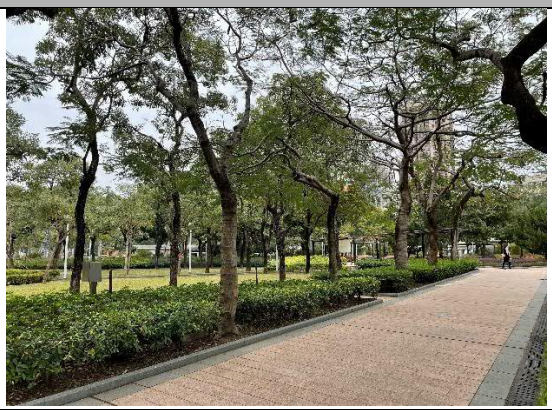
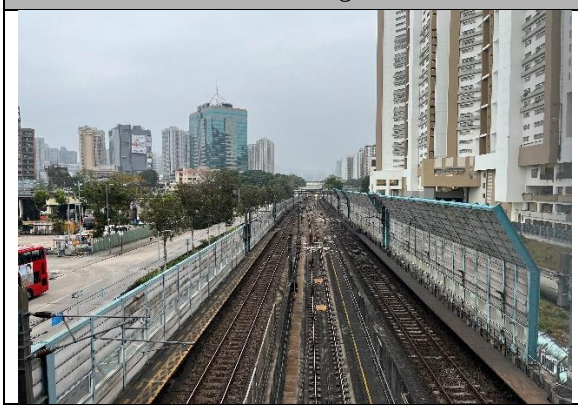
Photo 1: Existing site conditions	**Photo 2:** Shek Wu Hui Jockey Club Playground
	

Photo 3: Sheung Shui Cycling Entry/ Exit Hub	**Photo 4:** Shek Wu Hui Agricultural Produce Bazaar
	
Photo 5: Shek Wu Hui	**Photo 6:** Industrial areas to the west of the site
	
Photo 7: East Rail and Sheung Shui Station	**Photo 8:** Po Shek Wu Road
	

4 Road Traffic Noise Impact Assessment

4.1 Concerned Road Sections and Noise Sensitive Receivers

4.1.1.1 As described in the sections above, the prevailing noise environment in the vicinity of the subject site was primarily dominated by road traffic noise from the nearby Po Shek Wu Road. Fanling Highway is located at more than 500m away and is screened by the high-rise residential developments such as Choi Po Court, Choi Yuen Estate and Po Shek Wu Estate. Traffic noise from Fanling Highway was found not noticeable during the site visit.

4.1.1.2 With reference to HKPSG, Noise Sensitive Receivers (NSRs) shall include residential uses (all domestic premises including temporary housing accommodation), institutional uses (educational institutions including kindergarten, child care centres and all others where unaided voice communication is required), hotels, hostels, offices, places of public worship, courts of law, hospitals, clinics, convalescences, residential care homes for the elderly, amphitheatres, auditoria, libraries, performing arts centres and country parks. Based on the current development plan, the proposed domestic blocks, kindergarten, management offices and social welfare facilities are planned within the site and all of them are regarded as NSRs.

4.2 Noise Criteria

4.2.1.1 In accordance with the HKPSG, the maximum permissible hourly road traffic noise levels at the external facades of different uses of Nosie Sensitive Receivers (NSRs) for the proposed development are summarized in **Table 4.1**. These criteria apply to premises relying on opened windows as a primary means for ventilation. As mentioned in **Section 2.2**, the layouts of the kindergarten, management offices and social welfare facilities at G/F, 1/F and 2/F are still being investigated. Hence, assessment will be supplemented in the next stage.

Table 4.1: Summary of noise criteria for road traffic noise

Proposed Developments / Facilities	Noise Sensitive Room with Openable Windows for Ventilation [1]	Uses	Noise Standards for Road Traffic Noise, $L_{10(1\ hour)}$ dB(A)
Residential Block A to Block B	Residential Units	Domestic	70

Note:
[1] All sensitive rooms which rely on opened windows for ventilation are identified.

4.3 Noise Assessment Points

4.3.1.1 Assessment points for the residential blocks have been assigned to all openable windows of the NSRs for ventilation. The locations of selected assessment points are given in **Figure 4.1 to Figure 4.2**.

Figure 4.1: Selected assessment points for Block A (road traffic noise assessment)

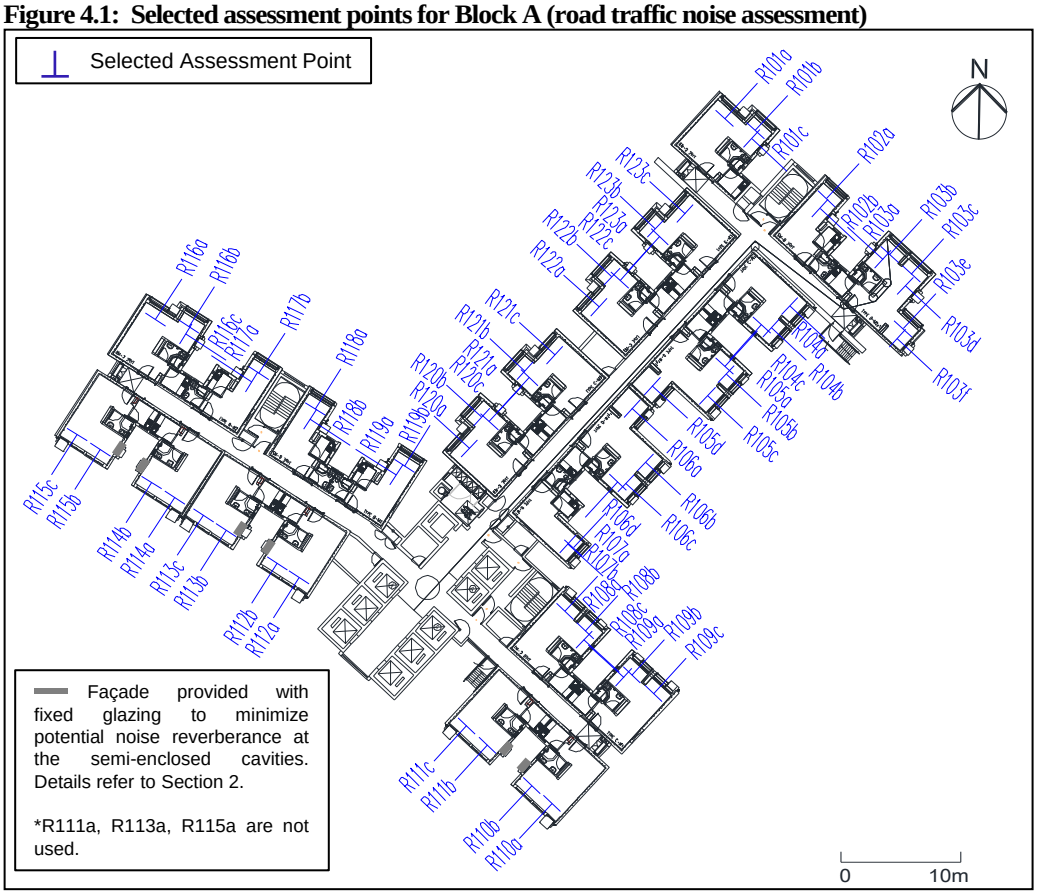
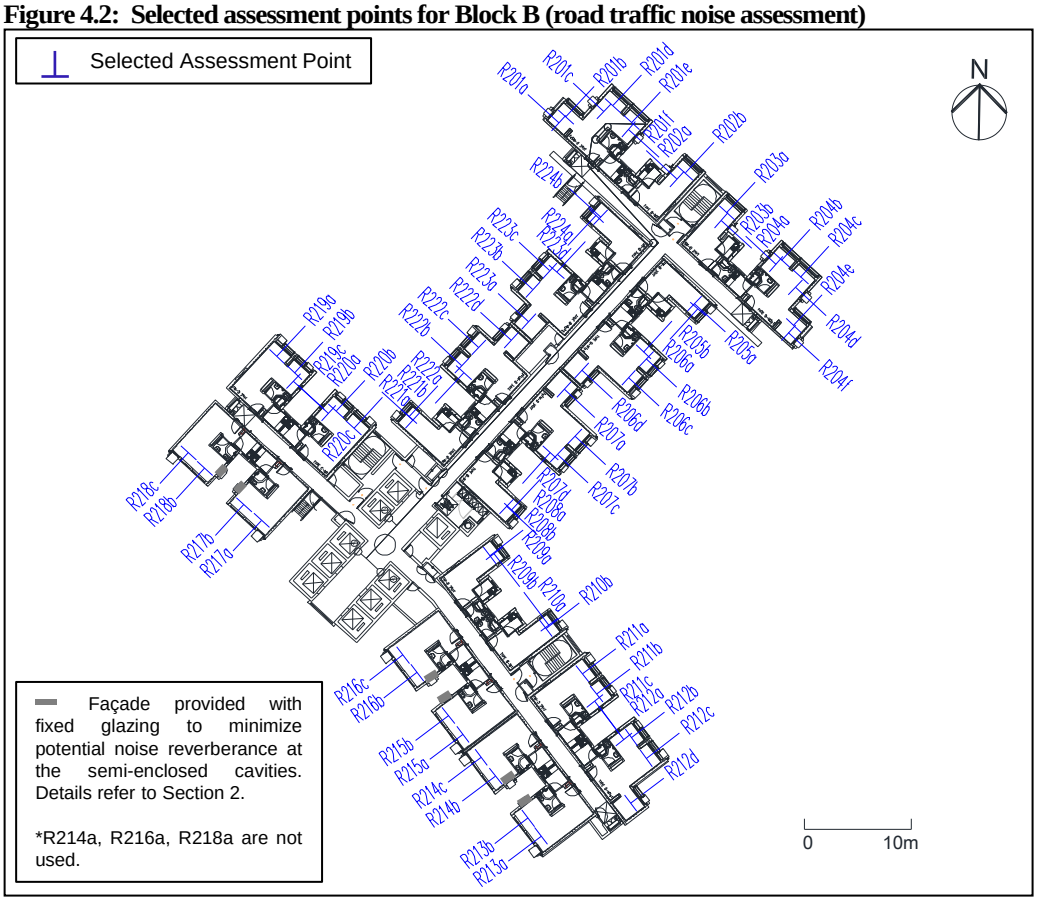


Figure 4.2: Selected assessment points for Block B (road traffic noise assessment)



4.4 Assessment Methodology

4.4.1.1 The prediction is based on the calculation method in accordance with the UK Department of Transport "Calculation of Road Traffic Noise" (CRTN). Based on the information provided by HKHA, the proposed occupation year would be Year 2030. Road traffic noise assessment has been carried out for two scenarios: Scenario A for Year 2031 (i.e. highest traffic flow before commissioning of the Po Shek Wu Interchange improvement works) and Scenario B for Year 2045 (i.e. maximum traffic projection within 15 years upon the occupation of the development and after Po Shek Wu Interchange improvement works in place).

4.4.1.2 To cater for the traffic demand from future population in the area before Po Shek Wu Interchange Improvement Work recommended under NENT NDA in place, there are minor road improvement works prior to the occupation of the housing sites, including:

- Junction 9 (between Po Wan Road and Po Shek Wu Road) undertaken by CEDD;
- Junction 10 (between Choi Yuen Road and Po Shek Wu Road) undertaken by CEDD; and
- Po Shek Wu Road undertaken by HKHA in Year 2025.

4.4.1.3 These road improvement works have been considered in the assessment scenarios as appropriate.

4.4.1.4 A 3m vertical barrier is currently in place along the eastbound of Po Wan Road adjacent to Po Sheung Tsuen and has been incorporated into Scenario A of the traffic noise model in the assessment. The location of this existing barrier is illustrated in **Figure 4.3**.

4.4.1.5 Retrofitting of noise barriers are proposed along Po Shek Wu Road under the project of "Retrofitting of noise barriers on Po Shek Wu Road" (PWP Item No. 833TH). The proposal was gazetted in October 2022, however, there is no confirmed implementation programme for these retrofitting noise barriers. Thus, they have been excluded for conservative assessment.

4.4.1.6 In addition, CEDD has also recommended some at-source noise mitigation measures on Po Shek Wu Road to relieve the noise impacts caused by its associated new road infrastructure works. Based on the CE20/2019 (HY) – "Improvement of Tai Tau Leng Roundabout and Fanling Highway (Kwu Tung Section) – Design and Construction", the latest recommended mitigation measures (version Oct 2023 provided by CEDD) in relation to the traffic noise environment at the development site include the following:

A. A 7m vertical barrier (absorptive) with 3m cantilevered arm at central divider along the section of Po Shek Wu Road adjacent to Shek Wu Hui Jockey Club Playground;

B. A semi-enclosure along the section of Po Shek Wu Road adjacent to Po Shek Wu Estate with opening on west side;

C. A semi-enclosure along the section of Po Shek Wu Road adjacent to Choi Ying House of Choi Po Court with opening on west side;

D. A semi-enclosure along the new slip road of Fanling Highway with opening on west side; and

E. A full enclosure along the section of Po Shek Wu Road adjacent to Choi Ngan House of Choi Po Court.

4.4.1.7 **Figure 4.4** shows the location of these proposed mitigation measures on Po Shek Wu Road. The details are extracted from the CE20/2019 (HY) – "Improvement of Tai Tau Leng Roundabout and Fanling Highway (Kwu Tung Section) – Design and Construction" and are given in **Appendix 4.1**.

4.4.1.8 The proposed improvement works of Po Shek Wu Road is planned to be commissioned by 2031. The existing and planned at-source mitigation measures described above have been incorporated in Scenario B and their locations are shown in **Figure 4.4**.

Figure 4.3: Noise mitigation measures in vicinity of the subject site in Scenario A

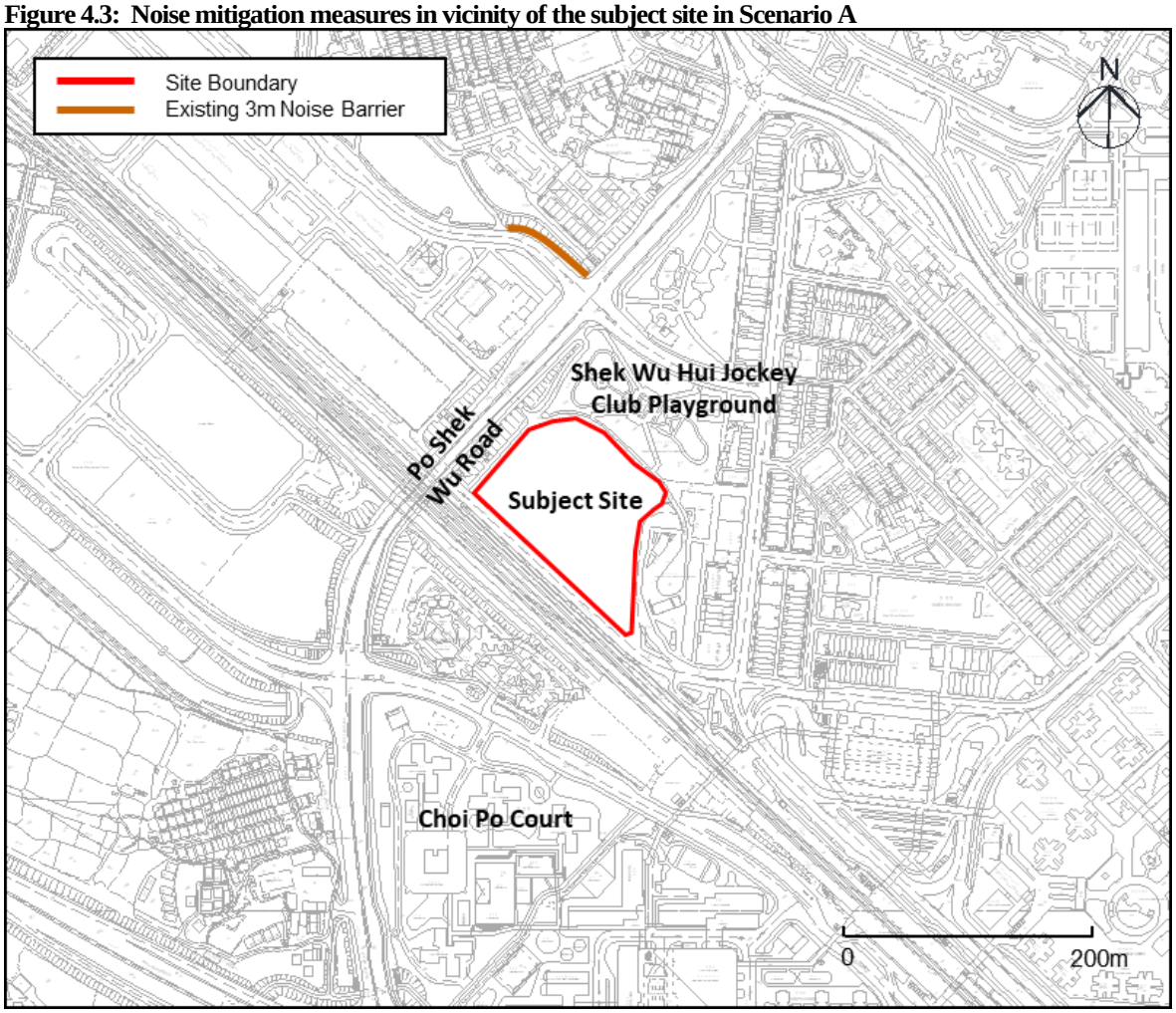
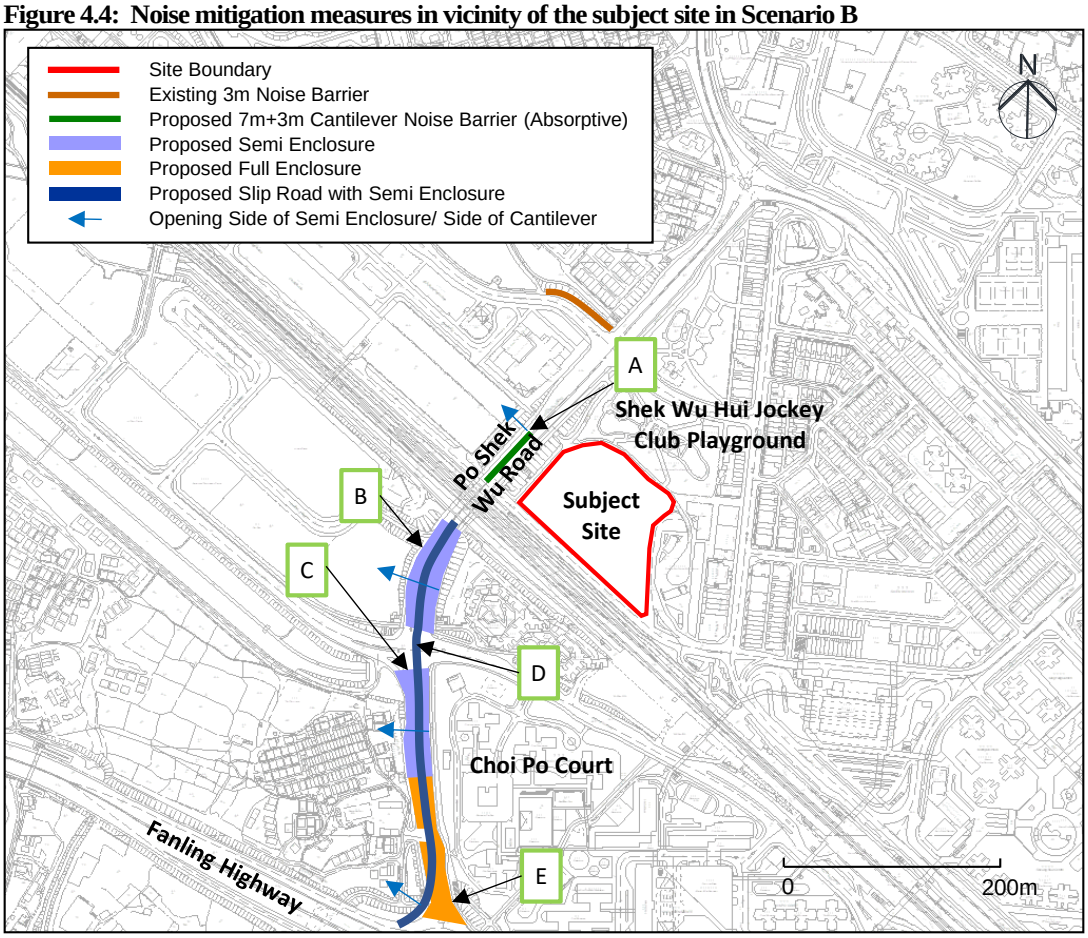


Figure 4.4: Noise mitigation measures in vicinity of the subject site in Scenario B



4.5 Traffic Flow Data for Assessment

4.5.1.1 Based on information provided by HKHA, the tentative occupation year for the proposed development would be Year 2030. The traffic noise levels have been predicted based on the maximum traffic projection within 15 years after occupation of the population. As mentioned in previous section, two scenarios (Scenario A - before commissioning of Po Shek Wu Interchange improvement works and Scenario B - after commissioning of Po Shek Wu Interchange improvement works) have been carried out in this EAS. The traffic projection has also taken into account the planned housing sites in Sheung Shui Areas 4 & 30 Site 1 and Site 2.

4.5.1.2 As advised by the Traffic Consultant, the maximum traffic flow after occupation of the population of the housing development and before commissioning of Po Shek Wu Interchange improvement works will be Year 2031; while the maximum traffic flow after commissioning year of Po Shek Wu Interchange improvement works and within 15 years after occupation of the population of the housing development will be Year 2045.

4.5.1.3 A separate Technical Note on the traffic forecast for EAS study has been submitted to Transport Department (TD) for endorsement. Reply from TD is yet to be provided at the time of preparing this report and will be supplemented in later stage. The traffic consultant had checked and confirmed the validity of the traffic data, which was derived based on the traffic forecast methodology submitted to TD.

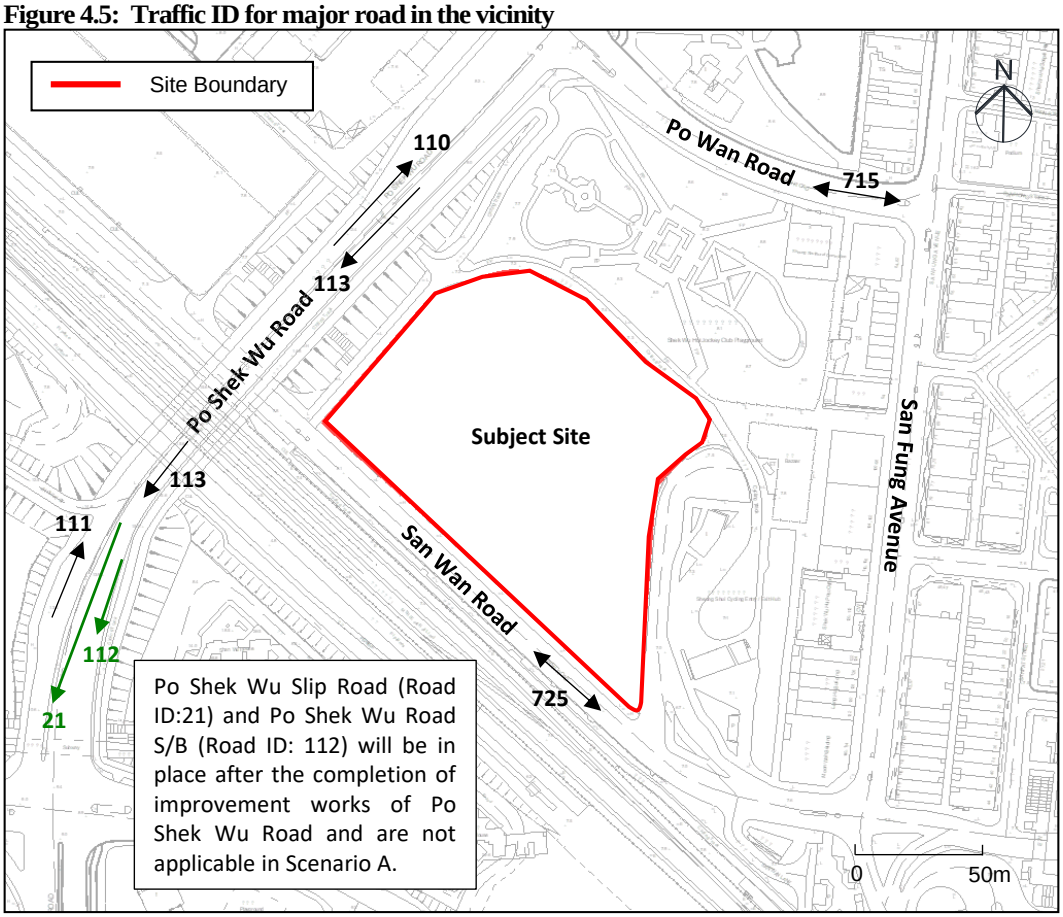
4.5.1.4 The traffic flow data for the major roads surrounding the subject site is presented in **Figure 4.5** and **Table 4.2** below. Details are given in **Appendix 4.2**.

Table 4.2: Predicted peak hourly traffic flow data

Road ID [1]	Street[2]	Speed Limit (Km/hr)	Year 2031		Year 2045	
			Traffic Flow (veh/hr)	% of HV	Traffic Flow (veh/hr)	% of HV
21[3]	Po Shek Wu Road Slip Road S/B	50	-	-	1326	57.5
110	Po Shek Wu Road N/B	50	1720	47.5	1780	48.8
111	Po Shek Wu Road N/B	50	1519	42.8	1578	44.8
112[3]	Po Shek Wu Road S/B	50	-	-	885	36.1
113	Po Shek Wu Road S/B	50	1361	43.7	2208	48.9
715	Po Wan Road (two way)	50	845	56.5	644	63.1
725	San Wan Road (two way)	50	321	36.4	307	34.6

Note:
[1] Only the major roads are shown in the table above. Hence, the flow ID is not in sequential order.
[2] N/B = North bound, S/B = South bound
[3] Not applicable in Scenario A. See **Figure 4.5**.

Figure 4.5: Traffic ID for major road in the vicinity



4.6 Assessment Results for Residential Blocks

4.6.1.1 Optimised building layout, design and orientation have already been incorporated into the current layout scheme for the basecase scenario, as described below:

Building Block Design, Layout and Orientation

4.6.1.2 During the process of designing the development layout, due consideration has been given to avoiding noise impacts from road traffic as much as practicable. Quasi-T shape block designs have been adopted which could provide self-screening and reduce angle of view to Po Shek Wu Road. Block A is also deposited such that it could provide screening effect to Block B from Po Shek Wu Road.

4.6.1.3 Other different block designs have been investigated. The current scheme is found to be the optimal option from perspectives of development efficiency, flat production, noise performance, scenery and angle of view, etc.

Building setback

4.6.1.4 The subject site has limited space available for building setback to reduce the noise impacts effectively. A wind corridor is maintained between the two blocks to allow natural air ventilation. Nonetheless, the building blocks have been deposited with optimised setback distance from Po Shek Wu Road and San Wan Road as far as practicable.

4.6.1.5 With the above proper designs, it is estimated that a total of 749 residential flats will be exposed to noise level in excess of the 70dB(A) criterion and the overall noise compliance rate is 61.1% for Scenario A; while for Scenario B, a total of 869 residential flats is predicted in excess of the 70dB(A) criterion with an overall noise compliance rate of 54.9%. The maximum noise levels are 76dB(A) and 77dB(A) for Scenarios A and B respectively. Results of the road traffic noise assessments for the proposed residential development are summarised in **Table 4.3**. Details are presented in **Appendix 4.3** for Scenario A and **Appendix 4.4** for Scenario B. Without these building designs, it is expected that the noise compliance rate would be lower.

Table 4.3: Road traffic noise assessment results – Residential Blocks (Basecase Scenarios)

Scenario	Total No. of Flats	No. of Flats Exceeding the Noise Criteria	Max Noise Levels, dB(A)	Compliance Rate
Scenario A	1927	749	76	61.1%
Scenario B		869	77	54.9%

4.6.1.6 Results indicate that the predicted exceedances are located on the northern, northwestern, northeastern and southwestern facades which are primarily affected by Po Shek Wu Road for both scenarios. A comparison of the locations of the predicted exceedances is given in **Table 4.4** below and shown in **Figures 4.6 to 4.9** below. It is found that Scenario B is in general worse than Scenario A.

Table 4.4: Location of predicted exceedances – Residential Blocks (Basecase Scenarios)

Block	Exceeded NSR	Scenario A		Scenario B	
		Exceeded Floor	Number of Exceedance	Exceeded Floor	Number of Exceedance
A	R101a	4/F – 45/F	41	4/F – 45/F	41
	R101b	4/F – 45/F		4/F – 45/F	
	R102a	4/F – 45/F	41	4/F – 45/F	41
	R103a	-	40	5/F – 19/F	41
	R103b	5/F – 45/F		4/F – 45/F	
	R103c	5/F – 45/F		4/F – 45/F	
	R110a	7/F – 39/F	34	7/F – 37/F	32
	R110b	6/F – 40/F		6/F – 38/F	
	R111b	6/F – 42/F	38	6/F – 40/F	36
	R111c	5/F – 43/F		5/F – 41/F	
	R112a	4/F – 45/F	41	4/F – 45/F	41
	R112b	4/F – 45/F		4/F – 45/F	
	R113b	4/F – 45/F	41	4/F – 45/F	41
	R113c	4/F – 45/F		4/F – 45/F	
	R114a	4/F – 45/F	41	4/F – 45/F	41
	R114b	4/F – 45/F		4/F – 45/F	
	R115b	4/F – 45/F	41	4/F – 45/F	41

Block	Exceeded NSR	Scenario A		Scenario B	
		Exceeded Floor	Number of Exceedance	Exceeded Floor	Number of Exceedance
	R115c	4/F – 45/F		4/F – 45/F	
	R116a	4/F – 45/F	41	4/F – 45/F	41
	R116b	4/F – 45/F		4/F – 45/F	
	R117a	4/F – 26/F	41	4/F – 42/F	41
	R117b	4/F – 45/F		4/F – 45/F	
	R118a	4/F – 45/F	41	4/F – 45/F	41
	R119a	4/F – 30/F	41	4/F – 45/F	41
	R119b	4/F – 45/F		4/F – 45/F	
	R120a	4/F – 45/F	41	4/F – 45/F	41
	R120b	4/F – 45/F		4/F – 45/F	
	R120c	4/F – 20/F		4/F – 29/F	
	R121a	-	41	9/F – 11/F	41
	R121b	4/F – 45/F		4/F – 45/F	
	R121c	4/F – 45/F		4/F – 45/F	
	R122a	4/F – 45/F	41	4/F – 45/F	41
	R122b	4/F – 45/F		4/F – 45/F	
	R122c	4/F – 18/F		4/F – 33/F	
	R123a	4/F – 18/F	41	4/F – 21/F	41
	R123b	4/F – 45/F		4/F – 45/F	
	R123c	4/F – 39/F		4/F – 45/F	
B	R201a	-	17	8/F – 17/F	40
	R201b	-		7/F – 28/F	
	R201c	-		6/F – 31/F	
	R201d	12/F – 29/F		5/F – 45/F	
	R201e	16/F – 26/F		5/F – 45/F	
	R202b	-	-	6/F – 45/F	39
	R203a	-	-	8/F – 45/F	37
	R204b	-	10	10/F – 45/F	36
	R204c	23/F – 32/F		9/F – 45/F	
	R217a	10/F – 21/F	16	9/F – 21/F	15
	R217b	9/F – 25/F		9/F – 24/F	
	R218b	9/F – 27/F	20	8/F – 26/F	19
	R218c	8/F – 28/F		8/F – 27/F	
Total number of Exceedance		-	749	-	869

Figure 4.6: Location of predicted exceedances in Block A in Scenario A

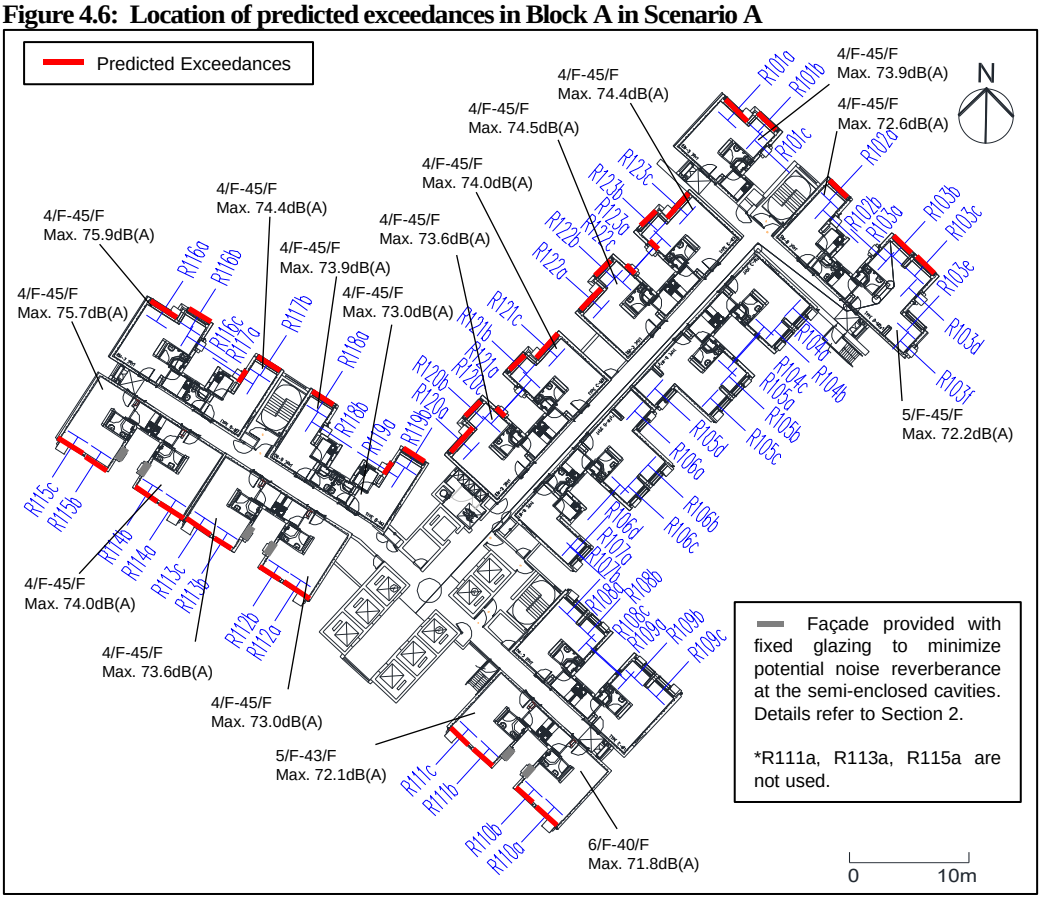


Figure 4.7: Location of predicted exceedances in Block B in Scenario A

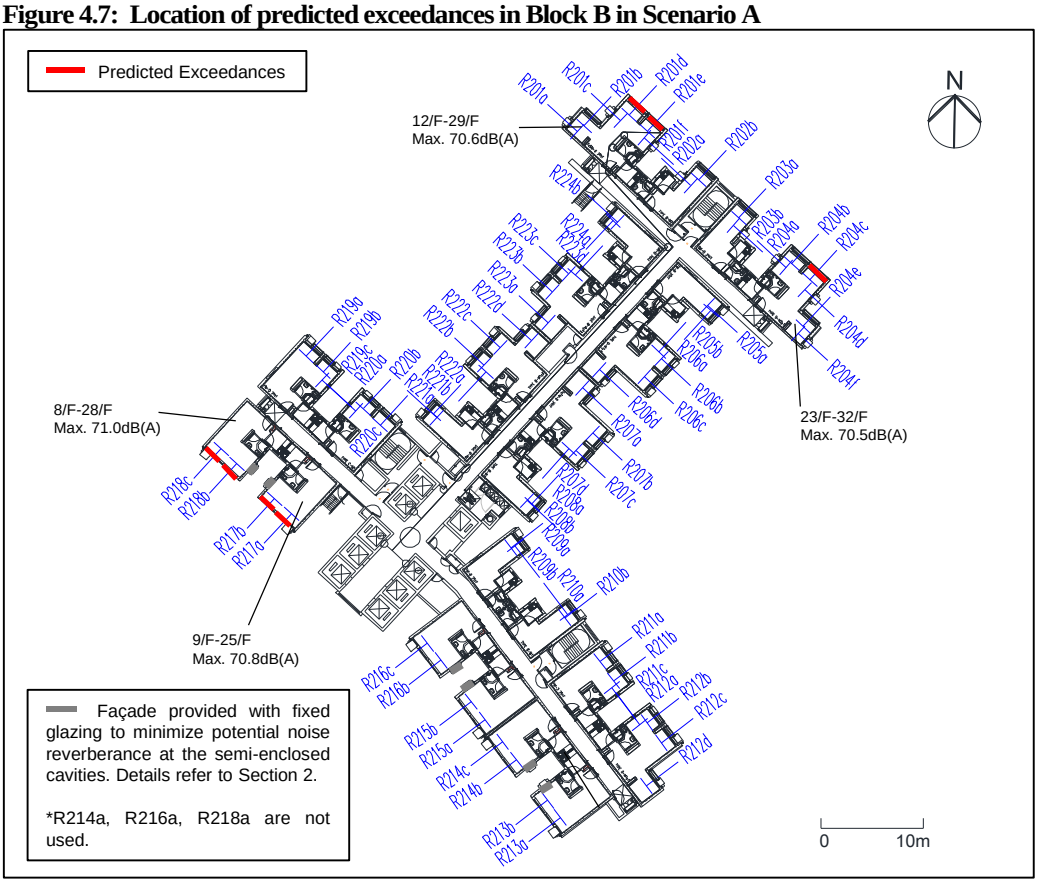


Figure 4.8: Location of predicted exceedances in Block A in Scenario B

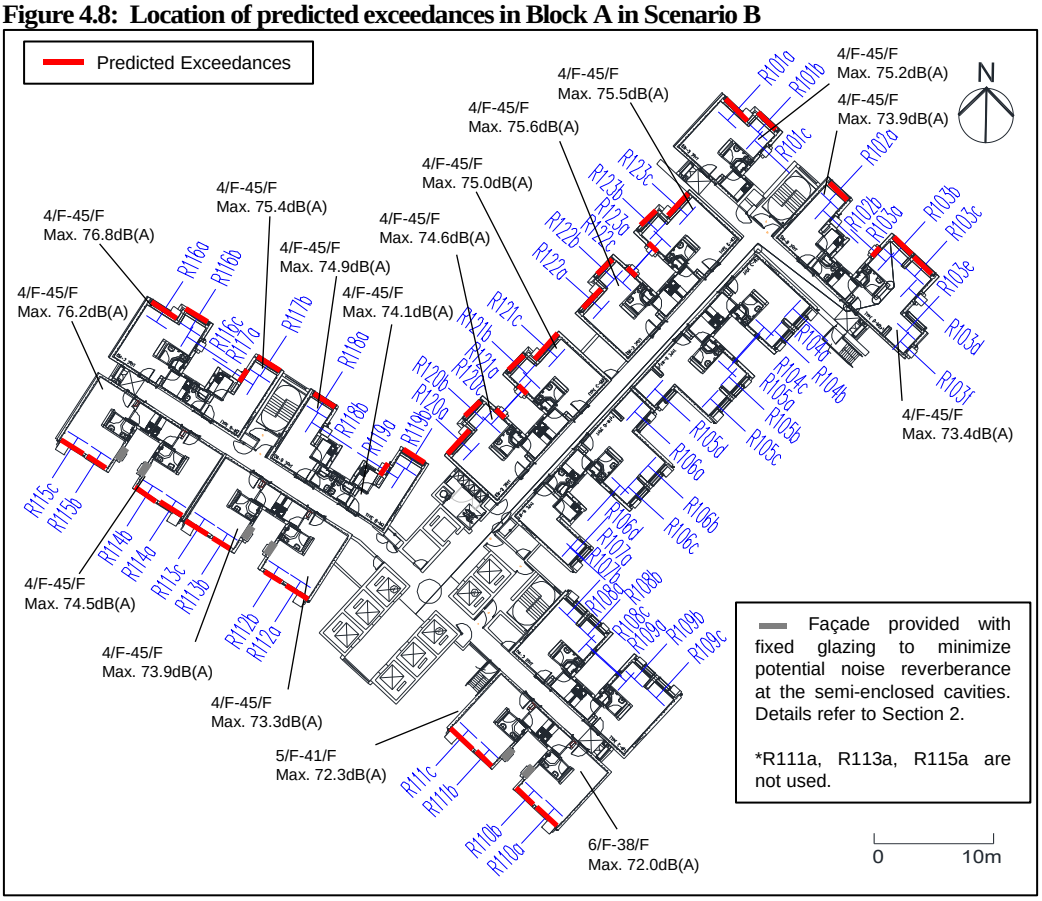
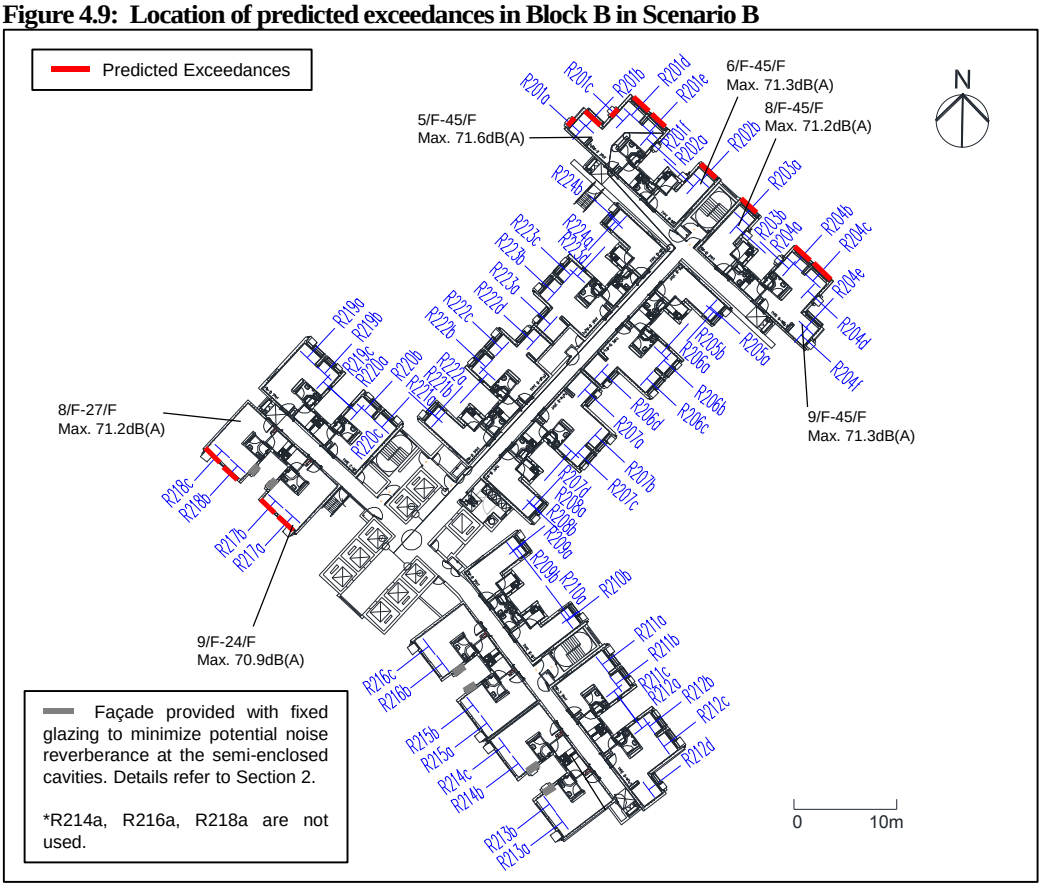


Figure 4.9: Location of predicted exceedances in Block B in Scenario B



4.7 Noise Mitigation Measures for Residential Blocks

4.7.1.1 Proper building layout and design have been adopted in the current scheme as described in the section above. In addition, all other practicable noise mitigation measures have also been investigated exhaustively and the findings are discussed as follows:

Boundary Wall / Barrier

4.7.1.2 Since the affected residential units are found from low to high floors, barriers along the site boundary would not be able to provide effective screening to the upper floor units. Hence, other forms of mitigation measures such as fixed glazing, acoustic windows or enhanced acoustic balconies have been considered instead (see below sections).

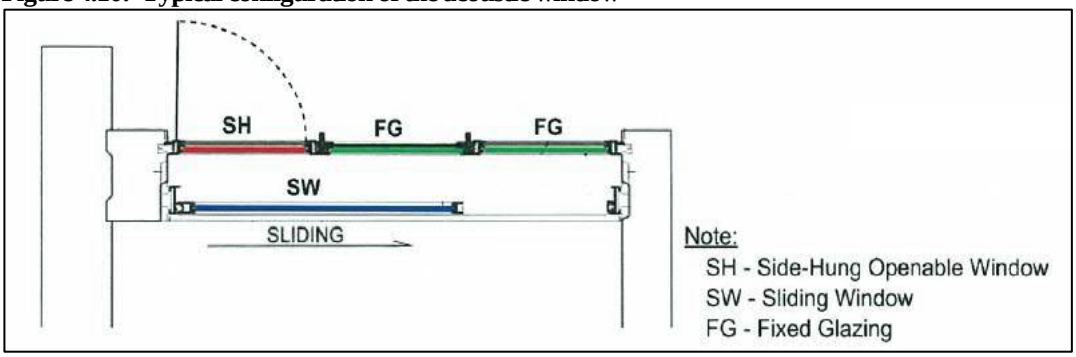
Noise Shielding Building

4.7.1.3 The subject site has limited space available for noise shielding building and hence will not be considered.

Acoustic Window Design

4.7.1.4 The acoustic window is designed with two layers of window including push open window at outer layer and sliding window at inner layer as illustrated in **Figure 4.10**. The opening and gap between the two layers of window allows sufficient air flow to satisfy ventilation requirement; while at the same time, direct transmitted noise to the room is obstructed by inner sliding window and hence noise reduction could be achieved. In order to achieve the intended noise reduction, the sliding window should be behind the opened side-hung window. Fixed glazing should be kept close as shown in **Figure 4.10**. Special locking device (e.g. allen key) would be installed to the fixed glazing at the outer layer for keeping them in the mentioned setting, the fixed glazing at the outer layer needs not be opened for ventilation and could be opened by the key for cleansing and maintenance purposes only. The above information about the acoustic window will be stated in the Decoration Handbook to let the future occupants be aware of its appropriate use and correct setting besides its intended purpose.

Figure 4.10: Typical configuration of the acoustic window



4.7.1.5 For the affected flats (i.e. NSRs R101 - R103, R116 - R123 and R201 - 204) facing directly to Po Shek Wu Road, acoustic windows are recommended to protect the affected main windows. The locations of the proposed acoustic window are summarized in **Table 4.5** and indicated in **Figure 4.11 to 4.12** (the worst combination taking into account Scenarios A

and B). For the affected flats (i.e. NSRs R110 - R115 and R217 - R218) which are directly facing San Wan Road and also affected by the East Rail, enhanced acoustic balcony 3.0 (EAB 3.0) will be adopted to alleviate both road traffic and rail noise impact (see **Section 5** as well).

4.7.1.6 The configurations of the proposed acoustic window to be adopted in this project are shown in **Appendix 4.5**. The flat unit and the window configurations to be adopted in the current scheme of this project are based on the latest Modular Flat Design - Modular Integrated Construction (MFD-MiC), except with minor modification on the size of the openable windows. As advised by HKHA, the noise attenuation of acoustic window for Modular Flat Type B-M2 should be applied to Flat Type B, Modular Flat Type C-M3 should be applied to Flat Type C, and Modular Flat Type D-M2 should be applied to Flat Type D in the assessment (see **Appendix 4.6** for details). The height of the windows has been slightly adjusted from 1352mm to 1310mm for Flat Type B, Type C and Type D. Nonetheless, the smaller window opening area would not affect the noise attenuation. Besides, the gap width of the proposed acoustic windows for all flat types has been reduced from 175mm to 115mm. With such configuration, a better noise attenuation of the acoustic window is anticipated.

4.7.1.7 Based on the current design, 6mm window pane will be provided to the proposed acoustic window. The openable side-hung windows and fixed glazing of the acoustic windows are in the normal or favourable setting for noise reduction as shown in **Figure 4.11 to 4.12**. The design of the proposed acoustic window can meet the relevant ventilation requirement under the Building (Planning) Regulations. According to the Practice Note on Lighting and Ventilation Requirements-Performance-based Approach (APP-130) issued by Buildings Department, for optimum performance with the inner sliding glass pane in a closed position, the air gap should have a length of not less than 100mm and a width between 100mm and 175mm. The length and width of the air gap of the proposed acoustic window also meet these conditions.

Table 4.5: Locations of proposed acoustic windows for mitigating road traffic noise

Acoustic Window at NSR	Floor Requiring Acoustic Window	Type of Flat	Ref. Modular Flat Type	Acoustic Window Configurations			With / Without Absorption (W / WO)
				Gap Width, mm	Inner/Outer Window Width, mm	Overlapping Length, mm	
R101a	4/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R101b	4/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R102a	4/F – 45/F	B	B-M2	115	895/945	200	WO
R103b	4/F – 45/F	D	D-M2 (BR1)	115	660/633	607	WO
R103c	4/F – 45/F	D	D-M2 (LR)	115	915/985	100	WO
R116a	4/F – 11/F	C	C-M3 (LR)	115	985/1125	330	W
R116a	12/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R116b	4/F – 11/F	C	C-M3 (BR)	115	660/633	607	W
R116b	12/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R117b	4/F – 45/F	B	B-M2	115	895/945	200	WO
R118a	4/F – 45/F	B	B-M2	115	895/945	200	WO
R119b	4/F – 45/F	B	B-M2	115	895/945	200	WO
R120a	4/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R120b	4/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO

Acoustic Window at NSR	Floor Requiring Acoustic Window	Type of Flat	Ref. Modular Flat Type	Acoustic Window Configurations			With / Without Absorption (W / WO)
				Gap Width, mm	Inner/Outer Window Width, mm	Overlapping Length, mm	
R121b	4/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R121c	4/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R122a	4/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R122b	4/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R123b	4/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R123c	4/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R201b	7/F – 28/F	D	D-M2 (BR2)	115	545/545	680	WO
R201d	5/F – 45/F	D	D-M2 (LR)	115	915/985	100	WO
R201e	5/F – 45/F	D	D-M2 (BR1)	115	660/633	607	WO
R202b	6/F – 45/F	B	B-M2	115	895/945	200	WO
R203a	8/F – 45/F	B	B-M2	115	895/945	200	WO
R204b	9/F – 45/F	D	D-M2 (BR1)	115	660/633	607	WO
R204c	9/F – 45/F	D	D-M2 (LR)	115	915/985	100	WO

Enhanced Acoustic Balcony (EAB 3.0) Design

4.7.1.8 For the affected flats Type C-4 directly facing San Wan Road which are also affected by the East Rail (i.e. NSRs R110 - R115 and R217 - R218), EAB 3.0 is proposed to alleviate both road traffic and rail noise impact. The proposed EAB 3.0 consists of some or all of the following key features for achieving the required noise reduction:

- Concrete parapet in front and full height concrete walls on two sides.
- Outer screen walls (in the form of sliding glass panels) above the front parapet in front of the balcony door, which should be fixed at its position for intended noise attenuation performance.
- Sound absorptive materials, of noise reduction coefficient not less than 0.7, applied on the ceiling and on the inner side of the side wall away from the balcony door.
- A projected inclined solid panel extending out from the front parapet.

The dimensions and configuration of the proposed EAB 3.0 is shown in **Appendix 4.7**.

4.7.1.9 In order to achieve the intended noise reduction by EAB 3.0, one of the outer screen wall should be located in front of the opened balcony door and the other one in front of the acoustic window adjacent to the side wall while the fixed glazing on the plane of balcony door should be kept closed as shown in the schematic design of the enhanced acoustic balcony. Special locking device (e.g. allen key) would be installed to the frames of the sliding glass panels above the front parapet and the fixed glazing on the plane of balcony door for keeping them in the above setting. The fixed glazing on the plane of the balcony door needs not to be opened for ventilation and could be opened by special looking device mentioned above for cleansing and maintenance purposes only. It has been found that sufficient air ventilation can be maintained under the above setting. The outer screen walls should only be slid away from the above locations occasionally for cleansing and maintenance purpose while the fixed glazing should only be opened occasionally for decoration purpose. The above information about the enhanced acoustic balcony will be

stated in the Decoration Handbook to let the future occupants be well aware of its setting and intended purpose.

4.7.1.10 The locations of the proposed EAB 3.0 are indicated in **Figure 4.11 to 4.12** and summarised in **Table 4.6**. The noise attenuation performance of EAB 3.0 for mitigating road traffic has been made reference to that of the enhanced acoustic balcony (latest version dated Jun 2018) in current assessment (**Appendix 4.8**). Compared to the MFD Flat Type C-5 of the version dated Jun 2018, the EAB 3.0 for current Type C-4 unit has deeper balcony, longer full height concrete walls on two sides, as well as higher parapet (for Scenarios 1 – Basic shell and 2 – Acoustic lining) and projected inclined panel (for Scenarios 3 – Projected inclined solid panel and 4 – Acoustic lining and projected inclined solid panel). Hence, the noise attenuation performance for EAB 3.0 for current Type C-4 unit would be better.

4.7.1.11 The sound attenuations of enhanced acoustic balcony for Type C-5 range from 2dB(A) to 10dB(A) depending on their design and inclination angle from the noise source to NSR (see **Appendix 4.9** for details).

Table 4.6: Locations of proposed EAB 3.0 for mitigating road traffic noise

Enhanced Acoustic Balcony at NSR	Floor Requiring Acoustic Balcony	Type of Flat	Enhanced Acoustic Balcony Type "C"		
			Floor with Type C1C1 [1]	Floor with Type C1C2 [2]	Floor with Type C1C4 [3]
R110a	6/F – 40/F	C	6F – 40/F	–	–
R110b					
R111b	5/F – 43/F		5/F – 43/F	–	–
R111c					
R112a	4/F – 45/F		4/F, 6F – 8/F, 10/F – 45/F	5/F, 9/F	–
R112b					
R113b	4/F – 45/F		16/F – 45/F	4/F – 15/F	–
R113c					
R114a	4/F – 45/F		20/F – 45/F	4/F – 19/F	–
R114b					
R115b	4/F – 45/F		21/F – 45/F	17/F – 20/F	4/F – 16/F
R115c					
R217a	9/F – 25/F		9/F – 25/F	–	–
R217b					
R218b	8/F – 28/F		8/F – 28/F	–	–
R218c					

Note:
[1] Enhanced acosutic balcony with basic shell.
[2] Enhanced acosutic balcony with acoustic lining.
[3] Enhanced acosutic balcony with acoustic lining and projected inclined solid panel.

4.7.1.12 As advised by the Project Team, the ventilation requirements for these flats could comply with the Buildings Ordinance. The purpose of EAB 3.0 will be stated in the Decoration Handbook to let the future occupants be well aware of its intended purpose.

Conversion of Openable Window to Fixed Glazing at Side Window

4.7.1.13 With acoustic windows at the main window of the affected flats mentioned above, it is proposed to convert the openable side window to fixed glazing. The proposed fixed glazing should be normally closed for noise reduction and need not to be opened for meeting the

ventilation requirement. With reference to the HKPSG, 6mm window panel is considered sufficient for shielding off noise and appropriate for sound insulation purpose. At least 6mm window panel will be provided to the proposed fixed glazing from noise perspective and these fixed glazing could only be opened by Allen key for cleansing and maintenance purposes. The purpose of fixed glazing will be stated in the Decoration Handbook to let the future occupants be well aware of its intended purpose. The locations of the proposed fixed glazing windows are summarized in **Table 4.7** and indicated in **Figure 4.11 to 4.12**.

Table 4.7: Location of proposed fixed glazing for mitigating road traffic noise

Fixed glazing at NSR	Floor Requiring Fixed glazing
R101c	4/F – 45/F
R102b	4/F – 45/F
R103a	4/F – 45/F
R103d	4/F – 45/F
R116c	4/F – 45/F
R117a	4/F – 45/F
R118b	4/F – 45/F
R119a	4/F – 45/F
R120c	4/F – 45/F
R121a	4/F – 45/F
R122c	4/F – 45/F
R123a	4/F – 45/F
R201a	7/F – 28/F
R201c	5/F – 45/F
R201f	5/F – 45/F
R202a	6/F – 45/F
R203b	8/F – 45/F
R204a	9/F – 45/F
R204d	9/F – 45/F

4.7.1.14 With the provision of the recommended acoustic windows, EAB 3.0 and fixed glazing, all residential flats will be protected and a compliance rate of 100% could be achieved. Detailed results are attached in **Appendix 4.10.**

Figure 4.11: Location of proposed mitigation measures in Block A

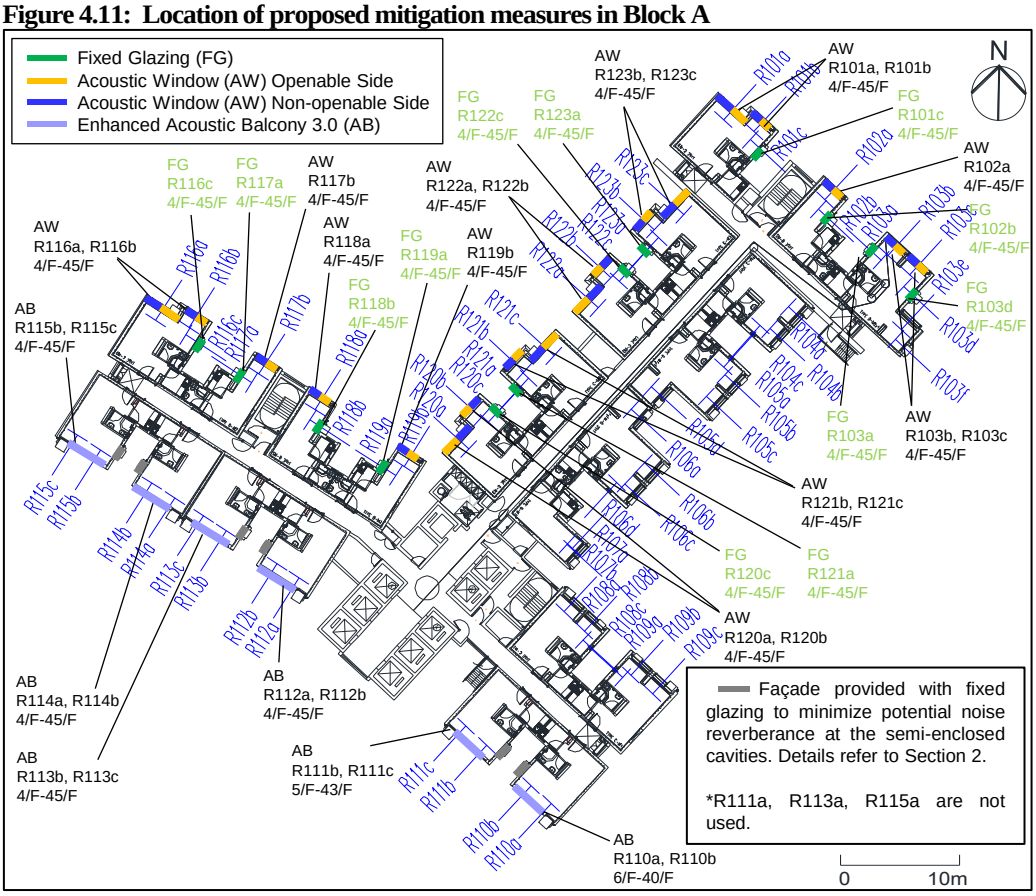
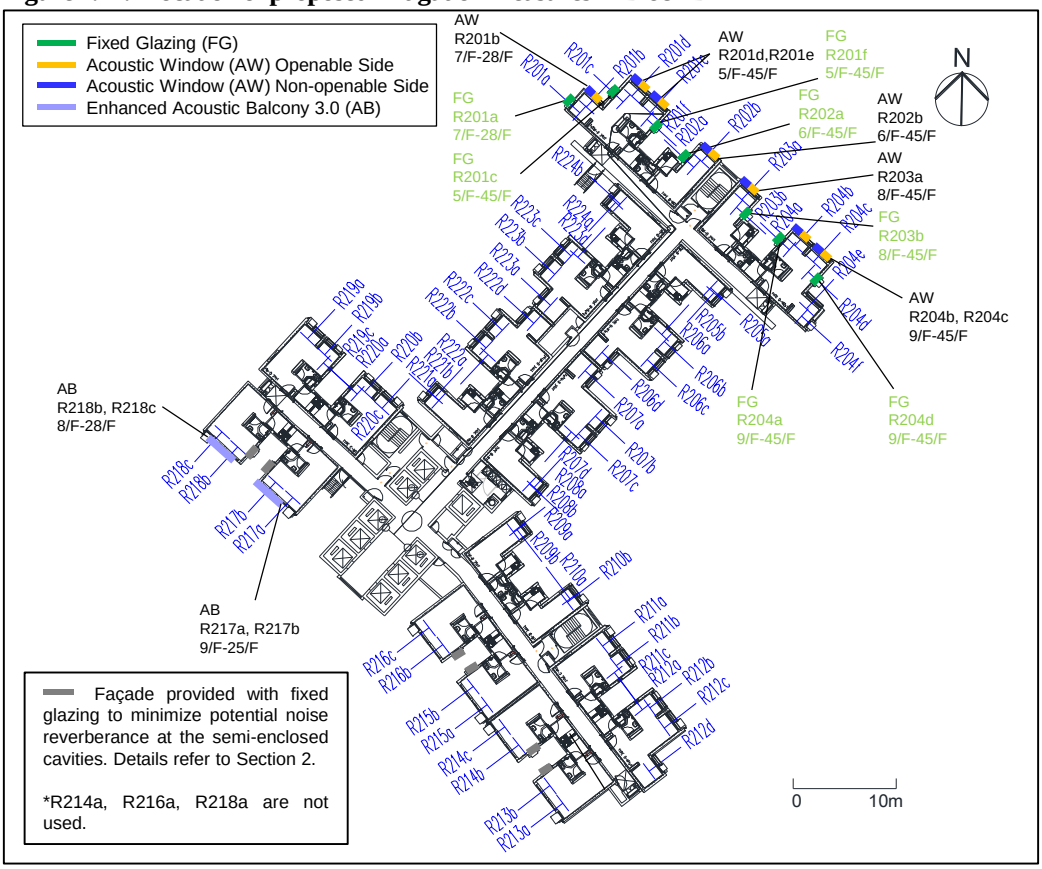


Figure 4.12: Location of proposed mitigation measures in Block B



5 Rail Noise Impact Assessment

5.1 Rail Noise Criteria

5.1.1.1 Noise planning standards for rail noise have been specified in Table 4.1 of the HKPSG Chapter 9, i.e. $L_{eq(24hr)}$ of 65 dB(A) and $L_{max(2300-070hours)}$ of 85 dB(A). Besides, Acceptable Noise Levels (ANL) are also stipulated in the Technical Memorandum for Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM) issued under the Noise Control Ordinance as shown in **Table 5.1**. Rail noise impact is assessed according to the recommendation of the HKPSG, which include compliance with the relevant requirement of the NCO.

Table 5.1: Noise criteria for rail noise

Area Sensitivity Rating	Time Period [1]	Acceptable Noise Levels, $L_{eq(30\ mins)}$ dB(A) under IND-TM	Maximum A-weighted SPL, $L_{max\ (2300-0700hrs)}$ dB(A) under HKPSG	24 hours Equivalent SPL, $L_{eq(24\ hr)}$ dB(A) under HKPSG
A	Daytime & Evening	60	85	65
	Night-time	50		
B	Daytime & Evening	65		
	Night-time	55		
C	Daytime & Evening	70		
	Night-time	60		

Note:
[1] Daytime: 0700 to 1900 hours, Evening: 1900 to 2300 hours, Night-time: 2300 to 0700 hours

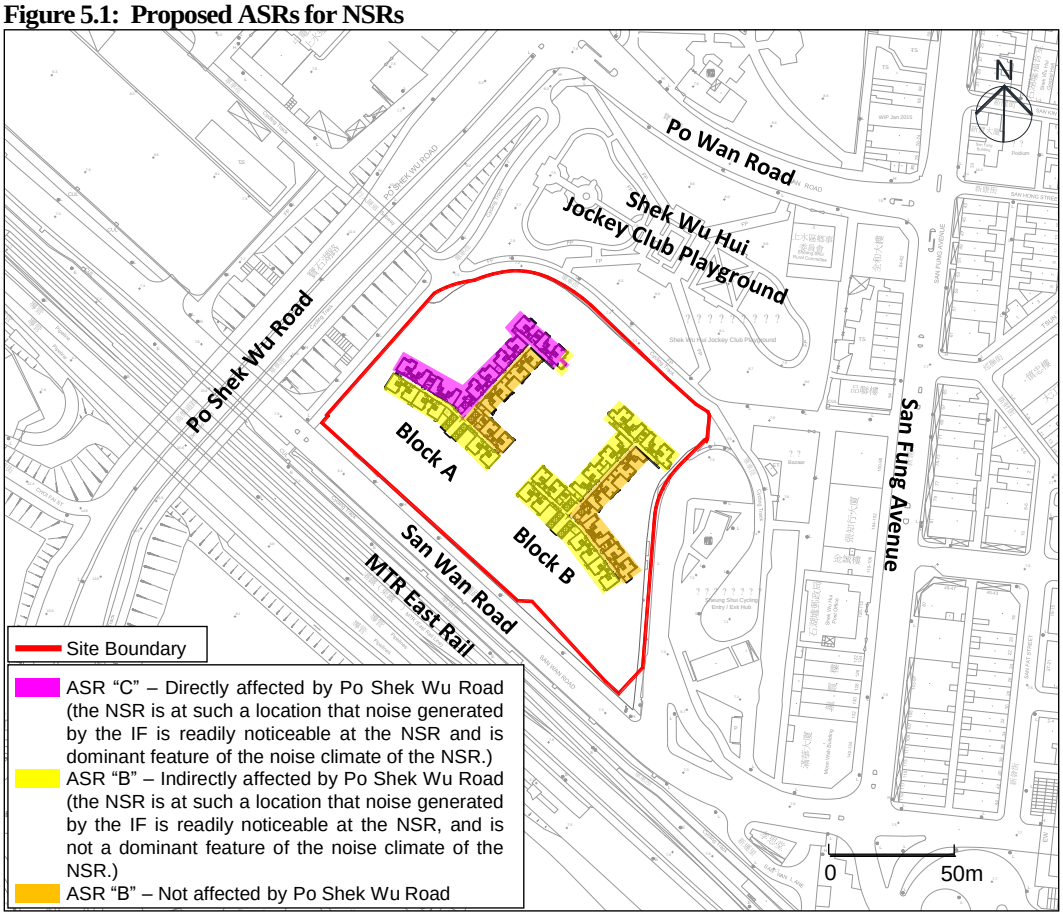
5.1.1.2 In consideration of the type of area within which the NSRs are located, the future context of the environs should also be taken into account. The site is planned for high rise residential developments. It is surrounded immediately by high density developments including the planned Po Shek Wu Estate to the south, planned housing developments at Sheung Shui Areas 4 & 30 and various industrial and commercial buildings to the west, as well as Landmark North and Shek Wu Hui to the east. The types of area (i) rural area, (ii) low density residential area consisting of low-rise or isolated high-rise developments; and (iii) urban area according to IND-TM cannot reflect the future environs of the subject site and are all not applicable. Thus the whole site shall fall into type (iv) “Area other than those above" according to IND-TM.

5.1.1.3 Review of the Annual Traffic Census (ATC) for Year 2022 indicates that Po Shek Wu Road had an Annual Average Daily Traffic (AADT) of 33,260, which is considered as an Influencing Factor (IF) under the IND-TM. For the facades having a relatively open view angle facing Po Shek Wu Road, these NSRs are at such a location that noise generated by the IF is readily noticeable at the NSR and is dominant feature of the noise climate of the NSR. They are considered to be directly affected by the IF and hence an ASR of C is

assigned. The Acceptable Noise Level (ANL) for ASR of "C" should be 70dB(A) for daytime & evening and 60dB(A) for night-time.

5.1.1.4 Some NSRs with smaller view angle to Po Shek Wu Road and/or largely screened by noise enclosure would be indirectly affected. They are at such location that noise generated by the IF, whilst noticeable at the NSR, but is not a dominant feature of the noise climate of the NSRs. They are considered to be indirectly affected by the IF and hence an ASR of B is assigned. For residential units which are screened by the residential block or facing away from Po Shek Wu Road, road traffic noise generated from Po Shek Wu Road is expected to be not noticeable. Therefore, these facades are considered to be not affected by the IF and an ASR of "B" is assigned. The ANL for ASR of "B" should be 65dB(A) for daytime & evening time, and 55dB(A) for night-time. The proposed ASRs for the NSRs are indicated in **Figure 5.1** below.

Figure 5.1: Proposed ASRs for NSRs



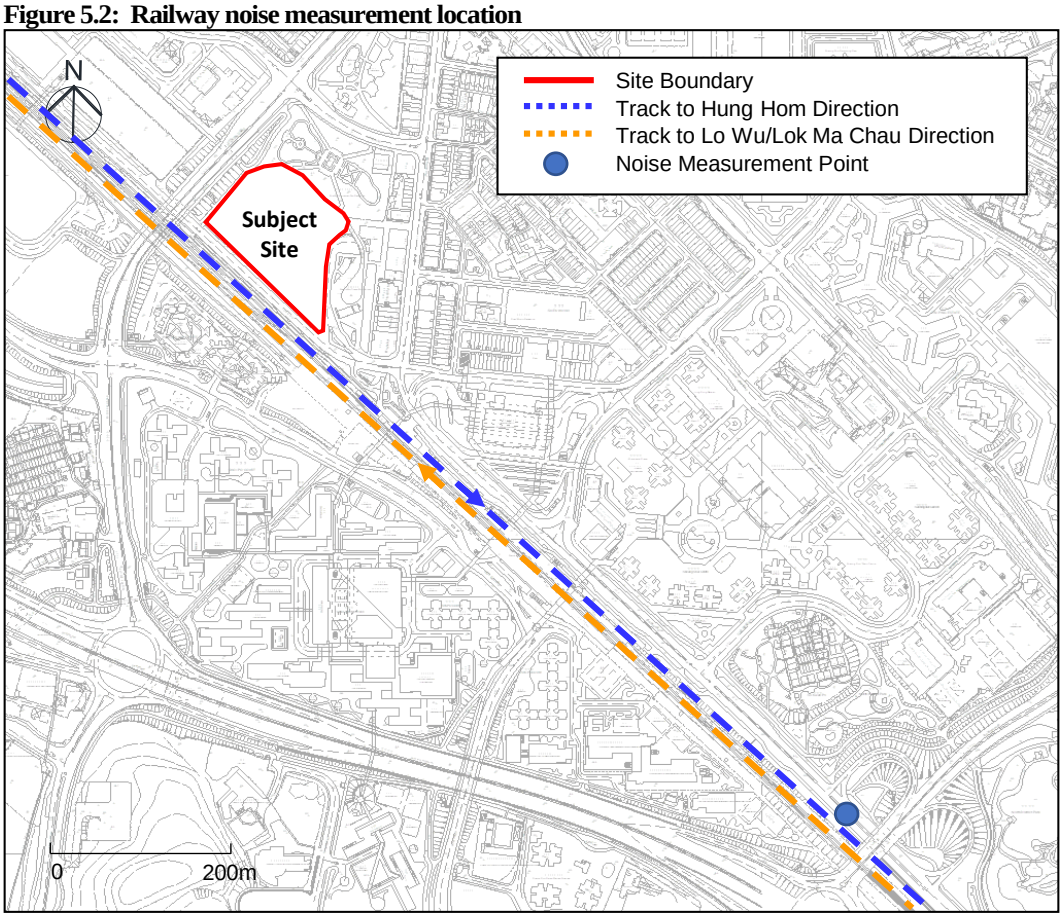
5.2 Assessment Methodology

5.2.1.1 All possible locations along the section between Sheung Shui Station and Po Shek Wu Road for rail noise measurement have been considered. The subject site is currently occupied by the KMB bus depot and access into the bus depot for noise measurements was not allowed by the operator. Trackside barriers are erected along both sides of the rail section from Sheung Shui Station to Po Shek Wu Road. Noise measurements along this rail section would not be representative. In addition, the noise environment near San Wan Road next to Sheung Shui Areas 4 & 30 Site 2 is dominated by road traffic noise. Also, there are retaining walls,

5m high vertical noise barrier (opposite to the nearby Po Shek Wu Road Site) and 1.3m barrier wall along this rail section. Noise measurements along this rail section would not be representative. In consideration of all these constraints, noise measurement next to the subject development site is not practical.

5.2.1.2 The rail noise measurements were taken at an open ground near North District Park located at about 790m to the southeast of the subject housing site, to where there is no trackside barrier and with view directly overlooking the rail tracks. The measurement location is illustrated in **Figure 5.2**. The track form and operational characteristics at the selected measurement point are very similar to that of the development site. Hence, the measured sound exposure level (SEL) of train event is considered representative for assessment on the subject site. Since joint/crossing was found on the rail track for the direction to Lo Wu/ Lok Ma Chau (LMC), measurement was conducted for the direction to Hung Hom only. Measurement details including the measurement date, time, equipment, etc. are given in **Appendix 5.1**.

Figure 5.2: Railway noise measurement location



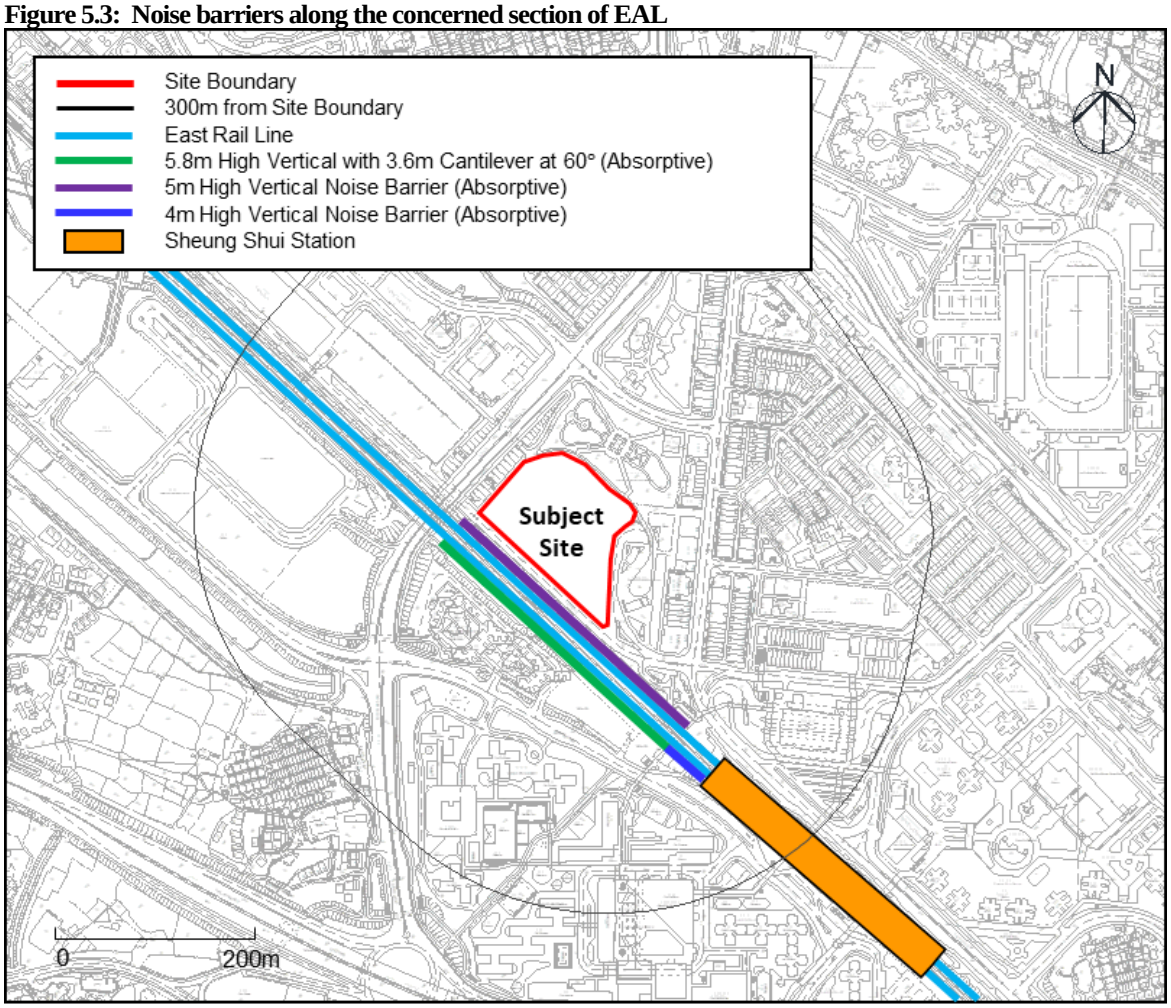
5.2.1.3 The 9-cars and 12-cars Electric Multiple Unit (EMU) passenger trains were found in operation for the East Rail Line (EAL) during the measurement. According to the latest Environmental Permit (EP) for Shatin to Central Link (SCL) – Mong Kok East to Hung Hom Section (EP-437/2012/A), the new 9-cars EMU trains will be used in place of the 12-cars trains in future which is required to prepare for the extension of the EAL services to Hong Kong Island. The existing 12-cars EMU trains have already been replaced by new 9-cars trains in May 2022. Therefore, only measurements for 9-cars trains are used in the

assessment. Speed of EAL was also obtained from on-site measurement near the Project Site as in **Appendix 5.1**.

5.2.1.4 In view of the suspended Intercity train service due to outbreak of COVID-19 at the time of noise measurement taken in Year 2021, measurement could not be conducted for Intercity through train. Measurement data including the train speed from Final EAS Report for the HKHA housing development at Po Shek Wu Estate was referenced and extracted (refer to **Appendix 5.2**) for the assessment. According to the Final EAS Report for the HKHA housing development at Po Shek Wu Estate, the average SEL corrected to 25m are 86.5dB(A) and 87.9dB(A) for intercity through train to Hung Hom direction and Lo Wu/LMC direction, respectively at location with effect of joint/crossing. The measurement results extracted from the said Final EAS Report are presented in **Appendix 5.2**.

5.2.1.5 According to the as-built drawings of the barriers provided by MTRC, one 5m high vertical absorptive barrier is currently installed along the nearside track for the section between Sheung Shui Station and Po Shek Wu Road. The barrier would provide screening effect to the proposed development and has been taken into account in the calculations. Two sections of barriers including one 4m high absorptive vertical barrier and one 5.8m high vertical with 3.6m cantilever arm at 60° absorptive barrier are installed on the opposite side of the track. These barriers are included in the assessment. The locations of the existing noise barriers are illustrated in **Figure 5.3**.

Figure 5.3: Noise barriers along the concerned section of EAL



5.2.1.6 Considering the confidentiality issue of the information, the letter of reply on operation parameter and as-built drawings of the noise barriers from MTRC will be provided to EPD separately upon request.

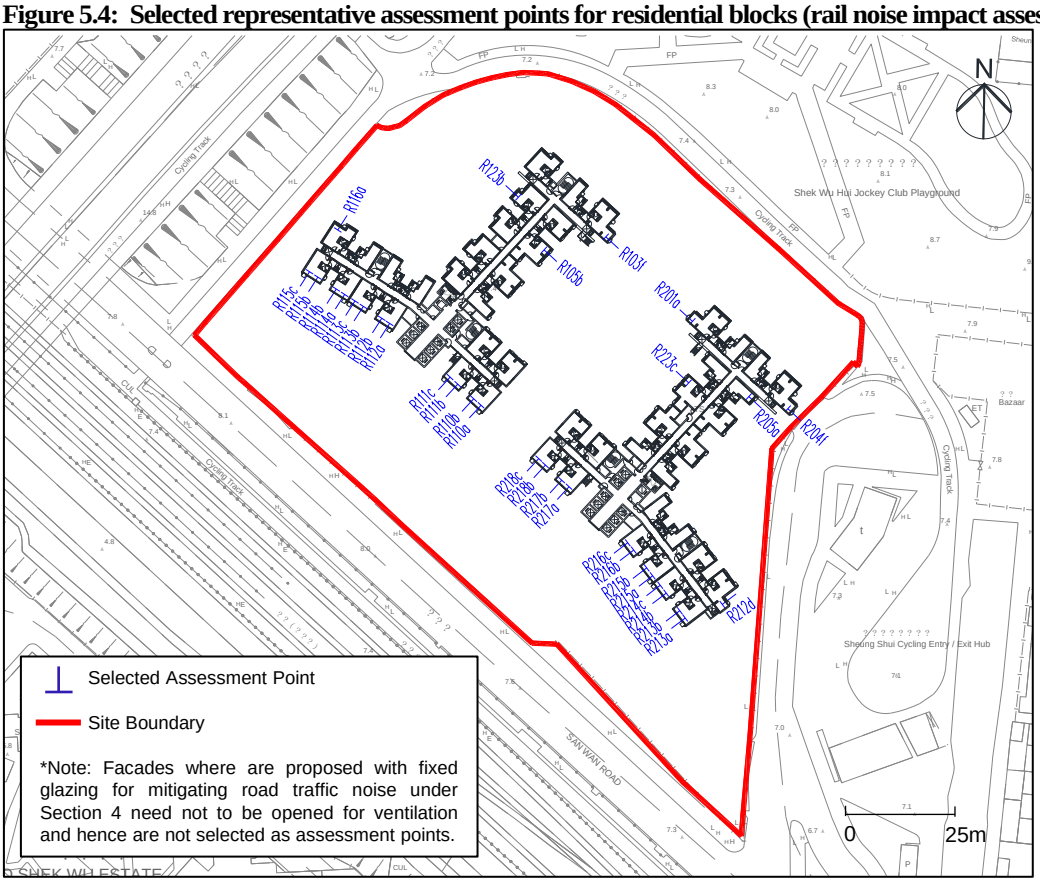
5.2.1.7 The assessment methodology generally follows the UK Department of Transport "Calculation of Rail Noise" (CRN). The computational model "RailNoise" has been adopted for the assessment, and the modelling methodology for propagation is based on the prediction procedures in CRN. L_{max} has also been predicted by "RailNoise" according to "Train Noise Prediction Model" (TNPM) which adopted for Channel Tunnel Rail Link (HS1) in the UK. A summary of correction factors has been included in the rail noise prediction model is given in **Appendix 5.3**. Sound pressure levels ($L_{eq(30min)}$) at receivers are predicted based on the measured SEL with corrections for rail deterioration, distance attenuation, speed, angle of view, barrier effect and no. of train frequency. The predicted L_{max} at the selected receiver is determined from the measured L_{max} of each track; and the calculation has taken into account the correction for speed, rail deterioration and distance attenuation.

5.3 Predicted Rail Noise Level for Residential Blocks

5.3.1.1 During the process of designing the development layout, due consideration has been given to avoid noise impacts from the East Rail as much as practicable. Setback distance from the

rail track has been maximized and a podium has been designed such that the first domestic floor has been raised to 24mAG. Taking into account the development layout design, representative NSRs at the residential blocks with line of sight to the rail are selected for the assessment. The locations of the selected representative assessment points at the residential blocks are illustrated in **Figure 5.4**.

Figure 5.4: Selected representative assessment points for residential blocks (rail noise impact assessment)



5.3.1.2

The results are summarised in **Table 5.2** for daytime & evening time and **Table 5.3** for night-time. Detailed results are given in **Appendix 5.4**. Results indicate that the predicted noise levels at the representative worst affected NSRs would comply with the daytime & evening noise criteria but exceed the night-time noise criteria. However, noise exceedances are predicted at all NSRs facing directly the rail track with ASR of B during night-time.

Table 5.2: Daytime & evening time railway noise impact assessment results – Residential Blocks (Basecase Scenario)

Block	Representative NSR ID	Proposed ASRs	Predicted Noise Level [1], Leq 30mins dB(A)	Daytime & Evening Noise Criterion, dB(A)	Comply [Y/N]
A	R103f	B	48	65	Y
	R105b		44		Y
	R110a		60		Y
	R110b		60		Y
	R111b		60		Y

Block	Representative NSR ID	Proposed ASRs	Predicted Noise Level [1], Leq 30mins dB(A)	Daytime & Evening Noise Criterion, dB(A)	Comply [Y/N]
	R111c		60		Y
	R112a		60		Y
	R112b		60		Y
	R113b		60		Y
	R113c		60		Y
	R114a		60		Y
	R114b		60		Y
	R115b		60		Y
	R115c		60		Y
	R116a	C	41	70	Y
	R123b		49		Y
B	R201a	B	49	65	Y
	R204f		50		Y
	R205a		48		Y
	R212d		47		Y
	R213a		60		Y
	R213b		60		Y
	R214b		60		Y
	R214c		60		Y
	R215a		60		Y
	R215b		60		Y
	R216b		60		Y
	R216c		60		Y
	R217a		60		Y
	R217b		60		Y
	R218b		60		Y
	R218c		60		Y
	R223c		44		Y

Note:
[1] Only the predicted noise levels for the worst floor are presented. Details shall be referred to **Appendix 5.4.**

Table 5.3: Night-time railway noise impact assessment results – Residential Blocks (Basecase Scenario)

Block	Representative NSR ID	Proposed ASRs	Predicted Noise Level [1], Leq 30mins dB(A)	Night-time Noise Criterion, dB(A)	Comply [Y/N]
A	R103f	B	45	55	Y
	R105b		41		Y

Block	Representative NSR ID	Proposed ASRs	Predicted Noise Level [1], Leq 30mins dB(A)	Night-time Noise Criterion, dB(A)	Comply [Y/N]
	R110a		57		N
	R110b		57		N
	R111b		57		N
	R111c		57		N
	R112a		57		N
	R112b		57		N
	R113b		57		N
	R113c		57		N
	R114a		57		N
	R114b		57		N
	R115b		57		N
	R115c		57		N
	R116a	C	<40	60	Y
	R123b		47		Y
B	R201a	B	45	55	Y
	R204f		47		Y
	R205a		45		Y
	R212d		44		Y
	R213a		57		N
	R213b		57		N
	R214b		57		N
	R214c		57		N
	R215a		57		N
	R215b		57		N
	R216b		57		N
	R216c		57		N
	R217a		57		N
	R217b		57		N
	R218b		57		N
	R218c		57		N
	R223c		41		Y

Note:
[1] Only the predicted noise levels for the worst floor are presented. Details shall be referred to **Appendix 5.4**.

5.4 Noise Mitigation Measures for Residential Blocks

5.4.1.1 As shown in **Table 5.3**, the maximum noise exceedance is 2 dB(A) only at the affected NSRs (i.e. R110 - R115, R213 - R218) during night-time. These affected NSRs are windows directly facing the East Rail. Proper building layout and design including maximised setback distance from the rail track and high podium have been already adopted in the current scheme as described in **Section 5.3**. The following practicable noise mitigation measures have also been investigated and recommended:

Enhanced Acoustic Balcony (EAB 3.0) Design

5.4.1.2 EAB 3.0 is proposed to mitigate the rail noise impact on the affected flats. Details of the EAB 3.0 can be referred to **Section 4.7** and **Appendix 4.7**. As advised by HKHA, the template for calculating the train-noise-weighted in-out noise level difference (IOD) for EAB 3.0 for mitigating the rail noise impact has been finalised in October 2023. Based on the finalised results provided by HKHA, the IOD normalised by rail noise obtained at Po Shek Wu Road for Flat Type C-4 of EAB 3.0 Scenario 2 - with sound absorptive lining at wall and ceiling running parallel to the railway ranges from 14.4dB(A) - 16.1dB(A), while EAB 3.0 Scenario 4 - with sound absorptive lining at wall and ceiling, and projected inclined panel parallel to the railway ranges from 12.1dB(A) - 17.9dB(A) subject to the elevation (see **Appendix 5.5** for details).

5.4.1.3 According to **Section 4.7**, EAB 3.0 Scenarios 1, 2 and 4 have been proposed to mitigate road traffic noise. However, to mitigate rail noise impact on the affected flats, at least EAB 3.0 Scenario 2 is required. For NSR R115b and R115c from 6/F to 16/F, EAB 3.0 Scenario 4 is proposed for mitigating both the road traffic noise and rail noise impacts. For other NSRs affected by rail noise, EAB 3.0 Scenario 2 will be adopted, which can also achieve better noise attenuation for road traffic noise compared to EAB 3.0 Scenario 1. For those NSRs not affected by rail noise but traffic noise, the type of EAB 3.0 has been proposed in **Table 4.6**. The locations of the proposed EAB 3.0 are summarized in **Table 5.4** and indicated in **Figure 5.5 to Figure 5.6**.

Table 5.4: Locations of proposed acoustic balconies for mitigating rail noise

Enhanced Acoustic Balcony at NSR	Floor Requiring Acoustic Balcony	Type of Flat	Enhanced Acoustic Balcony Type "C"	
			Floor with Type C-4 Scenario 2 - with acoustic lining (wall and ceiling)	Floor with Type C-4 Scenario 4 - with acoustic lining (wall and ceiling) & projected inclined panel
R110a	7/F – 45/F	C	7/F – 45/F	–
R110b				
R111b	8/F – 45/F		8/F – 45/F	–
R111c				
R112a	8/F – 45/F		8/F – 45/F	–
R112b				
R113b	8/F – 45/F		8/F – 45/F	–
R113c				
R114a	7/F – 45/F		7/F – 45/F	–
R114b				

Enhanced Acoustic Balcony at NSR	Floor Requiring Acoustic Balcony	Type of Flat	Enhanced Acoustic Balcony Type "C"	
			Floor with Type C-4 Scenario 2 - with acoustic lining (wall and ceiling)	Floor with Type C-4 Scenario 4 - with acoustic lining (wall and ceiling) & projected inclined panel
R115b	6/F – 45/F		17/F – 45/F	6/F – 16/F
R115c				
R213a	6/F – 45/F		6/F – 45/F	–
R213b				
R214b	6/F – 45/F		6/F – 45/F	–
R214c				
R215a	6/F – 45/F		6/F – 45/F	–
R215b				
R216b	7/F – 45/F		7/F – 45/F	–
R216c				
R217a	7/F – 45/F		7/F – 45/F	–
R217b				
R218b	7/F – 45/F		7/F – 45/F	–
R218c				

5.4.1.4 As advised by the Project Team, the ventilation requirements for these flats could comply with the Buildings Ordinance. The purpose of enhanced acoustic balcony will be stated in the Decoration Handbook to let the future occupants be well aware of its intended purpose.

5.4.1.5 With the provision of the recommended EAB 3.0 at the affected NSRs, according to the IND-TM, the appropriate ANL shall be 10dB(A) less than the ANL at an internal location of a building in which the NSR is located. Results indicate that all residential flats will be protected and would comply with the indoor noise criteria. Mitigated results for those NSRs with EAB 3.0 provided are presented in **Table 5.5**, and detailed results are attached in **Appendix 5.6**.

Table 5.5: Predicted $L_{eq(30mins)}$ during night-time for the NSRs with EAB 3.0 provided (Mitigated Scenario)

Block	Representative NSR ID	Predicted Noise Level, $L_{eq\ 30mins}$ dB(A)	Indoor Noise Criterion [1], dB(A)	Comply [Y/N]
A	R110a	42	45	Y
	R110b	42		Y
	R111b	42		Y
	R111c	41		Y
	R112a	42		Y
	R112b	41		Y
	R113b	42		Y
	R113c	41		Y
	R114a	42		Y
	R114b	42		Y
	R115b	44		Y
	R115c	44		Y

Block	Representative NSR ID	Predicted Noise Level, $L_{eq\ 30mins}$ dB(A)	Indoor Noise Criterion [1], dB(A)	Comply [Y/N]
B	R213a	42		Y
	R213b	42		Y
	R214b	42		Y
	R214c	42		Y
	R215a	42		Y
	R215b	42		Y
	R216b	42		Y
	R216c	42		Y
	R217a	42		Y
	R217b	42		Y
	R218b	42		Y
	R218c	42		Y

Note:
[1] ANL-10dB(A) is used for checking compliance.

5.4.1.6 According to the MTRC's train schedule, the operation hours of East Rail are from 05:30 to 01:17. The predicted $L_{eq(24hours)}$ is calculated based on the assumption of 16 hours daytime & evening operation (i.e. 07:00 to 23:00) with daytime & evening time $L_{eq(30mins)}$, 5 hours night-time operation (i.e. 05:00 to 07:00 and 23:00 to 02:00) with night-time $L_{eq(30mins)}$ and 3 non-service hours (i.e. 02:00 to 05:00) at the selected representative NSRs. The predicted $L_{eq(24hours)}$ at the representative NSRs are summarised in **Table 5.6** below. Results indicate that the predicted $L_{eq(24hours)}$ at the representative NSRs would comply with the noise criterion of 65dB(A).

Table 5.6: Predicted $L_{eq(24hours)}$ at the representative NSRs for residential block

Block	Representative NSR ID	Predicted Noise Level, $L_{eq\ 24hours}$, dB(A)	Noise Criterion, dB(A)	Comply [Y/N]
A	R103f	47	65	Y
	R105b	43		Y
	R110a	59		Y
	R110b	59		Y
	R111b	59		Y
	R111c	59		Y
	R112a	59		Y
	R112b	59		Y
	R113b	59		Y
	R113c	59		Y
	R114a	59		Y
	R114b	59		Y

Block	Representative NSR ID	Predicted Noise Level, $L_{eq\ 24hours}$, dB(A)	Noise Criterion, dB(A)	Comply [Y/N]
	R115b	59		Y
	R115c	59		Y
	R116a	40		Y
	R123b	48		Y
B	R201a	48		Y
	R204f	49		Y
	R205a	47		Y
	R212d	46		Y
	R213a	59		Y
	R213b	59		Y
	R214b	59		Y
	R214c	59		Y
	R215a	59		Y
	R215b	59		Y
	R216b	59		Y
	R216c	59		Y
	R217a	59		Y
	R217b	59		Y
	R218b	59		Y
	R218c	59		Y
	R223c	43		Y

5.4.1.7 The predicted maximum rail noise level (L_{max}) is 81.1dB(A) at R115c. Detailed calculation is shown in **Appendix 5.7**. Results indicate that the predicted L_{max} at all representative NSRs would comply the noise criteria of 85dB(A).

Figure 5.5: Location of proposed mitigation measures in Block A

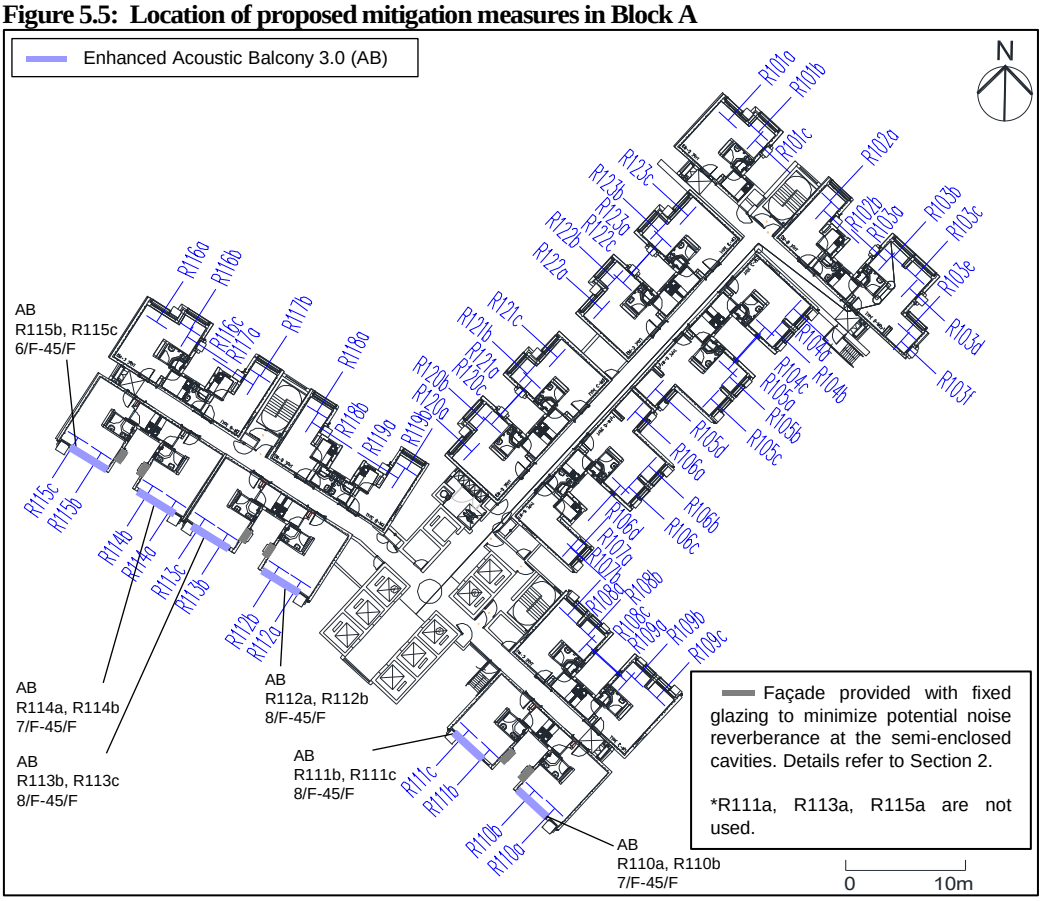
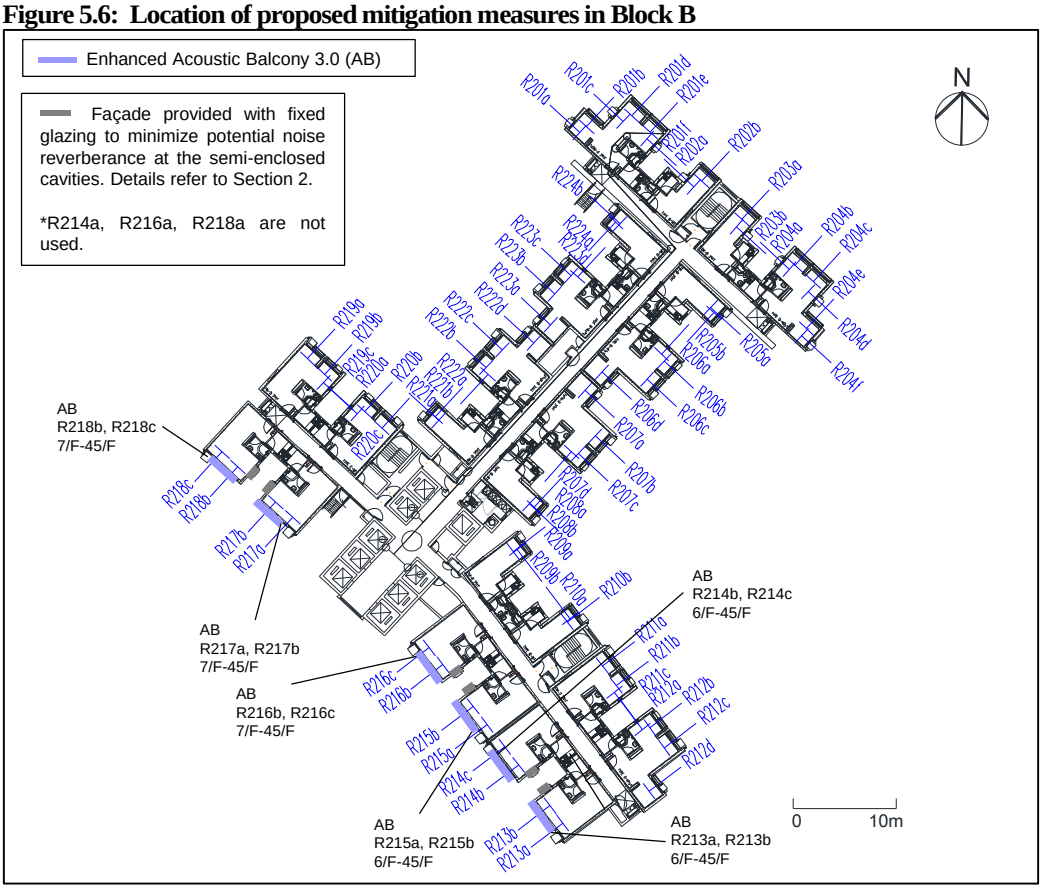


Figure 5.6: Location of proposed mitigation measures in Block B



5.5 Summary of Road Traffic and Rail Noise Assessment Results

5.5.1.1 A summary of combined mitigation measures recommended in the current scheme to mitigate the road traffic and rail noise impacts is given below and illustrated in **Table 5.7 to Table 5.9**, and **Figure 5.7 to Figure 5.8**:

- Provision of acoustic window at the affected flats facing Po Shek Wu Road in Block A and Block B (see **Table 5.7**);
- Provision of EAB3.0 at the affected flats facing San Wan Road and rail track in Block A and Block B (see **Table 5.8**); and
- Provision of fixed glazing at side windows of the affected flats in Block A and Block B (see **Table 5.9**).

Table 5.7: Locations of proposed acoustic windows

Acoustic Window at NSR	Floor Requiring Acoustic Window	Type of Flat	Ref. Modular Flat Type	Acoustic Window Configurations			With / Without Absorption (W / WO)
				Gap Width, mm	Inner/Outer Window Width, mm	Overlapping Length, mm	
R101a	4/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R101b	4/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R102a	4/F – 45/F	B	B-M2	115	895/945	200	WO
R103b	4/F – 45/F	D	D-M2 (BR1)	115	660/633	607	WO
R103c	4/F – 45/F	D	D-M2 (LR)	115	915/985	100	WO
R116a	4/F – 11/F	C	C-M3 (LR)	115	985/1125	330	W
R116a	12/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R116b	4/F – 11/F	C	C-M3 (BR)	115	660/633	607	W
R116b	12/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R117b	4/F – 45/F	B	B-M2	115	895/945	200	WO
R118a	4/F – 45/F	B	B-M2	115	895/945	200	WO
R119b	4/F – 45/F	B	B-M2	115	895/945	200	WO
R120a	4/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R120b	4/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R121b	4/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R121c	4/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R122a	4/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R122b	4/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R123b	4/F – 45/F	C	C-M3 (BR)	115	660/633	607	WO
R123c	4/F – 45/F	C	C-M3 (LR)	115	985/1125	330	WO
R201b	7/F – 28/F	D	D-M2 (BR2)	115	545/545	680	WO
R201d	5/F – 45/F	D	D-M2 (LR)	115	915/985	100	WO
R201e	5/F – 45/F	D	D-M2 (BR1)	115	660/633	607	WO
R202b	6/F – 45/F	B	B-M2	115	895/945	200	WO
R203a	8/F – 45/F	B	B-M2	115	895/945	200	WO
R204b	9/F – 45/F	D	D-M2 (BR1)	115	660/633	607	WO
R204c	9/F – 45/F	D	D-M2 (LR)	115	915/985	100	WO

Table 5.8: Locations of proposed EAB 3.0

Enhanced Acoustic Balcony at NSR	Floor Requiring Acoustic Balcony	Type of Flat	Enhanced Acoustic Balcony Type "C" (3/4P)		
			Floor with Type C-1/C1 [1]	Floor with Type C-1/C2 [2]	Floor with Type C-1/C4 [3]
R110a	6/F – 45/F	C	6/F	7/F – 45/F	–
R110b					
R111b	5/F – 45/F		5/F – 7/F	8/F – 45/F	–
R111c					
R112a	4/F – 45/F		4/F, 6/F – 7/F	5/F, 8/F – 45/F	–
R112b					
R113b	4/F – 45/F		–	4/F – 45/F	–
R113c					
R114a	4/F – 45/F		–	4/F – 45/F	–
R114b					
R115b	4/F – 45/F		–	17/F – 45/F	4/F – 16/F
R115c					
R213a	6/F – 45/F		–	6/F – 45/F	–
R213b					
R214b	6/F – 45/F		–	6/F – 45/F	–
R214c					
R215a					

Enhanced Acoustic Balcony at NSR	Floor Requiring Acoustic Balcony	Type of Flat	Enhanced Acoustic Balcony Type "C" (3/4P)		
			Floor with Type C-1/C1 [1]	Floor with Type C-1/C2 [2]	Floor with Type C-1/C4 [3]
R215b	6/F – 45/F		–	6/F – 45/F	–
R216b	7/F – 45/F		–	7/F – 45/F	–
R216c					
R217a	7/F – 45/F		–	7/F – 45/F	–
R217b					
R218b	7/F – 45/F		–	7/F – 45/F	–
R218c					

Note:
[1] Enhanced acosutic balcony with basic shell.
[2] Enhanced acosutic balcony with acoustic lining.
[3] Enhanced acosutic balcony with acoustic lining and projected inclined solid panel.

Table 5.9: Location of proposed fixed glazing

Fixed glazing at NSR	Floor Requiring Fixed glazing
R101c	4/F – 45/F
R102b	4/F – 45/F
R103a	4/F – 45/F
R103d	4/F – 45/F
R116c	4/F – 45/F
R117a	4/F – 45/F
R118b	4/F – 45/F
R119a	4/F – 45/F
R120c	4/F – 45/F
R121a	4/F – 45/F
R122c	4/F – 45/F
R123a	4/F – 45/F
R201a	7/F – 28/F
R201c	5/F – 45/F
R201f	5/F – 45/F
R202a	6/F – 45/F
R203b	8/F – 45/F
R204a	9/F – 45/F
R204d	9/F – 45/F

Figure 5.7: Location of proposed mitigation measures for road traffic and rail noise in Block A

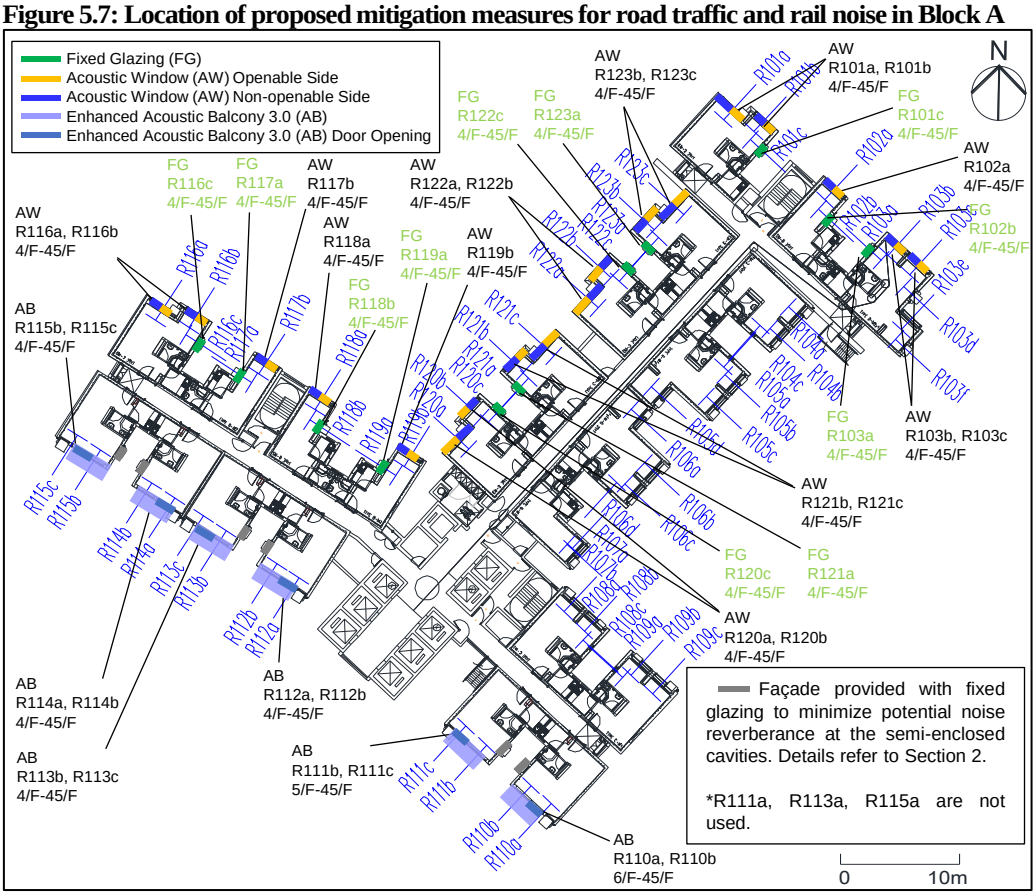
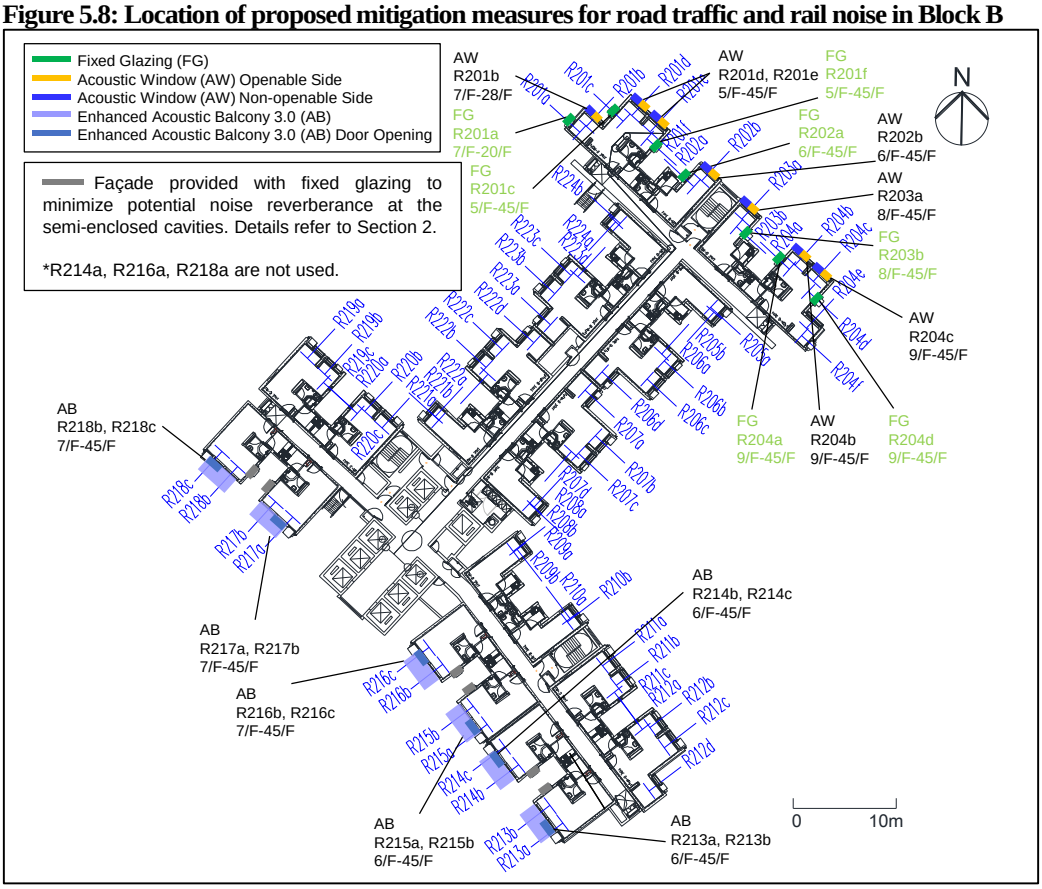


Figure 5.8: Location of proposed mitigation measures for road traffic and rail noise in Block B



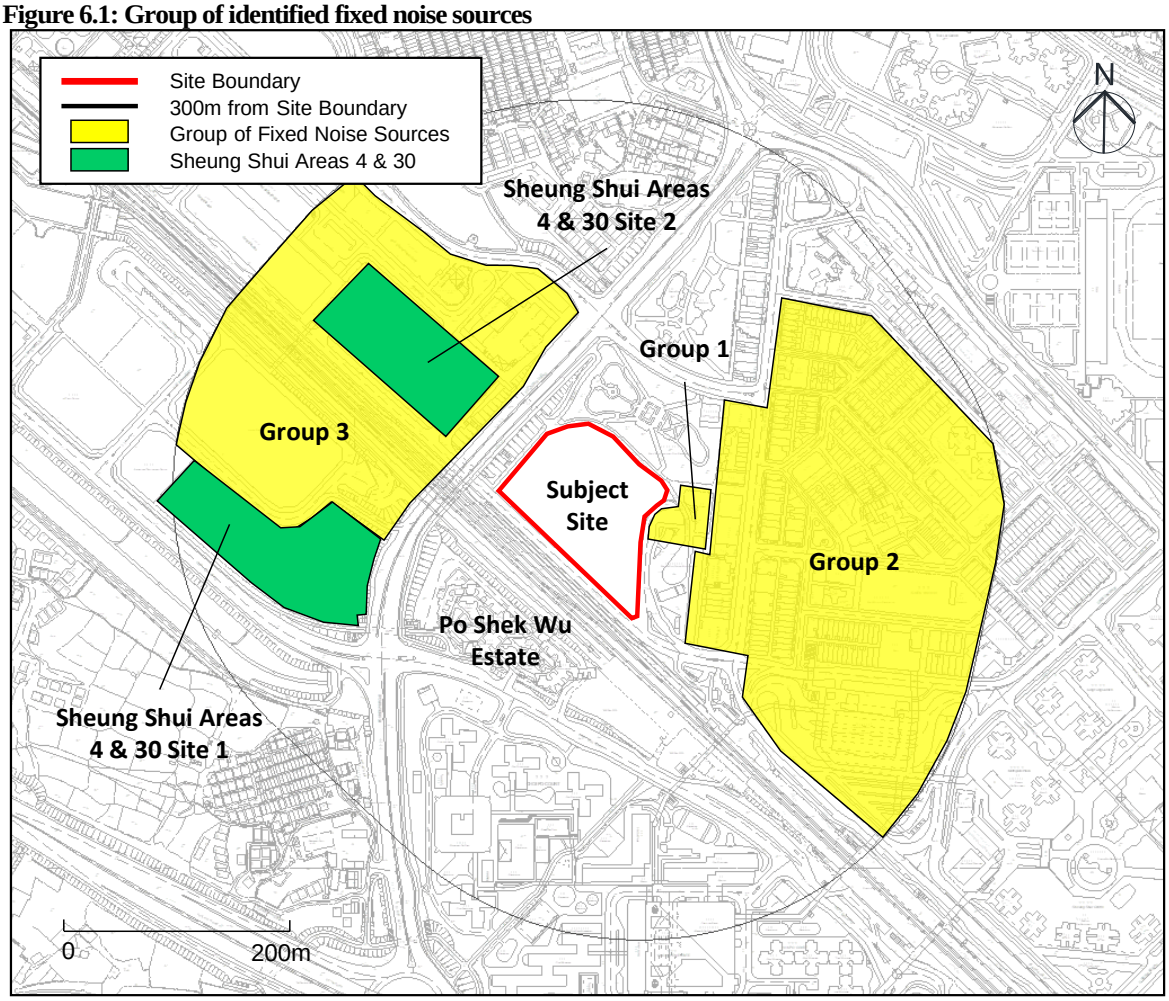
6 Fixed Noise Sources Impact Assessment

6.1 Identification of Fixed Noise Sources

6.1.1.1

Site visits have identified a number of fixed noise sources within 300m from the boundary of the subject site. **Figure 6.1** indicates the locations of the identified fixed noise sources. They are grouped and described based on their geographical locations. The first group of noise sources (Group 1) is the Shek Wu Hui Agricultural Produce Bazaar located adjacent to east of the site. By site observation, potential noise sources at the bazaar are mainly the loading and unloading activities, pumps on fish transportation vehicles and street washing vehicle. According to the notice posted by Food and Environmental Hygiene Department, the bazaar is open daily from 06:00 to 11:00 in the morning. The market is closed after 11:00 and cleansing works are then carried out using a street washing vehicle until approximately 12:00. The second group of noise sources (Group 2) includes fixed plants on the roof/podium of commercial buildings scattered at Shek Wu Hui. There are also some fixed plants and louvers found at the back lanes. The third group (Group 3) is the sources within the industrial area to the west of the site which include fixed plants on the roof/podium of the industrial buildings and louvers at their ground levels.

Figure 6.1: Group of identified fixed noise sources



6.1.1.2 **Appendix 6.1** summarises the major noise sources based on site observation, together with the photographs taken on site.

6.2 Fixed Noise Criteria

6.2.1.1 According to Section 4.2.13 in Chapter 9 of the HKPSG, noise assessments for fixed noise sources would normally be conducted in accordance with the Technical Memorandum for the Assessment of Noise from Places Other Than Domestic Premises, Public Places or Construction Sites (IND-TM) under the Noise Control Ordinance. The IND-TM lays down statutory Acceptable Noise Levels (ANL). The HKPSG also states that in order to plan for a better environment, all planned fixed noise sources should be so located and designed that when assessed in accordance with the TM, the level of the intruding noise at the facade of the nearest sensitive use should be at least 5 dB(A) below the appropriate ANL shown in Table 3 of the IND-TM or, in the case of the prevailing background being 5 dB(A) lower than the ANL, should not be higher than the prevailing background.

6.2.1.2 The proposed ASRs and respective ANLs for the development are described in **Section 5.1** above. An ASR of "C" shall be applied to facades directly affected by Po Shek Wu Road and an ASR of "B" shall be applied to the other facades. The ANL for ASR of "C" should be 70dB(A) and 60dB(A) for daytime & evening time and night-time respectively, while the ANL for ASR of "B" should be 65dB(A) and 55dB(A) for daytime & evening time and night-time respectively. There is no planned fixed noise source and hence the criteria of ANL-5dB(A) are not applicable to this site.

6.3 Assessment Methodology

6.3.1.1 Noise measurements had been conducted to establish the Sound Pressure Level (SPL) of the identified industrial noise sources. Measurements were taken at locations where influences from other noisy activities such as road traffic were as minimal as possible.

6.3.1.2 Where possible, enquires were directly made to premises' owners/employee to obtain the information on operation for each identified fixed plant as far as practicable. Operational details for the noise sources are given in **Appendix 6.1**.

6.3.1.3 Noise measurements for the identified noise sources were conducted between November and December 2015, August and October 2016, April 2017, August 2018, December 2021, January 2022 and August 2022. During the measurement, some premises were not in operation or site access was not allowed. Reference has therefore been made to other plant of similar mode, nature and scale from other HKHA's projects. **Appendix 6.2** presents all the measured SPLs at reference distance for all the noise sources.

6.3.1.4 The tonal, impulsive and intermittent characteristics of the identified noise sources were investigated and considered in accordance with IND-TM. No impulsive and intermittent character has been identified for all noise sources and therefore no correction for impulsiveness or intermittency has been applied. Tonal character has been identified due to the operation of the street washing vehicle at the bazaar and a +6dB(A) correction has therefore been applied to respective noise source (BZ001c) (**Appendix 6.3**). No tonal character has been identified for other sources, therefore no correction has been applied.

6.3.1.5 Based on the measured SPLs at reference distance for all the fixed noise sources, fixed noise levels are predicted at selected representative NSRs using standard acoustic principles. The assessment has taken into account the distance attenuation, screening effect and facade effect etc. where appropriate. A summary of the corrections and assumptions adopted in the calculation are presented in **Appendix 6.3**.

6.3.1.6 Representative NSRs at 4/F, 14/F, 24/F and 44/F of the residential blocks are selected for the assessment. The locations of the selected representative NSRs are shown in **Figure 6.2**.

Figure 6.2: Selected representative assessment points for residential blocks (fixed noise impact assessment)

6.4 Predicted Fixed Noise Impact for Residential Blocks

6.4.1.1 The predicted fixed noise levels at selected representative NSRs are summarized in **Table 6.1**. Detailed calculations are given in **Appendix 6.4**. Results indicate that the southeastern and northeastern facades of Block B (i.e. NSRs R204c, R204e, R206b and R212c) facing the bazaar will exceed the noise criterion during daytime when the street washing vehicle is in use. Other representative NSRs are predicted to be in compliance with the ANL during both daytime & evening time, and night time.

Table 6.1: Predicted fixed noise assessment results for residential blocks

NSRs ID	Predicted Noise Level, dB(A)		ASRs	ANL, dB(A)		Comply with ANL (Y/N)	
	Daytime & Evening	Night-time		Daytime & Evening	Night-time	Daytime & Evening	Night-time
R101b	63	45	C	70	60	Y	Y
R115c	59	36				Y	Y
R116a	58	36				Y	Y
R204c	70	52	B	65	55	N	Y
R204e	70	53				N	Y
R206b	68	50				N	Y
R212c	67	52				N	Y
R213a	55	49				Y	Y

Note:
[1] Only the predicted noise levels for the worst floor are presented.

6.5 Noise Mitigation Measures for Residential Blocks

6.5.1.1 As discussed in **Section 6.1**, the street washing vehicle at the Shek Wu Hui Agricultural Produce Bazaar (BZ001c) operates at 11am to 12pm every day. Considering that the street washing activities are daily event that would last for around 0.5 -1 hour for each operation and are undertaken at a designated location at the nearest 35m from proposed housing development, provision of a movable noise barrier to screen the noisy part of the pump for the water tank on the vehicle during the street washing activity is considered as the most practicable measures.

6.5.1.2 A 2.5m high movable barrier with surface density of at least 10kg/m^2 is recommended to achieve a noise attenuation of at least 5dB(A). With installation of the movable barrier, all representative NSRs could comply with the ANL. Hence, no adverse fixed noise impact on the proposed housing site is anticipated. The predicted fixed noise levels at the selected representative NSRs are summarized in **Table 6.2**. Detailed calculations with schematic section drawings of the movable barrier are given in **Appendix 6.5**.

Table 6.2: Predicted fixed noise assessment results for residential blocks – With provision of movable noise barrier

NSRs ID	Predicted Noise Level, dB(A)		ASRs	ANL, dB(A)		Comply with ANL (Y/N)	
	Daytime & Evening	Night-time		Daytime & Evening	Night-time	Daytime & Evening	Night-time
R101b	60	45	C	70	60	Y	Y
R115c	59	36				Y	Y
R116a	58	36				Y	Y
R204c	65	52	B	65	55	Y	Y
R204e	65	53				Y	Y
R206b	63	50				Y	Y
R212c	62	52				Y	Y
R213a	55	49				Y	Y

Note:
[1] Only the predicted noise levels for the worst floor are presented.

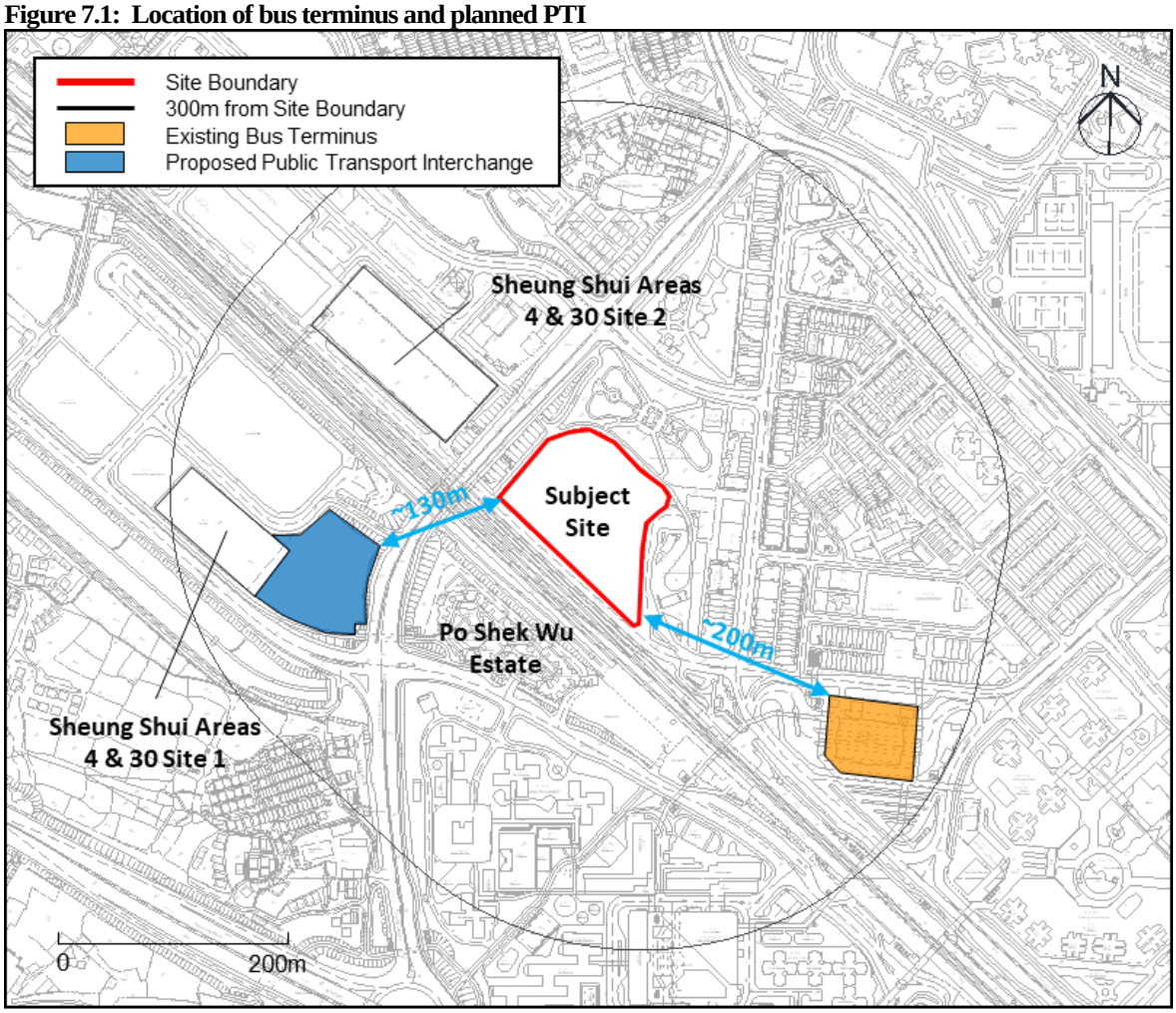
6.5.1.3 HKHA has committed to liaise with FEHD on the deployment of the proposed movable barrier to screen the street washing vehicle during its operation or use of other alternative measures such as replacement by a quieter vehicle to ensure it could comply with the ANL.

7 Review of Potential Noise Impact Arising from the Existing Bus Terminus and Proposed Public Transport Interchange

7.1 Location of Existing Bus Terminus and Planned PTI

7.1.1.1 A bus terminus is currently located at about 200m to the southeast of the subject site. A PTI is planned within Site 1 of Sheung Shui Areas 4 & 30, at about 130m to the southwest of the subject site. Location of the bus terminus and planned PTI are shown in **Figure 7.1** below.

Figure 7.1: Location of bus terminus and planned PTI



7.2 Existing Bus Terminus

7.2.1.1 There are a number of existing noise sensitive receivers located in much closer proximity to the bus terminus than the development site, including Metropolis Plaza, Lung Fung Garden, Sheung Shui Alliance Primary School and residential buildings along Lung Sum Avenue. The bus terminus is completely decked under the podium of Landmark North as shown in **Photo 1 to Photo 4**, such that there is no direct line of sight to these nearby noise sensitive uses.

7.2.1.2 Besides, the East Rail is running along San Wan Road to the south of the subject site and next to the bus terminus. The existing noise climate is dominated by rail and traffic noise. Based on site inspection, noise generated from the bus terminus was not noticeable.

7.2.1.3 In consideration of the decking over design, large separation distance and predominant noise climate by rail and road traffic, potential noise impact arising from the bus terminus on the subject development site is therefore not anticipated.

Photo 1: Bus Terminus decked under Landmark North	**Photo 2:** South facade of Landmark North G/F
	
Photo 3: Lung Sum Avenue and north facade of Landmark North	**Photo 4:** Exit of Bus Terminus (west facade of Landmark North)
	

7.3 Proposed Public Transport Interchange (PTI)

7.3.1.1 Existing noise climate is dominated by road traffic noise from Po Shek Wu Road. It is expected that the noise generated from the PTI will not be noticeable in view of the large separation distance to the subject site.

7.3.1.2 The design of the proposed PTI has been addressed in separate EAS for Sheung Shui Areas 4 & 30. According to the latest design, the proposed ingress/egress of PTI will be connecting to Choi Fai Street, which is facing away from the subject site. As advised by HKHA, the proposed PTI will also be designed with due consideration to the HKPSG. The PTI will be covered under a podium decking with full height side walls to avoid line of sights to the planned and existing noise sensitive uses in the proximity including the subject development as far as practicable. In case there are any opening or exhaust on the side walls of the PTI,

louvers and silencers will be provided if necessary to ensure the noise level at nearby NSRs including the subject development in compliance with the relevant noise standards.

7.3.1.3 Besides, absorptive lining will be provided on ceiling and interior walls of the PTI as far as practicable to minimise the reverberance. The design of PTI will meet the requirements of the Technical Schedule of Public Transport Interchange to be conducted in detailed design stage. Therefore, potential noise nuisance arising from the planned PTI on the subject site is not anticipated.

8 Review of Potential Air Quality Impact

8.1 Vehicular Emissions

8.1.1.1 Hong Kong Planning Standards and Guidelines (HKPSG) provides environmental guidance for residential developments on air quality. The guidelines recommend the minimum buffer distance required for active and passive recreational uses.

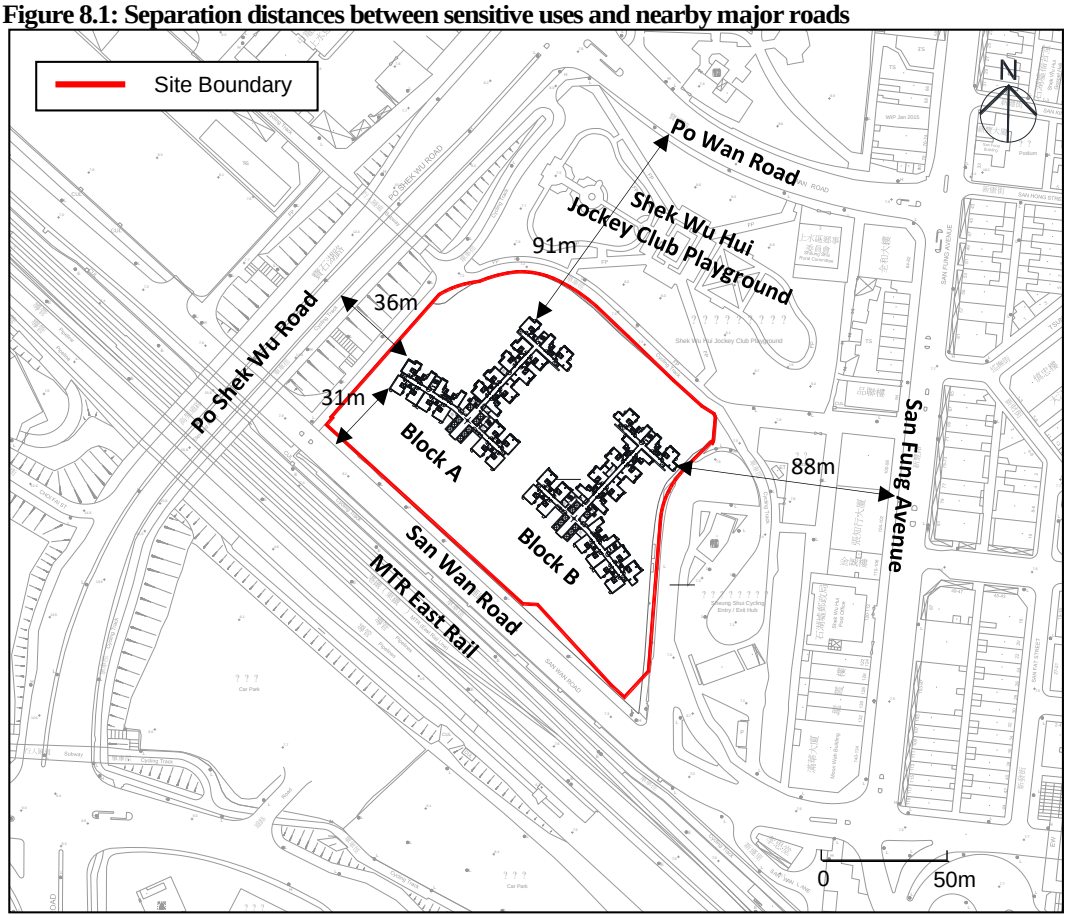
8.1.1.2 The buffer distances between the sensitive uses of the current development scheme and the surrounding major roads are summarised in **Table 8.1** and illustrated in **Figure 8.1** below.

Table 8.1: Separation distances between sensitive uses and nearby major roads

Name of Road	Type of Road[1]	HKPSG Recommended Buffer Distance for Active and Passive Recreational Use	Shortest Horizontal Distance from the Residential Block to Road Kerb
Po Shek Wu Road	PD	>20m	36m
San Wan Road	DD	>10m	31m
San Fung Avenue	DD	>10m	88m
Po Wan Road	DD	>10m	91m

Note:
[1] In accordance with AADT 2022: PD – Primary Distributor Road; DD – District Distributor Road.

Figure 8.1: Separation distances between sensitive uses and nearby major roads



8.1.1.3 It can be found that the current scheme can satisfy the setback distance requirements as stipulated in HKPSG. There are no sensitive active and passive uses located within the minimum buffer zone. Adverse vehicular emission impacts on the proposed development are therefore not anticipated.

8.2 Chimney Emissions

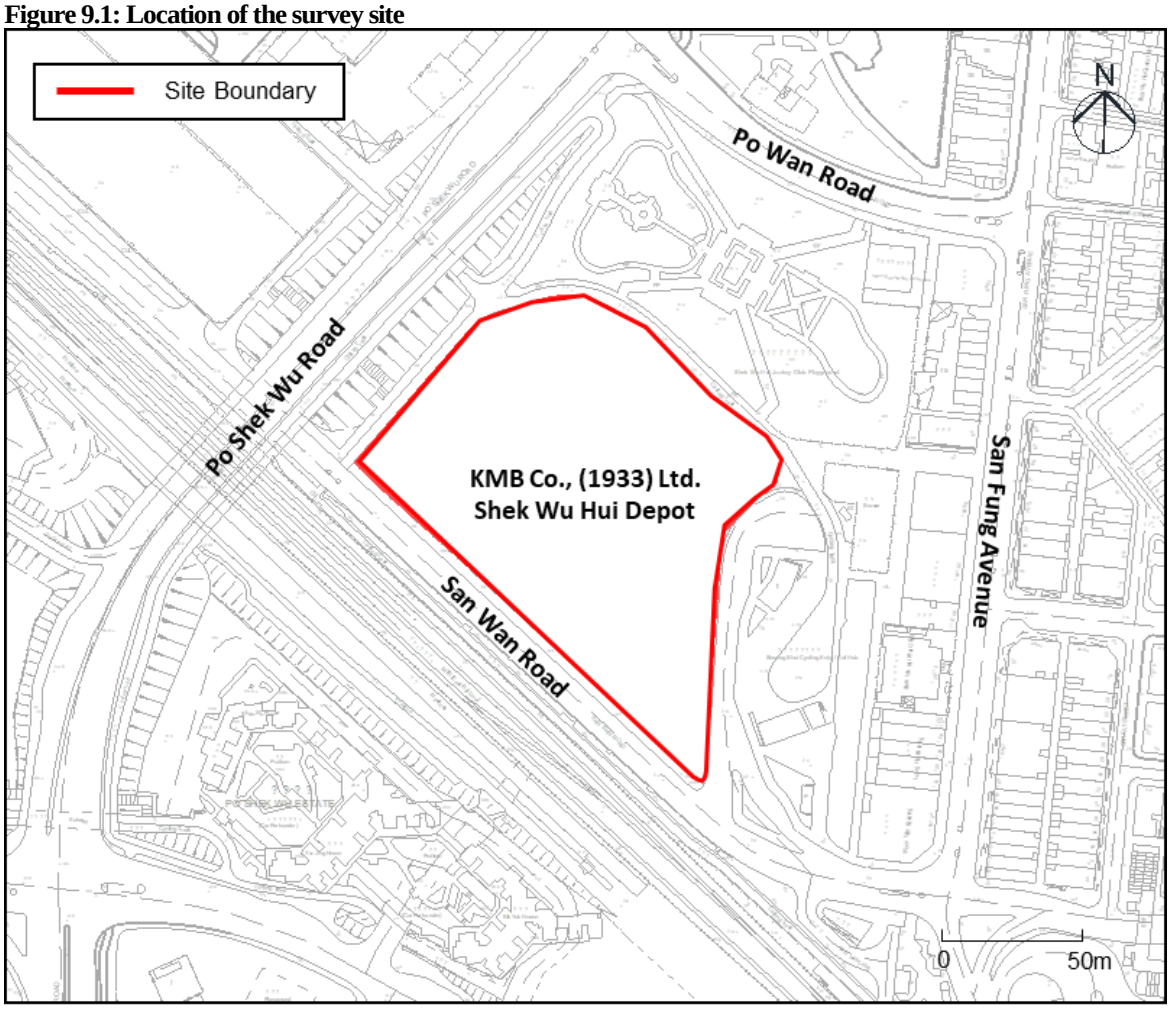
8.2.1.1 No existing and/or planned chimney is identified within 500m of the subject site. Hence, no adverse air quality due to chimney is anticipated.

9 Land Contamination

9.1 Site Description

9.1.1.1 As described in **Section 2.1**, the subject site is bounded by Shek Wu Hui Jockey Club Playground to the north, Po Shek Wu Road to the west and San Wan Road to the south. The areas to the east of the site is Shek Wu Hui which mainly consist of residential and commercial buildings. The site is currently occupied by Kowloon Bus Co. Ltd. (KMB) as a bus depot. The site location is indicated in **Figure 9.1**.

Figure 9.1: Location of the survey site



9.2 Statutory Legislation and Evaluation Criteria

9.2.1.1 Land contamination assessment is conducted in accordance with the following Technical Memorandum and Guidance Notes:

- Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management, EPD, 2007;
- Guidance Note for Contaminated Land Assessment and Remediation, Environmental Protection Department (EPD), 2007; and

- Practice Guide for Investigation and Remediation of Contaminated Land, EPD, 2011.

9.2.1.2 The EPD's *Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management* introduces the background of RBRGs and provides guidelines for comparison of soil and groundwater data to RBRGs. The RBRGs have been designed to protect the health of people who could potentially be exposed to land contaminated by chemicals. They are intended to be used as site assessment criteria that will be appropriate on a stand-alone basis for the majority of sites in Hong Kong, where human health is the only significant receptor that needs to be protected.

9.2.1.3 In accordance with EPD's *Guidance Note for Contamination Land Assessment and Remediation*, a contamination assessment evaluation should:

- provide a clear and detailed account of the present land use and the relevant past land history, in relation to possible land contamination;
- identify areas of potential contamination and associated impacts, risks or hazards; and
- submit a plan to evaluate the actual contamination conditions for soil and/or groundwater, if required.

9.2.1.4 The EPD's *Practice Guide for Investigation and Remediation of Contaminated Land* outlines the process for conducting land contamination assessment and remediation in Hong Kong. It sets out the requirements for:

- planning and implementation of the contaminated land investigation;
- interpretation of the investigation results using the RBRGs;
- reporting the contaminated land assessment;
- planning and implementation of remediation actions; and
- reporting the remediation works.

9.3 Review of Aerial Photographs and Historical Landuse

9.3.1.1 A total of six historical aerial photographs taken from 1973 to 2022 have been reviewed and the key findings are summarized below. The historical aerial photographs are shown in **Appendix 9.1**.

Table 9.1: Summary of historical land use within the site

Year	Site Description
1973	The site mainly comprised village houses at the northern half and agricultural land and vacant land at the south.
1982	Village houses and agricultural lands were removed. The northwestern half of the site was left vacant and the southeastern part was observed to be a formed land with a few containers / temporary structures scattered on it.
1993	The vacant part was observed to be covered by grass and scattered trees. The formed land at the southeast was occupied as a bus depot.
2000	The bus depot area extended to cover the whole site.

Year	Site Description
2015	The bus depot remained unchanged.
2022	The bus depot remained unchanged.

9.4 Information from Government Authorities

9.4.1 Information from Environmental Protection Department (EPD)

9.4.1.1 Information request on any Chemical Waste Producer (CWP) registered, and any records of chemical spillage / leakage incidents within the site were made to EPD. Based on the reply from EPD, there was no record of spillage/leakage of chemicals within the concerned site in the past five years. Chemical waste producer record was also reviewed at the EPD's Territory Control Office. It is noted that KMB at the site is currently registered as a CWP. The correspondence with EPD is attached in **Appendix 9.2**.

9.4.2 Information from Fire Services Department (FSD)

9.4.2.1 Information request on any Dangerous Goods (DG) license registered, and any records of DG spillage / leakage incidents within the site were made to FSD. Based on the reply from FSD, there is one DG license record for storage of diesel oils at the site, but no leakage incidents were found associated with the site. The correspondence with FSD is attached in **Appendix 9.3**.

9.5 Site Visit

9.5.1.1 The site is still being occupied by KMB. Detailed site appraisal which requires KMB's permission for access would be conducted at a later stage. Nonetheless, site visit along the periphery of the site was conducted on 12 September 2016, 2 August 2018 and 29 August 2022 and the site condition was recorded. It was observed that the site was generally divided into northwestern and southeastern portions. The northwest portion was mainly used for bus parking, while car washing and maintenance activities were suspected to occur inside the sheltered area and building structure in the southeast portion of the site. **Figure 9.2** illustrates the general site condition in Year 2018 and Year 2022. The site condition was generally the same in recent years.

Figure 9.2: Condition of the subject site

Photo taken in Year 2022

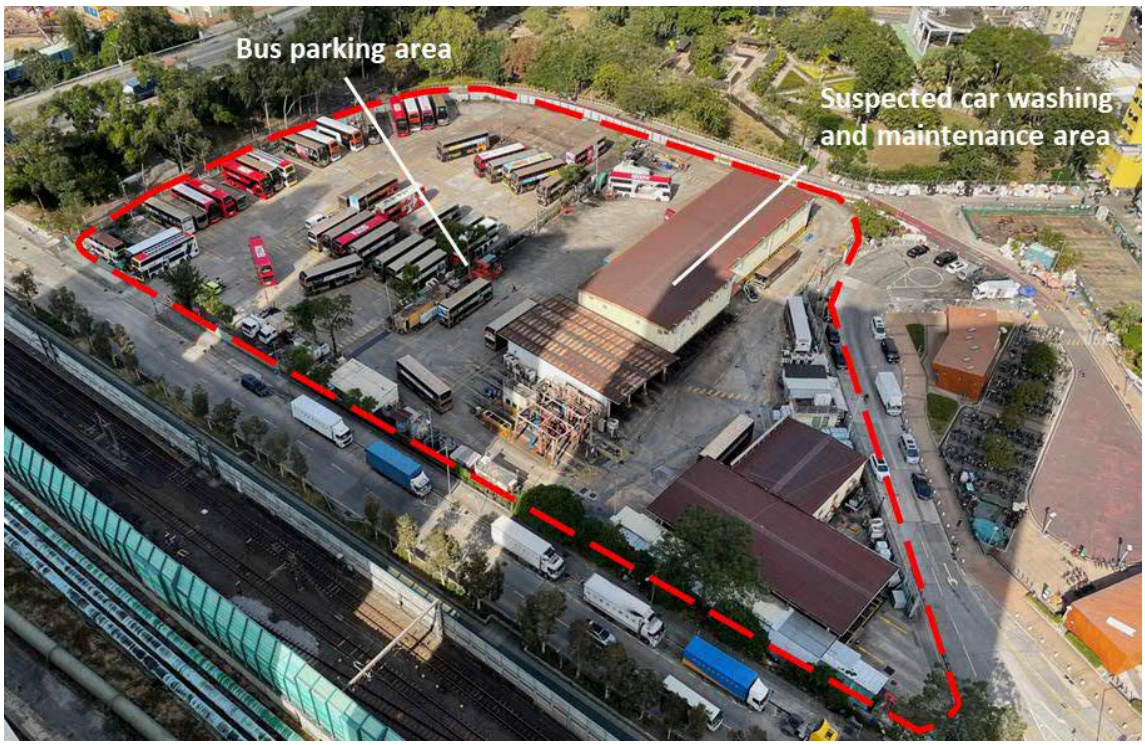


Photo taken in 2018

9.6 Site Appraisal

9.6.1.1 Based on desktop research and review of historical photographs, it is found that the site was used to be of rural land use including village houses and agricultural land in the 1970s. As

observed from the aerial photograph of Year 1982, the rural communities were removed and the site was left vacant in the northwestern part while a land was formed in the southwestern part. The formed land in the southwestern part was occupied by KMB bus depot in 1993. In the aerial photograph of Year 2000, the northwestern portion of the site was also occupied by KMB, but mainly for bus parking. Since then, the land use for a bus depot remained unchanged till recent site visit in 2022.

9.6.1.2 Since the site has been used as a bus depot for more than 20 years where potential contamination activities such as car washing and maintenance works may have occurred, potential land contamination within the site is anticipated.

9.7 Recommendation

9.7.1.1 Based on the findings of the preliminary site appraisal, it is considered that the site may have potential land contamination issue due to the historical and on-going operation of KMB bus depot. Currently, the site is on lease from Lands Department (LandsD) to KMB. HKHA has confirmed that detailed land contamination assessment is being carried out by CEDD in accordance with the EPD's Practice Guide for Investigation and Remediation of Contaminated Land and any necessary remediation works will be implemented. Therefore, potential health risk associated with the potentially contaminated land to future public housing residents of the site is not anticipated.

10 Conclusion

10.1.1.1 An EAS has been conducted for the proposed housing development at Sheung Shui Po Shek Wu Road.

10.1.1.2 During the process of designing the development layout, due consideration has been given to avoiding noise impacts from road traffic and the East Rail. Acoustic window, EAB3.0 and fixed glazing are recommended. With the provision of these mitigation measures, adverse road traffic noise and rail noise impacts on the proposed development are not anticipated.

10.1.1.3 Various fixed noise sources are identified on the rooftop, podium and ground levels of industrial and commercial buildings, and at the bazaar adjacent to the site. Fixed noise impact assessments indicate that the southeastern and northeastern facades of Block B facing the bazaar will exceed the noise criterion during daytime when the street washing vehicle is in use. A 2.5m high movable barrier to screen the pump for the water tank on the vehicle during the street washing activity is recommended. With installation of the movable barrier, no adverse fixed noise impact on the proposed housing site is anticipated.

10.1.1.4 In consideration of the decking over design, large separation distance and predominant noise climate, it is anticipated that there is no adverse potential noise nuisance arising from the existing bus terminus and the planned PTI on the subject development. The proposed PTI at Sheung Shui Areas 4 & 30 will also be designed with due consideration to the HKPSG to avoid direct line of sight to the subject development. Potential noise nuisance arising from the planned PTI is not anticipated.

10.1.1.5 Kindergarten, management offices and social welfare facilities are planned at G/F, 1/F and 2/F. However, their layouts are still being investigated. Hence, assessments on the kindergarten and social welfare facilities will be supplemented when the layout is confirmed in the next stage.

10.1.1.6 The current scheme has allowed sufficient setback distances from the surrounding roads to meet the minimum requirement for active and passive recreational uses as stipulated in HKPSG and hence potential vehicular emission impact is not anticipated. There is also no chimney found within 500m of the study area. Hence no adverse air quality impact is anticipated.

10.1.1.7 Based on the preliminary site appraisal and desktop study, potential land contamination may occur within the subject site due to the operation of existing bus depot. HKHA has confirmed that detailed land contamination assessment is being carried out by CEDD in accordance with the EPD's Practice Guide for Investigation and Remediation of Contaminated Land and any necessary remediation works will be implemented. Therefore, potential land contamination issue to the proposed housing site is not anticipated.

10.1.1.8 It is concluded that with proper building layout, design and mitigation measures, there is no insurmountable environmental impacts on the proposed housing development at Po Shek Wu Road.

Appendix 2.1

Schematic Sections

FLAT MIX	No. of Storeys	Flat Type B	Flat Type C	Flat Type D	No. of Flats
Block A	41	205	574	164	943
Block B	41	328	410	246	984
Total No. of Flats		**533**	**984**	**410**	**1927**
Flat Mix		27.66%	51.06%	21.28%	100%

N

PO SHEK WU ROAD

Subway

Cycling Track

CYCLING TRACK

WATER WORK RESERVE

7m DRAINAGE RESERVE

EVA / DRIVE WAY

EVA

EVA

FP

CYCLING TRACK

Cycling Track

SHEUNG SHUI CYCLING ENTRY / EXIT HUB

BLOCK A
(41 DOMESTIC STOREYS +
1 STOREY REFUGE FLOOR)
(23 FLATS PER FLOOR)

BLOCK B
(41 DOMESTIC STOREYS +
1 STOREY REFUGE FLOOR)
(24 FLATS PER FLOOR)

BD01 BD02 BD03 BD04 BD05 BD06 BD07 BD08 BD09 BD10 BD11 BD12 BD13 BD14 BD15

T092 T119 T120 T121 T122 T123 T124 T125 T126 T127 T128 T129

SAN WAN ROAD

CYCLING TRACK

MTR (EAST RAIL LINE)

ated Road

PROJECT

PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE

SITE LAYOUT PLAN (TYPICAL FLOOR)

(UNMITIGATED OPTION)

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No.

日 期 DATE:

BLOCK A
(41 Domestic storeys + 1 refuge floor)

BLOCK B
(41 Domestic storeys + 1 refuge floor)

+148.115

+148.115

(+149m MAX.)

2.79m

2.75 x 22 = 60.5m

3.5m

2.75 x 18 = 49.5m

2.5m 1.6m

6m

0.25m

140.14m

45/F

40/F

25/F

22/F

REFUGE FLOOR

20/F

15/F

10/F

5/F

4/F +31.825

+31.825

TRANSFER STRUCTURE

TRANSFER STRUCTURE

+27.50

+27.725

+23.00

+23.0

4.5m

4.725m

+18.275

+13.55

+7.30

+7.55

+14.80

FOOTBRIDGE (FB1) CONNECT TO SHEUNG SHUI AREA 4 & 30 SITE 2

SALON

LAUNDROMAT

EDU

GENERAL SHOPS

CARPARK

SUPERMARKET

BICYCLE PARKING

DISTRICT MANAGEMENT OFFICE

CHILD CARE CENTRE

+22.775

FOOTBRIDGE (FB3) TO MTR STATION

Section

1:500 @A3

Appendix 4.1

Proposed road traffic noise mitigation measures at Po Shek Wu Road provided by CEDD

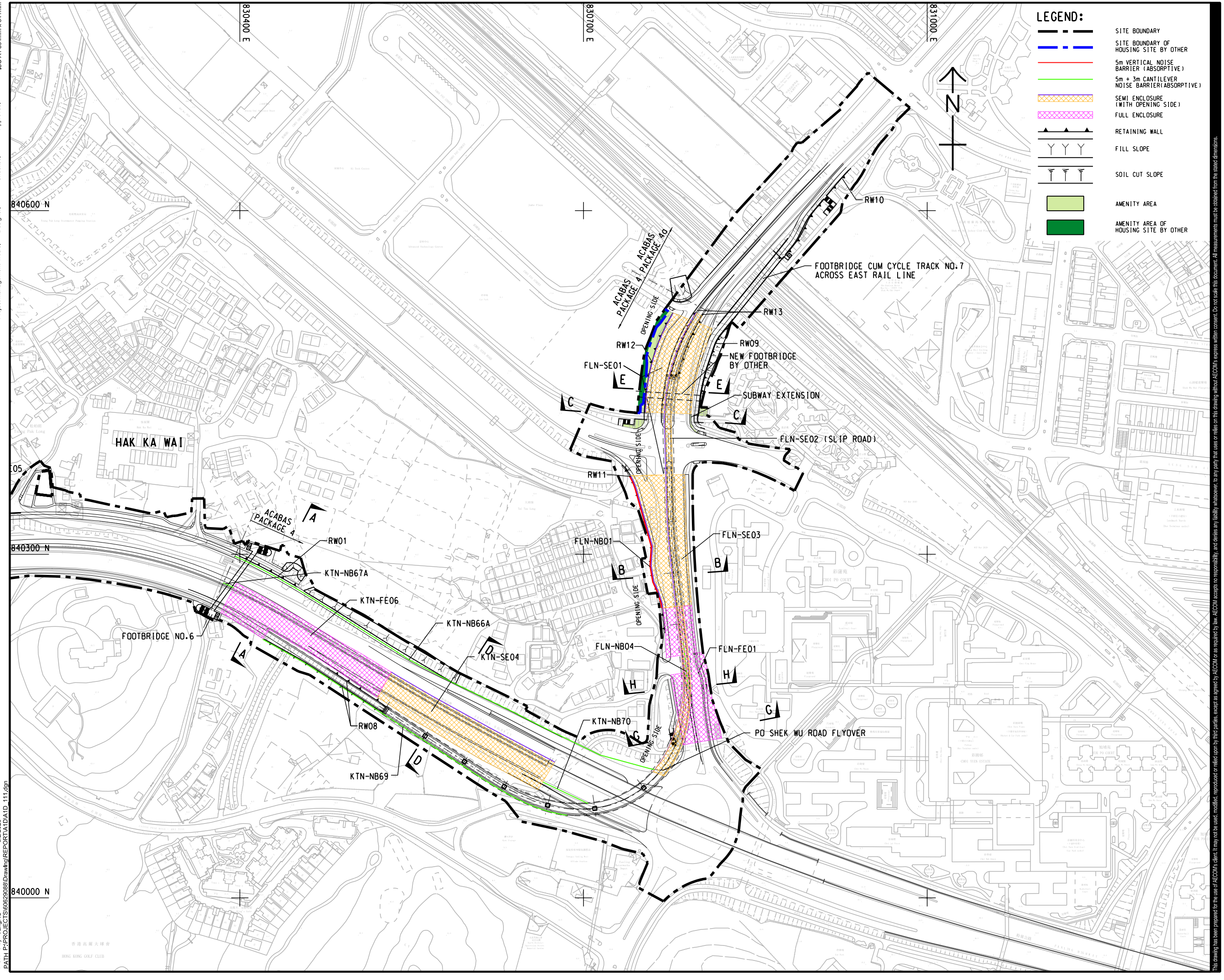
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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6/2/2023

AECOM

PROJECT
項目

IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

CLIENT
業主

土木工程拓展署
Civil Engineering and Development Department

CONSULTANT
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STATUS
階段

SCALE
比例

A1 1 : 1500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60629088

CONTRACT NO.
合約編號

CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

GENERAL ARRANGEMENT - PO SHEK WU ROAD

SHEET NUMBER
圖紙編號

60629088/A1D/111

ISO A1 594mm x 841mm

Approved:

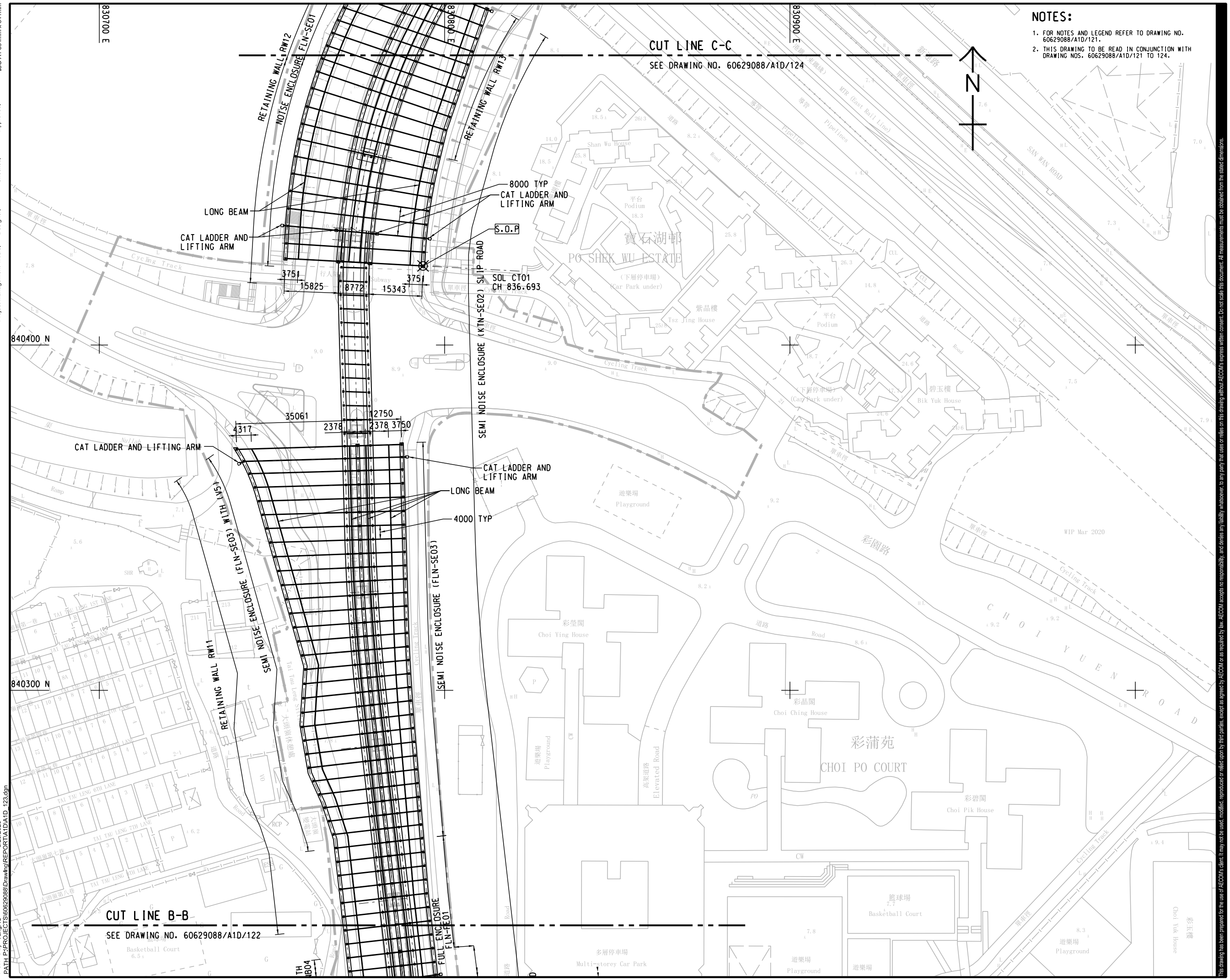
Checked:

Designer:

Project Management Initials:

NOTES:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60629088/A1D/121.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60629088/A1D/121 TO 124.



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5/29/2023

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IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

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STATUS
狀況

SCALE 比例: A1 1 : 500

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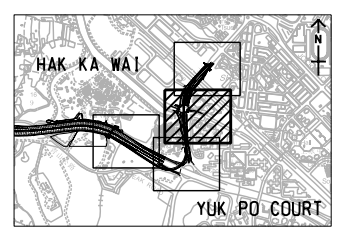
KEY PLAN 索引圖 A1 1 : 20000



PROJECT NO. 項目編號: 60629088

CONTRACT NO. 合約編號: CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

NOISE MITIGATION MEASURES
STRUCTURAL LAYOUT PLAN

SHEET 3 OF 4

SHEET NUMBER
圖紙編號

60629088/A1D/123

ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:

NOTES:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60629088/A1D/121.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60629088/A1D/121 TO 124.

830800 E

830900 E

831000 E

840700 N

840600 N

840500 N

N

CATLADDER AND LIFTING ARM

ACABAS PACKAGE 4

16941

3805

8921

10866

3753

4000 TYP

LONG BEAM

CATLADDER AND LIFTING ARM

LONG BEAM

CUT LINE C-C

SEE DRAWING NO. 60629088/A1D/123

RETAINING WALL RW13

SEMI NOISE ENCLOSURE (KTN-SE02) SLIP ROAD

E ENCLOSURE FLN-SE01

AINING WALL RW12

KA FU CLOSE

North Region Office Sheung Shui Depot

中電北區辦事處 上水運作中心

Ramp

斜路

Cycling Track

PO SHEK WU ROAD

Elevated Road

Pipeline

Skating Rink

Shek Wu Hui Jockey Club Playground

石湖墟賽馬會遊樂場

The Kowloon Motor Bus Co., (1933) Ltd. Shek Wu Hui Depot

九龍巴士（一九三三）有限公司 上水石湖墟廠

Sheung Shui Cycling Entry / Exit Hub

上水單車匯合中心

HAK KA WAI

YUK PO COURT

5/22/2023

Plot File by: qingxizengyao

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PROJECT

IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

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STATUS

SCALE A1 1 : 500

DIMENSION UNIT METRES

KEY PLAN A1 1 : 20000

PROJECT NO. 60629088

CONTRACT NO. CE 20/2019 (HY)

SHEET TITLE

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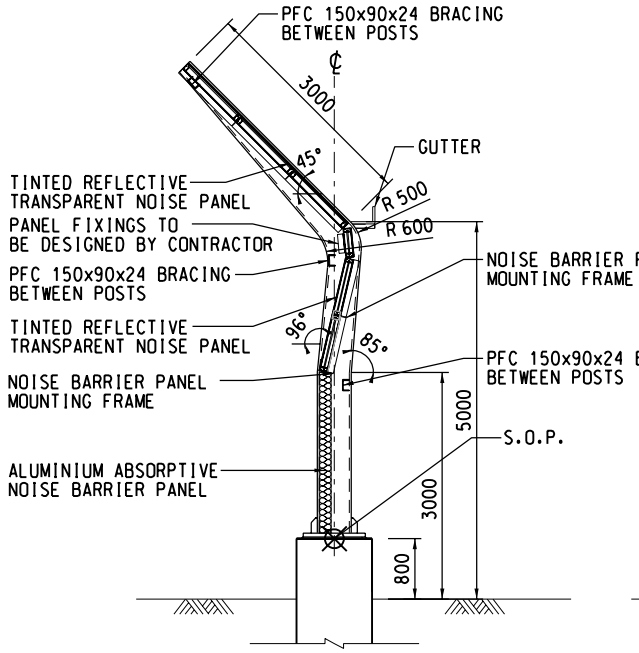
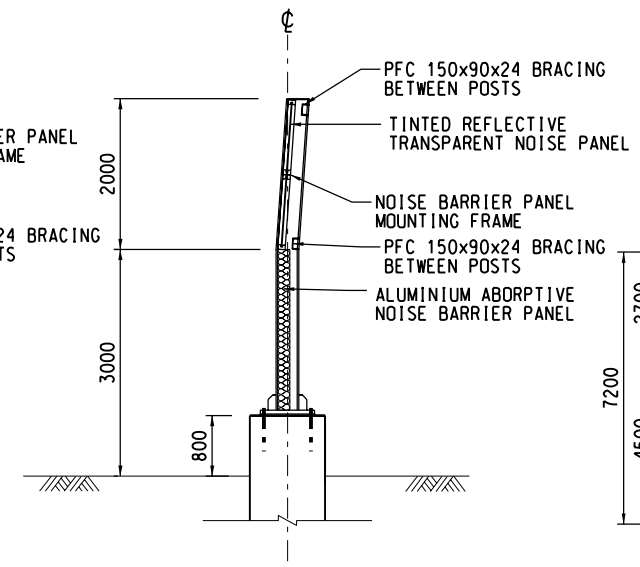
SHEET 4 OF 4

SHEET NUMBER

60629088/A1D/124



NOISE BARRIER TYPE V5+C3
SCALE 1 : 50



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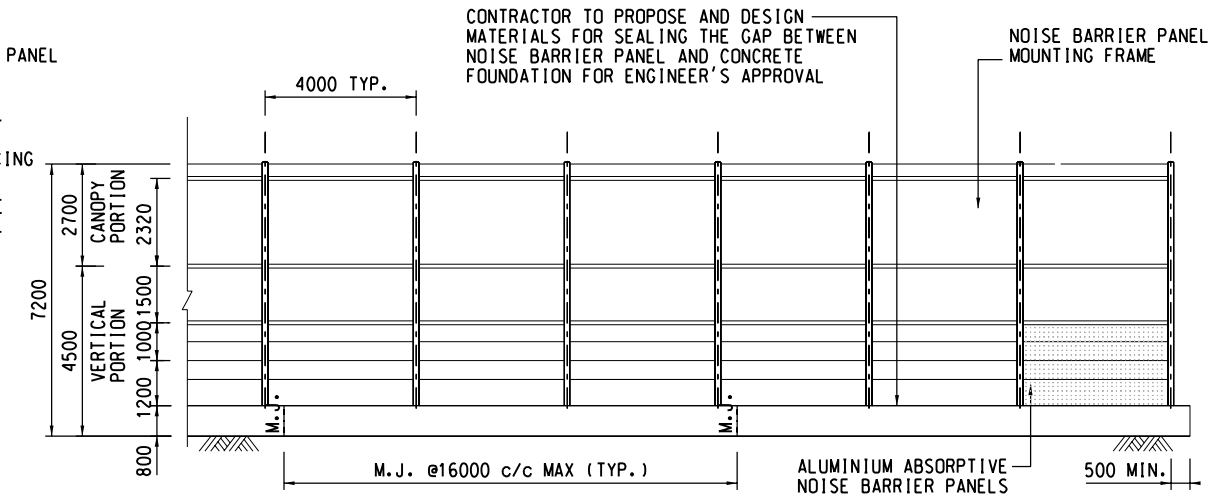
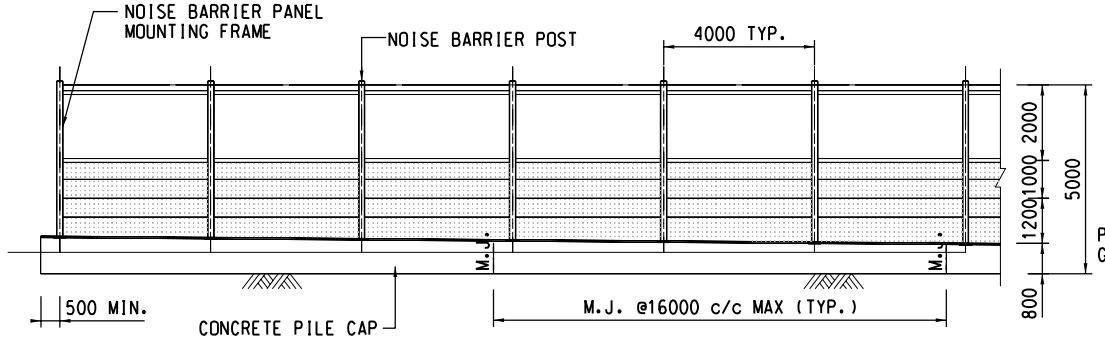
SCALE 1 : 50



ELEVATION FOR NOISE BARRIER TYPE V5+C3
SCALE 1 : 100



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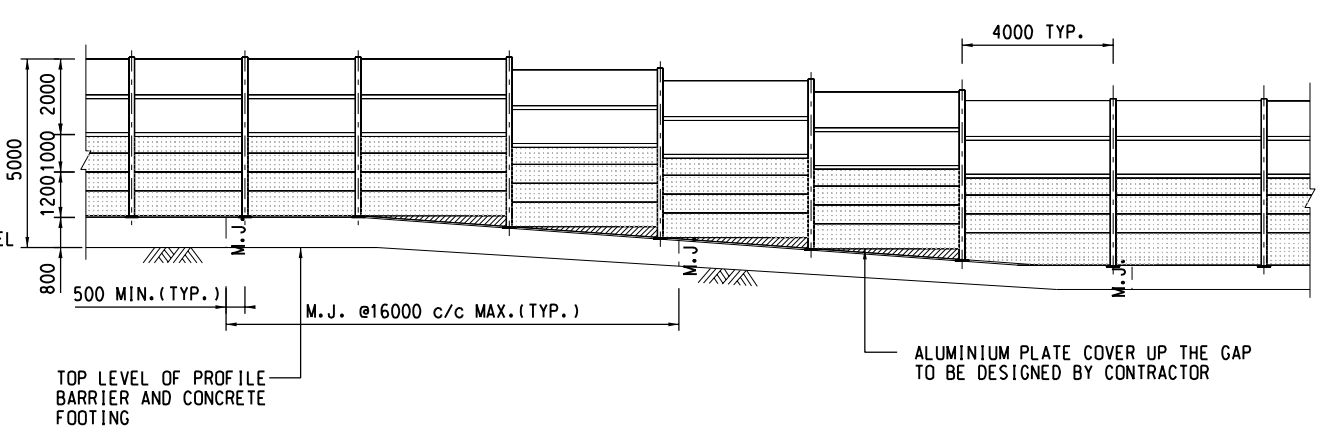

TYPICAL ELEVATION OF NOISE BARRIER TYPE V5 FOR INCLINED GROUND
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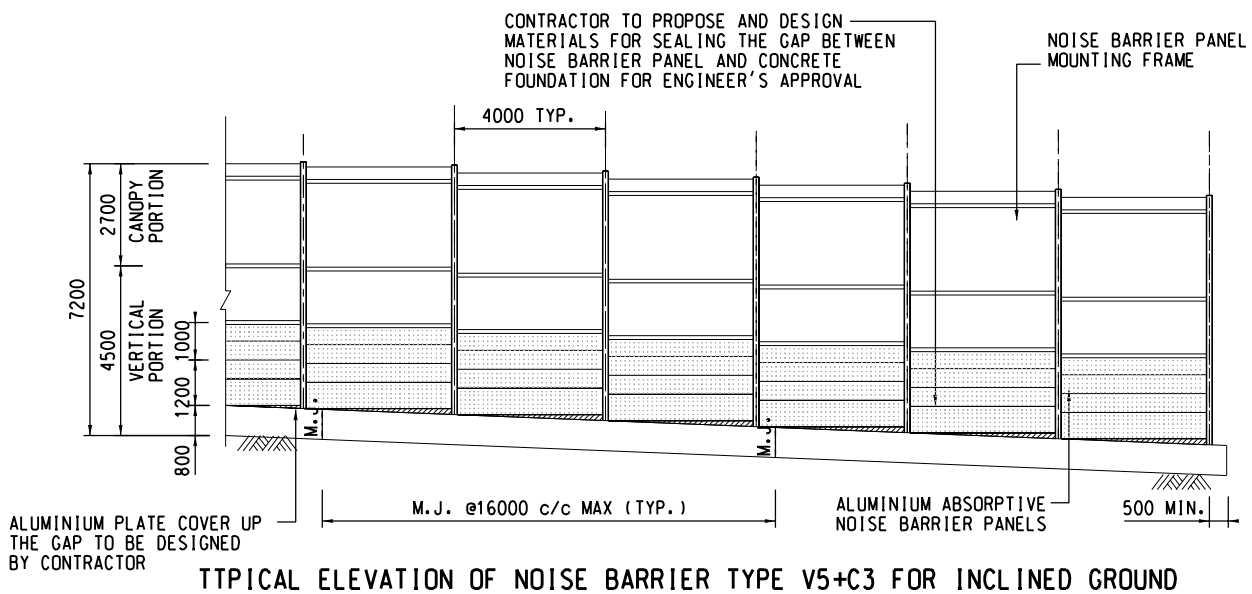

TTPICAL ELEVATION OF NOISE BARRIER TYPE V5+C3 FOR INCLINED GROUND
SCALE 1 : 100

AECOM

PROJECT
項目
IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

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STATUS
階段

SCALE 比例: A1 AS SHOWN
DIMENSION UNIT 尺寸單位: MILLIMETRES

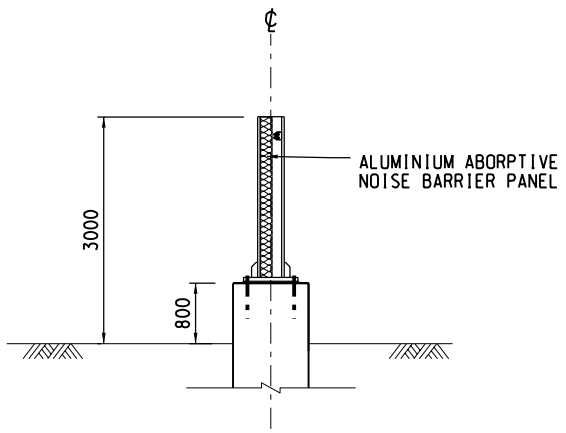
KEY PLAN
索引圖

PROJECT NO. 項目編號: 60629088
CONTRACT NO. 合約編號: CE 20/2019 (HY)

SHEET TITLE
圖紙名稱
NOISE BARRIER - TYPICAL DETAILS

SHEET 1 OF 4

SHEET NUMBER
圖紙編號
60629088/A1D/133



NOISE BARRIER TYPE V3
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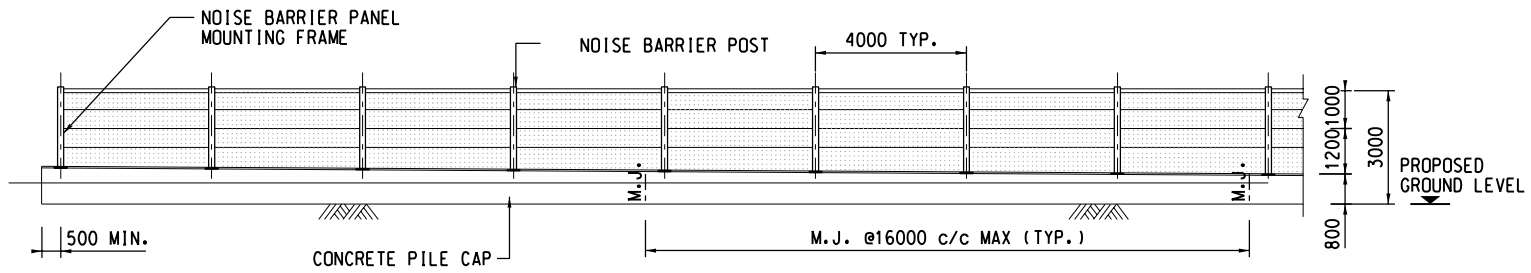

ELEVATION FOR NOISE BARRIER TYPE V3
SCALE 1 : 100

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Plot File by: qingyiLzengyao 5/18/2023
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階段

SCALE
比例

A1 AS SHOWN

DIMENSION UNIT
尺寸單位

MILLIMETRES

KEY PLAN
索引圖

PROJECT NO.
項目編號

60629088

CONTRACT NO.
合約編號

CE 20/2019 (HY)

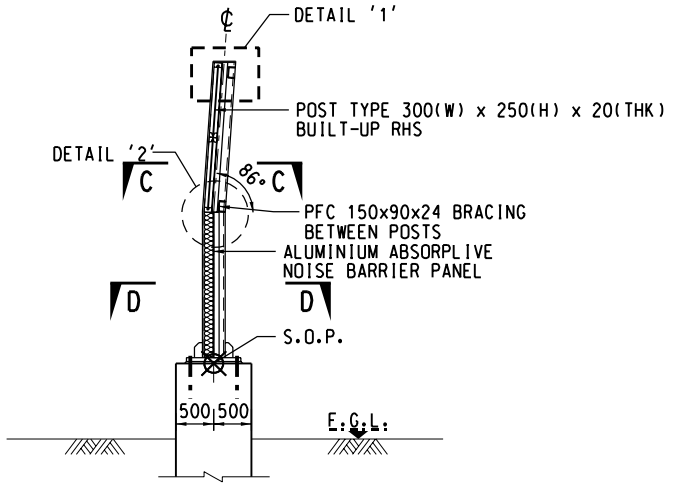
SHEET TITLE
圖紙名稱

NOISE BARRIER - TYPICAL DETAILS

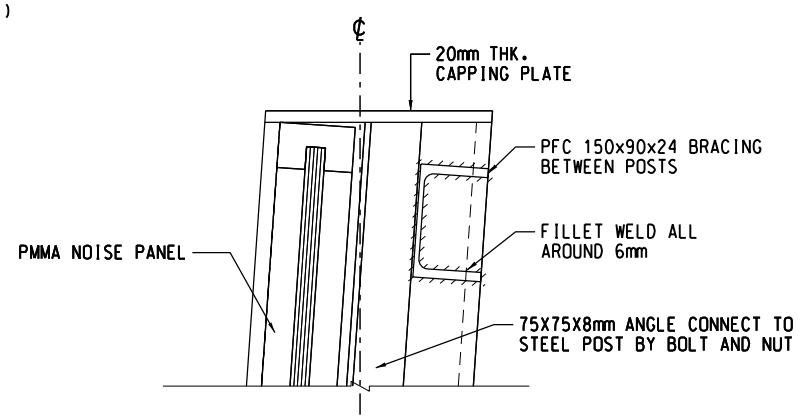
SHEET 2 OF 4

SHEET NUMBER
圖紙編號

60629088/A1D/134



STEELWORKS DETAILS OF
NOISE BARRIER TYPE V5
SCALE 1 : 50



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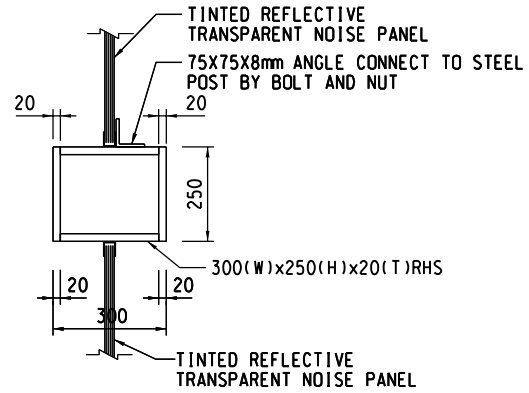
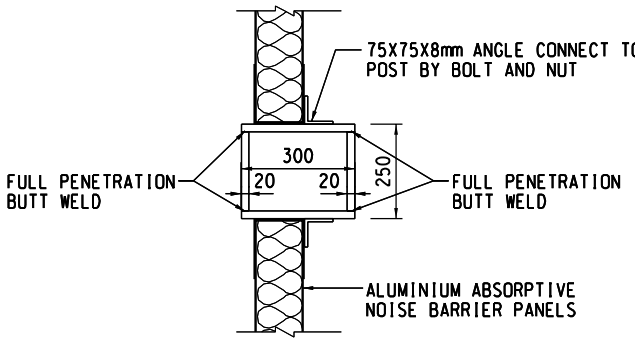


SECTION C - C
SCALE 1 : 10



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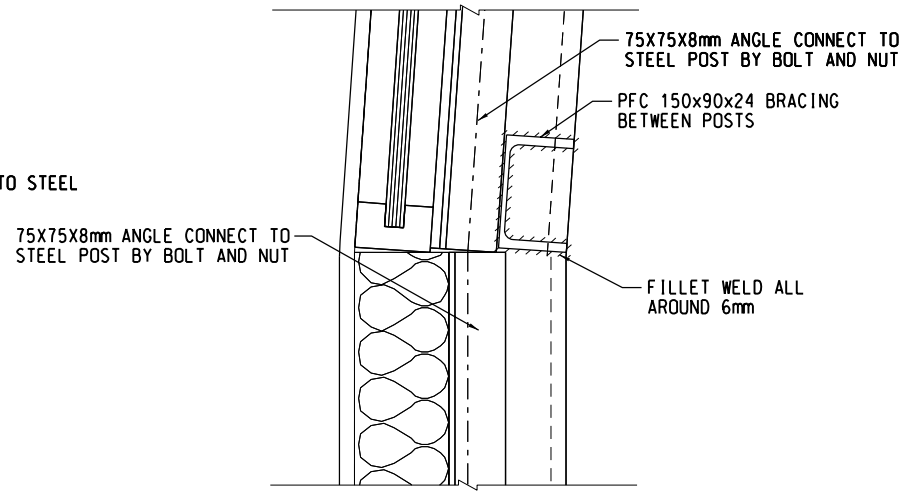

DETAIL '2'
SCALE 1 : 5

AECOM

PROJECT
項目

DEVELOPMENT OF
KWU TUNG NORTH
NEW DEVELOPMENT AREA,
REMAINING PHASE -
DESIGN & CONSTRUCTION

CLIENT
業主

CEDD 土木工程拓展署 Civil Engineering and Development Department

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STATUS
階段

SCALE 比例	DIMENSION UNIT 尺寸單位
A1 AS SHOWN	MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60629088
CONTRACT NO. 合約編號: CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

NOISE BARRIER - TYPICAL
DETAILS

SHEET 3 OF 4

SHEET NUMBER
圖紙編號

60629088/A1D/135

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

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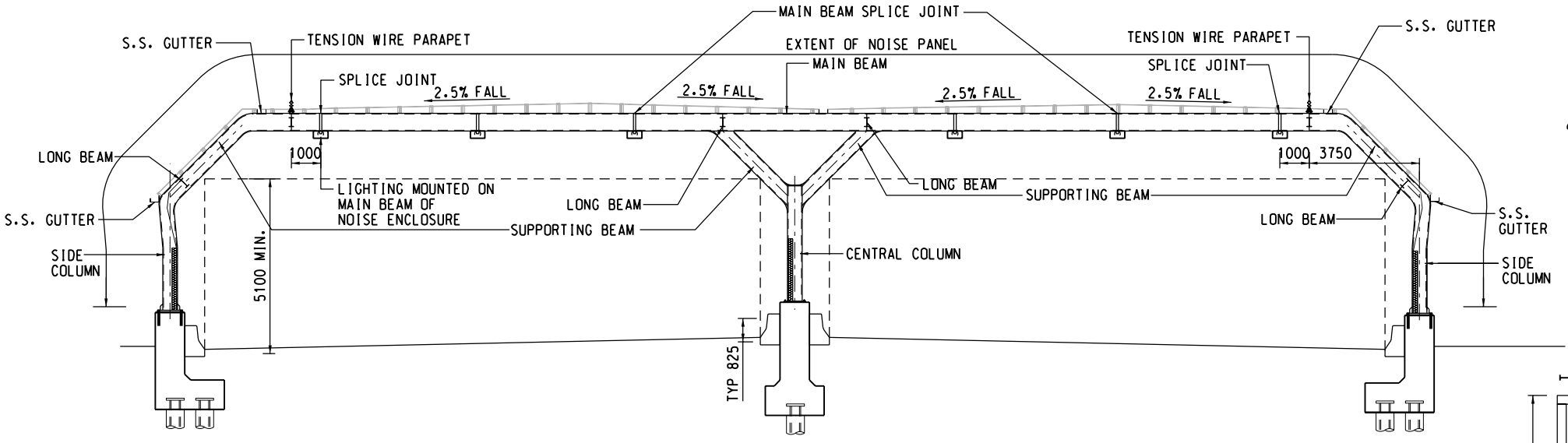
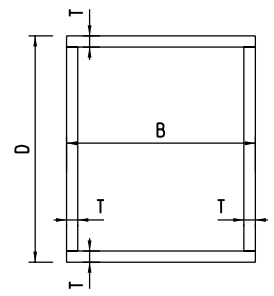
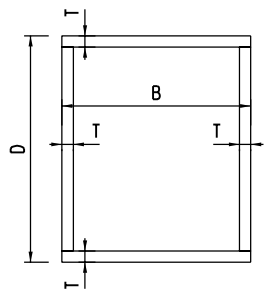


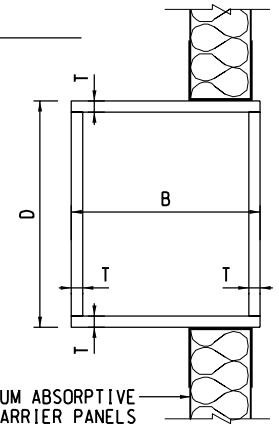
FULL NOISE ENCLOSURE FE01
SCALE 1 : 100



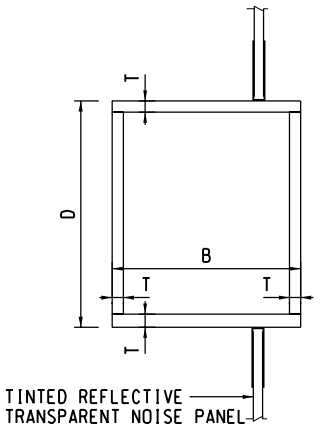
SECTION B - B
SCALE 1 : 10



SECTION A - A
(SECTION E - E SIMILAR)
SCALE 1 : 10



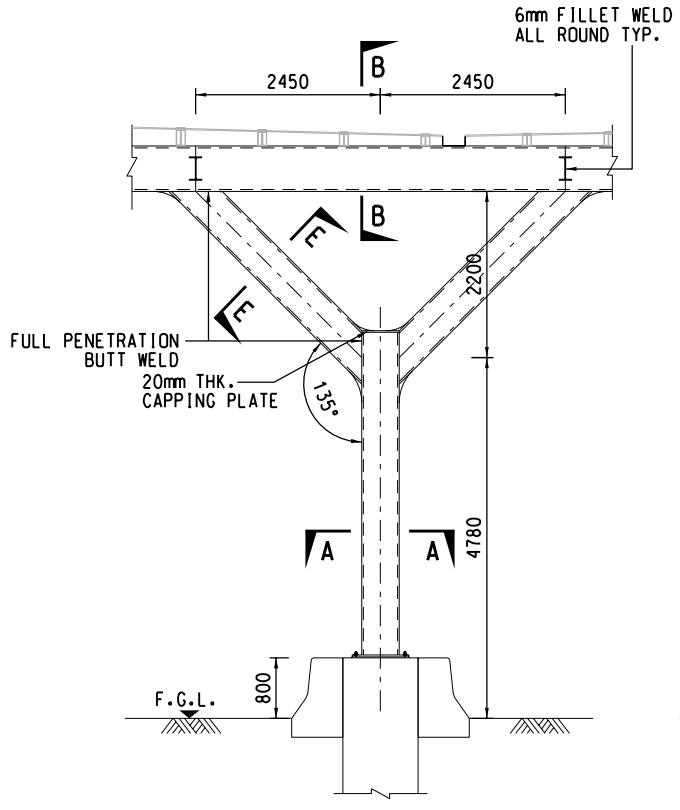
SECTION D - D
SCALE 1 : 10



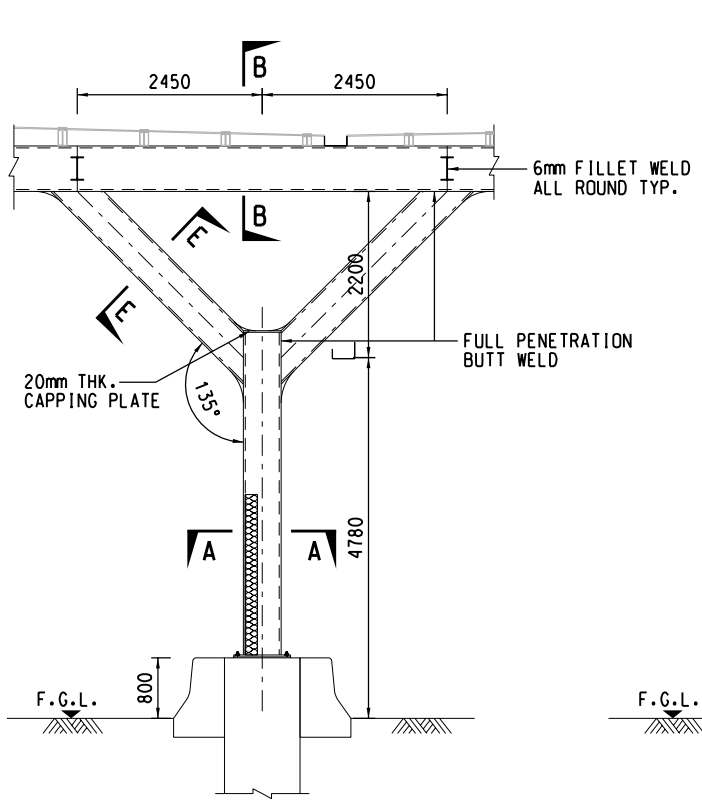
SECTION C - C
SCALE 1 : 10

STEEL MEMBER SIZES SCHEDULE

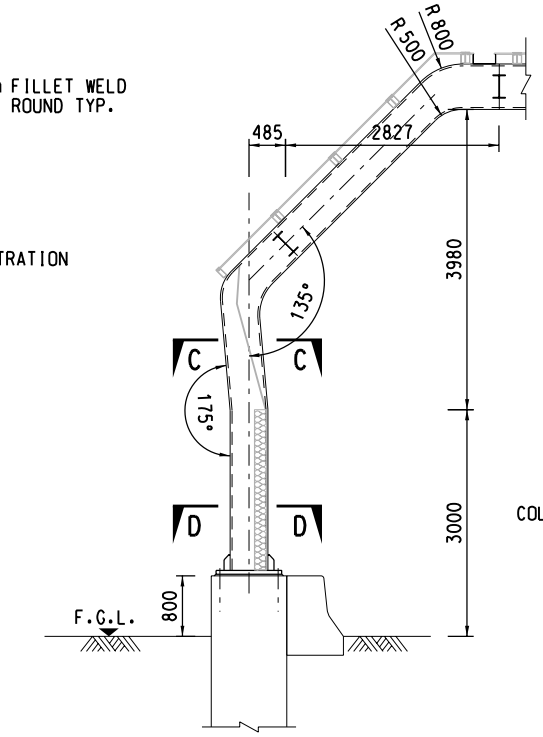
COLUMN SECTION	MAX. COLUMN HEIGHT(H)/mm	BEAM SECTION(DXBXT)	MAX. SPAN(L)/mm	SECONDARY BEAM
600X500X30 BUILT-UP BOX SECTION	6430	600X500X30 BUILT-UP BOX SECTION	26000	305X165X54KG/M UB



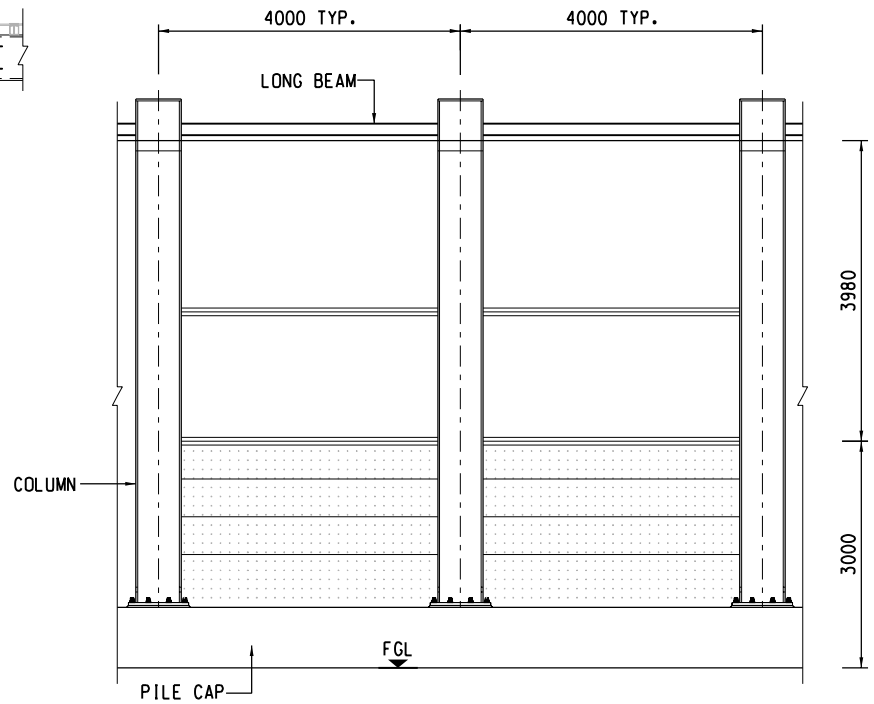
TYPICAL COLUMN DETAILS AT CENTRAL DIVIDER SCALE
SCALE 1 : 50



TYPICAL COLUMN DETAILS AT CENTRAL DIVIDER FOR FLN-FE01 WITH NOISE BARRIER KTN-NB04
SCALE 1 : 50



TYPICAL SIDE COLUMN SCALE
SCALE 1 : 50



PART ELEVATION OF FULL ENCLOSOURE FE01
SCALE 1 : 50

AECOM

PROJECT
項目

IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

CLIENT
業主

土木工程拓展署
Civil Engineering and Development Department

CONSULTANT
土木顧問公司

AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核核

STATUS
階段

SCALE 比例	DIMENSION UNIT 尺寸單位
A1 AS SHOWN	MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60629088

CONTRACT NO. 合約編號: CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

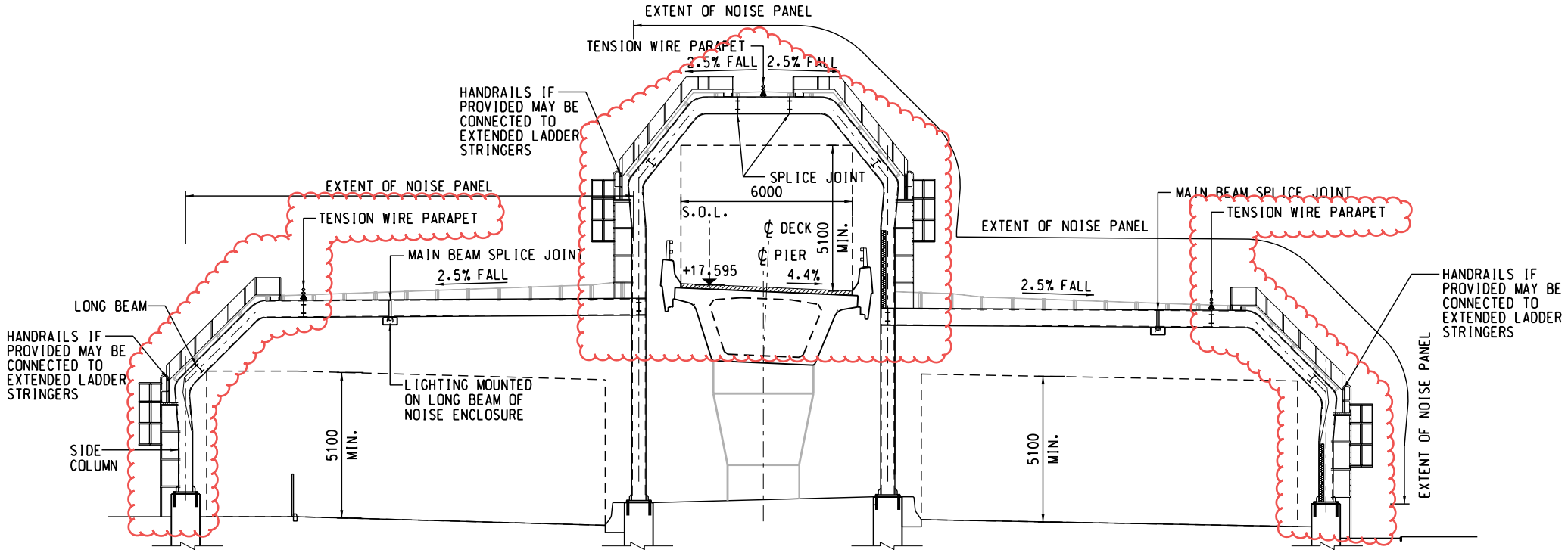
NOISE FULL ENCLOSURE FLN-FE01 GENERAL ARRANGEMENT AND DETAILS

SHEET NUMBER
圖紙編號

60629088/A1D/141

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

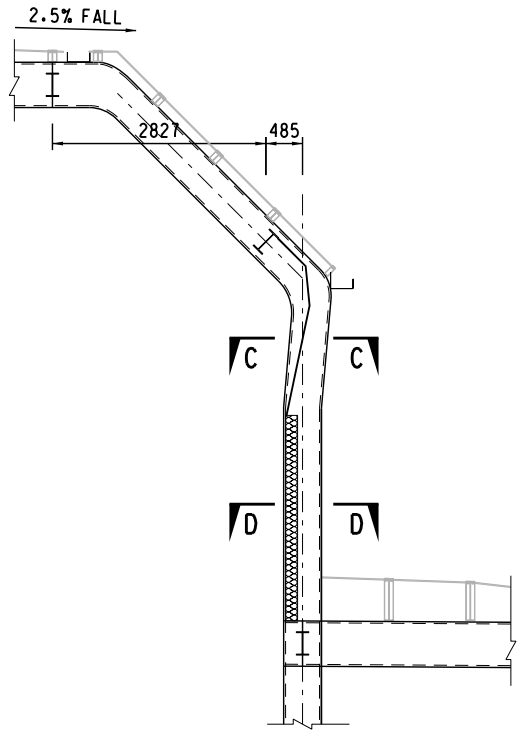
Plot File by: dingxlzengyao
PATH: P:\PROJECTS\60629088\Drawing\REPORT\A1D\A1D_141.dgn
5/22/2023



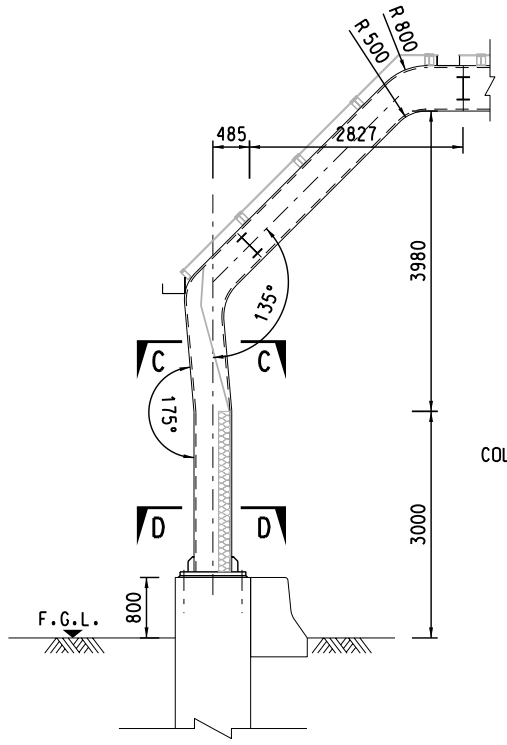
SEMI NOISE ENCLOSURE SE01
SCALE 1 : 100

STEEL MEMBER SIZES SCHEDULE

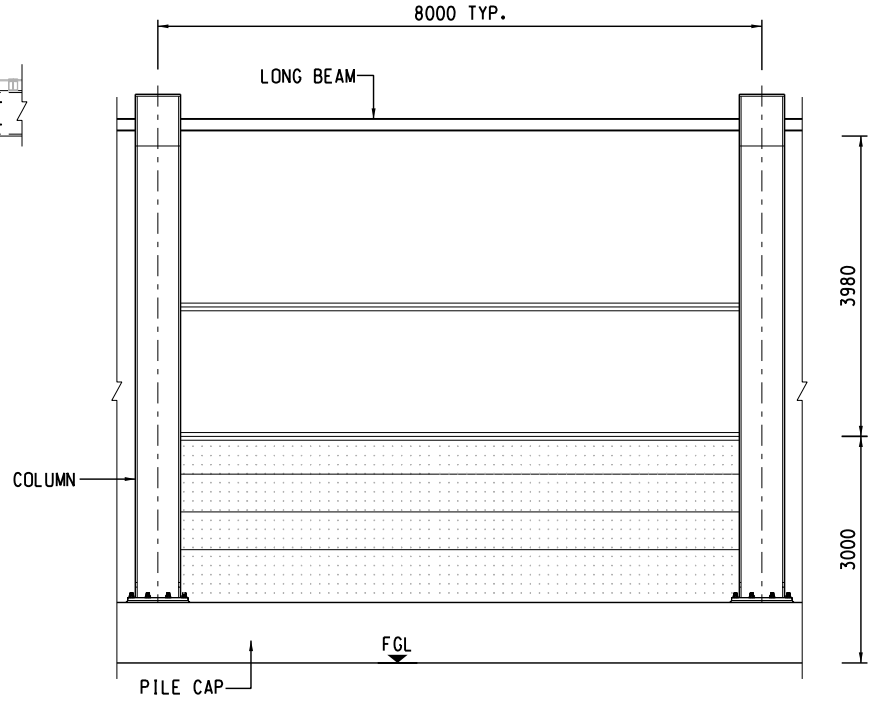
COLUMN SECTION	MAX. COLUMN HEIGHT(H)/mm	BEAM SECTION(DXBXT)	MAX. SPAN(L)/mm	SECONDARY BEAM
500(H)X400(W)X50(THK) RHS	15000	500(H)X400(W)X50(THK) RHS	17300	305X165X54KG/M UB



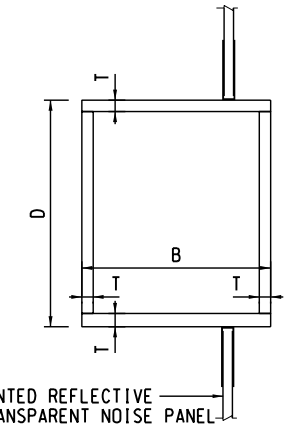
TYPICAL COLUMN DETAIL AT CENTRAL DIVIDER
SCALE 1 : 50



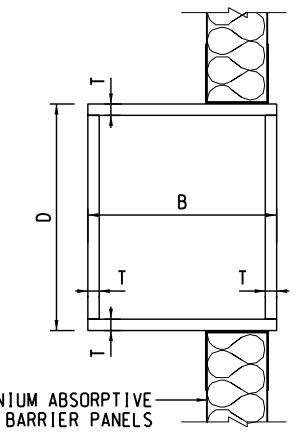
TYPICAL SIDE COLUMN
SCALE 1 : 50



PART ELEVATION OF SEMI ENCLOSURE SE01
SCALE 1 : 50



SECTION C - C
SCALE 1 : 10



SECTION D - D
SCALE 1 : 10

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Plot File by: YangRO
PATH: P:\PROJECTS\60629088\Drawings\REPORT\A1D\A1D_142.dgn
5/23/2023

AECOM

PROJECT
項目
IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

CLIENT
業主
土木工程拓展署 Civil Engineering and Development Department

CONSULTANT
工程顧問公司
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SUB-CONSULTANTS
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ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核

STATUS
階段

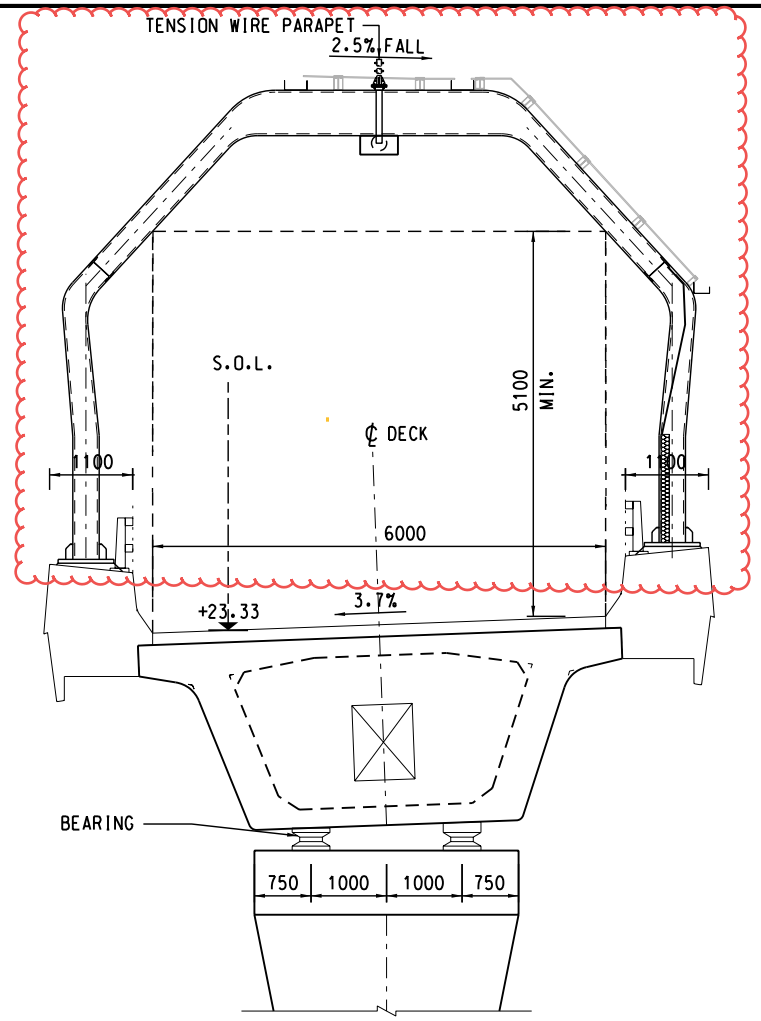
SCALE 比例: A1 AS SHOWN
DIMENSION UNIT 尺寸單位: MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60629088
CONTRACT NO. 合約編號: CE 20/2019 (HY)

SHEET TITLE
圖紙名稱
NOISE SEMI ENCLOSURE KTN-SE01 GENERAL ARRANGEMENT AND DETAILS

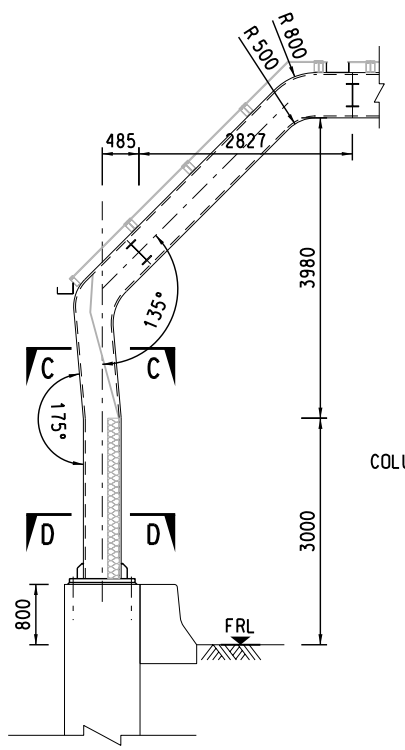
SHEET NUMBER
圖紙編號
60629088/A1D/142



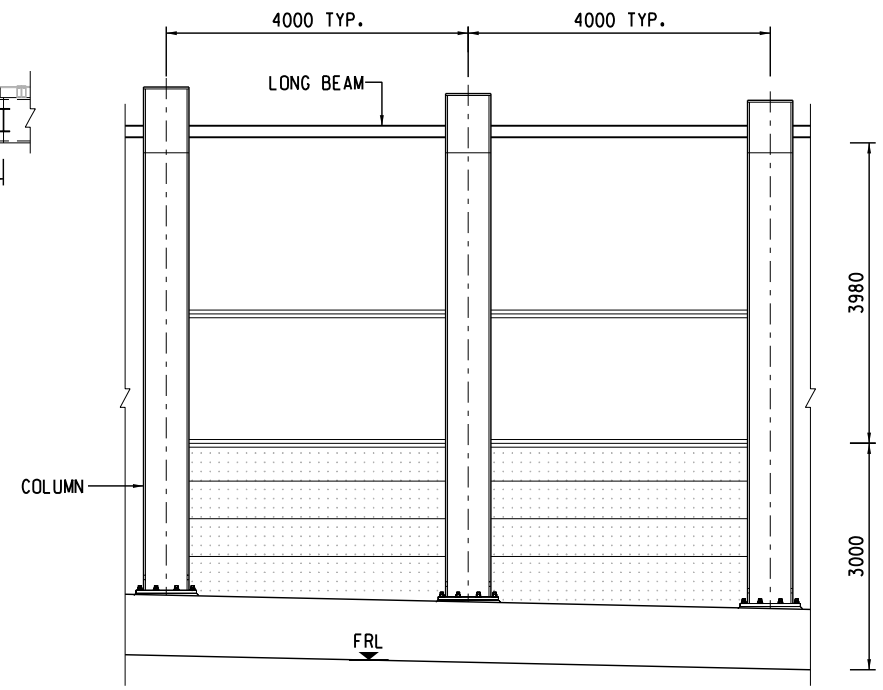
SEMI NOISE ENCLOSURE SE02
SCALE 1 : 50

STEEL MEMBER SIZES SCHEDULE

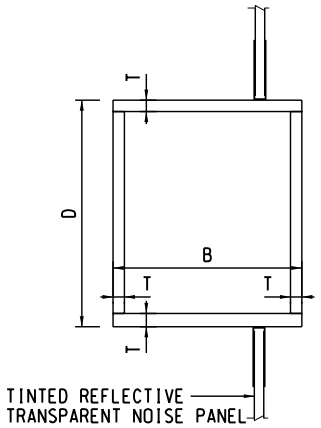
COLUMN SECTION	MAX. COLUMN HEIGHT(H)/mm	BEAM SECTION(DXBXT)	MAX. SPAN(L)/mm	SECONDARY BEAM
500X400X30 RHS	6430	500X400X30 RHS	10420	305X165X54KG/M UB



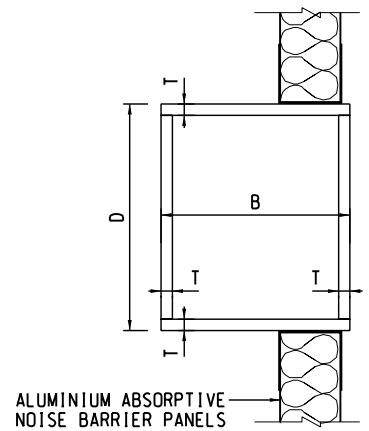
TYPICAL SIDE COLUMN
SCALE 1 : 50



PART ELEVATION OF SEMI ENCLOSURE SE02
SCALE 1 : 50



SECTION C - C
SCALE 1 : 10



SECTION D - D
SCALE 1 : 10

AECOM

PROJECT
項目
IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

CLIENT
業主
土木工程拓展署
Civil Engineering and Development Department

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ISSUE/REVISION
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I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 複核

STATUS
階段

SCALE 比例
A1 1 : 50

DIMENSION UNIT 尺寸單位
MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60629088

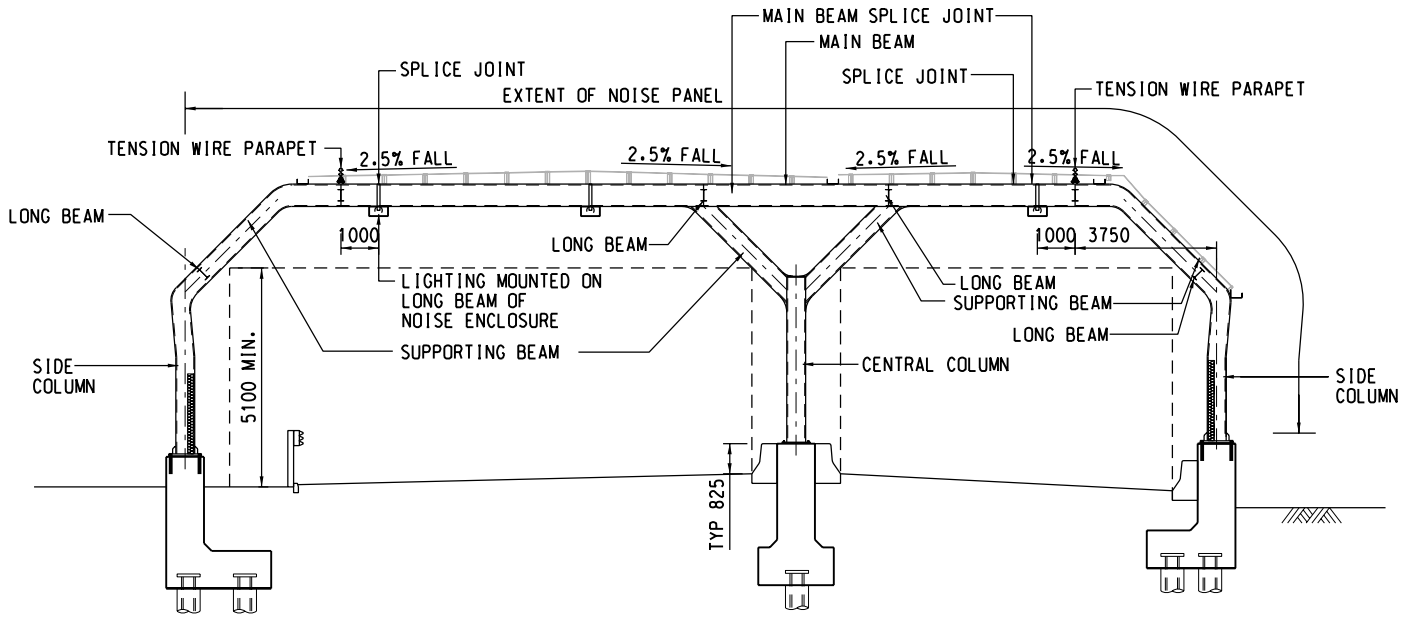
CONTRACT NO. 合約編號
CE 20/2019 (HY)

SHEET TITLE
圖紙名稱
NOISE SEMI ENCLOSURE KTN-SE02 GENERAL ARRANGEMENT AND DETAILS

SHEET NUMBER
圖紙編號
60629088/A1D/143

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

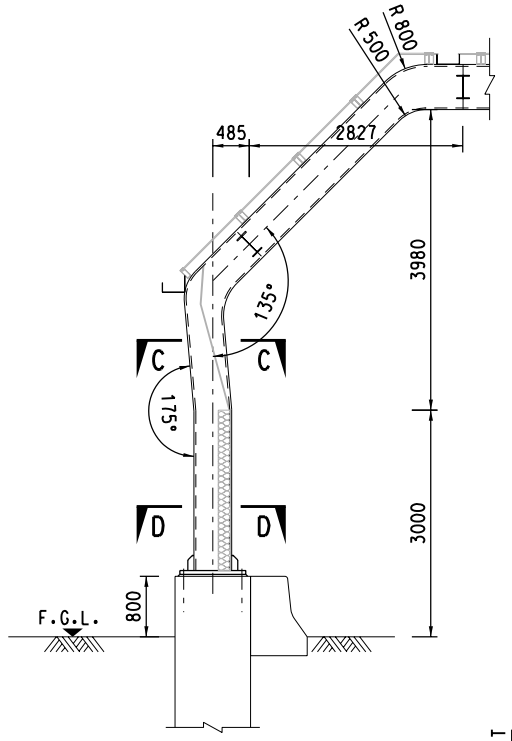
Plot File by: YangRO
PATH: P:\PROJECTS\60629088\Drawing\REPORT\A1D\A1D_143.dgn
5/23/2023



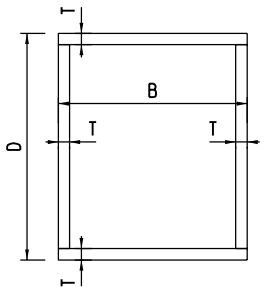
SEMI NOISE ENCLOSURE SE03
SCALE 1 : 100

STEEL MEMBER SIZES SCHEDULE

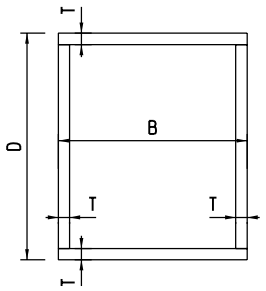
COLUMN SECTION	MAX. COLUMN HEIGHT(H)/mm	BEAM SECTION(DXBXT)	MAX. SPAN(L)/mm	SECONDARY BEAM
600X500X30 BUILT-UP BOX SECTION	6430	600X500X30 BUILT-UP BOX SECTION	29000	305X165X54KG/M UB



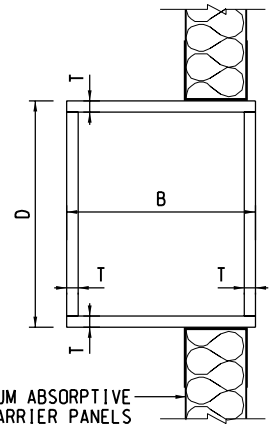
TYPICAL SIDE COLUMN
SCALE 1 : 50



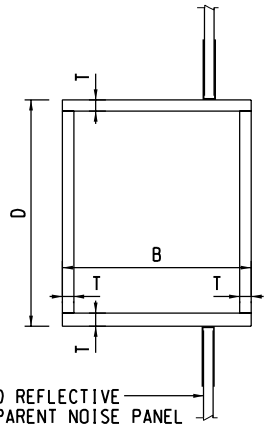
SECTION A - A
(SECTION E - E SIMILAR)
SCALE 1 : 10



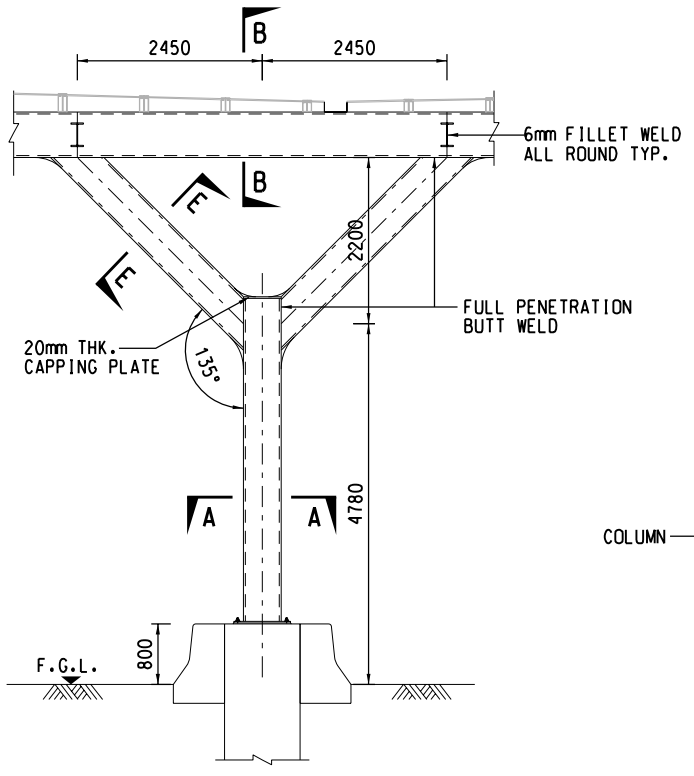
SECTION B - B
SCALE 1 : 10



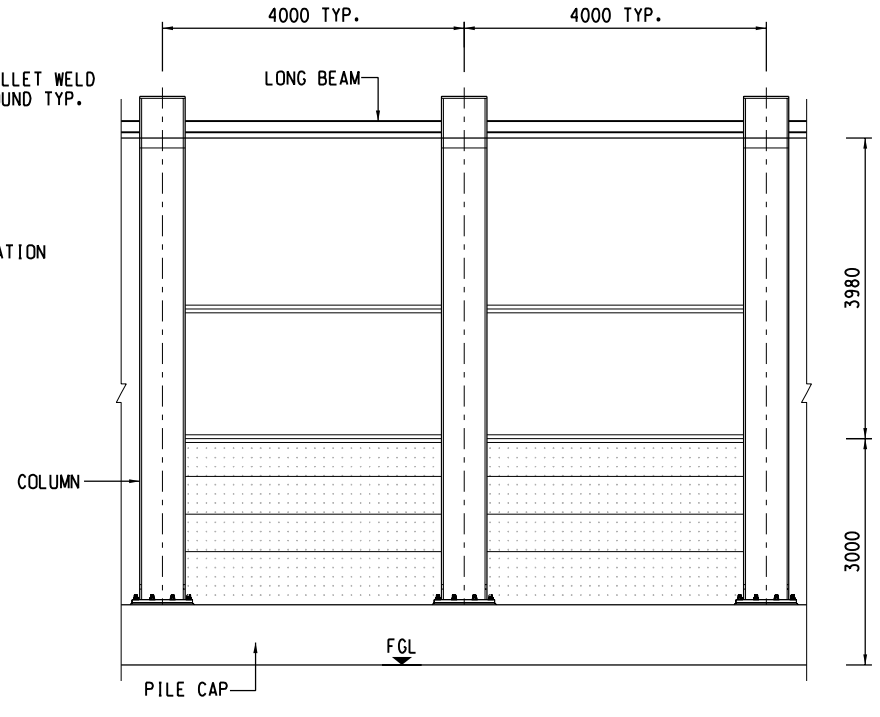
SECTION D - D
SCALE 1 : 10



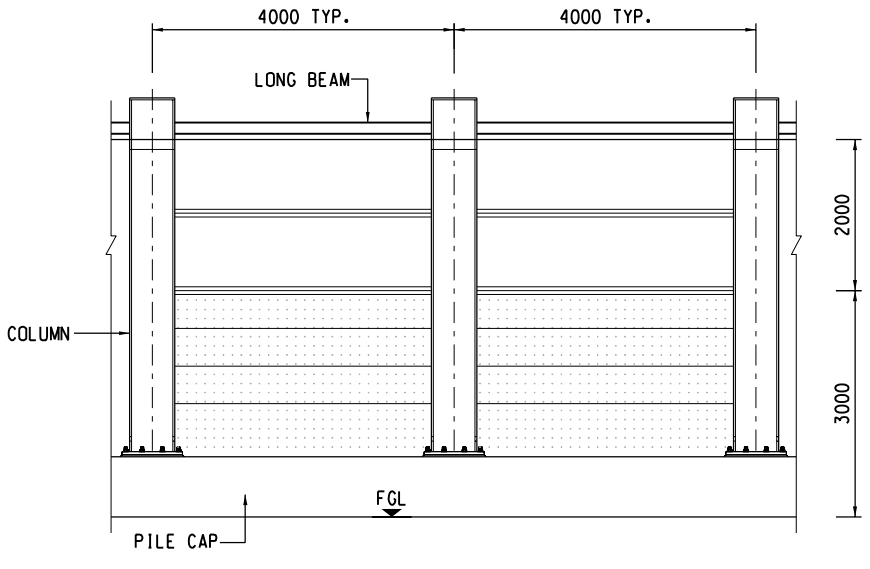
SECTION C - C
SCALE 1 : 10



TYPICAL COLUMN DETAILS AT CENTRAL DIVIDER
SCALE 1 : 50



PART ELEVATION OF SEMI ENCLOSURE SE03
SCALE 1 : 50



PART ELEVATION OF SEMI ENCLOSURE SE03 WITH NB01
SCALE 1 : 50

AECOM

PROJECT
項目
IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

CLIENT
業主
土木工程拓展署 Civil Engineering and Development Department

CONSULTANT
土木顧問公司
AECOM Asia Company Ltd.
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SUB-CONSULTANTS
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ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容/摘要	CHK. 核核

STATUS
地位

SCALE 比例: A1 AS SHOWN
DIMENSION UNIT 尺寸單位: MILLIMETRES

KEY PLAN
索引圖

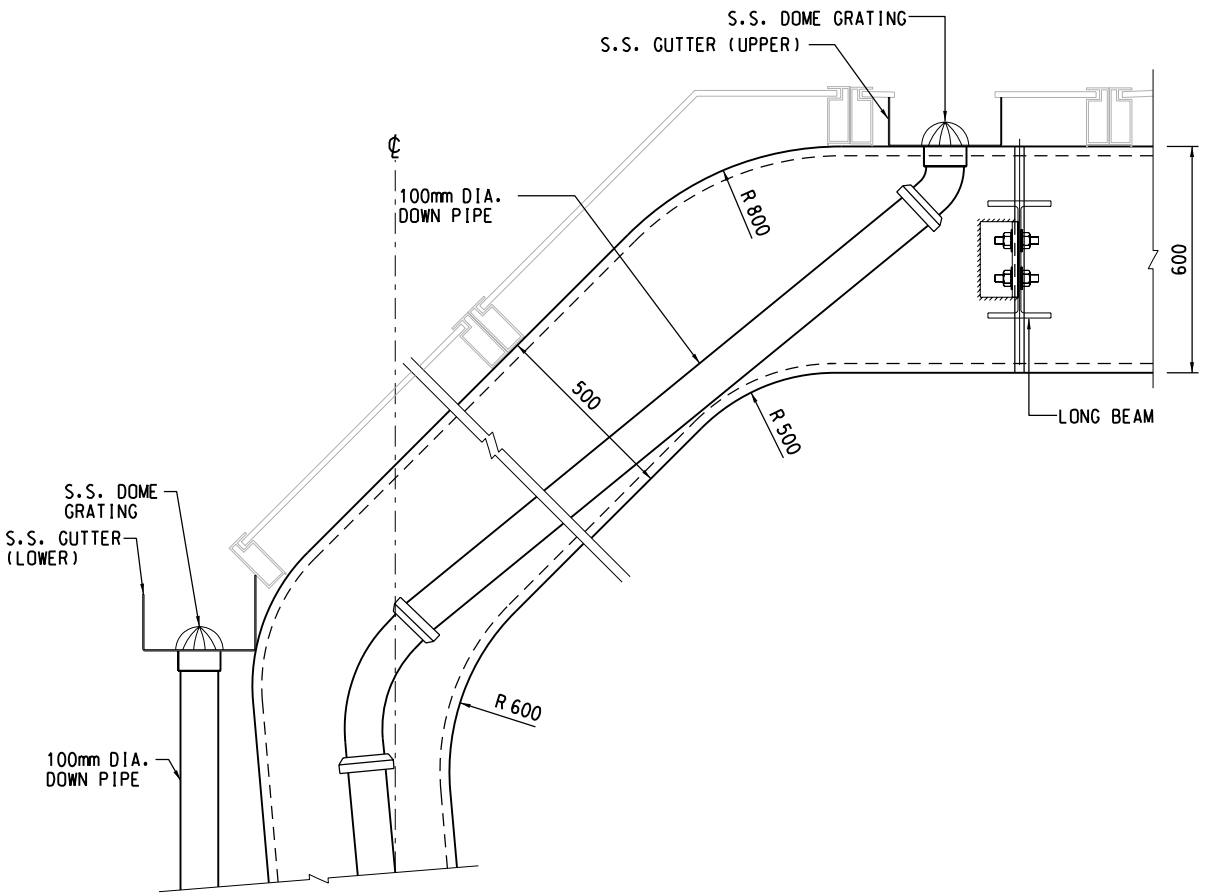
PROJECT NO. 項目編號: 60629088
CONTRACT NO. 合約編號: CE 20/2019 (HY)

SHEET TITLE
圖紙名稱
NOISE SEMI ENCLOSURE KTN-SE03 GENERAL ARRANGEMENT AND DETAILS

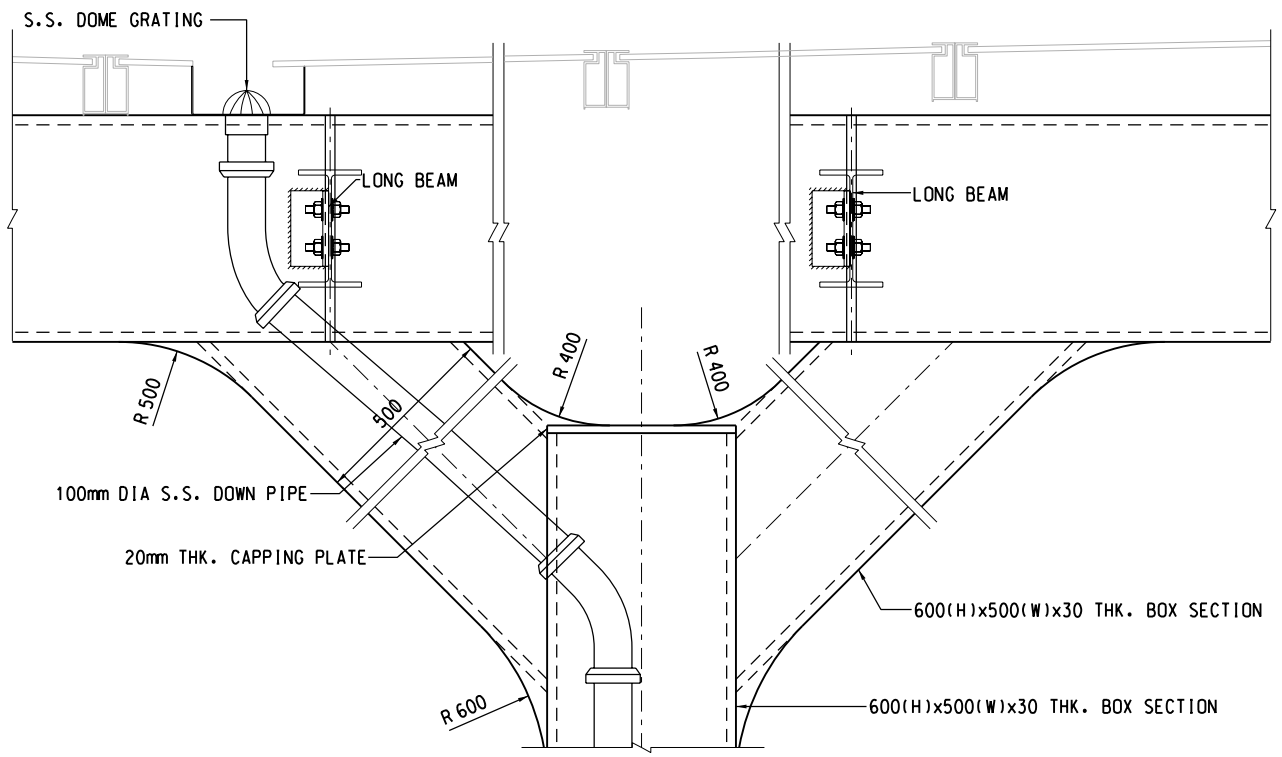
SHEET NUMBER
圖紙編號
60629088/A1D/144

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

Plot File by: qingxt.zengyao
PATH: P:\PROJECTS\60629088\Drawing\REPORT\A1D\A1D_144.dgn
5/22/2023



DETAIL '1'
SCALE 1 : 10



DETAIL '2'
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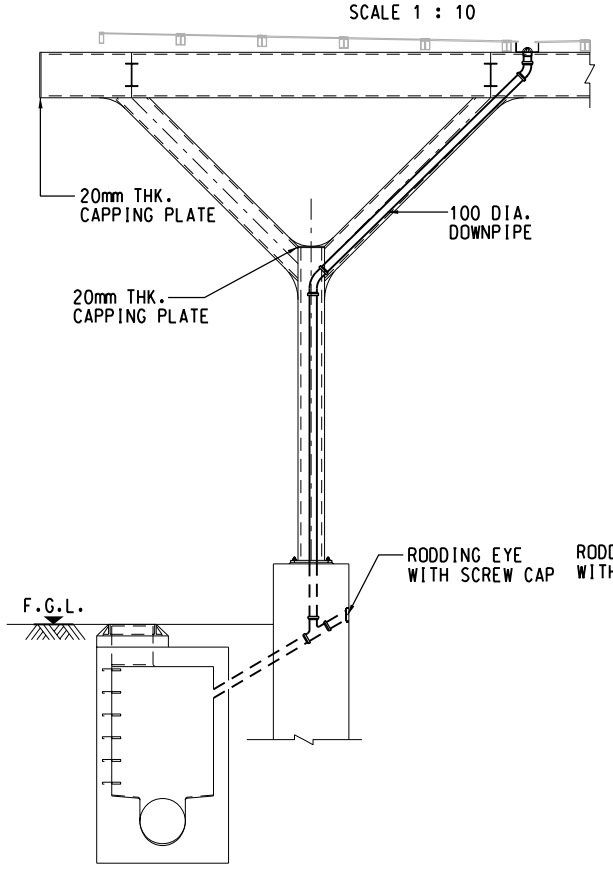
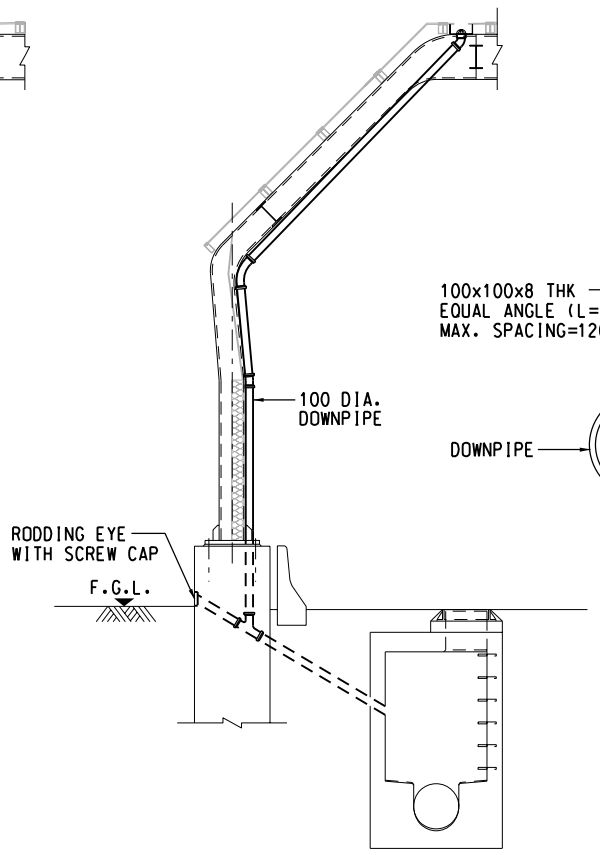
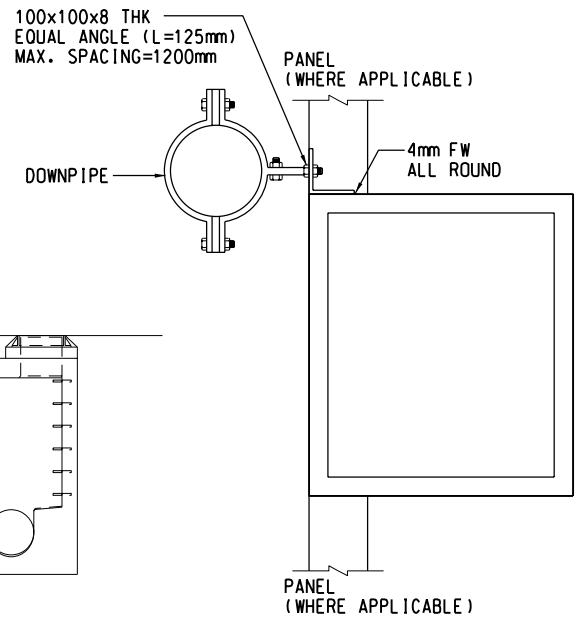


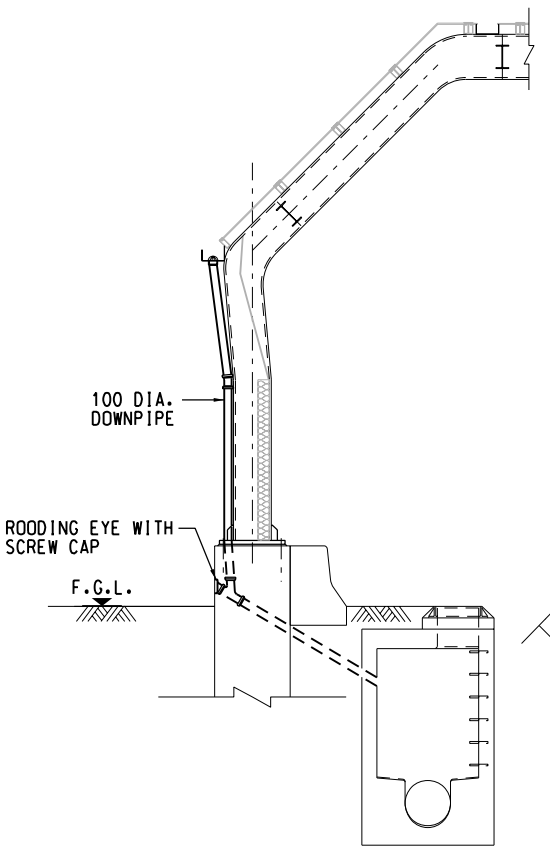
TYPICAL DOWNPIPE ARRANGEMENT (AT CENTRAL MEDIAN)
SCALE 1 : 50



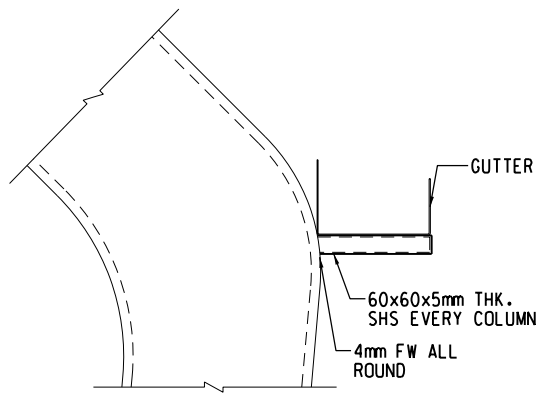
TYPICAL DOWNPIPE ARRANGEMENT(UPPER GUTTER)
SCALE 1 : 50



TYPICAL DOWNPIPE FIXING DETAILS
SCALE 1 : 5



TYPICAL DOWNPIPE ARRANGEMENT (LOWER GUTTER)
SCALE 1 : 50



TYPICAL CUTTER FIXING DETAILS AT COLUMN
SCALE 1 : 10

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Plot File by: PanT
PATH: P:\PROJECTS\60629088\Drawing\REPORT\A1D\A1D_146.dgn 2023/3/24

AECOM

PROJECT
項目
DEVELOPMENT OF KWU TUNG NORTH NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN & CONSTRUCTION

CLIENT
業主
CEDD 土木工程拓展署 Civil Engineering and Development Department

CONSULTANT
土木顧問公司
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 核查

STATUS
狀況

SCALE 比例: A1 AS SHOWN
DIMENSION UNIT 尺寸單位: MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60629088
CONTRACT NO. 合約編號: CE 20/2019 (HY)

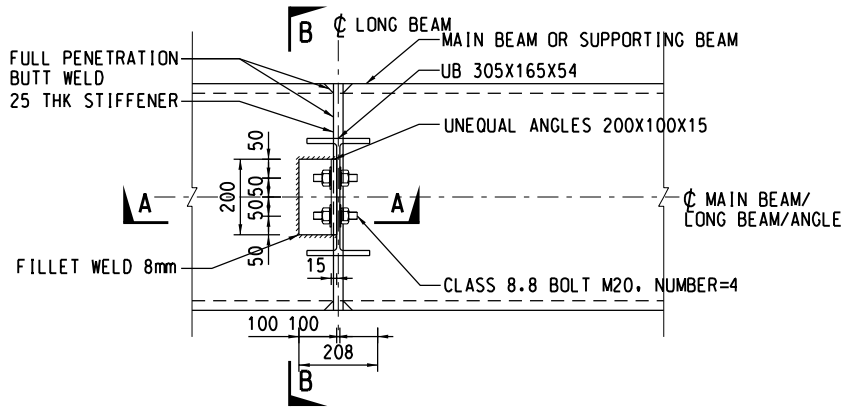
SHEET TITLE
圖紙名稱
NOISE ENCLOSURE TYPICAL DETAILS

SHEET 1 OF 3

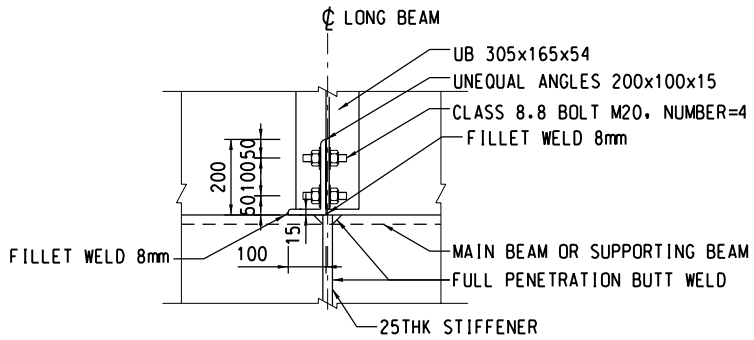
SHEET NUMBER
圖紙編號
60629088/A1D/146

NOTE:

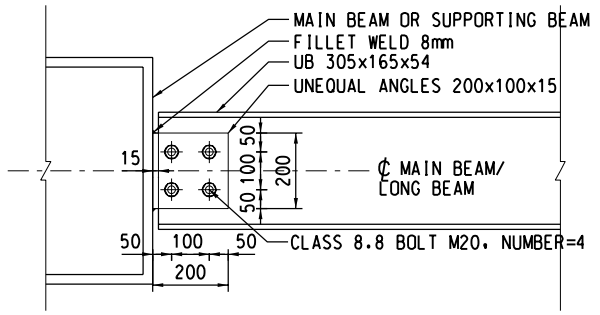
1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWING NO. 60335576/C5A/C00/6150 TO 6170.



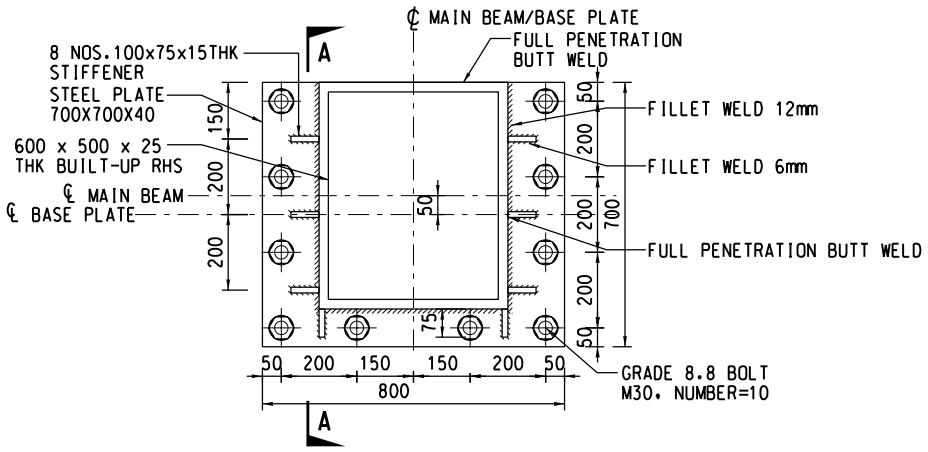
LONG BEAM JOINT DETAIL
SCALE 1 : 10



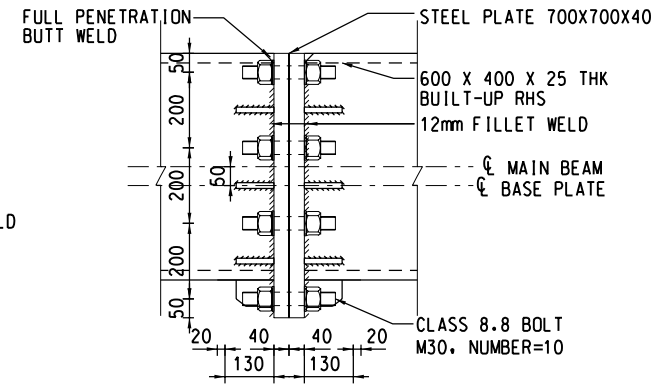
SECTION A-A
SCALE 1 : 10



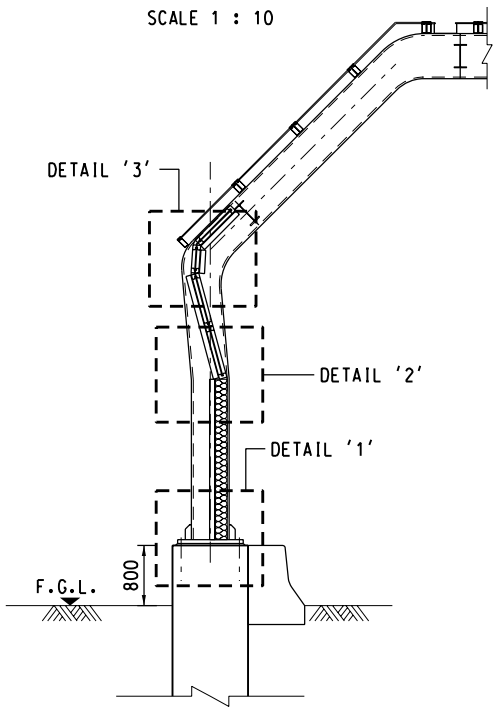
SECTION B-B
SCALE 1 : 10



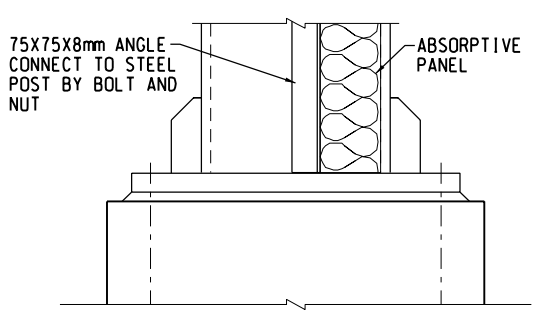
MAIN BEAM SPLICE JOINT TYPE 1
SCALE 1 : 10



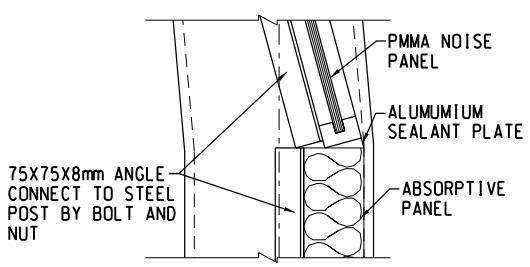
SECTION A-A
SCALE 1 : 10



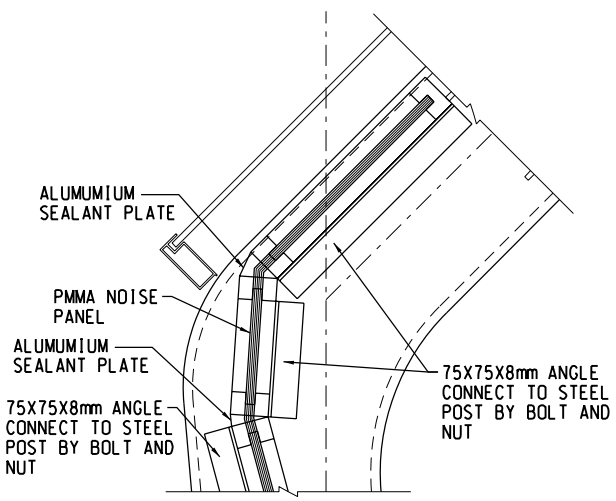
NOISE PANEL INSTALLATION DETAILS
SCALE 1 : 50



DETAIL '1'
SCALE 1 : 10



DETAIL '2'
SCALE 1 : 10



DETAIL '3'
SCALE 1 : 10

AECOM

PROJECT
項目

IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

CLIENT
業主

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STATUS
狀況

SCALE 比例	DIMENSION UNIT 尺寸單位
A1 AS SHOWN	MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號	CONTRACT NO. 合約編號
60629088	CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

NOISE ENCLOSURE TYPICAL DETAILS

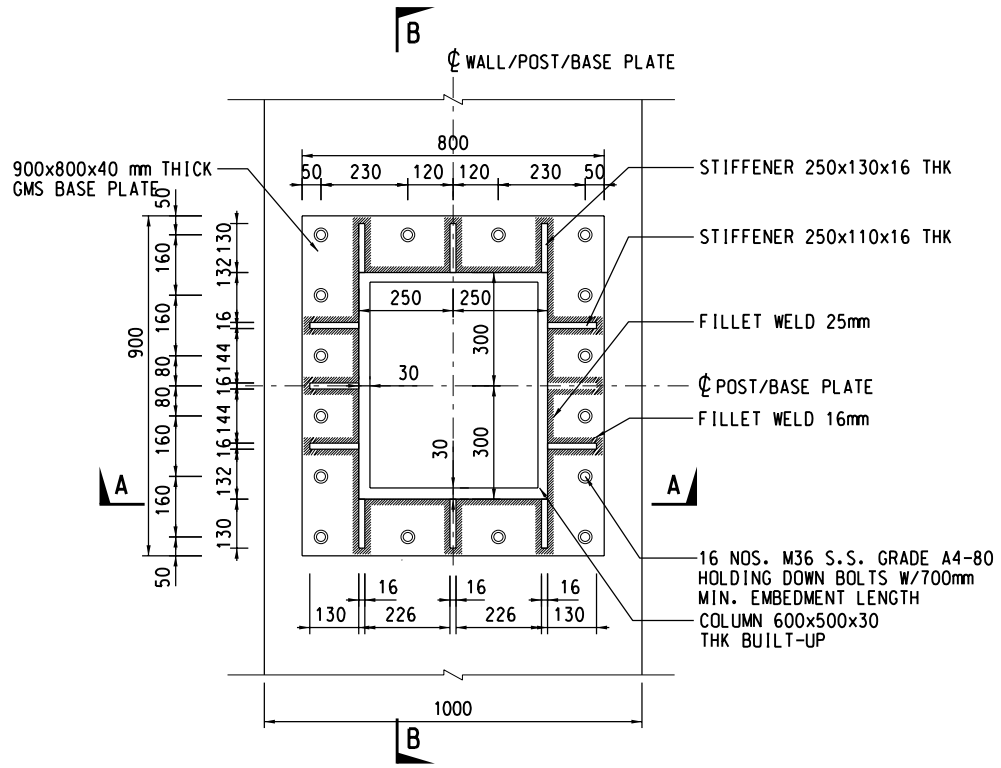
SHEET 2 OF 3

SHEET NUMBER
圖紙編號

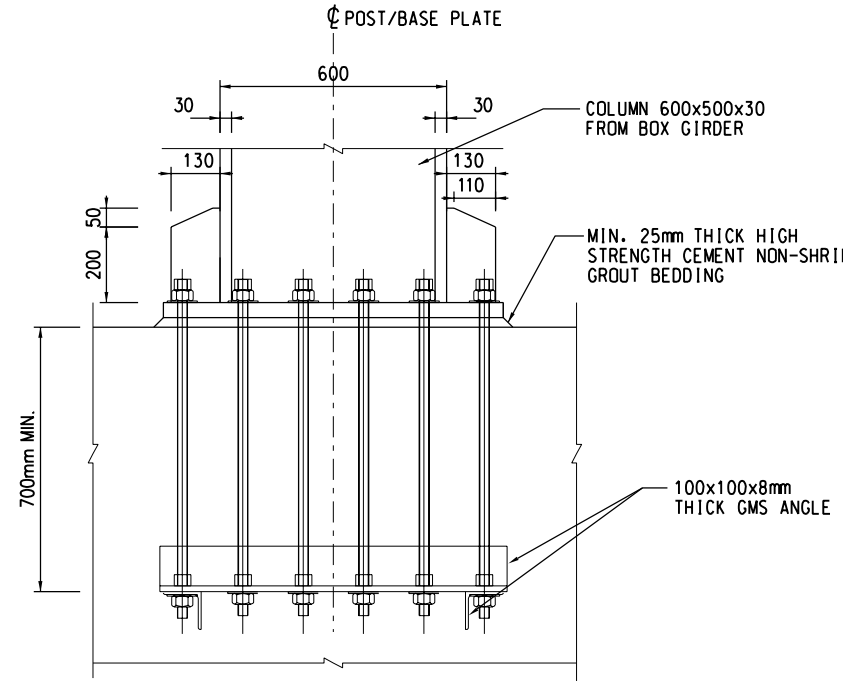
60629088/A1D/147

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

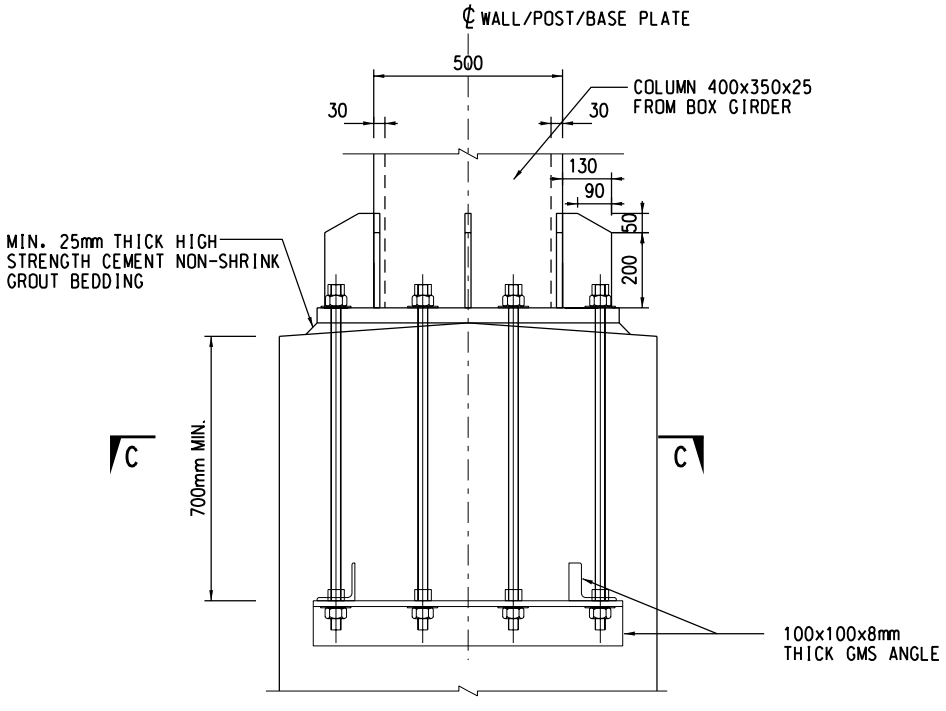
Plot File by: dinyxt.zengyao
PATH: P:\PROJECTS\60629088\Drawing\REPORT\A1\DA1D_147.dgn
5/18/2023



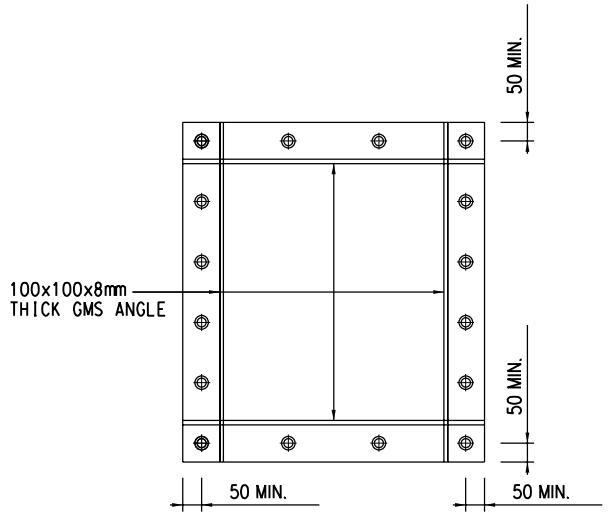
BASE PLATE PLAN
SCALE 1 : 10



SECTION B - B
NOTES: FOOTING R.C. AND NOISE BARRIER PANEL
NOT SHOWN FOR CLARITY
SCALE 1 : 10



SECTION A - A
NOTES: FOOTING R.C. AND NOISE BARRIER PANEL
NOT SHOWN FOR CLARITY
SCALE 1 : 10



SECTION C - C
SCALE 1 : 10

NOTE:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWING NO. 60335576/C5A/C00/6150 TO 6170.

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PROJECT
項目
DEVELOPMENT OF
KWU TUNG NORTH
NEW DEVELOPMENT AREA,
REMAINING PHASE -
DESIGN & CONSTRUCTION

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STATUS
階段

SCALE 比例 A1 1 : 10
DIMENSION UNIT 尺寸單位 MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號 60629088
CONTRACT NO. 合約編號 CE 20/2019 (HY)

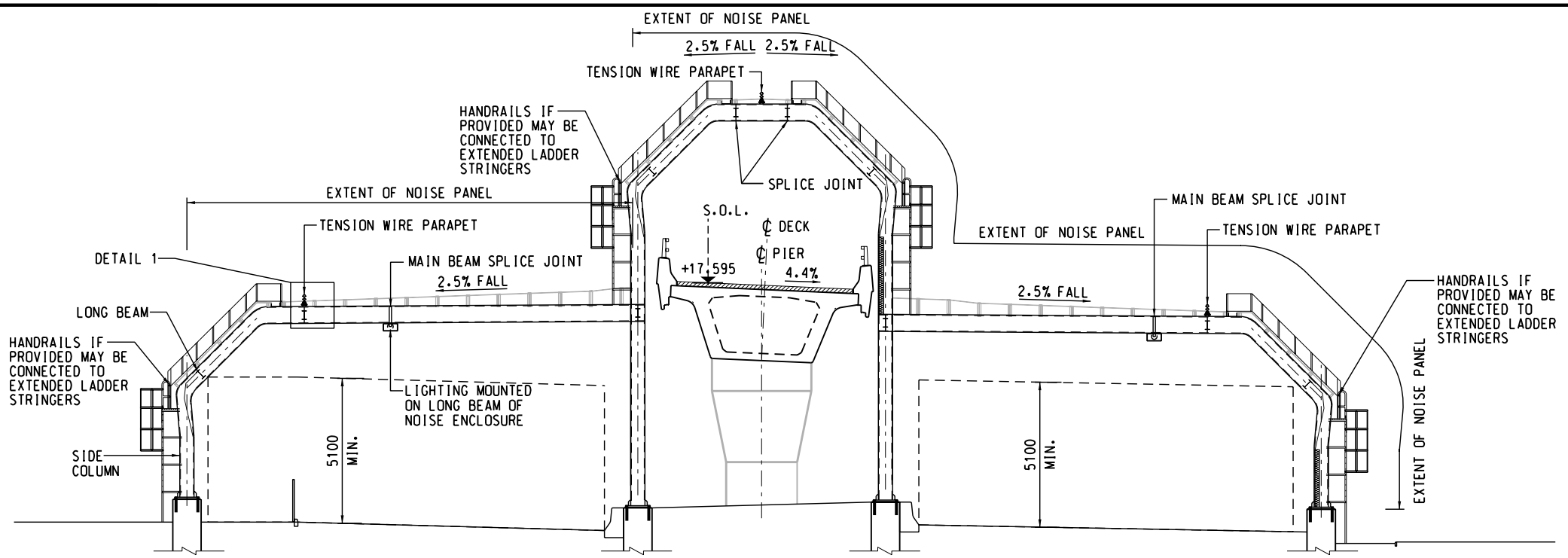
SHEET TITLE
圖紙名稱
NOISE ENCLOSURE TYPICAL DETAILS

SHEET 3 OF 3

SHEET NUMBER
圖紙編號
60629088/A1D/148

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Plot File by: PanT
PATH: P:\PROJECTS\60629088\Drawing\REPORT\A1\DA1D_148.dgn 2023/3/24



CAT LADDER AT SE01
SCALE 1 : 100

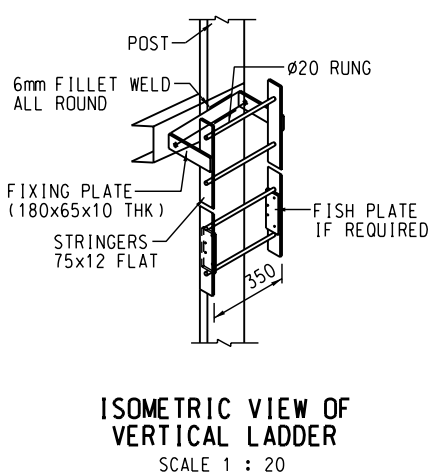
TYPICAL CAT LADDER AT FE AND SE
SCALE 1 : 50

SECTION A - A
SCALE 1 : 50

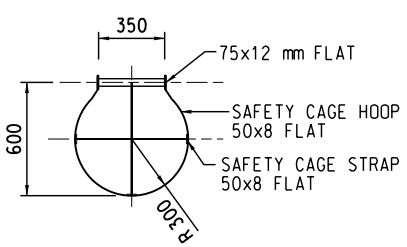
DETAIL 1
SCALE 1 : 10

SECTION A - A
SCALE 1 : 10

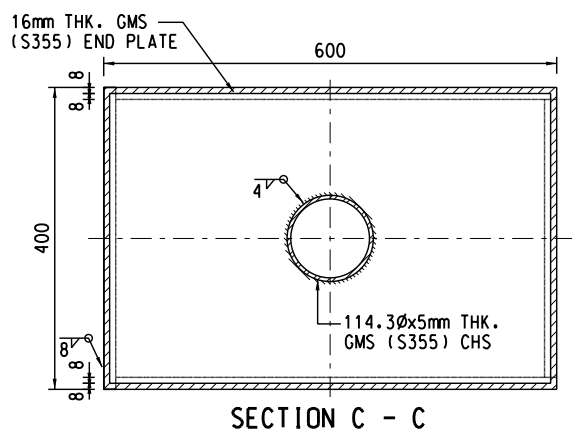
SECTION B - B
SCALE 1 : 5



ISOMETRIC VIEW OF VERTICAL LADDER
SCALE 1 : 20



SECTION B - B
SCALE 1 : 20



SECTION C - C
SCALE 1 : 5

AECOM

PROJECT
項目
IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION
CONTRACT TITLE
IMPROVEMENT WORKS OF FANLING HIGHWAYS (KWU TUNG PORTION) AND ASSOCIATED WORKS

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業主
土木工程拓展署 Civil Engineering and Development Department

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STATUS
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SCALE 比例: A1 AS SHOWN
DIMENSION UNIT 尺寸單位: MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60629088
CONTRACT NO. 合約編號: CE 20/2019 (HY)

SHEET TITLE
圖紙名稱
CAT LADDER AND SAFETY CAGE DETAILS

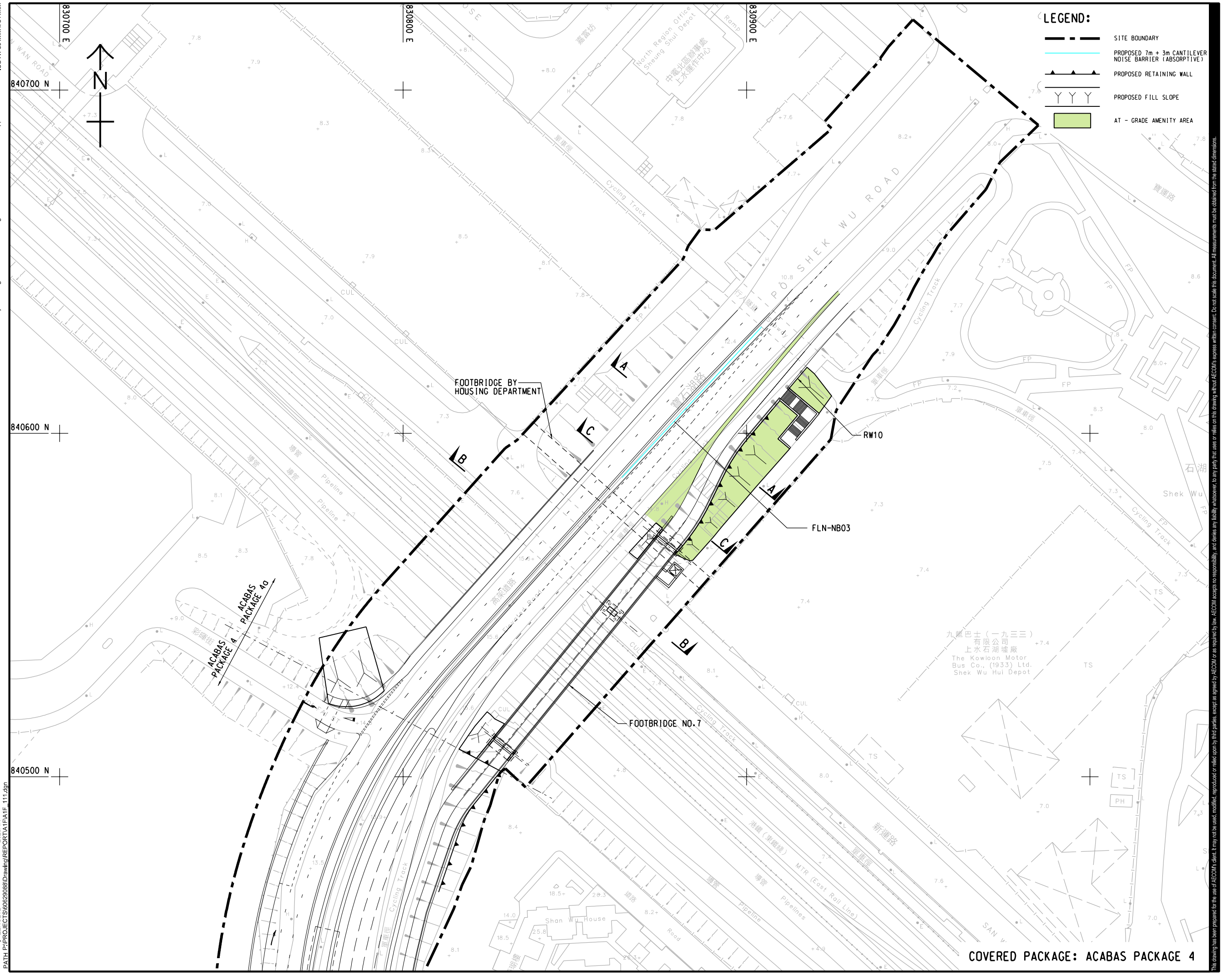
SHEET NUMBER
圖紙編號
60629088/A1D/149

ISO A1 594mm x 841mm
Approved:
Checked:
Designer:
Project Management Initials:

Plot File by: YangRO
PATH P:\PROJECTS\60629088\Drawing\REPORT\A1D\A1D_149.dgn
5/29/2023

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:



Plot File by: ZENGLY2
PATH: P:\PROJECTS\60629088\Drawing\REPORT\A1F\A1F_111.dgn
2023/4/1

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PROJECT
項目

IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

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STATUS
階段

SCALE 比例
A1 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60629088

CONTRACT NO. 合約編號
CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

GENERAL ARRANGEMENT - PO SHEK WU ROAD

SHEET NUMBER
圖紙編號

60629088/A1F/111

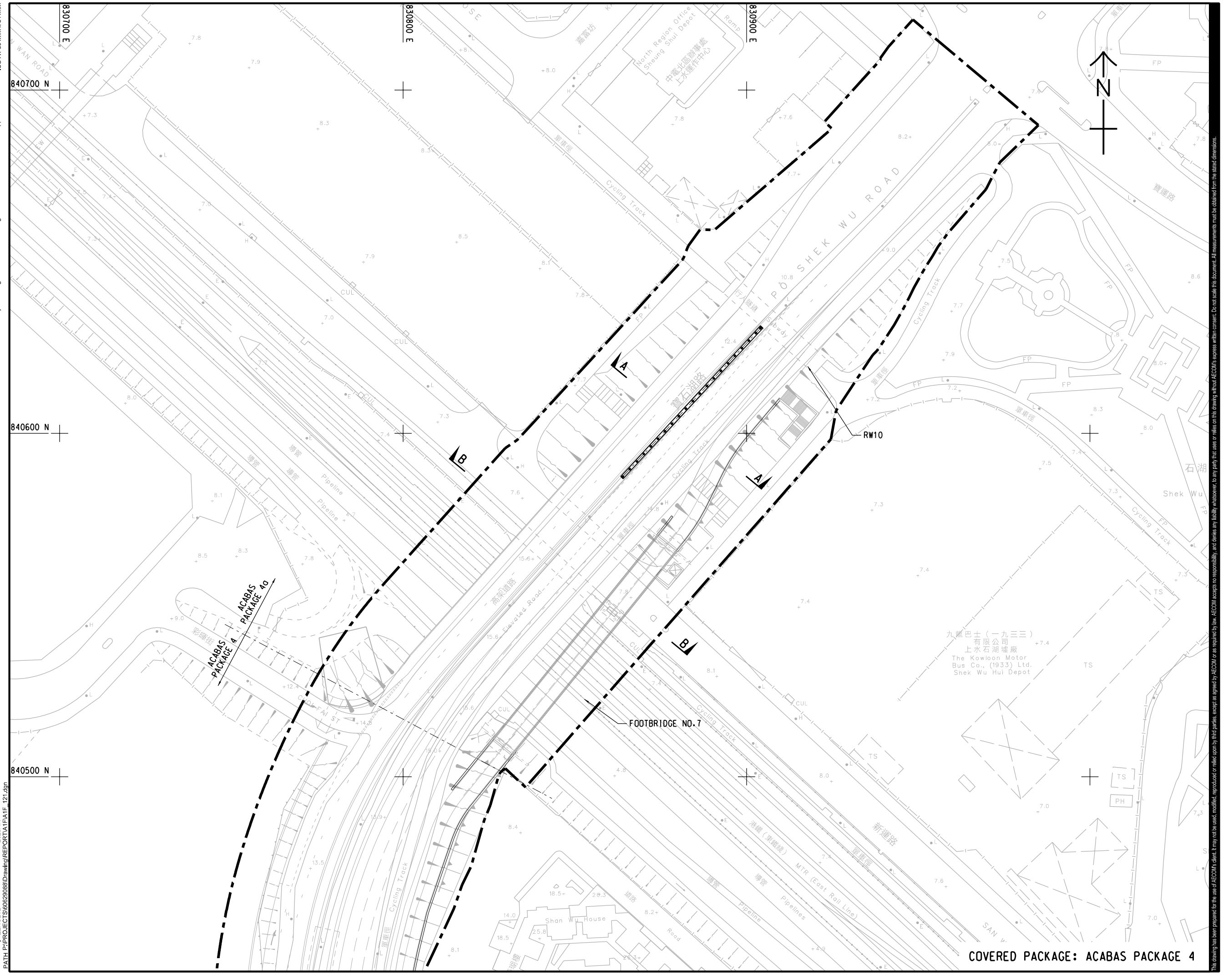
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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2023/4/1

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PROJECT
項目

IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

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SCALE 比例
A1 1 : 500

DIMENSION UNIT 尺寸單位
MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60629088

CONTRACT NO. 合約編號
CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

NOISE MITIGATION MEASURES
STRUCTURAL LAYOUT PLAN

SHEET NUMBER
圖紙編號

60629088/A1F/121

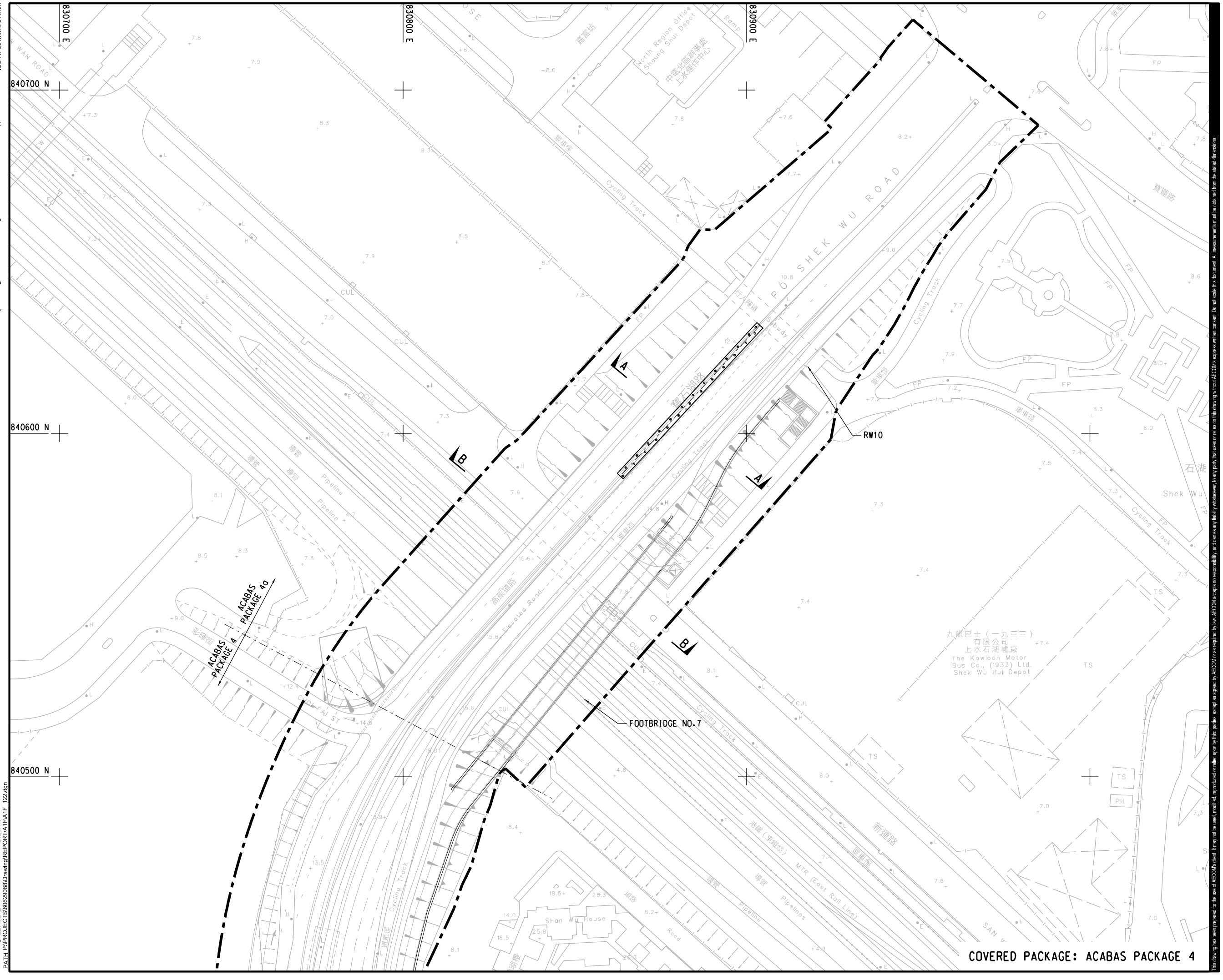
ISO A1 594mm x 841mm

Approved:

Checked:

Designer:

Project Management Initials:



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2023/4/1

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PROJECT
項目

IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

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階段

SCALE 比例
A1 1 : 500

DIMENSION UNIT 尺寸單位
MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60629088

CONTRACT NO. 合約編號
CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

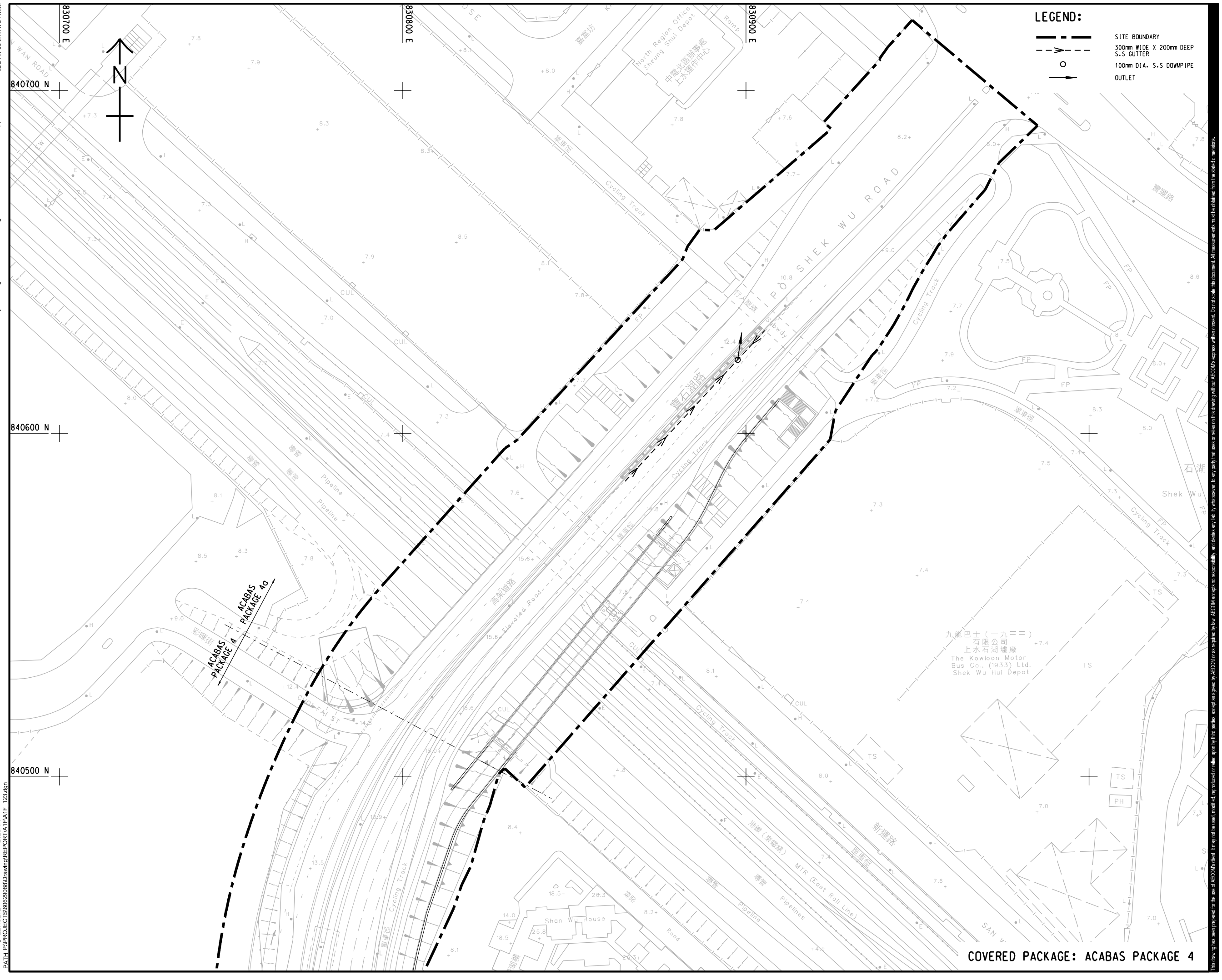
NOISE MITIGATION MEASURES FOUNDATION LAYOUT PLAN

SHEET NUMBER
圖紙編號

60629088/A1F/122

ISO A1 594mm x 841mm

Project Management Initials: Designer: Checked: Approved:



Plot File by: ZENGLY2
PATH: P:\PROJECTS\60629088\Drawing\REPORT\A1F\A1F_123.dgn
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PROJECT
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IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

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SCALE 比例
A1 1 : 500

DIMENSION UNIT 尺寸單位
METRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60629088

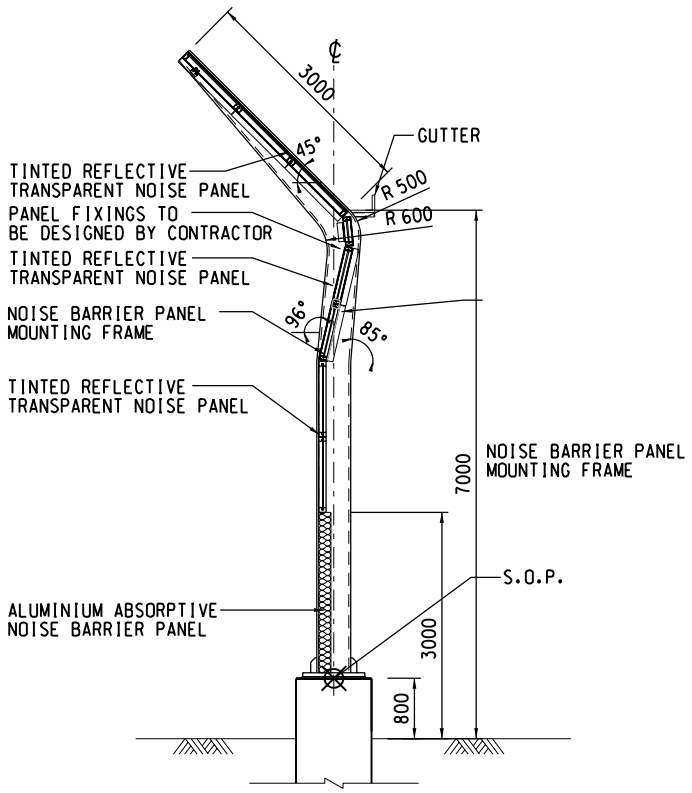
CONTRACT NO. 合約編號
CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

NOISE MITIGATION MEASURES
DRAINAGE LAYOUT PLAN

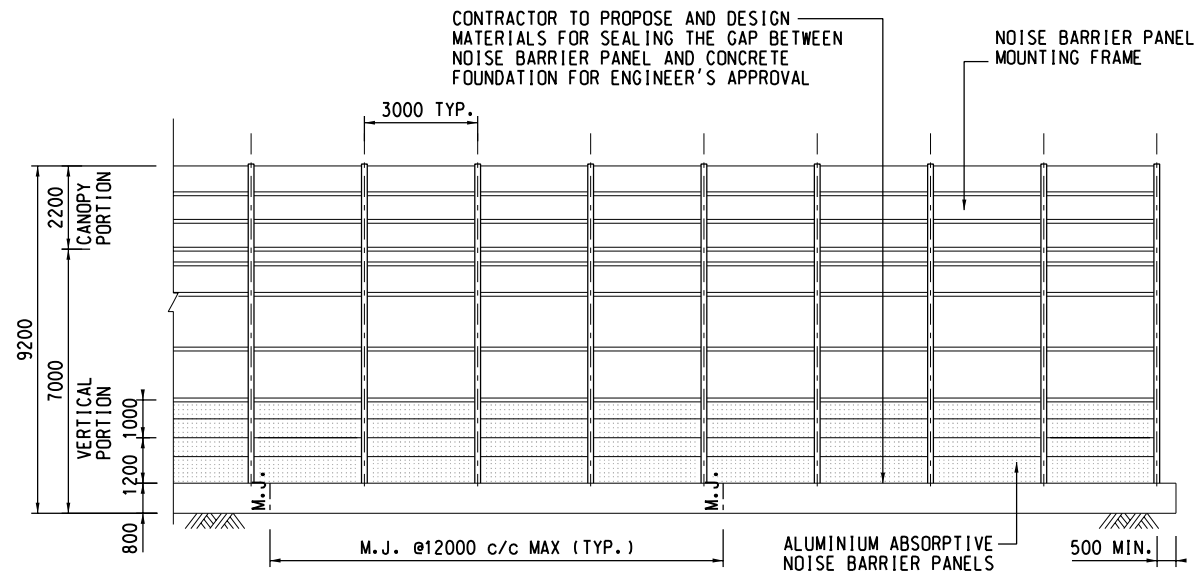
SHEET NUMBER
圖紙編號

60629088/A1F/123



NOISE BARRIER TYPE V7+C3

SCALE 1 : 50



ELEVATION FOR NOISE BARRIER TYPE V7+C3

SCALE 1 : 100

AECOM

PROJECT
項目

IMPROVEMENT OF TAI TAU LENG ROUNDABOUT AND FANLING HIGHWAY (KWU TUNG SECTION) - DESIGN & CONSTRUCTION

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STATUS
階段

SCALE 比例: A1 AS SHOWN

DIMENSION UNIT 尺寸單位: MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60629088

CONTRACT NO. 合約編號: CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

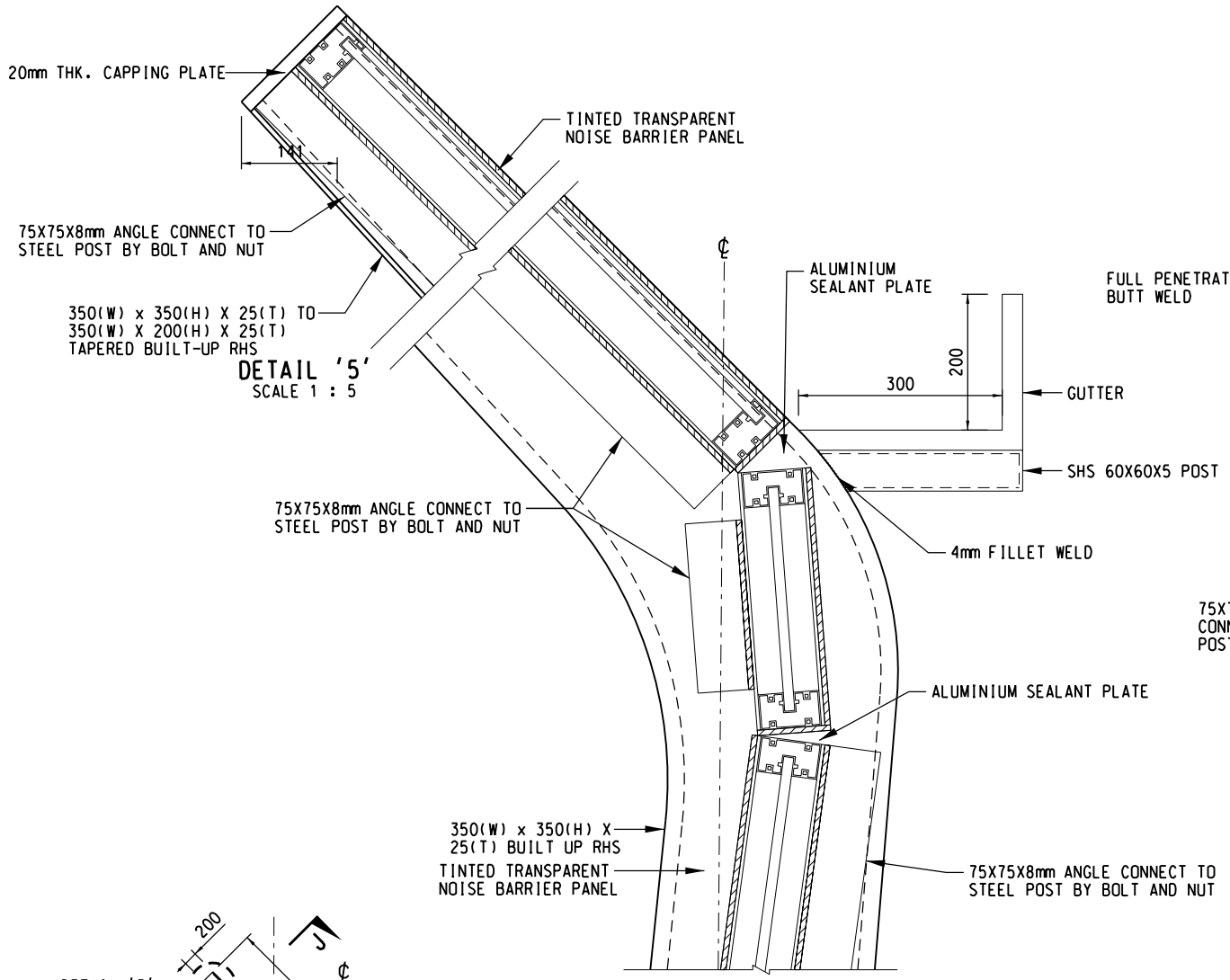
NOISE BARRIER TYPICAL DETAIL

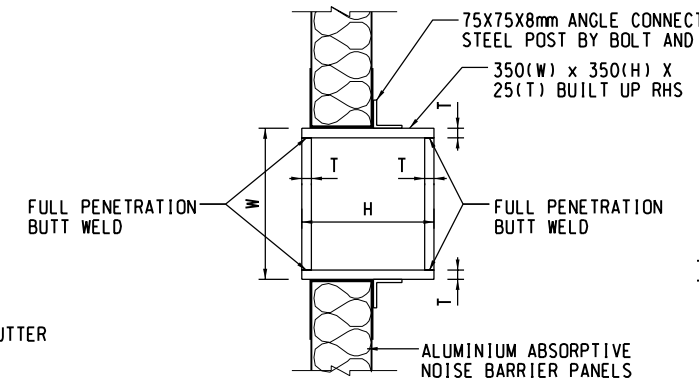
SHEET NUMBER
圖紙編號

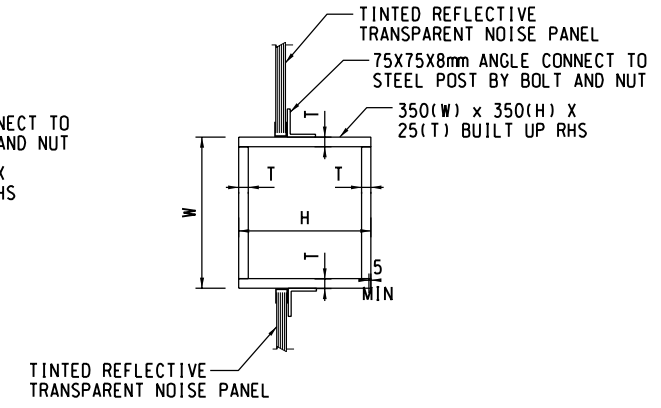
60629088/A1F/124

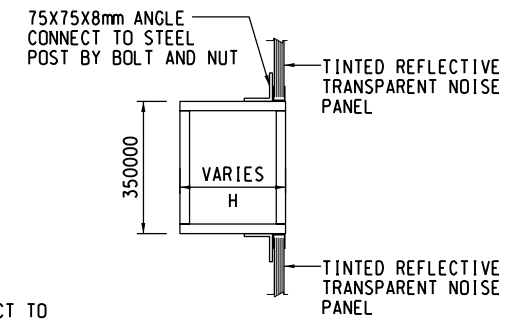
Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

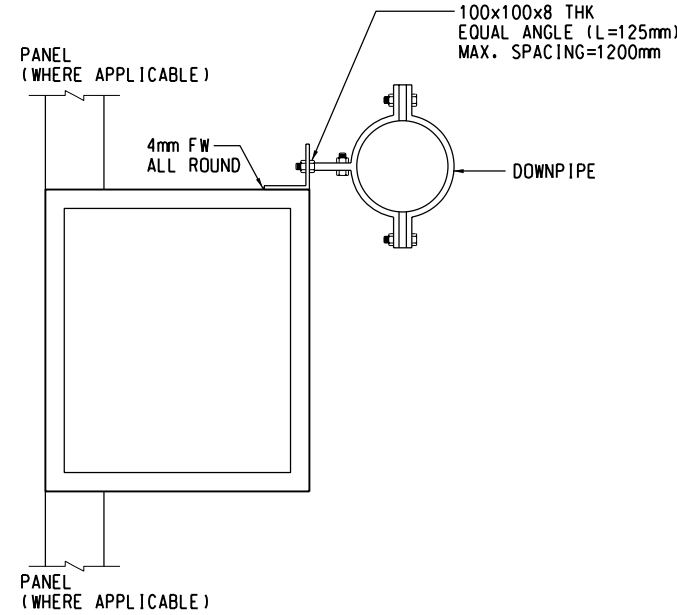
Plot File by: ZENGLY2 2023/4/1
PATH: P:\PROJECTS\60629088\Drawing\REPORT\A1\FA1F_124.dgn



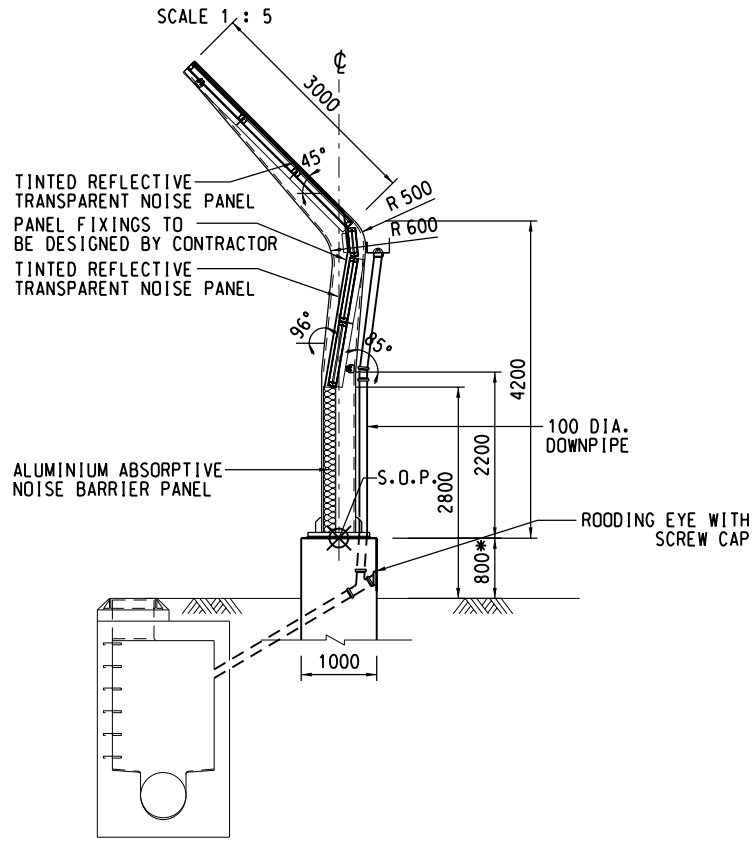




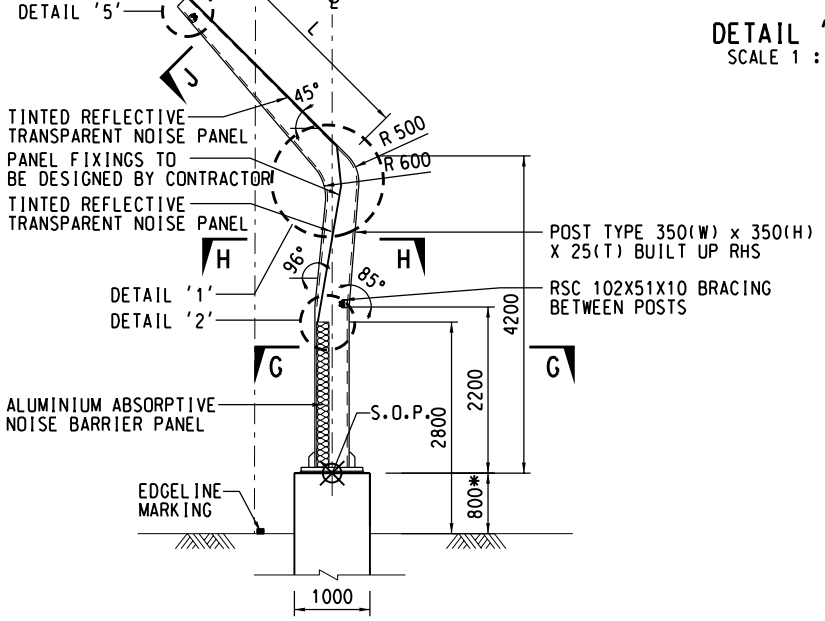




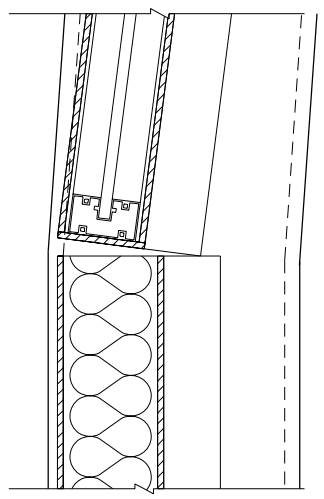
TYPICAL DOWNPIPE FIXING DETAILS



TYPICAL DOWN PIPE ARRANGEMENT
SCALE 1 : 50



STEEL WORKS DETAILS FOR NOISE BARRIER TYPE V5+C3 AND V7+C3
SCALE 1 : 50



DETAIL '2'
SCALE 1 : 5

AECOM

PROJECT
項目
DEVELOPMENT OF KWU TUNG NORTH NEW DEVELOPMENT AREA, REMAINING PHASE - DESIGN & CONSTRUCTION

CLIENT
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土木工程拓展署
CEDD Civil Engineering and Development Department

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I/R 修訂	DATE 日期	DESCRIPTION 修訂簡述	CHK. 核核

STATUS
階段

SCALE 比例
A1 AS SHOWN

DIMENSION UNIT 尺寸單位
MILLIMETRES

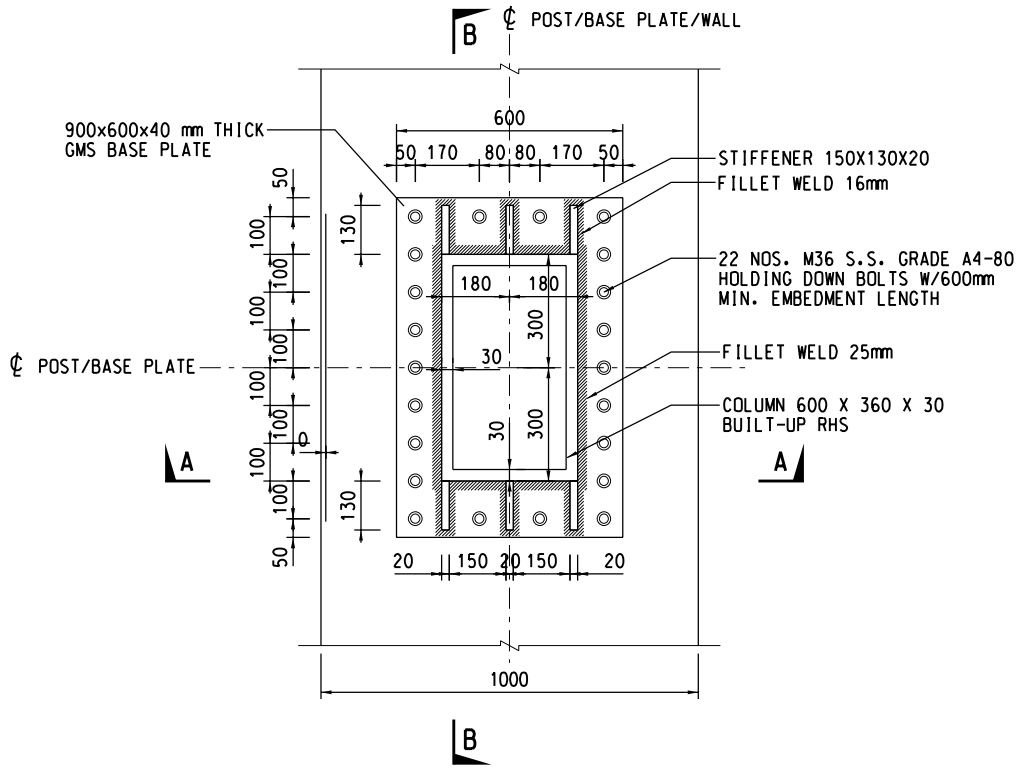
KEY PLAN
索引圖

PROJECT NO. 項目編號
60629088

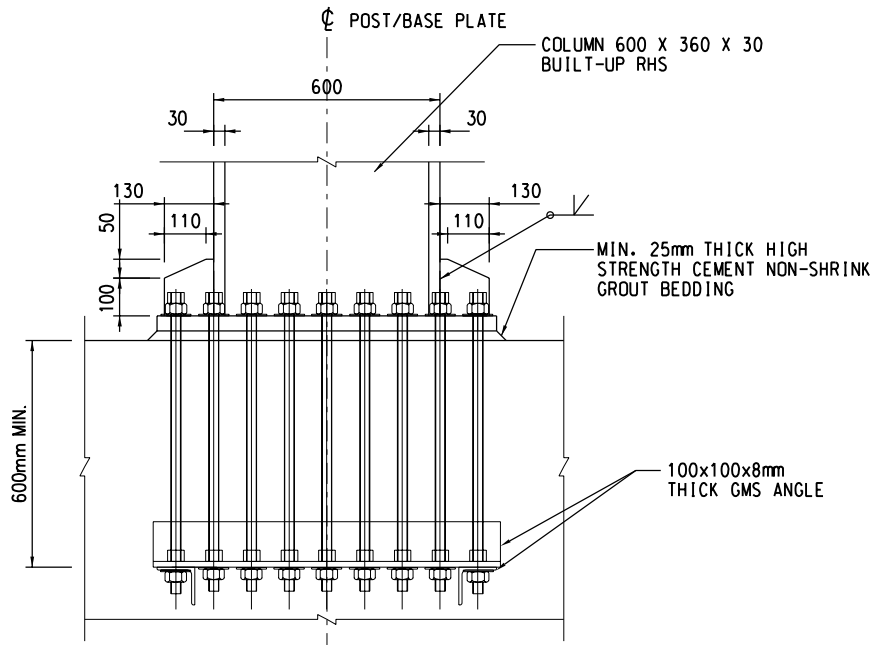
CONTRACT NO. 合約編號
CE 20/2019 (HY)

SHEET TITLE
圖紙名稱
NOISE BARRIER TYPICAL DETAIL

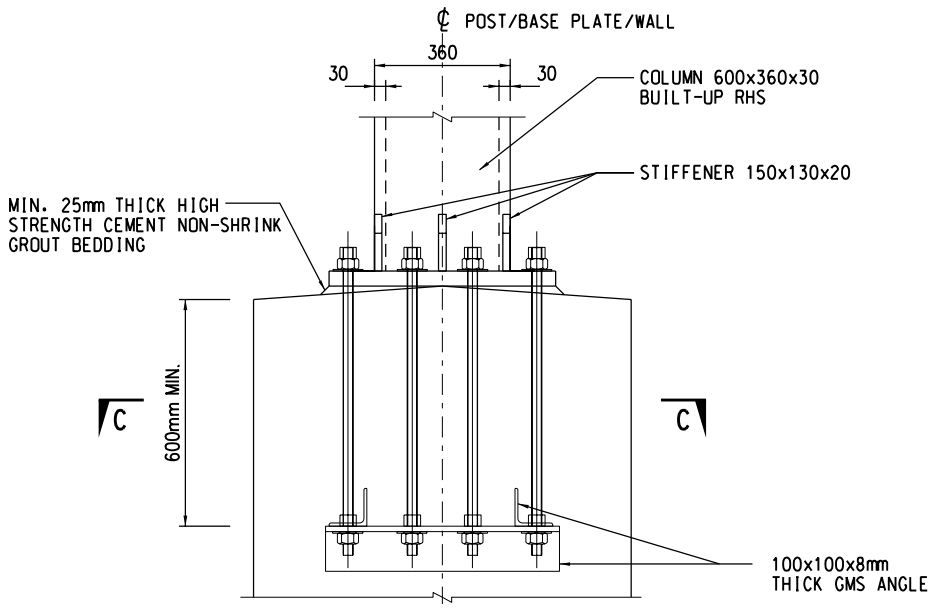
SHEET NUMBER
圖紙編號
60629088/A1F/125



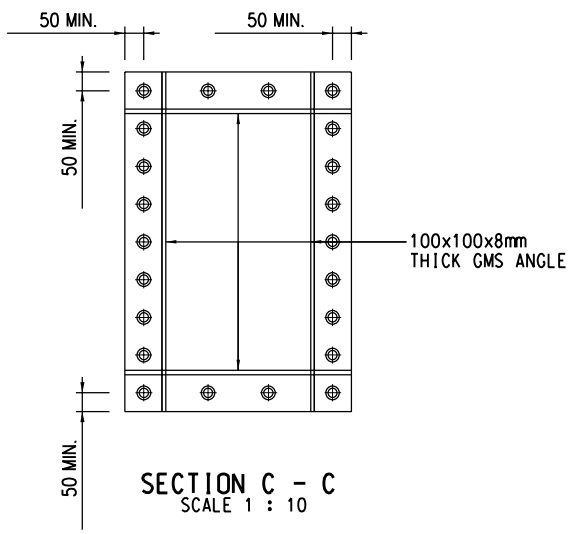
BASE PLATE FOR NOISE BARRIE TYPE V7+C3
SCALE 1 : 10



SECTION B - B
NOTES: FOOTING R.C. AND NOISE BARRIER PANEL
NOT SHOWN FOR CLARITY
SCALE 1 : 10



SECTION A - A
NOTES: FOOTING R.C. AND NOISE BARRIER PANEL
NOT SHOWN FOR CLARITY
SCALE 1 : 10



SECTION C - C
SCALE 1 : 10

AECOM

PROJECT
項目
DEVELOPMENT OF
KWU TUNG NORTH
NEW DEVELOPMENT AREA,
REMAINING PHASE -
DESIGN & CONSTRUCTION

CLIENT
業主
CEDD 土木工程拓展署 Civil Engineering and Development Department

CONSULTANT
工程顧問公司
AECOM Asia Company Ltd.
www.aecom.com

SUB-CONSULTANTS
分判工程顧問公司

ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 校核

STATUS
INFX

SCALE 比例	DIMENSION UNIT 尺寸單位
A1 AS SHOWN	MILLIMETRES

KEY PLAN
次分圖

PROJECT NO. 項目編號	CONTRACT NO. 合約編號
60629088	CE 20/2019 (HY)

SHEET TITLE
圖紙名稱
NOISE BARRIER TYPICAL DETAIL

SHEET NUMBER
圖紙編號
60629088/A1F/126

Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Plot File by: ZENGLY2
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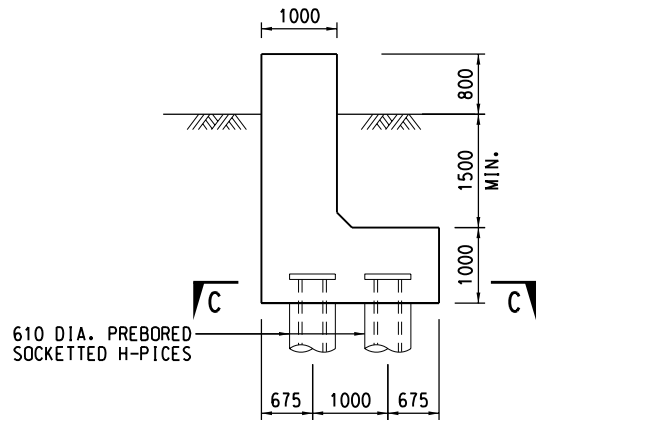
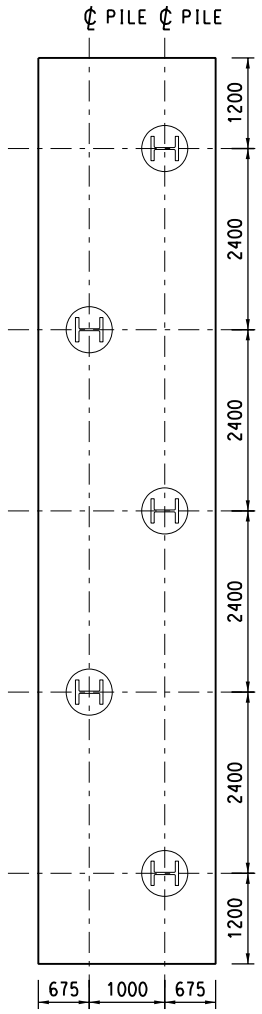
1/19/2023



TYPICAL DETAILS OF SOUTHERN FOUNDATION OF NOISE BARRIER

SCALE 1 : 50



SECTION C - C

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Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm

Plot File by: ZENGLY2 1/19/2023
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AECOM

PROJECT
項目

DEVELOPMENT OF
KWU TUNG NORTH
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I/R 修訂	DATE 日期	DESCRIPTION 內容簡述	CHK. 核核

STATUS
狀況

SCALE 比例
A1 AS SHOWN

DIMENSION UNIT 尺寸單位
MILLIMETRES

KEY PLAN
索引圖

PROJECT NO. 項目編號
60629088

CONTRACT NO. 合約編號
CE 20/2019 (HY)

SHEET TITLE
圖紙名稱

NOISE MITIGATION MEASURES
FOUNDATION DETAILS

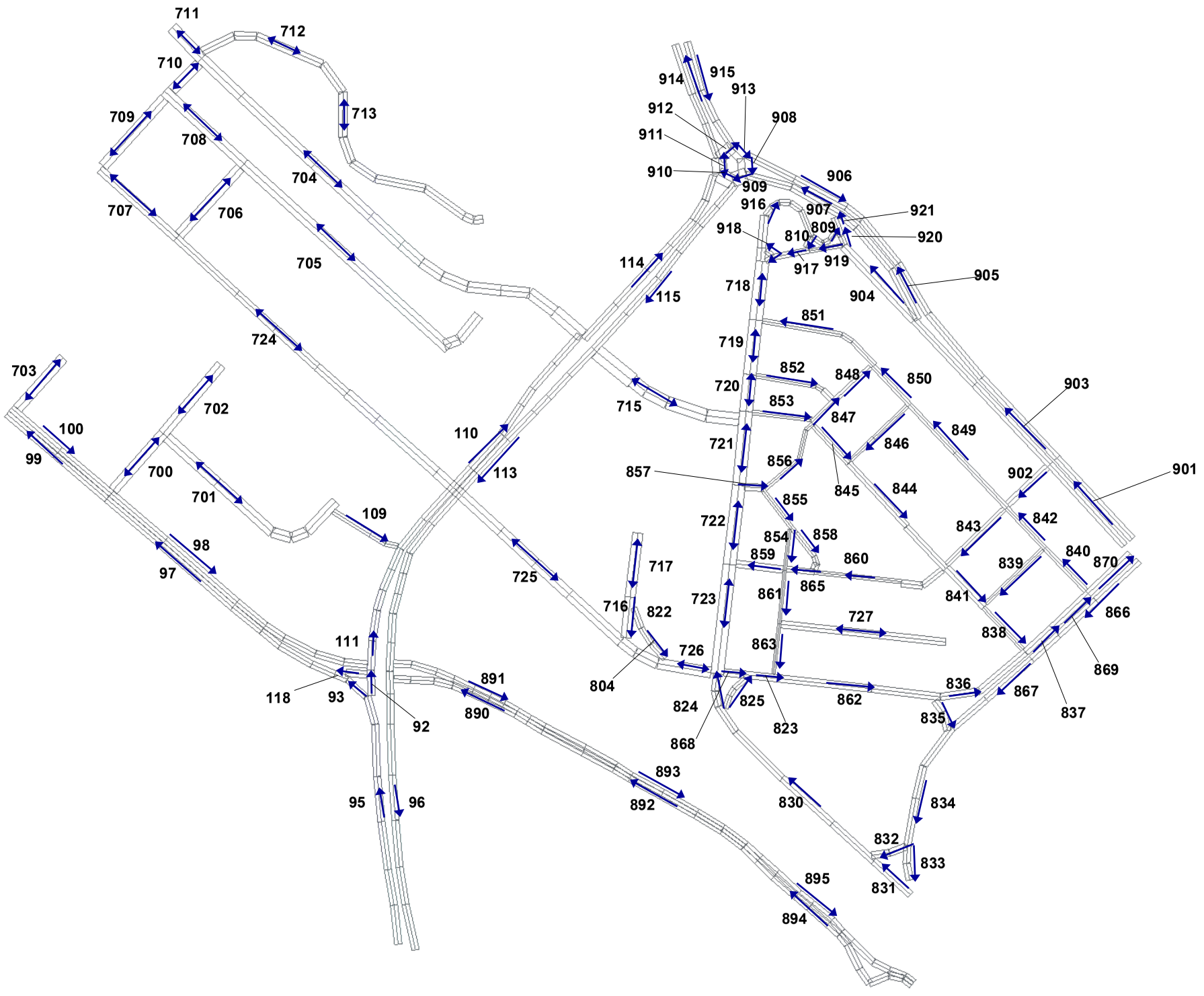
SHEET NUMBER
圖紙編號

60629088/A1F/127

Appendix 4.2

Traffic Forecast

2031 Traffic ID



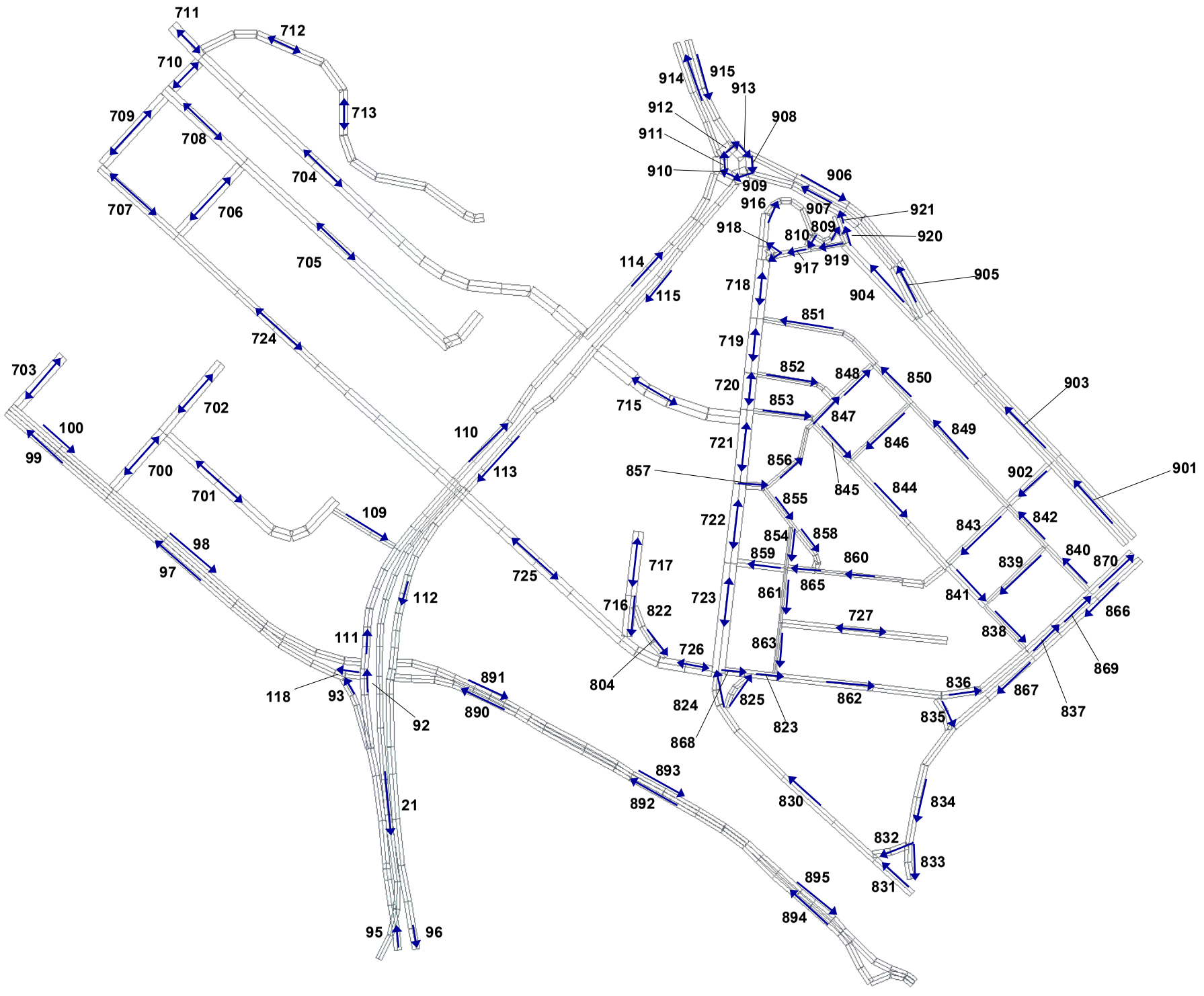
Year 2031 Traffic Flow

ID	Description	Speed Limit (km/hr)	Year 2031	
			Traffic Flow (veh/hr)	% of Heavy Vehicles
95	Po Shek Wu Road NB	50	1714	40.8
96	Po Shek Wu Road SB	50	1817	55.6
97	Choi Yuen Road WB	50	322	34.6
98	Choi Yuen Road EB	50	330	71.7
99	Choi Yuen Road WB	50	164	34.3
100	Choi Yuen Road EB	50	168	71.9
109	Choi Fai Street EB	50	184	77.3
110	Po Shek Wu Road NB	50	1720	47.5
111	Po Shek Wu Road NB	50	1519	42.8
112	Po Shek Wu Road SB	50	1361	43.7
113	Po Shek Wu Road SB	50	1361	43.7
114	Po Shek Wu Road NB	50	816	52.5
115	Po Shek Wu Road SB	50	932	36.8
116	Po Wan Road WB	50	480	35.6
117	Po Wan Road EB	50	204	56.9
118	Po Shek Wu Road NB to Choi Yuen Road WB	50	132	26.5
700	Choi Fat Street (101+102)	50	302	49.2
701	Choi Fai Street (103+104)	50	145	49.0
702	Choi Fat Street (105+106)	50	160	48.6
703	Choi Shun Street (107+108)	50	244	30.5
704	Po Wan Road (116+117)	50	684	42.0
705	Ka Fu Circuit (120+121)	50	84	34.7
706	Cheuk Wan Road (122+123)	50	69	36.1
707	San Wan Road (124+125)	50	292	40.4
708	Ka Fu Circuit (127+128)	50	131	37.1
709	San Po Street (129+130)	50	146	36.8
710	San Po Street (131+132)	50	279	36.6
711	Po Wan Road (133+136)	50	502	43.3
712	Sheung Shui Tung Hing Road (134+135)	50	65	34.7
713	Sheung Shui Tung Hing Road (137+138)	50	51	35.9
714	Po Wan Road (139+140)	50	422	45.7
715	Po Wan Road (397+398)	50	845	56.5
716	Unamed Road (803+805)	50	110	46.2
717	Unamed Road (805+806)	50	227	46.7
718	San Fung Avenue (811+812)	50	235	36.6
719	San Fung Avenue (813+814)	50	148	47.3
720	San Fung Avenue (815+816)	50	267	48.9
721	San Fung Avenue (817+818)	50	763	58.6
722	San Fung Avenue (819+820)	50	505	69.4
723	San Fung Avenue (821+822)	50	566	61.8
724	San Wan Road (826+827)	50	321	36.4

ID	Description	Speed Limit (km/hr)	Year 2031	
			Traffic Flow (veh/hr)	% of Heavy Vehicles
725	San Wan Road (828+829)	50	321	36.4
726	San Wan Road (807+808)	50	466	37.0
727	San Lok Street (864+865)	50	326	19.0
830	San Wan Road WB	50	590	57.1
831	San Wan Road WB	50	493	53.8
832	Lung Wan Street SB	50	104	72.5
833	Lung Wan Street SB	50	817	43.8
834	Lung Sum Avenue EB	50	921	47.3
835	Lung Sum Avenue EB	50	865	48.9
836	Lung Sum Avenue EB	50	85	89.7
837	Lung Sum Avenue EB	50	285	56.6
838	San Hong Street SB	50	202	44.3
839	San Cheung Street WB	50	9	37.5
840	San Shing Avenue WB	50	117	14.7
841	San Hong Street SB	50	196	44.4
842	San Shing Avenue WB	50	108	11.7
843	Fu Hing Street WB	50	125	49.5
844	San Hong Street SB	50	283	29.6
845	San Hong Street SB	50	203	27.7
846	San Kung Street WB	50	71	32.3
847	Tsun Fu Street	50	26	56.5
848	Tsun Fu Street EB	50	108	27.7
849	San Shing Avenue WB	50	131	28.1
850	San Shing Avenue WB	50	57	22.0
851	San Shing Avenue WB	50	165	25.7
852	San Kin Street EB	50	81	18.3
853	San Hong Street EB	50	33	37.9
854	San Fat Street SB	50	122	55.7
855	San Tsoi Street SB	50	160	51.8
856	Tsun Fu Street EB	50	196	38.6
857	Tsun Fu Street EB	50	352	44.6
858	San Tsoi Street SB	50	38	39.4
859	Fu Hing Street WB	50	61	20.8
860	Fu Hing Street WB	50	250	16.1
861	San Fat Street SB	50	353	31.8
862	Lung Sum Avenue EB	50	937	51.6
863	San Fat Street SB	50	316	29.1
864	San Lok Street WB	50	32	17.9
865	Fu Hing Street WB	50	294	19.1
866	Lung Sum Avenue WB	50	273	40.3
867	Lung Sum Avenue WB	50	169	49.0
868	Lung Sum Avenue EB	50	351	40.2

ID	Description	Speed Limit (km/hr)	Year 2031	
			Traffic Flow (veh/hr)	% of Heavy Vehicles
869	Lung Sum Avenue EB	50	522	41.6
870	Lung Sum Avenue EB	50	406	49.7
890	Choi Yuen Road WB	50	1269	39.7
891	Choi Yuen Road EB	50	1010	27.4
892	Choi Yuen Road WB	50	1151	30.8
893	Choi Yuen Road EB	50	969	27.2
894	Choi Yuen Road WB	50	1144	27.8
895	Choi Yuen Road EB	50	980	28.4
901	Jockey Club Road NB	50	437	33.8
902	Fu Hing Street WB	50	141	59.3
903	Jockey Club Road NB	50	300	22.5
904	Jockey Club Road NB	50	75	47.7
905	Jockey Club Road NB	50	227	15.1
906	Jockey Club Road SB	50	650	45.6
907	Jockey Club Road NB	50	429	22.4
908	Jockey Club Road Roundabout	50	624	44.5
909	Jockey Club Road Roundabout	50	1055	35.5
910	Jockey Club Road Roundabout	50	119	24.0
911	Jockey Club Road Roundabout	50	935	49.0
912	Jockey Club Road Roundabout	50	442	50.8
913	Jockey Club Road Roundabout	50	1275	45.1
914	Jockey Club Road NB	50	493	47.4
915	Jockey Club Road SB	50	832	41.9
916	San Fung Avenue NB	50	197	33.1
917	San Fung Avenue WB	50	54	51.1
918	San Fung Avenue WB	50	17	46.7
919	San Fung Avenue WB	50	54	51.1
920	Jockey Club Road NB	50	17	40.0
921	Jockey Club Road NB	50	198	32.9

2045 Traffic ID



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Year 2045 Traffic Flow

ID	Street [1]	Speed Limit (km/hr)	Year 2045	
			Traffic Flow (veh/hr)	% of Heavy Vehicles
21	Po Shek Wu Road Flyover SB	50	1326	57.5
95	Po Shek Wu Road NB	50	1988	38.7
96	Po Shek Wu Road SB	50	1348	50.8
97	Choi Yuen Road WB	50	324	34.5
98	Choi Yuen Road EB	50	308	70.1
99	Choi Yuen Road WB	50	168	34.9
100	Choi Yuen Road EB	50	156	70.6
109	Choi Fai Street EB	50	182	75.2
110	Po Shek Wu Road NB	50	1780	48.8
111	Po Shek Wu Road NB	50	1578	44.8
112	Po Shek Wu Road SB	50	885	36.1
113	Po Shek Wu Road SB	50	2208	48.9
114	Po Shek Wu Road NB	50	853	53.7
115	Po Shek Wu Road SB	50	1688	44.5
116	Po Wan Road WB	50	473	37.2
117	Po Wan Road EB	50	205	55.2
118	Po Shek Wu Road NB to Choi Yuen Road WB	50	89	34.2
700	Choi Fat Street (101+102)	50	292	47.8
701	Choi Fai Street (103+104)	50	139	47.0
702	Choi Fat Street (105+106)	50	156	46.7
703	Choi Shun Street (107+108)	50	245	30.5
704	Po Wan Road (116+117)	50	678	42.7
705	Ka Fu Circuit (120+121)	50	81	36.5
706	Cheuk Wan Road (122+123)	50	70	37.7
707	San Wan Road (124+125)	50	310	40.8
708	Ka Fu Circuit (127+128)	50	134	38.6
709	San Po Street (129+130)	50	149	38.5
710	San Po Street (131+132)	50	286	37.8
711	Po Wan Road (133+136)	50	474	44.0
712	Sheung Shui Tung Hing Road (134+135)	50	68	25.7
713	Sheung Shui Tung Hing Road (137+138)	50	53	25.3
714	Po Wan Road (139+140)	50	408	46.8
715	Po Wan Road (397+398)	50	644	63.1
716	Unamed Road (803+805)	50	110	46.2
717	Unamed Road (805+806)	50	227	46.7
718	San Fung Avenue (811+812)	50	378	23.4
719	San Fung Avenue (813+814)	50	105	36.0
720	San Fung Avenue (815+816)	50	244	57.5
721	San Fung Avenue (817+818)	50	785	60.4
722	San Fung Avenue (819+820)	50	520	73.4
723	San Fung Avenue (821+822)	50	603	63.9

ID	Street [1]	Speed Limit (km/hr)	Year 2045	
			Traffic Flow (veh/hr)	% of Heavy Vehicles
724	San Wan Road (826+827)	50	307	34.6
725	San Wan Road (828+829)	50	307	34.6
726	San Wan Road (807+808)	50	451	34.7
727	San Lok Street (864+865)	50	194	22.5
804	Unamed Road	50	116	42.9
809	San Fung Avenue SB	50	322	18.9
810	San Fung Avenue SB	50	17	46.7
823	Lung Sum Avenue EB	50	621	60.8
824	San Wan Road WB	50	348	36.9
825	San Wan Road WB to Lung Sum Avenue EB	50	246	91.6
830	San Wan Road WB	50	548	57.9
831	San Wan Road WB	50	449	54.9
832	Lung Wan Street SB	50	105	72.5
833	Lung Wan Street SB	50	589	48.0
834	Lung Sum Avenue EB	50	694	51.9
835	Lung Sum Avenue EB	50	640	54.5
836	Lung Sum Avenue EB	50	129	71.7
837	Lung Sum Avenue EB	50	285	56.6
838	San Hong Street SB	50	161	46.4
839	San Cheung Street WB	50	9	37.5
840	San Shing Avenue WB	50	192	10.8
841	San Hong Street SB	50	161	46.4
842	San Shing Avenue WB	50	185	10.6
843	Fu Hing Street WB	50	120	50.0
844	San Hong Street SB	50	194	32.0
845	San Hong Street SB	50	118	32.0
846	San Kung Street WB	50	75	32.3
847	Tsun Fu Street	50	92	23.8
848	Tsun Fu Street EB	50	159	22.5
849	San Shing Avenue WB	50	222	20.7
850	San Shing Avenue WB	50	145	14.3
851	San Shing Avenue WB	50	302	18.3
852	San Kin Street EB	50	62	16.7
853	San Hong Street EB	50	34	40.0
854	San Fat Street SB	50	97	52.4
855	San Tsoi Street SB	50	125	46.8
856	Tsun Fu Street EB	50	161	37.1
857	Tsun Fu Street EB	50	285	41.5
858	San Tsoi Street SB	50	26	21.7
859	Fu Hing Street WB	50	84	17.8
860	Fu Hing Street WB	50	137	23.5
861	San Fat Street SB	50	178	41.9

ID	Street [1]	Speed Limit (km/hr)	Year 2045	
			Traffic Flow (veh/hr)	% of Heavy Vehicles
862	Lung Sum Avenue EB	50	754	56.5
863	San Fat Street SB	50	138	40.0
864	San Lok Street WB	50	32	17.9
865	Fu Hing Street WB	50	162	23.4
866	Lung Sum Avenue WB	50	282	39.6
867	Lung Sum Avenue WB	50	179	47.4
868	Lung Sum Avenue EB	50	345	33.3
869	Lung Sum Avenue EB	50	608	37.3
870	Lung Sum Avenue EB	50	416	49.4
890	Choi Yuen Road WB	50	1022	42.6
891	Choi Yuen Road EB	50	946	27.3
892	Choi Yuen Road WB	50	889	33.3
893	Choi Yuen Road EB	50	876	27.5
894	Choi Yuen Road WB	50	890	30.3
895	Choi Yuen Road EB	50	890	28.9
901	Jockey Club Road NB	50	534	33.8
902	Fu Hing Street WB	50	158	56.2
903	Jockey Club Road NB	50	381	25.6
904	Jockey Club Road NB	50	76	47.0
905	Jockey Club Road NB	50	305	20.3
906	Jockey Club Road SB	50	398	31.8
907	Jockey Club Road NB	50	653	19.0
908	Jockey Club Road Roundabout	50	1180	55.9
909	Jockey Club Road Roundabout	50	1833	42.8
910	Jockey Club Road Roundabout	50	144	22.4
911	Jockey Club Road Roundabout	50	999	49.3
912	Jockey Club Road Roundabout	50	452	51.8
913	Jockey Club Road Roundabout	50	1578	49.9
914	Jockey Club Road NB	50	545	47.3
915	Jockey Club Road SB	50	1125	49.2
916	San Fung Avenue NB	50	339	20.3
917	San Fung Avenue WB	50	56	49.0
918	San Fung Avenue WB	50	17	46.7
919	San Fung Avenue WB	50	56	49.0
920	Jockey Club Road NB	50	17	40.0
921	Jockey Club Road NB	50	339	20.0

Notes:[1] NB = North bound, SB = South bound, EB = East bound, WB = West bound

Appendix 4.3

Predicted Traffic Noise Levels for Residential Blocks (Basecase Scenario A)

Floor	R101a	R101b	R101c	R102a	R102b	R103a	R103b	R103c	R103d	R103e	R103f	R104a	R104b	R104c	R105a	R105b	R105c	R105d	R106a	R106b	R106c	R106d	R107a	R107b	R108a	R108b	R108c
45	71.6	71.6	64.3	70.9	63.9	68.0	70.7	70.6	64.5	64.5	64.6	52.2	56.3	44.8	54.4	58.8	58.9	<40	54.1	57.8	58.0	<40	57.4	57.9	58.7	59.1	59.2
44	71.6	71.7	64.3	70.9	63.9	68.0	70.7	70.7	64.4	64.4	64.6	52.2	56.3	44.6	54.3	58.7	58.9	<40	54.0	57.8	57.8	<40	57.4	57.9	58.6	59.1	59.2
43	71.7	71.8	64.4	71.0	64.0	68.1	70.8	70.7	64.4	64.5	64.6	52.2	56.3	44.5	54.3	58.7	58.9	<40	53.9	57.7	57.8	<40	57.5	57.9	58.7	59.2	59.3
42	71.7	71.8	64.4	71.0	64.0	68.1	70.8	70.7	64.4	64.5	64.7	52.1	56.2	44.4	54.2	58.7	58.9	<40	53.9	57.7	57.9	<40	57.5	57.9	58.7	59.1	59.2
41	71.8	71.9	64.5	71.0	64.0	68.2	70.9	70.8	64.4	64.5	64.7	52.2	56.1	44.3	54.2	58.6	58.8	<40	53.8	57.6	57.8	<40	57.4	57.9	58.7	59.2	59.3
40	71.9	71.9	64.5	71.1	64.0	68.2	70.9	70.8	64.5	64.5	64.7	52.1	56.1	44.1	54.0	58.7	58.8	<40	53.6	57.7	57.8	<40	57.4	57.9	58.7	59.2	59.3
39	71.9	72.0	64.5	71.1	64.1	68.3	70.9	70.9	64.5	64.5	64.7	52.1	56.0	43.9	53.9	58.6	58.8	<40	53.5	57.7	57.8	<40	57.3	58.0	58.8	59.2	59.3
38	72.0	72.0	64.6	71.2	64.1	68.4	71.0	70.9	64.4	64.5	64.7	52.0	55.9	43.8	53.7	58.5	58.7	<40	53.4	57.6	57.8	<40	57.3	57.9	58.7	59.2	59.3
37	72.1	72.1	64.6	71.3	64.1	68.4	71.0	71.0	64.5	64.5	64.7	52.0	55.7	43.5	53.5	58.5	58.6	<40	53.2	57.6	57.7	<40	57.3	58.0	58.7	59.2	59.3
36	72.1	72.1	64.7	71.3	64.2	68.5	71.1	71.0	64.4	64.5	64.7	51.9	55.6	43.2	53.2	58.3	58.6	<40	53.0	57.5	57.6	<40	57.2	57.9	58.8	59.2	59.3
35	72.2	72.2	64.7	71.4	64.2	68.5	71.2	71.1	64.5	64.5	64.7	51.8	55.4	42.9	52.9	58.2	58.5	<40	52.8	57.4	57.6	<40	57.2	57.9	58.7	59.2	59.3
34	72.2	72.3	64.7	71.4	64.2	68.6	71.2	71.1	64.5	64.5	64.7	51.8	55.2	42.4	52.7	58.1	58.5	<40	52.6	57.4	57.5	<40	57.2	57.8	58.7	59.2	59.3
33	72.3	72.3	64.8	71.4	64.3	68.7	71.2	71.1	64.4	64.5	64.7	51.6	55.0	42.1	52.5	58.0	58.4	<40	52.4	57.3	57.5	<40	57.1	57.8	58.7	59.2	59.3
32	72.3	72.4	64.8	71.5	64.3	68.7	71.3	71.2	64.4	64.5	64.6	51.6	54.9	41.9	52.3	58.1	58.3	<40	52.3	57.3	57.5	<40	57.0	57.8	58.7	59.2	59.2
31	72.4	72.4	64.8	71.6	64.3	68.8	71.3	71.2	64.4	64.5	64.6	51.4	54.8	41.4	52.0	57.9	58.3	<40	52.1	57.2	57.4	<40	57.0	57.7	58.6	59.2	59.3
30	72.5	72.5	64.9	71.6	64.4	68.8	71.4	71.3	64.4	64.5	64.6	51.2	54.5	40.9	51.7	57.8	58.2	<40	52.0	57.1	57.3	<40	56.9	57.7	58.6	59.1	59.2
29	72.5	72.6	64.9	71.7	64.4	68.9	71.4	71.3	64.4	64.5	64.6	51.1	54.4	40.5	51.5	57.7	58.1	<40	51.9	57.0	57.2	<40	56.8	57.6	58.5	59.1	59.2
28	72.6	72.6	64.9	71.7	64.4	69.0	71.5	71.4	64.4	64.5	64.6	51.1	54.2	<40	51.3	57.6	58.0	<40	51.7	56.9	57.1	<40	56.7	57.4	58.5	59.0	59.2
27	72.7	72.7	64.9	71.8	64.5	69.0	71.5	71.4	64.4	64.5	64.5	50.9	54.1	<40	51.1	57.4	57.9	<40	51.7	56.6	57.0	<40	56.5	57.4	58.4	58.9	59.1
26	72.7	72.7	64.9	71.8	64.5	69.1	71.5	71.5	64.4	64.5	64.5	50.8	54.0	<40	50.9	57.3	57.7	<40	51.5	56.5	56.9	<40	56.3	57.2	58.3	58.8	59.1
25	72.8	72.8	65.0	71.9	64.4	69.1	71.6	71.5	64.3	64.4	64.5	50.6	53.8	<40	50.7	57.1	57.6	<40	51.4	56.4	56.6	<40	56.1	57.0	58.1	58.8	59.0
24	72.8	72.9	65.0	71.9	64.5	69.2	71.6	71.5	64.3	64.4	64.4	50.4	53.6	<40	50.5	56.9	57.4	<40	51.4	56.1	56.4	<40	55.9	56.9	58.0	58.7	58.9
23	72.9	72.9	65.0	71.9	64.4	69.3	71.7	71.6	64.3	64.4	64.4	50.1	53.4	<40	50.4	56.7	57.1	<40	51.3	55.7	56.1	<40	55.6	56.6	57.8	58.5	58.9
22																											
21	73.1	73.1	65.0	72.1	64.5	69.4	71.8	71.6	64.2	64.3	64.2	48.7	52.6	<40	50.0	55.7	56.3	<40	51.0	54.9	55.5	<40	55.0	56.3	57.7	58.3	58.8
20	73.1	73.1	65.1	72.1	64.5	69.5	71.8	71.7	64.2	64.3	64.1	47.5	52.1	<40	49.9	55.4	56.0	<40	51.0	54.7	55.4	<40	54.9	56.2	57.6	58.3	58.7
19	73.2	73.2	65.1	72.2	64.5	69.5	71.8	71.7	64.1	64.2	64.0	47.0	51.7	<40	49.8	55.1	55.8	<40	50.9	54.6	55.1	<40	54.5	55.9	57.4	58.2	58.7
18	73.2	73.2	65.1	72.2	64.5	69.6	71.9	71.7	64.1	64.2	64.0	45.9	51.5	<40	49.7	54.6	55.4	<40	50.8	54.1	54.8	<40	54.2	55.8	57.3	58.1	58.7
17	73.3	73.3	65.2	72.2	64.5	69.6	71.9	71.8	64.1	64.2	63.9	45.0	50.9	<40	49.6	54.2	54.9	<40	50.8	53.8	54.6	<40	54.0	55.7	57.2	58.0	58.5
16	73.4	73.3	65.2	72.3	64.5	69.7	71.9	71.8	64.1	64.2	63.9	44.3	50.7	<40	49.6	53.8	54.5	<40	50.8	53.5	54.4	<40	53.8	55.4	57.1	57.9	58.5
15	73.4	73.4	65.2	72.3	64.6	69.7	72.0	71.8	64.0	64.2	63.9	43.7	50.5	<40	49.4	53.5	54.2	<40	50.7	53.2	54.1	<40	53.6	55.4	57.0	57.9	58.5
14	73.5	73.5	65.3	72.4	64.6	69.8	72.0	71.9	64.0	64.2	63.8	43.1	50.2	<40	49.4	53.2	53.8	<40	50.6	53.1	54.0	<40	53.4	55.2	56.9	57.8	58.4
13	73.5	73.5	65.3	72.4	64.6	69.8	72.0	71.9	64.0	64.2	63.9	42.5	50.1	<40	49.3	53.0	53.5	<40	50.6	52.9	53.9	<40	53.2	55.1	56.9	57.7	58.4
12	73.6	73.6	65.4	72.4	64.6	69.8	72.1	71.9	64.1	64.2	63.8	42.1	50.0	<40	49.3	52.8	53.3	<40	50.6	52.6	53.7	<40	53.1	54.9	56.7	57.6	58.3
11	73.6	73.6	65.4	72.5	64.7	69.9	72.1	72.0	64.0	64.2	63.8	41.6	49.9	<40	49.3	52.6	53.0	<40	50.4	52.3	53.5	<40	52.9	54.7	56.5	57.5	58.2
10	73.7	73.7	65.4	72.5	64.7	69.9	72.1	72.0	64.1	64.2	63.8	41.2	49.8	<40	49.3	52.3	52.8	<40	50.1	52.1	53.3	<40	52.7	54.5	56.4	57.3	58.0
9	73.7	73.7	65.4	72.6	64.7	70.0	72.1	72.0	64.0	64.2	63.8	40.8	49.7	<40	49.2	51.9	52.3	<40	49.6	51.7	53.0	<40	52.4	54.1	56.1	57.2	58.0
8	73.8	73.8	65.4	72.6	64.7	70.0	72.2	72.0	64.0	64.1	63.8	40.5	49.7	<40	49.1	51.4	51.7	<40	48.4	51.0	52.6	<40	52.1	53.7	55.8	56.9	57.7
7	73.8	73.8	65.5	72.6	64.7	70.0	72.2	72.0	64.0	64.1	63.7	40.2	49.7	<40	49.0	50.1	50.5	<40	46.8	50.1	52.1	<40	51.6	52.8	55.1	56.3	57.1
6	73.9	73.8	65.5	72.6	64.6	70.1	72.1	71.9	63.9	64.0	63.6	<40	49.6	<40	48.9	49.1	49.6	<40	45.5	49.2	51.5	<40	50.8	51.6	53.8	55.4	56.4
5	73.9	73.8	65.4	72.4	64.6	70.0	71.6	71.4	63.8	63.9	63.4	<40	49.3	<40	48.4	48.3	48.9	<40	44.5	48.3	50.1	<40	49.0	50.3	51.9	54.4	55.8
4	73.8	73.5	64.4	70.8	63.3	68.4	70.3	70.2	62.6	62.5	61.4	<40	47.7	<40	45.5	47.5	47.9	<40	43.2	46.6	47.4	<40	46.5	47.8	49.7	51.8	54.7
Max	73.9	73.8	65.5	72.6	64.7	70.1	72.2	72.0	64.5	64.5	64.7	52.2	56.3	44.8	54.4	58.8	58.9	<40	54.1	57.8	58.0	<40	57.5	58.0	58.8	59.2	59.3
Min	71.6	71.6	64.3	70.8	63.3	68.0	70.3	70.2	62.6	62.5	61.4	<40	47.7	<40	45.5	47.5	47.9	<40	43.2	46.6	47.4	<40	46.5	47.8	49.7	51.8	54.7

# Total Flats	1927	Noise sensitive receivers with exceedance (≥70.5 dB(A))
Exceedance	749	Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.
Compliance Rate	61.1%	

Floor	R109a	R109b	R109c	R110a	R110b	R111b	R111c	R112a	R112b	R113b	R113c	R114a	R114b	R115b	R115c	R116a	R116b	R116c	R117a	R117b	R118a	R118b	R119a	R119b	R120a	R120b	R120c
45	57.6	59.8	59.9	70.2	70.3	70.4	70.4	70.8	70.9	71.0	71.1	71.2	71.3	71.8	72.4	72.1	72.1	65.0	69.1	71.3	71.0	63.8	69.5	70.6	70.8	71.1	68.7
44	57.6	59.8	59.9	70.3	70.3	70.4	70.4	70.8	70.9	71.1	71.1	71.3	71.4	71.8	72.5	72.1	72.1	65.1	69.2	71.3	71.1	63.9	69.6	70.6	70.9	71.2	68.7
43	57.6	59.8	59.9	70.3	70.3	70.4	70.5	70.9	71.0	71.1	71.2	71.4	71.5	71.9	72.5	72.2	72.2	65.2	69.2	71.4	71.1	63.9	69.7	70.7	70.9	71.2	68.8
42	57.7	59.8	59.9	70.3	70.4	70.5	70.5	70.9	71.0	71.2	71.3	71.4	71.5	71.9	72.6	72.3	72.3	65.2	69.3	71.5	71.2	64.0	69.7	70.7	71.0	71.3	68.9
41	57.7	59.8	60.0	70.4	70.4	70.5	70.6	71.0	71.1	71.2	71.3	71.5	71.6	72.0	72.6	72.3	72.3	65.3	69.3	71.5	71.3	64.0	69.8	70.8	71.0	71.4	69.0
40	57.7	59.9	60.0	70.4	70.5	70.6	70.6	71.1	71.1	71.3	71.4	71.5	71.6	72.0	72.7	72.4	72.4	65.3	69.4	71.6	71.3	64.1	69.9	70.9	71.1	71.4	69.0
39	57.7	59.9	60.0	70.5	70.5	70.6	70.7	71.1	71.2	71.4	71.4	71.6	71.7	72.1	72.8	72.5	72.5	65.4	69.5	71.7	71.4	64.2	69.9	71.0	71.2	71.5	69.1
38	57.7	59.9	60.0	70.5	70.6	70.7	70.7	71.2	71.3	71.4	71.5	71.7	71.8	72.2	72.9	72.6	72.6	65.5	69.6	71.8	71.5	64.2	70.0	71.0	71.2	71.6	69.1
37	57.7	59.9	60.0	70.6	70.6	70.7	70.8	71.2	71.3	71.5	71.6	71.7	71.8	72.2	73.0	72.7	72.6	65.5	69.6	71.8	71.6	64.3	70.0	71.1	71.3	71.6	69.2
36	57.8	59.9	60.0	70.6	70.7	70.8	70.8	71.3	71.4	71.6	71.7	71.8	71.9	72.3	73.0	72.7	72.7	65.6	69.7	71.9	71.6	64.3	70.1	71.1	71.4	71.7	69.3
35	57.8	59.9	60.0	70.6	70.7	70.8	70.9	71.4	71.5	71.6	71.7	71.9	72.0	72.4	73.1	72.8	72.8	65.6	69.8	72.0	71.7	64.4	70.2	71.2	71.4	71.8	69.3
34	57.8	59.9	60.0	70.7	70.8	70.9	70.9	71.4	71.5	71.7	71.8	72.0	72.0	72.5	73.2	72.9	72.9	65.7	69.8	72.0	71.7	64.5	70.2	71.3	71.5	71.8	69.4
33	57.8	59.9	60.0	70.7	70.8	70.9	71.0	71.5	71.6	71.8	71.9	72.0	72.1	72.6	73.3	73.0	73.0	65.8	69.9	72.1	71.8	64.5	70.3	71.3	71.6	71.9	69.5
32	57.8	59.9	60.1	70.8	70.9	71.0	71.1	71.6	71.7	71.8	72.0	72.1	72.2	72.7	73.4	73.1	73.0	65.8	70.0	72.2	71.9	64.6	70.4	71.4	71.6	72.0	69.5
31	57.8	59.9	60.1	70.8	70.9	71.1	71.1	71.6	71.7	71.9	72.0	72.2	72.3	72.7	73.5	73.2	73.1	65.9	70.1	72.3	72.0	64.6	70.4	71.5	71.7	72.1	69.6
30	57.9	59.9	60.1	70.9	70.9	71.1	71.1	71.7	71.8	72.0	72.1	72.2	72.4	72.8	73.5	73.2	73.2	66.0	70.1	72.4	72.1	64.7	70.5	71.6	71.8	72.1	69.7
29	57.9	59.9	60.0	70.9	71.0	71.1	71.2	71.8	71.9	72.1	72.2	72.3	72.4	72.9	73.6	73.3	73.3	66.0	70.2	72.5	72.2	64.8	70.6	71.6	71.8	72.2	69.8
28	57.9	59.9	60.1	71.0	71.0	71.2	71.2	71.8	71.9	72.1	72.2	72.4	72.5	73.0	73.7	73.4	73.4	66.1	70.3	72.5	72.2	64.8	70.6	71.7	71.9	72.3	69.8
27	57.9	59.8	60.0	71.0	71.1	71.2	71.3	71.9	72.0	72.2	72.3	72.5	72.6	73.1	73.8	73.5	73.5	66.2	70.4	72.6	72.3	64.9	70.7	71.8	72.0	72.3	69.9
26	58.0	59.8	60.1	71.1	71.1	71.3	71.3	71.9	72.0	72.3	72.4	72.6	72.7	73.2	73.9	73.6	73.6	66.3	70.5	72.7	72.4	65.0	70.8	71.8	72.1	72.4	70.0
25	58.0	59.8	60.0	71.1	71.2	71.3	71.4	72.0	72.1	72.3	72.5	72.6	72.8	73.2	74.0	73.7	73.7	66.3	70.5	72.8	72.5	65.1	70.9	71.9	72.1	72.5	70.1
24	58.0	59.8	60.0	71.2	71.2	71.4	71.5	72.1	72.2	72.4	72.6	72.7	72.9	73.4	74.1	73.8	73.8	66.4	70.6	72.9	72.5	65.1	70.9	72.0	72.2	72.6	70.1
23	58.1	59.7	60.0	71.2	71.3	71.4	71.5	72.1	72.3	72.5	72.6	72.8	72.9	73.5	74.2	73.9	73.9	66.5	70.7	73.0	72.6	65.2	71.0	72.1	72.3	72.6	70.2
22																											
21	58.2	59.6	59.9	71.4	71.4	71.6	71.7	72.3	72.4	72.7	72.8	73.0	73.2	73.7	74.4	74.2	74.1	66.7	70.9	73.2	72.8	65.3	71.2	72.3	72.5	72.8	70.4
20	58.2	59.6	59.9	71.4	71.5	71.7	71.7	72.4	72.5	72.8	72.9	73.1	73.3	73.8	74.6	74.3	74.2	66.8	71.0	73.3	72.9	65.4	71.3	72.3	72.6	72.9	70.5
19	58.2	59.5	59.9	71.5	71.5	71.7	71.8	72.5	72.6	72.9	73.0	73.2	73.4	73.9	74.7	74.4	74.3	66.8	71.1	73.4	73.0	65.5	71.3	72.4	72.6	73.0	70.6
18	58.2	59.5	59.9	71.5	71.6	71.8	71.8	72.6	72.7	72.9	73.1	73.3	73.4	74.0	74.8	74.5	74.4	66.9	71.2	73.5	73.1	65.5	71.4	72.5	72.7	73.1	70.7
17	58.2	59.4	59.9	71.6	71.7	71.8	71.9	72.6	72.8	73.0	73.2	73.4	73.5	74.1	74.9	74.6	74.5	67.0	71.3	73.5	73.1	65.6	71.5	72.5	72.7	73.1	70.7
16	58.2	59.4	59.9	71.6	71.7	71.9	71.9	72.7	72.8	73.1	73.2	73.4	73.6	74.2	75.0	74.7	74.6	67.1	71.3	73.6	73.2	65.7	71.5	72.6	72.8	73.2	70.8
15	58.3	59.3	59.8	71.7	71.8	71.9	72.0	72.7	72.9	73.2	73.3	73.5	73.7	74.3	75.1	74.8	74.8	67.1	71.4	73.7	73.3	65.7	71.6	72.7	72.9	73.2	70.8
14	58.2	59.4	59.7	71.7	71.8	72.0	72.0	72.8	72.9	73.2	73.4	73.6	73.8	74.4	75.2	74.9	74.9	67.2	71.5	73.8	73.4	65.8	71.7	72.7	73.0	73.3	70.9
13	58.2	59.3	59.8	71.7	71.8	72.0	72.1	72.9	73.0	73.3	73.5	73.7	73.8	74.5	75.3	75.1	75.0	67.3	71.6	73.9	73.5	65.8	71.7	72.8	73.0	73.4	71.0
12	58.2	59.2	59.7	71.7	71.8	72.0	72.1	72.9	73.0	73.4	73.5	73.7	73.9	74.5	75.4	75.2	75.1	67.4	71.7	74.0	73.5	65.9	71.8	72.9	73.1	73.4	71.0
11	58.1	59.1	59.6	71.6	71.7	71.9	72.0	72.9	73.0	73.4	73.6	73.8	74.0	74.6	75.5	75.3	75.2	67.4	71.8	74.1	73.6	65.9	71.9	72.9	73.1	73.5	71.1
10	58.0	59.0	59.5	71.5	71.6	71.8	71.9	72.8	73.0	73.3	73.6	73.8	74.0	74.7	75.5	75.4	75.3	67.5	71.9	74.2	73.7	66.0	71.9	73.0	73.2	73.6	71.2
9	57.8	58.9	59.4	71.3	71.4	71.6	71.7	72.7	72.9	73.3	73.5	73.8	74.0	74.7	75.6	75.5	75.4	67.6	71.9	74.3	73.8	66.1	72.0	73.0	73.2	73.6	71.2
8	57.6	58.7	59.2	71.1	71.2	71.3	71.5	72.6	72.8	73.3	73.5	73.7	74.0	74.7	75.6	75.6	75.5	67.6	72.0	74.3	73.9	66.1	72.0	73.0	73.2	73.6	71.2
7	57.1	58.2	58.8	70.7	70.9	71.1	71.2	72.4	72.6	73.1	73.4	73.7	73.9	74.7	75.6	75.7	75.6	67.7	72.1	74.4	73.9	66.1	72.0	72.9	73.0	73.4	71.2
6	56.4	57.8	58.4	70.4	70.5	70.7	70.9	72.1	72.3	72.9	73.2	73.6	73.9	74.7	75.6	75.8	75.7	67.7	72.2	74.4	73.7	66.1	72.1	72.7	72.9	73.3	71.1
5	55.8	57.4	57.9	69.8	70.0	70.4	70.5	71.7	71.8	72.4	72.7	73.2	73.6	74.7	75.7	75.9	75.8	67.8	72.1	74.1	73.3	66.1	72.0	72.7	72.9	73.3	71.1
4	54.6	56.4	56.9	69.2	69.3	69.7	69.9	70.8	71.0	71.5	71.7	72.0	72.3	73.9	75.4	75.9	75.1	67.6	70.5	73.0	72.9	66.1	71.3	72.6	72.8	73.2	70.8
Max	58.3	59.9	60.1	71.7	71.8	72.0	72.1	72.9	73.0	73.4	73.6	73.8	74.0	74.7	75.7	75.9	75.8	67.8	72.2	74.4	73.9	66.1	72.1	73.0	73.2	73.6	71.2
Min	54.6	56.4	56.9	69.2	69.3	69.7	69.9	70.8	70.9	71.0	71.1	71.2	71.3	71.8	72.4	72.1	72.1	65.0	69.1	71.3	71.0	63.8	69.5	70.6	70.8	71.1	68.7

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R121a	R121b	R121c	R122a	R122b	R122c	R123a	R123b	R123c	R201a	R201b	R201c	R201d	R201e	R201f	R202a	R202b	R203a	R203b	R204a	R204b	R204c	R204d	R204e	R204f	R205a	R205b
45	67.7	71.4	71.5	71.7	71.9	68.6	68.4	71.8	70.1	68.7	68.7	68.8	70.1	70.0	64.2	66.0	69.9	69.9	63.6	66.4	70.0	70.2	67.3	66.7	67.8	65.1	65.4
44	67.7	71.5	71.6	71.8	72.0	68.6	68.5	71.8	70.1	68.7	68.8	68.9	70.1	70.1	64.2	66.1	70.0	69.9	63.6	66.5	70.0	70.2	67.3	66.8	67.9	65.1	65.5
43	67.8	71.5	71.6	71.8	72.0	68.7	68.6	71.9	70.2	68.8	68.8	68.9	70.1	70.1	64.2	66.1	70.0	69.9	63.6	66.5	70.0	70.3	67.3	66.8	67.8	65.2	65.5
42	67.9	71.6	71.7	71.9	72.1	68.8	68.6	72.0	70.3	68.8	68.9	69.0	70.1	70.1	64.2	66.1	70.0	70.0	63.6	66.5	70.0	70.3	67.3	66.8	67.9	65.2	65.5
41	68.0	71.7	71.8	72.0	72.2	68.8	68.7	72.0	70.4	68.8	68.9	69.0	70.2	70.1	64.2	66.2	70.0	70.0	63.6	66.6	70.0	70.3	67.3	66.8	67.9	65.2	65.5
40	68.0	71.8	71.8	72.0	72.2	68.9	68.8	72.1	70.4	68.9	68.9	69.0	70.2	70.1	64.2	66.2	70.0	70.0	63.5	66.6	70.0	70.3	67.3	66.7	67.9	65.2	65.5
39	68.1	71.8	71.9	72.1	72.3	69.0	68.8	72.2	70.5	68.9	69.0	69.1	70.2	70.2	64.2	66.2	70.1	70.0	63.5	66.6	70.1	70.4	67.3	66.8	67.9	65.2	65.5
38	68.2	71.9	72.0	72.2	72.4	69.0	68.9	72.2	70.6	68.9	69.0	69.1	70.2	70.2	64.2	66.3	70.1	70.0	63.5	66.7	70.1	70.4	67.3	66.7	67.9	65.3	65.6
37	68.3	72.0	72.1	72.3	72.4	69.1	68.9	72.3	70.7	69.0	69.0	69.2	70.3	70.2	64.2	66.3	70.1	70.1	63.5	66.7	70.1	70.4	67.3	66.7	67.9	65.3	65.6
36	68.3	72.0	72.1	72.3	72.5	69.2	69.0	72.4	70.7	69.0	69.1	69.2	70.3	70.2	64.2	66.3	70.1	70.0	63.5	66.7	70.1	70.4	67.3	66.7	67.9	65.3	65.5
35	68.4	72.1	72.2	72.4	72.6	69.2	69.1	72.4	70.8	69.0	69.1	69.2	70.3	70.3	64.2	66.4	70.1	70.1	63.5	66.8	70.1	70.4	67.2	66.7	67.9	65.3	65.6
34	68.5	72.2	72.3	72.5	72.7	69.3	69.2	72.5	70.9	69.1	69.2	69.3	70.3	70.3	64.2	66.4	70.2	70.1	63.4	66.8	70.1	70.4	67.3	66.7	67.9	65.3	65.5
33	68.5	72.2	72.3	72.5	72.7	69.4	69.2	72.6	70.9	69.1	69.2	69.3	70.4	70.3	64.2	66.4	70.2	70.1	63.4	66.8	70.2	70.4	67.2	66.7	67.9	65.4	65.6
32	68.6	72.3	72.4	72.6	72.8	69.5	69.3	72.7	71.0	69.2	69.3	69.4	70.4	70.3	64.2	66.5	70.2	70.1	63.4	66.9	70.2	70.5	67.3	66.7	67.9	65.4	65.6
31	68.7	72.4	72.5	72.7	72.9	69.5	69.4	72.8	71.1	69.2	69.3	69.4	70.4	70.4	64.2	66.5	70.2	70.2	63.4	66.9	70.2	70.5	67.2	66.7	67.9	65.4	65.6
30	68.7	72.5	72.5	72.8	73.0	69.6	69.5	72.8	71.1	69.2	69.3	69.4	70.4	70.4	64.2	66.5	70.2	70.2	63.3	67.0	70.2	70.5	67.2	66.6	67.9	65.4	65.6
29	68.8	72.5	72.6	72.8	73.0	69.7	69.6	72.9	71.2	69.3	69.4	69.5	70.5	70.4	64.2	66.6	70.3	70.2	63.3	67.0	70.2	70.5	67.2	66.6	67.9	65.4	65.6
28	68.9	72.6	72.7	72.9	73.1	69.8	69.6	72.9	71.3	69.3	69.4	69.5	70.5	70.4	64.1	66.6	70.3	70.2	63.3	67.0	70.2	70.5	67.2	66.6	67.9	65.4	65.6
27	69.0	72.7	72.8	73.0	73.2	69.8	69.7	73.0	71.4	69.3	69.5	69.6	70.5	70.4	64.1	66.7	70.3	70.2	63.2	67.1	70.2	70.5	67.1	66.5	67.9	65.4	65.6
26	69.0	72.7	72.8	73.1	73.3	69.9	69.8	73.1	71.5	69.4	69.5	69.6	70.5	70.5	64.1	66.7	70.3	70.2	63.2	67.1	70.3	70.5	67.1	66.5	67.9	65.4	65.6
25	69.1	72.8	72.9	73.1	73.3	70.0	69.9	73.2	71.5	69.4	69.5	69.6	70.5	70.5	64.0	66.7	70.3	70.2	63.1	67.1	70.3	70.5	67.0	66.4	67.8	65.4	65.6
24	69.2	72.9	73.0	73.2	73.4	70.0	69.9	73.3	71.6	69.4	69.6	69.7	70.5	70.5	63.9	66.8	70.3	70.2	63.0	67.1	70.3	70.5	67.0	66.3	67.8	65.4	65.6
23	69.3	73.0	73.0	73.3	73.5	70.1	70.0	73.4	71.7	69.4	69.6	69.7	70.5	70.5	63.9	66.8	70.3	70.2	63.0	67.2	70.3	70.5	66.9	66.2	67.7	65.3	65.5
22																											
21	69.5	73.1	73.2	73.5	73.7	70.3	70.2	73.5	71.9	69.5	69.7	69.8	70.6	70.5	63.7	66.9	70.3	70.2	62.8	67.2	70.2	70.4	66.5	65.8	67.5	65.3	65.5
20	69.6	73.2	73.3	73.5	73.7	70.3	70.3	73.6	72.0	69.5	69.7	69.8	70.6	70.5	63.6	66.9	70.3	70.2	62.7	67.2	70.2	70.3	66.4	65.6	67.3	65.3	65.5
19	69.7	73.3	73.4	73.6	73.8	70.4	70.4	73.7	72.0	69.6	69.7	69.8	70.6	70.5	63.5	66.9	70.3	70.2	62.6	67.3	70.1	70.3	66.3	65.4	67.3	65.3	65.5
18	69.8	73.4	73.4	73.7	73.9	70.5	70.5	73.8	72.1	69.6	69.8	69.9	70.6	70.5	63.4	67.0	70.3	70.1	62.5	67.3	70.1	70.2	66.1	65.2	67.2	65.3	65.6
17	69.8	73.5	73.5	73.7	73.9	70.5	70.5	73.8	72.2	69.6	69.8	69.9	70.6	70.5	63.3	67.0	70.3	70.1	62.3	67.3	70.1	70.2	65.9	65.0	67.1	65.3	65.6
16	69.9	73.5	73.6	73.8	74.0	70.6	70.6	73.9	72.3	69.6	69.8	69.9	70.5	70.5	63.1	67.0	70.3	70.1	62.2	67.3	70.0	70.1	65.8	64.8	67.0	65.3	65.7
15	70.0	73.6	73.7	73.9	74.1	70.7	70.7	74.0	72.4	69.6	69.8	69.9	70.5	70.4	63.0	67.0	70.2	70.1	62.0	67.3	70.0	70.1	65.6	64.7	67.0	65.4	65.7
14	70.0	73.6	73.7	73.9	74.2	70.7	70.7	74.0	72.4	69.7	69.8	70.0	70.5	70.4	62.7	67.0	70.2	70.0	61.7	67.3	69.9	70.1	65.5	64.5	66.9	65.4	65.7
13	70.1	73.7	73.8	74.0	74.2	70.8	70.8	74.1	72.5	69.7	69.9	70.0	70.5	70.4	62.6	67.0	70.1	70.0	61.4	67.3	69.9	70.0	65.3	64.3	66.8	65.5	65.8
12	70.2	73.8	73.8	74.1	74.3	70.9	70.9	74.2	72.6	69.7	69.9	70.0	70.5	70.4	62.5	67.1	70.1	69.9	61.1	67.3	69.8	69.9	65.1	64.0	66.8	65.5	65.8
11	70.2	73.9	73.9	74.1	74.3	70.9	70.9	74.2	72.6	69.7	69.9	70.0	70.4	70.3	62.4	67.0	70.0	69.8	61.0	67.3	69.7	69.8	64.8	63.6	66.7	65.4	65.8
10	70.3	73.9	74.0	74.2	74.4	71.0	71.0	74.3	72.7	69.7	69.9	70.0	70.4	70.3	62.2	67.0	70.0	69.7	60.6	67.3	69.6	69.6	64.5	63.3	66.6	65.4	65.8
9	70.3	74.0	74.0	74.3	74.5	71.0	71.1	74.3	72.7	69.7	69.9	70.0	70.3	70.2	62.1	67.0	69.9	69.6	60.3	67.2	69.5	69.5	64.1	62.8	66.4	65.3	65.7
8	70.2	74.0	74.0	74.3	74.5	71.1	71.1	74.4	72.7	69.6	69.8	69.9	70.2	70.1	61.9	67.0	69.8	69.5	59.9	67.2	69.3	69.4	63.6	62.2	66.3	65.3	65.6
7	69.9	73.9	73.9	74.2	74.5	71.1	71.1	74.4	72.7	69.5	69.6	69.7	70.1	70.0	61.8	67.0	69.7	69.4	59.6	67.1	69.2	69.2	63.1	61.5	66.1	65.1	65.5
6	69.7	73.8	73.9	74.1	74.4	71.2	71.2	74.3	72.6	69.2	69.4	69.5	69.9	69.8	61.6	67.0	69.6	69.4	59.4	67.1	69.1	69.1	62.3	60.5	65.9	64.9	65.4
5	69.7	73.7	73.8	74.1	74.4	71.2	71.2	74.3	72.7	68.8	69.2	69.3	69.8	69.8	61.3	66.8	69.4	69.1	58.9	67.0	68.8	68.7	61.5	59.4	65.8	64.7	64.8
4	69.3	73.7	73.8	74.0	74.3	71.0	71.0	74.1	72.3	68.4	68.6	68.8	69.3	68.9	59.4	65.2	68.0	67.6	57.1	65.3	67.5	67.5	60.8	58.4	65.7	63.9	62.9
Max	70.3	74.0	74.0	74.3	74.5	71.2	71.2	74.4	72.7	69.7	69.9	70.0	70.6	70.5	64.2	67.1	70.3	70.2	63.6	67.3	70.3	70.5	67.3	66.8	67.9	65.5	65.8
Min	67.7	71.4	71.5	71.7	71.9	68.6	68.4	71.8	70.1	68.4	68.6	68.8	69.3	68.9	59.4	65.2	68.0	67.6	57.1	65.3	67.5	67.5	60.8	58.4	65.7	63.9	62.9

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R206a	R206b	R206c	R206d	R207a	R207b	R207c	R207d	R208a	R208b	R209a	R209b	R210a	R210b	R211a	R211b	R211c	R212a	R212b	R212c	R212d	R213a	R213b	R214b	R214c	R215a	R215b
45	63.6	66.2	66.3	64.6	63.9	66.1	65.9	63.5	65.1	65.2	65.1	64.8	62.5	65.7	66.1	66.3	62.2	61.7	66.7	67.4	67.5	69.6	69.2	69.0	69.0	69.0	69.0
44	63.6	66.2	66.3	64.7	63.9	66.1	65.9	63.5	65.1	65.2	65.1	64.8	62.5	65.7	66.1	66.3	62.2	61.7	66.8	67.4	67.5	69.6	69.2	69.0	69.0	69.0	69.0
43	63.6	66.2	66.3	64.7	63.9	66.1	66.0	63.5	65.1	65.2	65.1	64.8	62.5	65.7	66.2	66.3	62.2	61.8	66.8	67.4	67.6	69.6	69.2	69.0	69.0	69.0	69.0
42	63.7	66.2	66.4	64.7	63.9	66.1	66.0	63.6	65.2	65.2	65.1	64.8	62.5	65.7	66.1	66.3	62.2	61.7	66.8	67.4	67.6	69.6	69.2	69.1	69.0	69.1	69.0
41	63.6	66.2	66.3	64.7	63.9	66.1	66.0	63.6	65.1	65.2	65.1	64.9	62.5	65.7	66.2	66.3	62.2	61.8	66.8	67.5	67.7	69.7	69.3	69.1	69.1	69.1	69.1
40	63.7	66.3	66.4	64.8	63.9	66.2	66.0	63.7	65.2	65.2	65.2	64.9	62.5	65.8	66.2	66.4	62.3	61.8	66.8	67.5	67.7	69.7	69.3	69.1	69.1	69.1	69.1
39	63.6	66.3	66.4	64.8	63.9	66.2	66.0	63.7	65.2	65.2	65.1	64.9	62.5	65.8	66.2	66.4	62.3	61.8	66.9	67.5	67.7	69.7	69.3	69.2	69.2	69.2	69.1
38	63.7	66.3	66.4	64.8	63.9	66.2	66.0	63.7	65.2	65.3	65.1	64.9	62.5	65.8	66.2	66.4	62.3	61.8	66.9	67.5	67.7	69.8	69.4	69.2	69.2	69.2	69.2
37	63.6	66.3	66.4	64.8	63.9	66.2	66.1	63.7	65.2	65.2	65.1	64.8	62.5	65.8	66.3	66.4	62.3	61.8	66.9	67.5	67.7	69.8	69.4	69.2	69.2	69.2	69.2
36	63.6	66.3	66.4	64.9	63.9	66.2	66.1	63.7	65.2	65.2	65.1	64.8	62.5	65.8	66.3	66.4	62.3	61.8	66.9	67.6	67.8	69.8	69.4	69.3	69.3	69.3	69.3
35	63.6	66.3	66.4	64.9	63.8	66.2	66.1	63.7	65.1	65.2	65.1	64.8	62.5	65.8	66.3	66.4	62.2	61.8	66.9	67.6	67.8	69.9	69.5	69.3	69.3	69.3	69.3
34	63.6	66.3	66.4	64.9	63.8	66.2	66.0	63.7	65.1	65.2	65.0	64.8	62.5	65.8	66.3	66.5	62.2	61.7	66.9	67.6	67.8	69.9	69.5	69.4	69.3	69.4	69.3
33	63.6	66.3	66.4	64.9	63.8	66.2	66.0	63.6	65.1	65.2	65.0	64.7	62.4	65.8	66.3	66.5	62.2	61.7	67.0	67.6	67.8	69.9	69.6	69.4	69.4	69.4	69.4
32	63.6	66.3	66.4	64.9	63.8	66.2	66.0	63.7	65.1	65.1	64.9	64.7	62.4	65.7	66.3	66.4	62.1	61.7	67.0	67.7	67.9	70.0	69.6	69.5	69.4	69.4	69.4
31	63.6	66.4	66.5	64.9	63.7	66.2	66.0	63.7	65.0	65.1	64.9	64.6	62.3	65.7	66.2	66.5	62.1	61.6	67.0	67.7	67.9	70.0	69.7	69.5	69.5	69.5	69.4
30	63.5	66.3	66.4	64.9	63.7	66.1	66.0	63.6	64.9	65.0	64.9	64.6	62.3	65.7	66.2	66.4	62.1	61.6	67.0	67.6	67.9	70.1	69.7	69.5	69.5	69.5	69.5
29	63.5	66.3	66.4	64.9	63.7	66.1	65.9	63.6	64.8	64.9	64.8	64.5	62.2	65.6	66.2	66.4	61.9	61.5	66.9	67.7	67.9	70.1	69.7	69.6	69.6	69.6	69.6
28	63.4	66.3	66.4	64.9	63.7	66.1	65.9	63.6	64.8	64.9	64.7	64.4	62.2	65.6	66.2	66.4	61.9	61.4	66.9	67.6	67.9	70.1	69.8	69.6	69.6	69.6	69.6
27	63.4	66.3	66.4	64.9	63.6	66.0	65.8	63.5	64.7	64.7	64.6	64.3	62.1	65.5	66.1	66.4	61.8	61.3	66.9	67.7	67.9	70.2	69.8	69.7	69.6	69.6	69.6
26	63.4	66.3	66.4	64.9	63.6	66.0	65.8	63.5	64.6	64.6	64.5	64.2	62.1	65.5	66.1	66.3	61.8	61.3	66.9	67.7	67.9	70.2	69.9	69.7	69.7	69.7	69.7
25	63.3	66.2	66.4	64.9	63.5	65.9	65.7	63.4	64.5	64.6	64.4	64.2	62.0	65.4	66.0	66.3	61.8	61.2	66.9	67.7	68.0	70.2	69.9	69.7	69.7	69.7	69.7
24	63.3	66.2	66.3	64.8	63.5	65.9	65.6	63.4	64.5	64.5	64.3	64.1	61.9	65.3	66.0	66.2	61.7	61.2	66.9	67.7	68.0	70.3	69.9	69.8	69.7	69.8	69.7
23	63.2	66.1	66.3	64.8	63.5	65.8	65.6	63.4	64.4	64.4	64.3	64.0	62.0	65.3	66.0	66.2	61.7	61.1	66.9	67.7	68.0	70.3	70.0	69.8	69.8	69.8	69.8
22																											
21	63.1	66.2	66.2	64.8	63.5	65.8	65.5	63.3	64.3	64.4	64.2	64.0	61.9	65.2	65.9	66.1	61.7	61.1	66.8	67.6	68.0	70.3	70.0	69.9	69.8	69.9	69.9
20	63.2	66.2	66.2	64.8	63.5	65.8	65.5	63.3	64.3	64.3	64.1	63.9	61.9	65.2	65.9	66.1	61.7	61.0	66.8	67.7	68.0	70.3	70.1	69.9	69.9	69.9	69.9
19	63.1	66.2	66.3	64.8	63.5	65.8	65.6	63.3	64.3	64.3	64.2	63.9	62.0	65.2	65.8	66.1	61.7	61.0	66.8	67.7	68.1	70.3	70.1	69.9	69.9	69.9	69.9
18	63.1	66.2	66.3	64.9	63.6	65.8	65.6	63.3	64.4	64.3	64.1	63.9	61.9	65.2	65.8	66.1	61.8	61.0	66.8	67.7	68.1	70.3	70.1	70.0	69.9	70.0	69.9
17	63.1	66.3	66.3	64.9	63.6	65.9	65.6	63.3	64.4	64.3	64.2	63.9	61.9	65.1	65.8	66.1	61.7	61.0	66.8	67.7	68.1	70.3	70.1	70.0	69.9	70.0	69.9
16	63.2	66.3	66.4	64.9	63.6	65.9	65.6	63.3	64.4	64.3	64.1	63.9	61.9	65.1	65.8	66.1	61.8	61.0	66.8	67.7	68.1	70.3	70.1	70.0	69.9	70.0	70.0
15	63.2	66.4	66.4	65.0	63.7	66.0	65.7	63.3	64.5	64.4	64.2	63.9	61.9	65.1	65.8	66.0	61.8	60.9	66.8	67.8	68.2	70.2	70.1	70.0	70.0	70.0	70.0
14	63.2	66.4	66.5	65.0	63.8	66.0	65.7	63.3	64.4	64.4	64.2	63.9	61.9	65.1	65.8	66.1	61.8	60.9	66.9	67.8	68.2	70.2	70.0	69.9	69.9	70.0	69.9
13	63.3	66.5	66.5	65.0	63.8	66.1	65.8	63.3	64.5	64.4	64.2	63.9	62.0	65.1	65.8	66.0	61.9	60.9	66.9	67.8	68.2	70.0	69.9	69.9	69.8	69.9	69.8
12	63.3	66.5	66.6	65.0	63.8	66.1	65.8	63.3	64.5	64.4	64.1	63.8	62.0	65.1	65.8	66.1	61.9	61.1	66.9	67.8	68.3	69.9	69.8	69.8	69.7	69.8	69.8
11	63.2	66.5	66.6	65.0	63.8	66.1	65.8	63.2	64.5	64.3	64.1	63.7	62.1	65.1	65.8	66.0	62.1	61.1	66.9	67.8	68.2	69.7	69.7	69.7	69.7	69.7	69.7
10	63.2	66.5	66.6	64.9	63.7	66.0	65.8	63.1	64.5	64.3	64.1	63.7	62.2	65.1	65.8	66.0	62.1	61.2	66.8	67.9	68.3	69.6	69.6	69.6	69.5	69.6	69.6
9	63.0	66.5	66.6	64.9	63.6	66.1	65.8	63.0	64.4	64.3	64.1	63.7	62.3	65.1	65.8	66.0	62.3	61.2	66.7	67.9	68.2	69.4	69.4	69.4	69.4	69.4	69.5
8	62.9	66.5	66.6	64.8	63.5	66.1	65.8	62.8	64.4	64.2	64.0	63.7	62.4	65.2	65.8	66.0	62.2	61.3	66.6	67.8	68.0	69.2	69.2	69.2	69.2	69.3	69.2
7	62.7	66.5	66.5	64.7	63.5	66.1	65.8	62.8	64.4	64.3	64.0	63.8	62.7	65.1	65.8	65.9	62.1	61.2	66.4	67.6	67.7	69.0	69.0	68.9	68.9	68.9	68.9
6	62.1	66.5	66.6	64.4	62.8	66.0	65.7	62.6	64.3	64.2	64.0	63.7	62.6	65.2	65.8	65.9	61.2	60.6	66.2	67.1	67.2	68.6	68.6	68.5	68.4	68.4	68.2
5	59.6	66.5	66.5	63.4	59.6	66.1	65.8	62.3	64.2	64.3	63.9	61.6	61.5	64.9	65.4	65.2	57.7	57.5	65.3	66.0	66.2	68.0	67.9	67.7	67.6	67.5	67.3
4	55.1	66.1	66.2	60.7	54.8	65.9	65.6	59.0	61.7	64.2	60.9	56.2	56.2	61.3	61.8	61.6	53.4	53.2	61.7	63.5	64.7	67.3	67.2	66.8	66.6	66.6	66.5
Max	63.7	66.5	66.6	65.0	63.9	66.2	66.1	63.7	65.2	65.3	65.2	64.9	62.7	65.8	66.3	66.5	62.3	61.8	67.0	67.9	68.3	70.3	70.1	70.0	70.0	70.0	70.0
Min	55.1	66.1	66.2	60.7	54.8	65.8	65.5	59.0	61.7	64.2	60.9	56.2	56.2	61.3	61.8	61.6	53.4	53.2	61.7	63.5	64.7	67.3	67.2	66.8	66.6	66.6	66.5

Noise sensitive receivers with exceedance (≥ 70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R216b	R216c	R217a	R217b	R218b	R218c	R219a	R219b	R219c	R220a	R220b	R220c	R221a	R221b	R222a	R222b	R222c	R222d	R223a	R223b	R223c	R223d	R224a	R224b
45	69.0	68.9	69.6	69.7	69.8	69.9	62.6	62.7	58.4	62.4	62.8	62.8	63.0	63.1	<40	63.7	64.0	63.6	60.9	64.7	64.7	62.2	60.6	58.6
44	69.0	69.0	69.7	69.8	69.8	69.9	62.6	62.7	58.4	62.4	62.8	62.8	63.0	63.2	<40	63.7	64.0	63.7	60.9	64.7	64.7	62.2	60.7	58.6
43	69.1	69.0	69.7	69.8	69.9	69.9	62.6	62.8	58.4	62.5	62.8	62.8	63.1	63.2	<40	63.8	64.0	63.7	61.0	64.8	64.7	62.3	60.7	58.6
42	69.1	69.0	69.7	69.8	69.9	70.0	62.7	62.8	58.5	62.5	62.9	62.9	63.1	63.2	<40	63.8	64.1	63.7	61.0	64.8	64.8	62.3	60.7	58.7
41	69.1	69.0	69.8	69.9	70.0	70.0	62.7	62.9	58.5	62.5	62.9	62.9	63.1	63.3	<40	63.9	64.1	63.8	61.1	64.8	64.8	62.3	60.8	58.7
40	69.2	69.1	69.8	69.9	70.0	70.0	62.8	62.9	58.5	62.6	63.0	63.0	63.2	63.3	<40	63.9	64.2	63.8	61.1	64.9	64.9	62.4	60.8	58.7
39	69.2	69.1	69.8	69.9	70.0	70.1	62.8	62.9	58.6	62.6	63.0	63.0	63.2	63.4	<40	64.0	64.2	63.9	61.1	64.9	64.9	62.4	60.9	58.7
38	69.2	69.2	69.9	70.0	70.1	70.1	62.8	63.0	58.6	62.7	63.1	63.0	63.3	63.4	<40	64.0	64.2	63.9	61.2	65.0	65.0	62.5	60.8	58.7
37	69.3	69.2	69.9	70.0	70.1	70.2	62.9	63.0	58.7	62.7	63.1	63.1	63.3	63.5	<40	64.0	64.3	64.0	61.2	65.0	65.0	62.5	60.9	58.8
36	69.3	69.2	69.9	70.0	70.1	70.2	62.9	63.0	58.7	62.7	63.1	63.1	63.4	63.5	<40	64.1	64.3	64.0	61.3	65.1	65.0	62.5	60.9	58.8
35	69.3	69.3	70.0	70.1	70.2	70.2	63.0	63.1	58.8	62.8	63.2	63.2	63.4	63.5	<40	64.1	64.4	64.0	61.3	65.1	65.1	62.6	60.9	58.8
34	69.4	69.3	70.0	70.1	70.2	70.3	63.0	63.1	58.8	62.8	63.2	63.2	63.4	63.6	<40	64.2	64.4	64.1	61.3	65.2	65.1	62.6	61.0	58.9
33	69.4	69.4	70.0	70.1	70.2	70.3	63.0	63.2	58.8	62.9	63.3	63.2	63.5	63.6	<40	64.2	64.5	64.1	61.4	65.2	65.2	62.7	61.0	58.9
32	69.5	69.4	70.1	70.2	70.3	70.3	63.1	63.2	58.9	62.9	63.3	63.3	63.5	63.7	<40	64.3	64.5	64.2	61.4	65.3	65.2	62.7	61.0	58.9
31	69.5	69.4	70.1	70.2	70.3	70.4	63.1	63.2	58.9	63.0	63.3	63.3	63.6	63.7	<40	64.3	64.6	64.2	61.5	65.3	65.2	62.7	61.0	58.9
30	69.6	69.5	70.1	70.3	70.3	70.4	63.1	63.3	58.9	63.0	63.4	63.4	63.6	63.8	<40	64.4	64.6	64.3	61.5	65.3	65.3	62.8	61.0	58.9
29	69.6	69.5	70.2	70.3	70.4	70.4	63.2	63.3	59.0	63.0	63.4	63.4	63.7	63.8	<40	64.4	64.6	64.3	61.6	65.4	65.3	62.8	61.0	58.9
28	69.7	69.6	70.2	70.3	70.4	70.5	63.2	63.4	59.0	63.1	63.5	63.4	63.7	63.8	<40	64.4	64.7	64.3	61.6	65.4	65.4	62.9	61.0	58.8
27	69.7	69.6	70.3	70.4	70.5	70.5	63.3	63.4	59.1	63.1	63.5	63.5	63.7	63.9	<40	64.5	64.7	64.4	61.6	65.4	65.4	62.9	61.0	58.8
26	69.7	69.7	70.3	70.4	70.5	70.6	63.3	63.4	59.0	63.1	63.5	63.5	63.8	63.9	<40	64.5	64.8	64.4	61.7	65.5	65.4	62.9	61.0	58.8
25	69.8	69.7	70.3	70.5	70.5	70.6	63.3	63.5	59.1	63.2	63.6	63.5	63.8	63.9	<40	64.5	64.8	64.5	61.7	65.5	65.4	62.9	61.0	58.8
24	69.8	69.7	70.4	70.5	70.6	70.6	63.4	63.5	59.1	63.2	63.6	63.6	63.8	64.0	<40	64.6	64.8	64.5	61.8	65.6	65.5	62.9	61.1	58.8
23	69.8	69.8	70.4	70.5	70.6	70.7	63.4	63.5	59.2	63.2	63.6	63.6	63.9	64.0	<40	64.6	64.9	64.5	61.8	65.6	65.5	63.0	61.0	58.7
22																								
21	69.9	69.9	70.5	70.6	70.7	70.8	63.5	63.6	59.2	63.3	63.7	63.7	63.9	64.1	<40	64.7	65.0	64.6	61.8	65.7	65.6	63.0	61.1	58.7
20	70.0	69.9	70.5	70.6	70.8	70.8	63.4	63.6	59.3	63.3	63.7	63.7	64.0	64.1	<40	64.7	65.0	64.6	61.9	65.7	65.6	63.1	61.1	58.7
19	70.0	69.9	70.6	70.7	70.8	70.9	63.5	63.6	59.3	63.3	63.8	63.7	64.0	64.1	<40	64.7	65.0	64.7	61.9	65.7	65.6	63.1	61.1	58.7
18	70.0	70.0	70.6	70.7	70.8	70.9	63.5	63.6	59.3	63.4	63.8	63.7	64.0	64.1	<40	64.8	65.1	64.7	61.9	65.7	65.6	63.1	61.1	58.7
17	70.0	70.0	70.6	70.7	70.9	70.9	63.5	63.7	59.3	63.4	63.8	63.8	64.0	64.2	<40	64.8	65.1	64.7	62.0	65.8	65.6	63.1	61.1	58.6
16	70.0	70.0	70.6	70.7	70.9	71.0	63.5	63.7	59.4	63.4	63.8	63.8	64.1	64.2	<40	64.8	65.1	64.7	62.0	65.8	65.6	63.1	61.1	58.7
15	70.0	70.0	70.6	70.8	70.9	71.0	63.6	63.7	59.4	63.5	63.9	63.8	64.1	64.2	<40	64.9	65.1	64.7	62.0	65.8	65.7	63.1	61.1	58.7
14	70.0	70.0	70.6	70.8	70.9	71.0	63.6	63.8	59.4	63.5	63.9	63.9	64.1	64.3	<40	64.9	65.1	64.8	62.0	65.8	65.7	63.1	61.1	58.7
13	70.0	70.0	70.6	70.8	70.9	71.0	63.6	63.8	59.5	63.5	63.9	63.9	64.1	64.3	<40	64.9	65.2	64.8	62.0	65.8	65.7	63.2	61.1	58.6
12	69.9	69.9	70.6	70.8	70.9	71.0	63.6	63.8	59.5	63.5	63.9	63.9	64.2	64.3	<40	64.9	65.2	64.8	62.0	65.9	65.7	63.2	61.1	58.6
11	69.9	69.9	70.6	70.7	70.9	71.0	63.6	63.8	59.5	63.5	64.0	63.9	64.2	64.3	<40	65.0	65.2	64.9	62.0	65.9	65.7	63.2	61.0	58.5
10	69.7	69.8	70.5	70.6	70.8	70.8	63.6	63.8	59.5	63.5	64.0	63.9	64.2	64.3	<40	64.9	65.2	64.8	62.0	65.8	65.7	63.1	60.9	58.5
9	69.6	69.6	70.4	70.5	70.6	70.7	63.5	63.8	59.5	63.5	63.9	63.9	64.1	64.3	<40	64.9	65.2	64.8	61.8	65.8	65.6	63.0	60.7	58.4
8	69.4	69.4	70.1	70.3	70.4	70.5	63.4	63.6	59.5	63.3	63.7	63.7	64.0	64.1	<40	64.8	65.1	64.6	61.3	65.6	65.4	62.5	60.0	58.3
7	68.9	68.9	69.6	69.8	69.9	70.0	63.2	63.3	59.4	63.0	63.4	63.3	63.6	63.8	<40	64.4	64.7	64.1	60.1	65.3	65.0	61.4	58.8	58.2
6	68.1	68.1	68.9	69.1	69.3	69.3	62.8	62.8	59.0	62.4	62.8	62.7	63.1	63.3	<40	64.0	64.2	63.5	57.7	64.6	64.3	60.5	57.6	57.8
5	67.4	67.4	68.2	68.4	68.6	68.7	61.8	62.0	58.5	61.6	62.2	62.2	62.6	62.8	<40	63.5	63.8	62.8	54.1	63.8	63.6	59.6	56.5	57.2
4	66.6	66.7	67.5	67.7	67.9	68.0	60.6	61.0	57.2	60.7	61.4	61.5	61.7	61.6	<40	62.6	62.6	60.7	51.4	61.5	61.4	56.9	55.0	56.1
Max	70.0	70.0	70.6	70.8	70.9	71.0	63.6	63.8	59.5	63.5	64.0	63.9	64.2	64.3	<40	65.0	65.2	64.9	62.0	65.9	65.7	63.2	61.1	58.9
Min	66.6	66.7	67.5	67.7	67.9	68.0	60.6	61.0	57.2	60.7	61.4	61.5	61.7	61.6	<40	62.6	62.6	60.7	51.4	61.5	61.4	56.9	55.0	56.1

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R101m ax	R102m ax	R103m ax	R104m ax	R105m ax	R106m ax	R107m ax	R108m ax	R109m ax	R110m ax	R111m ax	R112m ax	R113m ax	R114m ax	R115m ax	R116m ax	R117m ax	R118m ax	R119m ax	R120m ax	R121m ax	R122m ax	R123m ax	R201m ax	R202m ax	R203m ax	R204m ax	R205m ax
45	71.6	70.9	70.7	56.3	58.9	58.0	57.9	59.2	59.9	70.3	70.4	70.9	71.1	71.3	72.4	72.1	71.3	71.0	70.6	71.1	71.5	71.9	71.8	70.1	69.9	69.9	70.2	65.4
44	71.7	70.9	70.7	56.3	58.9	57.8	57.9	59.2	59.9	70.3	70.4	70.9	71.1	71.4	72.5	72.1	71.3	71.1	70.6	71.2	71.6	72.0	71.8	70.1	70.0	69.9	70.2	65.5
43	71.8	71.0	70.8	56.3	58.9	57.8	57.9	59.3	59.9	70.3	70.5	71.0	71.2	71.5	72.5	72.2	71.4	71.1	70.7	71.2	71.6	72.0	71.9	70.1	70.0	69.9	70.3	65.5
42	71.8	71.0	70.8	56.2	58.9	57.9	57.9	59.2	59.9	70.4	70.5	71.0	71.3	71.5	72.6	72.3	71.5	71.2	70.7	71.3	71.7	72.1	72.0	70.1	70.0	70.0	70.3	65.5
41	71.9	71.0	70.9	56.1	58.8	57.8	57.9	59.3	60.0	70.4	70.6	71.1	71.3	71.6	72.6	72.3	71.5	71.3	70.8	71.4	71.8	72.2	72.0	70.2	70.0	70.0	70.3	65.5
40	71.9	71.1	70.9	56.1	58.8	57.8	57.9	59.3	60.0	70.5	70.6	71.1	71.4	71.6	72.7	72.4	71.6	71.3	70.9	71.4	71.8	72.2	72.1	70.2	70.0	70.0	70.3	65.5
39	72.0	71.1	70.9	56.0	58.8	57.8	58.0	59.3	60.0	70.5	70.7	71.2	71.4	71.7	72.8	72.5	71.7	71.4	71.0	71.5	71.9	72.3	72.2	70.2	70.1	70.0	70.4	65.5
38	72.0	71.2	71.0	55.9	58.7	57.8	57.9	59.3	60.0	70.6	70.7	71.3	71.5	71.8	72.9	72.6	71.8	71.5	71.0	71.6	72.0	72.4	72.2	70.2	70.1	70.0	70.4	65.6
37	72.1	71.3	71.0	55.7	58.6	57.7	58.0	59.3	60.0	70.6	70.8	71.3	71.6	71.8	73.0	72.7	71.8	71.6	71.1	71.6	72.1	72.4	72.3	70.3	70.1	70.1	70.4	65.6
36	72.1	71.3	71.1	55.6	58.6	57.6	57.9	59.3	60.0	70.7	70.8	71.4	71.7	71.9	73.0	72.7	71.9	71.6	71.1	71.7	72.1	72.5	72.4	70.3	70.1	70.0	70.4	65.5
35	72.2	71.4	71.2	55.4	58.5	57.6	57.9	59.3	60.0	70.7	70.9	71.5	71.7	72.0	73.1	72.8	72.0	71.7	71.2	71.8	72.2	72.6	72.4	70.3	70.1	70.1	70.4	65.6
34	72.3	71.4	71.2	55.2	58.5	57.5	57.8	59.3	60.0	70.8	70.9	71.5	71.8	72.0	73.2	72.9	72.0	71.7	71.3	71.8	72.3	72.7	72.5	70.3	70.2	70.1	70.4	65.5
33	72.3	71.4	71.2	55.0	58.4	57.5	57.8	59.3	60.0	70.8	71.0	71.6	71.9	72.1	73.3	73.0	72.1	71.8	71.3	71.9	72.3	72.7	72.6	70.4	70.2	70.1	70.4	65.6
32	72.4	71.5	71.3	54.9	58.3	57.5	57.8	59.2	60.1	70.9	71.1	71.7	72.0	72.2	73.4	73.1	72.2	71.9	71.4	72.0	72.4	72.8	72.7	70.4	70.2	70.1	70.5	65.6
31	72.4	71.6	71.3	54.8	58.3	57.4	57.7	59.3	60.1	70.9	71.1	71.7	72.0	72.3	73.5	73.2	72.3	72.0	71.5	72.1	72.5	72.9	72.8	70.4	70.2	70.2	70.5	65.6
30	72.5	71.6	71.4	54.5	58.2	57.3	57.7	59.2	60.1	70.9	71.1	71.8	72.1	72.4	73.5	73.2	72.4	72.1	71.6	72.1	72.5	73.0	72.8	70.4	70.2	70.2	70.5	65.6
29	72.6	71.7	71.4	54.4	58.1	57.2	57.6	59.2	60.0	71.0	71.2	71.9	72.2	72.4	73.6	73.3	72.5	72.2	71.6	72.2	72.6	73.0	72.9	70.5	70.3	70.2	70.5	65.6
28	72.6	71.7	71.5	54.2	58.0	57.1	57.4	59.2	60.1	71.0	71.2	71.9	72.2	72.5	73.7	73.4	72.5	72.2	71.7	72.3	72.7	73.1	72.9	70.5	70.3	70.2	70.5	65.6
27	72.7	71.8	71.5	54.1	57.9	57.0	57.4	59.1	60.0	71.1	71.3	72.0	72.3	72.6	73.8	73.5	72.6	72.3	71.8	72.3	72.8	73.2	73.0	70.5	70.3	70.2	70.5	65.6
26	72.7	71.8	71.5	54.0	57.7	56.9	57.2	59.1	60.1	71.1	71.3	72.0	72.4	72.7	73.9	73.6	72.7	72.4	71.8	72.4	72.8	73.3	73.1	70.5	70.3	70.2	70.5	65.6
25	72.8	71.9	71.6	53.8	57.6	56.6	57.0	59.0	60.0	71.2	71.4	72.1	72.5	72.8	74.0	73.7	72.8	72.5	71.9	72.5	72.9	73.3	73.2	70.5	70.3	70.2	70.5	65.6
24	72.9	71.9	71.6	53.6	57.4	56.4	56.9	58.9	60.0	71.2	71.5	72.2	72.6	72.9	74.1	73.8	72.9	72.5	72.0	72.6	73.0	73.4	73.3	70.5	70.3	70.2	70.5	65.6
23	72.9	71.9	71.7	53.4	57.1	56.1	56.6	58.9	60.0	71.3	71.5	72.3	72.6	72.9	74.2	73.9	73.0	72.6	72.1	72.6	73.0	73.5	73.4	70.5	70.3	70.2	70.5	65.5
22																												
21	73.1	72.1	71.8	52.6	56.3	55.5	56.3	58.8	59.9	71.4	71.7	72.4	72.8	73.2	74.4	74.2	73.2	72.8	72.3	72.8	73.2	73.7	73.5	70.6	70.3	70.2	70.4	65.5
20	73.1	72.1	71.8	52.1	56.0	55.4	56.2	58.7	59.9	71.5	71.7	72.5	72.9	73.3	74.6	74.3	73.3	72.9	72.3	72.9	73.3	73.7	73.6	70.6	70.3	70.2	70.3	65.5
19	73.2	72.2	71.8	51.7	55.8	55.1	55.9	58.7	59.9	71.5	71.8	72.6	73.0	73.4	74.7	74.4	73.4	73.0	72.4	73.0	73.4	73.8	73.7	70.6	70.3	70.2	70.3	65.5
18	73.2	72.2	71.9	51.5	55.4	54.8	55.8	58.7	59.9	71.6	71.8	72.7	73.1	73.4	74.8	74.5	73.5	73.1	72.5	73.1	73.4	73.9	73.8	70.6	70.3	70.1	70.2	65.6
17	73.3	72.2	71.9	50.9	54.9	54.6	55.7	58.5	59.9	71.7	71.9	72.8	73.2	73.5	74.9	74.6	73.5	73.1	72.5	73.1	73.5	73.9	73.8	70.6	70.3	70.1	70.2	65.6
16	73.4	72.3	71.9	50.7	54.5	54.4	55.4	58.5	59.9	71.7	71.9	72.8	73.2	73.6	75.0	74.7	73.6	73.2	72.6	73.2	73.6	74.0	73.9	70.5	70.3	70.1	70.1	65.7
15	73.4	72.3	72.0	50.5	54.2	54.1	55.4	58.5	59.8	71.8	72.0	72.9	73.3	73.7	75.1	74.8	73.7	73.3	72.7	73.2	73.7	74.1	74.0	70.5	70.2	70.1	70.1	65.7
14	73.5	72.4	72.0	50.2	53.8	54.0	55.2	58.4	59.7	71.8	72.0	72.9	73.4	73.8	75.2	74.9	73.8	73.4	72.7	73.3	73.7	74.2	74.0	70.5	70.2	70.0	70.1	65.7
13	73.5	72.4	72.0	50.1	53.5	53.9	55.1	58.4	59.8	71.8	72.1	73.0	73.5	73.8	75.3	75.1	73.9	73.5	72.8	73.4	73.8	74.2	74.1	70.5	70.1	70.0	70.0	65.8
12	73.6	72.4	72.1	50.0	53.3	53.7	54.9	58.3	59.7	71.8	72.1	73.0	73.5	73.9	75.4	75.2	74.0	73.5	72.9	73.4	73.8	74.3	74.2	70.5	70.1	69.9	69.9	65.8
11	73.6	72.5	72.1	49.9	53.0	53.5	54.7	58.2	59.6	71.7	72.0	73.0	73.6	74.0	75.5	75.3	74.1	73.6	72.9	73.5	73.9	74.3	74.2	70.4	70.0	69.8	69.8	65.8
10	73.7	72.5	72.1	49.8	52.8	53.3	54.5	58.0	59.5	71.6	71.9	73.0	73.6	74.0	75.5	75.4	74.2	73.7	73.0	73.6	74.0	74.4	74.3	70.4	70.0	69.7	69.6	65.8
9	73.7	72.6	72.1	49.7	52.3	53.0	54.1	58.0	59.4	71.4	71.7	72.9	73.5	74.0	75.6	75.5	74.3	73.8	73.0	73.6	74.0	74.5	74.3	70.3	69.9	69.6	69.5	65.7
8	73.8	72.6	72.2	49.7	51.7	52.6	53.7	57.7	59.2	71.2	71.5	72.8	73.5	74.0	75.6	75.6	74.3	73.9	73.0	73.6	74.0	74.5	74.4	70.2	69.8	69.5	69.4	65.6
7	73.8	72.6	72.2	49.7	50.5	52.1	52.8	57.1	58.8	70.9	71.2	72.6	73.4	73.9	75.6	75.7	74.4	73.9	72.9	73.4	73.9	74.5	74.4	70.1	69.7	69.4	69.2	65.5
6	73.9	72.6	72.1	49.6	49.6	51.5	51.6	56.4	58.4	70.5	70.9	72.3	73.2	73.9	75.6	75.8	74.4	73.7	72.7	73.3	73.9	74.4	74.3	69.9	69.6	69.4	69.1	65.4
5	73.9	72.4	71.6	49.3	48.9	50.1	50.3	55.8	57.9	70.0	70.5	71.8	72.7	73.6	75.7	75.9	74.1	73.3	72.7	73.3	73.8	74.4	74.3	69.8	69.4	69.1	68.8	64.8
4	73.8	70.8	70.3	47.7	47.9	47.4	47.8	54.7	56.9	69.3	69.9	71.0	71.7	72.3	75.4	75.9	73.0	72.9	72.6	73.2	73.8	74.3	74.1	69.3	68.0	67.6	67.5	63.9
Max	73.9	72.6	72.2	56.3	58.9	58.0	58.0	59.3	60.1	71.8	72.1	73.0	73.6	74.0	75.7	75.9	74.4	73.9	73.0	73.6	74.0	74.5	74.4	70.6	70.3	70.2	70.5	65.8
Min	71.6	70.8	70.3	47.7	47.9	47.4	47.8	54.7	56.9	69.3	69.9	70.9	71.1	71.3	72.4	72.1	71.3	71.0	70.6	71.1	71.5	71.9	71.8	69.3	68.0	67.6	67.5	63.9

# Total Flats	1927
Exceedance	749
Compliance Rate	61.1%

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R206m ax	R207m ax	R208m ax	R209m ax	R210m ax	R211m ax	R212m ax	R213m ax	R214m ax	R215m ax	R216m ax	R217m ax	R218m ax	R219m ax	R220m ax	R221m ax	R222m ax	R223m ax	R224m ax
45	66.3	66.1	65.2	65.1	65.7	66.3	67.5	69.6	69.0	69.0	69.0	69.7	69.9	62.7	62.8	63.1	64.0	64.7	60.6
44	66.3	66.1	65.2	65.1	65.7	66.3	67.5	69.6	69.0	69.0	69.0	69.8	69.9	62.7	62.8	63.2	64.0	64.7	60.7
43	66.3	66.1	65.2	65.1	65.7	66.3	67.6	69.6	69.0	69.0	69.1	69.8	69.9	62.8	62.8	63.2	64.0	64.8	60.7
42	66.4	66.1	65.2	65.1	65.7	66.3	67.6	69.6	69.1	69.1	69.1	69.8	70.0	62.8	62.9	63.2	64.1	64.8	60.7
41	66.3	66.1	65.2	65.1	65.7	66.3	67.7	69.7	69.1	69.1	69.1	69.9	70.0	62.9	62.9	63.3	64.1	64.8	60.8
40	66.4	66.2	65.2	65.2	65.8	66.4	67.7	69.7	69.1	69.1	69.2	69.9	70.0	62.9	63.0	63.3	64.2	64.9	60.8
39	66.4	66.2	65.2	65.1	65.8	66.4	67.7	69.7	69.2	69.2	69.2	69.9	70.1	62.9	63.0	63.4	64.2	64.9	60.9
38	66.4	66.2	65.3	65.1	65.8	66.4	67.7	69.8	69.2	69.2	69.2	70.0	70.1	63.0	63.1	63.4	64.2	65.0	60.8
37	66.4	66.2	65.2	65.1	65.8	66.4	67.7	69.8	69.2	69.2	69.3	70.0	70.2	63.0	63.1	63.5	64.3	65.0	60.9
36	66.4	66.2	65.2	65.1	65.8	66.4	67.8	69.8	69.3	69.3	69.3	70.0	70.2	63.0	63.1	63.5	64.3	65.1	60.9
35	66.4	66.2	65.2	65.1	65.8	66.4	67.8	69.9	69.3	69.3	69.3	70.1	70.2	63.1	63.2	63.5	64.4	65.1	60.9
34	66.4	66.2	65.2	65.0	65.8	66.5	67.8	69.9	69.4	69.4	69.4	70.1	70.3	63.1	63.2	63.6	64.4	65.2	61.0
33	66.4	66.2	65.2	65.0	65.8	66.5	67.8	69.9	69.4	69.4	69.4	70.1	70.3	63.2	63.3	63.6	64.5	65.2	61.0
32	66.4	66.2	65.1	64.9	65.7	66.4	67.9	70.0	69.5	69.4	69.5	70.2	70.3	63.2	63.3	63.7	64.5	65.3	61.0
31	66.5	66.2	65.1	64.9	65.7	66.5	67.9	70.0	69.5	69.5	69.5	70.2	70.4	63.2	63.3	63.7	64.6	65.3	61.0
30	66.4	66.1	65.0	64.9	65.7	66.4	67.9	70.1	69.5	69.5	69.6	70.3	70.4	63.3	63.4	63.8	64.6	65.3	61.0
29	66.4	66.1	64.9	64.8	65.6	66.4	67.9	70.1	69.6	69.6	69.6	70.3	70.4	63.3	63.4	63.8	64.6	65.4	61.0
28	66.4	66.1	64.9	64.7	65.6	66.4	67.9	70.1	69.6	69.6	69.7	70.3	70.5	63.4	63.5	63.8	64.7	65.4	61.0
27	66.4	66.0	64.7	64.6	65.5	66.4	67.9	70.2	69.7	69.6	69.7	70.4	70.5	63.4	63.5	63.9	64.7	65.4	61.0
26	66.4	66.0	64.6	64.5	65.5	66.3	67.9	70.2	69.7	69.7	69.7	70.4	70.6	63.4	63.5	63.9	64.8	65.5	61.0
25	66.4	65.9	64.6	64.4	65.4	66.3	68.0	70.2	69.7	69.7	69.8	70.5	70.6	63.5	63.6	63.9	64.8	65.5	61.0
24	66.3	65.9	64.5	64.3	65.3	66.2	68.0	70.3	69.8	69.8	69.8	70.5	70.6	63.5	63.6	64.0	64.8	65.6	61.1
23	66.3	65.8	64.4	64.3	65.3	66.2	68.0	70.3	69.8	69.8	69.8	70.5	70.7	63.5	63.6	64.0	64.9	65.6	61.0
22																			
21	66.2	65.8	64.4	64.2	65.2	66.1	68.0	70.3	69.9	69.9	69.9	70.6	70.8	63.6	63.7	64.1	65.0	65.7	61.1
20	66.2	65.8	64.3	64.1	65.2	66.1	68.0	70.3	69.9	69.9	70.0	70.6	70.8	63.6	63.7	64.1	65.0	65.7	61.1
19	66.3	65.8	64.3	64.2	65.2	66.1	68.1	70.3	69.9	69.9	70.0	70.7	70.9	63.6	63.8	64.1	65.0	65.7	61.1
18	66.3	65.8	64.4	64.1	65.2	66.1	68.1	70.3	70.0	70.0	70.0	70.7	70.9	63.6	63.8	64.1	65.1	65.7	61.1
17	66.3	65.9	64.4	64.2	65.1	66.1	68.1	70.3	70.0	70.0	70.0	70.7	70.9	63.7	63.8	64.2	65.1	65.8	61.1
16	66.4	65.9	64.4	64.1	65.1	66.1	68.1	70.3	70.0	70.0	70.0	70.7	71.0	63.7	63.8	64.2	65.1	65.8	61.1
15	66.4	66.0	64.5	64.2	65.1	66.0	68.2	70.2	70.0	70.0	70.0	70.8	71.0	63.7	63.9	64.2	65.1	65.8	61.1
14	66.5	66.0	64.4	64.2	65.1	66.1	68.2	70.2	69.9	70.0	70.0	70.8	71.0	63.8	63.9	64.3	65.1	65.8	61.1
13	66.5	66.1	64.5	64.2	65.1	66.0	68.2	70.0	69.9	69.9	70.0	70.8	71.0	63.8	63.9	64.3	65.2	65.8	61.1
12	66.6	66.1	64.5	64.1	65.1	66.1	68.3	69.9	69.8	69.8	69.9	70.8	71.0	63.8	63.9	64.3	65.2	65.9	61.1
11	66.6	66.1	64.5	64.1	65.1	66.0	68.2	69.7	69.7	69.7	69.9	70.7	71.0	63.8	64.0	64.3	65.2	65.9	61.0
10	66.6	66.0	64.5	64.1	65.1	66.0	68.3	69.6	69.6	69.6	69.8	70.6	70.8	63.8	64.0	64.3	65.2	65.8	60.9
9	66.6	66.1	64.4	64.1	65.1	66.0	68.2	69.4	69.4	69.5	69.6	70.5	70.7	63.8	63.9	64.3	65.2	65.8	60.7
8	66.6	66.1	64.4	64.0	65.2	66.0	68.0	69.2	69.2	69.3	69.4	70.3	70.5	63.6	63.7	64.1	65.1	65.6	60.0
7	66.5	66.1	64.4	64.0	65.1	65.9	67.7	69.0	68.9	68.9	68.9	69.8	70.0	63.3	63.4	63.8	64.7	65.3	58.8
6	66.6	66.0	64.3	64.0	65.2	65.9	67.2	68.6	68.5	68.4	68.1	69.1	69.3	62.8	62.8	63.3	64.2	64.6	57.8
5	66.5	66.1	64.3	63.9	64.9	65.4	66.2	68.0	67.7	67.5	67.4	68.4	68.7	62.0	62.2	62.8	63.8	63.8	57.2
4	66.2	65.9	64.2	60.9	61.3	61.8	64.7	67.3	66.8	66.6	66.7	67.7	68.0	61.0	61.5	61.7	62.6	61.5	56.1
Max	66.6	66.2	65.3	65.2	65.8	66.5	68.3	70.3	70.0	70.0	70.0	70.8	71.0	63.8	64.0	64.3	65.2	65.9	61.1
Min	66.2	65.8	64.2	60.9	61.3	61.8	64.7	67.3	66.8	66.6	66.7	67.7	68.0	61.0	61.5	61.7	62.6	61.5	56.1

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Appendix 4.4

Predicted Traffic Noise Levels for Residential Blocks (Basecase Scenario B)

Floor	R101a	R101b	R101c	R102a	R102b	R103a	R103b	R103c	R103d	R103e	R103f	R104a	R104b	R104c	R105a	R105b	R105c	R105d	R106a	R106b	R106c	R106d	R107a	R107b	R108a	R108b	R108c
45	72.6	72.7	64.3	71.9	63.7	68.8	71.7	71.6	64.2	64.3	64.3	52.5	56.4	43.4	54.3	59.0	59.2	<40	54.2	58.0	58.1	<40	57.6	58.0	58.6	58.9	58.8
44	72.7	72.7	64.3	72.0	63.7	68.9	71.7	71.7	64.1	64.2	64.3	52.5	56.3	43.3	54.2	59.0	59.2	<40	54.1	58.0	57.9	<40	57.6	58.0	58.6	59.0	58.9
43	72.7	72.7	64.4	72.0	63.8	69.0	71.8	71.7	64.1	64.3	64.3	52.5	56.3	43.1	54.2	59.0	59.1	<40	54.0	57.9	57.9	<40	57.6	58.0	58.6	59.0	58.9
42	72.8	72.8	64.4	72.1	63.8	69.0	71.8	71.8	64.1	64.3	64.3	52.5	56.3	43.0	54.1	58.9	59.1	<40	54.0	57.9	58.0	<40	57.6	58.0	58.6	58.9	58.9
41	72.9	72.9	64.5	72.1	63.9	69.1	71.9	71.8	64.1	64.3	64.3	52.5	56.2	42.9	54.0	58.9	59.1	<40	53.8	57.8	57.9	<40	57.5	58.0	58.6	59.0	58.9
40	72.9	72.9	64.5	72.2	63.9	69.1	71.9	71.9	64.1	64.3	64.3	52.5	56.2	42.7	53.9	59.0	59.0	<40	53.7	57.9	57.9	<40	57.5	58.0	58.6	59.0	58.9
39	73.0	73.0	64.5	72.2	63.9	69.2	72.0	71.9	64.1	64.3	64.4	52.5	56.1	42.5	53.7	58.9	59.1	<40	53.6	57.8	57.9	<40	57.5	58.0	58.7	59.0	58.9
38	73.0	73.0	64.5	72.3	64.0	69.3	72.0	71.9	64.1	64.3	64.4	52.4	56.0	42.4	53.5	58.8	59.0	<40	53.5	57.7	57.9	<40	57.4	57.9	58.6	59.0	58.9
37	73.1	73.1	64.6	72.3	64.0	69.3	72.1	72.0	64.1	64.3	64.3	52.4	55.9	42.1	53.3	58.7	58.9	<40	53.3	57.8	57.8	<40	57.5	58.0	58.6	59.0	58.9
36	73.2	73.2	64.6	72.4	64.0	69.4	72.1	72.0	64.1	64.3	64.4	52.3	55.7	41.9	53.0	58.6	58.9	<40	53.1	57.7	57.8	<40	57.4	57.9	58.6	58.9	58.9
35	73.2	73.2	64.7	72.4	64.0	69.4	72.2	72.1	64.1	64.3	64.3	52.3	55.5	41.5	52.7	58.5	58.8	<40	53.0	57.6	57.7	<40	57.3	57.9	58.6	59.0	58.9
34	73.3	73.3	64.7	72.5	64.1	69.5	72.2	72.1	64.1	64.3	64.4	52.3	55.3	41.2	52.4	58.4	58.8	<40	52.8	57.6	57.7	<40	57.3	57.8	58.6	59.0	58.9
33	73.4	73.4	64.7	72.5	64.1	69.6	72.3	72.2	64.1	64.3	64.3	52.2	55.2	40.8	52.3	58.4	58.7	<40	52.7	57.5	57.6	<40	57.3	57.8	58.5	58.9	58.9
32	73.4	73.4	64.8	72.6	64.1	69.6	72.3	72.2	64.1	64.3	64.3	52.2	55.1	40.7	52.1	58.4	58.6	<40	52.5	57.5	57.6	<40	57.2	57.8	58.5	58.9	58.8
31	73.5	73.5	64.8	72.7	64.2	69.7	72.4	72.3	64.1	64.2	64.3	52.1	55.0	40.2	51.8	58.2	58.6	<40	52.4	57.4	57.5	<40	57.2	57.7	58.5	58.9	58.9
30	73.6	73.5	64.8	72.7	64.2	69.8	72.4	72.3	64.0	64.2	64.2	51.9	54.8	<40	51.5	58.1	58.5	<40	52.3	57.3	57.5	<40	57.0	57.7	58.4	58.8	58.8
29	73.6	73.6	64.8	72.8	64.2	69.8	72.5	72.4	64.1	64.2	64.2	51.8	54.6	<40	51.3	58.1	58.4	<40	52.3	57.2	57.3	<40	56.9	57.6	58.3	58.8	58.8
28	73.7	73.7	64.9	72.8	64.2	69.9	72.5	72.4	64.0	64.2	64.2	51.8	54.5	<40	51.1	57.9	58.3	<40	52.1	57.1	57.2	<40	56.8	57.4	58.3	58.7	58.7
27	73.8	73.7	64.9	72.9	64.2	69.9	72.6	72.5	64.0	64.2	64.2	51.7	54.4	<40	51.0	57.8	58.2	<40	52.1	56.9	57.1	<40	56.6	57.3	58.2	58.6	58.6
26	73.8	73.8	64.9	73.0	64.2	70.0	72.6	72.5	64.0	64.2	64.1	51.6	54.3	<40	50.8	57.7	58.0	<40	51.9	56.7	57.0	<40	56.4	57.2	58.1	58.5	58.6
25	73.9	73.9	64.9	73.0	64.2	70.1	72.7	72.6	63.9	64.2	64.1	51.5	54.2	<40	50.7	57.5	58.0	<40	51.9	56.6	56.7	<40	56.2	57.0	57.9	58.4	58.5
24	74.0	73.9	64.9	73.1	64.3	70.1	72.7	72.6	63.9	64.2	64.1	51.2	54.0	<40	50.5	57.3	57.8	40.1	51.9	56.3	56.5	<40	55.9	56.8	57.7	58.2	58.4
23	74.0	74.0	65.0	73.1	64.2	70.2	72.8	72.7	63.9	64.1	64.0	50.9	53.8	<40	50.4	57.1	57.5	40.2	51.8	55.9	56.2	<40	55.6	56.5	57.5	58.1	58.3
22																											
21	74.2	74.2	65.0	73.3	64.2	70.4	72.9	72.8	63.8	64.0	63.8	49.5	53.0	<40	50.1	56.2	56.7	40.1	51.6	55.2	55.6	<40	55.1	56.1	57.3	57.9	58.2
20	74.3	74.2	65.0	73.3	64.2	70.4	72.9	72.8	63.7	64.0	63.7	48.3	52.5	<40	50.1	55.9	56.5	<40	51.6	55.0	55.4	<40	54.9	56.0	57.2	57.8	58.1
19	74.4	74.3	65.1	73.4	64.2	70.5	73.0	72.9	63.6	63.9	63.6	47.8	52.0	<40	50.0	55.6	56.3	<40	51.5	54.8	55.2	<40	54.5	55.7	57.0	57.6	58.1
18	74.4	74.4	65.1	73.4	64.3	70.5	73.0	72.9	63.6	63.9	63.6	46.5	51.8	<40	49.8	55.1	55.9	<40	51.5	54.4	54.8	<40	54.2	55.5	56.9	57.6	58.0
17	74.5	74.4	65.1	73.5	64.3	70.6	73.1	73.0	63.6	63.9	63.5	45.6	51.2	<40	49.8	54.7	55.4	<40	51.5	54.1	54.6	<40	54.0	55.4	56.8	57.4	57.9
16	74.6	74.5	65.2	73.5	64.3	70.6	73.1	73.0	63.6	63.9	63.5	44.8	51.0	<40	49.8	54.3	55.0	<40	51.4	53.8	54.4	<40	53.7	55.2	56.6	57.4	57.9
15	74.6	74.6	65.2	73.6	64.3	70.7	73.2	73.0	63.6	63.8	63.5	44.2	50.8	<40	49.7	54.0	54.7	<40	51.3	53.5	54.1	<40	53.5	55.1	56.5	57.3	57.8
14	74.7	74.6	65.2	73.6	64.3	70.7	73.2	73.1	63.6	63.9	63.4	43.5	50.5	<40	49.6	53.7	54.3	<40	51.3	53.4	54.0	<40	53.4	54.9	56.4	57.2	57.7
13	74.8	74.7	65.3	73.7	64.3	70.8	73.3	73.1	63.5	63.8	63.4	42.9	50.4	<40	49.6	53.5	54.0	<40	51.3	53.2	53.9	<40	53.2	54.8	56.3	57.1	57.7
12	74.8	74.8	65.3	73.7	64.3	70.9	73.3	73.2	63.6	63.8	63.3	42.4	50.4	<40	49.6	53.3	53.8	<40	51.3	52.9	53.7	<40	53.0	54.6	56.2	57.0	57.6
11	74.9	74.8	65.3	73.8	64.4	70.9	73.3	73.2	63.5	63.8	63.4	41.9	50.3	<40	49.6	53.1	53.6	<40	51.1	52.7	53.5	<40	52.8	54.3	56.0	56.8	57.5
10	75.0	74.9	65.4	73.8	64.4	70.9	73.4	73.2	63.5	63.8	63.3	41.5	50.1	<40	49.6	52.8	53.3	<40	50.9	52.4	53.3	<40	52.6	54.2	55.8	56.7	57.3
9	75.0	74.9	65.4	73.9	64.4	71.0	73.4	73.2	63.5	63.8	63.3	41.0	50.0	<40	49.5	52.5	52.9	<40	50.4	52.1	53.0	<40	52.3	53.8	55.6	56.5	57.3
8	75.1	75.0	65.4	73.9	64.4	71.0	73.4	73.3	63.5	63.8	63.3	40.7	50.0	<40	49.4	52.0	52.3	<40	49.2	51.3	52.6	<40	52.0	53.4	55.3	56.3	57.0
7	75.1	75.0	65.4	73.9	64.4	71.1	73.4	73.2	63.5	63.7	63.2	40.3	50.0	<40	49.3	50.8	51.1	<40	47.9	50.5	52.1	<40	51.5	52.5	54.6	55.7	56.4
6	75.2	75.0	65.4	73.9	64.3	71.1	73.3	73.0	63.4	63.7	63.1	<40	49.9	<40	49.2	49.8	50.3	<40	46.6	49.4	51.4	<40	50.6	51.4	53.3	54.7	55.7
5	75.2	75.1	65.4	73.7	64.3	71.0	72.7	72.4	63.3	63.5	62.9	<40	49.6	<40	48.7	49.1	49.6	<40	45.6	48.4	49.9	<40	48.9	50.1	51.5	53.8	55.1
4	75.1	74.7	64.6	71.9	63.2	69.4	71.2	71.1	62.1	62.2	61.1	<40	48.0	<40	45.7	48.2	48.6	<40	44.2	46.9	47.3	<40	46.5	47.7	49.3	51.3	54.0
Max	75.2	75.1	65.4	73.9	64.4	71.1	73.4	73.3	64.2	64.3	64.4	52.5	56.4	43.4	54.3	59.0	59.2	40.2	54.2	58.0	58.1	<40	57.6	58.0	58.7	59.0	58.9
Min	72.6	72.7	64.3	71.9	63.2	68.8	71.2	71.1	62.1	62.2	61.1	<40	48.0	<40	45.7	48.2	48.6	<40	44.2	46.9	47.3	<40	46.5	47.7	49.3	51.3	54.0

# Total Flats	1927
Exceedance	869
Compliance Rate	54.9%

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R109a	R109b	R109c	R110a	R110b	R111b	R111c	R112a	R112b	R113b	R113c	R114a	R114b	R115b	R115c	R116a	R116b	R116c	R117a	R117b	R118a	R118b	R119a	R119b	R120a	R120b	R120c
45	56.9	59.4	59.4	70.0	70.1	70.2	70.3	70.7	70.8	71.0	71.1	71.3	71.4	71.9	72.6	72.9	72.9	65.8	70.3	72.1	71.9	64.9	70.6	71.5	71.7	72.0	69.4
44	57.0	59.4	59.4	70.1	70.2	70.3	70.3	70.8	70.8	71.1	71.2	71.3	71.4	71.9	72.7	73.0	73.0	65.8	70.4	72.2	71.9	64.9	70.7	71.6	71.8	72.1	69.5
43	57.0	59.4	59.4	70.1	70.2	70.3	70.4	70.8	70.9	71.1	71.3	71.4	71.5	72.0	72.7	73.0	73.0	65.9	70.4	72.3	72.0	65.0	70.7	71.6	71.8	72.2	69.5
42	57.0	59.4	59.4	70.2	70.3	70.4	70.4	70.9	71.0	71.2	71.3	71.5	71.6	72.1	72.8	73.1	73.1	65.9	70.5	72.3	72.1	65.1	70.8	71.7	71.9	72.2	69.5
41	57.0	59.4	59.5	70.2	70.3	70.4	70.5	71.0	71.0	71.3	71.4	71.5	71.6	72.1	72.9	73.2	73.1	66.0	70.6	72.4	72.2	65.1	70.9	71.8	71.9	72.3	69.6
40	57.0	59.5	59.5	70.3	70.4	70.5	70.6	71.0	71.1	71.4	71.4	71.6	71.7	72.2	72.9	73.3	73.2	66.1	70.7	72.4	72.2	65.2	70.9	71.8	72.0	72.3	69.7
39	57.0	59.4	59.5	70.3	70.4	70.6	70.6	71.1	71.2	71.4	71.5	71.6	71.8	72.3	73.0	73.3	73.2	66.1	70.7	72.5	72.3	65.2	71.0	71.9	72.1	72.4	69.7
38	57.0	59.4	59.5	70.4	70.5	70.6	70.7	71.1	71.2	71.5	71.6	71.7	71.9	72.3	73.1	73.3	73.3	66.2	70.8	72.6	72.3	65.3	71.0	72.0	72.2	72.5	69.8
37	57.1	59.4	59.5	70.5	70.5	70.7	70.7	71.2	71.3	71.6	71.7	71.8	71.9	72.4	73.1	73.4	73.4	66.3	70.9	72.7	72.4	65.4	71.1	72.0	72.2	72.6	69.9
36	57.1	59.4	59.5	70.5	70.6	70.7	70.8	71.3	71.4	71.6	71.7	71.9	72.0	72.5	73.2	73.5	73.4	66.3	70.9	72.7	72.5	65.4	71.2	72.1	72.3	72.6	70.0
35	57.1	59.4	59.5	70.6	70.6	70.8	70.8	71.4	71.5	71.7	71.8	72.0	72.1	72.6	73.3	73.5	73.5	66.4	71.0	72.8	72.6	65.5	71.3	72.1	72.4	72.7	70.0
34	57.1	59.4	59.5	70.6	70.7	70.8	70.9	71.4	71.5	71.8	71.9	72.1	72.2	72.7	73.4	73.6	73.6	66.5	71.1	72.9	72.7	65.6	71.3	72.2	72.4	72.8	70.1
33	57.1	59.4	59.5	70.7	70.8	70.9	71.0	71.5	71.6	71.9	72.0	72.2	72.3	72.8	73.5	73.7	73.7	66.6	71.2	73.0	72.7	65.7	71.4	72.3	72.5	72.8	70.1
32	57.1	59.4	59.5	70.7	70.8	71.0	71.0	71.6	71.7	72.0	72.0	72.2	72.4	72.9	73.5	73.8	73.8	66.6	71.3	73.1	72.8	65.7	71.5	72.4	72.6	72.9	70.2
31	57.1	59.5	59.5	70.8	70.9	71.0	71.1	71.6	71.7	72.0	72.1	72.3	72.4	72.9	73.6	73.8	73.8	66.7	71.3	73.1	72.9	65.8	71.5	72.5	72.6	73.0	70.3
30	57.1	59.4	59.5	70.8	70.9	71.1	71.2	71.7	71.8	72.1	72.2	72.4	72.5	73.0	73.7	73.9	73.9	66.8	71.4	73.2	72.9	65.9	71.6	72.5	72.7	73.0	70.4
29	57.1	59.4	59.5	70.9	71.0	71.2	71.2	71.8	71.9	72.2	72.3	72.5	72.6	73.1	73.8	74.1	74.0	66.9	71.5	73.3	73.0	66.0	71.7	72.6	72.8	73.1	70.5
28	57.2	59.4	59.5	71.0	71.1	71.2	71.3	71.9	72.0	72.3	72.4	72.6	72.7	73.2	73.9	74.1	74.1	66.9	71.6	73.4	73.1	66.0	71.8	72.7	72.9	73.2	70.5
27	57.2	59.3	59.5	71.0	71.1	71.3	71.4	72.0	72.1	72.4	72.5	72.6	72.8	73.3	74.0	74.2	74.2	67.0	71.7	73.5	73.2	66.1	71.8	72.7	72.9	73.3	70.6
26	57.3	59.3	59.5	71.1	71.2	71.4	71.4	72.0	72.1	72.4	72.5	72.7	72.9	73.4	74.1	74.3	74.2	67.1	71.7	73.6	73.3	66.2	71.9	72.8	73.0	73.3	70.7
25	57.3	59.2	59.4	71.2	71.2	71.4	71.5	72.1	72.2	72.5	72.6	72.8	73.0	73.5	74.2	74.4	74.4	67.2	71.8	73.6	73.3	66.3	72.0	72.9	73.1	73.4	70.8
24	57.3	59.2	59.4	71.2	71.3	71.5	71.6	72.2	72.3	72.6	72.7	72.9	73.1	73.6	74.3	74.5	74.5	67.3	71.9	73.7	73.4	66.3	72.0	73.0	73.1	73.5	70.8
23	57.4	59.1	59.4	71.3	71.4	71.6	71.6	72.3	72.4	72.7	72.8	73.0	73.2	73.7	74.4	74.6	74.6	67.4	72.0	73.8	73.5	66.4	72.1	73.1	73.2	73.6	70.9
22																											
21	57.4	59.0	59.3	71.4	71.5	71.7	71.8	72.5	72.6	72.9	73.1	73.3	73.4	74.0	74.7	74.9	74.8	67.6	72.3	74.1	73.8	66.6	72.3	73.2	73.4	73.8	71.1
20	57.4	58.9	59.3	71.5	71.6	71.8	71.9	72.6	72.7	73.0	73.2	73.4	73.5	74.1	74.8	75.0	74.9	67.7	72.4	74.1	73.8	66.7	72.4	73.3	73.5	73.8	71.2
19	57.4	58.9	59.3	71.6	71.7	71.9	72.0	72.7	72.8	73.1	73.3	73.5	73.6	74.2	74.9	75.1	75.1	67.8	72.4	74.2	73.9	66.8	72.5	73.4	73.6	73.9	71.3
18	57.5	58.8	59.2	71.7	71.7	71.9	72.0	72.7	72.9	73.2	73.3	73.6	73.7	74.3	75.1	75.2	75.1	67.9	72.5	74.4	74.0	66.8	72.6	73.5	73.7	74.0	71.4
17	57.5	58.8	59.2	71.7	71.8	72.0	72.1	72.8	72.9	73.3	73.5	73.7	73.8	74.4	75.2	75.3	75.3	68.0	72.6	74.5	74.1	66.9	72.6	73.6	73.7	74.1	71.5
16	57.4	58.7	59.2	71.8	71.9	72.1	72.1	72.9	73.0	73.4	73.5	73.8	73.9	74.6	75.3	75.5	75.4	68.0	72.7	74.5	74.2	67.0	72.7	73.6	73.8	74.2	71.5
15	57.5	58.6	59.1	71.8	71.9	72.1	72.2	73.0	73.1	73.5	73.6	73.9	74.1	74.6	75.4	75.5	75.5	68.1	72.8	74.6	74.3	67.1	72.8	73.7	73.9	74.2	71.6
14	57.5	58.7	59.0	71.8	72.0	72.2	72.3	73.1	73.2	73.5	73.7	74.0	74.1	74.7	75.5	75.7	75.6	68.2	72.9	74.7	74.4	67.1	72.9	73.8	74.0	74.3	71.6
13	57.4	58.6	59.0	71.9	72.0	72.2	72.3	73.1	73.2	73.6	73.8	74.0	74.2	74.9	75.7	75.8	75.7	68.3	73.0	74.8	74.5	67.2	72.9	73.9	74.0	74.4	71.7
12	57.4	58.5	59.0	71.8	71.9	72.2	72.3	73.2	73.3	73.7	73.9	74.1	74.3	75.0	75.7	75.9	75.8	68.4	73.1	75.0	74.6	67.3	73.0	73.9	74.1	74.4	71.8
11	57.3	58.4	58.9	71.8	71.9	72.1	72.2	73.2	73.3	73.7	73.9	74.2	74.4	75.1	75.9	76.1	76.0	68.5	73.2	75.0	74.6	67.4	73.1	74.0	74.2	74.5	71.9
10	57.2	58.3	58.8	71.7	71.8	72.0	72.1	73.1	73.3	73.7	73.9	74.2	74.5	75.2	76.0	76.2	76.1	68.6	73.3	75.1	74.7	67.4	73.1	74.1	74.2	74.6	71.9
9	57.0	58.2	58.7	71.5	71.6	71.8	71.9	73.0	73.1	73.7	73.9	74.2	74.5	75.2	76.0	76.3	76.2	68.7	73.4	75.2	74.8	67.5	73.2	74.1	74.2	74.6	72.0
8	56.9	57.9	58.5	71.3	71.3	71.5	71.6	72.8	73.0	73.6	73.9	74.1	74.4	75.2	76.1	76.5	76.3	68.8	73.5	75.3	74.9	67.6	73.3	74.0	74.2	74.5	71.9
7	56.3	57.5	58.1	70.9	71.0	71.3	71.4	72.6	72.8	73.5	73.7	74.1	74.4	75.2	76.1	76.6	76.4	68.9	73.6	75.4	74.9	67.6	73.3	73.9	74.1	74.4	71.9
6	55.7	57.1	57.6	70.4	70.6	70.9	71.1	72.3	72.5	73.2	73.5	74.0	74.3	75.2	76.1	76.7	76.5	69.0	73.7	75.4	74.7	67.7	73.3	73.9	74.0	74.4	71.9
5	55.1	56.7	57.2	69.8	70.0	70.4	70.7	71.9	72.0	72.6	73.0	73.5	74.0	75.2	76.2	76.8	76.6	69.0	73.5	74.9	74.4	67.7	73.2	73.8	74.0	74.3	71.9
4	53.9	55.7	56.2	69.0	69.2	69.6	69.8	70.8	71.0	71.6	71.8	72.1	72.5	74.1	75.8	76.7	75.8	68.8	71.8	74.1	74.0	67.7	72.6	73.8	73.9	74.4	71.6
Max	57.5	59.5	59.5	71.9	72.0	72.2	72.3	73.2	73.3	73.7	73.9	74.2	74.5	75.2	76.2	76.8	76.6	69.0	73.7	75.4	74.9	67.7	73.3	74.1	74.2	74.6	72.0
Min	53.9	55.7	56.2	69.0	69.2	69.6	69.8	70.7	70.8	71.0	71.1	71.3	71.4	71.9	72.6	72.9	72.9	65.8	70.3	72.1	71.9	64.9	70.6	71.5	71.7	72.0	69.4

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R121a	R121b	R121c	R122a	R122b	R122c	R123a	R123b	R123c	R201a	R201b	R201c	R201d	R201e	R201f	R202a	R202b	R203a	R203b	R204a	R204b	R204c	R204d	R204e	R204f	R205a	R205b
45	67.9	72.4	72.4	72.7	72.9	69.7	68.9	72.8	71.0	69.4	69.8	69.9	70.9	70.9	64.1	66.7	70.8	70.7	63.6	67.2	70.7	70.9	67.1	66.6	67.7	64.8	65.1
44	68.0	72.4	72.5	72.8	73.0	69.7	68.9	72.9	71.1	69.5	69.8	69.9	71.0	70.9	64.1	66.8	70.8	70.7	63.6	67.2	70.7	70.9	67.1	66.6	67.7	64.9	65.2
43	68.0	72.5	72.6	72.8	73.1	69.8	69.0	72.9	71.1	69.5	69.8	70.0	71.0	70.9	64.1	66.8	70.8	70.8	63.5	67.3	70.8	71.0	67.1	66.6	67.7	64.9	65.2
42	68.1	72.6	72.6	72.9	73.1	69.9	69.1	73.0	71.2	69.5	69.9	70.0	71.0	71.0	64.1	66.8	70.8	70.8	63.5	67.3	70.8	71.0	67.1	66.6	67.7	65.0	65.3
41	68.2	72.6	72.7	73.0	73.2	69.9	69.2	73.0	71.3	69.6	69.9	70.0	71.0	71.0	64.1	66.9	70.9	70.8	63.5	67.3	70.8	71.0	67.1	66.6	67.7	65.0	65.3
40	68.2	72.7	72.8	73.0	73.3	69.9	69.2	73.1	71.4	69.6	70.0	70.1	71.1	71.0	64.0	66.9	70.9	70.8	63.5	67.4	70.8	71.0	67.1	66.6	67.7	65.0	65.3
39	68.2	72.8	72.8	73.1	73.3	70.0	69.3	73.2	71.4	69.6	70.0	70.1	71.1	71.0	64.1	66.9	70.9	70.8	63.4	67.4	70.9	71.1	67.1	66.6	67.8	65.0	65.3
38	68.3	72.9	72.9	73.1	73.4	70.1	69.3	73.2	71.5	69.7	70.0	70.2	71.1	71.1	64.0	67.0	71.0	70.9	63.4	67.4	70.9	71.1	67.1	66.6	67.8	65.1	65.3
37	68.4	72.9	73.0	73.2	73.4	70.2	69.4	73.3	71.5	69.7	70.1	70.2	71.1	71.1	64.0	67.0	71.0	70.9	63.4	67.5	70.9	71.1	67.1	66.6	67.8	65.1	65.3
36	68.5	73.0	73.0	73.3	73.5	70.2	69.4	73.4	71.6	69.8	70.1	70.2	71.2	71.1	64.0	67.0	71.0	70.9	63.4	67.5	70.9	71.1	67.1	66.6	67.8	65.1	65.3
35	68.6	73.0	73.1	73.4	73.6	70.3	69.5	73.5	71.7	69.8	70.2	70.3	71.2	71.2	64.0	67.1	71.0	70.9	63.4	67.6	70.9	71.1	67.1	66.5	67.8	65.1	65.3
34	68.6	73.1	73.2	73.4	73.7	70.4	69.6	73.6	71.7	69.9	70.2	70.3	71.2	71.2	64.0	67.1	71.0	71.0	63.3	67.6	70.9	71.2	67.1	66.5	67.8	65.2	65.3
33	68.7	73.2	73.2	73.5	73.7	70.5	69.7	73.6	71.8	69.9	70.2	70.4	71.3	71.2	64.0	67.2	71.1	71.0	63.3	67.6	71.0	71.2	67.1	66.5	67.8	65.2	65.4
32	68.8	73.3	73.3	73.6	73.8	70.5	69.8	73.7	71.9	69.9	70.3	70.4	71.3	71.2	64.0	67.2	71.1	71.0	63.3	67.6	71.0	71.2	67.1	66.5	67.8	65.2	65.4
31	68.9	73.3	73.4	73.7	73.9	70.6	69.8	73.8	72.0	70.0	70.3	70.5	71.3	71.3	64.0	67.2	71.1	71.0	63.3	67.7	71.0	71.2	67.0	66.5	67.8	65.2	65.4
30	68.9	73.4	73.5	73.7	74.0	70.6	69.9	73.8	72.1	70.0	70.4	70.5	71.4	71.3	64.0	67.2	71.2	71.1	63.2	67.7	71.0	71.2	67.0	66.5	67.8	65.2	65.4
29	69.0	73.5	73.6	73.8	74.0	70.7	70.0	73.9	72.1	70.1	70.4	70.6	71.4	71.3	64.0	67.3	71.2	71.1	63.2	67.8	71.1	71.3	67.0	66.5	67.8	65.3	65.4
28	69.0	73.6	73.6	73.9	74.1	70.8	70.1	74.0	72.2	70.1	70.5	70.6	71.4	71.3	63.9	67.3	71.2	71.1	63.2	67.8	71.1	71.3	67.0	66.4	67.8	65.3	65.4
27	69.1	73.6	73.7	73.9	74.2	70.9	70.1	74.1	72.3	70.1	70.5	70.6	71.4	71.4	63.9	67.4	71.2	71.1	63.1	67.8	71.1	71.3	66.9	66.4	67.8	65.3	65.4
26	69.2	73.7	73.7	74.0	74.3	71.0	70.2	74.1	72.4	70.2	70.5	70.7	71.5	71.4	63.8	67.4	71.3	71.1	63.1	67.9	71.1	71.3	66.9	66.3	67.8	65.3	65.4
25	69.3	73.8	73.8	74.1	74.3	71.0	70.3	74.2	72.4	70.2	70.6	70.7	71.5	71.4	63.8	67.4	71.3	71.1	63.0	67.9	71.1	71.3	66.9	66.3	67.7	65.3	65.4
24	69.4	73.9	73.9	74.2	74.4	71.1	70.3	74.3	72.5	70.2	70.6	70.7	71.5	71.4	63.7	67.5	71.3	71.1	62.9	67.9	71.1	71.3	66.8	66.2	67.7	65.3	65.4
23	69.5	73.9	74.0	74.3	74.5	71.2	70.4	74.4	72.6	70.3	70.7	70.8	71.5	71.5	63.6	67.5	71.3	71.2	62.8	67.9	71.1	71.3	66.7	66.1	67.6	65.2	65.3
22																											
21	69.7	74.1	74.2	74.4	74.7	71.4	70.7	74.6	72.8	70.3	70.7	70.9	71.6	71.5	63.4	67.6	71.3	71.2	62.7	68.0	71.1	71.2	66.4	65.6	67.4	65.2	65.3
20	69.8	74.2	74.3	74.5	74.8	71.4	70.7	74.7	72.9	70.4	70.8	70.9	71.6	71.5	63.3	67.6	71.3	71.2	62.5	68.0	71.1	71.2	66.2	65.4	67.2	65.1	65.4
19	69.9	74.3	74.3	74.6	74.8	71.5	70.8	74.7	73.0	70.4	70.8	70.9	71.6	71.5	63.2	67.6	71.3	71.1	62.5	68.0	71.0	71.1	66.0	65.2	67.2	65.1	65.4
18	70.0	74.4	74.4	74.7	74.9	71.6	70.9	74.8	73.1	70.4	70.9	71.0	71.6	71.5	63.1	67.7	71.3	71.1	62.3	68.0	71.0	71.1	65.9	65.0	67.1	65.2	65.4
17	70.1	74.5	74.5	74.8	75.0	71.6	71.0	74.9	73.1	70.5	70.9	71.0	71.6	71.5	62.9	67.7	71.3	71.1	62.1	68.1	71.0	71.1	65.7	64.9	67.0	65.2	65.4
16	70.1	74.5	74.6	74.8	75.1	71.7	71.1	75.0	73.2	70.5	70.9	71.0	71.6	71.5	62.8	67.7	71.3	71.1	62.0	68.1	71.0	71.0	65.5	64.7	66.9	65.2	65.5
15	70.1	74.6	74.7	74.9	75.2	71.8	71.2	75.1	73.3	70.5	70.9	71.0	71.6	71.5	62.6	67.7	71.2	71.1	61.8	68.1	71.0	71.0	65.4	64.5	66.9	65.2	65.5
14	70.2	74.7	74.7	75.0	75.2	71.9	71.3	75.1	73.3	70.5	70.9	71.1	71.6	71.5	62.3	67.7	71.2	71.1	61.5	68.1	70.9	70.9	65.2	64.3	66.8	65.3	65.6
13	70.3	74.7	74.8	75.1	75.3	71.9	71.3	75.2	73.4	70.6	71.0	71.1	71.6	71.5	62.2	67.8	71.2	71.0	61.1	68.1	70.8	70.9	65.0	64.0	66.7	65.3	65.6
12	70.4	74.8	74.8	75.1	75.4	72.0	71.4	75.3	73.5	70.6	71.0	71.1	71.6	71.4	62.1	67.8	71.1	70.9	60.8	68.1	70.7	70.8	64.8	63.7	66.7	65.3	65.6
11	70.5	74.9	74.9	75.2	75.4	72.1	71.4	75.3	73.6	70.6	71.0	71.1	71.5	71.4	61.9	67.7	71.1	70.9	60.6	68.1	70.7	70.7	64.5	63.4	66.5	65.3	65.7
10	70.5	74.9	75.0	75.3	75.5	72.1	71.5	75.4	73.6	70.6	70.9	71.1	71.4	71.3	61.7	67.7	71.0	70.7	60.2	68.1	70.6	70.6	64.1	63.0	66.5	65.2	65.6
9	70.5	75.0	75.0	75.3	75.6	72.2	71.6	75.5	73.7	70.6	70.9	71.0	71.3	71.2	61.5	67.8	70.9	70.6	59.9	68.1	70.4	70.5	63.7	62.5	66.3	65.1	65.6
8	70.3	75.0	75.0	75.3	75.6	72.2	71.5	75.5	73.6	70.5	70.8	70.9	71.3	71.1	61.4	67.7	70.8	70.5	59.5	68.0	70.3	70.4	63.2	61.9	66.2	65.1	65.4
7	70.0	74.9	74.9	75.3	75.5	72.2	71.6	75.4	73.6	70.3	70.6	70.7	71.1	71.0	61.2	67.7	70.7	70.4	59.1	68.0	70.2	70.2	62.6	61.2	66.0	64.9	65.3
6	69.9	74.8	74.9	75.2	75.5	72.3	71.6	75.4	73.5	70.0	70.3	70.5	70.9	70.8	61.1	67.7	70.6	70.4	58.9	67.9	70.1	70.0	61.8	60.1	65.8	64.7	65.1
5	69.9	74.8	74.8	75.2	75.5	72.3	71.6	75.4	73.5	69.6	70.1	70.3	70.8	70.7	60.7	67.6	70.4	70.0	58.4	67.8	69.7	69.6	60.9	59.0	65.6	64.5	64.5
4	69.5	74.8	74.8	75.1	75.4	72.0	71.5	75.1	73.0	69.3	69.7	69.9	70.3	70.0	58.8	66.2	68.9	68.5	56.7	66.3	68.4	68.4	60.2	58.0	65.6	63.6	62.5
Max	70.5	75.0	75.0	75.3	75.6	72.3	71.6	75.5	73.7	70.6	71.0	71.1	71.6	71.5	64.1	67.8	71.3	71.2	63.6	68.1	71.1	71.3	67.1	66.6	67.8	65.3	65.7
Min	67.9	72.4	72.4	72.7	72.9	69.7	68.9	72.8	71.0	69.3	69.7	69.9	70.3	70.0	58.8	66.2	68.9	68.5	56.7	66.3	68.4	68.4	60.2	58.0	65.6	63.6	62.5

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R206a	R206b	R206c	R206d	R207a	R207b	R207c	R207d	R208a	R208b	R209a	R209b	R210a	R210b	R211a	R211b	R211c	R212a	R212b	R212c	R212d	R213a	R213b	R214b	R214c	R215a	R215b
45	63.4	65.9	66.0	64.3	63.7	65.9	65.8	63.2	64.9	65.0	65.0	64.7	62.6	65.6	66.0	66.1	62.1	61.7	66.6	67.2	67.3	69.5	69.1	69.0	69.0	69.0	69.0
44	63.4	66.0	66.1	64.4	63.7	65.9	65.8	63.3	65.0	65.1	65.0	64.7	62.5	65.6	66.0	66.1	62.1	61.7	66.6	67.2	67.4	69.5	69.1	69.0	69.0	69.0	69.0
43	63.4	66.0	66.1	64.4	63.7	65.9	65.8	63.3	65.0	65.1	65.0	64.8	62.5	65.6	66.0	66.2	62.2	61.7	66.6	67.2	67.4	69.6	69.2	69.0	69.0	69.0	69.0
42	63.4	66.0	66.1	64.4	63.7	66.0	65.8	63.3	65.0	65.1	65.0	64.8	62.5	65.7	66.0	66.2	62.2	61.7	66.7	67.2	67.4	69.6	69.2	69.1	69.1	69.1	69.1
41	63.4	66.0	66.1	64.4	63.7	66.0	65.9	63.4	65.0	65.1	65.0	64.8	62.5	65.7	66.1	66.2	62.2	61.7	66.7	67.3	67.5	69.6	69.2	69.1	69.1	69.1	69.1
40	63.4	66.1	66.2	64.5	63.7	66.0	65.9	63.4	65.1	65.1	65.1	64.8	62.6	65.7	66.1	66.3	62.2	61.8	66.7	67.3	67.5	69.6	69.3	69.2	69.1	69.1	69.2
39	63.4	66.1	66.2	64.5	63.7	66.0	65.9	63.4	65.0	65.1	65.1	64.8	62.6	65.7	66.1	66.3	62.2	61.8	66.7	67.3	67.5	69.7	69.3	69.2	69.2	69.2	69.2
38	63.4	66.1	66.2	64.6	63.7	66.0	65.9	63.5	65.1	65.2	65.1	64.8	62.6	65.7	66.1	66.3	62.3	61.8	66.7	67.3	67.6	69.7	69.4	69.3	69.2	69.2	69.2
37	63.4	66.1	66.2	64.6	63.7	66.0	65.9	63.5	65.1	65.1	65.1	64.8	62.6	65.7	66.2	66.3	62.2	61.8	66.8	67.4	67.6	69.8	69.4	69.3	69.3	69.3	69.3
36	63.4	66.1	66.2	64.6	63.7	66.0	65.9	63.5	65.1	65.1	65.0	64.8	62.6	65.7	66.2	66.3	62.2	61.8	66.8	67.4	67.6	69.8	69.4	69.3	69.3	69.3	69.3
35	63.3	66.1	66.2	64.6	63.6	66.0	65.9	63.5	65.0	65.1	65.0	64.8	62.6	65.7	66.2	66.4	62.2	61.8	66.8	67.4	67.6	69.8	69.5	69.4	69.4	69.4	69.4
34	63.4	66.1	66.2	64.6	63.6	66.0	65.9	63.5	65.0	65.1	65.0	64.8	62.6	65.7	66.2	66.4	62.2	61.8	66.8	67.5	67.7	69.9	69.5	69.4	69.4	69.4	69.4
33	63.4	66.1	66.2	64.6	63.6	66.0	65.9	63.4	65.0	65.1	64.9	64.7	62.6	65.7	66.2	66.4	62.2	61.7	66.8	67.5	67.7	69.9	69.6	69.5	69.5	69.5	69.4
32	63.4	66.1	66.3	64.7	63.6	66.0	65.9	63.5	65.0	65.1	64.9	64.7	62.5	65.7	66.2	66.4	62.1	61.7	66.9	67.5	67.7	70.0	69.6	69.5	69.5	69.5	69.5
31	63.4	66.2	66.3	64.7	63.6	66.0	65.9	63.5	64.9	65.0	64.9	64.6	62.5	65.6	66.2	66.4	62.1	61.7	66.9	67.5	67.8	70.0	69.7	69.6	69.6	69.6	69.6
30	63.3	66.2	66.3	64.7	63.6	66.0	65.9	63.5	64.9	65.0	64.8	64.6	62.4	65.6	66.2	66.4	62.1	61.6	66.9	67.5	67.8	70.1	69.7	69.6	69.6	69.6	69.6
29	63.3	66.2	66.3	64.7	63.5	66.0	65.8	63.4	64.8	64.9	64.7	64.5	62.3	65.6	66.1	66.3	61.9	61.5	66.8	67.5	67.8	70.1	69.8	69.7	69.7	69.6	69.7
28	63.3	66.1	66.3	64.7	63.6	65.9	65.8	63.4	64.7	64.8	64.7	64.4	62.3	65.6	66.1	66.3	61.9	61.4	66.8	67.5	67.8	70.1	69.8	69.7	69.7	69.7	69.7
27	63.3	66.1	66.3	64.7	63.5	65.9	65.7	63.3	64.6	64.7	64.6	64.3	62.2	65.5	66.1	66.3	61.9	61.4	66.8	67.5	67.8	70.2	69.9	69.8	69.7	69.8	69.8
26	63.2	66.1	66.2	64.6	63.5	65.8	65.6	63.3	64.6	64.6	64.4	64.2	62.2	65.4	66.0	66.3	61.9	61.3	66.8	67.6	67.8	70.2	69.9	69.8	69.8	69.8	69.8
25	63.2	66.1	66.2	64.6	63.4	65.8	65.6	63.3	64.5	64.5	64.4	64.2	62.1	65.3	66.0	66.2	61.8	61.2	66.8	67.5	67.8	70.3	69.9	69.9	69.8	69.8	69.8
24	63.1	66.0	66.1	64.6	63.4	65.7	65.5	63.3	64.4	64.5	64.3	64.1	62.1	65.3	65.9	66.2	61.7	61.2	66.8	67.6	67.9	70.3	70.0	69.9	69.9	69.9	69.9
23	63.0	66.0	66.1	64.6	63.3	65.7	65.5	63.2	64.3	64.4	64.2	64.0	62.1	65.3	65.9	66.2	61.7	61.1	66.8	67.5	67.9	70.3	70.0	70.0	69.9	69.9	69.9
22																											
21	63.0	66.0	66.1	64.6	63.4	65.6	65.4	63.2	64.2	64.3	64.2	64.0	62.0	65.1	65.8	66.1	61.7	61.1	66.7	67.5	67.9	70.4	70.1	70.0	70.0	70.0	70.0
20	63.0	66.0	66.1	64.6	63.4	65.6	65.4	63.1	64.3	64.3	64.1	63.9	62.0	65.1	65.8	66.0	61.7	61.0	66.7	67.5	67.9	70.4	70.2	70.1	70.0	70.0	70.1
19	62.9	66.0	66.1	64.6	63.4	65.6	65.4	63.1	64.3	64.3	64.1	63.9	62.1	65.1	65.8	66.0	61.7	61.0	66.7	67.6	68.0	70.4	70.2	70.1	70.1	70.1	70.1
18	63.0	66.1	66.2	64.7	63.5	65.7	65.5	63.2	64.3	64.3	64.1	63.9	62.0	65.1	65.8	66.0	61.8	61.0	66.7	67.5	67.9	70.4	70.2	70.1	70.1	70.1	70.1
17	63.0	66.1	66.2	64.7	63.5	65.7	65.4	63.1	64.3	64.3	64.1	63.9	62.0	65.0	65.8	66.0	61.7	61.0	66.7	67.6	68.0	70.4	70.2	70.2	70.2	70.1	70.1
16	63.1	66.2	66.2	64.7	63.6	65.8	65.5	63.2	64.3	64.3	64.1	63.9	62.0	65.0	65.7	66.0	61.7	60.9	66.7	67.6	68.0	70.4	70.2	70.2	70.2	70.2	70.2
15	63.1	66.2	66.3	64.8	63.6	65.8	65.6	63.2	64.4	64.3	64.1	63.8	62.0	65.0	65.7	66.0	61.7	60.9	66.7	67.7	68.0	70.3	70.2	70.2	70.2	70.1	70.2
14	63.1	66.3	66.3	64.8	63.7	65.9	65.6	63.2	64.4	64.3	64.1	63.8	62.0	65.1	65.7	66.0	61.8	60.9	66.8	67.7	68.1	70.3	70.2	70.1	70.1	70.1	70.1
13	63.2	66.3	66.4	64.9	63.7	65.9	65.7	63.2	64.4	64.3	64.2	63.8	62.0	65.1	65.7	65.9	61.8	60.9	66.8	67.7	68.1	70.1	70.1	70.1	70.1	70.1	70.1
12	63.2	66.4	66.5	64.8	63.7	66.0	65.7	63.1	64.4	64.3	64.1	63.8	62.0	65.1	65.7	66.0	61.9	61.0	66.8	67.7	68.2	70.0	69.9	69.9	70.0	70.0	70.0
11	63.2	66.4	66.5	64.8	63.7	66.0	65.7	63.1	64.4	64.3	64.1	63.7	62.1	65.1	65.7	65.9	62.0	61.0	66.8	67.7	68.1	69.8	69.8	69.9	69.9	69.9	69.9
10	63.1	66.4	66.5	64.8	63.7	65.9	65.7	63.0	64.4	64.3	64.1	63.7	62.2	65.1	65.8	65.9	62.1	61.1	66.8	67.8	68.2	69.6	69.7	69.7	69.7	69.8	69.8
9	62.9	66.4	66.5	64.7	63.6	65.9	65.7	62.9	64.4	64.2	64.0	63.7	62.3	65.1	65.8	66.0	62.3	61.2	66.7	67.8	68.1	69.5	69.5	69.6	69.6	69.6	69.7
8	62.9	66.4	66.4	64.6	63.5	65.9	65.7	62.7	64.3	64.2	64.0	63.8	62.5	65.1	65.8	66.0	62.2	61.3	66.6	67.7	67.9	69.3	69.3	69.4	69.4	69.5	69.4
7	62.6	66.3	66.4	64.5	63.4	65.9	65.7	62.7	64.4	64.2	64.0	63.8	62.7	65.1	65.8	65.9	62.1	61.1	66.4	67.5	67.6	69.0	69.0	69.1	69.1	69.1	69.1
6	62.1	66.3	66.4	64.2	62.8	65.9	65.6	62.5	64.3	64.2	64.0	63.7	62.7	65.2	65.8	65.8	61.2	60.5	66.2	67.0	67.1	68.6	68.6	68.6	68.5	68.5	68.3
5	59.5	66.3	66.3	63.1	59.6	65.9	65.7	62.2	64.2	64.3	63.9	61.6	61.6	64.9	65.4	65.2	57.7	57.5	65.3	65.9	65.9	67.9	67.8	67.7	67.6	67.5	67.3
4	55.0	65.8	66.0	60.2	54.9	65.8	65.5	58.8	61.7	64.2	60.9	56.2	56.4	61.4	61.9	61.6	53.3	53.1	61.6	63.3	64.3	67.1	67.0	66.6	66.5	66.5	66.4
Max	63.4	66.4	66.5	64.9	63.7	66.0	65.9	63.5	65.1	65.2	65.1	64.8	62.7	65.7	66.2	66.4	62.3	61.8	66.9	67.8	68.2	70.4	70.2	70.2	70.2	70.2	70.2
Min	55.0	65.8	66.0	60.2	54.9	65.6	65.4	58.8	61.7	64.2	60.9	56.2	56.4	61.4	61.9	61.6	53.3	53.1	61.6	63.3	64.3	67.1	67.0	66.6	66.5	66.5	66.4

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R216b	R216c	R217a	R217b	R218b	R218c	R219a	R219b	R219c	R220a	R220b	R220c	R221a	R221b	R222a	R222b	R222c	R222d	R223a	R223b	R223c	R223d	R224a	R224b
45	69.0	68.9	69.4	69.5	69.6	69.6	63.2	63.4	58.5	63.2	63.7	63.8	64.2	64.4	<40	65.0	65.2	64.8	62.1	65.3	65.1	63.2	59.4	50.5
44	69.0	68.9	69.5	69.5	69.6	69.7	63.2	63.5	58.5	63.3	63.8	63.9	64.2	64.4	<40	65.0	65.2	64.9	62.1	65.4	65.1	63.2	59.4	50.4
43	69.1	69.0	69.5	69.6	69.7	69.7	63.3	63.5	58.6	63.3	63.8	63.9	64.2	64.5	<40	65.1	65.2	64.9	62.2	65.4	65.2	63.3	59.5	50.5
42	69.1	69.0	69.5	69.6	69.7	69.8	63.3	63.5	58.6	63.4	63.9	63.9	64.3	64.5	<40	65.1	65.3	65.0	62.2	65.5	65.2	63.3	59.5	50.5
41	69.2	69.1	69.6	69.7	69.8	69.8	63.3	63.6	58.6	63.4	63.9	64.0	64.3	64.6	<40	65.2	65.3	65.0	62.3	65.5	65.3	63.3	59.6	50.6
40	69.2	69.1	69.6	69.7	69.8	69.8	63.4	63.6	58.7	63.5	63.9	64.0	64.4	64.6	<40	65.2	65.4	65.1	62.3	65.6	65.3	63.4	59.6	50.6
39	69.2	69.2	69.7	69.8	69.8	69.9	63.4	63.7	58.7	63.5	64.0	64.1	64.4	64.6	<40	65.3	65.5	65.1	62.3	65.6	65.4	63.4	59.6	50.5
38	69.3	69.2	69.7	69.8	69.9	69.9	63.5	63.7	58.8	63.5	64.0	64.1	64.5	64.7	<40	65.3	65.5	65.1	62.4	65.6	65.4	63.5	59.7	50.6
37	69.3	69.2	69.8	69.9	69.9	70.0	63.5	63.8	58.8	63.6	64.1	64.2	64.5	64.7	<40	65.4	65.6	65.2	62.4	65.7	65.5	63.5	59.7	50.6
36	69.4	69.3	69.8	69.9	70.0	70.0	63.6	63.8	58.8	63.6	64.1	64.2	64.5	64.8	<40	65.4	65.6	65.2	62.5	65.7	65.5	63.6	59.7	50.6
35	69.4	69.3	69.8	69.9	70.0	70.1	63.6	63.8	58.9	63.7	64.2	64.2	64.6	64.8	<40	65.4	65.6	65.3	62.5	65.8	65.6	63.6	59.7	50.5
34	69.5	69.4	69.9	70.0	70.1	70.1	63.7	63.9	58.9	63.7	64.2	64.3	64.6	64.9	<40	65.5	65.7	65.3	62.6	65.8	65.6	63.7	59.8	50.6
33	69.5	69.4	69.9	70.0	70.1	70.2	63.7	63.9	59.0	63.7	64.2	64.3	64.7	64.9	<40	65.5	65.7	65.3	62.6	65.9	65.6	63.7	59.8	50.5
32	69.6	69.5	70.0	70.1	70.2	70.2	63.7	64.0	59.0	63.8	64.3	64.4	64.7	65.0	<40	65.6	65.8	65.4	62.7	65.9	65.7	63.7	59.8	50.4
31	69.6	69.5	70.0	70.1	70.2	70.2	63.8	64.0	59.0	63.8	64.3	64.4	64.7	65.0	<40	65.6	65.8	65.4	62.7	66.0	65.7	63.8	59.8	50.3
30	69.7	69.6	70.1	70.2	70.2	70.3	63.8	64.0	59.1	63.9	64.4	64.4	64.8	65.1	<40	65.7	65.8	65.5	62.8	66.0	65.8	63.8	59.9	50.2
29	69.7	69.6	70.1	70.2	70.3	70.4	63.8	64.1	59.1	63.9	64.4	64.5	64.8	65.1	<40	65.7	65.9	65.5	62.8	66.1	65.8	63.8	59.9	50.0
28	69.8	69.7	70.2	70.3	70.4	70.4	63.9	64.1	59.1	63.9	64.4	64.5	64.9	65.1	<40	65.7	65.9	65.6	62.9	66.1	65.9	63.9	59.9	49.8
27	69.8	69.7	70.2	70.3	70.4	70.5	63.9	64.1	59.2	64.0	64.5	64.6	64.9	65.2	<40	65.8	66.0	65.6	62.9	66.2	65.9	63.9	59.8	49.3
26	69.9	69.8	70.3	70.4	70.5	70.5	63.9	64.2	59.2	64.0	64.5	64.6	65.0	65.2	<40	65.8	66.0	65.7	62.9	66.2	65.9	63.9	59.9	48.8
25	69.9	69.8	70.3	70.4	70.5	70.6	64.0	64.2	59.2	64.0	64.6	64.6	65.0	65.2	<40	65.9	66.1	65.7	63.0	66.2	66.0	64.0	59.8	48.1
24	69.9	69.9	70.4	70.5	70.6	70.6	64.0	64.3	59.3	64.1	64.6	64.7	65.0	65.3	<40	65.9	66.1	65.7	63.0	66.3	66.0	64.0	59.8	47.6
23	70.0	69.9	70.4	70.5	70.6	70.7	64.1	64.3	59.3	64.1	64.6	64.7	65.1	65.3	<40	65.9	66.1	65.8	63.0	66.3	66.0	64.1	59.8	47.0
22																								
21	70.1	70.0	70.6	70.7	70.8	70.9	64.1	64.4	59.4	64.2	64.7	64.8	65.1	65.4	<40	66.0	66.2	65.9	63.1	66.4	66.1	64.1	59.9	45.3
20	70.1	70.1	70.6	70.7	70.9	70.9	64.1	64.4	59.4	64.2	64.7	64.8	65.2	65.4	<40	66.0	66.3	65.9	63.2	66.4	66.1	64.1	59.9	44.9
19	70.1	70.1	70.7	70.8	70.9	71.0	64.2	64.4	59.5	64.2	64.7	64.8	65.2	65.4	<40	66.1	66.3	65.9	63.2	66.4	66.2	64.2	59.9	44.4
18	70.2	70.2	70.7	70.8	70.9	71.0	64.2	64.4	59.5	64.3	64.8	64.8	65.2	65.5	<40	66.1	66.3	65.9	63.2	66.5	66.2	64.2	59.9	44.1
17	70.2	70.2	70.7	70.8	71.0	71.0	64.2	64.5	59.5	64.3	64.8	64.9	65.2	65.5	<40	66.1	66.4	66.0	63.2	66.5	66.2	64.2	59.9	43.8
16	70.2	70.2	70.7	70.9	71.0	71.1	64.2	64.5	59.5	64.3	64.8	64.9	65.3	65.5	<40	66.2	66.4	66.0	63.2	66.5	66.2	64.2	59.9	43.5
15	70.2	70.2	70.8	70.9	71.0	71.1	64.3	64.5	59.6	64.4	64.9	64.9	65.3	65.5	<40	66.2	66.4	66.0	63.3	66.6	66.3	64.2	59.9	43.2
14	70.2	70.2	70.8	70.9	71.1	71.1	64.3	64.6	59.6	64.4	64.9	65.0	65.3	65.6	<40	66.2	66.4	66.0	63.3	66.6	66.3	64.3	60.0	43.0
13	70.2	70.2	70.8	70.9	71.1	71.2	64.3	64.6	59.6	64.4	64.9	65.0	65.3	65.6	<40	66.2	66.5	66.1	63.3	66.6	66.3	64.3	60.0	42.8
12	70.1	70.2	70.8	70.9	71.1	71.1	64.3	64.6	59.6	64.4	65.0	65.0	65.4	65.6	<40	66.3	66.5	66.1	63.3	66.6	66.3	64.3	59.9	42.7
11	70.1	70.1	70.8	70.9	71.1	71.1	64.3	64.6	59.7	64.4	65.0	65.0	65.4	65.6	<40	66.3	66.5	66.1	63.3	66.6	66.3	64.3	59.8	42.5
10	69.9	70.0	70.7	70.9	71.0	71.1	64.3	64.6	59.7	64.4	65.0	65.1	65.4	65.7	<40	66.3	66.5	66.1	63.2	66.6	66.3	64.3	59.5	42.4
9	69.8	69.8	70.6	70.7	70.9	70.9	64.3	64.6	59.7	64.4	65.0	65.0	65.3	65.6	<40	66.3	66.5	66.0	63.0	66.5	66.2	64.0	58.9	42.3
8	69.6	69.6	70.3	70.4	70.6	70.6	64.2	64.5	59.7	64.3	64.8	64.8	65.1	65.4	<40	66.1	66.3	65.8	62.4	66.3	65.8	63.4	57.4	42.2
7	69.1	69.1	69.7	69.9	70.0	70.1	64.1	64.2	59.6	64.0	64.4	64.5	64.8	65.1	<40	65.7	65.9	65.3	61.1	65.9	65.4	62.5	54.5	42.1
6	68.2	68.2	68.9	69.1	69.2	69.3	63.6	63.7	59.3	63.4	63.9	63.9	64.3	64.6	<40	65.3	65.4	64.7	58.8	65.2	64.7	61.5	51.6	42.0
5	67.3	67.3	68.1	68.3	68.5	68.6	62.5	62.9	58.9	62.7	63.4	63.5	64.0	64.3	<40	64.9	65.1	64.1	55.4	64.6	64.1	60.6	49.4	41.9
4	66.4	66.5	67.3	67.5	67.7	67.9	61.4	62.1	58.0	62.0	62.8	63.0	63.2	63.1	<40	64.0	64.0	62.0	52.6	62.5	61.9	57.8	47.8	41.9
Max	70.2	70.2	70.8	70.9	71.1	71.2	64.3	64.6	59.7	64.4	65.0	65.1	65.4	65.7	<40	66.3	66.5	66.1	63.3	66.6	66.3	64.3	60.0	50.6
Min	66.4	66.5	67.3	67.5	67.7	67.9	61.4	62.1	58.0	62.0	62.8	63.0	63.2	63.1	<40	64.0	64.0	62.0	52.6	62.5	61.9	57.8	47.8	41.9

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R101m ax	R102m ax	R103m ax	R104m ax	R105m ax	R106m ax	R107m ax	R108m ax	R109m ax	R110m ax	R111m ax	R112m ax	R113m ax	R114m ax	R115m ax	R116m ax	R117m ax	R118m ax	R119m ax	R120m ax	R121m ax	R122m ax	R123m ax	R201m ax	R202m ax	R203m ax	R204m ax	R205m ax
45	72.7	71.9	71.7	56.4	59.2	58.1	58.0	58.9	59.4	70.1	70.3	70.8	71.1	71.4	72.6	72.9	72.1	71.9	71.5	72.0	72.4	72.9	72.8	70.9	70.8	70.7	70.9	65.1
44	72.7	72.0	71.7	56.3	59.2	58.0	58.0	59.0	59.4	70.2	70.3	70.8	71.2	71.4	72.7	73.0	72.2	71.9	71.6	72.1	72.5	73.0	72.9	71.0	70.8	70.7	70.9	65.2
43	72.7	72.0	71.8	56.3	59.1	57.9	58.0	59.0	59.4	70.2	70.4	70.9	71.3	71.5	72.7	73.0	72.3	72.0	71.6	72.2	72.6	73.1	72.9	71.0	70.8	70.8	71.0	65.2
42	72.8	72.1	71.8	56.3	59.1	58.0	58.0	58.9	59.4	70.3	70.4	71.0	71.3	71.6	72.8	73.1	72.3	72.1	71.7	72.2	72.6	73.1	73.0	71.0	70.8	70.8	71.0	65.3
41	72.9	72.1	71.9	56.2	59.1	57.9	58.0	59.0	59.5	70.3	70.5	71.0	71.4	71.6	72.9	73.2	72.4	72.2	71.8	72.3	72.7	73.2	73.0	71.0	70.9	70.8	71.0	65.3
40	72.9	72.2	71.9	56.2	59.0	57.9	58.0	59.0	59.5	70.4	70.6	71.1	71.4	71.7	72.9	73.3	72.4	72.2	71.8	72.3	72.8	73.3	73.1	71.1	70.9	70.8	71.0	65.3
39	73.0	72.2	72.0	56.1	59.1	57.9	58.0	59.0	59.5	70.4	70.6	71.2	71.5	71.8	73.0	73.3	72.5	72.3	71.9	72.4	72.8	73.3	73.2	71.1	70.9	70.8	71.1	65.3
38	73.0	72.3	72.0	56.0	59.0	57.9	57.9	59.0	59.5	70.5	70.7	71.2	71.6	71.9	73.1	73.3	72.6	72.3	72.0	72.5	72.9	73.4	73.2	71.1	71.0	70.9	71.1	65.3
37	73.1	72.3	72.1	55.9	58.9	57.8	58.0	59.0	59.5	70.5	70.7	71.3	71.7	71.9	73.1	73.4	72.7	72.4	72.0	72.6	73.0	73.4	73.3	71.1	71.0	70.9	71.1	65.3
36	73.2	72.4	72.1	55.7	58.9	57.8	57.9	58.9	59.5	70.6	70.8	71.4	71.7	72.0	73.2	73.5	72.7	72.5	72.1	72.6	73.0	73.5	73.4	71.2	71.0	70.9	71.1	65.3
35	73.2	72.4	72.2	55.5	58.8	57.7	57.9	59.0	59.5	70.6	70.8	71.5	71.8	72.1	73.3	73.5	72.8	72.6	72.1	72.7	73.1	73.6	73.5	71.2	71.0	70.9	71.1	65.3
34	73.3	72.5	72.2	55.3	58.8	57.7	57.8	59.0	59.5	70.7	70.9	71.5	71.9	72.2	73.4	73.6	72.9	72.7	72.2	72.8	73.2	73.7	73.6	71.2	71.0	71.0	71.2	65.3
33	73.4	72.5	72.3	55.2	58.7	57.6	57.8	58.9	59.5	70.8	71.0	71.6	72.0	72.3	73.5	73.7	73.0	72.7	72.3	72.8	73.2	73.7	73.6	71.3	71.1	71.0	71.2	65.4
32	73.4	72.6	72.3	55.1	58.6	57.6	57.8	58.9	59.5	70.8	71.0	71.7	72.0	72.4	73.5	73.8	73.1	72.8	72.4	72.9	73.3	73.8	73.7	71.3	71.1	71.0	71.2	65.4
31	73.5	72.7	72.4	55.0	58.6	57.5	57.7	58.9	59.5	70.9	71.1	71.7	72.1	72.4	73.6	73.8	73.1	72.9	72.5	73.0	73.4	73.9	73.8	71.3	71.1	71.0	71.2	65.4
30	73.6	72.7	72.4	54.8	58.5	57.5	57.7	58.8	59.5	70.9	71.2	71.8	72.2	72.5	73.7	73.9	73.2	72.9	72.5	73.0	73.5	74.0	73.8	71.4	71.2	71.1	71.2	65.4
29	73.6	72.8	72.5	54.6	58.4	57.3	57.6	58.8	59.5	71.0	71.2	71.9	72.3	72.6	73.8	74.1	73.3	73.0	72.6	73.1	73.6	74.0	73.9	71.4	71.2	71.1	71.3	65.4
28	73.7	72.8	72.5	54.5	58.3	57.2	57.4	58.7	59.5	71.1	71.3	72.0	72.4	72.7	73.9	74.1	73.4	73.1	72.7	73.2	73.6	74.1	74.0	71.4	71.2	71.1	71.3	65.4
27	73.8	72.9	72.6	54.4	58.2	57.1	57.3	58.6	59.5	71.1	71.4	72.1	72.5	72.8	74.0	74.2	73.5	73.2	72.7	73.3	73.7	74.2	74.1	71.4	71.2	71.1	71.3	65.4
26	73.8	73.0	72.6	54.3	58.0	57.0	57.2	58.6	59.5	71.2	71.4	72.1	72.5	72.9	74.1	74.3	73.6	73.3	72.8	73.3	73.7	74.3	74.1	71.5	71.3	71.1	71.3	65.4
25	73.9	73.0	72.7	54.2	58.0	56.7	57.0	58.5	59.4	71.2	71.5	72.2	72.6	73.0	74.2	74.4	73.6	73.3	72.9	73.4	73.8	74.3	74.2	71.5	71.3	71.1	71.3	65.4
24	74.0	73.1	72.7	54.0	57.8	56.5	56.8	58.4	59.4	71.3	71.6	72.3	72.7	73.1	74.3	74.5	73.7	73.4	73.0	73.5	73.9	74.4	74.3	71.5	71.3	71.1	71.3	65.4
23	74.0	73.1	72.8	53.8	57.5	56.2	56.5	58.3	59.4	71.4	71.6	72.4	72.8	73.2	74.4	74.6	73.8	73.5	73.1	73.6	74.0	74.5	74.4	71.5	71.3	71.2	71.3	65.3
22																												
21	74.2	73.3	72.9	53.0	56.7	55.6	56.1	58.2	59.3	71.5	71.8	72.6	73.1	73.4	74.7	74.9	74.1	73.8	73.2	73.8	74.2	74.7	74.6	71.6	71.3	71.2	71.2	65.3
20	74.3	73.3	72.9	52.5	56.5	55.4	56.0	58.1	59.3	71.6	71.9	72.7	73.2	73.5	74.8	75.0	74.1	73.8	73.3	73.8	74.3	74.8	74.7	71.6	71.3	71.2	71.2	65.4
19	74.4	73.4	73.0	52.0	56.3	55.2	55.7	58.1	59.3	71.7	72.0	72.8	73.3	73.6	74.9	75.1	74.2	73.9	73.4	73.9	74.3	74.8	74.7	71.6	71.3	71.1	71.1	65.4
18	74.4	73.4	73.0	51.8	55.9	54.8	55.5	58.0	59.2	71.7	72.0	72.9	73.3	73.7	75.1	75.2	74.4	74.0	73.5	74.0	74.4	74.9	74.8	71.6	71.3	71.1	71.1	65.4
17	74.5	73.5	73.1	51.2	55.4	54.6	55.4	57.9	59.2	71.8	72.1	72.9	73.5	73.8	75.2	75.3	74.5	74.1	73.6	74.1	74.5	75.0	74.9	71.6	71.3	71.1	71.1	65.4
16	74.6	73.5	73.1	51.0	55.0	54.4	55.2	57.9	59.2	71.9	72.1	73.0	73.5	73.9	75.3	75.5	74.5	74.2	73.6	74.2	74.6	75.1	75.0	71.6	71.3	71.1	71.0	65.5
15	74.6	73.6	73.2	50.8	54.7	54.1	55.1	57.8	59.1	71.9	72.2	73.1	73.6	74.1	75.4	75.5	74.6	74.3	73.7	74.2	74.7	75.2	75.1	71.6	71.2	71.1	71.0	65.5
14	74.7	73.6	73.2	50.5	54.3	54.0	54.9	57.7	59.0	72.0	72.3	73.2	73.7	74.1	75.5	75.7	74.7	74.4	73.8	74.3	74.7	75.2	75.1	71.6	71.2	71.1	70.9	65.6
13	74.8	73.7	73.3	50.4	54.0	53.9	54.8	57.7	59.0	72.0	72.3	73.2	73.8	74.2	75.7	75.8	74.8	74.5	73.9	74.4	74.8	75.3	75.2	71.6	71.2	71.0	70.9	65.6
12	74.8	73.7	73.3	50.4	53.8	53.7	54.6	57.6	59.0	71.9	72.3	73.3	73.9	74.3	75.7	75.9	75.0	74.6	73.9	74.4	74.8	75.4	75.3	71.6	71.1	70.9	70.8	65.6
11	74.9	73.8	73.3	50.3	53.6	53.5	54.3	57.5	58.9	71.9	72.2	73.3	73.9	74.4	75.9	76.1	75.0	74.6	74.0	74.5	74.9	75.4	75.3	71.5	71.1	70.9	70.7	65.7
10	75.0	73.8	73.4	50.1	53.3	53.3	54.2	57.3	58.8	71.8	72.1	73.3	73.9	74.5	76.0	76.2	75.1	74.7	74.1	74.6	75.0	75.5	75.4	71.4	71.0	70.7	70.6	65.6
9	75.0	73.9	73.4	50.0	52.9	53.0	53.8	57.3	58.7	71.6	71.9	73.1	73.9	74.5	76.0	76.3	75.2	74.8	74.1	74.6	75.0	75.6	75.5	71.3	70.9	70.6	70.5	65.6
8	75.1	73.9	73.4	50.0	52.3	52.6	53.4	57.0	58.5	71.3	71.6	73.0	73.9	74.4	76.1	76.5	75.3	74.9	74.0	74.5	75.0	75.6	75.5	71.3	70.8	70.5	70.4	65.4
7	75.1	73.9	73.4	50.0	51.1	52.1	52.5	56.4	58.1	71.0	71.4	72.8	73.7	74.4	76.1	76.6	75.4	74.9	73.9	74.4	74.9	75.5	75.4	71.1	70.7	70.4	70.2	65.3
6	75.2	73.9	73.3	49.9	50.3	51.4	51.4	55.7	57.6	70.6	71.1	72.5	73.5	74.3	76.1	76.7	75.4	74.7	73.9	74.4	74.9	75.5	75.4	70.9	70.6	70.4	70.1	65.1
5	75.2	73.7	72.7	49.6	49.6	49.9	50.1	55.1	57.2	70.0	70.7	72.0	73.0	74.0	76.2	76.8	74.9	74.4	73.8	74.3	74.8	75.5	75.4	70.8	70.4	70.0	69.7	64.5
4	75.1	71.9	71.2	48.0	48.6	47.3	47.7	54.0	56.2	69.2	69.8	71.0	71.8	72.5	75.8	76.7	74.1	74.0	73.8	74.4	74.8	75.4	75.1	70.3	68.9	68.5	68.4	63.6
Max	75.2	73.9	73.4	56.4	59.2	58.1	58.0	59.0	59.5	72.0	72.3	73.3	73.9	74.5	76.2	76.8	75.4	74.9	74.1	74.6	75.0	75.6	75.5	71.6	71.3	71.2	71.3	65.7
Min	72.7	71.9	71.2	48.0	48.6	47.3	47.7	54.0	56.2	69.2	69.8	70.8	71.1	71.4	72.6	72.9	72.1	71.9	71.5	72.0	72.4	72.9	72.8	70.3	68.9	68.5	68.4	63.6

# Total Flats	1927
Exceedance	869
Compliance Rate	54.9%

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Floor	R206m ax	R207m ax	R208m ax	R209m ax	R210m ax	R211m ax	R212m ax	R213m ax	R214m ax	R215m ax	R216m ax	R217m ax	R218m ax	R219m ax	R220m ax	R221m ax	R222m ax	R223m ax	R224m ax
45	66.0	65.9	65.0	65.0	65.6	66.1	67.3	69.5	69.0	69.0	69.0	69.5	69.6	63.4	63.8	64.4	65.2	65.3	59.4
44	66.1	65.9	65.1	65.0	65.6	66.1	67.4	69.5	69.0	69.0	69.0	69.5	69.7	63.5	63.9	64.4	65.2	65.4	59.4
43	66.1	65.9	65.1	65.0	65.6	66.2	67.4	69.6	69.0	69.0	69.1	69.6	69.7	63.5	63.9	64.5	65.2	65.4	59.5
42	66.1	66.0	65.1	65.0	65.7	66.2	67.4	69.6	69.1	69.1	69.1	69.6	69.8	63.5	63.9	64.5	65.3	65.5	59.5
41	66.1	66.0	65.1	65.0	65.7	66.2	67.5	69.6	69.1	69.1	69.2	69.7	69.8	63.6	64.0	64.6	65.3	65.5	59.6
40	66.2	66.0	65.1	65.1	65.7	66.3	67.5	69.6	69.2	69.2	69.2	69.7	69.8	63.6	64.0	64.6	65.4	65.6	59.6
39	66.2	66.0	65.1	65.1	65.7	66.3	67.5	69.7	69.2	69.2	69.2	69.8	69.9	63.7	64.1	64.6	65.5	65.6	59.6
38	66.2	66.0	65.2	65.1	65.7	66.3	67.6	69.7	69.3	69.2	69.3	69.8	69.9	63.7	64.1	64.7	65.5	65.6	59.7
37	66.2	66.0	65.1	65.1	65.7	66.3	67.6	69.8	69.3	69.3	69.3	69.9	70.0	63.8	64.2	64.7	65.6	65.7	59.7
36	66.2	66.0	65.1	65.0	65.7	66.3	67.6	69.8	69.3	69.3	69.4	69.9	70.0	63.8	64.2	64.8	65.6	65.7	59.7
35	66.2	66.0	65.1	65.0	65.7	66.4	67.6	69.8	69.4	69.4	69.4	69.9	70.1	63.8	64.2	64.8	65.6	65.8	59.7
34	66.2	66.0	65.1	65.0	65.7	66.4	67.7	69.9	69.4	69.4	69.5	70.0	70.1	63.9	64.3	64.9	65.7	65.8	59.8
33	66.2	66.0	65.1	64.9	65.7	66.4	67.7	69.9	69.5	69.5	69.5	70.0	70.2	63.9	64.3	64.9	65.7	65.9	59.8
32	66.3	66.0	65.1	64.9	65.7	66.4	67.7	70.0	69.5	69.5	69.6	70.1	70.2	64.0	64.4	65.0	65.8	65.9	59.8
31	66.3	66.0	65.0	64.9	65.6	66.4	67.8	70.0	69.6	69.6	69.6	70.1	70.2	64.0	64.4	65.0	65.8	66.0	59.8
30	66.3	66.0	65.0	64.8	65.6	66.4	67.8	70.1	69.6	69.6	69.7	70.2	70.3	64.0	64.4	65.1	65.8	66.0	59.9
29	66.3	66.0	64.9	64.7	65.6	66.3	67.8	70.1	69.7	69.7	69.7	70.2	70.4	64.1	64.5	65.1	65.9	66.1	59.9
28	66.3	65.9	64.8	64.7	65.6	66.3	67.8	70.1	69.7	69.7	69.8	70.3	70.4	64.1	64.5	65.1	65.9	66.1	59.9
27	66.3	65.9	64.7	64.6	65.5	66.3	67.8	70.2	69.8	69.8	69.8	70.3	70.5	64.1	64.6	65.2	66.0	66.2	59.8
26	66.2	65.8	64.6	64.4	65.4	66.3	67.8	70.2	69.8	69.8	69.9	70.4	70.5	64.2	64.6	65.2	66.0	66.2	59.9
25	66.2	65.8	64.5	64.4	65.3	66.2	67.8	70.3	69.9	69.8	69.9	70.4	70.6	64.2	64.6	65.2	66.1	66.2	59.8
24	66.1	65.7	64.5	64.3	65.3	66.2	67.9	70.3	69.9	69.9	69.9	70.5	70.6	64.3	64.7	65.3	66.1	66.3	59.8
23	66.1	65.7	64.4	64.2	65.3	66.2	67.9	70.3	70.0	69.9	70.0	70.5	70.7	64.3	64.7	65.3	66.1	66.3	59.8
22																			
21	66.1	65.6	64.3	64.2	65.1	66.1	67.9	70.4	70.0	70.0	70.1	70.7	70.9	64.4	64.8	65.4	66.2	66.4	59.9
20	66.1	65.6	64.3	64.1	65.1	66.0	67.9	70.4	70.1	70.1	70.1	70.7	70.9	64.4	64.8	65.4	66.3	66.4	59.9
19	66.1	65.6	64.3	64.1	65.1	66.0	68.0	70.4	70.1	70.1	70.1	70.8	71.0	64.4	64.8	65.4	66.3	66.4	59.9
18	66.2	65.7	64.3	64.1	65.1	66.0	67.9	70.4	70.1	70.1	70.2	70.8	71.0	64.4	64.8	65.5	66.3	66.5	59.9
17	66.2	65.7	64.3	64.1	65.0	66.0	68.0	70.4	70.2	70.1	70.2	70.8	71.0	64.5	64.9	65.5	66.4	66.5	59.9
16	66.2	65.8	64.3	64.1	65.0	66.0	68.0	70.4	70.2	70.2	70.2	70.9	71.1	64.5	64.9	65.5	66.4	66.5	59.9
15	66.3	65.8	64.4	64.1	65.0	66.0	68.0	70.3	70.2	70.2	70.2	70.9	71.1	64.5	64.9	65.5	66.4	66.6	59.9
14	66.3	65.9	64.4	64.1	65.1	66.0	68.1	70.3	70.1	70.1	70.2	70.9	71.1	64.6	65.0	65.6	66.4	66.6	60.0
13	66.4	65.9	64.4	64.2	65.1	65.9	68.1	70.1	70.1	70.1	70.2	70.9	71.2	64.6	65.0	65.6	66.5	66.6	60.0
12	66.5	66.0	64.4	64.1	65.1	66.0	68.2	70.0	70.0	70.0	70.2	70.9	71.1	64.6	65.0	65.6	66.5	66.6	59.9
11	66.5	66.0	64.4	64.1	65.1	65.9	68.1	69.8	69.9	69.9	70.1	70.9	71.1	64.6	65.0	65.6	66.5	66.6	59.8
10	66.5	65.9	64.4	64.1	65.1	65.9	68.2	69.7	69.7	69.8	70.0	70.9	71.1	64.6	65.1	65.7	66.5	66.6	59.5
9	66.5	65.9	64.4	64.0	65.1	66.0	68.1	69.5	69.6	69.7	69.8	70.7	70.9	64.6	65.0	65.6	66.5	66.5	58.9
8	66.4	65.9	64.3	64.0	65.1	66.0	67.9	69.3	69.4	69.5	69.6	70.4	70.6	64.5	64.8	65.4	66.3	66.3	57.4
7	66.4	65.9	64.4	64.0	65.1	65.9	67.6	69.0	69.1	69.1	69.1	69.9	70.1	64.2	64.5	65.1	65.9	65.9	54.5
6	66.4	65.9	64.3	64.0	65.2	65.8	67.1	68.6	68.6	68.5	68.2	69.1	69.3	63.7	63.9	64.6	65.4	65.2	51.6
5	66.3	65.9	64.3	63.9	64.9	65.4	65.9	67.9	67.7	67.5	67.3	68.3	68.6	62.9	63.5	64.3	65.1	64.6	49.4
4	66.0	65.8	64.2	60.9	61.4	61.9	64.3	67.1	66.6	66.5	66.5	67.5	67.9	62.1	63.0	63.2	64.0	62.5	47.8
Max	66.5	66.0	65.2	65.1	65.7	66.4	68.2	70.4	70.2	70.2	70.2	70.9	71.2	64.6	65.1	65.7	66.5	66.6	60.0
Min	66.0	65.6	64.2	60.9	61.4	61.9	64.3	67.1	66.6	66.5	66.5	67.5	67.9	62.1	63.0	63.2	64.0	62.5	47.8

Noise sensitive receivers with exceedance (≥70.5 dB(A))

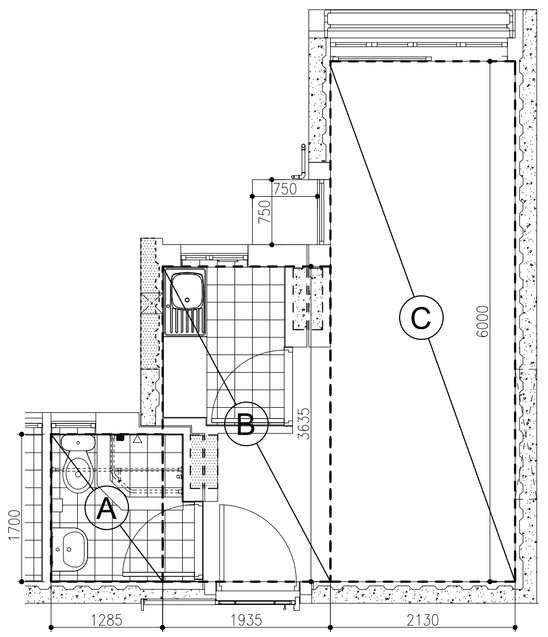
Remark: R111a, R113a, R115a, R214a, R216a, R218a are not used.

Appendix 4.5

Configurations of the proposed acoustic window

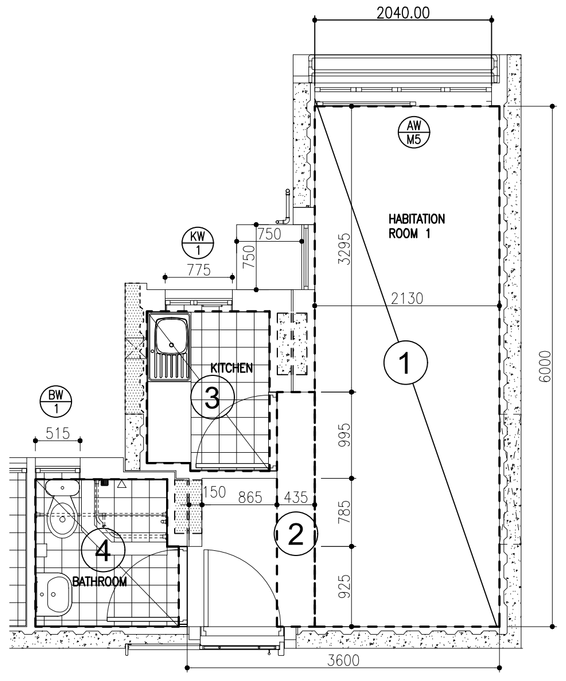
CALCULATION OF IFA

(FOR ICU REFERENCE)



	PORTION	CALCULATION (m^2)	AREA (m^2)
IFA	A	1.285 X 1.700	2.185
	B	1.935 X 3.635	7.034
	C	2.130 X 6.000	12.780
		21.999m^2	

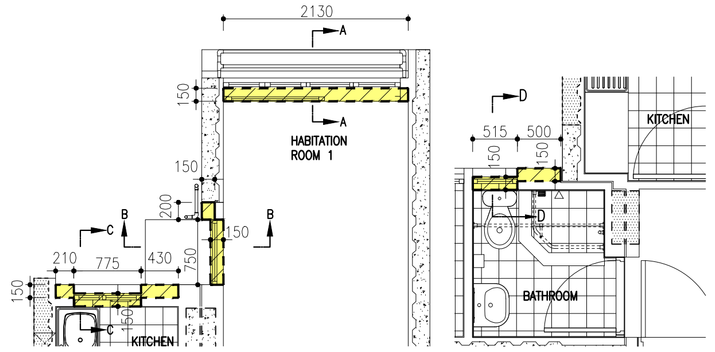
CALCULATION OF GLAZING AREA



LOCATION	PORTION	HABITATION FLOOR AREA (m^2)	AREA REQUIRED (m^2)			AREA PROVIDED (m^2)
HABITATION ROOM 1	1 & 2 (AW–M5)	13.957	GLAZING	1/10	1.396	1.827
			OPENABLE	1/16	0.872	1.005
KITCHEN	3 (KW1)	2.559	GLAZING	1/10	0.256	0.679
			OPENABLE	1/16	0.160	0.416
BATHROOM	4 (BW1)	2.706	GLAZING	1/10	0.271	0.410
			OPENABLE	1/10	0.271	0.413

CALCULATION OF NON-STRUCTURAL PREFABRICATED EXTERNAL WALL AREA

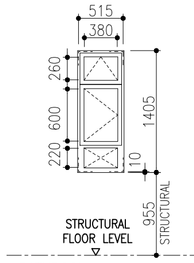
(SUBJECT TO COMPLIANCE WITH THE PRE-REQUISITES AND THE OVERALL CAP ON GFA CONCESSIONS STIPULATED IN PNAP APP-151)



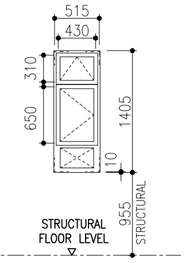
NON–STRUCTURAL PREFABRICATED EXTERNAL WALL AREA TO BE EXEMPTED FROM GFA AND SC CALCULATION	LOCATION	AREA (m^2)
	HABITATION ROOM 1	0.320+0.142=0.462
	KITCHEN	0.212
	BATHROOM	0.152
	TOTAL:	0.826m^2

* SECTION REFER TO MF/MIC/AW/MW/A/ICU906

CALCULATION OF GLAZING AREA



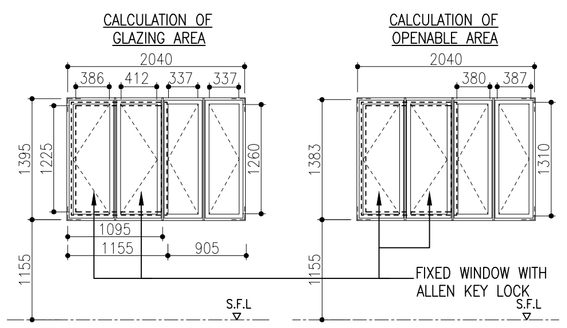
CALCULATION OF OPENABLE AREA



BATHROOM

MARK :	BW–1
GLAZING AREA :	(0.380x0.260)+(0.380x0.600)+(0.380x0.220) = 0.410m^2
OPENABLE AREA :	(0.430x0.310)+(0.430x0.650) = 0.413m^2

CALCULATION OF GLAZING AREA

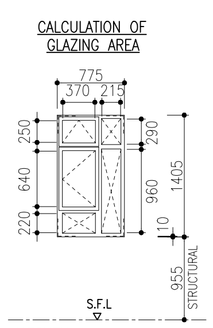


CALCULATION OF OPENABLE AREA

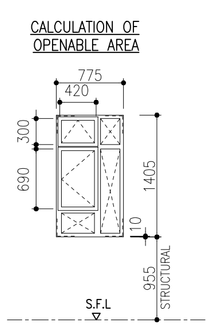
HABITATION ROOM 1

WINDOW MARK :	AW–M5
GLAZING AREA :	0.386x1.225+0.412x1.225+0.337x1.260 +0.337x1.260 = 1.827m^2
OPENABLE AREA :	0.380x1.310+0.387x1.310 = 1.005m^2

CALCULATION OF GLAZING AREA



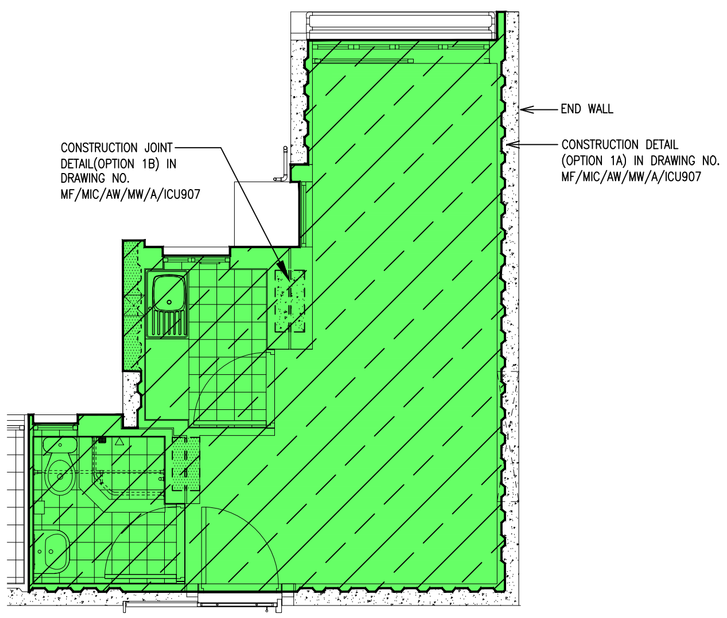
CALCULATION OF OPENABLE AREA



KITCHEN

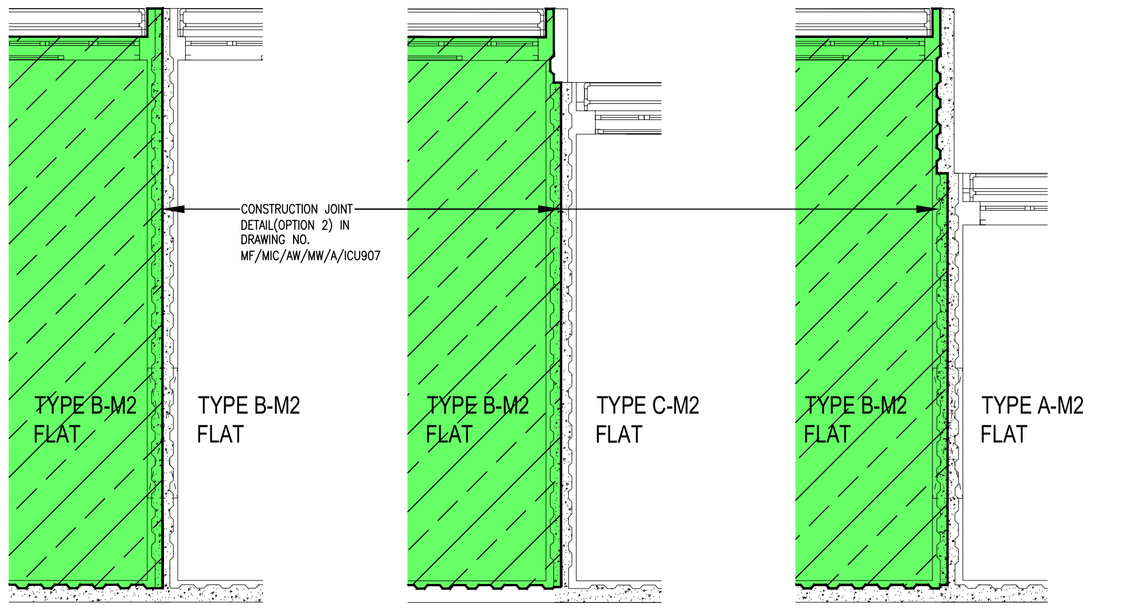
MARK :	KW–1
GLAZING AREA :	(0.370x0.250)+(0.370x0.640)+(0.370x0.220)+(0.215x0.290)+(0.215x0.960) = 0.679m^2
OPENABLE AREA :	(0.420x0.300)+(0.420x0.690) = 0.416m^2

CALCULATION OF MiC FLOOR AREA



WALL CONNECTING TO	MiC FLOOR AREA (m^2)	10% OF THE MiC FLOOR AREA TO BE DISREGARDED FROM GFA (m^2)
END WALL	24.841	24.841 X 10% = 2.484
TYPE A–M2 FLAT	25.348	25.348 X 10% = 2.534
TYPE B–M2 FLAT	25.550	25.550 X 10% = 2.555
TYPE C–M2 FLAT	25.465	25.465 X 10% = 2.546

* REFER TO NOTES NO.4–6

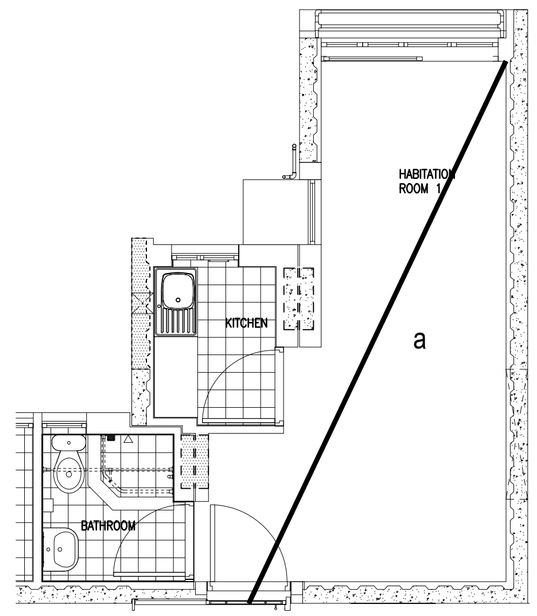


PART PLAN OF WALL CONNECTING TO ADJOINING TYPE B-M2 MIC MODULE

PART PLAN OF WALL CONNECTING TO ADJOINING TYPE C-M2 MIC MODULE

PART PLAN OF WALL CONNECTING TO ADJOINING TYPE A-M2 MIC MODULE

CALCULATION OF DEADEND TRAVEL DISTANCE



DEADEND TRAVEL DISTANCE (UNDER FS CODE 2011) FOR TYPE B-M2 FLAT AT A RANGE OF

a = 6.917 ≤ 24m (UNDER FS CODE 2011 CLAUSE B11.2 (a)(i))

PLAN OF ACOUSTIC WINDOW (AW–M5)

SCALE 1:25

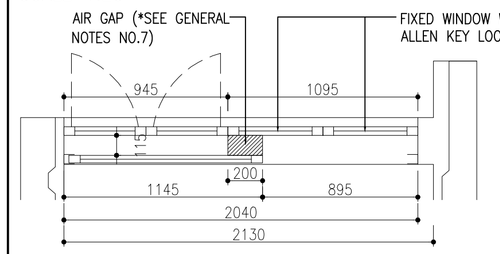
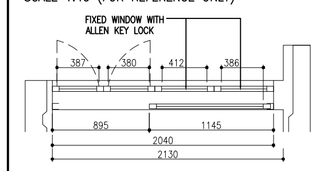


DIAGRAM OF ACOUSTIC WINDOW (AW–M5) FOR CALCULATION OF OPENABLE/GLAZING AREA

SCALE 1:40 (FOR REFERENCE ONLY)



LEGEND:

IFA - INTERNAL FLOOR AREA

FS CODE - CODE OF PRACTICE FOR FIRE SAFETY IN BUILDINGS

CONSTRUCTION JOINT/ IN-SITU CONCRETE WALL (FULL HEIGHT)

CONSTRUCTION JOINT/ IN-SITU CONCRETE WALL (BOTTOM PORTION ONLY)

MiC FLOOR AREA

NON-STRUCTURAL PREFABRICATED EXTERNAL WALL (NON-LOADING BEARING WALL COMPLIED WITH JPN-2)

GENERAL NOTES

1. THIS DRAWING SHOWS THE TRAVEL DISTANCE AND DEADEND TO STAIRCASE FOR TYPE B-M2 FLAT(S) WITH NOTIONAL PARTITION ONLY. ANY OTHER INFORMATION OF FLOOR LAYOUT PLAN SHOULD REFER TO OTHER RELEVANT ICU APPROVED GENERAL BUILDING PLAN (GBP) FOR THE PROJECT.
2. TYPE B-M2 FLAT(S) ARE FLAT NO. (*project basis information*) AT BLOCK (*project basis information*).
3. ALL ELEVATIONS OF WINDOWS ARE VIEWED FROM OUTSIDE.
4. THE GRANTING OF GFA CONCESSION REGARDING GREEN & INNOVATIVE FEATURES UNDER JPNs (i.e. MODULAR INTEGRATED CONSTRUCTION) IS SUBJECT TO COMPLIANCE WITH THE CRITERIA STIPULATED IN JPN 8 .
5. ESSENTIAL INFORMATION OF THE MIC SYSTEM AS LISTED IN PNAP ADV-36 SHALL BE SUBMITTED SEPARATELY AND THE ACCEPTANCE OF SUCH BY THE ICU SHALL BE OBTAINED BEFORE THE COMMENCEMENT OF THE MODULAR UNIT PRODUCTION WORK IN THE PREFABRICATION FACTORY.
6. A QUALITY ASSURANCE SCHEME AND AN MIC SUPERVISION PLAN SHALL BE PREPARED IN ACCORDANCE WITH PNAP ADV-36 AND SUBMITTED AT LEAST 14 DAYS BEFORE THE COMMENCEMENT OF THE MODULAR UNIT PRODUCTION WORK IN THE PREFABRICATION FACTORY.
7. ACCORDING TO PNAP APP-130, PARA. 6 OF APPENDIX A, THE WIDTH OF AIR GAP IS BETWEEN 100mm TO 175mm, THE LENGTH OF AIR GAP IS NOT LESS THAN 100mm.

ICU Pre-accepted Typical Architectural Details

Pre-accepted Memo Date: 04/11/2022

Pre-accepted Drawing No.: MF/MIC/AW/MW/A/ICU902

ICU Ref.: MFD/2022/3

The works shown on this plan are ICU pre-accepted typical architectural details in respect of which the identical details * (except the content as bounded by ----------) are reproduced herewith for approval on project basis.

* *Delete where appropriate*

ICU Ref. : HD(ICU) STD-EPS

Signature of Applicant (HD / PSP) :

ICU Submission By

ORIGINAL SIGNED

YIP SHING LAM
C/AD&S
Date : 31-10-2022

ICU Approval Signature :

PLAN PRE-ACCEPTED

ORIGINAL SIGNED

YEUNG Kwok-po, Michael
Chief Maintenance Surveyor/ICU
Independent Checking Unit
Date : 04-11-2022

Signature for Record Plan :

REVISIONS

NO	DESCRIPTION AND DATE	INITIAL AND DESIGNATION DWN	CKD	AUTH

	NAME AND DESIGNATION	INITIAL	DATE
AUTHORISED	SHERMAN S L YIP C/A D&S	ORIGINAL SIGNED	11/2022
CHECKED	JO NGAI SA/27	ORIGINAL SIGNED	11/2022
	KARIN LEUNG A/38	ORIGINAL SIGNED	11/2022
	H.M. WONG STO(A)/7	ORIGINAL SIGNED	11/2022
DRAWN	THEO TSOI TO(A)/15	ORIGINAL SIGNED	11/2022

PROJECT

MODULAR FLAT DESIGN
(MODULAR INTEGRATED CONSTRUCTION)

DRAWING TITLE

TYPE B-M2 FLAT - CALCULATION OF MiC AREA, GLAZING AREA AND DEADEND TRAVEL DISTANCE

SCALE 1:50

DRAWING NO.

MF/MIC/AW/MW/A/ICU902

SOURCE

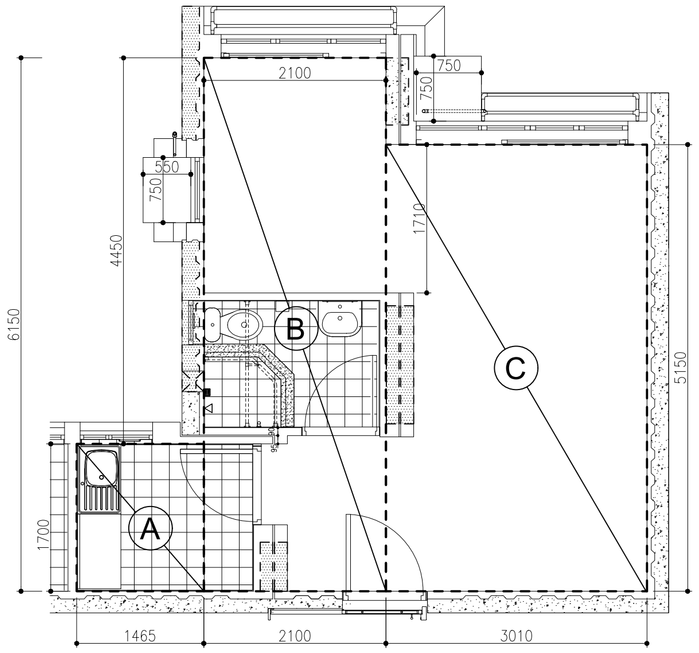
ICU NO.

AutoCAD 2000 A1 594 x 841

HOUSING DEPARTMENT

CALCULATION OF IFA

(FOR ICU REFERENCE)



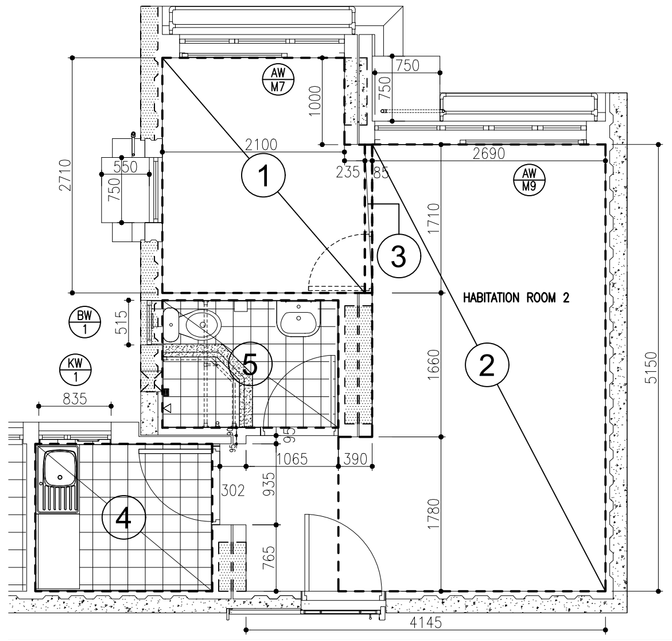
	PORTION	CALCULATION (m^2)	AREA (m^2)
IFA	A	1.465 X 1.700	2.491
	B	2.100 X 6.150	12.915
	C	3.010 X 5.150	15.502
		30.908m^2	

CALCULATION OF NOTIONAL PARTITION

IFA (m^2) (A)	THE MAXIMUM AGGREGATE LENGTH OF THE ADDITIONAL BLOCK WALL (m) (A)/10 = (B)	TOTAL ADDITIONAL WALL LENGTH (EXCLUDED 1x700mm WIDTH DOOR) (m)
30.908	3.091	(1.710 – 0.700) = 1.010 < (B)

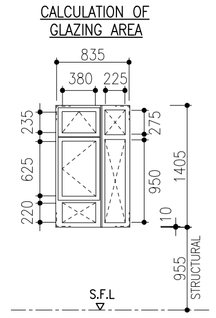
* REFER TO NOTES NO.5 & 6

CALCULATION OF GLAZING AREA

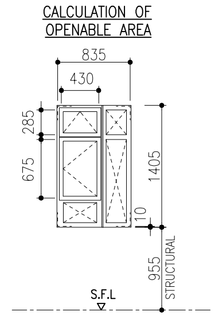


LOCATION	PORTION	HABITATION FLOOR AREA (m^2)	AREA REQUIRED (m^2)			AREA PROVIDED (m^2)
HABITATION ROOM 1	1 (AW–M7)	6.094	GLAZING	1/10	0.609	1.812
			OPENABLE	1/16	0.381	0.718
HABITATION ROOM 2	2 (AW–M9)	14.547	GLAZING	1/10	1.455	1.714
			OPENABLE	1/16	0.909	1.121
HABITATION ROOM 1&2	1, 2 & 3 (AW–M7 & AW–M9)	(6.094+14.547 +0.145) =20.786	GLAZING	1/10	2.079	(1.812+1.714) =3.526
			OPENABLE	1/16	1.299	(0.718+1.121) =1.839
KITCHEN	4 (KW1)	3.468	GLAZING	1/10	0.347	0.686
			OPENABLE	1/16	0.217	0.413
BATHROOM	5 (BW1)	2.984	GLAZING	1/10	0.298	0.410
			OPENABLE	1/16	0.298	0.413

CALCULATION OF GLAZING AREA



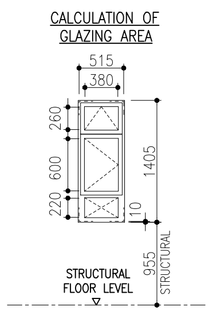
CALCULATION OF OPENABLE AREA



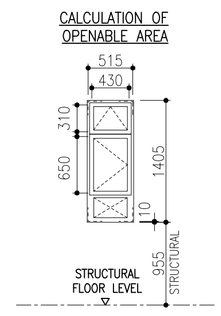
KITCHEN

MARK :	KW–1
GLAZING AREA :	(0.380x0.235)+(0.380x0.625)+ (0.380x0.220)+(0.225x0.275)+(0.225x0.950) = 0.686m^2
OPENABLE AREA :	(0.430x0.285)+(0.430x0.675) = 0.413m^2

CALCULATION OF GLAZING AREA



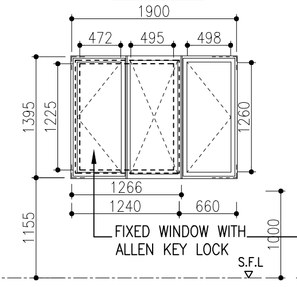
CALCULATION OF OPENABLE AREA



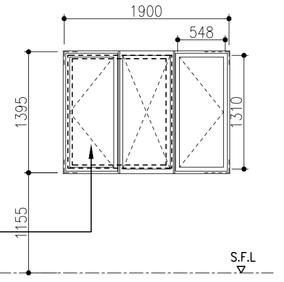
BATHROOM

MARK :	BW–1
GLAZING AREA :	(0.380x0.260)+(0.380x0.600)+ (0.380x0.220) = 0.410m^2
OPENABLE AREA :	(0.430x0.310)+(0.430x0.650) = 0.413m^2

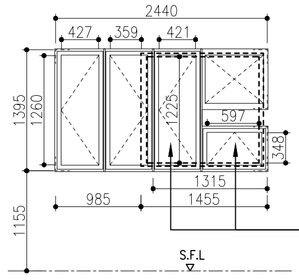
CALCULATION OF GLAZING AREA



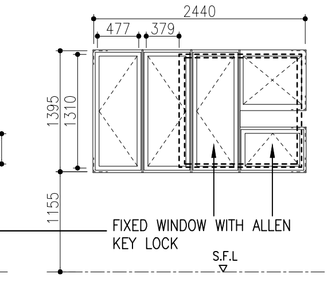
CALCULATION OF OPENABLE AREA



CALCULATION OF GLAZING AREA



CALCULATION OF OPENABLE AREA



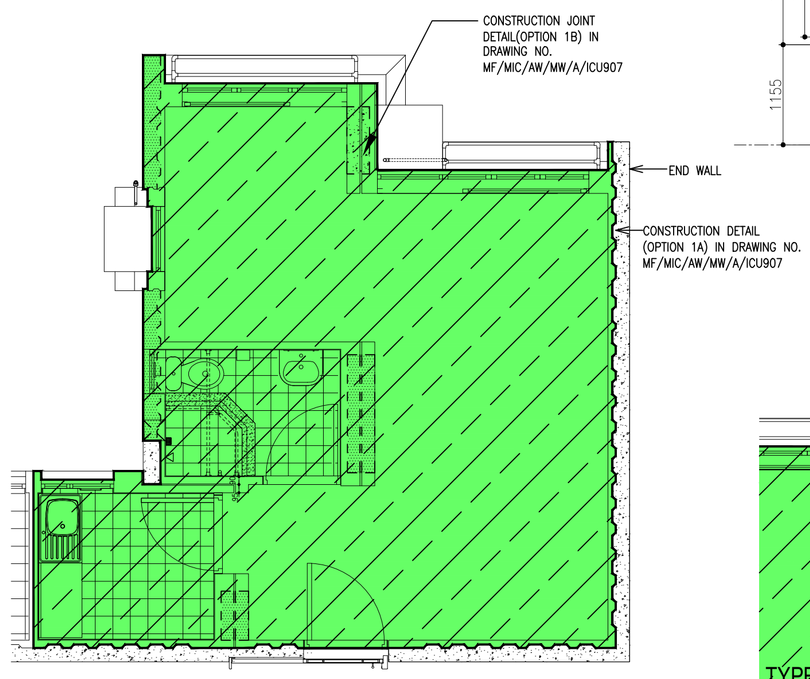
HABITATION ROOM 1

WINDOW MARK :	AW–M7
GLAZING AREA :	0.472x1.225+0.495x1.225+0.498x1.260 = 1.812m^2
OPENABLE AREA :	0.548x1.310 = 0.718m^2

HABITATION ROOM 2

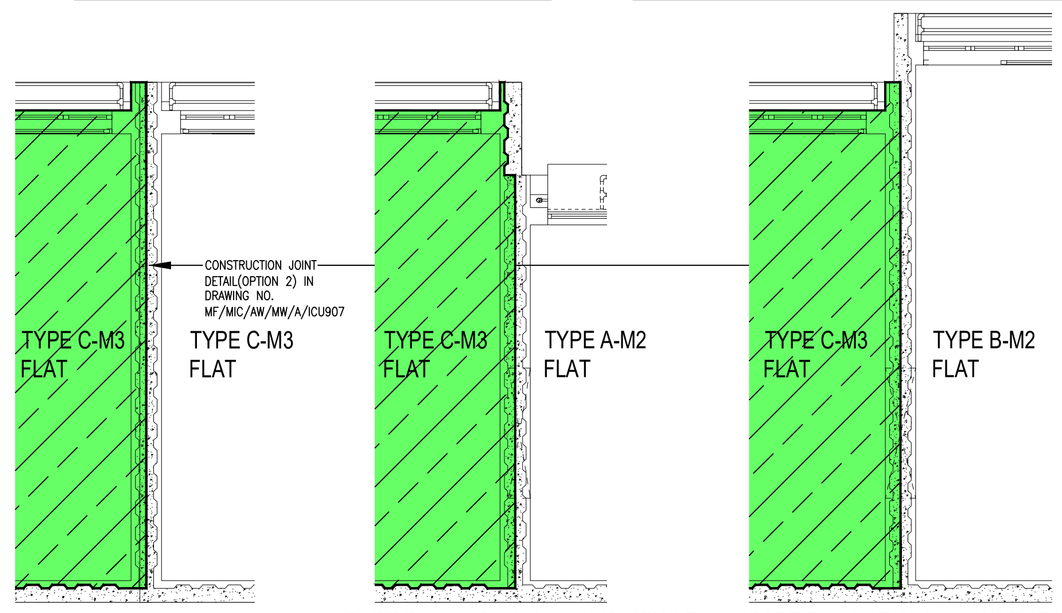
WINDOW MARK :	AW–M9
GLAZING AREA :	0.427x1.260+0.359x1.260+0.421x1.225+0.597x0.348 = 1.714m^2
OPENABLE AREA :	0.477x1.310+0.379x1.310 = 1.121m^2

CALCULATION OF MiC FLOOR AREA



WALL CONNECTING TO	MiC FLOOR AREA (m^2)	10% OF THE MiC FLOOR AREA TO BE DISREGARDED FROM GFA (m^2)
END WALL	34.900	34.900 X 10% = 3.490
TYPE A–M2 FLAT	35.412	35.412 X 10% = 3.541
TYPE B–M2 FLAT	35.531	35.531 X 10% = 3.553
TYPE C–M3 FLAT	35.531	35.531 X 10% = 3.553

* REFER TO NOTES NO.7–9

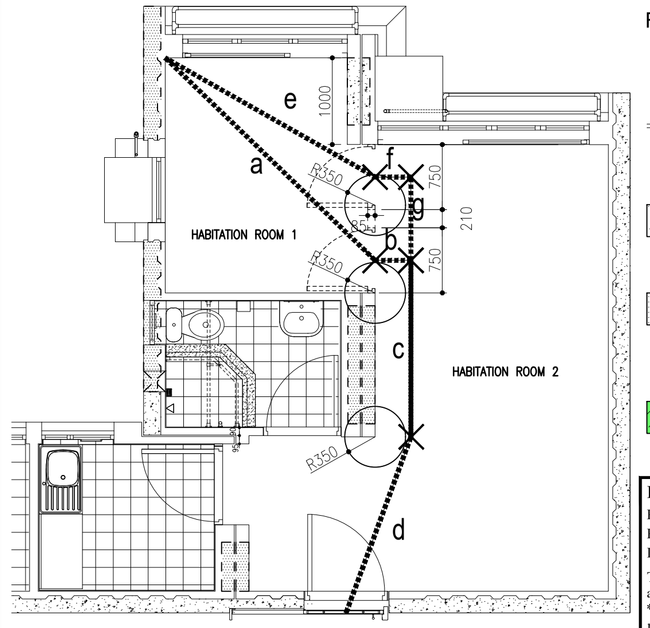


PART PLAN OF WALL CONNECTING TO ADJOINING TYPE C-M3 MIC MODULE

PART PLAN OF WALL CONNECTING TO ADJOINING TYPE A-M2 MIC MODULE

PART PLAN OF WALL CONNECTING TO ADJOINING TYPE B-M2 MIC MODULE

CALCULATION OF DEADEND TRAVEL DISTANCE



DEADEND TRAVEL DISTANCE (UNDER FS CODE 2011) FOR TYPE C-M3 FLAT AT A RANGE OF

a + b + c + d =
3.363 + 0.413 + 2.035 + 2.164 = 7.98m
OR
e + f + g + c + d =
2.783+ 0.413 + 0.960 + 2.035 + 2.164 = 8.36m

} ≤ 24m (UNDER FS CODE 2011 CLAUSE B11.2 (a)(i))

LEGEND:

IFA - INTERNAL FLOOR AREA

FS CODE - CODE OF PRACTICE FOR FIRE SAFETY IN BUILDINGS

NOTIONAL PARTITIONS WITH NOTIONAL DOOR OPENINGS

CONSTRUCTION JOINT/ IN-SITU CONCRETE WALL (FULL HEIGHT)

CONSTRUCTION JOINT/ IN-SITU CONCRETE WALL (BOTTOM PORTION ONLY)

MiC FLOOR AREA

ICU Pre-accepted Typical Architectural Details
Pre-accepted Memo Date: 04/11/2022
Pre-accepted Drawing No.: MF/MIC/AW/MW/A/ICU904
ICU Ref.: MFD/2022/3
The works shown on this plan are ICU pre-accepted typical architectural details in respect of which the identical details * (except the content as bounded by – – – – – –) are reproduced herewith for approval on project basis.
* *Delete where appropriate*

PLAN OF ACOUSTIC WINDOW (AW–M7) & (AW–M9)
SCALE 1:25

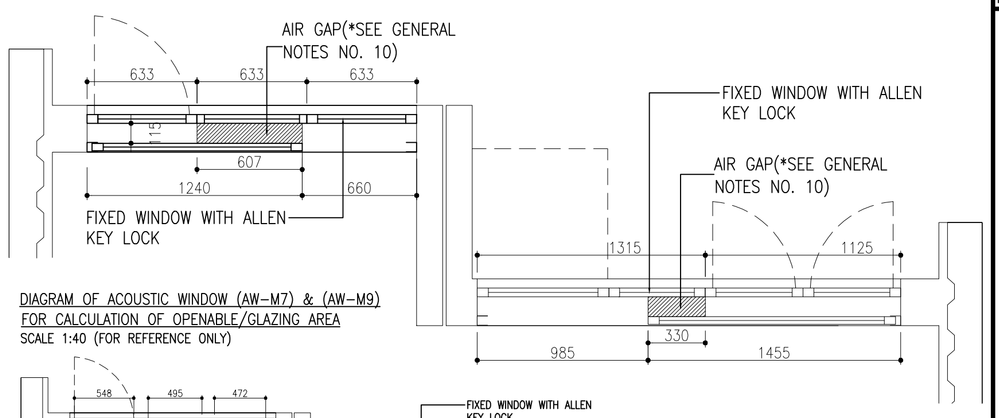
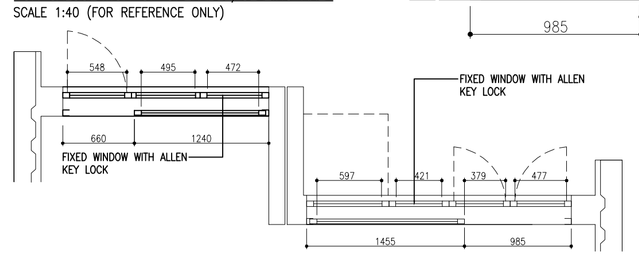


DIAGRAM OF ACOUSTIC WINDOW (AW–M7) & (AW–M9) FOR CALCULATION OF OPENABLE/GLAZING AREA
SCALE 1:40 (FOR REFERENCE ONLY)



GENERAL NOTES

1. THIS DRAWING SHOWS THE TRAVEL DISTANCE AND DEADEND TO STAIRCASE FOR TYPE C-M3 FLAT(S) WITH NOTIONAL PARTITION ONLY. ANY OTHER INFORMATION OF FLOOR LAYOUT PLAN SHOULD REFER TO OTHER RELEVANT ICU APPROVED GENERAL BUILDING PLAN (GBP) FOR THE PROJECT.
2. TYPE C-M3 FLAT(S) ARE FLAT NO. (*project basis information*) AT BLOCK (*project basis information*).
3. ALL ELEVATIONS OF WINDOWS ARE VIEWED FROM OUTSIDE.
4. THE STRUCTURAL DESIGN HAS ALREADY CATERED FOR ERECTION OF NON-LOAD BEARING BLOCK WALL(S) SAME AS THE NOTIONAL PARTITION(S) SHOWN IN THIS SUBMISSION.
5. ANY ALTERNATIVE NON-LOAD BEARING BLOCK WALL(S) TO BE ERECTED AFTER OCCUPATION PERMIT, OTHER THAN THOSE SAME AS THE NOTIONAL PARTITION(S) SHOWN IN THIS SUBMISSION, MAY BE SUBJECT TO ICU'S BUILDING CONTROL WITH SUBMISSIONS TO ICU AS ALTERATION & ADDITION WORKS FOR APPROVAL AND CONSENT OR AS MINOR WORKS FOR PROCESSING TO BE MADE AS REQUIRED UNDER THE BUILDINGS ORDINANCE AND RELEVANT BUILDING REGULATIONS THEREUNDER.
6. THE INTENDED CONSTRUCTION OF NOTIONAL PARTITION(S) FOR THIS SUBMISSION CONSISTS OF 85mm THICK SOLID CONCRETE BLOCK WALL(S) / LIGHTWEIGHT PARTITION(S) (DENSITY NOT MORE THAN 2060 kg/m^3) WITH 15mm THICK CEMENT SAND PLASTER (DENSITY NOT MORE THAN 2300 kg/m^3) ON BOTH FACES (WITH AGGREGATED AVERAGE DENSITY NOT MORE THAN 2125 kg/m^3).
7. THE GRANTING OF GFA CONCESSION REGARDING GREEN & INNOVATIVE FEATURES UNDER JPNs (i.e. MODULAR INTEGRATED CONSTRUCTION) IS SUBJECT TO COMPLIANCE WITH THE CRITERIA STIPULATED IN JPN 8 .
8. ESSENTIAL INFORMATION OF THE MIC SYSTEM AS LISTED IN PNAP ADV-36 SHALL BE SUBMITTED SEPARATELY AND THE ACCEPTANCE OF SUCH BY THE ICU SHALL BE OBTAINED BEFORE THE COMMENCEMENT OF THE MODULAR UNIT PRODUCTION WORK IN THE PREFABRICATION FACTORY.
9. A QUALITY ASSURANCE SCHEME AND AN MIC SUPERVISION PLAN SHALL BE PREPARED IN ACCORDANCE WITH PNAP ADV-36 AND SUBMITTED AT LEAST 14 DAYS BEFORE THE COMMENCEMENT OF THE MODULAR UNIT PRODUCTION WORK IN THE PREFABRICATION FACTORY.
10. ACCORDING TO PNAP APP-130, PARA. 6 OF APPENDIX A, THE WIDTH OF AIR GAP IS BETWEEN 100mm TO 175mm, THE LENGTH OF AIR GAP IS NOT LESS THAN 100mm.
11. PART PLAN OF CALCULATION OF NON-STRUCTURAL PREFABRICATED EXTERNAL WALL AREA REFER TO MF/MIC/AW/MW/A/ICU906.

ICU Ref. : HD(ICU) STD-EPS

Signature of Applicant (HD / PSP) :

ICU Submission By
ORIGINAL SIGNED
YIP SHING LAM
CA/D&S
Date : 31-10-2022

ICU Approval Signature :

PLAN PRE-ACCEPTED
ORIGINAL SIGNED
YEUNG Kwok-po, Michael
Chief Maintenance Surveyor/ICU
Independent Checking Unit
Date : 04-11-2022

Signature for Record Plan :

REVISIONS

NO	DESCRIPTION AND DATE	INITIAL AND DESIGNATION DWN	CKD	AUTH

	NAME AND DESIGNATION	INITIAL	DATE
AUTHORISED	SHERMAN S L YIP CA/D&S	ORIGINAL SIGNED	11/2022
CHECKED	JO NGAI SA/27	ORIGINAL SIGNED	11/2022
	KARIN LEUNG A/38	ORIGINAL SIGNED	11/2022
	H.M. WONG STO(A)/7	ORIGINAL SIGNED	11/2022
DRAWN	THEO TSOI TO(A)/15	ORIGINAL SIGNED	11/2022

DATE OF ISSUE :

PROJECT
MODULAR FLAT DESIGN
(MODULAR INTEGRATED CONSTRUCTION)

DRAWING TITLE
TYPE C-M3 FLAT - CALCULATION OF MiC AREA, NOTIONAL PARTITION, GLAZING AREA AND DEADEND TRAVEL DISTANCE (C8-a)

SCALE 1:50

DRAWING NO.
MF/MIC/AW/MW/A/ICU904

SOURCE

ICU NO.

AutoCAD 2000 A1 594 x 841

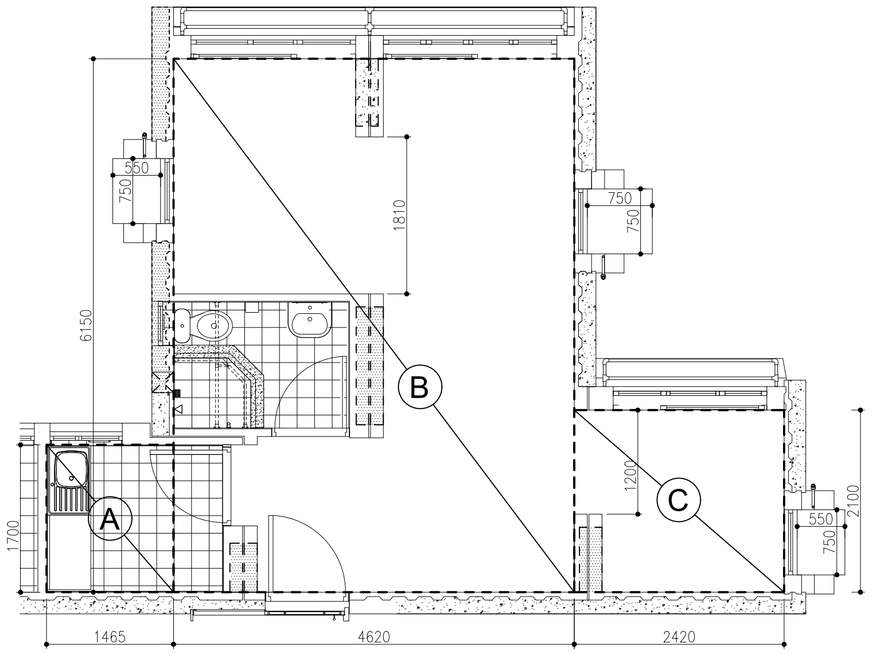
HOUSING DEPARTMENT

C.E. / OTHERS: B.S.E. / G.E. / D/WCON / FILE / OFFICE / R.E. / Q.S. / Contractor / Architect

COPY FOR

CALCULATION OF IFA

(FOR ICU REFERENCE)



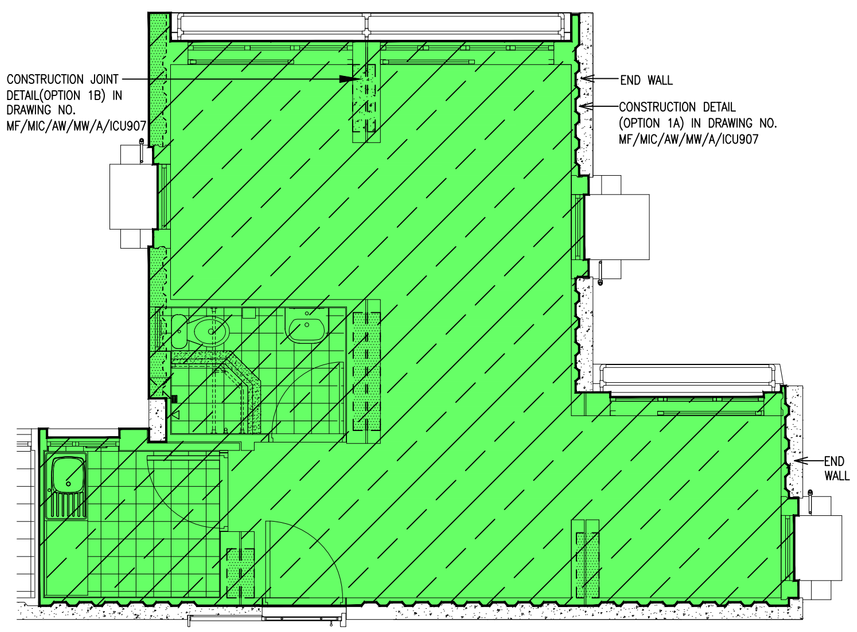
	PORTION	CALCULATION (m^2)	AREA (m^2)
IFA	A	1.465 X 1.700	2.491
	B	4.620 X 6.150	28.413
	C	2.420 X 2.100	5.082
		35.986m^2	

CALCULATION OF NOTIONAL PARTITION

IFA (m^2) (A)	THE MAXIMUM AGGREGATE LENGTH OF THE ADDITIONAL BLOCK WALL (m) (A)/10 = (B)	TOTAL ADDITIONAL WALL LENGTH (EXCLUDED 2x700mm WIDTH DOOR) (m)
35.981	3.598	(1.810 + 1.200 − 1.400) = 1.610 < (B)

* REFER TO NOTES NO.5 & 6

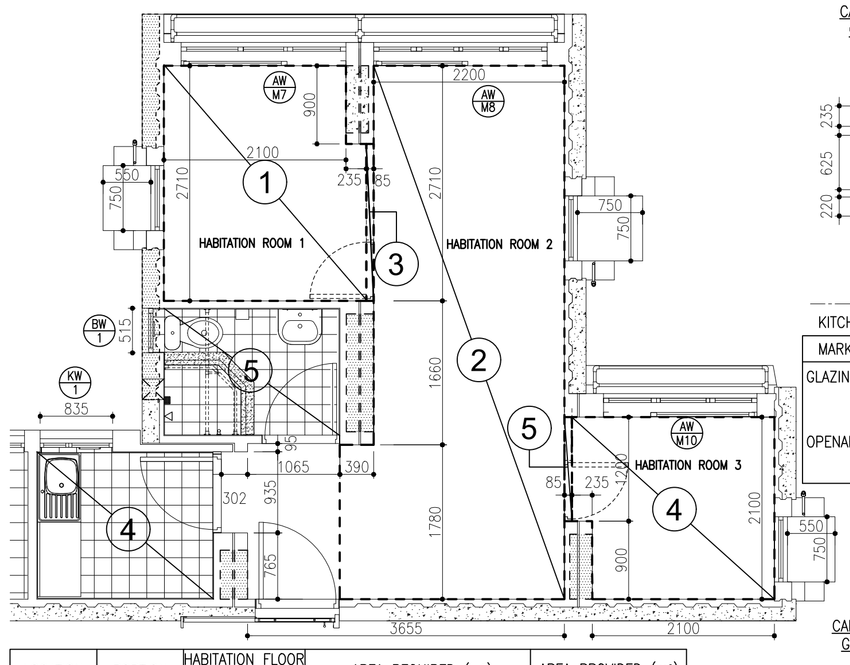
CALCULATION OF MiC FLOOR AREA



WALL CONNECTING TO	MiC FLOOR AREA (m^2)	10% OF THE MiC FLOOR AREA TO BE DISREGARDED FROM GFA (m^2)
END WALL	40.497	40.497 X 10% = 4.049

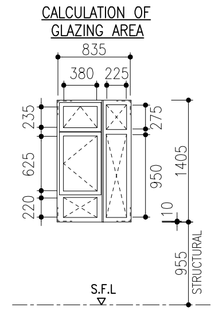
* REFER TO NOTES NO.7−9

CALCULATION OF GLAZING AREA

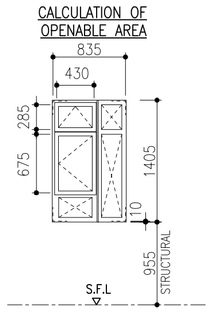


LOCATION	PORTION	HABITATION FLOOR AREA (m^2)	AREA REQUIRED (m^2)			AREA PROVIDED (m^2)
HABITATION ROOM 1	1 (AW−M7)	6.117	GLAZING	1/10	0.612	1.812
			OPENABLE	1/16	0.382	0.718
HABITATION ROOM 2	2 (AW−M8)	14.225	GLAZING	1/10	1.423	1.777
			OPENABLE	1/16	0.889	1.031
HABITATION ROOM 3	4 (AW−M10)	4.692	GLAZING	1/10	0.469	1.675
			OPENABLE	1/16	0.293	0.603
HABITATION ROOM 1, 2 & 3	1−5 (AW−M7, AW−M8 & AW−M10)	(6.117+14.225 +0.154+4.692 +0.102) =25.290	GLAZING	1/10	2.529	(1.812+1.777+1.675) =5.264
			OPENABLE	1/16	1.581	(0.718+1.031+0.603) =2.352
KITCHEN	4 (KW1)	3.468	GLAZING	1/10	0.347	0.737
			OPENABLE	1/16	0.217	0.437
BATHROOM	5 (BW1)	2.984	GLAZING	1/10	0.298	0.370
			OPENABLE	1/16	0.298	0.320

CALCULATION OF GLAZING AREA



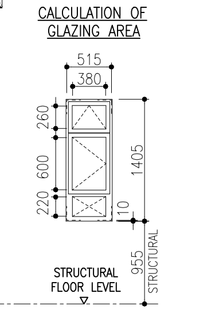
CALCULATION OF OPENABLE AREA



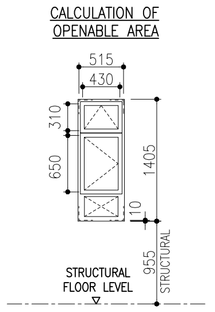
KITCHEN

MARK :	KW−1
GLAZING AREA :	(0.380x0.235)+(0.380x0.625)+ (0.380x0.220)+(0.225x0.275)+(0.225x0.950) = 0.686m^2
OPENABLE AREA :	(0.430x0.285)+(0.430x0.675) = 0.413m^2

CALCULATION OF GLAZING AREA



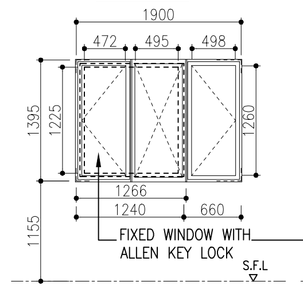
CALCULATION OF OPENABLE AREA



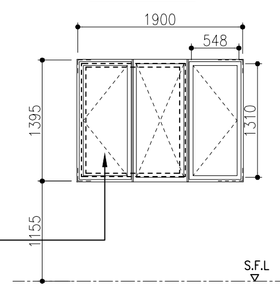
BATHROOM

MARK :	BW−1
GLAZING AREA :	(0.380x0.260)+(0.380x0.600)+ (0.380x0.220) = 0.410m^2
OPENABLE AREA :	(0.430x0.310)+(0.430x0.650) = 0.413m^2

CALCULATION OF GLAZING AREA



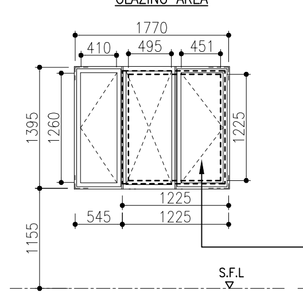
CALCULATION OF OPENABLE AREA



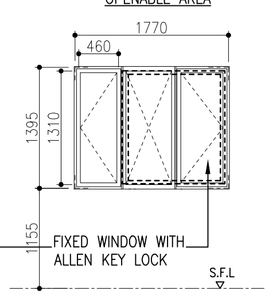
HABITATION ROOM 1

WINDOW MARK :	AW−M7
GLAZING AREA :	0.472x1.225+0.495x1.225+0.498x1.260 = 1.812m^2
OPENABLE AREA :	0.548x1.310 = 0.718m^2

CALCULATION OF GLAZING AREA



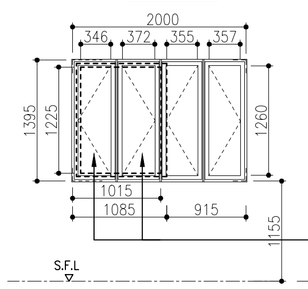
CALCULATION OF OPENABLE AREA



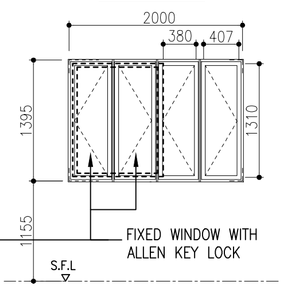
HABITATION ROOM 3

WINDOW MARK :	AW−M10
GLAZING AREA :	0.410x1.260+0.495x1.225+0.451x1.225 = 1.675m^2
OPENABLE AREA :	0.460x1.310 = 0.603m^2

CALCULATION OF GLAZING AREA



CALCULATION OF OPENABLE AREA



HABITATION ROOM 2

WINDOW MARK :	AW−M8
GLAZING AREA :	0.346x1.225+0.372x1.225+0.355x1.260 +0.357x1.260 = 1.777m^2
OPENABLE AREA :	0.380x1.310+0.407x1.310 = 1.031m^2

DIAGRAM OF ACOUSTIC WINDOW (AW−M7) & (AW−M8) FOR CALCULATION OF OPENABLE/GLAZING AREA

SCALE 1:40 (FOR REFERENCE ONLY)

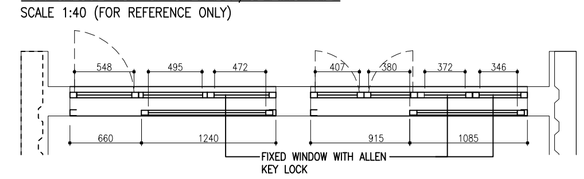
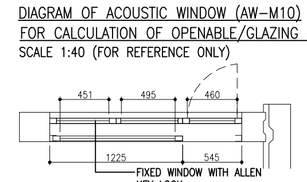
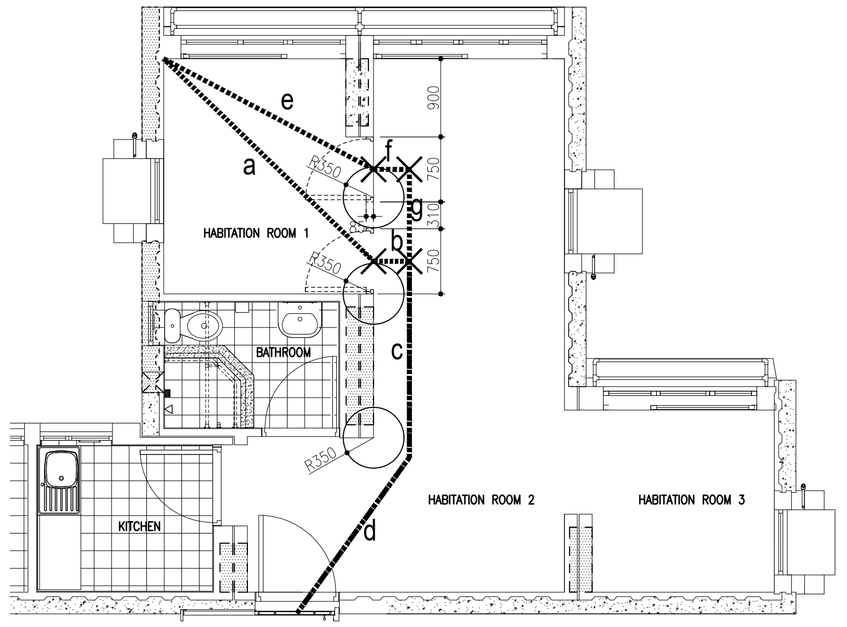


DIAGRAM OF ACOUSTIC WINDOW (AW−M10) FOR CALCULATION OF OPENABLE/GLAZING AREA

SCALE 1:40 (FOR REFERENCE ONLY)



CALCULATION OF DEADEND TRAVEL DISTANCE



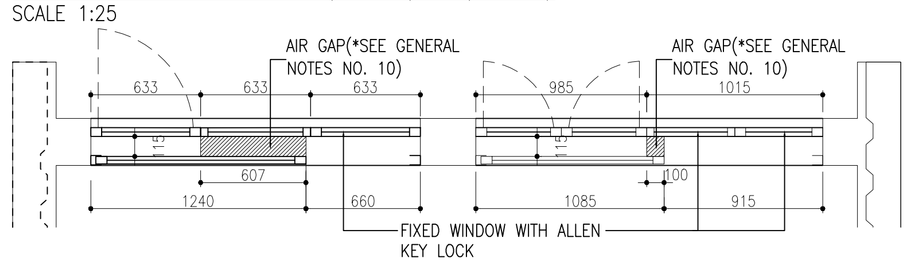
DEADEND TRAVEL DISTANCE (UNDER FS CODE 2011)
FOR TYPE D-M2 FLAT AT A RANGE OF

a + b + c + d =
3.363 + 0.413 + 2.259 + 2.213 = 8.248m
OR
e + f + g + c + d =
2.735+ 0.413 + 1.060 + 2.259 + 2.213 = 8.68m

} ≤ 24m (UNDER FS CODE 2011 CLAUSE B11.2 (a)(i))

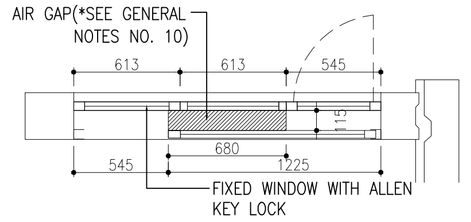
PLAN OF ACOUSTIC WINDOW (AW−M7) & (AW−M8)

SCALE 1:25



PLAN OF ACOUSTIC WINDOW (AW−M10)

SCALE 1:25



LEGEND:

IFA - INTERNAL FLOOR AREA

FS CODE - CODE OF PRACTICE FOR FIRE SAFETY IN BUILDINGS

NOTIONAL PARTITIONS WITH NOTIONAL DOOR OPENINGS

CONSTRUCTION JOINT/ IN-SITU CONCRETE WALL (FULL HEIGHT)

CONSTRUCTION JOINT/ IN-SITU CONCRETE WALL (BOTTOM PORTION ONLY)

MiC FLOOR AREA

GENERAL NOTES

1. THIS DRAWING SHOWS THE TRAVEL DISTANCE AND DEADEND TO STAIRCASE FOR TYPE D-M2 FLAT(S) WITH NOTIONAL PARTITION ONLY. ANY OTHER INFORMATION OF FLOOR LAYOUT PLAN SHOULD REFER TO OTHER RELEVANT ICU APPROVED GENERAL BUILDING PLAN (GBP) FOR THE PROJECT.
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4. THE STRUCTURAL DESIGN HAS ALREADY CATERED FOR ERECTION OF NON-LOAD BEARING BLOCK WALL(S) SAME AS THE NOTIONAL PARTITION(S) SHOWN IN THIS SUBMISSION.
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ICU Ref. : HD(ICU) ____STD-EPS____

Signature of Applicant (HD / PSP) :

ICU Submission By

ORIGINAL SIGNED

YIP SHING LAM
CA/D&S
Date : 31-10-2022

ICU Pre-accepted Typical Architectural Details

Pre-accepted Memo Date: 04/11/2022
Pre-accepted Drawing No.: MF/MIC/AW/MW/A/ICU905
ICU Ref.: MFD/2022/3

The works shown on this plan are ICU pre-accepted typical architectural details in respect of which the identical details * (except the content as bounded by −·−·−·−·−) are reproduced herewith for approval on project basis.
** Delete where appropriate*

ICU Approval Signature :

PLAN PRE-ACCEPTED

ORIGINAL SIGNED

YEUNG Kwok-po, Michael
Chief Maintenance Surveyor/ICU
Independent Checking Unit
Date : 04-11-2022

Signature for Record Plan :

REVISIONS

NO	DESCRIPTION AND DATE	INITIAL AND DESIGNATION DWN	CKD	AUTH

	NAME AND DESIGNATION	INITIAL	DATE
AUTHORISED	SHERMAN S L YIP CA/D&S	ORIGINAL SIGNED	11/2022
CHECKED	JO NGAI SA/27	ORIGINAL SIGNED	11/2022
	KARIN LEUNG A/38	ORIGINAL SIGNED	11/2022
	H.M. WONG STO(A)/7	ORIGINAL SIGNED	11/2022
DRAWN	THEO TSOI TO(A)/15	ORIGINAL SIGNED	11/2022

DATE OF ISSUE :

PROJECT

MODULAR FLAT DESIGN
(MODULAR INTEGRATED CONSTRUCTION)

DRAWING TITLE

TYPE D-M2 FLAT - CALCULATION OF MiC AREA, NOTIONAL PARTITION, GLAZING AREA AND DEADEND TRAVEL DISTANCE

SCALE 1:50

DRAWING NO.

MF/MIC/AW/MW/A/ICU905

SOURCE

ICU NO.

AutoCAD 2000 A1 594 x 841

HOUSING DEPARTMENT

COPY FOR ☐ Contractor ☐ Architect ☐ R.E. ☐ G.S. ☐ TD/WD/W ☐ FILE / OFFICE ☐ B.S.E. ☐ S.E. ☐ C.E. ☐ OTHERS

Appendix 4.6

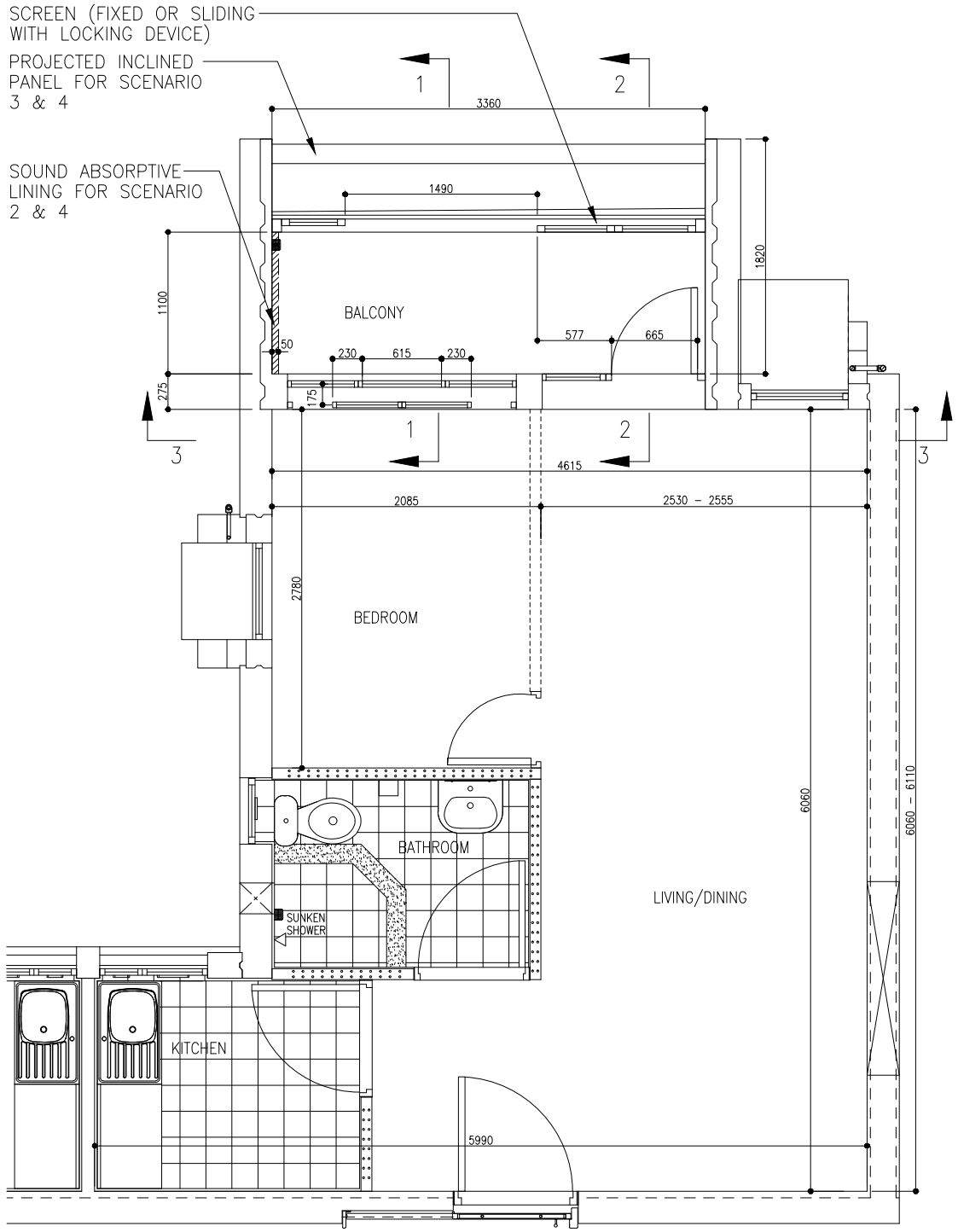
Summary of Noise Attenuation Performance for MFD-MiC with Acoustic Window

Table 8 – Summary of Noise Attenuation Performance for MFD-MiC with Acoustic Window

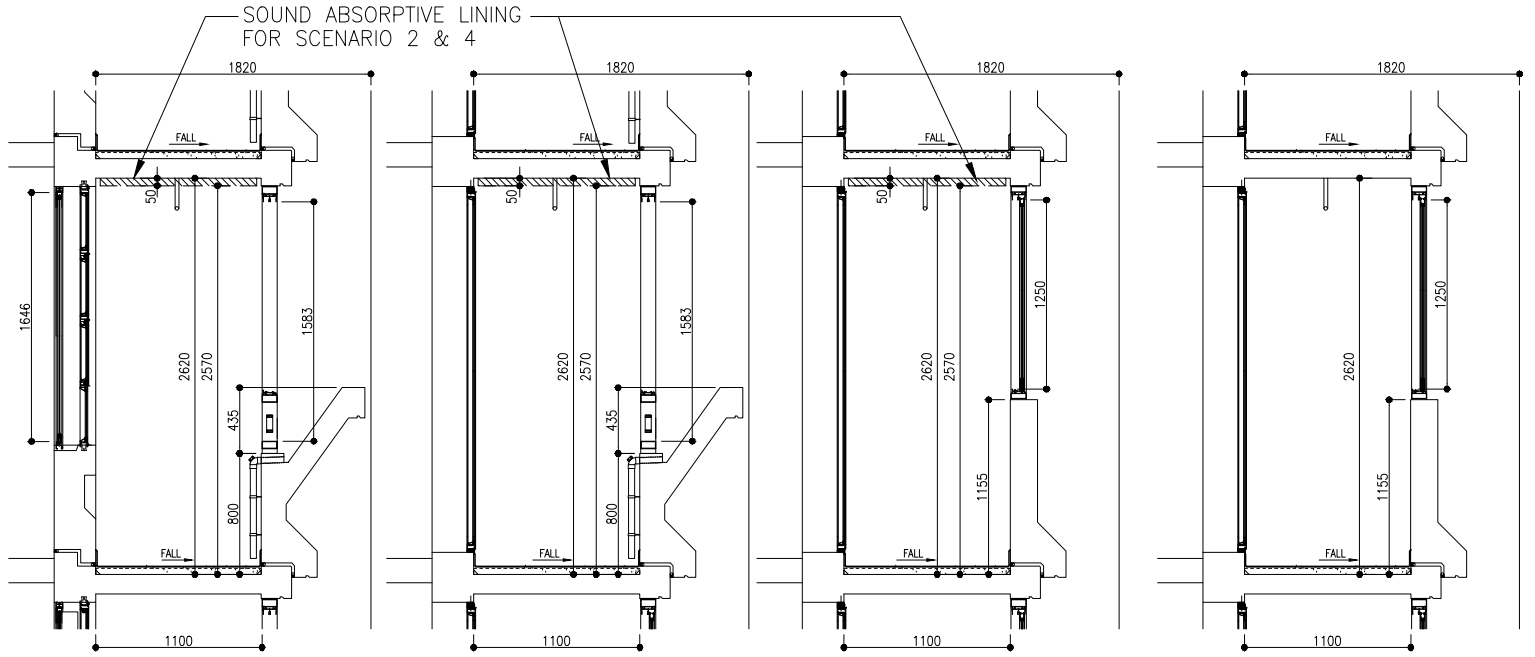
		Acoustic Window Configurations				Noise Attenuation dB(A)	
Flat Type	**Floor Size (m^2)**	**Inner Window Opening**	**Outer Window Opening**	**Window Overlapping Length**	**Gap Width between Window Panel**	**With Sound Absorptive Lining**	**Without Sound Absorptive Lining**
Type A-M2	9.357	1352mm (H) x 820mm (W)	1352mm (H) x 700mm (W)	340mm	175 mm	7.1	5.9
Type B-M2	15.592	1352mm (H) x 895mm (W)	1352mm (H) x 945mm (W)	200mm	175 mm	6.9	5.8
Type C-M2							
Living Room	16.414	1352mm (H) x 915mm (W)	1352mm (H) x 985mm (W)	100mm	175 mm	7.1	5.6
Bedroom 1	6.117	1352mm (H) x 660mm (W)	1352mm (H) x 633mm (W)	607mm	175 mm		
Type C-M3							
Living Room	16.736	1352mm (H) x 985mm (W)	1352mm (H) x 1125mm (W)	330mm	175 mm	7.1	5.6
Bedroom 1	6.094	1352mm (H) x 660mm (W)	1352mm (H) x 633mm (W)	607mm	175 mm		
Type D-M2							
Living Room	16.414	1352mm (H) x 915mm (W)	1352mm (H) x 985mm (W)	100mm	175 mm	7.1	5.6
Bedroom 1	6.117	1352mm (H) x 660mm (W)	1352mm (H) x 633mm (W)	607mm	175 mm		
Bedroom 2	4.692	1352mm (H) x 545mm (W)	1352mm (H) x 545mm (W)	680mm	175 mm	4.2	3.0

Appendix 4.7

Configuration of the proposed enhanced acoustic balcony (EAB3.0)



TYPE C4(a)(A) FLAT

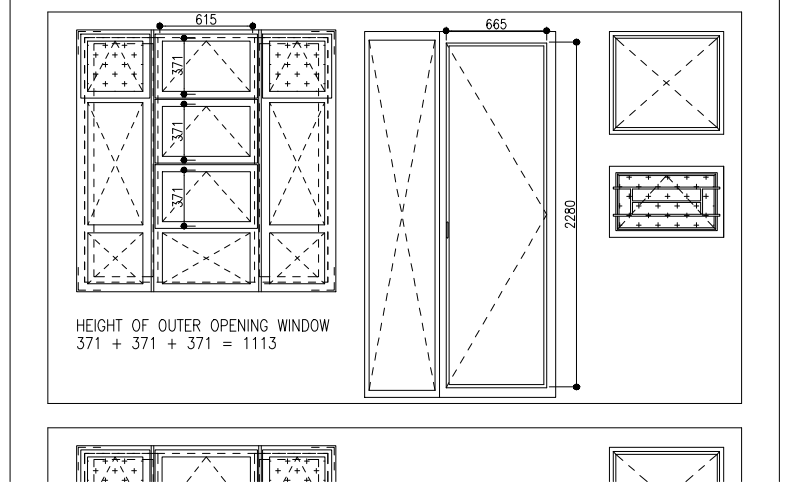


SECTION 1-1 (SCENARIO 3 & 4)

SECTION 2-2 (SCENARIO 3 & 4)

SECTION 2-2 (SCENARIO 2)

SECTION 2-2 (SCENARIO 1)



SECTION 3-3

Acoustic Balcony
Scenario 1 - Basic Shell
Scenario 2 - With Sound Absorptive Lining (Wall and Ceiling)
Scenario 3 - With Projected Inclined Panel
Scenario 4 - With Sound Absorptive Lining (Wall and Ceiling) & Projected Inclined Panel

Legend:

- Fixed Window
- Fixed Window With Allen Key Lock (For Maintenance)
- Openable Window

MODULAR FLAT WITH ACOUSTIC BALCONY

TYPE C-4A(a) SCALE 1:50 (A3)

(TYPE C-4A(a) FOR MODULAR FLAT DESIGN)

2023-10-03
(FOR EPD)

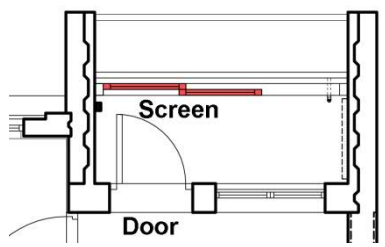
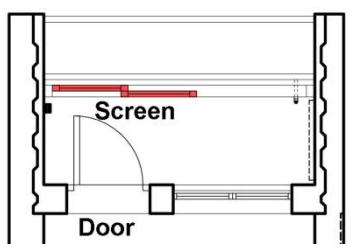
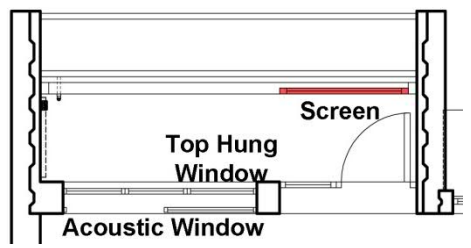
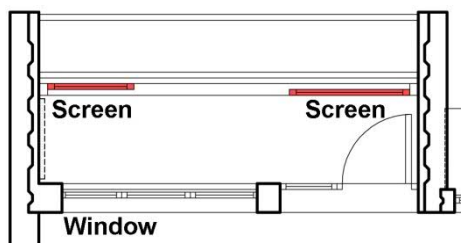
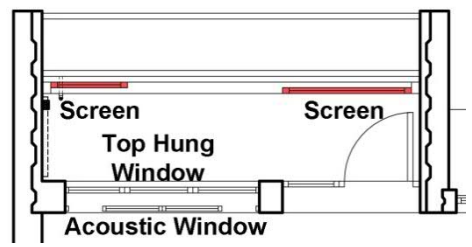
Note : 1. Location of the openable window would be adjusted based on the noise source to attain an optimum noise attenuation performance.
2. Internal layout of flat for reference only.

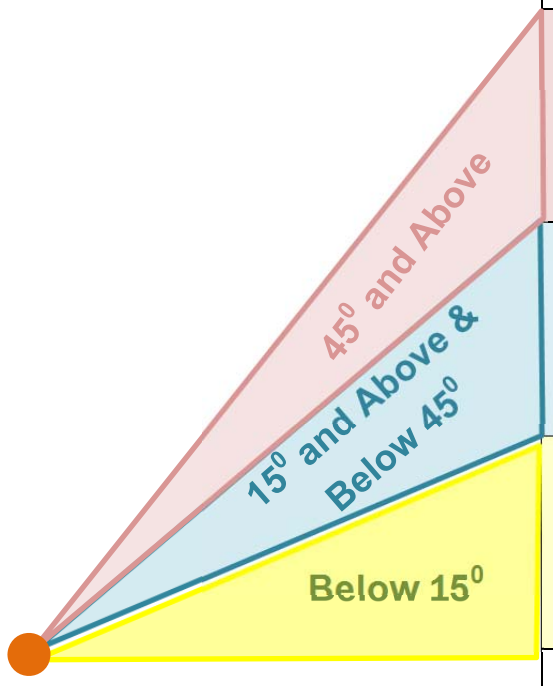
Appendix 4.8

Summary of Noise Attenuation Performance for enhanced acoustic balcony

Updated on 22 Mar 2018
Accepted by EPD on 21 Jun.2018

Figure 1: Summary of Sound Attenuation Performance for Enhanced Acoustic Balcony

Acoustic Balcony Performance, dB(A)																			
Type “A” (1/2P)				Type “B” (2/3P)				Type “C” (3/4P)											
MFD Flat Type A - 2				MFD Flat Type B - 3 & B - 4				MFD Flat Type C - 3				MFD Flat Type C - 4				MFD Flat Type C – 5			
A1	A2	A3	A4	B-11/ B-21	B-12/ B-22	B-13/ B-23	B-14/ B-24	C1A1	C1A2	C1A3	C1A4	C1B1	C1B2	C1B3	C1B4	C1C1	C1C2	C1C3	C1C4
5.0	11.0	6.5	12.5	5.0	11.0	6.5	12.5	6.0	8.0	8.5	10.0	5.5	7.0	8.0	9.0	6.0	7.5	8.5	10.0
4.0	9.0	5.5	11.0	4.0	9.0	5.5	11.0	4.5	7.0	7.0	9.0	4.0	5.5	6.5	8.0	4.0	6.0	7.5	9.0
2.0	6.5	3.0	8.5	2.0	6.5	3.0	8.5	2.5	4.5	4.5	6.5	2.0	3.0	4.0	5.5	2.0	3.5	5.0	6.5
																			



Remark:

Type ”A” (1/2P)

- A1: basic shell
- A2: basic shell with sound absorptive lining (wall and ceiling of balcony)
- A3: basic shell with projected inclined panel
- A4: basic shell with sound absorptive lining (wall and ceiling of balcony) and projected inclined panel

Type ”B” (2/3P)

- B-11/ B-21: basic shell
- B-12/ B-22: basic shell with sound absorptive lining (wall and ceiling of balcony)
- B-13/ B-23: basic shell with projected inclined panel
- B-14/ B-24: basic shell with sound absorptive lining (wall and ceiling of balcony) and projected inclined panel

Type ”C” (3/4P)

- C1A1: single acoustic window (baffle type) (175 mm gap width between glass panes) basic shell
- C1A2: single acoustic window (baffle type) (175 mm gap width between glass panes) basic shell with sound absorptive lining (wall and ceiling of balcony)
- C1A3: single acoustic window (baffle type) (175 mm gap width between glass panes) basic shell with projected inclined panel
- C1A4: single acoustic window (baffle type) (175 mm gap width between glass panes) basic shell with sound absorptive lining (wall and ceiling of balcony) and projected inclined panel

- C1B1: (side hung window) basic shell
- C1B2: (side hung window) basic shell with sound absorptive lining (wall and ceiling of balcony)
- C1B3: (side hung window) basic shell with projected inclined panel
- C1B4: (side hung window) basic shell with sound absorptive lining (wall and ceiling of balcony) and projected inclined panel

- C1C1: twin acoustic windows (baffle type) (175 mm gap width between glass panes) basic shell
- C1C2: twin acoustic windows (baffle type) (175 mm gap width between glass panes) basic shell with sound absorptive lining (wall and ceiling of balcony)
- C1C3: twin acoustic windows (baffle type) (175 mm gap width between glass panes) basic shell with projected inclined panel
- C1C4 twin acoustic windows (baffle type) (175 mm gap width between glass panes) basic shell with sound absorptive lining (wall and ceiling of balcony) and projected inclined panel

Appendix 4.9

Calculation of Noise Attenuation for Enhanced Acoustic Balcony

According to the latest findings, the enhanced acoustic balcony is proposed for 8 flat units (i.e. R110 to R115, R217 and R218). The noise attenuation depends on the setting of the enhanced acoustic balcony. Currently, the mock up model has only covered the case for facade with acoustic balcony fronting a road which is running in parallel. The intended noise attenuation (see **Appendix 4.9**) could be achieved by the enhanced acoustic balcony under this setting ("Setting 1" - Roads running parallel to the balcony). In case the road is located at one side of the flat, adjustment on the noise attenuation might need to be considered for this setting ("Setting 2" - Roads not running parallel to the balcony).

The road traffic noise levels on these 8 units are mainly influenced by Po Shek Wu Road, Po Shek Wu Slip Road and San Wan Road. The roads in Scenario A and B are grouped by their orientations relative to these flat units as shown in **Figure 1** and **Figure 2** below. Group 3 is in "Setting 1", while Group 1 and Group 2 are in "Setting 2". Group 4 are roads which are screened by building itself or surrounding buildings. The noise contributions from each group of the roads have been calculated. The noise attenuation of enhanced acoustic balcony has been applied based on their settings with respect to different groups of roads (Group 1 to Group 3 only). Considering the noise contribution from the road sections in Group 4 is very small, noise reduction by the proposed enhanced acoustic balcony was not applied to the road sections in Group 4.

According to the preliminary findings of the study, the enhanced acoustic balcony of Type "C" (with single door opening at living room and openable top hung window) could achieve an attenuation ranging from 2dB(A) to 10dB(A) depending on their design and inclination angle from the noise source to NSR (see **Appendix 4.9**). The same attenuation will be applied to the noise source in relation to enhanced acoustic balcony in "Setting 1" (i.e. road sections in Group 3).

Figure 1: Grouping of roads for determining noise attenuation of acoustic balcony (Scenario A)

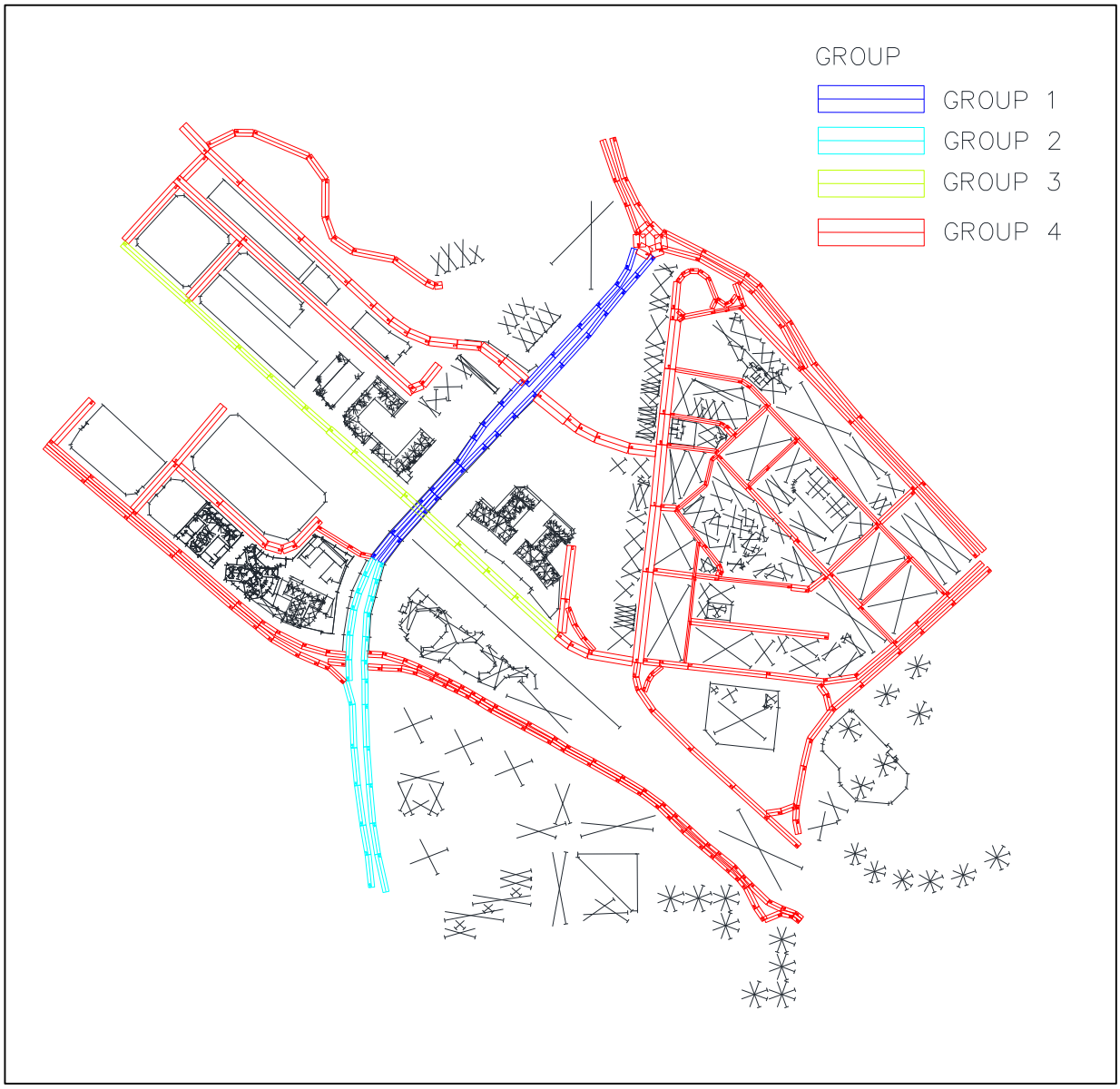
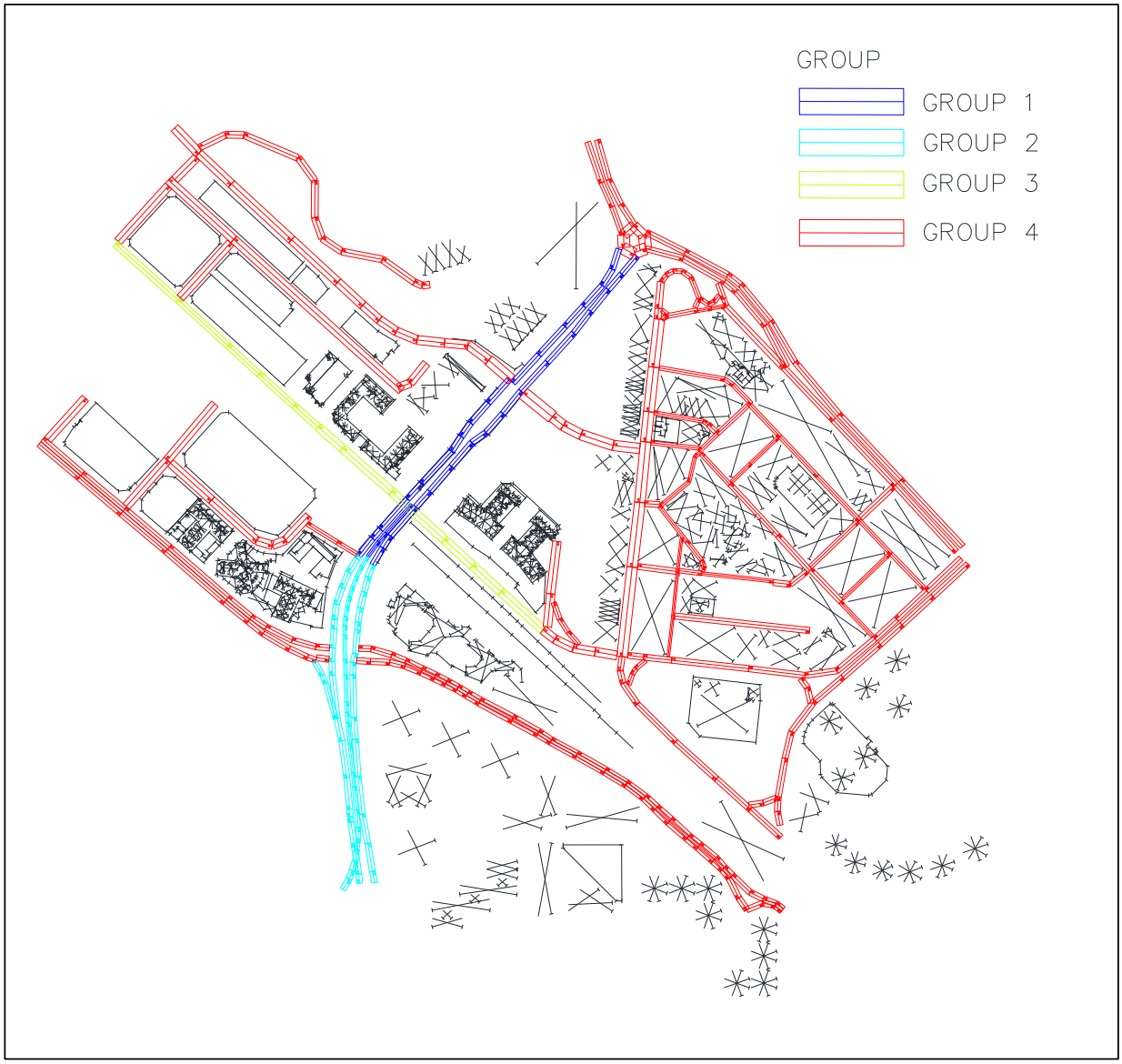


Figure 2: Grouping of roads for determining noise attenuation of acoustic balcony (Scenario B)



When the noise sources are in "Setting 2" in relation to the enhanced acoustic balcony orientation (i.e. road sections in Group 1 and Group 2), the view angle of direct path from the opening to the noise source is similar or smaller while the separation distance between the opening and the noise source is similar or larger than that of the "Setting 1" as illustrated in **Figure 3** and **Figure 4** below. With the same configuration of enhanced acoustic balcony and its openings, as well as similar or smaller view angle to the noise source, it is expected that the amount of sound energy in "Setting 2" transmitted from the source to the openings would be not be larger than that in "Setting 1" and the reverberation within the acoustic balcony is considered very much alike in the two settings. In view of these considerations, the noise attenuation of this type of acoustic balcony in "Setting 2" would be very similar to that of the "Setting 1". Nevertheless, for purpose of conservative assessment, a safety factor of 1dB(A) has been deducted from the attenuation for the noise sources in "Setting 2". The calculation of noise attenuations for the proposed acoustic balcony are detailed in this appendix.

Figure 3: Illustration of view angle of direct path in "Setting 1 - Roads running parallel to the balcony"

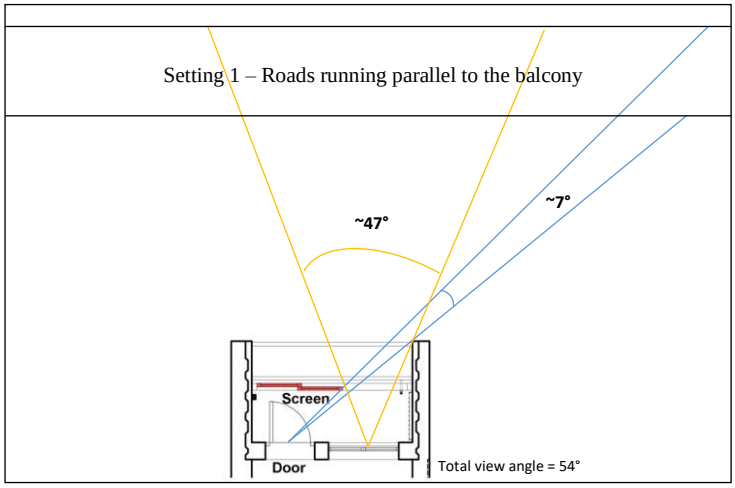
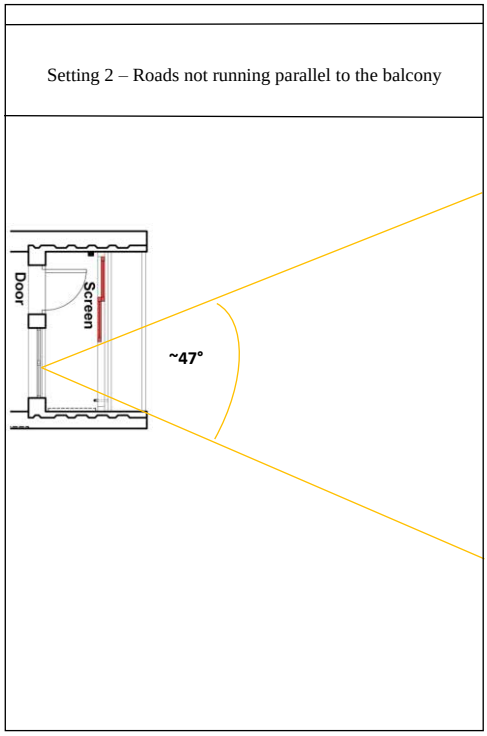
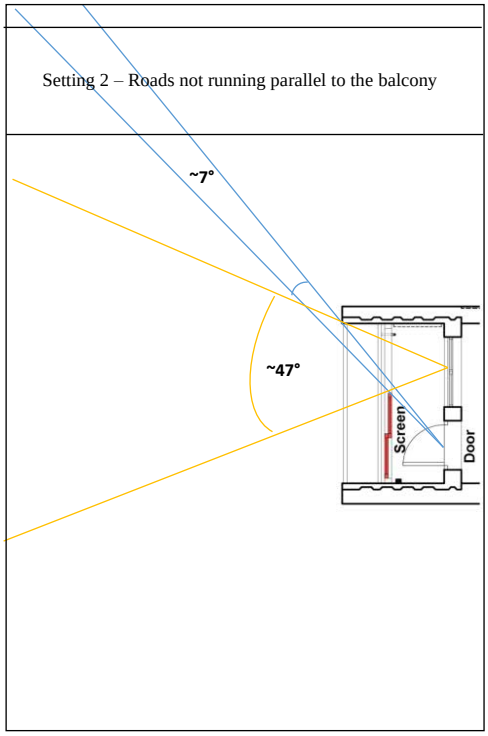


Figure 4: Illustration of view angle of direct path in "Setting 2 – Roads not running parallel to the balcony"





Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R110a	4	66.9	63.4	54.8	59.3	69.2	N/A	9.2	X	-	5.1	X	-	30.9	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	67.6	63.6	57.1	59.9	69.8	N/A	10.7	X	-	5.9	X	-	33.6	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	68.1	63.8	59.4	60.4	70.4	I	12.1	X	1.0	6.7	X	1.0	36.1	Y	4.0	-	-	-	67.1	62.8	55.4	60.4	69.3
	7	68.3	64.0	61.6	60.6	70.7	I	13.5	X	1.0	7.5	X	1.0	38.5	Y	4.0	-	-	-	67.3	63.0	57.6	60.6	69.6
	8	68.5	64.2	63.1	60.8	71.1	I	14.9	X	1.0	8.2	X	1.0	40.8	Y	4.0	-	-	-	67.5	63.2	59.1	60.8	69.9
	9	68.5	64.2	64.1	60.9	71.3	I	16.3	Y	3.0	9.0	X	1.0	42.9	Y	4.0	-	-	-	65.5	63.2	60.1	60.9	69.0
	10	68.6	64.3	64.7	61.0	71.5	I	17.6	Y	3.0	9.8	X	1.0	44.8	Y	4.0	-	-	-	65.6	63.3	60.7	61.0	69.1
	11	68.7	64.4	65.1	61.0	71.6	I	19.0	Y	3.0	10.5	X	1.0	46.7	Z	6.0	-	-	-	65.7	63.4	59.1	61.0	69.0
	12	68.7	64.4	65.2	61.1	71.7	I	20.3	Y	3.0	11.3	X	1.0	48.4	Z	6.0	-	-	-	65.7	63.4	59.2	61.1	69.0
	13	68.7	64.4	65.2	61.1	71.7	I	21.6	Y	3.0	12.0	X	1.0	50.0	Z	6.0	-	-	-	65.7	63.4	59.2	61.1	69.0
	14	68.7	64.4	65.1	61.2	71.7	I	22.8	Y	3.0	12.8	X	1.0	51.5	Z	6.0	-	-	-	65.7	63.4	59.1	61.2	69.0
	15	68.7	64.4	65.1	61.2	71.7	I	24.1	Y	3.0	13.5	X	1.0	53.0	Z	6.0	-	-	-	65.7	63.4	59.1	61.2	69.0
	16	68.7	64.4	64.9	61.2	71.6	I	25.3	Y	3.0	14.3	X	1.0	54.3	Z	6.0	-	-	-	65.7	63.4	58.9	61.2	69.0
	17	68.6	64.3	64.9	61.2	71.6	I	26.5	Y	3.0	15.0	Y	3.0	55.5	Z	6.0	-	-	-	65.6	61.3	58.9	61.2	68.5
	18	68.6	64.3	64.8	61.2	71.5	I	27.7	Y	3.0	15.7	Y	3.0	56.7	Z	6.0	-	-	-	65.6	61.3	58.8	61.2	68.5
	19	68.5	64.3	64.6	61.3	71.5	I	28.8	Y	3.0	16.5	Y	3.0	57.8	Z	6.0	-	-	-	65.5	61.3	58.6	61.3	68.4
	20	68.5	64.3	64.5	61.2	71.4	I	30.0	Y	3.0	17.2	Y	3.0	58.9	Z	6.0	-	-	-	65.5	61.3	58.5	61.2	68.4
	21	68.4	64.3	64.4	61.3	71.4	I	31.1	Y	3.0	17.9	Y	3.0	59.9	Z	6.0	-	-	-	65.4	61.3	58.4	61.3	68.4
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	68.3	64.2	64.0	61.3	71.2	I	33.9	Y	3.0	19.8	Y	3.0	62.2	Z	6.0	-	-	-	65.3	61.2	58.0	61.3	68.3
	24	68.2	64.2	63.9	61.3	71.2	I	34.9	Y	3.0	20.5	Y	3.0	63.0	Z	6.0	-	-	-	65.2	61.2	57.9	61.3	68.2
	25	68.2	64.2	63.8	61.4	71.1	I	35.9	Y	3.0	21.1	Y	3.0	63.8	Z	6.0	-	-	-	65.2	61.2	57.8	61.4	68.2
	26	68.1	64.1	63.7	61.4	71.1	I	36.8	Y	3.0	21.8	Y	3.0	64.5	Z	6.0	-	-	-	65.1	61.1	57.7	61.4	68.1
	27	68.0	64.1	63.6	61.4	71.0	I	37.8	Y	3.0	22.5	Y	3.0	65.2	Z	6.0	-	-	-	65.0	61.1	57.6	61.4	68.1
	28	68.0	64.1	63.5	61.4	71.0	I	38.7	Y	3.0	23.2	Y	3.0	65.8	Z	6.0	-	-	-	65.0	61.1	57.5	61.4	68.1
	29	67.9	64.1	63.3	61.4	70.9	I	39.6	Y	3.0	23.8	Y	3.0	66.4	Z	6.0	-	-	-	64.9	61.1	57.3	61.4	68.0
	30	67.9	64.2	63.2	61.5	70.9	I	40.4	Y	3.0	24.5	Y	3.0	67.0	Z	6.0	-	-	-	64.9	61.2	57.2	61.5	68.0
	31	67.8	64.2	63.1	61.5	70.8	I	41.3	Y	3.0	25.1	Y	3.0	67.6	Z	6.0	-	-	-	64.8	61.2	57.1	61.5	68.0
	32	67.8	64.2	63.0	61.5	70.8	I	42.1	Y	3.0	25.8	Y	3.0	68.1	Z	6.0	-	-	-	64.8	61.2	57.0	61.5	68.0
	33	67.7	64.2	62.9	61.5	70.7	I	42.9	Y	3.0	26.4	Y	3.0	68.6	Z	6.0	-	-	-	64.7	61.2	56.9	61.5	67.9
	34	67.6	64.2	62.8	61.5	70.7	I	43.7	Y	3.0	27.0	Y	3.0	69.1	Z	6.0	-	-	-	64.6	61.2	56.8	61.5	67.8
	35	67.6	64.2	62.7	61.5	70.6	I	44.5	Y	3.0	27.7	Y	3.0	69.6	Z	6.0	-	-	-	64.6	61.2	56.7	61.5	67.8
	36	67.5	64.1	62.6	61.5	70.6	I	45.2	Z	5.0	28.3	Y	3.0	70.1	Z	6.0	-	-	-	62.5	61.1	56.6	61.5	66.9
	37	67.5	64.1	62.6	61.5	70.6	I	45.9	Z	5.0	28.9	Y	3.0	70.5	Z	6.0	-	-	-	62.5	61.1	56.6	61.5	66.9
	38	67.4	64.1	62.5	61.6	70.5	I	46.7	Z	5.0	29.5	Y	3.0	70.9	Z	6.0	-	-	-	62.4	61.1	56.5	61.6	66.9
	39	67.3	64.1	62.4	61.6	70.5	I	47.3	Z	5.0	30.1	Y	3.0	71.3	Z	6.0	-	-	-	62.3	61.1	56.4	61.6	66.9
	40	67.3	64.0	62.3	61.6	70.4	I	48.0	Z	5.0	30.6	Y	3.0	71.7	Z	6.0	-	-	-	62.3	61.0	56.3	61.6	66.8
	41	67.2	64.0	62.2	61.7	70.4	N/A	48.7	Z	-	31.2	Y	-	72.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	67.2	64.0	62.1	61.7	70.3	N/A	49.3	Z	-	31.8	Y	-	72.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	67.1	63.9	62.0	61.7	70.3	N/A	49.9	Z	-	32.4	Y	-	72.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	67.1	63.9	62.0	61.7	70.3	N/A	50.5	Z	-	32.9	Y	-	73.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	67.0	64.0	61.9	61.8	70.2	N/A	51.1	Z	-	33.5	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4								
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R110b	4	67.0	63.5	54.8	59.3	69.3	N/A	9.4	X	-	5.2	X	-	30.9	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	67.9	63.8	57.1	59.9	70.0	N/A	10.9	X	-	6.0	X	-	33.6	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	68.3	63.9	59.2	60.4	70.5	I	12.3	X	1.0	6.7	X	1.0	36.1	Y	4.0	-	-	-	67.3	62.9	55.2	60.4	69.4
	7	68.5	64.1	61.4	60.6	70.9	I	13.8	X	1.0	7.5	X	1.0	38.5	Y	4.0	-	-	-	67.5	63.1	57.4	60.6	69.7
	8	68.6	64.3	63.0	60.8	71.2	I	15.2	Y	3.0	8.3	X	1.0	40.8	Y	4.0	-	-	-	65.6	63.3	59.0	60.8	68.9
	9	68.7	64.3	64.0	60.9	71.4	I	16.6	Y	3.0	9.1	X	1.0	42.9	Y	4.0	-	-	-	65.7	63.3	60.0	60.9	69.1
	10	68.8	64.4	64.7	61.0	71.6	I	18.0	Y	3.0	9.9	X	1.0	44.9	Y	4.0	-	-	-	65.8	63.4	60.7	61.0	69.3
	11	68.8	64.5	65.1	61.0	71.7	I	19.4	Y	3.0	10.6	X	1.0	46.7	Z	6.0	-	-	-	65.8	63.5	59.1	61.0	69.1
	12	68.9	64.5	65.1	61.1	71.8	I	20.7	Y	3.0	11.4	X	1.0	48.4	Z	6.0	-	-	-	65.9	63.5	59.1	61.1	69.2
	13	68.9	64.5	65.2	61.1	71.8	I	22.0	Y	3.0	12.1	X	1.0	50.0	Z	6.0	-	-	-	65.9	63.5	59.2	61.1	69.2
	14	68.9	64.5	65.2	61.1	71.8	I	23.3	Y	3.0	12.9	X	1.0	51.6	Z	6.0	-	-	-	65.9	63.5	59.2	61.1	69.2
	15	68.8	64.5	65.1	61.2	71.8	I	24.6	Y	3.0	13.6	X	1.0	53.0	Z	6.0	-	-	-	65.8	63.5	59.1	61.2	69.1
	16	68.8	64.5	65.0	61.2	71.7	I	25.8	Y	3.0	14.4	X	1.0	54.3	Z	6.0	-	-	-	65.8	63.5	59.0	61.2	69.1
	17	68.7	64.4	64.9	61.2	71.7	I	27.0	Y	3.0	15.1	Y	3.0	55.6	Z	6.0	-	-	-	65.7	61.4	58.9	61.2	68.6
	18	68.7	64.4	64.8	61.2	71.6	I	28.2	Y	3.0	15.9	Y	3.0	56.7	Z	6.0	-	-	-	65.7	61.4	58.8	61.2	68.6
	19	68.6	64.4	64.6	61.2	71.5	I	29.4	Y	3.0	16.6	Y	3.0	57.8	Z	6.0	-	-	-	65.6	61.4	58.6	61.2	68.5
	20	68.6	64.4	64.5	61.3	71.5	I	30.5	Y	3.0	17.3	Y	3.0	58.9	Z	6.0	-	-	-	65.6	61.4	58.5	61.3	68.5
	21	68.5	64.4	64.4	61.3	71.4	I	31.6	Y	3.0	18.0	Y	3.0	59.9	Z	6.0	-	-	-	65.5	61.4	58.4	61.3	68.4
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	68.3	64.3	64.0	61.3	71.3	I	34.4	Y	3.0	19.9	Y	3.0	62.2	Z	6.0	-	-	-	65.3	61.3	58.0	61.3	68.3
	24	68.3	64.3	63.9	61.3	71.2	I	35.5	Y	3.0	20.6	Y	3.0	63.0	Z	6.0	-	-	-	65.3	61.3	57.9	61.3	68.3
	25	68.2	64.3	63.8	61.4	71.2	I	36.5	Y	3.0	21.3	Y	3.0	63.8	Z	6.0	-	-	-	65.2	61.3	57.8	61.4	68.2
	26	68.2	64.2	63.7	61.4	71.1	I	37.4	Y	3.0	22.0	Y	3.0	64.5	Z	6.0	-	-	-	65.2	61.2	57.7	61.4	68.2
	27	68.1	64.2	63.6	61.4	71.1	I	38.4	Y	3.0	22.7	Y	3.0	65.2	Z	6.0	-	-	-	65.1	61.2	57.6	61.4	68.1
	28	68.1	64.2	63.5	61.4	71.0	I	39.3	Y	3.0	23.3	Y	3.0	65.8	Z	6.0	-	-	-	65.1	61.2	57.5	61.4	68.1
	29	68.0	64.3	63.4	61.4	71.0	I	40.2	Y	3.0	24.0	Y	3.0	66.4	Z	6.0	-	-	-	65.0	61.3	57.4	61.4	68.1
	30	68.0	64.3	63.2	61.4	70.9	I	41.1	Y	3.0	24.7	Y	3.0	67.0	Z	6.0	-	-	-	65.0	61.3	57.2	61.4	68.1
	31	67.9	64.3	63.1	61.4	70.9	I	41.9	Y	3.0	25.3	Y	3.0	67.6	Z	6.0	-	-	-	64.9	61.3	57.1	61.4	68.0
	32	67.8	64.3	63.0	61.5	70.9	I	42.7	Y	3.0	25.9	Y	3.0	68.1	Z	6.0	-	-	-	64.8	61.3	57.0	61.5	68.0
	33	67.8	64.3	62.9	61.4	70.8	I	43.5	Y	3.0	26.6	Y	3.0	68.7	Z	6.0	-	-	-	64.8	61.3	56.9	61.4	68.0
	34	67.7	64.3	62.8	61.5	70.8	I	44.3	Y	3.0	27.2	Y	3.0	69.1	Z	6.0	-	-	-	64.7	61.3	56.8	61.5	67.9
	35	67.7	64.3	62.7	61.5	70.7	I	45.1	Z	5.0	27.8	Y	3.0	69.6	Z	6.0	-	-	-	62.7	61.3	56.7	61.5	67.1
	36	67.6	64.2	62.7	61.5	70.7	I	45.8	Z	5.0	28.5	Y	3.0	70.1	Z	6.0	-	-	-	62.6	61.2	56.7	61.5	67.0
	37	67.5	64.2	62.6	61.5	70.6	I	46.6	Z	5.0	29.1	Y	3.0	70.5	Z	6.0	-	-	-	62.5	61.2	56.6	61.5	67.0
	38	67.5	64.2	62.5	61.5	70.6	I	47.3	Z	5.0	29.7	Y	3.0	70.9	Z	6.0	-	-	-	62.5	61.2	56.5	61.5	67.0
	39	67.4	64.1	62.4	61.6	70.5	I	48.0	Z	5.0	30.3	Y	3.0	71.3	Z	6.0	-	-	-	62.4	61.1	56.4	61.6	66.9
	40	67.4	64.1	62.3	61.6	70.5	I	48.6	Z	5.0	30.8	Y	3.0	71.7	Z	6.0	-	-	-	62.4	61.1	56.3	61.6	66.9
	41	67.3	64.1	62.2	61.6	70.4	N/A	49.3	Z	-	31.4	Y	-	72.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	67.2	64.0	62.1	61.7	70.4	N/A	49.9	Z	-	32.0	Y	-	72.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	67.2	64.0	62.0	61.7	70.3	N/A	50.6	Z	-	32.6	Y	-	72.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	67.1	64.0	62.0	61.7	70.3	N/A	51.2	Z	-	33.1	Y	-	73.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	67.1	64.0	61.9	61.7	70.3	N/A	51.7	Z	-	33.7	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R111b	4	67.6	63.8	55.0	59.4	69.7	N/A	9.9	X	-	5.3	X	-	30.9	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	68.4	64.0	57.0	59.8	70.4	I	11.4	X	1.0	6.1	X	1.0	33.6	Y	4.0	-	-	-	67.4	63.0	53.0	59.8	69.4
	6	68.7	64.2	59.0	60.1	70.7	I	13.0	X	1.0	6.9	X	1.0	36.1	Y	4.0	-	-	-	67.7	63.2	55.0	60.1	69.7
	7	68.9	64.4	61.1	60.3	71.1	I	14.5	X	1.0	7.7	X	1.0	38.5	Y	4.0	-	-	-	67.9	63.4	57.1	60.3	70.0
	8	68.9	64.5	62.8	60.5	71.3	I	16.0	Y	3.0	8.4	X	1.0	40.8	Y	4.0	-	-	-	65.9	63.5	58.8	60.5	69.0
	9	69.0	64.6	63.8	60.6	71.6	I	17.4	Y	3.0	9.2	X	1.0	42.9	Y	4.0	-	-	-	66.0	63.6	59.8	60.6	69.2
	10	69.2	64.7	64.5	60.7	71.8	I	18.9	Y	3.0	10.0	X	1.0	44.8	Y	4.0	-	-	-	66.2	63.7	60.5	60.7	69.4
	11	69.2	64.7	65.0	60.8	71.9	I	20.3	Y	3.0	10.8	X	1.0	46.7	Z	6.0	-	-	-	66.2	63.7	59.0	60.8	69.3
	12	69.2	64.7	65.2	60.8	72.0	I	21.7	Y	3.0	11.6	X	1.0	48.4	Z	6.0	-	-	-	66.2	63.7	59.2	60.8	69.3
	13	69.2	64.7	65.2	60.9	72.0	I	23.0	Y	3.0	12.3	X	1.0	50.0	Z	6.0	-	-	-	66.2	63.7	59.2	60.9	69.3
	14	69.2	64.7	65.2	60.9	72.0	I	24.4	Y	3.0	13.1	X	1.0	51.5	Z	6.0	-	-	-	66.2	63.7	59.2	60.9	69.3
	15	69.1	64.7	65.1	60.9	71.9	I	25.7	Y	3.0	13.9	X	1.0	53.0	Z	6.0	-	-	-	66.1	63.7	59.1	60.9	69.3
	16	69.1	64.7	65.0	61.0	71.9	I	27.0	Y	3.0	14.6	X	1.0	54.3	Z	6.0	-	-	-	66.1	63.7	59.0	61.0	69.3
	17	69.0	64.7	64.9	61.0	71.8	I	28.2	Y	3.0	15.4	Y	3.0	55.5	Z	6.0	-	-	-	66.0	61.7	58.9	61.0	68.7
	18	69.0	64.7	64.8	61.0	71.8	I	29.4	Y	3.0	16.1	Y	3.0	56.7	Z	6.0	-	-	-	66.0	61.7	58.8	61.0	68.7
	19	68.9	64.6	64.6	61.0	71.7	I	30.6	Y	3.0	16.9	Y	3.0	57.8	Z	6.0	-	-	-	65.9	61.6	58.6	61.0	68.6
	20	68.9	64.6	64.5	61.1	71.7	I	31.8	Y	3.0	17.6	Y	3.0	58.9	Z	6.0	-	-	-	65.9	61.6	58.5	61.1	68.7
	21	68.8	64.6	64.4	61.1	71.6	I	32.9	Y	3.0	18.3	Y	3.0	59.8	Z	6.0	-	-	-	65.8	61.6	58.4	61.1	68.6
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	68.6	64.5	64.0	61.1	71.4	I	35.8	Y	3.0	20.2	Y	3.0	62.2	Z	6.0	-	-	-	65.6	61.5	58.0	61.1	68.4
	24	68.6	64.5	63.9	61.2	71.4	I	36.8	Y	3.0	20.9	Y	3.0	63.0	Z	6.0	-	-	-	65.6	61.5	57.9	61.2	68.4
	25	68.5	64.5	63.8	61.2	71.3	I	37.8	Y	3.0	21.6	Y	3.0	63.7	Z	6.0	-	-	-	65.5	61.5	57.8	61.2	68.4
	26	68.5	64.4	63.7	61.2	71.3	I	38.8	Y	3.0	22.3	Y	3.0	64.5	Z	6.0	-	-	-	65.5	61.4	57.7	61.2	68.3
	27	68.4	64.5	63.6	61.2	71.2	I	39.8	Y	3.0	23.0	Y	3.0	65.2	Z	6.0	-	-	-	65.4	61.5	57.6	61.2	68.3
	28	68.3	64.5	63.5	61.2	71.2	I	40.7	Y	3.0	23.7	Y	3.0	65.8	Z	6.0	-	-	-	65.3	61.5	57.5	61.2	68.2
	29	68.3	64.5	63.4	61.3	71.1	I	41.6	Y	3.0	24.4	Y	3.0	66.4	Z	6.0	-	-	-	65.3	61.5	57.4	61.3	68.3
	30	68.2	64.5	63.2	61.3	71.1	I	42.5	Y	3.0	25.0	Y	3.0	67.0	Z	6.0	-	-	-	65.2	61.5	57.2	61.3	68.2
	31	68.1	64.5	63.1	61.3	71.1	I	43.4	Y	3.0	25.7	Y	3.0	67.6	Z	6.0	-	-	-	65.1	61.5	57.1	61.3	68.1
	32	68.1	64.5	63.0	61.3	71.0	I	44.2	Y	3.0	26.3	Y	3.0	68.1	Z	6.0	-	-	-	65.1	61.5	57.0	61.3	68.1
	33	68.0	64.5	62.9	61.3	70.9	I	45.0	Y	3.0	27.0	Y	3.0	68.6	Z	6.0	-	-	-	65.0	61.5	56.9	61.3	68.1
	34	67.9	64.5	62.8	61.3	70.9	I	45.8	Z	5.0	27.6	Y	3.0	69.1	Z	6.0	-	-	-	62.9	61.5	56.8	61.3	67.2
	35	67.9	64.5	62.7	61.3	70.8	I	46.6	Z	5.0	28.3	Y	3.0	69.6	Z	6.0	-	-	-	62.9	61.5	56.7	61.3	67.1
	36	67.8	64.4	62.7	61.3	70.8	I	47.3	Z	5.0	28.9	Y	3.0	70.0	Z	6.0	-	-	-	62.8	61.4	56.7	61.3	67.1
	37	67.7	64.4	62.6	61.3	70.7	I	48.0	Z	5.0	29.5	Y	3.0	70.5	Z	6.0	-	-	-	62.7	61.4	56.6	61.3	67.0
	38	67.7	64.4	62.5	61.4	70.7	I	48.7	Z	5.0	30.1	Y	3.0	70.9	Z	6.0	-	-	-	62.7	61.4	56.5	61.4	67.0
	39	67.6	64.3	62.4	61.4	70.6	I	49.4	Z	5.0	30.7	Y	3.0	71.3	Z	6.0	-	-	-	62.6	61.3	56.4	61.4	67.0
	40	67.5	64.3	62.3	61.4	70.6	I	50.1	Z	5.0	31.3	Y	3.0	71.7	Z	6.0	-	-	-	62.5	61.3	56.3	61.4	66.9
	41	67.5	64.2	62.2	61.5	70.5	I	50.7	Z	5.0	31.9	Y	3.0	72.0	Z	6.0	-	-	-	62.5	61.2	56.2	61.5	66.9
	42	67.4	64.2	62.1	61.5	70.5	I	51.4	Z	5.0	32.5	Y	3.0	72.4	Z	6.0	-	-	-	62.4	61.2	56.1	61.5	66.9
	43	67.4	64.2	62.0	61.5	70.4	I	52.0	Z	5.0	33.0	Y	3.0	72.7	Z	6.0	-	-	-	62.4	61.2	56.0	61.5	66.9
	44	67.3	64.2	62.0	61.6	70.4	N/A	52.6	Z	-	33.6	Y	-	73.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	67.2	64.2	61.9	61.6	70.4	N/A	53.1	Z	-	34.1	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

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Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R111c	4	67.8	64.0	55.1	59.4	69.9	N/A	10.1	X	-	5.3	X	-	30.8	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	68.6	64.1	57.1	59.9	70.5	I	11.7	X	1.0	6.1	X	1.0	33.5	Y	4.0	-	-	-	67.6	63.1	53.1	59.9	69.5
	6	68.8	64.3	59.0	60.1	70.9	I	13.3	X	1.0	6.9	X	1.0	36.1	Y	4.0	-	-	-	67.8	63.3	55.0	60.1	69.8
	7	69.0	64.5	61.0	60.3	71.2	I	14.8	X	1.0	7.7	X	1.0	38.5	Y	4.0	-	-	-	68.0	63.5	57.0	60.3	70.1
	8	69.1	64.6	62.6	60.5	71.5	I	16.3	Y	3.0	8.5	X	1.0	40.7	Y	4.0	-	-	-	66.1	63.6	58.6	60.5	69.1
	9	69.2	64.7	63.7	60.6	71.7	I	17.8	Y	3.0	9.3	X	1.0	42.8	Y	4.0	-	-	-	66.2	63.7	59.7	60.6	69.3
	10	69.3	64.8	64.5	60.7	71.9	I	19.3	Y	3.0	10.1	X	1.0	44.8	Y	4.0	-	-	-	66.3	63.8	60.5	60.7	69.5
	11	69.3	64.8	65.0	60.8	72.0	I	20.7	Y	3.0	10.9	X	1.0	46.6	Z	6.0	-	-	-	66.3	63.8	59.0	60.8	69.4
	12	69.4	64.8	65.1	60.8	72.1	I	22.2	Y	3.0	11.7	X	1.0	48.4	Z	6.0	-	-	-	66.4	63.8	59.1	60.8	69.4
	13	69.3	64.8	65.2	60.9	72.1	I	23.5	Y	3.0	12.4	X	1.0	50.0	Z	6.0	-	-	-	66.3	63.8	59.2	60.9	69.4
	14	69.3	64.8	65.2	60.9	72.0	I	24.9	Y	3.0	13.2	X	1.0	51.5	Z	6.0	-	-	-	66.3	63.8	59.2	60.9	69.4
	15	69.2	64.8	65.1	60.9	72.0	I	26.2	Y	3.0	14.0	X	1.0	52.9	Z	6.0	-	-	-	66.2	63.8	59.1	60.9	69.4
	16	69.2	64.8	64.9	61.0	71.9	I	27.5	Y	3.0	14.7	X	1.0	54.3	Z	6.0	-	-	-	66.2	63.8	58.9	61.0	69.3
	17	69.1	64.8	64.9	61.0	71.9	I	28.8	Y	3.0	15.5	Y	3.0	55.5	Z	6.0	-	-	-	66.1	61.8	58.9	61.0	68.8
	18	69.1	64.7	64.8	61.1	71.8	I	30.0	Y	3.0	16.3	Y	3.0	56.7	Z	6.0	-	-	-	66.1	61.7	58.8	61.1	68.8
	19	69.0	64.7	64.6	61.0	71.8	I	31.3	Y	3.0	17.0	Y	3.0	57.8	Z	6.0	-	-	-	66.0	61.7	58.6	61.0	68.7
	20	68.9	64.7	64.5	61.1	71.7	I	32.4	Y	3.0	17.7	Y	3.0	58.8	Z	6.0	-	-	-	65.9	61.7	58.5	61.1	68.7
	21	68.9	64.7	64.4	61.1	71.7	I	33.6	Y	3.0	18.5	Y	3.0	59.8	Z	6.0	-	-	-	65.9	61.7	58.4	61.1	68.7
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	68.7	64.6	64.0	61.1	71.5	I	36.5	Y	3.0	20.4	Y	3.0	62.2	Z	6.0	-	-	-	65.7	61.6	58.0	61.1	68.5
	24	68.7	64.6	63.9	61.2	71.5	I	37.5	Y	3.0	21.1	Y	3.0	63.0	Z	6.0	-	-	-	65.7	61.6	57.9	61.2	68.5
	25	68.6	64.5	63.8	61.2	71.4	I	38.5	Y	3.0	21.8	Y	3.0	63.7	Z	6.0	-	-	-	65.6	61.5	57.8	61.2	68.4
	26	68.5	64.6	63.7	61.2	71.3	I	39.5	Y	3.0	22.5	Y	3.0	64.4	Z	6.0	-	-	-	65.5	61.6	57.7	61.2	68.4
	27	68.5	64.6	63.6	61.2	71.3	I	40.5	Y	3.0	23.2	Y	3.0	65.1	Z	6.0	-	-	-	65.5	61.6	57.6	61.2	68.4
	28	68.4	64.6	63.5	61.3	71.2	I	41.4	Y	3.0	23.9	Y	3.0	65.8	Z	6.0	-	-	-	65.4	61.6	57.5	61.3	68.3
	29	68.3	64.6	63.4	61.3	71.2	I	42.3	Y	3.0	24.5	Y	3.0	66.4	Z	6.0	-	-	-	65.3	61.6	57.4	61.3	68.3
	30	68.3	64.6	63.2	61.3	71.1	I	43.2	Y	3.0	25.2	Y	3.0	67.0	Z	6.0	-	-	-	65.3	61.6	57.2	61.3	68.3
	31	68.2	64.6	63.1	61.3	71.1	I	44.1	Y	3.0	25.9	Y	3.0	67.6	Z	6.0	-	-	-	65.2	61.6	57.1	61.3	68.2
	32	68.1	64.6	63.0	61.3	71.1	I	44.9	Y	3.0	26.5	Y	3.0	68.1	Z	6.0	-	-	-	65.1	61.6	57.0	61.3	68.2
	33	68.1	64.6	62.9	61.3	71.0	I	45.7	Z	5.0	27.2	Y	3.0	68.6	Z	6.0	-	-	-	63.1	61.6	56.9	61.3	67.3
	34	68.0	64.6	62.8	61.3	70.9	I	46.5	Z	5.0	27.8	Y	3.0	69.1	Z	6.0	-	-	-	63.0	61.6	56.8	61.3	67.2
	35	67.9	64.5	62.7	61.3	70.9	I	47.2	Z	5.0	28.4	Y	3.0	69.6	Z	6.0	-	-	-	62.9	61.5	56.7	61.3	67.1
	36	67.9	64.5	62.7	61.3	70.8	I	48.0	Z	5.0	29.1	Y	3.0	70.0	Z	6.0	-	-	-	62.9	61.5	56.7	61.3	67.1
	37	67.8	64.5	62.6	61.3	70.8	I	48.7	Z	5.0	29.7	Y	3.0	70.5	Z	6.0	-	-	-	62.8	61.5	56.6	61.3	67.1
	38	67.7	64.4	62.5	61.3	70.7	I	49.4	Z	5.0	30.3	Y	3.0	70.9	Z	6.0	-	-	-	62.7	61.4	56.5	61.3	67.0
	39	67.7	64.4	62.4	61.4	70.7	I	50.1	Z	5.0	30.9	Y	3.0	71.3	Z	6.0	-	-	-	62.7	61.4	56.4	61.4	67.0
	40	67.6	64.3	62.3	61.4	70.6	I	50.8	Z	5.0	31.5	Y	3.0	71.7	Z	6.0	-	-	-	62.6	61.3	56.3	61.4	67.0
	41	67.5	64.3	62.2	61.4	70.6	I	51.4	Z	5.0	32.1	Y	3.0	72.0	Z	6.0	-	-	-	62.5	61.3	56.2	61.4	66.9
	42	67.5	64.3	62.1	61.5	70.5	I	52.0	Z	5.0	32.7	Y	3.0	72.4	Z	6.0	-	-	-	62.5	61.3	56.1	61.5	66.9
	43	67.4	64.2	62.0	61.5	70.5	I	52.6	Z	5.0	33.2	Y	3.0	72.7	Z	6.0	-	-	-	62.4	61.2	56.0	61.5	66.9
	44	67.3	64.2	62.0	61.5	70.4	N/A	53.2	Z	-	33.8	Y	-	73.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	67.3	64.2	61.9	61.6	70.4	N/A	53.8	Z	-	34.4	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance											Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R112a	4	68.8	65.2	54.9	59.8	70.8	I	12.5	X	1.0	5.7	X	1.0	30.9	Y	4.0	-	-	-	67.8	64.2	50.9	59.8	69.9
	5	69.8	65.4	58.5	60.1	71.7	II	14.4	X	2.5	6.5	X	2.5	33.6	Y	6.0	-	-	-	67.3	62.9	52.5	60.1	69.3
	6	70.2	65.5	60.1	60.3	72.1	I	16.3	Y	3.0	7.4	X	1.0	36.2	Y	4.0	-	-	-	67.2	64.5	56.1	60.3	69.8
	7	70.5	65.6	61.3	60.4	72.4	I	18.2	Y	3.0	8.3	X	1.0	38.6	Y	4.0	-	-	-	67.5	64.6	57.3	60.4	70.1
	8	70.6	65.7	62.5	60.5	72.6	I	20.0	Y	3.0	9.1	X	1.0	40.8	Y	4.0	-	-	-	67.6	64.7	58.5	60.5	70.2
	9	70.6	65.7	63.5	60.5	72.7	II	21.7	Y	5.0	10.0	X	2.5	42.9	Y	6.0	-	-	-	65.6	63.2	57.5	60.5	68.7
	10	70.6	65.8	64.5	60.6	72.8	I	23.5	Y	3.0	10.8	X	1.0	44.9	Y	4.0	-	-	-	67.6	64.8	60.5	60.6	70.4
	11	70.6	65.8	65.0	60.6	72.9	I	25.2	Y	3.0	11.6	X	1.0	46.7	Z	6.0	-	-	-	67.6	64.8	59.0	60.6	70.3
	12	70.5	65.8	65.2	60.7	72.9	I	26.8	Y	3.0	12.5	X	1.0	48.5	Z	6.0	-	-	-	67.5	64.8	59.2	60.7	70.3
	13	70.4	65.8	65.2	60.7	72.9	I	28.4	Y	3.0	13.3	X	1.0	50.1	Z	6.0	-	-	-	67.4	64.8	59.2	60.7	70.2
	14	70.4	65.7	65.2	60.7	72.8	I	29.9	Y	3.0	14.1	X	1.0	51.6	Z	6.0	-	-	-	67.4	64.7	59.2	60.7	70.2
	15	70.3	65.7	65.1	60.8	72.7	I	31.4	Y	3.0	14.9	X	1.0	53.0	Z	6.0	-	-	-	67.3	64.7	59.1	60.8	70.1
	16	70.2	65.7	65.0	60.8	72.7	I	32.9	Y	3.0	15.7	Y	3.0	54.3	Z	6.0	-	-	-	67.2	62.7	59.0	60.8	69.6
	17	70.1	65.7	64.9	60.9	72.6	I	34.3	Y	3.0	16.5	Y	3.0	55.6	Z	6.0	-	-	-	67.1	62.7	58.9	60.9	69.5
	18	70.0	65.7	64.8	60.9	72.6	I	35.7	Y	3.0	17.3	Y	3.0	56.8	Z	6.0	-	-	-	67.0	62.7	58.8	60.9	69.5
	19	70.0	65.6	64.6	60.9	72.5	I	37.0	Y	3.0	18.1	Y	3.0	57.9	Z	6.0	-	-	-	67.0	62.6	58.6	60.9	69.4
	20	69.9	65.6	64.5	60.9	72.4	I	38.3	Y	3.0	18.9	Y	3.0	58.9	Z	6.0	-	-	-	66.9	62.6	58.5	60.9	69.4
	21	69.8	65.5	64.4	60.9	72.3	I	39.5	Y	3.0	19.7	Y	3.0	59.9	Z	6.0	-	-	-	66.8	62.5	58.4	60.9	69.3
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	69.6	65.5	64.1	60.9	72.1	I	42.5	Y	3.0	21.7	Y	3.0	62.2	Z	6.0	-	-	-	66.6	62.5	58.1	60.9	69.2
	24	69.5	65.4	63.9	60.9	72.1	I	43.6	Y	3.0	22.4	Y	3.0	63.0	Z	6.0	-	-	-	66.5	62.4	57.9	60.9	69.1
	25	69.4	65.5	63.8	60.9	72.0	I	44.6	Y	3.0	23.2	Y	3.0	63.8	Z	6.0	-	-	-	66.4	62.5	57.8	60.9	69.0
	26	69.3	65.4	63.7	60.9	71.9	I	45.7	Z	5.0	23.9	Y	3.0	64.5	Z	6.0	-	-	-	64.3	62.4	57.7	60.9	68.0
	27	69.3	65.4	63.6	60.9	71.9	I	46.6	Z	5.0	24.6	Y	3.0	65.2	Z	6.0	-	-	-	64.3	62.4	57.6	60.9	67.9
	28	69.2	65.4	63.5	60.9	71.8	I	47.6	Z	5.0	25.3	Y	3.0	65.9	Z	6.0	-	-	-	64.2	62.4	57.5	60.9	67.9
	29	69.1	65.4	63.4	60.9	71.8	I	48.5	Z	5.0	26.1	Y	3.0	66.5	Z	6.0	-	-	-	64.1	62.4	57.4	60.9	67.8
	30	69.0	65.4	63.3	60.9	71.7	I	49.4	Z	5.0	26.7	Y	3.0	67.1	Z	6.0	-	-	-	64.0	62.4	57.3	60.9	67.8
	31	68.9	65.3	63.2	60.9	71.6	I	50.2	Z	5.0	27.4	Y	3.0	67.6	Z	6.0	-	-	-	63.9	62.3	57.2	60.9	67.7
	32	68.8	65.3	63.1	60.9	71.6	I	51.0	Z	5.0	28.1	Y	3.0	68.2	Z	6.0	-	-	-	63.8	62.3	57.1	60.9	67.7
	33	68.8	65.2	63.0	60.9	71.5	I	51.8	Z	5.0	28.8	Y	3.0	68.7	Z	6.0	-	-	-	63.8	62.2	57.0	60.9	67.6
	34	68.7	65.2	62.9	60.9	71.4	I	52.6	Z	5.0	29.5	Y	3.0	69.2	Z	6.0	-	-	-	63.7	62.2	56.9	60.9	67.6
	35	68.6	65.2	62.8	60.9	71.4	I	53.3	Z	5.0	30.1	Y	3.0	69.6	Z	6.0	-	-	-	63.6	62.2	56.8	60.9	67.5
	36	68.6	65.1	62.7	60.9	71.3	I	54.0	Z	5.0	30.8	Y	3.0	70.1	Z	6.0	-	-	-	63.6	62.1	56.7	60.9	67.5
	37	68.5	65.1	62.6	60.9	71.2	I	54.7	Z	5.0	31.4	Y	3.0	70.5	Z	6.0	-	-	-	63.5	62.1	56.6	60.9	67.4
	38	68.4	65.0	62.5	60.9	71.2	I	55.4	Z	5.0	32.0	Y	3.0	70.9	Z	6.0	-	-	-	63.4	62.0	56.5	60.9	67.4
	39	68.3	65.0	62.4	60.9	71.1	I	56.0	Z	5.0	32.6	Y	3.0	71.3	Z	6.0	-	-	-	63.3	62.0	56.4	60.9	67.3
	40	68.3	65.0	62.3	60.9	71.1	I	56.6	Z	5.0	33.3	Y	3.0	71.7	Z	6.0	-	-	-	63.3	62.0	56.3	60.9	67.3
	41	68.2	64.9	62.2	60.9	71.0	I	57.2	Z	5.0	33.9	Y	3.0	72.1	Z	6.0	-	-	-	63.2	61.9	56.2	60.9	67.2
	42	68.1	64.9	62.1	61.0	70.9	I	57.8	Z	5.0	34.5	Y	3.0	72.4	Z	6.0	-	-	-	63.1	61.9	56.1	61.0	67.2
	43	68.1	64.8	62.0	61.0	70.9	I	58.4	Z	5.0	35.0	Y	3.0	72.8	Z	6.0	-	-	-	63.1	61.8	56.0	61.0	67.2
	44	68.0	64.8	62.0	61.0	70.8	I	58.9	Z	5.0	35.6	Y	3.0	73.1	Z	6.0	-	-	-	63.0	61.8	56.0	61.0	67.1
	45	67.9	64.8	61.9	61.1	70.8	I	59.5	Z	5.0	36.2	Y	3.0	73.4	Z	6.0	-	-	-	62.9	61.8	55.9	61.1	67.1

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R112b	4	69.0	65.3	55.5	59.9	71.0	I	12.8	X	1.0	5.7	X	1.0	31.1	Y	4.0	-	-	-	68.0	64.3	51.5	59.9	70.1
	5	70.0	65.5	59.1	60.2	71.8	II	14.8	X	2.5	6.6	X	2.5	33.8	Y	6.0	-	-	-	67.5	63.0	53.1	60.2	69.5
	6	70.5	65.6	60.5	60.4	72.3	I	16.8	Y	3.0	7.5	X	1.0	36.4	Y	4.0	-	-	-	67.5	64.6	56.5	60.4	70.0
	7	70.8	65.6	61.6	60.5	72.6	I	18.6	Y	3.0	8.3	X	1.0	38.8	Y	4.0	-	-	-	67.8	64.6	57.6	60.5	70.3
	8	70.9	65.7	62.6	60.6	72.8	I	20.5	Y	3.0	9.2	X	1.0	41.0	Y	4.0	-	-	-	67.9	64.7	58.6	60.6	70.4
	9	70.8	65.8	63.6	60.7	72.9	II	22.3	Y	5.0	10.0	X	2.5	43.2	Y	6.0	-	-	-	65.8	63.3	57.6	60.7	68.9
	10	70.8	65.8	64.6	60.7	73.0	I	24.1	Y	3.0	10.9	X	1.0	45.1	Z	6.0	-	-	-	67.8	64.8	58.6	60.7	70.4
	11	70.7	65.9	65.1	60.8	73.0	I	25.8	Y	3.0	11.7	X	1.0	47.0	Z	6.0	-	-	-	67.7	64.9	59.1	60.8	70.4
	12	70.7	65.8	65.3	60.8	73.0	I	27.5	Y	3.0	12.6	X	1.0	48.7	Z	6.0	-	-	-	67.7	64.8	59.3	60.8	70.4
	13	70.6	65.8	65.2	60.8	73.0	I	29.1	Y	3.0	13.4	X	1.0	50.3	Z	6.0	-	-	-	67.6	64.8	59.2	60.8	70.3
	14	70.5	65.8	65.3	60.9	72.9	I	30.6	Y	3.0	14.2	X	1.0	51.8	Z	6.0	-	-	-	67.5	64.8	59.3	60.9	70.3
	15	70.4	65.8	65.1	60.9	72.9	I	32.2	Y	3.0	15.1	Y	3.0	53.2	Z	6.0	-	-	-	67.4	62.8	59.1	60.9	69.8
	16	70.4	65.8	65.0	61.0	72.8	I	33.6	Y	3.0	15.9	Y	3.0	54.6	Z	6.0	-	-	-	67.4	62.8	59.0	61.0	69.8
	17	70.3	65.8	64.9	61.0	72.8	I	35.1	Y	3.0	16.7	Y	3.0	55.8	Z	6.0	-	-	-	67.3	62.8	58.9	61.0	69.7
	18	70.2	65.7	64.8	61.0	72.7	I	36.4	Y	3.0	17.5	Y	3.0	57.0	Z	6.0	-	-	-	67.2	62.7	58.8	61.0	69.6
	19	70.1	65.7	64.7	61.0	72.6	I	37.8	Y	3.0	18.3	Y	3.0	58.1	Z	6.0	-	-	-	67.1	62.7	58.7	61.0	69.5
	20	70.0	65.6	64.5	61.1	72.5	I	39.0	Y	3.0	19.1	Y	3.0	59.1	Z	6.0	-	-	-	67.0	62.6	58.5	61.1	69.5
	21	69.9	65.6	64.4	61.1	72.4	I	40.3	Y	3.0	19.9	Y	3.0	60.1	Z	6.0	-	-	-	66.9	62.6	58.4	61.1	69.4
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	69.7	65.6	64.1	61.0	72.3	I	43.3	Y	3.0	21.9	Y	3.0	62.4	Z	6.0	-	-	-	66.7	62.6	58.1	61.0	69.2
	24	69.6	65.5	63.9	61.0	72.2	I	44.4	Y	3.0	22.6	Y	3.0	63.2	Z	6.0	-	-	-	66.6	62.5	57.9	61.0	69.2
	25	69.6	65.5	63.8	61.1	72.1	I	45.5	Z	5.0	23.4	Y	3.0	64.0	Z	6.0	-	-	-	64.6	62.5	57.8	61.1	68.2
	26	69.5	65.5	63.7	61.0	72.0	I	46.5	Z	5.0	24.1	Y	3.0	64.7	Z	6.0	-	-	-	64.5	62.5	57.7	61.0	68.1
	27	69.4	65.5	63.6	61.1	72.0	I	47.4	Z	5.0	24.8	Y	3.0	65.4	Z	6.0	-	-	-	64.4	62.5	57.6	61.1	68.1
	28	69.3	65.5	63.5	61.1	71.9	I	48.4	Z	5.0	25.6	Y	3.0	66.0	Z	6.0	-	-	-	64.3	62.5	57.5	61.1	68.0
	29	69.2	65.5	63.4	61.1	71.9	I	49.3	Z	5.0	26.3	Y	3.0	66.6	Z	6.0	-	-	-	64.2	62.5	57.4	61.1	68.0
	30	69.1	65.4	63.3	61.1	71.8	I	50.2	Z	5.0	27.0	Y	3.0	67.2	Z	6.0	-	-	-	64.1	62.4	57.3	61.1	67.9
	31	69.1	65.4	63.2	61.1	71.7	I	51.0	Z	5.0	27.7	Y	3.0	67.8	Z	6.0	-	-	-	64.1	62.4	57.2	61.1	67.9
	32	69.0	65.3	63.1	61.0	71.7	I	51.8	Z	5.0	28.3	Y	3.0	68.3	Z	6.0	-	-	-	64.0	62.3	57.1	61.0	67.8
	33	68.9	65.3	63.0	61.0	71.6	I	52.6	Z	5.0	29.0	Y	3.0	68.8	Z	6.0	-	-	-	63.9	62.3	57.0	61.0	67.7
	34	68.8	65.2	62.9	61.0	71.5	I	53.4	Z	5.0	29.7	Y	3.0	69.3	Z	6.0	-	-	-	63.8	62.2	56.9	61.0	67.6
	35	68.7	65.2	62.8	61.0	71.5	I	54.1	Z	5.0	30.3	Y	3.0	69.8	Z	6.0	-	-	-	63.7	62.2	56.8	61.0	67.6
	36	68.7	65.1	62.7	61.0	71.4	I	54.8	Z	5.0	31.0	Y	3.0	70.2	Z	6.0	-	-	-	63.7	62.1	56.7	61.0	67.6
	37	68.6	65.1	62.6	61.0	71.3	I	55.5	Z	5.0	31.6	Y	3.0	70.7	Z	6.0	-	-	-	63.6	62.1	56.6	61.0	67.5
	38	68.5	65.1	62.5	61.0	71.3	I	56.1	Z	5.0	32.3	Y	3.0	71.1	Z	6.0	-	-	-	63.5	62.1	56.5	61.0	67.5
	39	68.4	65.0	62.4	61.0	71.2	I	56.8	Z	5.0	32.9	Y	3.0	71.5	Z	6.0	-	-	-	63.4	62.0	56.4	61.0	67.4
	40	68.3	65.0	62.3	61.1	71.1	I	57.4	Z	5.0	33.5	Y	3.0	71.8	Z	6.0	-	-	-	63.3	62.0	56.3	61.1	67.4
	41	68.3	64.9	62.2	61.1	71.1	I	58.0	Z	5.0	34.1	Y	3.0	72.2	Z	6.0	-	-	-	63.3	61.9	56.2	61.1	67.3
	42	68.2	64.9	62.1	61.1	71.0	I	58.6	Z	5.0	34.7	Y	3.0	72.6	Z	6.0	-	-	-	63.2	61.9	56.1	61.1	67.3
	43	68.1	64.9	62.0	61.1	71.0	I	59.1	Z	5.0	35.3	Y	3.0	72.9	Z	6.0	-	-	-	63.1	61.9	56.0	61.1	67.2
	44	68.0	64.8	62.0	61.2	70.9	I	59.7	Z	5.0	35.9	Y	3.0	73.2	Z	6.0	-	-	-	63.0	61.8	56.0	61.2	67.2
	45	68.0	64.8	61.9	61.2	70.9	I	60.2	Z	5.0	36.5	Y	3.0	73.5	Z	6.0	-	-	-	63.0	61.8	55.9	61.2	67.2

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R113b	4	69.5	65.6	57.3	60.1	71.5	II	13.7	X	2.5	5.9	X	2.5	31.7	Y	6.0	-	-	-	67.0	63.1	51.3	60.1	69.1
	5	70.6	65.7	60.4	60.3	72.4	I	15.8	Y	3.0	6.8	X	1.0	34.4	Y	4.0	-	-	-	67.6	64.7	56.4	60.3	70.1
	6	71.2	65.8	61.4	60.5	72.9	II	17.9	Y	5.0	7.6	X	2.5	37.0	Y	6.0	-	-	-	66.2	63.3	55.4	60.5	68.9
	7	71.4	65.9	62.3	60.6	73.1	II	19.9	Y	5.0	8.5	X	2.5	39.4	Y	6.0	-	-	-	66.4	63.4	56.3	60.6	69.1
	8	71.4	66.0	63.3	60.7	73.3	II	21.8	Y	5.0	9.4	X	2.5	41.7	Y	6.0	-	-	-	66.4	63.5	57.3	60.7	69.2
	9	71.3	66.0	64.1	60.8	73.3	II	23.7	Y	5.0	10.3	X	2.5	43.8	Y	6.0	-	-	-	66.3	63.5	58.1	60.8	69.2
	10	71.2	66.0	64.9	60.9	73.3	II	25.6	Y	5.0	11.1	X	2.5	45.8	Z	7.5	-	-	-	66.2	63.5	57.4	60.9	69.1
	11	71.2	66.1	65.3	60.9	73.4	II	27.4	Y	5.0	12.0	X	2.5	47.6	Z	7.5	-	-	-	66.2	63.6	57.8	60.9	69.2
	12	71.1	66.1	65.4	60.9	73.4	II	29.1	Y	5.0	12.9	X	2.5	49.3	Z	7.5	-	-	-	66.1	63.6	57.9	60.9	69.1
	13	71.0	66.1	65.4	60.9	73.3	II	30.8	Y	5.0	13.7	X	2.5	50.9	Z	7.5	-	-	-	66.0	63.6	57.9	60.9	69.1
	14	70.9	66.0	65.3	61.0	73.2	II	32.4	Y	5.0	14.6	X	2.5	52.4	Z	7.5	-	-	-	65.9	63.5	57.8	61.0	69.0
	15	70.8	66.0	65.2	61.0	73.2	I	34.0	Y	3.0	15.4	Y	3.0	53.8	Z	6.0	-	-	-	67.8	63.0	59.2	61.0	70.0
	16	70.8	66.0	65.1	61.0	73.1	I	35.5	Y	3.0	16.2	Y	3.0	55.2	Z	6.0	-	-	-	67.8	63.0	59.1	61.0	70.0
	17	70.7	66.0	65.0	61.0	73.0	I	37.0	Y	3.0	17.1	Y	3.0	56.4	Z	6.0	-	-	-	67.7	63.0	59.0	61.0	70.0
	18	70.6	65.9	64.8	61.0	72.9	I	38.4	Y	3.0	17.9	Y	3.0	57.6	Z	6.0	-	-	-	67.6	62.9	58.8	61.0	69.9
	19	70.5	65.9	64.7	61.1	72.9	I	39.7	Y	3.0	18.7	Y	3.0	58.6	Z	6.0	-	-	-	67.5	62.9	58.7	61.1	69.8
	20	70.4	65.9	64.5	61.1	72.8	I	41.0	Y	3.0	19.5	Y	3.0	59.7	Z	6.0	-	-	-	67.4	62.9	58.5	61.1	69.8
	21	70.3	65.8	64.4	61.1	72.7	I	42.3	Y	3.0	20.3	Y	3.0	60.6	Z	6.0	-	-	-	67.3	62.8	58.4	61.1	69.7
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	70.1	65.7	64.1	61.1	72.5	I	45.3	Z	5.0	22.3	Y	3.0	62.9	Z	6.0	-	-	-	65.1	62.7	58.1	61.1	68.5
	24	70.0	65.7	64.0	61.1	72.4	I	46.4	Z	5.0	23.1	Y	3.0	63.7	Z	6.0	-	-	-	65.0	62.7	58.0	61.1	68.4
	25	69.9	65.7	63.8	61.1	72.3	I	47.5	Z	5.0	23.9	Y	3.0	64.5	Z	6.0	-	-	-	64.9	62.7	57.8	61.1	68.4
	26	69.8	65.7	63.7	61.1	72.3	I	48.5	Z	5.0	24.6	Y	3.0	65.2	Z	6.0	-	-	-	64.8	62.7	57.7	61.1	68.3
	27	69.7	65.7	63.6	61.1	72.2	I	49.4	Z	5.0	25.3	Y	3.0	65.9	Z	6.0	-	-	-	64.7	62.7	57.6	61.1	68.2
	28	69.6	65.6	63.5	61.1	72.1	I	50.4	Z	5.0	26.1	Y	3.0	66.5	Z	6.0	-	-	-	64.6	62.6	57.5	61.1	68.2
	29	69.5	65.6	63.4	61.1	72.1	I	51.3	Z	5.0	26.8	Y	3.0	67.1	Z	6.0	-	-	-	64.5	62.6	57.4	61.1	68.1
	30	69.4	65.6	63.3	61.1	72.0	I	52.1	Z	5.0	27.5	Y	3.0	67.7	Z	6.0	-	-	-	64.4	62.6	57.3	61.1	68.1
	31	69.4	65.5	63.2	61.0	71.9	I	52.9	Z	5.0	28.2	Y	3.0	68.2	Z	6.0	-	-	-	64.4	62.5	57.2	61.0	68.0
	32	69.3	65.5	63.1	61.1	71.8	I	53.7	Z	5.0	28.9	Y	3.0	68.8	Z	6.0	-	-	-	64.3	62.5	57.1	61.1	68.0
	33	69.2	65.4	63.0	61.0	71.8	I	54.5	Z	5.0	29.6	Y	3.0	69.3	Z	6.0	-	-	-	64.2	62.4	57.0	61.0	67.9
	34	69.1	65.4	62.9	61.0	71.7	I	55.2	Z	5.0	30.3	Y	3.0	69.7	Z	6.0	-	-	-	64.1	62.4	56.9	61.0	67.8
	35	69.0	65.3	62.8	61.0	71.6	I	56.0	Z	5.0	30.9	Y	3.0	70.2	Z	6.0	-	-	-	64.0	62.3	56.8	61.0	67.7
	36	68.9	65.3	62.7	61.0	71.6	I	56.7	Z	5.0	31.6	Y	3.0	70.6	Z	6.0	-	-	-	63.9	62.3	56.7	61.0	67.7
	37	68.9	65.2	62.6	61.0	71.5	I	57.3	Z	5.0	32.2	Y	3.0	71.1	Z	6.0	-	-	-	63.9	62.2	56.6	61.0	67.7
	38	68.8	65.2	62.5	61.0	71.4	I	58.0	Z	5.0	32.9	Y	3.0	71.5	Z	6.0	-	-	-	63.8	62.2	56.5	61.0	67.6
	39	68.7	65.1	62.4	61.0	71.4	I	58.6	Z	5.0	33.5	Y	3.0	71.8	Z	6.0	-	-	-	63.7	62.1	56.4	61.0	67.5
	40	68.6	65.1	62.3	61.0	71.3	I	59.2	Z	5.0	34.1	Y	3.0	72.2	Z	6.0	-	-	-	63.6	62.1	56.3	61.0	67.5
	41	68.5	65.1	62.2	61.0	71.2	I	59.8	Z	5.0	34.7	Y	3.0	72.6	Z	6.0	-	-	-	63.5	62.1	56.2	61.0	67.4
	42	68.5	65.0	62.1	61.1	71.2	I	60.3	Z	5.0	35.3	Y	3.0	72.9	Z	6.0	-	-	-	63.5	62.0	56.1	61.1	67.4
	43	68.4	65.0	62.1	61.1	71.1	I	60.9	Z	5.0	35.9	Y	3.0	73.3	Z	6.0	-	-	-	63.4	62.0	56.1	61.1	67.4
	44	68.3	65.0	62.0	61.1	71.1	I	61.4	Z	5.0	36.5	Y	3.0	73.6	Z	6.0	-	-	-	63.3	62.0	56.0	61.1	67.3
	45	68.2	65.0	61.9	61.1	71.0	I	61.9	Z	5.0	37.1	Y	3.0	73.9	Z	6.0	-	-	-	63.2	62.0	55.9	61.1	67.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R113c	4	69.8	65.7	58.0	59.9	71.7	II	14.2	X	2.5	5.9	X	2.5	31.9	Y	6.0	-	-	-	67.3	63.2	52.0	59.9	69.3
	5	71.0	65.8	60.8	60.2	72.7	I	16.3	Y	3.0	6.8	X	1.0	34.6	Y	4.0	-	-	-	68.0	64.8	56.8	60.2	70.4
	6	71.6	65.9	61.7	60.4	73.2	II	18.5	Y	5.0	7.7	X	2.5	37.2	Y	6.0	-	-	-	66.6	63.4	55.7	60.4	69.2
	7	71.7	66.0	62.6	60.5	73.4	II	20.5	Y	5.0	8.6	X	2.5	39.6	Y	6.0	-	-	-	66.7	63.5	56.6	60.5	69.3
	8	71.7	66.1	63.6	60.6	73.5	II	22.5	Y	5.0	9.5	X	2.5	41.9	Y	6.0	-	-	-	66.7	63.6	57.6	60.6	69.4
	9	71.6	66.1	64.4	60.7	73.5	II	24.5	Y	5.0	10.4	X	2.5	44.0	Y	6.0	-	-	-	66.6	63.6	58.4	60.7	69.4
	10	71.5	66.2	65.1	60.8	73.6	II	26.4	Y	5.0	11.3	X	2.5	46.0	Z	7.5	-	-	-	66.5	63.7	57.6	60.8	69.3
	11	71.4	66.2	65.4	60.8	73.6	II	28.2	Y	5.0	12.1	X	2.5	47.8	Z	7.5	-	-	-	66.4	63.7	57.9	60.8	69.3
	12	71.3	66.2	65.4	60.8	73.5	II	30.0	Y	5.0	13.0	X	2.5	49.5	Z	7.5	-	-	-	66.3	63.7	57.9	60.8	69.3
	13	71.3	66.2	65.5	60.8	73.5	II	31.7	Y	5.0	13.9	X	2.5	51.1	Z	7.5	-	-	-	66.3	63.7	58.0	60.8	69.3
	14	71.2	66.1	65.4	60.9	73.4	II	33.3	Y	5.0	14.7	X	2.5	52.6	Z	7.5	-	-	-	66.2	63.6	57.9	60.9	69.2
	15	71.1	66.1	65.2	60.9	73.3	I	34.9	Y	3.0	15.6	Y	3.0	54.1	Z	6.0	-	-	-	68.1	63.1	59.2	60.9	70.2
	16	71.0	66.1	65.1	60.9	73.2	I	36.4	Y	3.0	16.4	Y	3.0	55.4	Z	6.0	-	-	-	68.0	63.1	59.1	60.9	70.2
	17	70.9	66.1	65.0	61.0	73.2	I	37.9	Y	3.0	17.2	Y	3.0	56.6	Z	6.0	-	-	-	67.9	63.1	59.0	61.0	70.1
	18	70.8	66.0	64.8	60.9	73.1	I	39.3	Y	3.0	18.1	Y	3.0	57.8	Z	6.0	-	-	-	67.8	63.0	58.8	60.9	70.0
	19	70.7	66.0	64.7	61.0	73.0	I	40.7	Y	3.0	18.9	Y	3.0	58.8	Z	6.0	-	-	-	67.7	63.0	58.7	61.0	69.9
	20	70.6	65.9	64.6	61.0	72.9	I	42.0	Y	3.0	19.7	Y	3.0	59.9	Z	6.0	-	-	-	67.6	62.9	58.6	61.0	69.9
	21	70.5	65.9	64.4	61.0	72.8	I	43.2	Y	3.0	20.5	Y	3.0	60.8	Z	6.0	-	-	-	67.5	62.9	58.4	61.0	69.8
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	70.3	65.8	64.1	61.0	72.6	I	46.3	Z	5.0	22.5	Y	3.0	63.1	Z	6.0	-	-	-	65.3	62.8	58.1	61.0	68.6
	24	70.2	65.8	64.0	61.0	72.6	I	47.4	Z	5.0	23.3	Y	3.0	63.9	Z	6.0	-	-	-	65.2	62.8	58.0	61.0	68.5
	25	70.1	65.8	63.8	61.0	72.5	I	48.4	Z	5.0	24.1	Y	3.0	64.6	Z	6.0	-	-	-	65.1	62.8	57.8	61.0	68.5
	26	70.0	65.8	63.7	60.9	72.4	I	49.4	Z	5.0	24.8	Y	3.0	65.4	Z	6.0	-	-	-	65.0	62.8	57.7	60.9	68.4
	27	69.9	65.7	63.6	60.9	72.3	I	50.4	Z	5.0	25.6	Y	3.0	66.0	Z	6.0	-	-	-	64.9	62.7	57.6	60.9	68.3
	28	69.8	65.7	63.5	60.9	72.2	I	51.3	Z	5.0	26.3	Y	3.0	66.7	Z	6.0	-	-	-	64.8	62.7	57.5	60.9	68.2
	29	69.7	65.7	63.4	60.9	72.2	I	52.2	Z	5.0	27.0	Y	3.0	67.3	Z	6.0	-	-	-	64.7	62.7	57.4	60.9	68.2
	30	69.6	65.6	63.3	60.9	72.1	I	53.0	Z	5.0	27.8	Y	3.0	67.8	Z	6.0	-	-	-	64.6	62.6	57.3	60.9	68.1
	31	69.5	65.6	63.2	60.9	72.0	I	53.9	Z	5.0	28.5	Y	3.0	68.4	Z	6.0	-	-	-	64.5	62.6	57.2	60.9	68.1
	32	69.5	65.5	63.1	60.9	72.0	I	54.7	Z	5.0	29.2	Y	3.0	68.9	Z	6.0	-	-	-	64.5	62.5	57.1	60.9	68.0
	33	69.4	65.5	63.0	60.9	71.9	I	55.4	Z	5.0	29.8	Y	3.0	69.4	Z	6.0	-	-	-	64.4	62.5	57.0	60.9	68.0
	34	69.3	65.4	62.9	60.9	71.8	I	56.1	Z	5.0	30.5	Y	3.0	69.9	Z	6.0	-	-	-	64.3	62.4	56.9	60.9	67.9
	35	69.2	65.4	62.8	60.9	71.7	I	56.9	Z	5.0	31.2	Y	3.0	70.3	Z	6.0	-	-	-	64.2	62.4	56.8	60.9	67.8
	36	69.1	65.3	62.7	60.9	71.7	I	57.5	Z	5.0	31.9	Y	3.0	70.8	Z	6.0	-	-	-	64.1	62.3	56.7	60.9	67.8
	37	69.1	65.3	62.6	60.9	71.6	I	58.2	Z	5.0	32.5	Y	3.0	71.2	Z	6.0	-	-	-	64.1	62.3	56.6	60.9	67.7
	38	69.0	65.3	62.5	60.9	71.5	I	58.8	Z	5.0	33.1	Y	3.0	71.6	Z	6.0	-	-	-	64.0	62.3	56.5	60.9	67.7
	39	68.9	65.2	62.4	60.9	71.4	I	59.4	Z	5.0	33.8	Y	3.0	72.0	Z	6.0	-	-	-	63.9	62.2	56.4	60.9	67.6
	40	68.8	65.2	62.3	60.9	71.4	I	60.0	Z	5.0	34.4	Y	3.0	72.3	Z	6.0	-	-	-	63.8	62.2	56.3	60.9	67.6
	41	68.7	65.1	62.2	60.9	71.3	I	60.6	Z	5.0	35.0	Y	3.0	72.7	Z	6.0	-	-	-	63.7	62.1	56.2	60.9	67.5
	42	68.7	65.1	62.1	60.9	71.3	I	61.1	Z	5.0	35.6	Y	3.0	73.0	Z	6.0	-	-	-	63.7	62.1	56.1	60.9	67.5
	43	68.6	65.0	62.1	60.9	71.2	I	61.7	Z	5.0	36.2	Y	3.0	73.4	Z	6.0	-	-	-	63.6	62.0	56.1	60.9	67.4
	44	68.5	65.0	62.0	61.0	71.1	I	62.2	Z	5.0	36.8	Y	3.0	73.7	Z	6.0	-	-	-	63.5	62.0	56.0	61.0	67.4
	45	68.4	65.0	61.9	61.0	71.1	I	62.7	Z	5.0	37.4	Y	3.0	74.0	Z	6.0	-	-	-	63.4	62.0	55.9	61.0	67.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4								
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R114a	4	70.1	65.8	58.8	60.0	72.0	II	14.8	X	2.5	6.0	X	2.5	32.2	Y	6.0	-	-	-	67.6	63.3	52.8	60.0	69.6
	5	71.6	66.0	61.6	60.3	73.2	II	17.0	Y	5.0	6.9	X	2.5	35.0	Y	6.0	-	-	-	66.6	63.5	55.6	60.3	69.2
	6	72.0	66.1	62.2	60.4	73.6	II	19.2	Y	5.0	7.8	X	2.5	37.6	Y	6.0	-	-	-	67.0	63.6	56.2	60.4	69.5
	7	72.1	66.2	63.0	60.6	73.7	II	21.3	Y	5.0	8.7	X	2.5	40.0	Y	6.0	-	-	-	67.1	63.7	57.0	60.6	69.6
	8	72.0	66.2	63.7	60.7	73.7	II	23.4	Y	5.0	9.6	X	2.5	42.3	Y	6.0	-	-	-	67.0	63.7	57.7	60.7	69.6
	9	71.9	66.3	64.6	60.8	73.8	II	25.4	Y	5.0	10.5	X	2.5	44.4	Y	6.0	-	-	-	66.9	63.8	58.6	60.8	69.6
	10	71.8	66.3	65.3	60.8	73.8	II	27.3	Y	5.0	11.4	X	2.5	46.3	Z	7.5	-	-	-	66.8	63.8	57.8	60.8	69.5
	11	71.7	66.3	65.4	60.8	73.8	II	29.2	Y	5.0	12.3	X	2.5	48.2	Z	7.5	-	-	-	66.7	63.8	57.9	60.8	69.5
	12	71.6	66.3	65.5	60.9	73.7	II	31.0	Y	5.0	13.2	X	2.5	49.9	Z	7.5	-	-	-	66.6	63.8	58.0	60.9	69.5
	13	71.6	66.3	65.5	60.9	73.7	II	32.8	Y	5.0	14.0	X	2.5	51.5	Z	7.5	-	-	-	66.6	63.8	58.0	60.9	69.5
	14	71.5	66.3	65.4	60.9	73.6	II	34.4	Y	5.0	14.9	X	2.5	53.0	Z	7.5	-	-	-	66.5	63.8	57.9	60.9	69.4
	15	71.4	66.2	65.3	60.9	73.5	II	36.0	Y	5.0	15.8	Y	5.0	54.4	Z	7.5	-	-	-	66.4	61.2	57.8	60.9	68.8
	16	71.3	66.2	65.1	61.0	73.4	II	37.6	Y	5.0	16.6	Y	5.0	55.7	Z	7.5	-	-	-	66.3	61.2	57.6	61.0	68.7
	17	71.2	66.2	65.1	61.0	73.4	II	39.1	Y	5.0	17.4	Y	5.0	56.9	Z	7.5	-	-	-	66.2	61.2	57.6	61.0	68.6
	18	71.1	66.1	64.9	61.0	73.3	I	40.5	Y	3.0	18.3	Y	3.0	58.1	Z	6.0	-	-	-	68.1	63.1	58.9	61.0	70.2
	19	71.0	66.1	64.8	61.0	73.2	I	41.9	Y	3.0	19.1	Y	3.0	59.2	Z	6.0	-	-	-	68.0	63.1	58.8	61.0	70.2
	20	70.9	66.1	64.7	61.0	73.1	I	43.2	Y	3.0	19.9	Y	3.0	60.2	Z	6.0	-	-	-	67.9	63.1	58.7	61.0	70.1
	21	70.8	66.0	64.5	61.0	73.0	I	44.4	Y	3.0	20.7	Y	3.0	61.1	Z	6.0	-	-	-	67.8	63.0	58.5	61.0	70.0
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	70.5	65.9	64.2	61.0	72.8	I	47.5	Z	5.0	22.8	Y	3.0	63.4	Z	6.0	-	-	-	65.5	62.9	58.2	61.0	68.7
	24	70.4	65.9	64.1	61.0	72.7	I	48.6	Z	5.0	23.6	Y	3.0	64.2	Z	6.0	-	-	-	65.4	62.9	58.1	61.0	68.6
	25	70.3	65.9	63.9	61.0	72.6	I	49.6	Z	5.0	24.4	Y	3.0	64.9	Z	6.0	-	-	-	65.3	62.9	57.9	61.0	68.6
	26	70.2	65.8	63.8	61.0	72.6	I	50.6	Z	5.0	25.1	Y	3.0	65.6	Z	6.0	-	-	-	65.2	62.8	57.8	61.0	68.5
	27	70.1	65.8	63.7	61.0	72.5	I	51.6	Z	5.0	25.9	Y	3.0	66.3	Z	6.0	-	-	-	65.1	62.8	57.7	61.0	68.4
	28	70.1	65.8	63.6	61.0	72.4	I	52.5	Z	5.0	26.6	Y	3.0	66.9	Z	6.0	-	-	-	65.1	62.8	57.6	61.0	68.4
	29	70.0	65.7	63.5	60.9	72.3	I	53.4	Z	5.0	27.3	Y	3.0	67.5	Z	6.0	-	-	-	65.0	62.7	57.5	60.9	68.3
	30	69.9	65.7	63.4	60.9	72.2	I	54.2	Z	5.0	28.1	Y	3.0	68.1	Z	6.0	-	-	-	64.9	62.7	57.4	60.9	68.3
	31	69.8	65.6	63.3	60.9	72.2	I	55.0	Z	5.0	28.8	Y	3.0	68.6	Z	6.0	-	-	-	64.8	62.6	57.3	60.9	68.2
	32	69.7	65.6	63.2	60.9	72.1	I	55.8	Z	5.0	29.5	Y	3.0	69.1	Z	6.0	-	-	-	64.7	62.6	57.2	60.9	68.1
	33	69.6	65.5	63.1	60.9	72.0	I	56.5	Z	5.0	30.2	Y	3.0	69.6	Z	6.0	-	-	-	64.6	62.5	57.1	60.9	68.1
	34	69.5	65.5	63.0	60.9	72.0	I	57.3	Z	5.0	30.9	Y	3.0	70.1	Z	6.0	-	-	-	64.5	62.5	57.0	60.9	68.0
	35	69.4	65.4	62.9	60.9	71.9	I	58.0	Z	5.0	31.5	Y	3.0	70.6	Z	6.0	-	-	-	64.4	62.4	56.9	60.9	67.9
	36	69.3	65.4	62.8	60.9	71.8	I	58.6	Z	5.0	32.2	Y	3.0	71.0	Z	6.0	-	-	-	64.3	62.4	56.8	60.9	67.9
	37	69.2	65.3	62.7	60.9	71.7	I	59.3	Z	5.0	32.9	Y	3.0	71.4	Z	6.0	-	-	-	64.2	62.3	56.7	60.9	67.8
	38	69.2	65.3	62.6	60.9	71.7	I	59.9	Z	5.0	33.5	Y	3.0	71.8	Z	6.0	-	-	-	64.2	62.3	56.6	60.9	67.8
	39	69.1	65.2	62.5	60.9	71.6	I	60.5	Z	5.0	34.1	Y	3.0	72.2	Z	6.0	-	-	-	64.1	62.2	56.5	60.9	67.7
	40	69.0	65.2	62.4	60.9	71.5	I	61.1	Z	5.0	34.8	Y	3.0	72.6	Z	6.0	-	-	-	64.0	62.2	56.4	60.9	67.7
	41	68.9	65.1	62.3	60.9	71.5	I	61.6	Z	5.0	35.4	Y	3.0	72.9	Z	6.0	-	-	-	63.9	62.1	56.3	60.9	67.6
	42	68.8	65.1	62.2	60.9	71.4	I	62.2	Z	5.0	36.0	Y	3.0	73.2	Z	6.0	-	-	-	63.8	62.1	56.2	60.9	67.5
	43	68.8	65.1	62.2	60.9	71.4	I	62.7	Z	5.0	36.6	Y	3.0	73.6	Z	6.0	-	-	-	63.8	62.1	56.2	60.9	67.5
	44	68.7	65.1	62.1	60.9	71.3	I	63.2	Z	5.0	37.2	Y	3.0	73.9	Z	6.0	-	-	-	63.7	62.1	56.1	60.9	67.5
	45	68.6	65.1	62.0	60.9	71.2	I	63.7	Z	5.0	37.7	Y	3.0	74.2	Z	6.0	-	-	-	63.6	62.1	56.0	60.9	67.4

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R114b	4	70.5	65.9	59.5	60.1	72.3	II	15.3	Y	5.0	6.1	X	2.5	32.5	Y	6.0	-	-	-	65.5	63.4	53.5	60.1	68.4
	5	72.1	66.1	61.9	60.3	73.6	II	17.6	Y	5.0	7.0	X	2.5	35.2	Y	6.0	-	-	-	67.1	63.6	55.9	60.3	69.5
	6	72.4	66.2	62.5	60.5	73.9	II	19.8	Y	5.0	7.9	X	2.5	37.8	Y	6.0	-	-	-	67.4	63.7	56.5	60.5	69.7
	7	72.3	66.3	63.2	60.6	73.9	II	22.0	Y	5.0	8.8	X	2.5	40.3	Y	6.0	-	-	-	67.3	63.8	57.2	60.6	69.8
	8	72.3	66.3	64.0	60.7	74.0	II	24.1	Y	5.0	9.7	X	2.5	42.5	Y	6.0	-	-	-	67.3	63.8	58.0	60.7	69.8
	9	72.2	66.4	64.9	60.8	74.0	II	26.2	Y	5.0	10.6	X	2.5	44.7	Y	6.0	-	-	-	67.2	63.9	58.9	60.8	69.9
	10	72.1	66.4	65.3	60.9	74.0	II	28.2	Y	5.0	11.5	X	2.5	46.6	Z	7.5	-	-	-	67.1	63.9	57.8	60.9	69.7
	11	72.0	66.4	65.5	60.9	74.0	II	30.1	Y	5.0	12.4	X	2.5	48.5	Z	7.5	-	-	-	67.0	63.9	58.0	60.9	69.7
	12	71.9	66.4	65.6	60.9	73.9	II	31.9	Y	5.0	13.3	X	2.5	50.2	Z	7.5	-	-	-	66.9	63.9	58.1	60.9	69.7
	13	71.8	66.4	65.5	60.9	73.8	II	33.7	Y	5.0	14.2	X	2.5	51.8	Z	7.5	-	-	-	66.8	63.9	58.0	60.9	69.6
	14	71.7	66.4	65.4	60.9	73.8	II	35.4	Y	5.0	15.0	Y	5.0	53.3	Z	7.5	-	-	-	66.7	61.4	57.9	60.9	69.0
	15	71.6	66.3	65.3	61.0	73.7	II	37.0	Y	5.0	15.9	Y	5.0	54.7	Z	7.5	-	-	-	66.6	61.3	57.8	61.0	68.9
	16	71.5	66.3	65.1	61.0	73.6	II	38.6	Y	5.0	16.8	Y	5.0	56.0	Z	7.5	-	-	-	66.5	61.3	57.6	61.0	68.8
	17	71.4	66.3	65.0	61.0	73.5	II	40.1	Y	5.0	17.6	Y	5.0	57.2	Z	7.5	-	-	-	66.4	61.3	57.5	61.0	68.8
	18	71.3	66.2	64.9	61.0	73.4	I	41.5	Y	3.0	18.5	Y	3.0	58.3	Z	6.0	-	-	-	68.3	63.2	58.9	61.0	70.4
	19	71.2	66.2	64.7	61.0	73.4	I	42.9	Y	3.0	19.3	Y	3.0	59.4	Z	6.0	-	-	-	68.2	63.2	58.7	61.0	70.3
	20	71.1	66.1	64.6	61.0	73.3	I	44.2	Y	3.0	20.1	Y	3.0	60.4	Z	6.0	-	-	-	68.1	63.1	58.6	61.0	70.2
	21	71.0	66.1	64.5	61.1	73.2	I	45.5	Z	5.0	20.9	Y	3.0	61.4	Z	6.0	-	-	-	66.0	63.1	58.5	61.1	69.0
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	70.7	66.0	64.1	61.0	72.9	I	48.5	Z	5.0	23.0	Y	3.0	63.6	Z	6.0	-	-	-	65.7	63.0	58.1	61.0	68.8
	24	70.6	66.0	64.0	61.0	72.9	I	49.6	Z	5.0	23.8	Y	3.0	64.4	Z	6.0	-	-	-	65.6	63.0	58.0	61.0	68.8
	25	70.5	65.9	63.9	61.0	72.8	I	50.6	Z	5.0	24.6	Y	3.0	65.1	Z	6.0	-	-	-	65.5	62.9	57.9	61.0	68.7
	26	70.4	65.9	63.8	61.0	72.7	I	51.6	Z	5.0	25.4	Y	3.0	65.8	Z	6.0	-	-	-	65.4	62.9	57.8	61.0	68.6
	27	70.3	65.9	63.6	61.0	72.6	I	52.5	Z	5.0	26.1	Y	3.0	66.5	Z	6.0	-	-	-	65.3	62.9	57.6	61.0	68.6
	28	70.2	65.8	63.5	61.0	72.5	I	53.5	Z	5.0	26.9	Y	3.0	67.1	Z	6.0	-	-	-	65.2	62.8	57.5	61.0	68.5
	29	70.1	65.8	63.4	60.9	72.4	I	54.3	Z	5.0	27.6	Y	3.0	67.7	Z	6.0	-	-	-	65.1	62.8	57.4	60.9	68.4
	30	70.0	65.7	63.3	60.9	72.4	I	55.2	Z	5.0	28.3	Y	3.0	68.3	Z	6.0	-	-	-	65.0	62.7	57.3	60.9	68.3
	31	70.0	65.6	63.2	60.9	72.3	I	56.0	Z	5.0	29.0	Y	3.0	68.8	Z	6.0	-	-	-	65.0	62.6	57.2	60.9	68.3
	32	69.9	65.6	63.1	60.9	72.2	I	56.7	Z	5.0	29.7	Y	3.0	69.3	Z	6.0	-	-	-	64.9	62.6	57.1	60.9	68.2
	33	69.8	65.5	63.0	60.9	72.1	I	57.5	Z	5.0	30.4	Y	3.0	69.8	Z	6.0	-	-	-	64.8	62.5	57.0	60.9	68.1
	34	69.7	65.5	62.9	60.9	72.0	I	58.2	Z	5.0	31.1	Y	3.0	70.3	Z	6.0	-	-	-	64.7	62.5	56.9	60.9	68.1
	35	69.6	65.4	62.8	60.9	72.0	I	58.9	Z	5.0	31.8	Y	3.0	70.7	Z	6.0	-	-	-	64.6	62.4	56.8	60.9	68.0
	36	69.5	65.4	62.7	60.9	71.9	I	59.5	Z	5.0	32.5	Y	3.0	71.2	Z	6.0	-	-	-	64.5	62.4	56.7	60.9	68.0
	37	69.4	65.3	62.6	60.9	71.8	I	60.1	Z	5.0	33.1	Y	3.0	71.6	Z	6.0	-	-	-	64.4	62.3	56.6	60.9	67.9
	38	69.4	65.3	62.5	60.9	71.8	I	60.8	Z	5.0	33.8	Y	3.0	72.0	Z	6.0	-	-	-	64.4	62.3	56.5	60.9	67.9
	39	69.3	65.3	62.4	60.9	71.7	I	61.3	Z	5.0	34.4	Y	3.0	72.4	Z	6.0	-	-	-	64.3	62.3	56.4	60.9	67.8
	40	69.2	65.2	62.3	60.9	71.6	I	61.9	Z	5.0	35.0	Y	3.0	72.7	Z	6.0	-	-	-	64.2	62.2	56.3	60.9	67.7
	41	69.1	65.2	62.2	60.9	71.6	I	62.5	Z	5.0	35.7	Y	3.0	73.1	Z	6.0	-	-	-	64.1	62.2	56.2	60.9	67.7
	42	69.0	65.1	62.2	60.9	71.5	I	63.0	Z	5.0	36.3	Y	3.0	73.4	Z	6.0	-	-	-	64.0	62.1	56.2	60.9	67.6
	43	69.0	65.1	62.1	60.9	71.5	I	63.5	Z	5.0	36.9	Y	3.0	73.7	Z	6.0	-	-	-	64.0	62.1	56.1	60.9	67.6
	44	68.9	65.1	62.0	60.9	71.4	I	64.0	Z	5.0	37.5	Y	3.0	74.0	Z	6.0	-	-	-	63.9	62.1	56.0	60.9	67.6
	45	68.8	65.1	61.9	60.9	71.3	I	64.4	Z	5.0	38.0	Y	3.0	74.3	Z	6.0	-	-	-	63.8	62.1	55.9	60.9	67.5

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4								
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R115b	4	72.5	66.1	61.5	60.2	73.9	IV	16.6	Y	8.0	6.2	X	5.5	33.0	Y	9.0	-	-	-	64.5	60.6	52.5	60.2	67.2
	5	73.4	66.3	63.0	60.4	74.7	IV	19.1	Y	8.0	7.2	X	5.5	35.8	Y	9.0	-	-	-	65.4	60.8	54.0	60.4	67.8
	6	73.4	66.4	63.4	60.6	74.7	IV	21.5	Y	8.0	8.1	X	5.5	38.4	Y	9.0	-	-	-	65.4	60.9	54.4	60.6	67.9
	7	73.3	66.5	63.9	60.8	74.7	IV	23.8	Y	8.0	9.0	X	5.5	40.9	Y	9.0	-	-	-	65.3	61.0	54.9	60.8	67.9
	8	73.2	66.5	64.6	60.8	74.7	IV	26.0	Y	8.0	10.0	X	5.5	43.2	Y	9.0	-	-	-	65.2	61.0	55.6	60.8	67.9
	9	73.1	66.6	65.4	60.9	74.7	IV	28.2	Y	8.0	10.9	X	5.5	45.3	Z	10.0	-	-	-	65.1	61.1	55.4	60.9	67.9
	10	73.0	66.6	65.6	61.0	74.7	IV	30.3	Y	8.0	11.8	X	5.5	47.2	Z	10.0	-	-	-	65.0	61.1	55.6	61.0	67.8
	11	72.9	66.6	65.7	61.0	74.6	IV	32.2	Y	8.0	12.7	X	5.5	49.1	Z	10.0	-	-	-	64.9	61.1	55.7	61.0	67.8
	12	72.8	66.6	65.7	61.0	74.5	IV	34.2	Y	8.0	13.6	X	5.5	50.8	Z	10.0	-	-	-	64.8	61.1	55.7	61.0	67.7
	13	72.7	66.6	65.6	61.1	74.5	IV	36.0	Y	8.0	14.5	X	5.5	52.4	Z	10.0	-	-	-	64.7	61.1	55.6	61.1	67.7
	14	72.6	66.5	65.5	61.1	74.4	II	37.7	Y	5.0	15.4	Y	5.0	53.9	Z	7.5	-	-	-	67.6	61.5	58.0	61.1	69.6
	15	72.4	66.5	65.4	61.1	74.3	II	39.4	Y	5.0	16.3	Y	5.0	55.2	Z	7.5	-	-	-	67.4	61.5	57.9	61.1	69.5
	16	72.3	66.5	65.3	61.1	74.2	II	41.0	Y	5.0	17.2	Y	5.0	56.5	Z	7.5	-	-	-	67.3	61.5	57.8	61.1	69.4
	17	72.2	66.5	65.1	61.1	74.1	II	42.5	Y	5.0	18.0	Y	5.0	57.7	Z	7.5	-	-	-	67.2	61.5	57.6	61.1	69.3
	18	72.1	66.4	65.0	61.1	74.0	II	43.9	Y	5.0	18.9	Y	5.0	58.9	Z	7.5	-	-	-	67.1	61.4	57.5	61.1	69.2
	19	72.0	66.4	64.8	61.1	73.9	I	45.3	Z	5.0	19.7	Y	3.0	60.0	Z	6.0	-	-	-	67.0	63.4	58.8	61.1	69.7
	20	71.9	66.3	64.7	61.1	73.8	I	46.6	Z	5.0	20.6	Y	3.0	61.0	Z	6.0	-	-	-	66.9	63.3	58.7	61.1	69.6
	21	71.8	66.3	64.6	61.1	73.7	I	47.9	Z	5.0	21.4	Y	3.0	61.9	Z	6.0	-	-	-	66.8	63.3	58.6	61.1	69.5
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	71.5	66.1	64.2	61.1	73.5	I	50.9	Z	5.0	23.5	Y	3.0	64.1	Z	6.0	-	-	-	66.5	63.1	58.2	61.1	69.3
	24	71.4	66.1	64.1	61.1	73.4	I	52.0	Z	5.0	24.3	Y	3.0	64.9	Z	6.0	-	-	-	66.4	63.1	58.1	61.1	69.2
	25	71.2	66.0	64.0	61.0	73.2	I	53.0	Z	5.0	25.1	Y	3.0	65.6	Z	6.0	-	-	-	66.2	63.0	58.0	61.0	69.1
	26	71.1	66.0	63.9	61.0	73.2	I	54.0	Z	5.0	25.9	Y	3.0	66.3	Z	6.0	-	-	-	66.1	63.0	57.9	61.0	69.0
	27	71.0	65.9	63.7	61.0	73.1	I	54.9	Z	5.0	26.7	Y	3.0	66.9	Z	6.0	-	-	-	66.0	62.9	57.7	61.0	68.9
	28	70.9	65.9	63.6	61.0	73.0	I	55.8	Z	5.0	27.4	Y	3.0	67.6	Z	6.0	-	-	-	65.9	62.9	57.6	61.0	68.9
	29	70.9	65.8	63.5	61.0	72.9	I	56.6	Z	5.0	28.2	Y	3.0	68.1	Z	6.0	-	-	-	65.9	62.8	57.5	61.0	68.8
	30	70.8	65.8	63.4	61.0	72.8	I	57.4	Z	5.0	28.9	Y	3.0	68.7	Z	6.0	-	-	-	65.8	62.8	57.4	61.0	68.8
	31	70.7	65.7	63.3	61.0	72.7	I	58.2	Z	5.0	29.6	Y	3.0	69.2	Z	6.0	-	-	-	65.7	62.7	57.3	61.0	68.7
	32	70.6	65.7	63.2	61.0	72.7	I	58.9	Z	5.0	30.4	Y	3.0	69.7	Z	6.0	-	-	-	65.6	62.7	57.2	61.0	68.6
	33	70.5	65.6	63.1	60.9	72.6	I	59.6	Z	5.0	31.1	Y	3.0	70.2	Z	6.0	-	-	-	65.5	62.6	57.1	60.9	68.5
	34	70.4	65.6	63.0	60.9	72.5	I	60.3	Z	5.0	31.8	Y	3.0	70.7	Z	6.0	-	-	-	65.4	62.6	57.0	60.9	68.5
	35	70.3	65.5	62.9	60.9	72.4	I	61.0	Z	5.0	32.4	Y	3.0	71.1	Z	6.0	-	-	-	65.3	62.5	56.9	60.9	68.4
	36	70.2	65.5	62.8	60.9	72.3	I	61.6	Z	5.0	33.1	Y	3.0	71.5	Z	6.0	-	-	-	65.2	62.5	56.8	60.9	68.3
	37	70.1	65.4	62.7	60.9	72.2	I	62.2	Z	5.0	33.8	Y	3.0	71.9	Z	6.0	-	-	-	65.1	62.4	56.7	60.9	68.2
	38	70.0	65.4	62.6	60.9	72.2	I	62.8	Z	5.0	34.4	Y	3.0	72.3	Z	6.0	-	-	-	65.0	62.4	56.6	60.9	68.2
	39	70.0	65.3	62.5	60.9	72.1	I	63.4	Z	5.0	35.1	Y	3.0	72.7	Z	6.0	-	-	-	65.0	62.3	56.5	60.9	68.2
	40	69.9	65.3	62.4	60.9	72.0	I	63.9	Z	5.0	35.7	Y	3.0	73.1	Z	6.0	-	-	-	64.9	62.3	56.4	60.9	68.1
	41	69.8	65.2	62.3	60.9	72.0	I	64.4	Z	5.0	36.3	Y	3.0	73.4	Z	6.0	-	-	-	64.8	62.2	56.3	60.9	68.0
	42	69.7	65.2	62.3	60.9	71.9	I	64.9	Z	5.0	36.9	Y	3.0	73.7	Z	6.0	-	-	-	64.7	62.2	56.3	60.9	68.0
	43	69.6	65.2	62.2	60.9	71.9	I	65.4	Z	5.0	37.6	Y	3.0	74.1	Z	6.0	-	-	-	64.6	62.2	56.2	60.9	67.9
	44	69.5	65.3	62.1	60.9	71.8	I	65.9	Z	5.0	38.1	Y	3.0	74.4	Z	6.0	-	-	-	64.5	62.3	56.1	60.9	67.9
	45	69.5	65.3	62.0	60.9	71.8	I	66.3	Z	5.0	38.7	Y	3.0	74.7	Z	6.0	-	-	-	64.5	62.3	56.0	60.9	67.9

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R115c	4	74.4	66.3	62.5	60.2	75.4	IV	17.2	Y	8.0	6.3	X	5.5	33.3	Y	9.0	-	-	-	66.4	60.8	53.5	60.2	68.3
	5	74.7	66.4	63.5	60.5	75.7	IV	19.8	Y	8.0	7.2	X	5.5	36.1	Y	9.0	-	-	-	66.7	60.9	54.5	60.5	68.6
	6	74.6	66.5	63.7	60.6	75.6	IV	22.2	Y	8.0	8.2	X	5.5	38.7	Y	9.0	-	-	-	66.6	61.0	54.7	60.6	68.6
	7	74.5	66.6	64.3	60.8	75.6	IV	24.6	Y	8.0	9.1	X	5.5	41.2	Y	9.0	-	-	-	66.5	61.1	55.3	60.8	68.6
	8	74.4	66.6	64.9	60.8	75.6	IV	26.9	Y	8.0	10.1	X	5.5	43.4	Y	9.0	-	-	-	66.4	61.1	55.9	60.8	68.6
	9	74.3	66.7	65.5	60.9	75.6	IV	29.1	Y	8.0	11.0	X	5.5	45.6	Z	10.0	-	-	-	66.3	61.2	55.5	60.9	68.6
	10	74.2	66.7	65.7	61.0	75.5	IV	31.3	Y	8.0	11.9	X	5.5	47.5	Z	10.0	-	-	-	66.2	61.2	55.7	61.0	68.5
	11	74.0	66.7	65.8	61.0	75.5	IV	33.3	Y	8.0	12.9	X	5.5	49.4	Z	10.0	-	-	-	66.0	61.2	55.8	61.0	68.4
	12	73.9	66.7	65.7	61.0	75.4	IV	35.2	Y	8.0	13.8	X	5.5	51.1	Z	10.0	-	-	-	65.9	61.2	55.7	61.0	68.4
	13	73.8	66.7	65.7	61.1	75.3	IV	37.1	Y	8.0	14.7	X	5.5	52.7	Z	10.0	-	-	-	65.8	61.2	55.7	61.1	68.3
	14	73.7	66.7	65.5	61.1	75.2	II	38.8	Y	5.0	15.6	Y	5.0	54.1	Z	7.5	-	-	-	68.7	61.7	58.0	61.1	70.3
	15	73.6	66.6	65.4	61.1	75.1	II	40.5	Y	5.0	16.5	Y	5.0	55.5	Z	7.5	-	-	-	68.6	61.6	57.9	61.1	70.3
	16	73.5	66.6	65.2	61.1	75.0	II	42.1	Y	5.0	17.3	Y	5.0	56.8	Z	7.5	-	-	-	68.5	61.6	57.7	61.1	70.2
	17	73.3	66.5	65.1	61.1	74.9	II	43.6	Y	5.0	18.2	Y	5.0	58.0	Z	7.5	-	-	-	68.3	61.5	57.6	61.1	70.0
	18	73.2	66.5	64.9	61.1	74.8	II	45.1	Z	6.5	19.1	Y	5.0	59.1	Z	7.5	-	-	-	66.7	61.5	57.4	61.1	69.0
	19	73.1	66.5	64.8	61.1	74.7	I	46.5	Z	5.0	19.9	Y	3.0	60.2	Z	6.0	-	-	-	68.1	63.5	58.8	61.1	70.3
	20	73.0	66.4	64.7	61.1	74.6	I	47.8	Z	5.0	20.8	Y	3.0	61.2	Z	6.0	-	-	-	68.0	63.4	58.7	61.1	70.2
	21	72.9	66.4	64.6	61.1	74.4	I	49.0	Z	5.0	21.6	Y	3.0	62.1	Z	6.0	-	-	-	67.9	63.4	58.6	61.1	70.2
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	72.6	66.2	64.2	61.1	74.2	I	52.0	Z	5.0	23.8	Y	3.0	64.4	Z	6.0	-	-	-	67.6	63.2	58.2	61.1	69.9
	24	72.4	66.2	64.1	61.1	74.1	I	53.1	Z	5.0	24.6	Y	3.0	65.1	Z	6.0	-	-	-	67.4	63.2	58.1	61.1	69.8
	25	72.3	66.1	64.0	61.1	74.0	I	54.1	Z	5.0	25.4	Y	3.0	65.8	Z	6.0	-	-	-	67.3	63.1	58.0	61.1	69.7
	26	72.2	66.1	63.9	61.0	73.9	I	55.0	Z	5.0	26.2	Y	3.0	66.5	Z	6.0	-	-	-	67.2	63.1	57.9	61.0	69.6
	27	72.1	66.0	63.7	61.0	73.8	I	55.9	Z	5.0	26.9	Y	3.0	67.2	Z	6.0	-	-	-	67.1	63.0	57.7	61.0	69.5
	28	72.0	66.0	63.6	61.0	73.7	I	56.8	Z	5.0	27.7	Y	3.0	67.8	Z	6.0	-	-	-	67.0	63.0	57.6	61.0	69.5
	29	71.9	65.9	63.5	61.0	73.6	I	57.6	Z	5.0	28.4	Y	3.0	68.3	Z	6.0	-	-	-	66.9	62.9	57.5	61.0	69.4
	30	71.8	65.8	63.4	61.0	73.5	I	58.4	Z	5.0	29.2	Y	3.0	68.9	Z	6.0	-	-	-	66.8	62.8	57.4	61.0	69.3
	31	71.7	65.8	63.3	61.0	73.5	I	59.2	Z	5.0	29.9	Y	3.0	69.4	Z	6.0	-	-	-	66.7	62.8	57.3	61.0	69.2
	32	71.6	65.7	63.2	61.0	73.4	I	59.9	Z	5.0	30.6	Y	3.0	69.9	Z	6.0	-	-	-	66.6	62.7	57.2	61.0	69.1
	33	71.6	65.7	63.1	61.0	73.3	I	60.6	Z	5.0	31.3	Y	3.0	70.4	Z	6.0	-	-	-	66.6	62.7	57.1	61.0	69.1
	34	71.5	65.6	63.0	61.0	73.2	I	61.3	Z	5.0	32.0	Y	3.0	70.9	Z	6.0	-	-	-	66.5	62.6	57.0	61.0	69.1
	35	71.4	65.6	62.9	61.0	73.1	I	61.9	Z	5.0	32.7	Y	3.0	71.3	Z	6.0	-	-	-	66.4	62.6	56.9	61.0	69.0
	36	71.3	65.5	62.8	61.0	73.0	I	62.6	Z	5.0	33.4	Y	3.0	71.7	Z	6.0	-	-	-	66.3	62.5	56.8	61.0	68.9
	37	71.2	65.5	62.7	61.0	73.0	I	63.1	Z	5.0	34.1	Y	3.0	72.1	Z	6.0	-	-	-	66.2	62.5	56.7	61.0	68.9
	38	71.1	65.4	62.6	60.9	72.9	I	63.7	Z	5.0	34.7	Y	3.0	72.5	Z	6.0	-	-	-	66.1	62.4	56.6	60.9	68.8
	39	71.0	65.4	62.5	61.0	72.8	I	64.3	Z	5.0	35.4	Y	3.0	72.9	Z	6.0	-	-	-	66.0	62.4	56.5	61.0	68.7
	40	70.9	65.3	62.4	60.9	72.7	I	64.8	Z	5.0	36.0	Y	3.0	73.2	Z	6.0	-	-	-	65.9	62.3	56.4	60.9	68.6
	41	70.8	65.3	62.3	61.0	72.6	I	65.3	Z	5.0	36.6	Y	3.0	73.6	Z	6.0	-	-	-	65.8	62.3	56.3	61.0	68.6
	42	70.7	65.3	62.3	61.0	72.6	I	65.8	Z	5.0	37.3	Y	3.0	73.9	Z	6.0	-	-	-	65.7	62.3	56.3	61.0	68.5
	43	70.7	65.3	62.2	61.0	72.5	I	66.2	Z	5.0	37.9	Y	3.0	74.2	Z	6.0	-	-	-	65.7	62.3	56.2	61.0	68.5
	44	70.6	65.3	62.1	61.0	72.5	I	66.7	Z	5.0	38.5	Y	3.0	74.5	Z	6.0	-	-	-	65.6	62.3	56.1	61.0	68.4
	45	70.5	65.4	62.0	61.0	72.4	I	67.1	Z	5.0	39.0	Y	3.0	74.8	Z	6.0	-	-	-	65.5	62.4	56.0	61.0	68.4

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R217a	4	64.8	61.6	55.2	59.3	67.5	N/A	7.3	X	-	4.7	X	-	31.1	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	65.4	61.9	57.7	60.1	68.2	N/A	8.5	X	-	5.4	X	-	33.8	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	65.8	62.2	60.5	60.6	68.9	N/A	9.6	X	-	6.1	X	-	36.3	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	7	66.2	62.4	63.1	60.9	69.6	N/A	10.7	X	-	6.8	X	-	38.7	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	8	66.5	62.6	64.3	61.2	70.1	N/A	11.9	X	-	7.5	X	-	41.0	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	9	66.7	62.8	64.8	61.3	70.4	I	13.0	X	1.0	8.2	X	1.0	43.1	Y	4.0	-	-	-	65.7	61.8	60.8	61.3	68.9
	10	66.8	62.9	65.0	61.4	70.5	I	14.1	X	1.0	8.9	X	1.0	45.1	Z	6.0	-	-	-	65.8	61.9	59.0	61.4	68.8
	11	66.9	63.0	65.1	61.5	70.6	I	15.2	Y	3.0	9.6	X	1.0	46.9	Z	6.0	-	-	-	63.9	62.0	59.1	61.5	68.0
	12	66.9	63.0	65.0	61.5	70.6	I	16.3	Y	3.0	10.3	X	1.0	48.6	Z	6.0	-	-	-	63.9	62.0	59.0	61.5	68.0
	13	67.0	63.1	65.0	61.5	70.6	I	17.4	Y	3.0	11.0	X	1.0	50.3	Z	6.0	-	-	-	64.0	62.1	59.0	61.5	68.0
	14	67.0	63.1	64.9	61.6	70.6	I	18.4	Y	3.0	11.7	X	1.0	51.8	Z	6.0	-	-	-	64.0	62.1	58.9	61.6	68.0
	15	67.0	63.1	64.9	61.6	70.6	I	19.5	Y	3.0	12.4	X	1.0	53.2	Z	6.0	-	-	-	64.0	62.1	58.9	61.6	68.0
	16	67.1	63.1	64.8	61.6	70.6	I	20.5	Y	3.0	13.1	X	1.0	54.5	Z	6.0	-	-	-	64.1	62.1	58.8	61.6	68.1
	17	67.0	63.1	64.7	61.6	70.6	I	21.5	Y	3.0	13.8	X	1.0	55.8	Z	6.0	-	-	-	64.0	62.1	58.7	61.6	68.0
	18	67.0	63.1	64.6	61.6	70.6	I	22.5	Y	3.0	14.5	X	1.0	56.9	Z	6.0	-	-	-	64.0	62.1	58.6	61.6	68.0
	19	67.1	63.2	64.4	61.6	70.6	I	23.5	Y	3.0	15.1	Y	3.0	58.0	Z	6.0	-	-	-	64.1	60.2	58.4	61.6	67.6
	20	67.0	63.2	64.4	61.7	70.5	I	24.5	Y	3.0	15.8	Y	3.0	59.1	Z	6.0	-	-	-	64.0	60.2	58.4	61.7	67.6
	21	67.0	63.2	64.2	61.7	70.5	I	25.5	Y	3.0	16.5	Y	3.0	60.1	Z	6.0	-	-	-	64.0	60.2	58.2	61.7	67.6
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	66.9	63.3	63.9	61.7	70.4	I	27.9	Y	3.0	18.2	Y	3.0	62.4	Z	6.0	-	-	-	63.9	60.3	57.9	61.7	67.5
	24	66.9	63.4	63.8	61.7	70.4	I	28.8	Y	3.0	18.8	Y	3.0	63.2	Z	6.0	-	-	-	63.9	60.4	57.8	61.7	67.5
	25	66.8	63.4	63.7	61.8	70.3	I	29.7	Y	3.0	19.5	Y	3.0	63.9	Z	6.0	-	-	-	63.8	60.4	57.7	61.8	67.5
	26	66.8	63.4	63.6	61.8	70.3	N/A	30.6	Y	-	20.1	Y	-	64.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	27	66.7	63.4	63.5	61.8	70.3	N/A	31.5	Y	-	20.7	Y	-	65.3	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	28	66.7	63.5	63.4	61.8	70.2	N/A	32.3	Y	-	21.4	Y	-	66.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	29	66.6	63.4	63.2	61.8	70.2	N/A	33.1	Y	-	22.0	Y	-	66.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	30	66.6	63.5	63.1	61.8	70.1	N/A	34.0	Y	-	22.6	Y	-	67.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	31	66.6	63.5	63.0	61.8	70.1	N/A	34.8	Y	-	23.2	Y	-	67.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	32	66.5	63.5	62.9	61.8	70.1	N/A	35.5	Y	-	23.8	Y	-	68.3	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	33	66.5	63.5	62.8	61.8	70.0	N/A	36.3	Y	-	24.4	Y	-	68.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	34	66.4	63.5	62.7	61.9	70.0	N/A	37.1	Y	-	25.0	Y	-	69.3	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	35	66.4	63.5	62.6	61.9	70.0	N/A	37.8	Y	-	25.6	Y	-	69.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	36	66.3	63.5	62.5	61.9	69.9	N/A	38.5	Y	-	26.2	Y	-	70.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	37	66.3	63.5	62.5	61.9	69.9	N/A	39.2	Y	-	26.7	Y	-	70.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	38	66.3	63.5	62.4	61.9	69.9	N/A	39.9	Y	-	27.3	Y	-	71.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	39	66.2	63.5	62.3	61.9	69.8	N/A	40.6	Y	-	27.9	Y	-	71.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	40	66.2	63.4	62.2	62.0	69.8	N/A	41.3	Y	-	28.4	Y	-	71.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	41	66.1	63.4	62.1	62.0	69.8	N/A	41.9	Y	-	29.0	Y	-	72.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	66.1	63.4	62.0	62.0	69.7	N/A	42.6	Y	-	29.5	Y	-	72.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	66.0	63.4	61.9	62.0	69.7	N/A	43.2	Y	-	30.1	Y	-	72.9	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	66.0	63.3	61.9	62.0	69.7	N/A	43.8	Y	-	30.6	Y	-	73.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	65.9	63.3	61.8	62.0	69.6	N/A	44.4	Y	-	31.1	Y	-	73.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R217b	4	65.0	61.8	55.2	59.4	67.7	N/A	7.4	X	-	4.7	X	-	31.1	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	65.5	62.0	57.8	60.5	68.4	N/A	8.6	X	-	5.5	X	-	33.8	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	66.0	62.3	60.5	61.0	69.1	N/A	9.8	X	-	6.2	X	-	36.4	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	7	66.4	62.6	63.1	61.3	69.8	N/A	10.9	X	-	6.9	X	-	38.8	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	8	66.6	62.8	64.3	61.5	70.3	N/A	12.1	X	-	7.6	X	-	41.0	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	9	66.9	62.9	64.8	61.6	70.5	I	13.2	X	1.0	8.3	X	1.0	43.1	Y	4.0	-	-	-	65.9	61.9	60.8	61.6	69.1
	10	66.9	63.0	65.0	61.7	70.6	I	14.3	X	1.0	9.0	X	1.0	45.1	Z	6.0	-	-	-	65.9	62.0	59.0	61.7	68.9
	11	67.0	63.1	65.1	61.8	70.7	I	15.4	Y	3.0	9.7	X	1.0	46.9	Z	6.0	-	-	-	64.0	62.1	59.1	61.8	68.1
	12	67.1	63.1	65.1	61.8	70.8	I	16.5	Y	3.0	10.4	X	1.0	48.7	Z	6.0	-	-	-	64.1	62.1	59.1	61.8	68.1
	13	67.1	63.2	65.1	61.8	70.8	I	17.6	Y	3.0	11.1	X	1.0	50.3	Z	6.0	-	-	-	64.1	62.2	59.1	61.8	68.2
	14	67.1	63.2	65.0	61.8	70.8	I	18.7	Y	3.0	11.8	X	1.0	51.8	Z	6.0	-	-	-	64.1	62.2	59.0	61.8	68.2
	15	67.2	63.2	64.9	61.8	70.8	I	19.8	Y	3.0	12.5	X	1.0	53.2	Z	6.0	-	-	-	64.2	62.2	58.9	61.8	68.2
	16	67.2	63.2	64.8	61.8	70.7	I	20.8	Y	3.0	13.2	X	1.0	54.5	Z	6.0	-	-	-	64.2	62.2	58.8	61.8	68.2
	17	67.2	63.2	64.7	61.8	70.7	I	21.9	Y	3.0	13.9	X	1.0	55.8	Z	6.0	-	-	-	64.2	62.2	58.7	61.8	68.2
	18	67.2	63.3	64.6	61.8	70.7	I	22.9	Y	3.0	14.6	X	1.0	56.9	Z	6.0	-	-	-	64.2	62.3	58.6	61.8	68.2
	19	67.1	63.3	64.5	61.8	70.7	I	23.9	Y	3.0	15.2	Y	3.0	58.1	Z	6.0	-	-	-	64.1	60.3	58.5	61.8	67.7
	20	67.1	63.3	64.4	61.9	70.6	I	24.9	Y	3.0	15.9	Y	3.0	59.1	Z	6.0	-	-	-	64.1	60.3	58.4	61.9	67.7
	21	67.1	63.4	64.3	61.9	70.6	I	25.9	Y	3.0	16.6	Y	3.0	60.1	Z	6.0	-	-	-	64.1	60.4	58.3	61.9	67.7
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	67.0	63.5	63.9	61.9	70.5	I	28.3	Y	3.0	18.3	Y	3.0	62.4	Z	6.0	-	-	-	64.0	60.5	57.9	61.9	67.6
	24	66.9	63.5	63.8	61.9	70.5	I	29.3	Y	3.0	19.0	Y	3.0	63.2	Z	6.0	-	-	-	63.9	60.5	57.8	61.9	67.6
	25	66.9	63.5	63.7	61.9	70.5	I	30.2	Y	3.0	19.6	Y	3.0	64.0	Z	6.0	-	-	-	63.9	60.5	57.7	61.9	67.6
	26	66.8	63.5	63.6	62.0	70.4	N/A	31.0	Y	-	20.2	Y	-	64.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	27	66.8	63.6	63.5	62.0	70.4	N/A	31.9	Y	-	20.9	Y	-	65.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	28	66.8	63.5	63.4	62.0	70.3	N/A	32.8	Y	-	21.5	Y	-	66.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	29	66.7	63.6	63.2	62.0	70.3	N/A	33.6	Y	-	22.1	Y	-	66.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	30	66.7	63.6	63.1	62.0	70.3	N/A	34.4	Y	-	22.7	Y	-	67.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	31	66.6	63.6	63.0	62.0	70.2	N/A	35.2	Y	-	23.4	Y	-	67.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	32	66.6	63.6	62.9	62.0	70.2	N/A	36.0	Y	-	24.0	Y	-	68.3	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	33	66.5	63.6	62.8	62.0	70.1	N/A	36.8	Y	-	24.6	Y	-	68.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	34	66.5	63.6	62.7	62.0	70.1	N/A	37.5	Y	-	25.2	Y	-	69.3	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	35	66.5	63.6	62.6	62.0	70.1	N/A	38.3	Y	-	25.8	Y	-	69.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	36	66.4	63.7	62.5	62.0	70.0	N/A	39.0	Y	-	26.3	Y	-	70.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	37	66.4	63.6	62.5	62.0	70.0	N/A	39.7	Y	-	26.9	Y	-	70.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	38	66.3	63.6	62.4	62.0	70.0	N/A	40.4	Y	-	27.5	Y	-	71.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	39	66.3	63.6	62.3	62.1	69.9	N/A	41.1	Y	-	28.1	Y	-	71.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	40	66.2	63.6	62.2	62.1	69.9	N/A	41.8	Y	-	28.6	Y	-	71.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	41	66.2	63.6	62.1	62.1	69.9	N/A	42.4	Y	-	29.2	Y	-	72.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	66.1	63.5	62.0	62.1	69.8	N/A	43.1	Y	-	29.7	Y	-	72.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	66.1	63.5	61.9	62.1	69.8	N/A	43.7	Y	-	30.3	Y	-	72.9	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	66.0	63.5	61.9	62.1	69.8	N/A	44.3	Y	-	30.8	Y	-	73.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	66.0	63.4	61.8	62.2	69.7	N/A	44.9	Y	-	31.3	Y	-	73.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R218b	4	65.3	62.1	55.2	59.2	67.9	N/A	7.7	X	-	4.8	X	-	31.0	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	65.9	62.4	57.7	60.1	68.6	N/A	8.9	X	-	5.5	X	-	33.7	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	66.4	62.6	60.4	60.4	69.3	N/A	10.2	X	-	6.3	X	-	36.3	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	7	66.8	62.9	62.9	60.8	69.9	N/A	11.4	X	-	7.0	X	-	38.7	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	8	67.1	63.1	64.2	61.0	70.4	I	12.5	X	1.0	7.7	X	1.0	40.9	Y	4.0	-	-	-	66.1	62.1	60.2	61.0	69.0
	9	67.2	63.2	64.8	61.1	70.6	I	13.7	X	1.0	8.4	X	1.0	43.0	Y	4.0	-	-	-	66.2	62.2	60.8	61.1	69.2
	10	67.3	63.3	65.1	61.2	70.8	I	14.9	X	1.0	9.2	X	1.0	45.0	Z	6.0	-	-	-	66.3	62.3	59.1	61.2	69.1
	11	67.3	63.4	65.2	61.3	70.9	I	16.0	Y	3.0	9.9	X	1.0	46.9	Z	6.0	-	-	-	64.3	62.4	59.2	61.3	68.2
	12	67.4	63.4	65.1	61.4	70.9	I	17.2	Y	3.0	10.6	X	1.0	48.6	Z	6.0	-	-	-	64.4	62.4	59.1	61.4	68.3
	13	67.4	63.4	65.1	61.4	70.9	I	18.3	Y	3.0	11.3	X	1.0	50.2	Z	6.0	-	-	-	64.4	62.4	59.1	61.4	68.3
	14	67.4	63.4	65.0	61.4	70.9	I	19.4	Y	3.0	12.0	X	1.0	51.7	Z	6.0	-	-	-	64.4	62.4	59.0	61.4	68.2
	15	67.4	63.5	65.0	61.4	70.9	I	20.5	Y	3.0	12.7	X	1.0	53.1	Z	6.0	-	-	-	64.4	62.5	59.0	61.4	68.3
	16	67.5	63.5	64.8	61.4	70.9	I	21.6	Y	3.0	13.4	X	1.0	54.5	Z	6.0	-	-	-	64.5	62.5	58.8	61.4	68.3
	17	67.5	63.5	64.8	61.4	70.9	I	22.7	Y	3.0	14.1	X	1.0	55.7	Z	6.0	-	-	-	64.5	62.5	58.8	61.4	68.3
	18	67.4	63.5	64.7	61.5	70.8	I	23.7	Y	3.0	14.8	X	1.0	56.9	Z	6.0	-	-	-	64.4	62.5	58.7	61.5	68.3
	19	67.4	63.5	64.5	61.5	70.8	I	24.8	Y	3.0	15.5	Y	3.0	58.0	Z	6.0	-	-	-	64.4	60.5	58.5	61.5	67.8
	20	67.4	63.6	64.4	61.5	70.8	I	25.8	Y	3.0	16.1	Y	3.0	59.0	Z	6.0	-	-	-	64.4	60.6	58.4	61.5	67.8
	21	67.3	63.6	64.3	61.5	70.7	I	26.8	Y	3.0	16.8	Y	3.0	60.0	Z	6.0	-	-	-	64.3	60.6	58.3	61.5	67.7
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	67.2	63.7	64.0	61.6	70.6	I	29.3	Y	3.0	18.6	Y	3.0	62.3	Z	6.0	-	-	-	64.2	60.7	58.0	61.6	67.7
	24	67.2	63.7	63.8	61.6	70.6	I	30.2	Y	3.0	19.2	Y	3.0	63.1	Z	6.0	-	-	-	64.2	60.7	57.8	61.6	67.7
	25	67.1	63.7	63.7	61.6	70.5	I	31.2	Y	3.0	19.9	Y	3.0	63.9	Z	6.0	-	-	-	64.1	60.7	57.7	61.6	67.6
	26	67.1	63.7	63.6	61.7	70.5	I	32.1	Y	3.0	20.5	Y	3.0	64.6	Z	6.0	-	-	-	64.1	60.7	57.6	61.7	67.6
	27	67.0	63.7	63.5	61.7	70.5	I	32.9	Y	3.0	21.2	Y	3.0	65.3	Z	6.0	-	-	-	64.0	60.7	57.5	61.7	67.6
	28	67.0	63.7	63.4	61.7	70.4	I	33.8	Y	3.0	21.8	Y	3.0	65.9	Z	6.0	-	-	-	64.0	60.7	57.4	61.7	67.6
	29	67.0	63.7	63.3	61.7	70.4	N/A	34.7	Y	-	22.4	Y	-	66.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	30	66.9	63.7	63.2	61.7	70.3	N/A	35.5	Y	-	23.1	Y	-	67.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	31	66.9	63.7	63.1	61.7	70.3	N/A	36.3	Y	-	23.7	Y	-	67.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	32	66.8	63.8	63.0	61.7	70.3	N/A	37.1	Y	-	24.3	Y	-	68.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	33	66.8	63.8	62.9	61.8	70.2	N/A	37.9	Y	-	24.9	Y	-	68.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	34	66.7	63.8	62.8	61.8	70.2	N/A	38.7	Y	-	25.5	Y	-	69.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	35	66.7	63.8	62.7	61.8	70.2	N/A	39.4	Y	-	26.1	Y	-	69.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	36	66.6	63.8	62.6	61.8	70.1	N/A	40.1	Y	-	26.7	Y	-	70.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	37	66.6	63.8	62.5	61.8	70.1	N/A	40.9	Y	-	27.3	Y	-	70.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	38	66.5	63.8	62.4	61.8	70.1	N/A	41.6	Y	-	27.9	Y	-	71.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	39	66.5	63.8	62.3	61.8	70.0	N/A	42.3	Y	-	28.4	Y	-	71.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	40	66.4	63.7	62.2	61.9	70.0	N/A	42.9	Y	-	29.0	Y	-	71.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	41	66.4	63.7	62.1	61.9	70.0	N/A	43.6	Y	-	29.6	Y	-	72.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	66.3	63.7	62.0	61.9	69.9	N/A	44.2	Y	-	30.1	Y	-	72.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	66.3	63.7	62.0	61.9	69.9	N/A	44.9	Y	-	30.7	Y	-	72.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	66.2	63.6	61.9	61.9	69.8	N/A	45.5	Z	-	31.2	Y	-	73.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	66.2	63.6	61.8	62.0	69.8	N/A	46.1	Z	-	31.7	Y	-	73.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario A)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4								
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R218c	4	65.5	62.2	55.2	59.2	68.0	N/A	7.9	X	-	4.8	X	-	31.0	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	66.0	62.5	57.6	60.0	68.7	N/A	9.1	X	-	5.6	X	-	33.7	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	66.6	62.8	60.3	60.4	69.3	N/A	10.3	X	-	6.3	X	-	36.3	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	7	67.0	63.0	62.9	60.7	70.0	N/A	11.6	X	-	7.0	X	-	38.7	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	8	67.2	63.2	64.2	60.9	70.5	I	12.8	X	1.0	7.8	X	1.0	40.9	Y	4.0	-	-	-	66.2	62.2	60.2	60.9	69.1
	9	67.3	63.3	64.8	61.0	70.7	I	14.0	X	1.0	8.5	X	1.0	43.0	Y	4.0	-	-	-	66.3	62.3	60.8	61.0	69.3
	10	67.4	63.4	65.0	61.2	70.8	I	15.1	Y	3.0	9.2	X	1.0	45.0	Y	4.0	-	-	-	64.4	62.4	61.0	61.2	68.5
	11	67.5	63.5	65.2	61.2	71.0	I	16.3	Y	3.0	9.9	X	1.0	46.8	Z	6.0	-	-	-	64.5	62.5	59.2	61.2	68.3
	12	67.5	63.5	65.2	61.3	71.0	I	17.5	Y	3.0	10.7	X	1.0	48.6	Z	6.0	-	-	-	64.5	62.5	59.2	61.3	68.3
	13	67.6	63.6	65.2	61.4	71.0	I	18.6	Y	3.0	11.4	X	1.0	50.2	Z	6.0	-	-	-	64.6	62.6	59.2	61.4	68.4
	14	67.6	63.6	65.0	61.4	71.0	I	19.7	Y	3.0	12.1	X	1.0	51.7	Z	6.0	-	-	-	64.6	62.6	59.0	61.4	68.4
	15	67.6	63.6	65.0	61.4	71.0	I	20.9	Y	3.0	12.8	X	1.0	53.1	Z	6.0	-	-	-	64.6	62.6	59.0	61.4	68.4
	16	67.6	63.6	64.8	61.4	71.0	I	22.0	Y	3.0	13.5	X	1.0	54.4	Z	6.0	-	-	-	64.6	62.6	58.8	61.4	68.4
	17	67.6	63.6	64.8	61.4	70.9	I	23.0	Y	3.0	14.2	X	1.0	55.7	Z	6.0	-	-	-	64.6	62.6	58.8	61.4	68.4
	18	67.6	63.6	64.7	61.4	70.9	I	24.1	Y	3.0	14.9	X	1.0	56.9	Z	6.0	-	-	-	64.6	62.6	58.7	61.4	68.3
	19	67.5	63.6	64.5	61.4	70.9	I	25.1	Y	3.0	15.6	Y	3.0	58.0	Z	6.0	-	-	-	64.5	60.6	58.5	61.4	67.8
	20	67.5	63.6	64.4	61.5	70.8	I	26.2	Y	3.0	16.3	Y	3.0	59.0	Z	6.0	-	-	-	64.5	60.6	58.4	61.5	67.8
	21	67.5	63.6	64.3	61.5	70.8	I	27.2	Y	3.0	16.9	Y	3.0	60.0	Z	6.0	-	-	-	64.5	60.6	58.3	61.5	67.8
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	67.4	63.7	63.9	61.6	70.7	I	29.7	Y	3.0	18.7	Y	3.0	62.3	Z	6.0	-	-	-	64.4	60.7	57.9	61.6	67.8
	24	67.3	63.7	63.8	61.6	70.6	I	30.7	Y	3.0	19.4	Y	3.0	63.1	Z	6.0	-	-	-	64.3	60.7	57.8	61.6	67.7
	25	67.3	63.7	63.7	61.6	70.6	I	31.6	Y	3.0	20.0	Y	3.0	63.9	Z	6.0	-	-	-	64.3	60.7	57.7	61.6	67.7
	26	67.2	63.7	63.6	61.6	70.6	I	32.5	Y	3.0	20.7	Y	3.0	64.6	Z	6.0	-	-	-	64.2	60.7	57.6	61.6	67.7
	27	67.2	63.7	63.5	61.6	70.5	I	33.4	Y	3.0	21.3	Y	3.0	65.3	Z	6.0	-	-	-	64.2	60.7	57.5	61.6	67.6
	28	67.1	63.7	63.4	61.7	70.5	I	34.3	Y	3.0	22.0	Y	3.0	65.9	Z	6.0	-	-	-	64.1	60.7	57.4	61.7	67.6
	29	67.1	63.7	63.3	61.7	70.4	N/A	35.1	Y	-	22.6	Y	-	66.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	30	67.0	63.7	63.2	61.7	70.4	N/A	36.0	Y	-	23.2	Y	-	67.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	31	67.0	63.7	63.1	61.7	70.4	N/A	36.8	Y	-	23.8	Y	-	67.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	32	66.9	63.7	63.0	61.7	70.3	N/A	37.6	Y	-	24.5	Y	-	68.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	33	66.9	63.8	62.9	61.7	70.3	N/A	38.4	Y	-	25.1	Y	-	68.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	34	66.9	63.8	62.8	61.7	70.3	N/A	39.2	Y	-	25.7	Y	-	69.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	35	66.8	63.8	62.7	61.8	70.2	N/A	39.9	Y	-	26.3	Y	-	69.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	36	66.8	63.8	62.6	61.8	70.2	N/A	40.6	Y	-	26.9	Y	-	70.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	37	66.7	63.8	62.5	61.8	70.2	N/A	41.4	Y	-	27.4	Y	-	70.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	38	66.7	63.7	62.4	61.8	70.1	N/A	42.1	Y	-	28.0	Y	-	71.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	39	66.6	63.7	62.3	61.8	70.1	N/A	42.8	Y	-	28.6	Y	-	71.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	40	66.6	63.7	62.2	61.8	70.0	N/A	43.4	Y	-	29.2	Y	-	71.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	41	66.5	63.7	62.1	61.9	70.0	N/A	44.1	Y	-	29.7	Y	-	72.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	66.5	63.7	62.0	61.9	70.0	N/A	44.7	Y	-	30.3	Y	-	72.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	66.4	63.6	62.0	61.9	69.9	N/A	45.4	Z	-	30.8	Y	-	72.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	66.4	63.6	61.9	61.9	69.9	N/A	46.0	Z	-	31.4	Y	-	73.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	66.3	63.6	61.8	61.9	69.9	N/A	46.6	Z	-	31.9	Y	-	73.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than “Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R110a	4	68.2	52.5	55.5	58.4	69.0	N/A	8.8	X	-	2.2	X	-	31.3	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	69.0	52.9	57.7	59.2	69.8	N/A	10.2	X	-	2.9	X	-	34.1	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	69.4	53.4	60.1	59.8	70.4	I	11.5	X	1.0	3.7	X	1.0	36.6	Y	4.0	-	-	-	68.4	52.4	56.1	59.8	69.3
	7	69.6	53.8	62.5	60.1	70.9	I	12.9	X	1.0	4.4	X	1.0	39.0	Y	4.0	-	-	-	68.6	52.8	58.5	60.1	69.6
	8	69.8	54.2	64.0	60.3	71.3	I	14.2	X	1.0	5.2	X	1.0	41.3	Y	4.0	-	-	-	68.8	53.2	60.0	60.3	69.9
	9	69.8	54.4	65.0	60.5	71.5	I	15.6	Y	3.0	5.9	X	1.0	43.4	Y	4.0	-	-	-	66.8	53.4	61.0	60.5	68.7
	10	69.8	54.4	65.7	60.5	71.7	I	16.9	Y	3.0	6.7	X	1.0	45.4	Z	6.0	-	-	-	66.8	53.4	59.7	60.5	68.5
	11	69.9	54.5	66.0	60.6	71.8	I	18.2	Y	3.0	7.4	X	1.0	47.2	Z	6.0	-	-	-	66.9	53.5	60.0	60.6	68.6
	12	69.9	54.6	66.1	60.7	71.8	I	19.4	Y	3.0	8.1	X	1.0	48.9	Z	6.0	-	-	-	66.9	53.6	60.1	60.7	68.6
	13	69.9	54.6	66.1	60.7	71.9	I	20.7	Y	3.0	8.9	X	1.0	50.5	Z	6.0	-	-	-	66.9	53.6	60.1	60.7	68.6
	14	69.9	54.6	66.1	60.8	71.8	I	21.9	Y	3.0	9.6	X	1.0	52.1	Z	6.0	-	-	-	66.9	53.6	60.1	60.8	68.7
	15	69.9	54.6	66.0	60.8	71.8	I	23.1	Y	3.0	10.3	X	1.0	53.5	Z	6.0	-	-	-	66.9	53.6	60.0	60.8	68.7
	16	69.9	54.5	65.8	60.8	71.8	I	24.3	Y	3.0	11.1	X	1.0	54.8	Z	6.0	-	-	-	66.9	53.5	59.8	60.8	68.6
	17	69.8	54.5	65.8	60.8	71.7	I	25.5	Y	3.0	11.8	X	1.0	56.0	Z	6.0	-	-	-	66.8	53.5	59.8	60.8	68.6
	18	69.8	54.5	65.7	60.9	71.7	I	26.6	Y	3.0	12.5	X	1.0	57.2	Z	6.0	-	-	-	66.8	53.5	59.7	60.9	68.6
	19	69.7	54.5	65.5	60.9	71.6	I	27.7	Y	3.0	13.2	X	1.0	58.3	Z	6.0	-	-	-	66.7	53.5	59.5	60.9	68.5
	20	69.7	54.4	65.4	60.9	71.5	I	28.8	Y	3.0	13.9	X	1.0	59.3	Z	6.0	-	-	-	66.7	53.4	59.4	60.9	68.4
	21	69.6	54.4	65.3	60.9	71.4	I	29.9	Y	3.0	14.7	X	1.0	60.3	Z	6.0	-	-	-	66.6	53.4	59.3	60.9	68.4
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	69.5	51.4	64.9	61.0	71.3	I	32.6	Y	3.0	16.5	Y	3.0	62.6	Z	6.0	-	-	-	66.5	48.4	58.9	61.0	68.2
	24	69.5	51.4	64.8	61.0	71.2	I	33.6	Y	3.0	17.2	Y	3.0	63.4	Z	6.0	-	-	-	66.5	48.4	58.8	61.0	68.2
	25	69.4	51.3	64.7	61.0	71.2	I	34.6	Y	3.0	17.9	Y	3.0	64.2	Z	6.0	-	-	-	66.4	48.3	58.7	61.0	68.1
	26	69.4	51.3	64.6	61.0	71.1	I	35.6	Y	3.0	18.6	Y	3.0	64.9	Z	6.0	-	-	-	66.4	48.3	58.6	61.0	68.1
	27	69.3	51.3	64.5	61.1	71.0	I	36.5	Y	3.0	19.2	Y	3.0	65.6	Z	6.0	-	-	-	66.3	48.3	58.5	61.1	68.0
	28	69.3	51.3	64.4	61.1	71.0	I	37.4	Y	3.0	19.9	Y	3.0	66.2	Z	6.0	-	-	-	66.3	48.3	58.4	61.1	68.0
	29	69.2	51.2	64.2	61.1	70.9	I	38.3	Y	3.0	20.6	Y	3.0	66.8	Z	6.0	-	-	-	66.2	48.2	58.2	61.1	67.9
	30	69.1	51.2	64.1	61.1	70.8	I	39.1	Y	3.0	21.2	Y	3.0	67.4	Z	6.0	-	-	-	66.1	48.2	58.1	61.1	67.8
	31	69.1	51.2	64.0	61.1	70.8	I	40.0	Y	3.0	21.9	Y	3.0	68.0	Z	6.0	-	-	-	66.1	48.2	58.0	61.1	67.8
	32	69.0	51.2	63.9	61.1	70.7	I	40.8	Y	3.0	22.5	Y	3.0	68.5	Z	6.0	-	-	-	66.0	48.2	57.9	61.1	67.7
	33	68.9	51.1	63.8	61.1	70.7	I	41.6	Y	3.0	23.2	Y	3.0	69.0	Z	6.0	-	-	-	65.9	48.1	57.8	61.1	67.7
	34	68.9	51.1	63.7	61.1	70.6	I	42.4	Y	3.0	23.8	Y	3.0	69.5	Z	6.0	-	-	-	65.9	48.1	57.7	61.1	67.7
	35	68.8	51.1	63.6	61.1	70.6	I	43.1	Y	3.0	24.4	Y	3.0	69.9	Z	6.0	-	-	-	65.8	48.1	57.6	61.1	67.6
	36	68.8	51.0	63.5	61.2	70.5	I	43.9	Y	3.0	25.1	Y	3.0	70.4	Z	6.0	-	-	-	65.8	48.0	57.5	61.2	67.6
	37	68.7	51.0	63.5	61.2	70.5	I	44.6	Y	3.0	25.7	Y	3.0	70.8	Z	6.0	-	-	-	65.7	48.0	57.5	61.2	67.5
	38	68.7	51.0	63.4	61.2	70.4	I	45.3	Z	5.0	26.3	Y	3.0	71.2	Z	6.0	-	-	-	63.7	48.0	57.4	61.2	66.3
	39	68.6	50.9	63.3	61.2	70.3	N/A	46.0	Z	-	26.9	Y	-	71.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	40	68.5	50.9	63.2	61.3	70.3	N/A	46.7	Z	-	27.5	Y	-	72.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	41	68.5	50.9	63.1	61.3	70.2	N/A	47.4	Z	-	28.1	Y	-	72.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	68.4	50.9	63.0	61.3	70.2	N/A	48.0	Z	-	28.7	Y	-	72.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	68.4	50.8	62.9	61.3	70.1	N/A	48.6	Z	-	29.2	Y	-	73.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	68.3	50.8	62.9	61.4	70.1	N/A	49.2	Z	-	29.8	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	68.3	50.9	62.8	61.4	70.0	N/A	49.8	Z	-	30.4	Y	-	73.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R110b	4	68.4	52.7	55.4	58.5	69.2	N/A	9.0	X	-	2.2	X	-	31.4	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	69.2	53.2	57.6	59.2	70.0	N/A	10.4	X	-	2.9	X	-	34.1	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	69.7	53.8	60.0	59.8	70.6	I	11.8	X	1.0	3.7	X	1.0	36.7	Y	4.0	-	-	-	68.7	52.8	56.0	59.8	69.5
	7	69.8	54.3	62.3	60.1	71.0	I	13.2	X	1.0	4.4	X	1.0	39.1	Y	4.0	-	-	-	68.8	53.3	58.3	60.1	69.8
	8	69.9	54.6	63.9	60.3	71.3	I	14.5	X	1.0	5.2	X	1.0	41.3	Y	4.0	-	-	-	68.9	53.6	59.9	60.3	70.0
	9	70.0	54.8	64.9	60.5	71.6	I	15.9	Y	3.0	5.9	X	1.0	43.4	Y	4.0	-	-	-	67.0	53.8	60.9	60.5	68.8
	10	70.0	54.9	65.6	60.6	71.8	I	17.2	Y	3.0	6.7	X	1.0	45.4	Z	6.0	-	-	-	67.0	53.9	59.6	60.6	68.6
	11	70.0	55.0	66.0	60.6	71.9	I	18.5	Y	3.0	7.4	X	1.0	47.2	Z	6.0	-	-	-	67.0	54.0	60.0	60.6	68.7
	12	70.1	54.9	66.1	60.7	71.9	I	19.8	Y	3.0	8.2	X	1.0	49.0	Z	6.0	-	-	-	67.1	53.9	60.1	60.7	68.8
	13	70.1	54.9	66.1	60.7	72.0	I	21.1	Y	3.0	8.9	X	1.0	50.6	Z	6.0	-	-	-	67.1	53.9	60.1	60.7	68.8
	14	70.1	54.9	66.1	60.8	72.0	I	22.3	Y	3.0	9.7	X	1.0	52.1	Z	6.0	-	-	-	67.1	53.9	60.1	60.8	68.8
	15	70.0	54.9	66.0	60.8	71.9	I	23.6	Y	3.0	10.4	X	1.0	53.5	Z	6.0	-	-	-	67.0	53.9	60.0	60.8	68.7
	16	70.0	54.9	65.8	60.8	71.9	I	24.8	Y	3.0	11.2	X	1.0	54.8	Z	6.0	-	-	-	67.0	53.9	59.8	60.8	68.7
	17	70.0	54.9	65.7	60.9	71.8	I	25.9	Y	3.0	11.9	X	1.0	56.1	Z	6.0	-	-	-	67.0	53.9	59.7	60.9	68.7
	18	69.9	54.8	65.6	60.9	71.7	I	27.1	Y	3.0	12.6	X	1.0	57.2	Z	6.0	-	-	-	66.9	53.8	59.6	60.9	68.6
	19	69.8	54.8	65.5	60.9	71.7	I	28.2	Y	3.0	13.3	X	1.0	58.3	Z	6.0	-	-	-	66.8	53.8	59.5	60.9	68.5
	20	69.8	54.8	65.4	60.9	71.6	I	29.4	Y	3.0	14.0	X	1.0	59.4	Z	6.0	-	-	-	66.8	53.8	59.4	60.9	68.5
	21	69.7	54.8	65.2	60.9	71.5	I	30.4	Y	3.0	14.8	X	1.0	60.3	Z	6.0	-	-	-	66.7	53.8	59.2	60.9	68.4
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	69.6	52.0	64.9	61.0	71.4	I	33.2	Y	3.0	16.6	Y	3.0	62.7	Z	6.0	-	-	-	66.6	49.0	58.9	61.0	68.3
	24	69.6	52.0	64.8	61.0	71.3	I	34.2	Y	3.0	17.3	Y	3.0	63.4	Z	6.0	-	-	-	66.6	49.0	58.8	61.0	68.2
	25	69.5	52.0	64.7	61.0	71.2	I	35.2	Y	3.0	18.0	Y	3.0	64.2	Z	6.0	-	-	-	66.5	49.0	58.7	61.0	68.2
	26	69.5	51.9	64.6	61.0	71.2	I	36.1	Y	3.0	18.7	Y	3.0	64.9	Z	6.0	-	-	-	66.5	48.9	58.6	61.0	68.1
	27	69.4	51.9	64.5	61.1	71.1	I	37.1	Y	3.0	19.4	Y	3.0	65.6	Z	6.0	-	-	-	66.4	48.9	58.5	61.1	68.1
	28	69.4	51.9	64.4	61.1	71.1	I	38.0	Y	3.0	20.0	Y	3.0	66.2	Z	6.0	-	-	-	66.4	48.9	58.4	61.1	68.1
	29	69.3	51.9	64.3	61.1	71.0	I	38.9	Y	3.0	20.7	Y	3.0	66.8	Z	6.0	-	-	-	66.3	48.9	58.3	61.1	68.0
	30	69.3	51.8	64.1	61.1	70.9	I	39.7	Y	3.0	21.4	Y	3.0	67.4	Z	6.0	-	-	-	66.3	48.8	58.1	61.1	68.0
	31	69.2	51.8	64.0	61.1	70.9	I	40.6	Y	3.0	22.0	Y	3.0	68.0	Z	6.0	-	-	-	66.2	48.8	58.0	61.1	67.9
	32	69.1	51.8	63.9	61.1	70.8	I	41.4	Y	3.0	22.7	Y	3.0	68.5	Z	6.0	-	-	-	66.1	48.8	57.9	61.1	67.8
	33	69.1	51.8	63.8	61.1	70.8	I	42.2	Y	3.0	23.3	Y	3.0	69.0	Z	6.0	-	-	-	66.1	48.8	57.8	61.1	67.8
	34	69.0	51.7	63.7	61.1	70.7	I	43.0	Y	3.0	24.0	Y	3.0	69.5	Z	6.0	-	-	-	66.0	48.7	57.7	61.1	67.7
	35	69.0	51.7	63.6	61.1	70.6	I	43.7	Y	3.0	24.6	Y	3.0	70.0	Z	6.0	-	-	-	66.0	48.7	57.6	61.1	67.7
	36	68.9	51.7	63.6	61.1	70.6	I	44.5	Y	3.0	25.2	Y	3.0	70.4	Z	6.0	-	-	-	65.9	48.7	57.6	61.1	67.7
	37	68.8	51.6	63.5	61.2	70.5	I	45.2	Z	5.0	25.8	Y	3.0	70.8	Z	6.0	-	-	-	63.8	48.6	57.5	61.2	66.4
	38	68.8	51.6	63.4	61.2	70.5	I	45.9	Z	5.0	26.4	Y	3.0	71.2	Z	6.0	-	-	-	63.8	48.6	57.4	61.2	66.4
	39	68.7	51.6	63.3	61.2	70.4	N/A	46.6	Z	-	27.1	Y	-	71.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	40	68.6	51.5	63.2	61.3	70.4	N/A	47.3	Z	-	27.7	Y	-	72.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	41	68.6	51.5	63.1	61.3	70.3	N/A	48.0	Z	-	28.2	Y	-	72.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	68.5	51.5	63.0	61.3	70.3	N/A	48.6	Z	-	28.8	Y	-	72.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	68.4	51.5	62.9	61.3	70.2	N/A	49.2	Z	-	29.4	Y	-	73.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	68.4	51.4	62.9	61.4	70.2	N/A	49.8	Z	-	30.0	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	68.3	51.4	62.8	61.4	70.1	N/A	50.4	Z	-	30.6	Y	-	73.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R111b	4	68.9	53.2	55.3	58.6	69.6	N/A	9.4	X	-	2.2	X	-	31.4	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	69.7	54.0	57.5	59.2	70.4	I	10.9	X	1.0	3.0	X	1.0	34.1	Y	4.0	-	-	-	68.7	53.0	53.5	59.2	69.4
	6	70.1	54.6	59.7	59.6	70.9	I	12.4	X	1.0	3.7	X	1.0	36.7	Y	4.0	-	-	-	69.1	53.6	55.7	59.6	69.8
	7	70.3	55.1	61.9	59.8	71.3	I	13.8	X	1.0	4.5	X	1.0	39.1	Y	4.0	-	-	-	69.3	54.1	57.9	59.8	70.1
	8	70.2	55.4	63.6	60.0	71.5	I	15.2	Y	3.0	5.3	X	1.0	41.3	Y	4.0	-	-	-	67.2	54.4	59.6	60.0	68.7
	9	70.3	55.6	64.7	60.2	71.8	I	16.6	Y	3.0	6.0	X	1.0	43.4	Y	4.0	-	-	-	67.3	54.6	60.7	60.2	69.0
	10	70.4	55.7	65.5	60.3	72.0	I	18.0	Y	3.0	6.8	X	1.0	45.4	Z	6.0	-	-	-	67.4	54.7	59.5	60.3	68.9
	11	70.4	55.7	65.9	60.4	72.1	I	19.4	Y	3.0	7.6	X	1.0	47.3	Z	6.0	-	-	-	67.4	54.7	59.9	60.4	69.0
	12	70.4	55.7	66.1	60.4	72.2	I	20.7	Y	3.0	8.3	X	1.0	49.0	Z	6.0	-	-	-	67.4	54.7	60.1	60.4	69.0
	13	70.4	55.7	66.1	60.5	72.2	I	22.0	Y	3.0	9.1	X	1.0	50.6	Z	6.0	-	-	-	67.4	54.7	60.1	60.5	69.0
	14	70.4	55.7	66.1	60.5	72.2	I	23.3	Y	3.0	9.8	X	1.0	52.1	Z	6.0	-	-	-	67.4	54.7	60.1	60.5	69.0
	15	70.4	55.6	66.0	60.6	72.1	I	24.6	Y	3.0	10.6	X	1.0	53.5	Z	6.0	-	-	-	67.4	54.6	60.0	60.6	69.0
	16	70.3	55.6	65.9	60.6	72.1	I	25.8	Y	3.0	11.3	X	1.0	54.8	Z	6.0	-	-	-	67.3	54.6	59.9	60.6	68.9
	17	70.2	55.6	65.8	60.6	72.0	I	27.0	Y	3.0	12.1	X	1.0	56.1	Z	6.0	-	-	-	67.2	54.6	59.8	60.6	68.8
	18	70.2	55.5	65.6	60.7	71.9	I	28.2	Y	3.0	12.8	X	1.0	57.2	Z	6.0	-	-	-	67.2	54.5	59.6	60.7	68.8
	19	70.1	55.5	65.5	60.7	71.9	I	29.4	Y	3.0	13.5	X	1.0	58.3	Z	6.0	-	-	-	67.1	54.5	59.5	60.7	68.7
	20	70.1	55.5	65.4	60.7	71.8	I	30.5	Y	3.0	14.3	X	1.0	59.4	Z	6.0	-	-	-	67.1	54.5	59.4	60.7	68.7
	21	70.0	55.5	65.3	60.7	71.7	I	31.7	Y	3.0	15.0	X	1.0	60.4	Z	6.0	-	-	-	67.0	54.5	59.3	60.7	68.6
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	69.9	53.2	64.9	60.8	71.6	I	34.5	Y	3.0	16.9	Y	3.0	62.7	Z	6.0	-	-	-	66.9	50.2	58.9	60.8	68.4
	24	69.8	53.2	64.8	60.8	71.5	I	35.5	Y	3.0	17.6	Y	3.0	63.5	Z	6.0	-	-	-	66.8	50.2	58.8	60.8	68.4
	25	69.8	53.2	64.7	60.9	71.4	I	36.5	Y	3.0	18.3	Y	3.0	64.2	Z	6.0	-	-	-	66.8	50.2	58.7	60.9	68.4
	26	69.7	53.1	64.6	60.9	71.4	I	37.4	Y	3.0	19.0	Y	3.0	64.9	Z	6.0	-	-	-	66.7	50.1	58.6	60.9	68.3
	27	69.7	53.1	64.5	60.9	71.3	I	38.4	Y	3.0	19.7	Y	3.0	65.6	Z	6.0	-	-	-	66.7	50.1	58.5	60.9	68.3
	28	69.6	53.1	64.3	60.9	71.2	I	39.3	Y	3.0	20.3	Y	3.0	66.2	Z	6.0	-	-	-	66.6	50.1	58.3	60.9	68.2
	29	69.5	53.0	64.2	60.9	71.2	I	40.2	Y	3.0	21.0	Y	3.0	66.9	Z	6.0	-	-	-	66.5	50.0	58.2	60.9	68.1
	30	69.5	53.0	64.1	60.9	71.1	I	41.1	Y	3.0	21.7	Y	3.0	67.4	Z	6.0	-	-	-	66.5	50.0	58.1	60.9	68.1
	31	69.4	53.0	64.0	60.9	71.0	I	41.9	Y	3.0	22.4	Y	3.0	68.0	Z	6.0	-	-	-	66.4	50.0	58.0	60.9	68.0
	32	69.4	53.0	63.9	61.0	71.0	I	42.8	Y	3.0	23.0	Y	3.0	68.5	Z	6.0	-	-	-	66.4	50.0	57.9	61.0	68.0
	33	69.3	52.9	63.8	61.0	70.9	I	43.6	Y	3.0	23.7	Y	3.0	69.0	Z	6.0	-	-	-	66.3	49.9	57.8	61.0	67.9
	34	69.2	52.9	63.7	61.0	70.8	I	44.4	Y	3.0	24.3	Y	3.0	69.5	Z	6.0	-	-	-	66.2	49.9	57.7	61.0	67.9
	35	69.2	52.9	63.6	61.0	70.8	I	45.1	Z	5.0	24.9	Y	3.0	70.0	Z	6.0	-	-	-	64.2	49.9	57.6	61.0	66.6
	36	69.1	52.9	63.5	61.0	70.7	I	45.9	Z	5.0	25.6	Y	3.0	70.4	Z	6.0	-	-	-	64.1	49.9	57.5	61.0	66.5
	37	69.0	52.9	63.4	61.0	70.7	I	46.6	Z	5.0	26.2	Y	3.0	70.8	Z	6.0	-	-	-	64.0	49.9	57.4	61.0	66.5
	38	69.0	52.9	63.4	61.0	70.6	I	47.3	Z	5.0	26.8	Y	3.0	71.3	Z	6.0	-	-	-	64.0	49.9	57.4	61.0	66.5
	39	68.9	52.8	63.3	61.0	70.6	I	48.0	Z	5.0	27.4	Y	3.0	71.6	Z	6.0	-	-	-	63.9	49.8	57.3	61.0	66.4
	40	68.9	52.8	63.2	61.1	70.5	I	48.7	Z	5.0	28.0	Y	3.0	72.0	Z	6.0	-	-	-	63.9	49.8	57.2	61.1	66.4
	41	68.8	52.8	63.1	61.1	70.4	I	49.3	Z	5.0	28.6	Y	3.0	72.4	Z	6.0	-	-	-	63.8	49.8	57.1	61.1	66.3
	42	68.7	52.8	63.0	61.2	70.4	N/A	50.0	Z	-	29.2	Y	-	72.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	68.7	52.7	62.9	61.2	70.3	N/A	50.6	Z	-	29.8	Y	-	73.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	68.6	52.7	62.8	61.2	70.3	N/A	51.2	Z	-	30.4	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	68.6	52.7	62.8	61.2	70.2	N/A	51.8	Z	-	31.0	Y	-	73.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R111c	4	69.2	54.0	55.3	58.7	69.8	N/A	9.6	X	-	2.2	X	-	31.4	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	70.0	54.7	57.5	59.2	70.7	I	11.1	X	1.0	3.0	X	1.0	34.1	Y	4.0	-	-	-	69.0	53.7	53.5	59.2	69.7
	6	70.3	55.1	59.6	59.6	71.1	I	12.6	X	1.0	3.8	X	1.0	36.7	Y	4.0	-	-	-	69.3	54.1	55.6	59.6	70.0
	7	70.4	55.4	61.8	59.8	71.4	I	14.1	X	1.0	4.5	X	1.0	39.1	Y	4.0	-	-	-	69.4	54.4	57.8	59.8	70.2
	8	70.4	55.8	63.5	60.0	71.6	I	15.6	Y	3.0	5.3	X	1.0	41.3	Y	4.0	-	-	-	67.4	54.8	59.5	60.0	68.9
	9	70.5	55.9	64.6	60.2	71.9	I	17.0	Y	3.0	6.1	X	1.0	43.4	Y	4.0	-	-	-	67.5	54.9	60.6	60.2	69.1
	10	70.5	56.1	65.4	60.3	72.1	I	18.4	Y	3.0	6.9	X	1.0	45.4	Z	6.0	-	-	-	67.5	55.1	59.4	60.3	69.0
	11	70.6	56.0	65.9	60.4	72.2	I	19.8	Y	3.0	7.6	X	1.0	47.2	Z	6.0	-	-	-	67.6	55.0	59.9	60.4	69.1
	12	70.6	56.1	66.0	60.4	72.3	I	21.2	Y	3.0	8.4	X	1.0	49.0	Z	6.0	-	-	-	67.6	55.1	60.0	60.4	69.1
	13	70.5	56.1	66.1	60.5	72.3	I	22.5	Y	3.0	9.2	X	1.0	50.6	Z	6.0	-	-	-	67.5	55.1	60.1	60.5	69.1
	14	70.5	56.1	66.0	60.5	72.3	I	23.8	Y	3.0	9.9	X	1.0	52.1	Z	6.0	-	-	-	67.5	55.1	60.0	60.5	69.1
	15	70.5	56.0	66.0	60.6	72.2	I	25.1	Y	3.0	10.7	X	1.0	53.5	Z	6.0	-	-	-	67.5	55.0	60.0	60.6	69.1
	16	70.4	56.0	65.8	60.6	72.1	I	26.4	Y	3.0	11.4	X	1.0	54.8	Z	6.0	-	-	-	67.4	55.0	59.8	60.6	69.0
	17	70.3	55.9	65.8	60.6	72.1	I	27.6	Y	3.0	12.2	X	1.0	56.1	Z	6.0	-	-	-	67.3	54.9	59.8	60.6	68.9
	18	70.3	55.9	65.7	60.7	72.0	I	28.8	Y	3.0	12.9	X	1.0	57.2	Z	6.0	-	-	-	67.3	54.9	59.7	60.7	68.9
	19	70.2	55.9	65.5	60.7	72.0	I	30.0	Y	3.0	13.6	X	1.0	58.3	Z	6.0	-	-	-	67.2	54.9	59.5	60.7	68.8
	20	70.2	55.8	65.4	60.7	71.9	I	31.1	Y	3.0	14.4	X	1.0	59.4	Z	6.0	-	-	-	67.2	54.8	59.4	60.7	68.8
	21	70.1	55.8	65.3	60.7	71.8	I	32.3	Y	3.0	15.1	Y	3.0	60.3	Z	6.0	-	-	-	67.1	52.8	59.3	60.7	68.7
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	70.0	53.6	64.9	60.8	71.6	I	35.1	Y	3.0	17.0	Y	3.0	62.7	Z	6.0	-	-	-	67.0	50.6	58.9	60.8	68.5
	24	70.0	53.6	64.8	60.8	71.6	I	36.1	Y	3.0	17.7	Y	3.0	63.4	Z	6.0	-	-	-	67.0	50.6	58.8	60.8	68.5
	25	69.9	53.6	64.7	60.8	71.5	I	37.1	Y	3.0	18.4	Y	3.0	64.2	Z	6.0	-	-	-	66.9	50.6	58.7	60.8	68.4
	26	69.8	53.6	64.6	60.9	71.4	I	38.1	Y	3.0	19.1	Y	3.0	64.9	Z	6.0	-	-	-	66.8	50.6	58.6	60.9	68.4
	27	69.8	53.5	64.5	60.9	71.4	I	39.0	Y	3.0	19.8	Y	3.0	65.6	Z	6.0	-	-	-	66.8	50.5	58.5	60.9	68.3
	28	69.7	53.6	64.4	60.9	71.3	I	40.0	Y	3.0	20.5	Y	3.0	66.2	Z	6.0	-	-	-	66.7	50.6	58.4	60.9	68.3
	29	69.6	53.6	64.3	60.9	71.2	I	40.9	Y	3.0	21.2	Y	3.0	66.8	Z	6.0	-	-	-	66.6	50.6	58.3	60.9	68.2
	30	69.6	53.6	64.1	60.9	71.2	I	41.7	Y	3.0	21.8	Y	3.0	67.4	Z	6.0	-	-	-	66.6	50.6	58.1	60.9	68.2
	31	69.5	53.5	64.0	60.9	71.1	I	42.6	Y	3.0	22.5	Y	3.0	68.0	Z	6.0	-	-	-	66.5	50.5	58.0	60.9	68.1
	32	69.4	53.5	63.9	61.0	71.0	I	43.4	Y	3.0	23.2	Y	3.0	68.5	Z	6.0	-	-	-	66.4	50.5	57.9	61.0	68.0
	33	69.4	53.5	63.8	60.9	71.0	I	44.2	Y	3.0	23.8	Y	3.0	69.0	Z	6.0	-	-	-	66.4	50.5	57.8	60.9	68.0
	34	69.3	53.4	63.7	61.0	70.9	I	45.0	Z	5.0	24.5	Y	3.0	69.5	Z	6.0	-	-	-	64.3	50.4	57.7	61.0	66.7
	35	69.2	53.4	63.6	61.0	70.8	I	45.8	Z	5.0	25.1	Y	3.0	70.0	Z	6.0	-	-	-	64.2	50.4	57.6	61.0	66.6
	36	69.2	53.4	63.6	61.0	70.8	I	46.5	Z	5.0	25.7	Y	3.0	70.4	Z	6.0	-	-	-	64.2	50.4	57.6	61.0	66.6
	37	69.1	53.3	63.5	61.0	70.7	I	47.3	Z	5.0	26.4	Y	3.0	70.8	Z	6.0	-	-	-	64.1	50.3	57.5	61.0	66.5
	38	69.1	53.3	63.4	61.0	70.7	I	48.0	Z	5.0	27.0	Y	3.0	71.2	Z	6.0	-	-	-	64.1	50.3	57.4	61.0	66.5
	39	69.0	53.3	63.3	61.0	70.6	I	48.7	Z	5.0	27.6	Y	3.0	71.6	Z	6.0	-	-	-	64.0	50.3	57.3	61.0	66.4
	40	68.9	53.3	63.2	61.1	70.6	I	49.3	Z	5.0	28.2	Y	3.0	72.0	Z	6.0	-	-	-	63.9	50.3	57.2	61.1	66.4
	41	68.9	53.2	63.1	61.1	70.5	I	50.0	Z	5.0	28.8	Y	3.0	72.4	Z	6.0	-	-	-	63.9	50.2	57.1	61.1	66.4
	42	68.8	53.2	63.0	61.1	70.4	N/A	50.6	Z	-	29.4	Y	-	72.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	68.8	53.2	62.9	61.2	70.4	N/A	51.2	Z	-	30.0	Y	-	73.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	68.7	53.1	62.9	61.2	70.3	N/A	51.8	Z	-	30.6	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	68.6	53.1	62.8	61.2	70.3	N/A	52.4	Z	-	31.2	Y	-	73.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R112a	4	70.1	57.3	55.6	59.2	70.8	I	11.8	X	1.0	2.4	X	1.0	31.6	Y	4.0	-	-	-	69.1	56.3	51.6	59.2	69.8
	5	71.2	57.5	59.0	59.5	71.9	II	13.6	X	2.5	3.2	X	2.5	34.3	Y	6.0	-	-	-	68.7	55.0	53.0	59.5	69.5
	6	71.5	57.7	60.7	59.8	72.3	I	15.4	Y	3.0	4.0	X	1.0	36.9	Y	4.0	-	-	-	68.5	56.7	56.7	59.8	69.5
	7	71.8	57.9	62.0	59.9	72.6	I	17.1	Y	3.0	4.8	X	1.0	39.3	Y	4.0	-	-	-	68.8	56.9	58.0	59.9	69.9
	8	71.9	58.0	63.2	60.0	72.8	I	18.8	Y	3.0	5.7	X	1.0	41.6	Y	4.0	-	-	-	68.9	57.0	59.2	60.0	70.0
	9	71.9	58.1	64.2	60.0	73.0	I	20.5	Y	3.0	6.5	X	1.0	43.7	Y	4.0	-	-	-	68.9	57.1	60.2	60.0	70.1
	10	71.9	58.2	65.3	60.1	73.1	I	22.2	Y	3.0	7.3	X	1.0	45.7	Z	6.0	-	-	-	68.9	57.2	59.3	60.1	70.1
	11	71.8	58.2	65.8	60.1	73.2	I	23.8	Y	3.0	8.1	X	1.0	47.5	Z	6.0	-	-	-	68.8	57.2	59.8	60.1	70.0
	12	71.8	58.3	66.0	60.1	73.2	I	25.4	Y	3.0	8.9	X	1.0	49.2	Z	6.0	-	-	-	68.8	57.3	60.0	60.1	70.1
	13	71.7	58.3	66.0	60.2	73.1	I	26.9	Y	3.0	9.7	X	1.0	50.8	Z	6.0	-	-	-	68.7	57.3	60.0	60.2	70.0
	14	71.6	58.3	66.1	60.2	73.1	I	28.4	Y	3.0	10.5	X	1.0	52.3	Z	6.0	-	-	-	68.6	57.3	60.1	60.2	69.9
	15	71.5	58.3	65.9	60.3	73.0	I	29.9	Y	3.0	11.3	X	1.0	53.7	Z	6.0	-	-	-	68.5	57.3	59.9	60.3	69.9
	16	71.5	58.3	65.8	60.3	72.9	I	31.3	Y	3.0	12.1	X	1.0	55.1	Z	6.0	-	-	-	68.5	57.3	59.8	60.3	69.8
	17	71.4	58.2	65.7	60.3	72.8	I	32.6	Y	3.0	12.9	X	1.0	56.3	Z	6.0	-	-	-	68.4	57.2	59.7	60.3	69.8
	18	71.3	58.2	65.6	60.4	72.7	I	34.0	Y	3.0	13.7	X	1.0	57.5	Z	6.0	-	-	-	68.3	57.2	59.6	60.4	69.7
	19	71.2	58.2	65.4	60.4	72.7	I	35.3	Y	3.0	14.5	X	1.0	58.6	Z	6.0	-	-	-	68.2	57.2	59.4	60.4	69.6
	20	71.1	58.2	65.3	60.4	72.6	I	36.5	Y	3.0	15.3	Y	3.0	59.6	Z	6.0	-	-	-	68.1	55.2	59.3	60.4	69.4
	21	71.0	58.1	65.2	60.4	72.5	I	37.7	Y	3.0	16.0	Y	3.0	60.6	Z	6.0	-	-	-	68.0	55.1	59.2	60.4	69.3
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	70.9	56.8	64.9	60.4	72.3	I	40.7	Y	3.0	18.0	Y	3.0	62.9	Z	6.0	-	-	-	67.9	53.8	58.9	60.4	69.2
	24	70.8	56.8	64.7	60.4	72.2	I	41.8	Y	3.0	18.8	Y	3.0	63.6	Z	6.0	-	-	-	67.8	53.8	58.7	60.4	69.1
	25	70.7	56.8	64.6	60.5	72.1	I	42.9	Y	3.0	19.5	Y	3.0	64.4	Z	6.0	-	-	-	67.7	53.8	58.6	60.5	69.0
	26	70.6	56.7	64.5	60.5	72.0	I	43.9	Y	3.0	20.3	Y	3.0	65.1	Z	6.0	-	-	-	67.6	53.7	58.5	60.5	68.9
	27	70.6	56.7	64.4	60.4	72.0	I	44.8	Y	3.0	21.0	Y	3.0	65.8	Z	6.0	-	-	-	67.6	53.7	58.4	60.4	68.9
	28	70.5	56.7	64.3	60.5	71.9	I	45.8	Z	5.0	21.7	Y	3.0	66.4	Z	6.0	-	-	-	65.5	53.7	58.3	60.5	67.5
	29	70.4	56.6	64.2	60.5	71.8	I	46.7	Z	5.0	22.4	Y	3.0	67.0	Z	6.0	-	-	-	65.4	53.6	58.2	60.5	67.4
	30	70.3	56.6	64.1	60.4	71.7	I	47.6	Z	5.0	23.1	Y	3.0	67.6	Z	6.0	-	-	-	65.3	53.6	58.1	60.4	67.3
	31	70.2	56.6	64.0	60.4	71.6	I	48.4	Z	5.0	23.8	Y	3.0	68.2	Z	6.0	-	-	-	65.2	53.6	58.0	60.4	67.2
	32	70.1	56.5	63.9	60.4	71.6	I	49.2	Z	5.0	24.5	Y	3.0	68.7	Z	6.0	-	-	-	65.1	53.5	57.9	60.4	67.1
	33	70.1	56.5	63.8	60.4	71.5	I	50.0	Z	5.0	25.2	Y	3.0	69.2	Z	6.0	-	-	-	65.1	53.5	57.8	60.4	67.1
	34	70.0	56.5	63.7	60.4	71.4	I	50.8	Z	5.0	25.9	Y	3.0	69.7	Z	6.0	-	-	-	65.0	53.5	57.7	60.4	67.1
	35	69.9	56.4	63.6	60.4	71.4	I	51.6	Z	5.0	26.5	Y	3.0	70.1	Z	6.0	-	-	-	64.9	53.4	57.6	60.4	67.0
	36	69.9	56.4	63.5	60.4	71.3	I	52.3	Z	5.0	27.2	Y	3.0	70.6	Z	6.0	-	-	-	64.9	53.4	57.5	60.4	67.0
	37	69.8	56.4	63.4	60.4	71.2	I	53.0	Z	5.0	27.9	Y	3.0	71.0	Z	6.0	-	-	-	64.8	53.4	57.4	60.4	66.9
	38	69.7	56.3	63.3	60.4	71.1	I	53.7	Z	5.0	28.5	Y	3.0	71.4	Z	6.0	-	-	-	64.7	53.3	57.3	60.4	66.8
	39	69.6	56.3	63.2	60.4	71.1	I	54.3	Z	5.0	29.1	Y	3.0	71.8	Z	6.0	-	-	-	64.6	53.3	57.2	60.4	66.7
	40	69.6	56.3	63.1	60.5	71.0	I	55.0	Z	5.0	29.8	Y	3.0	72.2	Z	6.0	-	-	-	64.6	53.3	57.1	60.5	66.8
	41	69.5	56.2	63.1	60.5	71.0	I	55.6	Z	5.0	30.4	Y	3.0	72.5	Z	6.0	-	-	-	64.5	53.2	57.1	60.5	66.7
	42	69.4	56.2	63.0	60.5	70.9	I	56.2	Z	5.0	31.0	Y	3.0	72.9	Z	6.0	-	-	-	64.4	53.2	57.0	60.5	66.6
	43	69.3	56.2	62.9	60.5	70.8	I	56.8	Z	5.0	31.6	Y	3.0	73.2	Z	6.0	-	-	-	64.3	53.2	56.9	60.5	66.5
	44	69.3	56.1	62.9	60.5	70.8	I	57.3	Z	5.0	32.2	Y	3.0	73.5	Z	6.0	-	-	-	64.3	53.1	56.9	60.5	66.5
	45	69.2	56.1	62.8	60.6	70.7	I	57.9	Z	5.0	32.8	Y	3.0	73.8	Z	6.0	-	-	-	64.2	53.1	56.8	60.6	66.5

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R112b	4	70.4	57.6	56.2	59.3	71.0	I	12.1	X	1.0	2.4	X	1.0	31.8	Y	4.0	-	-	-	69.4	56.6	52.2	59.3	70.1
	5	71.3	57.8	59.5	59.6	72.0	II	13.9	X	2.5	3.2	X	2.5	34.6	Y	6.0	-	-	-	68.8	55.3	53.5	59.6	69.6
	6	71.8	58.0	61.1	59.9	72.5	I	15.8	Y	3.0	4.1	X	1.0	37.1	Y	4.0	-	-	-	68.8	57.0	57.1	59.9	69.8
	7	72.0	58.2	62.3	60.0	72.8	I	17.6	Y	3.0	4.9	X	1.0	39.6	Y	4.0	-	-	-	69.0	57.2	58.3	60.0	70.1
	8	72.1	58.3	63.4	60.1	73.0	I	19.3	Y	3.0	5.7	X	1.0	41.8	Y	4.0	-	-	-	69.1	57.3	59.4	60.1	70.2
	9	72.1	58.4	64.4	60.2	73.1	I	21.0	Y	3.0	6.5	X	1.0	43.9	Y	4.0	-	-	-	69.1	57.4	60.4	60.2	70.3
	10	72.1	58.4	65.4	60.2	73.3	I	22.7	Y	3.0	7.4	X	1.0	45.9	Z	6.0	-	-	-	69.1	57.4	59.4	60.2	70.3
	11	72.0	58.5	65.9	60.3	73.3	I	24.4	Y	3.0	8.2	X	1.0	47.7	Z	6.0	-	-	-	69.0	57.5	59.9	60.3	70.2
	12	71.9	58.5	66.1	60.3	73.3	I	26.0	Y	3.0	9.0	X	1.0	49.5	Z	6.0	-	-	-	68.9	57.5	60.1	60.3	70.2
	13	71.8	58.6	66.0	60.3	73.2	I	27.5	Y	3.0	9.8	X	1.0	51.1	Z	6.0	-	-	-	68.8	57.6	60.0	60.3	70.1
	14	71.7	58.6	66.1	60.4	73.2	I	29.1	Y	3.0	10.6	X	1.0	52.6	Z	6.0	-	-	-	68.7	57.6	60.1	60.4	70.0
	15	71.6	58.5	65.9	60.4	73.1	I	30.5	Y	3.0	11.4	X	1.0	54.0	Z	6.0	-	-	-	68.6	57.5	59.9	60.4	69.9
	16	71.6	58.5	65.8	60.5	73.0	I	32.0	Y	3.0	12.3	X	1.0	55.3	Z	6.0	-	-	-	68.6	57.5	59.8	60.5	69.9
	17	71.5	58.5	65.7	60.5	72.9	I	33.3	Y	3.0	13.0	X	1.0	56.5	Z	6.0	-	-	-	68.5	57.5	59.7	60.5	69.9
	18	71.4	58.5	65.6	60.5	72.9	I	34.7	Y	3.0	13.8	X	1.0	57.7	Z	6.0	-	-	-	68.4	57.5	59.6	60.5	69.8
	19	71.3	58.4	65.5	60.6	72.8	I	36.0	Y	3.0	14.6	X	1.0	58.8	Z	6.0	-	-	-	68.3	57.4	59.5	60.6	69.7
	20	71.2	58.4	65.3	60.6	72.7	I	37.3	Y	3.0	15.4	Y	3.0	59.8	Z	6.0	-	-	-	68.2	55.4	59.3	60.6	69.5
	21	71.1	58.4	65.2	60.6	72.6	I	38.5	Y	3.0	16.2	Y	3.0	60.8	Z	6.0	-	-	-	68.1	55.4	59.2	60.6	69.4
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	71.0	57.1	64.9	60.6	72.4	I	41.5	Y	3.0	18.2	Y	3.0	63.1	Z	6.0	-	-	-	68.0	54.1	58.9	60.6	69.3
	24	70.9	57.1	64.7	60.6	72.3	I	42.6	Y	3.0	18.9	Y	3.0	63.8	Z	6.0	-	-	-	67.9	54.1	58.7	60.6	69.2
	25	70.8	57.1	64.6	60.6	72.2	I	43.6	Y	3.0	19.7	Y	3.0	64.6	Z	6.0	-	-	-	67.8	54.1	58.6	60.6	69.1
	26	70.7	57.0	64.5	60.6	72.1	I	44.6	Y	3.0	20.4	Y	3.0	65.3	Z	6.0	-	-	-	67.7	54.0	58.5	60.6	69.0
	27	70.7	57.0	64.4	60.6	72.1	I	45.6	Z	5.0	21.2	Y	3.0	66.0	Z	6.0	-	-	-	65.7	54.0	58.4	60.6	67.6
	28	70.6	57.0	64.3	60.6	72.0	I	46.5	Z	5.0	21.9	Y	3.0	66.6	Z	6.0	-	-	-	65.6	54.0	58.3	60.6	67.6
	29	70.5	56.9	64.2	60.6	71.9	I	47.5	Z	5.0	22.6	Y	3.0	67.2	Z	6.0	-	-	-	65.5	53.9	58.2	60.6	67.5
	30	70.4	56.9	64.1	60.6	71.8	I	48.3	Z	5.0	23.3	Y	3.0	67.8	Z	6.0	-	-	-	65.4	53.9	58.1	60.6	67.4
	31	70.3	56.9	64.0	60.6	71.7	I	49.2	Z	5.0	24.0	Y	3.0	68.3	Z	6.0	-	-	-	65.3	53.9	58.0	60.6	67.3
	32	70.3	56.8	63.9	60.6	71.7	I	50.0	Z	5.0	24.7	Y	3.0	68.9	Z	6.0	-	-	-	65.3	53.8	57.9	60.6	67.3
	33	70.2	56.8	63.8	60.6	71.6	I	50.8	Z	5.0	25.4	Y	3.0	69.4	Z	6.0	-	-	-	65.2	53.8	57.8	60.6	67.2
	34	70.1	56.8	63.7	60.6	71.5	I	51.6	Z	5.0	26.1	Y	3.0	69.8	Z	6.0	-	-	-	65.1	53.8	57.7	60.6	67.2
	35	70.0	56.7	63.6	60.6	71.5	I	52.3	Z	5.0	26.8	Y	3.0	70.3	Z	6.0	-	-	-	65.0	53.7	57.6	60.6	67.1
	36	69.9	56.7	63.5	60.6	71.4	I	53.0	Z	5.0	27.4	Y	3.0	70.7	Z	6.0	-	-	-	64.9	53.7	57.5	60.6	67.0
	37	69.8	56.7	63.4	60.6	71.3	I	53.7	Z	5.0	28.1	Y	3.0	71.1	Z	6.0	-	-	-	64.8	53.7	57.4	60.6	66.9
	38	69.8	56.6	63.3	60.6	71.2	I	54.4	Z	5.0	28.7	Y	3.0	71.5	Z	6.0	-	-	-	64.8	53.6	57.3	60.6	66.9
	39	69.7	56.6	63.2	60.6	71.2	I	55.1	Z	5.0	29.4	Y	3.0	71.9	Z	6.0	-	-	-	64.7	53.6	57.2	60.6	66.9
	40	69.6	56.6	63.1	60.6	71.1	I	55.7	Z	5.0	30.0	Y	3.0	72.3	Z	6.0	-	-	-	64.6	53.6	57.1	60.6	66.8
	41	69.5	56.5	63.0	60.6	71.0	I	56.3	Z	5.0	30.6	Y	3.0	72.7	Z	6.0	-	-	-	64.5	53.5	57.0	60.6	66.7
	42	69.5	56.5	62.9	60.7	71.0	I	56.9	Z	5.0	31.2	Y	3.0	73.0	Z	6.0	-	-	-	64.5	53.5	56.9	60.7	66.7
	43	69.4	56.4	62.9	60.7	70.9	I	57.5	Z	5.0	31.8	Y	3.0	73.3	Z	6.0	-	-	-	64.4	53.4	56.9	60.7	66.7
	44	69.4	56.4	62.8	60.7	70.8	I	58.0	Z	5.0	32.4	Y	3.0	73.6	Z	6.0	-	-	-	64.4	53.4	56.8	60.7	66.7
	45	69.3	56.4	62.7	60.7	70.8	I	58.6	Z	5.0	33.0	Y	3.0	74.0	Z	6.0	-	-	-	64.3	53.4	56.7	60.7	66.6

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R113b	4	70.8	58.3	57.9	59.4	71.6	II	12.9	X	2.5	2.4	X	2.5	32.4	Y	6.0	-	-	-	68.3	55.8	51.9	59.4	69.1
	5	71.9	58.5	60.8	59.8	72.6	II	14.8	X	2.5	3.3	X	2.5	35.2	Y	6.0	-	-	-	69.4	56.0	54.8	59.8	70.2
	6	72.5	58.6	62.0	60.0	73.2	II	16.8	Y	5.0	4.1	X	2.5	37.8	Y	6.0	-	-	-	67.5	56.1	56.0	60.0	68.7
	7	72.7	58.7	62.9	60.1	73.5	II	18.7	Y	5.0	5.0	X	2.5	40.2	Y	6.0	-	-	-	67.7	56.2	56.9	60.1	68.9
	8	72.7	58.8	64.0	60.2	73.6	II	20.5	Y	5.0	5.8	X	2.5	42.5	Y	6.0	-	-	-	67.7	56.3	58.0	60.2	69.0
	9	72.6	58.9	64.9	60.3	73.7	II	22.3	Y	5.0	6.7	X	2.5	44.6	Y	6.0	-	-	-	67.6	56.4	58.9	60.3	69.1
	10	72.5	59.0	65.7	60.3	73.7	II	24.1	Y	5.0	7.5	X	2.5	46.6	Z	7.5	-	-	-	67.5	56.5	58.2	60.3	68.9
	11	72.5	59.0	66.1	60.4	73.7	II	25.8	Y	5.0	8.4	X	2.5	48.4	Z	7.5	-	-	-	67.5	56.5	58.6	60.4	69.0
	12	72.4	59.0	66.2	60.4	73.7	II	27.5	Y	5.0	9.2	X	2.5	50.1	Z	7.5	-	-	-	67.4	56.5	58.7	60.4	68.9
	13	72.3	59.1	66.1	60.4	73.6	II	29.1	Y	5.0	10.0	X	2.5	51.7	Z	7.5	-	-	-	67.3	56.6	58.6	60.4	68.8
	14	72.2	59.0	66.1	60.5	73.5	II	30.7	Y	5.0	10.9	X	2.5	53.2	Z	7.5	-	-	-	67.2	56.5	58.6	60.5	68.8
	15	72.1	59.1	65.9	60.5	73.5	II	32.2	Y	5.0	11.7	X	2.5	54.6	Z	7.5	-	-	-	67.1	56.6	58.4	60.5	68.7
	16	72.1	59.0	65.9	60.5	73.4	I	33.7	Y	3.0	12.5	X	1.0	55.9	Z	6.0	-	-	-	69.1	58.0	59.9	60.5	70.4
	17	72.0	59.0	65.8	60.6	73.3	I	35.1	Y	3.0	13.3	X	1.0	57.2	Z	6.0	-	-	-	69.0	58.0	59.8	60.6	70.3
	18	71.9	59.0	65.6	60.6	73.2	I	36.5	Y	3.0	14.1	X	1.0	58.3	Z	6.0	-	-	-	68.9	58.0	59.6	60.6	70.2
	19	71.8	59.0	65.5	60.6	73.1	I	37.8	Y	3.0	14.9	X	1.0	59.4	Z	6.0	-	-	-	68.8	58.0	59.5	60.6	70.1
	20	71.7	58.9	65.3	60.6	73.0	I	39.1	Y	3.0	15.7	Y	3.0	60.4	Z	6.0	-	-	-	68.7	55.9	59.3	60.6	69.9
	21	71.6	58.9	65.2	60.6	72.9	I	40.3	Y	3.0	16.5	Y	3.0	61.4	Z	6.0	-	-	-	68.6	55.9	59.2	60.6	69.8
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	71.4	57.7	64.9	60.6	72.7	I	43.4	Y	3.0	18.6	Y	3.0	63.6	Z	6.0	-	-	-	68.4	54.7	58.9	60.6	69.6
	24	71.3	57.7	64.8	60.6	72.6	I	44.4	Y	3.0	19.3	Y	3.0	64.4	Z	6.0	-	-	-	68.3	54.7	58.8	60.6	69.5
	25	71.2	57.7	64.6	60.6	72.5	I	45.5	Z	5.0	20.1	Y	3.0	65.1	Z	6.0	-	-	-	66.2	54.7	58.6	60.6	68.0
	26	71.1	57.6	64.5	60.6	72.4	I	46.5	Z	5.0	20.8	Y	3.0	65.8	Z	6.0	-	-	-	66.1	54.6	58.5	60.6	67.9
	27	71.0	57.6	64.4	60.6	72.4	I	47.5	Z	5.0	21.6	Y	3.0	66.5	Z	6.0	-	-	-	66.0	54.6	58.4	60.6	67.9
	28	70.9	57.6	64.3	60.6	72.3	I	48.4	Z	5.0	22.3	Y	3.0	67.1	Z	6.0	-	-	-	65.9	54.6	58.3	60.6	67.8
	29	70.8	57.5	64.2	60.6	72.2	I	49.3	Z	5.0	23.1	Y	3.0	67.9	Z	6.0	-	-	-	65.8	54.5	58.2	60.6	67.7
	30	70.8	57.5	64.1	60.6	72.1	I	50.2	Z	5.0	23.8	Y	3.0	68.3	Z	6.0	-	-	-	65.8	54.5	58.1	60.6	67.7
	31	70.7	57.5	64.0	60.6	72.0	I	51.0	Z	5.0	24.5	Y	3.0	68.8	Z	6.0	-	-	-	65.7	54.5	58.0	60.6	67.6
	32	70.6	57.4	63.9	60.6	72.0	I	51.8	Z	5.0	25.2	Y	3.0	69.3	Z	6.0	-	-	-	65.6	54.4	57.9	60.6	67.5
	33	70.5	57.4	63.8	60.6	71.9	I	52.6	Z	5.0	25.9	Y	3.0	69.8	Z	6.0	-	-	-	65.5	54.4	57.8	60.6	67.5
	34	70.4	57.4	63.7	60.6	71.8	I	53.4	Z	5.0	26.6	Y	3.0	70.3	Z	6.0	-	-	-	65.4	54.4	57.7	60.6	67.4
	35	70.4	57.3	63.6	60.6	71.7	I	54.1	Z	5.0	27.3	Y	3.0	70.7	Z	6.0	-	-	-	65.4	54.3	57.6	60.6	67.4
	36	70.3	57.3	63.5	60.6	71.6	I	54.8	Z	5.0	27.9	Y	3.0	71.2	Z	6.0	-	-	-	65.3	54.3	57.5	60.6	67.3
	37	70.2	57.2	63.4	60.6	71.6	I	55.5	Z	5.0	28.6	Y	3.0	71.6	Z	6.0	-	-	-	65.2	54.2	57.4	60.6	67.2
	38	70.1	57.2	63.3	60.6	71.5	I	56.2	Z	5.0	29.3	Y	3.0	72.0	Z	6.0	-	-	-	65.1	54.2	57.3	60.6	67.1
	39	70.1	57.2	63.2	60.6	71.4	I	56.8	Z	5.0	29.9	Y	3.0	72.3	Z	6.0	-	-	-	65.1	54.2	57.2	60.6	67.1
	40	70.0	57.1	63.1	60.6	71.4	I	57.4	Z	5.0	30.5	Y	3.0	72.7	Z	6.0	-	-	-	65.0	54.1	57.1	60.6	67.1
	41	69.9	57.1	63.0	60.6	71.3	I	58.0	Z	5.0	31.2	Y	3.0	73.0	Z	6.0	-	-	-	64.9	54.1	57.0	60.6	67.0
	42	69.8	57.0	62.9	60.6	71.2	I	58.6	Z	5.0	31.8	Y	3.0	73.4	Z	6.0	-	-	-	64.8	54.0	56.9	60.6	66.9
	43	69.7	57.0	62.9	60.6	71.1	I	59.1	Z	5.0	32.4	Y	3.0	73.7	Z	6.0	-	-	-	64.7	54.0	56.9	60.6	66.8
	44	69.7	57.0	62.8	60.6	71.1	I	59.7	Z	5.0	33.0	Y	3.0	74.0	Z	6.0	-	-	-	64.7	54.0	56.8	60.6	66.8
	45	69.6	56.9	62.7	60.7	71.0	I	60.2	Z	5.0	33.6	Y	3.0	74.3	Z	6.0	-	-	-	64.6	53.9	56.7	60.7	66.8

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R113c	4	71.1	58.7	58.6	59.3	71.8	II	13.3	X	2.5	2.5	X	2.5	32.7	Y	6.0	-	-	-	68.6	56.2	52.6	59.3	69.4
	5	72.3	58.8	61.3	59.6	73.0	II	15.3	Y	5.0	3.3	X	2.5	35.4	Y	6.0	-	-	-	67.3	56.3	55.3	59.6	68.5
	6	72.8	58.9	62.3	59.9	73.5	II	17.3	Y	5.0	4.2	X	2.5	38.1	Y	6.0	-	-	-	67.8	56.4	56.3	59.9	69.0
	7	72.9	59.0	63.2	60.0	73.7	II	19.2	Y	5.0	5.0	X	2.5	40.5	Y	6.0	-	-	-	67.9	56.5	57.2	60.0	69.1
	8	73.0	59.1	64.3	60.1	73.9	II	21.1	Y	5.0	5.9	X	2.5	42.8	Y	6.0	-	-	-	68.0	56.6	58.3	60.1	69.3
	9	72.9	59.1	65.1	60.2	73.9	II	23.0	Y	5.0	6.8	X	2.5	44.9	Y	6.0	-	-	-	67.9	56.6	59.1	60.2	69.3
	10	72.8	59.2	65.8	60.2	73.9	II	24.8	Y	5.0	7.6	X	2.5	46.8	Z	7.5	-	-	-	67.8	56.7	58.3	60.2	69.1
	11	72.7	59.3	66.1	60.3	73.9	II	26.5	Y	5.0	8.5	X	2.5	48.7	Z	7.5	-	-	-	67.7	56.8	58.6	60.3	69.1
	12	72.6	59.3	66.2	60.3	73.9	II	28.2	Y	5.0	9.3	X	2.5	50.4	Z	7.5	-	-	-	67.6	56.8	58.7	60.3	69.1
	13	72.5	59.3	66.3	60.3	73.8	II	29.9	Y	5.0	10.1	X	2.5	52.0	Z	7.5	-	-	-	67.5	56.8	58.8	60.3	69.0
	14	72.4	59.3	66.1	60.4	73.7	II	31.5	Y	5.0	11.0	X	2.5	53.5	Z	7.5	-	-	-	67.4	56.8	58.6	60.4	68.9
	15	72.3	59.3	66.0	60.4	73.6	II	33.0	Y	5.0	11.8	X	2.5	54.9	Z	7.5	-	-	-	67.3	56.8	58.5	60.4	68.8
	16	72.2	59.3	65.9	60.4	73.5	I	34.5	Y	3.0	12.6	X	1.0	56.2	Z	6.0	-	-	-	69.2	58.3	59.9	60.4	70.4
	17	72.2	59.2	65.8	60.5	73.5	I	35.9	Y	3.0	13.5	X	1.0	57.4	Z	6.0	-	-	-	69.2	58.2	59.8	60.5	70.4
	18	72.1	59.2	65.6	60.5	73.3	I	37.3	Y	3.0	14.3	X	1.0	58.5	Z	6.0	-	-	-	69.1	58.2	59.6	60.5	70.3
	19	72.0	59.1	65.5	60.5	73.3	I	38.7	Y	3.0	15.1	Y	3.0	59.6	Z	6.0	-	-	-	69.0	56.1	59.5	60.5	70.2
	20	71.9	59.1	65.4	60.5	73.2	I	40.0	Y	3.0	15.9	Y	3.0	60.6	Z	6.0	-	-	-	68.9	56.1	59.4	60.5	70.1
	21	71.8	59.1	65.2	60.5	73.1	I	41.2	Y	3.0	16.7	Y	3.0	61.6	Z	6.0	-	-	-	68.8	56.1	59.2	60.5	70.0
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	71.6	58.0	64.9	60.5	72.8	I	44.3	Y	3.0	18.7	Y	3.0	63.8	Z	6.0	-	-	-	68.6	55.0	58.9	60.5	69.8
	24	71.5	58.0	64.8	60.5	72.7	I	45.3	Z	5.0	19.5	Y	3.0	64.6	Z	6.0	-	-	-	66.5	55.0	58.8	60.5	68.2
	25	71.4	57.9	64.6	60.5	72.6	I	46.4	Z	5.0	20.3	Y	3.0	65.3	Z	6.0	-	-	-	66.4	54.9	58.6	60.5	68.1
	26	71.3	57.9	64.5	60.5	72.5	I	47.4	Z	5.0	21.0	Y	3.0	66.0	Z	6.0	-	-	-	66.3	54.9	58.5	60.5	68.1
	27	71.2	57.8	64.4	60.5	72.5	I	48.4	Z	5.0	21.8	Y	3.0	66.7	Z	6.0	-	-	-	66.2	54.8	58.4	60.5	68.0
	28	71.1	57.8	64.3	60.5	72.4	I	49.3	Z	5.0	22.5	Y	3.0	67.3	Z	6.0	-	-	-	66.1	54.8	58.3	60.5	67.9
	29	71.0	57.8	64.2	60.5	72.3	I	50.2	Z	5.0	23.3	Y	3.0	67.9	Z	6.0	-	-	-	66.0	54.8	58.2	60.5	67.8
	30	70.9	57.7	64.1	60.5	72.2	I	51.1	Z	5.0	24.0	Y	3.0	68.4	Z	6.0	-	-	-	65.9	54.7	58.1	60.5	67.7
	31	70.8	57.7	64.0	60.5	72.1	I	51.9	Z	5.0	24.7	Y	3.0	69.0	Z	6.0	-	-	-	65.8	54.7	58.0	60.5	67.7
	32	70.7	57.7	63.9	60.5	72.0	I	52.7	Z	5.0	25.4	Y	3.0	69.5	Z	6.0	-	-	-	65.7	54.7	57.9	60.5	67.6
	33	70.7	57.6	63.8	60.5	72.0	I	53.5	Z	5.0	26.1	Y	3.0	70.0	Z	6.0	-	-	-	65.7	54.6	57.8	60.5	67.6
	34	70.6	57.6	63.7	60.4	71.9	I	54.2	Z	5.0	26.8	Y	3.0	70.4	Z	6.0	-	-	-	65.6	54.6	57.7	60.4	67.5
	35	70.5	57.6	63.6	60.5	71.8	I	55.0	Z	5.0	27.5	Y	3.0	70.9	Z	6.0	-	-	-	65.5	54.6	57.6	60.5	67.4
	36	70.4	57.5	63.5	60.4	71.7	I	55.7	Z	5.0	28.2	Y	3.0	71.3	Z	6.0	-	-	-	65.4	54.5	57.5	60.4	67.3
	37	70.3	57.5	63.4	60.4	71.7	I	56.3	Z	5.0	28.8	Y	3.0	71.7	Z	6.0	-	-	-	65.3	54.5	57.4	60.4	67.3
	38	70.3	57.5	63.3	60.4	71.6	I	57.0	Z	5.0	29.5	Y	3.0	72.1	Z	6.0	-	-	-	65.3	54.5	57.3	60.4	67.2
	39	70.2	57.4	63.2	60.4	71.5	I	57.6	Z	5.0	30.1	Y	3.0	72.5	Z	6.0	-	-	-	65.2	54.4	57.2	60.4	67.2
	40	70.1	57.4	63.1	60.4	71.4	I	58.2	Z	5.0	30.8	Y	3.0	72.8	Z	6.0	-	-	-	65.1	54.4	57.1	60.4	67.1
	41	70.0	57.4	63.0	60.5	71.4	I	58.8	Z	5.0	31.4	Y	3.0	73.2	Z	6.0	-	-	-	65.0	54.4	57.0	60.5	67.0
	42	70.0	57.3	62.9	60.5	71.3	I	59.4	Z	5.0	32.0	Y	3.0	73.5	Z	6.0	-	-	-	65.0	54.3	56.9	60.5	67.0
	43	69.9	57.3	62.9	60.5	71.3	I	59.9	Z	5.0	32.7	Y	3.0	73.8	Z	6.0	-	-	-	64.9	54.3	56.9	60.5	67.0
	44	69.8	57.2	62.8	60.5	71.2	I	60.5	Z	5.0	33.3	Y	3.0	74.2	Z	6.0	-	-	-	64.8	54.2	56.8	60.5	66.9
	45	69.7	57.2	62.7	60.5	71.1	I	61.0	Z	5.0	33.9	Y	3.0	74.4	Z	6.0	-	-	-	64.7	54.2	56.7	60.5	66.8

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R114a	4	71.4	59.0	59.3	59.4	72.1	II	13.8	X	2.5	2.5	X	2.5	33.0	Y	6.0	-	-	-	68.9	56.5	53.3	59.4	69.7
	5	72.8	59.0	62.0	59.7	73.5	II	15.9	Y	5.0	3.4	X	2.5	35.8	Y	6.0	-	-	-	67.8	56.5	56.0	59.7	68.9
	6	73.3	59.1	62.7	59.9	74.0	II	17.9	Y	5.0	4.2	X	2.5	38.4	Y	6.0	-	-	-	68.3	56.6	56.7	59.9	69.4
	7	73.3	59.2	63.6	60.1	74.1	II	19.9	Y	5.0	5.1	X	2.5	40.9	Y	6.0	-	-	-	68.3	56.7	57.6	60.1	69.5
	8	73.2	59.2	64.4	60.2	74.1	II	21.9	Y	5.0	6.0	X	2.5	43.2	Y	6.0	-	-	-	68.2	56.7	58.4	60.2	69.5
	9	73.2	59.3	65.4	60.2	74.2	II	23.8	Y	5.0	6.8	X	2.5	45.3	Z	7.5	-	-	-	68.2	56.8	57.9	60.2	69.4
	10	73.1	59.4	66.0	60.3	74.2	II	25.6	Y	5.0	7.7	X	2.5	47.2	Z	7.5	-	-	-	68.1	56.9	58.5	60.3	69.4
	11	73.0	59.4	66.2	60.3	74.2	II	27.4	Y	5.0	8.6	X	2.5	49.1	Z	7.5	-	-	-	68.0	56.9	58.7	60.3	69.4
	12	72.9	59.4	66.2	60.4	74.1	II	29.2	Y	5.0	9.4	X	2.5	50.8	Z	7.5	-	-	-	67.9	56.9	58.7	60.4	69.3
	13	72.8	59.4	66.2	60.4	74.0	II	30.9	Y	5.0	10.3	X	2.5	52.4	Z	7.5	-	-	-	67.8	56.9	58.7	60.4	69.2
	14	72.7	59.4	66.1	60.4	74.0	II	32.5	Y	5.0	11.1	X	2.5	53.9	Z	7.5	-	-	-	67.7	56.9	58.6	60.4	69.1
	15	72.6	59.4	66.0	60.5	73.9	II	34.1	Y	5.0	11.9	X	2.5	55.2	Z	7.5	-	-	-	67.6	56.9	58.5	60.5	69.1
	16	72.5	59.4	65.9	60.5	73.8	II	35.6	Y	5.0	12.8	X	2.5	56.5	Z	7.5	-	-	-	67.5	56.9	58.4	60.5	69.0
	17	72.4	59.3	65.8	60.5	73.7	II	37.0	Y	5.0	13.6	X	2.5	57.7	Z	7.5	-	-	-	67.4	56.8	58.3	60.5	68.9
	18	72.3	59.3	65.6	60.5	73.6	II	38.4	Y	5.0	14.4	X	2.5	58.9	Z	7.5	-	-	-	67.3	56.8	58.1	60.5	68.8
	19	72.2	59.3	65.5	60.5	73.5	II	39.8	Y	5.0	15.3	Y	5.0	60.0	Z	7.5	-	-	-	67.2	54.3	58.0	60.5	68.6
	20	72.1	59.2	65.4	60.5	73.4	I	41.1	Y	3.0	16.1	Y	3.0	61.0	Z	6.0	-	-	-	69.1	56.2	59.4	60.5	70.2
	21	72.0	59.2	65.2	60.5	73.3	I	42.3	Y	3.0	16.9	Y	3.0	61.9	Z	6.0	-	-	-	69.0	56.2	59.2	60.5	70.1
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	71.8	58.1	64.9	60.5	73.0	I	45.4	Z	5.0	19.0	Y	3.0	64.1	Z	6.0	-	-	-	66.8	55.1	58.9	60.5	68.5
	24	71.7	58.0	64.8	60.5	72.9	I	46.5	Z	5.0	19.7	Y	3.0	64.9	Z	6.0	-	-	-	66.7	55.0	58.8	60.5	68.4
	25	71.6	58.0	64.7	60.5	72.8	I	47.5	Z	5.0	20.5	Y	3.0	65.6	Z	6.0	-	-	-	66.6	55.0	58.7	60.5	68.3
	26	71.5	58.0	64.5	60.5	72.7	I	48.5	Z	5.0	21.3	Y	3.0	66.3	Z	6.0	-	-	-	66.5	55.0	58.5	60.5	68.2
	27	71.4	57.9	64.4	60.5	72.6	I	49.5	Z	5.0	22.0	Y	3.0	66.9	Z	6.0	-	-	-	66.4	54.9	58.4	60.5	68.1
	28	71.3	57.9	64.3	60.5	72.6	I	50.4	Z	5.0	22.8	Y	3.0	67.6	Z	6.0	-	-	-	66.3	54.9	58.3	60.5	68.0
	29	71.3	57.9	64.2	60.5	72.5	I	51.3	Z	5.0	23.5	Y	3.0	68.1	Z	6.0	-	-	-	66.3	54.9	58.2	60.5	68.0
	30	71.2	57.9	64.1	60.4	72.4	I	52.2	Z	5.0	24.2	Y	3.0	68.7	Z	6.0	-	-	-	66.2	54.9	58.1	60.4	67.9
	31	71.1	57.8	64.0	60.4	72.3	I	53.0	Z	5.0	25.0	Y	3.0	69.2	Z	6.0	-	-	-	66.1	54.8	58.0	60.4	67.9
	32	71.0	57.8	63.9	60.4	72.2	I	53.8	Z	5.0	25.7	Y	3.0	69.7	Z	6.0	-	-	-	66.0	54.8	57.9	60.4	67.8
	33	70.9	57.7	63.8	60.4	72.2	I	54.6	Z	5.0	26.4	Y	3.0	70.2	Z	6.0	-	-	-	65.9	54.7	57.8	60.4	67.7
	34	70.8	57.7	63.7	60.4	72.1	I	55.3	Z	5.0	27.1	Y	3.0	70.7	Z	6.0	-	-	-	65.8	54.7	57.7	60.4	67.6
	35	70.7	57.6	63.6	60.4	72.0	I	56.0	Z	5.0	27.8	Y	3.0	71.1	Z	6.0	-	-	-	65.7	54.6	57.6	60.4	67.5
	36	70.6	57.6	63.5	60.4	71.9	I	56.7	Z	5.0	28.5	Y	3.0	71.5	Z	6.0	-	-	-	65.6	54.6	57.5	60.4	67.5
	37	70.5	57.6	63.4	60.4	71.8	I	57.4	Z	5.0	29.1	Y	3.0	72.0	Z	6.0	-	-	-	65.5	54.6	57.4	60.4	67.4
	38	70.4	57.5	63.3	60.4	71.7	I	58.0	Z	5.0	29.8	Y	3.0	72.3	Z	6.0	-	-	-	65.4	54.5	57.3	60.4	67.3
	39	70.4	57.5	63.2	60.4	71.6	I	58.6	Z	5.0	30.5	Y	3.0	72.7	Z	6.0	-	-	-	65.4	54.5	57.2	60.4	67.3
	40	70.3	57.4	63.1	60.4	71.6	I	59.2	Z	5.0	31.1	Y	3.0	73.1	Z	6.0	-	-	-	65.3	54.4	57.1	60.4	67.2
	41	70.2	57.4	63.0	60.4	71.5	I	59.8	Z	5.0	31.7	Y	3.0	73.4	Z	6.0	-	-	-	65.2	54.4	57.0	60.4	67.1
	42	70.2	57.4	62.9	60.4	71.5	I	60.4	Z	5.0	32.4	Y	3.0	73.7	Z	6.0	-	-	-	65.2	54.4	56.9	60.4	67.1
	43	70.1	57.3	62.9	60.4	71.4	I	60.9	Z	5.0	33.0	Y	3.0	74.1	Z	6.0	-	-	-	65.1	54.3	56.9	60.4	67.1
	44	70.0	57.3	62.8	60.5	71.3	I	61.4	Z	5.0	33.6	Y	3.0	74.4	Z	6.0	-	-	-	65.0	54.3	56.8	60.5	67.0
	45	69.9	57.3	62.7	60.5	71.3	I	61.9	Z	5.0	34.2	Y	3.0	74.7	Z	6.0	-	-	-	64.9	54.3	56.7	60.5	66.9

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R114b	4	71.8	59.1	59.9	59.5	72.5	II	14.2	X	2.5	2.5	X	2.5	33.3	Y	6.0	-	-	-	69.3	56.6	53.9	59.5	70.0
	5	73.3	59.2	62.5	59.8	74.0	II	16.4	Y	5.0	3.4	X	2.5	36.1	Y	6.0	-	-	-	68.3	56.7	56.5	59.8	69.4
	6	73.7	59.3	63.1	60.0	74.3	II	18.5	Y	5.0	4.3	X	2.5	38.7	Y	6.0	-	-	-	68.7	56.8	57.1	60.0	69.7
	7	73.6	59.3	63.9	60.1	74.4	II	20.5	Y	5.0	5.2	X	2.5	41.2	Y	6.0	-	-	-	68.6	56.8	57.9	60.1	69.7
	8	73.6	59.4	64.7	60.2	74.4	II	22.5	Y	5.0	6.0	X	2.5	43.5	Y	6.0	-	-	-	68.6	56.9	58.7	60.2	69.8
	9	73.5	59.4	65.6	60.3	74.5	II	24.5	Y	5.0	6.9	X	2.5	45.6	Z	7.5	-	-	-	68.5	56.9	58.1	60.3	69.7
	10	73.4	59.5	66.1	60.4	74.5	II	26.4	Y	5.0	7.8	X	2.5	47.6	Z	7.5	-	-	-	68.4	57.0	58.6	60.4	69.7
	11	73.3	59.5	66.2	60.4	74.4	II	28.2	Y	5.0	8.6	X	2.5	49.4	Z	7.5	-	-	-	68.3	57.0	58.7	60.4	69.6
	12	73.2	59.5	66.4	60.4	74.3	II	30.0	Y	5.0	9.5	X	2.5	51.1	Z	7.5	-	-	-	68.2	57.0	58.9	60.4	69.5
	13	73.1	59.5	66.2	60.4	74.2	II	31.7	Y	5.0	10.4	X	2.5	52.7	Z	7.5	-	-	-	68.1	57.0	58.7	60.4	69.4
	14	73.0	59.5	66.1	60.4	74.1	II	33.3	Y	5.0	11.2	X	2.5	54.2	Z	7.5	-	-	-	68.0	57.0	58.6	60.4	69.4
	15	72.9	59.5	66.0	60.5	74.1	II	34.9	Y	5.0	12.1	X	2.5	55.5	Z	7.5	-	-	-	67.9	57.0	58.5	60.5	69.3
	16	72.8	59.4	65.9	60.5	73.9	II	36.5	Y	5.0	12.9	X	2.5	56.8	Z	7.5	-	-	-	67.8	56.9	58.4	60.5	69.2
	17	72.6	59.4	65.7	60.5	73.8	II	37.9	Y	5.0	13.7	X	2.5	58.0	Z	7.5	-	-	-	67.6	56.9	58.2	60.5	69.0
	18	72.5	59.4	65.7	60.5	73.7	II	39.3	Y	5.0	14.6	X	2.5	59.2	Z	7.5	-	-	-	67.5	56.9	58.2	60.5	69.0
	19	72.4	59.3	65.5	60.5	73.6	II	40.7	Y	5.0	15.4	Y	5.0	60.2	Z	7.5	-	-	-	67.4	54.3	58.0	60.5	68.8
	20	72.3	59.3	65.4	60.5	73.5	I	42.0	Y	3.0	16.2	Y	3.0	61.2	Z	6.0	-	-	-	69.3	56.3	59.4	60.5	70.4
	21	72.2	59.3	65.2	60.5	73.4	I	43.3	Y	3.0	17.0	Y	3.0	62.2	Z	6.0	-	-	-	69.2	56.3	59.2	60.5	70.3
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	72.0	58.2	64.9	60.5	73.2	I	46.3	Z	5.0	19.1	Y	3.0	64.4	Z	6.0	-	-	-	67.0	55.2	58.9	60.5	68.6
	24	71.9	58.2	64.8	60.5	73.1	I	47.4	Z	5.0	19.9	Y	3.0	65.1	Z	6.0	-	-	-	66.9	55.2	58.8	60.5	68.5
	25	71.8	58.1	64.7	60.5	73.0	I	48.5	Z	5.0	20.7	Y	3.0	65.8	Z	6.0	-	-	-	66.8	55.1	58.7	60.5	68.4
	26	71.7	58.1	64.5	60.5	72.9	I	49.5	Z	5.0	21.5	Y	3.0	66.5	Z	6.0	-	-	-	66.7	55.1	58.5	60.5	68.3
	27	71.6	58.0	64.4	60.5	72.8	I	50.4	Z	5.0	22.2	Y	3.0	67.2	Z	6.0	-	-	-	66.6	55.0	58.4	60.5	68.3
	28	71.5	58.0	64.3	60.5	72.7	I	51.3	Z	5.0	23.0	Y	3.0	67.8	Z	6.0	-	-	-	66.5	55.0	58.3	60.5	68.2
	29	71.4	58.0	64.2	60.5	72.6	I	52.2	Z	5.0	23.7	Y	3.0	68.4	Z	6.0	-	-	-	66.4	55.0	58.2	60.5	68.1
	30	71.3	57.9	64.1	60.5	72.5	I	53.1	Z	5.0	24.5	Y	3.0	68.9	Z	6.0	-	-	-	66.3	54.9	58.1	60.5	68.0
	31	71.2	57.9	64.0	60.4	72.4	I	53.9	Z	5.0	25.2	Y	3.0	69.4	Z	6.0	-	-	-	66.2	54.9	58.0	60.4	67.9
	32	71.1	57.9	63.9	60.4	72.4	I	54.7	Z	5.0	25.9	Y	3.0	69.9	Z	6.0	-	-	-	66.1	54.9	57.9	60.4	67.9
	33	71.1	57.8	63.8	60.4	72.3	I	55.4	Z	5.0	26.6	Y	3.0	70.4	Z	6.0	-	-	-	66.1	54.8	57.8	60.4	67.8
	34	71.0	57.8	63.7	60.4	72.2	I	56.2	Z	5.0	27.3	Y	3.0	70.9	Z	6.0	-	-	-	66.0	54.8	57.7	60.4	67.8
	35	70.9	57.7	63.6	60.4	72.1	I	56.9	Z	5.0	28.0	Y	3.0	71.3	Z	6.0	-	-	-	65.9	54.7	57.6	60.4	67.7
	36	70.8	57.7	63.5	60.4	72.0	I	57.6	Z	5.0	28.7	Y	3.0	71.7	Z	6.0	-	-	-	65.8	54.7	57.5	60.4	67.6
	37	70.7	57.7	63.4	60.4	71.9	I	58.2	Z	5.0	29.4	Y	3.0	72.1	Z	6.0	-	-	-	65.7	54.7	57.4	60.4	67.5
	38	70.6	57.6	63.3	60.4	71.9	I	58.8	Z	5.0	30.0	Y	3.0	72.5	Z	6.0	-	-	-	65.6	54.6	57.3	60.4	67.4
	39	70.6	57.6	63.2	60.4	71.8	I	59.5	Z	5.0	30.7	Y	3.0	72.9	Z	6.0	-	-	-	65.6	54.6	57.2	60.4	67.4
	40	70.5	57.5	63.1	60.4	71.7	I	60.0	Z	5.0	31.4	Y	3.0	73.2	Z	6.0	-	-	-	65.5	54.5	57.1	60.4	67.4
	41	70.4	57.5	63.0	60.4	71.6	I	60.6	Z	5.0	32.0	Y	3.0	73.6	Z	6.0	-	-	-	65.4	54.5	57.0	60.4	67.3
	42	70.3	57.5	62.9	60.4	71.6	I	61.2	Z	5.0	32.6	Y	3.0	73.9	Z	6.0	-	-	-	65.3	54.5	56.9	60.4	67.2
	43	70.2	57.4	62.9	60.4	71.5	I	61.7	Z	5.0	33.2	Y	3.0	74.2	Z	6.0	-	-	-	65.2	54.4	56.9	60.4	67.1
	44	70.2	57.4	62.8	60.4	71.4	I	62.2	Z	5.0	33.9	Y	3.0	74.5	Z	6.0	-	-	-	65.2	54.4	56.8	60.4	67.1
	45	70.1	57.3	62.7	60.5	71.4	I	62.7	Z	5.0	34.5	Y	3.0	74.8	Z	6.0	-	-	-	65.1	54.3	56.7	60.5	67.1

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R115b	4	73.5	59.5	62.0	59.6	74.1	IV	15.3	Y	8.0	2.6	X	5.5	33.9	Y	9.0	-	-	-	65.5	54.0	53.0	59.6	66.9
	5	74.6	59.6	63.5	59.9	75.2	IV	17.6	Y	8.0	3.5	X	5.5	36.8	Y	9.0	-	-	-	66.6	54.1	54.5	59.9	67.8
	6	74.6	59.6	63.9	60.1	75.2	IV	19.9	Y	8.0	4.4	X	5.5	39.4	Y	9.0	-	-	-	66.6	54.1	54.9	60.1	67.9
	7	74.5	59.6	64.5	60.2	75.2	IV	22.1	Y	8.0	5.3	X	5.5	41.9	Y	9.0	-	-	-	66.5	54.1	55.5	60.2	67.9
	8	74.4	59.7	65.2	60.3	75.2	IV	24.2	Y	8.0	6.2	X	5.5	44.1	Y	9.0	-	-	-	66.4	54.2	56.2	60.3	67.9
	9	74.3	59.7	66.0	60.4	75.2	IV	26.2	Y	8.0	7.1	X	5.5	46.3	Z	10.0	-	-	-	66.3	54.2	56.0	60.4	67.8
	10	74.2	59.8	66.3	60.5	75.2	IV	28.2	Y	8.0	8.0	X	5.5	48.2	Z	10.0	-	-	-	66.2	54.3	56.3	60.5	67.8
	11	74.1	59.8	66.4	60.5	75.1	IV	30.1	Y	8.0	8.8	X	5.5	50.1	Z	10.0	-	-	-	66.1	54.3	56.4	60.5	67.7
	12	74.0	59.8	66.4	60.5	75.0	IV	32.0	Y	8.0	9.7	X	5.5	51.7	Z	10.0	-	-	-	66.0	54.3	56.4	60.5	67.6
	13	73.9	59.9	66.3	60.5	74.9	IV	33.7	Y	8.0	10.6	X	5.5	53.3	Z	10.0	-	-	-	65.9	54.4	56.3	60.5	67.6
	14	73.7	59.9	66.2	60.6	74.7	IV	35.4	Y	8.0	11.5	X	5.5	54.8	Z	10.0	-	-	-	65.7	54.4	56.2	60.6	67.4
	15	73.6	59.9	66.0	60.6	74.6	IV	37.1	Y	8.0	12.3	X	5.5	56.2	Z	10.0	-	-	-	65.6	54.4	56.0	60.6	67.4
	16	73.5	59.8	66.0	60.6	74.6	IV	38.6	Y	8.0	13.2	X	5.5	57.4	Z	10.0	-	-	-	65.5	54.3	56.0	60.6	67.3
	17	73.4	59.8	65.8	60.6	74.4	II	40.1	Y	5.0	14.1	X	2.5	58.6	Z	7.5	-	-	-	68.4	57.3	58.3	60.6	69.7
	18	73.3	59.7	65.7	60.6	74.3	II	41.6	Y	5.0	14.9	X	2.5	59.8	Z	7.5	-	-	-	68.3	57.2	58.2	60.6	69.6
	19	73.2	59.7	65.5	60.6	74.2	II	42.9	Y	5.0	15.7	Y	5.0	60.8	Z	7.5	-	-	-	68.2	54.7	58.0	60.6	69.4
	20	73.0	59.6	65.4	60.6	74.1	II	44.3	Y	5.0	16.6	Y	5.0	61.8	Z	7.5	-	-	-	68.0	54.6	57.9	60.6	69.2
	21	72.9	59.6	65.3	60.6	74.0	I	45.5	Z	5.0	17.4	Y	3.0	62.7	Z	6.0	-	-	-	67.9	56.6	59.3	60.6	69.4
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	72.7	58.6	64.9	60.6	73.7	I	48.6	Z	5.0	19.5	Y	3.0	64.9	Z	6.0	-	-	-	67.7	55.6	58.9	60.6	69.1
	24	72.6	58.6	64.8	60.6	73.6	I	49.7	Z	5.0	20.3	Y	3.0	65.6	Z	6.0	-	-	-	67.6	55.6	58.8	60.6	69.0
	25	72.5	58.5	64.7	60.6	73.5	I	50.7	Z	5.0	21.1	Y	3.0	66.3	Z	6.0	-	-	-	67.5	55.5	58.7	60.6	69.0
	26	72.3	58.5	64.6	60.6	73.4	I	51.7	Z	5.0	21.9	Y	3.0	67.0	Z	6.0	-	-	-	67.3	55.5	58.6	60.6	68.8
	27	72.2	58.4	64.4	60.5	73.3	I	52.6	Z	5.0	22.7	Y	3.0	67.6	Z	6.0	-	-	-	67.2	55.4	58.4	60.5	68.7
	28	72.1	58.4	64.3	60.5	73.2	I	53.5	Z	5.0	23.5	Y	3.0	68.2	Z	6.0	-	-	-	67.1	55.4	58.3	60.5	68.6
	29	72.0	58.4	64.2	60.5	73.1	I	54.4	Z	5.0	24.2	Y	3.0	68.8	Z	6.0	-	-	-	67.0	55.4	58.2	60.5	68.5
	30	71.9	58.3	64.1	60.5	73.0	I	55.2	Z	5.0	25.0	Y	3.0	69.4	Z	6.0	-	-	-	66.9	55.3	58.1	60.5	68.5
	31	71.9	58.3	64.0	60.5	72.9	I	56.0	Z	5.0	25.7	Y	3.0	69.9	Z	6.0	-	-	-	66.9	55.3	58.0	60.5	68.4
	32	71.8	58.2	63.9	60.5	72.9	I	56.8	Z	5.0	26.4	Y	3.0	70.4	Z	6.0	-	-	-	66.8	55.2	57.9	60.5	68.4
	33	71.7	58.2	63.8	60.5	72.8	I	57.5	Z	5.0	27.2	Y	3.0	70.8	Z	6.0	-	-	-	66.7	55.2	57.8	60.5	68.3
	34	71.6	58.1	63.7	60.5	72.7	I	58.2	Z	5.0	27.9	Y	3.0	71.3	Z	6.0	-	-	-	66.6	55.1	57.7	60.5	68.2
	35	71.5	58.1	63.6	60.5	72.6	I	58.9	Z	5.0	28.6	Y	3.0	71.7	Z	6.0	-	-	-	66.5	55.1	57.6	60.5	68.1
	36	71.4	58.0	63.5	60.4	72.5	I	59.6	Z	5.0	29.3	Y	3.0	72.1	Z	6.0	-	-	-	66.4	55.0	57.5	60.4	68.0
	37	71.3	58.0	63.4	60.4	72.4	I	60.2	Z	5.0	29.9	Y	3.0	72.5	Z	6.0	-	-	-	66.3	55.0	57.4	60.4	67.9
	38	71.2	57.9	63.3	60.4	72.3	I	60.8	Z	5.0	30.6	Y	3.0	72.9	Z	6.0	-	-	-	66.2	54.9	57.3	60.4	67.9
	39	71.2	57.9	63.2	60.4	72.3	I	61.4	Z	5.0	31.3	Y	3.0	73.3	Z	6.0	-	-	-	66.2	54.9	57.2	60.4	67.9
	40	71.1	57.9	63.1	60.4	72.2	I	62.0	Z	5.0	31.9	Y	3.0	73.6	Z	6.0	-	-	-	66.1	54.9	57.1	60.4	67.8
	41	71.0	57.8	63.0	60.4	72.1	I	62.5	Z	5.0	32.6	Y	3.0	73.9	Z	6.0	-	-	-	66.0	54.8	57.0	60.4	67.7
	42	70.9	57.8	63.0	60.4	72.1	I	63.0	Z	5.0	33.2	Y	3.0	74.3	Z	6.0	-	-	-	65.9	54.8	57.0	60.4	67.6
	43	70.8	57.7	62.9	60.4	72.0	I	63.5	Z	5.0	33.9	Y	3.0	74.6	Z	6.0	-	-	-	65.8	54.7	56.9	60.4	67.5
	44	70.8	57.7	62.8	60.4	71.9	I	64.0	Z	5.0	34.5	Y	3.0	74.9	Z	6.0	-	-	-	65.8	54.7	56.8	60.4	67.5
	45	70.7	57.6	62.7	60.5	71.9	I	64.5	Z	5.0	35.1	Y	3.0	75.2	Z	6.0	-	-	-	65.7	54.6	56.7	60.5	67.5

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R115c	4	75.4	59.7	63.0	59.7	75.8	IV	15.9	Y	8.0	2.6	X	5.5	34.2	Y	9.0	-	-	-	67.4	54.2	54.0	59.7	68.4
	5	75.7	59.7	64.0	60.0	76.2	IV	18.2	Y	8.0	3.5	X	5.5	37.1	Y	9.0	-	-	-	67.7	54.2	55.0	60.0	68.7
	6	75.6	59.7	64.3	60.1	76.1	IV	20.6	Y	8.0	4.4	X	5.5	39.7	Y	9.0	-	-	-	67.6	54.2	55.3	60.1	68.7
	7	75.5	59.8	64.9	60.3	76.1	IV	22.8	Y	8.0	5.3	X	5.5	42.2	Y	9.0	-	-	-	67.5	54.3	55.9	60.3	68.7
	8	75.4	59.9	65.6	60.4	76.1	IV	25.0	Y	8.0	6.2	X	5.5	44.5	Y	9.0	-	-	-	67.4	54.4	56.6	60.4	68.6
	9	75.3	59.9	66.2	60.4	76.0	IV	27.1	Y	8.0	7.1	X	5.5	46.6	Z	10.0	-	-	-	67.3	54.4	56.2	60.4	68.5
	10	75.2	60.0	66.4	60.5	76.0	IV	29.1	Y	8.0	8.0	X	5.5	48.5	Z	10.0	-	-	-	67.2	54.5	56.4	60.5	68.5
	11	75.1	60.0	66.5	60.5	75.9	IV	31.1	Y	8.0	8.9	X	5.5	50.4	Z	10.0	-	-	-	67.1	54.5	56.5	60.5	68.4
	12	74.9	60.0	66.4	60.5	75.7	IV	32.9	Y	8.0	9.8	X	5.5	52.1	Z	10.0	-	-	-	66.9	54.5	56.4	60.5	68.3
	13	74.8	60.1	66.4	60.5	75.7	IV	34.7	Y	8.0	10.7	X	5.5	53.6	Z	10.0	-	-	-	66.8	54.6	56.4	60.5	68.2
	14	74.7	60.0	66.2	60.6	75.5	IV	36.4	Y	8.0	11.6	X	5.5	55.1	Z	10.0	-	-	-	66.7	54.5	56.2	60.6	68.1
	15	74.6	60.0	66.1	60.6	75.4	IV	38.1	Y	8.0	12.5	X	5.5	56.5	Z	10.0	-	-	-	66.6	54.5	56.1	60.6	68.1
	16	74.4	60.0	65.9	60.6	75.3	IV	39.7	Y	8.0	13.3	X	5.5	57.7	Z	10.0	-	-	-	66.4	54.5	55.9	60.6	67.9
	17	74.3	59.9	65.8	60.6	75.2	II	41.2	Y	5.0	14.2	X	2.5	58.9	Z	7.5	-	-	-	69.3	57.4	58.3	60.6	70.4
	18	74.2	59.9	65.6	60.6	75.1	II	42.6	Y	5.0	15.0	Y	5.0	60.0	Z	7.5	-	-	-	69.2	54.9	58.1	60.6	70.2
	19	74.1	59.9	65.5	60.6	74.9	II	44.0	Y	5.0	15.9	Y	5.0	61.1	Z	7.5	-	-	-	69.1	54.9	58.0	60.6	70.1
	20	73.9	59.8	65.4	60.6	74.8	II	45.3	Z	6.5	16.7	Y	5.0	62.1	Z	7.5	-	-	-	67.4	54.8	57.9	60.6	68.8
	21	73.9	59.7	65.3	60.6	74.7	I	46.6	Z	5.0	17.6	Y	3.0	63.0	Z	6.0	-	-	-	68.9	56.7	59.3	60.6	70.1
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	73.5	58.7	64.9	60.6	74.4	I	49.6	Z	5.0	19.7	Y	3.0	65.1	Z	6.0	-	-	-	68.5	55.7	58.9	60.6	69.7
	24	73.4	58.7	64.8	60.6	74.3	I	50.7	Z	5.0	20.5	Y	3.0	65.9	Z	6.0	-	-	-	68.4	55.7	58.8	60.6	69.6
	25	73.3	58.7	64.7	60.6	74.2	I	51.7	Z	5.0	21.3	Y	3.0	66.6	Z	6.0	-	-	-	68.3	55.7	58.7	60.6	69.6
	26	73.3	58.6	64.6	60.6	74.1	I	52.7	Z	5.0	22.1	Y	3.0	67.2	Z	6.0	-	-	-	68.3	55.6	58.6	60.6	69.5
	27	73.2	58.6	64.4	60.6	74.0	I	53.6	Z	5.0	22.9	Y	3.0	67.9	Z	6.0	-	-	-	68.2	55.6	58.4	60.6	69.4
	28	73.1	58.6	64.3	60.6	73.9	I	54.5	Z	5.0	23.7	Y	3.0	68.5	Z	6.0	-	-	-	68.1	55.6	58.3	60.6	69.4
	29	72.9	58.5	64.2	60.6	73.8	I	55.4	Z	5.0	24.4	Y	3.0	69.0	Z	6.0	-	-	-	67.9	55.5	58.2	60.6	69.2
	30	72.8	58.4	64.1	60.6	73.7	I	56.2	Z	5.0	25.2	Y	3.0	69.6	Z	6.0	-	-	-	67.8	55.4	58.1	60.6	69.1
	31	72.7	58.4	64.0	60.6	73.6	I	57.0	Z	5.0	25.9	Y	3.0	70.1	Z	6.0	-	-	-	67.7	55.4	58.0	60.6	69.0
	32	72.6	58.4	63.9	60.5	73.5	I	57.7	Z	5.0	26.7	Y	3.0	70.6	Z	6.0	-	-	-	67.6	55.4	57.9	60.5	68.9
	33	72.5	58.3	63.8	60.5	73.5	I	58.5	Z	5.0	27.4	Y	3.0	71.0	Z	6.0	-	-	-	67.5	55.3	57.8	60.5	68.9
	34	72.4	58.2	63.7	60.5	73.4	I	59.2	Z	5.0	28.1	Y	3.0	71.5	Z	6.0	-	-	-	67.4	55.2	57.7	60.5	68.8
	35	72.4	58.2	63.6	60.5	73.3	I	59.8	Z	5.0	28.8	Y	3.0	71.9	Z	6.0	-	-	-	67.4	55.2	57.6	60.5	68.8
	36	72.3	58.2	63.5	60.5	73.2	I	60.5	Z	5.0	29.5	Y	3.0	72.3	Z	6.0	-	-	-	67.3	55.2	57.5	60.5	68.7
	37	72.2	58.1	63.4	60.5	73.1	I	61.1	Z	5.0	30.2	Y	3.0	72.7	Z	6.0	-	-	-	67.2	55.1	57.4	60.5	68.6
	38	72.1	58.1	63.3	60.5	73.1	I	61.7	Z	5.0	30.9	Y	3.0	73.1	Z	6.0	-	-	-	67.1	55.1	57.3	60.5	68.5
	39	72.1	58.0	63.2	60.5	73.0	I	62.3	Z	5.0	31.5	Y	3.0	73.4	Z	6.0	-	-	-	67.1	55.0	57.2	60.5	68.5
	40	72.0	58.0	63.1	60.5	72.9	I	62.8	Z	5.0	32.2	Y	3.0	73.8	Z	6.0	-	-	-	67.0	55.0	57.1	60.5	68.4
	41	71.9	57.9	63.0	60.5	72.9	I	63.4	Z	5.0	32.9	Y	3.0	74.1	Z	6.0	-	-	-	66.9	54.9	57.0	60.5	68.3
	42	71.8	57.9	63.0	60.5	72.8	I	63.9	Z	5.0	33.5	Y	3.0	74.4	Z	6.0	-	-	-	66.8	54.9	57.0	60.5	68.3
	43	71.8	57.9	62.9	60.5	72.7	I	64.4	Z	5.0	34.1	Y	3.0	74.7	Z	6.0	-	-	-	66.8	54.9	56.9	60.5	68.3
	44	71.7	57.8	62.8	60.5	72.7	I	64.8	Z	5.0	34.7	Y	3.0	75.0	Z	6.0	-	-	-	66.7	54.8	56.8	60.5	68.2
	45	71.6	57.8	62.7	60.6	72.6	I	65.3	Z	5.0	35.4	Y	3.0	75.3	Z	6.0	-	-	-	66.6	54.8	56.7	60.6	68.1

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R217a	4	66.2	50.3	56.1	58.6	67.3	N/A	7.0	X	-	2.0	X	-	31.3	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	66.7	50.6	58.6	59.6	68.1	N/A	8.2	X	-	2.7	X	-	34.1	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	67.2	50.6	61.5	60.2	68.9	N/A	9.3	X	-	3.4	X	-	36.6	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	7	67.4	50.6	64.1	60.6	69.7	N/A	10.4	X	-	4.1	X	-	39.1	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	8	67.7	50.7	65.3	60.9	70.3	N/A	11.4	X	-	4.7	X	-	41.3	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	9	68.0	50.7	65.8	61.0	70.6	I	12.5	X	1.0	5.4	X	1.0	43.4	Y	4.0	-	-	-	67.0	49.7	61.8	61.0	69.0
	10	68.1	50.8	66.0	61.1	70.7	I	13.6	X	1.0	6.1	X	1.0	45.4	Z	6.0	-	-	-	67.1	49.8	60.0	61.1	68.8
	11	68.1	50.8	66.1	61.2	70.8	I	14.7	X	1.0	6.8	X	1.0	47.2	Z	6.0	-	-	-	67.1	49.8	60.1	61.2	68.8
	12	68.2	50.8	66.0	61.3	70.8	I	15.7	Y	3.0	7.5	X	1.0	48.9	Z	6.0	-	-	-	65.2	49.8	60.0	61.3	67.6
	13	68.2	50.7	66.0	61.3	70.8	I	16.8	Y	3.0	8.2	X	1.0	50.6	Z	6.0	-	-	-	65.2	49.7	60.0	61.3	67.6
	14	68.2	50.7	65.8	61.3	70.8	I	17.8	Y	3.0	8.8	X	1.0	52.1	Z	6.0	-	-	-	65.2	49.7	59.8	61.3	67.6
	15	68.2	50.7	65.8	61.3	70.8	I	18.8	Y	3.0	9.5	X	1.0	53.5	Z	6.0	-	-	-	65.2	49.7	59.8	61.3	67.6
	16	68.2	50.8	65.7	61.3	70.7	I	19.8	Y	3.0	10.2	X	1.0	54.8	Z	6.0	-	-	-	65.2	49.8	59.7	61.3	67.6
	17	68.3	50.8	65.6	61.3	70.7	I	20.8	Y	3.0	10.9	X	1.0	56.0	Z	6.0	-	-	-	65.3	49.8	59.6	61.3	67.6
	18	68.2	50.7	65.5	61.4	70.7	I	21.8	Y	3.0	11.5	X	1.0	57.2	Z	6.0	-	-	-	65.2	49.7	59.5	61.4	67.5
	19	68.2	50.7	65.4	61.4	70.7	I	22.8	Y	3.0	12.2	X	1.0	58.3	Z	6.0	-	-	-	65.2	49.7	59.4	61.4	67.5
	20	68.2	50.7	65.3	61.4	70.6	I	23.7	Y	3.0	12.9	X	1.0	59.3	Z	6.0	-	-	-	65.2	49.7	59.3	61.4	67.5
	21	68.2	50.7	65.2	61.4	70.6	I	24.7	Y	3.0	13.5	X	1.0	60.3	Z	6.0	-	-	-	65.2	49.7	59.2	61.4	67.5
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	68.2	36.8	64.8	61.5	70.4	I	27.1	Y	3.0	15.2	Y	3.0	62.6	Z	6.0	-	-	-	65.2	33.8	58.8	61.5	67.4
	24	68.1	37.5	64.7	61.5	70.4	I	28.0	Y	3.0	15.9	Y	3.0	63.4	Z	6.0	-	-	-	65.1	34.5	58.7	61.5	67.3
	25	68.1	38.4	64.6	61.5	70.3	N/A	28.8	Y	-	16.5	Y	-	64.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	26	68.1	39.4	64.5	61.5	70.3	N/A	29.7	Y	-	17.1	Y	-	64.9	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	27	68.0	40.6	64.4	61.5	70.2	N/A	30.5	Y	-	17.8	Y	-	65.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	28	68.0	41.9	64.3	61.5	70.2	N/A	31.4	Y	-	18.4	Y	-	66.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	29	67.9	43.6	64.1	61.5	70.1	N/A	32.2	Y	-	19.0	Y	-	66.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	30	67.9	45.0	64.0	61.5	70.1	N/A	33.0	Y	-	19.6	Y	-	67.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	31	67.8	46.8	63.9	61.5	70.0	N/A	33.8	Y	-	20.2	Y	-	68.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	32	67.8	47.8	63.8	61.5	70.0	N/A	34.6	Y	-	20.9	Y	-	68.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	33	67.8	48.5	63.7	61.5	69.9	N/A	35.3	Y	-	21.5	Y	-	69.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	34	67.7	48.9	63.6	61.6	69.9	N/A	36.1	Y	-	22.1	Y	-	69.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	35	67.7	49.5	63.5	61.5	69.8	N/A	36.8	Y	-	22.7	Y	-	70.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	36	67.6	49.8	63.4	61.5	69.8	N/A	37.5	Y	-	23.2	Y	-	70.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	37	67.6	50.2	63.4	61.6	69.8	N/A	38.2	Y	-	23.8	Y	-	70.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	38	67.5	50.4	63.3	61.6	69.7	N/A	38.9	Y	-	24.4	Y	-	71.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	39	67.5	50.5	63.2	61.6	69.7	N/A	39.6	Y	-	25.0	Y	-	71.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	40	67.5	50.6	63.1	61.6	69.6	N/A	40.2	Y	-	25.5	Y	-	72.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	41	67.4	50.7	63.0	61.6	69.6	N/A	40.9	Y	-	26.1	Y	-	72.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	67.4	50.7	62.9	61.7	69.5	N/A	41.5	Y	-	26.7	Y	-	72.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	67.3	50.7	62.8	61.6	69.5	N/A	42.2	Y	-	27.2	Y	-	73.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	67.3	50.7	62.8	61.6	69.5	N/A	42.8	Y	-	27.8	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	67.2	50.7	62.7	61.7	69.4	N/A	43.4	Y	-	28.3	Y	-	73.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R217b	4	66.4	50.4	56.1	58.7	67.5	N/A	7.2	X	-	2.0	X	-	31.4	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	66.9	50.6	58.7	60.0	68.3	N/A	8.3	X	-	2.7	X	-	34.1	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	67.3	50.7	61.5	60.6	69.1	N/A	9.4	X	-	3.4	X	-	36.7	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	7	67.6	50.8	64.1	61.0	69.9	N/A	10.5	X	-	4.1	X	-	39.1	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	8	67.9	50.8	65.3	61.2	70.4	N/A	11.6	X	-	4.8	X	-	41.3	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	9	68.1	50.8	65.8	61.4	70.7	I	12.7	X	1.0	5.5	X	1.0	43.4	Y	4.0	-	-	-	67.1	49.8	61.8	61.4	69.1
	10	68.2	50.9	66.0	61.4	70.9	I	13.8	X	1.0	6.2	X	1.0	45.4	Z	6.0	-	-	-	67.2	49.9	60.0	61.4	68.9
	11	68.3	50.9	66.1	61.5	70.9	I	14.9	X	1.0	6.8	X	1.0	47.3	Z	6.0	-	-	-	67.3	49.9	60.1	61.5	69.0
	12	68.3	50.9	66.0	61.6	70.9	I	16.0	Y	3.0	7.5	X	1.0	49.0	Z	6.0	-	-	-	65.3	49.9	60.0	61.6	67.7
	13	68.3	50.9	66.0	61.6	70.9	I	17.0	Y	3.0	8.2	X	1.0	50.6	Z	6.0	-	-	-	65.3	49.9	60.0	61.6	67.7
	14	68.3	50.9	65.9	61.6	70.9	I	18.1	Y	3.0	8.9	X	1.0	52.1	Z	6.0	-	-	-	65.3	49.9	59.9	61.6	67.7
	15	68.3	50.9	65.9	61.6	70.9	I	19.1	Y	3.0	9.6	X	1.0	53.5	Z	6.0	-	-	-	65.3	49.9	59.9	61.6	67.7
	16	68.4	50.8	65.8	61.6	70.9	I	20.1	Y	3.0	10.3	X	1.0	54.8	Z	6.0	-	-	-	65.4	49.8	59.8	61.6	67.8
	17	68.3	50.8	65.7	61.6	70.8	I	21.1	Y	3.0	10.9	X	1.0	56.1	Z	6.0	-	-	-	65.3	49.8	59.7	61.6	67.7
	18	68.4	50.8	65.6	61.6	70.8	I	22.1	Y	3.0	11.6	X	1.0	57.2	Z	6.0	-	-	-	65.4	49.8	59.6	61.6	67.7
	19	68.4	50.9	65.4	61.6	70.8	I	23.1	Y	3.0	12.3	X	1.0	58.3	Z	6.0	-	-	-	65.4	49.9	59.4	61.6	67.7
	20	68.3	50.8	65.3	61.6	70.7	I	24.1	Y	3.0	12.9	X	1.0	59.4	Z	6.0	-	-	-	65.3	49.8	59.3	61.6	67.6
	21	68.3	50.8	65.2	61.6	70.7	I	25.0	Y	3.0	13.6	X	1.0	60.4	Z	6.0	-	-	-	65.3	49.8	59.2	61.6	67.6
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	68.3	39.6	64.9	61.7	70.5	I	27.5	Y	3.0	15.3	Y	3.0	62.7	Z	6.0	-	-	-	65.3	36.6	58.9	61.7	67.5
	24	68.3	40.2	64.8	61.7	70.5	I	28.4	Y	3.0	16.0	Y	3.0	63.5	Z	6.0	-	-	-	65.3	37.2	58.8	61.7	67.5
	25	68.2	40.8	64.7	61.7	70.4	N/A	29.2	Y	-	16.6	Y	-	64.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	26	68.2	41.5	64.6	61.7	70.4	N/A	30.1	Y	-	17.3	Y	-	64.9	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	27	68.1	42.4	64.5	61.7	70.3	N/A	31.0	Y	-	17.9	Y	-	65.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	28	68.1	43.4	64.3	61.7	70.3	N/A	31.8	Y	-	18.5	Y	-	66.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	29	68.1	44.9	64.2	61.7	70.2	N/A	32.6	Y	-	19.1	Y	-	66.9	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	30	68.0	46.3	64.1	61.7	70.2	N/A	33.4	Y	-	19.8	Y	-	67.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	31	68.0	47.7	64.0	61.7	70.1	N/A	34.2	Y	-	20.4	Y	-	68.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	32	67.9	48.5	63.9	61.7	70.1	N/A	35.0	Y	-	21.0	Y	-	68.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	33	67.9	49.2	63.8	61.7	70.0	N/A	35.8	Y	-	21.6	Y	-	69.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	34	67.8	49.6	63.7	61.7	70.0	N/A	36.5	Y	-	22.2	Y	-	69.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	35	67.8	50.1	63.6	61.7	69.9	N/A	37.2	Y	-	22.8	Y	-	70.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	36	67.7	50.6	63.5	61.7	69.9	N/A	38.0	Y	-	23.4	Y	-	70.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	37	67.7	50.9	63.4	61.7	69.9	N/A	38.7	Y	-	24.0	Y	-	70.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	38	67.6	51.1	63.4	61.7	69.8	N/A	39.4	Y	-	24.5	Y	-	71.3	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	39	67.6	51.2	63.3	61.7	69.8	N/A	40.1	Y	-	25.1	Y	-	71.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	40	67.5	51.3	63.2	61.8	69.7	N/A	40.7	Y	-	25.7	Y	-	72.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	41	67.5	51.3	63.1	61.8	69.7	N/A	41.4	Y	-	26.3	Y	-	72.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	67.4	51.4	63.0	61.8	69.6	N/A	42.0	Y	-	26.8	Y	-	72.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	67.4	51.4	62.9	61.8	69.6	N/A	42.6	Y	-	27.4	Y	-	73.1	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	67.3	51.3	62.8	61.8	69.5	N/A	43.3	Y	-	27.9	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	67.3	51.3	62.8	61.8	69.5	N/A	43.9	Y	-	28.5	Y	-	73.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance											Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R218b	4	66.7	50.7	56.1	58.6	67.7	N/A	7.4	X	-	2.0	X	-	31.3	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	67.3	50.8	58.6	59.6	68.5	N/A	8.6	X	-	2.7	X	-	34.1	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	67.7	50.9	61.4	60.1	69.2	N/A	9.8	X	-	3.4	X	-	36.6	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	7	68.1	51.0	63.9	60.5	70.0	N/A	10.9	X	-	4.1	X	-	39.0	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	8	68.3	50.9	65.2	60.7	70.6	I	12.1	X	1.0	4.8	X	1.0	41.3	Y	4.0	-	-	-	67.3	49.9	61.2	60.7	69.0
	9	68.5	51.0	65.8	60.9	70.9	I	13.2	X	1.0	5.5	X	1.0	43.4	Y	4.0	-	-	-	67.5	50.0	61.8	60.9	69.3
	10	68.5	51.0	66.0	61.0	71.0	I	14.3	X	1.0	6.2	X	1.0	45.4	Z	6.0	-	-	-	67.5	50.0	60.0	61.0	69.0
	11	68.6	51.0	66.2	61.1	71.1	I	15.5	Y	3.0	6.9	X	1.0	47.2	Z	6.0	-	-	-	65.6	50.0	60.2	61.1	67.8
	12	68.6	51.0	66.1	61.1	71.1	I	16.6	Y	3.0	7.6	X	1.0	48.9	Z	6.0	-	-	-	65.6	50.0	60.1	61.1	67.8
	13	68.6	51.0	66.1	61.2	71.1	I	17.7	Y	3.0	8.3	X	1.0	50.6	Z	6.0	-	-	-	65.6	50.0	60.1	61.2	67.8
	14	68.7	50.9	66.0	61.2	71.1	I	18.7	Y	3.0	9.0	X	1.0	52.1	Z	6.0	-	-	-	65.7	49.9	60.0	61.2	67.9
	15	68.6	50.9	65.9	61.2	71.0	I	19.8	Y	3.0	9.7	X	1.0	53.5	Z	6.0	-	-	-	65.6	49.9	59.9	61.2	67.8
	16	68.6	50.9	65.8	61.2	71.0	I	20.8	Y	3.0	10.4	X	1.0	54.8	Z	6.0	-	-	-	65.6	49.9	59.8	61.2	67.8
	17	68.6	50.9	65.7	61.2	71.0	I	21.9	Y	3.0	11.1	X	1.0	56.0	Z	6.0	-	-	-	65.6	49.9	59.7	61.2	67.8
	18	68.6	50.9	65.6	61.2	70.9	I	22.9	Y	3.0	11.8	X	1.0	57.2	Z	6.0	-	-	-	65.6	49.9	59.6	61.2	67.8
	19	68.6	50.9	65.5	61.2	70.9	I	23.9	Y	3.0	12.5	X	1.0	58.3	Z	6.0	-	-	-	65.6	49.9	59.5	61.2	67.7
	20	68.6	50.9	65.4	61.3	70.9	I	24.9	Y	3.0	13.1	X	1.0	59.3	Z	6.0	-	-	-	65.6	49.9	59.4	61.3	67.7
	21	68.5	50.9	65.2	61.3	70.8	I	25.9	Y	3.0	13.8	X	1.0	60.3	Z	6.0	-	-	-	65.5	49.9	59.2	61.3	67.7
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	68.5	36.3	64.9	61.3	70.6	I	28.4	Y	3.0	15.5	Y	3.0	62.6	Z	6.0	-	-	-	65.5	33.3	58.9	61.3	67.5
	24	68.5	37.0	64.8	61.4	70.6	I	29.3	Y	3.0	16.2	Y	3.0	63.4	Z	6.0	-	-	-	65.5	34.0	58.8	61.4	67.6
	25	68.4	37.8	64.7	61.4	70.5	I	30.2	Y	3.0	16.8	Y	3.0	64.2	Z	6.0	-	-	-	65.4	34.8	58.7	61.4	67.5
	26	68.4	38.7	64.6	61.4	70.5	I	31.1	Y	3.0	17.5	Y	3.0	64.9	Z	6.0	-	-	-	65.4	35.7	58.6	61.4	67.5
	27	68.4	39.7	64.5	61.4	70.4	I	31.9	Y	3.0	18.1	Y	3.0	65.6	Z	6.0	-	-	-	65.4	36.7	58.5	61.4	67.5
	28	68.3	41.0	64.4	61.4	70.4	N/A	32.8	Y	-	18.8	Y	-	66.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	29	68.3	42.4	64.2	61.5	70.3	N/A	33.6	Y	-	19.4	Y	-	66.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	30	68.2	44.1	64.1	61.5	70.2	N/A	34.5	Y	-	20.0	Y	-	67.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	31	68.2	45.5	64.0	61.5	70.2	N/A	35.3	Y	-	20.7	Y	-	68.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	32	68.1	46.6	63.9	61.5	70.2	N/A	36.0	Y	-	21.3	Y	-	68.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	33	68.1	47.5	63.8	61.5	70.1	N/A	36.8	Y	-	21.9	Y	-	69.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	34	68.0	48.4	63.7	61.5	70.1	N/A	37.6	Y	-	22.5	Y	-	69.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	35	68.0	49.2	63.6	61.5	70.0	N/A	38.3	Y	-	23.1	Y	-	70.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	36	67.9	49.8	63.5	61.5	70.0	N/A	39.0	Y	-	23.7	Y	-	70.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	37	67.9	50.2	63.5	61.5	69.9	N/A	39.8	Y	-	24.3	Y	-	70.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	38	67.8	50.4	63.4	61.5	69.9	N/A	40.5	Y	-	24.9	Y	-	71.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	39	67.8	50.5	63.3	61.5	69.8	N/A	41.1	Y	-	25.5	Y	-	71.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	40	67.7	50.5	63.2	61.5	69.8	N/A	41.8	Y	-	26.0	Y	-	72.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	41	67.7	50.6	63.1	61.6	69.8	N/A	42.5	Y	-	26.6	Y	-	72.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	67.6	50.6	63.0	61.6	69.7	N/A	43.1	Y	-	27.2	Y	-	72.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	67.6	50.6	62.9	61.6	69.7	N/A	43.7	Y	-	27.7	Y	-	73.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	67.5	50.5	62.9	61.6	69.6	N/A	44.4	Y	-	28.3	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	67.5	50.5	62.8	61.6	69.6	N/A	45.0	Y	-	28.8	Y	-	73.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation (Scenario B)**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)					Balcony Type [2]	Acoustic Balcony Performance												Noise Levels With Acoustic Balcony, dB(A)				
								Group 1			Group 2			Group 3			Group 4							
		Group 1	Group 2	Group 3	Group 4	Overall		Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A)	Inclination Angle	Inclination Angle Type	Attenuation, dB(A)	Group 1	Group 2	Group 3	Group 4	Overall
R218c	4	66.9	50.8	56.0	58.6	67.9	N/A	7.6	X	-	2.0	X	-	31.3	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	5	67.5	50.9	58.5	59.6	68.6	N/A	8.8	X	-	2.7	X	-	34.1	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	6	67.9	51.0	61.3	60.1	69.3	N/A	9.9	X	-	3.5	X	-	36.6	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	7	68.2	51.1	63.8	60.4	70.1	N/A	11.1	X	-	4.2	X	-	39.0	Y	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	8	68.4	51.1	65.2	60.7	70.6	I	12.3	X	1.0	4.9	X	1.0	41.3	Y	4.0	-	-	-	67.4	50.1	61.2	60.7	69.1
	9	68.6	51.2	65.8	60.8	70.9	I	13.4	X	1.0	5.6	X	1.0	43.4	Y	4.0	-	-	-	67.6	50.2	61.8	60.8	69.3
	10	68.7	51.2	66.0	61.0	71.1	I	14.6	X	1.0	6.3	X	1.0	45.4	Z	6.0	-	-	-	67.7	50.2	60.0	61.0	69.2
	11	68.7	51.2	66.2	61.0	71.1	I	15.7	Y	3.0	7.0	X	1.0	47.2	Z	6.0	-	-	-	65.7	50.2	60.2	61.0	67.9
	12	68.7	51.1	66.1	61.1	71.1	I	16.8	Y	3.0	7.7	X	1.0	48.9	Z	6.0	-	-	-	65.7	50.1	60.1	61.1	67.9
	13	68.8	51.1	66.1	61.1	71.2	I	17.9	Y	3.0	8.4	X	1.0	50.5	Z	6.0	-	-	-	65.8	50.1	60.1	61.1	67.9
	14	68.8	51.1	66.0	61.2	71.1	I	19.0	Y	3.0	9.1	X	1.0	52.1	Z	6.0	-	-	-	65.8	50.1	60.0	61.2	67.9
	15	68.8	51.1	66.0	61.2	71.1	I	20.1	Y	3.0	9.8	X	1.0	53.5	Z	6.0	-	-	-	65.8	50.1	60.0	61.2	67.9
	16	68.8	51.0	65.8	61.2	71.1	I	21.2	Y	3.0	10.5	X	1.0	54.8	Z	6.0	-	-	-	65.8	50.0	59.8	61.2	67.9
	17	68.8	51.0	65.7	61.2	71.0	I	22.2	Y	3.0	11.2	X	1.0	56.0	Z	6.0	-	-	-	65.8	50.0	59.7	61.2	67.9
	18	68.8	51.0	65.6	61.2	71.0	I	23.3	Y	3.0	11.9	X	1.0	57.2	Z	6.0	-	-	-	65.8	50.0	59.6	61.2	67.9
	19	68.7	51.1	65.5	61.2	71.0	I	24.3	Y	3.0	12.5	X	1.0	58.3	Z	6.0	-	-	-	65.7	50.1	59.5	61.2	67.8
	20	68.7	51.0	65.4	61.2	70.9	I	25.3	Y	3.0	13.2	X	1.0	59.3	Z	6.0	-	-	-	65.7	50.0	59.4	61.2	67.8
	21	68.7	51.0	65.2	61.2	70.9	I	26.3	Y	3.0	13.9	X	1.0	60.3	Z	6.0	-	-	-	65.7	50.0	59.2	61.2	67.8
	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	23	68.7	35.5	64.9	61.3	70.7	I	28.8	Y	3.0	15.6	Y	3.0	62.6	Z	6.0	-	-	-	65.7	32.5	58.9	61.3	67.7
	24	68.6	36.2	64.8	61.3	70.6	I	29.7	Y	3.0	16.3	Y	3.0	63.4	Z	6.0	-	-	-	65.6	33.2	58.8	61.3	67.6
	25	68.6	36.8	64.7	61.4	70.6	I	30.6	Y	3.0	17.0	Y	3.0	64.2	Z	6.0	-	-	-	65.6	33.8	58.7	61.4	67.6
	26	68.5	37.6	64.6	61.4	70.5	I	31.5	Y	3.0	17.6	Y	3.0	64.9	Z	6.0	-	-	-	65.5	34.6	58.6	61.4	67.5
	27	68.5	38.6	64.5	61.4	70.5	I	32.4	Y	3.0	18.2	Y	3.0	65.6	Z	6.0	-	-	-	65.5	35.6	58.5	61.4	67.5
	28	68.4	39.7	64.4	61.4	70.4	N/A	33.2	Y	-	18.9	Y	-	66.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	29	68.3	41.0	64.2	61.4	70.4	N/A	34.1	Y	-	19.5	Y	-	66.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	30	68.3	42.4	64.1	61.4	70.3	N/A	34.9	Y	-	20.2	Y	-	67.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	31	68.2	43.7	64.0	61.4	70.2	N/A	35.7	Y	-	20.8	Y	-	68.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	32	68.2	45.1	63.9	61.5	70.2	N/A	36.5	Y	-	21.4	Y	-	68.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	33	68.1	46.3	63.8	61.4	70.2	N/A	37.3	Y	-	22.0	Y	-	69.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	34	68.1	47.5	63.7	61.4	70.1	N/A	38.1	Y	-	22.6	Y	-	69.5	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	35	68.1	48.5	63.6	61.5	70.1	N/A	38.8	Y	-	23.2	Y	-	69.9	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	36	68.0	49.1	63.5	61.5	70.0	N/A	39.5	Y	-	23.8	Y	-	70.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	37	68.0	49.3	63.5	61.5	70.0	N/A	40.2	Y	-	24.4	Y	-	70.8	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	38	67.9	49.6	63.4	61.5	69.9	N/A	40.9	Y	-	25.0	Y	-	71.2	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	39	67.9	49.7	63.3	61.5	69.9	N/A	41.6	Y	-	25.6	Y	-	71.6	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	40	67.8	49.8	63.2	61.5	69.8	N/A	42.3	Y	-	26.2	Y	-	72.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	41	67.8	49.8	63.1	61.6	69.8	N/A	43.0	Y	-	26.8	Y	-	72.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	42	67.7	49.9	63.0	61.6	69.8	N/A	43.6	Y	-	27.3	Y	-	72.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	43	67.7	49.8	62.9	61.6	69.7	N/A	44.2	Y	-	27.9	Y	-	73.0	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	44	67.6	49.8	62.9	61.6	69.7	N/A	44.9	Y	-	28.4	Y	-	73.4	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A
	45	67.6	49.8	62.8	61.6	69.6	N/A	45.5	Z	-	29.0	Y	-	73.7	Z	-	-	-	-	N/A	N/A	N/A	N/A	N/A

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

The roads are grouped as below (see Figure 1) and the noise contributions from each group of the roads have been calculated:

Group 1 - Po Shek Wu Road (northwest of the subject site)

Group 2 - Po Shek Wu Road (southwest of the subject site)

Group 3 - San Wan Road

Group 4 - Others

[1] Inclination angle is calculated from the source line of each road group to the NSR. The position of noise source is set as 3.5m from the far-side of the road for conservative assessment. For Group 1,2 and 3, inclination angle are determined from Po Shek Wu Road (northwest of the subject site) north bound, Po Shek Wu Road (southwest of the subject site) north bound and San Wan Road respectively, which are the dominant noise source of the group.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

[3] The attenuation for "Setting 2 - Roads not running parallel to the balcony" will be 1dB(A) lesser than "Setting 1 - Roads running parallel to the balcony" for conservative assessment regardless of types of balcony used.

Appendix 4.10

Predicted Traffic Noise Levels for Residential Blocks (Mitigated Scenario)

Floor	R101a	R101b	R101c	R102a	R102b	R103a	R103b	R103c	R103d	R103e	R103f	R104a	R104b	R104c	R105a	R105b	R105c	R105d	R106a	R106b	R106c	R106d	R107a	R107b	R108a	R108b	R108c
45	67.0	67.1	-	66.1	-	-	66.1	66.0	-	64.5	64.6	52.5	56.4	44.8	54.4	59.0	59.2	<40	54.2	58.0	58.1	<40	57.6	58.0	58.7	59.1	59.2
44	67.1	67.1	-	66.2	-	-	66.1	66.1	-	64.4	64.6	52.5	56.3	44.6	54.3	59.0	59.2	<40	54.1	58.0	57.9	<40	57.6	58.0	58.6	59.1	59.2
43	67.1	67.1	-	66.2	-	-	66.2	66.1	-	64.5	64.6	52.5	56.3	44.5	54.3	59.0	59.1	<40	54.0	57.9	57.9	<40	57.6	58.0	58.7	59.2	59.3
42	67.2	67.2	-	66.3	-	-	66.2	66.2	-	64.5	64.7	52.5	56.3	44.4	54.2	58.9	59.1	<40	54.0	57.9	58.0	<40	57.6	58.0	58.7	59.1	59.2
41	67.3	67.3	-	66.3	-	-	66.3	66.2	-	64.5	64.7	52.5	56.2	44.3	54.2	58.9	59.1	<40	53.8	57.8	57.9	<40	57.5	58.0	58.7	59.2	59.3
40	67.3	67.3	-	66.4	-	-	66.3	66.3	-	64.5	64.7	52.5	56.2	44.1	54.0	59.0	59.0	<40	53.7	57.9	57.9	<40	57.5	58.0	58.7	59.2	59.3
39	67.4	67.4	-	66.4	-	-	66.4	66.3	-	64.5	64.7	52.5	56.1	43.9	53.9	58.9	59.1	<40	53.6	57.8	57.9	<40	57.5	58.0	58.8	59.2	59.3
38	67.4	67.4	-	66.5	-	-	66.4	66.3	-	64.5	64.7	52.4	56.0	43.8	53.7	58.8	59.0	<40	53.5	57.7	57.9	<40	57.4	57.9	58.7	59.2	59.3
37	67.5	67.5	-	66.5	-	-	66.5	66.4	-	64.5	64.7	52.4	55.9	43.5	53.5	58.7	58.9	<40	53.3	57.8	57.8	<40	57.5	58.0	58.7	59.2	59.3
36	67.6	67.6	-	66.6	-	-	66.5	66.4	-	64.5	64.7	52.3	55.7	43.2	53.2	58.6	58.9	<40	53.1	57.7	57.8	<40	57.4	57.9	58.8	59.2	59.3
35	67.6	67.6	-	66.6	-	-	66.6	66.5	-	64.5	64.7	52.3	55.5	42.9	52.9	58.5	58.8	<40	53.0	57.6	57.7	<40	57.3	57.9	58.7	59.2	59.3
34	67.7	67.7	-	66.7	-	-	66.6	66.5	-	64.5	64.7	52.3	55.3	42.4	52.7	58.4	58.8	<40	52.8	57.6	57.7	<40	57.3	57.8	58.7	59.2	59.3
33	67.8	67.8	-	66.7	-	-	66.7	66.6	-	64.5	64.7	52.2	55.2	42.1	52.5	58.4	58.7	<40	52.7	57.5	57.6	<40	57.3	57.8	58.7	59.2	59.3
32	67.8	67.8	-	66.8	-	-	66.7	66.6	-	64.5	64.6	52.2	55.1	41.9	52.3	58.4	58.6	<40	52.5	57.5	57.6	<40	57.2	57.8	58.7	59.2	59.2
31	67.9	67.9	-	66.9	-	-	66.8	66.7	-	64.5	64.6	52.1	55.0	41.4	52.0	58.2	58.6	<40	52.4	57.4	57.5	<40	57.2	57.7	58.6	59.2	59.3
30	68.0	67.9	-	66.9	-	-	66.8	66.7	-	64.5	64.6	51.9	54.8	40.9	51.7	58.1	58.5	<40	52.3	57.3	57.5	<40	57.0	57.7	58.6	59.1	59.2
29	68.0	68.0	-	67.0	-	-	66.9	66.8	-	64.5	64.6	51.8	54.6	40.5	51.5	58.1	58.4	<40	52.3	57.2	57.3	<40	56.9	57.6	58.5	59.1	59.2
28	68.1	68.1	-	67.0	-	-	66.9	66.8	-	64.5	64.6	51.8	54.5	40.0	51.3	57.9	58.3	<40	52.1	57.1	57.2	<40	56.8	57.4	58.5	59.0	59.2
27	68.2	68.1	-	67.1	-	-	67.0	66.9	-	64.5	64.5	51.7	54.4	<40	51.1	57.8	58.2	<40	52.1	56.9	57.1	<40	56.6	57.4	58.4	58.9	59.1
26	68.2	68.2	-	67.2	-	-	67.0	66.9	-	64.5	64.5	51.6	54.3	<40	50.9	57.7	58.0	<40	51.9	56.7	57.0	<40	56.4	57.2	58.3	58.8	59.1
25	68.3	68.3	-	67.2	-	-	67.1	67.0	-	64.4	64.5	51.5	54.2	<40	50.7	57.5	58.0	40.0	51.9	56.6	56.7	<40	56.2	57.0	58.1	58.8	59.0
24	68.4	68.3	-	67.3	-	-	67.1	67.0	-	64.4	64.4	51.2	54.0	<40	50.5	57.3	57.8	40.1	51.9	56.3	56.5	<40	55.9	56.9	58.0	58.7	58.9
23	68.4	68.4	-	67.3	-	-	67.2	67.1	-	64.4	64.4	50.9	53.8	<40	50.4	57.1	57.5	40.2	51.8	55.9	56.2	<40	55.6	56.6	57.8	58.5	58.9
22																											
21	68.6	68.6	-	67.5	-	-	67.3	67.2	-	64.3	64.2	49.5	53.0	<40	50.1	56.2	56.7	40.1	51.6	55.2	55.6	<40	55.1	56.3	57.7	58.3	58.8
20	68.7	68.6	-	67.5	-	-	67.3	67.2	-	64.3	64.1	48.3	52.5	<40	50.1	55.9	56.5	<40	51.6	55.0	55.4	<40	54.9	56.2	57.6	58.3	58.7
19	68.8	68.7	-	67.6	-	-	67.4	67.3	-	64.2	64.0	47.8	52.0	<40	50.0	55.6	56.3	<40	51.5	54.8	55.2	<40	54.5	55.9	57.4	58.2	58.7
18	68.8	68.8	-	67.6	-	-	67.4	67.3	-	64.2	64.0	46.5	51.8	<40	49.8	55.1	55.9	<40	51.5	54.4	54.8	<40	54.2	55.8	57.3	58.1	58.7
17	68.9	68.8	-	67.7	-	-	67.5	67.4	-	64.2	63.9	45.6	51.2	<40	49.8	54.7	55.4	<40	51.5	54.1	54.6	<40	54.0	55.7	57.2	58.0	58.5
16	69.0	68.9	-	67.7	-	-	67.5	67.4	-	64.2	63.9	44.8	51.0	<40	49.8	54.3	55.0	<40	51.4	53.8	54.4	<40	53.8	55.4	57.1	57.9	58.5
15	69.0	69.0	-	67.8	-	-	67.6	67.4	-	64.2	63.9	44.2	50.8	<40	49.7	54.0	54.7	<40	51.3	53.5	54.1	<40	53.6	55.4	57.0	57.9	58.5
14	69.1	69.0	-	67.8	-	-	67.6	67.5	-	64.2	63.8	43.5	50.5	<40	49.6	53.7	54.3	<40	51.3	53.4	54.0	<40	53.4	55.2	56.9	57.8	58.4
13	69.2	69.1	-	67.9	-	-	67.7	67.5	-	64.2	63.9	42.9	50.4	<40	49.6	53.5	54.0	<40	51.3	53.2	53.9	<40	53.2	55.1	56.9	57.7	58.4
12	69.2	69.2	-	67.9	-	-	67.7	67.6	-	64.2	63.8	42.4	50.4	<40	49.6	53.3	53.8	<40	51.3	52.9	53.7	<40	53.1	54.9	56.7	57.6	58.3
11	69.3	69.2	-	68.0	-	-	67.7	67.6	-	64.2	63.8	41.9	50.3	<40	49.6	53.1	53.6	<40	51.1	52.7	53.5	<40	52.9	54.7	56.5	57.5	58.2
10	69.4	69.3	-	68.0	-	-	67.8	67.6	-	64.2	63.8	41.5	50.1	<40	49.6	52.8	53.3	<40	50.9	52.4	53.3	<40	52.7	54.5	56.4	57.3	58.0
9	69.4	69.3	-	68.1	-	-	67.8	67.6	-	64.2	63.8	41.0	50.0	<40	49.5	52.5	52.9	<40	50.4	52.1	53.0	<40	52.4	54.1	56.1	57.2	58.0
8	69.5	69.4	-	68.1	-	-	67.8	67.7	-	64.1	63.8	40.7	50.0	<40	49.4	52.0	52.3	<40	49.2	51.3	52.6	<40	52.1	53.7	55.8	56.9	57.7
7	69.5	69.4	-	68.1	-	-	67.8	67.6	-	64.1	63.7	40.3	50.0	<40	49.3	50.8	51.1	<40	47.9	50.5	52.1	<40	51.6	52.8	55.1	56.3	57.1
6	69.6	69.4	-	68.1	-	-	67.7	67.4	-	64.0	63.6	40.0	49.9	<40	49.2	49.8	50.3	<40	46.6	49.4	51.5	<40	50.8	51.6	53.8	55.4	56.4
5	69.6	69.5	-	67.9	-	-	67.1	66.8	-	63.9	63.4	<40	49.6	<40	48.7	49.1	49.6	<40	45.6	48.4	50.1	<40	49.0	50.3	51.9	54.4	55.8
4	69.5	69.1	-	66.1	-	-	65.6	65.5	-	62.5	61.4	<40	48.0	<40	45.7	48.2	48.6	<40	44.2	46.9	47.4	<40	46.5	47.8	49.7	51.8	54.7
Max	69.6	69.5	<40	68.1	<40	<40	67.8	67.7	<40	64.5	64.7	52.5	56.4	44.8	54.4	59.0	59.2	40.2	54.2	58.0	58.1	<40	57.6	58.0	58.8	59.2	59.3
Min	67.0	67.1	<40	66.1	<40	<40	65.6	65.5	<40	62.5	61.4	40.0	48.0	40.0	45.7	48.2	48.6	40.0	44.2	46.9	47.4	<40	46.5	47.8	49.7	51.8	54.7

# Total Flats	1927
Exceedance	0
Compliance Rate	100.0%

- Noise sensitive receivers with exceedance (≥70.5 dB(A))
- `-` Noise sensitive receivers applied with fixed glazing
- Noise sensitive receivers applied with acoustic window (non-absorptive)
- Noise sensitive receivers applied with acoustic window (absorptive)
- `X` Noise sensitive receivers applied with acoustic balcony (Type 1)
- `X` Noise sensitive receivers applied with acoustic balcony (Type 2)
- `X` Noise sensitive receivers applied with acoustic balcony (Type 4)

(These predicted noise levels are the equivalent noise levels at 1m from the external facade after accounting the reduction in noise levels inside the flat offered by the proposed acoustic window)

Floor	R109a	R109b	R109c	R110a	R110b	R111b	R111c	R112a	R112b	R113b	R113c	R114a	R114b	R115b	R115c	R116a	R116b	R116c	R117a	R117b	R118a	R118b	R119a	R119b	R120a	R120b	R120c
45	57.6	59.8	59.9	70.2	70.3	70.4	70.4	67.1	67.2	67.3	67.3	67.4	67.5	67.9	68.4	67.3	67.3	-	-	66.3	66.1	-	-	65.7	66.1	66.4	-
44	57.6	59.8	59.9	70.3	70.3	70.4	70.4	67.1	67.2	67.3	67.4	67.5	67.6	67.9	68.4	67.4	67.4	-	-	66.4	66.1	-	-	65.8	66.2	66.5	-
43	57.6	59.8	59.9	70.3	70.3	66.9	66.9	67.2	67.2	67.4	67.4	67.5	67.6	67.9	68.5	67.4	67.4	-	-	66.5	66.2	-	-	65.8	66.2	66.6	-
42	57.7	59.8	59.9	70.3	70.4	66.9	66.9	67.2	67.3	67.4	67.5	67.5	67.6	68.0	68.5	67.5	67.5	-	-	66.5	66.3	-	-	65.9	66.3	66.6	-
41	57.7	59.8	60.0	70.4	70.4	66.9	66.9	67.2	67.3	67.4	67.5	67.6	67.7	68.0	68.6	67.6	67.5	-	-	66.6	66.4	-	-	66.0	66.3	66.7	-
40	57.7	59.9	60.0	66.8	66.9	66.9	67.0	67.3	67.4	67.5	67.6	67.7	67.7	68.1	68.6	67.7	67.6	-	-	66.6	66.4	-	-	66.0	66.4	66.7	-
39	57.7	59.9	60.0	66.9	66.9	67.0	67.0	67.3	67.4	67.5	67.6	67.7	67.8	68.2	68.7	67.7	67.6	-	-	66.7	66.5	-	-	66.1	66.5	66.8	-
38	57.7	59.9	60.0	66.9	67.0	67.0	67.0	67.4	67.5	67.6	67.7	67.8	67.9	68.2	68.8	67.7	67.7	-	-	66.8	66.5	-	-	66.2	66.6	66.9	-
37	57.7	59.9	60.0	67.5	67.0	67.0	67.1	67.4	67.5	67.7	67.7	67.8	67.9	68.2	68.9	67.8	67.8	-	-	66.9	66.6	-	-	66.2	66.6	67.0	-
36	57.8	59.9	60.0	67.6	67.7	67.1	67.1	67.5	67.6	67.7	67.8	67.9	68.0	68.3	68.9	67.9	67.8	-	-	66.9	66.7	-	-	66.3	66.7	67.0	-
35	57.8	59.9	60.0	67.8	67.7	67.1	67.1	67.5	67.6	67.7	67.8	67.9	68.0	68.4	69.0	67.9	67.9	-	-	67.0	66.8	-	-	66.3	66.8	67.1	-
34	57.8	59.9	60.0	67.8	67.9	67.9	67.2	67.6	67.6	67.8	67.9	68.0	68.1	68.5	69.1	68.0	68.0	-	-	67.1	66.9	-	-	66.4	66.8	67.2	-
33	57.8	59.9	60.0	67.9	68.0	68.1	68.0	67.6	67.7	67.9	68.0	68.1	68.1	68.5	69.1	68.1	68.1	-	-	67.2	66.9	-	-	66.5	66.9	67.2	-
32	57.8	59.9	60.1	68.0	68.0	68.1	68.2	67.7	67.8	68.0	68.0	68.1	68.2	68.6	69.1	68.2	68.2	-	-	67.3	67.0	-	-	66.6	67.0	67.3	-
31	57.8	59.9	60.1	68.0	68.0	68.1	68.2	67.7	67.9	68.0	68.1	68.2	68.3	68.7	69.2	68.2	68.2	-	-	67.3	67.1	-	-	66.7	67.0	67.4	-
30	57.9	59.9	60.1	68.0	68.1	68.2	68.3	67.8	67.9	68.1	68.1	68.3	68.3	68.8	69.3	68.3	68.3	-	-	67.4	67.1	-	-	66.7	67.1	67.4	-
29	57.9	59.9	60.0	68.0	68.1	68.3	68.3	67.8	68.0	68.1	68.2	68.3	68.4	68.8	69.4	68.5	68.4	-	-	67.5	67.2	-	-	66.8	67.2	67.5	-
28	57.9	59.9	60.1	68.1	68.1	68.2	68.3	67.9	68.0	68.2	68.2	68.4	68.5	68.9	69.5	68.5	68.5	-	-	67.6	67.3	-	-	66.9	67.3	67.6	-
27	57.9	59.8	60.0	68.1	68.1	68.3	68.4	68.9	68.1	68.2	68.3	68.4	68.6	68.9	69.5	68.6	68.6	-	-	67.7	67.4	-	-	66.9	67.3	67.7	-
26	58.0	59.8	60.1	68.1	68.2	68.3	68.4	68.9	69.0	68.3	68.4	68.5	68.6	69.0	69.6	68.7	68.6	-	-	67.8	67.5	-	-	67.0	67.4	67.7	-
25	58.0	59.8	60.0	68.2	68.2	68.4	68.4	69.0	69.1	68.4	68.5	68.6	68.7	69.1	69.7	68.8	68.8	-	-	67.8	67.5	-	-	67.1	67.5	67.8	-
24	58.0	59.8	60.0	68.2	68.3	68.4	68.5	69.1	69.2	69.5	68.5	68.6	68.8	69.2	69.8	68.9	68.9	-	-	67.9	67.6	-	-	67.2	67.5	67.9	-
23	58.1	59.7	60.0	68.3	68.3	68.4	68.5	69.2	69.3	69.6	69.8	68.7	68.8	69.3	69.9	69.0	69.0	-	-	68.0	67.7	-	-	67.3	67.6	68.0	-
22																											
21	58.2	59.6	59.9	68.4	68.4	68.6	68.7	69.3	69.4	69.8	70.0	70.1	70.3	69.5	70.2	69.3	69.2	-	-	68.3	68.0	-	-	67.4	67.8	68.2	-
20	58.2	59.6	59.9	68.4	68.5	68.7	68.7	69.4	69.5	69.9	70.1	70.2	70.4	69.2	68.8	69.4	69.3	-	-	68.3	68.0	-	-	67.5	67.9	68.2	-
19	58.2	59.5	59.9	68.4	68.5	68.7	68.8	69.5	69.6	70.0	70.2	68.6	68.8	69.4	70.1	69.5	69.5	-	-	68.4	68.1	-	-	67.6	68.0	68.3	-
18	58.2	59.5	59.9	68.6	68.6	68.8	68.9	69.6	69.7	70.1	70.2	68.7	68.9	69.5	70.2	69.6	69.5	-	-	68.6	68.2	-	-	67.7	68.1	68.4	-
17	58.2	59.4	59.9	68.6	68.7	68.8	68.9	69.7	69.8	70.2	70.3	68.8	68.9	69.6	70.3	69.7	69.7	-	-	68.7	68.3	-	-	67.8	68.1	68.5	-
16	58.2	59.4	59.9	69.0	69.1	69.3	69.3	69.8	69.9	70.4	70.3	68.9	69.1	69.7	70.4	69.9	69.8	-	-	68.7	68.4	-	-	67.8	68.2	68.6	-
15	58.3	59.3	59.8	69.0	69.1	69.3	69.4	70.1	69.9	68.7	68.8	69.1	69.3	67.3	68.0	69.9	69.9	-	-	68.8	68.5	-	-	67.9	68.3	68.6	-
14	58.2	59.4	59.7	69.0	69.2	69.3	69.4	70.2	70.3	69.0	69.2	69.4	69.4	67.4	68.1	70.1	70.0	-	-	68.9	68.6	-	-	68.0	68.4	68.7	-
13	58.2	59.3	59.8	69.0	69.2	69.3	69.4	70.2	70.3	69.1	69.3	69.5	69.6	67.6	68.3	70.2	70.1	-	-	69.0	68.7	-	-	68.1	68.4	68.8	-
12	58.2	59.2	59.7	69.0	69.2	69.3	69.4	70.3	70.4	69.1	69.3	69.5	69.7	67.6	68.4	70.3	70.2	-	-	69.2	68.8	-	-	68.1	68.5	68.8	-
11	58.1	59.1	59.6	69.0	69.1	69.3	69.4	70.3	70.4	69.2	69.3	69.5	69.7	67.7	68.4	69.0	68.9	-	-	69.2	68.8	-	-	68.2	68.6	68.9	-
10	58.0	59.0	59.5	69.1	69.3	69.4	69.5	70.4	70.4	69.1	69.3	69.5	69.7	67.8	68.5	69.1	69.0	-	-	69.3	68.9	-	-	68.3	68.6	69.0	-
9	57.8	58.9	59.4	69.0	69.1	69.2	69.3	68.7	68.9	69.2	69.4	69.6	69.9	67.8	68.6	69.2	69.1	-	-	69.4	69.0	-	-	68.3	68.6	69.0	-
8	57.6	58.7	59.2	69.9	70.0	69.0	69.1	70.2	70.4	69.2	69.4	69.6	69.8	67.9	68.6	69.4	69.2	-	-	69.5	69.1	-	-	68.2	68.6	68.9	-
7	57.1	58.2	58.8	69.6	69.8	70.1	70.2	70.1	70.3	69.1	69.3	69.6	69.8	67.9	68.7	69.5	69.3	-	-	69.6	69.1	-	-	68.1	68.5	68.8	-
6	56.4	57.8	58.4	69.3	69.5	69.8	70.0	69.8	70.0	68.9	69.2	69.5	69.7	67.9	68.7	69.6	69.4	-	-	69.6	68.9	-	-	68.1	68.4	68.8	-
5	55.8	57.4	57.9	69.8	70.0	69.4	69.7	69.5	69.6	70.2	70.4	69.2	69.5	67.8	68.7	69.7	69.5	-	-	69.1	68.6	-	-	68.0	68.4	68.7	-
4	54.6	56.4	56.9	69.2	69.3	69.7	69.9	69.9	70.1	69.1	69.4	69.7	70.0	66.9	68.4	69.6	68.7	-	-	68.3	68.2	-	-	68.0	68.3	68.8	-
Max	58.3	59.9	60.1	70.4	70.4	70.4	70.4	70.4	70.4	70.4	70.4	70.2	70.4	69.7	70.4	70.3	70.2	<40	<40	69.6	69.1	<40	<40	68.3	68.6	69.0	<40
Min	54.6	56.4	56.9	66.8	66.9	66.9	66.9	67.1	67.2	67.3	67.3	67.4	67.5	66.9	68.0	67.3	67.3	<40	<40	66.3	66.1	<40	<40	65.7	66.1	66.4	<40

	Noise sensitive receivers with exceedance (≥70.5 dB(A))
-	Noise sensitive receivers applied with fixed glazing
	Noise sensitive receivers applied with acoustic window (non-absorptive)
	Noise sensitive receivers applied with acoustic window (absorptive)
X	Noise sensitive receivers applied with acoustic balcony (Type 1)
X	Noise sensitive receivers applied with acoustic balcony (Type 2)
X	Noise sensitive receivers applied with acoustic balcony (Type 4)

(These predicted noise levels are the equivalent noise levels at 1m from the external facade after accounting the reduction in noise levels inside the flat offered by the proposed acoustic window)

Floor	R121a	R121b	R121c	R122a	R122b	R122c	R123a	R123b	R123c	R201a	R201b	R201c	R201d	R201e	R201f	R202a	R202b	R203a	R203b	R204a	R204b	R204c	R204d	R204e	R204f	R205a	R205b
45	-	66.8	66.8	67.1	67.3	-	-	67.2	65.4	69.4	69.8	-	65.3	65.3	-	-	65.0	64.9	-	-	65.1	65.3	-	66.7	67.8	65.1	65.4
44	-	66.8	66.9	67.2	67.4	-	-	67.3	65.5	69.5	69.8	-	65.4	65.3	-	-	65.0	64.9	-	-	65.1	65.3	-	66.8	67.9	65.1	65.5
43	-	66.9	67.0	67.2	67.5	-	-	67.3	65.5	69.5	69.8	-	65.4	65.3	-	-	65.0	65.0	-	-	65.2	65.4	-	66.8	67.8	65.2	65.5
42	-	67.0	67.0	67.3	67.5	-	-	67.4	65.6	69.5	69.9	-	65.4	65.4	-	-	65.0	65.0	-	-	65.2	65.4	-	66.8	67.9	65.2	65.5
41	-	67.0	67.1	67.4	67.6	-	-	67.4	65.7	69.6	69.9	-	65.4	65.4	-	-	65.1	65.0	-	-	65.2	65.4	-	66.8	67.9	65.2	65.5
40	-	67.1	67.2	67.4	67.7	-	-	67.5	65.8	69.6	70.0	-	65.5	65.4	-	-	65.1	65.0	-	-	65.2	65.4	-	66.7	67.9	65.2	65.5
39	-	67.2	67.2	67.5	67.7	-	-	67.6	65.8	69.6	70.0	-	65.5	65.4	-	-	65.1	65.0	-	-	65.3	65.5	-	66.8	67.9	65.2	65.5
38	-	67.3	67.3	67.5	67.8	-	-	67.6	65.9	69.7	70.0	-	65.5	65.5	-	-	65.2	65.1	-	-	65.3	65.5	-	66.7	67.9	65.3	65.6
37	-	67.3	67.4	67.6	67.8	-	-	67.7	65.9	69.7	70.1	-	65.5	65.5	-	-	65.2	65.1	-	-	65.3	65.5	-	66.7	67.9	65.3	65.6
36	-	67.4	67.4	67.7	67.9	-	-	67.8	66.0	69.8	70.1	-	65.6	65.5	-	-	65.2	65.1	-	-	65.3	65.5	-	66.7	67.9	65.3	65.5
35	-	67.4	67.5	67.8	68.0	-	-	67.9	66.1	69.8	70.2	-	65.6	65.6	-	-	65.2	65.1	-	-	65.3	65.5	-	66.7	67.9	65.3	65.6
34	-	67.5	67.6	67.8	68.1	-	-	68.0	66.1	69.9	70.2	-	65.6	65.6	-	-	65.2	65.2	-	-	65.3	65.6	-	66.7	67.9	65.3	65.5
33	-	67.6	67.6	67.9	68.1	-	-	68.0	66.2	69.9	70.2	-	65.7	65.6	-	-	65.3	65.2	-	-	65.4	65.6	-	66.7	67.9	65.4	65.6
32	-	67.7	67.7	68.0	68.2	-	-	68.1	66.3	69.9	70.3	-	65.7	65.6	-	-	65.3	65.2	-	-	65.4	65.6	-	66.7	67.9	65.4	65.6
31	-	67.7	67.8	68.1	68.3	-	-	68.2	66.4	70.0	70.3	-	65.7	65.7	-	-	65.3	65.2	-	-	65.4	65.6	-	66.7	67.9	65.4	65.6
30	-	67.8	67.9	68.1	68.4	-	-	68.2	66.5	70.0	70.4	-	65.8	65.7	-	-	65.4	65.3	-	-	65.4	65.6	-	66.6	67.9	65.4	65.6
29	-	67.9	68.0	68.2	68.4	-	-	68.3	66.5	70.1	70.4	-	65.8	65.7	-	-	65.4	65.3	-	-	65.5	65.7	-	66.6	67.9	65.4	65.6
28	-	68.0	68.0	68.3	68.5	-	-	68.4	66.6	-	67.5	-	65.8	65.7	-	-	65.4	65.3	-	-	65.5	65.7	-	66.6	67.9	65.4	65.6
27	-	68.0	68.1	68.3	68.6	-	-	68.5	66.7	-	67.5	-	65.8	65.8	-	-	65.4	65.3	-	-	65.5	65.7	-	66.5	67.9	65.4	65.6
26	-	68.1	68.1	68.4	68.7	-	-	68.5	66.8	-	67.5	-	65.9	65.8	-	-	65.5	65.3	-	-	65.5	65.7	-	66.5	67.9	65.4	65.6
25	-	68.2	68.2	68.5	68.7	-	-	68.6	66.8	-	67.6	-	65.9	65.8	-	-	65.5	65.3	-	-	65.5	65.7	-	66.4	67.8	65.4	65.6
24	-	68.3	68.3	68.6	68.8	-	-	68.7	66.9	-	67.6	-	65.9	65.8	-	-	65.5	65.3	-	-	65.5	65.7	-	66.3	67.8	65.4	65.6
23	-	68.3	68.4	68.7	68.9	-	-	68.8	67.0	-	67.7	-	65.9	65.9	-	-	65.5	65.4	-	-	65.5	65.7	-	66.2	67.7	65.3	65.5
22																											
21	-	68.5	68.6	68.8	69.1	-	-	69.0	67.2	-	67.7	-	66.0	65.9	-	-	65.5	65.4	-	-	65.5	65.6	-	65.8	67.5	65.3	65.5
20	-	68.6	68.7	68.9	69.2	-	-	69.1	67.3	-	67.8	-	66.0	65.9	-	-	65.5	65.4	-	-	65.5	65.6	-	65.6	67.3	65.3	65.5
19	-	68.7	68.7	69.0	69.2	-	-	69.1	67.4	-	67.8	-	66.0	65.9	-	-	65.5	65.3	-	-	65.4	65.5	-	65.4	67.3	65.3	65.5
18	-	68.8	68.8	69.1	69.3	-	-	69.2	67.5	-	67.9	-	66.0	65.9	-	-	65.5	65.3	-	-	65.4	65.5	-	65.2	67.2	65.3	65.6
17	-	68.9	68.9	69.2	69.4	-	-	69.3	67.5	-	67.9	-	66.0	65.9	-	-	65.5	65.3	-	-	65.4	65.5	-	65.0	67.1	65.3	65.6
16	-	68.9	69.0	69.2	69.5	-	-	69.4	67.6	-	67.9	-	66.0	65.9	-	-	65.5	65.3	-	-	65.4	65.4	-	64.8	67.0	65.3	65.7
15	-	69.0	69.1	69.3	69.6	-	-	69.5	67.7	-	67.9	-	66.0	65.9	-	-	65.4	65.3	-	-	65.4	65.4	-	64.7	67.0	65.4	65.7
14	-	69.1	69.1	69.4	69.6	-	-	69.5	67.7	-	67.9	-	66.0	65.9	-	-	65.4	65.3	-	-	65.3	65.3	-	64.5	66.9	65.4	65.7
13	-	69.1	69.2	69.5	69.7	-	-	69.6	67.8	-	68.0	-	66.0	65.9	-	-	65.4	65.2	-	-	65.2	65.3	-	64.3	66.8	65.5	65.8
12	-	69.2	69.2	69.5	69.8	-	-	69.7	67.9	-	68.0	-	66.0	65.8	-	-	65.3	65.1	-	-	65.1	65.2	-	64.0	66.8	65.5	65.8
11	-	69.3	69.3	69.6	69.8	-	-	69.7	68.0	-	68.0	-	65.9	65.8	-	-	65.3	65.1	-	-	65.1	65.1	-	63.6	66.7	65.4	65.8
10	-	69.3	69.4	69.7	69.9	-	-	69.8	68.0	-	67.9	-	65.8	65.7	-	-	65.2	64.9	-	-	65.0	65.0	-	63.3	66.6	65.4	65.8
9	-	69.4	69.4	69.7	70.0	-	-	69.9	68.1	-	67.9	-	65.7	65.6	-	-	65.1	64.8	-	-	64.8	64.9	-	62.8	66.4	65.3	65.7
8	-	69.4	69.4	69.7	70.0	-	-	69.9	68.0	-	67.8	-	65.7	65.5	-	-	65.0	64.7	-	68.0	70.3	70.4	63.6	62.2	66.3	65.3	65.6
7	-	69.3	69.3	69.7	69.9	-	-	69.8	68.0	-	67.6	-	65.5	65.4	-	-	64.9	70.4	59.6	68.0	70.2	70.2	63.1	61.5	66.1	65.1	65.5
6	-	69.2	69.3	69.6	69.9	-	-	69.8	67.9	70.0	70.3	-	65.3	65.2	-	-	64.8	70.4	59.4	67.9	70.1	70.0	62.3	60.5	65.9	64.9	65.4
5	-	69.2	69.2	69.6	69.9	-	-	69.8	67.9	69.6	70.1	-	65.2	65.1	-	67.6	70.4	70.0	58.9	67.8	69.7	69.6	61.5	59.4	65.8	64.7	64.8
4	-	69.2	69.2	69.5	69.8	-	-	69.5	67.4	69.3	69.7	69.9	70.3	70.0	59.4	66.2	68.9	68.5	57.1	66.3	68.4	68.4	60.8	58.4	65.7	63.9	62.9
Max	<40	69.4	69.4	69.7	70.0	<40	<40	69.9	68.1	70.1	70.4	69.9	70.3	70.0	59.4	67.6	70.4	70.4	59.6	68.0	70.3	70.4	63.6	66.8	67.9	65.5	65.8
Min	<40	66.8	66.8	67.1	67.3	<40	<40	67.2	65.4	69.3	67.5	69.9	65.2	65.1	59.4	66.2	64.8	64.7	57.1	66.3	64.8	64.9	60.8	<40	65.7	63.9	62.9

Noise sensitive receivers with exceedance (≥70.5 dB(A))

\- Noise sensitive receivers applied with fixed glazing

Noise sensitive receivers applied with acoustic window (non-absorptive)

Noise sensitive receivers applied with acoustic window (absorptive)

X Noise sensitive receivers applied with acoustic balcony (Type 1)

X Noise sensitive receivers applied with acoustic balcony (Type 2)

X Noise sensitive receivers applied with acoustic balcony (Type 4)

(These predicted noise levels are the equivalent noise levels at 1m from the external facade after accounting the reduction in noise levels inside the flat offered by the proposed acoustic window)

Floor	R206a	R206b	R206c	R206d	R207a	R207b	R207c	R207d	R208a	R208b	R209a	R209b	R210a	R210b	R211a	R211b	R211c	R212a	R212b	R212c	R212d	R213a	R213b	R214b	R214c	R215a	R215b
45	63.6	66.2	66.3	64.6	63.9	66.1	65.9	63.5	65.1	65.2	65.1	64.8	62.6	65.7	66.1	66.3	62.2	61.7	66.7	67.4	67.5	69.6	69.2	69.0	69.0	69.0	69.0
44	63.6	66.2	66.3	64.7	63.9	66.1	65.9	63.5	65.1	65.2	65.1	64.8	62.5	65.7	66.1	66.3	62.2	61.7	66.8	67.4	67.5	69.6	69.2	69.0	69.0	69.0	69.0
43	63.6	66.2	66.3	64.7	63.9	66.1	66.0	63.5	65.1	65.2	65.1	64.8	62.5	65.7	66.2	66.3	62.2	61.8	66.8	67.4	67.6	69.6	69.2	69.0	69.0	69.0	69.0
42	63.7	66.2	66.4	64.7	63.9	66.1	66.0	63.6	65.2	65.2	65.1	64.8	62.5	65.7	66.1	66.3	62.2	61.7	66.8	67.4	67.6	69.6	69.2	69.1	69.1	69.1	69.1
41	63.6	66.2	66.3	64.7	63.9	66.1	66.0	63.6	65.1	65.2	65.1	64.9	62.5	65.7	66.2	66.3	62.2	61.8	66.8	67.5	67.7	69.7	69.3	69.1	69.1	69.1	69.1
40	63.7	66.3	66.4	64.8	63.9	66.2	66.0	63.7	65.2	65.2	65.2	64.9	62.6	65.8	66.2	66.4	62.3	61.8	66.8	67.5	67.7	69.7	69.3	69.2	69.1	69.1	69.2
39	63.6	66.3	66.4	64.8	63.9	66.2	66.0	63.7	65.2	65.2	65.1	64.9	62.6	65.8	66.2	66.4	62.3	61.8	66.9	67.5	67.7	69.7	69.3	69.2	69.2	69.2	69.2
38	63.7	66.3	66.4	64.8	63.9	66.2	66.0	63.7	65.2	65.3	65.1	64.9	62.6	65.8	66.2	66.4	62.3	61.8	66.9	67.5	67.7	69.8	69.4	69.3	69.2	69.2	69.2
37	63.6	66.3	66.4	64.8	63.9	66.2	66.1	63.7	65.2	65.2	65.1	64.8	62.6	65.8	66.3	66.4	62.3	61.8	66.9	67.5	67.7	69.8	69.4	69.3	69.3	69.3	69.3
36	63.6	66.3	66.4	64.9	63.9	66.2	66.1	63.7	65.2	65.2	65.1	64.8	62.6	65.8	66.3	66.4	62.3	61.8	66.9	67.6	67.8	69.8	69.4	69.3	69.3	69.3	69.3
35	63.6	66.3	66.4	64.9	63.8	66.2	66.1	63.7	65.1	65.2	65.1	64.8	62.6	65.8	66.3	66.4	62.2	61.8	66.9	67.6	67.8	69.9	69.5	69.4	69.4	69.4	69.4
34	63.6	66.3	66.4	64.9	63.8	66.2	66.0	63.7	65.1	65.2	65.0	64.8	62.6	65.8	66.3	66.5	62.2	61.8	66.9	67.6	67.8	69.9	69.5	69.4	69.4	69.4	69.4
33	63.6	66.3	66.4	64.9	63.8	66.2	66.0	63.6	65.1	65.2	65.0	64.7	62.6	65.8	66.3	66.5	62.2	61.7	67.0	67.6	67.8	69.9	69.6	69.5	69.5	69.5	69.4
32	63.6	66.3	66.4	64.9	63.8	66.2	66.0	63.7	65.1	65.1	64.9	64.7	62.5	65.7	66.3	66.4	62.1	61.7	67.0	67.7	67.9	70.0	69.6	69.5	69.5	69.5	69.5
31	63.6	66.4	66.5	64.9	63.7	66.2	66.0	63.7	65.0	65.1	64.9	64.6	62.5	65.7	66.2	66.5	62.1	61.7	67.0	67.7	67.9	70.0	69.7	69.6	69.6	69.6	69.6
30	63.5	66.3	66.4	64.9	63.7	66.1	66.0	63.6	64.9	65.0	64.9	64.6	62.4	65.7	66.2	66.4	62.1	61.6	67.0	67.6	67.9	70.1	69.7	69.6	69.6	69.6	69.6
29	63.5	66.3	66.4	64.9	63.7	66.1	65.9	63.6	64.8	64.9	64.8	64.5	62.3	65.6	66.2	66.4	61.9	61.5	66.9	67.7	67.9	70.1	69.8	69.7	69.7	69.6	69.7
28	63.4	66.3	66.4	64.9	63.7	66.1	65.9	63.6	64.8	64.9	64.7	64.4	62.3	65.6	66.2	66.4	61.9	61.4	66.9	67.6	67.9	70.1	69.8	69.7	69.7	69.7	69.7
27	63.4	66.3	66.4	64.9	63.6	66.0	65.8	63.5	64.7	64.7	64.6	64.3	62.2	65.5	66.1	66.4	61.9	61.4	66.9	67.7	67.9	70.2	69.9	69.8	69.7	69.8	69.8
26	63.4	66.3	66.4	64.9	63.6	66.0	65.8	63.5	64.6	64.6	64.5	64.2	62.2	65.5	66.1	66.3	61.9	61.3	66.9	67.7	67.9	70.2	69.9	69.8	69.8	69.8	69.8
25	63.3	66.2	66.4	64.9	63.5	65.9	65.7	63.4	64.5	64.6	64.4	64.2	62.1	65.4	66.0	66.3	61.8	61.2	66.9	67.7	68.0	70.3	69.9	69.9	69.8	69.8	69.8
24	63.3	66.2	66.3	64.8	63.5	65.9	65.6	63.4	64.5	64.5	64.3	64.1	62.1	65.3	66.0	66.2	61.7	61.2	66.9	67.7	68.0	70.3	70.0	69.9	69.9	69.9	69.9
23	63.2	66.1	66.3	64.8	63.5	65.8	65.6	63.4	64.4	64.4	64.3	64.0	62.1	65.3	66.0	66.2	61.7	61.1	66.9	67.7	68.0	70.3	70.0	70.0	69.9	69.9	69.9
22																											
21	63.1	66.2	66.2	64.8	63.5	65.8	65.5	63.3	64.3	64.4	64.2	64.0	62.0	65.2	65.9	66.1	61.7	61.1	66.8	67.6	68.0	70.4	70.1	70.0	70.0	70.0	70.0
20	63.2	66.2	66.2	64.8	63.5	65.8	65.5	63.3	64.3	64.3	64.1	63.9	62.0	65.2	65.9	66.1	61.7	61.0	66.8	67.7	68.0	70.4	70.2	70.1	70.0	70.0	70.1
19	63.1	66.2	66.3	64.8	63.5	65.8	65.6	63.3	64.3	64.3	64.2	63.9	62.1	65.2	65.8	66.1	61.7	61.0	66.8	67.7	68.1	70.4	70.2	70.1	70.1	70.1	70.1
18	63.1	66.2	66.3	64.9	63.6	65.8	65.6	63.3	64.4	64.3	64.1	63.9	62.0	65.2	65.8	66.1	61.8	61.0	66.8	67.7	68.1	70.4	70.2	70.1	70.1	70.1	70.1
17	63.1	66.3	66.3	64.9	63.6	65.9	65.6	63.3	64.4	64.3	64.2	63.9	62.0	65.1	65.8	66.1	61.7	61.0	66.8	67.7	68.1	70.4	70.2	70.2	70.2	70.1	70.1
16	63.2	66.3	66.4	64.9	63.6	65.9	65.6	63.3	64.4	64.3	64.1	63.9	62.0	65.1	65.8	66.1	61.8	61.0	66.8	67.7	68.1	70.4	70.2	70.2	70.2	70.2	70.2
15	63.2	66.4	66.4	65.0	63.7	66.0	65.7	63.3	64.5	64.4	64.2	63.9	62.0	65.1	65.8	66.0	61.8	60.9	66.8	67.8	68.2	70.3	70.2	70.2	70.2	70.1	70.2
14	63.2	66.4	66.5	65.0	63.8	66.0	65.7	63.3	64.4	64.4	64.2	63.9	62.0	65.1	65.8	66.1	61.8	60.9	66.9	67.8	68.2	70.3	70.2	70.1	70.1	70.1	70.1
13	63.3	66.5	66.5	65.0	63.8	66.1	65.8	63.3	64.5	64.4	64.2	63.9	62.0	65.1	65.8	66.0	61.9	60.9	66.9	67.8	68.2	70.1	70.1	70.1	70.1	70.1	70.1
12	63.3	66.5	66.6	65.0	63.8	66.1	65.8	63.3	64.5	64.4	64.1	63.8	62.0	65.1	65.8	66.1	61.9	61.1	66.9	67.8	68.3	70.0	69.9	69.9	70.0	70.0	70.0
11	63.2	66.5	66.6	65.0	63.8	66.1	65.8	63.2	64.5	64.3	64.1	63.7	62.1	65.1	65.8	66.0	62.1	61.1	66.9	67.8	68.2	69.8	69.8	69.9	69.9	69.9	69.9
10	63.2	66.5	66.6	64.9	63.7	66.0	65.8	63.1	64.5	64.3	64.1	63.7	62.2	65.1	65.8	66.0	62.1	61.2	66.8	67.9	68.3	69.6	69.7	69.7	69.7	69.8	69.8
9	63.0	66.5	66.6	64.9	63.6	66.1	65.8	63.0	64.4	64.3	64.1	63.7	62.3	65.1	65.8	66.0	62.3	61.2	66.7	67.9	68.2	69.5	69.5	69.6	69.6	69.6	69.7
8	62.9	66.5	66.6	64.8	63.5	66.1	65.8	62.8	64.4	64.2	64.0	63.8	62.5	65.2	65.8	66.0	62.2	61.3	66.6	67.8	68.0	69.3	69.3	69.4	69.4	69.5	69.4
7	62.7	66.5	66.5	64.7	63.5	66.1	65.8	62.8	64.4	64.3	64.0	63.8	62.7	65.1	65.8	65.9	62.1	61.2	66.4	67.6	67.7	69.0	69.0	69.1	69.1	69.1	69.1
6	62.1	66.5	66.6	64.4	62.8	66.0	65.7	62.6	64.3	64.2	64.0	63.7	62.7	65.2	65.8	65.9	61.2	60.6	66.2	67.1	67.2	68.6	68.6	68.6	68.5	68.5	68.3
5	59.6	66.5	66.5	63.4	59.6	66.1	65.8	62.3	64.2	64.3	63.9	61.6	61.6	64.9	65.4	65.2	57.7	57.5	65.3	66.0	66.2	68.0	67.9	67.7	67.6	67.5	67.3
4	55.1	66.1	66.2	60.7	54.9	65.9	65.6	59.0	61.7	64.2	60.9	56.2	56.4	61.4	61.9	61.6	53.4	53.2	61.7	63.5	64.7	67.3	67.2	66.8	66.6	66.6	66.5
Max	63.7	66.5	66.6	65.0	63.9	66.2	66.1	63.7	65.2	65.3	65.2	64.9	62.7	65.8	66.3	66.5	62.3	61.8	67.0	67.9	68.3	70.4	70.2	70.2	70.2	70.2	70.2
Min	55.1	66.1	66.2	60.7	54.9	65.8	65.5	59.0	61.7	64.2	60.9	56.2	56.4	61.4	61.9	61.6	53.4	53.2	61.7	63.5	64.7	67.3	67.2	66.8	66.6	66.6	66.5

	Noise sensitive receivers with exceedance (≥70.5 dB(A))
-	Noise sensitive receivers applied with fixed glazing
	Noise sensitive receivers applied with acoustic window (non-absorptive)
	Noise sensitive receivers applied with acoustic window (absorptive)
X	Noise sensitive receivers applied with acoustic balcony (Type 1)
X	Noise sensitive receivers applied with acoustic balcony (Type 2)
X	Noise sensitive receivers applied with acoustic balcony (Type 4)

(These predicted noise levels are the equivalent noise levels at 1m from the external facade after accounting the reduction in noise levels inside the flat offered by the proposed acoustic window)

Floor	R216b	R216c	R217a	R217b	R218b	R218c	R219a	R219b	R219c	R220a	R220b	R220c	R221a	R221b	R222a	R222b	R222c	R222d	R223a	R223b	R223c	R223d	R224a	R224b
45	69.0	68.9	69.6	69.7	69.8	69.9	63.2	63.4	58.5	63.2	63.7	63.8	64.2	64.4	<40	65.0	65.2	64.8	62.1	65.3	65.1	63.2	60.6	58.6
44	69.0	69.0	69.7	69.8	69.8	69.9	63.2	63.5	58.5	63.3	63.8	63.9	64.2	64.4	<40	65.0	65.2	64.9	62.1	65.4	65.1	63.2	60.7	58.6
43	69.1	69.0	69.7	69.8	69.9	69.9	63.3	63.5	58.6	63.3	63.8	63.9	64.2	64.5	<40	65.1	65.2	64.9	62.2	65.4	65.2	63.3	60.7	58.6
42	69.1	69.0	69.7	69.8	69.9	70.0	63.3	63.5	58.6	63.4	63.9	63.9	64.3	64.5	<40	65.1	65.3	65.0	62.2	65.5	65.2	63.3	60.7	58.7
41	69.2	69.1	69.8	69.9	70.0	70.0	63.3	63.6	58.6	63.4	63.9	64.0	64.3	64.6	<40	65.2	65.3	65.0	62.3	65.5	65.3	63.3	60.8	58.7
40	69.2	69.1	69.8	69.9	70.0	70.0	63.4	63.6	58.7	63.5	63.9	64.0	64.4	64.6	<40	65.2	65.4	65.1	62.3	65.6	65.3	63.4	60.8	58.7
39	69.2	69.2	69.8	69.9	70.0	70.1	63.4	63.7	58.7	63.5	64.0	64.1	64.4	64.6	<40	65.3	65.5	65.1	62.3	65.6	65.4	63.4	60.9	58.7
38	69.3	69.2	69.9	70.0	70.1	70.1	63.5	63.7	58.8	63.5	64.0	64.1	64.5	64.7	<40	65.3	65.5	65.1	62.4	65.6	65.4	63.5	60.8	58.7
37	69.3	69.2	69.9	70.0	70.1	70.2	63.5	63.8	58.8	63.6	64.1	64.2	64.5	64.7	<40	65.4	65.6	65.2	62.4	65.7	65.5	63.5	60.9	58.8
36	69.4	69.3	69.9	70.0	70.1	70.2	63.6	63.8	58.8	63.6	64.1	64.2	64.5	64.8	<40	65.4	65.6	65.2	62.5	65.7	65.5	63.6	60.9	58.8
35	69.4	69.3	70.0	70.1	70.2	70.2	63.6	63.8	58.9	63.7	64.2	64.2	64.6	64.8	<40	65.4	65.6	65.3	62.5	65.8	65.6	63.6	60.9	58.8
34	69.5	69.4	70.0	70.1	70.2	70.3	63.7	63.9	58.9	63.7	64.2	64.3	64.6	64.9	<40	65.5	65.7	65.3	62.6	65.8	65.6	63.7	61.0	58.9
33	69.5	69.4	70.0	70.1	70.2	70.3	63.7	63.9	59.0	63.7	64.2	64.3	64.7	64.9	<40	65.5	65.7	65.3	62.6	65.9	65.6	63.7	61.0	58.9
32	69.6	69.5	70.1	70.2	70.3	70.3	63.7	64.0	59.0	63.8	64.3	64.4	64.7	65.0	<40	65.6	65.8	65.4	62.7	65.9	65.7	63.7	61.0	58.9
31	69.6	69.5	70.1	70.2	70.3	70.4	63.8	64.0	59.0	63.8	64.3	64.4	64.7	65.0	<40	65.6	65.8	65.4	62.7	66.0	65.7	63.8	61.0	58.9
30	69.7	69.6	70.1	70.3	70.3	70.4	63.8	64.0	59.1	63.9	64.4	64.4	64.8	65.1	<40	65.7	65.8	65.5	62.8	66.0	65.8	63.8	61.0	58.9
29	69.7	69.6	70.2	70.3	70.4	70.4	63.8	64.1	59.1	63.9	64.4	64.5	64.8	65.1	<40	65.7	65.9	65.5	62.8	66.1	65.8	63.8	61.0	58.9
28	69.8	69.7	70.2	70.3	67.6	67.6	63.9	64.1	59.1	63.9	64.4	64.5	64.9	65.1	<40	65.7	65.9	65.6	62.9	66.1	65.9	63.9	61.0	58.8
27	69.8	69.7	70.3	70.4	67.6	67.6	63.9	64.1	59.2	64.0	64.5	64.6	64.9	65.2	<40	65.8	66.0	65.6	62.9	66.2	65.9	63.9	61.0	58.8
26	69.9	69.8	70.3	70.4	67.6	67.7	63.9	64.2	59.2	64.0	64.5	64.6	65.0	65.2	<40	65.8	66.0	65.7	62.9	66.2	65.9	63.9	61.0	58.8
25	69.9	69.8	67.5	67.6	67.6	67.7	64.0	64.2	59.2	64.0	64.6	64.6	65.0	65.2	<40	65.9	66.1	65.7	63.0	66.2	66.0	64.0	61.0	58.8
24	69.9	69.9	67.5	67.6	67.7	67.7	64.0	64.3	59.3	64.1	64.6	64.7	65.0	65.3	<40	65.9	66.1	65.7	63.0	66.3	66.0	64.0	61.1	58.8
23	70.0	69.9	67.5	67.6	67.7	67.8	64.1	64.3	59.3	64.1	64.6	64.7	65.1	65.3	<40	65.9	66.1	65.8	63.0	66.3	66.0	64.1	61.0	58.7
22																								
21	70.1	70.0	67.6	67.7	67.7	67.8	64.1	64.4	59.4	64.2	64.7	64.8	65.1	65.4	<40	66.0	66.2	65.9	63.1	66.4	66.1	64.1	61.1	58.7
20	70.1	70.1	67.6	67.7	67.8	67.8	64.1	64.4	59.4	64.2	64.7	64.8	65.2	65.4	<40	66.0	66.3	65.9	63.2	66.4	66.1	64.1	61.1	58.7
19	70.1	70.1	67.6	67.7	67.8	67.8	64.2	64.4	59.5	64.2	64.7	64.8	65.2	65.4	<40	66.1	66.3	65.9	63.2	66.4	66.2	64.2	61.1	58.7
18	70.2	70.2	68.0	68.2	68.3	68.3	64.2	64.4	59.5	64.3	64.8	64.8	65.2	65.5	<40	66.1	66.3	65.9	63.2	66.5	66.2	64.2	61.1	58.7
17	70.2	70.2	68.0	68.2	68.3	68.4	64.2	64.5	59.5	64.3	64.8	64.9	65.2	65.5	<40	66.1	66.4	66.0	63.2	66.5	66.2	64.2	61.1	58.6
16	70.2	70.2	68.1	68.2	68.3	68.4	64.2	64.5	59.5	64.3	64.8	64.9	65.3	65.5	<40	66.2	66.4	66.0	63.2	66.5	66.2	64.2	61.1	58.7
15	70.2	70.2	68.0	68.2	68.3	68.4	64.3	64.5	59.6	64.4	64.9	64.9	65.3	65.5	<40	66.2	66.4	66.0	63.3	66.6	66.3	64.2	61.1	58.7
14	70.2	70.2	68.0	68.2	68.2	68.4	64.3	64.6	59.6	64.4	64.9	65.0	65.3	65.6	<40	66.2	66.4	66.0	63.3	66.6	66.3	64.3	61.1	58.7
13	70.2	70.2	68.0	68.2	68.3	68.4	64.3	64.6	59.6	64.4	64.9	65.0	65.3	65.6	<40	66.2	66.5	66.1	63.3	66.6	66.3	64.3	61.1	58.6
12	70.1	70.2	68.0	68.1	68.3	68.3	64.3	64.6	59.6	64.4	65.0	65.0	65.4	65.6	<40	66.3	66.5	66.1	63.3	66.6	66.3	64.3	61.1	58.6
11	70.1	70.1	68.8	69.0	68.2	68.3	64.3	64.6	59.7	64.4	65.0	65.0	65.4	65.6	<40	66.3	66.5	66.1	63.3	66.6	66.3	64.3	61.0	58.5
10	69.9	70.0	68.8	68.9	69.1	69.2	64.3	64.6	59.7	64.4	65.0	65.1	65.4	65.7	<40	66.3	66.5	66.1	63.2	66.6	66.3	64.3	60.9	58.5
9	69.8	69.8	69.0	69.1	69.3	69.3	64.3	64.6	59.7	64.4	65.0	65.0	65.3	65.6	<40	66.3	66.5	66.0	63.0	66.5	66.2	64.0	60.7	58.4
8	69.6	69.6	70.3	70.4	69.0	69.1	64.2	64.5	59.7	64.3	64.8	64.8	65.1	65.4	40.0	66.1	66.3	65.8	62.4	66.3	65.8	63.4	60.0	58.3
7	69.1	69.1	69.7	69.9	70.0	70.1	64.1	64.2	59.6	64.0	64.4	64.5	64.8	65.1	40.0	65.7	65.9	65.3	61.1	65.9	65.4	62.5	58.8	58.2
6	68.2	68.2	68.9	69.1	69.3	69.3	63.6	63.7	59.3	63.4	63.9	63.9	64.3	64.6	40.0	65.3	65.4	64.7	58.8	65.2	64.7	61.5	57.6	57.8
5	67.4	67.4	68.2	68.4	68.6	68.7	62.5	62.9	58.9	62.7	63.4	63.5	64.0	64.3	40.0	64.9	65.1	64.1	55.4	64.6	64.1	60.6	56.5	57.2
4	66.6	66.7	67.5	67.7	67.9	68.0	61.4	62.1	58.0	62.0	62.8	63.0	63.2	63.1	40.0	64.0	64.0	62.0	52.6	62.5	61.9	57.8	55.0	56.1
Max	70.2	70.2	70.3	70.4	70.4	70.4	64.3	64.6	59.7	64.4	65.0	65.1	65.4	65.7	40.0	66.3	66.5	66.1	63.3	66.6	66.3	64.3	61.1	58.9
Min	66.6	66.7	67.5	67.6	67.6	67.6	61.4	62.1	58.0	62.0	62.8	63.0	63.2	63.1	40.0	64.0	64.0	62.0	52.6	62.5	61.9	57.8	55.0	56.1

	Noise sensitive receivers with exceedance (≥70.5 dB(A))
-	Noise sensitive receivers applied with fixed glazing
	Noise sensitive receivers applied with acoustic window (non-absorptive)
	Noise sensitive receivers applied with acoustic window (absorptive)
X	Noise sensitive receivers applied with acoustic balcony (Type 1)
X	Noise sensitive receivers applied with acoustic balcony (Type 2)
X	Noise sensitive receivers applied with acoustic balcony (Type 4)

(These predicted noise levels are the equivalent noise levels at 1m from the external facade after accounting the reduction in noise levels inside the flat offered by the proposed acoustic window)

Floor	R101 max	R102 max	R103 max	R104 max	R105 max	R106 max	R107 max	R108 max	R109 max	R110 max	R111 max	R112 max	R113 max	R114 max	R115 max	R116 max	R117 max	R118 max	R119 max	R120 max	R121 max	R122 max	R123 max	R201 max	R202max	R203max	R204max	R205max
45	67.1	66.1	66.1	56.4	59.2	58.1	58.0	59.2	59.9	70.3	70.4	67.2	67.3	67.5	68.4	67.3	66.3	66.1	65.7	66.4	66.8	67.3	67.2	69.8	65.0	64.9	67.8	65.4
44	67.1	66.2	66.1	56.3	59.2	58.0	58.0	59.2	59.9	70.3	70.4	67.2	67.4	67.6	68.4	67.4	66.4	66.1	65.8	66.5	66.9	67.4	67.3	69.8	65.0	64.9	67.9	65.5
43	67.1	66.2	66.2	56.3	59.1	57.9	58.0	59.3	59.9	70.3	66.9	67.2	67.4	67.6	68.5	67.4	66.5	66.2	65.8	66.6	67.0	67.5	67.3	69.8	65.0	65.0	67.8	65.5
42	67.2	66.3	66.2	56.3	59.1	58.0	58.0	59.2	59.9	70.4	66.9	67.3	67.5	67.6	68.5	67.5	66.5	66.3	65.9	66.6	67.0	67.5	67.4	69.9	65.0	65.0	67.9	65.5
41	67.3	66.3	66.3	56.2	59.1	57.9	58.0	59.3	60.0	70.4	66.9	67.3	67.5	67.7	68.6	67.6	66.6	66.4	66.0	66.7	67.1	67.6	67.4	69.9	65.1	65.0	67.9	65.5
40	67.3	66.4	66.3	56.2	59.0	57.9	58.0	59.3	60.0	66.9	67.0	67.4	67.6	67.7	68.6	67.7	66.6	66.4	66.0	66.7	67.2	67.7	67.5	70.0	65.1	65.0	67.9	65.5
39	67.4	66.4	66.4	56.1	59.1	57.9	58.0	59.3	60.0	66.9	67.0	67.4	67.6	67.8	68.7	67.7	66.7	66.5	66.1	66.8	67.2	67.7	67.6	70.0	65.1	65.0	67.9	65.5
38	67.4	66.5	66.4	56.0	59.0	57.9	57.9	59.3	60.0	67.0	67.0	67.5	67.7	67.9	68.8	67.7	66.8	66.5	66.2	66.9	67.3	67.8	67.6	70.0	65.2	65.1	67.9	65.6
37	67.5	66.5	66.5	55.9	58.9	57.8	58.0	59.3	60.0	67.5	67.1	67.5	67.7	67.9	68.9	67.8	66.9	66.6	66.2	67.0	67.4	67.8	67.7	70.1	65.2	65.1	67.9	65.6
36	67.6	66.6	66.5	55.7	58.9	57.8	57.9	59.3	60.0	67.7	67.1	67.6	67.8	68.0	68.9	67.9	66.9	66.7	66.3	67.0	67.4	67.9	67.8	70.1	65.2	65.1	67.9	65.5
35	67.6	66.6	66.6	55.5	58.8	57.7	57.9	59.3	60.0	67.8	67.1	67.6	67.8	68.0	69.0	67.9	67.0	66.8	66.3	67.1	67.5	68.0	67.9	70.2	65.2	65.1	67.9	65.6
34	67.7	66.7	66.6	55.3	58.8	57.7	57.8	59.3	60.0	67.9	67.9	67.6	67.9	68.1	69.1	68.0	67.1	66.9	66.4	67.2	67.6	68.1	68.0	70.2	65.2	65.2	67.9	65.5
33	67.8	66.7	66.7	55.2	58.7	57.6	57.8	59.3	60.0	68.0	68.1	67.7	68.0	68.1	69.1	68.1	67.2	66.9	66.5	67.2	67.6	68.1	68.0	70.2	65.3	65.2	67.9	65.6
32	67.8	66.8	66.7	55.1	58.6	57.6	57.8	59.2	60.1	68.0	68.2	67.8	68.0	68.2	69.1	68.2	67.3	67.0	66.6	67.3	67.7	68.2	68.1	70.3	65.3	65.2	67.9	65.6
31	67.9	66.9	66.8	55.0	58.6	57.5	57.7	59.3	60.1	68.0	68.2	67.9	68.1	68.3	69.2	68.2	67.3	67.1	66.7	67.4	67.8	68.3	68.2	70.3	65.3	65.2	67.9	65.6
30	68.0	66.9	66.8	54.8	58.5	57.5	57.7	59.2	60.1	68.1	68.3	67.9	68.1	68.3	69.3	68.3	67.4	67.1	66.7	67.4	67.9	68.4	68.2	70.4	65.4	65.3	67.9	65.6
29	68.0	67.0	66.9	54.6	58.4	57.3	57.6	59.2	60.0	68.1	68.3	68.0	68.2	68.4	69.4	68.5	67.5	67.2	66.8	67.5	68.0	68.4	68.3	70.4	65.4	65.3	67.9	65.6
28	68.1	67.0	66.9	54.5	58.3	57.2	57.4	59.2	60.1	68.1	68.3	68.0	68.2	68.5	69.5	68.5	67.6	67.3	66.9	67.6	68.0	68.5	68.4	67.5	65.4	65.3	67.9	65.6
27	68.2	67.1	67.0	54.4	58.2	57.1	57.4	59.1	60.0	68.1	68.4	68.9	68.3	68.6	69.5	68.6	67.7	67.4	66.9	67.7	68.1	68.6	68.5	67.5	65.4	65.3	67.9	65.6
26	68.2	67.2	67.0	54.3	58.0	57.0	57.2	59.1	60.1	68.2	68.4	69.0	68.4	68.6	69.6	68.7	67.8	67.5	67.0	67.7	68.1	68.7	68.5	67.5	65.5	65.3	67.9	65.6
25	68.3	67.2	67.1	54.2	58.0	56.7	57.0	59.0	60.0	68.2	68.4	69.1	68.5	68.7	69.7	68.8	67.8	67.5	67.1	67.8	68.2	68.7	68.6	67.6	65.5	65.3	67.8	65.6
24	68.4	67.3	67.1	54.0	57.8	56.5	56.9	58.9	60.0	68.3	68.5	69.2	69.5	68.8	69.8	68.9	67.9	67.6	67.2	67.9	68.3	68.8	68.7	67.6	65.5	65.3	67.8	65.6
23	68.4	67.3	67.2	53.8	57.5	56.2	56.6	58.9	60.0	68.3	68.5	69.3	69.8	68.8	69.9	69.0	68.0	67.7	67.3	68.0	68.4	68.9	68.8	67.7	65.5	65.4	67.7	65.5
22																												
21	68.6	67.5	67.3	53.0	56.7	55.6	56.3	58.8	59.9	68.4	68.7	69.4	70.0	70.3	70.2	69.3	68.3	68.0	67.4	68.2	68.6	69.1	69.0	67.7	65.5	65.4	67.5	65.5
20	68.7	67.5	67.3	52.5	56.5	55.4	56.2	58.7	59.9	68.5	68.7	69.5	70.1	70.4	69.2	69.4	68.3	68.0	67.5	68.2	68.7	69.2	69.1	67.8	65.5	65.4	67.3	65.5
19	68.8	67.6	67.4	52.0	56.3	55.2	55.9	58.7	59.9	68.5	68.8	69.6	70.2	68.8	70.1	69.5	68.4	68.1	67.6	68.3	68.7	69.2	69.1	67.8	65.5	65.3	67.3	65.5
18	68.8	67.6	67.4	51.8	55.9	54.8	55.8	58.7	59.9	68.6	68.9	69.7	70.2	68.9	70.2	69.6	68.6	68.2	67.7	68.4	68.8	69.3	69.2	67.9	65.5	65.3	67.2	65.6
17	68.9	67.7	67.5	51.2	55.4	54.6	55.7	58.5	59.9	68.7	68.9	69.8	70.3	68.9	70.3	69.7	68.7	68.3	67.8	68.5	68.9	69.4	69.3	67.9	65.5	65.3	67.1	65.6
16	69.0	67.7	67.5	51.0	55.0	54.4	55.4	58.5	59.9	69.1	69.3	69.9	70.4	69.1	70.4	69.9	68.7	68.4	67.8	68.6	69.0	69.5	69.4	67.9	65.5	65.3	67.0	65.7
15	69.0	67.8	67.6	50.8	54.7	54.1	55.4	58.5	59.8	69.1	69.4	70.1	68.8	69.3	68.0	69.9	68.8	68.5	67.9	68.6	69.1	69.6	69.5	67.9	65.4	65.3	67.0	65.7
14	69.1	67.8	67.6	50.5	54.3	54.0	55.2	58.4	59.7	69.2	69.4	70.3	69.2	69.4	68.1	70.1	68.9	68.6	68.0	68.7	69.1	69.6	69.5	67.9	65.4	65.3	66.9	65.7
13	69.2	67.9	67.7	50.4	54.0	53.9	55.1	58.4	59.8	69.2	69.4	70.3	69.3	69.6	68.3	70.2	69.0	68.7	68.1	68.8	69.2	69.7	69.6	68.0	65.4	65.2	66.8	65.8
12	69.2	67.9	67.7	50.4	53.8	53.7	54.9	58.3	59.7	69.2	69.4	70.4	69.3	69.7	68.4	70.3	69.2	68.8	68.1	68.8	69.2	69.8	69.7	68.0	65.3	65.1	66.8	65.8
11	69.3	68.0	67.7	50.3	53.6	53.5	54.7	58.2	59.6	69.1	69.4	70.4	69.3	69.7	68.4	69.0	69.2	68.8	68.2	68.9	69.3	69.8	69.7	68.0	65.3	65.1	66.7	65.8
10	69.4	68.0	67.8	50.1	53.3	53.3	54.5	58.0	59.5	69.3	69.5	70.4	69.3	69.7	68.5	69.1	69.3	68.9	68.3	69.0	69.4	69.9	69.8	67.9	65.2	64.9	66.6	65.8
9	69.4	68.1	67.8	50.0	52.9	53.0	54.1	58.0	59.4	69.1	69.3	68.9	69.4	69.9	68.6	69.2	69.4	69.0	68.3	69.0	69.4	70.0	69.9	67.9	65.1	64.8	66.4	65.7
8	69.5	68.1	67.8	50.0	52.3	52.6	53.7	57.7	59.2	70.0	69.1	70.4	69.4	69.8	68.6	69.4	69.5	69.1	68.2	68.9	69.4	70.0	69.9	67.8	65.0	64.7	70.4	65.6
7	69.5	68.1	67.8	50.0	51.1	52.1	52.8	57.1	58.8	69.8	70.2	70.3	69.3	69.8	68.7	69.5	69.6	69.1	68.1	68.8	69.3	69.9	69.8	67.6	64.9	70.4	70.2	65.5
6	69.6	68.1	67.7	49.9	50.3	51.5	51.6	56.4	58.4	69.5	70.0	70.0	69.2	69.7	68.7	69.6	69.6	68.9	68.1	68.8	69.3	69.9	69.8	70.3	64.8	70.4	70.1	65.4
5	69.6	67.9	67.1	49.6	49.6	50.1	50.3	55.8	57.9	70.0	69.7	69.6	70.4	69.5	68.7	69.7	69.1	68.6	68.0	68.7	69.2	69.9	69.8	70.1	70.4	70.0	69.7	64.8
4	69.5	66.1	65.6	48.0	48.6	47.4	47.8	54.7	56.9	69.3	69.9	70.1	69.4	70.0	68.4	69.6	68.3	68.2	68.0	68.8	69.2	69.8	69.5	70.3	68.9	68.5	68.4	63.9
Max	69.6	68.1	67.8	56.4	59.2	58.1	58.0	59.3	60.1	70.4	70.4	70.4	70.4	70.4	70.4	70.3	69.6	69.1	68.3	69.0	69.4	70.0	69.9	70.4	70.4	70.4	70.4	65.8
Min	67.1	66.1	65.6	48.0	48.6	47.4	47.8	54.7	56.9	66.9	66.9	67.2	67.3	67.5	68.0	67.3	66.3	66.1	65.7	66.4	66.8	67.3	67.2	67.5	64.8	64.7	66.4	63.9

Total	1927
Exceedance	0
Compliance Rate	100%

Noise sensitive receivers with exceedance ($\geq$70.5 dB(A))

Floor	R206max	R207max	R208max	R209max	R210max	R211max	R212max	R213max	R214max	R215max	R216max	R217max	R218max	R219max	R220max	R221max	R222max	R223max	R224max
45	66.3	66.1	65.2	65.1	65.7	66.3	67.5	69.6	69.0	69.0	69.0	69.7	69.9	63.4	63.8	64.4	65.2	65.3	60.6
44	66.3	66.1	65.2	65.1	65.7	66.3	67.5	69.6	69.0	69.0	69.0	69.8	69.9	63.5	63.9	64.4	65.2	65.4	60.7
43	66.3	66.1	65.2	65.1	65.7	66.3	67.6	69.6	69.0	69.0	69.1	69.8	69.9	63.5	63.9	64.5	65.2	65.4	60.7
42	66.4	66.1	65.2	65.1	65.7	66.3	67.6	69.6	69.1	69.1	69.1	69.8	70.0	63.5	63.9	64.5	65.3	65.5	60.7
41	66.3	66.1	65.2	65.1	65.7	66.3	67.7	69.7	69.1	69.1	69.2	69.9	70.0	63.6	64.0	64.6	65.3	65.5	60.8
40	66.4	66.2	65.2	65.2	65.8	66.4	67.7	69.7	69.2	69.2	69.2	69.9	70.0	63.6	64.0	64.6	65.4	65.6	60.8
39	66.4	66.2	65.2	65.1	65.8	66.4	67.7	69.7	69.2	69.2	69.2	69.9	70.1	63.7	64.1	64.6	65.5	65.6	60.9
38	66.4	66.2	65.3	65.1	65.8	66.4	67.7	69.8	69.3	69.2	69.3	70.0	70.1	63.7	64.1	64.7	65.5	65.6	60.8
37	66.4	66.2	65.2	65.1	65.8	66.4	67.7	69.8	69.3	69.3	69.3	70.0	70.2	63.8	64.2	64.7	65.6	65.7	60.9
36	66.4	66.2	65.2	65.1	65.8	66.4	67.8	69.8	69.3	69.3	69.4	70.0	70.2	63.8	64.2	64.8	65.6	65.7	60.9
35	66.4	66.2	65.2	65.1	65.8	66.4	67.8	69.9	69.4	69.4	69.4	70.1	70.2	63.8	64.2	64.8	65.6	65.8	60.9
34	66.4	66.2	65.2	65.0	65.8	66.5	67.8	69.9	69.4	69.4	69.5	70.1	70.3	63.9	64.3	64.9	65.7	65.8	61.0
33	66.4	66.2	65.2	65.0	65.8	66.5	67.8	69.9	69.5	69.5	69.5	70.1	70.3	63.9	64.3	64.9	65.7	65.9	61.0
32	66.4	66.2	65.1	64.9	65.7	66.4	67.9	70.0	69.5	69.5	69.6	70.2	70.3	64.0	64.4	65.0	65.8	65.9	61.0
31	66.5	66.2	65.1	64.9	65.7	66.5	67.9	70.0	69.6	69.6	69.6	70.2	70.4	64.0	64.4	65.0	65.8	66.0	61.0
30	66.4	66.1	65.0	64.9	65.7	66.4	67.9	70.1	69.6	69.6	69.7	70.3	70.4	64.0	64.4	65.1	65.8	66.0	61.0
29	66.4	66.1	64.9	64.8	65.6	66.4	67.9	70.1	69.7	69.7	69.7	70.3	70.4	64.1	64.5	65.1	65.9	66.1	61.0
28	66.4	66.1	64.9	64.7	65.6	66.4	67.9	70.1	69.7	69.7	69.8	70.3	67.6	64.1	64.5	65.1	65.9	66.1	61.0
27	66.4	66.0	64.7	64.6	65.5	66.4	67.9	70.2	69.8	69.8	69.8	70.4	67.6	64.1	64.6	65.2	66.0	66.2	61.0
26	66.4	66.0	64.6	64.5	65.5	66.3	67.9	70.2	69.8	69.8	69.9	70.4	67.7	64.2	64.6	65.2	66.0	66.2	61.0
25	66.4	65.9	64.6	64.4	65.4	66.3	68.0	70.3	69.9	69.8	69.9	67.6	67.7	64.2	64.6	65.2	66.1	66.2	61.0
24	66.3	65.9	64.5	64.3	65.3	66.2	68.0	70.3	69.9	69.9	69.9	67.6	67.7	64.3	64.7	65.3	66.1	66.3	61.1
23	66.3	65.8	64.4	64.3	65.3	66.2	68.0	70.3	70.0	69.9	70.0	67.6	67.8	64.3	64.7	65.3	66.1	66.3	61.0
22																			
21	66.2	65.8	64.4	64.2	65.2	66.1	68.0	70.4	70.0	70.0	70.1	67.7	67.8	64.4	64.8	65.4	66.2	66.4	61.1
20	66.2	65.8	64.3	64.1	65.2	66.1	68.0	70.4	70.1	70.1	70.1	67.7	67.8	64.4	64.8	65.4	66.3	66.4	61.1
19	66.3	65.8	64.3	64.2	65.2	66.1	68.1	70.4	70.1	70.1	70.1	67.7	67.8	64.4	64.8	65.4	66.3	66.4	61.1
18	66.3	65.8	64.4	64.1	65.2	66.1	68.1	70.4	70.1	70.1	70.2	68.2	68.3	64.4	64.8	65.5	66.3	66.5	61.1
17	66.3	65.9	64.4	64.2	65.1	66.1	68.1	70.4	70.2	70.1	70.2	68.2	68.4	64.5	64.9	65.5	66.4	66.5	61.1
16	66.4	65.9	64.4	64.1	65.1	66.1	68.1	70.4	70.2	70.2	70.2	68.2	68.4	64.5	64.9	65.5	66.4	66.5	61.1
15	66.4	66.0	64.5	64.2	65.1	66.0	68.2	70.3	70.2	70.2	70.2	68.2	68.4	64.5	64.9	65.5	66.4	66.6	61.1
14	66.5	66.0	64.4	64.2	65.1	66.1	68.2	70.3	70.1	70.1	70.2	68.2	68.4	64.6	65.0	65.6	66.4	66.6	61.1
13	66.5	66.1	64.5	64.2	65.1	66.0	68.2	70.1	70.1	70.1	70.2	68.2	68.4	64.6	65.0	65.6	66.5	66.6	61.1
12	66.6	66.1	64.5	64.1	65.1	66.1	68.3	70.0	70.0	70.0	70.2	68.1	68.3	64.6	65.0	65.6	66.5	66.6	61.1
11	66.6	66.1	64.5	64.1	65.1	66.0	68.2	69.8	69.9	69.9	70.1	69.0	68.3	64.6	65.0	65.6	66.5	66.6	61.0
10	66.6	66.0	64.5	64.1	65.1	66.0	68.3	69.7	69.7	69.8	70.0	68.9	69.2	64.6	65.1	65.7	66.5	66.6	60.9
9	66.6	66.1	64.4	64.1	65.1	66.0	68.2	69.5	69.6	69.7	69.8	69.1	69.3	64.6	65.0	65.6	66.5	66.5	60.7
8	66.6	66.1	64.4	64.0	65.2	66.0	68.0	69.3	69.4	69.5	69.6	70.4	69.1	64.5	64.8	65.4	66.3	66.3	60.0
7	66.5	66.1	64.4	64.0	65.1	65.9	67.7	69.0	69.1	69.1	69.1	69.9	70.1	64.2	64.5	65.1	65.9	65.9	58.8
6	66.6	66.0	64.3	64.0	65.2	65.9	67.2	68.6	68.6	68.5	68.2	69.1	69.3	63.7	63.9	64.6	65.4	65.2	57.8
5	66.5	66.1	64.3	63.9	64.9	65.4	66.2	68.0	67.7	67.5	67.4	68.4	68.7	62.9	63.5	64.3	65.1	64.6	57.2
4	66.2	65.9	64.2	60.9	61.4	61.9	64.7	67.3	66.8	66.6	66.7	67.7	68.0	62.1	63.0	63.2	64.0	62.5	56.1
Max	66.6	66.2	65.3	65.2	65.8	66.5	68.3	70.4	70.2	70.2	70.2	70.4	70.4	64.6	65.1	65.7	66.5	66.6	61.1
Min	66.2	65.8	64.2	60.9	61.4	61.9	64.7	67.3	66.8	66.6	66.7	67.6	67.6	62.1	63.0	63.2	64.0	62.5	56.1

Noise sensitive receivers with exceedance (≥70.5 dB(A))

Appendix 5.1

Measured Sound Exposure Level (SEL)

Project no: 276006-12
Project name: Po Shek Wu Road EAS Study
Title: Measured SEL (East Rail EMU (9-car))
Measurement Date: 30/11/2021
Measurement Time Period: 21:30-01:00
Measurement Equipment Used: NL-52
Weather Condition: Clear

East Rail EMU (9-car)

Event	Measured SEL (event), dB(A) [1]	Measurement Condition				Reference Condition			Correction, dB(A)		SEL @25m, 66kph, 9car, dB(A) [6]
		Horizontal Dist. to track, m	Vertical Dist. to track, m	Slant Dist. to track (d), m	Measured Speed (v), kph	Distance to track (dref), m [2]	Speed (vref), kph [3]	No. of Car (Nref)	Distance [4]	Speed [5]	
1	78.6	10	5	11	57	25	66	9	-3.5	1.3	76.5
2	78.3	10	5	11	51	25	66	9	-3.5	2.2	77.0
3	80.2	10	5	11	68	25	66	9	-3.5	-0.3	76.4
4	79.7	10	5	11	71	25	66	9	-3.5	-0.6	75.6
5	81.1	10	5	11	63	25	66	9	-3.5	0.3	78.0
6	80.3	10	5	11	67	25	66	9	-3.5	-0.1	76.8
7	81.2	10	5	11	67	25	66	9	-3.5	-0.1	77.6
8	80.7	10	5	11	66	25	66	9	-3.5	0.0	77.2
9	79.3	10	5	11	62	25	66	9	-3.5	0.6	76.3
10	77.8	10	5	11	58	25	66	9	-3.5	1.2	75.5
11	78.8	10	5	11	65	25	66	9	-3.5	0.2	75.5
12	80.4	10	5	11	61	25	66	9	-3.5	0.7	77.6
										Averaged SEL	76.7

Note:
[1] Sound Exposure Level measured at measurement location
[2] Reference distance from the track (@25m)
[3] Reference speed measured near the Project Site (66kph)
[4] A distance correction of 10 x log (d/dref) is applied.
[5] A speed correction of -20 x log (v/vref) is applied.
[6] SEL at 25m, 66kph, 9car = [1] + [4] + [5]

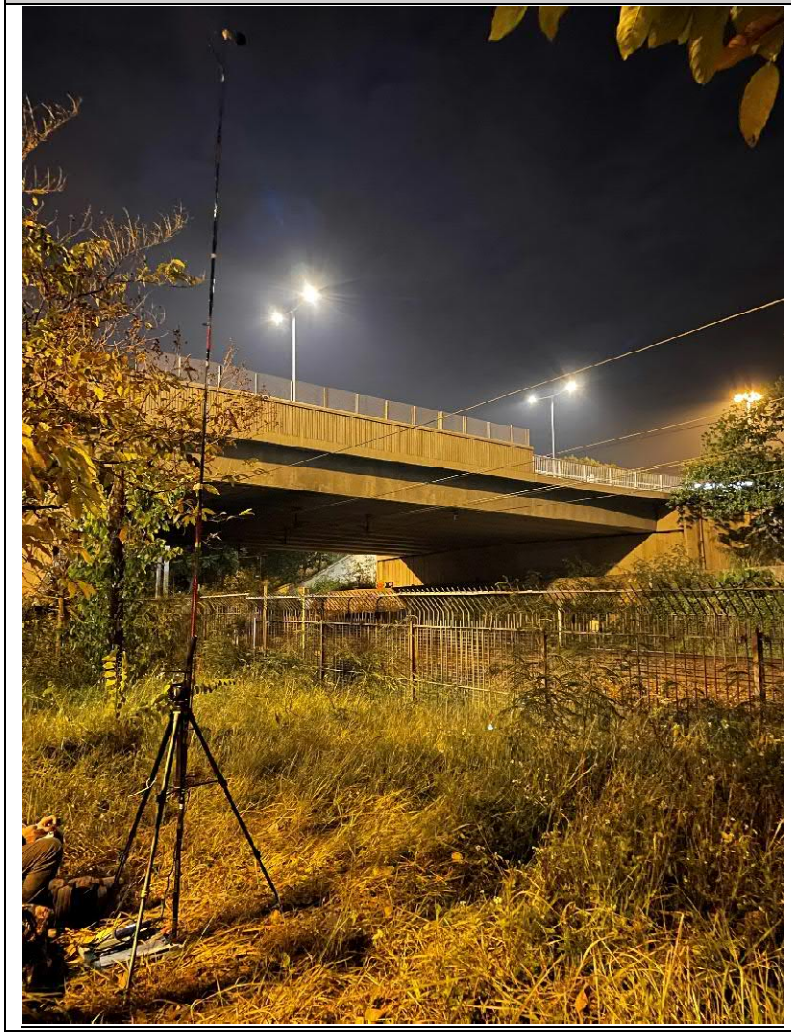
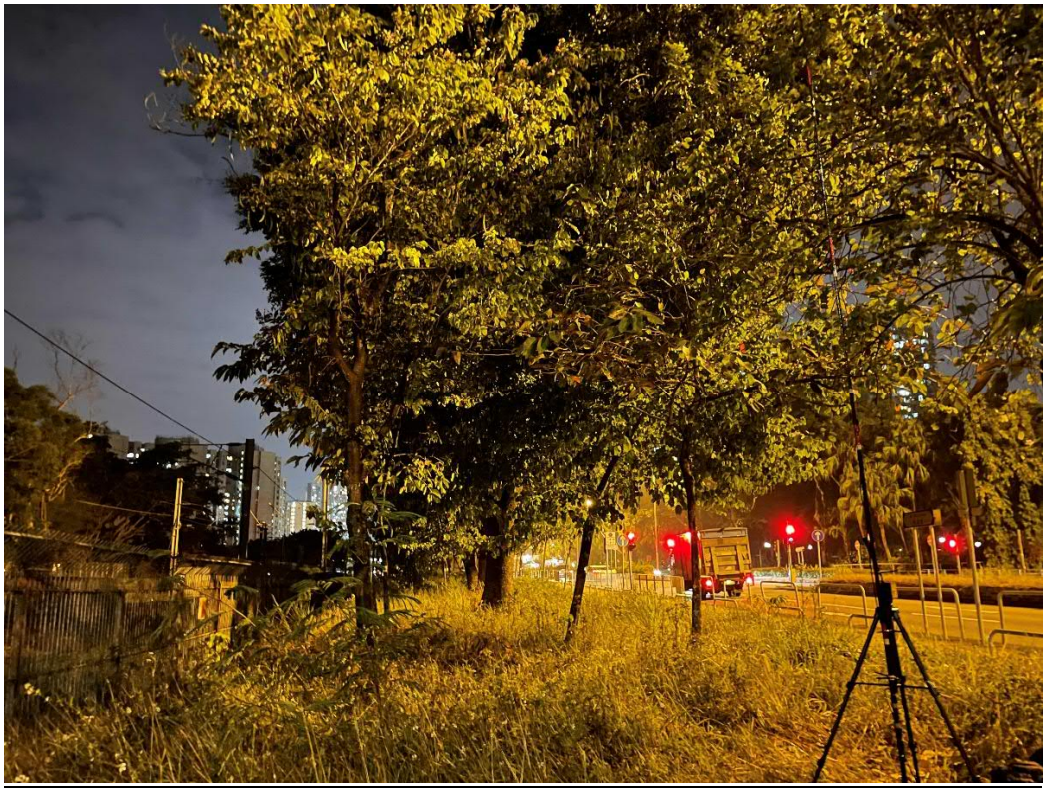
Project no: 276006-12
Project name: Po Shek Wu Road EAS Study
Title: Measured L_{max} (East Rail EMU (9-car))
Measurement Date: 30/11/2021
Measurement Time Period: 21:30-01:00
Measurement Equipment Used: NL-52
Weather Condition: Clear

East Rail EMU (9-car)

Event	Measured L_{max}, dB(A) [1]	Measurement Condition				Reference Condition		Correction, dB(A)		L_{max} @25m, 66kph, 9car, dB(A) [6]
		Horizontal Dist. to track, m	Vertical Dist. to track, m	Slant Dist. to track (d), m	Measured Speed (v), kph	Distance to track (dref), m [2]	Speed (vref), kph [3]	Distance [4]	Speed [5]	
1	68.1	10	5	11	57	25	66	-5.1	2.0	65.0
2	67.5	10	5	11	51	25	66	-5.1	3.2	65.7
3	70.6	10	5	11	68	25	66	-5.1	-0.4	65.1
4	71.5	10	5	11	71	25	66	-5.1	-0.9	65.6
5	72.4	10	5	11	63	25	66	-5.1	0.5	67.9
6	69.8	10	5	11	67	25	66	-5.1	-0.1	64.6
7	71.5	10	5	11	67	25	66	-5.1	-0.1	66.3
8	70.7	10	5	11	66	25	66	-5.1	0.0	65.6
9	70.6	10	5	11	62	25	66	-5.1	0.9	66.4
10	68.9	10	5	11	58	25	66	-5.1	1.8	65.6
11	68.5	10	5	11	65	25	66	-5.1	0.3	63.7
12	71.4	10	5	11	61	25	66	-5.1	1.0	67.3
									Max. Lmax	67.9

Note:
[1] L_{max} measured at measurement location
[2] Reference distance from the track (@25m)
[3] Reference speed measured near the Project Site (66kph)
[4] A distance correction of 14.5 x log (d/dref) is applied.
[5] A speed correction of -30 x log (v/vref) is applied.
[6] L_{max} at 25m, 66kph, 9car = [1] + [4] + [5]

Photos of measurement setup

Photo 1	Photo 2
	

Appendix 5.2

Intercity through Train Service Measurement data extracted from Sheung Shui Choi Yuen Road EAS

Project no: 276006-12
Project name: Po Shek Wu Road EAS Study
Title: Measured SEL (Intercity through train) [7]
Measurement Equipment Used: HARMONIE

Intercity through train to Hung Hom

Event	Measured SEL (event), dB(A) [1]	Measurement Location	Reference Location	Dist. Corr for SEL, dB(A) [4]	SEL @ dref, dB(A) [5]	L_{max} (event) at reference location, dB(A) [6]
		Distance to track (d), m [2]	Distance to track (dref), m [3]			
1	90.2	10.0	25.0	-4.0	86.2	79.9
2	91.6	10.0	25.0	-4.0	87.6	78.7
3	91.2	10.0	25.0	-4.0	87.2	78.8
4	88.2	10.0	25.0	-4.0	84.3	74.7
5	92.6	10.0	25.0	-4.0	88.7	76.8
6	89.7	10.0	25.0	-4.0	85.8	76.7
7	90.1	10.0	25.0	-4.0	86.1	77.5
				Averaged SEL @ 25m	**86.5**	

Intercity through train to China

Event	Measured SEL (event), dB(A) [1]	Measurement Location	Reference Location	Dist. Corr for SEL, dB(A) [4]	SEL @ dref, dB(A) [5]	L_{max} (event) at reference location, dB(A) [6]
		Distance to track (d), m [2]	Distance to track (dref), m [3]			
1	88.8	14.0	25.0	-2.5	86.3	78.5
2	91.4	14.0	25.0	-2.5	88.9	77.5
3	90.5	14.0	25.0	-2.5	87.9	76.6
4	89.9	14.0	25.0	-2.5	87.4	74.5
5	90.7	14.0	25.0	-2.5	88.2	77.9
6	91.3	14.0	25.0	-2.5	88.8	79.9
				Averaged SEL @ 25m	**87.9**	

Note:

[1] Sound Exposure Level measured at measurement location

[2] Measurement distance from the track

[3] Reference distance from the track (@25m)

[4] A distance correction of -10 x log (d/dref) is applied.

[5] SEL at reference distance = [1] + [4]

[6] L_{max} (event) in reference location

[7] The measurement are extracted from Final EAS Report for HKHA housing development at Sheung Shui Choi Yuen Road Site 3 & 5 taken on 4/7/2013, 11/7/2013, 3/12/2013 and 4/12/2013 during time period 2230 - 0000; 0600 - 0800; 0800 - 1200 & 1900 - 2200 and 1000 - 1130.

Appendix 5.3

Assumption for Rail Noise Model

Calculation of $L_{eq\ (30min)}$ from SEL

1. $L_{eq\ (30min)}$ from each track at receiver would be corrected from SEL with the following parameters:

Parameters	Assumptions	Remarks
Rail deterioration	3 dB(A)	A 3dB(A) rail deterioration correction has been included for conservative assessment according to the approved EIAs for the Shatin to Central Link – Tai Wai to Hung Hom Section (AEIAR-167/2012), Shatin to Central Link – Stabling Sidings at Hung Hom Freight Yard (AEIAR-164/2012), Tung Chung New Town Extension (AEIAR-196/2016) and Tung Chung Line Extension (AEIAR-235/2022)
Train speed	Change of Sound Exposure Level (SEL) with speed = 20 log (V / V_{ref}) dB(A)	V and V_{ref} are the average train speeds
Distance	Change of SEL with distance = 10 log (d_1 / 25) dB(A)	d_1 is the distance between track and receiver
Deck Reflection	At-Grade ballast track = 0 dB(A) At-Grade non-ballast track = 2.5 dB(A)	According to the approved EIAs for the Shatin to Central Link – Tai Wai to Hung Hom Section (AEIAR-167/2012), Shatin to Central Link – Stabling Sidings at Hung Hom Freight Yard (AEIAR-164/2012) and Tung Chung New Town Extension (AEIAR-196/2016) and Tung Chung Line Extension (AEIAR-235/2022)
Barrier effects	As per Chart 6(a) of CRN	-
Joints / Crossovers	7dB(A)	To represent the augmentation in noise due to thermal expansion joints. Similar approach has been adopted in the approved EIAs for the Shatin to Central Link – Tai Wai to Hung Hom Section (AEIAR-167/2012), Shatin to Central Link – Stabling Sidings at Hung Hom Freight Yard (AEIAR-164/2012) and Tung Chung New Town Extension (AEIAR-196/2016) and Tung Chung Line Extension (AEIAR-235/2022).
Air absorption	0.2 – 0.008d dB(A)	d is the distance (m)
Train Frequency [1]	10log(N_1)	N_1 is the train frequency in 30 minutes Frequency (trains / direction / 30 minutes)
No. of train cars [2]	-	No correction required
View Angle	10 log ($\pi\theta$/180-cos2α sinθ) – 5 dB(A)	α is the acute angle between a line drawn through the receiver point, parallel to the track and the line bisecting the angle view θ θ is the view angle
Façade Reflection	2.5dB(A)	-
To $L_{eq\ (30min)}$	10 log(1 / 1800)	-

Note:

[1] Operation train frequency is based on the information in the latest Environmental Permit (EP-437/2012/A) for Shatin to Central Link (SCL) – Mong Kok East to Hung Hom Section.

[2] According to site observation, both 9-cars and 12-car train were in operation. However, SEL measurements were taken for 9-cars train only to cohere with the future train operations for ERL and hence no correction is required.

2. Combine Leq(30min) from each track by acoustic principle for worst case scenario approach.
3. Check compliance.
4. Proposed mitigation measures and check effectiveness if necessary.

Calculation of L_{max} from measured L_{max}

1. L_{max} is predicted by "RailNoise" according to "Train Noise Prediction Model" (TNPM) which adopted for Channel Tunnel Rail Link (HS1) in the UK. L_{max} from each track at receiver would be corrected from measured L_{max} event with the following parameters:

Parameters	Assumptions	Remarks
Train speed	Change of L_{max} with speed = 30 log (V / V_{ref}) dB(A)	V and V_{ref} are the average train speeds
Distance	Change of L_{max} with distance = 14.5 log (d / 25) dB(A)	d is the distance between track and receiver, where the source height for rolling stock (non-powered sources) is 0.5m above the ground
Air absorption	- d /120 dB(A)	-
Barrier effects	Absorptive barrier: $\delta \leq 0$: $e^{(1.63+12\delta)}$ $\delta > 0$: 10 log (2.5+30(δ+0.25)) Reflective barrier: $\delta \leq 0$: $e^{(1.1958+14\delta)}$ $0 < \delta \leq 0.01$: 3.3dB(A) $\delta \geq 0.01$: $11\delta^{0.282}$	δ is the path difference

2. Check compliance with the maximum L_{max}.
3. Proposed mitigation measures and check effectiveness if necessary.

Appendix 5.4

Predicted $L_{eq(30mins)}$ for Residential Block (Basecase)

Project no: 276006-12
Project name: Po Shek Wu Road, Sheung Shui
Title: Rail Noise Assessment Result Summary - Leq Daytime & Evening

Day

NSR	R103f	R105b	R110a	R110b	R111b	R111c	R112a	R112b	R113b	R113c	R114a	R114b	R115b	R115c	R116a	R123b
ASR	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
Criteria	65	65	65	65	65	65	65	65	65	65	65	65	65	65	70	70
45	47.6	43.6	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.6	58.6	58.6	<40	47.7
44	47.7	43.6	58.6	58.5	58.6	58.5	58.5	58.5	58.5	58.5	58.6	58.6	58.6	58.6	<40	47.7
43	47.7	43.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.7	58.7	<40	47.8
42	47.7	43.7	58.6	58.6	58.6	58.6	58.6	58.6	58.7	58.7	58.7	58.7	58.8	58.8	<40	47.9
41	47.7	43.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.8	58.8	<40	47.9
40	47.8	43.8	58.8	58.7	58.8	58.8	58.7	58.7	58.8	58.8	58.8	58.8	58.8	58.9	<40	47.9
39	47.8	43.7	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.9	58.9	58.9	58.9	<40	47.9
38	47.9	43.8	58.8	58.8	58.8	58.8	58.8	58.8	58.9	58.9	58.9	58.9	59	59	<40	48
37	47.9	43.8	58.9	58.9	58.9	58.9	58.8	58.9	58.9	58.9	58.9	58.9	59	59.1	<40	48.1
36	47.9	43.9	58.9	58.9	59	58.9	58.9	58.9	58.9	58.9	59	59	59	59.1	<40	48.1
35	47.9	43.9	59	59	59	59	59	59	59	59	59	59.1	59.1	59.1	<40	48.1
34	48	43.9	59	58.9	59	59	58.9	59	59.1	59.1	59.1	59.1	59.2	59.2	<40	48.2
33	48	44	59	59	59	59	59	59	59	59.1	59.1	59.2	59.2	59.3	<40	48.3
32	48	44	59	59	59	59	59	59	59.1	59.1	59.1	59.2	59.3	59.3	<40	48.3
31	48	44.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.2	59.2	59.3	59.4	<40	48.3
30	48.1	44	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.2	59.2	59.2	59.3	59.4	<40	48.4
29	48.1	44.1	59	59	59	59	59	59.1	59.1	59.2	59.2	59.3	59.4	59.4	<40	48.4
28	48.1	44.1	59	59	59	59	59	59.1	59.2	59.2	59.2	59.3	59.4	59.4	<40	48.5
27	48.1	44.2	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.2	59.2	59.3	59.4	59.4	<40	48.5
26	48.2	44.1	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.3	59.4	59.5	<40	48.6
25	48.2	44.2	59.2	59.2	59.3	59.3	59.2	59.3	59.3	59.3	59.3	59.3	59.4	59.5	<40	48.7
24	48.2	44.2	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.4	59.4	59.5	59.6	<40	48.7
23	48.2	44.2	59.3	59.3	59.3	59.3	59.3	59.3	59.4	59.4	59.4	59.4	59.5	59.6	<40	48.7
22	REFUGE FLOOR (22/F)															
21	48.2	44.3	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.5	59.6	59.7	59.7	40	48.8
20	48.1	44.3	59.4	59.4	59.5	59.5	59.4	59.5	59.5	59.5	59.5	59.6	59.7	59.8	40.1	48.6
19	48	44.2	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.6	59.6	59.7	59.8	40.2	48.6
18	47.8	44.3	59.5	59.5	59.5	59.5	59.5	59.6	59.6	59.6	59.6	59.6	59.8	59.8	40.3	48.5
17	47.7	44.1	59.5	59.5	59.5	59.5	59.5	59.6	59.6	59.6	59.7	59.7	59.8	59.9	40.3	48.5
16	47.4	44	59.6	59.6	59.6	59.6	59.5	59.6	59.6	59.7	59.7	59.7	59.9	59.9	40.3	48.4
15	47.2	43.7	59.6	59.6	59.6	59.6	59.6	59.6	59.7	59.7	59.7	59.8	59.8	60	40.4	48.3
14	46.9	43.6	59.7	59.7	59.7	59.7	59.6	59.7	59.7	59.7	59.8	59.8	59.9	60	40.5	48
13	46.4	43.3	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.8	59.8	59.8	59.9	60	40.5	47.9
12	46.1	43	59.7	59.7	59.7	59.7	59.6	59.7	59.7	59.8	59.9	59.9	60	60	40.6	47.7
11	45.3	42.5	59.4	59.4	59.4	59.4	59.3	59.3	59.4	59.4	59.6	59.7	59.8	59.9	40.5	47.5
10	44.1	42	59.4	59.4	59.3	59.3	59.1	59.2	59.2	59.2	59.3	59.4	59.5	59.6	40.3	47.3
9	43.1	41.1	59.3	59.2	59.2	59.2	58.9	58.9	59	59.1	59.1	59.1	59.3	59.4	40.1	47.1
8	41.7	<40	58.9	58.9	58.8	58.8	58.6	58.6	58.7	58.8	58.8	58.9	59.1	59.1	<40	46.7
7	<40	<40	58.5	58.5	58.4	58.4	58.2	58.2	58.2	58.3	58.4	58.5	58.6	58.8	<40	45.9
6	<40	<40	58	57.9	57.9	57.8	57.5	57.7	57.7	57.7	57.8	58	58.1	58.2	<40	44.8
5	<40	<40	57.3	57.2	57.2	57.1	56.9	57	57.1	57.1	57.2	57.3	57.6	57.6	<40	44.1
4	<40	<40	56.2	56.1	56.1	56.1	55.9	56	56.1	56.2	56.4	56.5	56.9	57	<40	43.5

Min	<40	<40	56.2	56.1	56.1	56.1	55.9	56	56.1	56.2	56.4	56.5	56.9	57	<40	43.5
Max	48.2	44.3	59.7	59.7	59.7	59.7	59.7	59.7	59.7	59.8	59.9	59.9	60.0	60.0	40.6	48.8

Project no: 276006-12
Project name: Po Shek Wu Road, Sheung Shui
Title: Rail Noise Assessment Result Summary - Leq Daytime & Evening

Day

NSR	R201a	R204f	R205a	R212d	R213a	R213b	R214b	R214c	R215a	R215b	R216b	R216c	R217a	R217b	R218b	R218c	R223c
ASR	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Criteria	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65	65
45	48	49.7	47.5	46.1	58.6	58.6	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	58.5	43.8
44	48	49.8	47.4	46.2	58.6	58.6	58.5	58.6	58.6	58.6	58.5	58.5	58.6	58.6	58.6	58.6	43.8
43	48	49.8	47.5	46.2	58.6	58.7	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	58.6	43.8
42	48.1	49.8	47.5	46.2	58.7	58.7	58.7	58.7	58.7	58.7	58.6	58.6	58.6	58.6	58.6	58.6	43.9
41	48.1	49.8	47.5	46.3	58.8	58.8	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	58.7	43.9
40	48.1	49.9	47.6	46.3	58.8	58.8	58.8	58.8	58.8	58.8	58.7	58.7	58.8	58.8	58.8	58.8	43.9
39	48.1	49.8	47.6	46.3	58.8	58.9	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	58.8	43.9
38	48.2	49.9	47.6	46.3	58.9	58.9	58.9	58.9	58.9	58.9	58.8	58.8	58.8	58.8	58.8	58.8	44
37	48.2	49.9	47.6	46.4	59	59	58.9	58.9	58.9	58.9	58.8	58.8	58.9	58.9	58.9	58.9	44
36	48.3	50	47.7	46.4	59	59	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	59	58.9	44
35	48.3	50	47.7	46.3	59	59	59	59	59	59	59	59	59	59	59	59	44
34	48.3	50	47.7	46.4	59.1	59.1	59	59	59	59	59	58.9	58.9	59	59	59	44.1
33	48.3	50	47.8	46.4	59.1	59.1	59.1	59.1	59.1	59.1	59	58.9	59	59	59	59	44.2
32	48.4	50.1	47.8	46.4	59.2	59.2	59.1	59.1	59	59	59	59	59	59	59	59	44.1
31	48.4	50.1	47.8	46.4	59.2	59.2	59.1	59.1	59.1	59	59	59	59	59.1	59.1	59.1	44.2
30	48.4	50.1	47.9	46.5	59.2	59.2	59.1	59.1	59.1	59.1	59	59	59.1	59.1	59.1	59.1	44.2
29	48.4	50.1	47.9	46.5	59.2	59.2	59.1	59.1	59.1	59.1	59.1	59	59	59	59	59	44.2
28	48.5	50.2	47.9	46.6	59.2	59.2	59.1	59.1	59.1	59.1	59	59	59	59	59.1	59	44.2
27	48.4	50.1	47.9	46.6	59.2	59.2	59.1	59.2	59.1	59.1	59.1	59.1	59.1	59.1	59.1	59.1	44.3
26	48.5	50.2	47.9	46.6	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.2	44.2
25	48.5	50.1	47.9	46.7	59.3	59.3	59.3	59.2	59.2	59.2	59.2	59.2	59.2	59.2	59.3	59.2	44.3
24	48.4	50.2	47.9	46.7	59.4	59.4	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	44.3
23	48.1	50.1	47.9	46.7	59.4	59.4	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	59.3	44.3
22	REFUGE FLOOR (22/F)																
21	47.9	49.8	47.7	46.9	59.5	59.5	59.4	59.5	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	43.5
20	47.9	49.7	47.6	46.9	59.5	59.5	59.5	59.5	59.4	59.4	59.4	59.4	59.5	59.5	59.5	59.5	43.5
19	47.6	49.6	47.4	46.9	59.5	59.6	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	43.3
18	47.4	49.4	47.3	47	59.6	59.6	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	59.5	43.1
17	47.1	49.1	47.1	47	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.5	59.6	59.6	59.6	59.6	42.8
16	46.9	48.9	46.9	47	59.7	59.7	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	59.6	42.5
15	46.5	48.6	46.6	47	59.7	59.7	59.6	59.7	59.7	59.7	59.6	59.6	59.7	59.7	59.7	59.7	42.1
14	46.2	48.1	46.2	46.9	59.8	59.8	59.7	59.7	59.7	59.7	59.6	59.6	59.7	59.7	59.7	59.7	41.8
13	45.8	47.5	45.8	46.8	59.8	59.8	59.7	59.8	59.7	59.7	59.7	59.7	59.7	59.7	59.8	59.7	41.3
12	45.4	47	45.4	46.6	59.8	59.8	59.8	59.8	59.8	59.7	59.7	59.7	59.8	59.7	59.8	59.7	40.9
11	44.8	46.6	45.2	46.4	59.8	59.8	59.8	59.8	59.7	59.7	59.7	59.7	59.6	59.6	59.6	59.6	40.5
10	44.1	46	44.8	46.2	59.8	59.8	59.8	59.7	59.7	59.7	59.7	59.6	59.6	59.6	59.6	59.5	40.1
9	43	45.3	44.2	45.8	59.7	59.7	59.7	59.7	59.6	59.6	59.6	59.5	59.5	59.5	59.5	59.5	<40
8	41.1	44.3	43.5	45.3	59.6	59.6	59.5	59.5	59.4	59.4	59.3	59.3	59.2	59.2	59.2	59.2	<40
7	<40	43.3	42.6	44.7	59.3	59.3	59.2	59.1	59.1	59	58.9	58.9	58.9	58.9	58.8	58.8	<40
6	<40	42.4	42	44.2	58.9	58.8	58.7	58.7	58.6	58.6	58.5	58.4	58.3	58.3	58.3	58.3	<40
5	<40	41.9	41.6	43.9	58.2	58.2	58.1	58	58	57.9	57.7	57.7	57.7	57.7	57.6	57.6	<40
4	<40	41.6	41.4	43.5	57.1	57.1	56.9	56.9	56.8	56.7	56.5	56.5	56.6	56.6	56.5	56.5	<40

Min	<40	41.6	41.4	43.5	57.1	57.1	56.9	56.9	56.8	56.7	56.5	56.5	56.6	56.6	56.5	56.5	<40
Max	48.5	50.2	47.9	47	59.8	59.8	59.8	59.8	59.8	59.7	59.7	59.7	59.8	59.7	59.8	59.7	44.3

Project no: 276006-12
Project name: Po Shek Wu Road, Sheung Shui
Title: Rail Noise Assessment Result Summary - Leq Night-time

Night

NSR	R103f	R105b	R110a	R110b	R111b	R111c	R112a	R112b	R113b	R113c	R114a	R114b	R115b	R115c	R116a	R123b
ASR	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
Criteria	55	55	55	55	55	55	55	55	55	55	55	55	55	55	60	60
45	44.8	40.9	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.4	56.5	56.5	56.5	56.6	<40	45.7
44	44.9	40.8	56.5	56.4	56.5	56.5	56.4	56.4	56.5	56.5	56.5	56.5	56.6	56.6	<40	45.7
43	44.8	40.9	56.5	56.5	56.5	56.5	56.5	56.5	56.5	56.5	56.5	56.5	56.6	56.7	<40	45.8
42	44.9	40.9	56.5	56.5	56.5	56.5	56.5	56.5	56.6	56.6	56.6	56.6	56.7	56.7	<40	45.9
41	44.8	40.9	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.7	56.8	<40	45.8
40	44.9	40.9	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.7	56.7	56.8	56.8	<40	45.9
39	44.9	40.9	56.7	56.6	56.7	56.7	56.6	56.6	56.7	56.7	56.7	56.8	56.8	56.9	<40	45.9
38	44.9	40.9	56.7	56.7	56.7	56.7	56.6	56.6	56.7	56.7	56.8	56.8	56.9	56.9	<40	46
37	44.9	40.9	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.8	56.8	56.9	56.9	<40	46.1
36	45	41	56.8	56.7	56.8	56.8	56.7	56.7	56.8	56.8	56.8	56.8	56.9	56.9	<40	46.1
35	44.9	41	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.9	56.9	57	57	<40	46.1
34	45	41	56.7	56.7	56.7	56.7	56.7	56.7	56.8	56.9	56.9	56.9	57	57.1	<40	46.2
33	45	41	56.7	56.7	56.7	56.7	56.7	56.8	56.8	56.9	56.9	57	57.1	57.1	<40	46.2
32	45	41	56.7	56.7	56.7	56.7	56.7	56.8	56.8	56.8	56.9	57	57.1	57.1	<40	46.3
31	45	41.1	56.7	56.7	56.7	56.7	56.7	56.8	56.8	56.8	56.9	56.9	57.1	57.2	<40	46.3
30	45	41	56.7	56.7	56.7	56.7	56.7	56.8	56.8	56.8	56.9	56.9	57.1	57.1	<40	46.4
29	45	41.1	56.6	56.6	56.6	56.6	56.6	56.7	56.8	56.8	56.9	56.9	57.1	57.1	<40	46.4
28	45	41	56.6	56.6	56.6	56.6	56.6	56.6	56.7	56.8	56.9	56.9	57	57.1	<40	46.5
27	45	41.1	56.6	56.6	56.6	56.6	56.6	56.6	56.7	56.7	56.8	56.9	57	57.1	<40	46.5
26	45.1	41.1	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.8	56.9	57	57.1	<40	46.6
25	45	41.1	56.7	56.7	56.7	56.7	56.7	56.8	56.8	56.8	56.9	56.9	57	57.1	<40	46.6
24	45	41.1	56.8	56.7	56.8	56.8	56.8	56.8	56.8	56.8	56.9	56.9	57.1	57.2	<40	46.6
23	45	41.1	56.7	56.7	56.8	56.8	56.8	56.8	56.8	56.9	56.9	57	57.1	57.2	<40	46.7
22	REFUGE FLOOR (22/F)															
21	44.9	41.1	56.7	56.7	56.8	56.7	56.7	56.8	56.8	56.8	57	57	57.1	57.2	<40	46.8
20	44.8	41.1	56.8	56.7	56.8	56.8	56.7	56.8	56.8	56.8	56.9	57	57.1	57.2	<40	46.7
19	44.6	41	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.9	57	57.1	57.2	<40	46.6
18	44.4	40.9	56.7	56.7	56.7	56.8	56.8	56.8	56.8	56.9	56.9	57	57.2	57.2	<40	46.6
17	44.3	40.8	56.8	56.8	56.8	56.8	56.8	56.8	56.9	56.9	56.9	57	57.2	57.2	<40	46.7
16	44.1	40.7	56.8	56.8	56.8	56.8	56.8	56.8	56.9	56.9	57	57	57.2	57.2	<40	46.6
15	43.9	40.4	56.8	56.8	56.8	56.8	56.8	56.8	56.9	56.9	57	57	57.1	57.2	<40	46.5
14	43.5	40.2	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.9	57	57	57.1	57.2	<40	46.3
13	43.1	<40	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.9	57	57	57.1	57.2	<40	46.3
12	42.7	<40	56.8	56.8	56.8	56.8	56.7	56.8	56.8	56.9	57	57	57.1	57.2	<40	46.1
11	42	<40	56.5	56.5	56.5	56.5	56.4	56.4	56.5	56.6	56.7	56.8	57	57.1	<40	46
10	40.8	<40	56.5	56.4	56.4	56.4	56.2	56.3	56.3	56.3	56.4	56.5	56.7	56.8	<40	45.9
9	<40	<40	56.3	56.3	56.2	56.2	56	56	56.1	56.1	56.2	56.3	56.5	56.6	<40	45.7
8	<40	<40	55.9	55.9	55.8	55.8	55.6	55.7	55.7	55.8	55.9	56	56.3	56.3	<40	45.4
7	<40	<40	55.5	55.5	55.4	55.3	55.2	55.2	55.3	55.4	55.5	55.6	55.8	56	<40	44.5
6	<40	<40	54.9	54.9	54.8	54.8	54.6	54.7	54.8	54.8	55	55.1	55.4	55.5	<40	43.3
5	<40	<40	54.2	54.2	54.1	54.1	53.9	54.1	54.2	54.3	54.4	54.6	54.9	55	<40	42.7
4	<40	<40	53.1	53	53	53	52.9	53	53.2	53.4	53.5	53.7	54.2	54.5	<40	42.2

Min	<40	<40	53.1	53.0	53.0	53.0	52.9	53.0	53.2	53.4	53.5	53.7	54.2	54.5	<40	42.2
Max	45.1	41.1	56.8	56.8	56.8	56.8	56.8	56.8	56.9	56.9	57.0	57.0	57.2	57.2	<40	46.8

Project no: 276006-12
Project name: Po Shek Wu Road, Sheung Shui
Title: Rail Noise Assessment Result Summary - Leq Night-time

Night

NSR	R201a	R204f	R205a	R212d	R213a	R213b	R214b	R214c	R215a	R215b	R216b	R216c	R217a	R217b	R218b	R218c	R223c
ASR	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Criteria	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
45	45.2	46.9	44.7	43.8	56.5	56.5	56.4	56.5	56.4	56.4	56.4	56.4	56.4	56.4	56.5	56.4	41.2
44	45.3	46.9	44.7	43.9	56.5	56.5	56.5	56.5	56.5	56.5	56.4	56.4	56.5	56.5	56.5	56.5	41.2
43	45.2	46.9	44.7	43.9	56.6	56.6	56.5	56.5	56.5	56.5	56.5	56.5	56.5	56.5	56.5	56.5	41.2
42	45.3	46.9	44.7	43.9	56.6	56.6	56.6	56.6	56.6	56.5	56.5	56.5	56.5	56.5	56.5	56.5	41.2
41	45.2	46.9	44.7	43.9	56.6	56.7	56.6	56.6	56.6	56.6	56.5	56.5	56.6	56.6	56.6	56.6	41.2
40	45.3	46.9	44.7	43.9	56.7	56.7	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	56.6	41.2
39	45.3	46.9	44.7	43.9	56.7	56.7	56.7	56.7	56.7	56.6	56.6	56.6	56.7	56.7	56.7	56.7	41.2
38	45.3	46.9	44.7	43.9	56.8	56.8	56.7	56.7	56.7	56.7	56.6	56.6	56.7	56.7	56.7	56.7	41.3
37	45.3	46.9	44.7	43.9	56.8	56.8	56.8	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7	41.2
36	45.4	47	44.8	43.9	56.8	56.8	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.8	56.8	41.3
35	45.4	47	44.8	43.8	56.8	56.8	56.8	56.8	56.8	56.8	56.7	56.7	56.8	56.8	56.8	56.8	41.3
34	45.4	47	44.8	43.8	56.9	56.9	56.8	56.8	56.8	56.8	56.7	56.7	56.7	56.7	56.7	56.7	41.3
33	45.4	47	44.8	43.8	56.9	56.9	56.8	56.8	56.8	56.8	56.7	56.7	56.7	56.7	56.8	56.7	41.3
32	45.4	47	44.9	43.8	56.9	56.9	56.8	56.8	56.8	56.7	56.7	56.7	56.7	56.7	56.7	56.7	41.3
31	45.4	47	44.9	43.8	56.9	56.9	56.8	56.8	56.7	56.7	56.7	56.6	56.7	56.7	56.7	56.7	41.3
30	45.4	47	44.9	43.8	56.9	56.9	56.8	56.7	56.7	56.7	56.6	56.6	56.7	56.7	56.7	56.7	41.3
29	45.4	47	44.9	43.8	56.8	56.8	56.7	56.7	56.7	56.7	56.6	56.6	56.6	56.6	56.6	56.6	41.3
28	45.4	47.1	44.9	43.8	56.8	56.8	56.7	56.7	56.6	56.6	56.6	56.5	56.6	56.6	56.6	56.6	41.3
27	45.4	47	44.9	43.8	56.8	56.7	56.6	56.7	56.6	56.6	56.6	56.6	56.6	56.6	56.7	56.6	41.3
26	45.4	47.1	45	43.9	56.7	56.7	56.7	56.7	56.7	56.6	56.6	56.7	56.7	56.7	56.7	56.7	41.3
25	45.4	47	44.9	43.9	56.8	56.8	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7	41.3
24	45.3	47.1	45	43.9	56.8	56.8	56.7	56.7	56.7	56.7	56.7	56.7	56.8	56.7	56.8	56.8	41.3
23	45	47	44.9	43.9	56.9	56.9	56.7	56.7	56.7	56.7	56.7	56.7	56.8	56.8	56.8	56.8	41.3
22	REFUGE FLOOR (22/F)																
21	44.8	46.8	44.8	43.9	56.8	56.8	56.8	56.8	56.7	56.7	56.7	56.7	56.7	56.7	56.8	56.8	40.5
20	44.6	46.7	44.7	43.9	56.8	56.8	56.8	56.8	56.7	56.7	56.7	56.7	56.8	56.8	56.8	56.8	40.4
19	44.4	46.5	44.5	44	56.8	56.8	56.8	56.7	56.7	56.7	56.7	56.7	56.8	56.8	56.8	56.8	40.1
18	44.1	46.4	44.4	44	56.8	56.8	56.8	56.8	56.7	56.7	56.7	56.7	56.8	56.8	56.8	56.8	<40
17	43.9	46.1	44.2	44	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.7	56.8	56.8	56.8	56.8	<40
16	43.7	46	44.1	44	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.7	56.8	56.8	56.8	56.8	<40
15	43.3	45.7	43.9	44	56.8	56.8	56.8	56.8	56.8	56.8	56.7	56.7	56.8	56.8	56.8	56.8	<40
14	42.9	45.3	43.6	44	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.9	56.9	56.9	<40
13	42.5	44.8	43.2	43.9	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.9	56.9	56.9	56.9	<40
12	42.1	44.3	43	43.7	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.8	56.9	56.8	<40
11	41.5	44	42.8	43.6	56.8	56.8	56.8	56.8	56.7	56.7	56.7	56.7	56.7	56.7	56.7	56.7	<40
10	40.9	43.5	42.4	43.3	56.7	56.7	56.7	56.7	56.6	56.7	56.7	56.6	56.6	56.6	56.6	56.6	<40
9	<40	42.9	41.9	43	56.6	56.6	56.6	56.6	56.6	56.6	56.5	56.5	56.5	56.5	56.5	56.5	<40
8	<40	42	41.2	42.7	56.5	56.5	56.4	56.4	56.3	56.3	56.2	56.2	56.2	56.2	56.1	56.1	<40
7	<40	40.9	40.4	42.2	56.1	56.1	56	56	56	55.9	55.8	55.8	55.9	55.8	55.8	55.7	<40
6	<40	40.1	<40	41.9	55.7	55.6	55.6	55.5	55.5	55.4	55.4	55.3	55.3	55.3	55.2	55.2	<40
5	<40	<40	<40	41.6	55	55	54.9	54.8	54.8	54.8	54.6	54.6	54.6	54.6	54.5	54.5	<40
4	<40	<40	<40	41.3	53.9	53.9	53.8	53.8	53.7	53.6	53.4	53.4	53.5	53.5	53.4	53.4	<40

Min	<40	<40	<40	41.3	53.9	53.9	53.8	53.8	53.7	53.6	53.4	53.4	53.5	53.5	53.4	53.4	<40
Max	45.4	47.1	45	44	56.9	56.9	56.8	56.8	56.8	56.8	56.8	56.8	56.9	56.9	56.9	56.9	41.3

Appendix 5.5

Calculation of Noise Attenuation for Enhanced Acoustic Balcony (Railway noise)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R110a	4	53.1	N/A	19.9	Y	-	N/A
	5	54.2	N/A	21.9	Y	-	N/A
	6	54.9	N/A	23.9	Y	-	N/A
	7	55.5	II	25.8	Y	15.3	40.2
	8	55.9	II	27.7	Y	15.3	40.6
	9	56.3	II	29.5	Y	15.3	41.0
	10	56.5	II	31.2	Y	15.3	41.2
	11	56.5	II	32.9	Y	15.3	41.2
	12	56.8	II	34.5	Y	15.3	41.5
	13	56.8	II	36.0	Y	15.3	41.5
	14	56.8	II	37.5	Y	15.3	41.5
	15	56.8	II	38.9	Y	15.3	41.5
	16	56.8	II	40.3	Y	15.3	41.5
	17	56.8	II	41.6	Y	15.3	41.5
	18	56.7	II	42.9	Y	15.3	41.4
	19	56.8	II	44.1	Y	15.3	41.5
	20	56.8	II	45.3	Z	16.1	40.7
	21	56.7	II	46.4	Z	16.1	40.6
	22	-	-	-	-	-	-
	23	56.7	II	49.2	Z	16.1	40.6
	24	56.8	II	50.2	Z	16.1	40.7
	25	56.7	II	51.1	Z	16.1	40.6
	26	56.7	II	52.0	Z	16.1	40.6
	27	56.6	II	52.9	Z	16.1	40.5
	28	56.6	II	53.7	Z	16.1	40.5
	29	56.6	II	54.5	Z	16.1	40.5
	30	56.7	II	55.3	Z	16.1	40.6
	31	56.7	II	56.0	Z	16.1	40.6
	32	56.7	II	56.7	Z	16.1	40.6
	33	56.7	II	57.4	Z	16.1	40.6
	34	56.7	II	58.1	Z	16.1	40.6
	35	56.8	II	58.7	Z	16.1	40.7
	36	56.8	II	59.3	Z	16.1	40.7
	37	56.7	II	59.9	Z	16.1	40.6
	38	56.7	II	60.5	Z	16.1	40.6
	39	56.7	II	61.0	Z	16.1	40.6
	40	56.6	II	61.6	Z	16.1	40.5
	41	56.6	II	62.1	Z	16.1	40.5
	42	56.5	II	62.6	Z	16.1	40.4
	43	56.5	II	63.1	Z	16.1	40.4
	44	56.5	II	63.5	Z	16.1	40.4
	45	56.4	II	64.0	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R110b	4	53.0	N/A	19.9	Y	-	N/A
	5	54.2	N/A	21.9	Y	-	N/A
	6	54.9	N/A	23.9	Y	-	N/A
	7	55.5	II	25.8	Y	15.3	40.2
	8	55.9	II	27.7	Y	15.3	40.6
	9	56.3	II	29.5	Y	15.3	41.0
	10	56.4	II	31.2	Y	15.3	41.1
	11	56.5	II	32.9	Y	15.3	41.2
	12	56.8	II	34.5	Y	15.3	41.5
	13	56.8	II	36.0	Y	15.3	41.5
	14	56.8	II	37.5	Y	15.3	41.5
	15	56.8	II	39.0	Y	15.3	41.5
	16	56.8	II	40.3	Y	15.3	41.5
	17	56.8	II	41.7	Y	15.3	41.5
	18	56.7	II	42.9	Y	15.3	41.4
	19	56.8	II	44.2	Y	15.3	41.5
	20	56.7	II	45.3	Z	16.1	40.6
	21	56.7	II	46.5	Z	16.1	40.6
	22	-	-	-	-	-	-
	23	56.7	II	49.2	Z	16.1	40.6
	24	56.7	II	50.2	Z	16.1	40.6
	25	56.7	II	51.1	Z	16.1	40.6
	26	56.7	II	52.0	Z	16.1	40.6
	27	56.6	II	52.9	Z	16.1	40.5
	28	56.6	II	53.7	Z	16.1	40.5
	29	56.6	II	54.5	Z	16.1	40.5
	30	56.7	II	55.3	Z	16.1	40.6
	31	56.7	II	56.0	Z	16.1	40.6
	32	56.7	II	56.7	Z	16.1	40.6
	33	56.7	II	57.4	Z	16.1	40.6
	34	56.7	II	58.1	Z	16.1	40.6
	35	56.8	II	58.7	Z	16.1	40.7
	36	56.7	II	59.3	Z	16.1	40.6
	37	56.7	II	59.9	Z	16.1	40.6
	38	56.7	II	60.5	Z	16.1	40.6
	39	56.6	II	61.1	Z	16.1	40.5
	40	56.6	II	61.6	Z	16.1	40.5
	41	56.6	II	62.1	Z	16.1	40.5
	42	56.5	II	62.6	Z	16.1	40.4
	43	56.5	II	63.1	Z	16.1	40.4
	44	56.4	II	63.6	Z	16.1	40.3
	45	56.4	II	64.0	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)

Acoustic Balcony Type II: with acoustic lining (wall and ceiling)

Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R111b	4	53.0	N/A	19.9	Y	-	N/A
	5	54.1	N/A	21.9	Y	-	N/A
	6	54.8	N/A	23.9	Y	-	N/A
	7	55.4	N/A	25.8	Y	-	N/A
	8	55.8	II	27.7	Y	15.3	40.5
	9	56.2	II	29.5	Y	15.3	40.9
	10	56.4	II	31.2	Y	15.3	41.1
	11	56.5	II	32.9	Y	15.3	41.2
	12	56.8	II	34.5	Y	15.3	41.5
	13	56.8	II	36.0	Y	15.3	41.5
	14	56.8	II	37.5	Y	15.3	41.5
	15	56.8	II	39.0	Y	15.3	41.5
	16	56.8	II	40.3	Y	15.3	41.5
	17	56.8	II	41.7	Y	15.3	41.5
	18	56.7	II	42.9	Y	15.3	41.4
	19	56.8	II	44.2	Y	15.3	41.5
	20	56.8	II	45.3	Z	16.1	40.7
	21	56.8	II	46.5	Z	16.1	40.7
	22	-	-	-	-	-	-
	23	56.8	II	49.2	Z	16.1	40.7
	24	56.8	II	50.2	Z	16.1	40.7
	25	56.7	II	51.1	Z	16.1	40.6
	26	56.7	II	52.0	Z	16.1	40.6
	27	56.6	II	52.9	Z	16.1	40.5
	28	56.6	II	53.7	Z	16.1	40.5
	29	56.6	II	54.5	Z	16.1	40.5
	30	56.7	II	55.3	Z	16.1	40.6
	31	56.7	II	56.0	Z	16.1	40.6
	32	56.7	II	56.7	Z	16.1	40.6
	33	56.7	II	57.4	Z	16.1	40.6
	34	56.7	II	58.1	Z	16.1	40.6
	35	56.8	II	58.7	Z	16.1	40.7
	36	56.8	II	59.3	Z	16.1	40.7
	37	56.7	II	59.9	Z	16.1	40.6
	38	56.7	II	60.5	Z	16.1	40.6
	39	56.7	II	61.1	Z	16.1	40.6
	40	56.6	II	61.6	Z	16.1	40.5
	41	56.6	II	62.1	Z	16.1	40.5
	42	56.5	II	62.6	Z	16.1	40.4
	43	56.5	II	63.1	Z	16.1	40.4
	44	56.5	II	63.6	Z	16.1	40.4
	45	56.4	II	64.0	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R111c	4	53.0	N/A	19.9	Y	-	N/A
	5	54.1	N/A	21.9	Y	-	N/A
	6	54.8	N/A	23.9	Y	-	N/A
	7	55.3	N/A	25.8	Y	-	N/A
	8	55.8	II	27.7	Y	15.3	40.5
	9	56.2	II	29.5	Y	15.3	40.9
	10	56.4	II	31.2	Y	15.3	41.1
	11	56.5	II	32.9	Y	15.3	41.2
	12	56.8	II	34.5	Y	15.3	41.5
	13	56.8	II	36.0	Y	15.3	41.5
	14	56.8	II	37.5	Y	15.3	41.5
	15	56.8	II	38.9	Y	15.3	41.5
	16	56.8	II	40.3	Y	15.3	41.5
	17	56.8	II	41.6	Y	15.3	41.5
	18	56.8	II	42.9	Y	15.3	41.5
	19	56.8	II	44.1	Y	15.3	41.5
	20	56.8	II	45.3	Z	16.1	40.7
	21	56.7	II	46.4	Z	16.1	40.6
	22	-	-	-	-	-	-
	23	56.8	II	49.2	Z	16.1	40.7
	24	56.8	II	50.2	Z	16.1	40.7
	25	56.7	II	51.1	Z	16.1	40.6
	26	56.7	II	52.0	Z	16.1	40.6
	27	56.6	II	52.9	Z	16.1	40.5
	28	56.6	II	53.7	Z	16.1	40.5
	29	56.6	II	54.5	Z	16.1	40.5
	30	56.7	II	55.3	Z	16.1	40.6
	31	56.7	II	56.0	Z	16.1	40.6
	32	56.7	II	56.7	Z	16.1	40.6
	33	56.7	II	57.4	Z	16.1	40.6
	34	56.7	II	58.1	Z	16.1	40.6
	35	56.8	II	58.7	Z	16.1	40.7
	36	56.8	II	59.3	Z	16.1	40.7
	37	56.7	II	59.9	Z	16.1	40.6
	38	56.7	II	60.5	Z	16.1	40.6
	39	56.7	II	61.0	Z	16.1	40.6
	40	56.6	II	61.6	Z	16.1	40.5
	41	56.6	II	62.1	Z	16.1	40.5
	42	56.5	II	62.6	Z	16.1	40.4
	43	56.5	II	63.1	Z	16.1	40.4
	44	56.5	II	63.5	Z	16.1	40.4
	45	56.4	II	64.0	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)

Acoustic Balcony Type II: with acoustic lining (wall and ceiling)

Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R112a	4	52.9	N/A	20.0	Y	-	N/A
	5	53.9	N/A	22.0	Y	-	N/A
	6	54.6	N/A	24.0	Y	-	N/A
	7	55.2	N/A	25.9	Y	-	N/A
	8	55.6	II	27.8	Y	15.3	40.3
	9	56.0	II	29.6	Y	15.3	40.7
	10	56.2	II	31.3	Y	15.3	40.9
	11	56.4	II	33.0	Y	15.3	41.1
	12	56.7	II	34.6	Y	15.3	41.4
	13	56.8	II	36.1	Y	15.3	41.5
	14	56.8	II	37.6	Y	15.3	41.5
	15	56.8	II	39.1	Y	15.3	41.5
	16	56.8	II	40.4	Y	15.3	41.5
	17	56.8	II	41.8	Y	15.3	41.5
	18	56.8	II	43.0	Y	15.3	41.5
	19	56.8	II	44.3	Y	15.3	41.5
	20	56.7	II	45.4	Z	16.1	40.6
	21	56.7	II	46.6	Z	16.1	40.6
	22	-	-	-	-	-	-
	23	56.8	II	49.3	Z	16.1	40.7
	24	56.8	II	50.3	Z	16.1	40.7
	25	56.7	II	51.2	Z	16.1	40.6
	26	56.7	II	52.1	Z	16.1	40.6
	27	56.6	II	53.0	Z	16.1	40.5
	28	56.6	II	53.8	Z	16.1	40.5
	29	56.6	II	54.6	Z	16.1	40.5
	30	56.7	II	55.4	Z	16.1	40.6
	31	56.7	II	56.1	Z	16.1	40.6
	32	56.7	II	56.8	Z	16.1	40.6
	33	56.7	II	57.5	Z	16.1	40.6
	34	56.7	II	58.2	Z	16.1	40.6
	35	56.8	II	58.8	Z	16.1	40.7
	36	56.7	II	59.4	Z	16.1	40.6
	37	56.7	II	60.0	Z	16.1	40.6
	38	56.6	II	60.6	Z	16.1	40.5
	39	56.6	II	61.1	Z	16.1	40.5
	40	56.6	II	61.7	Z	16.1	40.5
	41	56.6	II	62.2	Z	16.1	40.5
	42	56.5	II	62.7	Z	16.1	40.4
	43	56.5	II	63.2	Z	16.1	40.4
	44	56.4	II	63.6	Z	16.1	40.3
	45	56.4	II	64.1	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R112b	4	53.0	N/A	20.1	Y	-	N/A
	5	54.1	N/A	22.1	Y	-	N/A
	6	54.7	N/A	24.1	Y	-	N/A
	7	55.2	N/A	26.0	Y	-	N/A
	8	55.7	II	27.9	Y	15.3	40.4
	9	56.0	II	29.7	Y	15.3	40.7
	10	56.3	II	31.4	Y	15.3	41.0
	11	56.4	II	33.1	Y	15.3	41.1
	12	56.8	II	34.7	Y	15.3	41.5
	13	56.8	II	36.3	Y	15.3	41.5
	14	56.8	II	37.8	Y	15.3	41.5
	15	56.8	II	39.2	Y	15.3	41.5
	16	56.8	II	40.6	Y	15.3	41.5
	17	56.8	II	41.9	Y	15.3	41.5
	18	56.8	II	43.2	Y	15.3	41.5
	19	56.8	II	44.4	Y	15.3	41.5
	20	56.8	II	45.6	Z	16.1	40.7
	21	56.8	II	46.7	Z	16.1	40.7
	22	-	-	-	-	-	-
	23	56.8	II	49.4	Z	16.1	40.7
	24	56.8	II	50.4	Z	16.1	40.7
	25	56.8	II	51.4	Z	16.1	40.7
	26	56.7	II	52.2	Z	16.1	40.6
	27	56.6	II	53.1	Z	16.1	40.5
	28	56.6	II	53.9	Z	16.1	40.5
	29	56.7	II	54.7	Z	16.1	40.6
	30	56.8	II	55.5	Z	16.1	40.7
	31	56.8	II	56.2	Z	16.1	40.7
	32	56.8	II	57.0	Z	16.1	40.7
	33	56.8	II	57.6	Z	16.1	40.7
	34	56.7	II	58.3	Z	16.1	40.6
	35	56.8	II	58.9	Z	16.1	40.7
	36	56.7	II	59.5	Z	16.1	40.6
	37	56.7	II	60.1	Z	16.1	40.6
	38	56.6	II	60.7	Z	16.1	40.5
	39	56.6	II	61.3	Z	16.1	40.5
	40	56.6	II	61.8	Z	16.1	40.5
	41	56.6	II	62.3	Z	16.1	40.5
	42	56.5	II	62.8	Z	16.1	40.4
	43	56.5	II	63.3	Z	16.1	40.4
	44	56.4	II	63.8	Z	16.1	40.3
	45	56.4	II	64.2	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R113b	4	53.2	N/A	20.3	Y	-	N/A
	5	54.2	N/A	22.4	Y	-	N/A
	6	54.8	N/A	24.4	Y	-	N/A
	7	55.3	N/A	26.3	Y	-	N/A
	8	55.7	II	28.2	Y	15.3	40.4
	9	56.1	II	30.0	Y	15.3	40.8
	10	56.3	II	31.8	Y	15.3	41.0
	11	56.5	II	33.5	Y	15.3	41.2
	12	56.8	II	35.1	Y	15.3	41.5
	13	56.8	II	36.6	Y	15.3	41.5
	14	56.8	II	38.2	Y	15.3	41.5
	15	56.9	II	39.6	Y	15.3	41.6
	16	56.9	II	41.0	Y	15.3	41.6
	17	56.9	II	42.3	Y	15.3	41.6
	18	56.8	II	43.6	Y	15.3	41.5
	19	56.8	II	44.8	Y	15.3	41.5
	20	56.8	II	46.0	Z	16.1	40.7
	21	56.8	II	47.1	Z	16.1	40.7
	22	-	-	-	-	-	-
	23	56.8	II	49.8	Z	16.1	40.7
	24	56.8	II	50.8	Z	16.1	40.7
	25	56.8	II	51.7	Z	16.1	40.7
	26	56.7	II	52.6	Z	16.1	40.6
	27	56.7	II	53.5	Z	16.1	40.6
	28	56.7	II	54.3	Z	16.1	40.6
	29	56.8	II	55.1	Z	16.1	40.7
	30	56.8	II	55.9	Z	16.1	40.7
	31	56.8	II	56.6	Z	16.1	40.7
	32	56.8	II	57.3	Z	16.1	40.7
	33	56.8	II	58.0	Z	16.1	40.7
	34	56.8	II	58.7	Z	16.1	40.7
	35	56.8	II	59.3	Z	16.1	40.7
	36	56.8	II	59.9	Z	16.1	40.7
	37	56.7	II	60.5	Z	16.1	40.6
	38	56.7	II	61.0	Z	16.1	40.6
	39	56.7	II	61.6	Z	16.1	40.6
	40	56.6	II	62.1	Z	16.1	40.5
	41	56.6	II	62.6	Z	16.1	40.5
	42	56.6	II	63.1	Z	16.1	40.5
	43	56.5	II	63.6	Z	16.1	40.4
	44	56.5	II	64.1	Z	16.1	40.4
	45	56.4	II	64.5	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R113c	4	53.4	N/A	20.4	Y	-	N/A
	5	54.3	N/A	22.5	Y	-	N/A
	6	54.8	N/A	24.5	Y	-	N/A
	7	55.4	N/A	26.4	Y	-	N/A
	8	55.8	II	28.3	Y	15.3	40.5
	9	56.1	II	30.2	Y	15.3	40.8
	10	56.3	II	31.9	Y	15.3	41.0
	11	56.6	II	33.6	Y	15.3	41.3
	12	56.9	II	35.2	Y	15.3	41.6
	13	56.9	II	36.8	Y	15.3	41.6
	14	56.9	II	38.3	Y	15.3	41.6
	15	56.9	II	39.7	Y	15.3	41.6
	16	56.9	II	41.1	Y	15.3	41.6
	17	56.9	II	42.4	Y	15.3	41.6
	18	56.9	II	43.7	Y	15.3	41.6
	19	56.8	II	44.9	Y	15.3	41.5
	20	56.8	II	46.1	Z	16.1	40.7
	21	56.8	II	47.2	Z	16.1	40.7
	22	-	-	-	-	-	-
	23	56.9	II	50.0	Z	16.1	40.8
	24	56.8	II	51.0	Z	16.1	40.7
	25	56.8	II	51.9	Z	16.1	40.7
	26	56.7	II	52.8	Z	16.1	40.6
	27	56.7	II	53.6	Z	16.1	40.6
	28	56.8	II	54.5	Z	16.1	40.7
	29	56.8	II	55.2	Z	16.1	40.7
	30	56.8	II	56.0	Z	16.1	40.7
	31	56.8	II	56.7	Z	16.1	40.7
	32	56.8	II	57.4	Z	16.1	40.7
	33	56.9	II	58.1	Z	16.1	40.8
	34	56.9	II	58.8	Z	16.1	40.8
	35	56.8	II	59.4	Z	16.1	40.7
	36	56.8	II	60.0	Z	16.1	40.7
	37	56.7	II	60.6	Z	16.1	40.6
	38	56.7	II	61.2	Z	16.1	40.6
	39	56.7	II	61.7	Z	16.1	40.6
	40	56.6	II	62.2	Z	16.1	40.5
	41	56.6	II	62.8	Z	16.1	40.5
	42	56.6	II	63.2	Z	16.1	40.5
	43	56.5	II	63.7	Z	16.1	40.4
	44	56.5	II	64.2	Z	16.1	40.4
	45	56.4	II	64.6	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R114a	4	53.5	N/A	20.6	Y	-	N/A
	5	54.4	N/A	22.7	Y	-	N/A
	6	55.0	N/A	24.7	Y	-	N/A
	7	55.5	II	26.6	Y	15.3	40.2
	8	55.9	II	28.5	Y	15.3	40.6
	9	56.2	II	30.4	Y	15.3	40.9
	10	56.4	II	32.1	Y	15.3	41.1
	11	56.7	II	33.8	Y	15.3	41.4
	12	57.0	II	35.4	Y	15.3	41.7
	13	57.0	II	37.0	Y	15.3	41.7
	14	57.0	II	38.5	Y	15.3	41.7
	15	57.0	II	40.0	Y	15.3	41.7
	16	57.0	II	41.3	Y	15.3	41.7
	17	56.9	II	42.7	Y	15.3	41.6
	18	56.9	II	44.0	Y	15.3	41.6
	19	56.9	II	45.2	Z	16.1	40.8
	20	56.9	II	46.3	Z	16.1	40.8
	21	57.0	II	47.5	Z	16.1	40.9
	22	-	-	-	-	-	-
	23	56.9	II	50.2	Z	16.1	40.8
	24	56.9	II	51.2	Z	16.1	40.8
	25	56.9	II	52.1	Z	16.1	40.8
	26	56.8	II	53.0	Z	16.1	40.7
	27	56.8	II	53.9	Z	16.1	40.7
	28	56.9	II	54.7	Z	16.1	40.8
	29	56.9	II	55.5	Z	16.1	40.8
	30	56.9	II	56.2	Z	16.1	40.8
	31	56.9	II	57.0	Z	16.1	40.8
	32	56.9	II	57.7	Z	16.1	40.8
	33	56.9	II	58.3	Z	16.1	40.8
	34	56.9	II	59.0	Z	16.1	40.8
	35	56.9	II	59.6	Z	16.1	40.8
	36	56.8	II	60.2	Z	16.1	40.7
	37	56.8	II	60.8	Z	16.1	40.7
	38	56.8	II	61.4	Z	16.1	40.7
	39	56.7	II	61.9	Z	16.1	40.6
	40	56.7	II	62.4	Z	16.1	40.6
	41	56.6	II	62.9	Z	16.1	40.5
	42	56.6	II	63.4	Z	16.1	40.5
	43	56.5	II	63.9	Z	16.1	40.4
	44	56.5	II	64.4	Z	16.1	40.4
	45	56.5	II	64.8	Z	16.1	40.4

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R114b	4	53.7	N/A	20.7	Y	-	N/A
	5	54.6	N/A	22.8	Y	-	N/A
	6	55.1	N/A	24.8	Y	-	N/A
	7	55.6	II	26.8	Y	15.3	40.3
	8	56.0	II	28.7	Y	15.3	40.7
	9	56.3	II	30.5	Y	15.3	41.0
	10	56.5	II	32.3	Y	15.3	41.2
	11	56.8	II	34.0	Y	15.3	41.5
	12	57.0	II	35.6	Y	15.3	41.7
	13	57.0	II	37.2	Y	15.3	41.7
	14	57.0	II	38.7	Y	15.3	41.7
	15	57.0	II	40.1	Y	15.3	41.7
	16	57.0	II	41.5	Y	15.3	41.7
	17	57.0	II	42.9	Y	15.3	41.7
	18	57.0	II	44.1	Y	15.3	41.7
	19	57.0	II	45.4	Z	16.1	40.9
	20	57.0	II	46.5	Z	16.1	40.9
	21	57.0	II	47.6	Z	16.1	40.9
	22	-	-	-	-	-	-
	23	57.0	II	50.4	Z	16.1	40.9
	24	56.9	II	51.4	Z	16.1	40.8
	25	56.9	II	52.3	Z	16.1	40.8
	26	56.9	II	53.2	Z	16.1	40.8
	27	56.9	II	54.0	Z	16.1	40.8
	28	56.9	II	54.8	Z	16.1	40.8
	29	56.9	II	55.6	Z	16.1	40.8
	30	56.9	II	56.4	Z	16.1	40.8
	31	56.9	II	57.1	Z	16.1	40.8
	32	57.0	II	57.8	Z	16.1	40.9
	33	57.0	II	58.5	Z	16.1	40.9
	34	56.9	II	59.1	Z	16.1	40.8
	35	56.9	II	59.8	Z	16.1	40.8
	36	56.8	II	60.4	Z	16.1	40.7
	37	56.8	II	61.0	Z	16.1	40.7
	38	56.8	II	61.5	Z	16.1	40.7
	39	56.8	II	62.1	Z	16.1	40.7
	40	56.7	II	62.6	Z	16.1	40.6
	41	56.6	II	63.1	Z	16.1	40.5
	42	56.6	II	63.6	Z	16.1	40.5
	43	56.5	II	64.0	Z	16.1	40.4
	44	56.5	II	64.5	Z	16.1	40.4
	45	56.5	II	64.9	Z	16.1	40.4

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R115b	4	54.2	N/A	20.9	Y	-	N/A
	5	54.9	N/A	23.1	Y	-	N/A
	6	55.4	IV	25.1	Y	13.6	41.8
	7	55.8	IV	27.1	Y	13.6	42.2
	8	56.3	IV	29.0	Y	13.6	42.7
	9	56.5	IV	30.8	Y	13.6	42.9
	10	56.7	IV	32.6	Y	13.6	43.1
	11	57.0	IV	34.3	Y	13.6	43.4
	12	57.1	IV	36.0	Y	13.6	43.5
	13	57.1	IV	37.5	Y	13.6	43.5
	14	57.1	IV	39.1	Y	13.6	43.5
	15	57.1	IV	40.5	Y	13.6	43.5
	16	57.2	IV	41.9	Y	13.6	43.6
	17	57.2	II	43.2	Y	15.3	41.9
	18	57.2	II	44.5	Y	15.3	41.9
	19	57.1	II	45.7	Z	16.1	41.0
	20	57.1	II	46.9	Z	16.1	41.0
	21	57.1	II	48.0	Z	16.1	41.0
	22	-	-	-	-	-	-
	23	57.1	II	50.8	Z	16.1	41.0
	24	57.1	II	51.7	Z	16.1	41.0
	25	57.0	II	52.6	Z	16.1	40.9
	26	57.0	II	53.5	Z	16.1	40.9
	27	57.0	II	54.4	Z	16.1	40.9
	28	57.0	II	55.2	Z	16.1	40.9
	29	57.1	II	56.0	Z	16.1	41.0
	30	57.1	II	56.7	Z	16.1	41.0
	31	57.1	II	57.5	Z	16.1	41.0
	32	57.1	II	58.2	Z	16.1	41.0
	33	57.1	II	58.8	Z	16.1	41.0
	34	57.0	II	59.5	Z	16.1	40.9
	35	57.0	II	60.1	Z	16.1	40.9
	36	56.9	II	60.7	Z	16.1	40.8
	37	56.9	II	61.3	Z	16.1	40.8
	38	56.9	II	61.8	Z	16.1	40.8
	39	56.8	II	62.4	Z	16.1	40.7
	40	56.8	II	62.9	Z	16.1	40.7
	41	56.7	II	63.4	Z	16.1	40.6
	42	56.7	II	63.9	Z	16.1	40.6
	43	56.6	II	64.3	Z	16.1	40.5
	44	56.6	II	64.8	Z	16.1	40.5
	45	56.5	II	65.2	Z	16.1	40.4

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R115c	4	54.5	N/A	21.1	Y	-	N/A
	5	55.0	N/A	23.2	Y	-	N/A
	6	55.5	IV	25.2	Y	13.6	41.9
	7	56.0	IV	27.2	Y	13.6	42.4
	8	56.3	IV	29.2	Y	13.6	42.7
	9	56.6	IV	31.0	Y	13.6	43.0
	10	56.8	IV	32.8	Y	13.6	43.2
	11	57.1	IV	34.5	Y	13.6	43.5
	12	57.2	IV	36.1	Y	13.6	43.6
	13	57.2	IV	37.7	Y	13.6	43.6
	14	57.2	IV	39.2	Y	13.6	43.6
	15	57.2	IV	40.7	Y	13.6	43.6
	16	57.2	IV	42.1	Y	13.6	43.6
	17	57.2	II	43.4	Y	15.3	41.9
	18	57.2	II	44.7	Y	15.3	41.9
	19	57.2	II	45.9	Z	16.1	41.1
	20	57.2	II	47.1	Z	16.1	41.1
	21	57.2	II	48.2	Z	16.1	41.1
	22	-	-	-	-	-	-
	23	57.2	II	50.9	Z	16.1	41.1
	24	57.2	II	51.9	Z	16.1	41.1
	25	57.1	II	52.8	Z	16.1	41.0
	26	57.1	II	53.7	Z	16.1	41.0
	27	57.1	II	54.6	Z	16.1	41.0
	28	57.1	II	55.4	Z	16.1	41.0
	29	57.1	II	56.2	Z	16.1	41.0
	30	57.1	II	56.9	Z	16.1	41.0
	31	57.2	II	57.6	Z	16.1	41.1
	32	57.1	II	58.3	Z	16.1	41.0
	33	57.1	II	59.0	Z	16.1	41.0
	34	57.1	II	59.6	Z	16.1	41.0
	35	57.0	II	60.3	Z	16.1	40.9
	36	56.9	II	60.9	Z	16.1	40.8
	37	56.9	II	61.4	Z	16.1	40.8
	38	56.9	II	62.0	Z	16.1	40.8
	39	56.9	II	62.5	Z	16.1	40.8
	40	56.8	II	63.0	Z	16.1	40.7
	41	56.8	II	63.5	Z	16.1	40.7
	42	56.7	II	64.0	Z	16.1	40.6
	43	56.7	II	64.5	Z	16.1	40.6
	44	56.6	II	64.9	Z	16.1	40.5
	45	56.6	II	65.4	Z	16.1	40.5

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15^{o}

Inclination Angle Type Y: the inclination angle is above 15^{o} and below 45^{o}

Inclination Angle Type Z: the inclination angle is above 45^{o}

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R213a	4	53.9	N/A	21.2	Y	-	N/A
	5	55.0	N/A	23.3	Y	-	N/A
	6	55.7	II	25.4	Y	15.3	40.4
	7	56.1	II	27.4	Y	15.3	40.8
	8	56.5	II	29.3	Y	15.3	41.2
	9	56.6	II	31.1	Y	15.3	41.3
	10	56.7	II	32.9	Y	15.3	41.4
	11	56.8	II	34.6	Y	15.3	41.5
	12	56.8	II	36.3	Y	15.3	41.5
	13	56.8	II	37.9	Y	15.3	41.5
	14	56.8	II	39.4	Y	15.3	41.5
	15	56.8	II	40.8	Y	15.3	41.5
	16	56.8	II	42.2	Y	15.3	41.5
	17	56.8	II	43.6	Y	15.3	41.5
	18	56.8	II	44.8	Y	15.3	41.5
	19	56.8	II	46.1	Z	16.1	40.7
	20	56.8	II	47.2	Z	16.1	40.7
	21	56.8	II	48.4	Z	16.1	40.7
	22	-	-	-	-	-	-
	23	56.9	II	51.1	Z	16.1	40.8
	24	56.8	II	52.0	Z	16.1	40.7
	25	56.8	II	53.0	Z	16.1	40.7
	26	56.7	II	53.9	Z	16.1	40.6
	27	56.8	II	54.7	Z	16.1	40.7
	28	56.8	II	55.5	Z	16.1	40.7
	29	56.8	II	56.3	Z	16.1	40.7
	30	56.9	II	57.0	Z	16.1	40.8
	31	56.9	II	57.8	Z	16.1	40.8
	32	56.9	II	58.5	Z	16.1	40.8
	33	56.9	II	59.1	Z	16.1	40.8
	34	56.9	II	59.8	Z	16.1	40.8
	35	56.8	II	60.4	Z	16.1	40.7
	36	56.8	II	61.0	Z	16.1	40.7
	37	56.8	II	61.6	Z	16.1	40.7
	38	56.8	II	62.1	Z	16.1	40.7
	39	56.7	II	62.6	Z	16.1	40.6
	40	56.7	II	63.2	Z	16.1	40.6
	41	56.6	II	63.7	Z	16.1	40.5
	42	56.6	II	64.1	Z	16.1	40.5
	43	56.6	II	64.6	Z	16.1	40.5
	44	56.5	II	65.1	Z	16.1	40.4
	45	56.5	II	65.5	Z	16.1	40.4

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R213b	4	53.9	N/A	21.1	Y	-	N/A
	5	55.0	N/A	23.2	Y	-	N/A
	6	55.6	II	25.2	Y	15.3	40.3
	7	56.1	II	27.2	Y	15.3	40.8
	8	56.5	II	29.1	Y	15.3	41.2
	9	56.6	II	31.0	Y	15.3	41.3
	10	56.7	II	32.8	Y	15.3	41.4
	11	56.8	II	34.5	Y	15.3	41.5
	12	56.8	II	36.1	Y	15.3	41.5
	13	56.8	II	37.7	Y	15.3	41.5
	14	56.8	II	39.2	Y	15.3	41.5
	15	56.8	II	40.7	Y	15.3	41.5
	16	56.8	II	42.1	Y	15.3	41.5
	17	56.8	II	43.4	Y	15.3	41.5
	18	56.8	II	44.7	Y	15.3	41.5
	19	56.8	II	45.9	Z	16.1	40.7
	20	56.8	II	47.1	Z	16.1	40.7
	21	56.8	II	48.2	Z	16.1	40.7
	22	-	-	-	-	-	-
	23	56.9	II	50.9	Z	16.1	40.8
	24	56.8	II	51.9	Z	16.1	40.7
	25	56.8	II	52.8	Z	16.1	40.7
	26	56.7	II	53.7	Z	16.1	40.6
	27	56.7	II	54.5	Z	16.1	40.6
	28	56.8	II	55.4	Z	16.1	40.7
	29	56.8	II	56.1	Z	16.1	40.7
	30	56.9	II	56.9	Z	16.1	40.8
	31	56.9	II	57.6	Z	16.1	40.8
	32	56.9	II	58.3	Z	16.1	40.8
	33	56.9	II	59.0	Z	16.1	40.8
	34	56.9	II	59.6	Z	16.1	40.8
	35	56.8	II	60.2	Z	16.1	40.7
	36	56.8	II	60.8	Z	16.1	40.7
	37	56.8	II	61.4	Z	16.1	40.7
	38	56.8	II	62.0	Z	16.1	40.7
	39	56.7	II	62.5	Z	16.1	40.6
	40	56.7	II	63.0	Z	16.1	40.6
	41	56.7	II	63.5	Z	16.1	40.6
	42	56.6	II	64.0	Z	16.1	40.5
	43	56.6	II	64.5	Z	16.1	40.5
	44	56.5	II	64.9	Z	16.1	40.4
	45	56.5	II	65.4	Z	16.1	40.4

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R214b	4	53.8	N/A	20.8	Y	-	N/A
	5	54.9	N/A	22.9	Y	-	N/A
	6	55.6	II	24.9	Y	15.3	40.3
	7	56.0	II	26.9	Y	15.3	40.7
	8	56.4	II	28.8	Y	15.3	41.1
	9	56.6	II	30.6	Y	15.3	41.3
	10	56.7	II	32.4	Y	15.3	41.4
	11	56.8	II	34.1	Y	15.3	41.5
	12	56.8	II	35.7	Y	15.3	41.5
	13	56.8	II	37.3	Y	15.3	41.5
	14	56.8	II	38.8	Y	15.3	41.5
	15	56.8	II	40.3	Y	15.3	41.5
	16	56.8	II	41.6	Y	15.3	41.5
	17	56.8	II	43.0	Y	15.3	41.5
	18	56.8	II	44.3	Y	15.3	41.5
	19	56.8	II	45.5	Z	16.1	40.7
	20	56.8	II	46.6	Z	16.1	40.7
	21	56.8	II	47.8	Z	16.1	40.7
	22	-	-	-	-	-	-
	23	56.7	II	50.5	Z	16.1	40.6
	24	56.7	II	51.5	Z	16.1	40.6
	25	56.7	II	52.4	Z	16.1	40.6
	26	56.7	II	53.3	Z	16.1	40.6
	27	56.6	II	54.1	Z	16.1	40.5
	28	56.7	II	55.0	Z	16.1	40.6
	29	56.7	II	55.7	Z	16.1	40.6
	30	56.8	II	56.5	Z	16.1	40.7
	31	56.8	II	57.2	Z	16.1	40.7
	32	56.8	II	57.9	Z	16.1	40.7
	33	56.8	II	58.6	Z	16.1	40.7
	34	56.8	II	59.2	Z	16.1	40.7
	35	56.8	II	59.9	Z	16.1	40.7
	36	56.7	II	60.5	Z	16.1	40.6
	37	56.8	II	61.1	Z	16.1	40.7
	38	56.7	II	61.6	Z	16.1	40.6
	39	56.7	II	62.2	Z	16.1	40.6
	40	56.6	II	62.7	Z	16.1	40.5
	41	56.6	II	63.2	Z	16.1	40.5
	42	56.6	II	63.7	Z	16.1	40.5
	43	56.5	II	64.1	Z	16.1	40.4
	44	56.5	II	64.6	Z	16.1	40.4
	45	56.4	II	65.0	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R214c	4	53.8	N/A	20.7	Y	-	N/A
	5	54.8	N/A	22.7	Y	-	N/A
	6	55.5	II	24.8	Y	15.3	40.2
	7	56.0	II	26.7	Y	15.3	40.7
	8	56.4	II	28.6	Y	15.3	41.1
	9	56.6	II	30.5	Y	15.3	41.3
	10	56.7	II	32.2	Y	15.3	41.4
	11	56.8	II	33.9	Y	15.3	41.5
	12	56.8	II	35.6	Y	15.3	41.5
	13	56.8	II	37.1	Y	15.3	41.5
	14	56.8	II	38.6	Y	15.3	41.5
	15	56.8	II	40.1	Y	15.3	41.5
	16	56.8	II	41.5	Y	15.3	41.5
	17	56.8	II	42.8	Y	15.3	41.5
	18	56.8	II	44.1	Y	15.3	41.5
	19	56.7	II	45.3	Z	16.1	40.6
	20	56.8	II	46.5	Z	16.1	40.7
	21	56.8	II	47.6	Z	16.1	40.7
	22	-	-	-	-	-	-
	23	56.7	II	50.3	Z	16.1	40.6
	24	56.7	II	51.3	Z	16.1	40.6
	25	56.7	II	52.2	Z	16.1	40.6
	26	56.7	II	53.1	Z	16.1	40.6
	27	56.7	II	54.0	Z	16.1	40.6
	28	56.7	II	54.8	Z	16.1	40.6
	29	56.7	II	55.6	Z	16.1	40.6
	30	56.7	II	56.3	Z	16.1	40.6
	31	56.8	II	57.1	Z	16.1	40.7
	32	56.8	II	57.8	Z	16.1	40.7
	33	56.8	II	58.4	Z	16.1	40.7
	34	56.8	II	59.1	Z	16.1	40.7
	35	56.8	II	59.7	Z	16.1	40.7
	36	56.7	II	60.3	Z	16.1	40.6
	37	56.7	II	60.9	Z	16.1	40.6
	38	56.7	II	61.5	Z	16.1	40.6
	39	56.7	II	62.0	Z	16.1	40.6
	40	56.6	II	62.5	Z	16.1	40.5
	41	56.6	II	63.0	Z	16.1	40.5
	42	56.6	II	63.5	Z	16.1	40.5
	43	56.5	II	64.0	Z	16.1	40.4
	44	56.5	II	64.5	Z	16.1	40.4
	45	56.5	II	64.9	Z	16.1	40.4

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R215a	4	53.7	N/A	20.5	Y	-	N/A
	5	54.8	N/A	22.6	Y	-	N/A
	6	55.5	II	24.6	Y	15.3	40.2
	7	56.0	II	26.6	Y	15.3	40.7
	8	56.3	II	28.5	Y	15.3	41.0
	9	56.6	II	30.3	Y	15.3	41.3
	10	56.6	II	32.0	Y	15.3	41.3
	11	56.7	II	33.7	Y	15.3	41.4
	12	56.8	II	35.4	Y	15.3	41.5
	13	56.8	II	36.9	Y	15.3	41.5
	14	56.8	II	38.4	Y	15.3	41.5
	15	56.8	II	39.9	Y	15.3	41.5
	16	56.8	II	41.3	Y	15.3	41.5
	17	56.8	II	42.6	Y	15.3	41.5
	18	56.7	II	43.9	Y	15.3	41.4
	19	56.7	II	45.1	Z	16.1	40.6
	20	56.7	II	46.3	Z	16.1	40.6
	21	56.7	II	47.4	Z	16.1	40.6
	22	-	-	-	-	-	-
	23	56.7	II	50.1	Z	16.1	40.6
	24	56.7	II	51.1	Z	16.1	40.6
	25	56.7	II	52.0	Z	16.1	40.6
	26	56.7	II	52.9	Z	16.1	40.6
	27	56.6	II	53.8	Z	16.1	40.5
	28	56.6	II	54.6	Z	16.1	40.5
	29	56.7	II	55.4	Z	16.1	40.6
	30	56.7	II	56.1	Z	16.1	40.6
	31	56.7	II	56.9	Z	16.1	40.6
	32	56.8	II	57.6	Z	16.1	40.7
	33	56.8	II	58.3	Z	16.1	40.7
	34	56.8	II	58.9	Z	16.1	40.7
	35	56.8	II	59.5	Z	16.1	40.7
	36	56.7	II	60.1	Z	16.1	40.6
	37	56.7	II	60.7	Z	16.1	40.6
	38	56.7	II	61.3	Z	16.1	40.6
	39	56.7	II	61.8	Z	16.1	40.6
	40	56.6	II	62.4	Z	16.1	40.5
	41	56.6	II	62.9	Z	16.1	40.5
	42	56.6	II	63.4	Z	16.1	40.5
	43	56.5	II	63.8	Z	16.1	40.4
	44	56.5	II	64.3	Z	16.1	40.4
	45	56.4	II	64.7	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R215b	4	53.6	N/A	20.4	Y	-	N/A
	5	54.8	N/A	22.5	Y	-	N/A
	6	55.4	II	24.5	Y	15.3	40.1
	7	55.9	II	26.4	Y	15.3	40.6
	8	56.3	II	28.3	Y	15.3	41.0
	9	56.6	II	30.1	Y	15.3	41.3
	10	56.7	II	31.9	Y	15.3	41.4
	11	56.7	II	33.6	Y	15.3	41.4
	12	56.8	II	35.2	Y	15.3	41.5
	13	56.8	II	36.8	Y	15.3	41.5
	14	56.8	II	38.3	Y	15.3	41.5
	15	56.8	II	39.7	Y	15.3	41.5
	16	56.8	II	41.1	Y	15.3	41.5
	17	56.8	II	42.4	Y	15.3	41.5
	18	56.7	II	43.7	Y	15.3	41.4
	19	56.7	II	44.9	Y	15.3	41.4
	20	56.7	II	46.1	Z	16.1	40.6
	21	56.7	II	47.2	Z	16.1	40.6
	22	-	-	-	-	-	-
	23	56.7	II	50.0	Z	16.1	40.6
	24	56.7	II	50.9	Z	16.1	40.6
	25	56.7	II	51.9	Z	16.1	40.6
	26	56.6	II	52.8	Z	16.1	40.5
	27	56.6	II	53.6	Z	16.1	40.5
	28	56.6	II	54.4	Z	16.1	40.5
	29	56.7	II	55.2	Z	16.1	40.6
	30	56.7	II	56.0	Z	16.1	40.6
	31	56.7	II	56.7	Z	16.1	40.6
	32	56.7	II	57.4	Z	16.1	40.6
	33	56.8	II	58.1	Z	16.1	40.7
	34	56.8	II	58.8	Z	16.1	40.7
	35	56.8	II	59.4	Z	16.1	40.7
	36	56.7	II	60.0	Z	16.1	40.6
	37	56.7	II	60.6	Z	16.1	40.6
	38	56.7	II	61.2	Z	16.1	40.6
	39	56.6	II	61.7	Z	16.1	40.5
	40	56.6	II	62.2	Z	16.1	40.5
	41	56.6	II	62.7	Z	16.1	40.5
	42	56.5	II	63.2	Z	16.1	40.4
	43	56.5	II	63.7	Z	16.1	40.4
	44	56.5	II	64.2	Z	16.1	40.4
	45	56.4	II	64.6	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R216b	4	53.4	N/A	20.1	Y	-	N/A
	5	54.6	N/A	22.2	Y	-	N/A
	6	55.4	N/A	24.2	Y	-	N/A
	7	55.8	II	26.1	Y	15.3	40.5
	8	56.2	II	28.0	Y	15.3	40.9
	9	56.5	II	29.8	Y	15.3	41.2
	10	56.7	II	31.5	Y	15.3	41.4
	11	56.7	II	33.2	Y	15.3	41.4
	12	56.8	II	34.8	Y	15.3	41.5
	13	56.8	II	36.4	Y	15.3	41.5
	14	56.8	II	37.8	Y	15.3	41.5
	15	56.7	II	39.3	Y	15.3	41.4
	16	56.8	II	40.7	Y	15.3	41.5
	17	56.8	II	42.0	Y	15.3	41.5
	18	56.7	II	43.3	Y	15.3	41.4
	19	56.7	II	44.5	Y	15.3	41.4
	20	56.7	II	45.7	Z	16.1	40.6
	21	56.7	II	46.8	Z	16.1	40.6
	22	-	-	-	-	-	-
	23	56.7	II	49.5	Z	16.1	40.6
	24	56.7	II	50.5	Z	16.1	40.6
	25	56.7	II	51.4	Z	16.1	40.6
	26	56.6	II	52.3	Z	16.1	40.5
	27	56.6	II	53.2	Z	16.1	40.5
	28	56.6	II	54.0	Z	16.1	40.5
	29	56.6	II	54.8	Z	16.1	40.5
	30	56.6	II	55.6	Z	16.1	40.5
	31	56.7	II	56.3	Z	16.1	40.6
	32	56.7	II	57.0	Z	16.1	40.6
	33	56.7	II	57.7	Z	16.1	40.6
	34	56.7	II	58.4	Z	16.1	40.6
	35	56.7	II	59.0	Z	16.1	40.6
	36	56.7	II	59.6	Z	16.1	40.6
	37	56.7	II	60.2	Z	16.1	40.6
	38	56.6	II	60.8	Z	16.1	40.5
	39	56.6	II	61.3	Z	16.1	40.5
	40	56.6	II	61.9	Z	16.1	40.5
	41	56.5	II	62.4	Z	16.1	40.4
	42	56.5	II	62.9	Z	16.1	40.4
	43	56.5	II	63.4	Z	16.1	40.4
	44	56.4	II	63.8	Z	16.1	40.3
	45	56.4	II	64.3	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R216c	4	53.4	N/A	20.0	Y	-	N/A
	5	54.6	N/A	22.1	Y	-	N/A
	6	55.3	N/A	24.1	Y	-	N/A
	7	55.8	II	26.0	Y	15.3	40.5
	8	56.2	II	27.8	Y	15.3	40.9
	9	56.5	II	29.6	Y	15.3	41.2
	10	56.6	II	31.4	Y	15.3	41.3
	11	56.7	II	33.1	Y	15.3	41.4
	12	56.8	II	34.7	Y	15.3	41.5
	13	56.8	II	36.2	Y	15.3	41.5
	14	56.8	II	37.7	Y	15.3	41.5
	15	56.7	II	39.2	Y	15.3	41.4
	16	56.7	II	40.5	Y	15.3	41.4
	17	56.7	II	41.9	Y	15.3	41.4
	18	56.7	II	43.1	Y	15.3	41.4
	19	56.7	II	44.4	Y	15.3	41.4
	20	56.7	II	45.5	Z	16.1	40.6
	21	56.7	II	46.7	Z	16.1	40.6
	22	-	-	-	-	-	-
	23	56.7	II	49.4	Z	16.1	40.6
	24	56.7	II	50.4	Z	16.1	40.6
	25	56.7	II	51.3	Z	16.1	40.6
	26	56.7	II	52.2	Z	16.1	40.6
	27	56.6	II	53.1	Z	16.1	40.5
	28	56.5	II	53.9	Z	16.1	40.4
	29	56.6	II	54.7	Z	16.1	40.5
	30	56.6	II	55.5	Z	16.1	40.5
	31	56.6	II	56.2	Z	16.1	40.5
	32	56.7	II	56.9	Z	16.1	40.6
	33	56.7	II	57.6	Z	16.1	40.6
	34	56.7	II	58.3	Z	16.1	40.6
	35	56.7	II	58.9	Z	16.1	40.6
	36	56.7	II	59.5	Z	16.1	40.6
	37	56.7	II	60.1	Z	16.1	40.6
	38	56.6	II	60.7	Z	16.1	40.5
	39	56.6	II	61.2	Z	16.1	40.5
	40	56.6	II	61.8	Z	16.1	40.5
	41	56.5	II	62.3	Z	16.1	40.4
	42	56.5	II	62.8	Z	16.1	40.4
	43	56.5	II	63.3	Z	16.1	40.4
	44	56.4	II	63.7	Z	16.1	40.3
	45	56.4	II	64.2	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R217a	4	53.5	N/A	19.9	Y	-	N/A
	5	54.6	N/A	22.0	Y	-	N/A
	6	55.3	N/A	23.9	Y	-	N/A
	7	55.9	II	25.9	Y	15.3	40.6
	8	56.2	II	27.7	Y	15.3	40.9
	9	56.5	II	29.5	Y	15.3	41.2
	10	56.6	II	31.2	Y	15.3	41.3
	11	56.7	II	32.9	Y	15.3	41.4
	12	56.8	II	34.5	Y	15.3	41.5
	13	56.9	II	36.1	Y	15.3	41.6
	14	56.8	II	37.6	Y	15.3	41.5
	15	56.8	II	39.0	Y	15.3	41.5
	16	56.8	II	40.4	Y	15.3	41.5
	17	56.8	II	41.7	Y	15.3	41.5
	18	56.8	II	43.0	Y	15.3	41.5
	19	56.8	II	44.2	Y	15.3	41.5
	20	56.8	II	45.4	Z	16.1	40.7
	21	56.7	II	46.5	Z	16.1	40.6
	22	-	-	-	-	-	-
	23	56.8	II	49.2	Z	16.1	40.7
	24	56.8	II	50.2	Z	16.1	40.7
	25	56.7	II	51.2	Z	16.1	40.6
	26	56.7	II	52.1	Z	16.1	40.6
	27	56.6	II	52.9	Z	16.1	40.5
	28	56.6	II	53.7	Z	16.1	40.5
	29	56.6	II	54.5	Z	16.1	40.5
	30	56.7	II	55.3	Z	16.1	40.6
	31	56.7	II	56.1	Z	16.1	40.6
	32	56.7	II	56.8	Z	16.1	40.6
	33	56.7	II	57.5	Z	16.1	40.6
	34	56.7	II	58.1	Z	16.1	40.6
	35	56.8	II	58.8	Z	16.1	40.7
	36	56.7	II	59.4	Z	16.1	40.6
	37	56.7	II	60.0	Z	16.1	40.6
	38	56.7	II	60.5	Z	16.1	40.6
	39	56.7	II	61.1	Z	16.1	40.6
	40	56.6	II	61.6	Z	16.1	40.5
	41	56.6	II	62.1	Z	16.1	40.5
	42	56.5	II	62.6	Z	16.1	40.4
	43	56.5	II	63.1	Z	16.1	40.4
	44	56.5	II	63.6	Z	16.1	40.4
	45	56.4	II	64.0	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R217b	4	53.5	N/A	19.9	Y	-	N/A
	5	54.6	N/A	22.0	Y	-	N/A
	6	55.3	N/A	24.0	Y	-	N/A
	7	55.8	II	25.9	Y	15.3	40.5
	8	56.2	II	27.7	Y	15.3	40.9
	9	56.5	II	29.5	Y	15.3	41.2
	10	56.6	II	31.3	Y	15.3	41.3
	11	56.7	II	32.9	Y	15.3	41.4
	12	56.8	II	34.5	Y	15.3	41.5
	13	56.9	II	36.1	Y	15.3	41.6
	14	56.9	II	37.6	Y	15.3	41.6
	15	56.8	II	39.0	Y	15.3	41.5
	16	56.8	II	40.4	Y	15.3	41.5
	17	56.8	II	41.7	Y	15.3	41.5
	18	56.8	II	43.0	Y	15.3	41.5
	19	56.8	II	44.2	Y	15.3	41.5
	20	56.8	II	45.4	Z	16.1	40.7
	21	56.7	II	46.5	Z	16.1	40.6
	22	-	-	-	-	-	-
	23	56.8	II	49.3	Z	16.1	40.7
	24	56.7	II	50.2	Z	16.1	40.6
	25	56.7	II	51.2	Z	16.1	40.6
	26	56.7	II	52.1	Z	16.1	40.6
	27	56.6	II	52.9	Z	16.1	40.5
	28	56.6	II	53.8	Z	16.1	40.5
	29	56.6	II	54.6	Z	16.1	40.5
	30	56.7	II	55.3	Z	16.1	40.6
	31	56.7	II	56.1	Z	16.1	40.6
	32	56.7	II	56.8	Z	16.1	40.6
	33	56.7	II	57.5	Z	16.1	40.6
	34	56.7	II	58.1	Z	16.1	40.6
	35	56.8	II	58.8	Z	16.1	40.7
	36	56.7	II	59.4	Z	16.1	40.6
	37	56.7	II	60.0	Z	16.1	40.6
	38	56.7	II	60.5	Z	16.1	40.6
	39	56.7	II	61.1	Z	16.1	40.6
	40	56.6	II	61.6	Z	16.1	40.5
	41	56.6	II	62.2	Z	16.1	40.5
	42	56.5	II	62.7	Z	16.1	40.4
	43	56.5	II	63.1	Z	16.1	40.4
	44	56.5	II	63.6	Z	16.1	40.4
	45	56.4	II	64.1	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R218b	4	53.4	N/A	19.9	Y	-	N/A
	5	54.5	N/A	22.0	Y	-	N/A
	6	55.2	N/A	23.9	Y	-	N/A
	7	55.8	II	25.8	Y	15.3	40.5
	8	56.1	II	27.7	Y	15.3	40.8
	9	56.5	II	29.5	Y	15.3	41.2
	10	56.6	II	31.2	Y	15.3	41.3
	11	56.7	II	32.9	Y	15.3	41.4
	12	56.9	II	34.5	Y	15.3	41.6
	13	56.9	II	36.1	Y	15.3	41.6
	14	56.9	II	37.5	Y	15.3	41.6
	15	56.8	II	39.0	Y	15.3	41.5
	16	56.8	II	40.4	Y	15.3	41.5
	17	56.8	II	41.7	Y	15.3	41.5
	18	56.8	II	43.0	Y	15.3	41.5
	19	56.8	II	44.2	Y	15.3	41.5
	20	56.8	II	45.4	Z	16.1	40.7
	21	56.8	II	46.5	Z	16.1	40.7
	22	-	-	-	-	-	-
	23	56.8	II	49.2	Z	16.1	40.7
	24	56.8	II	50.2	Z	16.1	40.7
	25	56.7	II	51.1	Z	16.1	40.6
	26	56.7	II	52.0	Z	16.1	40.6
	27	56.7	II	52.9	Z	16.1	40.6
	28	56.6	II	53.7	Z	16.1	40.5
	29	56.6	II	54.5	Z	16.1	40.5
	30	56.7	II	55.3	Z	16.1	40.6
	31	56.7	II	56.0	Z	16.1	40.6
	32	56.7	II	56.8	Z	16.1	40.6
	33	56.8	II	57.4	Z	16.1	40.7
	34	56.7	II	58.1	Z	16.1	40.6
	35	56.8	II	58.7	Z	16.1	40.7
	36	56.8	II	59.4	Z	16.1	40.7
	37	56.7	II	59.9	Z	16.1	40.6
	38	56.7	II	60.5	Z	16.1	40.6
	39	56.7	II	61.1	Z	16.1	40.6
	40	56.6	II	61.6	Z	16.1	40.5
	41	56.6	II	62.1	Z	16.1	40.5
	42	56.5	II	62.6	Z	16.1	40.4
	43	56.5	II	63.1	Z	16.1	40.4
	44	56.5	II	63.6	Z	16.1	40.4
	45	56.5	II	64.0	Z	16.1	40.4

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Project number:	**276006-12**
Project :	**Po Shek Wu Road**
Title:	**Balcony Attenuation for Railway Noise**

NSR	Floor	Noise Levels Without Acoustic Balcony, dB(A)	Balcony Type [2]	Acoustic Balcony Performance			Noise Levels With Acoustic Balcony, dB(A)
				Inclination Angle [1]	Inclination Angle Type	Attenuation, dB(A) [3]	
R218c	4	53.4	N/A	19.9	Y	-	N/A
	5	54.5	N/A	21.9	Y	-	N/A
	6	55.2	N/A	23.9	Y	-	N/A
	7	55.7	II	25.8	Y	15.3	40.4
	8	56.1	II	27.7	Y	15.3	40.8
	9	56.5	II	29.5	Y	15.3	41.2
	10	56.6	II	31.2	Y	15.3	41.3
	11	56.7	II	32.9	Y	15.3	41.4
	12	56.8	II	34.5	Y	15.3	41.5
	13	56.9	II	36.0	Y	15.3	41.6
	14	56.9	II	37.5	Y	15.3	41.6
	15	56.8	II	39.0	Y	15.3	41.5
	16	56.8	II	40.4	Y	15.3	41.5
	17	56.8	II	41.7	Y	15.3	41.5
	18	56.8	II	42.9	Y	15.3	41.5
	19	56.8	II	44.2	Y	15.3	41.5
	20	56.8	II	45.3	Z	16.1	40.7
	21	56.8	II	46.5	Z	16.1	40.7
	22	-	-	-	-	-	-
	23	56.8	II	49.2	Z	16.1	40.7
	24	56.8	II	50.2	Z	16.1	40.7
	25	56.7	II	51.1	Z	16.1	40.6
	26	56.7	II	52.0	Z	16.1	40.6
	27	56.6	II	52.9	Z	16.1	40.5
	28	56.6	II	53.7	Z	16.1	40.5
	29	56.6	II	54.5	Z	16.1	40.5
	30	56.7	II	55.3	Z	16.1	40.6
	31	56.7	II	56.0	Z	16.1	40.6
	32	56.7	II	56.7	Z	16.1	40.6
	33	56.7	II	57.4	Z	16.1	40.6
	34	56.7	II	58.1	Z	16.1	40.6
	35	56.8	II	58.7	Z	16.1	40.7
	36	56.8	II	59.3	Z	16.1	40.7
	37	56.7	II	59.9	Z	16.1	40.6
	38	56.7	II	60.5	Z	16.1	40.6
	39	56.7	II	61.1	Z	16.1	40.6
	40	56.6	II	61.6	Z	16.1	40.5
	41	56.6	II	62.1	Z	16.1	40.5
	42	56.5	II	62.6	Z	16.1	40.4
	43	56.5	II	63.1	Z	16.1	40.4
	44	56.5	II	63.6	Z	16.1	40.4
	45	56.4	II	64.0	Z	16.1	40.3

Note:

Noise exceedance

Balcony type required

Inclination Angle Type X: the inclination angle is below 15°

Inclination Angle Type Y: the inclination angle is above 15° and below 45°

Inclination Angle Type Z: the inclination angle is above 45°

[1] Inclination angle is calculated from the source line of East Rail Line to the NSR. The position of noise source is set as the furthest track for conservative assessment.

[2] Acoustic Balcony Type I: with basic shell only (no additional treatment)
Acoustic Balcony Type II: with acoustic lining (wall and ceiling)
Acoustic Balcony Type IV: with acoustic lining (wall and ceiling) and projected inclined soild panel (designed as planter)

Appendix 5.6

Predicted $L_{eq(30mins)}$ for Residential Block (Mitigated Case)

Project no: 276006-12
Project name: Po Shek Wu Road, Sheung Shui
Title: Rail Noise Assessment Result Summary - Leq Night-time (Mitigated)

NSR	R103f	R105b	R110a	R110b	R111b	R111c	R112a	R112b	R113b	R113c	R114a	R114b	R115b	R115c	R116a	R123b
ASR	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
Criteria	45	45	45	45	45	45	45	45	45	45	45	45	45	45	50	50
45	-	-	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.4	40.4	40.4	40.5	-	-
44	-	-	40.4	40.3	40.4	40.4	40.3	40.3	40.4	40.4	40.4	40.4	40.5	40.5	-	-
43	-	-	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.5	40.6	-	-
42	-	-	40.4	40.4	40.4	40.4	40.4	40.4	40.5	40.5	40.5	40.5	40.6	40.6	-	-
41	-	-	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.6	40.7	-	-
40	-	-	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.6	40.6	40.7	40.7	-	-
39	-	-	40.6	40.5	40.6	40.6	40.5	40.5	40.6	40.6	40.6	40.7	40.7	40.8	-	-
38	-	-	40.6	40.6	40.6	40.6	40.5	40.5	40.6	40.6	40.7	40.7	40.8	40.8	-	-
37	-	-	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.7	40.7	40.8	40.8	-	-
36	-	-	40.7	40.6	40.7	40.7	40.6	40.6	40.7	40.7	40.7	40.7	40.8	40.8	-	-
35	-	-	40.7	40.7	40.7	40.7	40.7	40.7	40.7	40.7	40.8	40.8	40.9	40.9	-	-
34	-	-	40.6	40.6	40.6	40.6	40.6	40.6	40.7	40.8	40.8	40.8	40.9	41.0	-	-
33	-	-	40.6	40.6	40.6	40.6	40.6	40.7	40.7	40.8	40.8	40.9	41.0	41.0	-	-
32	-	-	40.6	40.6	40.6	40.6	40.6	40.7	40.7	40.7	40.8	40.9	41.0	41.0	-	-
31	-	-	40.6	40.6	40.6	40.6	40.6	40.7	40.7	40.7	40.8	40.8	41.0	41.1	-	-
30	-	-	40.6	40.6	40.6	40.6	40.6	40.7	40.7	40.7	40.8	40.8	41.0	41.0	-	-
29	-	-	40.5	40.5	40.5	40.5	40.5	40.6	40.7	40.7	40.8	40.8	41.0	41.0	-	-
28	-	-	40.5	40.5	40.5	40.5	40.5	40.5	40.6	40.7	40.8	40.8	40.9	41.0	-	-
27	-	-	40.5	40.5	40.5	40.5	40.5	40.5	40.6	40.6	40.7	40.8	40.9	41.0	-	-
26	-	-	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.7	40.8	40.9	41.0	-	-
25	-	-	40.6	40.6	40.6	40.6	40.6	40.7	40.7	40.7	40.8	40.8	40.9	41.0	-	-
24	-	-	40.7	40.6	40.7	40.7	40.7	40.7	40.7	40.7	40.8	40.8	41.0	41.1	-	-
23	-	-	40.6	40.6	40.7	40.7	40.7	40.7	40.7	40.8	40.8	40.9	41.0	41.1	-	-
22	REFUGE FLOOR (22/F)															
21	-	-	40.6	40.6	40.7	40.6	40.6	40.7	40.7	40.7	40.9	40.9	41.0	41.1	-	-
20	-	-	40.7	40.6	40.7	40.7	40.6	40.7	40.7	40.7	40.8	40.9	41.0	41.1	-	-
19	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	40.8	40.9	41.0	41.1	-	-
18	-	-	41.4	41.4	41.4	41.5	41.5	41.5	41.5	41.6	41.6	41.7	41.9	41.9	-	-
17	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.6	41.6	41.6	41.7	41.9	41.9	-	-
16	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.6	41.6	41.7	41.7	43.6	43.6	-	-
15	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.6	41.6	41.7	41.7	43.5	43.6	-	-
14	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.6	41.7	41.7	43.5	43.6	-	-
13	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.6	41.7	41.7	43.5	43.6	-	-
12	-	-	41.5	41.5	41.5	41.5	41.4	41.5	41.5	41.6	41.7	41.7	43.5	43.6	-	-
11	-	-	41.2	41.2	41.2	41.2	41.1	41.1	41.2	41.3	41.4	41.5	43.4	43.5	-	-
10	-	-	41.2	41.1	41.1	41.1	40.9	41.0	41.0	41.0	41.1	41.2	43.1	43.2	-	-
9	-	-	41.0	41.0	40.9	40.9	40.7	40.7	40.8	40.8	40.9	41.0	42.9	43.0	-	-
8	-	-	40.6	40.6	40.5	40.5	40.3	40.4	40.4	40.5	40.6	40.7	42.7	42.7	-	-
7	-	-	40.2	40.2	-	-	-	-	-	-	40.2	40.3	42.2	42.4	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	41.8	41.9	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Min	-	-	40.2	40.2	40.3	40.3	40.3	40.3	40.3	40.3	40.2	40.3	40.4	40.5	-	-
Max	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.6	41.6	41.7	41.7	43.6	43.6	-	-

-	As there are no predicted exceedance in basecase scenario, no EAB3.0 are proposed
	Noise sensitive receivers with exceedance (≥70.5 dB(A))
X	Noise sensitive receivers applied with acoustic balcony (Type 1)
X	Noise sensitive receivers applied with acoustic balcony (Type 2)
X	Noise sensitive receivers applied with acoustic balcony (Type 4)

(These predicted noise levels are the equivalent noise levels at 1m from the external facade after accounting the reduction in noise levels inside the flat offered by the proposed acoustic balcony)

Project no: 276006-12
Project name: Po Shek Wu Road, Sheung Shui
Title: Rail Noise Assessment Result Summary - Leq Night-time (Mitigated)

NSR	R201a	R204f	R205a	R212d	R213a	R213b	R214b	R214c	R215a	R215b	R216b	R216c	R217a	R217b	R218b	R218c	R223c
ASR	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Criteria	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
45	-	-	-	-	40.4	40.4	40.3	40.4	40.3	40.3	40.3	40.3	40.3	40.3	40.4	40.3	-
44	-	-	-	-	40.4	40.4	40.4	40.4	40.4	40.4	40.3	40.3	40.4	40.4	40.4	40.4	-
43	-	-	-	-	40.5	40.5	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	40.4	-
42	-	-	-	-	40.5	40.5	40.5	40.5	40.5	40.4	40.4	40.4	40.4	40.4	40.4	40.4	-
41	-	-	-	-	40.5	40.6	40.5	40.5	40.5	40.5	40.4	40.4	40.5	40.5	40.5	40.5	-
40	-	-	-	-	40.6	40.6	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	40.5	-
39	-	-	-	-	40.6	40.6	40.6	40.6	40.6	40.5	40.5	40.5	40.6	40.6	40.6	40.6	-
38	-	-	-	-	40.7	40.7	40.6	40.6	40.6	40.6	40.5	40.5	40.6	40.6	40.6	40.6	-
37	-	-	-	-	40.7	40.7	40.7	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	-
36	-	-	-	-	40.7	40.7	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.7	40.7	-
35	-	-	-	-	40.7	40.7	40.7	40.7	40.7	40.7	40.6	40.6	40.7	40.7	40.7	40.7	-
34	-	-	-	-	40.8	40.8	40.7	40.7	40.7	40.7	40.6	40.6	40.6	40.6	40.6	40.6	-
33	-	-	-	-	40.8	40.8	40.7	40.7	40.7	40.7	40.6	40.6	40.6	40.6	40.7	40.6	-
32	-	-	-	-	40.8	40.8	40.7	40.7	40.7	40.6	40.6	40.6	40.6	40.6	40.6	40.6	-
31	-	-	-	-	40.8	40.8	40.7	40.7	40.6	40.6	40.6	40.5	40.6	40.6	40.6	40.6	-
30	-	-	-	-	40.8	40.8	40.7	40.6	40.6	40.6	40.5	40.5	40.6	40.6	40.6	40.6	-
29	-	-	-	-	40.7	40.7	40.6	40.6	40.6	40.6	40.5	40.5	40.5	40.5	40.5	40.5	-
28	-	-	-	-	40.7	40.7	40.6	40.6	40.5	40.5	40.5	40.4	40.5	40.5	40.5	40.5	-
27	-	-	-	-	40.7	40.6	40.5	40.6	40.5	40.5	40.5	40.5	40.5	40.5	40.6	40.5	-
26	-	-	-	-	40.6	40.6	40.6	40.6	40.6	40.5	40.5	40.6	40.6	40.6	40.6	40.6	-
25	-	-	-	-	40.7	40.7	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	40.6	-
24	-	-	-	-	40.7	40.7	40.6	40.6	40.6	40.6	40.6	40.6	40.7	40.6	40.7	40.7	-
23	-	-	-	-	40.8	40.8	40.6	40.6	40.6	40.6	40.6	40.6	40.7	40.7	40.7	40.7	-
22	REFUGE FLOOR (22/F)																
21	-	-	-	-	40.7	40.7	40.7	40.7	40.6	40.6	40.6	40.6	40.6	40.6	40.7	40.7	-
20	-	-	-	-	40.7	40.7	40.7	40.7	40.6	40.6	40.6	40.6	40.7	40.7	40.7	40.7	-
19	-	-	-	-	40.7	40.7	40.7	40.6	40.6	41.4	41.4	41.4	41.5	41.5	41.5	41.5	-
18	-	-	-	-	41.5	41.5	41.5	41.5	41.4	41.4	41.4	41.4	41.5	41.5	41.5	41.5	-
17	-	-	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.4	41.5	41.5	41.5	41.5	-
16	-	-	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.4	41.5	41.5	41.5	41.5	-
15	-	-	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.4	41.4	41.5	41.5	41.5	41.5	-
14	-	-	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.6	41.6	41.6	-
13	-	-	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.6	41.6	41.6	41.6	-
12	-	-	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.6	41.5	-
11	-	-	-	-	41.5	41.5	41.5	41.5	41.4	41.4	41.4	41.4	41.4	41.4	41.4	41.4	-
10	-	-	-	-	41.4	41.4	41.4	41.4	41.3	41.4	41.4	41.3	41.3	41.3	41.3	41.3	-
9	-	-	-	-	41.3	41.3	41.3	41.3	41.3	41.3	41.2	41.2	41.2	41.2	41.2	41.2	-
8	-	-	-	-	41.2	41.2	41.1	41.1	41.0	41.0	40.9	40.9	40.9	40.9	40.8	40.8	-
7	-	-	-	-	40.8	40.8	40.7	40.7	40.7	40.6	40.5	40.5	40.6	40.5	40.5	40.4	-
6	-	-	-	-	40.4	40.3	40.3	40.2	40.2	40.1	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Min	-	-	-	-	40.4	40.3	40.3	40.2	40.2	40.1	40.3	40.3	40.3	40.3	40.4	40.3	-
Max	-	-	-	-	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.5	41.6	41.6	41.6	41.6	-

-	As there are no predicted exceedance in basecase scenario, no EAB3.0 are proposed
	Noise sensitive receivers with exceedance (≥70.5 dB(A))
X	Noise sensitive receivers applied with acoustic balcony (Type 1)
X	Noise sensitive receivers applied with acoustic balcony (Type 2)
X	Noise sensitive receivers applied with acoustic balcony (Type 4)

(These predicted noise levels are the equivalent noise levels at 1m from the external facade after accounting the reduction in noise levels inside the flat offered by the proposed acoustic balcony)

Appendix 5.7

Predicted L_{max} for Residential Block

Project no: 276006-12
Project name: Po Shek Wu Road, Sheung Shui
Title: Rail Noise Assessment Result Summary - Lmax Daytime & Evening

Day

NSR	R103f	R105b	R110a	R110b	R111b	R111c	R112a	R112b	R113b	R113c	R114a	R114b	R115b	R115c	R116a	R123b
ASR	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C
Criteria	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
45	73.5	73.4	75.1	75.1	75.1	75.1	75.5	75.6	75.7	75.7	75.7	75.9	75.9	76	73.6	74.2
44	73.5	73.5	75.2	75.2	75.2	75.2	75.6	75.7	75.8	75.8	75.8	76	76	76.1	73.7	74.2
43	73.6	73.6	75.3	75.3	75.3	75.3	75.7	75.8	75.9	75.9	75.9	76.1	76.1	76.2	73.8	74.3
42	73.7	73.6	75.4	75.4	75.4	75.4	75.8	75.9	75.9	76	76	76.2	76.2	76.3	73.8	74.4
41	73.7	73.7	75.5	75.5	75.5	75.5	75.9	76	76	76.1	76.1	76.3	76.4	76.4	73.9	74.4
40	73.8	73.8	75.6	75.6	75.6	75.6	76	76.1	76.1	76.2	76.2	76.4	76.5	76.5	73.9	74.5
39	73.9	73.9	75.7	75.7	75.7	75.7	76.1	76.2	76.3	76.3	76.3	76.5	76.6	76.6	74	74.6
38	74	73.9	75.8	75.8	75.8	75.8	76.2	76.3	76.4	76.4	76.5	76.6	76.7	76.7	74.1	74.6
37	74	74	75.9	75.9	75.9	75.9	76.3	76.4	76.5	76.5	76.6	76.7	76.8	76.8	74.1	74.7
36	74.1	74.1	76	76	76	76	76.4	76.5	76.6	76.6	76.7	76.8	76.9	76.9	74.2	74.8
35	74.2	74.1	76.1	76.1	76.1	76.1	76.5	76.6	76.7	76.7	76.8	76.9	77	77.1	74.2	74.8
34	74.2	74.2	76.3	76.3	76.3	76.3	76.6	76.7	76.8	76.8	76.9	77	77.1	77.2	74.3	74.9
33	74.3	74.3	76.4	76.4	76.4	76.4	76.7	76.8	76.9	76.9	77	77.2	77.3	77.3	74.3	75
32	74.4	74.3	76.5	76.5	76.5	76.5	76.8	76.9	77	77	77.1	77.3	77.4	77.4	74.4	75
31	74.4	74.4	76.6	76.6	76.6	76.6	76.9	77	77.1	77.2	77.2	77.4	77.5	77.5	74.5	75.1
30	74.5	74.5	76.7	76.7	76.7	76.7	77	77.1	77.2	77.3	77.3	77.5	77.6	77.7	74.5	75.2
29	74.6	74.5	76.8	76.8	76.8	76.8	77.1	77.2	77.3	77.4	77.5	77.6	77.7	77.8	74.6	75.2
28	74.7	74.6	77	77	77	77	77.2	77.3	77.4	77.5	77.6	77.7	77.9	77.9	74.6	75.3
27	74.7	74.7	77.1	77.1	77.1	77.1	77.3	77.4	77.6	77.6	77.7	77.9	78	78	74.7	75.4
26	74.8	74.7	77.2	77.2	77.2	77.2	77.4	77.5	77.7	77.7	77.8	78	78.1	78.2	74.7	75.3
25	74.9	74.8	77.3	77.3	77.3	77.3	77.6	77.6	77.8	77.9	77.9	78.1	78.2	78.3	74.8	75.4
24	74.9	74.9	77.5	77.5	77.5	77.5	77.7	77.7	77.9	78	78.1	78.2	78.4	78.4	74.8	75.5
23	75	74.9	77.6	77.6	77.6	77.6	77.8	77.8	78	78.1	78.2	78.4	78.5	78.6	74.9	75.4
22	REFUGE FLOOR (22/F)															
21	75.2	75.1	77.9	77.9	77.9	77.9	78	78.1	78.3	78.4	78.5	78.7	78.9	78.9	75	75.4
20	75.3	75.2	78	78	78	78	78.2	78.2	78.4	78.5	78.6	78.8	79	79.1	75.1	75.3
19	75.4	75.2	78.2	78.2	78.2	78.2	78.3	78.3	78.5	78.6	78.7	78.9	79.1	79.2	75.1	75.3
18	75.3	75.2	78.3	78.3	78.3	78.3	78.4	78.5	78.7	78.8	78.9	79.1	79.3	79.3	75.1	75.2
17	75.1	75.2	78.4	78.4	78.4	78.4	78.5	78.6	78.8	78.9	79	79.2	79.4	79.5	75.2	75
16	74.9	75.2	78.6	78.6	78.6	78.5	78.6	78.7	78.9	79	79.1	79.3	79.5	79.6	75.2	74.9
15	74.4	75	78.7	78.7	78.7	78.7	78.7	78.8	79	79.1	79.2	79.4	79.7	79.7	75.2	74.6
14	73.8	74.7	78.8	78.8	78.8	78.8	78.8	78.9	79.1	79.2	79.4	79.6	79.8	79.9	75.2	74.4
13	73	74.2	78.9	78.9	78.9	78.9	78.9	79	79.2	79.3	79.5	79.7	79.9	80	75.2	74.1
12	72.1	73.5	79	79	79	79	79	79.1	79.3	79.4	79.6	79.8	80	80.2	75.1	73.9
11	71.1	72.6	79.2	79.2	79.2	79.2	79.1	79.2	79.4	79.5	79.7	79.9	80.2	80.3	74.9	73.6
10	70.3	71.5	79.3	79.3	79.3	79.3	79.1	79.3	79.5	79.7	79.8	80	80.3	80.4	74.8	73.3
9	70	70.6	79.4	79.4	79.4	79.4	79.2	79.3	79.6	79.8	79.9	80.1	80.4	80.5	74.5	73
8	69.7	69.9	79.3	79.3	79.3	79.3	79.3	79.4	79.7	79.9	80	80.2	80.5	80.7	74.2	72.5
7	68.8	69.7	79.1	79.1	79.1	79.1	79.3	79.5	79.8	79.9	80.1	80.4	80.6	80.8	73.8	72.4
6	67.7	68.9	78.4	78.4	78.4	78.4	78.7	79.6	79.9	80	80.2	80.4	80.8	80.9	73.4	72.3
5	66.6	67.9	77.1	77.1	77.1	77	77.4	79.4	80	80.1	80.3	80.5	80.9	81	73	72.4
4	65.7	66.7	75.3	75.2	75	74.9	75.5	76.8	78.7	79.1	79.5	79.8	80.8	81.1	72.7	72.4

Min	65.7	66.7	75.2	75.2	75	74.9	75.5	75.7	75.8	75.8	75.8	76	76	76.1	72.7	72.3
Max	75.4	75.2	79.4	79.4	79.4	79.4	79.3	79.6	80	80.1	80.3	80.5	80.9	81.1	75.2	75.5

Project no: 276006-12
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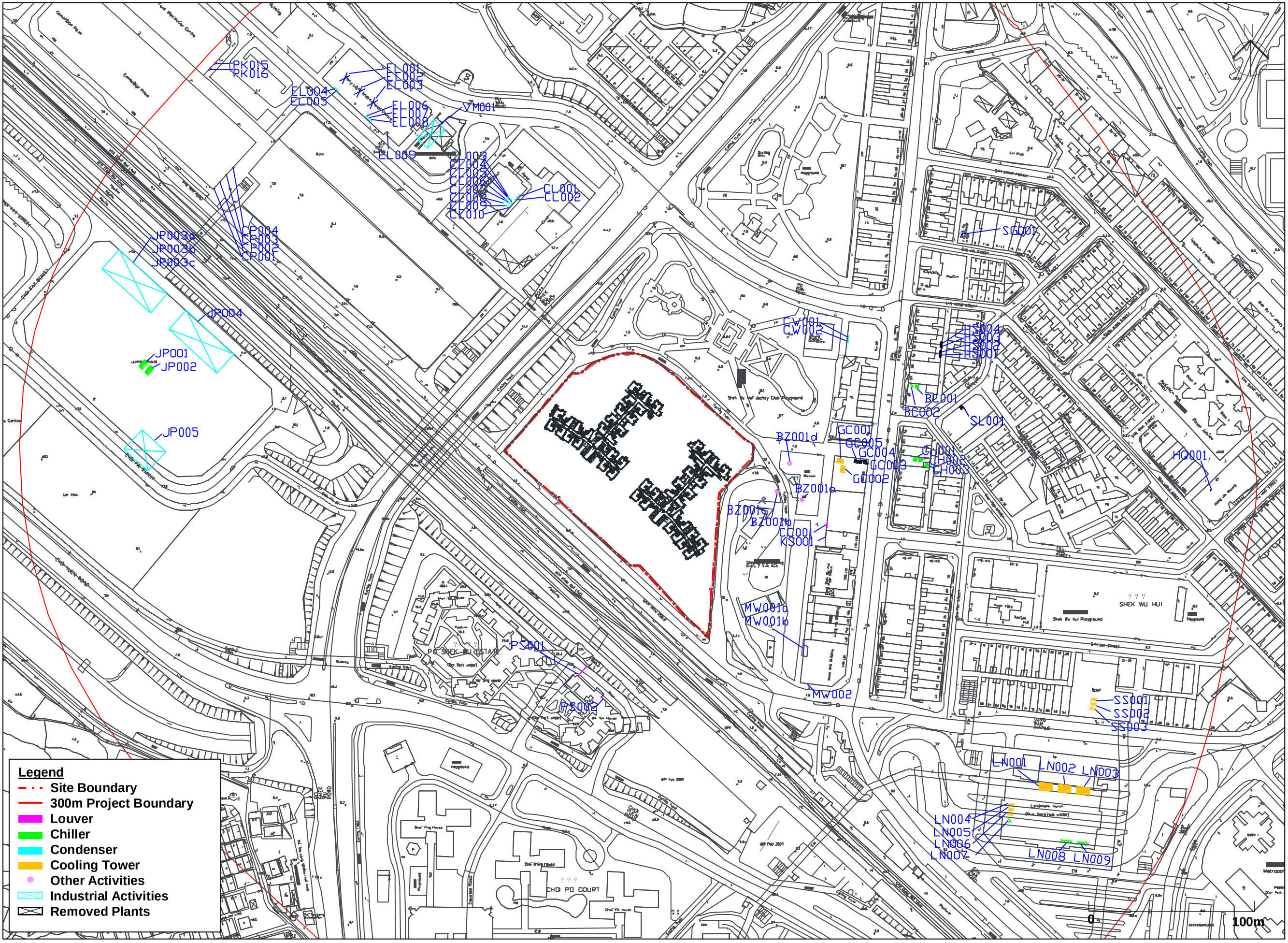
Day

NSR	R201a	R204f	R205a	R212d	R213a	R213b	R214b	R214c	R215a	R215b	R216b	R216c	R217a	R217b	R218b	R218c	R223c
ASR	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Criteria	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
45	73.5	73.1	72.6	73.7	75.2	75.2	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	72.9
44	73.6	73.2	72.7	73.8	75.3	75.3	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	73
43	73.6	73.2	72.7	73.9	75.4	75.4	75.3	75.3	75.3	75.3	75.3	75.3	75.3	75.3	75.3	75.3	73
42	73.7	73.3	72.8	73.9	75.5	75.5	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	75.4	72.9
41	73.8	73.4	72.8	74	75.6	75.6	75.6	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	73
40	73.9	73.4	72.9	74.1	75.7	75.7	75.7	75.7	75.6	75.6	75.6	75.6	75.6	75.6	75.6	75.6	73
39	73.9	73.5	72.9	74.2	75.8	75.8	75.8	75.8	75.8	75.7	75.7	75.7	75.7	75.7	75.7	75.7	72.9
38	74	73.5	73	74.2	75.9	75.9	75.9	75.9	75.9	75.9	75.8	75.8	75.8	75.8	75.8	75.8	72.9
37	74.1	73.6	73.1	74.3	76	76	76	76	76	76	75.9	75.9	75.9	75.9	75.9	75.9	72.9
36	74.1	73.7	73.1	74.4	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76	76	76	76	76	72.9
35	74.2	73.7	73.2	74.5	76.3	76.2	76.2	76.2	76.2	76.2	76.2	76.2	76.1	76.1	76.1	76.1	72.7
34	74.3	73.8	73.2	74.5	76.4	76.4	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	76.3	72.7
33	74.4	73.9	73.3	74.6	76.5	76.5	76.5	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4	76.4	72.7
32	74.4	73.9	73.3	74.7	76.6	76.6	76.6	76.6	76.6	76.5	76.5	76.5	76.5	76.5	76.5	76.5	72.5
31	74.5	74	73.4	74.8	76.7	76.7	76.7	76.7	76.7	76.7	76.6	76.6	76.6	76.6	76.6	76.6	72.5
30	74.6	74	73.4	74.8	76.9	76.8	76.8	76.8	76.8	76.8	76.7	76.7	76.7	76.7	76.7	76.7	72.3
29	74.6	74.1	73.5	74.9	77	77	76.9	76.9	76.9	76.9	76.9	76.9	76.8	76.8	76.8	76.8	72.2
28	74.7	74.2	73.5	75	77.1	77.1	77.1	77.1	77	77	77	77	77	77	77	77	72.2
27	74.8	74.2	73.6	75	77.2	77.2	77.2	77.2	77.2	77.1	77.1	77.1	77.1	77.1	77.1	77.1	72
26	74.8	74.3	73.6	75.1	77.4	77.4	77.3	77.3	77.3	77.3	77.2	77.2	77.2	77.2	77.2	77.2	72
25	74.9	74.3	73.7	75.2	77.5	77.5	77.4	77.4	77.4	77.4	77.4	77.4	77.3	77.3	77.3	77.3	71.9
24	75	74.4	73.7	75.3	77.6	77.6	77.6	77.6	77.5	77.5	77.5	77.5	77.5	77.5	77.5	77.5	71.8
23	75	74.5	74.2	75.3	77.8	77.7	77.7	77.7	77.7	77.7	77.6	77.6	77.6	77.6	77.6	77.6	71.8
22	REFUGE FLOOR (22/F)																
21	75.2	74.7	74.1	75.5	78.1	78.1	78.1	78	78	78	78	77.9	77.9	77.9	77.9	77.9	71.8
20	75.4	74.6	73.9	75.6	78.2	78.2	78.2	78.2	78.1	78.1	78.1	78.1	78	78.1	78	78	71.8
19	75.4	74.4	73.8	75.6	78.4	78.4	78.3	78.3	78.3	78.3	78.2	78.2	78.2	78.2	78.2	78.2	71.9
18	75.4	74.1	73.4	75.7	78.5	78.5	78.5	78.4	78.4	78.4	78.3	78.3	78.3	78.3	78.3	78.3	71.9
17	75.2	73.6	73	75.8	78.7	78.6	78.6	78.6	78.5	78.5	78.5	78.5	78.4	78.4	78.4	78.4	72
16	75	72.9	72.6	75.8	78.8	78.8	78.7	78.7	78.7	78.7	78.6	78.6	78.6	78.6	78.6	78.6	72
15	74.6	72.8	72.7	75.8	78.9	78.9	78.9	78.8	78.8	78.8	78.7	78.7	78.7	78.7	78.7	78.7	71.9
14	73.9	72.8	72.7	75.7	79.1	79	79	79	78.9	78.9	78.9	78.8	78.8	78.8	78.8	78.8	71.4
13	73.1	72.9	72.7	75.6	79.2	79.2	79.1	79.1	79.1	79	79	79	78.9	78.9	78.9	78.9	71.1
12	72.3	72.9	72.7	75.1	79.3	79.3	79.2	79.2	79.2	79.2	79.1	79.1	79.1	79.1	79.1	79.1	70.7
11	71.2	72.9	72.7	74.6	79.5	79.4	79.4	79.3	79.3	79.3	79.2	79.2	79.2	79.2	79.2	79.2	70.3
10	70.4	72.9	72.7	74.3	79.6	79.6	79.5	79.5	79.4	79.4	79.3	79.3	79.3	79.3	79.3	79.3	69.9
9	70.1	72.9	72.8	74.3	79.7	79.7	79.6	79.6	79.6	79.5	79.5	79.4	79.4	79.4	79.4	79.4	69.4
8	69.7	72.9	72.8	74.4	79.7	79.7	79.6	79.6	79.5	79.5	79.5	79.3	79.3	79.3	79.3	79.3	69.1
7	68.8	73	72.8	74.4	79.7	79.6	79.4	79.4	79.4	79.3	79.2	79.1	79.1	79.1	79.1	79.1	68.7
6	67.8	73	72.8	74.4	79.2	79.1	79	78.9	78.8	78.8	78.6	78.4	78.4	78.4	78.4	78.4	67.8
5	66.8	73	72.8	74.4	78.1	78	77.9	77.8	77.7	77.6	77.4	77.2	77.1	77.1	77.2	77.1	66.9
4	65.8	73	72.8	74.4	76.5	76.5	76.4	76.3	76.2	76.1	75.8	75.7	75.5	75.6	75.6	75.6	66

Min	65.8	72.8	72.6	73.7	75.2	75.2	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	66
Max	75.4	74.7	74.2	75.8	79.7	79.7	79.6	79.6	79.6	79.5	79.5	79.4	79.4	79.4	79.4	79.4	73

Appendix 6.1

Site Survey Record for Identified Fixed Noise Sources


PK015
PK016
EL004
EL005
EL001
EL002
EL003
EL006
EL007
EL008
EL009
VM001
CL003
CL004
CL005
CL006
CL007
CL008
CL009
CL010
CL001
CL002
JP003a
JP003b
JP003c
CP004
CP003
CP002
CP001
JP004
JP001
JP002
JP005
CW001
CW002
SG001
HH004
HH003
HH002
HH001
BC001
BC002
SL001
HQ001
GC001
GC005
GC004
GC003
GC002
CH001
CH002
CH003
BZ001d
BZ001a
BZ001c
BZ001b
CC001
KS001
MW001c
MW001b
MW002
PS001
PS002
SS001
SS002
SS003
LN001
LN002
LN003
LN004
LN005
LN006
LN007
LN008
LN009
PO SHEK WU ESTATE
SHEK WU HUI
CHOI PO COURT
Legend
Site Boundary
300m Project Boundary
Louver
Chiller
Condenser
Cooling Tower
Other Activities
Industrial Activities
Removed Plants
0
100m

Noise Source ID: EL001-008

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Early Light International Centre (旭日國際中心)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 2 Aug 2018 10 Aug 2018 16 Dec 2021 10 Jan 2024	Office / Warehouse	• Chiller on rooftop (x3) • Condenser on rooftop (x5)	• As advised by property management office, site access was not allowed. • No nighttime building operation as advised by the operator and verified by nighttime site visit.

Noise Source ID: EL009

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Early Light International Centre (旭日國際中心)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 2 Aug 2018 10 Aug 2018 16 Dec 2021 10 Jan 2024	Office / Warehouse	• Louvers on facade (x2)	• 2 louvers on facade facing Ka Fu Close operated during daytime only. • No nighttime building operation as advised by the operators and verified by nighttime site visit.

Noise Source ID: VM001

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Sheung Shui Vegetable Marketing & Credit Co-operative Society (上水蔬菜合作社)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 2 Aug 2018 10 Aug 2018 16 Dec 2021 4 Jan 2024 10 Jan 2024	Vegetable trading	• Loading and unloading on G/F	• Based on the site observation and advised by operator, goods loading and unloading activity was conducted during daytime (0700-0730) only. No nighttime operation as advised by the operators and verified by nighttime visit.

Noise Source ID: CL001-010

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
CLP North Region Office / Sheung Shui Depot (中華電力有限公司北區辦事處 / 上水運作中心)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 2 Aug 2018 10 Aug 2018 16 Dec 2021 4 Jan 2024	Office	• Condensers on rooftop (x10)	• Based on the site observation and confirmed by the CLP officer, the condensers operated during 09:00-19:00. • Condensers CL002 and CL009 were identified in operation during site visit.

Noise Source ID: JP001-002

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Jumbo Plaza – Building rooftop (珍寶廣場 – 天台)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 2 Aug 2018 10 Aug 2018 16 Dec 2021 10 Jan 2024	Workshop / Warehouse	• Chillers on rooftop (x2)	• Based on the site observation, only one of the chillers (JP002) on rooftop was in operation during daytime. • No night-time operation was advised by the property management officer and verified by night-time site visit. • The roof of Jumbo Plaza was being used for the storage of cars for sale, but not for public parking. Based on site observation, there was no major operation on the roof. Therefore, it is not considered as fixed noise sources.

Noise Source ID: JP003-005

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Jumbo Plaza (珍寶廣場)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 2 Aug 2018 10 Aug 2018 16 Dec 2021 10 Jan 2024	Workshop / Warehouse	• Scania (Repairing workshop for heavy vehicles on G/F) • Vannex (Recycling workshop on G/F) • Warehouse on G/F	• Based on the site observation and as advised by operator, the opening hour of Scania workshop is 08:30-19:00. (No night-time operation) • Vehicle repairing activities were observed. The approximate operation time (within 30 min.) of the following equipment/activities are as follows: - Air gun: ~30 s. - Electric screwing machine: ~30 s. - Hammering: ~30 s. • Based on the site observation, the opening hour of Vannex workshop is 09:30-17:30 (No night-time operation) • Based on the site observation, the opening hour of Warehouse is 0930-17:30 (No night-time operation) • No major activities were observed during the latest site visit on 10 Jan 2024 but the workshop nature remains unchanged.


JP003a – 003c


JP004

JP005

Noise Source ID: PK015-016

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Park'n Shop Sheung Shui Fresh Food Distribution Centre (上水百佳新鮮食品分發中心)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 2 Aug 2018 10 Aug 2018 16 Dec 2021 10 Jan 2024	Warehouse	• Louvers on facade (x2)	• Based on the site observation as advised by property management officer, there is 24 hours operation for louvers.

Noise Source ID: CP001-004

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Cambridge Plaza (劍橋廣場)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 2 Aug 2018 10 Aug 2018 16 Dec 2021 10 Jan 2024	Industrial	• Exhaust fans on facade (x4)	• Based on the site observation, 3 exhaust fans (CP001-003) operated during daytime and night-time. • No operation was observed for CP004.

Noise Source ID: BC001-002

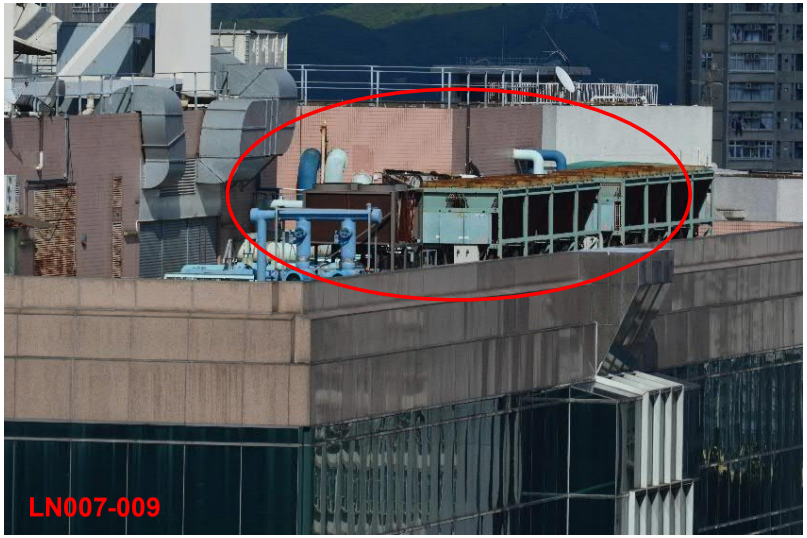
Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Bank of China (Hong Kong) Sheung Shui Branch (中國銀行(香港)上水分行)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 23 Aug 2016 12 Sep 2016 30 Sep 2016 2 Aug 2018 10 Aug 2018 16 Dec 2021	Commercial	• Chillers on rooftop (x2)	• Access not allowed. • No night-time business operation was observed during site visit. • The 2 chillers operated during daytime only.

Noise Source ID: CW001-002

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Chuen Wo Building (全和大樓)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 23 Aug 2016 08 Sep 2016 12 Sep 2016 30 Sep 2016 2 Aug 2018 10 Aug 2018 16 Dec 2021	Commercial on ground floor	• Condensers on facade (x2)	• No night-time operation was observed during site visit. • The 2 condensers operated during daytime only.

Noise Source ID: LN001-009

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Landmark North (上水廣場)	23 Aug 2016 08 Sep 2016 12 Sep 2016 30 Sep 2016 2 Aug 2018 10 Aug 2018 16 Dec 2021	Shopping mall	• Cooling towers on rooftop (x6) • Chillers on rooftop (x3)	• Access not allowed. • No night-time operation was confirmed by property management officer.



Noise Source ID: SG001

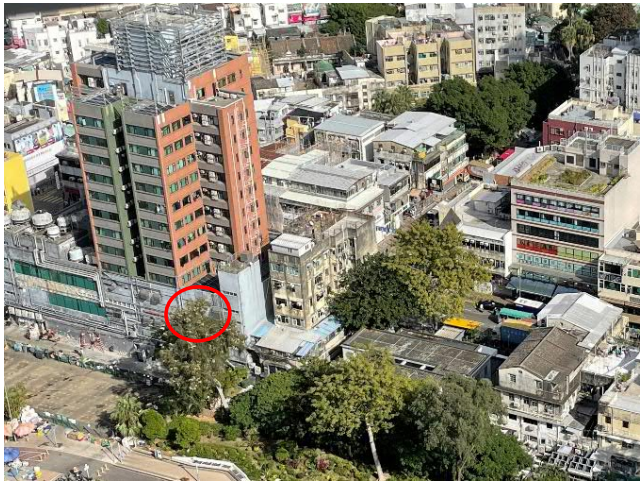
Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Shek Wu Hui Gospel Hall (石湖墟福音堂)	08 Sep 2016 12 Sep 2016 30 Sep 2016 2 Aug 2018 10 Aug 2018 16 Dec 2021	Church	• Chiller on rooftop	• Access not allowed. • No night-time operation as confirmed by gospel hall's staff.

Noise Source ID: SS001-003

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Sheung Shui Spot (上水匯)	23 Aug 2016 08 Sep 2016 12 Sep 2016 30 Sep 2016 2 Aug 2018 10 Aug 2018 16 Dec 2021	Shopping mall	• Cooling towers on rooftop (x3)	• Access not allowed • No night-time operation as confirmed by property management officer.

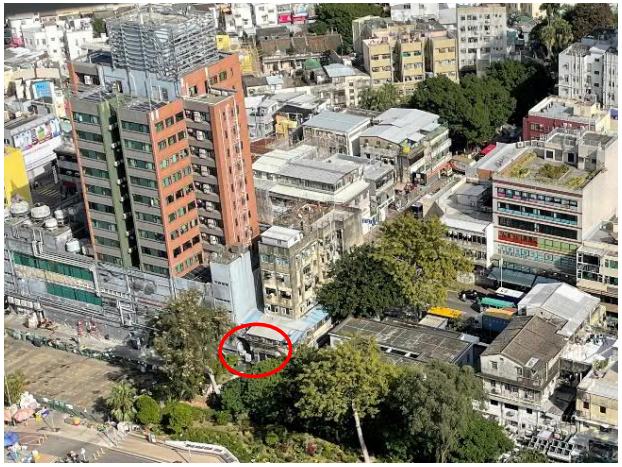
Noise Source ID: CC001

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Cheung Chi Hang Building (張知行大廈)	5 April 2017 2 Aug 2018 10 Aug 2018 16 Dec 2021 10 Jan 2022	Commercial	• Exhaust fans on facade (x2) • Condensers (x8)	• Based on site observation, the exhaust fans and condensers operated during daytime only. No night-time operation was observed.



Noise Source ID: KS001

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Kam Shing Building (金誠大廈)	16 Dec 2021 10 Jan 2022	Commercial	• Louvers on facade	• Based on site observation, the louvers operated during daytime only. No night-time operation was observed.



Noise Source ID: GC001-002

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Golden City Seafood Restaurant (金都海鮮酒家)	5 April 2017 2 Aug 2018 10 Aug 2018 16 Dec 2021	Commercial	• GC001-002: Cooling Towers on rooftop (x2) • GC003-005: Condensers on rooftop (x3) – no longer available	• During the site visit dated 16 Dec 2021, the 3 condensers (GC003-005) identified in Year 2017/2018 were removed. • For GC001-002, nighttime operation was observed during nighttime visit. During site visit on 16 Dec 2021, only GC001 was in operation during nighttime.

Photo Record in 2018:

Photo Record in 2021:

Noise Source ID: MW001a-001b

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Moon Wah Building (滿華大廈)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 23 Aug 2016 08 Sep 2016 12 Sep 2016 30 Sep 2016 2 Aug 2018 10 Aug 2018 16 Dec 2021 10 Jan 2022	Commercial	• Louvers, chillers/ cooling tower	• Nighttime operation was observed during nighttime visit.

Noise Source ID: MW002

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Moon Wah Building (滿華大廈)	16 Dec 2021 10 Jan 2022	Commercial	• Louver on facade	• No nighttime operation was observed during nighttime visit.

Noise Source ID: BZ001a-001d

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Shek Wu Hui Agricultural Produce Bazaar (石湖墟農產品分銷店)	23 Aug 2016 08 Sept 2016 12 Sept 2016 30 Sept 2016 20 Oct 2016 10 Nov 2016 5 April 2017 2 Aug 2018 10 Aug 2018 16 Dec 2021 28 Dec 2021 6 Jan 2022 10 Jan 2022	Market	• Loading and unloading • Pumper truck for fisheries stores • Pumper truck for street sweeping • Crowd noise	• The bazaar operation hours are from 6 am to 11am and FEHD street cleaning staff will start working from 11am to 12pm everyday. • Pumper truck operation was observed along with bazaar operation. • Pumper truck for street sweeping was observed after bazaar operation (only during daytime operation). As advised by the operator, the pumper truck will only be located at designated parking location.

Noise Source: CH001-003

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Chong Hing Bank(創興銀行上水分行)	2 Aug 2018 10 Aug 2018 16 Dec 2021	Commercial	• Condensers on rooftop (x3)	• No night-time operation was observed during site visit. • The 3 condensers operated during daytime only.

Noise Source: PS001-002

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Po Shek Wu Estate Retail and Restaurant (寶石湖邨商舖)	16 Dec 2021 18 Dec 2021 23 Dec 2021 28 Dec 2021	Retails	• Louver on facade	• New sources after occupation of Po Shek Wu Estate. • Night-time operation was observed for PS002 during site visit.

Noise Source ID: HS001-004 (Removed)

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Ex-Hang Seng Bank San Fung Avenue Branch (前恒生銀行新豐路分行)	6 Nov 2015 11 Nov 2015 12 Nov 2015 13 Nov 2015 17 Nov 2015 18 Nov 2015 19 Nov 2015 23 Nov 2015 27 Nov 2015 23 Aug 2016 08 Sep 2016 12 Sep 2016 30 Sep 2016 2 Aug 2018 10 Aug 2018 16 Dec 2021	Commercial on ground floor	Small condensers on facade (x4)	• During the site visit dated 16 Dec 2021, the condensers HS001 – HS002 and HS-003 – HS004 identified in Year 2015/16 were removed and replaced by 4 quiet and smaller condensers. No significant noise from the small condensers was observed.

Photo Record in Year 2016:

Photo Record in 2021:

Noise Source ID: SL001 (Removed)

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Shun Chung Lau (愼忠樓)	23 Aug 2016 08 Sep 2016 12 Sep 2016 30 Sep 2016 2 Aug 2018 10 Aug 2018 16 Dec 2021	Commercial	• Condenser on podium (x1)	• During the site visit dated 16 Dec 2021, the condenser SL001 identified in Year 2016 was removed.

Photo Record in Year 2016/2018:

Photo Record in 2021:

Noise Source: HQ001 (Removed)

Name	Date of observation	Type of industrial operation	Noisy activities /sources based on site observation and/or employees information	Site record and/or information provided by operators / employees
Hang Lok Square (行樂坊)	08 Sep 2016 12 Sep 2016 30 Sep 2016 2 Aug 2018 10 Aug 2018 16 Dec 2021	Shopping Mall	• Condenser on rooftop (x1)	• During the site visit dated 16 Dec 2021, the condenser HQ001 identified in Year 2016/2018 was removed and replaced by a quiet and smaller condenser. No significant noise from the small condenser was observed.

Photo Record in Year 2016/2018:

Photo Record in 2021:

Appendix 6.2

Measured Sound Pressure Level (SPL) for Fixed Noise Sources

Project: Po Shek Wu Road
Project number: 276006-12
Title: Inventory of Fixed Noise Sources

Source Location	Source Description	Source ID	Source Height, mPD	Max Measured SPL, dB(A)	Measured Distance (m)	Operation Period		Assumptions	Remarks
						Daytime	Nighttime		
Early Light International Centre	Chiller on rooftop	EL001	32.1	82.4	5	Y	N	Reference was made to the measured SPL for plant of similar type, size (LxWxH=~4mx2mx2m), number of fans (8 fans), nature (chiller) and scale from other HKHA project (i.e. HC006 in EAS for A20 Proposed Public Housing Development at Sheung Shui Area 30).	As advised by property management office, site access was not allowed. No nighttime building operation as advised by the operator and verified by nighttime site visit.
		EL002	32.1	82.4	5	Y	N		
		EL003	32.1	82.4	5	Y	N		
	Condenser on rooftop	EL004	32.1	61.6	3	Y	N	Reference was made to the measured SPL for plant of similar type , size (LxWxH=~2mx1mx1.5m), number of fans (2 fans), nature (condenser) and scale from previous PSW Road EAS report dated October 2018 for Scheme 7-B Option 15C.	
		EL005	32.1	61.6	3	Y	N		
		EL006	32.1	61.6	3	Y	N		
		EL007	32.1	61.6	3	Y	N		
		EL008	32.1	61.6	3	Y	N		
Early Light International Centre (Louver on facade)	Louvers on façade	EL009	16.1	63.3	5	Y	N	-	No nighttime building operation was advised by the operator and verified by nighttime site visit.
Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading on G/F	VM001	9.1	68.8	7	Y	N	-	No nighttime operation was advised by the operators and verified by nighttime visit.
CLP Region Office (Rooftop)	Condensers on rooftop	CL001	20.8	62.2	3	Y	N	Assume the same measured SPL as CL002 for plant of similar type, size (LxWxH=~2mx1mx2m), number of fans (2 fans), nature (condenser) and scale.	No nighttime operation was advised by the CLP officer. During site visit, only CL002 was in operation. Therefore, measurement was conducted for CL002.
		CL002	20.8	62.2	3	Y	N	-	
		CL003	20.8	61.7	2	Y	N	Assume the same measured SPL as CL009 for plant of similar type, size (LxWxH=~2mx1mx2m), number of fans (1 fan), nature (condenser) and scale.	No nighttime operation was confirmed by the CLP officer. During site visit, only CL009 was in operation. Therefore, measurement was conducted for CL009.
		CL004	20.8	61.7	2	Y	N		
		CL005	20.8	61.7	2	Y	N		
		CL006	20.8	61.7	2	Y	N		
		CL007	20.8	61.7	2	Y	N		
		CL008	20.8	61.7	2	Y	N		
		CL009	20.8	61.7	2	Y	N	-	
		CL010	20.8	61.7	2	Y	N	Assume the same measured SPL as CL009 for plant of similar type, size (LxWxH=~2mx1mx2m), number of fans (1 fan), nature (condenser) and scale.	
Jumbo Plaza (Rooftop)	Chillers on rooftop	JP001	27.6	80.5	7	Y	N	Assume the same measured SPL as JP002 for plant of similar type, size (LxWxH=~4mx2mx2m), number of fans (8 fans), nature (chiller) and scale.	No nighttime operation was confirmed by property management office and verified by nighttime visit. During site visit, only JP002 was in operation. Therefore, measurement was conducted for JP002.
		JP002	27.6	80.5	7	Y	N	-	
Jumbo Plaza (Scania to San Wan Road)	Air gun	JP003a	7.6	67.6	10	Y	N	No major activities were observed during the latest site visit on 10 Jan 2024 but the workshop nature remains unchanged. Assume the same sound pressure level as conducted on 10 Aug 2018 for conservative assessment purpose. The approximate observed total operating time (within 30 mins) of the noise emitting activities is around 30s. 2 mins operating time is assumed for calculation for conservative assessment purpose.	No nighttime operation was advised by operators and verified by nighttime visit.
	Electric screwing machine	JP003b	7.6	88.6	5	Y	N		
	Hammering	JP003c	7.6	80.5	3	Y	N		
Jumbo Plaza (Vannex to San Wan Road)	Recycling works	JP004	7.6	68.7	3	Y	N	No major activities were observed during the latest site visit on 10 Jan 2024 but the workshop nature remains unchanged. Assume the same sound pressure level as conducted on 10 Aug 2018 for conservative assessment purpose.	No nighttime operation was advised by operators and verified by nighttime visit.
Jumbo Plaza (Warehouse to Choi Fai Street)	Loading and unloading	JP005	7.6	64.7	8	Y	N	No major activities were observed during the latest site visit on 10 Jan 2024 but the workshop nature remains unchanged. Assume the same sound pressure level as conducted on 10 Aug 2018 for conservative assessment purpose.	No nighttime operation was advised by operators and verified by nighttime visit.

Project: Po Shek Wu Road
Project number: 276006-12
Title: Inventory of Fixed Noise Sources

Source Location	Source Description	Source ID	Source Height, mPD	Max Measured SPL, dB(A)	Measured Distance (m)	Operation Period		Assumptions	Remarks
						Daytime	Nighttime		
Park'n Sheung Shui Fresh Food Distribution Centre	Louvers on façade	PK015	31.6	74.1	1	Y	Y	Reference was made to measured SPL for plant of similar type, size (LxW=~1mx1m), nature (louver) and scale from other HKHA project (i.e. PK019 in EAS for A20 Proposed Public Housing Development at Sheung Shui Area 30).	Nighttime operation confirmed by the engineering manager and verified by site visits.
		PK016	31.6	74.1	1	Y	Y		
Cambridge Plaza	Exhaust fans on façade	CP001	10.7	75.4	1	Y	Y	-	Nighttime operation was observed during nighttime visit.
		CP002	10.7	70.9	1	Y	Y	-	
		CP003	10.7	73.7	1	Y	Y	-	
		CP004	10.7	75.4	1	Y	Y	Assume the same measured SPL as CP001 for plant of similar type, size (LxW=~0.5mx0.5m), nature (exhaust fan) and scale.	
Bank of China (Rooftop)	Chillers on rooftop	BC001	19.7	61.7	7	Y	N	Measurement was conducted for BC001 and BC002 together. Assumed same measured SPL for plant of similar nature for conservative assessment.	No nighttime operation was observed during nighttime visit.
		BC002	19.7	61.7	7	Y	N		
Chuen Wo Building (Facade)	Condensers on façade	CW001	11.6	59.0	3	Y	N	-	No nighttime operation was observed during nighttime visit. During site visit, only CW001was in operation. Therefore, measurement was conducted for CW001.
		CW002	11.6	59.0	3	Y	N	Assume the same measured SPL as CW001 due to similar nature for plant of similar type, size (LxWxH=~1mx1mx1.5m), number of fans (1 fan), nature (condenser) and scale.	
Landmark North	Cooling Towers on rooftop	LN001	101.0	72.0	2	Y	N	Reference was made to measured SPL for plant of similar type, size (LxWxH=~7mx4mx6m), number of fans (1 fan), nature (cooling tower) and scale from other HKHA project (i.e. CHK01 in EAS for A1 Proposed Public Housing Development at On Muk Street).	Access not allowed. No nighttime operation was confirmed by property management office.
		LN002	101.0	72.0	2	Y	N		
		LN003	101.0	72.0	2	Y	N		
		LN004	101.0	72.0	2	Y	N		
		LN005	101.0	72.0	2	Y	N		
		LN006	101.0	72.0	2	Y	N		
	Chiller on rooftop	LN007	101.0	71.0	3	Y	N	Conservative reference was made from a 6-fan chiller in other HKHA projects, as no relevant data for 4-fan chiller is available. Reference was made to measured SPL for plant of similar type, size (LxWxH=~4mx2mx2m), number of fans (6 fans), nature (chiller) and scale from other HKHA project (i.e. COP01 in EAS for A1 Proposed Public Housing Development at On Muk Street).	
		LN008	101.0	75.0	2	Y	N	Reference was made to measured SPL for plant of similar type, size (LxWxH=~8mx2mx2m), number of fans (16 fans), nature (chiller) and scale from other HKHA project (i.e. COP06 in EAS for A1 Proposed Public Housing Development at On Muk Street).	
		LN009	101.0	75.0	2	Y	N		
Shek Wu Hui Gospel Hall (Rooftop)	Chillers on rooftop	SG001	32.2	80.5	7	Y	N	Reference was made to measured SPL for plant of similar type, size (LxWxH=~4mx2mx2m), number of fans (8 fans), nature (chillers) and scale, from other HKHA project (i.e. JP001 in EAS forA20 Proposed Public Housing Development at Sheung Shui Area 30).	Access not allowed. No nighttime operation was confirmed by hall's staff.
Sheung Shui Spot	Cooling Towers on rooftop	SS001	88.8	72.0	2	Y	N	Reference was made to measured SPL for plant of similar type, size (LxWxH=~7mx4mx6m), number of fans (1 fan), nature (cooling tower) and scale, from other HKHA project (i.e. CHK01 in EAS for A1 Proposed Public Housing Development at On Muk Street).	Access not allowed. No nighttime operation was confirmed by property management office.
		SS002	88.8	72.0	2	Y	N		
		SS003	88.8	72.0	2	Y	N		
Cheung Chi Hang Building	Exhaust fans on façade/ Condensers	CC001	13.7	65.2	3	Y	N	-	No nighttime operation was observed during nighttime visit.
Kam Shing Building	Louvers on façade	KS001	11.7	67.4	3	Y	N	-	No nighttime operation was observed during nighttime visit.
Golden City Seafood Restaurant	Cooling Towers on rooftop	GC001	25.7	52.3	10	Y	Y	-	Nighttime operation was observed during nighttime visit. During site visit, only GC001 was in operation during nighttime. Therefore, measurement was conducted for GC001.
		GC002	25.7	52.3	10	Y	Y	Assumed the same measured SPL as GC001 for plant of similar type, size (DxH = ~3mx2.5m & DxH = ~1.9mx2m), number of fans (2 fans), nature (cooling towers) and scale	

Project: Po Shek Wu Road
Project number: 276006-12
Title: Inventory of Fixed Noise Sources

Source Location	Source Description	Source ID	Source Height, mPD	Max Measured SPL, dB(A)	Measured Distance (m)	Operation Period		Assumptions	Remarks
						Daytime	Nighttime		
Moon Wah Building	Louvers, Chillers/Cooling Tower	MW001a	9.7	69.5	4	Y	Y	-	Nighttime operation was observed during nighttime visit.
		MW001b	9.7	71.1	3	Y	Y	-	
	Louver on façade	MW002	11.6	80.2	1	Y	N	-	No nighttime operation was observed during nighttime visit.
Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	BZ001a	7.8	66.5	3	Y	Y	-	Bazaar operation was observed from 6am to 11am.
	Pumper Truck for fisheries stores	BZ001b	7.5	70.5	2	Y	Y	-	Pumper truck operation was observed along with bazaar operation.
	Pumper Truck for street sweeping	BZ001c	7.5	81.1	4	Y	N	-	Pumper truck for street sweeping was observed after bazaar closed (i.e. 11am).
	Crowd noise	BZ001d	7.8	63.8	5	Y	Y	-	Bazaar operation was observed from 6am to 11am.
Chong Hing Bank	Condensers on rooftop	CH001	19.7	66.3	3	Y	N	Reference was made to the measured SPL for plant of similar type , size (LxWxH=~1mx1mx1.7m), number of fans (1 fan), nature (condenser) and scale, i.e. HQ001 from previous PSW Road EAS report dated October 2018 for Scheme 7-B Option 15C.	Access not allowed. No nighttime operation was observed during nighttime visit.
		CH002	19.7	66.3	3	Y	N		
		CH003	19.7	66.3	3	Y	N		
Po Shek Wu Estate	Louvers on façade	PS001	13.2	71.8	2	Y	N	-	No nighttime operation was observed during nighttime visit.
		PS002	13.2	55.3	2	Y	Y	-	Nighttime operation was observed during nighttime visit.

Appendix 6.3

Methodology and Assumptions for Fixed Noise Impact Assessment

Noise Measurement for Different Identified Noise Sources

1. Sound Pressure Level (SPL) from each fixed noise source was taken on site. The assumptions and details of noise measurement are summarized as follow:

Identified Noise Sources	**Assumptions / Details**
Early Light International Centre	● Point Sources ● Operation: Chillers and condensers on rooftop, and louvers on facade ● Operation Period: Daytime only (confirmed by operator and site visits)
Sheung Shui Vegetable Marketing & Credit Co-operative Society	● Point Source ● Operation: Loading and unloading at G/F ● Operation Period: Daytime only (confirmed by operator and site visits)
CLP Region Office/ Sheung Shui Depot	● Point Sources ● Operation: Condensers on rooftop ● Operation Period: Daytime only (confirmed by property management office and site visits)
Jumbo Plaza	● Point Sources ● Operation: Chillers on rooftop ● Operation Period: Daytime only (confirmed by operators and site visits)
Jumbo Plaza (Scania)	● Point Sources ● Operation: Air gun, electric screwing and hammering at G/F ● Operation Period: Daytime only (confirmed by operators and site visits)
Jumbo Plaza (Vannex)	● Point Source ● Operation: Recycling works at G/F ● Operation Period: Daytime only (confirmed by site visits)
Jumbo Plaza (Warehouse)	● Point Source ● Operation: Loading and unloading at G/F ● Operation Period: Daytime only (confirmed by site visits)
Park'n Shop Sheung Shui Fresh Food Distribution Centre	● Point Source ● Operation: Louvers on facade ● Operation Period: Daytime and Night-time (confirmed by property management office and site visits)
Cambridge Plaza	● Point Sources ● Operation: Exhaust fans on facade ● Operation Period: Daytime and Night-time (confirmed by operators and site visits)
Bank of China (Hong Kong) Sheung Shui Branch	● Point Sources ● Operation: Chillers on rooftop ● Operation Period: Daytime only (confirmed by site visits)

Identified Noise Sources	**Assumptions / Details**
Chuen Wo Building	● Point Sources ● Operation: Condensers on facade Operation Period: Daytime only (confirmed by site visits)
Landmark North	● Point Sources ● Operation: Cooling towers and chillers on rooftop Operation Period: Daytime only (confirmed by property management office)
Shek Wu Hui Gospel Hall	● Point Sources ● Operation: Chiller on rooftop ● Operation Period: Daytime only (confirmed by staffs)
Sheung Shui Spot	● Point Sources ● Operation: Exhaust fans on façade and condensers ● Operation Period: Daytime only (confirmed by property management office)
Cheung Chi Hang Building	● Point Sources ● Operation: Louvers on facade ● Operation Period: Daytime only (confirmed by site visits)
Kam Shing Building	● Point Sources ● Operation: Louvers on façade ● Operation Period: Daytime only (confirmed by visits)
Golden City Seafood Restaurant	● Point Sources ● Operation: Cooling towers on rooftop ● Operation Period: Daytime and Night-time (confirmed by site visits)
Moon Wah Building	● Point Sources ● Operation: Louvers, chillers/cooling towers on façade and louver on facade ● Operation Period: Daytime and Night-time (confirmed by site visits); one of the louvers operates Daytime only (confirmed by site visits)
Shek Wu Hui Agricultural Produce Bazaar	● Point Sources ● Operation: Loading and unloading, pumper trucks for fisheries stores in the bazaar and street sweeping and crowd noise ● Operation Period: Daytime and Night-time (confirmed by site visits); pumper truck for street sweeping does not have night-time operation (confirmed by site visits)
Chong Hing Bank	● Point Sources ● Operation: Condensers on rooftop ● Operation Period: Daytime only (confirmed by site visits)
Po Shek Wu Estate	● Point Sources ● Operation: Louvers on façade ● Operation Period: Daytime and Night-time (confirmed by site visits); one of the louvers operates Daytime only (confirmed by site visits)

Calculation of Predicted SPL at NSRs

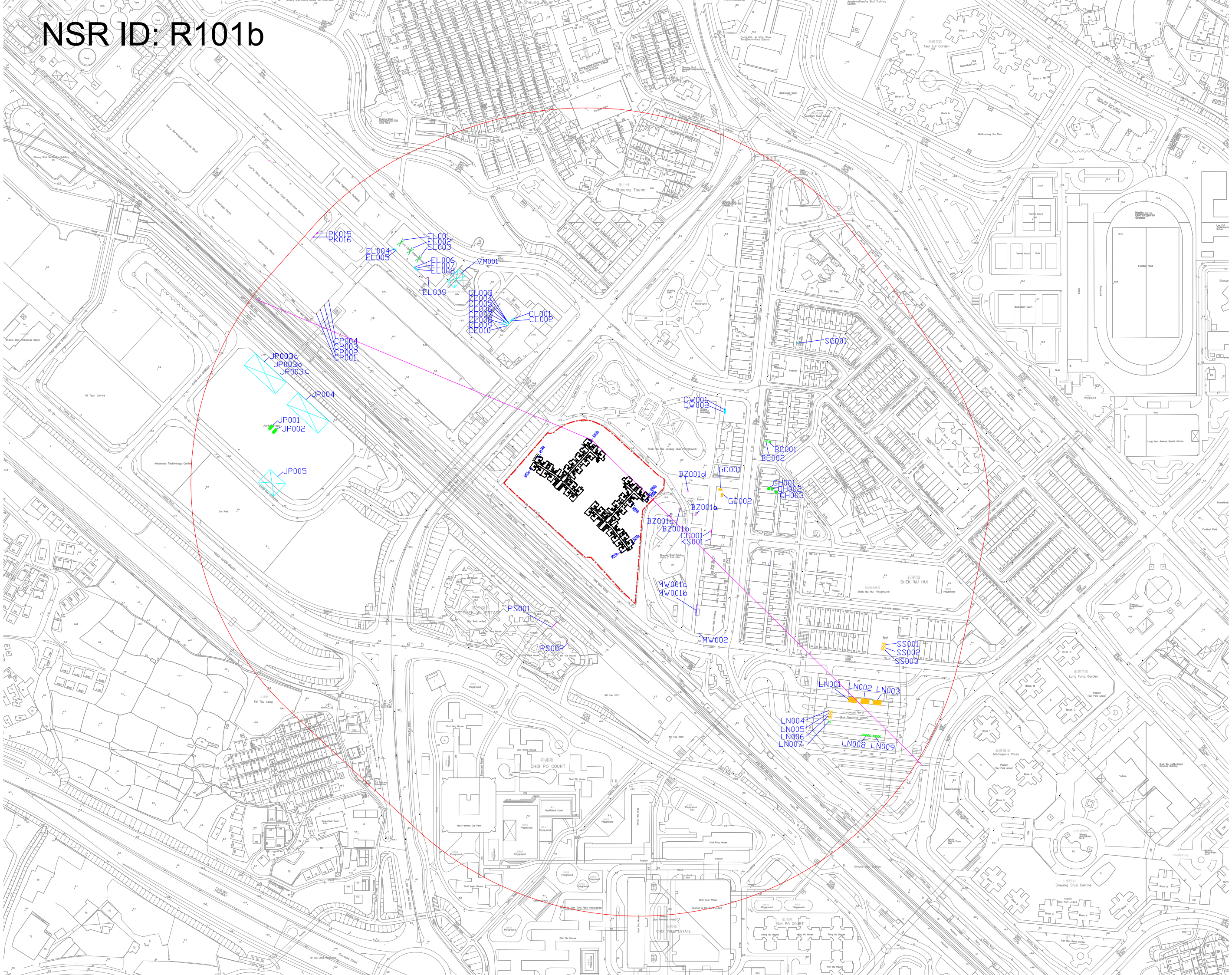
2. Predicted daytime and night-time SPLs at NSRs are corrected from the measured SPL with the following parameters:

Correction	Calculation / Assumption (dB(A))
Distance Correction	-[20 log (d / $d_{measure}$)] *where* d = shortest slant distance from NSR to center of noise source; and $d_{measure}$ = horizontal distance from measurement location to center of noise source
Time Correction	[10 log (t / 30)] *where* t = worst operating time of the noise source (mins) Only applied to operation activities of Jumbo Plaza (Scania)
Tonality Correction	Tonal character has been identified due to the operation of the street washing vehicle at the bazaar and a +6dB(A) correction has been applied. No tonal character has been identified for other sources.
Intermittency Correction	No intermittent character has been identified for all noise sources and therefore no correction has been applied.
Impulsiveness Correction	No impulsiveness character has been identified for all noise sources and therefore no correction has been applied.
Directivity Correction	During the fixed noise measurement for the sources with directional characteristics, such as louvres and exhaust fans, the microphone was pointed to the source directly (at 0^0). No reduction due to directivity has been applied for conservative assessment.
Facade Correction	+3dB(A)
Screening Effect Correction	-5 dB(A) screening correction is applied for partial screening.

Appendix 6.4

Calculation of Fixed Noise Levels at Receivers for Residential Blocks (Basecase Scenario)

NSR ID: R101b


PK015
PK016
EL004
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VM001
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JP003a
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PS001
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MW001a
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GC001
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CG001
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CW001
CW002
BC001
BC002
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SS001
SS002
SS003
LN001
LN002
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LN005
LN006
LN007
LN008
LN009
Po Sheung Tsuen
Shek Wu Hui Jockey Club Playground
SHEK WU HUI
PO SHEK WU ESTATE
CHOI PO COURT
CHOI YUEN ESTATE
YUK PO COURT
Sheung Shui Centre
Lung Fung Garden
Metropolis Plaza
Tsui Lot Garden
Hi Tech Centre
Advanced Technology Centre
Tai Tau Leng
Sheung Shui Ambulance Depot
Sheung Shui Jockey Club Kindergarten
Choi Yuen Phase
(Retail & Carpark Under)
Choi Ying House
Choi Ching House
Choi Pik House
Choi Nga House
Choi Wu House
Choi Ping House
Ching Wu House
Wing Wu House
Yuet Wu House
Hon Wu House
Lok Sin Tong Fung Kong Primary School
Lok Sin Tong Leung Kau Kui College
Tung Koo Lit Man Shek Composite School
Academy Sheung Shui Training Centre
Sheung Shui Government Offices
Sheung Shui Jockey Club Kindergarten
Sheung Shui Jockey Club Primary School
Sheung Shui Jockey Club Primary 5 Exit Hub
Sheung Shui Jockey Club Primary 6 Exit Hub
Sheung Shui Jockey Club Primary 7 Exit Hub
Sheung Shui Jockey Club Primary 8 Exit Hub
Sheung Shui Jockey Club Primary 9 Exit Hub
Sheung Shui Jockey Club Primary

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R101b**
NSR x coord:	**830967.2**
NSR y coord:	**840591.2**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	264	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	252	30	-	-34	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	241	30	-	-34	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	264	30	-	-39	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	262	30	-	-39	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	238	30	-	-38	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	236	30	-	-38	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	234	30	-	-38	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	222	30	-	-33	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	204	30	-	-29	-	3		43	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	139	30	-	-35	-	3		30	-	-
CL002			Y	N	62.2	2.5	830890	840706	21	139	30	-	-35	-	3		30	-	-
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	142	30	-	-40	-	3		25	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	140	30	-	-39	-	3		25	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	138	30	-	-39	-	3		25	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	142	30	-	-40	-	3		25	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	140	30	-	-39	-	3		25	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	141	30	-	-39	-	3		25	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	139	30	-	-39	-	3		25	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	137	30	-	-39	-	3		25	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	330	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	331	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	292	30	-	-49	-	3		29	29	-
CP002			Y	Y	70.9	1.0	830706	840716	11	290	30	-	-49	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	289	30	-	-49	-	3		27	27	-
CP004			Y	Y	75.4	1.0	830714	840725	11	287	30	-	-49	-	3		29	29	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	309	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	305	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	325	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	325	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	325	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	270	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	317	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	168	30	-	-28	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	172	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	133	30	-	-33	-	3		29	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	132	30	-	-33	-	3		29	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	174	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	193	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	214	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	361	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	361	30	-	-45	-	3		30	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	361	30	-	-45	-	3		30	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	361	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	361	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	361	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	361	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	393	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	401	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	220	30	-	-30	-	3		54	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	347	30	-	-45	-	3		30	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	348	30	-	-45	-	3		30	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	349	30	-	-45	-	3		30	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	146	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	150	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	133	30	-	-22	-	3		33	33	-
GC002			Y	Y	52.3	10.0	831092	840538	26	136	30	-	-23	-	3		33	33	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	126	30	-	-32	-	3		37	37	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	111	30	-	-35	-	3		39	39	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	107	30	-	-30	-	3	6	60	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	108	30	-	-27	-	3		40	40	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	177	30	-	-35	-	3		34	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	180	30	-	-36	-	3		34	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	185	30	-	-36	-	3		34	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	183	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	197	30	-	-	-	-		-	-	No line of sight.

Tonality	0	0
Total SPL	63	45
Criteria ANL	70	60
Exceedance	-	-

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R101b**
NSR x coord:	**830967.2**
NSR y coord:	**840591.2**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	265	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	253	30	-	-34	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	243	30	-	-34	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	265	30	-	-39	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	263	30	-	-39	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	239	30	-	-38	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	237	30	-	-38	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	236	30	-	-38	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	226	30	-	-33	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	209	30	-	-29	-	3		42	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	144	30	-	-35	-	3		30	-	-
CL002			Y	N	62.2	2.5	830890	840706	21	144	30	-	-35	-	3		30	-	-
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	147	30	-	-40	-	3		25	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	145	30	-	-40	-	3		25	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	143	30	-	-40	-	3		25	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	147	30	-	-40	-	3		25	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	145	30	-	-40	-	3		25	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	146	30	-	-40	-	3		25	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	144	30	-	-40	-	3		25	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	143	30	-	-40	-	3		25	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	332	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	332	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	295	30	-	-49	-	3		29	29	-
CP002			Y	Y	70.9	1.0	830706	840716	11	294	30	-	-49	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	292	30	-	-49	-	3		27	27	-
CP004			Y	Y	75.4	1.0	830714	840725	11	291	30	-	-49	-	3		29	29	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	310	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	307	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	328	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	328	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	328	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	274	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	320	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	173	30	-	-28	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	176	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	140	30	-	-33	-	3		29	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	140	30	-	-33	-	3		29	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	180	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	199	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	218	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	356	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	356	30	-	-45	-	3		30	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	356	30	-	-45	-	3		30	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	356	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	356	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	356	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	357	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	389	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	397	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	222	30	-	-30	-	3		53	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	343	30	-	-45	-	3		30	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	345	30	-	-45	-	3		30	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	346	30	-	-45	-	3		30	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	152	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	156	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	137	30	-	-23	-	3		33	33	-
GC002			Y	Y	52.3	10.0	831092	840538	26	140	30	-	-23	-	3		32	32	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	134	30	-	-33	-	3		37	37	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	120	30	-	-36	-	3		38	38	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	117	30	-	-30	-	3	6	60	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	117	30	-	-27	-	3		39	39	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	181	30	-	-36	-	3		34	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	184	30	-	-36	-	3		34	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	189	30	-	-36	-	3		33	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	188	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	202	30	-	-	-	-		-	-	No line of sight.

Tonality	0	0
Total SPL	62	44
Criteria ANL	70	60
Exceedance	-	-

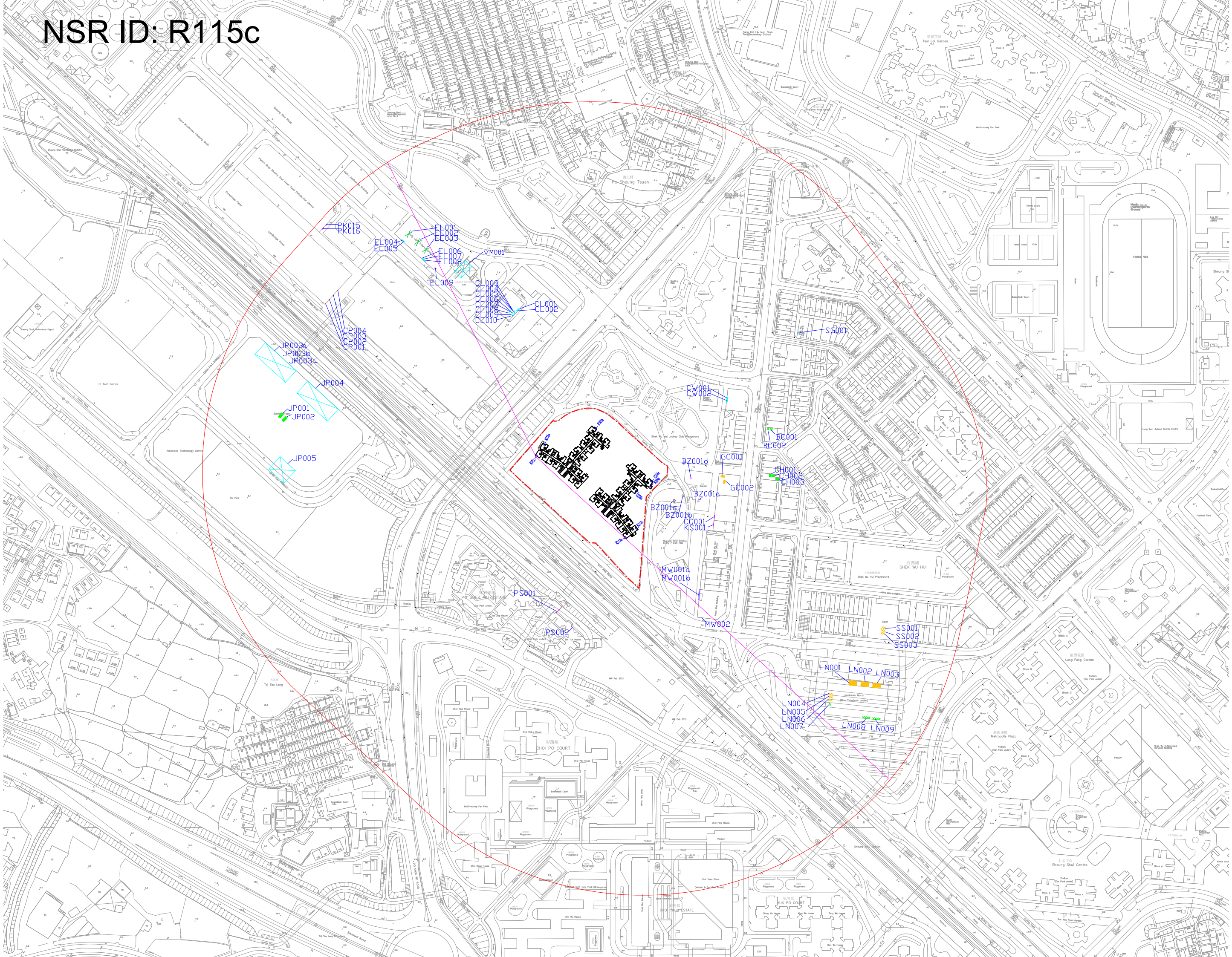
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R101b**
NSR x coord:	**830967.2**
NSR y coord:	**840591.2**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	270	30	-	-35	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	258	30	-	-34	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	247	30	-	-34	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	270	30	-	-39	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	268	30	-	-39	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	244	30	-	-38	-	3		26	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	242	30	-	-38	-	3		26	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	241	30	-	-38	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	233	30	-	-33	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	217	30	-	-30	-	3		42	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	154	30	-	-36	-	3		29	-	-
CL002			Y	N	62.2	2.5	830890	840706	21	154	30	-	-36	-	3		29	-	-
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	157	30	-	-40	-	3		24	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	155	30	-	-40	-	3		24	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	153	30	-	-40	-	3		25	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	157	30	-	-40	-	3		24	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	155	30	-	-40	-	3		24	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	156	30	-	-40	-	3		24	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	154	30	-	-40	-	3		24	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	153	30	-	-40	-	3		25	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	335	30	-	-51	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	336	30	-	-51	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	301	30	-	-50	-	3		29	29	-
CP002			Y	Y	70.9	1.0	830706	840716	11	300	30	-	-50	-	3		24	24	-
CP003			Y	Y	73.7	1.0	830710	840721	11	298	30	-	-49	-	3		27	27	-
CP004			Y	Y	75.4	1.0	830714	840725	11	297	30	-	-49	-	3		29	29	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	315	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	311	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	334	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	334	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	334	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	281	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	326	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	181	30	-	-28	-	3		36	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	185	30	-	-28	-	3		36	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	152	30	-	-34	-	3		28	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	152	30	-	-34	-	3		28	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	190	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	208	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	226	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	354	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	354	30	-	-45	-	3		30	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	354	30	-	-45	-	3		30	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	354	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	354	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	354	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	355	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	387	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	395	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	227	30	-	-30	-	3		53	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	342	30	-	-45	-	3		30	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	344	30	-	-45	-	3		30	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	345	30	-	-45	-	3		30	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	163	30	-	-35	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	167	30	-	-35	-	3		35	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	147	30	-	-23	-	3		32	32	-
GC002			Y	Y	52.3	10.0	831092	840538	26	150	30	-	-24	-	3		32	32	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	147	30	-	-34	-	3		36	36	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	135	30	-	-37	-	3		37	37	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	132	30	-	-32	-	3	6	59	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	132	30	-	-28	-	3		38	38	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	189	30	-	-36	-	3		33	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	192	30	-	-36	-	3		33	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	197	30	-	-36	-	3		33	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	197	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	210	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		61	43	
															Criteria ANL		70	60	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R101b**
NSR x coord:	**830967.2**
NSR y coord:	**840591.2**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	286	30	-	-35	-	3		50	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	275	30	-	-35	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	265	30	-	-35	-	3		51	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	286	30	-	-40	-	3		25	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	285	30	-	-40	-	3		25	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	262	30	-	-39	-	3		26	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	261	30	-	-39	-	3		26	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	259	30	-	-39	-	3		26	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	255	30	-	-34	-	3		32	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	243	30	-	-31	-	3		41	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	185	30	-	-37	-	3		28	-	-
CL002			Y	N	62.2	2.5	830890	840706	21	185	30	-	-37	-	3		28	-	-
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	188	30	-	-42	-	3		23	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	186	30	-	-42	-	3		23	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	184	30	-	-42	-	3		23	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	187	30	-	-42	-	3		23	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	186	30	-	-42	-	3		23	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	187	30	-	-42	-	3		23	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	185	30	-	-42	-	3		23	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	184	30	-	-42	-	3		23	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	349	30	-	-51	-	3		26	26	-
PK016			Y	Y	74.1	1.0	830700	840786	32	349	30	-	-51	-	3		26	26	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	320	30	-	-50	-	3		28	28	-
CP002			Y	Y	70.9	1.0	830706	840716	11	319	30	-	-50	-	3		24	24	-
CP003			Y	Y	73.7	1.0	830710	840721	11	317	30	-	-50	-	3		27	27	-
CP004			Y	Y	75.4	1.0	830714	840725	11	316	30	-	-50	-	3		28	28	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	330	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	326	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	351	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	351	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	351	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	302	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	344	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	209	30	-	-29	-	3		35	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	211	30	-	-30	-	3		35	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	186	30	-	-36	-	3		26	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	186	30	-	-36	-	3		26	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	219	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	234	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	250	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	357	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	357	30	-	-45	-	3		30	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	357	30	-	-45	-	3		30	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	357	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	357	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	357	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	357	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	390	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	397	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	246	30	-	-31	-	3		53	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	347	30	-	-45	-	3		30	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	348	30	-	-45	-	3		30	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	349	30	-	-45	-	3		30	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	194	30	-	-36	-	3		32	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	198	30	-	-36	-	3		34	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	177	30	-	-25	-	3		30	30	-
GC002			Y	Y	52.3	10.0	831092	840538	26	180	30	-	-25	-	3		30	30	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	183	30	-	-36	-	3		34	34	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	174	30	-	-39	-	3		35	35	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	172	30	-	-34	-	3	6	56	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	172	30	-	-31	-	3		36	36	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	216	30	-	-37	-	3		32	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	218	30	-	-37	-	3		32	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	222	30	-	-37	-	3		32	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	224	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	236	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		60	42	
															Criteria ANL		70	60	
															Exceedance		-	-	

NSR ID: R115c


PK015
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Sheung Shui Station
Po Sheung Tsuen
Choi Po Court
Choi Yuen Estate
Yuk Po Court
Shek Wu Hui
Lung Fung Garden
Metropolis Plaza
Sheung Shui Centre
Tai Tau Leng
Hi Tech Centre
Shek Wu Hui Playground
Shek Wu Hui Jockey Club Playground
Tai Lai Garden
Kung Kai Liu Man Shek Tong Secondary School
Kwan Tong Po Kindergarten
Sun Tung Fook Kindergarten
Sheung Shui Police Station
Sheung Shui Fire Station
Sheung Shui Ambulance Depot
Sheung Shui Government Offices
Sheung Shui Wholesale Food Market
Sheung Shui Public Cargo Working Area
Sheung Shui Recreation Ground
Sheung Shui Sports Ground
Sheung Shui Park
Sheung Shui Playground
Sheung Shui Swimming Pool
Sheung Shui Indoor Recreation Centre
Sheung Shui Public Toilet
Sheung Shui Bus Terminus
Sheung Shui Interchange
Sheung Shui Government Complex
Sheung Shui Government Offices
Sheung Shui Government Offices Annex
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Sheung Shui Government Offices Annex 100

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R115c**
NSR x coord:	**830908.2**
NSR y coord:	**840562.6**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	251	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	240	30	-	-34	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	229	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	249	30	-	-38	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	247	30	-	-38	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	224	30	-	-37	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	222	30	-	-37	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	220	30	-	-37	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	210	30	-	-32	-	3		34	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	198	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	146	30	-	-	-	-		-	-	No line of sight.
CL002			Y	N	62.2	2.5	830890	840706	21	145	30	-	-	-	-		-	-	No line of sight.
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	146	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	145	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	142	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	145	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	143	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	144	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	142	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	141	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	306	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	306	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	255	30	-	-48	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	255	30	-	-48	-	3		26	26	-
CP003			Y	Y	73.7	1.0	830710	840721	11	254	30	-	-48	-	3		29	29	-
CP004			Y	Y	75.4	1.0	830714	840725	11	254	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	253	30	-	-31	-	3		52	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	249	30	-	-31	-	3		52	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	276	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	276	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	276	2	-12	-39	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	218	30	-	-37	-	3		34	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	255	30	-	-30	-	3		38	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	229	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	232	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	197	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	196	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	197	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	210	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	227	30	-	-47	-	3		36	-	-
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	382	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	417	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	425	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	285	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	383	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	384	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	385	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	185	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	187	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	184	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	186	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	167	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	151	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	144	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	155	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	230	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	233	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	237	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	153	30	-	-38	-	3		37	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	171	30	-	-39	-	3		20	20	-
															Tonality		0	0	
															Total SPL		59	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R115c**
NSR x coord:	**830908.2**
NSR y coord:	**840562.6**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	253	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	241	30	-	-34	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	231	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	251	30	-	-38	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	249	30	-	-38	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	226	30	-	-38	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	224	30	-	-37	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	222	30	-	-37	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	214	30	-	-33	-	3		34	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	203	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	151	30	-	-	-	-		-	-	No line of sight.
CL002			Y	N	62.2	2.5	830890	840706	21	150	30	-	-	-	-		-	-	No line of sight.
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	151	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	150	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	147	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	150	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	148	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	149	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	147	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	146	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	307	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	307	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	259	30	-	-48	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	259	30	-	-48	-	3		26	26	-
CP003			Y	Y	73.7	1.0	830710	840721	11	258	30	-	-48	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	258	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	255	30	-	-31	-	3		52	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	251	30	-	-31	-	3		52	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	280	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	280	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	280	2	-12	-39	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	223	30	-	-37	-	3		34	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	259	30	-	-30	-	3		37	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	232	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	235	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	202	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	201	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	202	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	215	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	231	30	-	-47	-	3		36	-	-
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	378	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	413	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	422	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	287	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	380	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	381	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	382	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	190	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	192	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	187	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	189	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	173	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	158	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	151	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	162	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	233	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	237	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	241	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	158	30	-	-38	-	3		37	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	176	30	-	-39	-	3		19	19	-
															Tonality		0	0	
															Total SPL		59	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

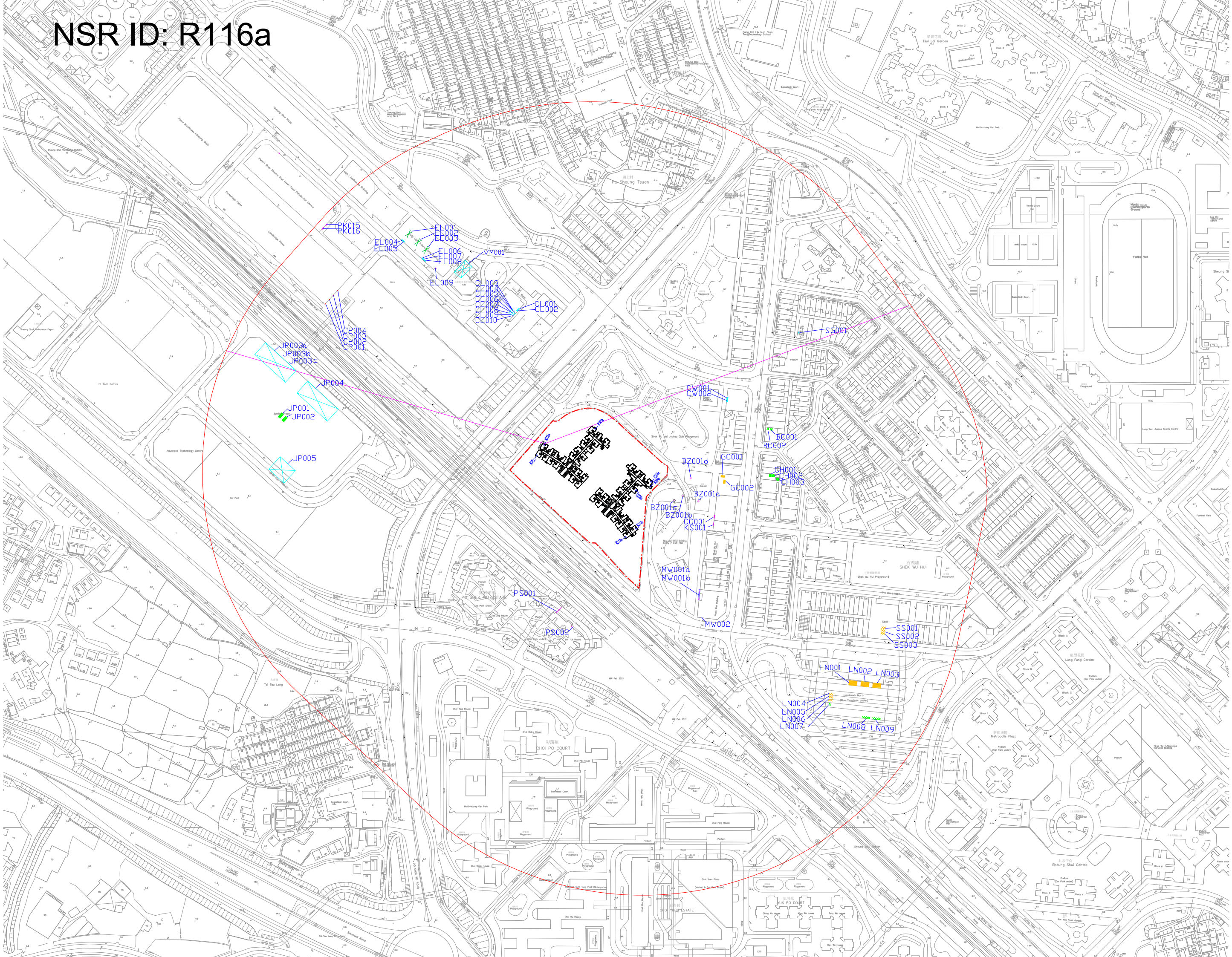
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R115c**
NSR x coord:	**830908.2**
NSR y coord:	**840562.6**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	257	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	246	30	-	-34	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	236	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	255	30	-	-39	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	254	30	-	-39	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	231	30	-	-38	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	229	30	-	-38	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	227	30	-	-38	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	221	30	-	-33	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	212	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	161	30	-	-	-	-		-	-	No line of sight.
CL002			Y	N	62.2	2.5	830890	840706	21	160	30	-	-	-	-		-	-	No line of sight.
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	161	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	159	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	157	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	160	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	158	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	158	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	157	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	156	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	311	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	311	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	266	30	-	-49	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	266	30	-	-48	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	265	30	-	-48	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	265	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	260	30	-	-31	-	3		52	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	256	30	-	-31	-	3		52	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	286	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	286	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	286	2	-12	-40	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	232	30	-	-38	-	3		34	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	267	30	-	-30	-	3		37	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	239	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	242	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	210	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	210	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	211	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	224	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	239	30	-	-48	-	3		36	-	-
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	376	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	412	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	420	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	291	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	379	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	380	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	380	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	199	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	201	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	194	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	196	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	183	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	169	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	163	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	173	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	240	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	243	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	247	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	169	30	-	-39	-	3		36	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	186	30	-	-39	-	3		19	19	-
															Tonality		0	0	
															Total SPL		59	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R115c**
NSR x coord:	**830908.2**
NSR y coord:	**840562.6**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	275	30	-	-35	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	264	30	-	-34	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	255	30	-	-34	-	3		51	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	273	30	-	-39	-	3		25	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	271	30	-	-39	-	3		25	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	250	30	-	-38	-	3		26	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	249	30	-	-38	-	3		26	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	247	30	-	-38	-	3		26	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	245	30	-	-34	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	238	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	191	30	-	-	-	-		-	-	No line of sight.
CL002			Y	N	62.2	2.5	830890	840706	21	190	30	-	-	-	-		-	-	No line of sight.
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	191	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	189	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	188	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	190	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	188	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	189	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	187	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	187	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	326	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	325	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	287	30	-	-49	-	3		29	29	-
CP002			Y	Y	70.9	1.0	830706	840716	11	287	30	-	-49	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	286	30	-	-49	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	286	30	-	-49	-	3		29	29	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	278	30	-	-32	-	3		52	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	274	30	-	-32	-	3		52	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	306	2	-12	-30	-	3		29	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	306	2	-12	-36	-	3		44	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	306	2	-12	-40	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	256	30	-	-39	-	3		33	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	288	30	-	-31	-	3		37	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	260	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	263	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	236	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	235	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	237	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	248	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	262	30	-	-48	-	3		35	-	-
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	378	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	414	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	422	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	306	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	383	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	383	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	384	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	225	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	228	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	218	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	220	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	214	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	202	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	197	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	204	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	261	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	264	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	268	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	200	30	-	-40	-	3		35	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	214	30	-	-41	-	3		18	18	-
															Tonality		0	0	
															Total SPL		58	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

NSR ID: R116a


PK015
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EL001
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LN009
Shek Wu Hui Sewage Pumping Station
Shek Wu Hui Jockey Club Playground
Shek Wu Hui Playground
Choi Po Court
Choi Yuen Estate
Yuk Po Court
Sheung Shui Centre
Metropolis Plaza
Lung Fung Garden
Landmark North
Po Sheung Tsuen
Pak Shek Hui Estate
Tai Tau Leng
Hi Tech Centre
Sheung Shui Slaughterhouse
Sheung Shui Fresh Food Distribution Centre
Sheung Shui Public Cargo Working Area
Sheung Shui Service Reservoir
Sheung Shui Fire Station
Sheung Shui Police Station
Sheung Shui Government Offices
Sheung Shui Recreation Ground
Sheung Shui Sports Ground
Sheung Shui Swimming Pool
Sheung Shui Indoor Games Hall
Sheung Shui Jockey Club Primary School
Kung Kai Liu Man Shek Tong Secondary School
Fanling Highway
Choi Kin Street
Choi Fai Road
Choi Yuen Road
Choi Yuen Road West
Choi Yuen Road East
Choi Yuen Road North
Choi Yuen Road South
Choi Yuen Footbridge
Choi Yuen Footbridge West
Choi Yuen Footbridge East
Choi Yuen Footbridge North
Choi Yuen Footbridge South
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Choi Yuen Bridge West
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Choi Yuen Bridge South
Choi Yuen Subway
Choi Yuen Subway West
Choi Yuen Subway East
Choi Yuen Subway North
Choi Yuen Subway South
Choi Yuen Tunnel
Choi Yuen Tunnel West
Choi Yuen Tunnel East
Choi Yuen Tunnel North
Choi Yuen Tunnel South
Choi Yuen Viaduct
Choi Yuen Viaduct West
Choi Yuen Viaduct East
Choi Yuen Viaduct North
Choi Yuen Viaduct South
Choi Yuen Overpass
Choi Yuen Overpass West
Choi Yuen Overpass East
Choi Yuen Overpass North
Choi Yuen Overpass South
Choi Yuen Underpass
Choi Yuen Underpass West
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Choi Yuen Tunnel
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Choi Yuen Tunnel South
Choi Yuen Viaduct
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Choi Yuen Overpass
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Choi Yuen Underpass South

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R116a**
NSR x coord:	**830916.9**
NSR y coord:	**840575.6**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	245	30	-	-34	-	3		52	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	233	30	-	-33	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	222	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	243	30	-	-38	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	241	30	-	-38	-	3		27	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	217	30	-	-37	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	216	30	-	-37	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	214	30	-	-37	-	3		28	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	203	30	-	-32	-	3		34	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	190	30	-	-29	-	3		43	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	135	30	-	-35	-	3		31	-	-
CL002			Y	N	62.2	2.5	830890	840706	21	133	30	-	-35	-	3		31	-	-
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	135	30	-	-39	-	3		26	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	134	30	-	-39	-	3		26	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	131	30	-	-39	-	3		26	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	134	30	-	-39	-	3		26	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	132	30	-	-39	-	3		26	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	133	30	-	-39	-	3		26	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	131	30	-	-39	-	3		26	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	130	30	-	-39	-	3		26	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	303	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	302	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	255	30	-	-48	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	254	30	-	-48	-	3		26	26	-
CP003			Y	Y	73.7	1.0	830710	840721	11	254	30	-	-48	-	3		29	29	-
CP004			Y	Y	75.4	1.0	830714	840725	11	253	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	260	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	256	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	280	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	280	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	280	2	-12	-39	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	223	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	265	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	219	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	222	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	185	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	184	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	198	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	213	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	230	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	384	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	418	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	427	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	272	30	-	-32	-	3		52	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	381	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	382	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	383	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	181	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	184	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	177	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	180	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	162	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	146	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	141	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	149	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	223	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	226	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	230	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	164	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	182	30	-	-	-	-		-	-	No line of sight.

Tonality	0	0
Total SPL	58	36
Criteria ANL	70	60
Exceedance	-	-

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R116a**
NSR x coord:	**830916.9**
NSR y coord:	**840575.6**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	246	30	-	-34	-	3		52	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	234	30	-	-33	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	224	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	244	30	-	-38	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	243	30	-	-38	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	219	30	-	-37	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	217	30	-	-37	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	216	30	-	-37	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	207	30	-	-32	-	3		34	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	195	30	-	-29	-	3		43	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	140	30	-	-35	-	3		30	-	-
CL002			Y	N	62.2	2.5	830890	840706	21	139	30	-	-35	-	3		30	-	-
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	141	30	-	-39	-	3		25	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	139	30	-	-39	-	3		25	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	137	30	-	-39	-	3		26	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	139	30	-	-39	-	3		25	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	138	30	-	-39	-	3		25	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	138	30	-	-39	-	3		25	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	136	30	-	-39	-	3		26	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	135	30	-	-39	-	3		26	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	304	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	304	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	259	30	-	-48	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	258	30	-	-48	-	3		26	26	-
CP003			Y	Y	73.7	1.0	830710	840721	11	257	30	-	-48	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	257	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	262	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	258	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	284	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	284	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	284	2	-12	-40	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	228	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	269	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	222	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	226	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	190	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	190	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	203	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	217	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	234	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	380	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	415	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	423	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	273	30	-	-32	-	3		52	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	378	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	379	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	380	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	186	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	189	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	180	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	183	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	169	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	154	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	148	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	156	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	226	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	229	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	234	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	170	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	187	30	-	-	-	-		-	-	No line of sight.

Tonality	0	0
Total SPL	58	36
Criteria ANL	70	60
Exceedance	-	-

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R116a**
NSR x coord:	**830916.9**
NSR y coord:	**840575.6**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	251	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	240	30	-	-34	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	230	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	249	30	-	-38	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	248	30	-	-38	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	225	30	-	-37	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	223	30	-	-37	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	221	30	-	-37	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	215	30	-	-33	-	3		34	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	204	30	-	-29	-	3		42	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	150	30	-	-36	-	3		30	-	-
CL002			Y	N	62.2	2.5	830890	840706	21	149	30	-	-36	-	3		30	-	-
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	151	30	-	-40	-	3		25	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	149	30	-	-40	-	3		25	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	147	30	-	-40	-	3		25	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	150	30	-	-40	-	3		25	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	148	30	-	-40	-	3		25	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	149	30	-	-40	-	3		25	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	147	30	-	-40	-	3		25	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	146	30	-	-40	-	3		25	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	308	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	308	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	266	30	-	-48	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	265	30	-	-48	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	264	30	-	-48	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	264	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	267	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	263	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	290	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	290	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	290	2	-12	-40	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	236	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	276	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	229	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	232	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	199	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	199	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	212	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	226	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	242	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	378	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	413	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	422	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	278	30	-	-32	-	3		52	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	377	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	378	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	379	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	195	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	198	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	188	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	190	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	180	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	166	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	160	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	167	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	233	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	236	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	240	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	180	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	196	30	-	-	-	-		-	-	No line of sight.

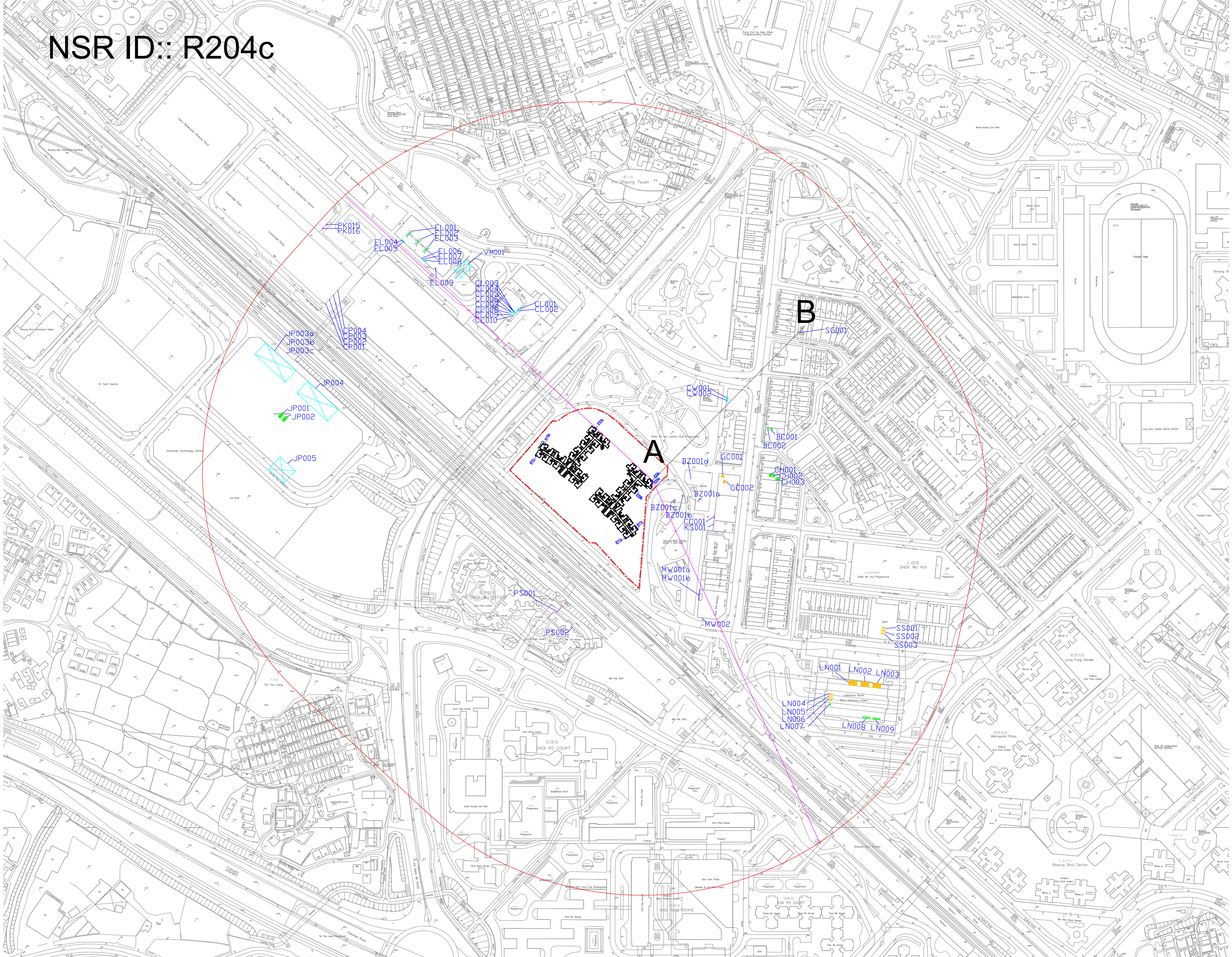
Tonality	0	0
Total SPL	58	36
Criteria ANL	70	60
Exceedance	-	-

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R116a**
NSR x coord:	**830916.9**
NSR y coord:	**840575.6**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	269	30	-	-35	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	258	30	-	-34	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	249	30	-	-34	-	3		51	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	267	30	-	-39	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	266	30	-	-39	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	244	30	-	-38	-	3		26	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	243	30	-	-38	-	3		26	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	241	30	-	-38	-	3		26	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	239	30	-	-34	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	231	30	-	-30	-	3		41	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	182	30	-	-37	-	3		28	-	-
CL002			Y	N	62.2	2.5	830890	840706	21	181	30	-	-37	-	3		28	-	-
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	183	30	-	-42	-	3		23	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	181	30	-	-42	-	3		23	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	179	30	-	-42	-	3		23	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	182	30	-	-42	-	3		23	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	180	30	-	-42	-	3		23	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	181	30	-	-42	-	3		23	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	179	30	-	-42	-	3		23	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	179	30	-	-42	-	3		23	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	323	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	322	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	287	30	-	-49	-	3		29	29	-
CP002			Y	Y	70.9	1.0	830706	840716	11	286	30	-	-49	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	285	30	-	-49	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	285	30	-	-49	-	3		29	29	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	284	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	281	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	310	2	-12	-30	-	3		29	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	310	2	-12	-36	-	3		44	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	310	2	-12	-40	-	3		31	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	260	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	297	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	251	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	254	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	227	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	226	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	238	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	250	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	265	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	380	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	415	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	423	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	294	30	-	-32	-	3		51	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	381	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	382	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	383	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	222	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	225	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	213	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	215	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	210	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	198	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	194	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	200	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	255	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	258	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	261	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	209	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	223	30	-	-	-	-		-	-	No line of sight.

Tonality	0	0
Total SPL	58	36
Criteria ANL	70	60
Exceedance	-	-

NSR ID:: R204c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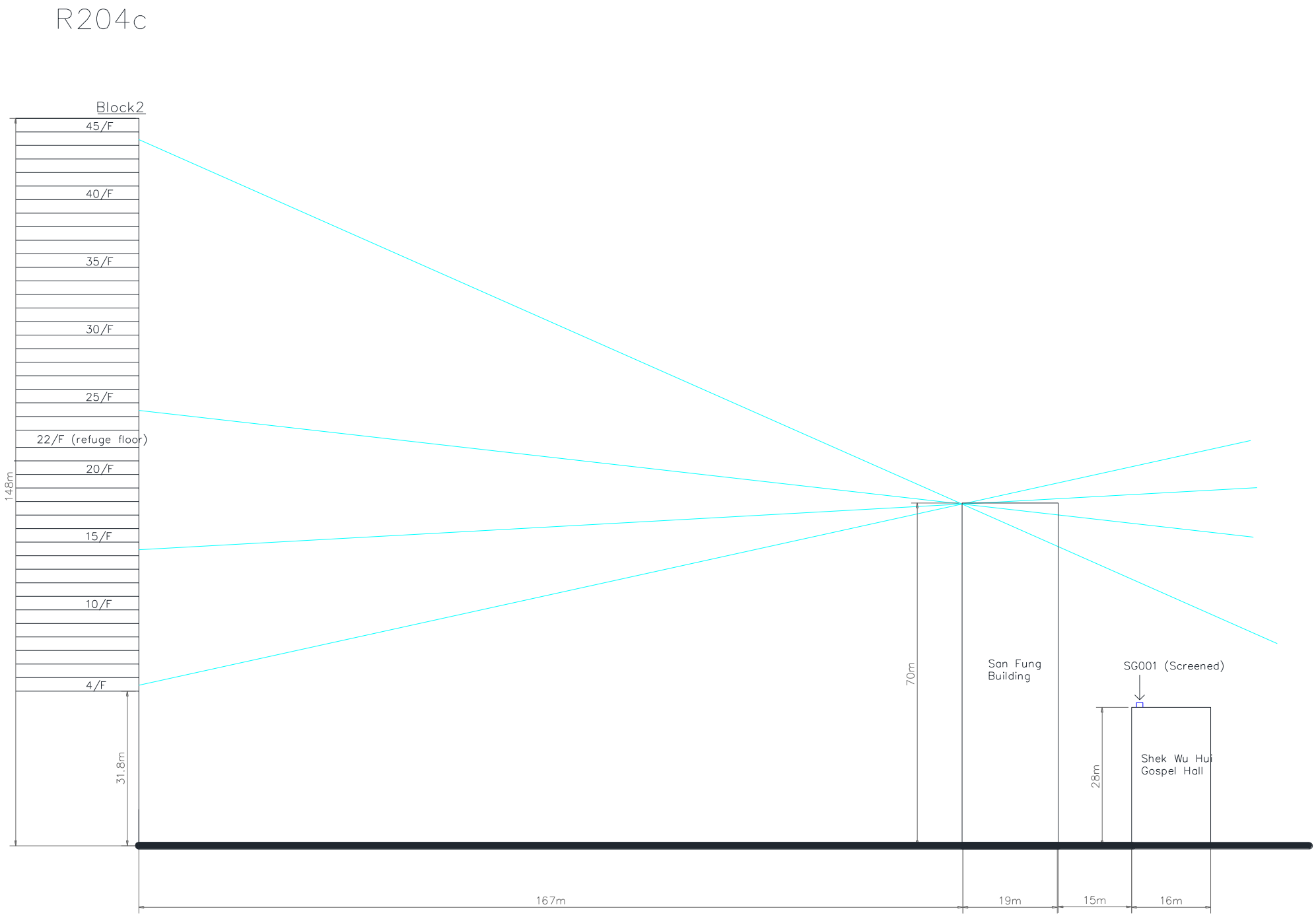
NSR ID: R204c (Section A-B)



Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204c**
NSR x coord:	**831022.2**
NSR y coord:	**840539.5**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	339	30	-	-37	-	3		49	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	327	30	-	-36	-	3		49	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	316	30	-	-36	-	3		49	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	339	30	-	-41	-	3		24	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	337	30	-	-41	-	3		24	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	313	30	-	-40	-	3		24	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	311	30	-	-40	-	3		24	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	309	30	-	-40	-	3		24	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	297	30	-	-35	-	3		31	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	278	30	-	-32	-	3		40	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	213	30	-	-39	-	3		27	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	213	30	-	-39	-	3		27	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	217	30	-	-43	-	3		22	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	214	30	-	-43	-	3		22	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	212	30	-	-43	-	3		22	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	216	30	-	-43	-	3		22	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	214	30	-	-43	-	3		22	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	216	30	-	-43	-	3		22	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	214	30	-	-43	-	3		22	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	212	30	-	-43	-	3		22	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	405	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	406	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	364	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	363	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	362	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	360	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	369	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	365	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	391	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	391	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	391	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	334	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	368	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	124	30	-	-25	-	3		40	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	127	30	-	-25	-	3		40	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	111	30	-	-31	-	3		31	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	109	30	-	-31	-	3		31	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	102	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	123	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	144	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	288	30	-	-40	-	3		34	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	319	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	327	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	204	30	-	-29	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	274	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	275	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	276	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	73	30	-	-28	-	3		41	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	76	30	-	-28	-	3		42	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	69	30	-	-17	-	3		39	39	-
GC002			Y	Y	52.3	10.0	831092	840538	26	71	30	-	-17	-	3		38	38	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	55	30	-	-25	-	3		44	44	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	42	30	-	-26	-	3		47	47	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	39	30	-	-21	-	3	6	69	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	45	30	-	-19	-	3		48	48	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	116	30	-	-32	-	3		38	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	119	30	-	-32	-	3		37	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	123	30	-	-32	-	3		37	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	157	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	165	30	-	-	-	-		-	-	No line of sight.
																Tonality	0	0	
																Total SPL	70	52	
																Criteria ANL	65	55	
																Exceedance	5	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204c**
NSR x coord:	**831022.2**
NSR y coord:	**840539.5**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	340	30	-	-37	-	3		49	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	328	30	-	-36	-	3		49	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	318	30	-	-36	-	3		49	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	340	30	-	-41	-	3		24	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	339	30	-	-41	-	3		24	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	314	30	-	-40	-	3		24	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	312	30	-	-40	-	3		24	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	311	30	-	-40	-	3		24	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	300	30	-	-36	-	3		31	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	282	30	-	-32	-	3		40	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	216	30	-	-39	-	3		26	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	216	30	-	-39	-	3		26	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	220	30	-	-43	-	3		21	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	218	30	-	-43	-	3		21	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	216	30	-	-43	-	3		22	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	220	30	-	-43	-	3		21	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	217	30	-	-43	-	3		21	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	219	30	-	-43	-	3		21	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	217	30	-	-43	-	3		21	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	215	30	-	-43	-	3		22	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	406	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	407	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	367	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	366	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	364	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	363	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	370	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	366	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	337	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	371	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	130	30	-	-25	-	3		39	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	133	30	-	-26	-	3		39	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	119	30	-	-32	-	3		30	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	118	30	-	-32	-	3		30	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	112	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	131	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	151	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	282	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	315	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	322	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	206	30	-	-29	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	269	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	270	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	272	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	84	30	-	-29	-	3		39	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	88	30	-	-29	-	3		41	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	77	30	-	-18	-	3		38	38	-
GC002			Y	Y	52.3	10.0	831092	840538	26	78	30	-	-18	-	3		37	37	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	72	30	-	-28	-	3		42	42	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	63	30	-	-30	-	3		44	44	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	60	30	-	-25	-	3	6	65	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	65	30	-	-22	-	3		45	45	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	122	30	-	-32	-	3		37	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	125	30	-	-32	-	3		37	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	129	30	-	-33	-	3		37	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	163	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	170	30	-	-	-	-		-	-	No line of sight.
																Tonality	0	0	
																Total SPL	66	49	
																Criteria ANL	65	55	
																Exceedance	1	-	

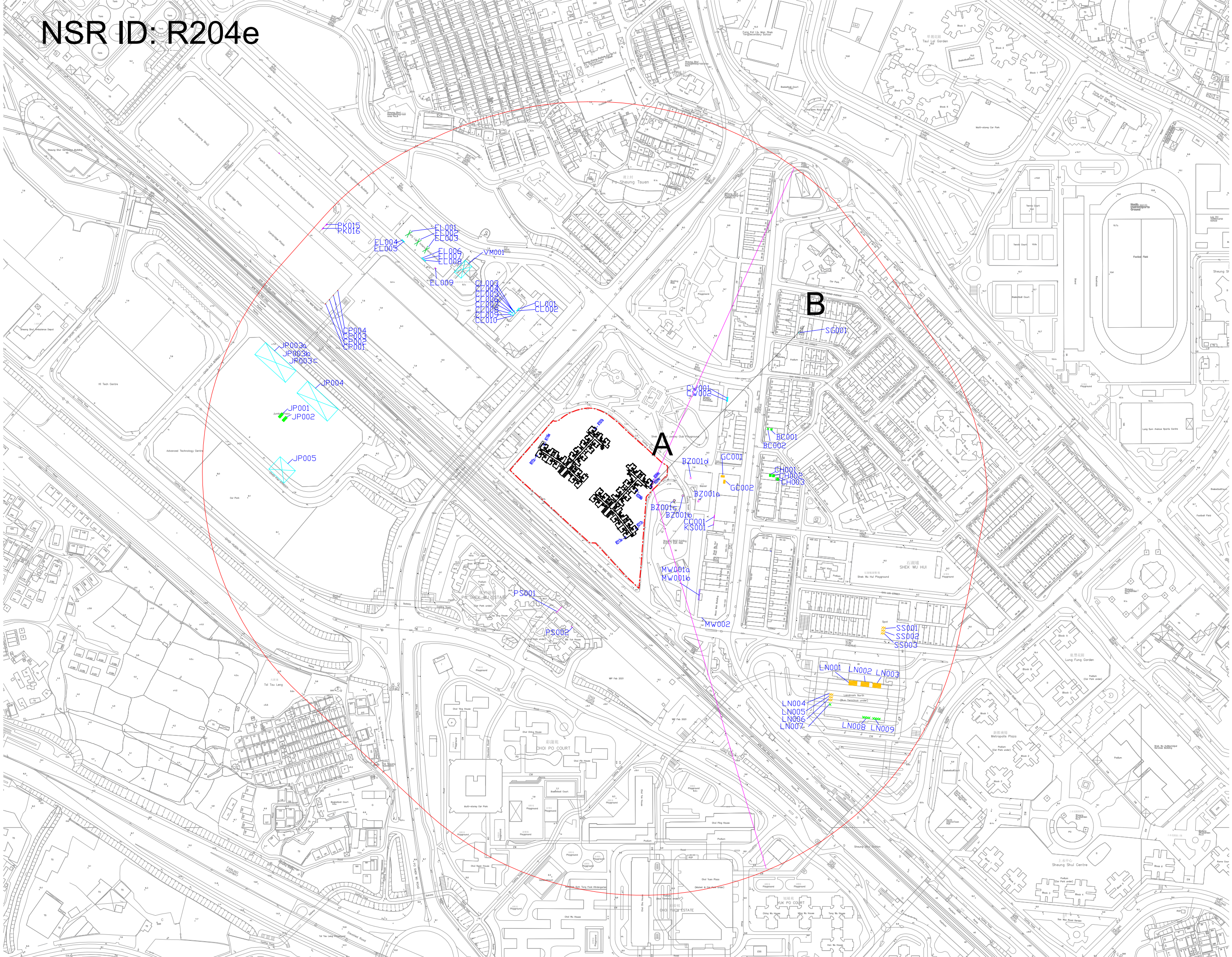
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204c**
NSR x coord:	**831022.2**
NSR y coord:	**840539.5**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	344	30	-	-37	-	3		49	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	332	30	-	-36	-	3		49	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	321	30	-	-36	-	3		49	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	344	30	-	-41	-	3		23	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	342	30	-	-41	-	3		23	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	318	30	-	-41	-	3		24	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	316	30	-	-40	-	3		24	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	314	30	-	-40	-	3		24	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	305	30	-	-36	-	3		31	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	289	30	-	-32	-	3		39	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	223	30	-	-39	-	3		26	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	223	30	-	-39	-	3		26	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	227	30	-	-44	-	3		21	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	225	30	-	-44	-	3		21	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	223	30	-	-43	-	3		21	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	226	30	-	-44	-	3		21	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	224	30	-	-43	-	3		21	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	226	30	-	-44	-	3		21	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	224	30	-	-43	-	3		21	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	222	30	-	-43	-	3		21	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	409	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	410	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	372	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	370	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	369	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	368	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	374	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	370	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	398	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	398	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	398	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	343	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	376	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	142	30	-	-26	-	3		39	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	144	30	-	-26	-	3		38	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	133	30	-	-33	-	3		29	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	132	30	-	-33	-	3		29	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	127	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	144	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	162	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	280	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	312	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	320	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	212	30	-	-30	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	268	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	269	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	270	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	103	30	-	-31	-	3		38	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	106	30	-	-31	-	3		39	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	93	30	-	-19	-	3		36	36	-
GC002			Y	Y	52.3	10.0	831092	840538	26	94	30	-	-19	-	3		36	36	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	95	30	-	-30	-	3		40	40	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	88	30	-	-33	-	3		41	41	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	86	30	-	-28	-	3	6	62	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	89	30	-	-25	-	3		42	42	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	134	30	-	-33	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	137	30	-	-33	-	3		36	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	140	30	-	-33	-	3		36	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	173	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	180	30	-	-	-	-		-	-	No line of sight.
																Tonality	0	0	
																Total SPL	63	46	
																Criteria ANL	65	55	
																Exceedance	-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204c**
NSR x coord:	**831022.2**
NSR y coord:	**840539.5**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	357	30	-	-37	-	3		48	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	346	30	-	-37	-	3		49	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	335	30	-	-37	-	3		49	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	357	30	-	-42	-	3		23	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	355	30	-	-41	-	3		23	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	332	30	-	-41	-	3		24	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	331	30	-	-41	-	3		24	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	329	30	-	-41	-	3		24	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	323	30	-	-36	-	3		30	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	308	30	-	-33	-	3		39	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	246	30	-	-40	-	3		25	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	245	30	-	-40	-	3		25	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	249	30	-	-44	-	3		20	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	247	30	-	-44	-	3		20	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	245	30	-	-44	-	3		20	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	249	30	-	-44	-	3		20	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	247	30	-	-44	-	3		20	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	248	30	-	-44	-	3		20	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	246	30	-	-44	-	3		20	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	245	30	-	-44	-	3		20	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	421	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	421	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	387	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	386	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	385	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	383	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	387	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	383	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	413	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	413	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	413	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	360	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	392	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	175	30	-	-28	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	177	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	171	30	-	-35	-	3		27	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	170	30	-	-35	-	3		27	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	167	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	180	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	194	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	283	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	315	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	323	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	233	30	-	-30	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	273	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	275	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	276	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	148	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	151	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	137	30	-	-23	-	3		33	33	-
GC002			Y	Y	52.3	10.0	831092	840538	26	137	30	-	-23	-	3		33	33	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	145	30	-	-34	-	3		36	36	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	140	30	-	-37	-	3		37	37	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	139	30	-	-32	-	3	6	58	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	141	30	-	-29	-	3		38	38	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	169	30	-	-35	-	3		34	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	171	30	-	-35	-	3		34	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	174	30	-	-35	-	3		34	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	203	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	209	30	-	-	-	-		-	-	No line of sight.
																Tonality	0	0	
																Total SPL	60	43	
																Criteria ANL	65	55	
																Exceedance	-	-	

NSR ID: R204e


A
B
PK015
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CW001
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KS001
MW001a
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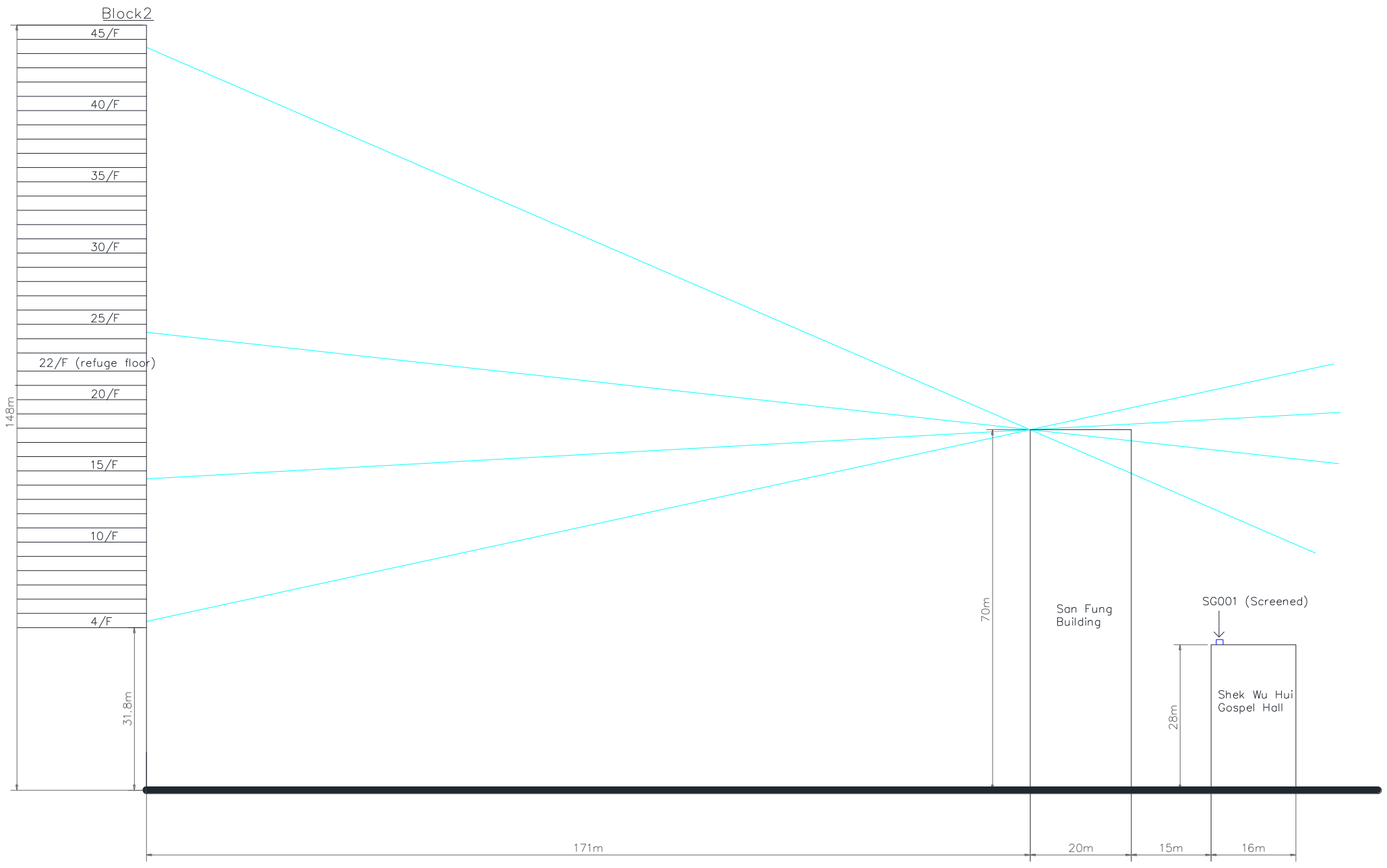
LN005
LN006
LN007
LN008
LN009
CH001
CH002
CH003
Tai Lei Garden
Po Sheung Tsuen
SHEK WU HUI
CHOI PO COURT
CHOI YUEN ESTATE
YUK PO COURT
Lung Fung Garden
Metropole Plaza
Sheung Shui Centre
Tai Tau Leng
Hi Tech Centre
Advanced Technology Centre
Sheung Shui Police Station
Sheung Shui Fresh Food Distribution Centre
Sheung Shui Ambulance Depot
Sheung Shui Interchange Building
Kam Wah Mansion (Sheung Shui)
Kam Hing Mansion (Sheung Shui)
Kam Ho Building
Kam Wo Building
Kam Yuen Building
Kam Yuen Mansion
Kam Yuen Court
Kam Yuen Terrace
Kam Yuen Terrace Block 1
Kam Yuen Terrace Block 2
Kam Yuen Terrace Block 3
Kam Yuen Terrace Block 4
Kam Yuen Terrace Block 5
Kam Yuen Terrace Block 6
Kam Yuen Terrace Block 7
Kam Yuen Terrace Block 8
Kam Yuen Terrace Block

NSR ID: R204e (Section A-B)

R204e



Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204e**
NSR x coord:	**831021.5**
NSR y coord:	**840534.9**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	342	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	330	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	319	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	342	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	340	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	316	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	314	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	312	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	300	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	281	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	216	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	216	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	220	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	218	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	215	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	219	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	217	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	219	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	217	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	215	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	408	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	408	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	366	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	365	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	363	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	362	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	369	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	365	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	392	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	392	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	392	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	334	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	368	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	127	30	-	-25	-	3		40	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	130	30	-	-25	-	3		39	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	115	30	-	-32	-	3		30	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	113	30	-	-32	-	3		30	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	98	30	-	-28	-	3		45	45	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	119	30	-	-32	-	3		42	42	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	140	30	-	-43	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	285	30	-	-40	-	3		34	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	316	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	324	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	208	30	-	-29	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	272	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	273	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	274	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	71	30	-	-27	-	3		41	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	74	30	-	-28	-	3		43	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	70	30	-	-17	-	3		38	38	-
GC002			Y	Y	52.3	10.0	831092	840538	26	71	30	-	-17	-	3		38	38	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	54	30	-	-25	-	3		44	44	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	41	30	-	-26	-	3		47	47	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	37	30	-	-20	-	3	6	70	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	46	30	-	-19	-	3		48	48	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	117	30	-	-32	-	3		37	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	120	30	-	-32	-	3		37	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	124	30	-	-32	-	3		37	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	153	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	160	30	-	-	-	-		-	-	No line of sight.

Tonality	0	0	
Total SPL	70	53	
Criteria ANL	65	55	
Exceedance	5	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204e**
NSR x coord:	**831021.5**
NSR y coord:	**840534.9**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	343	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	331	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	320	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	343	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	341	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	317	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	315	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	313	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	303	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	285	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	220	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	219	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	223	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	221	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	219	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	223	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	220	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	222	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	220	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	218	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	409	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	409	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	368	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	367	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	366	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	365	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	371	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	366	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	338	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	371	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	133	30	-	-26	-	3		39	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	135	30	-	-26	-	3		39	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	123	30	-	-32	-	3		30	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	121	30	-	-32	-	3		30	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	108	30	-	-29	-	3		44	44	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	127	30	-	-33	-	3		42	42	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	147	30	-	-43	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	279	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	312	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	319	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	210	30	-	-30	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	267	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	269	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	270	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	83	30	-	-29	-	3		39	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	86	30	-	-29	-	3		41	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	78	30	-	-18	-	3		37	37	-
GC002			Y	Y	52.3	10.0	831092	840538	26	79	30	-	-18	-	3		37	37	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	71	30	-	-28	-	3		42	42	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	62	30	-	-30	-	3		44	44	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	59	30	-	-25	-	3	6	66	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	65	30	-	-22	-	3		44	44	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	123	30	-	-32	-	3		37	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	126	30	-	-32	-	3		37	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	130	30	-	-33	-	3		37	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	159	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	166	30	-	-	-	-		-	-	No line of sight.

Tonality	0	0
Total SPL	66	51
Criteria ANL	65	55
Exceedance	1	-

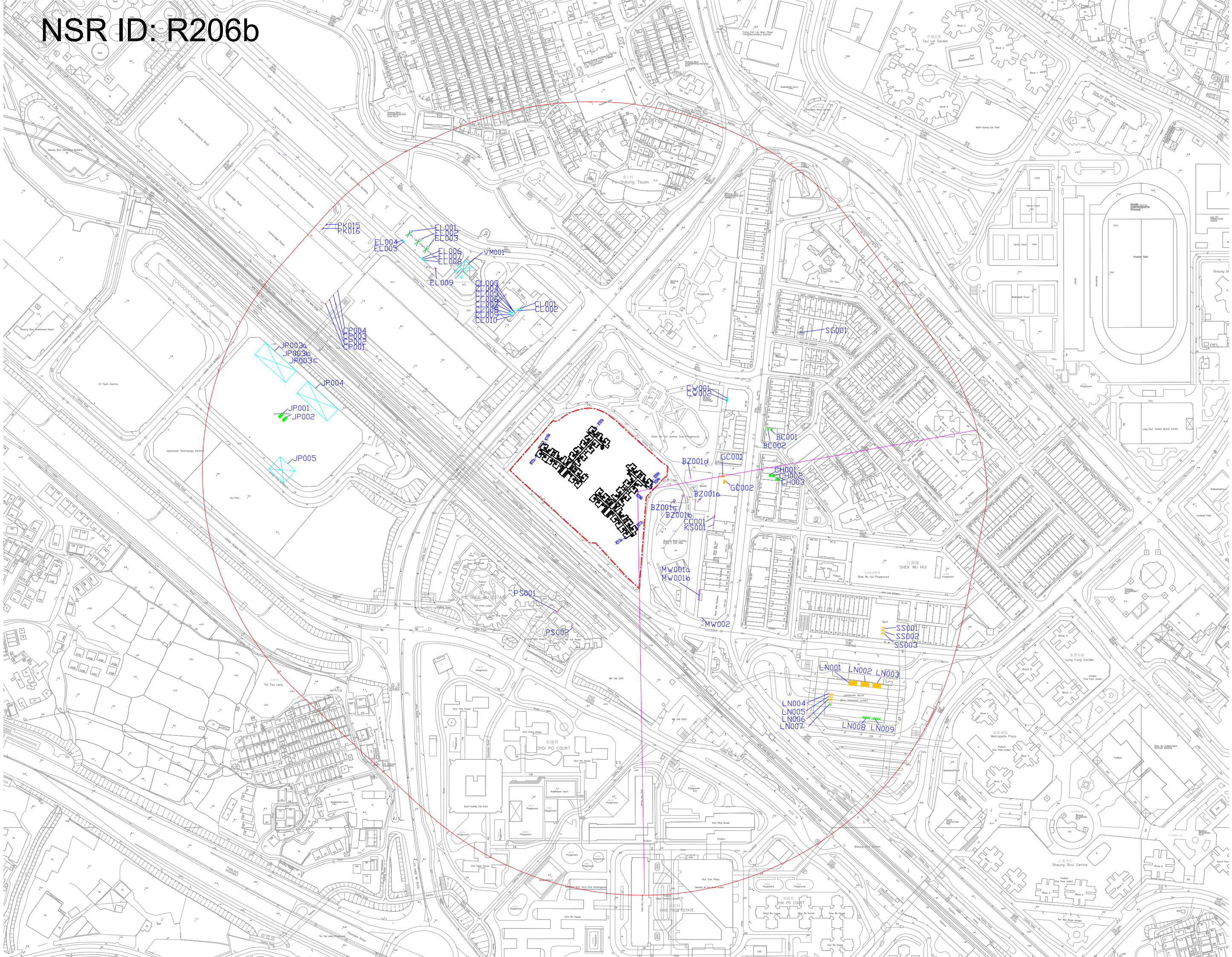
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204e**
NSR x coord:	**831021.5**
NSR y coord:	**840534.9**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	347	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	335	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	324	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	347	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	345	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	321	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	319	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	317	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	308	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	292	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	226	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	226	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	230	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	228	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	226	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	229	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	227	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	229	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	227	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	225	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	412	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	412	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	373	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	372	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	371	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	370	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	374	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	370	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	399	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	399	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	399	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	343	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	376	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	144	30	-	-26	-	3		38	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	146	30	-	-26	-	3		38	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	137	30	-	-33	-	3		29	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	135	30	-	-33	-	3		29	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	124	30	-	-30	-	3		43	43	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	141	30	-	-33	-	3		41	41	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	158	30	-	-44	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	277	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	309	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	317	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	215	30	-	-30	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	266	30	-	-42	-	3		33	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	267	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	268	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	102	30	-	-31	-	3		38	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	105	30	-	-31	-	3		40	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	94	30	-	-19	-	3		36	36	-
GC002			Y	Y	52.3	10.0	831092	840538	26	95	30	-	-20	-	3		36	36	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	94	30	-	-30	-	3		40	40	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	87	30	-	-33	-	3		41	41	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	85	30	-	-28	-	3	6	62	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	90	30	-	-25	-	3		42	42	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	135	30	-	-33	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	138	30	-	-33	-	3		36	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	141	30	-	-33	-	3		36	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	170	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	176	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		63	49	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204e**
NSR x coord:	**831021.5**
NSR y coord:	**840534.9**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	360	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	348	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	338	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	360	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	358	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	335	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	333	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	331	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	326	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	311	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	249	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	248	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	252	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	250	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	248	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	251	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	249	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	251	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	249	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	247	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	423	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	423	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	389	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	387	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	386	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	385	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	387	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	383	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	414	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	414	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	414	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	360	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	391	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	177	30	-	-28	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	179	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	174	30	-	-35	-	3		27	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	172	30	-	-35	-	3		27	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	165	30	-	-32	-	3		40	40	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	178	30	-	-35	-	3		39	39	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	191	30	-	-46	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	280	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	312	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	320	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	236	30	-	-31	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	272	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	273	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	274	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	147	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	150	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	137	30	-	-23	-	3		33	33	-
GC002			Y	Y	52.3	10.0	831092	840538	26	138	30	-	-23	-	3		33	33	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	144	30	-	-34	-	3		36	36	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	140	30	-	-37	-	3		37	37	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	139	30	-	-32	-	3	6	58	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	141	30	-	-29	-	3		38	38	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	170	30	-	-35	-	3		34	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	172	30	-	-35	-	3		34	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	175	30	-	-35	-	3		34	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	200	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	206	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		59	46	
															Criteria ANL		65	55	
															Exceedance		-	-	

NSR ID: R206b


PK015
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Po Sheung Tsuen
Tai Lai Garden
Lung Fung Garden
Choi Po Court
Choi Yuen Estate
Yuk Po Court
Shek Wu Hui
Sheung Shui Centre
Metropole Plaza
Landmark North
Hi Tech Centre
Tai Tau Leng
Shek Wu Hui Playground
North District Open/Sports Ground
Sheung Shui Jockey Club Playground
Sheung Shui Recreation Ground
Sheung Shui Service Reservoir
Sheung Shui Fresh Water Service Reservoir
Sheung Shui Fresh Food Distribution Centre
Sheung Shui Wholesale Fruit Market
Sheung Shui Slaughterhouse
Sheung Shui Police Quarters
Sheung Shui Police Married Quarters
Sheung Shui Government Offices
Kadoorie Agricultural Aid Association Building
Kadoorie Farm & Botanic Garden Visitor Centre
Kadoorie Farm & Botanic Garden Plant Conservation Nursery
Kadoorie Farm & Botanic Garden Animal Nutrition Centre
Kadoorie Farm & Botanic Garden Animal Quarantine Centre
Kadoorie Farm & Botanic Garden Animal Conservation Centre
Kadoorie Farm & Botanic Garden Animal Conservation Centre Annex
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Kadoorie Farm & Botanic Garden Animal Conservation Centre Annex 99
Kadoorie Farm & Botanic Garden Animal Conservation Centre Annex 100

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R206b**
NSR x coord:	**831007.5**
NSR y coord:	**840528.8**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	337	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	325	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	314	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	336	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	335	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	310	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	309	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	307	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	295	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	277	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	213	30	-	-	-	-		-	-	No line of sight.
CL002			Y	N	62.2	2.5	830890	840706	21	213	30	-	-	-	-		-	-	No line of sight.
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	216	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	214	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	212	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	216	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	214	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	215	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	213	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	211	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	401	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	401	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	357	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	356	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	355	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	354	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	357	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	352	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	380	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	380	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	380	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	323	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	354	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	142	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	145	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	128	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	127	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	102	30	-	-28	-	3		44	44	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	120	30	-	-32	-	3		42	42	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	140	30	-	-43	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	289	30	-	-40	-	3		34	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	322	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	330	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	222	30	-	-30	-	3		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	281	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	282	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	283	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	81	30	-	-29	-	3		40	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	83	30	-	-29	-	3		42	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	85	30	-	-19	-	3		37	37	-
GC002			Y	Y	52.3	10.0	831092	840538	26	86	30	-	-19	-	3		37	37	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	65	30	-	-27	-	3		43	43	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	51	30	-	-28	-	3		45	45	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	45	30	-	-22	-	3	6	68	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	59	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	131	30	-	-33	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	134	30	-	-33	-	3		36	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	138	30	-	-33	-	3		36	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	140	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	149	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		68	50	
															Criteria ANL		65	55	
															Exceedance		3	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R206b**
NSR x coord:	**831007.5**
NSR y coord:	**840528.8**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	338	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	326	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	315	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	338	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	336	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	312	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	310	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	308	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	298	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	281	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	217	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	216	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	220	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	217	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	215	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	219	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	217	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	219	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	216	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	215	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	402	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	402	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	359	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	358	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	357	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	356	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	358	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	354	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	383	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	383	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	383	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	326	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	357	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	147	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	150	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	136	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	134	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	111	30	-	-29	-	3		44	44	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	128	30	-	-33	-	3		41	41	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	147	30	-	-43	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	284	30	-	-40	-	3		34	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	317	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	325	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	224	30	-	-30	-	3		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	276	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	277	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	279	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	92	30	-	-30	-	3		38	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	94	30	-	-30	-	3		40	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	91	30	-	-19	-	3		36	36	-
GC002			Y	Y	52.3	10.0	831092	840538	26	92	30	-	-19	-	3		36	36	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	80	30	-	-29	-	3		41	41	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	69	30	-	-31	-	3		43	43	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	65	30	-	-25	-	3	6	65	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	75	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	137	30	-	-33	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	140	30	-	-33	-	3		36	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	143	30	-	-34	-	3		36	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	147	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	155	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		65	49	
															Criteria ANL		65	55	
															Exceedance		-	-	

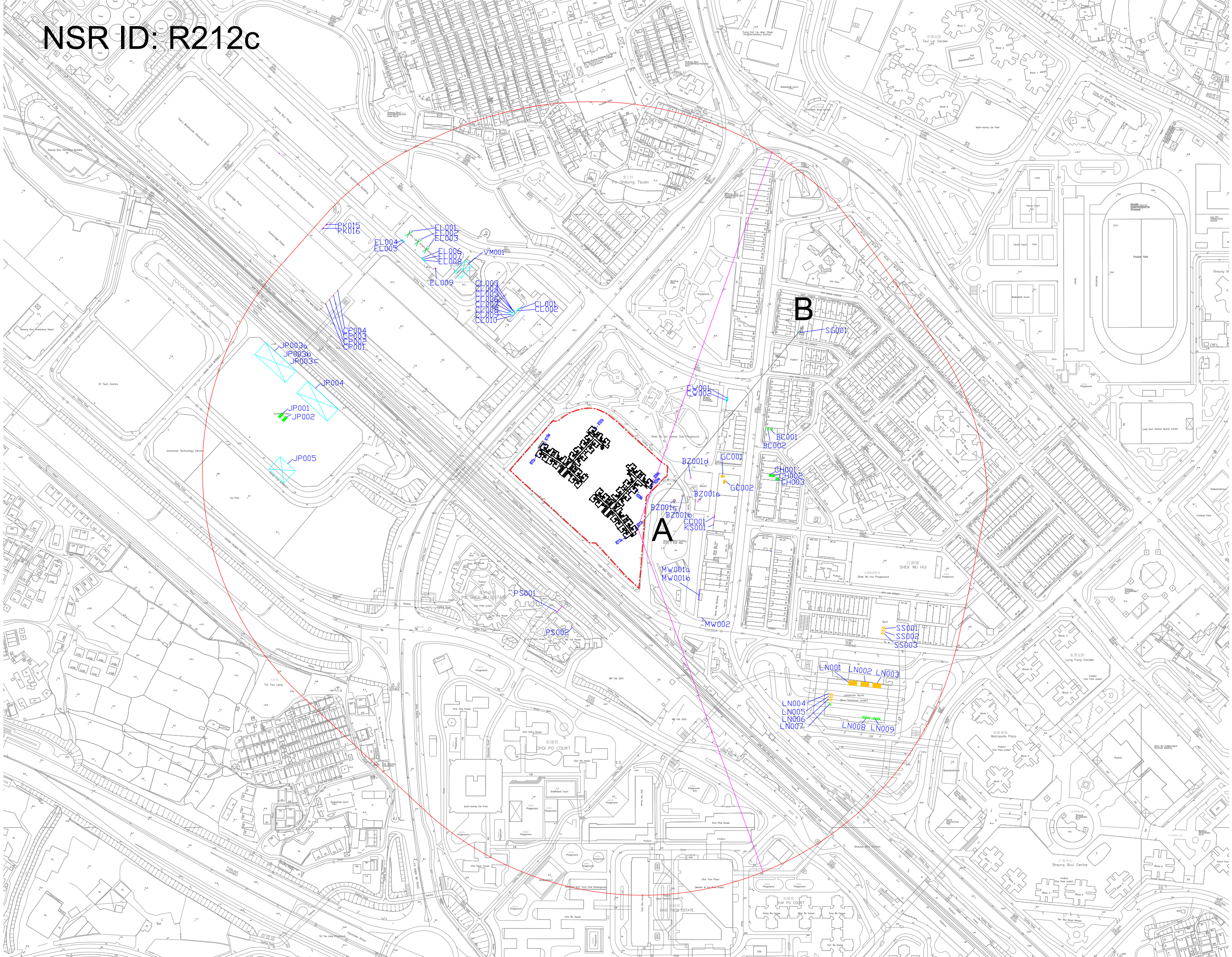
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R206b**
NSR x coord:	**831007.5**
NSR y coord:	**840528.8**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	342	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	330	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	319	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	341	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	339	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	316	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	314	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	312	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	303	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	287	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	224	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	223	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	226	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	224	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	222	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	226	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	224	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	226	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	223	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	222	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	405	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	405	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	364	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	363	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	362	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	361	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	362	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	357	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	388	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	388	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	388	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	332	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	362	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	157	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	160	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	148	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	147	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	127	30	-	-30	-	3		42	42	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	142	30	-	-33	-	3		41	41	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	159	30	-	-44	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	281	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	315	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	323	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	229	30	-	-30	-	3		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	275	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	276	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	277	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	109	30	-	-31	-	3		37	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	112	30	-	-31	-	3		39	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	105	30	-	-20	-	3		35	35	-
GC002			Y	Y	52.3	10.0	831092	840538	26	106	30	-	-21	-	3		35	35	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	101	30	-	-31	-	3		39	39	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	93	30	-	-33	-	3		40	40	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	89	30	-	-28	-	3	6	62	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	97	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	148	30	-	-34	-	3		35	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	151	30	-	-34	-	3		35	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	154	30	-	-34	-	3		35	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	158	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	166	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		62	47	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R206b**
NSR x coord:	**831007.5**
NSR y coord:	**840528.8**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	355	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	343	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	333	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	355	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	353	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	330	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	328	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	326	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	321	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	307	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	246	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	245	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	249	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	247	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	245	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	248	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	246	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	248	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	246	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	244	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	416	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	416	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	380	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	379	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	378	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	377	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	375	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	371	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	403	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	403	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	403	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	349	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	378	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	188	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	190	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	183	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	182	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	167	30	-	-32	-	3		40	40	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	178	30	-	-35	-	3		39	39	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	191	30	-	-46	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	284	30	-	-40	-	3		34	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	317	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	325	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	249	30	-	-31	-	3		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	280	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	281	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	282	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	152	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	155	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	145	30	-	-23	-	3		32	32	-
GC002			Y	Y	52.3	10.0	831092	840538	26	146	30	-	-23	-	3		32	32	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	149	30	-	-34	-	3		36	36	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	143	30	-	-37	-	3		36	36	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	141	30	-	-32	-	3	6	58	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	146	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	180	30	-	-36	-	3		34	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	182	30	-	-36	-	3		34	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	185	30	-	-36	-	3		33	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	191	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	197	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		58	45	
															Criteria ANL		65	55	
															Exceedance		-	-	

NSR ID: R212c


PK015
PK016
EL004
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CH003
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BZ001b
CC001
KS001
MW001a
MW001b
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PS001
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SS001
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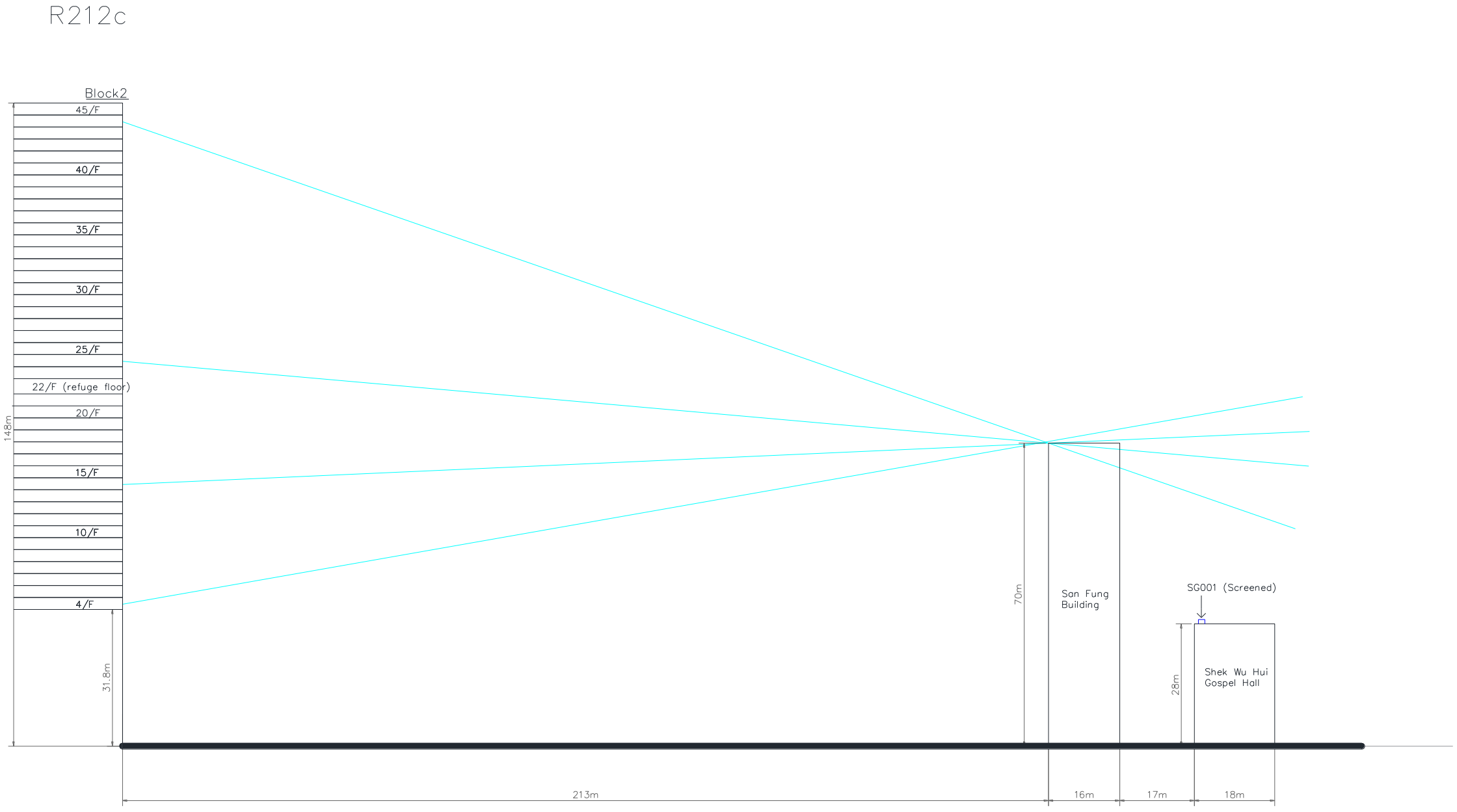
NSR ID: R212c (Section A-B)



Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R212c**
NSR x coord:	**831007.6**
NSR y coord:	**840493.0**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	365	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	353	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	342	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	364	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	362	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	338	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	336	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	334	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	322	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	306	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	244	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	243	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	247	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	245	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	242	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	246	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	244	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	245	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	243	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	242	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	425	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	425	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	376	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	376	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	375	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	375	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	366	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	361	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	335	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	357	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	161	30	-	-27	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	163	30	-	-27	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	156	30	-	-34	-	3		28	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	154	30	-	-34	-	3		28	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	78	30	-	-26	-	3		47	47	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	92	30	-	-30	-	3		44	44	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	110	30	-	-41	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	264	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	298	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	306	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	248	30	-	-31	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	265	30	-	-42	-	3		33	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	266	30	-	-42	-	3		33	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	267	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	78	30	-	-28	-	3		40	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	77	30	-	-28	-	3		42	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	98	30	-	-20	-	3		36	36	-
GC002			Y	Y	52.3	10.0	831092	840538	26	96	30	-	-20	-	3		36	36	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	70	30	-	-27	-	3		42	42	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	60	30	-	-30	-	3		44	44	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	51.51	30	-	-23	-	3	6	67	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	76	30	-	-24	-	3		43	43	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	140	30	-	-33	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	143	30	-	-34	-	3		36	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	145	30	-	-34	-	3		36	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	113	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	118	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		67	52	
															Criteria ANL		65	55	
															Exceedance		2	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R212c**
NSR x coord:	**831007.6**
NSR y coord:	**840493.0**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	366	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	354	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	343	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	365	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	363	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	339	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	337	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	335	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	325	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	310	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	247	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	246	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	250	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	247	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	245	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	249	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	247	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	248	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	246	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	244	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	426	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	426	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	379	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	378	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	378	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	377	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	367	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	363	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	397	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	397	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	397	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	338	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	360	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	165	30	-	-27	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	168	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	162	30	-	-35	-	3		27	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	160	30	-	-35	-	3		27	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	90	30	-	-27	-	3		45	45	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	102	30	-	-31	-	3		43	43	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	118	30	-	-41	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	258	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	293	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	302	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	250	30	-	-31	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	261	30	-	-42	-	3		33	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	262	30	-	-42	-	3		33	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	262	30	-	-42	-	3		33	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	89	30	-	-29	-	3		39	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	89	30	-	-29	-	3		41	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	103	30	-	-20	-	3		35	35	-
GC002			Y	Y	52.3	10.0	831092	840538	26	102	30	-	-20	-	3		35	35	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	84	30	-	-29	-	3		41	41	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	76	30	-	-32	-	3		42	42	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	69	30	-	-26	-	3	6	64	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	89	30	-	-25	-	3		42	42	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	145	30	-	-34	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	148	30	-	-34	-	3		35	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	150	30	-	-34	-	3		35	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	121	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	125	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		64	50	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R212c**
NSR x coord:	**831007.6**
NSR y coord:	**840493.0**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**B**

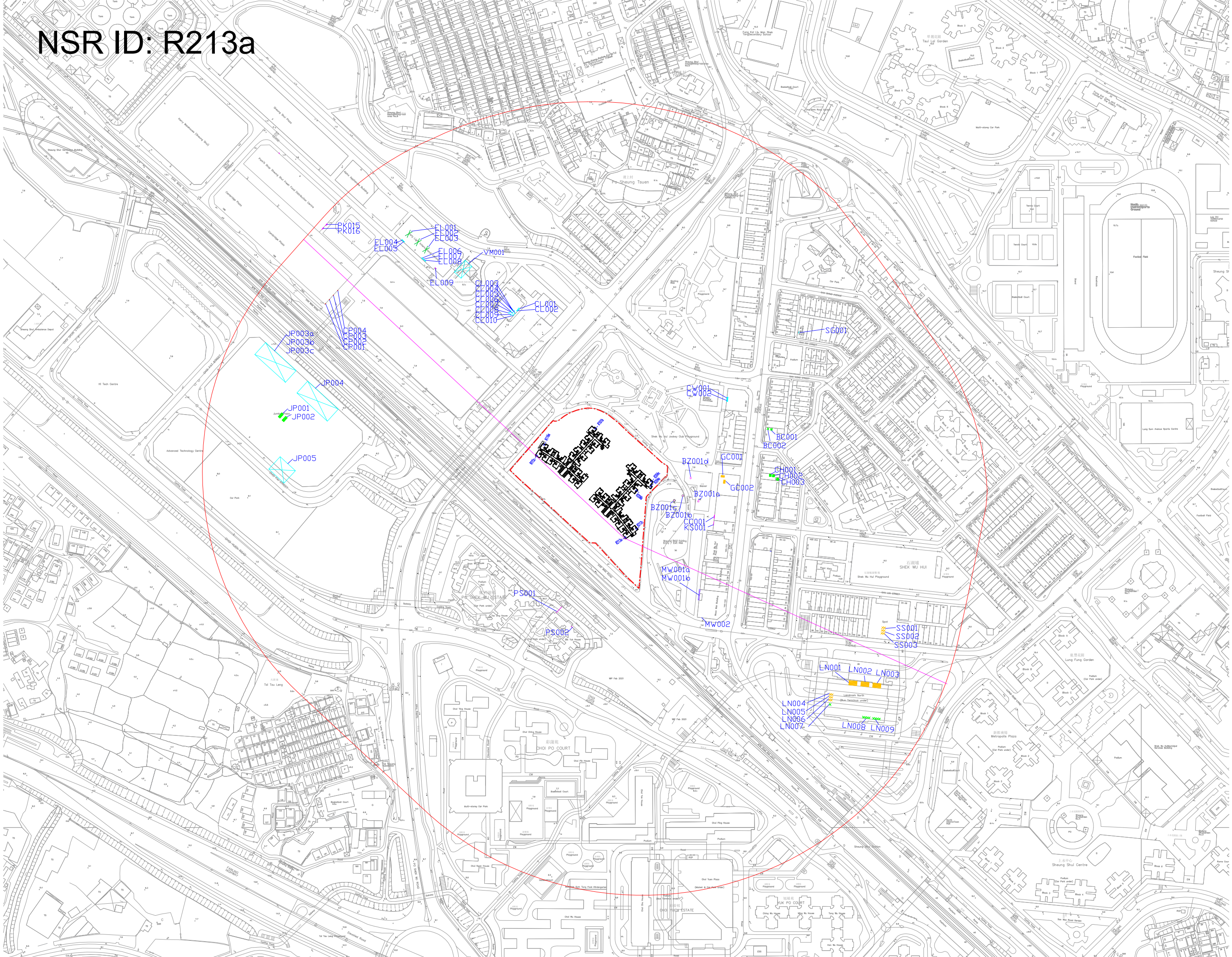
Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	369	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	357	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	347	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	368	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	366	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	342	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	341	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	339	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	330	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	315	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	253	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	252	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	256	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	253	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	251	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	255	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	253	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	254	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	252	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	251	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	429	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	429	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	384	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	383	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	383	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	382	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	371	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	366	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	401	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	401	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	401	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	344	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	366	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	174	30	-	-28	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	177	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	173	30	-	-35	-	3		27	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	171	30	-	-35	-	3		27	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	109	30	-	-29	-	3		44	44	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	119	30	-	-32	-	3		42	42	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	133	30	-	-42	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	256	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	291	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	299	30	-	-43	-	3		35	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	255	30	-	-31	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	259	30	-	-42	-	3		33	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	260	30	-	-42	-	3		33	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	261	30	-	-42	-	3		33	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	107	30	-	-31	-	3		37	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	107	30	-	-31	-	3		39	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	116	30	-	-21	-	3		34	34	-
GC002			Y	Y	52.3	10.0	831092	840538	26	115	30	-	-21	-	3		34	34	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	104	30	-	-31	-	3		39	39	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	98	30	-	-34	-	3		40	40	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	93	30	-	-28	-	3	6	62	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	108	30	-	-27	-	3		40	40	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	156	30	-	-34	-	3		35	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	158	30	-	-34	-	3		35	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	160	30	-	-35	-	3		35	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	134	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	139	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		62	49	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R212c**
NSR x coord:	**831007.6**
NSR y coord:	**840493.0**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	381	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	370	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	360	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	380	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	379	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	356	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	354	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	352	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	346	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	334	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	273	30	-	-	-	-		-	-	No line of sight.
CL002			Y	N	62.2	2.5	830890	840706	21	272	30	-	-	-	-		-	-	No line of sight.
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	275	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	273	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	271	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	275	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	273	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	274	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	272	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	271	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	440	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	440	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	399	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	398	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	398	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	397	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	384	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	379	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	416	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	416	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	416	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	361	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	382	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	203	30	-	-29	-	3		35	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	204	30	-	-29	-	3		35	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	203	30	-	-37	-	3		25	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	202	30	-	-37	-	3		25	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	153	30	-	-32	-	3		41	41	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	161	30	-	-35	-	3		40	40	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	171	30	-	-45	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	259	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	293	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	302	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	272	30	-	-32	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	265	30	-	-42	-	3		33	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	266	30	-	-42	-	3		33	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	267	30	-	-42	-	3		33	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	150	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	152	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	153	30	-	-24	-	3		32	32	-
GC002			Y	Y	52.3	10.0	831092	840538	26	152	30	-	-24	-	3		32	32	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	151	30	-	-34	-	3		35	35	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	147	30	-	-37	-	3		36	36	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	143	30	-	-32	-	3	6	58	-	-
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	153	30	-	-30	-	3		37	37	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	187	30	-	-36	-	3		33	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	189	30	-	-36	-	3		33	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	191	30	-	-36	-	3		33	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	171	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	175	30	-	-	-	-		-	-	No line of sight.

Tonality	0	0
Total SPL	58	46
Criteria ANL	65	55
Exceedance	-	-

NSR ID: R213a


PK015
PK016
EL004
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CW001
CW002
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LN009

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R213a**
NSR x coord:	**830994.4**
NSR y coord:	**840483.1**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	365	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	353	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	342	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	363	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	361	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	338	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	336	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	334	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	322	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	307	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	247	30	-	-	-	-		-	-	No line of sight.
CL002			Y	N	62.2	2.5	830890	840706	21	246	30	-	-	-	-		-	-	No line of sight.
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	249	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	247	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	245	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	248	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	246	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	248	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	245	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	244	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	423	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	423	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	372	30	-	-51	-	3		27	27	-
CP002			Y	Y	70.9	1.0	830706	840716	11	371	30	-	-51	-	3		23	23	-
CP003			Y	Y	73.7	1.0	830710	840721	11	371	30	-	-51	-	3		25	25	-
CP004			Y	Y	75.4	1.0	830714	840725	11	371	30	-	-51	-	3		27	27	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	356	30	-	-34	-	3		49	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	352	30	-	-34	-	3		49	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	386	2	-12	-32	-	3		27	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	386	2	-12	-38	-	3		42	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	386	2	-12	-42	-	3		30	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	327	30	-	-41	-	3		31	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	346	30	-	-33	-	3		35	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	177	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	180	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	172	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	169	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	85	30	-	-27	-	3		46	46	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	95	30	-	-30	-	3		44	44	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	111	30	-	-41	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	268	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	302	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	311	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	264	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	274	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	275	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	275	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	93	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	91	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	114	30	-	-21	-	3		34	34	-
GC002			Y	Y	52.3	10.0	831092	840538	26	113	30	-	-21	-	3		34	34	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	85	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	75	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	66.38	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	91	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	156	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	159	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	161	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	97	30	-	-34	-	3		41	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	103	30	-	-34	-	3		24	24	-
															Tonality		0	0	
															Total SPL		55	49	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R213a**
NSR x coord:	**830994.4**
NSR y coord:	**840483.1**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	366	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	354	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	343	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	364	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	363	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	339	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	337	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	335	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	325	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	311	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	250	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	249	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	252	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	250	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	248	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	251	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	249	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	250	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	248	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	247	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	424	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	423	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	374	30	-	-51	-	3		27	27	-
CP002			Y	Y	70.9	1.0	830706	840716	11	374	30	-	-51	-	3		22	22	-
CP003			Y	Y	73.7	1.0	830710	840721	11	374	30	-	-51	-	3		25	25	-
CP004			Y	Y	75.4	1.0	830714	840725	11	374	30	-	-51	-	3		27	27	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	358	30	-	-34	-	3		49	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	353	30	-	-34	-	3		49	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	389	2	-12	-32	-	3		27	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	389	2	-12	-38	-	3		42	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	389	2	-12	-42	-	3		29	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	330	30	-	-41	-	3		31	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	349	30	-	-33	-	3		35	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	181	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	184	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	177	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	175	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	96	30	-	-28	-	3		45	45	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	105	30	-	-31	-	3		43	43	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	119	30	-	-42	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	262	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	297	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	306	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	266	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	270	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	270	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	271	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	102	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	101	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	119	30	-	-22	-	3		34	34	-
GC002			Y	Y	52.3	10.0	831092	840538	26	118	30	-	-21	-	3		34	34	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	97	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	88	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	81.02	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	102	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	161	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	163	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	166	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	106	30	-	-34	-	3		40	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	111	30	-	-35	-	3		23	23	-
															Tonality		0	0	
															Total SPL		55	48	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R213a**
NSR x coord:	**830994.4**
NSR y coord:	**840483.1**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	369	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	357	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	347	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	368	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	366	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	342	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	340	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	339	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	330	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	317	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	256	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	255	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	258	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	256	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	254	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	257	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	255	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	256	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	254	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	253	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	427	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	426	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	379	30	-	-52	-	3		27	27	-
CP002			Y	Y	70.9	1.0	830706	840716	11	379	30	-	-52	-	3		22	22	-
CP003			Y	Y	73.7	1.0	830710	840721	11	379	30	-	-52	-	3		25	25	-
CP004			Y	Y	75.4	1.0	830714	840725	11	378	30	-	-52	-	3		27	27	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	362	30	-	-34	-	3		49	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	357	30	-	-34	-	3		49	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	394	2	-12	-32	-	3		27	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	394	2	-12	-38	-	3		42	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	394	2	-12	-42	-	3		29	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	336	30	-	-41	-	3		31	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	354	30	-	-33	-	3		35	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	190	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	192	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	187	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	185	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	114	30	-	-29	-	3		43	43	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	121	30	-	-32	-	3		42	42	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	133	30	-	-42	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	259	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	295	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	304	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	270	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	268	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	269	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	269	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	118	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	117	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	130	30	-	-22	-	3		33	33	-
GC002			Y	Y	52.3	10.0	831092	840538	26	129	30	-	-22	-	3		33	33	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	115	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	108	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	101.77	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	119	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	170	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	173	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	175	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	121	30	-	-36	-	3		39	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	126	30	-	-36	-	3		22	22	-
															Tonality		0	0	
															Total SPL		54	46	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R213a**
NSR x coord:	**830994.4**
NSR y coord:	**840483.1**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**B**

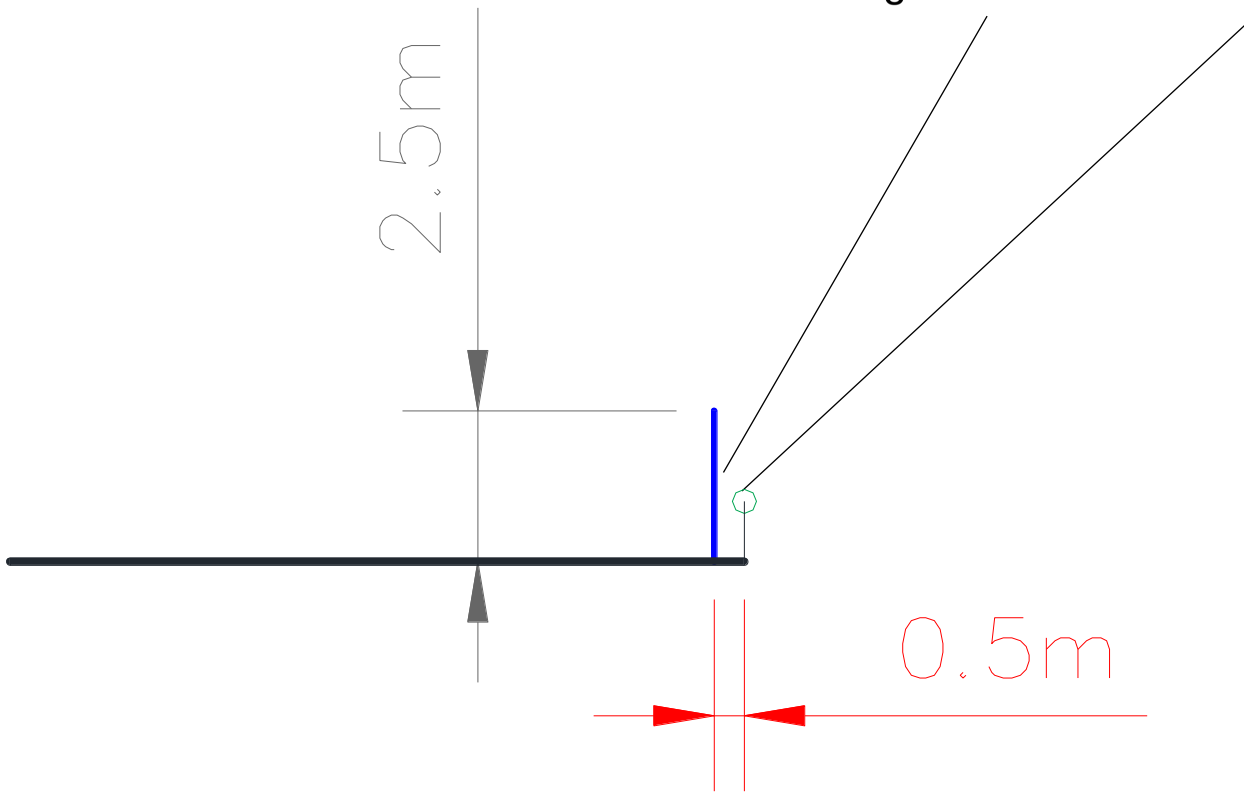
Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	381	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	370	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	360	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	380	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	378	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	356	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	354	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	352	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	346	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	335	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	276	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	275	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	278	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	276	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	274	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	277	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	275	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	276	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	274	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	273	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	437	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	437	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	394	30	-	-52	-	3		26	26	-
CP002			Y	Y	70.9	1.0	830706	840716	11	394	30	-	-52	-	3		22	22	-
CP003			Y	Y	73.7	1.0	830710	840721	11	394	30	-	-52	-	3		25	25	-
CP004			Y	Y	75.4	1.0	830714	840725	11	393	30	-	-52	-	3		27	27	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	375	30	-	-35	-	3		49	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	370	30	-	-34	-	3		49	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	409	2	-12	-32	-	3		27	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	409	2	-12	-38	-	3		42	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	409	2	-12	-43	-	3		29	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	353	30	-	-41	-	3		30	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	371	30	-	-33	-	3		34	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	216	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	218	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	215	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	214	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	157	30	-	-32	-	3		41	41	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	163	30	-	-35	-	3		39	39	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	171	30	-	-45	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	262	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	298	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	306	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	287	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	274	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	274	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	275	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	158	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	159	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	164	30	-	-24	-	3		31	31	-
GC002			Y	Y	52.3	10.0	831092	840538	26	163	30	-	-24	-	3		31	31	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	158	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	154	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	149.40	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd noise	Y	Y	63.8	5.0	831059	840542	8	162	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	199	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	201	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	203	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	161	30	-	-38	-	3		37	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	165	30	-	-38	-	3		20	20	-
															Tonality		0	0	
															Total SPL		54	44	
															Criteria ANL		65	55	
															Exceedance		-	-	

Appendix 6.5

Calculation of Fixed Noise Levels at Receivers for Residential Blocks (Mitigated Scenario)

Details of the proposed noise mitigation measures for screening the noisy part of the pump for the water tank on the vehicle

The noisy part of the pump for the water tank on the vehicle



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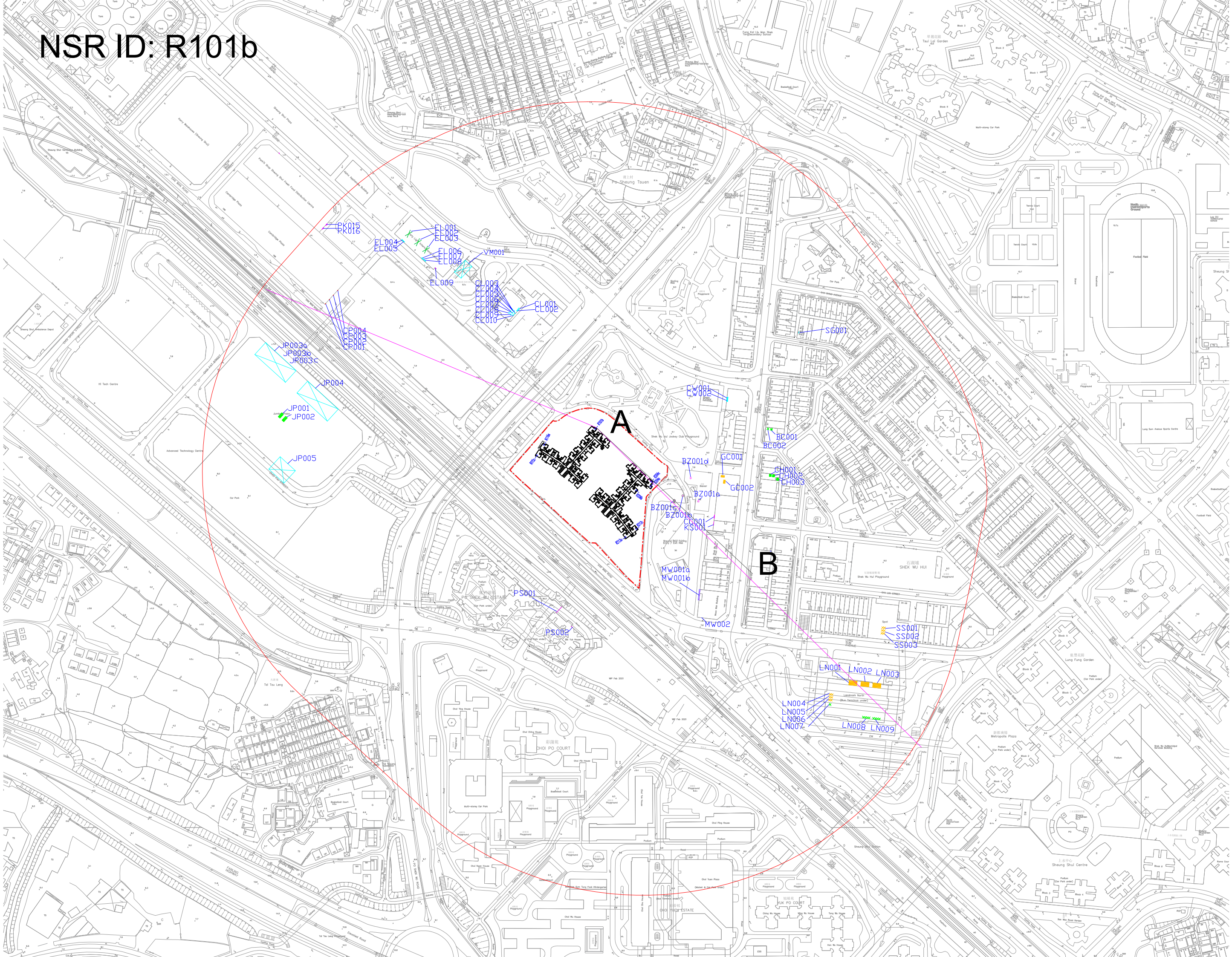
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LN009
Po Sheung Tsuen
SHEK WU HUI
CHOI PO COURT
CHOI YUEN ESTATE
YUK PO COURT
Lung Fung Garden
Metropolis Plaza
Sheung Shui Centre
Tai Tau Leng
Hi Tech Centre
Sheung Shui Playground
Sheung Shui Jockey Club Playground
Tsui Lei Garden
Lung Sum Avenue Sports Centre
Sheung Shui Recreation Ground
Po Shek Wu Estate
Choi Yuen Estate
Choi Po Court
Sheung Shui Station
Sheung Shui Bus Terminus
Sheung Shui Police Station
Sheung Shui Fresh Food Distribution Centre
Sheung Shui Slaughterhouse
Sheung Shui Ambulance Depot
Sheung Shui Government Offices
Sheung Shui Wholesale Building
Kam Wah Mansion (Sheung Shui)
Kam Hing Building
Kam Fai Mansion
Kam Kwong Building
Kam Yuen Mansion
Kam Yuen Building
Kam Yuen Court
Kam Yuen Court Block 1
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Kam Yuen Court Block 3
Kam Yuen Court Block 4
Kam Yuen Court Block 5
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Kam Yuen Court Block 7
Kam Yuen Court Block 8
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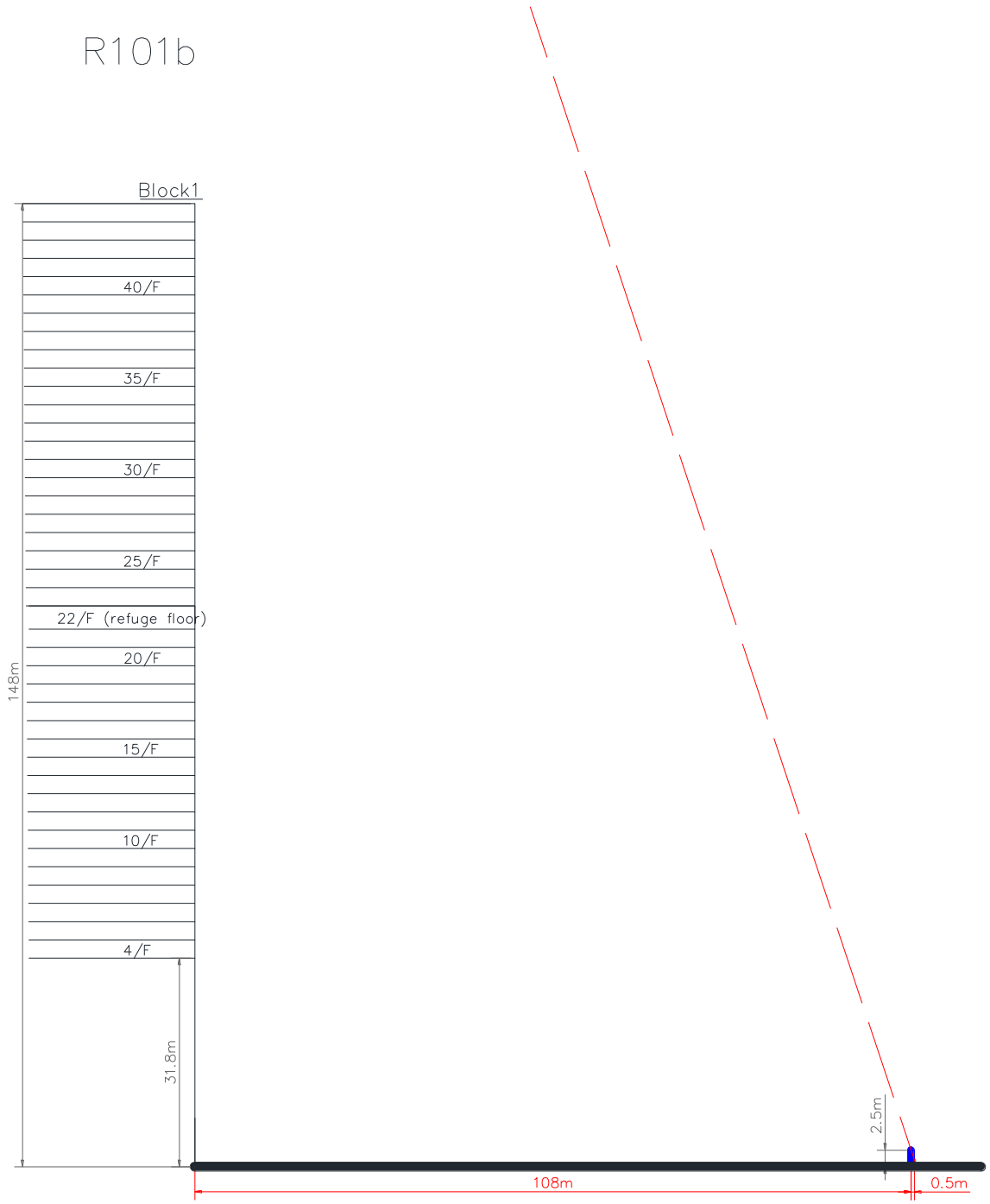
NSR ID: R101b (Section A-B)



Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R101b**
NSR x coord:	**830967.2**
NSR y coord:	**840591.2**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	264	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	252	30	-	-34	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	241	30	-	-34	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	264	30	-	-39	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	262	30	-	-39	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	238	30	-	-38	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	236	30	-	-38	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	234	30	-	-38	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	222	30	-	-33	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	204	30	-	-29	-	3		43	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	139	30	-	-35	-	3		30	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	139	30	-	-35	-	3		30	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	142	30	-	-40	-	3		25	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	140	30	-	-39	-	3		25	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	138	30	-	-39	-	3		25	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	142	30	-	-40	-	3		25	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	140	30	-	-39	-	3		25	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	141	30	-	-39	-	3		25	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	139	30	-	-39	-	3		25	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	137	30	-	-39	-	3		25	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	330	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	331	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	292	30	-	-49	-	3		29	29	-
CP002			Y	Y	70.9	1.0	830706	840716	11	290	30	-	-49	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	289	30	-	-49	-	3		27	27	-
CP004			Y	Y	75.4	1.0	830714	840725	11	287	30	-	-49	-	3		29	29	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	309	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	305	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	325	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	325	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	325	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	270	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	317	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	168	30	-	-28	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	172	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	133	30	-	-33	-	3		29	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	132	30	-	-33	-	3		29	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	174	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	193	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	214	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	361	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	361	30	-	-45	-	3		30	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	361	30	-	-45	-	3		30	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	361	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	361	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	361	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	361	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	393	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	401	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	220	30	-	-30	-	3		54	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	347	30	-	-45	-	3		30	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	348	30	-	-45	-	3		30	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	349	30	-	-45	-	3		30	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	146	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	150	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	133	30	-	-22	-	3		33	33	-
GC002			Y	Y	52.3	10.0	831092	840538	26	136	30	-	-23	-	3		33	33	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	126	30	-	-32	-	3		37	37	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	111	30	-	-35	-	3		39	39	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	107	30	-	-30	-5	3	6	55	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	108	30	-	-27	-	3		40	40	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	177	30	-	-35	-	3		34	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	180	30	-	-36	-	3		34	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	185	30	-	-36	-	3		34	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	183	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	197	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		60	45	
															Criteria ANL		70	60	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R101b**
NSR x coord:	**830967.2**
NSR y coord:	**840591.2**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	265	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	253	30	-	-34	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	243	30	-	-34	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	265	30	-	-39	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	263	30	-	-39	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	239	30	-	-38	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	237	30	-	-38	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	236	30	-	-38	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	226	30	-	-33	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	209	30	-	-29	-	3		42	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	144	30	-	-35	-	3		30	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	144	30	-	-35	-	3		30	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	147	30	-	-40	-	3		25	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	145	30	-	-40	-	3		25	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	143	30	-	-40	-	3		25	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	147	30	-	-40	-	3		25	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	145	30	-	-40	-	3		25	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	146	30	-	-40	-	3		25	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	144	30	-	-40	-	3		25	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	143	30	-	-40	-	3		25	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	332	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	332	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	295	30	-	-49	-	3		29	29	-
CP002			Y	Y	70.9	1.0	830706	840716	11	294	30	-	-49	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	292	30	-	-49	-	3		27	27	-
CP004			Y	Y	75.4	1.0	830714	840725	11	291	30	-	-49	-	3		29	29	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	310	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	307	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	328	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	328	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	328	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	274	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	320	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	173	30	-	-28	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	176	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	140	30	-	-33	-	3		29	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	140	30	-	-33	-	3		29	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	180	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	199	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	218	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	356	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	356	30	-	-45	-	3		30	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	356	30	-	-45	-	3		30	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	356	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	356	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	356	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	357	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	389	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	397	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	222	30	-	-30	-	3		53	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	343	30	-	-45	-	3		30	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	345	30	-	-45	-	3		30	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	346	30	-	-45	-	3		30	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	152	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	156	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	137	30	-	-23	-	3		33	33	-
GC002			Y	Y	52.3	10.0	831092	840538	26	140	30	-	-23	-	3		32	32	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	134	30	-	-33	-	3		37	37	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	120	30	-	-36	-	3		38	38	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	117	30	-	-30	-5	3	6	55	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	117	30	-	-27	-	3		39	39	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	181	30	-	-36	-	3		34	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	184	30	-	-36	-	3		34	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	189	30	-	-36	-	3		33	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	188	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	202	30	-	-	-	-		-	-	No line of sight.
																Tonality	0	0	
																Total SPL	60	44	
																Criteria ANL	70	60	
																Exceedance	-	-	

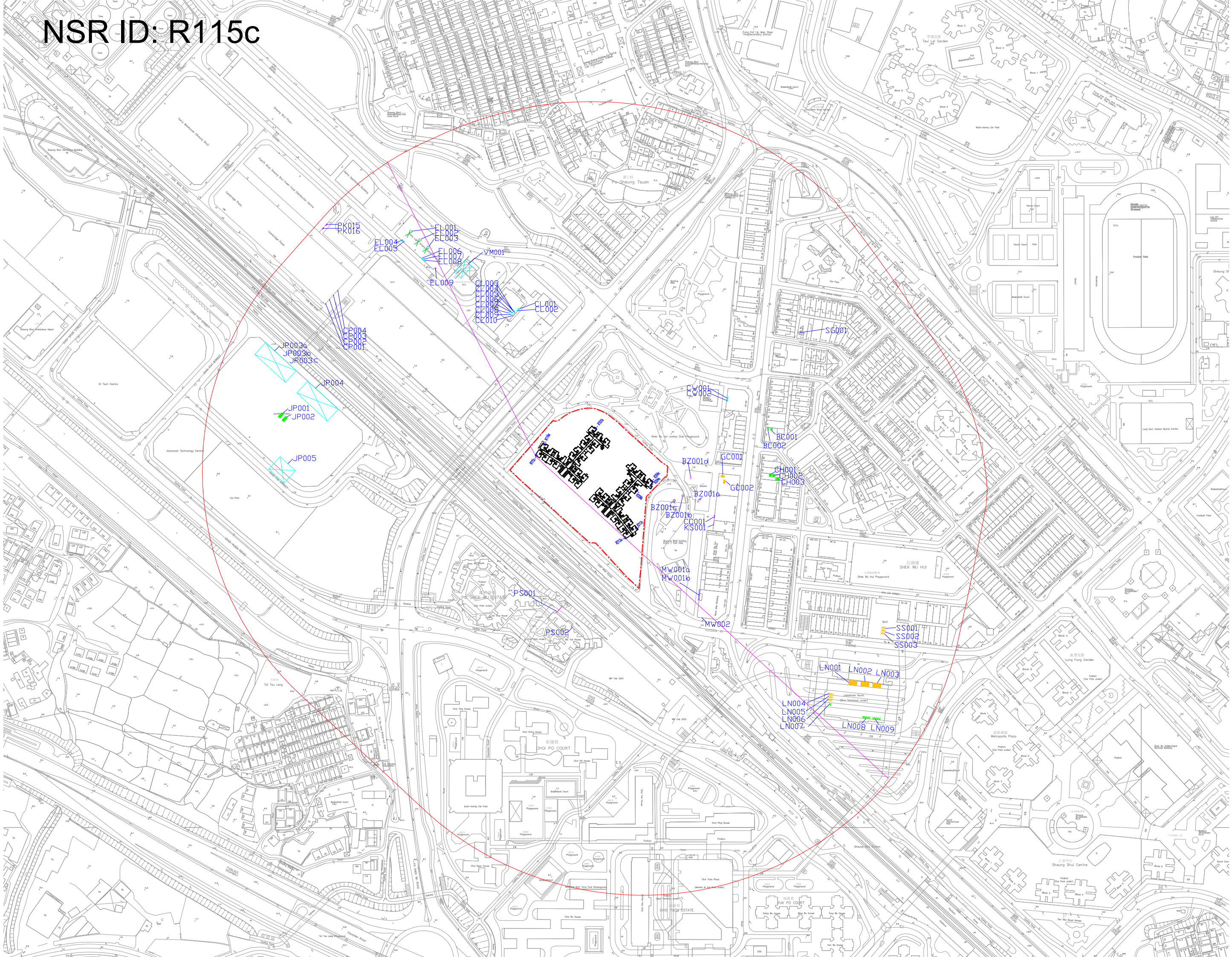
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R101b**
NSR x coord:	**830967.2**
NSR y coord:	**840591.2**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	270	30	-	-35	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	258	30	-	-34	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	247	30	-	-34	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	270	30	-	-39	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	268	30	-	-39	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	244	30	-	-38	-	3		26	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	242	30	-	-38	-	3		26	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	241	30	-	-38	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	233	30	-	-33	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	217	30	-	-30	-	3		42	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	154	30	-	-36	-	3		29	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	154	30	-	-36	-	3		29	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	157	30	-	-40	-	3		24	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	155	30	-	-40	-	3		24	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	153	30	-	-40	-	3		25	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	157	30	-	-40	-	3		24	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	155	30	-	-40	-	3		24	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	156	30	-	-40	-	3		24	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	154	30	-	-40	-	3		24	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	153	30	-	-40	-	3		25	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	335	30	-	-51	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	336	30	-	-51	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	301	30	-	-50	-	3		29	29	-
CP002			Y	Y	70.9	1.0	830706	840716	11	300	30	-	-50	-	3		24	24	-
CP003			Y	Y	73.7	1.0	830710	840721	11	298	30	-	-49	-	3		27	27	-
CP004			Y	Y	75.4	1.0	830714	840725	11	297	30	-	-49	-	3		29	29	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	315	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	311	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	334	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	334	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	334	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	281	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	326	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	181	30	-	-28	-	3		36	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	185	30	-	-28	-	3		36	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	152	30	-	-34	-	3		28	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	152	30	-	-34	-	3		28	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	190	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	208	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	226	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	354	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	354	30	-	-45	-	3		30	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	354	30	-	-45	-	3		30	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	354	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	354	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	354	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	355	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	387	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	395	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	227	30	-	-30	-	3		53	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	342	30	-	-45	-	3		30	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	344	30	-	-45	-	3		30	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	345	30	-	-45	-	3		30	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	163	30	-	-35	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	167	30	-	-35	-	3		35	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	147	30	-	-23	-	3		32	32	-
GC002			Y	Y	52.3	10.0	831092	840538	26	150	30	-	-24	-	3		32	32	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	147	30	-	-34	-	3		36	36	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	135	30	-	-37	-	3		37	37	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	132	30	-	-32	-5	3	6	54	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	132	30	-	-28	-	3		38	38	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	189	30	-	-36	-	3		33	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	192	30	-	-36	-	3		33	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	197	30	-	-36	-	3		33	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	197	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	210	30	-	-	-	-		-	-	No line of sight.
																Tonality	0	0	
																Total SPL	60	43	
																Criteria ANL	70	60	
																Exceedance	-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R101b**
NSR x coord:	**830967.2**
NSR y coord:	**840591.2**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	286	30	-	-35	-	3		50	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	275	30	-	-35	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	265	30	-	-35	-	3		51	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	286	30	-	-40	-	3		25	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	285	30	-	-40	-	3		25	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	262	30	-	-39	-	3		26	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	261	30	-	-39	-	3		26	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	259	30	-	-39	-	3		26	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	255	30	-	-34	-	3		32	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	243	30	-	-31	-	3		41	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	185	30	-	-37	-	3		28	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	185	30	-	-37	-	3		28	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	188	30	-	-42	-	3		23	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	186	30	-	-42	-	3		23	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	184	30	-	-42	-	3		23	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	187	30	-	-42	-	3		23	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	186	30	-	-42	-	3		23	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	187	30	-	-42	-	3		23	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	185	30	-	-42	-	3		23	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	184	30	-	-42	-	3		23	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	349	30	-	-51	-	3		26	26	-
PK016			Y	Y	74.1	1.0	830700	840786	32	349	30	-	-51	-	3		26	26	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	320	30	-	-50	-	3		28	28	-
CP002			Y	Y	70.9	1.0	830706	840716	11	319	30	-	-50	-	3		24	24	-
CP003			Y	Y	73.7	1.0	830710	840721	11	317	30	-	-50	-	3		27	27	-
CP004			Y	Y	75.4	1.0	830714	840725	11	316	30	-	-50	-	3		28	28	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	330	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	326	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	351	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	351	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	351	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	302	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	344	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	209	30	-	-29	-	3		35	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	211	30	-	-30	-	3		35	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	186	30	-	-36	-	3		26	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	186	30	-	-36	-	3		26	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	219	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	234	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	250	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	357	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	357	30	-	-45	-	3		30	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	357	30	-	-45	-	3		30	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	357	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	357	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	357	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	357	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	390	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	397	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	246	30	-	-31	-	3		53	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	347	30	-	-45	-	3		30	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	348	30	-	-45	-	3		30	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	349	30	-	-45	-	3		30	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	194	30	-	-36	-	3		32	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	198	30	-	-36	-	3		34	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	177	30	-	-25	-	3		30	30	-
GC002			Y	Y	52.3	10.0	831092	840538	26	180	30	-	-25	-	3		30	30	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	183	30	-	-36	-	3		34	34	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	174	30	-	-39	-	3		35	35	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	172	30	-	-34	-5	3	6	51	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	172	30	-	-31	-	3		36	36	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	216	30	-	-37	-	3		32	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	218	30	-	-37	-	3		32	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	222	30	-	-37	-	3		32	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	224	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	236	30	-	-	-	-		-	-	No line of sight.
																Tonality	0	0	
																Total SPL	59	42	
																Criteria ANL	70	60	
																Exceedance	-	-	

NSR ID: R115c


PK015
PK016
EL001
EL002
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MW001a
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MW002
PS001
PS002
SS001
SS002
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LN001
LN002
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LN004
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LN006
LN007
LN008
LN009

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R115c**
NSR x coord:	**830908.2**
NSR y coord:	**840562.6**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	251	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	240	30	-	-34	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	229	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	249	30	-	-38	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	247	30	-	-38	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	224	30	-	-37	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	222	30	-	-37	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	220	30	-	-37	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	210	30	-	-32	-	3		34	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	198	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	146	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	145	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	146	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	145	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	142	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	145	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	143	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	144	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	142	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	141	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	306	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	306	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	255	30	-	-48	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	255	30	-	-48	-	3		26	26	-
CP003			Y	Y	73.7	1.0	830710	840721	11	254	30	-	-48	-	3		29	29	-
CP004			Y	Y	75.4	1.0	830714	840725	11	254	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	253	30	-	-31	-	3		52	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	249	30	-	-31	-	3		52	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	276	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	276	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	276	2	-12	-39	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	218	30	-	-37	-	3		34	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	255	30	-	-30	-	3		38	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	229	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	232	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	197	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	196	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	197	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	210	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	227	30	-	-47	-	3		36	-	-
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	387	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	382	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	417	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	425	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	285	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	383	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	384	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	385	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	185	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	187	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	184	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	186	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	167	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	151	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	144	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	155	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	230	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	233	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	237	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	153	30	-	-38	-	3		37	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	171	30	-	-39	-	3		20	20	-
															Tonality		0	0	
															Total SPL		59	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R115c**
NSR x coord:	**830908.2**
NSR y coord:	**840562.6**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	253	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	241	30	-	-34	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	231	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	251	30	-	-38	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	249	30	-	-38	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	226	30	-	-38	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	224	30	-	-37	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	222	30	-	-37	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	214	30	-	-33	-	3		34	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	203	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	151	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	150	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	151	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	150	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	147	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	150	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	148	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	149	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	147	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	146	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	307	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	307	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	259	30	-	-48	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	259	30	-	-48	-	3		26	26	-
CP003			Y	Y	73.7	1.0	830710	840721	11	258	30	-	-48	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	258	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	255	30	-	-31	-	3		52	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	251	30	-	-31	-	3		52	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	280	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	280	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	280	2	-12	-39	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	223	30	-	-37	-	3		34	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	259	30	-	-30	-	3		37	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	232	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	235	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	202	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	201	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	202	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	215	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	231	30	-	-47	-	3		36	-	-
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	378	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	413	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	422	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	287	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	380	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	381	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	382	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	190	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	192	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	187	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	189	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	173	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	158	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	151	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	162	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	233	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	237	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	241	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	158	30	-	-38	-	3		37	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	176	30	-	-39	-	3		19	19	-
															Tonality		0	0	
															Total SPL		59	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

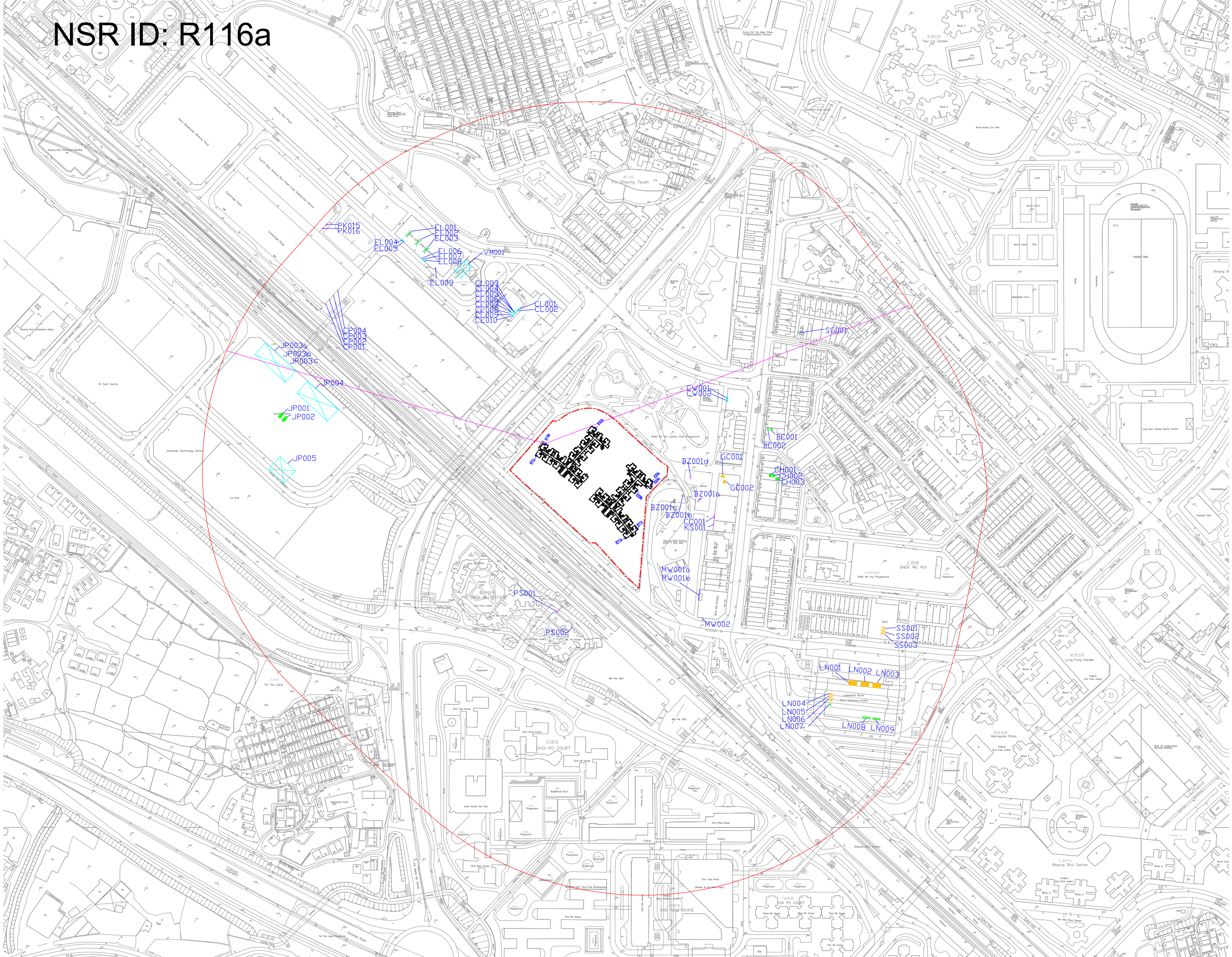
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R115c**
NSR x coord:	**830908.2**
NSR y coord:	**840562.6**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	257	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	246	30	-	-34	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	236	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	255	30	-	-39	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	254	30	-	-39	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	231	30	-	-38	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	229	30	-	-38	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	227	30	-	-38	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	221	30	-	-33	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	212	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	161	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	160	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	161	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	159	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	157	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	160	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	158	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	158	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	157	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	156	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	311	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	311	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	266	30	-	-49	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	266	30	-	-48	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	265	30	-	-48	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	265	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	260	30	-	-31	-	3		52	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	256	30	-	-31	-	3		52	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	286	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	286	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	286	2	-12	-40	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	232	30	-	-38	-	3		34	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	267	30	-	-30	-	3		37	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	239	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	242	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	210	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	210	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	211	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	224	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	239	30	-	-48	-	3		36	-	-
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	381	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	376	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	412	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	420	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	291	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	379	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	380	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	380	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	199	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	201	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	194	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	196	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	183	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	169	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	163	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	173	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	240	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	243	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	247	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	169	30	-	-39	-	3		36	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	186	30	-	-39	-	3		19	19	-
															Tonality		0	0	
															Total SPL		59	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R115c**
NSR x coord:	**830908.2**
NSR y coord:	**840562.6**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	275	30	-	-35	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	264	30	-	-34	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	255	30	-	-34	-	3		51	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	273	30	-	-39	-	3		25	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	271	30	-	-39	-	3		25	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	250	30	-	-38	-	3		26	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	249	30	-	-38	-	3		26	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	247	30	-	-38	-	3		26	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	245	30	-	-34	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	238	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	191	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	190	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	191	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	189	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	188	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	190	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	188	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	189	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	187	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	187	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	326	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	325	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	287	30	-	-49	-	3		29	29	-
CP002			Y	Y	70.9	1.0	830706	840716	11	287	30	-	-49	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	286	30	-	-49	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	286	30	-	-49	-	3		29	29	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	278	30	-	-32	-	3		52	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	274	30	-	-32	-	3		52	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	306	2	-12	-30	-	3		29	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	306	2	-12	-36	-	3		44	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	306	2	-12	-40	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	256	30	-	-39	-	3		33	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	288	30	-	-31	-	3		37	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	260	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	263	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	236	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	235	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	237	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	248	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	262	30	-	-48	-	3		35	-	-
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	383	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	378	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	414	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	422	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	306	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	383	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	383	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	384	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	225	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	228	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	218	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	220	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	214	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	202	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	197	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	204	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	261	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	264	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	268	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	200	30	-	-40	-	3		35	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	214	30	-	-41	-	3		18	18	-
															Tonality		0	0	
															Total SPL		58	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

NSR ID: R116a


PK015
PK016
EL001
EL002
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VM001
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JP003a
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KS001
MW001a
MW001b
MW002
PS001
PS002
SS001
SS002
SS003
LN001
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LN007
LN008
LN009
Po Sheung Tsuen
SHEK WU HUI
CHOI PO COURT
Sheung Shui Centre
Metropolis Plaza
Lung Fung Garden
Tai Tau Leng

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R116a**
NSR x coord:	**830916.9**
NSR y coord:	**840575.6**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	245	30	-	-34	-	3		52	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	233	30	-	-33	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	222	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	243	30	-	-38	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	241	30	-	-38	-	3		27	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	217	30	-	-37	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	216	30	-	-37	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	214	30	-	-37	-	3		28	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	203	30	-	-32	-	3		34	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	190	30	-	-29	-	3		43	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	135	30	-	-35	-	3		31	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	133	30	-	-35	-	3		31	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	135	30	-	-39	-	3		26	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	134	30	-	-39	-	3		26	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	131	30	-	-39	-	3		26	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	134	30	-	-39	-	3		26	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	132	30	-	-39	-	3		26	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	133	30	-	-39	-	3		26	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	131	30	-	-39	-	3		26	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	130	30	-	-39	-	3		26	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	303	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	302	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	255	30	-	-48	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	254	30	-	-48	-	3		26	26	-
CP003			Y	Y	73.7	1.0	830710	840721	11	254	30	-	-48	-	3		29	29	-
CP004			Y	Y	75.4	1.0	830714	840725	11	253	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	260	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	256	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	280	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	280	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	280	2	-12	-39	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	223	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	265	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	219	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	222	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	185	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	184	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	198	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	213	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	230	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	388	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	384	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	418	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	427	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	272	30	-	-32	-	3		52	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	381	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	382	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	383	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	181	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	184	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	177	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	180	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	162	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	146	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	141	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	149	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	223	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	226	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	230	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	164	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	182	30	-	-	-	-		-	-	No line of sight.
																Tonality	0	0	
																Total SPL	58	36	
																Criteria ANL	70	60	
																Exceedance	-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R116a**
NSR x coord:	**830916.9**
NSR y coord:	**840575.6**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	246	30	-	-34	-	3		52	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	234	30	-	-33	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	224	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	244	30	-	-38	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	243	30	-	-38	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	219	30	-	-37	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	217	30	-	-37	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	216	30	-	-37	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	207	30	-	-32	-	3		34	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	195	30	-	-29	-	3		43	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	140	30	-	-35	-	3		30	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	139	30	-	-35	-	3		30	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	141	30	-	-39	-	3		25	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	139	30	-	-39	-	3		25	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	137	30	-	-39	-	3		26	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	139	30	-	-39	-	3		25	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	138	30	-	-39	-	3		25	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	138	30	-	-39	-	3		25	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	136	30	-	-39	-	3		26	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	135	30	-	-39	-	3		26	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	304	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	304	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	259	30	-	-48	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	258	30	-	-48	-	3		26	26	-
CP003			Y	Y	73.7	1.0	830710	840721	11	257	30	-	-48	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	257	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	262	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	258	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	284	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	284	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	284	2	-12	-40	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	228	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	269	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	222	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	226	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	190	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	190	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	203	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	217	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	234	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	380	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	415	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	423	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	273	30	-	-32	-	3		52	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	378	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	379	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	380	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	186	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	189	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	180	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	183	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	169	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	154	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	148	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	156	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	226	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	229	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	234	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	170	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	187	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		58	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

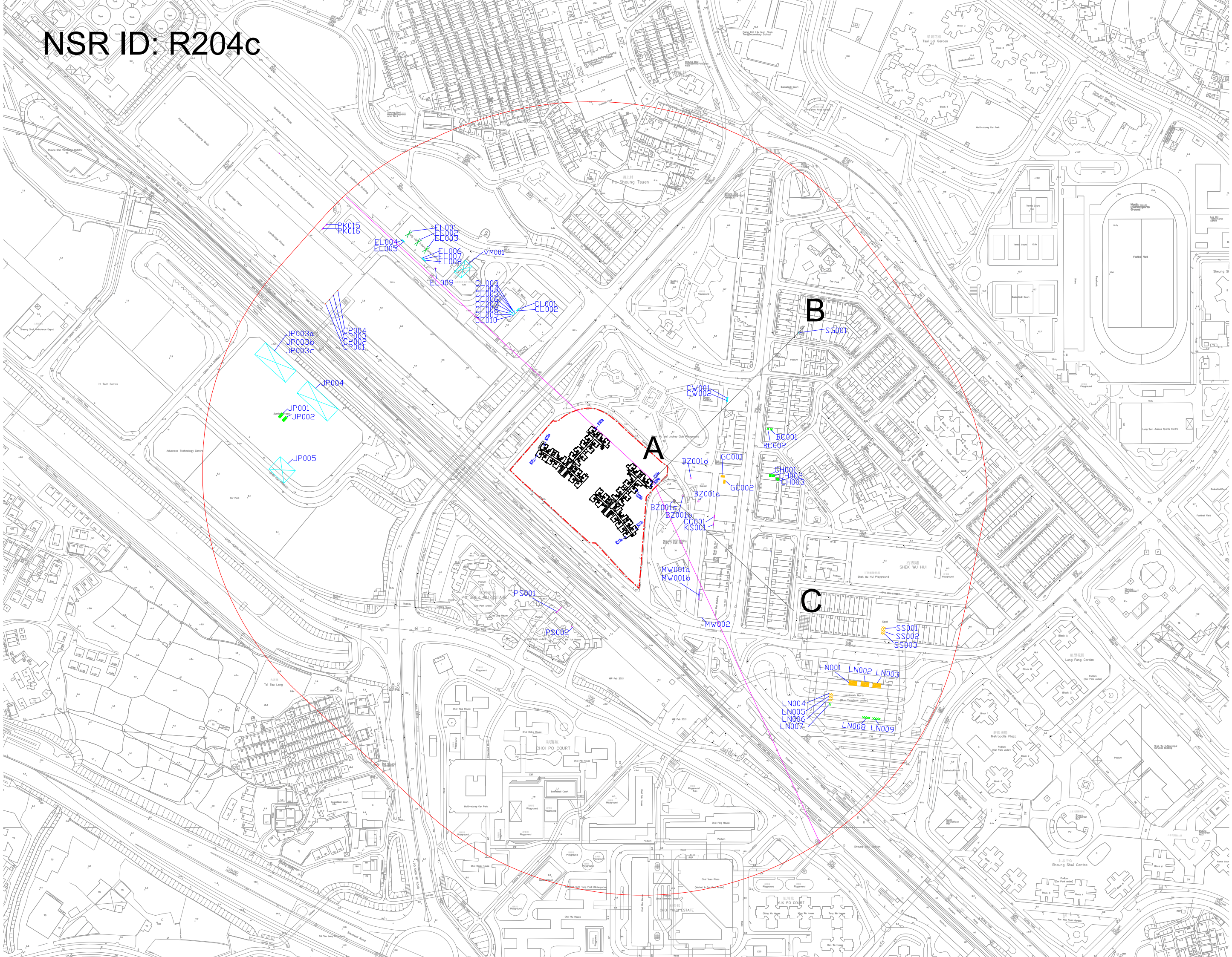
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R116a**
NSR x coord:	**830916.9**
NSR y coord:	**840575.6**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	251	30	-	-34	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	240	30	-	-34	-	3		52	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	230	30	-	-33	-	3		52	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	249	30	-	-38	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	248	30	-	-38	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	225	30	-	-37	-	3		27	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	223	30	-	-37	-	3		27	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	221	30	-	-37	-	3		27	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	215	30	-	-33	-	3		34	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	204	30	-	-29	-	3		42	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	150	30	-	-36	-	3		30	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	149	30	-	-36	-	3		30	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	151	30	-	-40	-	3		25	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	149	30	-	-40	-	3		25	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	147	30	-	-40	-	3		25	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	150	30	-	-40	-	3		25	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	148	30	-	-40	-	3		25	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	149	30	-	-40	-	3		25	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	147	30	-	-40	-	3		25	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	146	30	-	-40	-	3		25	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	308	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	308	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	266	30	-	-48	-	3		30	30	-
CP002			Y	Y	70.9	1.0	830706	840716	11	265	30	-	-48	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	264	30	-	-48	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	264	30	-	-48	-	3		30	30	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	267	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	263	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	290	2	-12	-29	-	3		30	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	290	2	-12	-35	-	3		45	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	290	2	-12	-40	-	3		32	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	236	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	276	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	229	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	232	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	199	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	199	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	212	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	226	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	242	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	382	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	378	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	413	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	422	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	278	30	-	-32	-	3		52	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	377	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	378	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	379	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	195	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	198	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	188	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	190	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	180	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	166	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	160	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	167	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	233	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	236	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	240	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	180	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	196	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		58	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R116a**
NSR x coord:	**830916.9**
NSR y coord:	**840575.6**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**C**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	269	30	-	-35	-	3		51	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	258	30	-	-34	-	3		51	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	249	30	-	-34	-	3		51	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	267	30	-	-39	-	3		26	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	266	30	-	-39	-	3		26	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	244	30	-	-38	-	3		26	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	243	30	-	-38	-	3		26	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	241	30	-	-38	-	3		26	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	239	30	-	-34	-	3		33	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	231	30	-	-30	-	3		41	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	182	30	-	-37	-	3		28	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	181	30	-	-37	-	3		28	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	183	30	-	-42	-	3		23	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	181	30	-	-42	-	3		23	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	179	30	-	-42	-	3		23	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	182	30	-	-42	-	3		23	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	180	30	-	-42	-	3		23	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	181	30	-	-42	-	3		23	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	179	30	-	-42	-	3		23	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	179	30	-	-42	-	3		23	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	323	30	-	-50	-	3		27	27	-
PK016			Y	Y	74.1	1.0	830700	840786	32	322	30	-	-50	-	3		27	27	-
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	287	30	-	-49	-	3		29	29	-
CP002			Y	Y	70.9	1.0	830706	840716	11	286	30	-	-49	-	3		25	25	-
CP003			Y	Y	73.7	1.0	830710	840721	11	285	30	-	-49	-	3		28	28	-
CP004			Y	Y	75.4	1.0	830714	840725	11	285	30	-	-49	-	3		29	29	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	284	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	281	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	310	2	-12	-30	-	3		29	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	310	2	-12	-36	-	3		44	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	310	2	-12	-40	-	3		31	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	260	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	297	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	251	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	254	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	227	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	226	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	238	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	250	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	265	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN002			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN003			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN004			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN005			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN006			Y	N	72.0	2.0	831218	840341	101	384	30	-	-	-	-		-	-	No line of sight.
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	380	30	-	-	-	-		-	-	No line of sight.
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	415	30	-	-	-	-		-	-	No line of sight.
LN009			Y	N	75.0	2.0	831241	840307	101	423	30	-	-	-	-		-	-	No line of sight.
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	294	30	-	-32	-	3		51	-	-
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	381	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	382	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	383	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	222	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	225	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	213	30	-	-	-	-		-	-	No line of sight.
GC002			Y	Y	52.3	10.0	831092	840538	26	215	30	-	-	-	-		-	-	No line of sight.
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	210	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	198	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	194	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	200	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	255	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	258	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	261	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	209	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	223	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		58	36	
															Criteria ANL		70	60	
															Exceedance		-	-	

NSR ID: R204c


A
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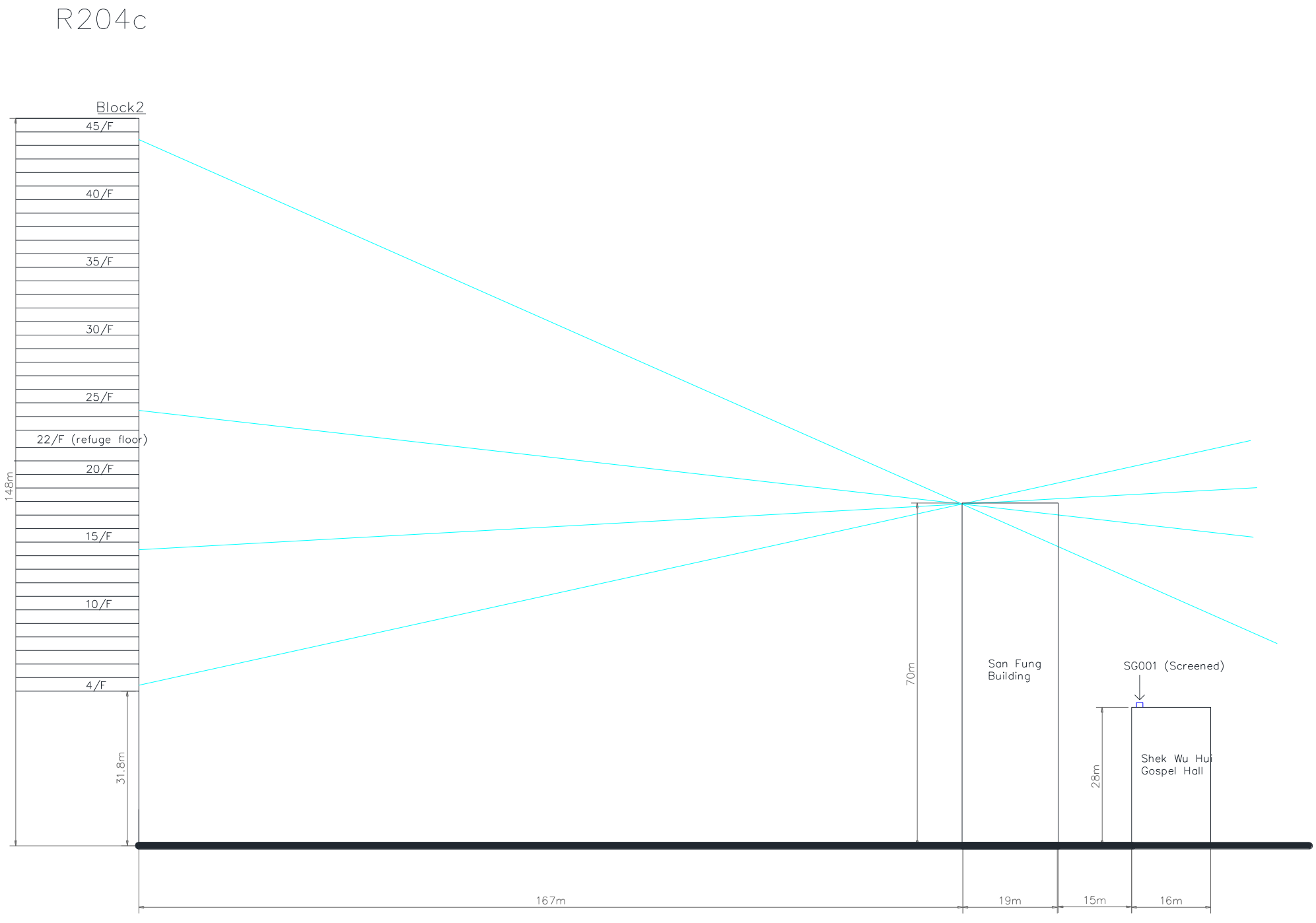
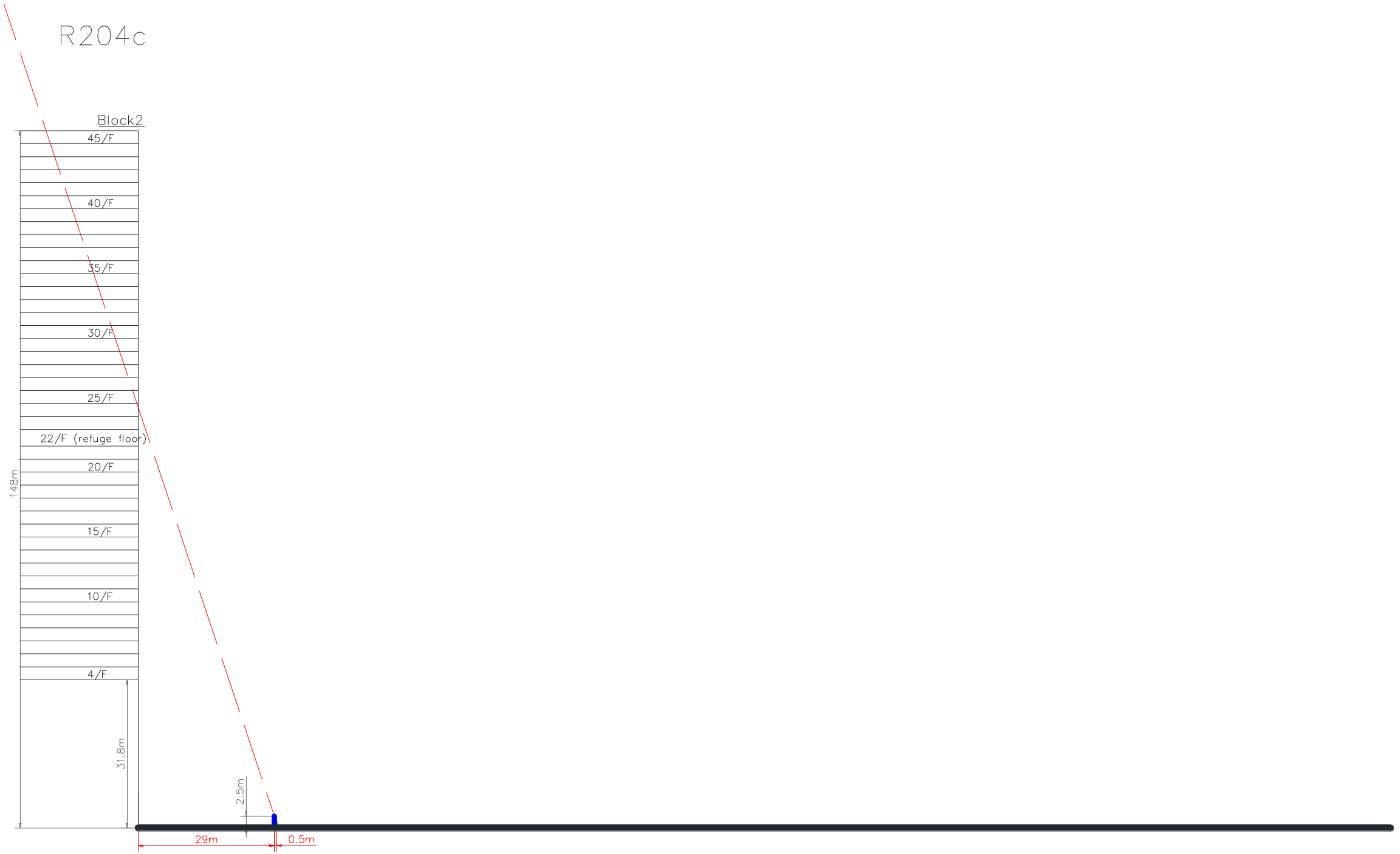
LN006
LN007
LN008
LN009
Po Sheung Tsuen
SHEK WU HUI
CHOI PO COURT
CHOI YUEN ESTATE
YUK PO COURT
Lung Fung Garden
Metropole Plaza
Sheung Shui Centre
Tai Tau Leng
Hi Tech Centre
Advanced Technology Centre

NSR ID: R204c (Section A-B)



NSR ID: R204c (Section A-C)



Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204c**
NSR x coord:	**831022.2**
NSR y coord:	**840539.5**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	339	30	-	-37	-	3		49	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	327	30	-	-36	-	3		49	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	316	30	-	-36	-	3		49	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	339	30	-	-41	-	3		24	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	337	30	-	-41	-	3		24	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	313	30	-	-40	-	3		24	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	311	30	-	-40	-	3		24	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	309	30	-	-40	-	3		24	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	297	30	-	-35	-	3		31	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	278	30	-	-32	-	3		40	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	213	30	-	-39	-	3		27	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	213	30	-	-39	-	3		27	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	217	30	-	-43	-	3		22	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	214	30	-	-43	-	3		22	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	212	30	-	-43	-	3		22	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	216	30	-	-43	-	3		22	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	214	30	-	-43	-	3		22	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	216	30	-	-43	-	3		22	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	214	30	-	-43	-	3		22	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	212	30	-	-43	-	3		22	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	405	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	406	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	364	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	363	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	362	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	360	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	369	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	365	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	391	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	391	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	391	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	334	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	368	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	124	30	-	-25	-	3		40	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	127	30	-	-25	-	3		40	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	111	30	-	-31	-	3		31	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	109	30	-	-31	-	3		31	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	102	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	123	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	144	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	287	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	288	30	-	-40	-	3		34	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	319	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	327	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	204	30	-	-29	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	274	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	275	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	276	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	73	30	-	-28	-	3		41	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	76	30	-	-28	-	3		42	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	69	30	-	-17	-	3		39	39	-
GC002			Y	Y	52.3	10.0	831092	840538	26	71	30	-	-17	-	3		38	38	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	55	30	-	-25	-	3		44	44	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	42	30	-	-26	-	3		47	47	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	39	30	-	-21	-5	3	6	64	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	45	30	-	-19	-	3		48	48	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	116	30	-	-32	-	3		38	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	119	30	-	-32	-	3		37	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	123	30	-	-32	-	3		37	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	157	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	165	30	-	-	-	-		-	-	No line of sight.
																Tonality	0	0	
																Total SPL	65	52	
																Criteria ANL	65	55	
																Exceedance	-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204c**
NSR x coord:	**831022.2**
NSR y coord:	**840539.5**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	340	30	-	-37	-	3		49	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	328	30	-	-36	-	3		49	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	318	30	-	-36	-	3		49	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	340	30	-	-41	-	3		24	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	339	30	-	-41	-	3		24	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	314	30	-	-40	-	3		24	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	312	30	-	-40	-	3		24	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	311	30	-	-40	-	3		24	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	300	30	-	-36	-	3		31	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	282	30	-	-32	-	3		40	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	216	30	-	-39	-	3		26	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	216	30	-	-39	-	3		26	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	220	30	-	-43	-	3		21	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	218	30	-	-43	-	3		21	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	216	30	-	-43	-	3		22	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	220	30	-	-43	-	3		21	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	217	30	-	-43	-	3		21	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	219	30	-	-43	-	3		21	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	217	30	-	-43	-	3		21	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	215	30	-	-43	-	3		22	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	406	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	407	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	367	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	366	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	364	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	363	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	370	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	366	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	337	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	371	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	130	30	-	-25	-	3		39	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	133	30	-	-26	-	3		39	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	119	30	-	-32	-	3		30	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	118	30	-	-32	-	3		30	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	112	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	131	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	151	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	282	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	315	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	322	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	206	30	-	-29	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	269	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	270	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	272	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	84	30	-	-29	-	3		39	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	88	30	-	-29	-	3		41	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	77	30	-	-18	-	3		38	38	-
GC002			Y	Y	52.3	10.0	831092	840538	26	78	30	-	-18	-	3		37	37	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	72	30	-	-28	-	3		42	42	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	63	30	-	-30	-	3		44	44	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	60	30	-	-25	-5	3	6	60	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	65	30	-	-22	-	3		45	45	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	122	30	-	-32	-	3		37	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	125	30	-	-32	-	3		37	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	129	30	-	-33	-	3		37	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	163	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	170	30	-	-	-	-		-	-	No line of sight.

Tonality	0	0
Total SPL	62	49
Criteria ANL	65	55
Exceedance	-	-

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204c**
NSR x coord:	**831022.2**
NSR y coord:	**840539.5**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**B**

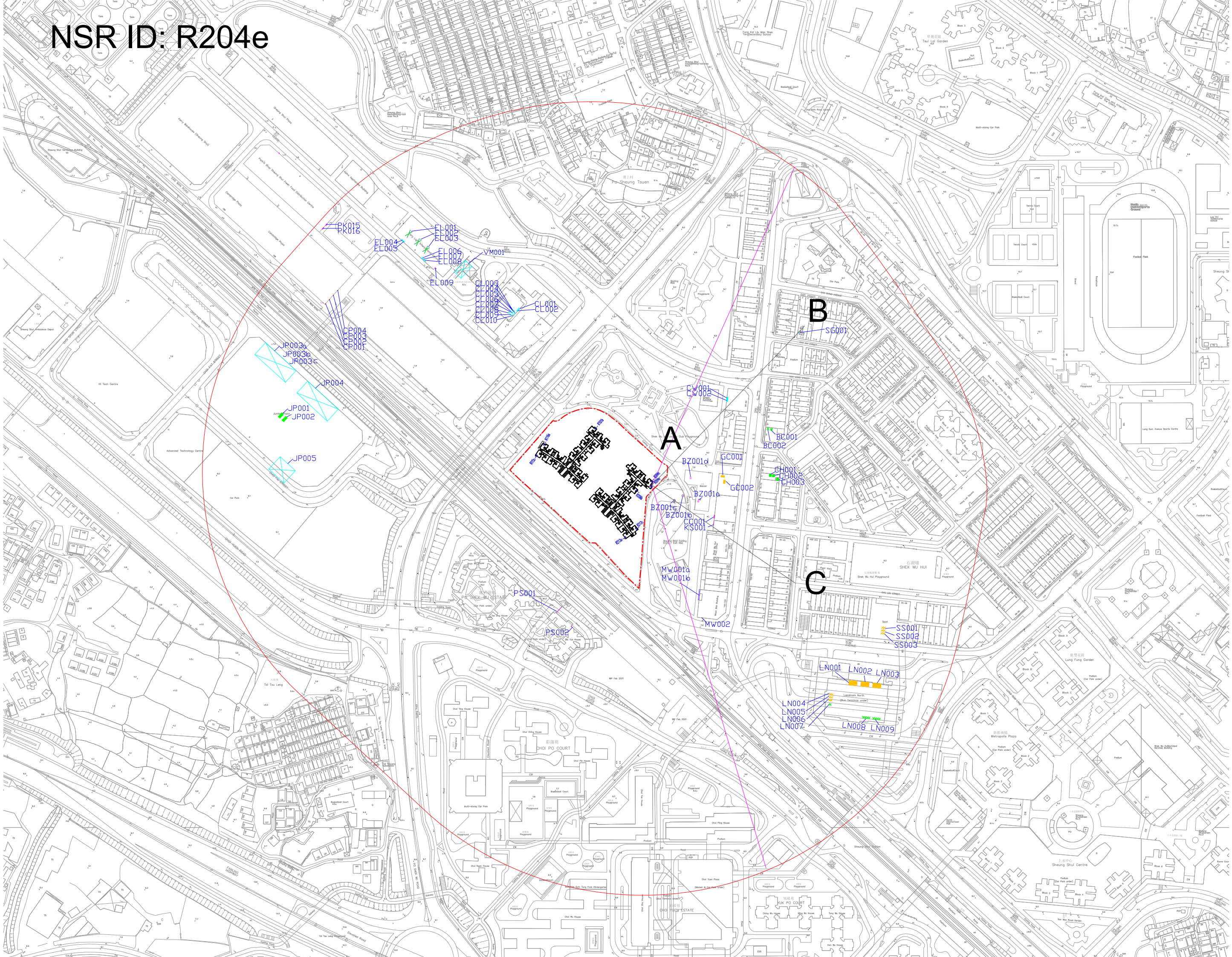
Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	344	30	-	-37	-	3		49	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	332	30	-	-36	-	3		49	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	321	30	-	-36	-	3		49	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	344	30	-	-41	-	3		23	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	342	30	-	-41	-	3		23	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	318	30	-	-41	-	3		24	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	316	30	-	-40	-	3		24	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	314	30	-	-40	-	3		24	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	305	30	-	-36	-	3		31	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	289	30	-	-32	-	3		39	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	223	30	-	-39	-	3		26	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	223	30	-	-39	-	3		26	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	227	30	-	-44	-	3		21	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	225	30	-	-44	-	3		21	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	223	30	-	-43	-	3		21	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	226	30	-	-44	-	3		21	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	224	30	-	-43	-	3		21	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	226	30	-	-44	-	3		21	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	224	30	-	-43	-	3		21	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	222	30	-	-43	-	3		21	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	409	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	410	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	372	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	370	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	369	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	368	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	374	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	370	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	398	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	398	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	398	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	343	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	376	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	142	30	-	-26	-	3		39	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	144	30	-	-26	-	3		38	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	133	30	-	-33	-	3		29	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	132	30	-	-33	-	3		29	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	127	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	144	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	162	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	280	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	312	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	320	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	212	30	-	-30	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	268	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	269	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	270	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	103	30	-	-31	-	3		38	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	106	30	-	-31	-	3		39	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	93	30	-	-19	-	3		36	36	-
GC002			Y	Y	52.3	10.0	831092	840538	26	94	30	-	-19	-	3		36	36	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	95	30	-	-30	-	3		40	40	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	88	30	-	-33	-	3		41	41	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	86	30	-	-28	-	3	6	62	-	-
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	89	30	-	-25	-	3		42	42	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	134	30	-	-33	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	137	30	-	-33	-	3		36	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	140	30	-	-33	-	3		36	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	173	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	180	30	-	-	-	-		-	-	No line of sight.
																Tonality	0	0	
																Total SPL	63	46	
																Criteria ANL	65	55	
																Exceedance	-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204c**
NSR x coord:	**831022.2**
NSR y coord:	**840539.5**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	357	30	-	-37	-	3		48	-	-
EL002			Y	N	82.4	5.0	830793	840772	32	346	30	-	-37	-	3		49	-	-
EL003			Y	N	82.4	5.0	830801	840765	32	335	30	-	-37	-	3		49	-	-
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	357	30	-	-42	-	3		23	-	-
EL005			Y	N	61.6	3.0	830779	840773	32	355	30	-	-41	-	3		23	-	-
EL006			Y	N	61.6	3.0	830797	840757	32	332	30	-	-41	-	3		24	-	-
EL007			Y	N	61.6	3.0	830798	840756	32	331	30	-	-41	-	3		24	-	-
EL008			Y	N	61.6	3.0	830800	840754	32	329	30	-	-41	-	3		24	-	-
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	323	30	-	-36	-	3		30	-	-
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	308	30	-	-33	-	3		39	-	-
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	246	30	-	-40	-	3		25	-	-
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	245	30	-	-40	-	3		25	-	-
CL003			Y	N	61.7	1.5	830885	840707	21	249	30	-	-44	-	3		20	-	-
CL004			Y	N	61.7	1.5	830887	840705	21	247	30	-	-44	-	3		20	-	-
CL005			Y	N	61.7	1.5	830887	840703	21	245	30	-	-44	-	3		20	-	-
CL006			Y	N	61.7	1.5	830883	840705	21	249	30	-	-44	-	3		20	-	-
CL007			Y	N	61.7	1.5	830885	840703	21	247	30	-	-44	-	3		20	-	-
CL008			Y	N	61.7	1.5	830882	840703	21	248	30	-	-44	-	3		20	-	-
CL009			Y	N	61.7	1.5	830884	840702	21	246	30	-	-44	-	3		20	-	-
CL010			Y	N	61.7	1.5	830886	840701	21	245	30	-	-44	-	3		20	-	-
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	421	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	421	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	387	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	386	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	385	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	383	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	387	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	383	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	413	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	413	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	413	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	360	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	392	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	175	30	-	-28	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	177	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	171	30	-	-35	-	3		27	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	170	30	-	-35	-	3		27	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	167	30	-	-	-	-		-	-	No line of sight.
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	180	30	-	-	-	-		-	-	No line of sight.
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	194	30	-	-	-	-		-	-	No line of sight.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	283	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	315	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	323	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	233	30	-	-30	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	273	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	275	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	276	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	148	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	151	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	137	30	-	-23	-	3		33	33	-
GC002			Y	Y	52.3	10.0	831092	840538	26	137	30	-	-23	-	3		33	33	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	145	30	-	-34	-	3		36	36	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	140	30	-	-37	-	3		37	37	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	139	30	-	-32	-	3	6	58	-	-
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	141	30	-	-29	-	3		38	38	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	169	30	-	-35	-	3		34	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	171	30	-	-35	-	3		34	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	174	30	-	-35	-	3		34	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	203	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	209	30	-	-	-	-		-	-	No line of sight.

Tonality	0	0
Total SPL	60	43
Criteria ANL	65	55
Exceedance	-	-

NSR ID: R204e


A
B
C
PK015
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EL001
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KS001
BZ001d
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BC001
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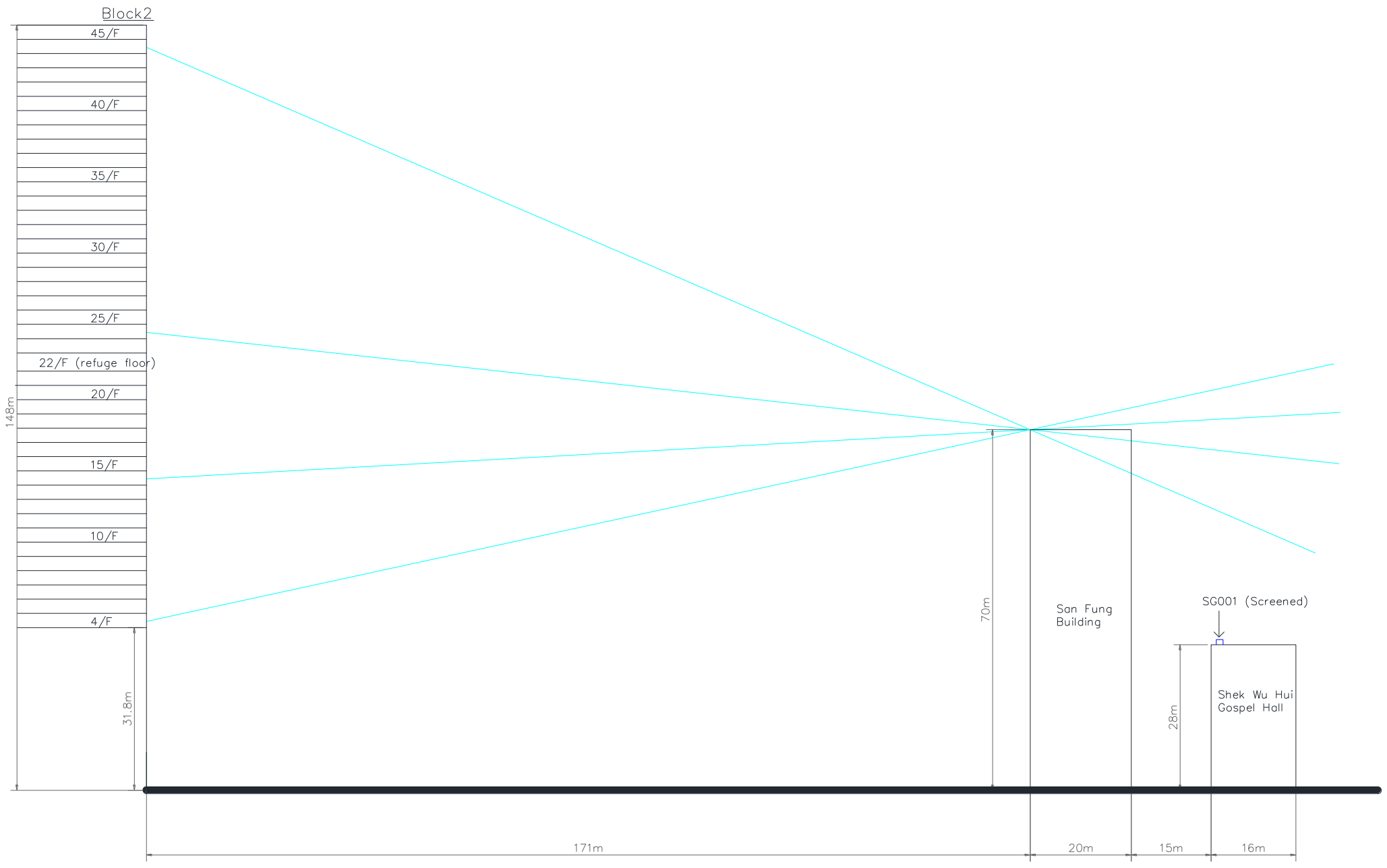
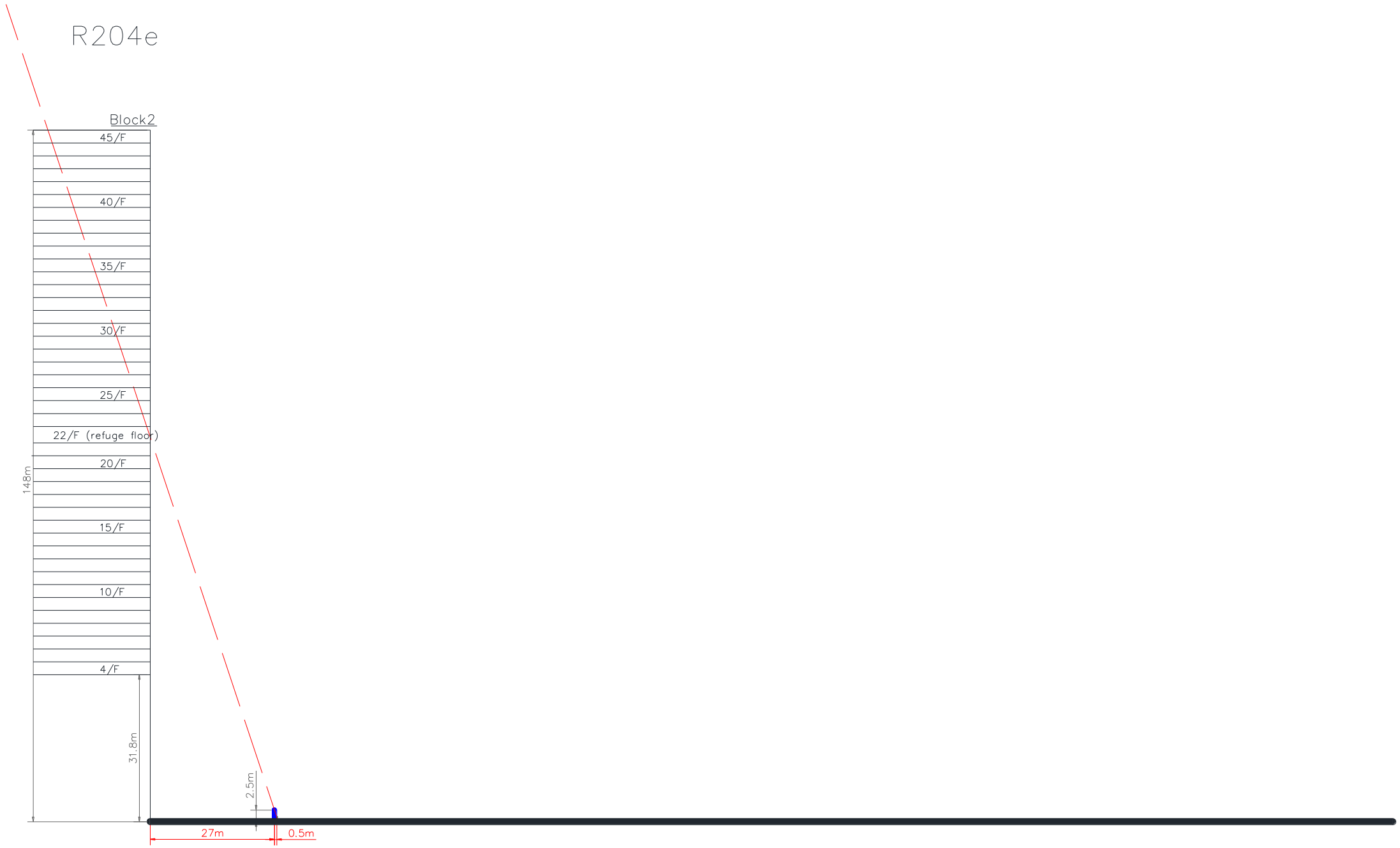
NSR ID: R204e (Section A-B)

R204e



NSR ID: R204e (Section A-C)



Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204e**
NSR x coord:	**831021.5**
NSR y coord:	**840534.9**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	342	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	330	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	319	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	342	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	340	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	316	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	314	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	312	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	300	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	281	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	216	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	216	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	220	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	218	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	215	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	219	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	217	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	219	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	217	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	215	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	408	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	408	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	366	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	365	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	363	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	362	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	369	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	365	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	392	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	392	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	392	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	334	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	368	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	127	30	-	-25	-	3		40	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	130	30	-	-25	-	3		39	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	115	30	-	-32	-	3		30	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	113	30	-	-32	-	3		30	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	98	30	-	-28	-	3		45	45	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	119	30	-	-32	-	3		42	42	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	140	30	-	-43	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	284	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	285	30	-	-40	-	3		34	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	316	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	324	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	208	30	-	-29	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	272	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	273	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	274	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	71	30	-	-27	-	3		41	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	74	30	-	-28	-	3		43	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	70	30	-	-17	-	3		38	38	-
GC002			Y	Y	52.3	10.0	831092	840538	26	71	30	-	-17	-	3		38	38	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	54	30	-	-25	-	3		44	44	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	41	30	-	-26	-	3		47	47	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	37	30	-	-20	-5	3	6	65	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	46	30	-	-19	-	3		48	48	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	117	30	-	-32	-	3		37	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	120	30	-	-32	-	3		37	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	124	30	-	-32	-	3		37	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	153	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	160	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		65	53	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204e**
NSR x coord:	**831021.5**
NSR y coord:	**840534.9**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	343	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	331	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	320	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	343	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	341	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	317	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	315	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	313	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	303	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	285	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	220	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	219	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	223	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	221	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	219	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	223	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	220	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	222	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	220	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	218	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	409	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	409	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	368	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	367	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	366	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	365	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	371	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	366	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	338	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	371	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	133	30	-	-26	-	3		39	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	135	30	-	-26	-	3		39	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	123	30	-	-32	-	3		30	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	121	30	-	-32	-	3		30	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	108	30	-	-29	-	3		44	44	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	127	30	-	-33	-	3		42	42	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	147	30	-	-43	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	279	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	312	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	319	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	210	30	-	-30	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	267	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	269	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	270	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	83	30	-	-29	-	3		39	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	86	30	-	-29	-	3		41	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	78	30	-	-18	-	3		37	37	-
GC002			Y	Y	52.3	10.0	831092	840538	26	79	30	-	-18	-	3		37	37	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	71	30	-	-28	-	3		42	42	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	62	30	-	-30	-	3		44	44	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	59	30	-	-25	-5	3	6	61	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	65	30	-	-22	-	3		44	44	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	123	30	-	-32	-	3		37	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	126	30	-	-32	-	3		37	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	130	30	-	-33	-	3		37	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	159	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	166	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		61	51	
															Criteria ANL		65	55	
															Exceedance		-	-	

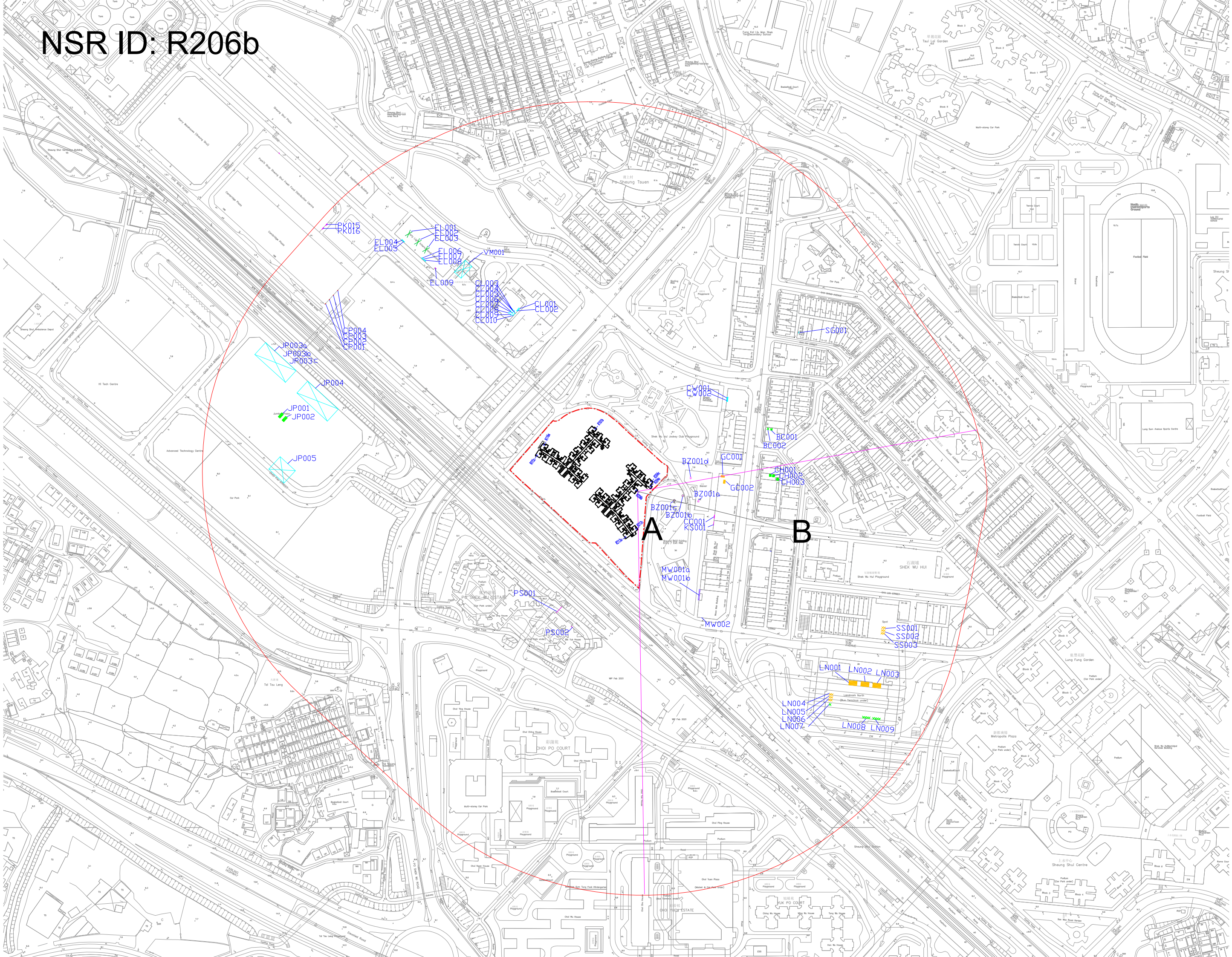
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204e**
NSR x coord:	**831021.5**
NSR y coord:	**840534.9**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	347	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	335	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	324	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	347	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	345	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	321	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	319	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	317	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	308	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	292	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	226	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	226	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	230	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	228	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	226	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	229	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	227	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	229	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	227	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	225	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	412	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	412	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	373	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	372	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	371	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	370	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	374	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	370	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	399	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	399	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	399	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	343	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	376	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	144	30	-	-26	-	3		38	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	146	30	-	-26	-	3		38	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	137	30	-	-33	-	3		29	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	135	30	-	-33	-	3		29	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	124	30	-	-30	-	3		43	43	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	141	30	-	-33	-	3		41	41	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	158	30	-	-44	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	276	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	277	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	309	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	317	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	215	30	-	-30	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	266	30	-	-42	-	3		33	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	267	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	268	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	102	30	-	-31	-	3		38	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	105	30	-	-31	-	3		40	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	94	30	-	-19	-	3		36	36	-
GC002			Y	Y	52.3	10.0	831092	840538	26	95	30	-	-20	-	3		36	36	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	94	30	-	-30	-	3		40	40	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	87	30	-	-33	-	3		41	41	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	85	30	-	-28	-	3	6	62	-	-
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	90	30	-	-25	-	3		42	42	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	135	30	-	-33	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	138	30	-	-33	-	3		36	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	141	30	-	-33	-	3		36	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	170	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	176	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		63	49	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R204e**
NSR x coord:	**831021.5**
NSR y coord:	**840534.9**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	360	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	348	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	338	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	360	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	358	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	335	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	333	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	331	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	326	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	311	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	249	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	248	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	252	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	250	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	248	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	251	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	249	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	251	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	249	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	247	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	423	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	423	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	389	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	387	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	386	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	385	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	387	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	383	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	414	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	414	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	414	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	360	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	391	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	177	30	-	-28	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	179	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	174	30	-	-35	-	3		27	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	172	30	-	-35	-	3		27	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	165	30	-	-32	-	3		40	40	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	178	30	-	-35	-	3		39	39	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	191	30	-	-46	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	279	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	280	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	312	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	320	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	236	30	-	-31	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	272	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	273	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	274	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	147	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	150	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	137	30	-	-23	-	3		33	33	-
GC002			Y	Y	52.3	10.0	831092	840538	26	138	30	-	-23	-	3		33	33	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	144	30	-	-34	-	3		36	36	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	140	30	-	-37	-	3		37	37	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	139	30	-	-32	-	3	6	58	-	-
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	141	30	-	-29	-	3		38	38	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	170	30	-	-35	-	3		34	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	172	30	-	-35	-	3		34	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	175	30	-	-35	-	3		34	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	200	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	206	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		59	46	
															Criteria ANL		65	55	
															Exceedance		-	-	

NSR ID: R206b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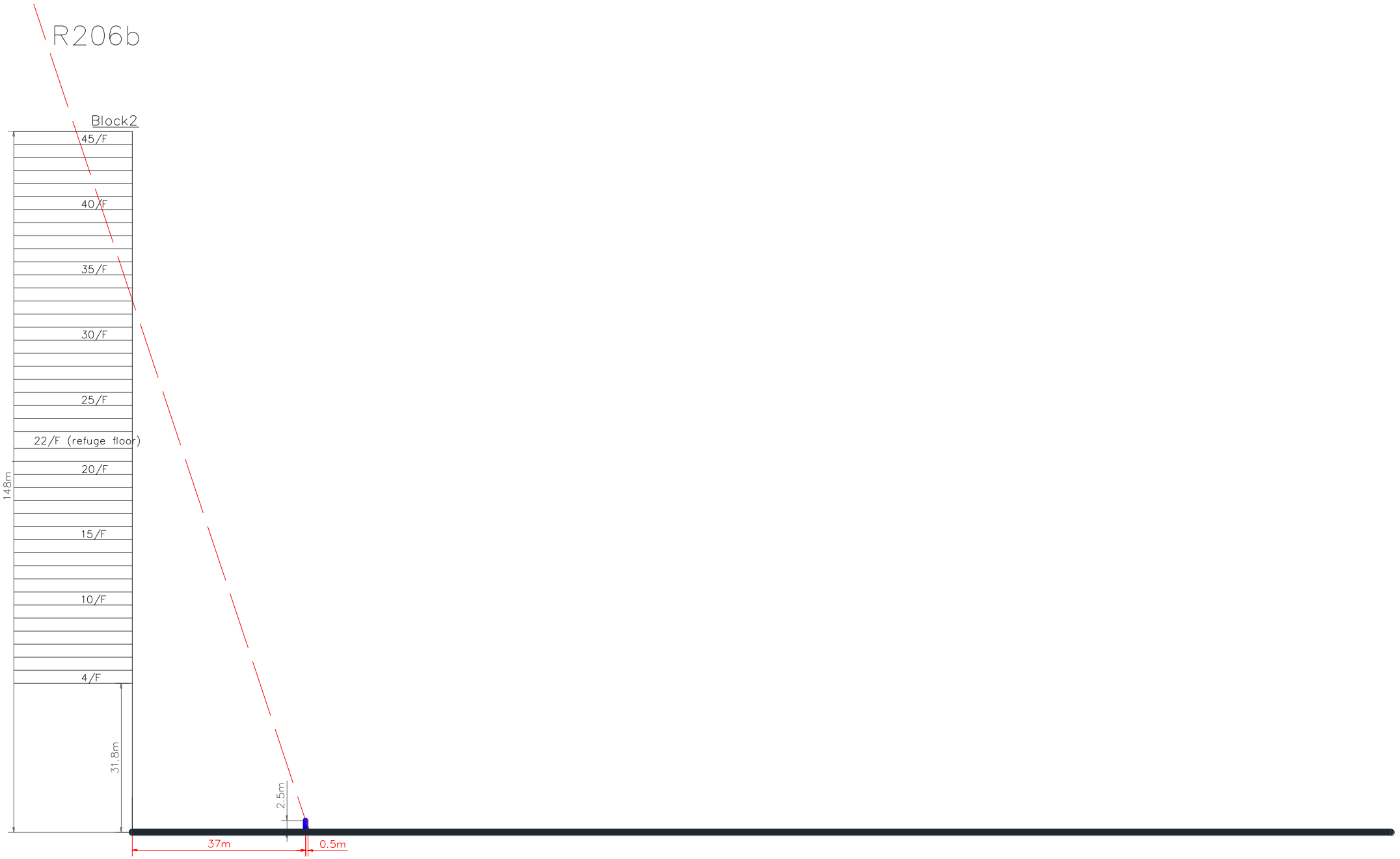
NSR ID: R206b (Section A-B)



Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R206b**
NSR x coord:	**831007.5**
NSR y coord:	**840528.8**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	337	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	325	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	314	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	336	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	335	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	310	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	309	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	307	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	295	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	277	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	213	30	-	-	-	-		-	-	No line of sight.
CL002			Y	N	62.2	2.5	830890	840706	21	213	30	-	-	-	-		-	-	No line of sight.
CL003		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	61.7	1.5	830885	840707	21	216	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	214	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	212	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	216	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	214	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	215	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	213	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	211	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	401	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	401	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	357	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	356	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	355	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	354	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	357	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	352	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	380	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	380	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	380	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	323	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	354	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	142	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	145	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	128	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	127	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	102	30	-	-28	-	3		44	44	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	120	30	-	-32	-	3		42	42	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	140	30	-	-43	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	290	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	289	30	-	-40	-	3		34	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	322	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	330	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	222	30	-	-30	-	3		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	281	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	282	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	283	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	81	30	-	-29	-	3		40	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	83	30	-	-29	-	3		42	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	85	30	-	-19	-	3		37	37	-
GC002			Y	Y	52.3	10.0	831092	840538	26	86	30	-	-19	-	3		37	37	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	65	30	-	-27	-	3		43	43	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	51	30	-	-28	-	3		45	45	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	45	30	-	-22	-5	3	6	63	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	59	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	131	30	-	-33	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	134	30	-	-33	-	3		36	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	138	30	-	-33	-	3		36	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	140	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	149	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		63	50	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R206b**
NSR x coord:	**831007.5**
NSR y coord:	**840528.8**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	338	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	326	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	315	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	338	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	336	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	312	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	310	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	308	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	298	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	281	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	217	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	216	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	220	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	217	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	215	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	219	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	217	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	219	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	216	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	215	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	402	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	402	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	359	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	358	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	357	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	356	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	358	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	354	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	383	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	383	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	383	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	326	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	357	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	147	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	150	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	136	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	134	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	111	30	-	-29	-	3		44	44	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	128	30	-	-33	-	3		41	41	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	147	30	-	-43	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	284	30	-	-40	-	3		34	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	317	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	325	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	224	30	-	-30	-	3		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	276	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	277	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	279	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	92	30	-	-30	-	3		38	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	94	30	-	-30	-	3		40	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	91	30	-	-19	-	3		36	36	-
GC002			Y	Y	52.3	10.0	831092	840538	26	92	30	-	-19	-	3		36	36	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	80	30	-	-29	-	3		41	41	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	69	30	-	-31	-	3		43	43	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	65	30	-	-25	-5	3	6	60	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	75	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	137	30	-	-33	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	140	30	-	-33	-	3		36	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	143	30	-	-34	-	3		36	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	147	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	155	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		60	49	
															Criteria ANL		65	55	
															Exceedance		-	-	

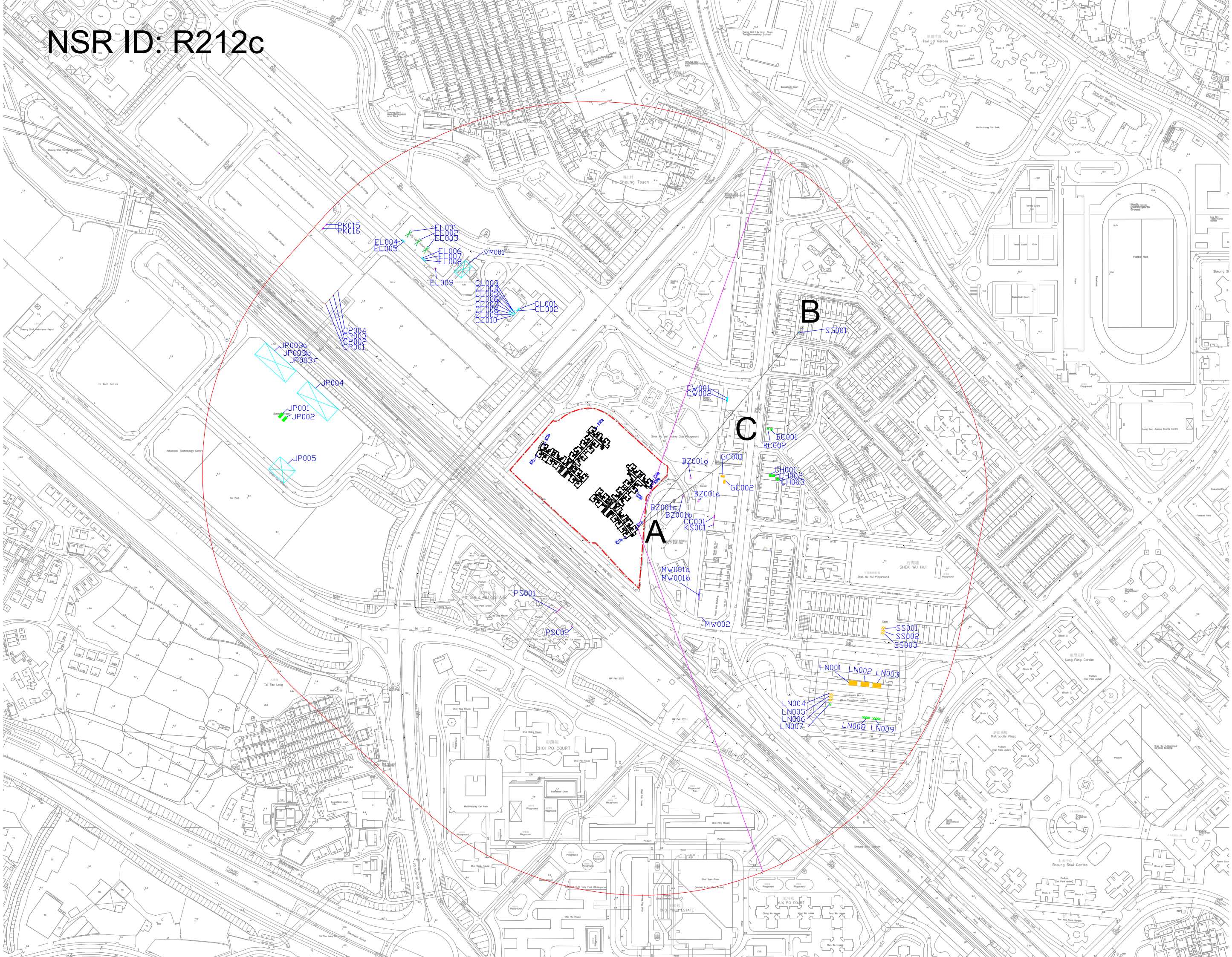
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R206b**
NSR x coord:	**831007.5**
NSR y coord:	**840528.8**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	342	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	330	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	319	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	341	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	339	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	316	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	314	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	312	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	303	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	287	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	224	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	223	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	226	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	224	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	222	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	226	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	224	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	226	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	223	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	222	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	405	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	405	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	364	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	363	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	362	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	361	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	362	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	357	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	388	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	388	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	388	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	332	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	362	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	157	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	160	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	148	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	147	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	127	30	-	-30	-	3		42	42	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	142	30	-	-33	-	3		41	41	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	159	30	-	-44	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	282	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	281	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	315	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	323	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	229	30	-	-30	-	3		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	275	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	276	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	277	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	109	30	-	-31	-	3		37	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	112	30	-	-31	-	3		39	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	105	30	-	-20	-	3		35	35	-
GC002			Y	Y	52.3	10.0	831092	840538	26	106	30	-	-21	-	3		35	35	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	101	30	-	-31	-	3		39	39	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	93	30	-	-33	-	3		40	40	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	89	30	-	-28	-5	3	6	57	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	97	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	148	30	-	-34	-	3		35	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	151	30	-	-34	-	3		35	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	154	30	-	-34	-	3		35	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	158	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	166	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		58	47	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R206b**
NSR x coord:	**831007.5**
NSR y coord:	**840528.8**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	355	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	343	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	333	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	355	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	353	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	330	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	328	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	326	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	321	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	307	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	246	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	245	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	249	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	247	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	245	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	248	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	246	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	248	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	246	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	244	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	416	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	416	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	380	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	379	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	378	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	377	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	375	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	371	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	403	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	403	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	403	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	349	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	378	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	188	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	190	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	183	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	182	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	167	30	-	-32	-	3		40	40	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	178	30	-	-35	-	3		39	39	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	191	30	-	-46	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	285	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	284	30	-	-40	-	3		34	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	317	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	325	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	249	30	-	-31	-	3		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	280	30	-	-43	-	3		32	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	281	30	-	-43	-	3		32	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	282	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	152	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	155	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	145	30	-	-23	-	3		32	32	-
GC002			Y	Y	52.3	10.0	831092	840538	26	146	30	-	-23	-	3		32	32	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	149	30	-	-34	-	3		36	36	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	143	30	-	-37	-	3		36	36	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	141	30	-	-32	-	3	6	58	-	-
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	146	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	180	30	-	-36	-	3		34	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	182	30	-	-36	-	3		34	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	185	30	-	-36	-	3		33	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	191	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	197	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		58	45	
															Criteria ANL		65	55	
															Exceedance		-	-	

NSR ID: R212c


PK015
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EL001
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LN008
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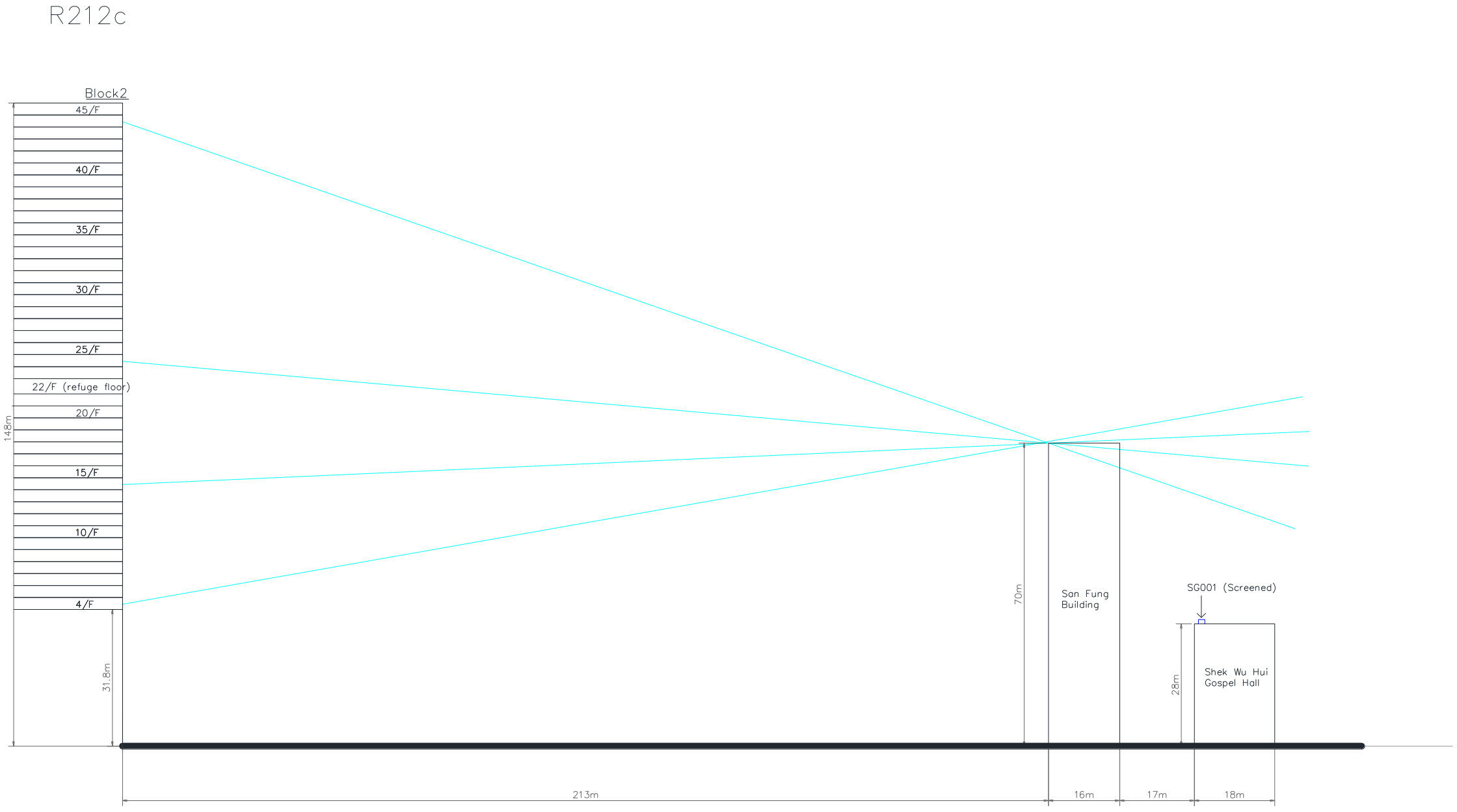
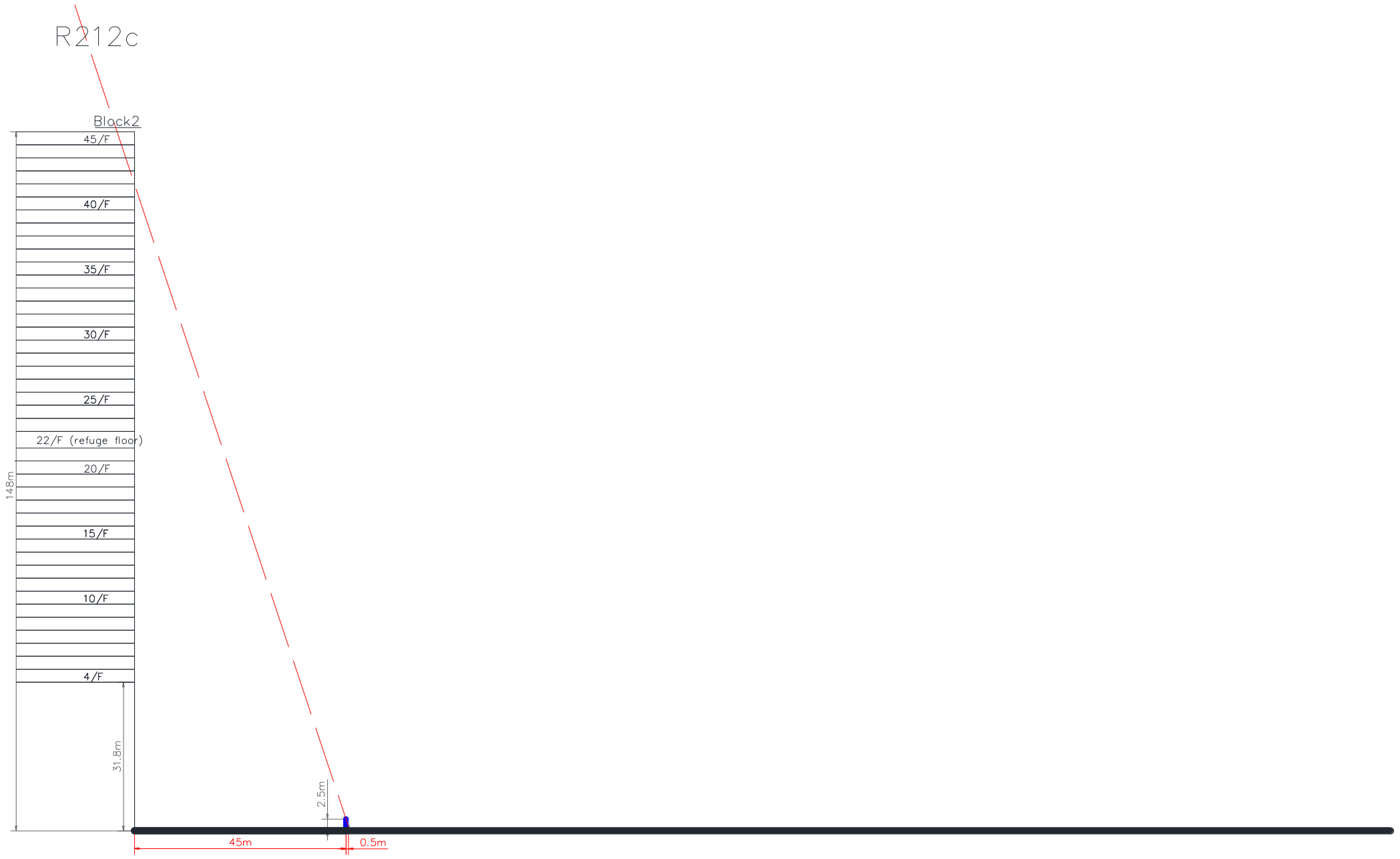
Po Sheung Tsuen
SHEK WU HUI
CHOI PO COURT
CHOI YUEN ESTATE
YUK PO COURT
Sheung Shui Centre
Metropolis Plaza
Lung Fung Garden
Tsui Lai Garden
Hi Tech Centre
Advanced Technology Centre

NSR ID: R212c (Section A-B)



NSR ID: R212c (Section A-C)



Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R212c**
NSR x coord:	**831007.6**
NSR y coord:	**840493.0**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	365	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	353	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	342	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	364	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	362	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	338	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	336	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	334	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	322	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	306	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	244	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	243	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	247	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	245	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	242	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	246	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	244	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	245	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	243	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	242	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	425	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	425	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	376	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	376	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	375	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	375	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	366	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	361	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	394	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	335	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	357	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	161	30	-	-27	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	163	30	-	-27	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	156	30	-	-34	-	3		28	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	154	30	-	-34	-	3		28	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	78	30	-	-26	-	3		47	47	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	92	30	-	-30	-	3		44	44	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	110	30	-	-41	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	264	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	298	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	306	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	248	30	-	-31	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	265	30	-	-42	-	3		33	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	266	30	-	-42	-	3		33	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	267	30	-	-43	-	3		32	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	78	30	-	-28	-	3		40	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	77	30	-	-28	-	3		42	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	98	30	-	-20	-	3		36	36	-
GC002			Y	Y	52.3	10.0	831092	840538	26	96	30	-	-20	-	3		36	36	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	70	30	-	-27	-	3		42	42	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	60	30	-	-30	-	3		44	44	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	51.51	30	-	-23	-5	3	6	62	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	76	30	-	-24	-	3		43	43	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	140	30	-	-33	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	143	30	-	-34	-	3		36	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	145	30	-	-34	-	3		36	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	113	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	118	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		62	52	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R212c**
NSR x coord:	**831007.6**
NSR y coord:	**840493.0**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	366	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	354	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	343	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	365	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	363	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	339	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	337	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	335	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	325	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	310	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	247	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	246	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	250	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	247	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	245	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	249	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	247	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	248	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	246	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	244	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	426	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	426	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	379	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	378	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	378	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	377	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	367	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	363	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	397	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	397	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	397	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	338	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	360	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	165	30	-	-27	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	168	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	162	30	-	-35	-	3		27	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	160	30	-	-35	-	3		27	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	90	30	-	-27	-	3		45	45	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	102	30	-	-31	-	3		43	43	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	118	30	-	-41	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	258	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	293	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	302	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	250	30	-	-31	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	261	30	-	-42	-	3		33	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	262	30	-	-42	-	3		33	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	262	30	-	-42	-	3		33	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	89	30	-	-29	-	3		39	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	89	30	-	-29	-	3		41	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	103	30	-	-20	-	3		35	35	-
GC002			Y	Y	52.3	10.0	831092	840538	26	102	30	-	-20	-	3		35	35	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	84	30	-	-29	-	3		41	41	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	76	30	-	-32	-	3		42	42	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	69	30	-	-26	-5	3	6	59	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	89	30	-	-25	-	3		42	42	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	145	30	-	-34	-	3		36	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	148	30	-	-34	-	3		35	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	150	30	-	-34	-	3		35	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	121	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	125	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		60	50	
															Criteria ANL		65	55	
															Exceedance		-	-	

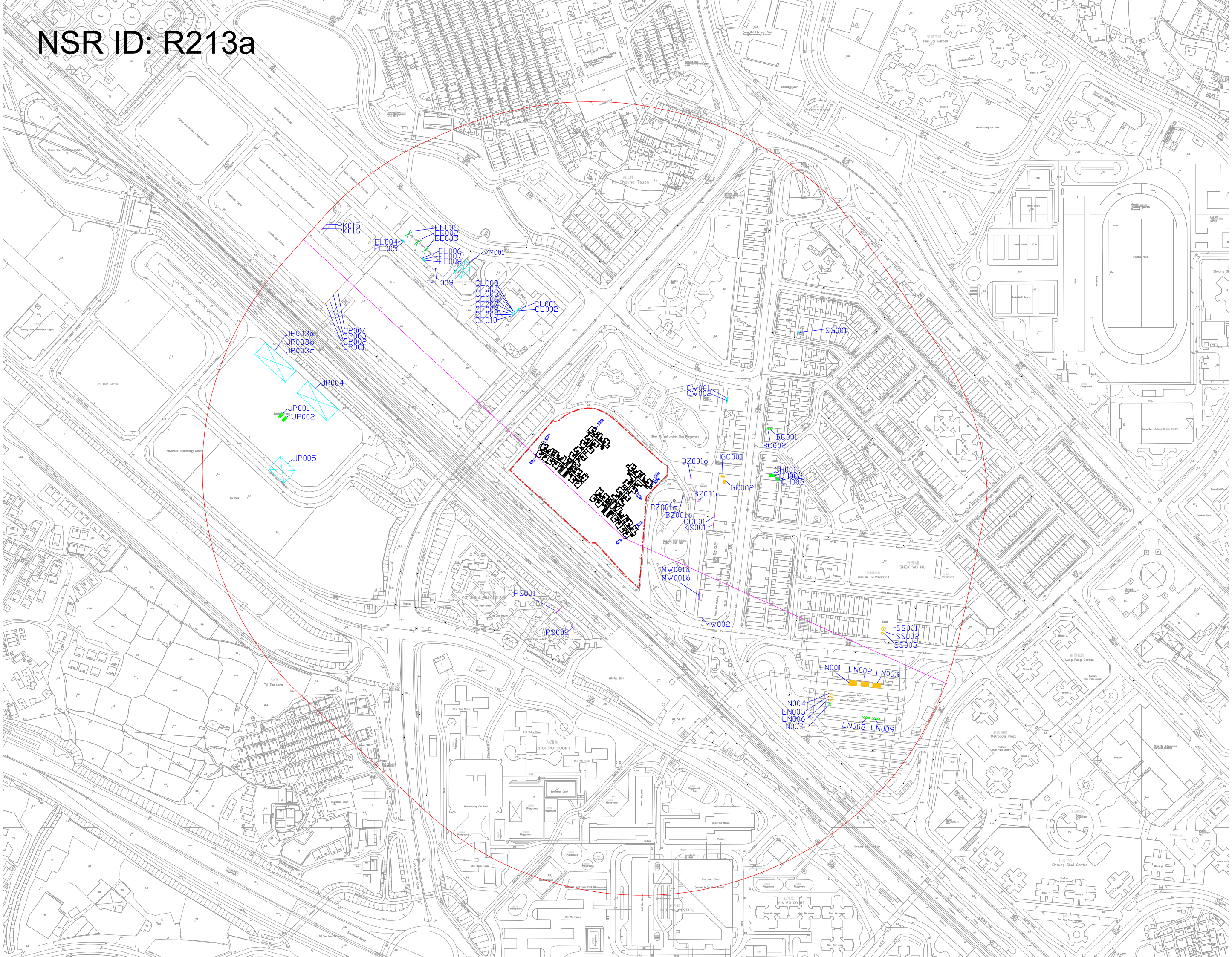
Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R212c**
NSR x coord:	**831007.6**
NSR y coord:	**840493.0**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	369	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	357	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	347	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	368	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	366	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	342	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	341	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	339	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	330	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	315	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	253	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	252	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	256	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	253	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	251	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	255	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	253	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	254	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	252	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	251	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	429	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	429	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	384	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	383	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	383	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	382	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	371	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	366	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	401	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	401	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	401	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	344	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	366	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	174	30	-	-28	-	3		37	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	177	30	-	-28	-	3		37	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	173	30	-	-35	-	3		27	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	171	30	-	-35	-	3		27	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	109	30	-	-29	-	3		44	44	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	119	30	-	-32	-	3		42	42	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	133	30	-	-42	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	260	30	-	-42	-	3		33	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	256	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	291	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	299	30	-	-43	-	3		35	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	255	30	-	-31	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	259	30	-	-42	-	3		33	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	260	30	-	-42	-	3		33	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	261	30	-	-42	-	3		33	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	107	30	-	-31	-	3		37	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	107	30	-	-31	-	3		39	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	116	30	-	-21	-	3		34	34	-
GC002			Y	Y	52.3	10.0	831092	840538	26	115	30	-	-21	-	3		34	34	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	104	30	-	-31	-	3		39	39	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	98	30	-	-34	-	3		40	40	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	93	30	-	-28	-5	3	6	57	-	Screened
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	108	30	-	-27	-	3		40	40	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	156	30	-	-34	-	3		35	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	158	30	-	-34	-	3		35	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	160	30	-	-35	-	3		35	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	134	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	139	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		58	49	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R212c**
NSR x coord:	**831007.6**
NSR y coord:	**840493.0**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	381	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	370	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	360	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	380	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	379	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	356	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	354	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	352	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	346	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	334	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	273	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	272	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	275	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	273	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	271	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	275	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	273	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	274	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	272	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	271	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	440	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	440	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	399	30	-	-	-	-		-	-	No line of sight.
CP002			Y	Y	70.9	1.0	830706	840716	11	398	30	-	-	-	-		-	-	No line of sight.
CP003			Y	Y	73.7	1.0	830710	840721	11	398	30	-	-	-	-		-	-	No line of sight.
CP004			Y	Y	75.4	1.0	830714	840725	11	397	30	-	-	-	-		-	-	No line of sight.
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	384	30	-	-	-	-		-	-	No line of sight.
JP002			Y	N	80.5	7.0	830662	840600	28	379	30	-	-	-	-		-	-	No line of sight.
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	416	2	-	-	-	-		-	-	No line of sight.
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	416	2	-	-	-	-		-	-	No line of sight.
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	416	2	-	-	-	-		-	-	No line of sight.
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	361	30	-	-	-	-		-	-	No line of sight.
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	382	30	-	-	-	-		-	-	No line of sight.
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	203	30	-	-29	-	3		35	-	-
BC002			Y	N	61.7	7.0	831138	840589	20	204	30	-	-29	-	3		35	-	-
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	203	30	-	-37	-	3		25	-	-
CW002			Y	N	59.0	3.0	831095	840618	12	202	30	-	-37	-	3		25	-	-
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	153	30	-	-32	-	3		41	41	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	161	30	-	-35	-	3		40	40	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	171	30	-	-45	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	263	30	-	-42	-	3		33	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	259	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	293	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	302	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	272	30	-	-32	-	3		-	-	SG001 has been completely screened by San Fung Building.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	265	30	-	-42	-	3		33	-	-
SS002			Y	N	72.0	2.0	831248	840393	89	266	30	-	-42	-	3		33	-	-
SS003			Y	N	72.0	2.0	831247	840390	89	267	30	-	-42	-	3		33	-	-
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	150	30	-	-34	-	3		34	-	-
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	152	30	-	-34	-	3		36	-	-
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	153	30	-	-24	-	3		32	32	-
GC002			Y	Y	52.3	10.0	831092	840538	26	152	30	-	-24	-	3		32	32	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	151	30	-	-34	-	3		35	35	-
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	147	30	-	-37	-	3		36	36	-
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	143	30	-	-32	-	3	6	58	-	-
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	153	30	-	-30	-	3		37	37	-
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	187	30	-	-36	-	3		33	-	-
CH002			Y	N	66.3	3.0	831140	840544	20	189	30	-	-36	-	3		33	-	-
CH003			Y	N	66.3	3.0	831144	840541	20	191	30	-	-36	-	3		33	-	-
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	171	30	-	-	-	-		-	-	No line of sight.
PS002			Y	Y	55.3	2.0	830943	840396	13	175	30	-	-	-	-		-	-	No line of sight.
															Tonality		0	0	
															Total SPL		58	46	
															Criteria ANL		65	55	
															Exceedance		-	-	

NSR ID: R213a


PK015
PK016
EL004
EL005
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VM001
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CP004
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JP003a
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BC002
CW001
CW002
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SS001
SS002
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LN001
LN002
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LN008
LN009

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R213a**
NSR x coord:	**830994.4**
NSR y coord:	**840483.1**
NSR floor (/F)	**4**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**33.00**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	365	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	353	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	342	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	363	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	361	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	338	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	336	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	334	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	322	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	307	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	247	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	246	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	249	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	247	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	245	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	248	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	246	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	248	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	245	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	244	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	423	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	423	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	372	30	-	-51	-	3		27	27	-
CP002			Y	Y	70.9	1.0	830706	840716	11	371	30	-	-51	-	3		23	23	-
CP003			Y	Y	73.7	1.0	830710	840721	11	371	30	-	-51	-	3		25	25	-
CP004			Y	Y	75.4	1.0	830714	840725	11	371	30	-	-51	-	3		27	27	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	356	30	-	-34	-	3		49	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	352	30	-	-34	-	3		49	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	386	2	-12	-32	-	3		27	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	386	2	-12	-38	-	3		42	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	386	2	-12	-42	-	3		30	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	327	30	-	-41	-	3		31	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	346	30	-	-33	-	3		35	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	177	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	180	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	172	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	169	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	85	30	-	-27	-	3		46	46	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	95	30	-	-30	-	3		44	44	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	111	30	-	-41	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	274	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	268	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	302	30	-	-44	-	3		34	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	311	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	264	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	274	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	275	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	275	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	93	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	91	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	114	30	-	-21	-	3		34	34	-
GC002			Y	Y	52.3	10.0	831092	840538	26	113	30	-	-21	-	3		34	34	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	85	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	75	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	66.38	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	91	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	156	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	159	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	161	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	97	30	-	-34	-	3		41	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	103	30	-	-34	-	3		24	24	-
															Tonality		0	0	
															Total SPL		55	49	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R213a**
NSR x coord:	**830994.4**
NSR y coord:	**840483.1**
NSR floor (/F)	**14**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**60.50**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	366	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	354	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	343	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	364	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	363	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	339	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	337	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	335	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	325	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	311	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	250	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	249	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	252	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	250	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	248	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	251	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	249	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	250	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	248	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	247	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	424	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	423	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	374	30	-	-51	-	3		27	27	-
CP002			Y	Y	70.9	1.0	830706	840716	11	374	30	-	-51	-	3		22	22	-
CP003			Y	Y	73.7	1.0	830710	840721	11	374	30	-	-51	-	3		25	25	-
CP004			Y	Y	75.4	1.0	830714	840725	11	374	30	-	-51	-	3		27	27	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	358	30	-	-34	-	3		49	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	353	30	-	-34	-	3		49	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	389	2	-12	-32	-	3		27	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	389	2	-12	-38	-	3		42	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	389	2	-12	-42	-	3		29	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	330	30	-	-41	-	3		31	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	349	30	-	-33	-	3		35	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	181	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	184	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	177	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	175	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	96	30	-	-28	-	3		45	45	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	105	30	-	-31	-	3		43	43	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	119	30	-	-42	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	262	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	297	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	306	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	266	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	270	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	270	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	271	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	102	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	101	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	119	30	-	-22	-	3		34	34	-
GC002			Y	Y	52.3	10.0	831092	840538	26	118	30	-	-21	-	3		34	34	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	97	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	88	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	81.02	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	102	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	161	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	163	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	166	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	106	30	-	-34	-	3		40	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	111	30	-	-35	-	3		23	23	-
															Tonality		0	0	
															Total SPL		55	48	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R213a**
NSR x coord:	**830994.4**
NSR y coord:	**840483.1**
NSR floor (/F)	**24**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**88.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	369	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	357	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	347	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	368	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	366	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	342	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	340	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	339	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	330	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	317	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	256	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	255	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	258	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	256	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	254	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	257	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	255	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	256	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	254	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	253	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	427	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	426	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	379	30	-	-52	-	3		27	27	-
CP002			Y	Y	70.9	1.0	830706	840716	11	379	30	-	-52	-	3		22	22	-
CP003			Y	Y	73.7	1.0	830710	840721	11	379	30	-	-52	-	3		25	25	-
CP004			Y	Y	75.4	1.0	830714	840725	11	378	30	-	-52	-	3		27	27	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	362	30	-	-34	-	3		49	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	357	30	-	-34	-	3		49	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	394	2	-12	-32	-	3		27	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	394	2	-12	-38	-	3		42	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	394	2	-12	-42	-	3		29	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	336	30	-	-41	-	3		31	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	354	30	-	-33	-	3		35	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	190	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	192	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	187	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	185	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	114	30	-	-29	-	3		43	43	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	121	30	-	-32	-	3		42	42	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	133	30	-	-42	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	265	30	-	-42	-	3		33	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	259	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	295	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	304	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	270	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	268	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	269	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	269	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	118	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	117	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	130	30	-	-22	-	3		33	33	-
GC002			Y	Y	52.3	10.0	831092	840538	26	129	30	-	-22	-	3		33	33	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	115	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	108	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	101.77	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	119	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	170	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	173	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	175	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	121	30	-	-36	-	3		39	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	126	30	-	-36	-	3		22	22	-
															Tonality		0	0	
															Total SPL		54	46	
															Criteria ANL		65	55	
															Exceedance		-	-	

Project :	**Po Shek Wu Road**
Project number:	**276006-12**
Title:	**Fixed Noise Assessment**
Subtitle:	**Calculation of SPL at Assessment Points at Proposed Residential Blocks**
NSR ID:	**R213a**
NSR x coord:	**830994.4**
NSR y coord:	**840483.1**
NSR floor (/F)	**44**
1st res. floor level (mPD)	**31.8**
NSR height (mPD)	**143.75**
ASR	**B**

Noise Source ID	Description	Activities/Equipment	Operation		Max. Measured SPL, dB(A)	Measurement Dist. from Source, m	Source Location			Shortest separation distance from centre of source, m	Worst Operating Time (mins)	Correction, dB(A)					Predicted Daytime SPL, dB(A)	Predicted Nighttime SPL, dB(A)	Remark
			Daytime	Nighttime			X (m)	Y (m)	Z (mpd)			Time	Distance	Screening	Facade	Tonality			
EL001	Early Light International Centre	Chiller on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	82.4	5.0	830784	840781	32	381	30	-	-	-	-		-	-	No line of sight.
EL002			Y	N	82.4	5.0	830793	840772	32	370	30	-	-	-	-		-	-	No line of sight.
EL003			Y	N	82.4	5.0	830801	840765	32	360	30	-	-	-	-		-	-	No line of sight.
EL004		Condenser on rooftop (2 fans, LxWxH = ~2mx1mx1.5m)	Y	N	61.6	3.0	830778	840775	32	380	30	-	-	-	-		-	-	No line of sight.
EL005			Y	N	61.6	3.0	830779	840773	32	378	30	-	-	-	-		-	-	No line of sight.
EL006			Y	N	61.6	3.0	830797	840757	32	356	30	-	-	-	-		-	-	No line of sight.
EL007			Y	N	61.6	3.0	830798	840756	32	354	30	-	-	-	-		-	-	No line of sight.
EL008			Y	N	61.6	3.0	830800	840754	32	352	30	-	-	-	-		-	-	No line of sight.
EL009		Louvers (2 units) to Ka Fu Close (LxW = ~4mx0.5m)	Y	N	63.3	5.0	830810	840747	16	346	30	-	-	-	-		-	-	No line of sight.
VM001	Sheung Shui Vegetable Marketing & Credit Co-operative Society	Loading & unloading	Y	N	68.8	7.0	830837	840746	9	335	30	-	-	-	-		-	-	No line of sight.
CL001	CLP Region Office	Condensers on rooftop (2 fans, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830891	840707	21	276	30	-	-	-	-		-	-	No line of sight.
CL002		Condensers on rooftop (1 fan, LxWxH = ~2mx1mx2m)	Y	N	62.2	2.5	830890	840706	21	275	30	-	-	-	-		-	-	No line of sight.
CL003			Y	N	61.7	1.5	830885	840707	21	278	30	-	-	-	-		-	-	No line of sight.
CL004			Y	N	61.7	1.5	830887	840705	21	276	30	-	-	-	-		-	-	No line of sight.
CL005			Y	N	61.7	1.5	830887	840703	21	274	30	-	-	-	-		-	-	No line of sight.
CL006			Y	N	61.7	1.5	830883	840705	21	277	30	-	-	-	-		-	-	No line of sight.
CL007			Y	N	61.7	1.5	830885	840703	21	275	30	-	-	-	-		-	-	No line of sight.
CL008			Y	N	61.7	1.5	830882	840703	21	276	30	-	-	-	-		-	-	No line of sight.
CL009			Y	N	61.7	1.5	830884	840702	21	274	30	-	-	-	-		-	-	No line of sight.
CL010			Y	N	61.7	1.5	830886	840701	21	273	30	-	-	-	-		-	-	No line of sight.
PK015	Park'n Sheung Shui Fresh Food Distribution Centre	Louvers to Po Shek Wu Road (LxW = ~1mx1m)	Y	Y	74.1	1.0	830703	840790	32	437	30	-	-	-	-		-	-	No line of sight.
PK016			Y	Y	74.1	1.0	830700	840786	32	437	30	-	-	-	-		-	-	No line of sight.
CP001	Cambridge Plaza	Exhaust fans to Po Shek Wu Road (LxW = ~0.5mx0.5m)	Y	Y	75.4	1.0	830702	840712	11	394	30	-	-52	-	3		26	26	-
CP002			Y	Y	70.9	1.0	830706	840716	11	394	30	-	-52	-	3		22	22	-
CP003			Y	Y	73.7	1.0	830710	840721	11	394	30	-	-52	-	3		25	25	-
CP004			Y	Y	75.4	1.0	830714	840725	11	393	30	-	-52	-	3		27	27	-
JP001	Jumbo Plaza	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	830659	840603	28	375	30	-	-35	-	3		49	-	-
JP002			Y	N	80.5	7.0	830662	840600	28	370	30	-	-34	-	3		49	-	-
JP003a		Air gun	Y	N	67.6	10.0	830650	840657	8	409	2	-12	-32	-	3		27	-	-
JP003b		Electric screwing machine	Y	N	88.6	5.0	830650	840657	8	409	2	-12	-38	-	3		42	-	-
JP003c		Hammering	Y	N	80.5	3.0	830650	840657	8	409	2	-12	-43	-	3		29	-	-
JP004		Recycling works	Y	N	68.7	3.0	830700	840623	8	353	30	-	-41	-	3		30	-	-
JP005		Loading and unloading	Y	N	64.7	8.0	830655	840544	8	371	30	-	-33	-	3		34	-	-
BC001	Bank of China	Chillers on rooftop (2 fans, LxWxH = ~3mx1mx2m)	Y	N	61.7	7.0	831135	840590	20	216	30	-	-	-	-		-	-	No line of sight.
BC002			Y	N	61.7	7.0	831138	840589	20	218	30	-	-	-	-		-	-	No line of sight.
CW001	Chuen Wo Building	Condensers (1 fan, LxWxH = ~1mx1mx1.5m)	Y	N	59.0	3.0	831095	840620	12	215	30	-	-	-	-		-	-	No line of sight.
CW002			Y	N	59.0	3.0	831095	840618	12	214	30	-	-	-	-		-	-	No line of sight.
MW001a	Moon Wah Building	Louvers, Chiller and Cooling Tower	Y	Y	69.5	4.0	831071	840453	10	157	30	-	-32	-	3		41	41	-
MW001b		Louvers, Chiller and Cooling Tower	Y	Y	71.1	3.0	831068	840428	10	163	30	-	-35	-	3		39	39	-
MW002		Louver on façade (LxW = ~0.4mx0.2m)	Y	N	80.2	1.0	831070	840405	12	171	30	-	-45	-	3		-	-	MW002 has been completely screened by Moon Wah Building.
LN001	Landmark North	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN002			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN003			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN004			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN005			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN006			Y	N	72.0	2.0	831218	840341	101	268	30	-	-43	-	3		32	-	-
LN007		Chillers on rooftop (4 fans, LxWxH = ~2mx2mx3m)	Y	N	71.0	3.0	831196	840320	101	262	30	-	-39	-	3		35	-	-
LN008		Chillers on rooftop (16 fans, LxWxH = ~8mx2mx2m)	Y	N	75.0	2.0	831231	840308	101	298	30	-	-43	-	3		35	-	-
LN009			Y	N	75.0	2.0	831241	840307	101	306	30	-	-44	-	3		34	-	-
SG001	Shek Wu Hui Gospel Hall	Chillers on rooftop (8 fans, LxWxH = ~4mx2mx2m)	Y	N	80.5	7.0	831166	840684	32	287	30	-	-	-	-		-	-	No line of sight.
SS001	Sheung Shui Spot	Cooling Towers on rooftop (1 fan, LxWxH = ~7mx4mx6m)	Y	N	72.0	2.0	831248	840395	89	274	30	-	-	-	-		-	-	No line of sight.
SS002			Y	N	72.0	2.0	831248	840393	89	274	30	-	-	-	-		-	-	No line of sight.
SS003			Y	N	72.0	2.0	831247	840390	89	275	30	-	-	-	-		-	-	No line of sight.
CC001	Cheung Chi Hang Building	Exhaust fans on facade (LxW = ~3mx1m) & Condensers (8 units, LxW = ~1mx0.5m)	Y	N	65.2	3.0	831082	840504	14	158	30	-	-	-	-		-	-	No line of sight.
KS001	Kam Shing Building	Louvers on façade (LxW = ~4mx1m)	Y	N	67.4	3.0	831082	840498	12	159	30	-	-	-	-		-	-	No line of sight.
GC001	Golden City Seafood Restaurant	Cooling Towers (2 units/set) on rooftop (1 fan, DxH = ~3mx2.5m) & (1 fan, DxH = ~1.9mx2m)	Y	Y	52.3	10.0	831091	840543	26	164	30	-	-24	-	3		31	31	-
GC002			Y	Y	52.3	10.0	831092	840538	26	163	30	-	-24	-	3		31	31	-
BZ001a	Shek Wu Hui Agricultural Produce Bazaar	Loading and unloading	Y	Y	66.5	3.0	831067	840519	8	158	30	-	-	-	-		-	-	No line of sight.
BZ001b		Pumper Truck for fisheries stores in the bazaar	Y	Y	70.5	2.0	831052	840525	8	154	30	-	-	-	-		-	-	No line of sight.
BZ001c		Pumper Truck for street sweeping	Y	N	81.1	3.5	831043	840520	8	149.40	30	-	-	-	-	-	-	-	No line of sight.
BZ001d		Crowd Noise	Y	Y	63.8	5.0	831059	840542	8	162	30	-	-	-	-		-	-	No line of sight.
CH001	Chong Hing Bank	Condenser on rooftop (1 fan, LxWxH = ~1mx1mx1.7m)	Y	N	66.3	3.0	831137	840544	20	199	30	-	-	-	-		-	-	No line of sight.
CH002			Y	N	66.3	3.0	831140	840544	20	201	30	-	-	-	-		-	-	No line of sight.
CH003			Y	N	66.3	3.0	831144	840541	20	203	30	-	-	-	-		-	-	No line of sight.
PS001	Po Shek Wu Estate	Louvers on façade	Y	N	71.8	2.0	830931	840413	13	161	30	-	-38	-	3		37	-	-
PS002			Y	Y	55.3	2.0	830943	840396	13	165	30	-	-38	-	3		20	20	-
															Tonality		0	0	
															Total SPL		54	44	
															Criteria ANL		65	55	
															Exceedance		-	-	

Appendix 9.1

Historical Aerial Photos


N
Village Houses
Agricultural Land
Vacant Land
0 10 20 30 40 50
METRES
1 : 1000
Year 1973
Legend
Site boundary


N
Vacant Land
Formed land, with scattered container/temporary structure
0 10 20 30 40 50
METRES
1 : 1000
Year 1982
Legend
Site boundary


N
Vacant land
KMB bus depot
0 10 20 30 40 50
METRES
1 : 1000
Year 1993
Legend
Site boundary


N
KMB bus depot
0 10 20 30 40 50
METRES
1 : 1000
Year 2000
Legend
Site boundary


N
KMB bus depot
0 10 20 30 40 50
METRES
1 : 1000
Year 2015
Legend
Site boundary


N
KMB bus depot
0 10 20 30 40 50
METRES
1 : 1000
Year 2022
Legend
Site boundary

Appendix 9.2

EPD Letters

Our ref 276006-12/L002/IL/wp

ARUP

By Post and Fax (2685 1133)

Environmental Protection Department
Environmental Compliance Division
Regional Office (North),
10/F., Sha Tin Government Offices,
No. 1 Sheung To Che Road, Sha Tin,
New Territories

Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong
t +852 2528 3031
d +852 2268 3215
f +852 2268 3380
isis.lai@arup.com
www.arup.com

For the attention of Mr. Lau Kok Yee, Leo

12 January 2022

Dear Mr. Lau,

Environmental Assessment Study for the Proposed Public Housing Development at Po Shek Wu Road, Sheung Shui
Request for Information on Chemical Spillage Accident

We have been recently appointed by Hong Kong Housing Authority (HKHA) to conduct an environmental assessment study for the Proposed Public Housing Development at Po Shek Wu Road, Sheung Shui (see Attachment 1). As part of the study, we are required to review the historical and present land use around the area and evaluate any potential land contamination issues in the Study Area as shown in Attachment 2.

It would be very much appreciated if you could provide us the following information for our assessment:

- The records of Chemical Waste Producers Registration within the Study Area; and
- Past and present chemical spillage / leakage records within the Study Area.

We would be grateful if you could provide a reply to us by 26 January 2020.

We look forward to receiving your reply. Should you have any queries, please do not hesitate to contact our Ms. Winnie Pak at 2908 4605. Thank you for your help in advance.

Yours sincerely,

Isis Lai
Consultant

cc HKHA - Mr. Gary Hong (CE/22), by fax: 3549 6537

香港房屋委員會
Hong Kong Housing Authority

Our Ref. : ( ) in HD(CE2) 140/111/01
Tel No. : 3549 6091
Fax No. : 3549 6537

Date : 15 Dec 2021

To Whom it may Concern

Dear Sir/Madam,

Proposed Public Housing Development at
Po Shek Wu Road, Sheung Shui

Environmental Assessment Study (EAS)

Housing Department (HD) is conducting an environmental assessment study (EAS) for the proposed Public Housing Development at Po Shek Wu Road, Sheung Shui.

This letter serves to confirm that Ove Arup & Partners Hong Kong Ltd. has been appointed by HD to conduct the EAS. I should be grateful if you could provide them with assistance for the study.

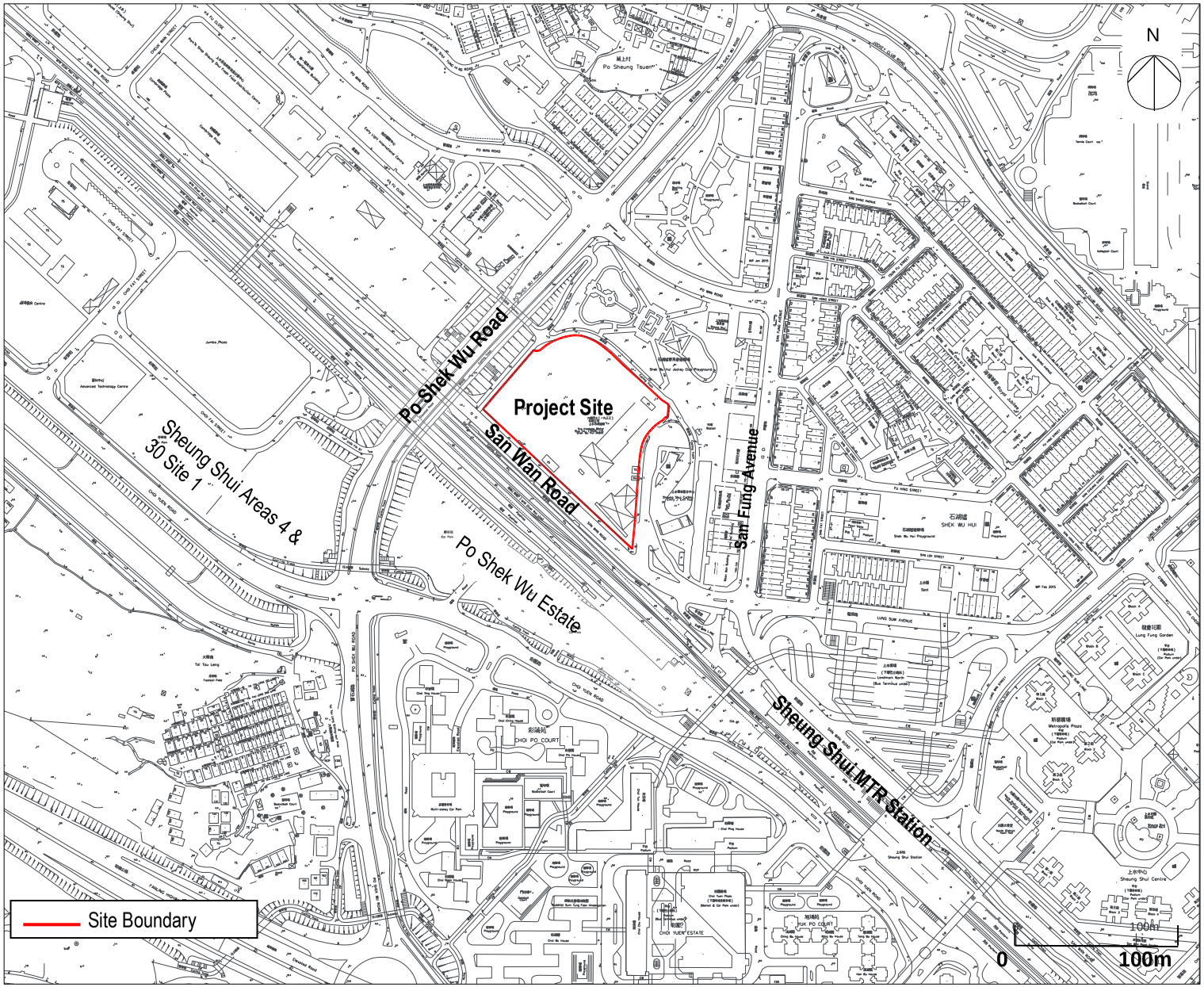
Should you have any enquiries, please feel free to contact the undersigned at 3549 6091. Thank you for your assistance in advance.

Yours faithfully,

(Gary Y. K. HONG)
Civil Engineer/22
for Director of Housing

File copy via SCE/1

香港九龍彌敦道750號始創中心13樓
13/F, Pioneer Centre, 750 Nathan Road, Kowloon, Hong Kong
互聯網網址：
Internet Homepage Address: http://www.housingauthority.gov.hk



Attachment 2

本署檔號
OUR REF: EP/RN/36412
來函檔號
YOUR REF: 276006-12/L002/IL/wp
電　話
TEL. NO.: 2158 5842
圖文傳真
FAX NO : 2685 1133
網　址
HOMEPAGE: http://www.epd.gov.hk

Environmental Protection Department
Environmental Compliance Division
Regional Office (North)
10/F, Sha Tin Government Offices,
No. 1 Sheung Wo Che Road,
Sha Tin, New Territories.

環境保護署
環保法規管理科
區域辦事處(北)
新界沙田
上禾輋路一號
沙田政府合署十樓

17 January 2022

Ove Arup & Partners Hong Kong Ltd.
Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong
(Attn.: Isis Lai)

→ Write 276006-12

Dear Ms. Isis,

Environmental Assessment Study for the Proposed Public Housing Development at Po Shek Wu Road, Sheung Shui
Request for Information of Chemical Spillage Accident

I refer to your letter dated 12 January 2022 (Your Reference: 276006-12/L002/IL/wp) on the captioned.

Regarding your enquiries in the above letter, this Regional Office has no record of spillage or leakage of chemicals within the concerned sites for the past 5 years. You may like to check with other relevant parties or departments for such information as appropriate.

As registered chemical waste producers at the location are concerned, a register of chemical waste producers is available for inspection in the Territorial Control Office of this department. If you would like to inspect, please contact Mr. C. K. TSANG at 2835 1017 for making appointment to view the records.

pls arrange to inspect the record

Should you have any query on the matter, please contact the undersigned at 2158 5842.

Yours sincerely,

(Alice TANG)
Regional Office (North)
For Director of Environmental Protection

cc. TCO (Attn.: Mr. C. K. TSANG) Fax: 2305 0453

Appendix 9.3

FSD Letters

Our ref 276006-12/L001/IL/wp

ARUP

BY FAX (2311 0066) AND BY POST

Fire Services Department
Fire Services Headquarters Building
No.1 Hong Chong Road
Tsim Sha Tsui East
Kowloon

Attention: Director of Fire Services

Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong
t +852 2528 3031
d +852 2268 3215
f +852 2268 3380
isis.lai@arup.com
www.arup.com

12 January 2022

Dear Sir/Madam,

Environmental Assessment Study for the Proposed Public Housing Development at Po Shek Wu Road, Sheung Shui
Request for Information on Dangerous Goods and Incident Records

We have been recently appointed by Hong Kong Housing Authority (HKHA) to conduct an environmental assessment study for the Proposed Public Housing Development at Po Shek Wu Road, Sheung Shui (see Attachment 1). As part of the study, we are required to review the historical and present land use around the area and evaluate any potential land contamination issues in the Study Area as shown in Attachment 2.

It would be very much appreciated if you could provide us the following information for our assessment:

- Records of Dangerous Goods License issued within the Study Area;
- Past and present incident records within the Study Area; and
- Any other information related to the use and/or storage of dangerous goods in the concerned area.

We would be grateful if you could provide a reply to us by 26 January 2022.

We look forward to receiving your reply. Should you have any queries, please do not hesitate to contact our Ms. Winnie Pak at 2908 4605. Thank you for your help in advance.

Yours faithfully,

Isis Lai
Consultant

cc HKHA - Mr. Gary Hong (CE/22), by fax: 3549 6537

香港房屋委員會
Hong Kong Housing Authority

Our Ref. : ( ) in HD(CE2) 140/111/01
Tel No. : 3549 6091
Fax No. : 3549 6537

Date : 15 Dec 2021

To Whom it may Concern

Dear Sir/Madam,

Proposed Public Housing Development at
Po Shek Wu Road, Sheung Shui

Environmental Assessment Study (EAS)

Housing Department (HD) is conducting an environmental assessment study (EAS) for the proposed Public Housing Development at Po Shek Wu Road, Sheung Shui.

This letter serves to confirm that Ove Arup & Partners Hong Kong Ltd. has been appointed by HD to conduct the EAS. I should be grateful if you could provide them with assistance for the study.

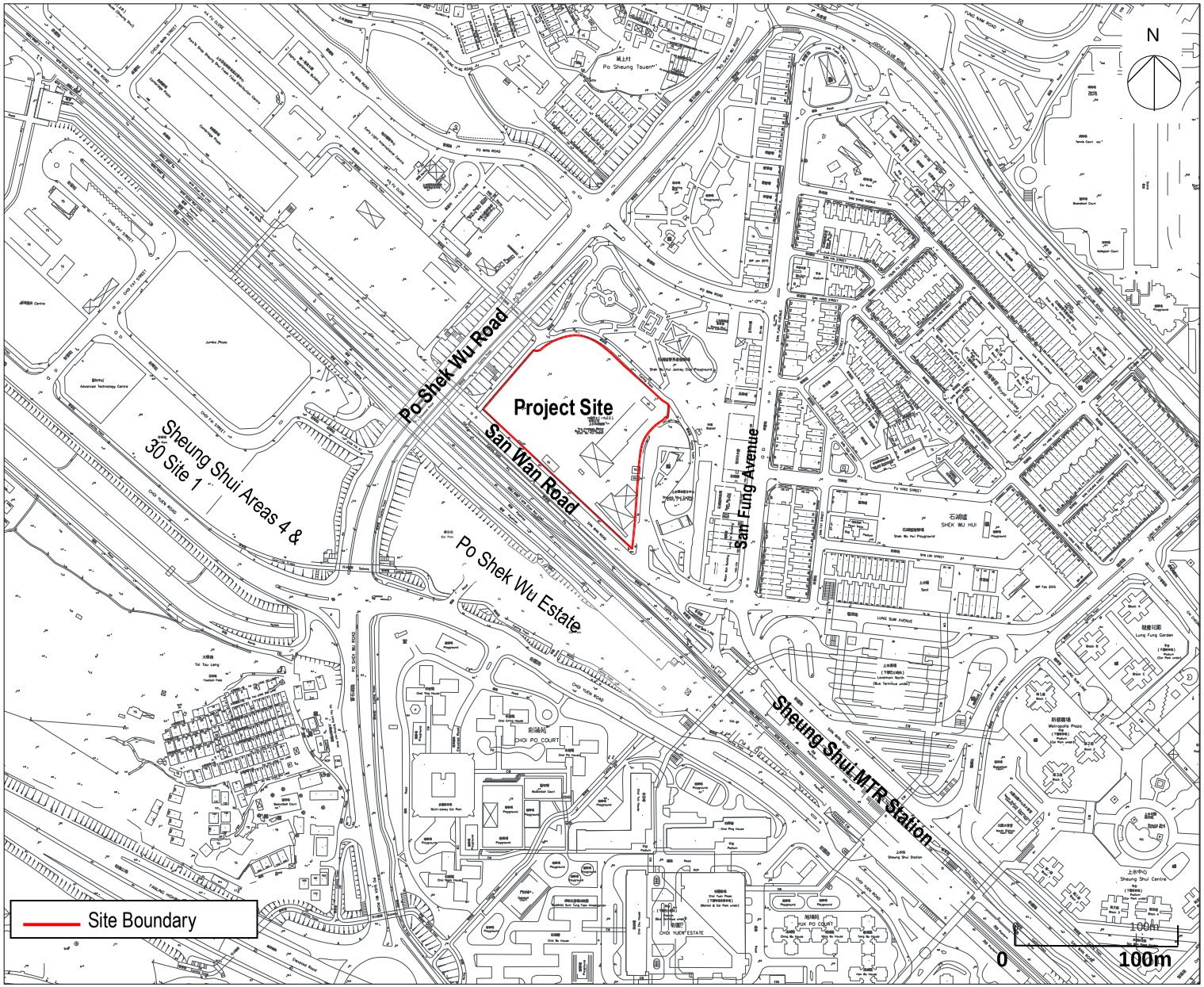
Should you have any enquiries, please feel free to contact the undersigned at 3549 6091. Thank you for your assistance in advance.

Yours faithfully,

(Gary Y. K. HONG)
Civil Engineer/22
for Director of Housing

File copy via SCE/1

香港九龍彌敦道750號始創中心13樓
13/F, Pioneer Centre, 750 Nathan Road, Kowloon, Hong Kong
互聯網網址：
Internet Homepage Address: http://www.housingauthority.gov.hk



Attachment 2

消 防 處
香港九龍尖沙咀東部廣華道 1 號
消防處總部大廈

FIRE SERVICES DEPARTMENT
FIRE SERVICES HEADQUARTERS BUILDING,
No.1 Hong Chong Road,
Tsim Sha Tsui East, Kowloon,
Hong Kong.

本處檔號 OUR REF. : (174) in FSD GR 6-5/4 R Pt. 38
來函檔號 YOUR REF. : 276006-12/L001/IL/wp
電子郵件 E-mail : hkfsdenq@hkfsd.gov.hk
圖文傳真 FAX NO. : 2739 5879
電 話 TEL NO. : 2733 7741

9 February 2022

ARUP
Level 5, Festival Walk,
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
(Attn: Ms. Isis LAI, Consultant)

By fax (2268 3380) only

Dear Ms. LAI,

Enviromental Assessment Study for the Proposed Public Housing Development at Po Shek Wu Road, Sheung Shui
Request for Information of Dangerous Goods & Incident Records

I refer to your letter of 12.1.2022 regarding the captioned subject.

According to our record, from the year of 1990 to present moment, dangerous goods licenses have been issued by this department to the subject address, with details as shown in **Appendix A**. No incident record was found at the aforesaid location with your given conditions.

If you have further questions, please feel free to contact the undersigned.

Yours sincerely,

(NG Wing-chit)
for Director of Fire Services

Appendix A

Enviromental Assessment Study for the Proposed Public Housing Development at Po Shek Wu Road, Sheung Shui
Request for Information of Dangerous Goods & Incident Records

Item	Type of DG	Quantity	Storage Location
1.	Diesel Oils	20,000 litres	Temp. Bus Depot, Area 4A, Shek Wu Hui, Sheung Shui, N.T.

香港房屋委員會
Hong Kong Housing Authority

本署檔號 Our Ref. HD(P)8/3/FL18
來函檔號 Your Ref. A/FSS/299
電話 Tel No. 2761 5342
圖文傳真 Fax No. 2761 5870

13 September 2024

By Email

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

Dear Sir/Madam,

Section 16 Planning Application for Proposed Minor Relaxation of Plot Ratio and Building Height Restriction for Permitted Public Housing Development at Po Shek Wu Road, Sheung Shui, New Territories

(Application No. A/FSS/299)

Reference is made to the captioned Section 16 application received by the Town Planning Board on 6.8.2024 and the comments received from Planning Department dated 23.8.2024, 30.8.2024 and 4.9.2024. We submit herewith the table summarizing the responses to comments as well as the revised Air Ventilation Assessment with the updates highlighted to substantiate the application.

Should you have any queries or need further information, please contact the undersigned or Ms. Alice LO at 2761 5314. Thank You.

Yours faithfully,

(Yoko CHEUNG)
for Director of Housing

Encl.

香港九龍何文田佛光街33號房屋委員會總辦事處
Housing Authority Headquarters, 33, Fat Kwong Street, Ho Man Tin, Kowloon, Hong Kong.
互聯網網址：
Internet Homepage Address: http://www.housingauthority.gov.hk

S.16 Application No. A/FSS/299

Application for Minor Relaxation of Plot Ratio and Building Height Restriction for Permitted Public Housing Development, Po Shek Wu Road, Sheung Shui, New Territories
Responses to Comments

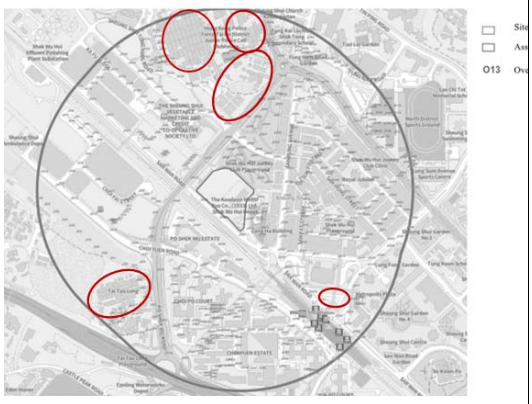
Comments	Responses
Water Services Department (23.8.2024)	
Existing water mains inside the proposed site as shown in the MRP may be affected. The applicant is required to either divert or protect the water mains found on site.	No diversion of water mains is proposed. The water mains found on site would be protected as per WSD's requirement.
If diversion is required, existing water mains inside the proposed site areas are need to be diverted outside the site boundary of the proposed site to lie in Government land. A strip of land of minimum 1.5m in width should be provided for the diversion of existing water mains. The cost of diversion of existing water mains upon request will have to be borne by the applicant; and the applicant shall submit all the relevant proposal to WSD for consideration and agreement before the works commence.	The water mains would not be diverted and would be protected.
If diversion is not required, the following conditions shall apply:	
(a) Existing water mains are affected as indicated on the site plan and no development which requires resiting of water mains will be allowed.	Noted. No structural elements, drainage, BS installation, landscape shall run within the water mains reserve area.
(b) Details of site formation works shall be submitted to the Director of Water Supplies for approval prior to commencement of works.	
(c) No structure shall be built or materials stored within 1.5 metres from the centre line(s) of water main(s) shown on the plan. Free access shall be available at all times for	

Comments	Responses
staff of the Director of Water Supplies or their contractor to carry out construction, inspection, operation, maintenance and repair works.	
(d) No trees or shurbs with penetrating roots may be planted within the Water Works Reserve or in the vicinity of the water main(s) shown on the plan. No change of existing site condition may be undertaken within the aforesaid area without the prior agreement of the Director of Water Supplies. Rigid root barriers may be required if the clear distance between the proposed tree and the pipe is 2.5m or less, and the barrier must extend below the invert level of the pipe.	
(e) No planting or obstruction of any kind except turfing shall be permitted within the space of 1.5 metres around the cover of any valve or within a distance of 1 metre from any hydrant outlet.	
(f) Tree planting may be prohibited in the event that the Director of Water Supplies considers that there is any likelihood of damage being caused to water mains.	
<u>Urban Design Unit, Planning Department (30.8.2024)</u>	
<u>Visual perspective</u> 1. According to the photomontages in the submitted Visual Appraisal (VA), there will be an increase in building bulk compare with the current scheme (i.e. the OZP compliant scheme) which will slightly block the sky view and slightly reduce visual openness from VP1, VP2 and VP5. The applicant has proposed some mitigation measures to reduce the building bulk in the VA, including buildings position to facilitate	Noted.

Comments	Responses
the 15m building separation, permeable podium structures, vertical greening, etc. With the mitigation measures incorporated, the overall visual impact of the increased building bulk is considered slightly adverse as rated by the applicant	
2. In view of the surrounding context and the minor relaxation in PR (+7.1%) and BH (+14.6%), significant visual impact on the surroundings is not anticipated.	Noted.
Air Ventilation perspective **Planning Statement** 1. Paragraphs 4.9 and 4.10 – In view of the comments on the AVA IS report, we would reserve our comments on the paragraphs at this juncture.	Noted. The AVA IS report is updated with the revision highlighted.
AVA IS report 2. As many key information was missing in this submission, we would reserve our comments on the simulation results as well as the conclusion.	Noted. The AVA IS report is updated with the revision highlighted.
3. Building heights of the existing developments (section 2 and Figure 1) – The consultant should report and indicate the building height of the existing developments located within the Surrounding Area. The consultant should clearly provide the names of the villages and existing developments (not in terms of different building clusters) on plan. The consultant should seek DPO's input on confirming the correctness of reported information.	Please note DPO's input was sought at an earlier time around pre-submission, which was incorporated as appropriate. The building height of the existing development are added in Figure 1.
4. Noise barriers, elevated structures, planned and committed developments (section 2.1) – The consultant should provide figures and layout plans to illustrate	Please note that similar to the previous comment, DPO's input was sought at an earlier time around pre-submission, which was incorporated as appropriate.

Comments	Responses
those identified noise barriers, elevated structures, planned and committed developments in the computational model for checking. The consultant should seek DPO's input on confirming the correctness of reported information.	
5. Baseline Scheme (section 4.1) – The consultant should clarify whether presented Baseline Scheme is the latest approval scheme and should seek DPO's agreement on adopting such OZP-compliant scheme as Baseline Scheme.	DPO's agreement on the presented Baseline Scheme has been sought.
6. Mitigation Measures/Good Design Features under Baseline Scheme (section 4.1) • The consultant should report the height of the proposed G/F empty bay in text.	Height of G/F empty bay marked up in revised report diagram.
• It appears that the proposed building setbacks reported in section 4.1 does not tally with that indicated on Figure 12. The consultant should clarify and indicate those proposed tower / podium setbacks with exact dimensions on plan.	The paragraph has been revised accordingly to distinguish the setback extent from each site boundary edge.
7. Mitigation Measures/Good Design Features under Proposed Scheme (section 4.2) • The consultant should report the height of the proposed G/F empty bay in text.	Height of G/F empty bay marked up in revised report diagram.
• Referring to Figure 20, it appears that there are some connecting foot bridge at podium level. As such, it may not considered as a "full height" building separation. The consultant	Please note that the footbridge is naturally ventilated with a permeable design, it should pose minimal impact to building separation's air ventilation performance.

Comments	Responses
should clarify and update the relevant texts where appropriate.	
• It appears that the proposed building setbacks reported in section 4.2 does not tally with that indicated on Figure 24. The consultant should clarify and indicate those proposed tower / podium setbacks with exact dimensions on plan.	The paragraph has been revised accordingly to distinguish the setback extent from each site boundary edge.
8. Size of computational domain (Figure 31) – The consultant should correct the typo of the computational domain length.	The typo has been revised
9. **Coverage of Assessment and Surrounding Areas** (section 5.1) – The consultant should clearly indicate the coverage of Assessment and Surrounding Areas on plan. 3D model views of the whole Surrounding Area (from at least 4 directions) should be submitted for our checking	Coverage of assessment and surrounding area on plan, as well as 3D model view of the entire domain from 4 directions, have been provided
10. Focus area (Table 5) – In view of item **Error! Reference source not found.** above, we would reserve our comments on this table. The consultant should provide sufficient information for checking.	Noted.
11. **Overall test points** (Figures 35 and 37) • As the location and ID of all test points are illegible, it is unable to ascertain whether the test points are correctly and sufficiently placed and we would reserve comment on the information shown in Table 5.	PDF resolution has been improved in the revised report, the IDs are legible.
• The consultant should provide correct demarcation of each focus area and list the relevant test points in Table 5.	The demarcation of focus areas is revised in the revised report to align with Table 5 more clearly. The resolution of the same diagram is also enhanced to improve legibility.

Comments	Responses
• The consultant should clarify whether additional test points should be placed to cover the areas highlighted (see red circles) in below. 	Reviewing these areas show that these areas are generally driveways, carparks and densely packed buildings clusters where pedestrian might not access frequently. As such, additional test points are not added at these areas.
12. VR contour plots (section 6) • The consultant should remove the shading of circled areas in Figures 38 to 61 which covered the part of VR contours. We would reserve our comments on the directional analysis.	Noted
• The consultant should provide the VR vector plots for demonstrating the identified wind arrows under each simulation wind direction.	VR vector plots are provided in the revised report's appendix
13. **Summer LVR under the Baseline Scheme** (Tables 6 and 7) – Different summer LVR under the Baseline Scheme have been presented in Tables 6 and 7. The consultant should clarify and revise the typo accordingly.	Typo has been corrected, the two tables are aligned
14. **Directional Analysis** (section 6) and **Conclusion** (section 7) – Considering our comments above, there are doubts as whether the simulation results are accurate and we would not provide comment on this	Noted.

Comments	Responses
section at this juncture.	
15. **Computational Model -** The consultant should provide a figure **showing** details of the 3D computational model covering for the entire Surrounding Area for checking the accuracy of the model. The consultant should also submit 3D views of the assessment schemes (from at least 4 directions) for our checking. Without providing such information, we could not ascertain the accuracy of the computational model.	3D model for the entire domain has been provided in 4 directions.
16. **VR contour and vector plots** – The consultant should show the VR contour and vector plots of the whole computational domain for **checking**.	Whole-domain VR and vector VR plots are provided in the revised report's appendices.
17. **VR wind data** – The consultant should report the VR data of each test point under each simulated wind direction in the appendix.	The VR of each of the test points are provided in the revised report's appendix.
Highways Department (4.9.2024)	
(a) The proposed boundary included a section of public footpath (blue circle at below sketch). Comments and agreement should be sought from TD.  	TD was consulted on the VO application where the section circled in blue was included within the site boundary and TD had no comments on the VO application in Apr 2023 and Jul 2024**.**
(b) Please note that a section of U channel and a catchpit will fall within the proposed boundary (blue circle at below sketch). Proposal of re-alignment of the U-channel	Noted. HD will provide the re-alignment proposal of U-channel and catchpit for HyD's review and comment at detailed design stage.

Comments	Responses
and catchpit should be provide for our review and comment at detailed design stage.	
<u>Fanling, Sheung Shui & Yuen Long East District Planning Office, Planning Department (9.9.2024)</u>	
Figure 4 Landscape Master Plan (Overall) - The site area stated in the plan (i.e. 13,000m^2) is inconsistent with Table 2 of the supporting planning statement (i.e. 13,800m^2). The calculation for site coverage of greenery (including planting area and covered planting area) should also be rectified accordingly.	The plan is updated as attached.

- End -

ARUP

Hong Kong Housing Authority

Public Housing Development at Po Shek Wu Road, Sheung Shui

Air Ventilation Assessment - Initial Study

Reference:

| 11 September 2024

Job number

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Contents

1. Introduction

1.1 Background

Ove Arup & Partners Hong Kong Limited (Arup) has conducted an Air Ventilation Assessment (AVA) – Initial Study for the planning application of the proposed public housing developments at Po Shek Wu Road, Sheung Shui (The Development) in the North District.

The application site is currently zoned "Residential (Group A)" ("R(A)5") on the Approved Fanling/Sheung Shui Outline Zoning Plan (OZP) No. S/FSS/28 with maximum building height restriction of 130mPD and plot ratio 7.0. This document is to support the section 16 application for minor relaxation of building height restriction from 130mPD to 154mPD and plot ratio from 7.0 to 7.5.

The Technical Guide for Air Ventilation Assessment for the Developments in Hong Kong *(Annex A of Technical Circular No.1/06 for Air Ventilation Assessments)* [1] *(termed as AVA Technical Circular hereafter)* dated 19 July 2006 lay down the foundation of this methodology statement.

1.2 Objective of AVA Initial Study

Among all available wind data, an Initial Study will be conducted by using Computational Fluid Dynamics (CFD) techniques. It aims to achieve the following tasks:

- Initially assesses the characteristics of the wind availability of the Study Site;
- Gives a general pattern and a rough quantitative estimate of the wind performance at the pedestrian level using Velocity Ratio VR;
- Identify the air paths within the site ascertain their effectiveness; and
- Identify good design features and problematic areas if any and recommend mitigation measures.

2. Location and Site Characteristics

Development is located in Sheung Shui Area in the North District. The Development is sited on a flat topology and situated at the junction of Po Shek Wu Road (**Orange Dotted Line**) and San Wan Road (**Green Dotted Line**).

The Development is surrounded by mid-rise industrial clusters to the north to southwest, high-rise future residential developments, including planned Sheung Shui Areas 4 and 30 Site 1 and 2 (SS Site1 and Site 2) and completed Po Shek Wu Estate (PSWE) from northwest to south. At the north of the Development are the open spaces Shek Wu Hui Jockey Club Playground and at the west is a large cluster of mid-rise developments. The location of the Development and its surroundings are shown in Figure 1.

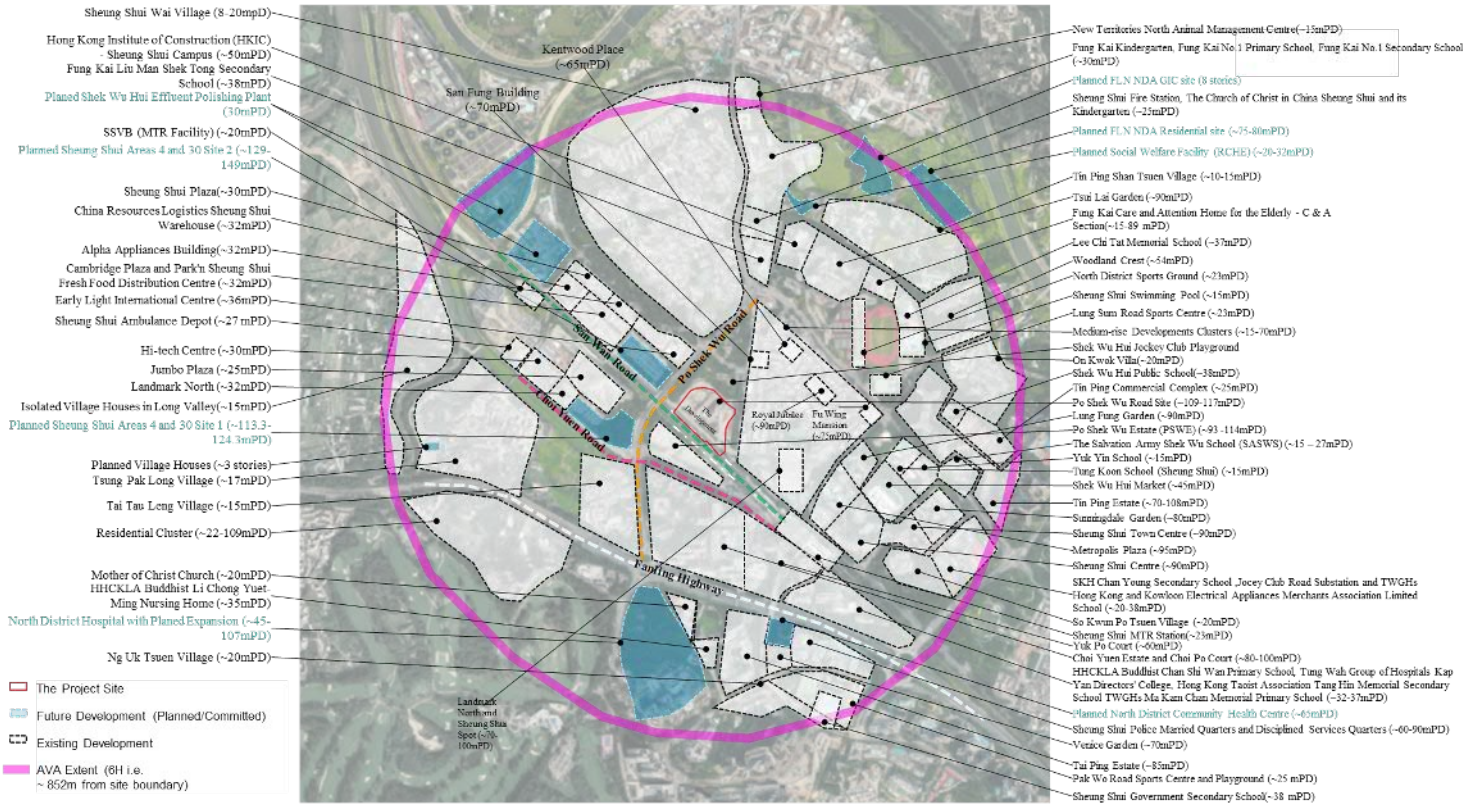


Figure 1 Site Location of the Development and Surroundings (Source: Google Map)

2.1 Proposed Development, Noise Barrier and Elevated Structure

There are several planned developments, noise barriers and elevated structures around the study sites, which will be considered in this AVA – Initial Study. Their locations are shown below.

Future Development

The planned developments, are indicated in Figure 1.

Noise Barrier

Future semi-enclosures, future full-enclosures, existing noise barriers and future noise barriers would be located adjacent to the Development, as well as further south along Po Shek Wu Road, as well as Fanling Highway, in order to mitigate the noise impact, subject to detailed design.

Elevated Structure

There are multiple elevated structures located within the surrounding area, including elevated walkways, covered walkways and elevated roads. There are 4 future elevated walkways, connected to SS Site 1, SS Site2, Po Shek Wu Road and Sheung Shui MTR Station to the Development. There is also a future elevated road above Po Shek Wu Road connecting to Fanling Highway, subject to detailed design.

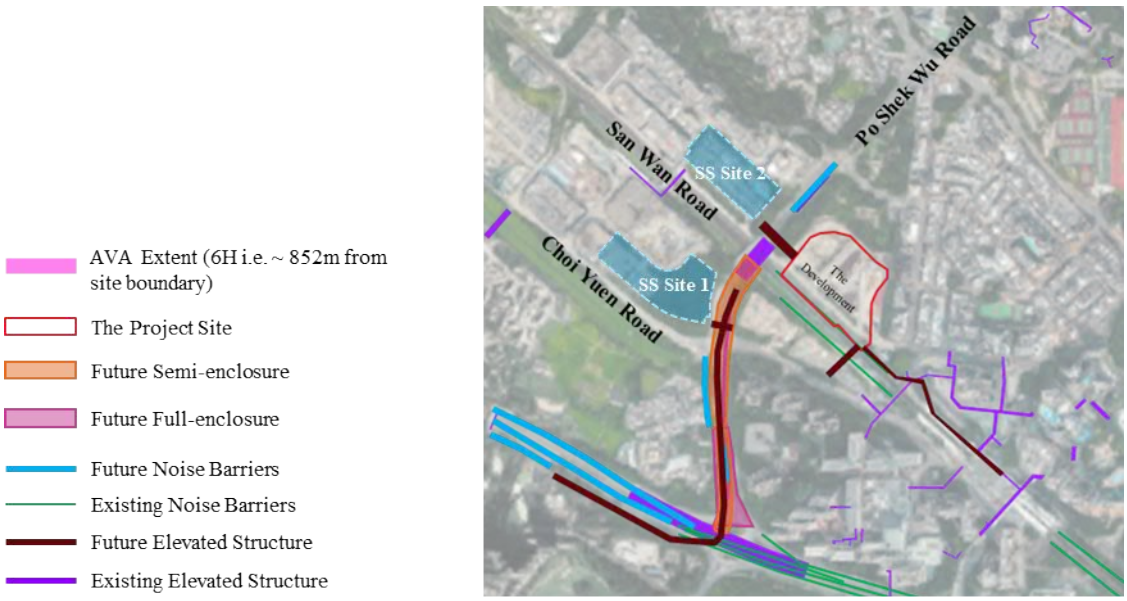


Figure 2 Elevated Structures and Noise Barriers

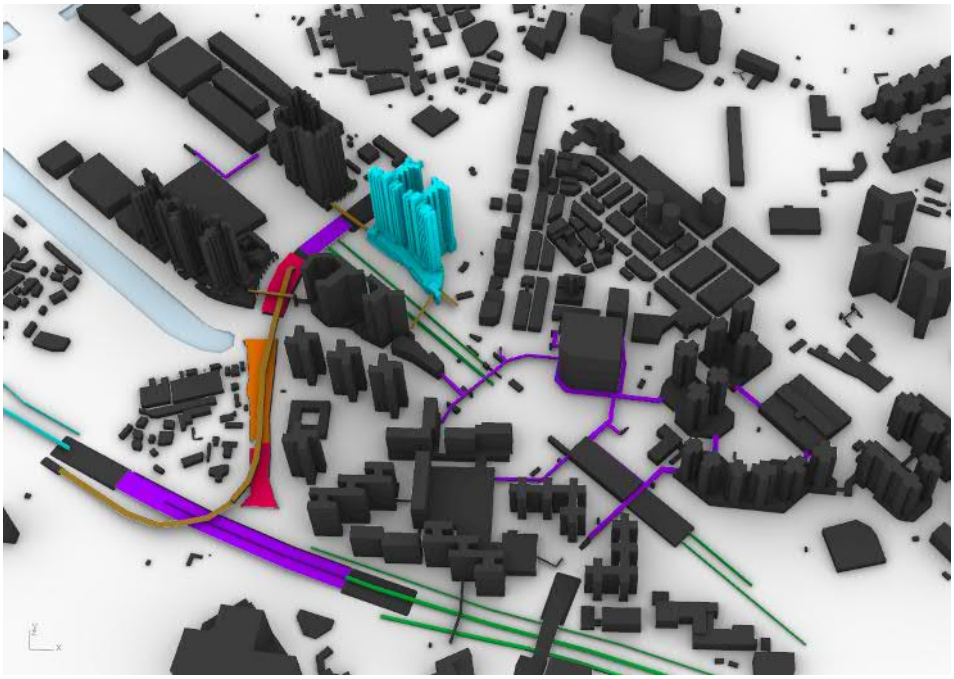
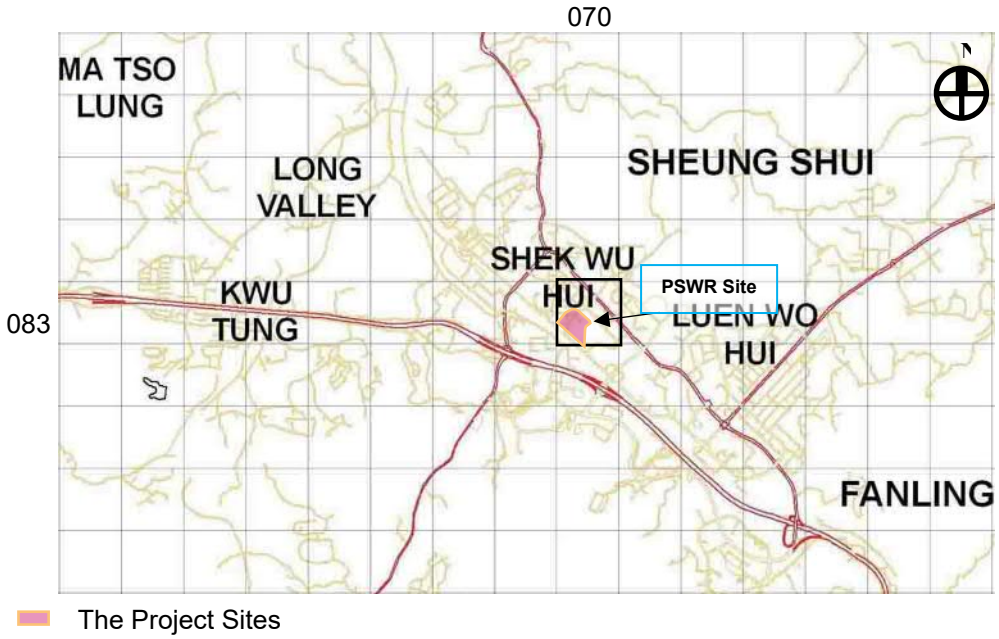


Figure 3 3D model of the Elevated Structures and Noise Barriers

3. Wind Availability Data

As per the *AVA Technical Circular,* at least 75% of the time in a typical reference year (frequency of occurrence) would be studied under both annual and summer wind condition in the Initial Study when using a Computational Fluid Dynamics (CFD) modelling technique. Since the CFD approach is adopted for the present project's AVA, this criterion together with the following selected wind data are to be applied as the methodology.

The site wind availability of the application site and its surrounding is an essential parameter for AVA. As stipulated in the *AVA Technical Circular. The* site wind availability would be presented by using appropriate mathematical models. Planning Department (PlanD) has set up a set of simulated meso-scale data of Regional Atmospheric Modelling System (RAMS) of the territory for AVA study, which could be downloaded at Planning Department Website. Simulated meso-scale data of Regional Atmospheric Modelling System (RAMS) from PlanD [2] will therefore be adopted in this AVA Study. The location of the Development falls within the location grid (x: 070, y:083) in the RAMS database as indicated below.



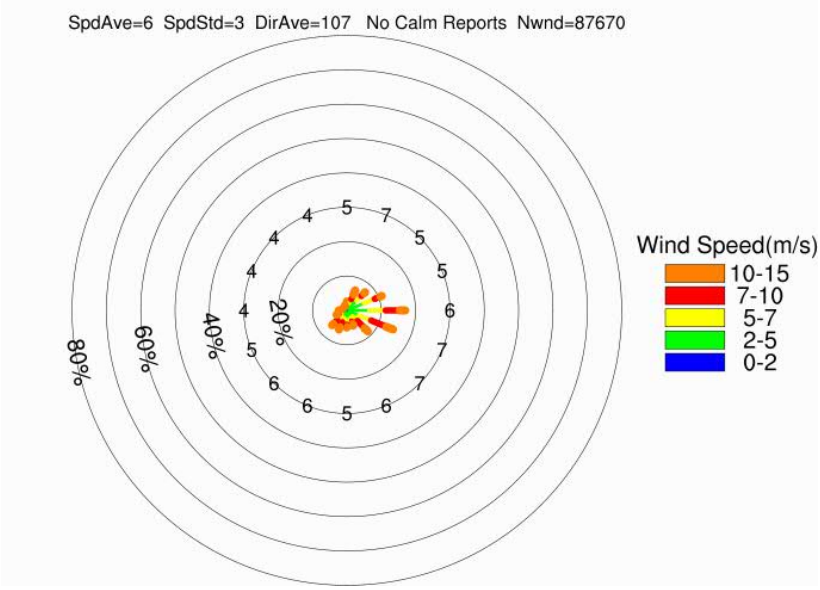


Figure 4 RAMS annual wind rose at 500mPD

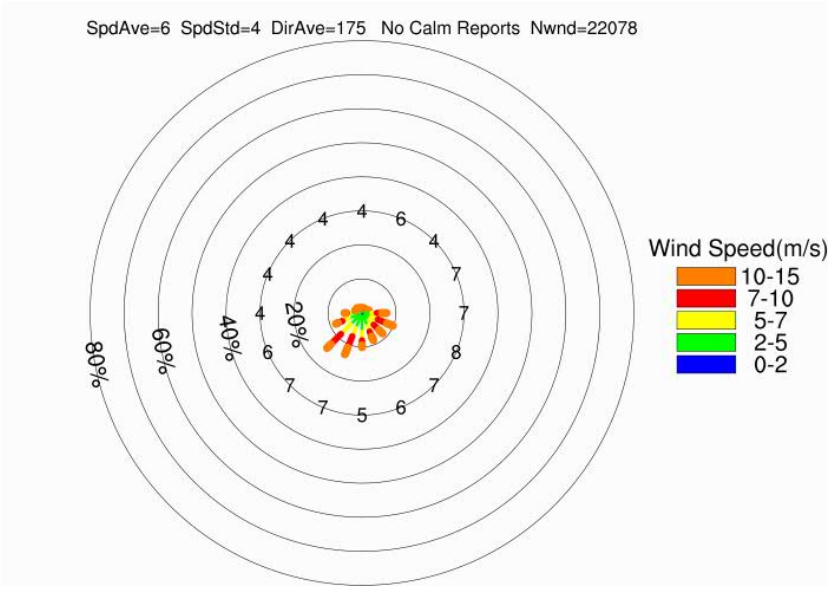


Figure 5 RAMS summer wind rose at 500mPD

3.1 Prevailing Wind Directions

As mentioned above, the RAMS wind data of location grid (x:070, y:083) is adopted for the site wind availability in this study.

3.1.1 Annual Prevailing Wind

Eight prevailing wind directions (highlighted in red colour in Table 1) are considered in this AVA Study which covers 77.8% of the total annual wind frequency. They are north-north-easterly (6.4%), north-easterly (7.5%), east-north-easterly (11.1%), easterly (17.2%), east-south-easterly (14.7%), south-easterly (8.7%), south-south-westerly (6.1%) and south-westerly (6.1%) winds.

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	
Frequency	2.6%	6.4%	7.5%	11.1%	17.2%	14.7%	8.7%	4.8%	
Wind Direction	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
Frequency	5.0%	6.1%	6.1%	3.3%	2.4%	1.2%	1.2%	1.5%	77.8%

Table 1 Annual Wind Frequency

**** The wind frequency showing in red colour represents the selected winds for the CFD simulation.***

3.1.2 Summer Prevailing Wind

Eight prevailing wind directions (highlighted in red colour in Table 2) are considered in this AVA Study which covers 81.9% of the total summer wind frequency. They are easterly (7.6%), east-south-easterly (10.2%), south-easterly (8.7%), south-south-easterly (8.7%), southerly (10.2%), south-south-westerly (13.4%), south-westerly (14.7%) and west-south-westerly (8.4%) winds.

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	
Frequency	1.5%	1.6%	1.5%	2.3%	7.6%	10.2%	8.7%	8.7%	
Wind Direction	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
Frequency	10.2%	13.4%	14.7%	8.4%	5.1%	2.1%	2.0%	1.7%	81.9%

Table 2 Summer Wind Frequency

**** The wind frequency showing in red colour represents the recommended wind direction for the CFD simulation.***

3.2 Wind Profiles

The profiles of wind speed from the PlanD RAMS database (x:070, y:083) is studied and the selected extracted. In the RAMS data the vertical profiles of the normalised mean wind speed were provided and the exact profile will be modelled in the CFD model for each corresponding wind directions to be studied. The vertical wind profile for all wind directions to be studied are shown in Figure 6 through Figure 8.

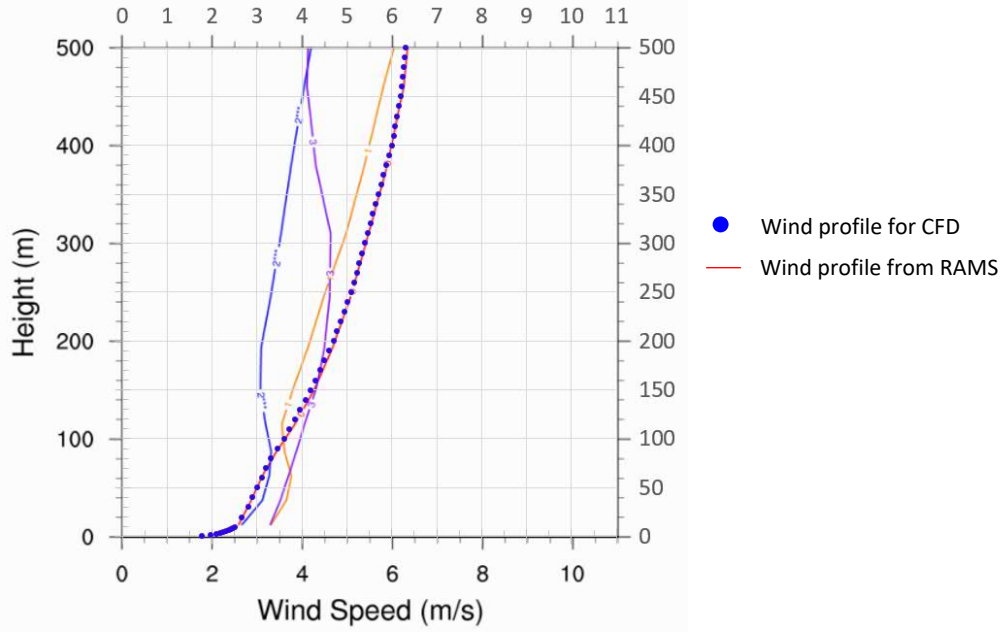


Figure 6 Vertical Wind Speed Profile of 22.5° - 112.4° winds

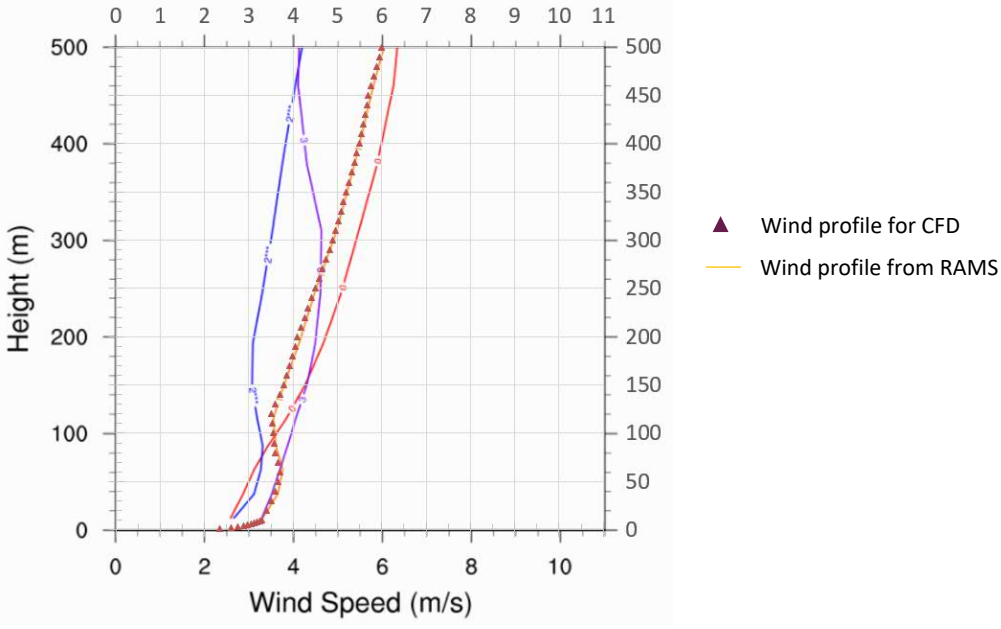


Figure 7 Vertical Wind Speed Profile of 112.5° - 202.4° winds

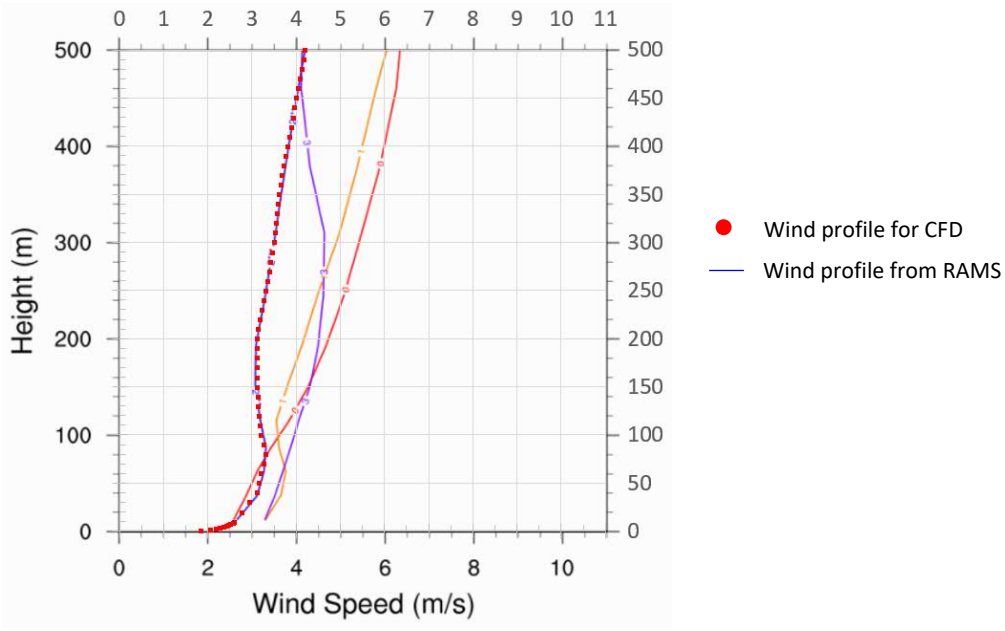


Figure 8 Vertical Wind Speed Profile of 202.5° - 292.4° winds

4. Design Schemes for Initial Study

To investigate the ventilation impacts of the Development and effectiveness of wind enhancement features. Two schemes, the Baseline Scheme and the Proposed Scheme are to be analysed and compared in this AVA Initial Study.

4.1 Baseline Scheme

The Baseline Scheme is an OZP-compliant scheme with a building height at +128mPD and a single aspect wing facing the railway. The Baseline Scheme consists of two 36-storey domestic towers atop a 4-storey podium structure and a basement carpark. It has incorporated two 15m on-site air paths, one through the building separation between the domestic towers and the other between Block B and the lift tower. There is also a G/F empty bay (~14m wide), building setbacks of 8m from northwestern site boundary, 22m from northern site boundary and 10m from northeastern site boundary, and a tower setback from the southwestern site boundary of ~16m.

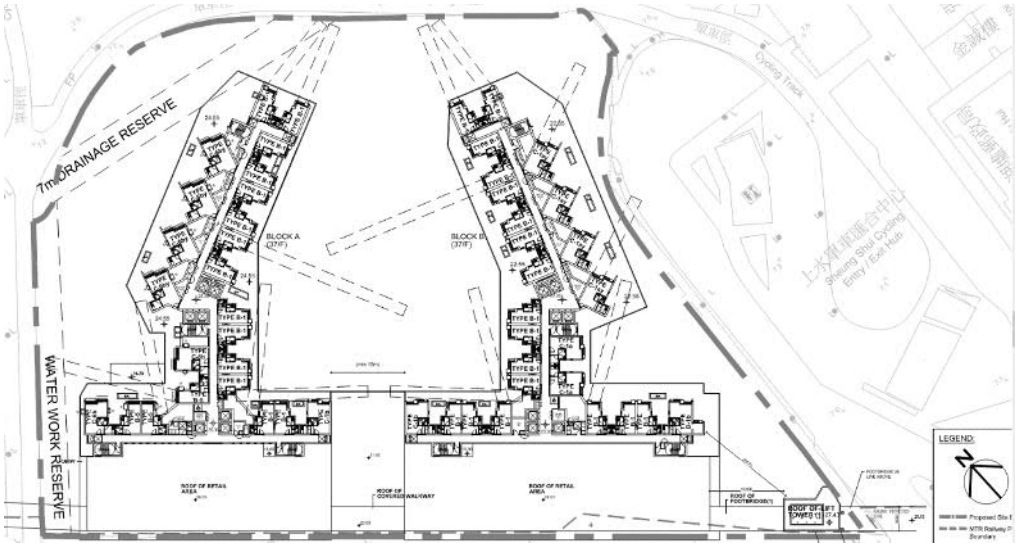


Figure 9 Baseline Scheme MLP

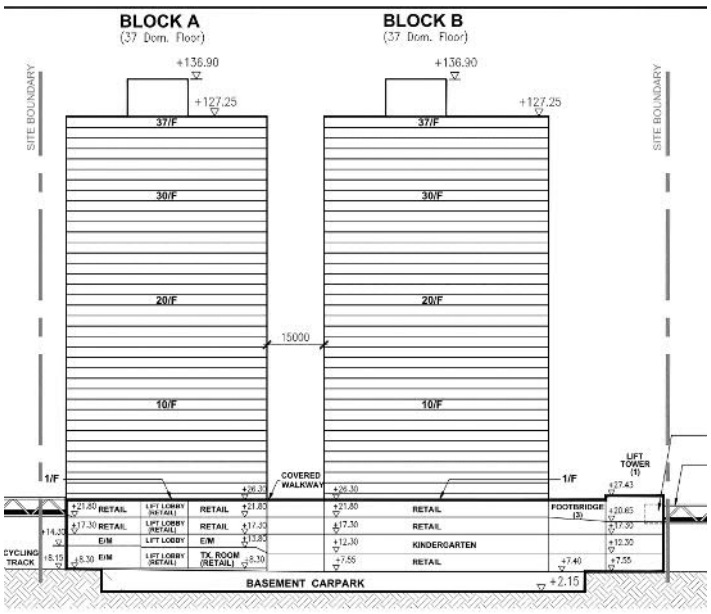


Figure 10 Baseline Scheme Section

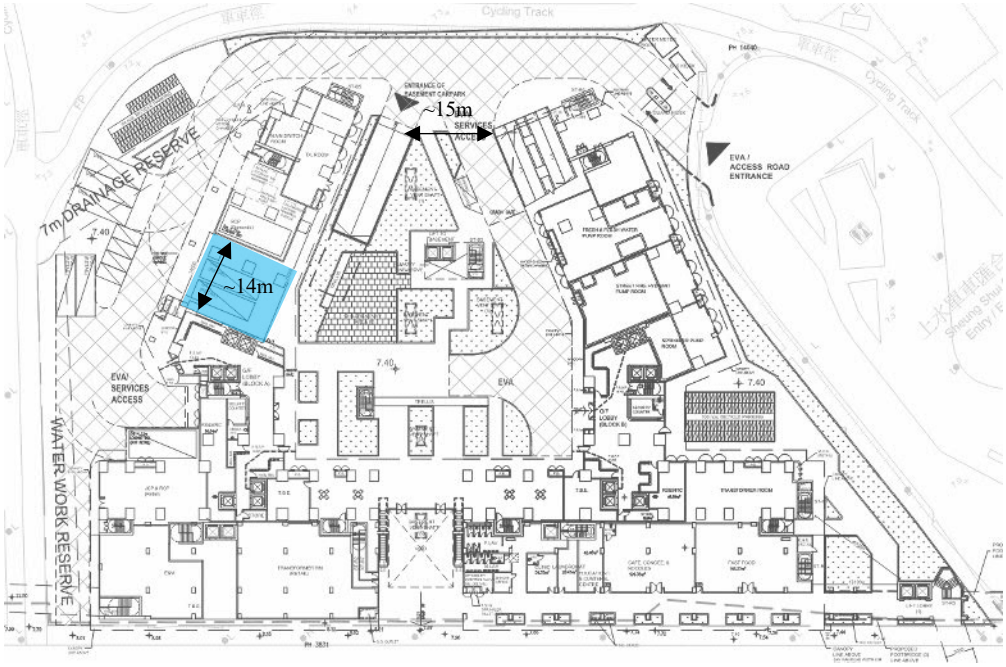


Figure 11 Baseline Scheme Wind Enhancement Features (GF)

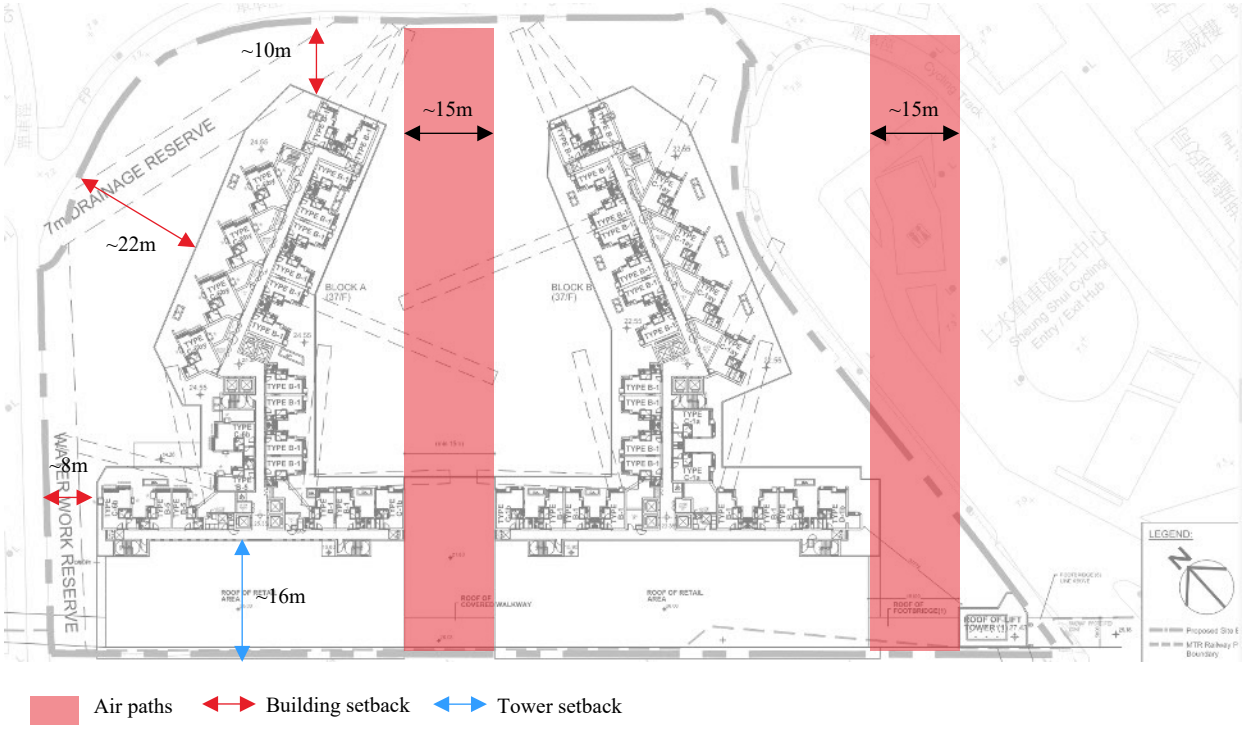


Figure 12 Baseline Scheme Wind Enhancement Features (Typical Floor)

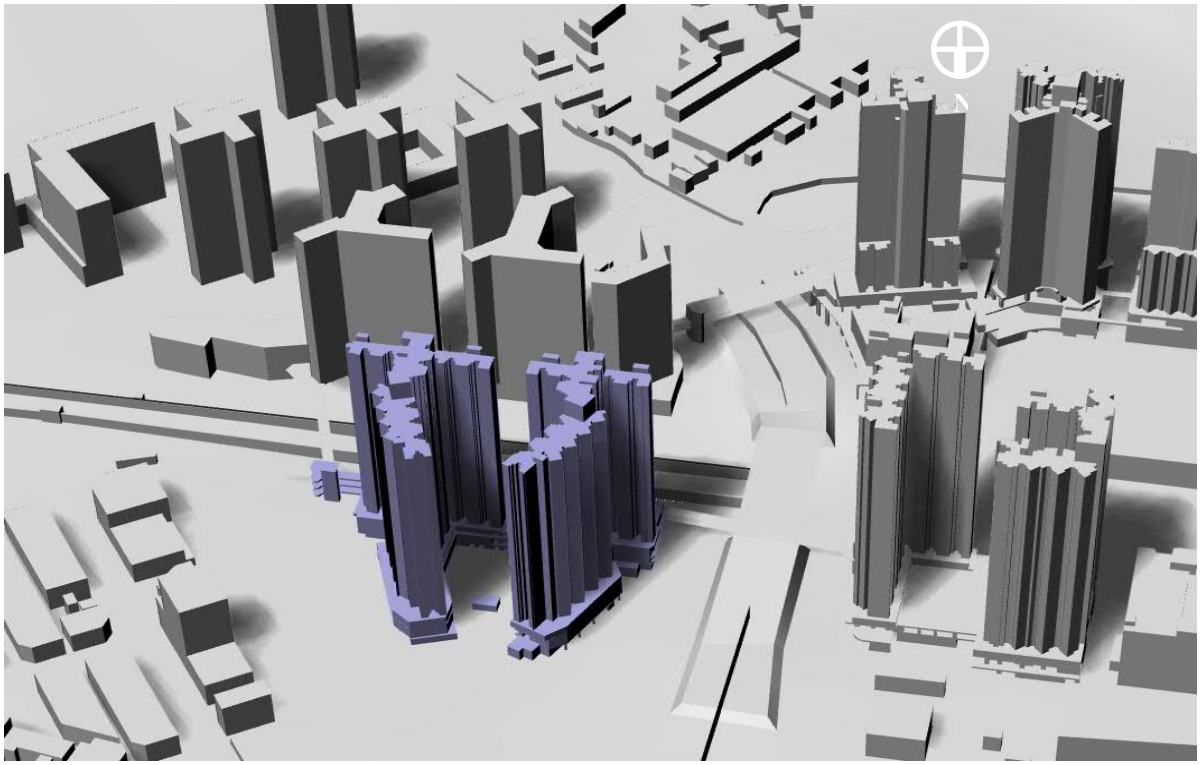


Figure 13 Northerly view of Baseline Scheme

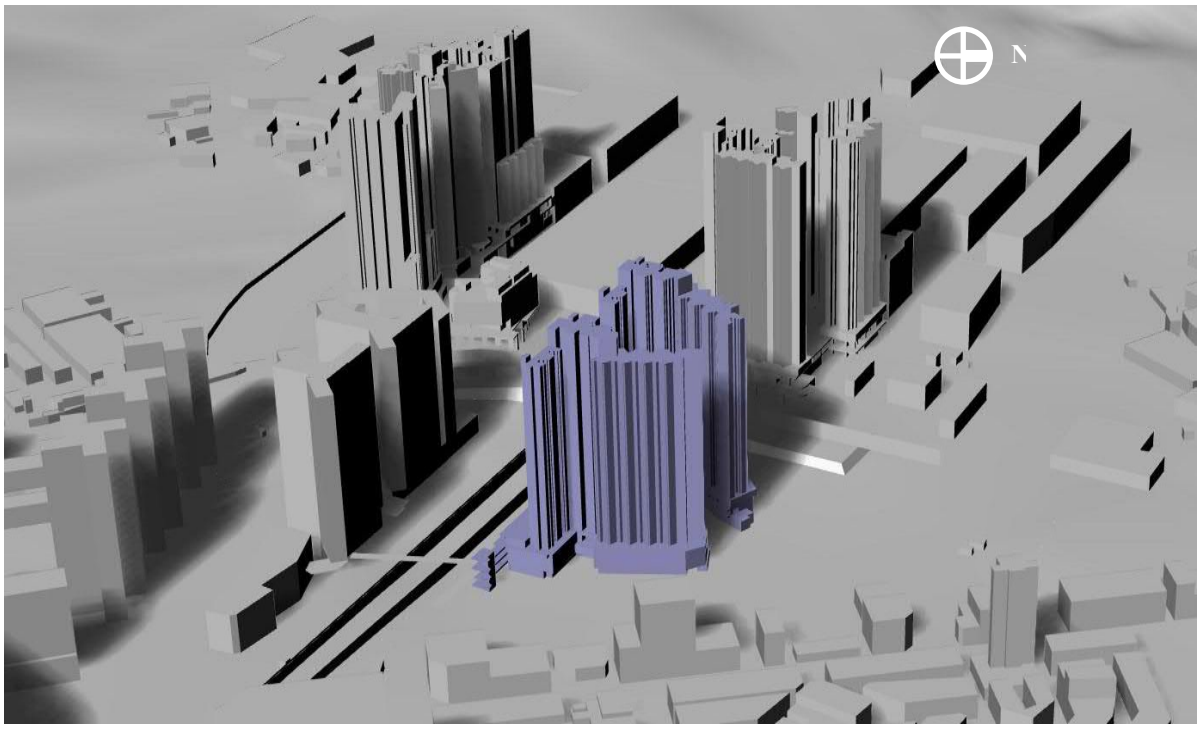


Figure 14 Easterly view of Baseline Scheme

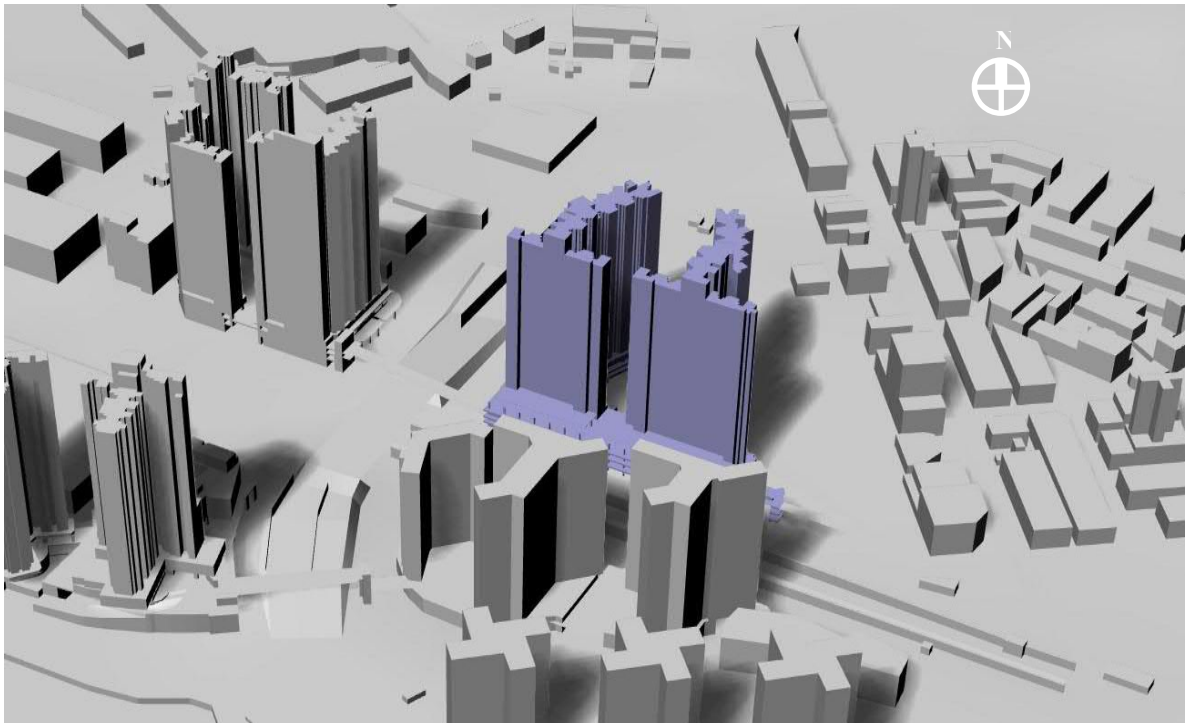


Figure 15 Southerly view of Baseline Scheme

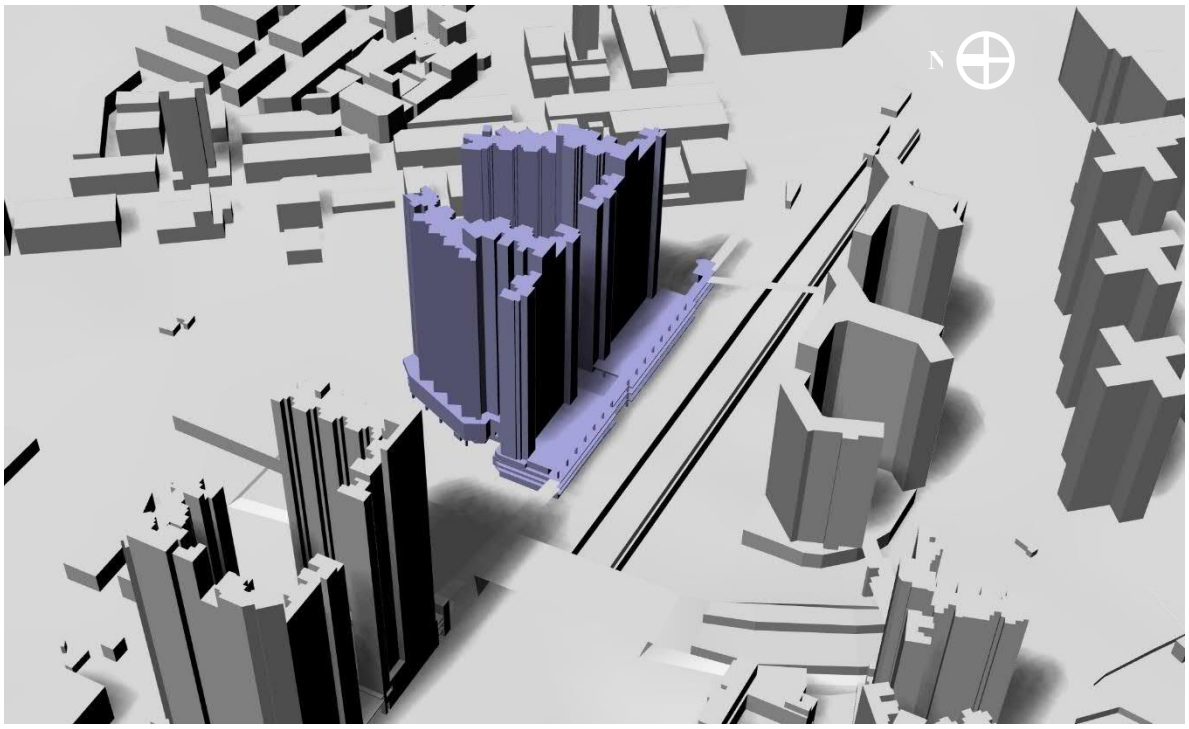


Figure 16 Westerly view of Baseline Scheme

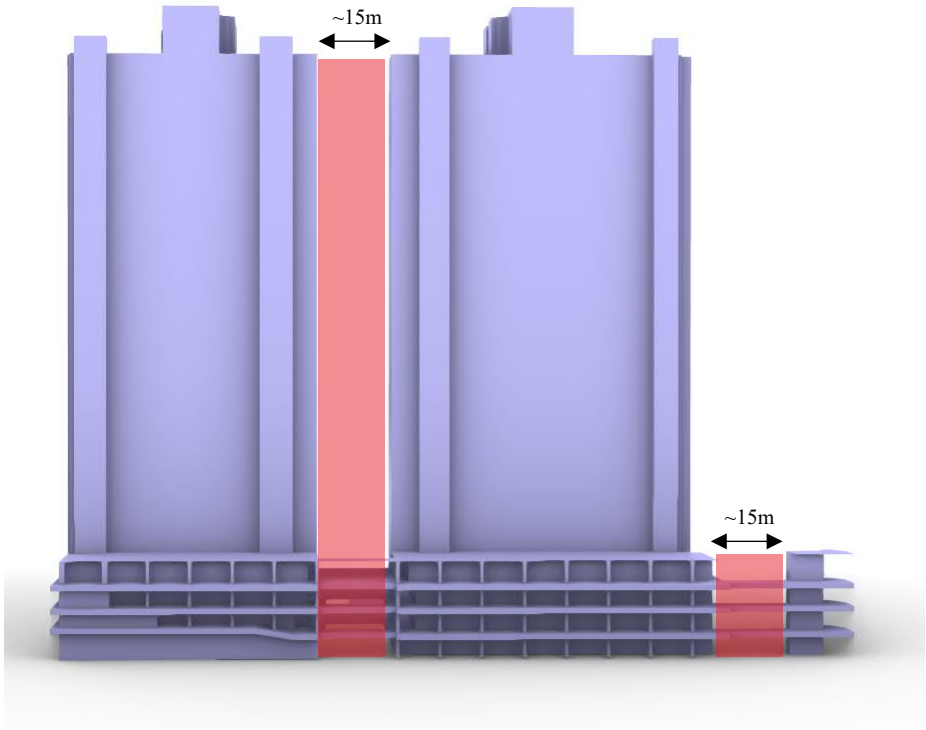


Figure 17 Wind Enhancement Features (Airpaths)

Figure 18 Wind Enhancement Features (Empty Bay)

4.2 Proposed Scheme

The Proposed Scheme consists of two domestic blocks (Block A and Block B) with 40 and 41 domestic storeys respectively atop a 4-storey podium structure which includes a naturally ventilated carpark. The Proposed Scheme consist of a full height building separation of ~15m, a G/F empty bay of ~7m wide It also has a tower setback from the southwestern site boundary of ~25m, as well as building setbacks off 6m from southwestern site boundary, 11m from northeastern site boundary, and 25m from northwestern site boundary. The naturally ventilated carpark as well as a permeable podium design would also assist the enhancement of ventilation performance.

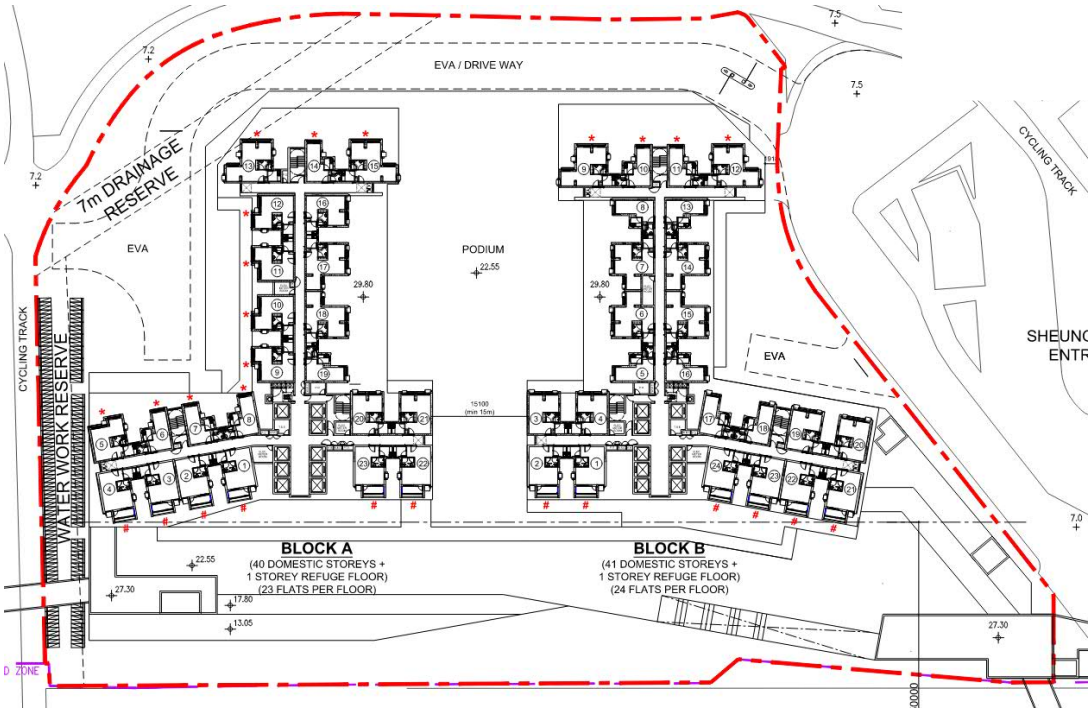


Figure 19 Proposed Scheme MLP

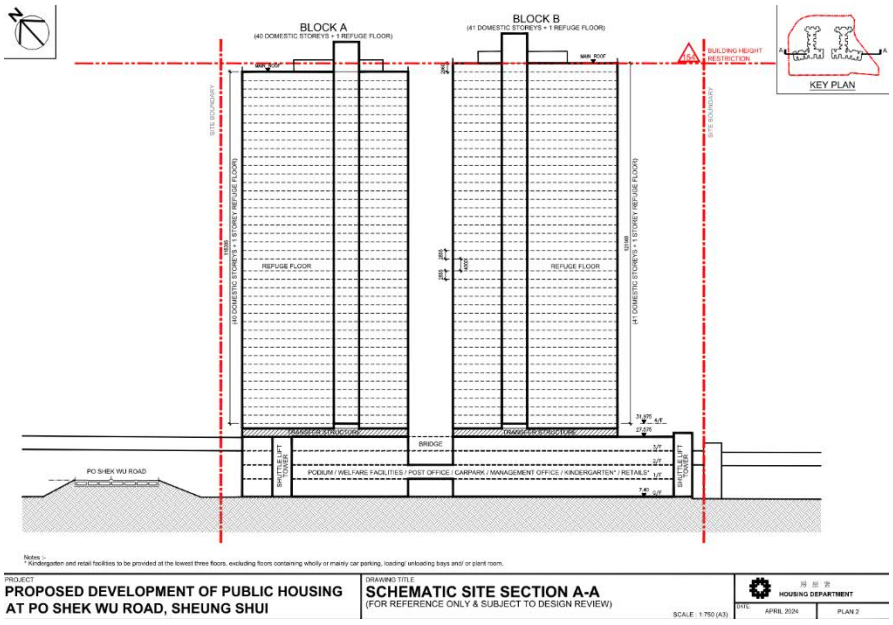


Figure 20 Proposed Scheme Section

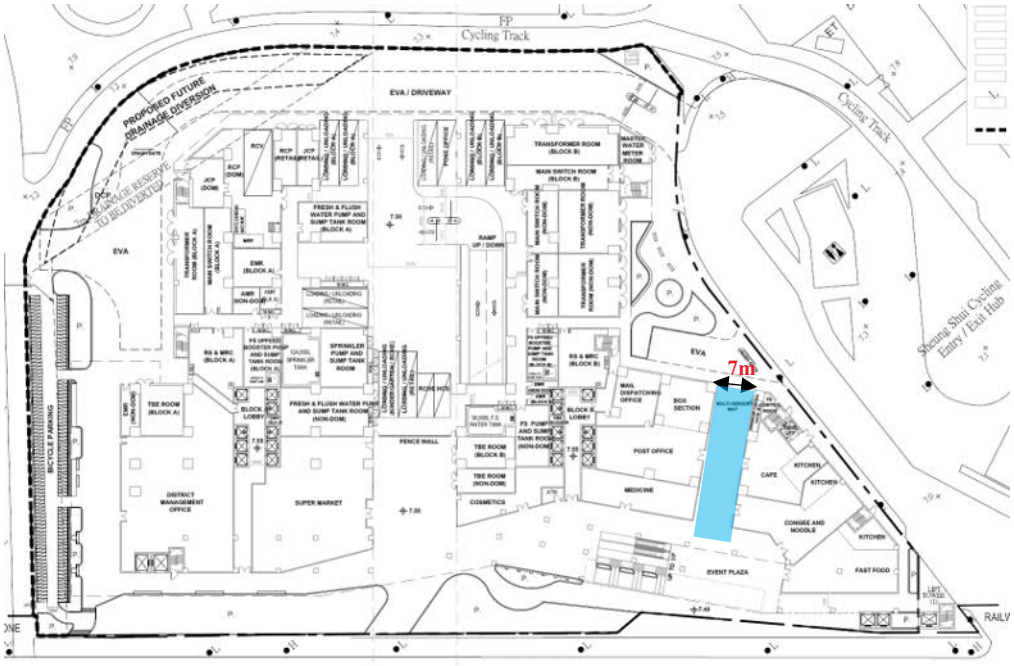


Figure 21 Proposed Scheme Wind Enhancement Features (GF)

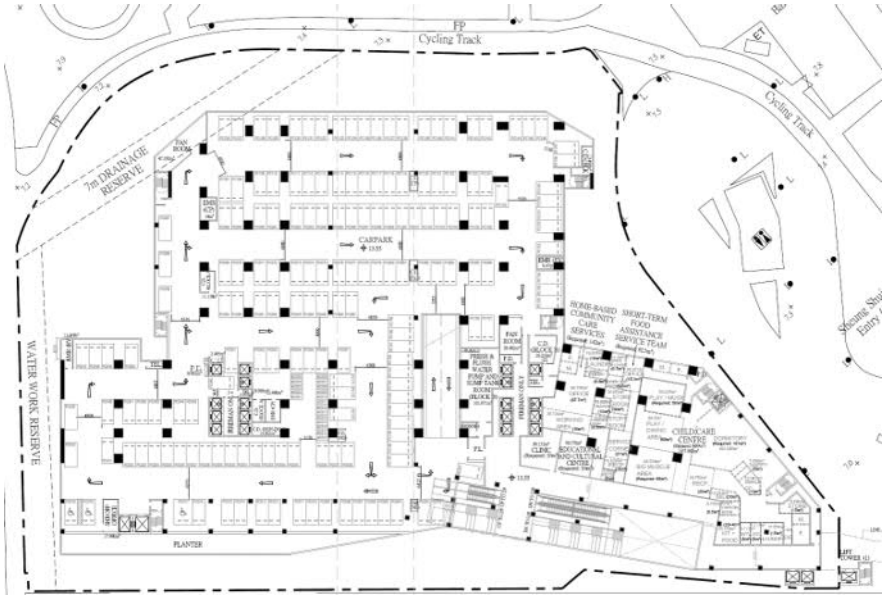


Figure 22 Proposed Scheme Wind Enhancement Features (Naturally ventilated carpark on 1/F)

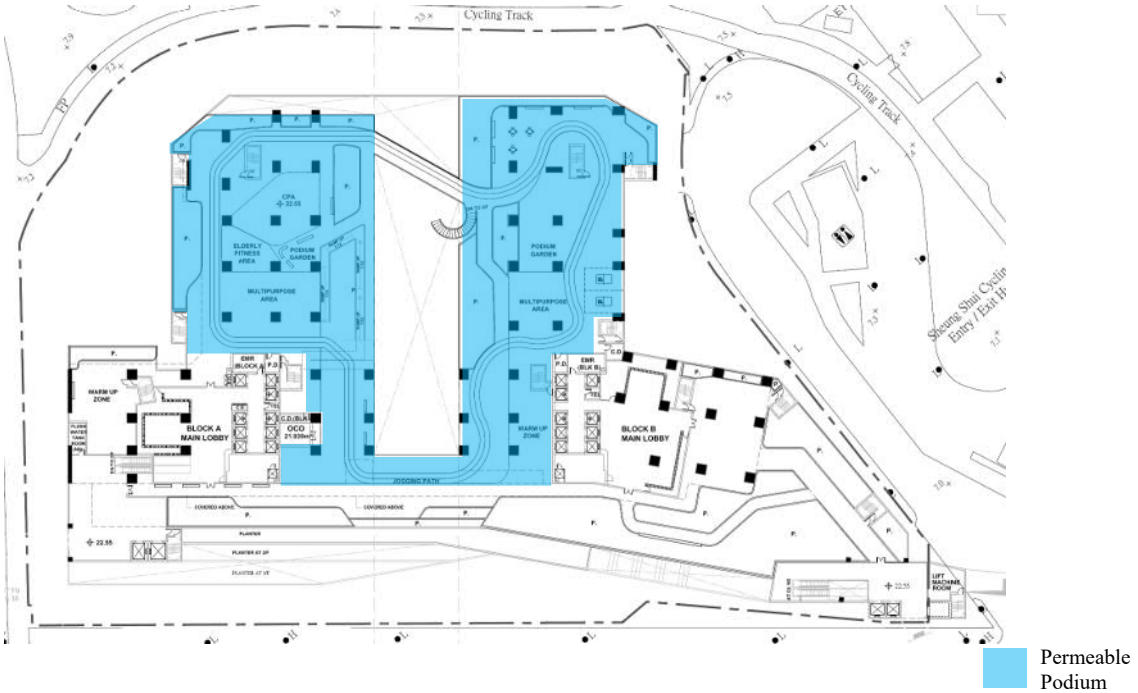


Figure 23 Proposed Scheme Wind Enhancement Features (3/F)

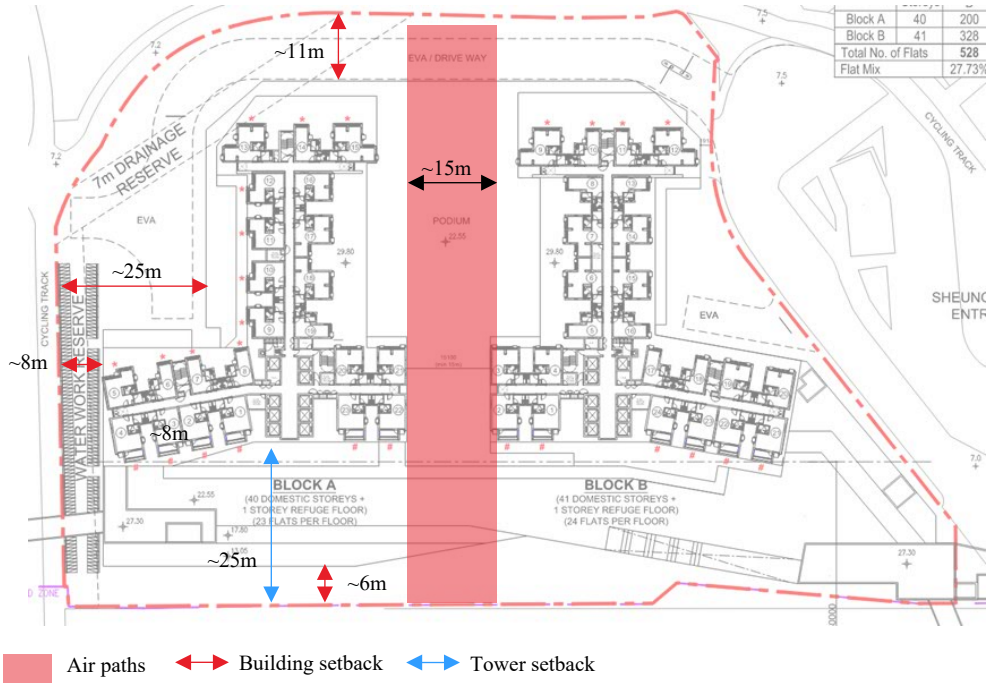


Figure 24 Proposed Scheme Wind Enhancement Features (Typical Floor)

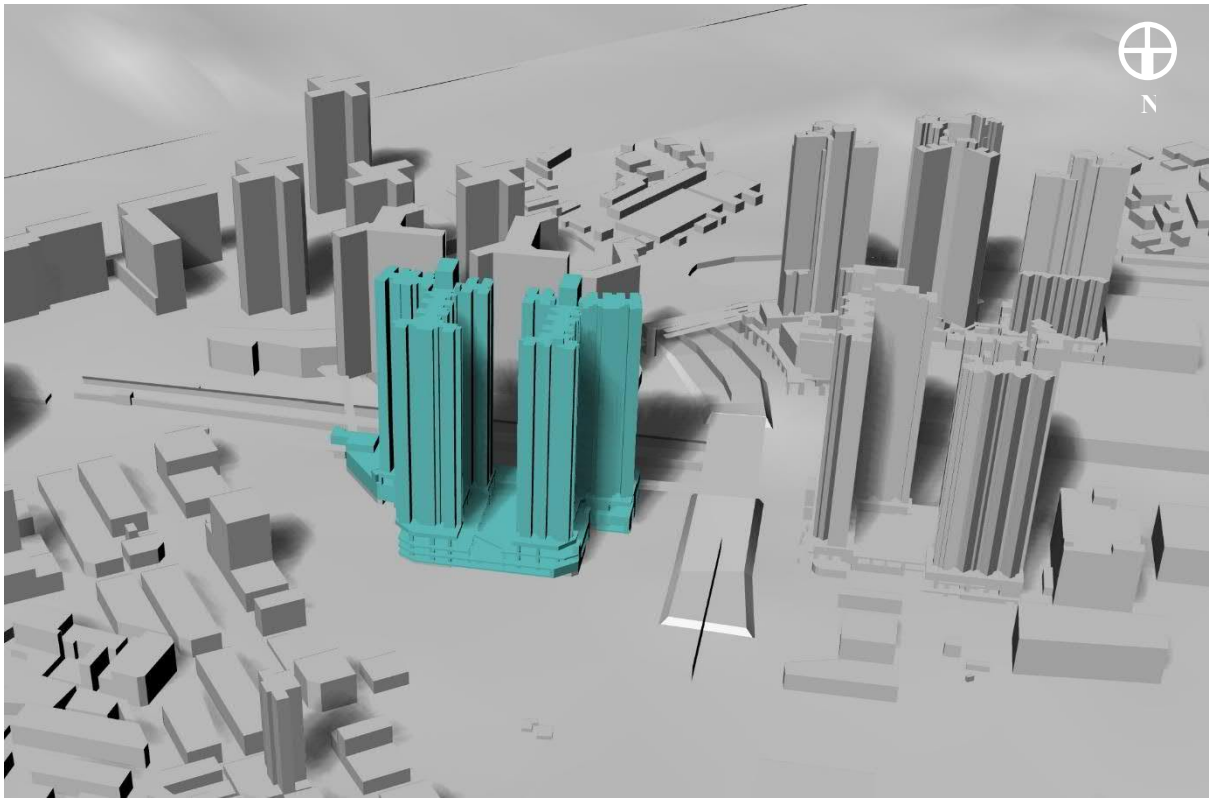


Figure 25 Northerly view of Proposed Scheme

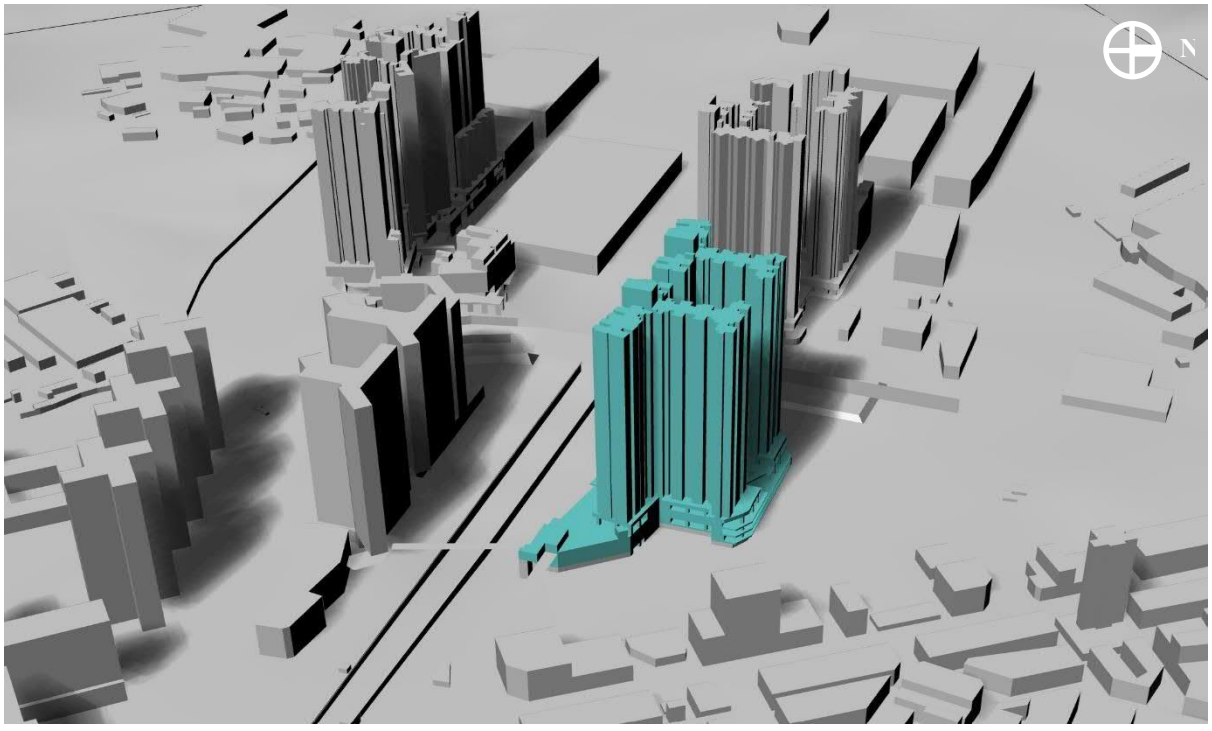


Figure 26 Easterly view of Proposed Scheme

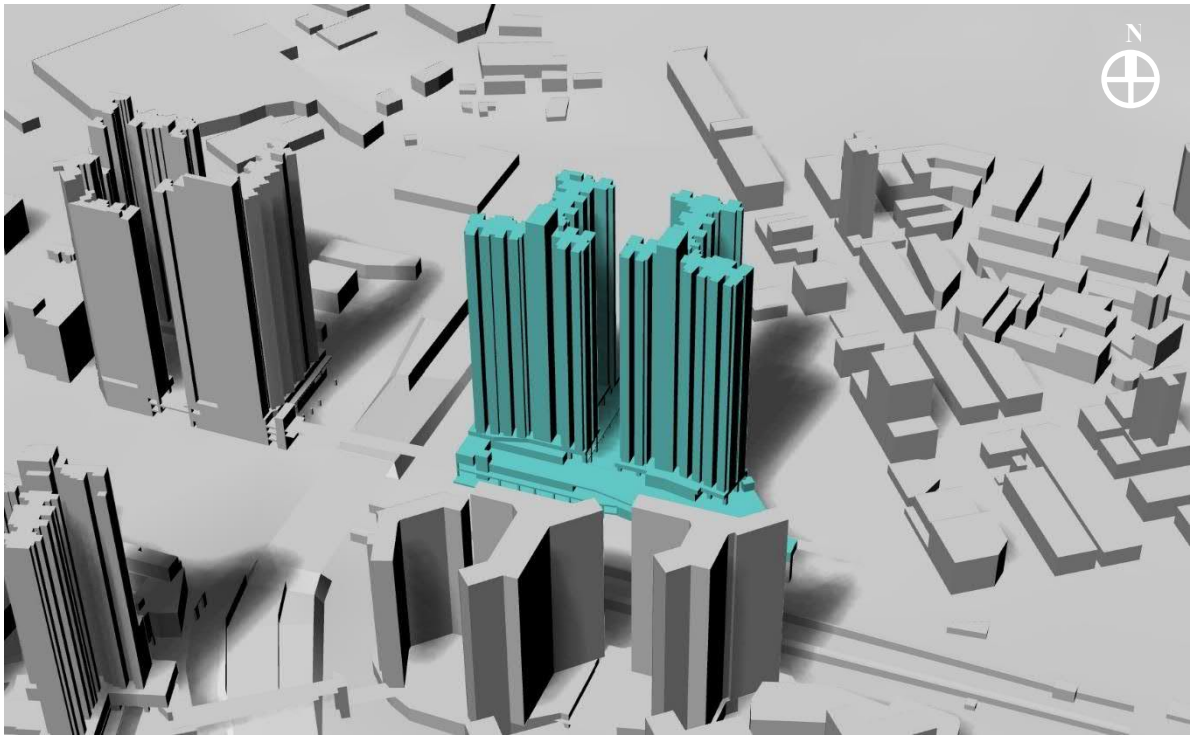


Figure 27 Southerly view of Proposed Scheme

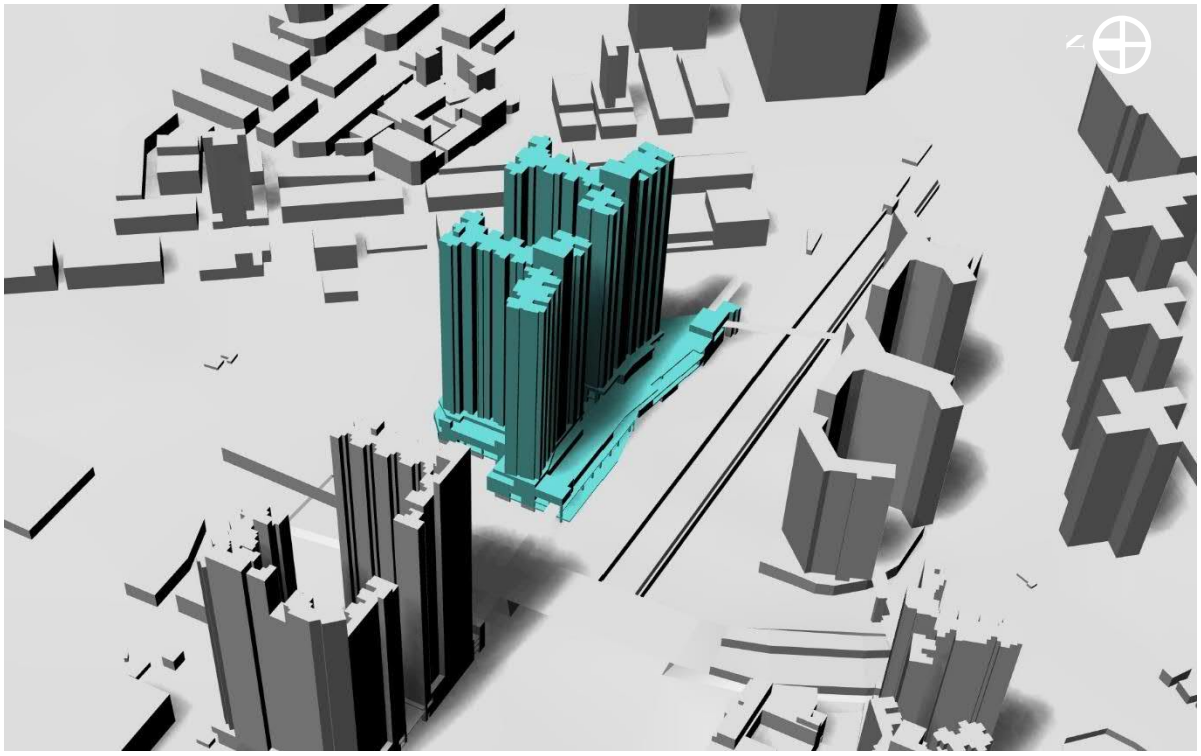


Figure 28 Westerly view of Proposed Scheme

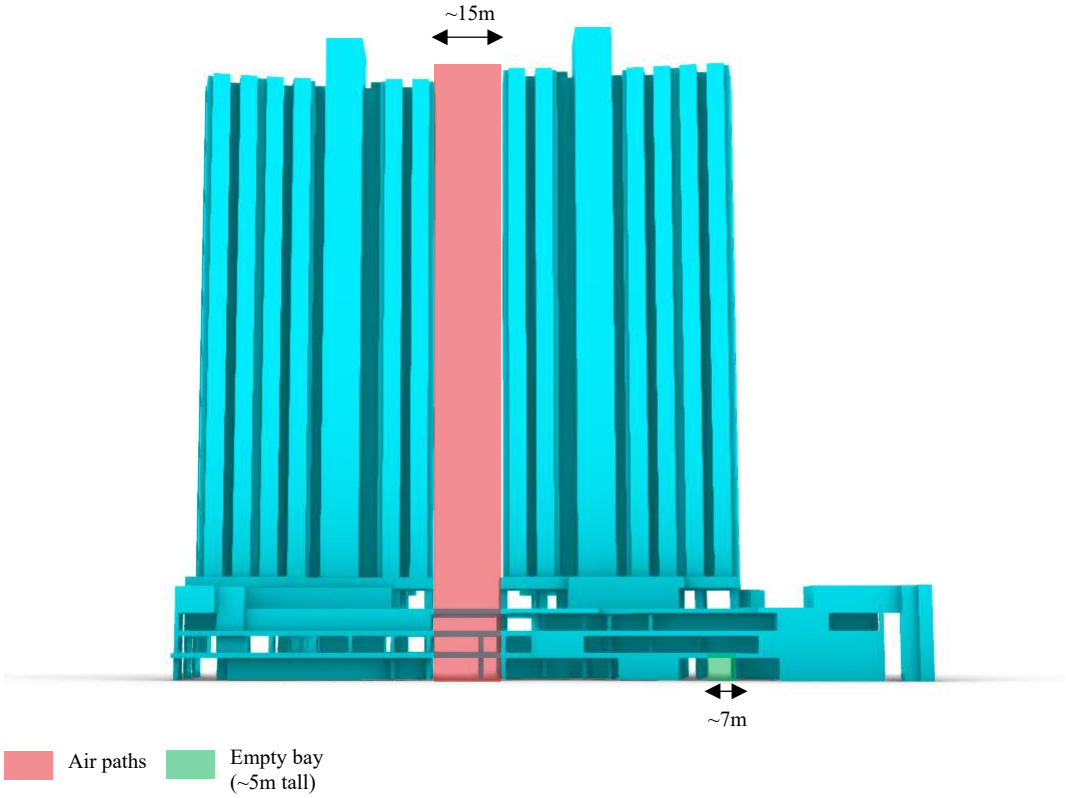


Figure 29 Wind Enhancement Features (Airpath and empty bay)

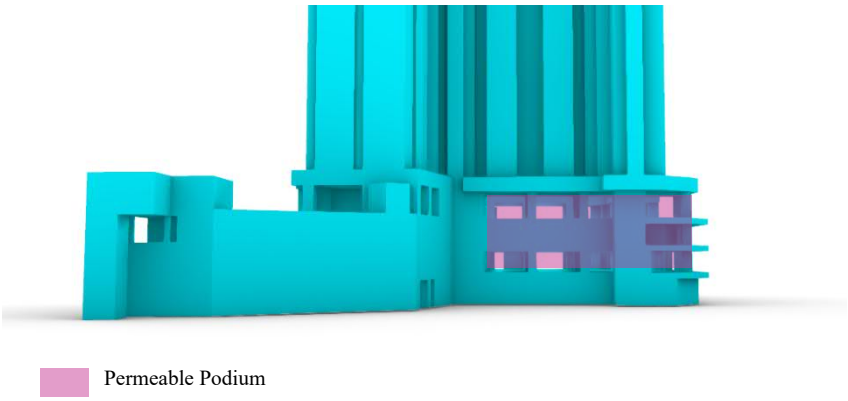


Figure 30 Wind Enhancement Features (Permeable Podium)

5. Methodology

5.1 Assessment and Surrounding Areas

The building height of the Development is around 142m, therefore the Assessment Area and the Surrounding Area are respectively 426m (3H) and 852m (6H) away from the site boundary of the Development Area. The proposed Assessment Area and the Surrounding Area are indicated in Figure 41. The computational domain would be about 6000m (L) x 6000m (W) x 1250m (H) as shown in Figure 31.

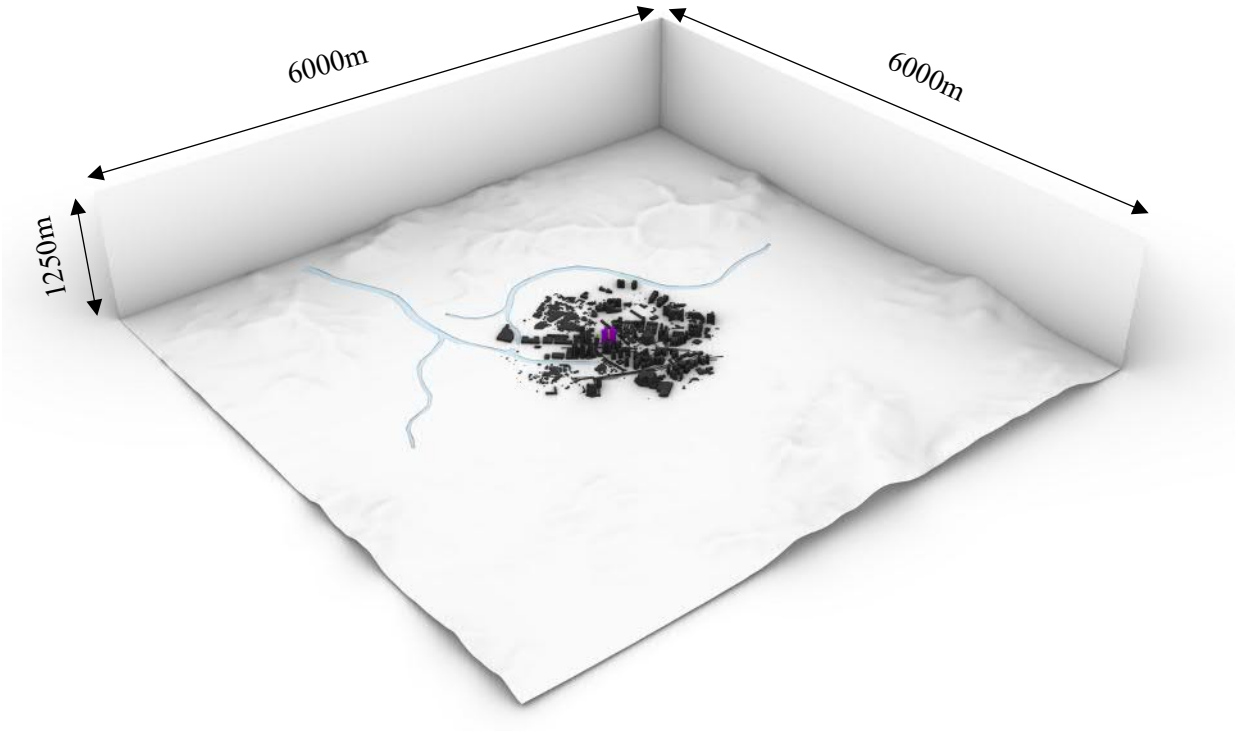


Figure 31 3D View of the Domain

Figure 32 Southerly View of the\ Domain

Figure 33 Westerly View of the Domain

Figure 34 Northerly View of the Domain

Figure 35 Easterly View of the\ Domain

5.2 Technical Details for CFD simulation

5.2.1 Assessment Tools

Computational Fluid Dynamics (CFD) technique is utilized for this AVA study. With the use of three-dimensional CFD method, the local airflow distribution can be visualized in details. The velocity distribution within the flow domain, being affected by the site-specific design and the nearby topography, will be simulated under selected wind directions for annual and summer wind conditions.

5.2.2 CFD Model

Following the AVA Technical Circular, buildings within Surrounding Area shall be built in the CFD model. In order to simulate the approaching wind turbulence effect in a more accurate manner, the CFD model is built to include the highways or bridges as they may affect the approaching wind, even it is falling outside the Surrounding Area. In addition, the model domain is built far beyond the Surrounding Area as required in the Technical Circular in order to eliminate the boundary effects. Therefore, the studied size of CFD model of the development is approximately 6000m (Length) x 6000m (Width) x 1250m (Height) which contains more than 9,000,000 cells as shown in Figure 36.

The computational domain covers the site of the Development and provides sufficient consideration on surrounding topography. The model contains information of the surrounding buildings and site topography via Geographical Information System (GIS) platform. The site topography would be modelled within the whole computational domain. Body-fitted unstructured grid technique is used to fit the geometry and reflect the complexity of the development geometry. A prism layer of 3m above ground (totally 6 layers and each layer of 0.5m thick, shown in Figure 37 is incorporated in the meshing so as to better capture the approaching wind and wind condition at pedestrian level. A mesh expansion ratio of 1.3 is adopted and the blockage ratio was less than 2%.

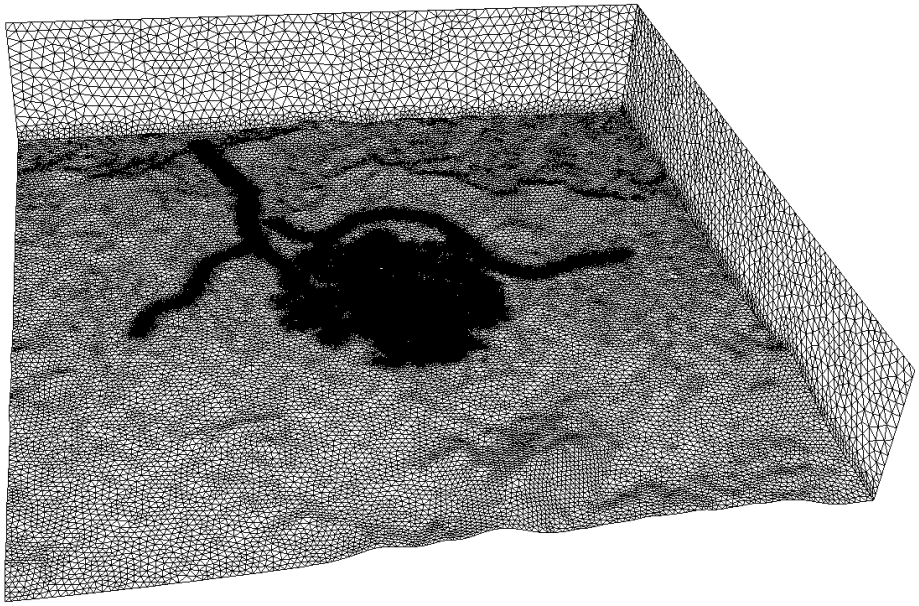


Figure 36 Mesh of Computational Domain

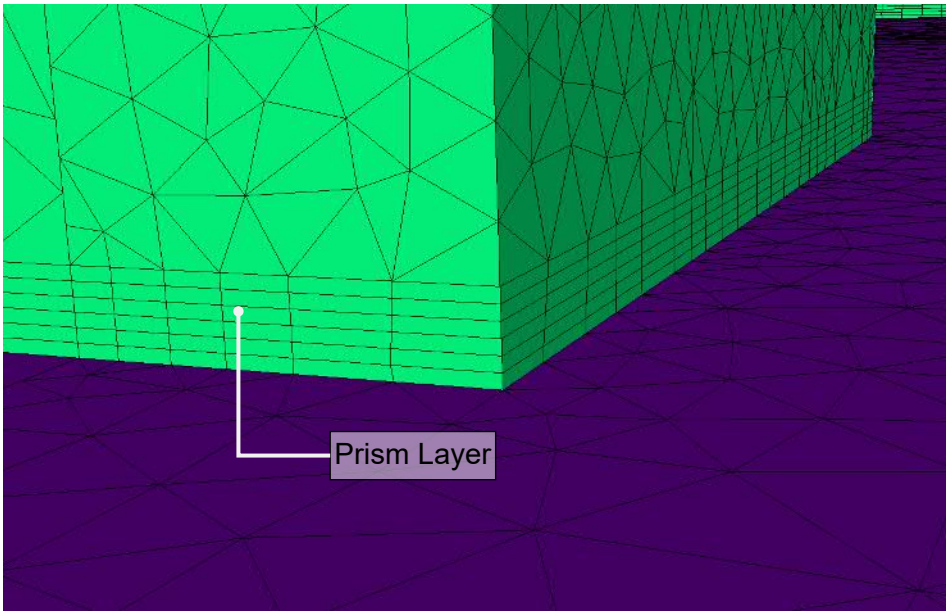


Figure 37 Prism Layers

Table 3 Detail parameters to be adopted in the CFD

	CFD Model
Model Scale	Real Scale model
Model details	Only include Topography, Buildings blocks, Streets/Highways, no landscape is included
Domain	6000m(L) x 6000m(W) x 1250m(H)
Assessment Area	≥ 3H area
Surrounding building Area	≥ 6H area
Grid Expansion Ratio	The grid should satisfy the grid resolution requirement with maximum expansion ratio = 1.3
Prismatic layer	6 layer of prismatic layers and 0.5m each (i.e. total 3m above ground)
Inflow boundary Condition	Incoming wind profile as measured from RAMS
Outflow boundary	Pressure boundary condition with dynamic pressure equal to zero
Wall boundary condition	Logarithmic law boundary
Turbulence Model	Realisable k-ε turbulence model
Solving algorithms	Rhie and Chow SIMPLE for momentum equation Hybrid model for all other equations
Blockage ratio	< 2%
Convergence criteria	Below 1.0E-4

5.3 AVA Indicator

5.3.1 5.3.1 Assessment Parameters

CFD simulations will be conducted to study the wind environment. As specified in the Technical Circular, indicator of ventilation performance should be the Wind Velocity Ratio (VR), defined as the ratio of the wind velocity at the pedestrian level (2m above ground) to the wind velocity at the top of the wind boundary layer. Site spatial average velocity ratio (SVR) and a Local spatial average velocity ratio (LVR) should be determined.

Table 4 Terminology of the AVA Initial

Terminology	Description
Velocity Ratio (VR)	The velocity ratio (VR) represents the ratio of the air velocity at the measurement position to the value at the reference points.
Site spatial average velocity ratio (SVR)	The SVR represent the average VR of all perimeter test points at the site boundary which identified in the report.
Local spatial average velocity ratio (LVR)	The LVR represent the average VR of all points, i.e. perimeter and overall test points at the site boundary which identified in the report.

5.4 Locations of Test Points

As per the technical circular, two types of test points – perimeter test point and overall test point will be adopted to assess the wind performance within the Assessment Area. Special test points are supplemented to assess the effectiveness of the air paths. The allocation of these test points will be distributed evenly as stated in the AVA Technical Circular.

5.4.1 Perimeter Test Points

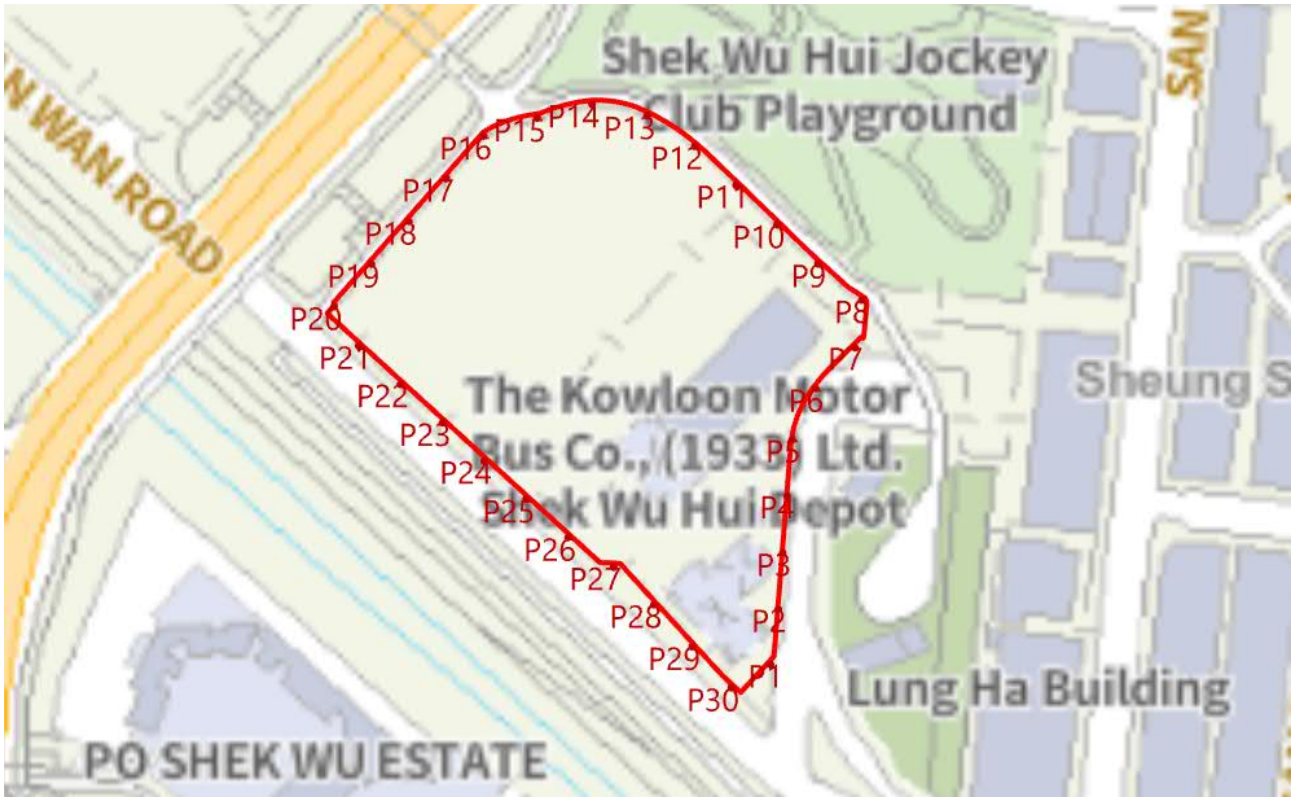
A total number of 30 perimeter test points (red spots), namely P points, are positioned at intervals of around 15m along the project site boundary in accordance with AVA Technical Circular. The locations of perimeter test points are shown below.

5.4.2 Overall Test Points

A total number of 566 overall test points (blue spots), namely O points, are evenly distributed in open areas within the assessment area, such as the streets and places where pedestrian frequently access. Their locations are shown below.

5.4.2 Special Test Points

A total number of 14 special test points (green spots), namely S points, are evenly distributed at pedestrian levels of wind enhancement features such as the air paths and empty bay. Their locations are shown below.



Site Boundary

P21 Perimeter Test Points

Figure 38 Location of Perimeter Points

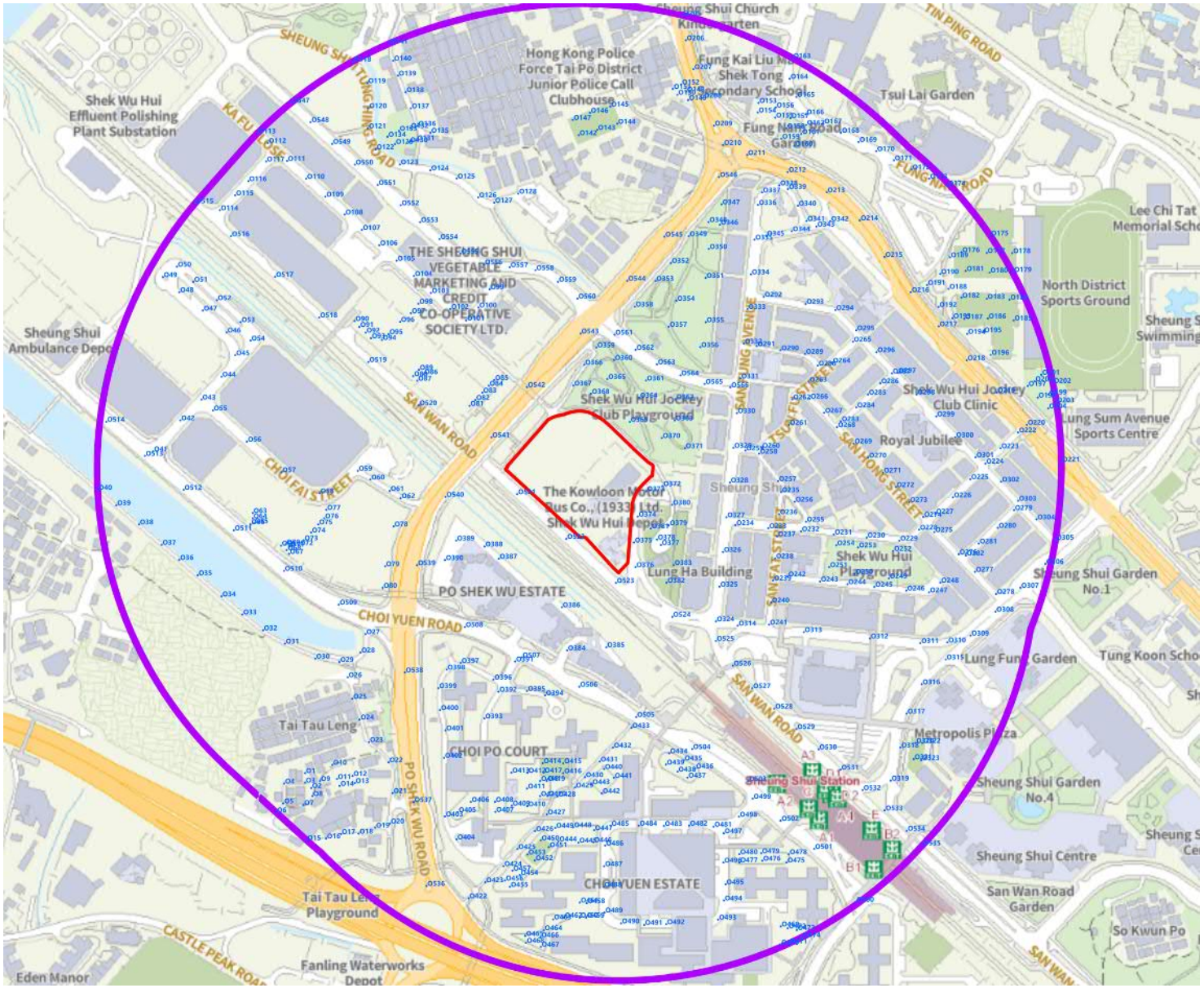
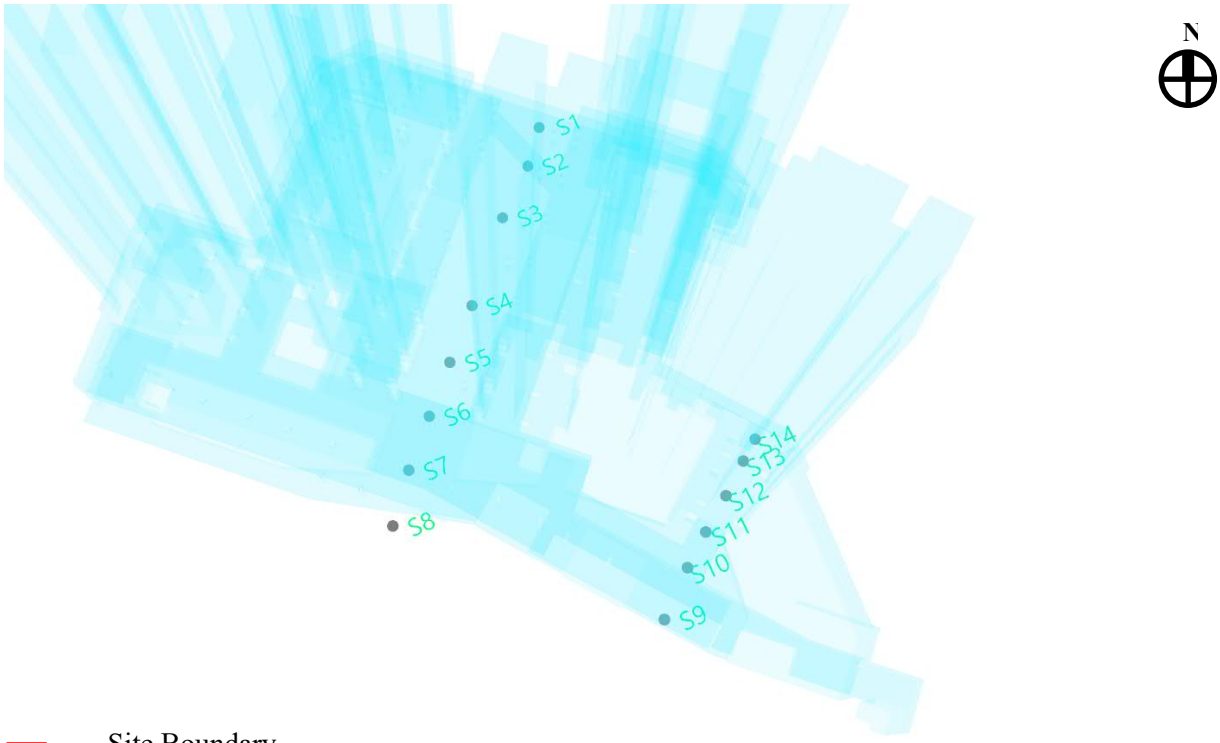


Figure 39 Location of Overall Points



Site Boundary

S3 Special Test Points

Figure 40 Location of Special Points

5.5 Focus Area

There are a total of 38 focus areas are within the assessment area. The associated test points for focus areas are tabulated below. The location of the focus areas area shown in Figure 41.

Table 5 Focus Areas and Corresponding Test Points

	Focus Area	Test Points
1	Tai Tau Leng	O1-O27
2	Village Road	O28-O40
3	Choi Fat Street	O41-O52
4	Choi Fai Street	O53-O62
5	Planned Sheung Shui Areas 4 and 30 Site 1	O63-O80
6	Planned Sheung Shui Areas 4 and 30 Site 2	O81-O98
7	Ka Fu Close	O99-O113
8	Cheuk Wan St	O114-O117
9	Po Sheung Tsuen	O118-O152
10	Fung Kai Liu Man Shek Tong Secondary Shool	O153-O156
11	Fung Nam Road Garden	O157-O162
12	Fu Nam Rd	O163-O174
13	North District Sports Ground Playground	O175-O204
14	Jockey Club Rd	O205-O221
15	Fu Hing St	O222-O234
16	San Fat St	O235-O241
17	San Lok St	O242-O248
18	Shek Wu Hui Playground	O249-O254
19	San Tsoi St	O255-O259
20	Tsun Fu St	O260-O265
21	San Hong St	O266-O278
22	San Cheung St	O279-O282
23	San Kung St	O283-O287
24	San Kin St	O288-O291
25	San Shing Ave	O292-O305
26	Lung Sum Avenue	O306-O314

	Focus Area	Test Points
27	Lung Wan St	O315-O319
28	North District Town Hall Basketball Court	O320-O323
29	Sun Fung Ave	O324-O345
30	Shek Wu Hui Jockey Club Playground	O346-O371
31	Bike Kiosk	O372-O383
32	Po Shek Wu Estate	O384-O390
33	Choi Po Court	O391-O421
34	Choi Yuen Estate	O422-O499
35	Choi Yuen Rd	O500-O514
36	San Wan Rd	O515-O535
37	Po Shek Wu Rd	O536-O546
38	Po Wan Rd	O547-O566
39	Wind Enhancement Measure 1	S1-S8
40	Wind Enhancement Measure 2	S9-S14

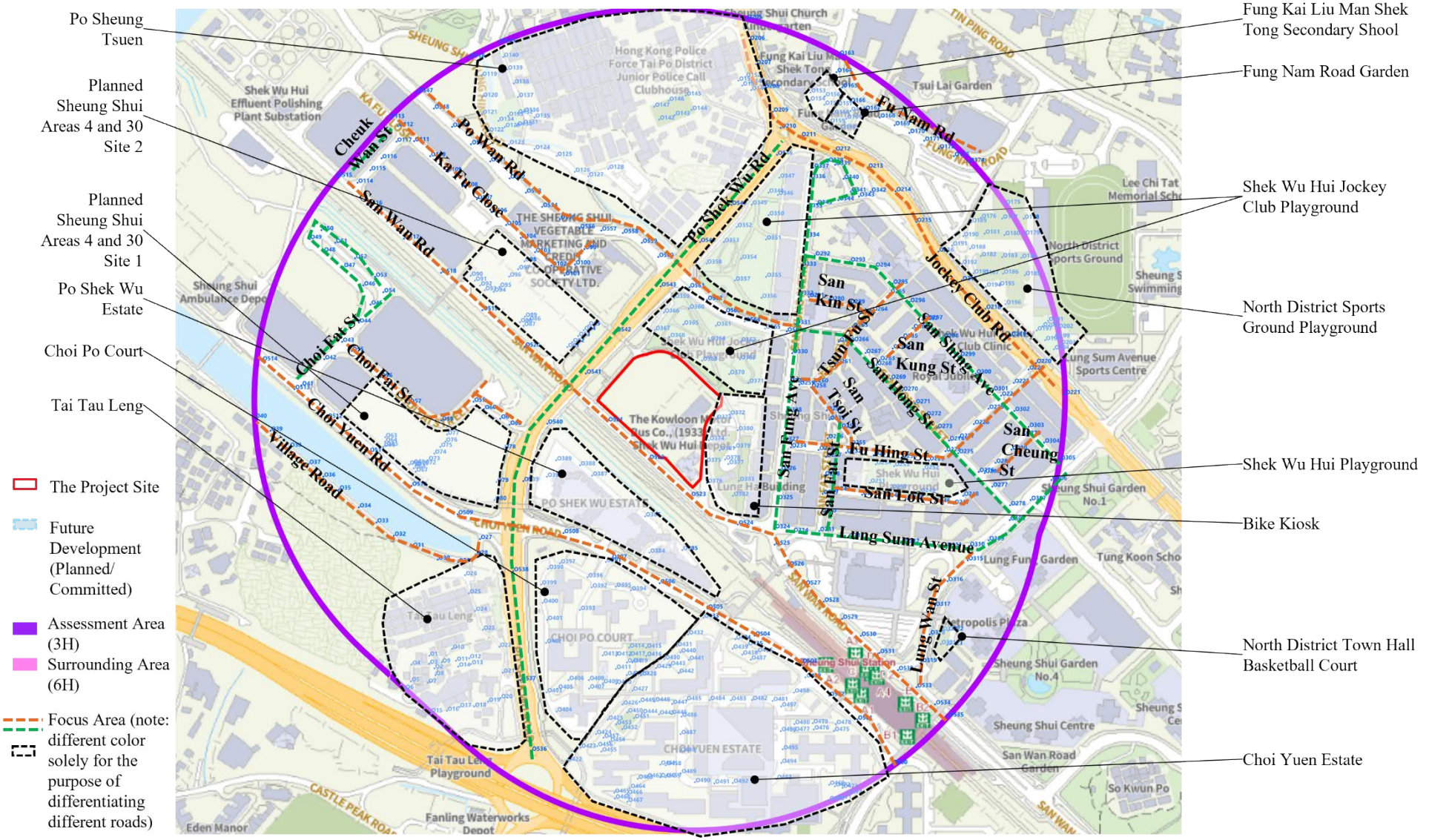


Figure 41 Location of Focus Areas outside the Application Site

6. Results and Discussion

6.1 Overview

The full set of contour and vector plots for are presented in Appendix C of the report.

6.1.1 Overall Ventilation Performance under Annual Wind Condition

The contour plots of annual weighted VR for the Baseline Scheme and Proposed Scheme are shown in Figure 42 and Figure 43.

Under annual condition, the majority of the prevailing wind would arrive at the Development from the eastern quadrant flowing over the generally low-rise eastern surroundings of the Development. A few mid-rise eastern surrounding buildings would impede a small portion of prevailing wind. Overall, the prevailing wind could reach the Development relatively freely.

The taller building under Proposed Scheme would be able to downwash more prevailing wind reaching the eastern facades of the Development, which would in turn allow for more ventilation at its immediate upwind surroundings, such as the Bike Kiosk, Shek Wu Hui Jockey Club Playgrounds etc.

Under both schemes the 15m air path between the two towers would enhance permeability of the Development and allow for prevailing to penetrate to the leeward area. However, under Proposed Scheme, the narrower tower separation in the northeastrern portion of the Development would increase the channelling effect for prevailing wind passing through, thereby accelerating the wind penetrating to the leeward area. The wind environment at the leeward area could therefore be enhanced, such as San Wan Road.

On the other hand, the provision of a 15m wide air path between Block B and the lift tower under Baseline Scheme, as compared to a 7m empty bay under Proposed Scheme, would allow for more pedestrian level wind flowing from the eastern site boundary to San Wan Road, providing a slightly higher VR there. This would however be mitigated by the naturally ventilated carpark under Proposed Scheme, which would enhance the permeability of the Development, allowing more prevailing to penetrate through the Development at low level.

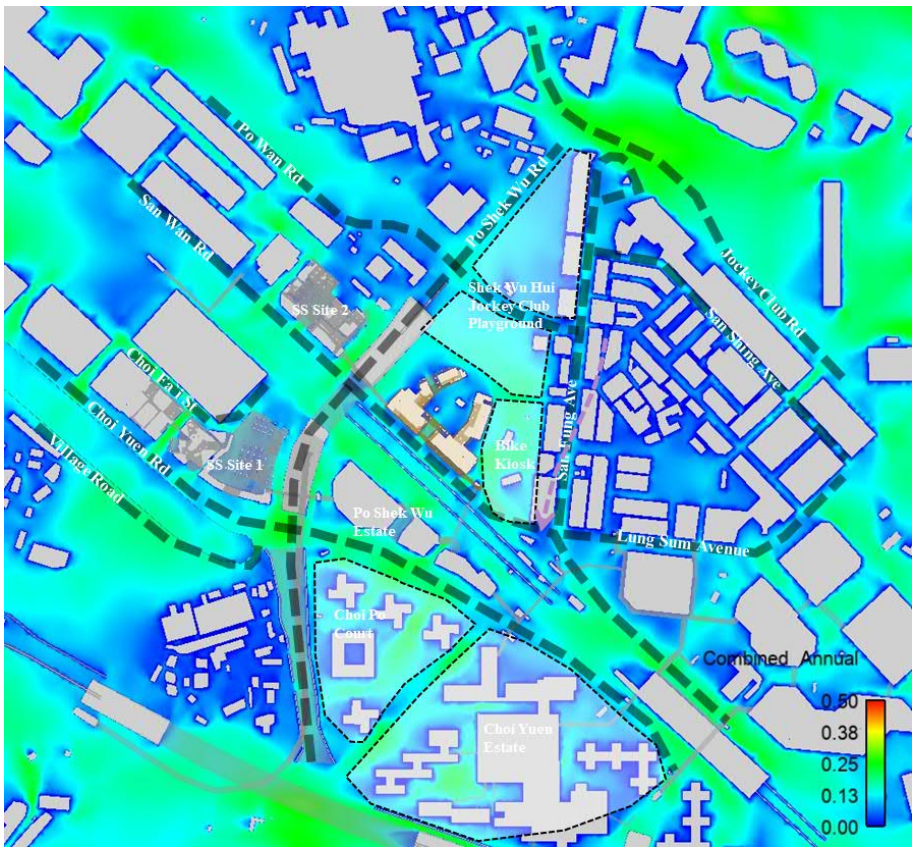


Figure 42 Contour Plot for Annual Weighted Average VR for Baseline Scheme

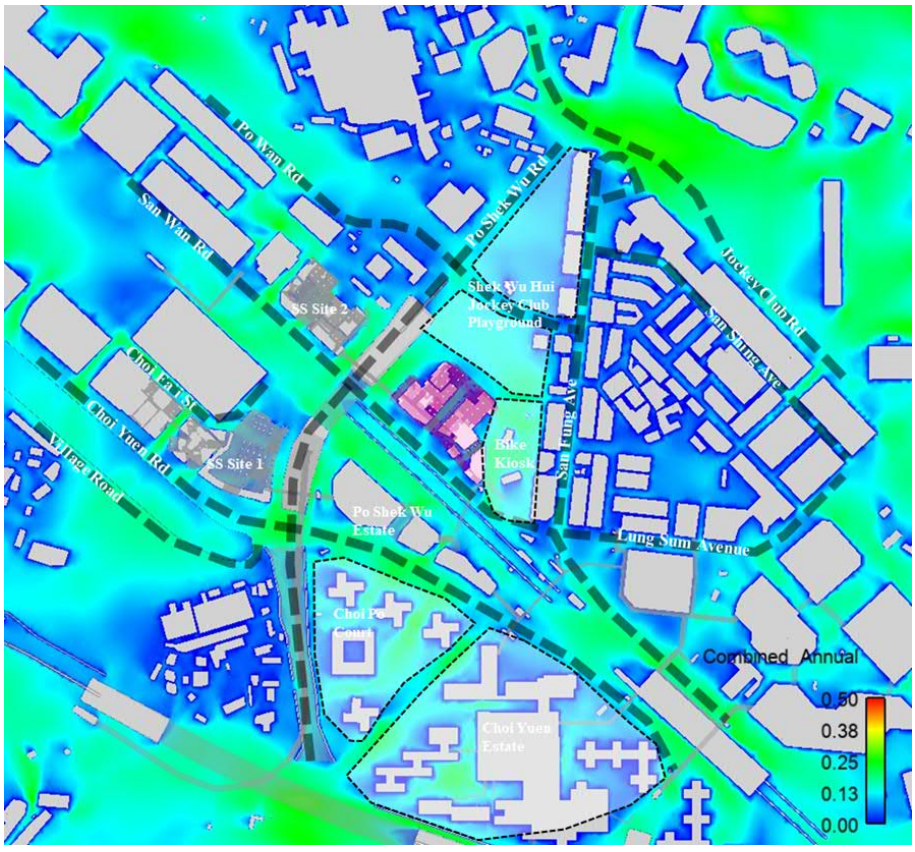


Figure 43 Contour Plot for Annual Weighted Average VR for Proposed Scheme

6.1.2 Overall Ventilation Performance under Summer Wind Condition

The contour plots of summer weighted VR for the Baseline Scheme and Proposed Scheme are shown in Figure 44 and Figure 45.

Under summer condition, prevailing wind would arrive mainly from the southwestern quadrant. As compared to annual condition, the wind environment would be relatively dominated by the windward surrounding environment as it comprises mainly of mid-rise and high-rise buildings including SS Site 1, Po Shek Wu Estate etc. A wind shadow would be created to the northeast of the Development. The wind environment would be overall relatively calm, and similar between Baseline and Proposed.

The taller building under Proposed Scheme would be able to downwash more prevailing wind reaching the southern facades of the Development, which would in turn allow for more ventilation at its immediate surroundings such as a localised portion of San Wan Road.

On the other hand, the building disposition of Baseline Scheme would allow for more wind to be diverted towards northeast, which would in ventilate the immediate northeastern surroundings of the Development such as Shek Wu Hui Jockey Club Playground and a localised portion of Po Wan Road under southwestern summer prevailing wind.

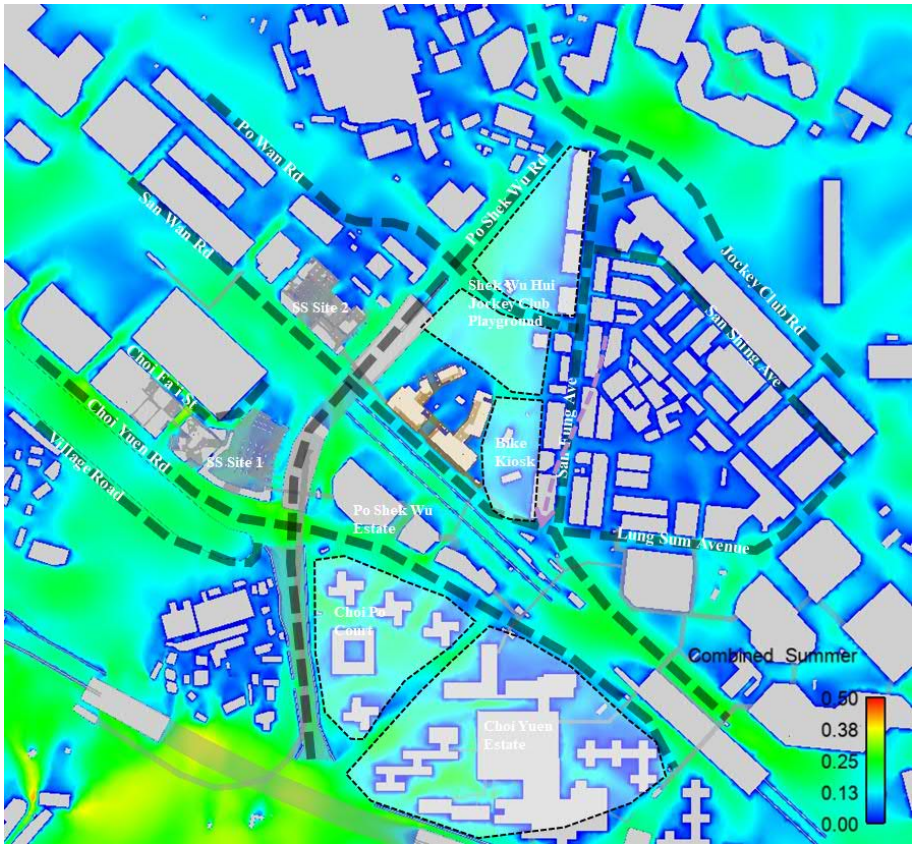


Figure 44 Contour Plot for Summer Weighted Average VR for Baseline Scheme

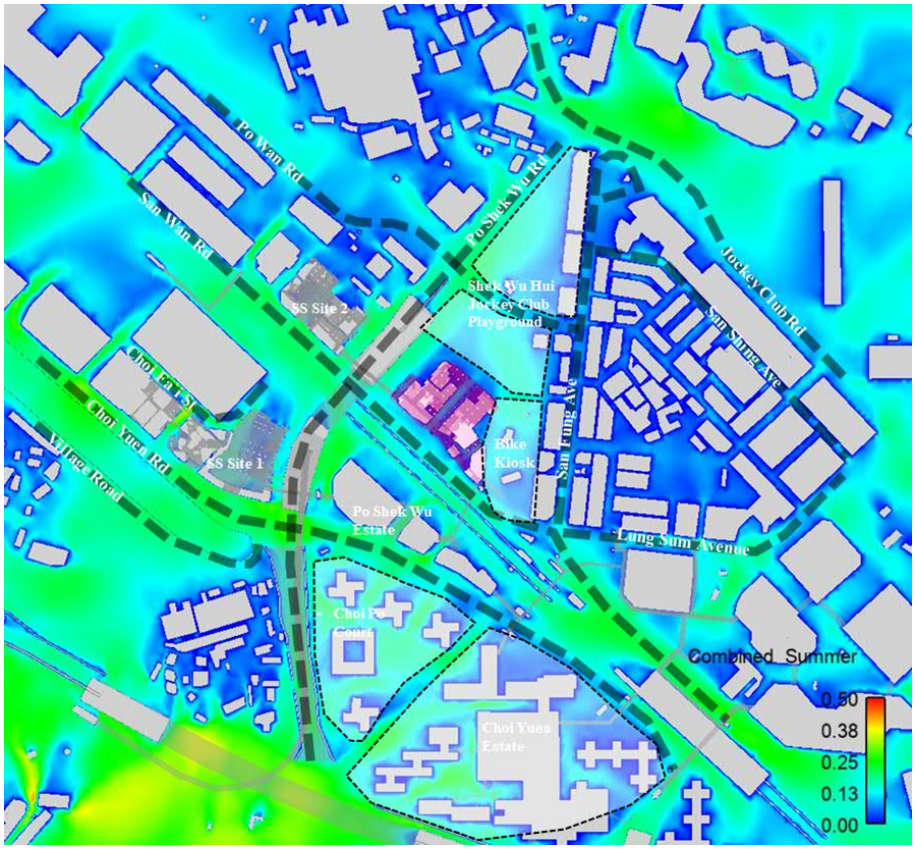


Figure 45 Contour Plot for Summer Weighted Average VR for Proposed Scheme

6.2 Directional Analysis

6.2.1 NNE Wind Direction

The NNE wind contributes to 6.4% of the annual wind and 2.3% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under NNE wind are presented below.

As the Development has an open northeastern surrounding environment, NNE wind could flow relatively freely to across open spaces such as the Shek Wu Hui Jockey Club Playground and stream along Po Shek Wu Road (**Grey Arrows**) and reach the northeast boundary of the Development.

In general the wind environment is enhanced along the site boundary under Proposed Scheme as compared to Baseline Scheme due to the increased downwashed effect from a taller Proposed Scheme; the leeward area would see a slightly calmer wind environment under Proposed Scheme as compared to Baseline Scheme.

Baseline Scheme

Under both schemes, prevailing wind would be diverted by the buildings to flow along its eastern site boundary and reach the eastern tower of Choi Po Court and be downwashed. However, under Proposed Scheme, a longer façade area along the northeastern site boundary would divert wind away from the eastern site boundary, thus allowing less wind flow to directly towards the eastern tower of Choi Po Court to be downwashed, which would in turn result in a higher VR in Choi Po court itself and Choi Yuen Road under Baseline Scheme (**Purple Arrows** & **White Circle**).

Proposed Scheme

Under both schemes, the northeastern façade of the Development would capture and downwash mid and high level prevailing wind to the pedestrian level, which would then flow around the Development on the western and eastern site boundary. Under Proposed Scheme, with taller towers, more prevailing wind could be downwashed to the pedestrian level, hence an enhanced wind environment at areas abutting the western and eastern site boundary such as Bike Kiosk and Shek Wu Hui Jockey Club Playground (**Black Circles and Black Arrows**). A portion of increased downwashed wind would also be able to penetrate through the permeable podium of the Development and reach San Wan Road to ventilate the portion of it immediate southwest of the Development (**Black Arrow**).

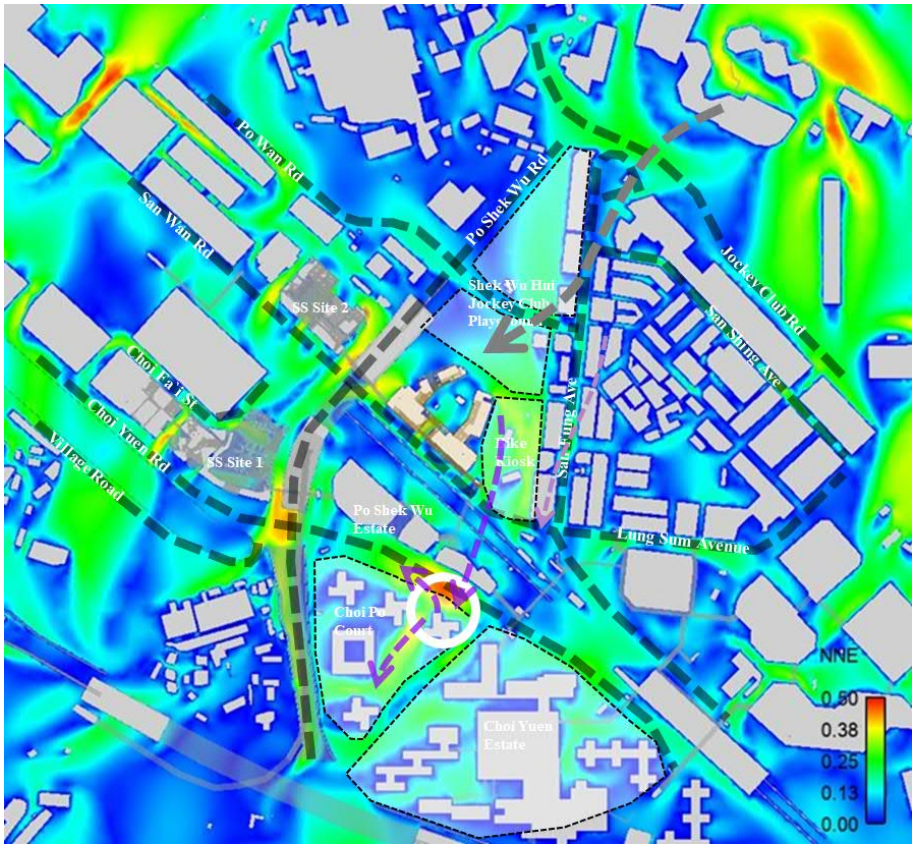


Figure 46 Contour Plot of VR for Baseline Scheme under NNE Wind

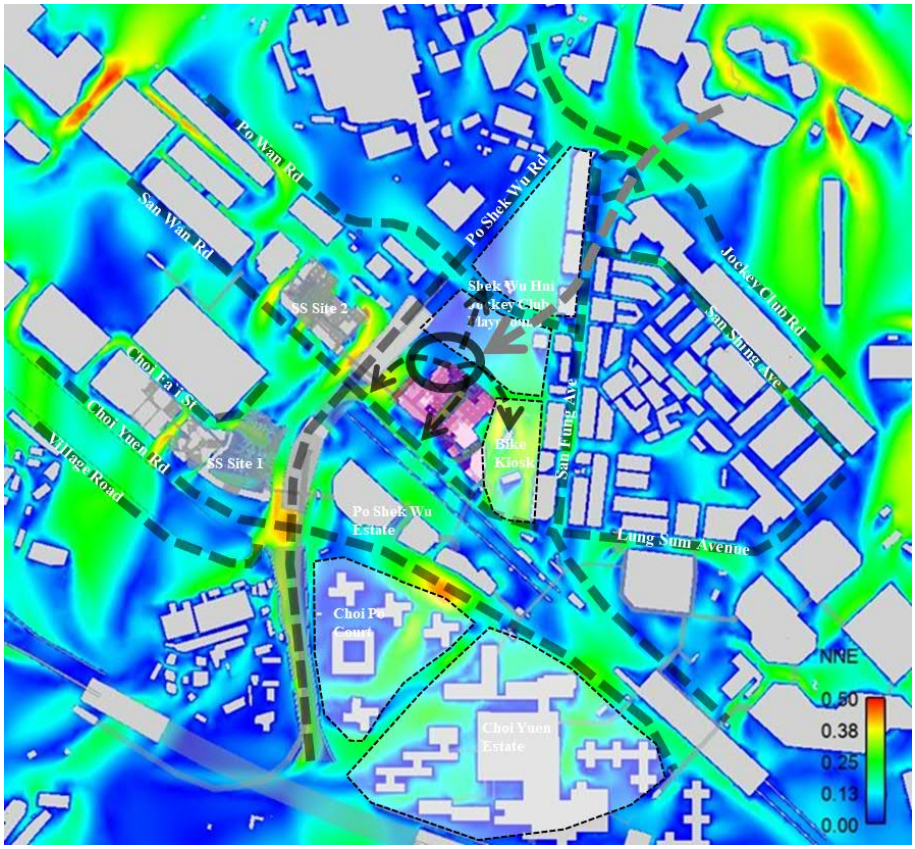


Figure 47 Contour Plot of VR for Proposed Scheme under NNE Wind

6.2.2 NE Wind Direction

The NE wind contributes to 7.5% of the annual wind and 1.5% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under NNE wind are presented below.

As the Development has an open northeastern surrounding environment, NE wind would generally reach the northeast boundary of the Development freely, from mainly Po Shek Wu Road, atop the northeastern low-rise cluster, as well as the open spaces such as the Shek Wu Hui Jockey Club Playground (**Grey Arrows**).

The general wind environment is found to be similar between the Baseline Scheme and Proposed Scheme. A different building height and disposition between the two schemes would nevertheless induce localised differences in performance in the leeward area as well as some immediate upwind locations.

Baseline Scheme

Under both schemes, a portion of prevailing wind reaching the Development would be downwashed to the pedestrian level by the northeastern façade, which would be diverted to flow along eastern site boundary of the Development and then further to San Wan Road. Under Baseline Scheme, the podium structure would be relatively less bulky with a 15m wide air path open from ground level between the lift tower and the podium, as compared to the 7m wide G/F empty bay under Proposed Scheme. Hence, under Baseline Scheme, more pedestrian level wind could penetrate through the Development to reach San Wan Road (**White Arrows**), creating a slightly higher VR there.

In addition, under both schemes, prevailing wind would be diverted by the buildings to flow along its eastern site boundary and reach the eastern portion of Po Shek Wu Estate and be downwashed. However, under Proposed Scheme, a longer façade area along the northeastern site boundary would divert wind away from the eastern site boundary, thus allowing less wind flow to directly towards the eastern tower of Choi Po Court to be downwashed, which would in turn result in a higher VR at a localised portion of San Wan Road under Baseline Scheme (**Purple Arrows** & **White Circle**).

On the other hand, under both schemes, high level prevailing wind would flow on the west of the Development and

Proposed Scheme

Under both schemes, the said downwashed wind at the northeastern façade of the Development would ventilate the immediate surroundings such as Bike Kiosk and Shek Wu Hui Jockey Club Playground. With a higher building height and a longer northeastern tower façade under Proposed Scheme, the downwash effect would be more significant (**Black Circle and Arrow**), providing said area with more ventilation.

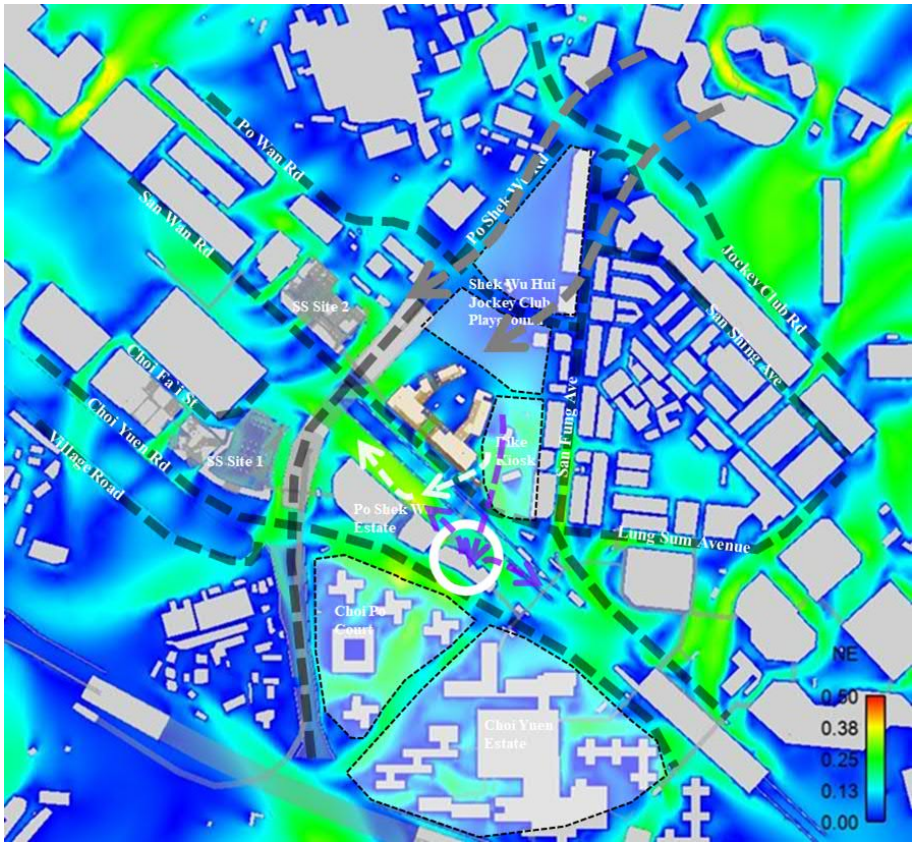


Figure 48 Contour Plot of VR for Baseline Scheme under NE Wind

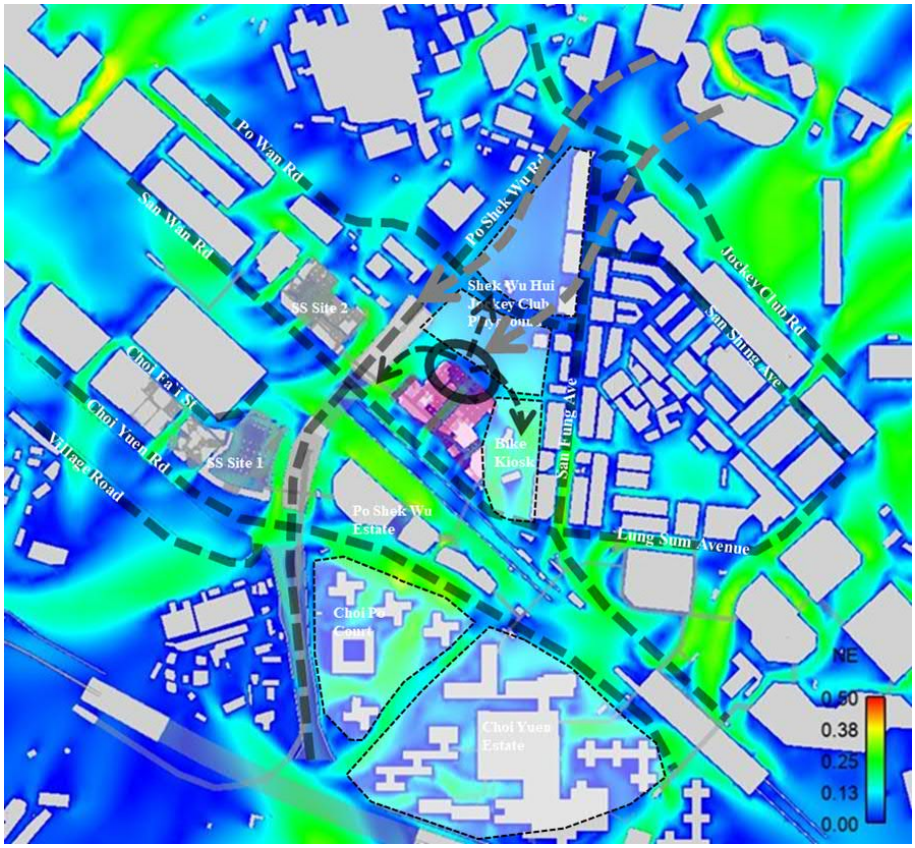


Figure 49 Contour Plot of VR for Proposed Scheme under NE Wind

6.2.3 ENE Wind Direction

The ENE wind contributes to 11.1% of the annual wind and 2.3% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under ENE wind are presented below.

Under ENE wind, a portion of incoming wind would skim over the generally low-rise cluster to the east-northeast of the Development and reach the development (**Grey Arrows**).

In general, a similar pattern and performance is found between Baseline and Proposed Scheme, a slightly enhanced wind environment can be observed under Proposed Scheme along the western and eastern site boundary.

Baseline Scheme

Under both scheme a portion of mid and high level incoming wind would penetrate through the tower separation in the development. A narrower tower separation at the center and northeast of the Development under Proposed Scheme would increase the channelling effect, thereby allowing for more mid and high level prevailing wind to pass through the tower separation (**Red Arrow**). In contrast, under Baseline Scheme, with less prevailing wind being channelled through the tower separation, more wind would be diverted to travel on the northwest of the Development; it would travel further towards the southwest where Tai Tau Leng and Village Road are located (**Purple Arrow**), thereby increasing the VR there under Baseline Scheme.

Proposed Scheme

Under both schemes, a portion of mid and high level incoming wind would be downwashed by the northeastern façade of the development to pedestrian level and would be diverted towards Bike Kiosk and San Wan Road. With a taller building height under Proposed Scheme, more downwashed wind would stream along Bike Kiosk and eastern part of San Wan Road, as well as stream towards Shek Wu hui Jockey Club Playground (**Black Arrow** & **Black circle**).

In addition, under both schemes, pedestrian level wind arriving at the Development would be diverted by Block A of the Devleopment to travel along its northwestern side. Under Proposed Scheme, the bulkier podium as comapred to that under Baselien Scheme would divert more wind towards said area, a larger acceleration around the corner of Block A is also observed. Coupled with said increased downwash effect, the VR is would be higher at tthe northwestern site boudnary as well as a localised portion of San Wan Road (**White Arrow**).

On the other hand, the aforementioned increased amount of previaling wind travelling through the tower separation under Baselien Scheme would be downwashed by Po Shek Wu Estate onto San Wan Road, thereby providing ventialtion for a localised portion of it, increasing the VR there (**Red Circle & Red Arrows**).

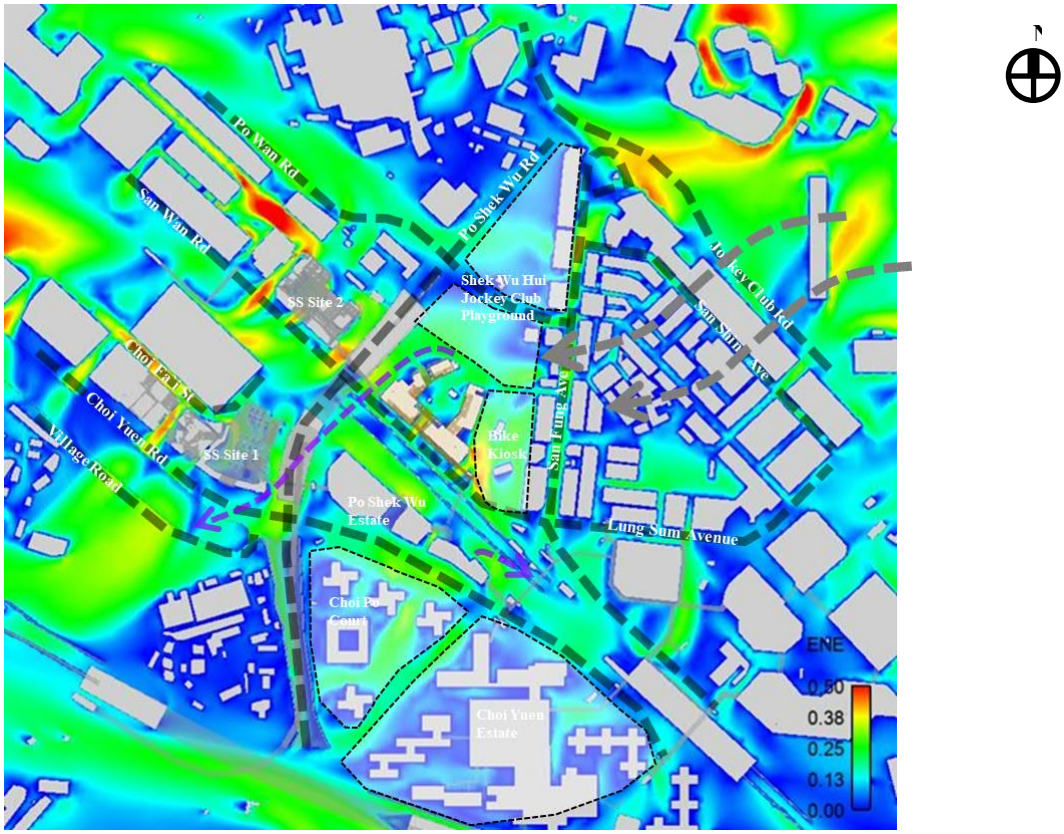


Figure 50 Contour Plot of VR for Baseline Scheme under ENE Wind

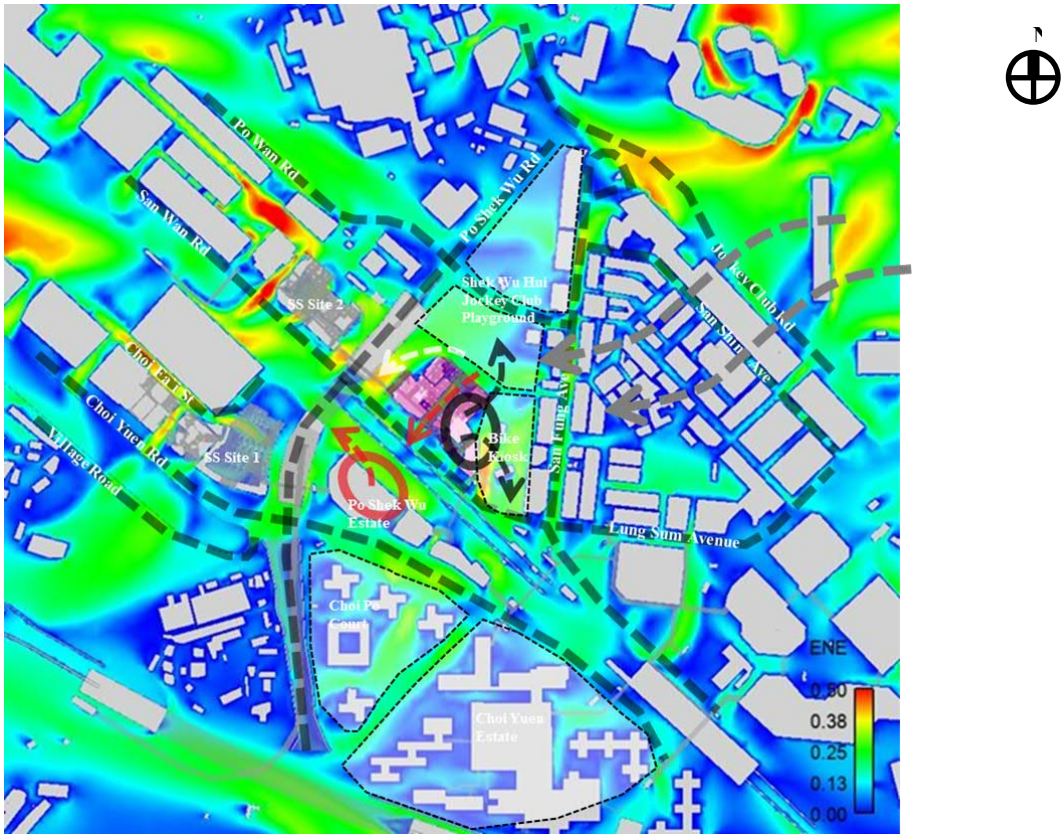


Figure 51 Contour Plot of VR for Proposed Scheme under ENE Wind

6.2.4 E Wind Direction

The E wind contributes to 17.2% of the annual wind and 7.6% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under E wind are presented below.

To the east of the Development would be mainly low-rise buildings and open area such as Bike Kiosk and Shek Wu Hui Jockey Club Playground; despite the presence of a few mid-rise buildings, prevailing wind could generally flow freely to reach the Development.

In generally the two schemes have similar flow patterns, however, the VR is observed to be slightly higher at the focus areas under Baseline Scheme.

Baseline Scheme

Better wind environment is observed along San Wan Road in Baseline Scheme. Under both schemes, a portion of prevailing wind reaching the Development would be downwashed by the eastern façade to the pedestrian level, a portion of which would be diverted to flow towards San Wan Road. Under Baseline Scheme, the downwashed wind could reach San Wan Road through a 15m wide full height air path (**White Arrows**), as compared to a 7m wide G/F empty bay under Proposed Scheme; this would allow for more wind under Baseline Scheme to penetrate through the Development to reach San Wan Road and enhance the environment there. This could be mitigated under Proposed Scheme through its permeable podium and naturally ventilated carpark design.

As the orientation of the Baseline Scheme Block B eastern façade places it against E wind more directly than it would in Proposed Scheme, the aforementioned downwashing would be relatively more significant. Because portion of the downwashed wind would flow towards the immediate eastern surroundings of the Development, including the Bike Kiosk and Shek Wu Hui Jockey Club Playground, these areas would have an increased VR under Baseline Scheme (**Black Circle and Arrow**).

Under both schemes, prevailing wind would flow across the North District Sports Ground and reach Jockey Club Road as well as Fung Kai Liu Man Shek Tong Secondary School and Fung Nam Road Garden; however, simultaneously, a portion of aforementioned downwashed wind would travel from the Development across the Shek Wu Hui Jockey Club Playground towards north, and limit the flow. Due it's the increased downwash under Baseline Scheme, the limiting effect would be greater, hence a slightly lower VR in said areas such as Fung Nam Road Garden under Baseline Scheme (**Pink Arrows** & **Pink Circle**).

Proposed Scheme

Under Proposed Scheme, however, more downwashing would be observed on the northern part of the Development (White Arrow and Circle), where the façade is facing relatively away from the prevailing wind and the height of the tower has a more significant effect. In this case, more wind would be available to northwester site boundary of the Development, thereby enhancing the wind environment there (**Purple Circle and Arrows**).

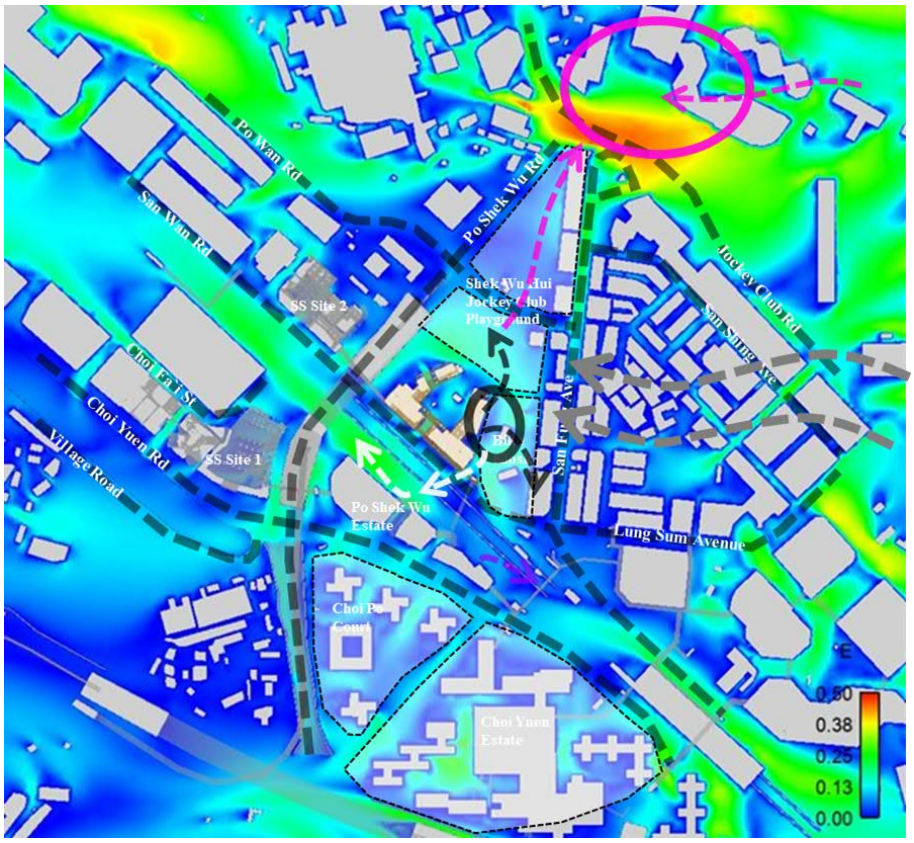


Figure 52 Contour Plot of VR for Baseline Scheme under E Wind

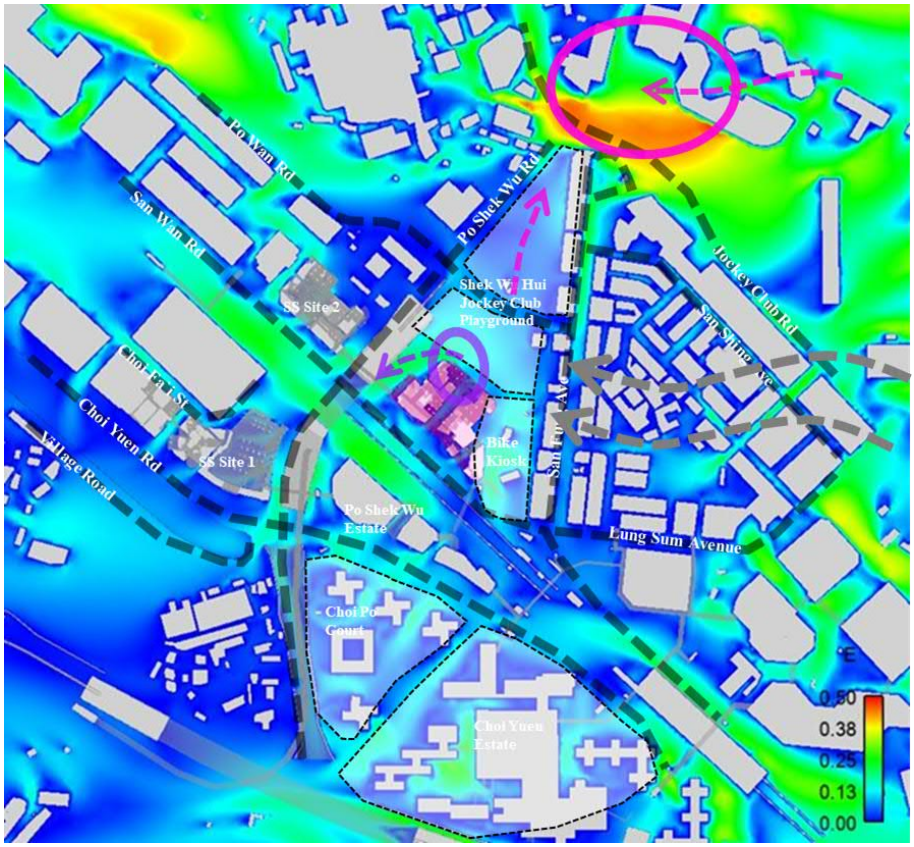


Figure 53 Contour Plot of VR for Proposed Scheme under E Wind

6.2.5 ESE Wind Direction

The ESE wind contributes to 14.7% of the annual wind and 10.2% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under ESE wind are presented below.

ESE wind would flow around the mid-rise to the east-southeast of the Development and flow towards the Development in two ways. While a portion of the ESE incoming wind would travel along San Wan Road to reach the southern boundary of the development, another portion would flow over the low-rise buildings to the east of the Development to reach it (**Grey Arrows**).

In general, the ventilation performance would be slightly enhanced under Proposed Scheme.

Proposed Scheme

Under both schemes, prevailing would be captured and downwashed by the eastern façade of Block B to the pedestrian level and be diverted towards its immediate surrounding such as the Bike Kiosk, Shek Wu Hui Jockey Club Playground, and San Fung Avenue. Since Proposed Scheme is taller than Baseline Scheme, the said downwash effect would be more significant, thus more wind would be available at the mentioned areas, creating a higher VR there (**Green Circle & Arrows**).

On the other hand, under both schemes, prevailing wind would flow on southwest of the Development along San Wan Road and on northeast of the Development across the Shek Wu Hui Jockey Club Playground towards northwest surroundings such as SS Site 2. Due to the fact that under Proposed Scheme there is increased building setback at both southwest and northeast site boundaries, increased amount of said flow would be observed, thereby increasing VR at locations reached by said flow (**Pink Arrows**), such as San Wan Road itself as well as SS Site 2 and Ka Fu Close.

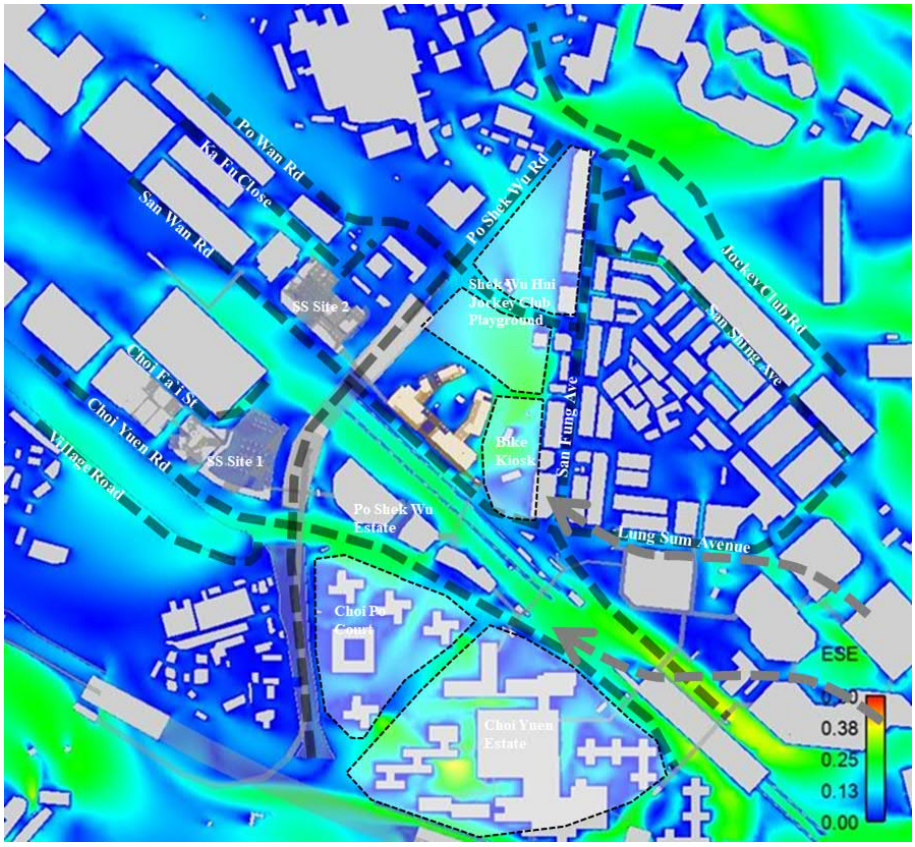


Figure 54 Contour Plot of VR for Baseline Scheme under ESE Wind.

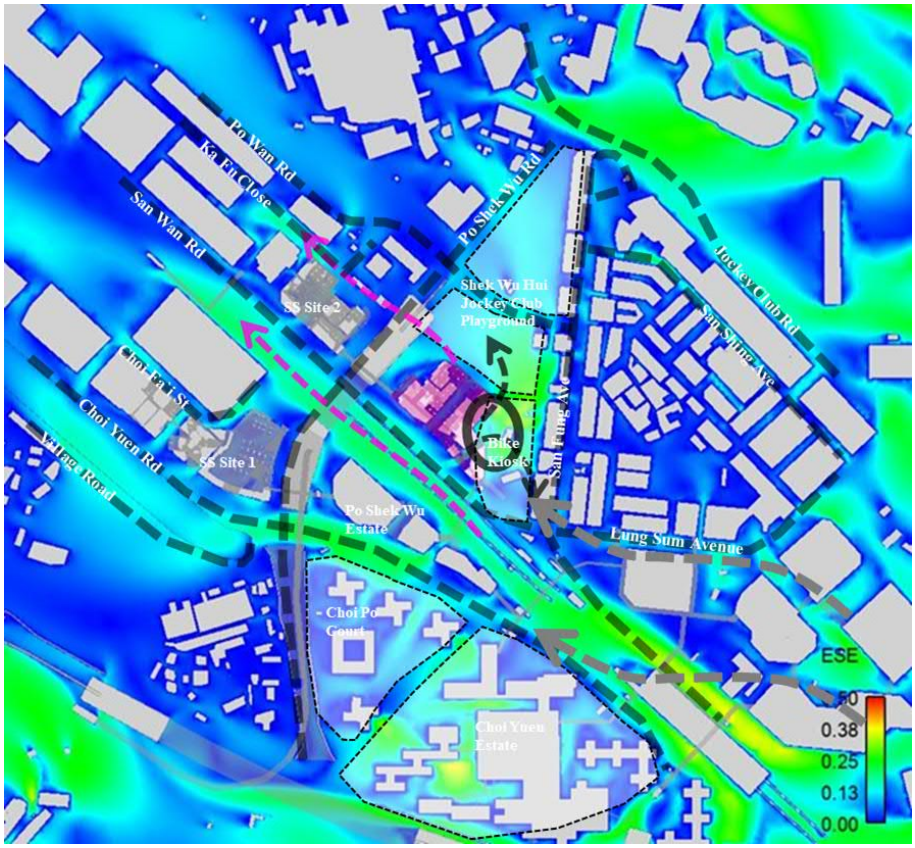


Figure 55 Contour Plot of VR for Proposed Scheme under ESE Wind

6.2.6 SE Wind Direction

The SE wind contributes to 8.7% of the annual wind and 8.7% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under SE wind are presented below.

Under SE wind conditions, the incoming wind would skim over mid-rise buildings as well as travel along San Wan Road to reach the Development (**Grey Arrows**). Leeward area is expected to have a slightly enhanced wind environment under Proposed Scheme whereas localised immediate upwind area would have a slightly higher VR under Baseline Scheme..

Baseline Scheme

In both schemes, mid and high level incoming wind could would be captured and downwashed by the eastern façade of the Development to the pedestrian level to ventilate the immediate eastern surroundings such as Bike Kiosk and a localised portion of San Wan Road. Under Proposed Scheme, due to an increased setback from the southwestern site boundary, the prevailing wind is relatively more hindered by the southwestern mid and high-rises as compared to Baseline Scheme, in that under Baseline Scheme, the prevailing could reach the eastern façade of the Development more directly (**Red Arrows**). Therefore, the downwash effect would be more significant under Baseline Scheme (**Black Circle** & **Black Arrows**), creating a higher VR at said areas.

Proposed Scheme

Similar to ESE wind, under both schemes, prevailing wind would flow on southwest of the Development along San Wan Road and on northeast of the Development across the Shek Wu Hui Jockey Club Playground towards northwest surroundings such as SS Site 2. Due to the fact that under Proposed Scheme there is increased building setback at both southwest and northeast site boundaries, increased amount of said flow would be observed, thereby increasing VR at locations reached by said flow (**Pink Arrows**), such as San Wan Road itself as well as SS Site 2 and Ka Fu Close.

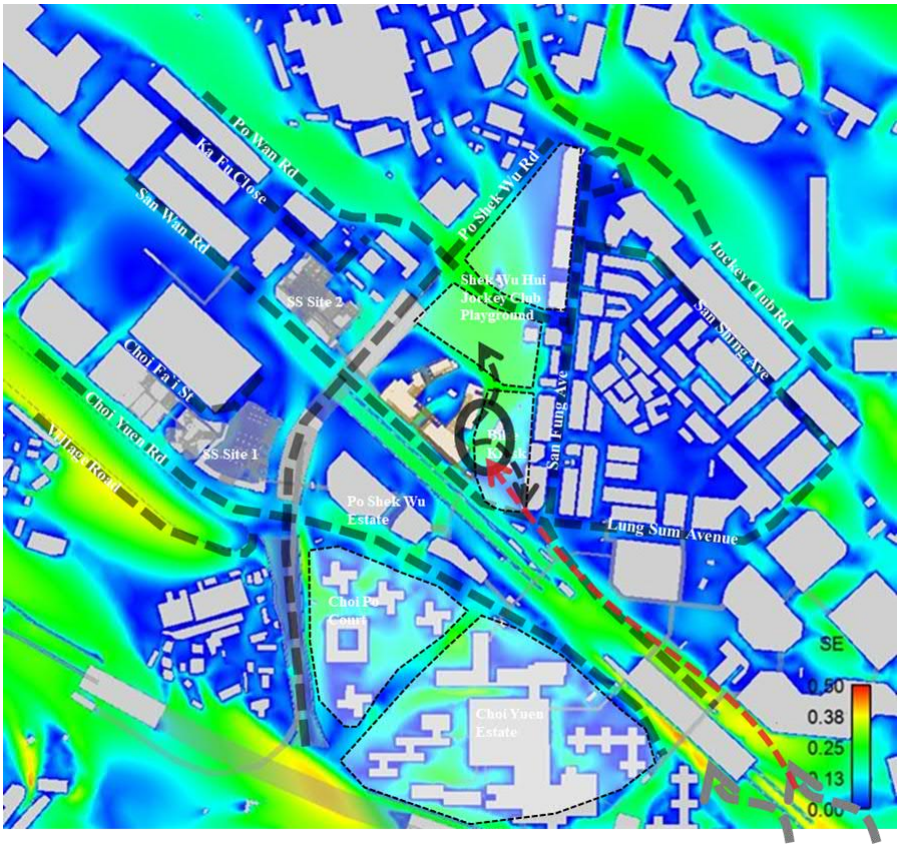


Figure 56 Contour Plot of VR for Baseline Scheme under SE Wind

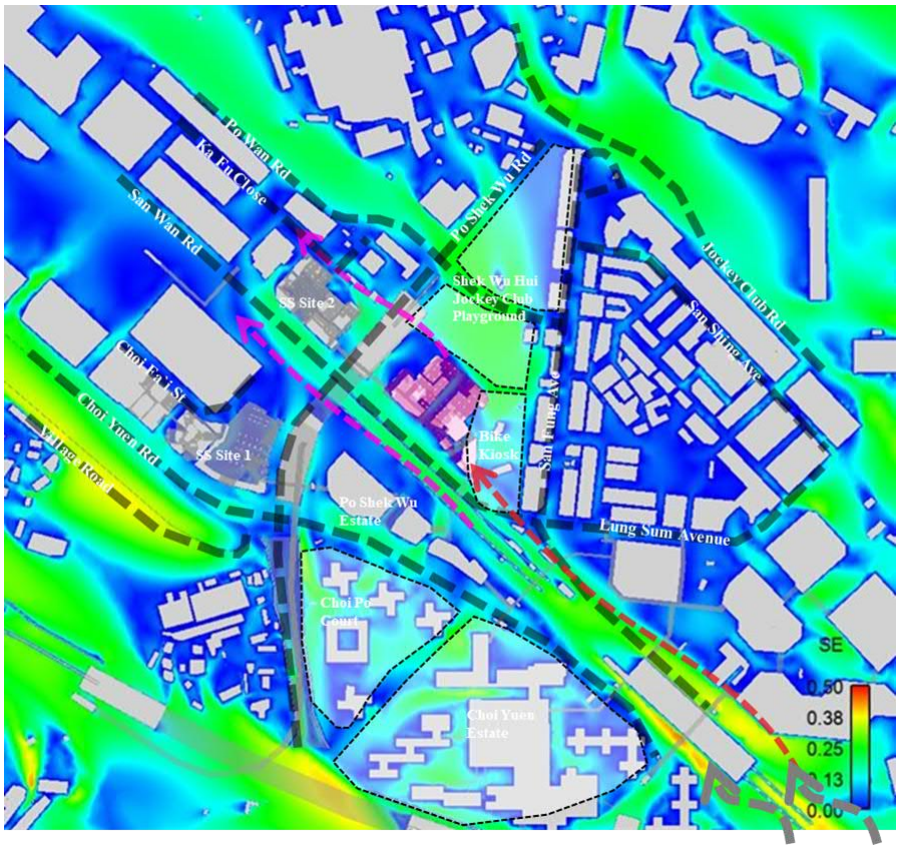


Figure 57 Contour Plot of VR for Proposed Scheme under SE Wind

6.2.7 SSE and S Wind Direction

The SSE and S wind contributes to 4.8% and 5% of the annual wind, and 8.7% and 10.2% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under SSE and S wind are presented below.

Under SSE and S wind conditions, the incoming wind would be diverted by Sheung Shui Centre to stream along San Wan Road to reach the development. On the other hand, mid and high level wind could reach the southwestern and eastern site boundary of the Development directly (**Grey Arrows**).

Baseline Scheme

On the other hand, under both schemes, prevailing wind would flow along San Wan Road. However, under Proposed Scheme, a stream of wind downwashed by Block B eastern façade would flow through 7m G/F empty bay to reach San Wan Road, which would then limit the prevailing wind along San Wan Road to flow only near the noise barrier; whereas, under Baseline Scheme the prevailing wind on San Wan Road could flow more freely (**White Arrow**). Therefore, San Wan Road would have a slightly higher VR under Baseline Scheme.

Under both scheme a portion of prevailing wind flowing along San Wan Road would be diverted to penetrate through the tower separation as well as the permeable podium structure in the development. A narrower tower separation at the center and northeast of the Development under Proposed Scheme would increase the channelling effect, thereby allowing for more mid and high level prevailing wind to pass through the tower separation (**Red Arrow**). The effect is further enhacned by the more permeable podium design under Proposed Scheme. In contrast, under Baseline Scheme, with less prevailing wind being channelled through the Development, more wind would travel along San Wan Road further, subusequently diverted to travel along the northwest site boundary and Po Shek Wu Road towards Po Sheung Tseun (**Purple Arrow**), thereby increasing the VR in areas including localised portions of Po Wan Road and Po Shek Wu Road, as well as Po Sheung Tsuen. under Baseline Scheme.

Proposed Scheme

In both schemes, mid and high level incoming wind along San Wan Road would be captured and downwashed by the eastern façade of the Development to the pedestrian level to ventilate the immediate eastern surroundings such as Bike Kiosk and a localised portion of San Wan Road. Since Proposed Scheme is taller than Baseline Scheme, the said downwash effect would be more significant, thus more wind would be available at the mentioned areas, creating a higher VR there (**Black Circle & Arrows**).

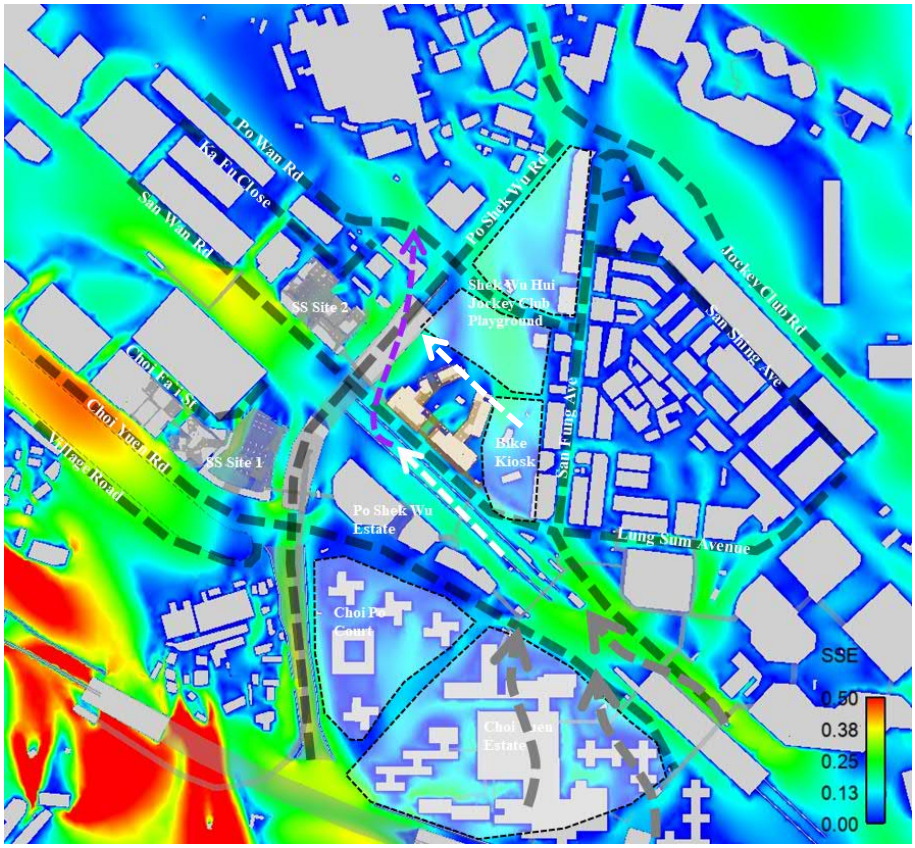


Figure 58 Contour Plot of VR for Baseline Scheme under SSE Wind

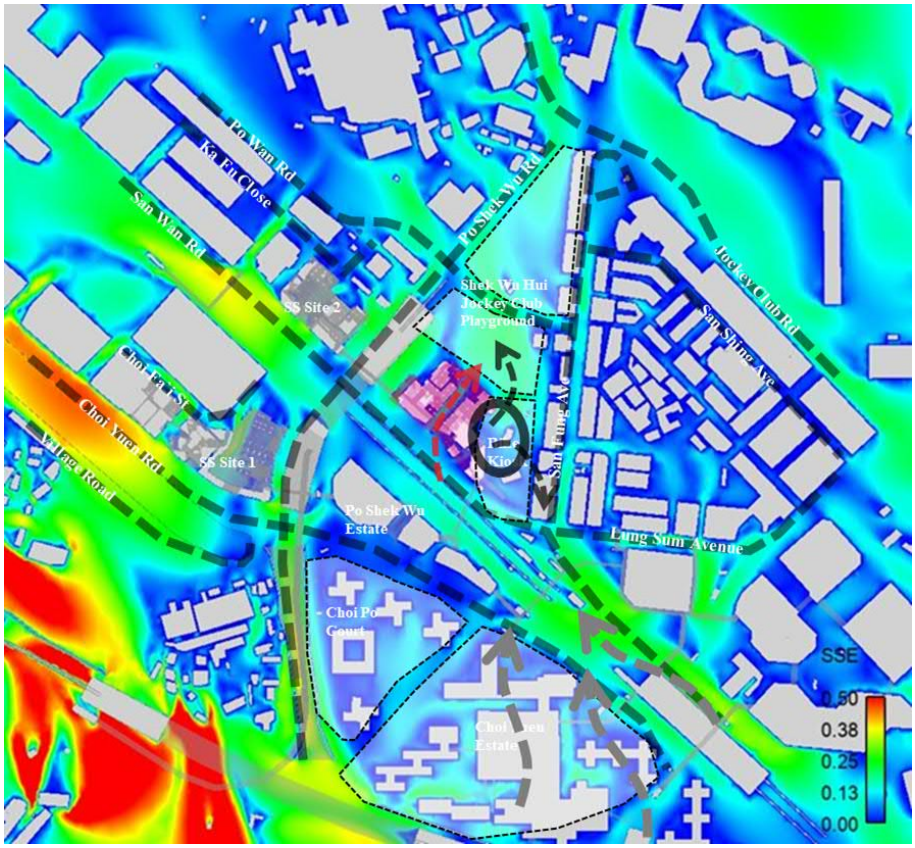


Figure 59 Contour Plot of VR for Proposed Scheme under SSE Wind

6.2.8 SSW Wind Direction

The the SSW wind contributes to 6.1% of the annual wind and 13.4% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under S wind are presented below.

The incoming SSW wind would be hindered by the mid-rise southwestern surroundings, prevailing wind at these levels would flow around the mid-rise buildings on their west to reach the southwest boundary of the development, they would then continue to flow around the Development on its west. High level wind, on the other hand, would reach the Development freely flowing over the mid-rise surroundings. In addition, a portion of mid-level wind would be captured by Landmark North and downwashed onto San Wan Road, which would then flow northwest along San Wan Road to reach the Development (**Grey Arrows**)

Overall, the ventilation performance of the Baseline and Proposed Schemes under S and SSW wind conditions would be dominated by the mid-rise southern surroundings such as Po Shek Wu Estate and Chui Po Court, which would cast a wind shadow over the Development. The wind environment would generally be similar under both schemes.

Baseline Scheme

Under both schemes, a portion of high level S and SSW wind reaching the Development would be captured and downwashed to the pedestrian level, ventilating San Wan Road. As the Proposed Scheme is taller, creating a larger height difference between it and its southwestern surroundings such as Po Shek Wu Estate, more high level wind would be captured and downwashed. The downwashed wind would, however, limit the prevailing wind flowing along San Wan Road under Proposed Scheme, therefore a slightly higher VR at a localised portion of San Wan Road immediate southwest of the Development would be observed under Baseline Scheme (**Black Circle**).

Proposed Scheme

Under both schemes, prevailing wind flowing along San Wan Road would be diverted north towards Bike Kiosk and Shek Wu Hui Jockey Club Playground. The aforementioned increased downdating effect under Proposed Scheme would limit prevailing travelling further down San Wan Road, consequentially, more wind would be diverted north towards said area, increasing the VR there (**Red Arrow**)

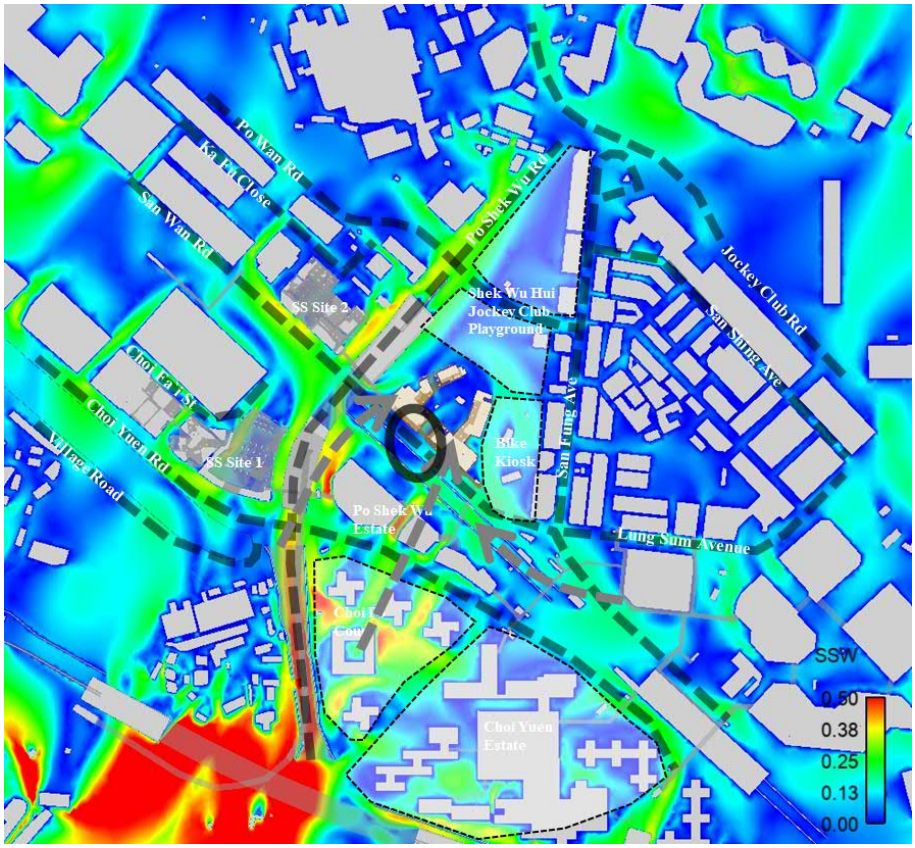


Figure 60 Contour Plot of VR for Baseline Scheme under SSW Wind

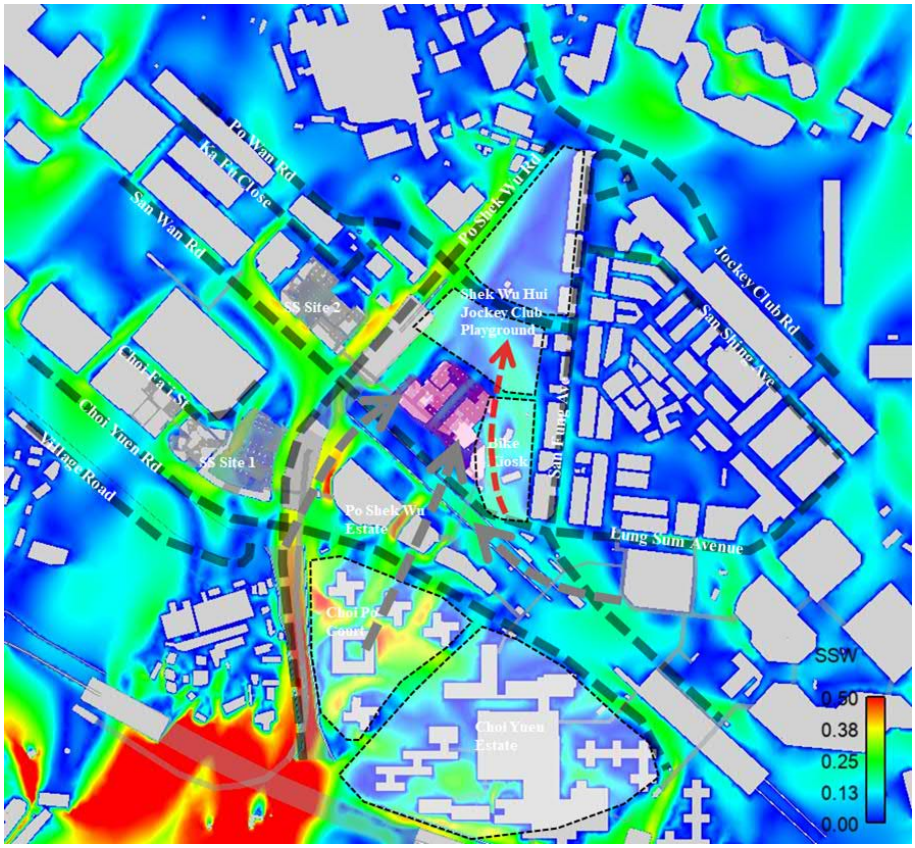


Figure 61 Contour Plot of VR for Proposed Scheme under SSW Wind

6.2.9 SW Wind Direction

The SW wind contributes to 3.3% of the annual wind and 8.4% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under SW wind are presented below.

The incoming SW wind would be hindered by the mid-rise Choi Po Court and Po Shek Wu Estate at low and mid-level, prevailing wind would mainly stream along Po Shek Wu Road to reach the Development at its western site boundary. A small portion of low and mid-level SW wind could on the other hand flow between the towers of Po Shek Wu Estate to reach San Wan Road and the Development. In addition, high level SW wind could reach the Development freely flowing over the mid-rise surroundings. Furthermore, a portion of mid-level wind would be captured by Landmark North and downwashed onto San Wan Road, which would then flow northwest along San Wan Road to reach the Development (**Grey Arrows**)

Similar to S and SSW wind, the overall ventilation performance would be comparable under the two schemes as the wind environment would be dominated by the upwind surrounding environment consisting of said mid-rise buildings.

Baseline Scheme

Under both schemes, wind reaching the Development from Po Shek Wu Road can flow further towards the northeastern surrounding of the Development such as the Shek Wu Hui Jockey Club Playground. The tower disposition under Baseline Scheme would allow for more wind to flow northeast, thereby creating a higher VR at Shek Wu Hui Jocket Club Playground as well as areas further downwind such as Jockey Club Road and Fung Nam Road Garden (**Black Arrows**).

Proposed Scheme

Under SW wind, a portion of high level incoming wind would be captured and downwashed by the southwest façade of the Development to the pedestrian level, which would then be diverted to flow along San Wan Road. Since the taller Proposed Scheme would be produce a more significant downwash effect, an enhanced wind environment at a localised portion of San Wan Road would be observed in Proposed Scheme (**White Circle and Arrow**). This however would in turn limit some prevailing wind on San Wan Road from flowing towards the Development. Localised upwind portion of San Wan Road and the Bike Kiosk would therefore have a slightly higher VR under Baseline Scheme (**Red Circle**). A stream of prevailing wind flowing along Po Shek Wu Road towards SS Site 2 would be affected by said phenomenon, thereby creating a higher VR under Baseline Scheme at San Wan Road immediate southwest of SS Site 2 (**Purplr Circle**).

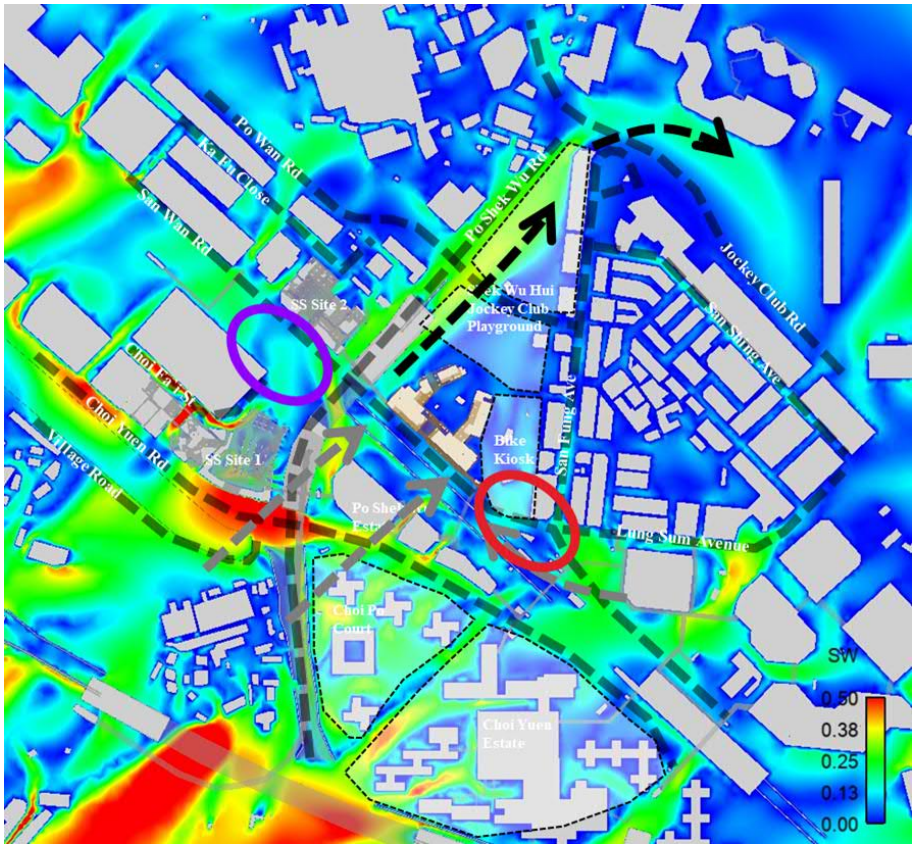


Figure 62 Contour Plot of VR for Baseline Scheme under SW Wind

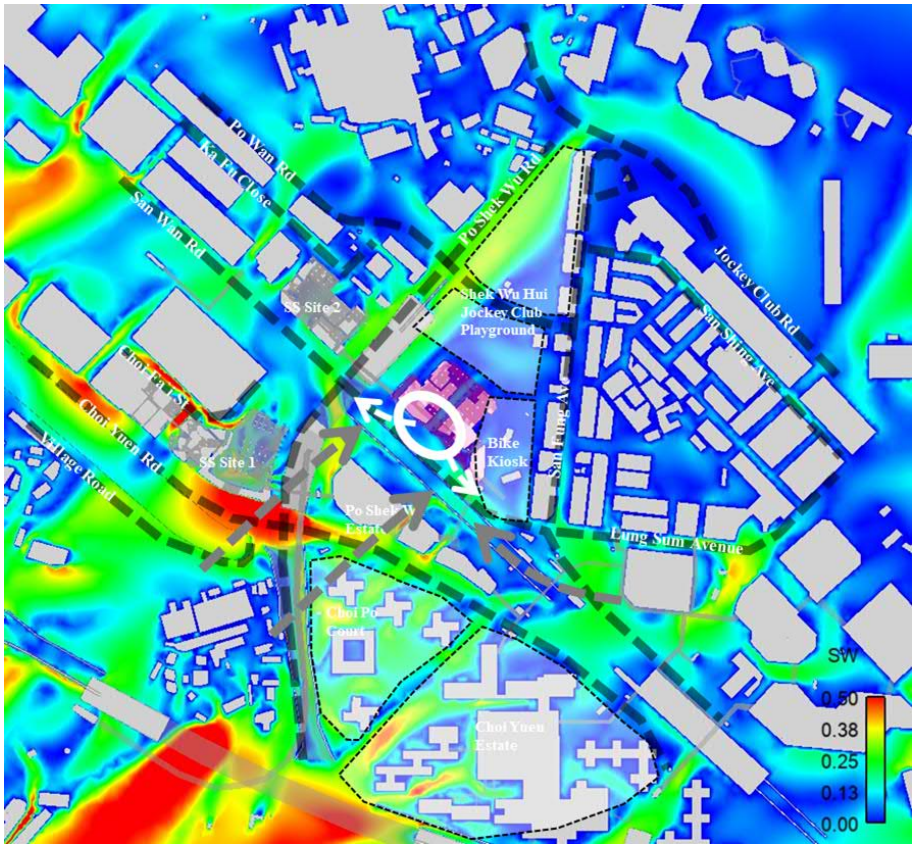


Figure 63 Contour Plot of VR for Proposed Scheme under SW Wind

6.2.10 WSW Wind Direction

The WSW wind contributes to 3.3% of the annual wind and 8.4% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under WSW wind are presented below.

Under WSW wind condition, the incoming wind would first reach SS Site 1 and Po Shek Wu Estate, which would then flow between the two Development to enter Po Shek Wu Road, subsequently reaching the southwestern site boundary of the Development. On the other hand, a small portion of wind could flow between the towers of Po Shek Wu Estate and stream across San Wan Road to reach the southwestern site boundary of the Development. In addition, some incoming high level wind would be able to flow over Po Shek Estate to reach the Development directly. (**Grey Arrows**)

Baseline Scheme and Proposed Scheme

Under both scheme, a portion of wind arriving at the southwestern site boundary would flow further northeast along the site boundary and another portion would be diverted by the southwestern façade of the Development to be diverted into San Wan Road. Under Proposed Scheme, there is a larger building setback from the southwestern site boundary, which would allow for more prevailing wind to be diverted into San Wan Road, creating a higher VR there under Proposed Scheme (**White Circle and Arrows**). A portion of wind would continue to flow along San Wan Road and diverted north into the Bike Kiosk after passing the Development, creating also a higher VR there. Areas further southwest such as Lung Sum Avenue and Lung Wan Street would experience an enhanced VR under Proposed Scheme as well (**White Arrows**).

Consequently, under Baseline Scheme, as less wind would be diverted into San Wan Road, more wind would continue to flow along the western site boundary of the Development and continue east-northeast, ventilating Shek Wu Hui Jockey Club Playground. It should be noted the disposition of Block A would divert the wind more towards east-northeast under Baseline Scheme, as compared to the Proposed Scheme where the wind would flow to the northeast. This would result in a higher VR at Shek Wu Hui Jockey Club Playground and San Fung Avenue under Proposed Scheme (**Black Arrow**). The disposition of Proposed Scheme, on the other hand, would direct the wind more towards northeast, the wind would travel along Po Shek Wu Road and the western portion of the Shek Wu Hui Jockey Club Playground, and would eventually be captured and downwashed by the development northeast of Jockey Club Road, enhancing the VR at areas there such as Fung Nam Road Garden and a localised portion of Jockey Club Road (**Purple Circle and Arrows**).

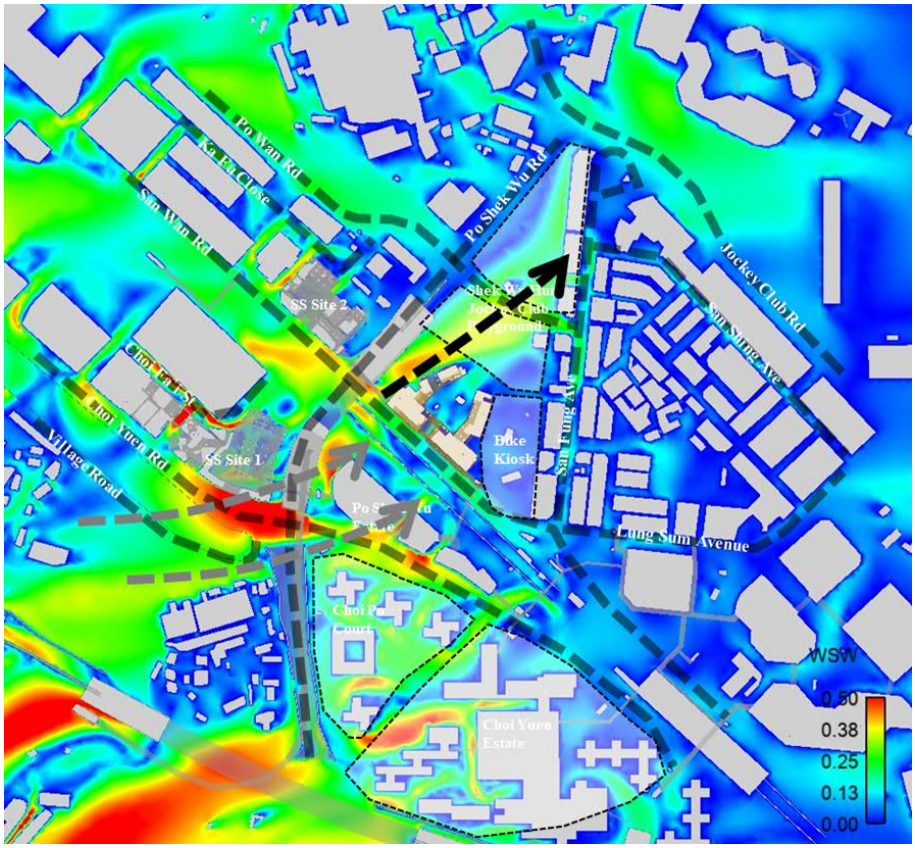


Figure 64 Contour Plot of VR for Baseline Scheme under WSW Wind

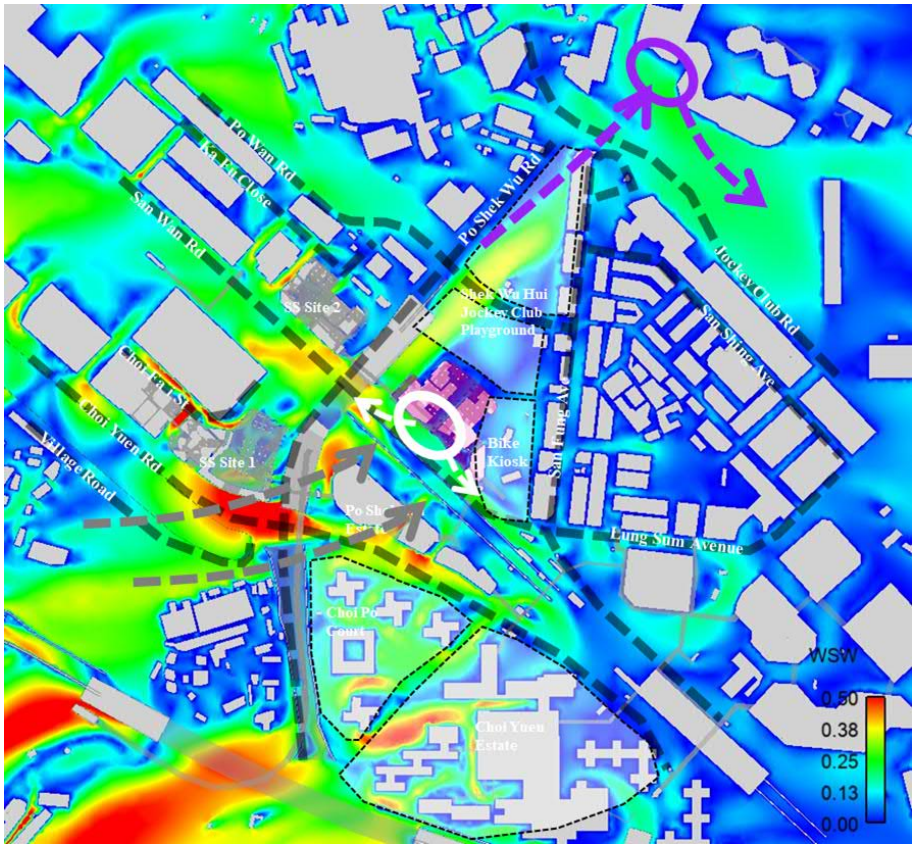


Figure 65 Contour Plot of VR for Proposed Scheme under WSW Wind

6.3 VR Results of Test Points

Table 6 summarises the value of SVR and LVR among Baseline Scheme and Proposed Scheme. The VR of individual test points may be referred to in Appendix.

Table 6 Comparison of the SVR and LVR among Baseline Scheme and Proposed Scheme

	Annual Weighted VR		Summer Weighted VR	
	Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
SVR	0.12	0.13	0.11	0.11
LVR	0.12	0.13	0.12	0.13

Under annual condition, the Proposed Scheme would obtain a slightly higher SVR and LVR as compared to Baseline Scheme. The result indicate that the Proposed Scheme would achieve a slightly better wind environment at close proximity and within the Assessment Area.

Under summer condition, the Proposed Scheme and the Baseline Scheme would obtain the same SVR and LVR, indicating a similar ventilation performance eat close proximity and within the Assessment Area.

6.4 Focus Areas

There are a total of 38 focus areas identified in this study, which are summarised below the Spatial Average VR (SAVR) for each focus areas under annual and summer conditions.

Focus Area		Annual Condition		Summer Condition	
		Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
1	Tai Tau Leng	0.06	0.06	0.10	0.10
2	Village Road	0.15	0.15	0.17	0.17
3	Choi Fat Street	0.12	0.12	0.13	0.13
4	Choi Fai Street	0.12	0.12	0.13	0.13
5	Planned Sheung Shui Areas 4 and 30 Site 1	0.15	0.15	0.17	0.17
6	Planned Sheung Shui Areas 4 and 30 Site 2	0.15	0.16	0.16	0.16
7	Ka Fu Close	0.14	0.14	0.09	0.09
8	Cheuk Wan St	0.11	0.11	0.15	0.15
9	Po Sheung Tsuen	0.11	0.11	0.10	0.10
10	Fung Kai Liu Man Shek Tong Secondary Shool	0.11	0.12	0.13	0.13
11	Fung Nam Road Garden	0.22	0.23	0.23	0.22

Focus Area		Annual Condition		Summer Condition	
		Baseline Scheme	Proposed Scheme	Baseline Scheme	Proposed Scheme
12	Fu Nam Rd	0.19	0.20	0.20	0.20
13	North District Sports Ground Playground	0.15	0.15	0.11	0.11
14	Jockey Club Rd	0.17	0.17	0.14	0.15
15	Fu Hing St	0.11	0.11	0.08	0.08
16	San Fat St	0.06	0.06	0.06	0.06
17	San Lok St	0.07	0.07	0.05	0.05
18	Shek Wu Hui Playground	0.09	0.09	0.07	0.07
19	San Tsoi St	0.07	0.07	0.05	0.05
20	Tsun Fu St	0.07	0.07	0.06	0.06
21	San Hong St	0.08	0.08	0.07	0.07
22	San Cheung St	0.06	0.06	0.05	0.05
23	San Kung St	0.07	0.07	0.08	0.08
24	San Kin St	0.07	0.07	0.07	0.07
25	San Shing Ave	0.12	0.11	0.10	0.10
26	Lung Sum Avenue	0.11	0.11	0.13	0.13
27	Lung Wan St	0.11	0.12	0.14	0.15
28	North District Town Hall Basketball Court	0.09	0.09	0.10	0.10
29	Sun Fung Ave	0.13	0.13	0.09	0.09
30	Shek Wu Hui Jockey Club Playground	0.12	0.12	0.13	0.13
31	Bike Kiosk	0.16	0.17	0.11	0.11
32	Po Shek Wu Estate	0.15	0.16	0.15	0.15
33	Choi Po Court	0.14	0.13	0.15	0.15
34	Choi Yuen Estate	0.13	0.13	0.14	0.14
35	Choi Yuen Rd	0.15	0.15	0.17	0.17
36	San Wan Rd	0.14	0.14	0.18	0.18
37	Po Shek Wu Rd	0.14	0.14	0.19	0.19

Focus Area		Annual Condition		Summer Condition	
		Baseline Scheme	Proposed Scheme	Baseline Scheme	Proposed Scheme
38	Po Wan Rd	0.11	0.11	0.11	0.10
39	Wind Enhancement Feature 1	0.12	0.13	0.08	0.10
40	Wind Enhancement Feature 2	0.18	0.16	0.09	0.10

6.4.1 Annual Condition

Under annual condition, generally the focus areas exhibit a similar VR, indicating a similar ventilation performance in most focus areas.

It could however be observed that Planned Sheung Shui Areas 4 and 30 Site 2, Fung Kai Liu Man Shek Tong Secondary School, Fung Nam Road Garden, Fu Nam Road, Lung Wan Street, Bike Kiosk and Po Shek Wu Estate would have a slightly higher VR under Proposed Scheme. This indicates that the ventilation would be slightly enhanced in these areas under Proposed Scheme.

It can also be observed the Baseline Scheme would have a slightly higher VR at San Shing Avenue and Choi Po Court. This indicates that the ventilation would be slightly calmer in these areas under Proposed Scheme.

It can be observed that under annual condition, the wind enhancement feature 1, which is the airpath between the two towers, would perform better under Proposed Scheme, this is due to the relatively narrower tower separation in the central portion of the Development accelerating the wind flow along the air path. However, Wind Enhancement Feature 2, which is the air path between Block B and Lift tower in Baseline Scheme and a G/F empty bay in Proposed Scheme, the ventilation performance would be relatively calmer under Proposed Scheme, this is due to the wider separation provided under Baseline Scheme (~15m) as compared to Proposed Scheme (~7m) .

6.4.2 Summer Condition

Under summer condition, the majority of focus areas exhibit a similar VR, indicating a similar ventilation performance in most focus areas. The greatly similar wind environment is due to the wind environment being mainly dominated by the southwestern surrounding development which are mostly mid and high rises.

It could however be observed that Lung Wan Street and Jockey Club Road would have a slightly higher VR under Proposed Scheme. This indicates that the ventilation would be slightly enhanced in these areas under Proposed Scheme.

It can also be observed that Po Wan Road and Fung Nam Road Garden would have a slightly higher VR under Baseline Scheme. This indicates that the ventilation would be slightly calmer in these areas under Proposed Scheme.

It can be observed that under summer condition, similar to annual condition, the wind enhancement feature 1, which is the airpath between the two towers, would perform better under Proposed Scheme, this is due to the relatively narrower tower separation in the central portion of the Development accelerating the wind flow along the air path. Wind Enhancement Feature 2, under summer condition, would also have a relatively enhanced ventilation performance under Proposed Scheme. This is due to the increased tower height under Proposed Scheme inducing more downwashed wind, thereby allowing for more wind to reach the Wind Enhancement Feature 2 of Proposed Scheme, whereas under Baseline Scheme, the wind flow available to flow through the Wind Enhancement Feature 2 would be mostly hindered by the southwester surroundings.

7. Conclusion

7.1 Overview

An Air Ventilation Assessment (AVA) – Initial Study was conducted to assess the ventilation performance of Baseline Scheme and Proposed Scheme in accordance with the AVA Technical Circular No. 1/06.

Two schemes were assessed using Computational Fluid Dynamics (CFD) techniques. A series of CFD simulation using Realizable k-ε turbulence model was performed under annual and summer wind conditions with reference to the AVA Technical Circular No. 1/06. For annual wind condition, NNE, NE, ENE, E, ESE, SE, SSW and SW were selected which gives total wind frequency of 77.8% over a year while E, ESE, SE, SSE, S, SSW, SW and WSW were selected for summer condition, which gives total wind frequency of 81.9%.

The Velocity Ratio (VR) as proposed by the AVA Technical Circular No.1/06 was employed to assess the ventilation performance under different schemes and its impact to the surroundings.

With reference to the AVA Technical Circular No. 1/06, 30 perimeter test points and 176 overall test points were allocated to assess the local and overall ventilation performance in the Assessment Area.

7.2 Results

Upon the CFD simulation Proposed Scheme achieved higher SVR and LVR both by 0.01 comparing to Baseline Scheme under annual condition and a similar SVR and LVR under summer condition respectively.

The results of the SVR, LVR are summarized as below.

Table 7 SVR and LVR Summary

	Annual Weighted VR		Summer Weighted VR	
	Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
SVR	0.12	0.13	0.11	0.11
LVR	0.12	0.13	0.12	0.13

8. Reference

[1] “Annex A of Technical Circular No. 1/06 issued by the Housing, Planning and Lands Bureau pertaining specifically to Air Ventilation Assessments, 19th July, 2006,” [Online]. Available: https://www.devb.gov.hk/filemanager/en/content_679/hplb-etwb-tc-01-06.pdf.

[2] “Planning Department RAMS Data,” [Online]. Available: http://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/.

All Appendices are parts of changes made in this round's submission

ARUP

Appendix A

Reference:

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Baseline Scheme Layout

Job number

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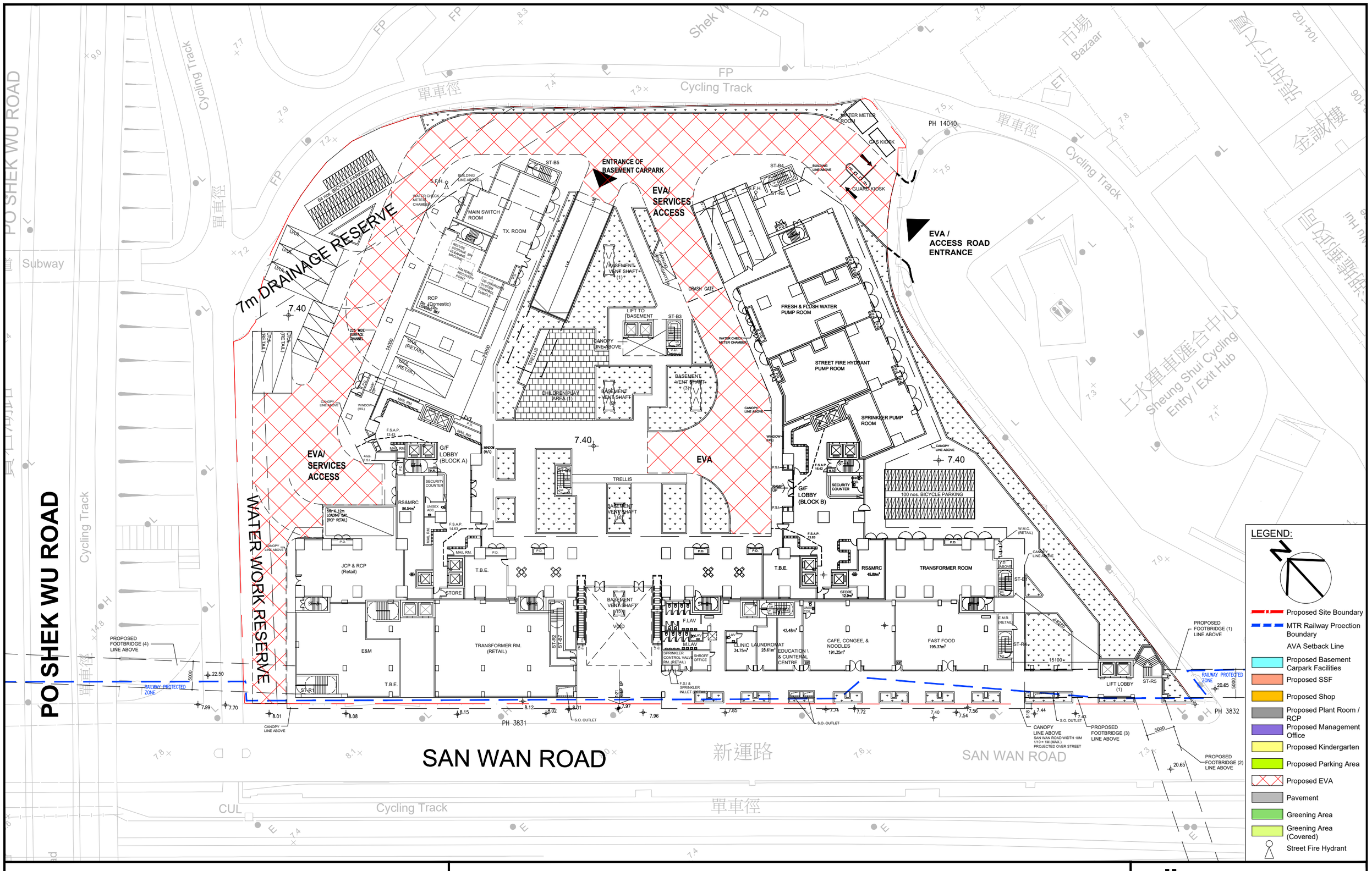
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
arup.com

A.1 Baseline Scheme Layout



PO SHEK WU ROAD, SHEUNG SHUI

SITE LAYOUT PLAN - GROUND FLOOR

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No.	日 期 DATE:
NR09/-/SITE/A/P1/LO-02	31.12.2018

D:\E_Backup\share\Po Shek Wu Road (2)\DWG\2018 - 12\20181224 _ from a 59 Option _2 (Detail)

PO SHEK WU ROAD, SHEUNG SHUI

SITE LAYOUT PLAN - PODIUM LEVEL 3 FLOOR

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/-/SITE/A/P1/LO-05

日 期 DATE: 31.12.2018

D:\E_Backup\share\Po Shek Wu Road (2)\DWG\2018 - 12\20181224 _ from a 59 Option _2 (Detail)

LEGEND:

- Proposed Site Boundary
- MTR Railway Proection Boundary
- Proposed SSF
- Acoustic Window
- Fixed Glazing

PO SHEK WU ROAD, SHEUNG SHUI

SITE LAYOUT PLAN - TYPICAL FLOOR PLAN

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/-/SITE/A/P1/LO-06

日 期 DATE: 31.12.2018

D:\E_Backup\share\Po Shek Wu Road (2)\DWG\2018 - 12\20181224 _ from a 59 Option _2 (Detail)

LEGEND:

- Proposed Site Boundary
- MTR Railway Proection Boundary
- Proposed Basement Carpark Facilities
- Proposed SSF
- Proposed RC Canopy / Covered walkway
- Proposed Plant Room
- Greening Area
- Acoustic Window
- * Fixed Glazing

ARUP

Appendix B

Reference:

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Proposed Scheme Layout

Job number

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Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
arup.com

B.1 Proposed Scheme Layout

LEGEND:
- Site Boundary
- Driveway
- Domestic Area
- Carpark
- Retail Shop
- Post Office
- Welfare Facilities
- Management Accommodations
- Covered Amenity / Circulation Area
- Fence Wall

PROJECT

PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE

SITE LAYOUT PLAN (GROUND FLOOR)

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/MLP/A/LO-01

日 期 DATE: 08. 03. 2023

NR09_MLP_A_LO-01_20230308_GF

LEGEND:

- Site Boundary
- Domestic Area
- Carpark
- Retail Shop
- Welfare Facilities
- Covered Amenity / Circulation Area

N

Shek Wu Hui Road

Cycling Track

單車徑

FP

7m DRAINAGE RESERVE

WATER WORK RESERVE

Subway

市場 Bazaar

ET

金誠街

上水單車匯合中心 Sheung Shui Cycling Entry / Exit Hub

FOOTBRIDGE (FB3) TO MTR STATION

LINE ABOVE

LIFT TOWER (1)

新運路

CUL

CARPARK 13.55

FAN ROOM 47.350m²

EMR (CP) 14m²

C.D. (BLOCK A) 11.138m²

C.D. (BLOCK B) 13.486m²

C.D. (ND)

C.D. (BLOCK B) 26.233m²

FAN ROOM 28.402m²

P.D. 0.982m²

C.D. 2.465m²

EMR (EV) 11.347m²

TEL. 3.976m²

C.D. (BLOCK A) 10.988m²

EMR (CP) 12.460m²

C.D. (NON-DOM) 13.821m²

P.D. (ND)

FIREMAN ONLY

FRESH & FLUSH WATER PUMP AND SUMP TANK ROOM (BLOCK B) 101.871m²

W.M.C.

P.L.

SHROFF OFFICE 17.990m²

PLANTER

EMR (EV) 9.47m²

HOME-BASED COMMUNITY CARE SERVICES (Required: 142m²)

SHORT-TERM FOOD ASSISTANCE SERVICE TEAM (Required: 92.5m²)

LAUNDRY 16.007m² (16m²)

OFFICE (IN CHARGE) 12.297m² (9.7m²)

PANTRY 6.909m² (6.8m²)

OFFICE 24.201m² (13.3m²)

INTERVIEW ROOM (8m²)

OFFICE 68.795m² (67.7m²)

TRAINING 4.026m² (4m²)

STORE ROOM (30m²)

STORE ROOM 30.055m² (30m²)

WORKING AREA 35.724m² (30m²)

STORE ROOM 6.523m² (6.5m²)

PLAY / MUSIC (Required: 50m²) 50.225m²

PLAY / DINING AREA (63m²) 68.3m²

CHILD CARE CENTRE (Required: 657m²) 657.090m²

DORMITORY (Required: 163m²) 163.545m²

SERVICE CORNER (20m²)

RECP. 10.029m² (10m²)

RECP. 5.005m² (5m²)

CLINIC 50.132m² (Required: 50m²)

EDUCATIONAL AND CULTURAL CENTRE 50.378m² (Required: 50m²)

BIG MUSCLE AREA 68.534m² (Required: 63m²)

RECP. 29.750m² (30m²)

NAPPY 7.098m² (7m²)

SMALL GP 12.041m² (12m²)

MILK 10.519m² (10m²)

STAFF CHANGING ROOM 9.730m² (9.5m²)

STORE 15.040m² (15m²)

KIT + FOOD 25.378m² (Required: 20m²)

ISO 8.113m² (8m²)

LAUNDRY 17.574m² (16m²)

DIS.

M. F. P.D. RCHE LIFT

UP TO 2/F

DN TO GF

13.55

FOOTBRIDGE (FB3) TO MTR STATION

LIFT TOWER (1)

PROJECT

PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE

SITE LAYOUT PLAN (FIRST FLOOR)

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/MLP/A/LO-02

日 期 DATE: 08. 03. 2023

NR09_MLP_A_LO-02_20230308_1F

LEGEND:

- Site Boundary
- Domestic Area
- Retail Shop
- Welfare Facilities
- Kindergarten
- Podium Garden
- Management Accommodations
- Covered Amenity / Circulation Area

N

Shek Wu Hui

15100

FP

Cycling Track

單車徑

市場
Bazaar

ET

Subway

7m DRAINAGE RESERVE

WATER WORK RESERVE

KINDERGARTEN

CPA

ELDERLY FITNESS AREA

DORMITORY

DINING / MULTI-PURPOSE ROOM

FAMILY ROOM

RESIDENTIAL CARE HOME FOR THE ELDERLY

FITNESS AREA

DOM. PODIUM

18.30

DRENCHER PUMP ROOM (BLOCK A)

DRENCHER PUMP ROOM (BLOCK B)

EMERGENCY GENERATOR ROOM (NON-DOM.)

CLEANSING CONTRACTOR

WORKSHOP FOR ARTISANS

MANAGEMENT OFFICE

PMA OFFICE

SALON

SHOP

EMR (BLK A)

EMR (NON-DOM)

DOOR FOR FIREMAN ONLY

RETAIL TOILETS AND BABYCARE ROOM

FROZEN FOOD

LAUNDROMAT

GENERAL SHOPS

CONVENIENCE STORE

BAKERY

FAST FOOD

PLANTER

PLANTER AT 1/F

LIFT TOWER (1)

FOOTBRIDGE CONNECT TO SHEUNG SHUI AREA 4 & 30 SITE 2

FOOTBRIDGE (FB3) TO MTR STATION

FOOTBRIDGE TO PO SHEK WU ESTATE

上水單車匯合中心
Sheung Shui Cycling Entry / Exit Hub

新運路

CUL

Cycling Track

單車徑

PROJECT

PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE

SITE LAYOUT PLAN (SECOND FLOOR)

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/MLP/A/LO-03

日 期 DATE: 08. 03. 2023

NR09_MLP_A_LO-03_20230308_2F

LEGEND:
- Site Boundary
- Domestic Area
- Podium Garden
- Covered Amenity / Circulation Area

N

15100

Shek Wu Hui

FP

Cycling Track

單車徑

市場
Bazaar

ET

金誠樓

7m DRAINAGE RESERVE

Subway

WATER WORK RESERVE

CPA
22.55

ELDERLY FITNESS AREA

PODIUM GARDEN

MULTIPURPOSE AREA

EMR (BLOCK A)

P.D.

C.D.

C.D. (BLK A)

OCO
21.939m²

WARM UP ZONE

BLOCK A MAIN LOBBY

FLUSH WATER TANK ROOM (ND)

DN TO 2/F

TEL

JOGGING PATH

COVERED ABOVE

PLANTER

PLANTER AT 2/F

PLANTER AT 1/F

22.55

4000

FOOTBRIDGE CONNECT TO SHEUNG SHUI AREA 4 & 30 SITE 2

EMR (BLK B)

BLOCK B MAIN LOBBY

LIFT MACHINE ROOM

ROOF OF FOOTBRIDGE (FB3) TO MTR STATION

22.50

FOOTBRIDGE (FB2) TO PO SHEK WU ESTATE

新運路

上水單車匯合中心
Sheung Shui Cycling Entry / Exit Hub

CUL

PROJECT	DRAWING TITLE	房屋署 HOUSING DEPARTMENT	
PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI	SITE LAYOUT PLAN (THIRD FLOOR)	編號 PLAN No. NR09/BC/SITE/A/LO-04	日期 DATE: 08. 03. 2023
	SCALE 1 :600(A3)		

NR09_MLP_A_LO-04_20230308_3F

FLAT MIX					
	No. of Storeys	Flat Type			No. of Flats
		B	C	D	
Block A	40	200	560	160	920
Block B	41	328	410	246	984
Total No. of Flats		**528**	**970**	**406**	**1904**
Flat Mix		27.73%	50.95%	21.32%	100%

CYCLING TRACK

EVA / DRIVE WAY

7m DRAINAGE RESERVE

EVA

PODIUM

22.55

29.80

29.80

CYCLING TRACK

WATER WORK RESERVE

15100 (min 15m)

EVA

CYCLING TRACK

SHEUNG SHUI CYCLING ENTRY / EXIT HUB

PO SHEK WU ROAD

CYCLING TRACK

BLOCK A
(40 DOMESTIC STOREYS +
1 STOREY REFUGE FLOOR)
(23 FLATS PER FLOOR)

BLOCK B
(41 DOMESTIC STOREYS +
1 STOREY REFUGE FLOOR)
(24 FLATS PER FLOOR)

22.55

27.30

17.80

13.05

27.30

ROOF OF FOOTBRIDGE (FB1)

RAILWAY PROTECTED ZONE

ROOF OF FOOTBRIDGE (FB3)

50000

ROOF OF FOOTBRIDGE (FB2)

SAN WAN ROAD

CYCLING TRACK

MTR (EAST RAIL LINE)

10.8 12.4 7.2 7.2 7.5 7.5 7.0 6.7 14.8 7.8 8.1 8.0 15.6

LEGEND:

- Site Boundary
- MTR Railway Protection Boundary
- * Flat with Acoustic Windows
- \# Flat with Enhanced Acoustic Balcony

PROJECT

PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE

SITE LAYOUT PLAN (TYPICAL FLOOR)

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/MLP/A/LO-05

日 期 DATE: 08. 03. 2023

NR09_MLP_LO-05_20230308_TF

ARUP

Appendix C

Reference:

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Contour Plots of Velocity Ratio (VR)

Job number

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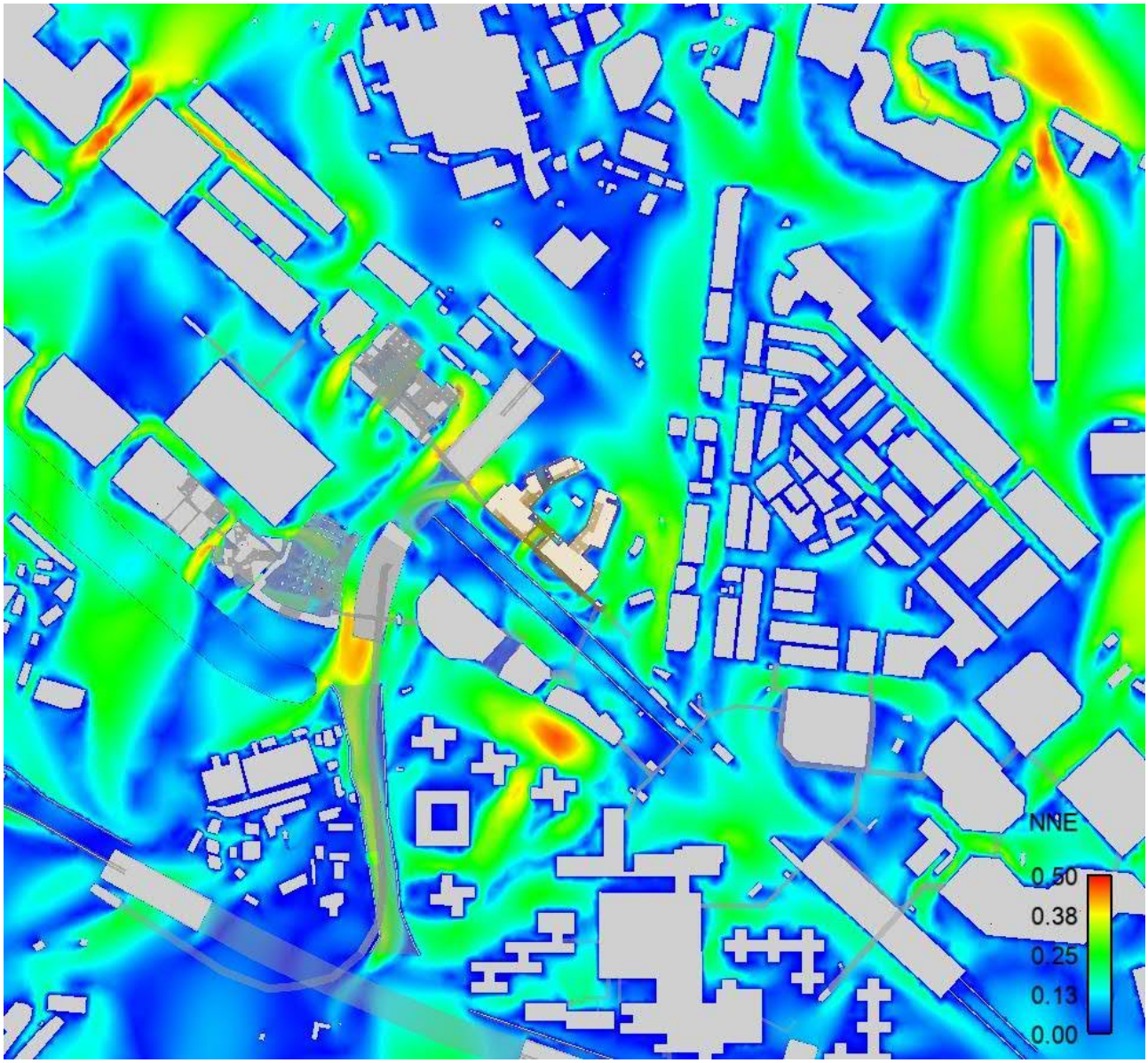
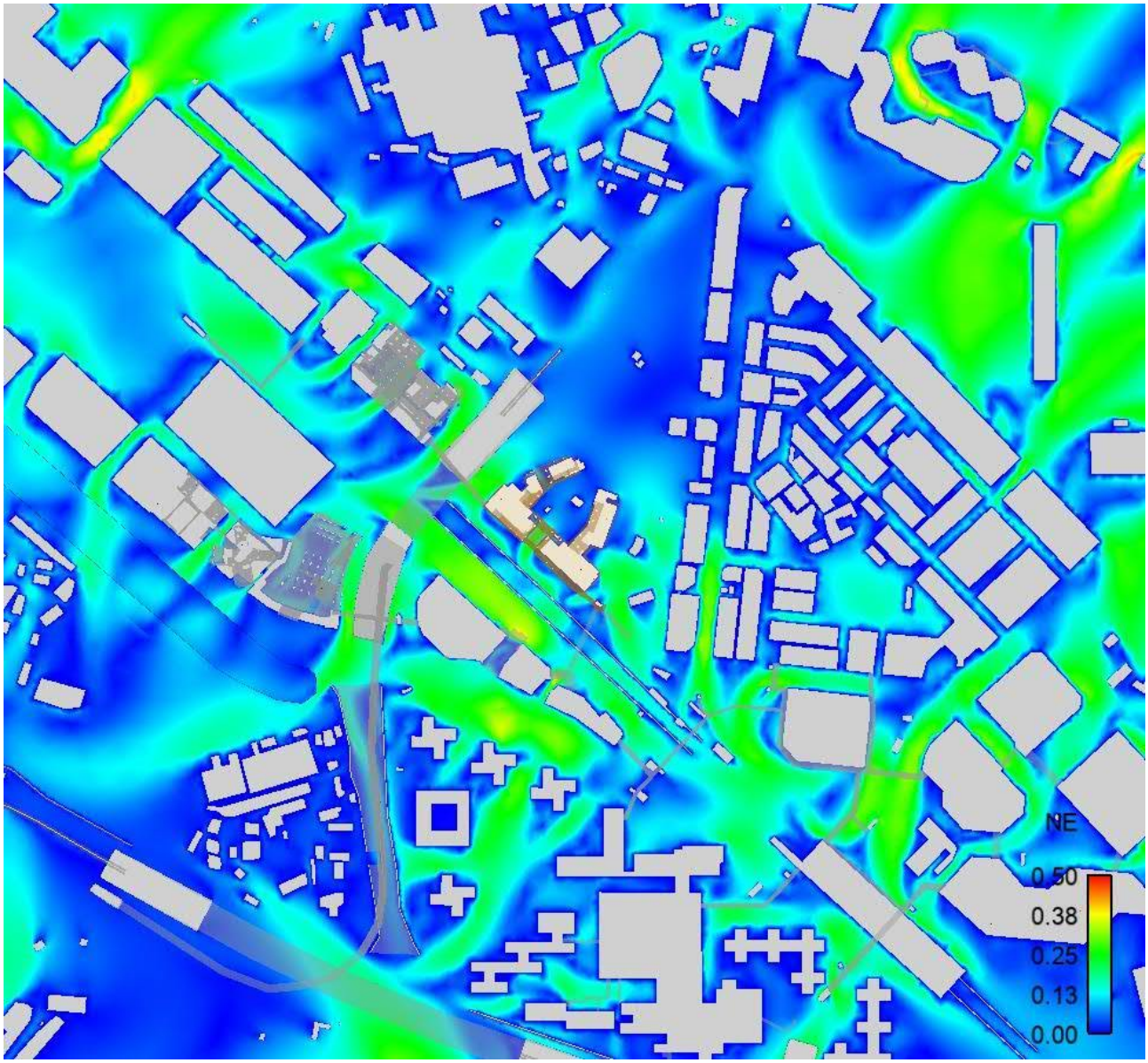
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
arup.com

C.1 Baseline Scheme

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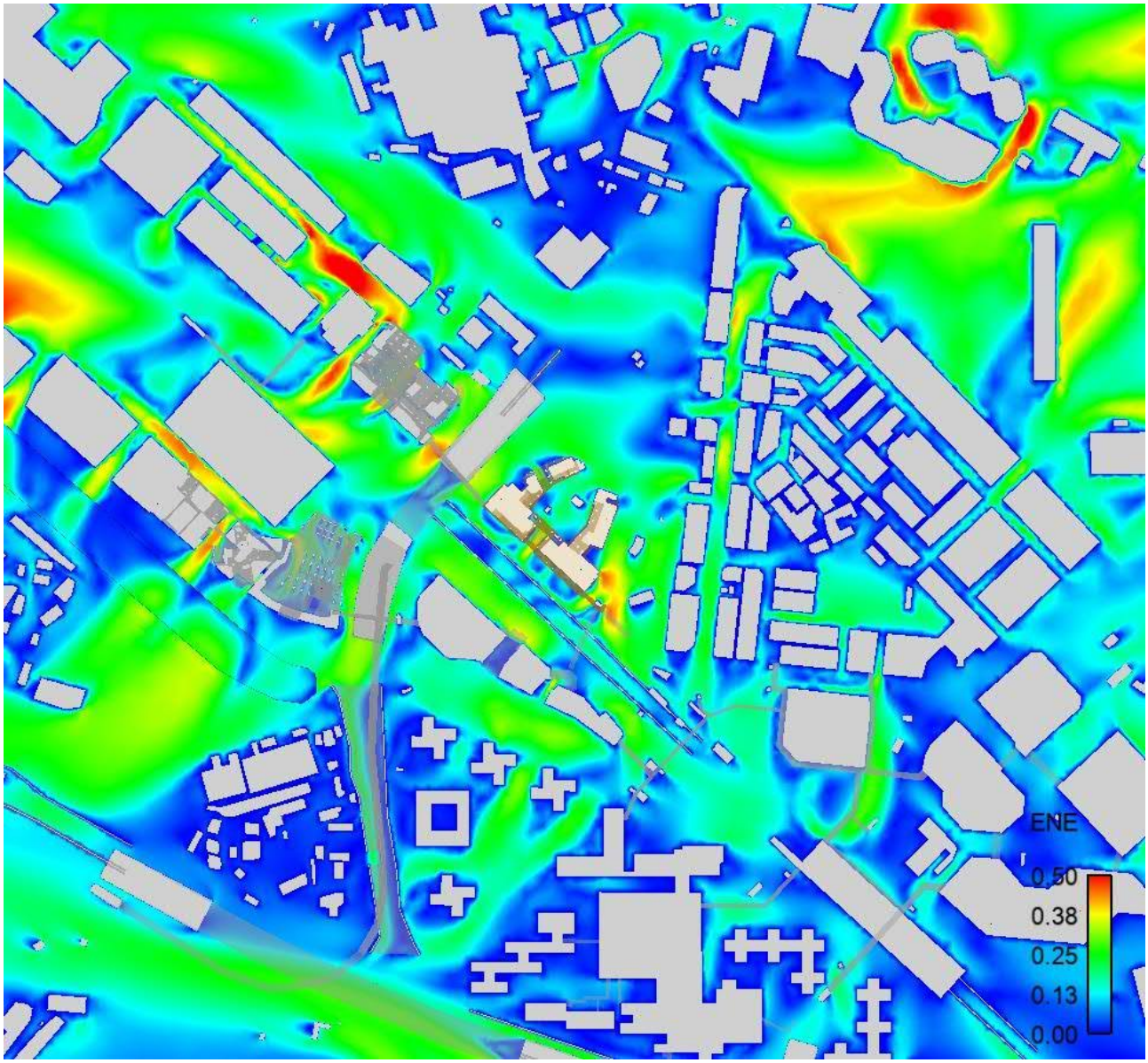
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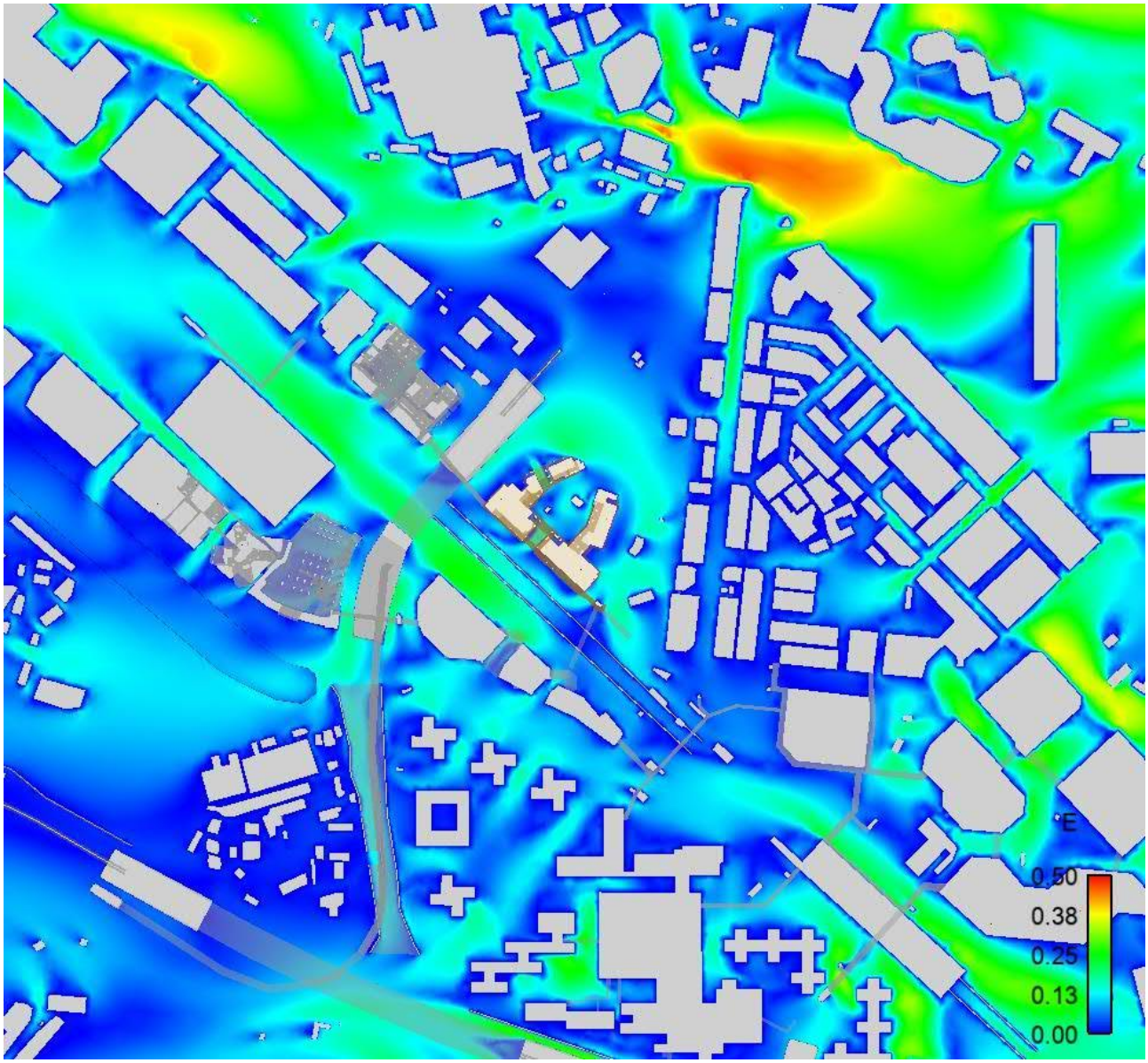
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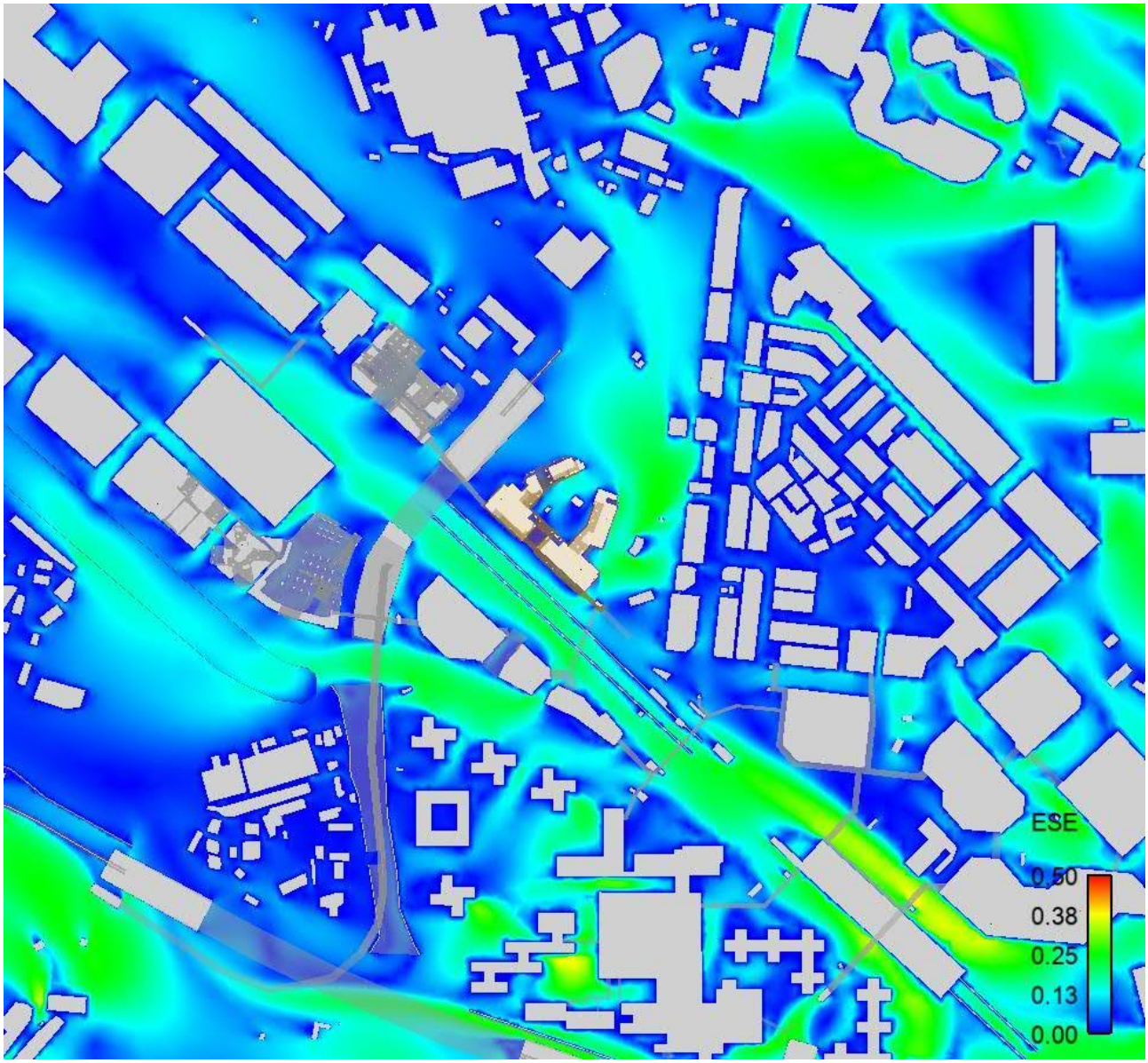
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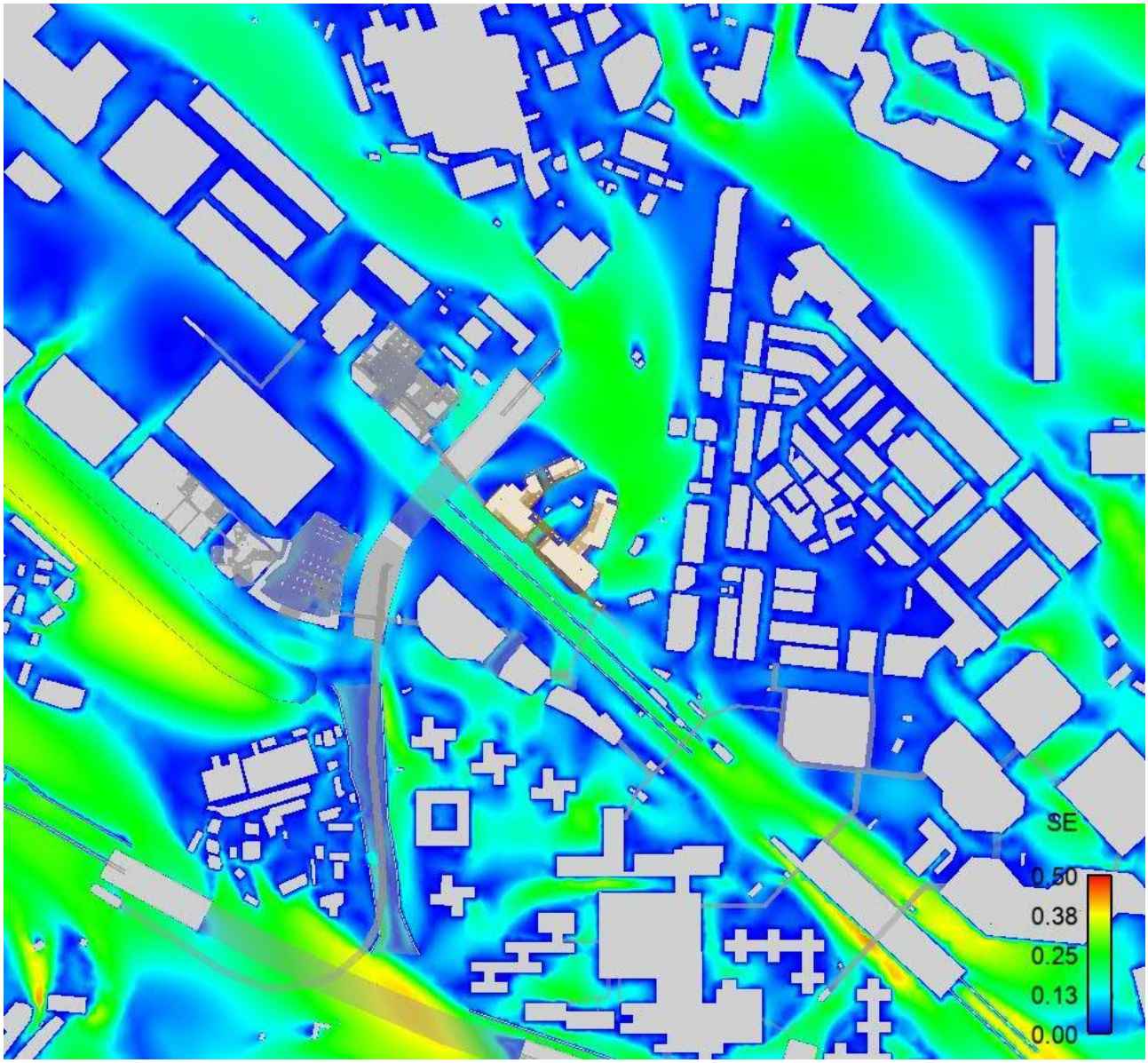
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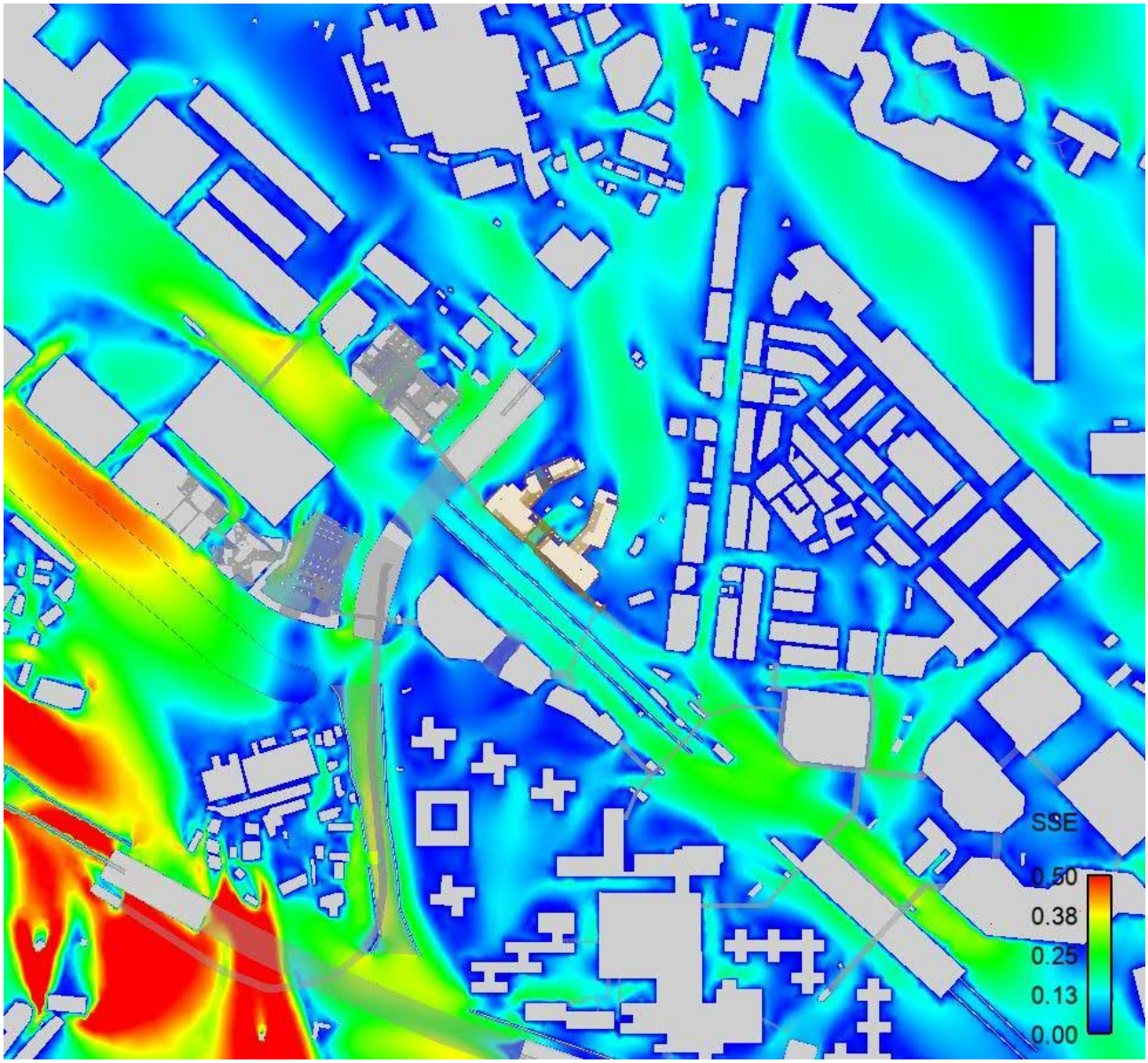
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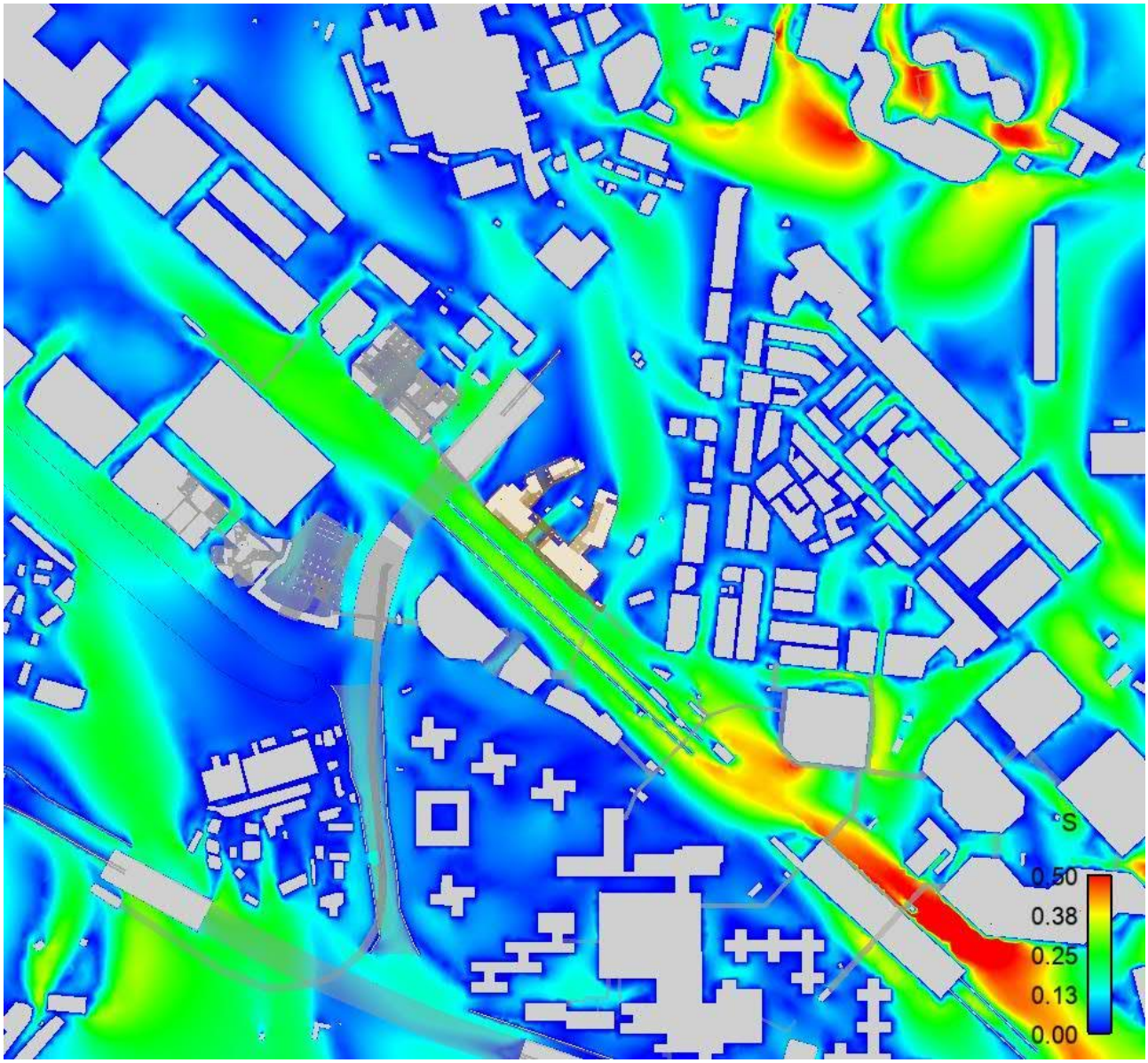
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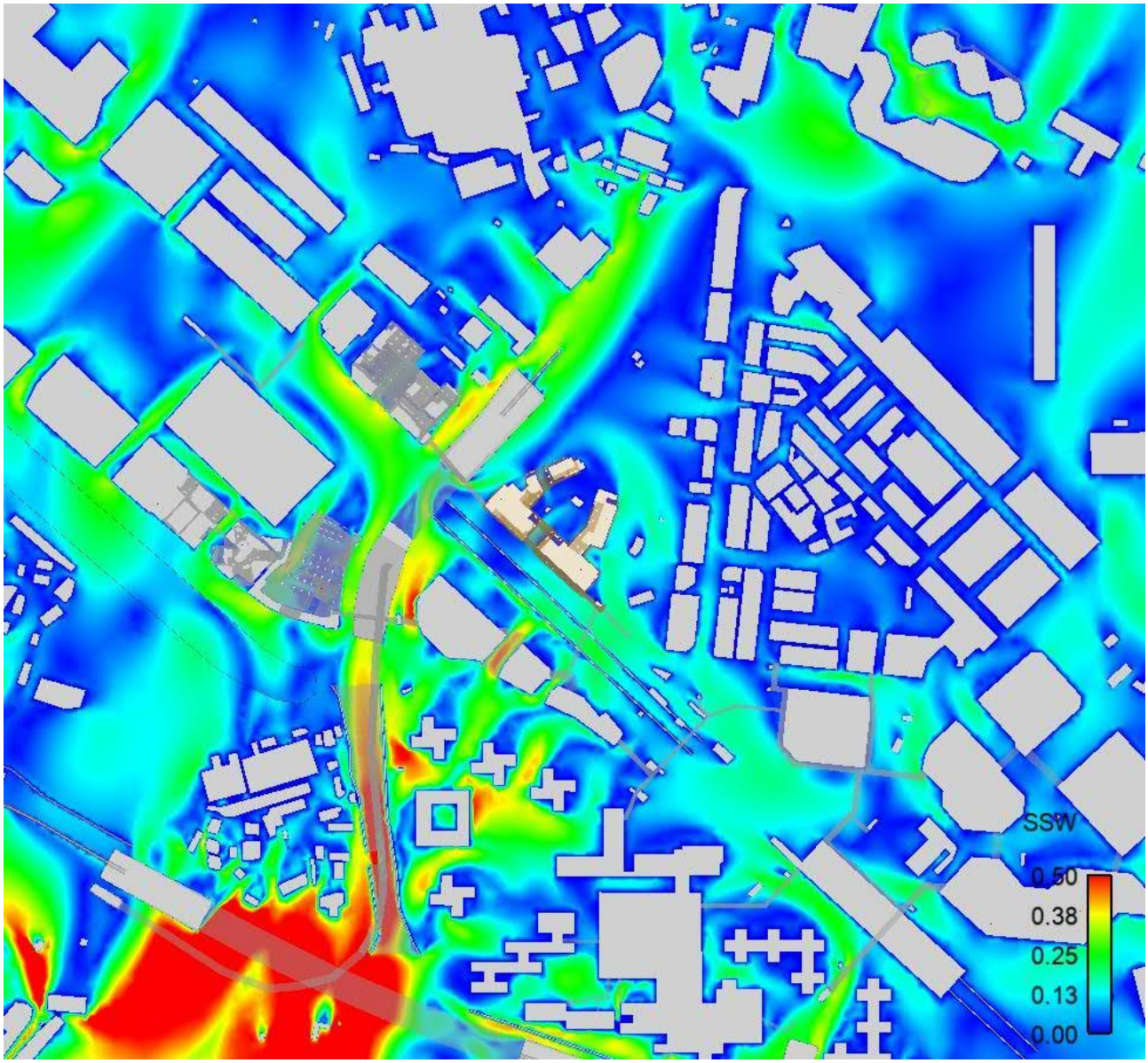
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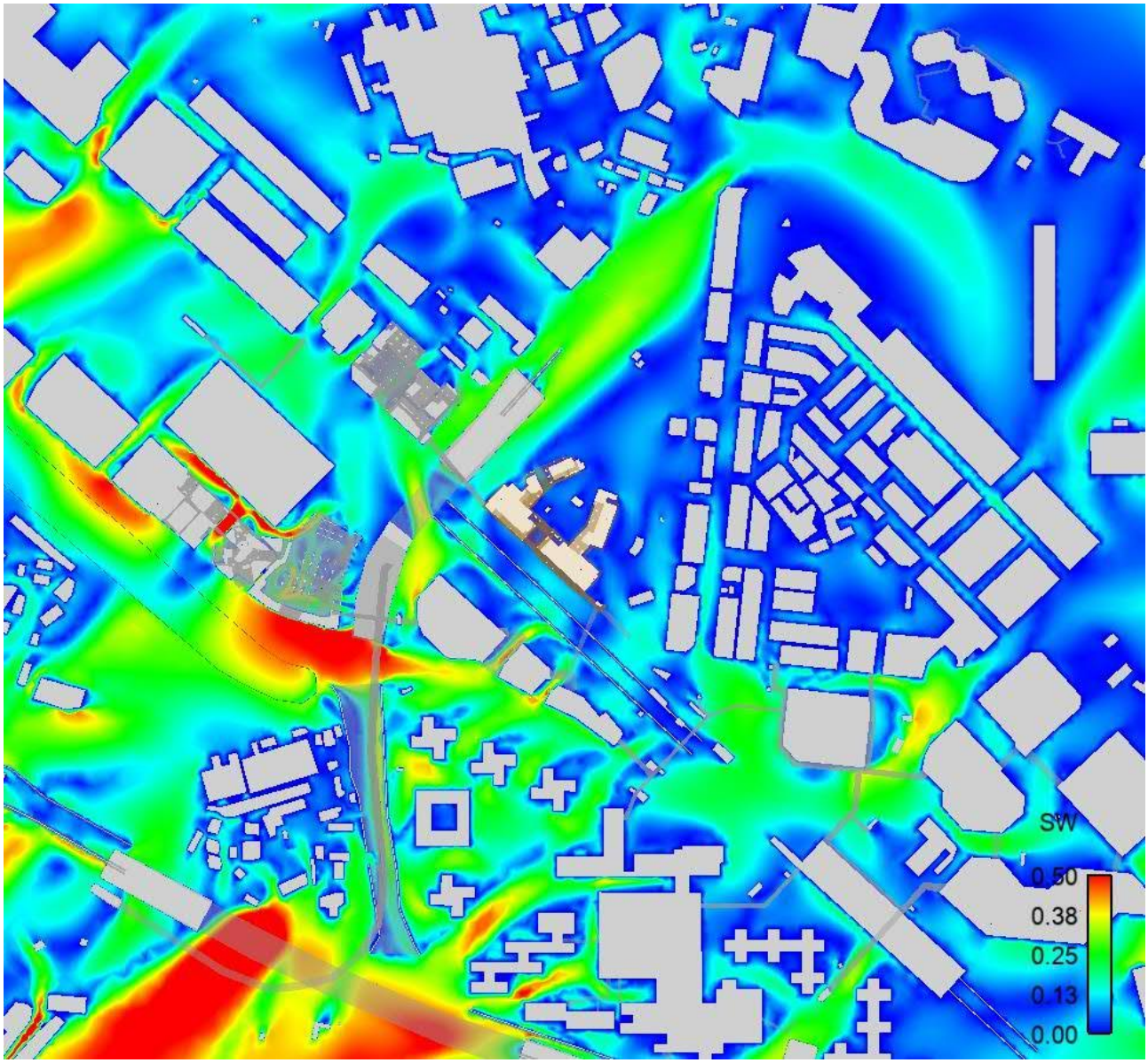
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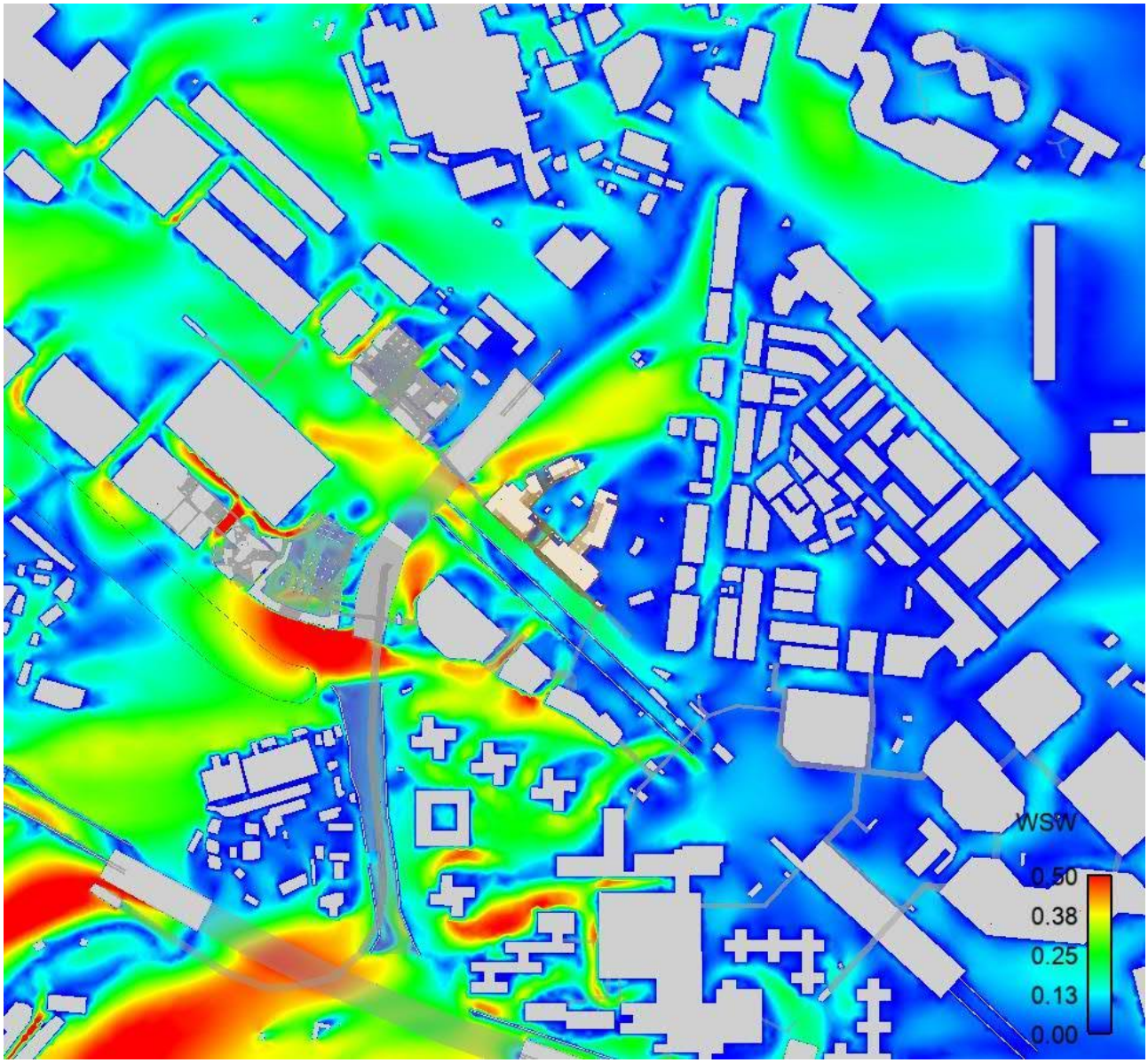
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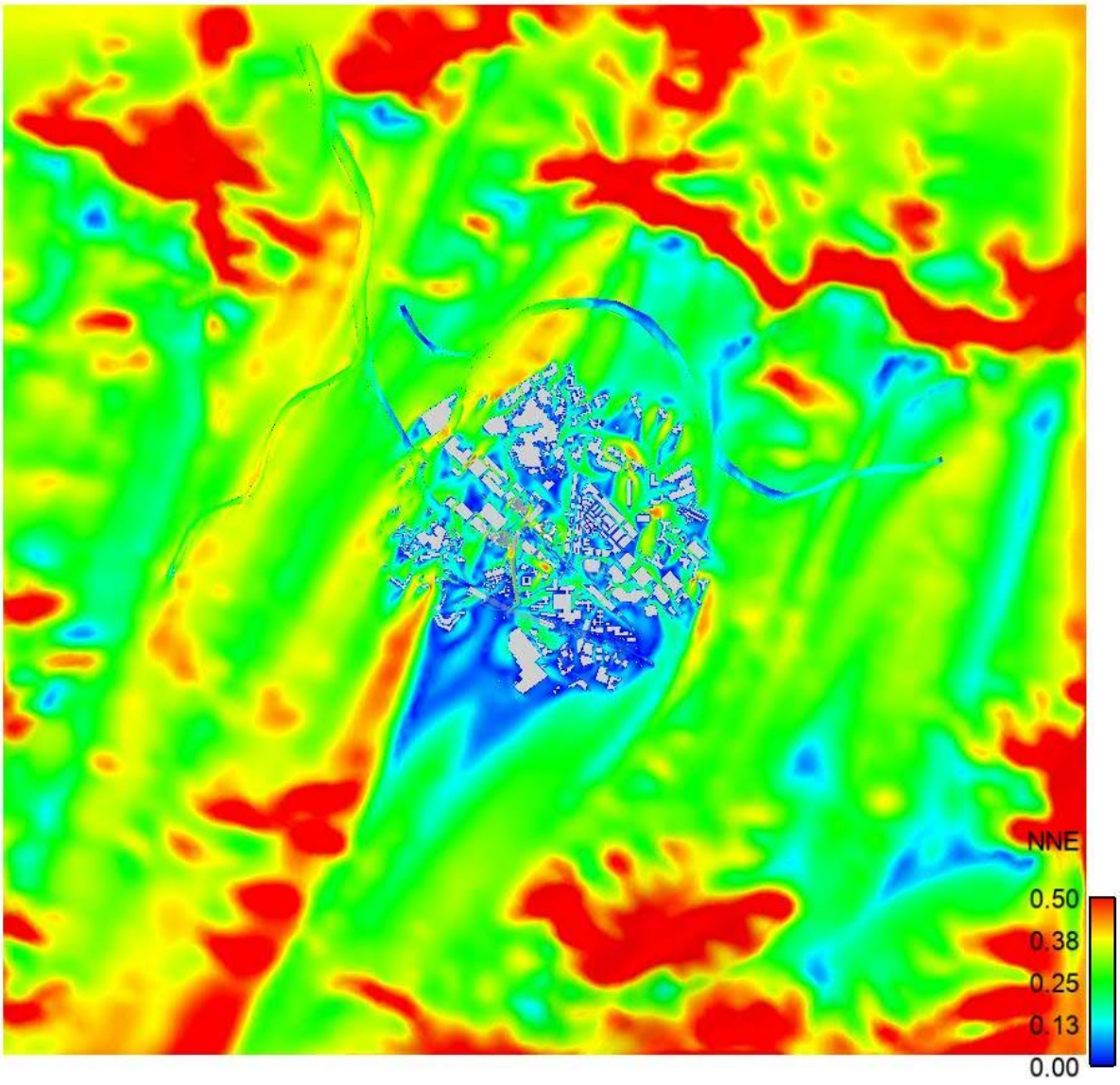

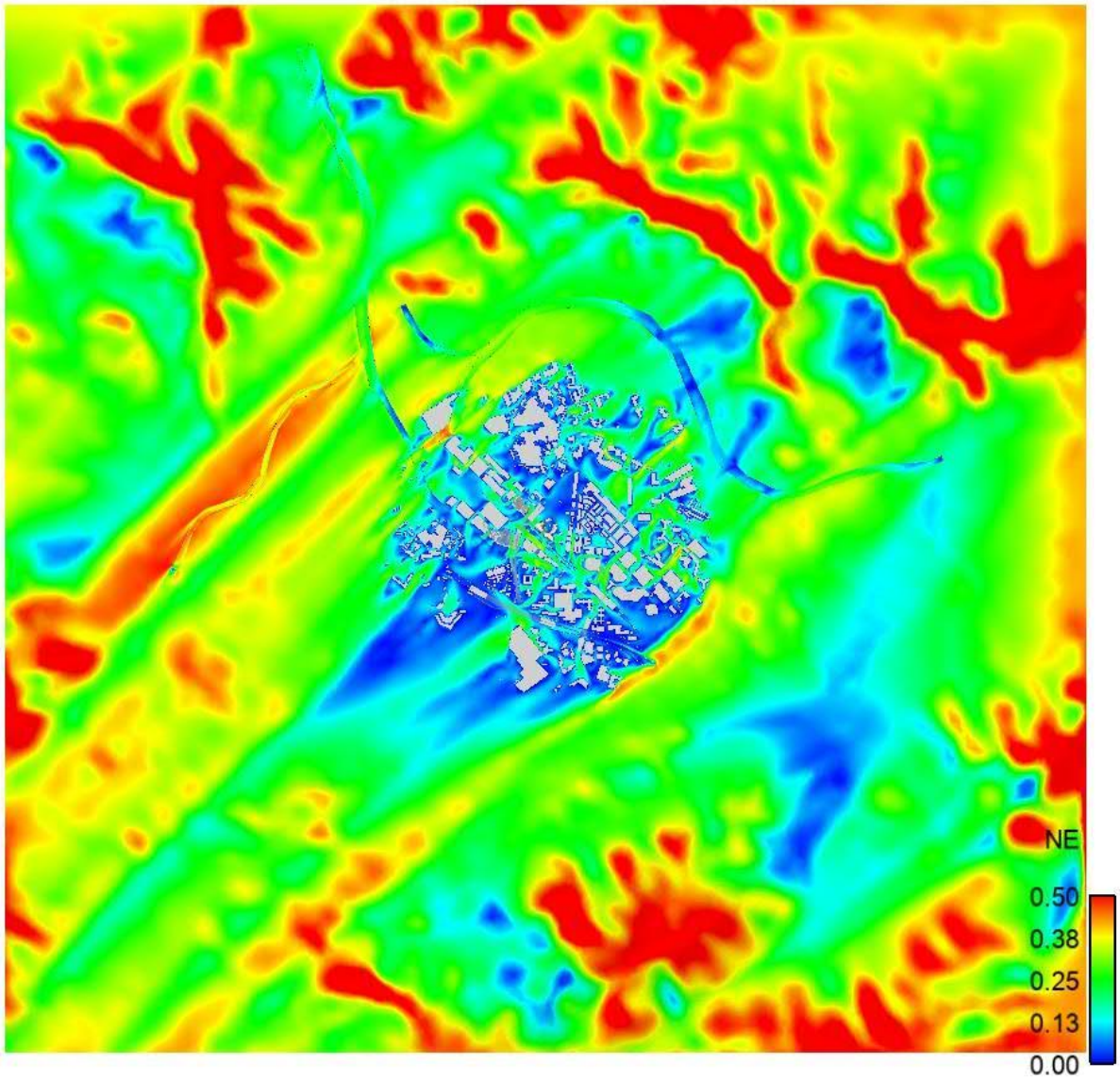
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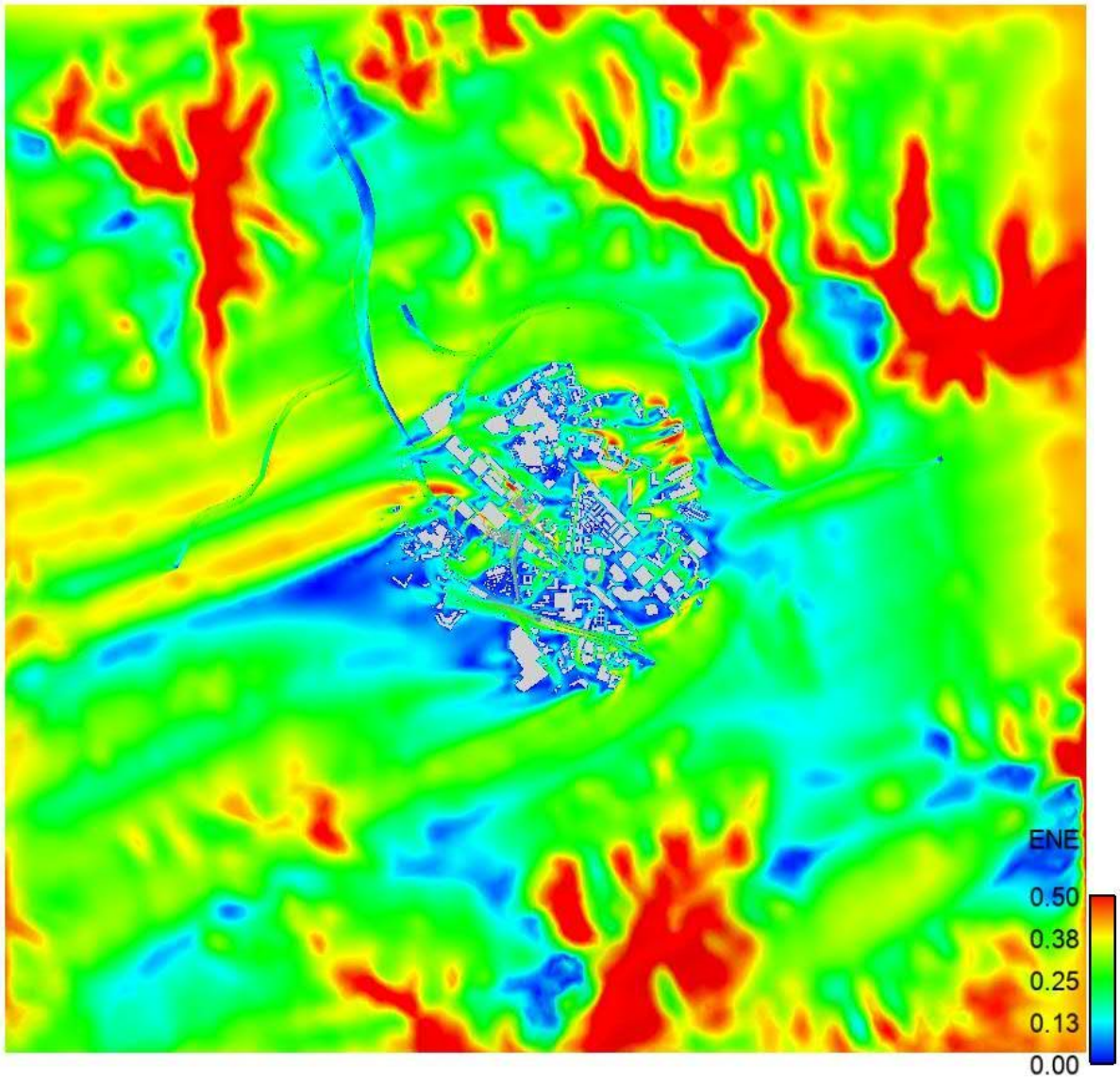
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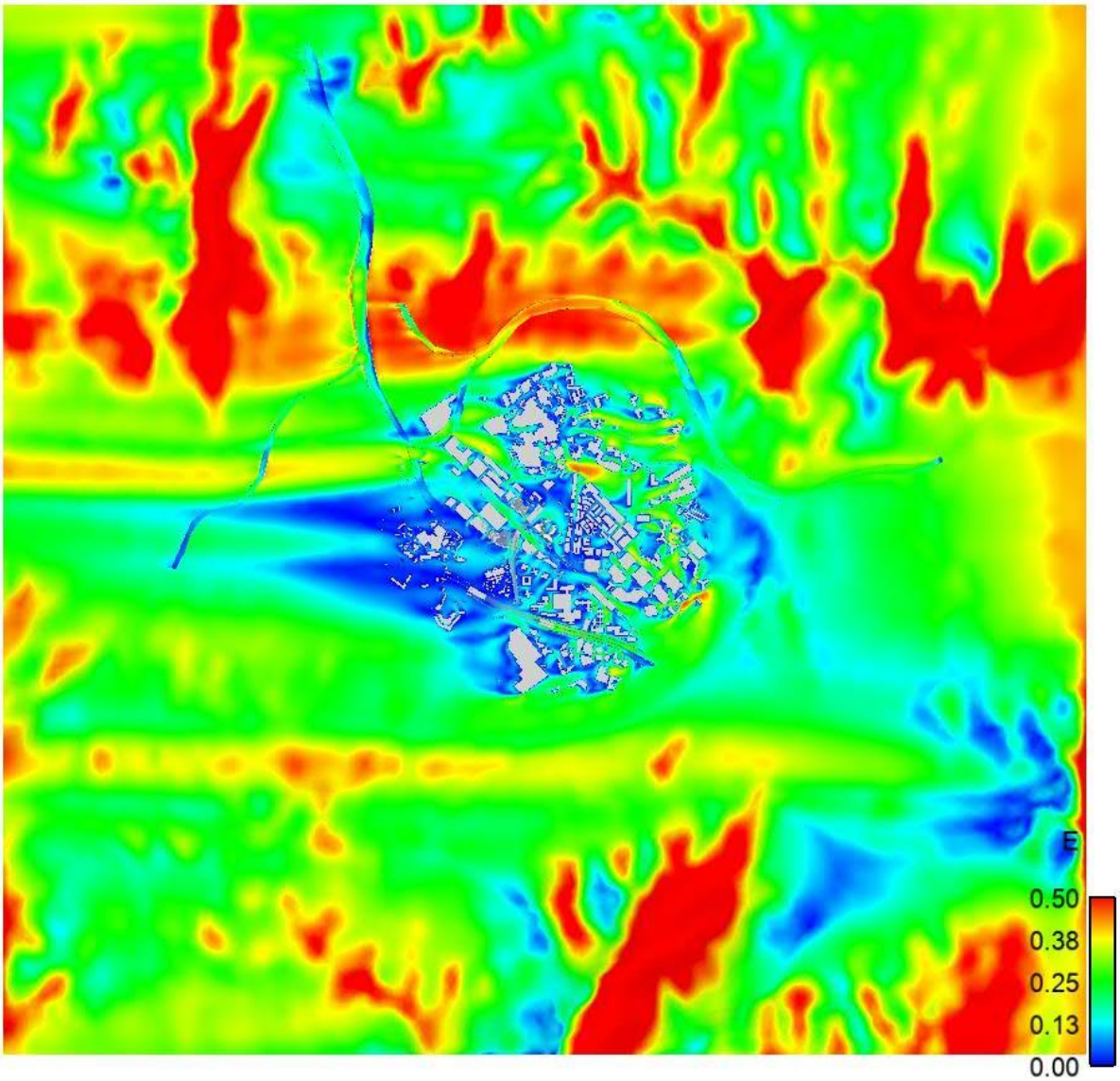
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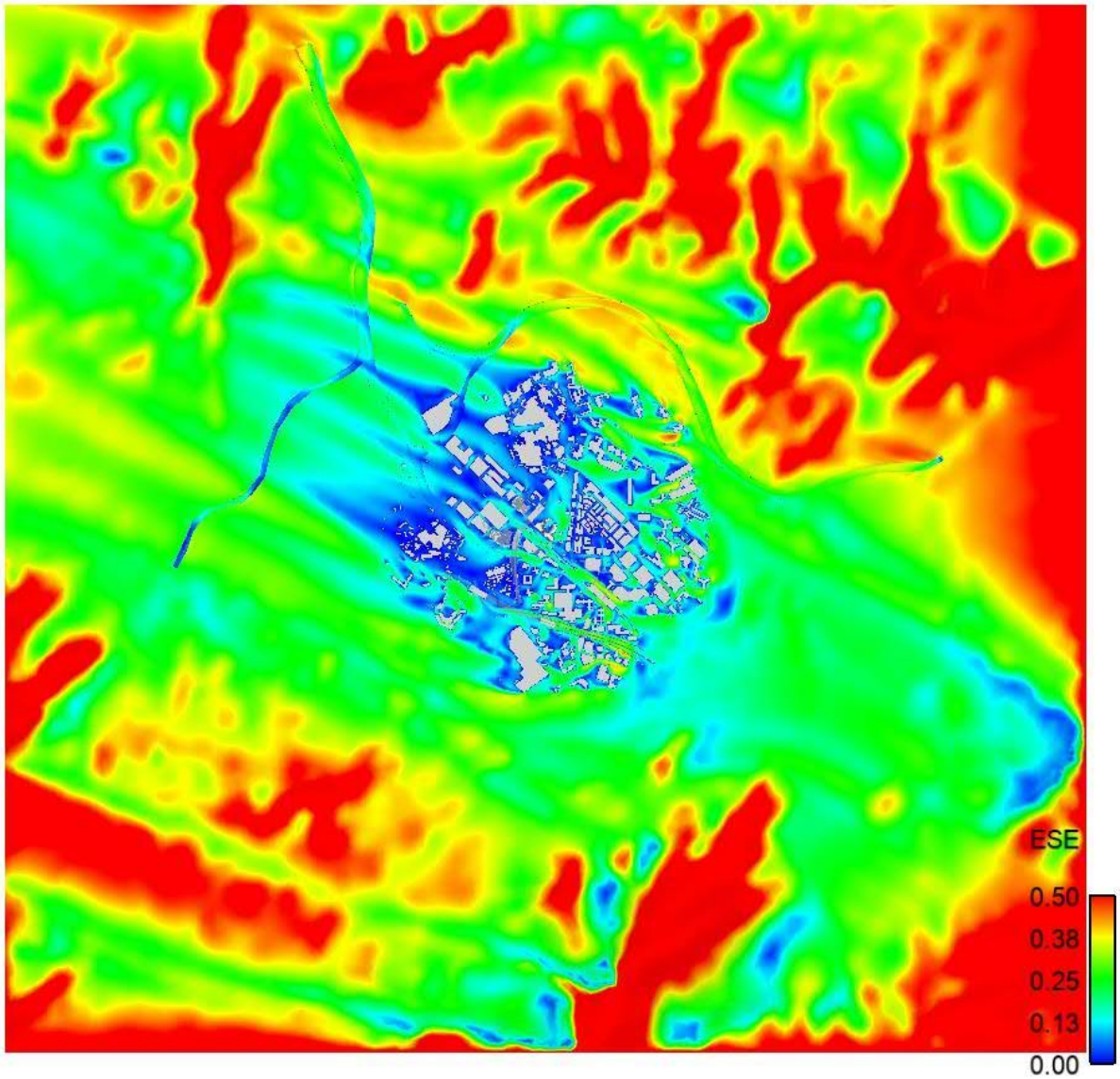
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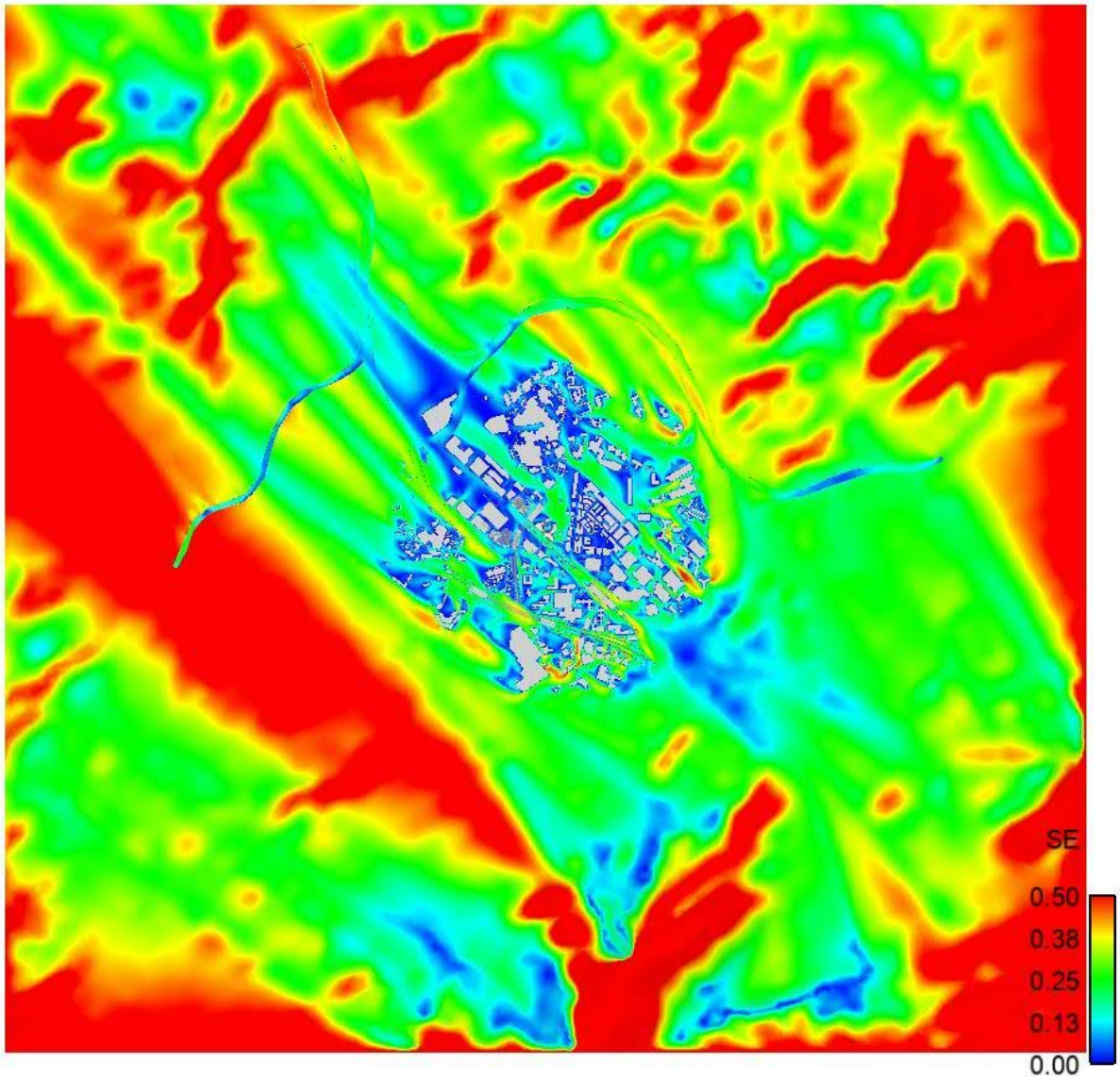
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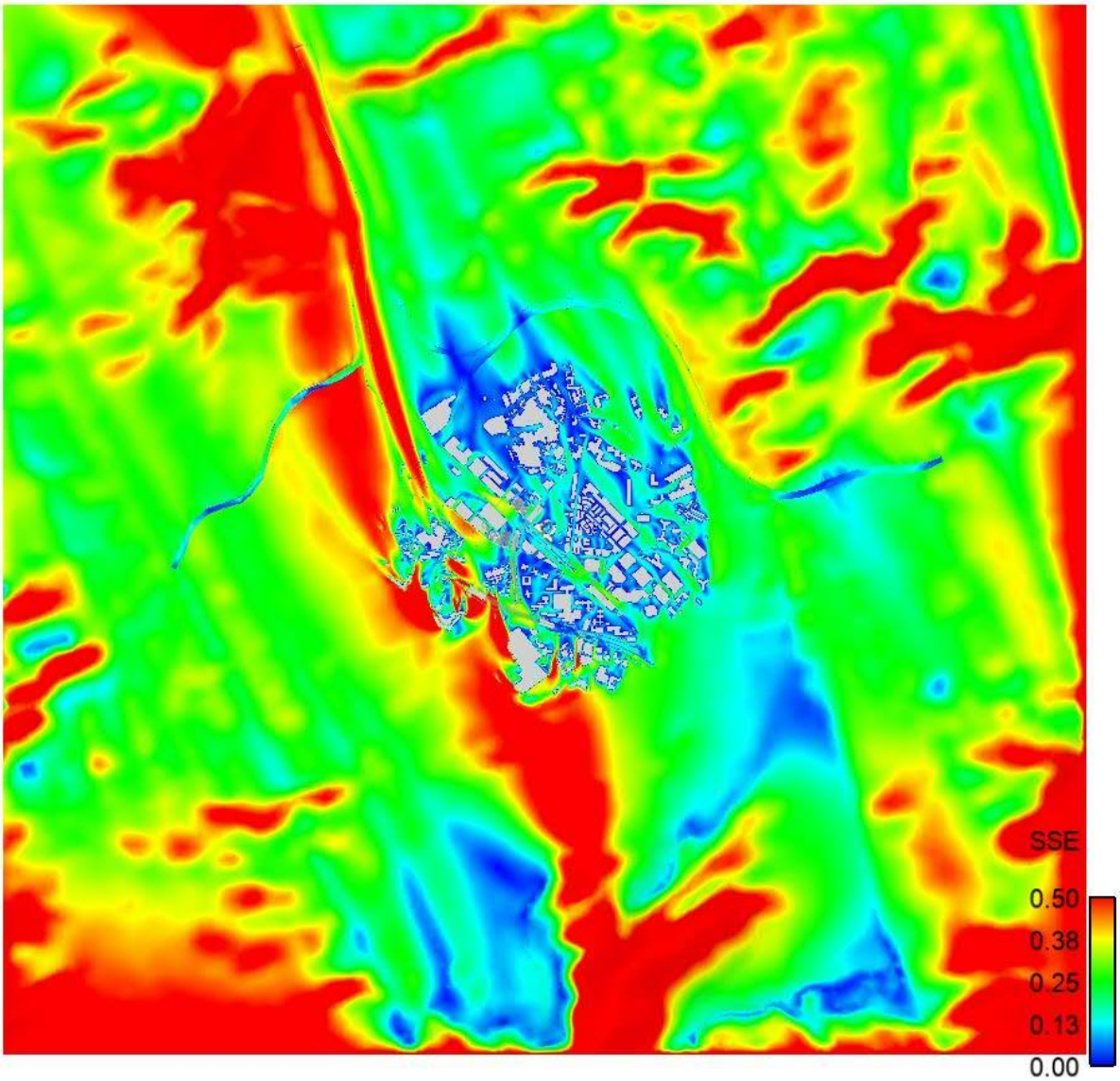
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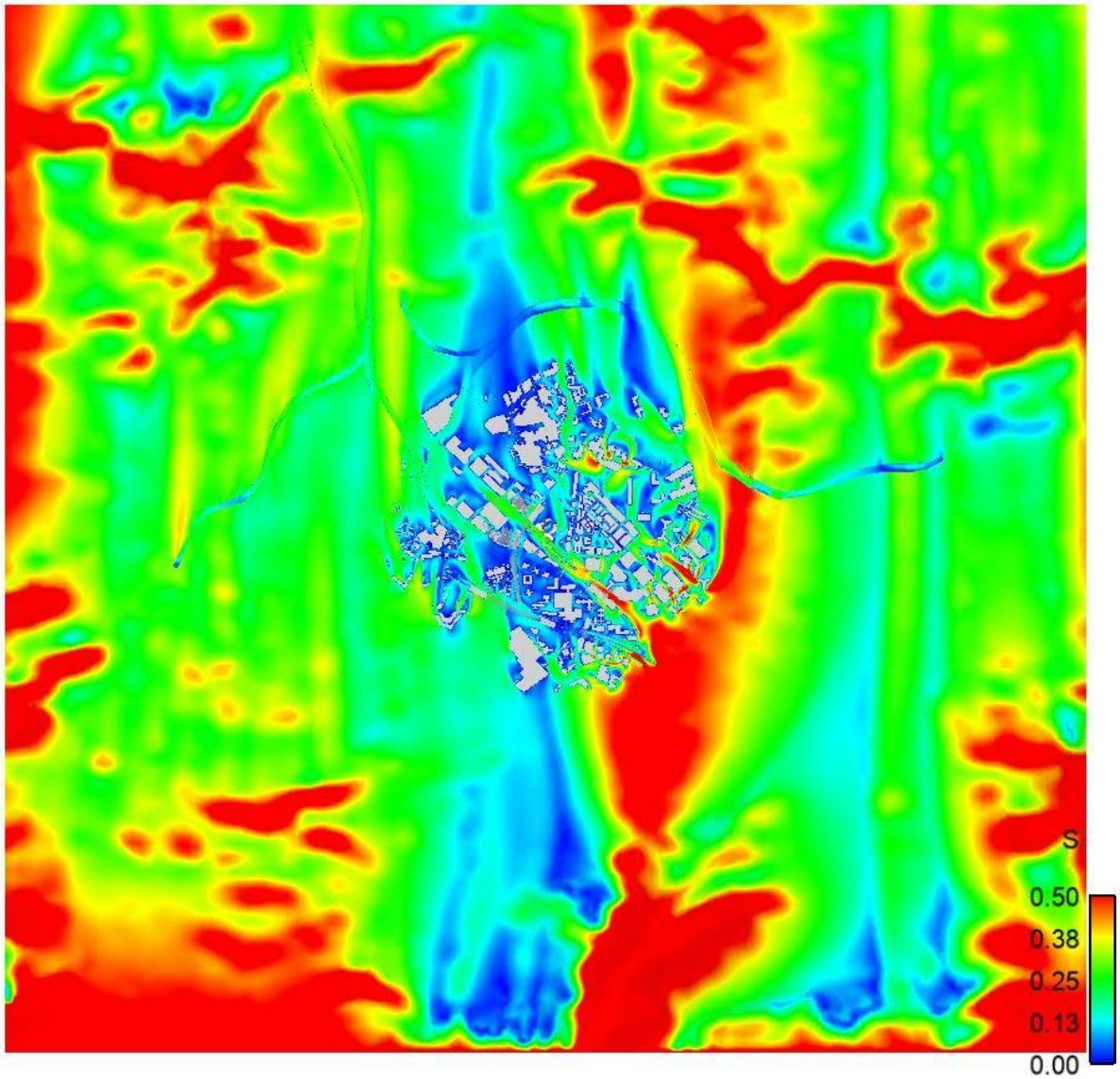
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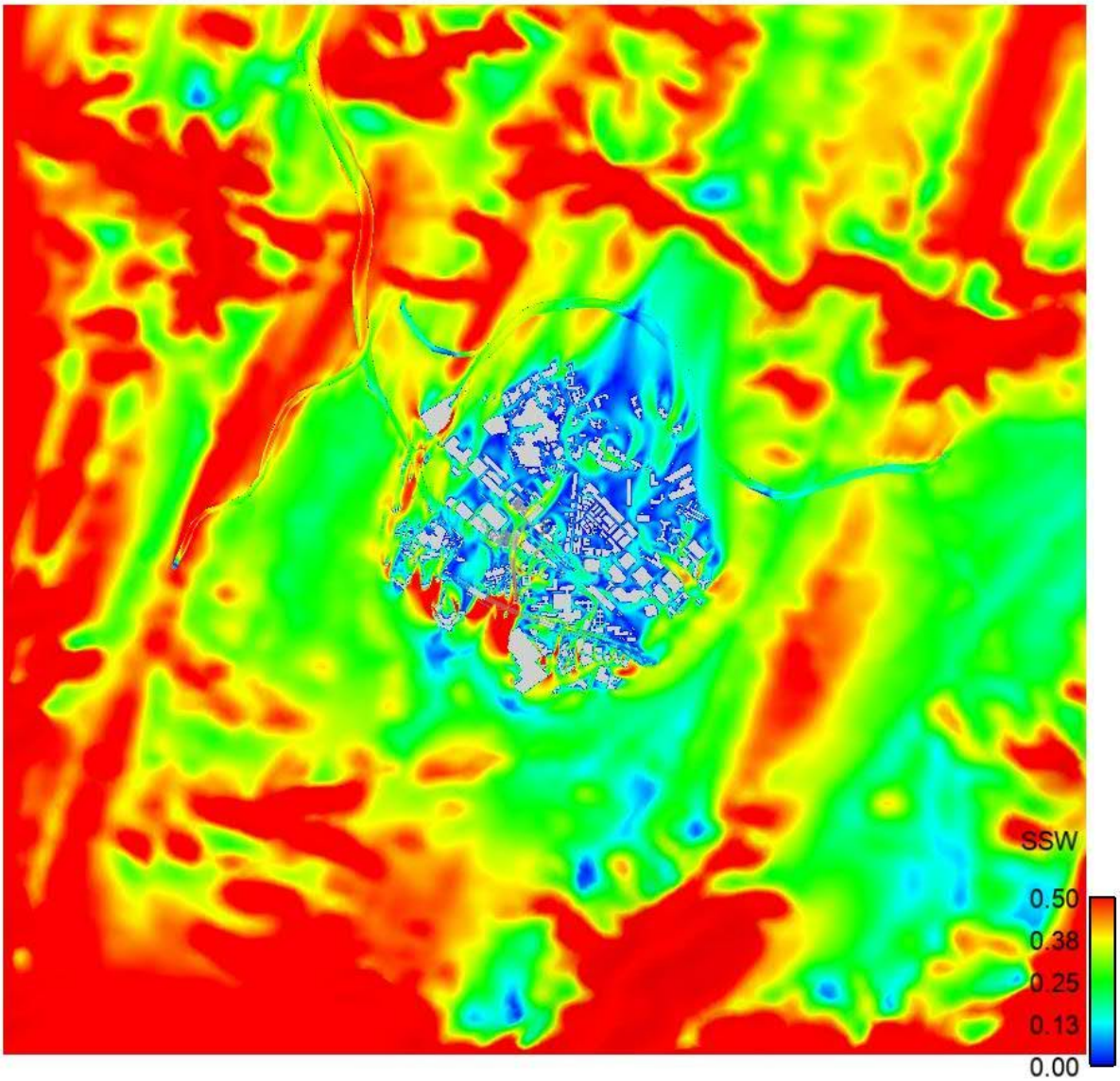
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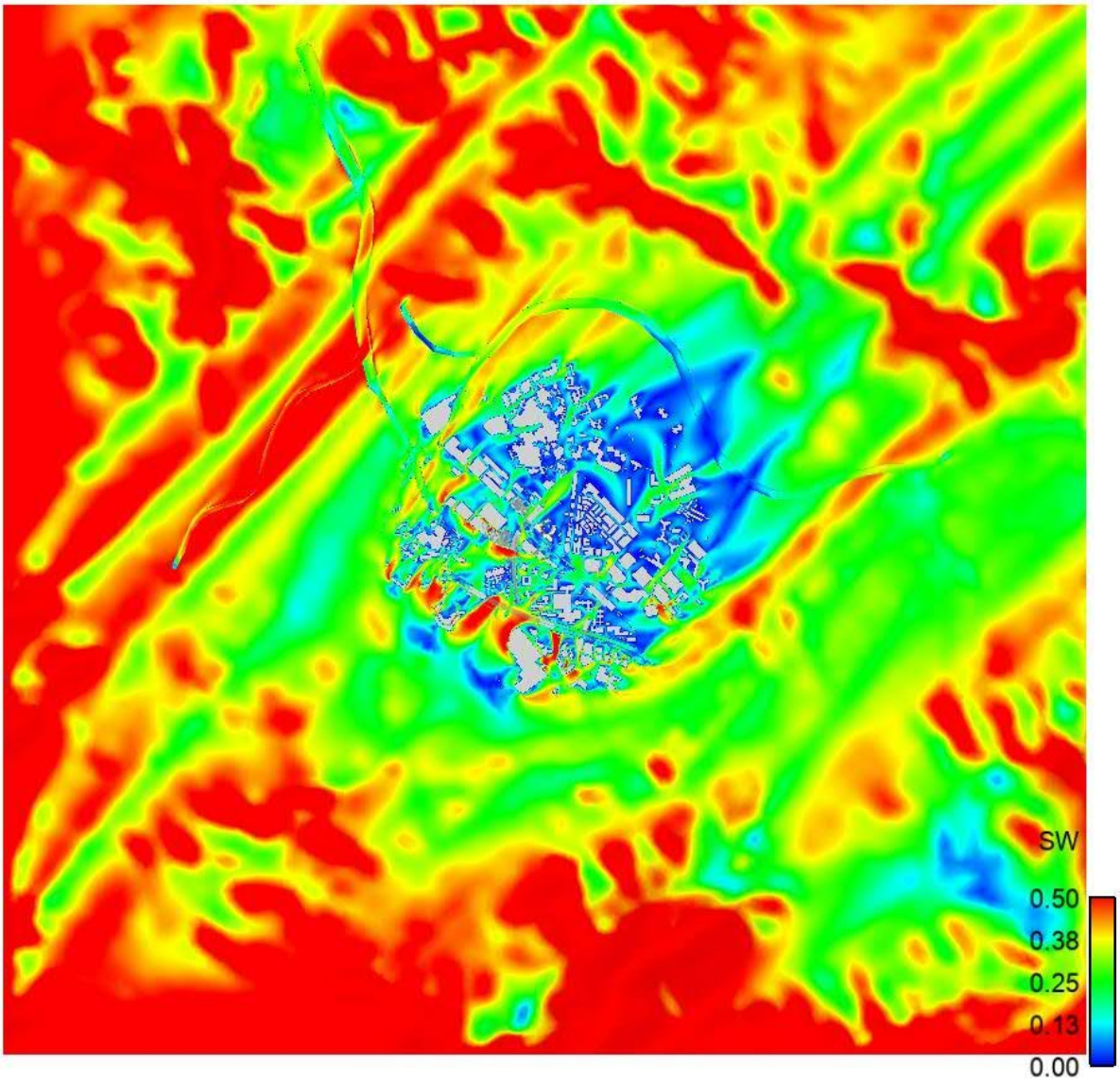
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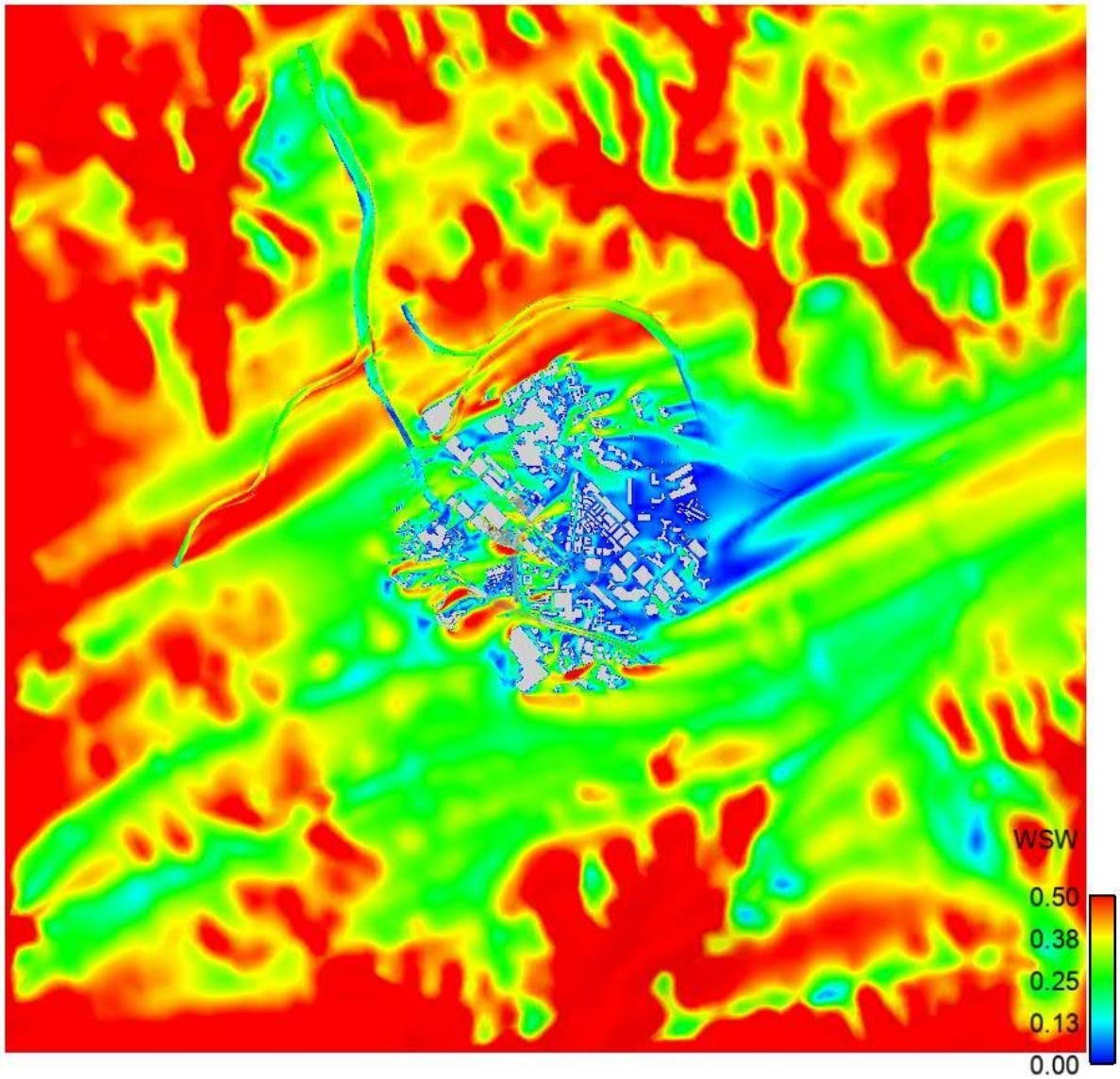
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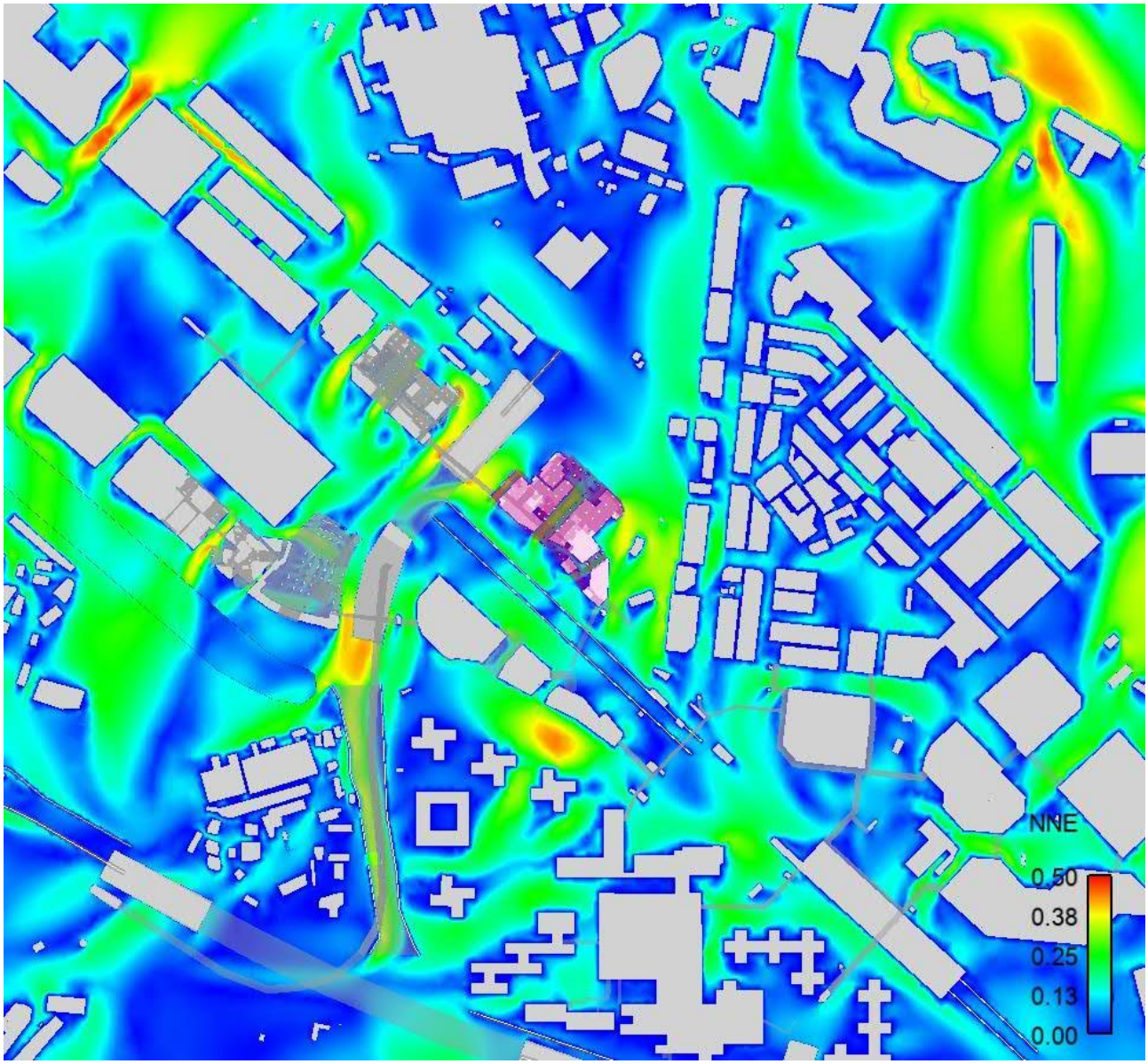

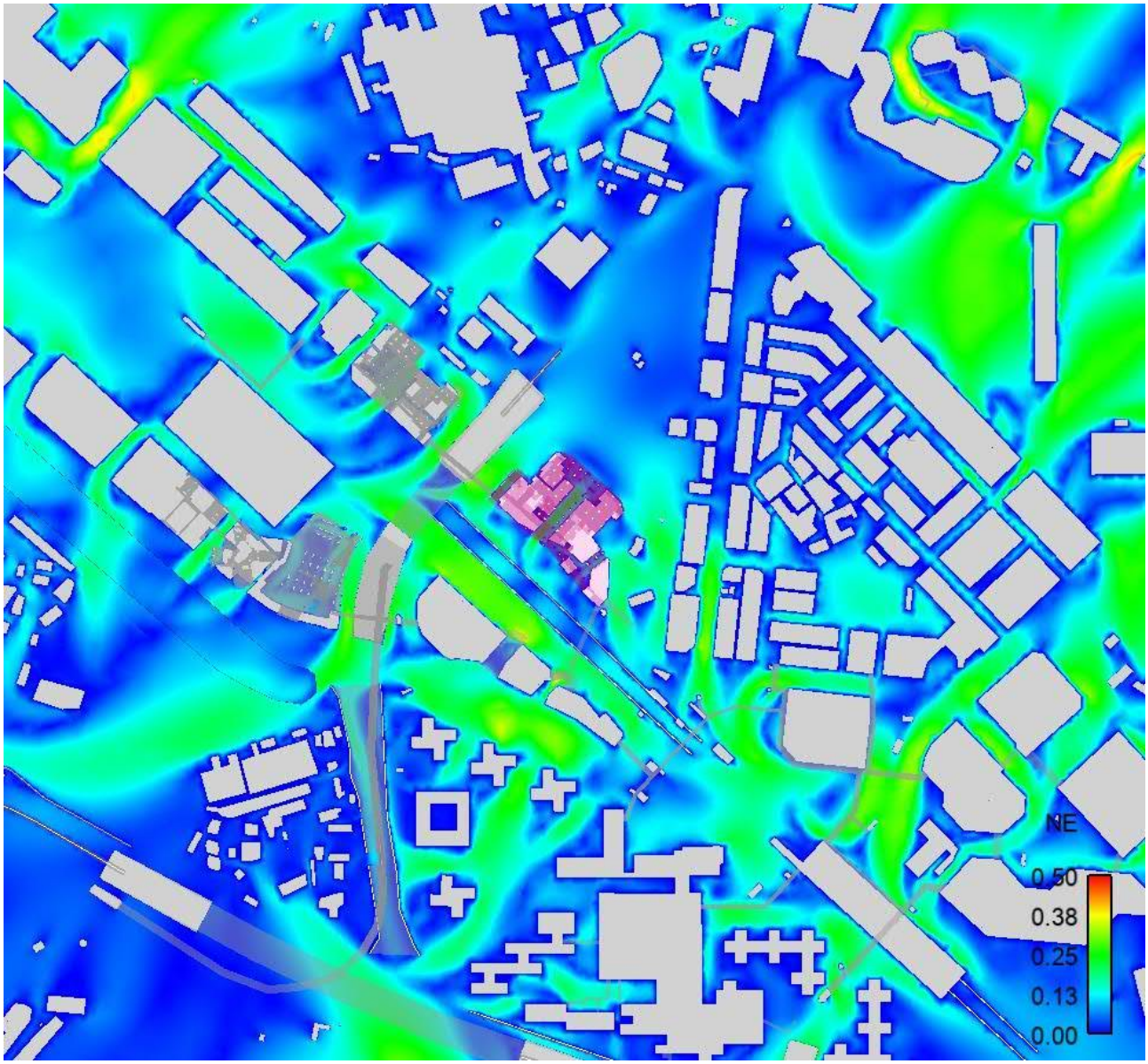
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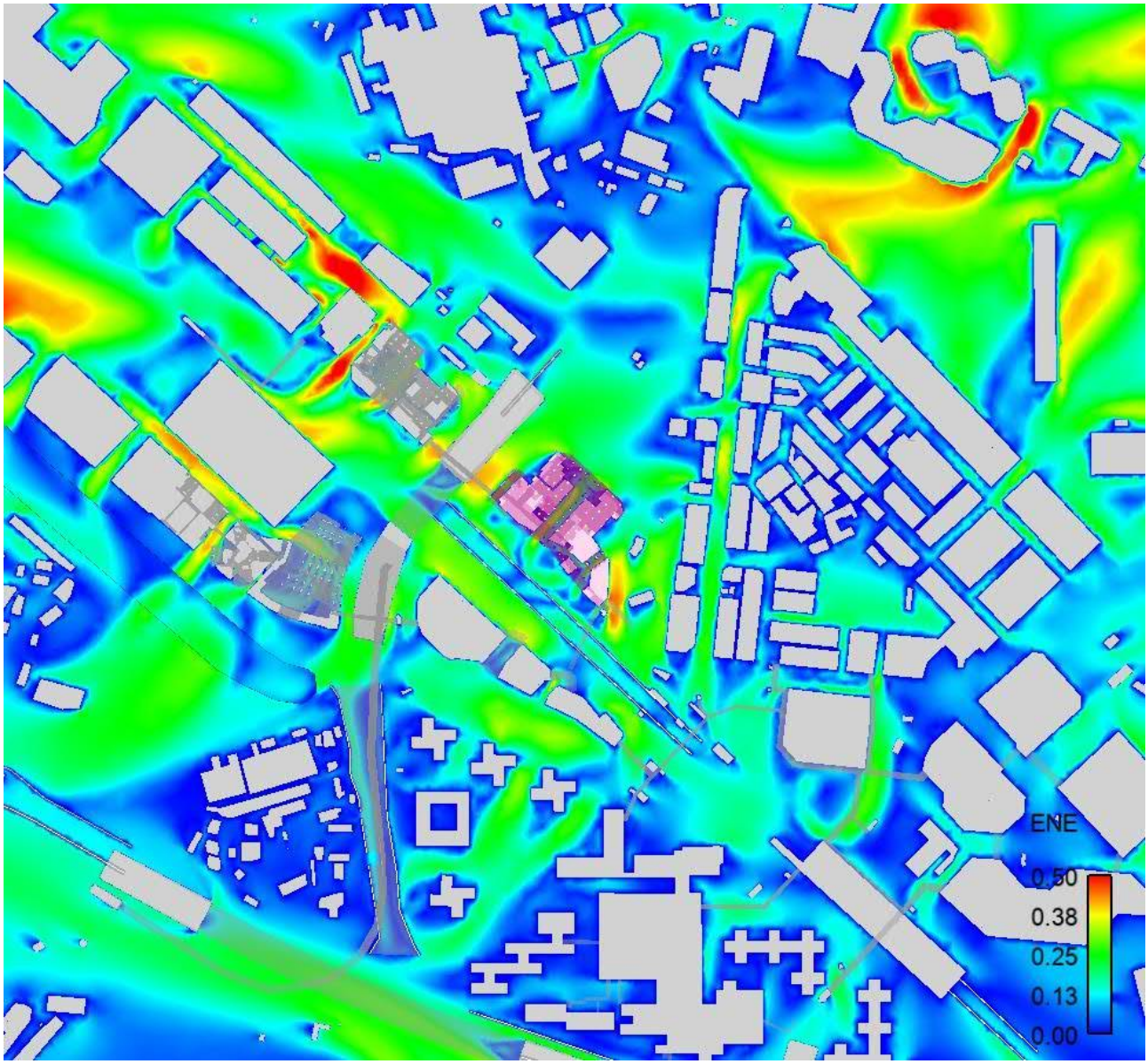
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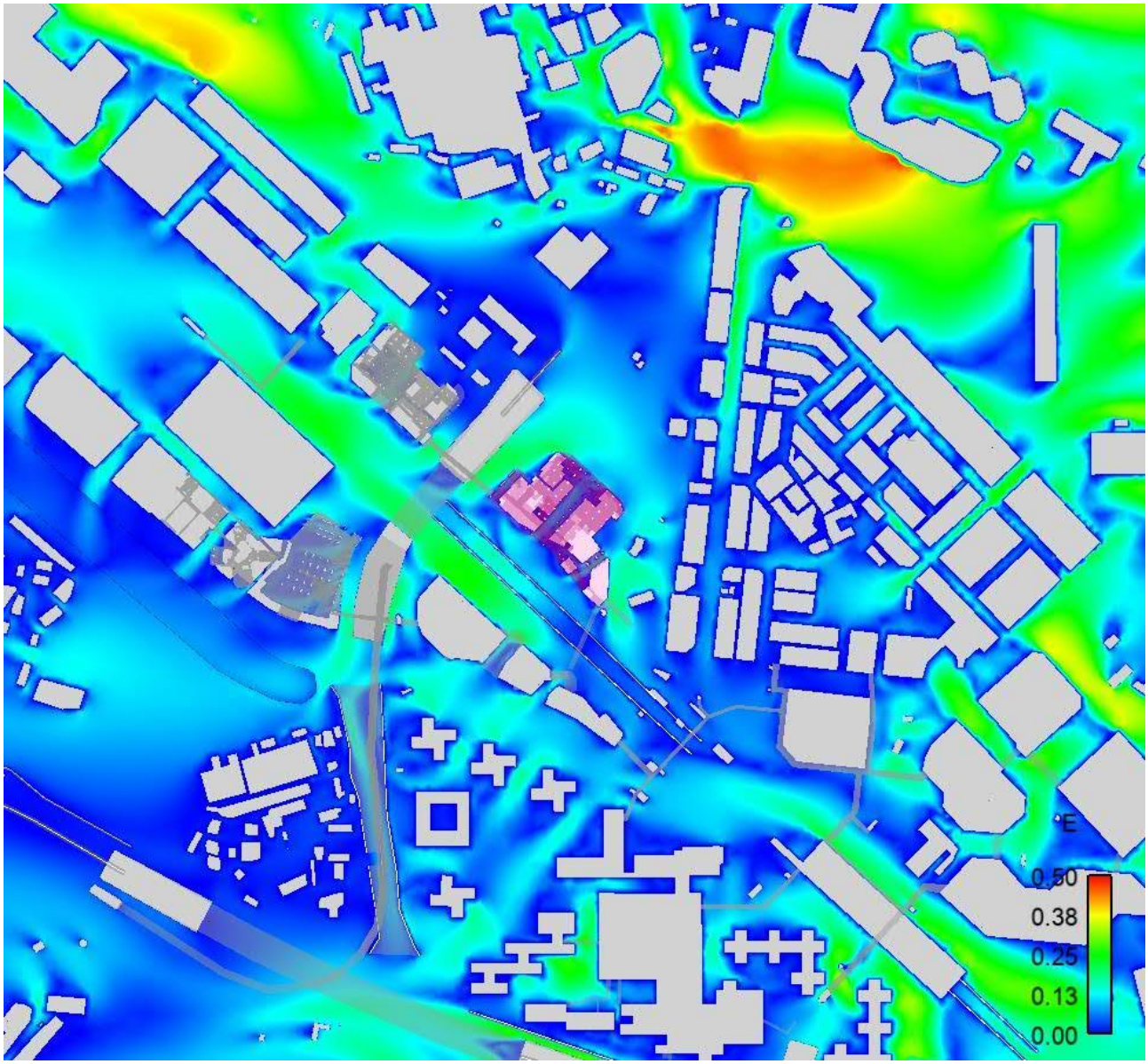
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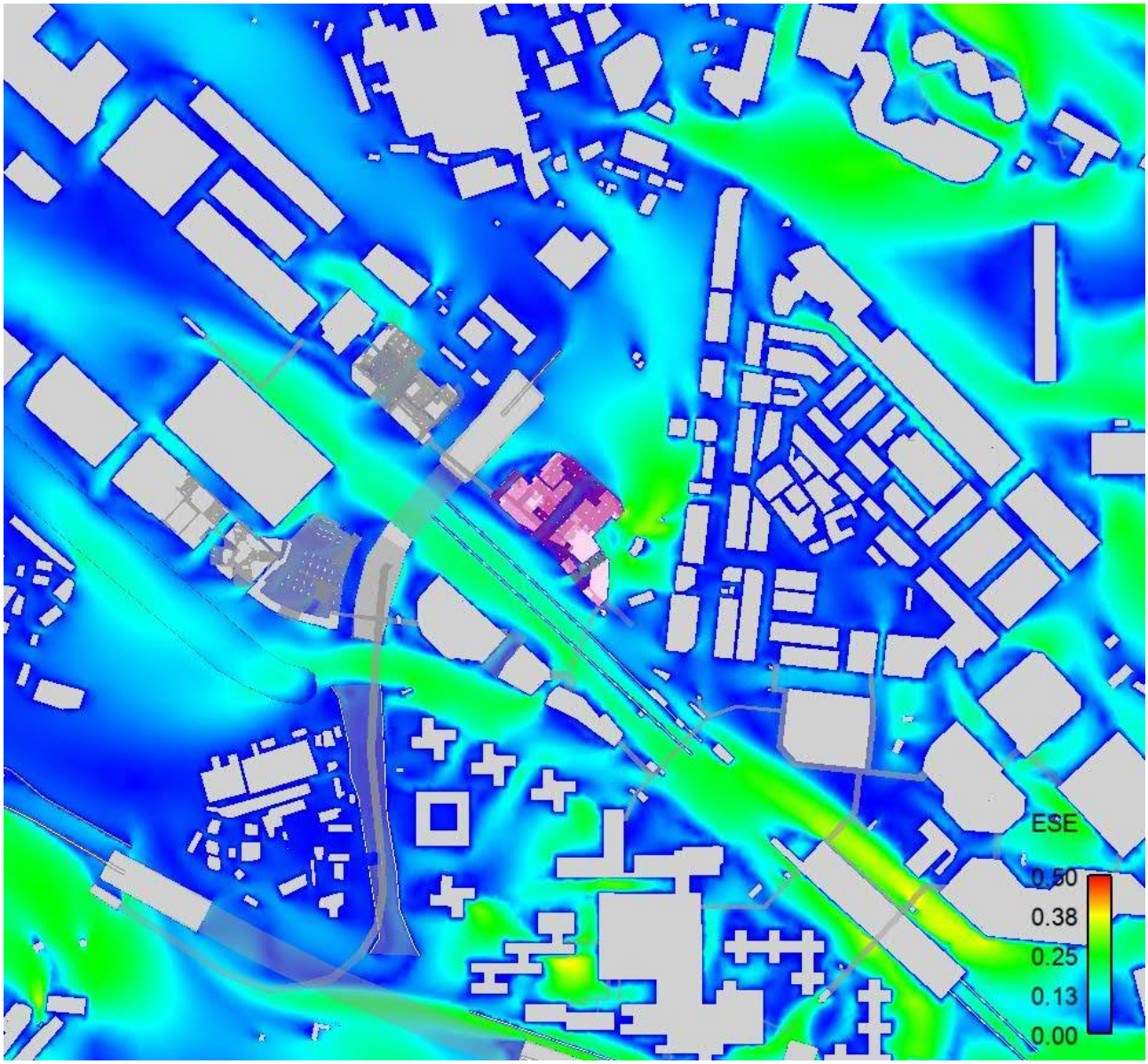
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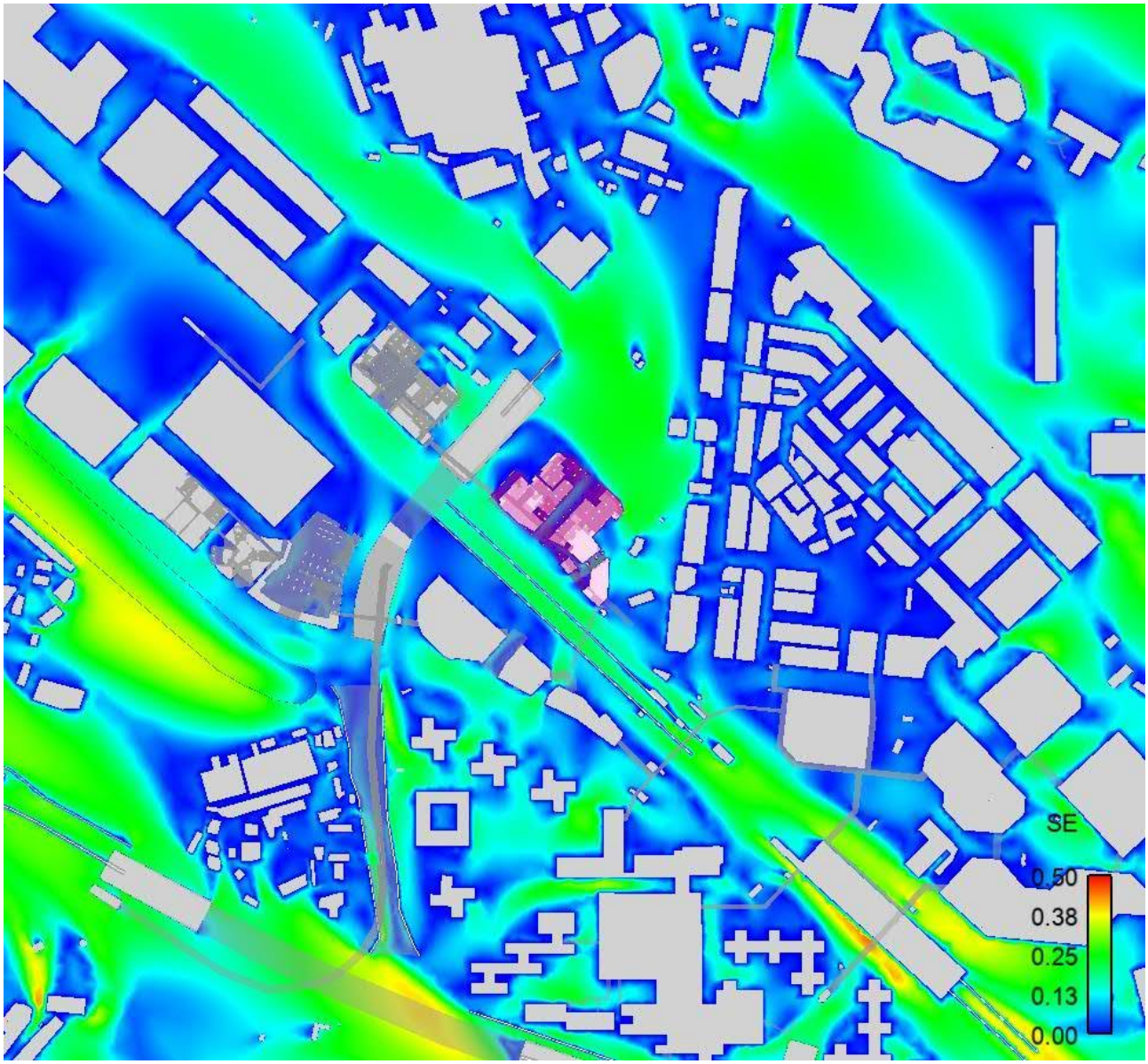
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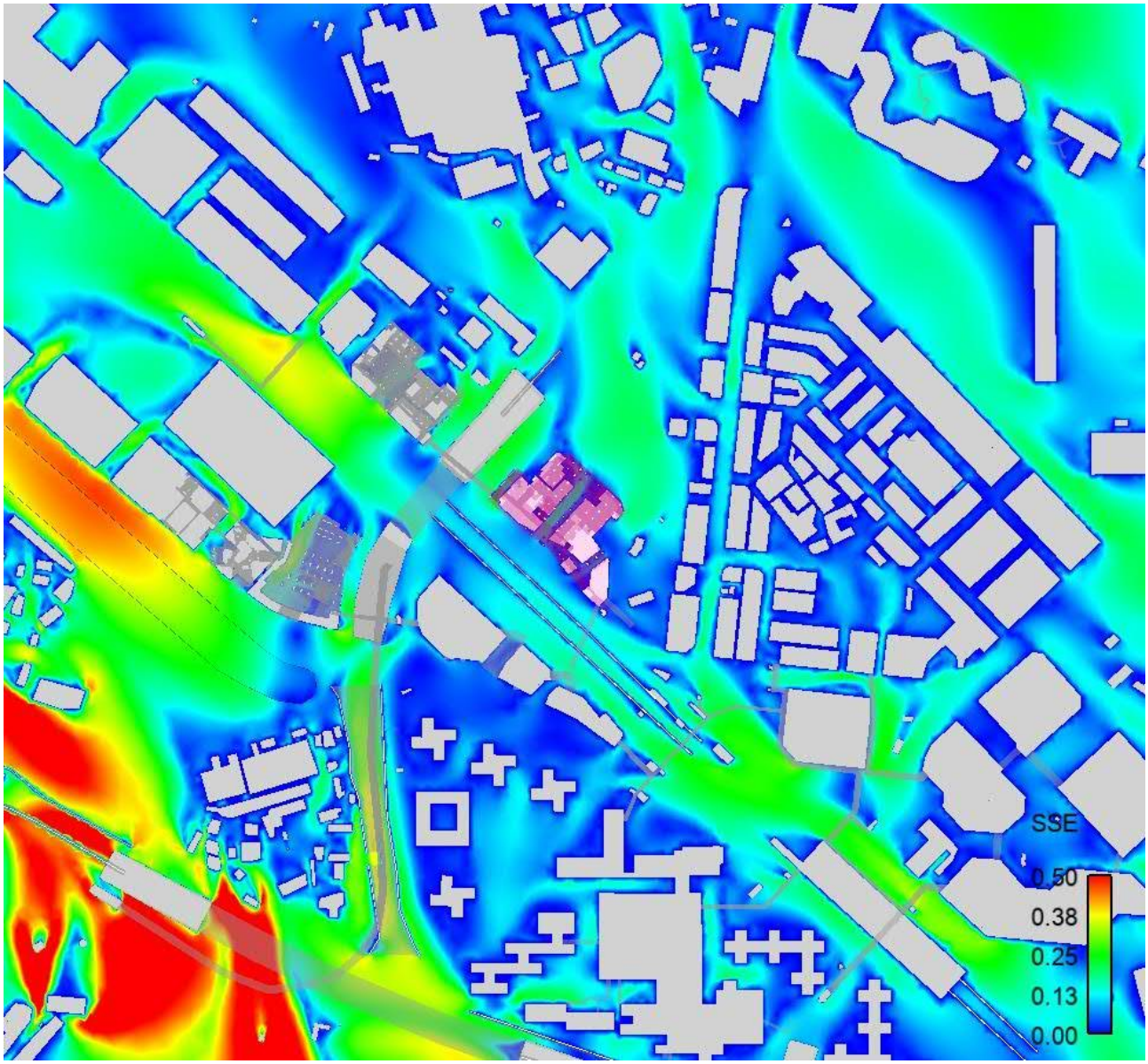
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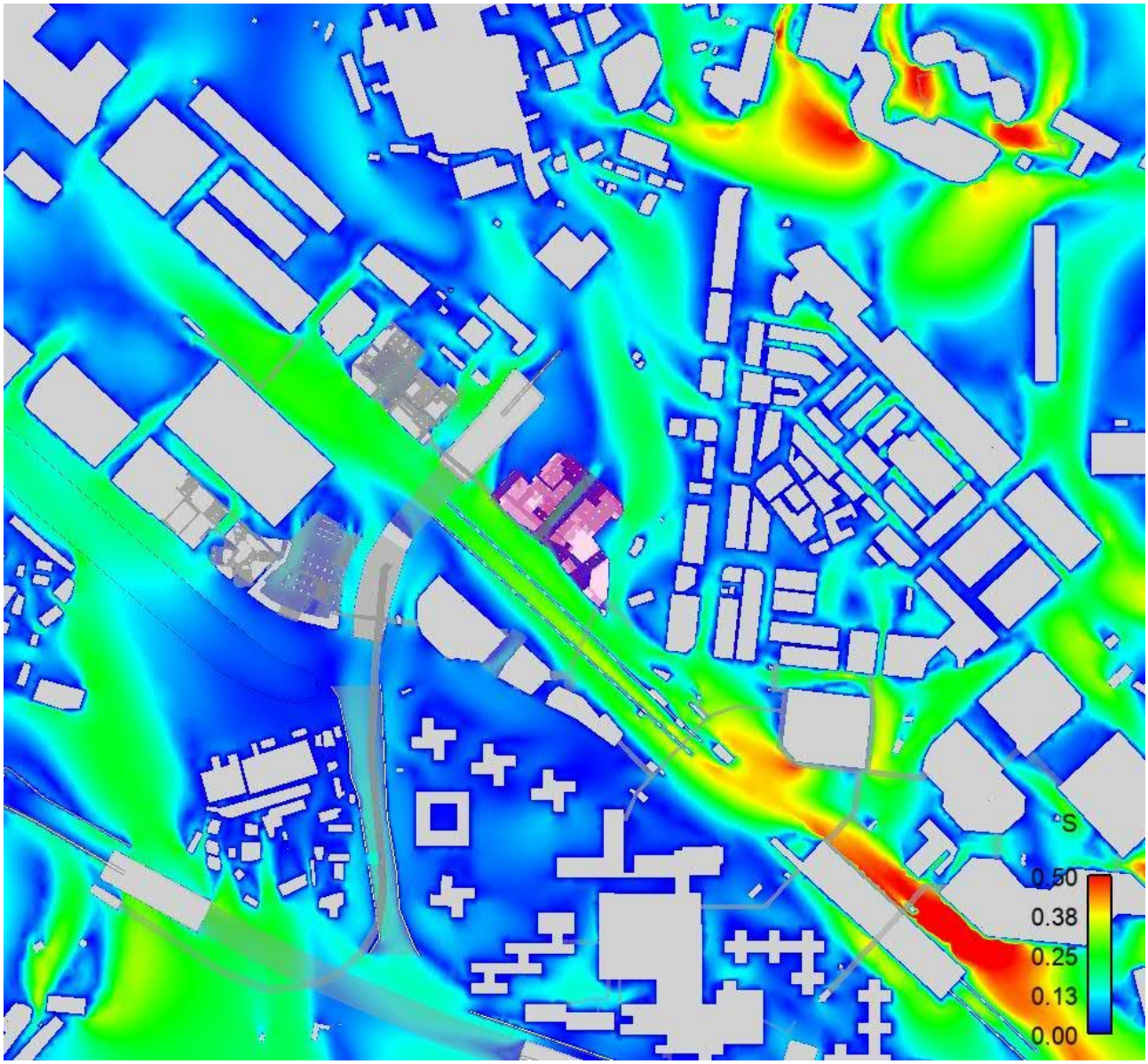
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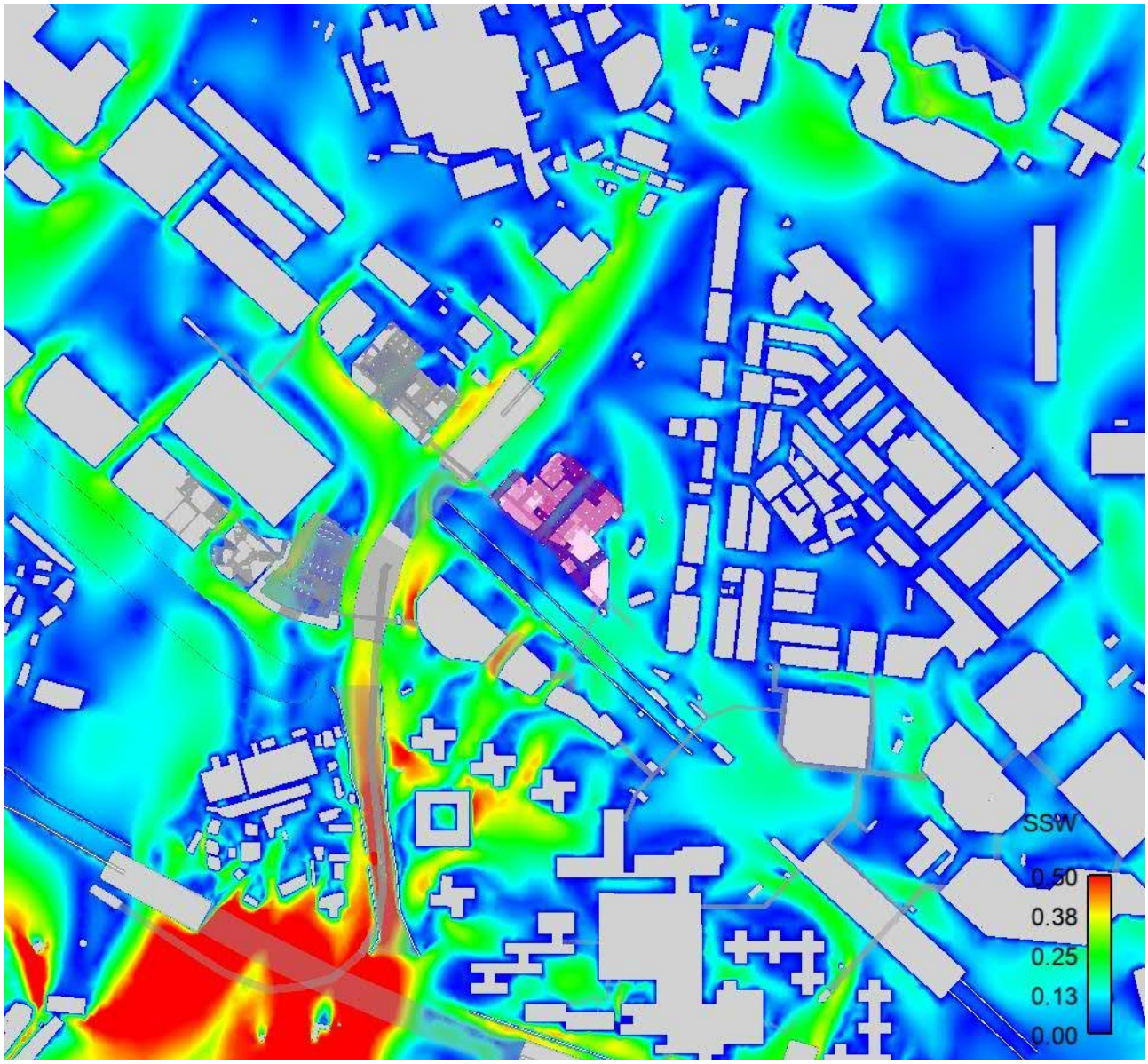
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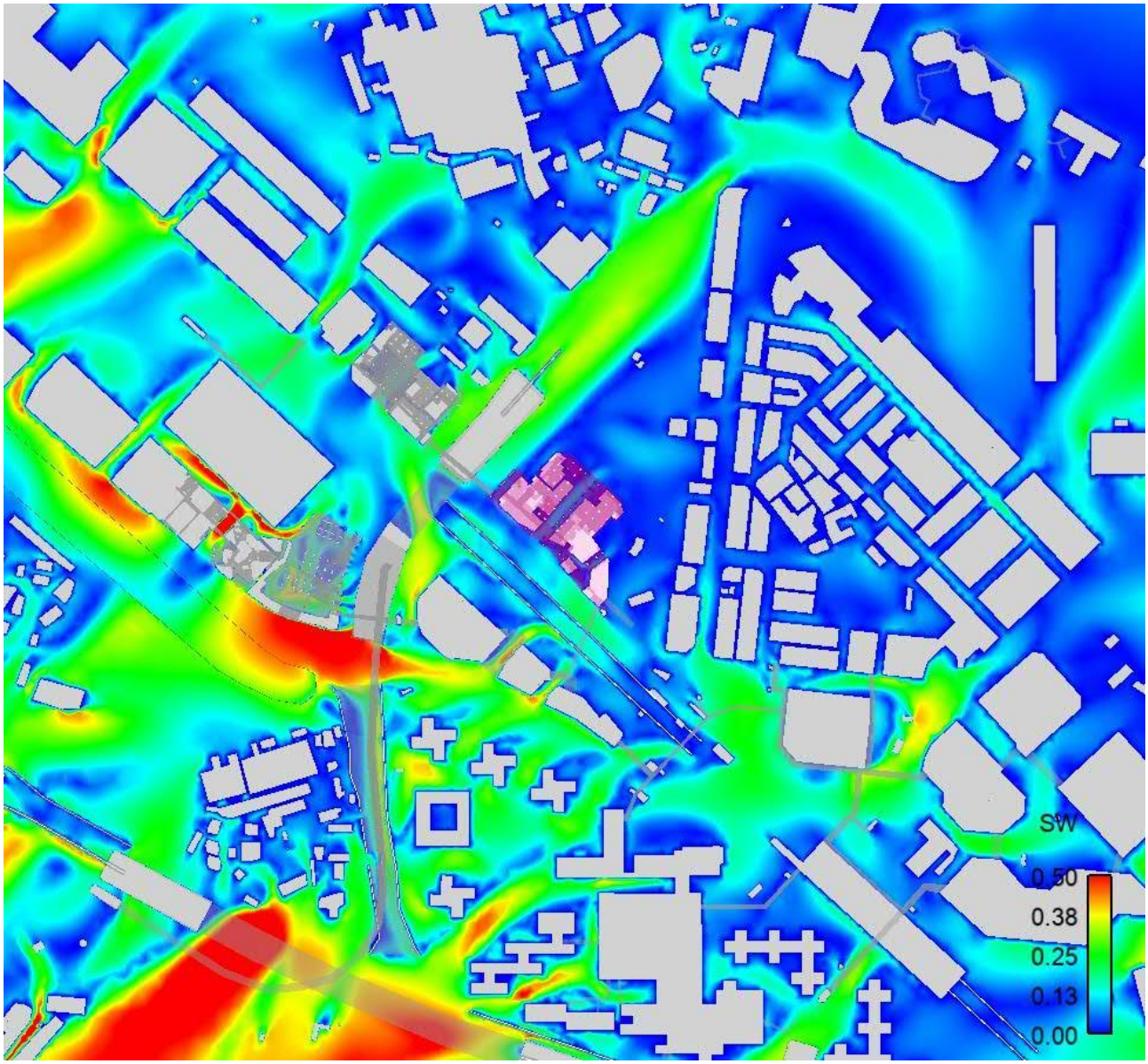
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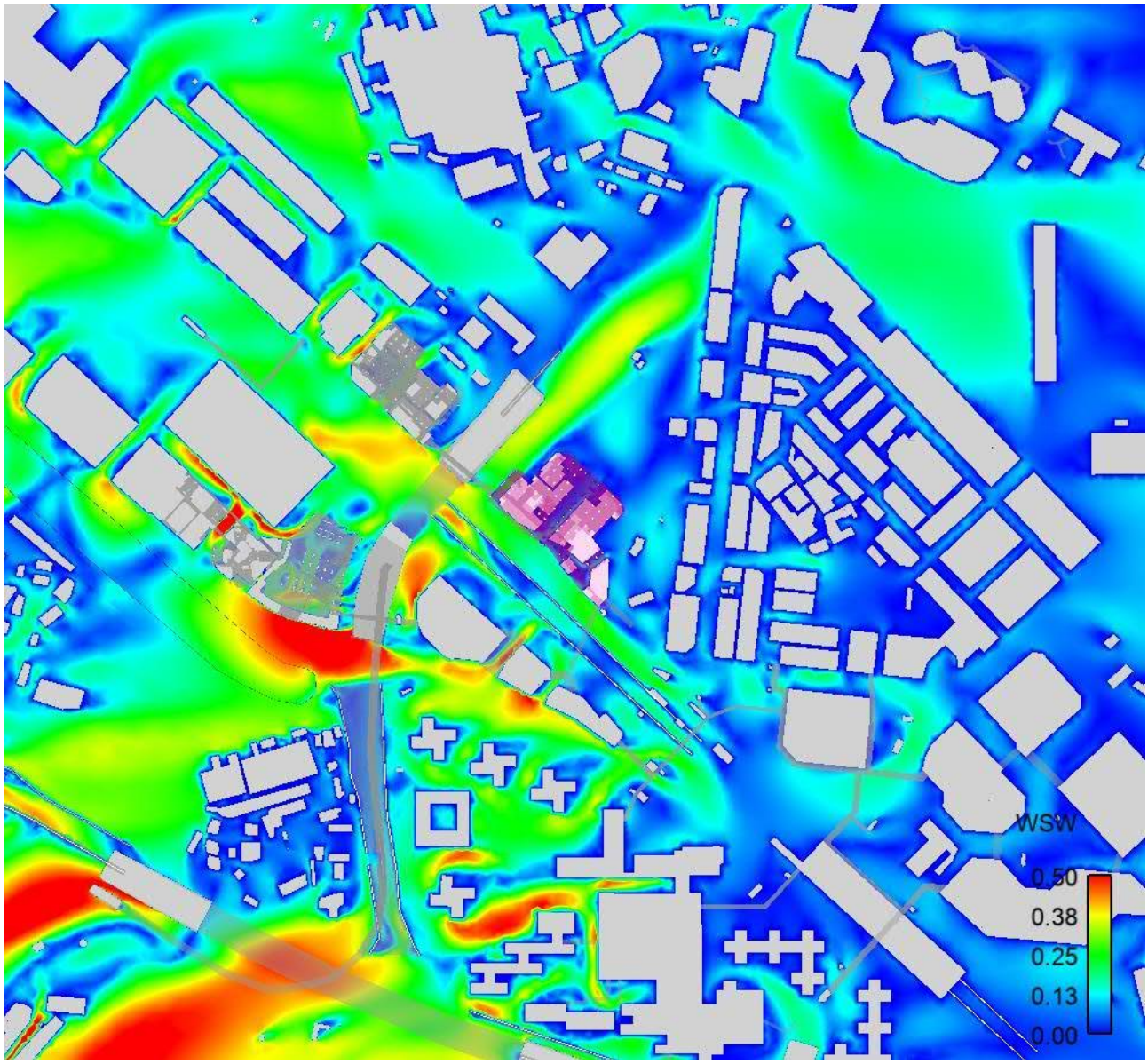
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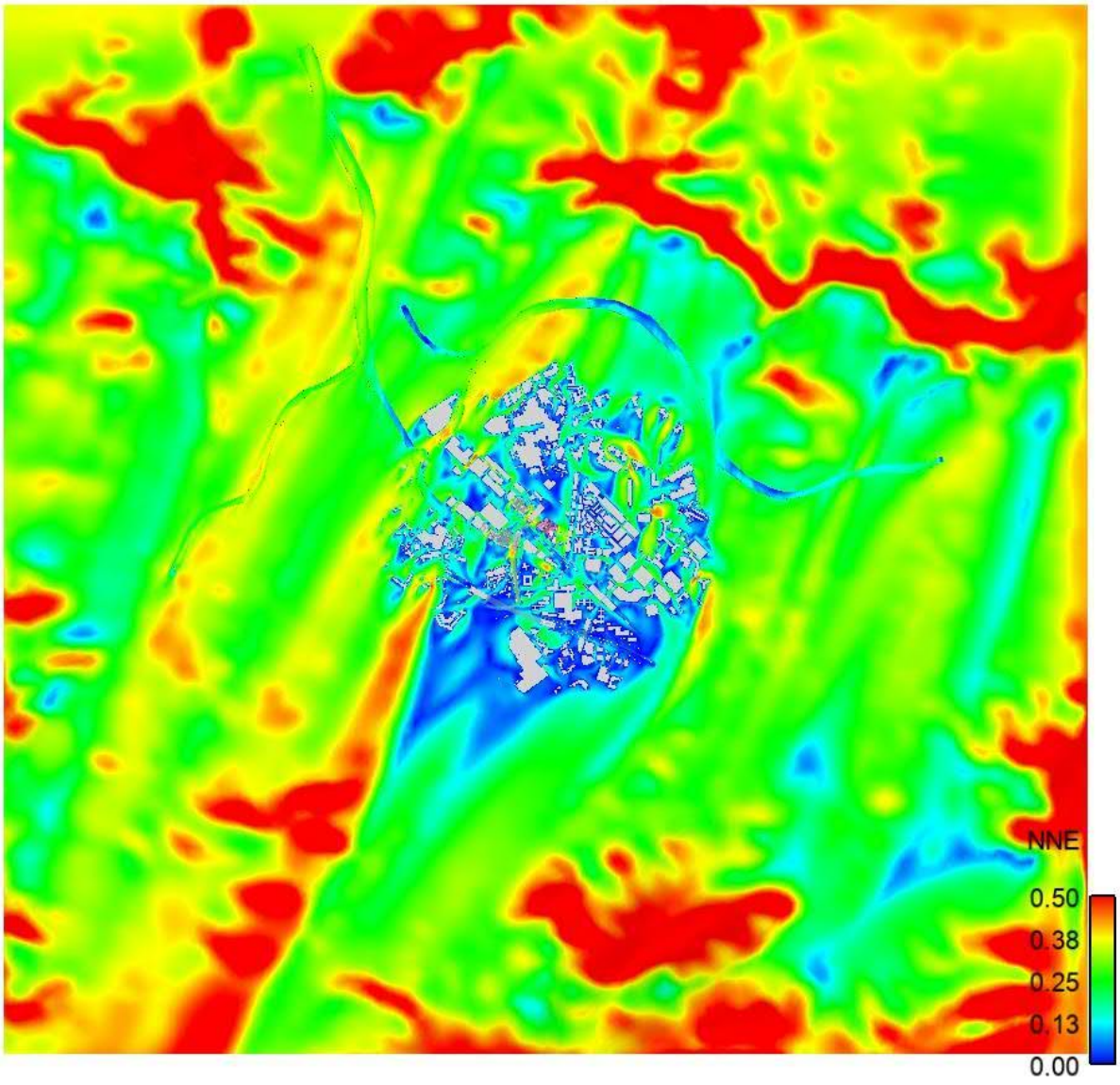

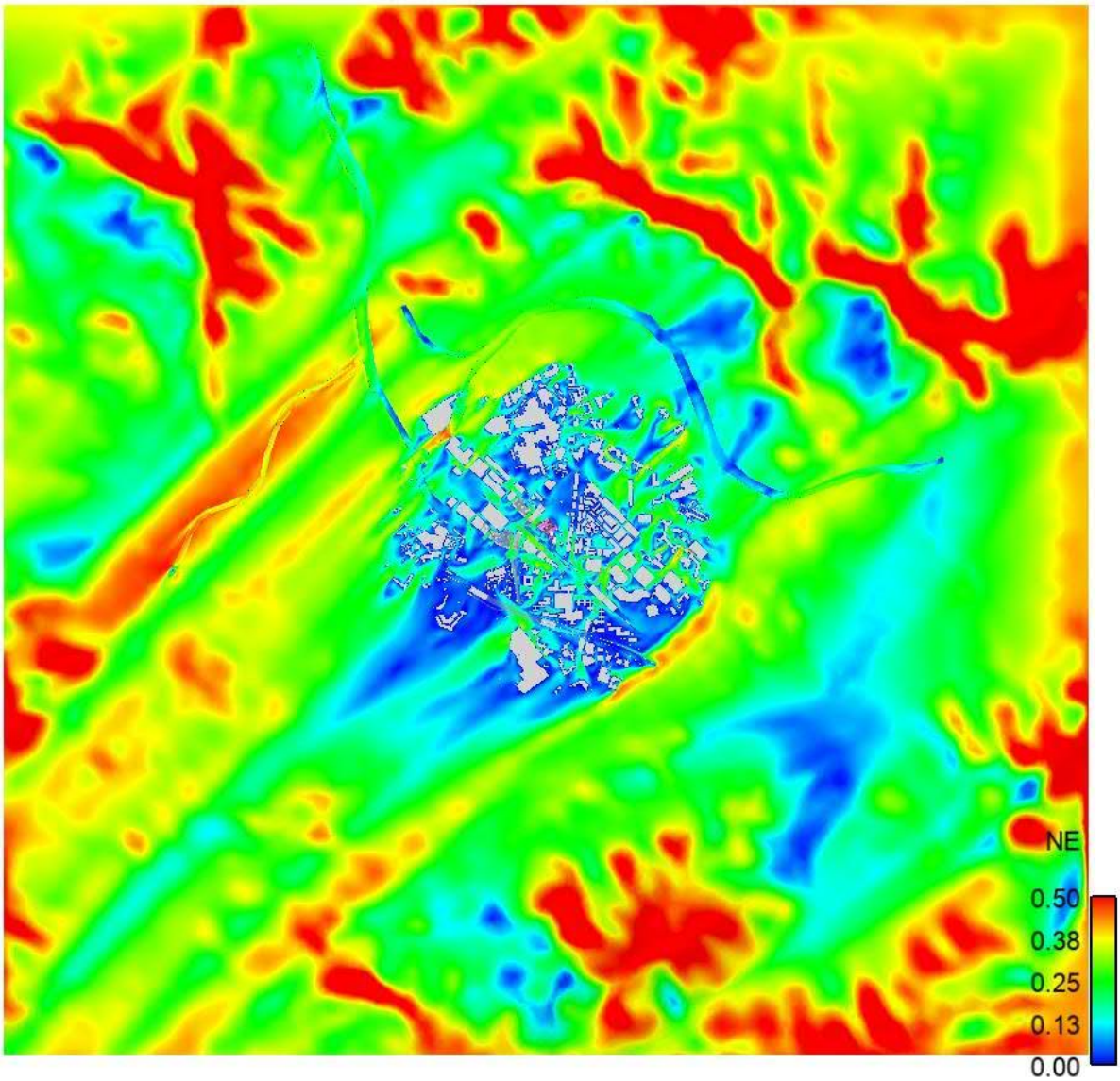
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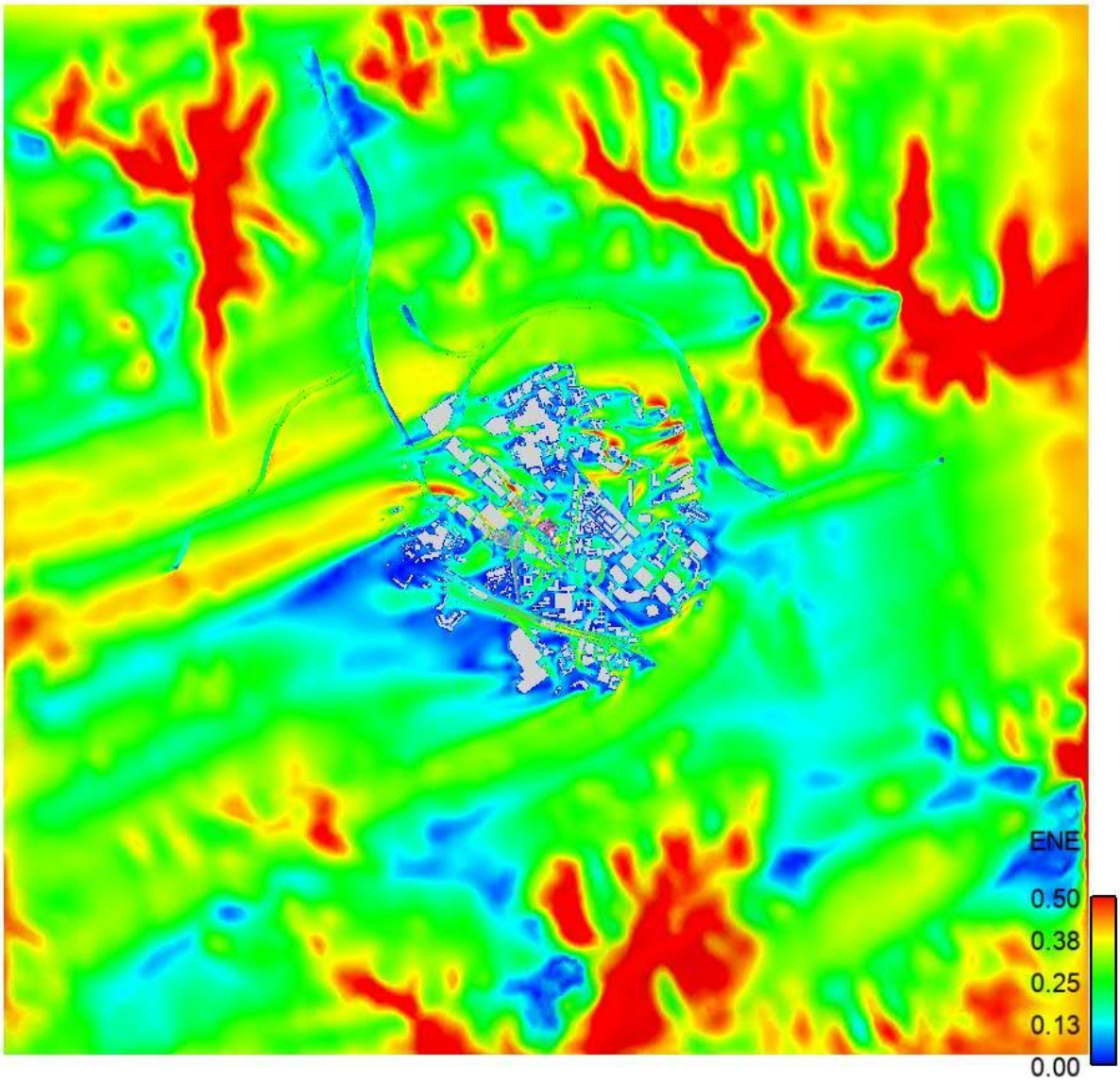
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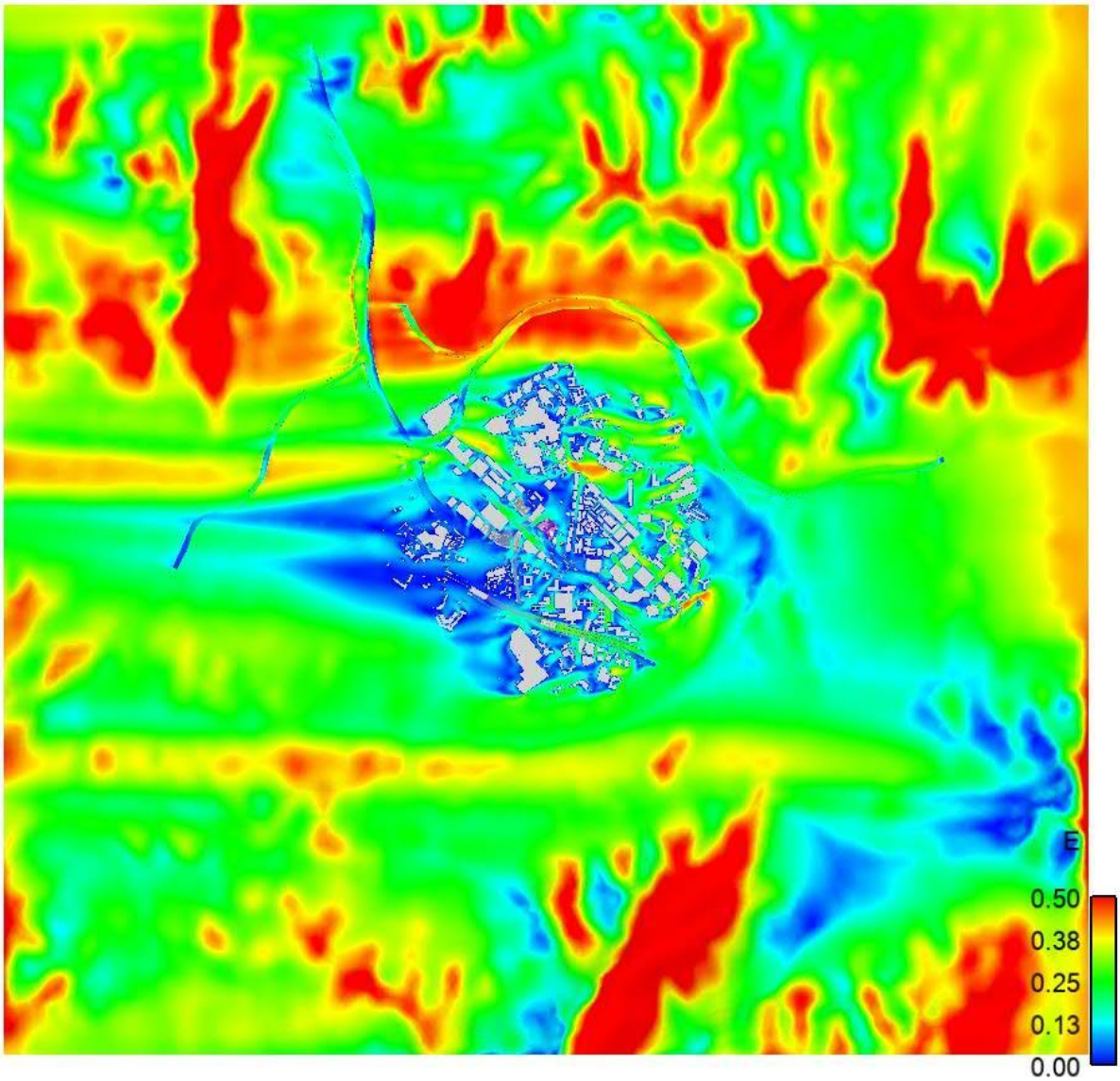
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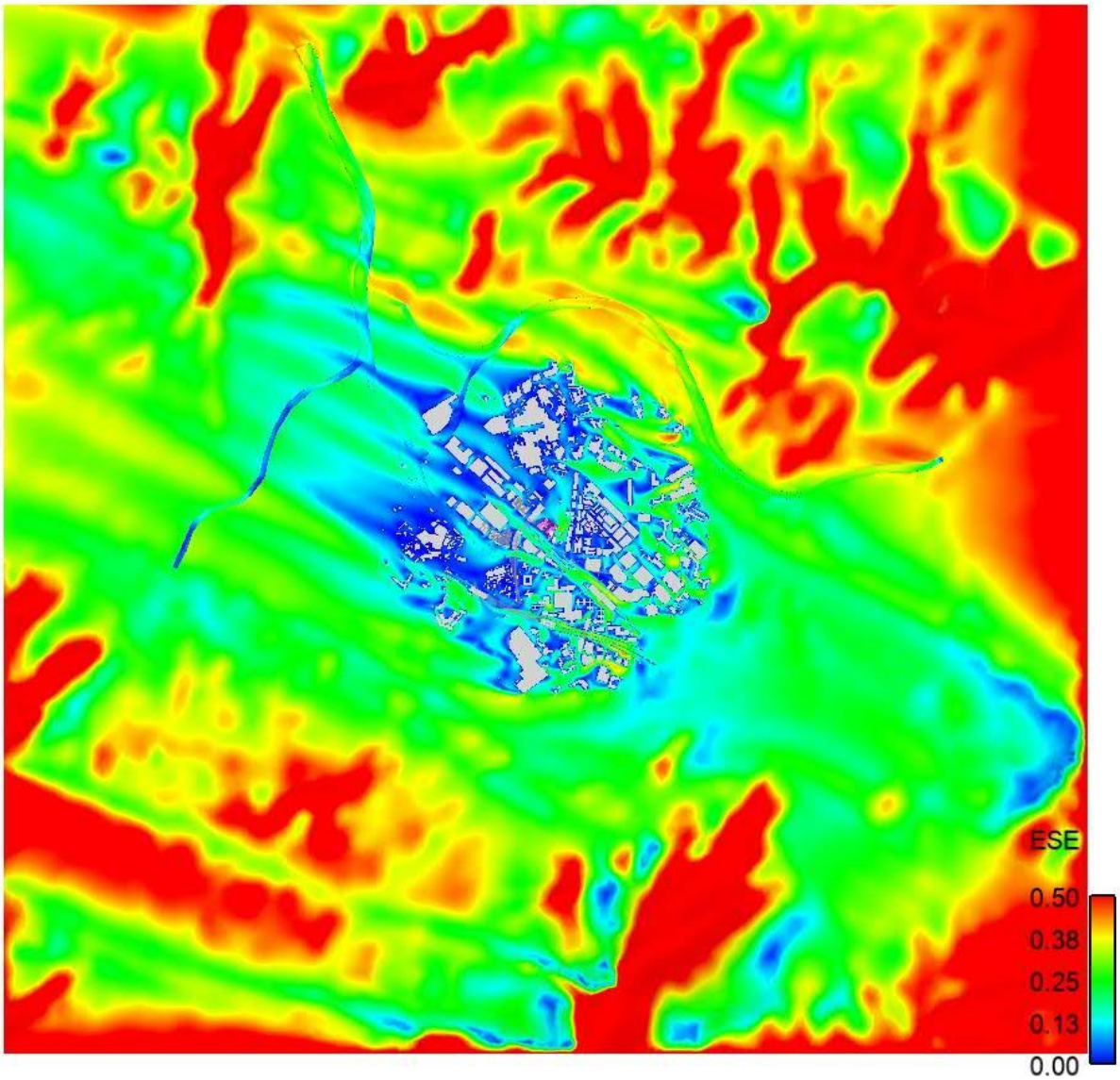
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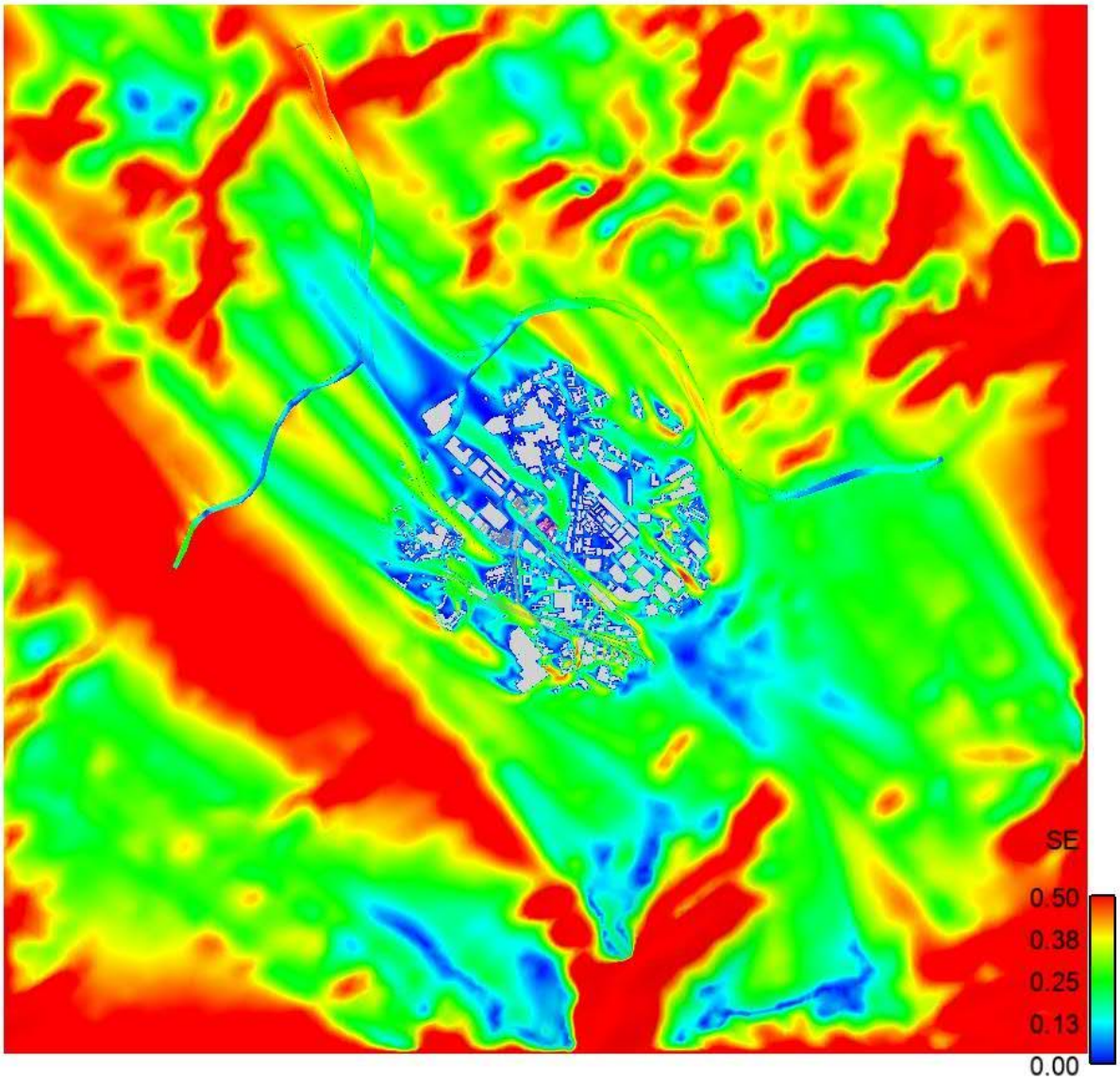
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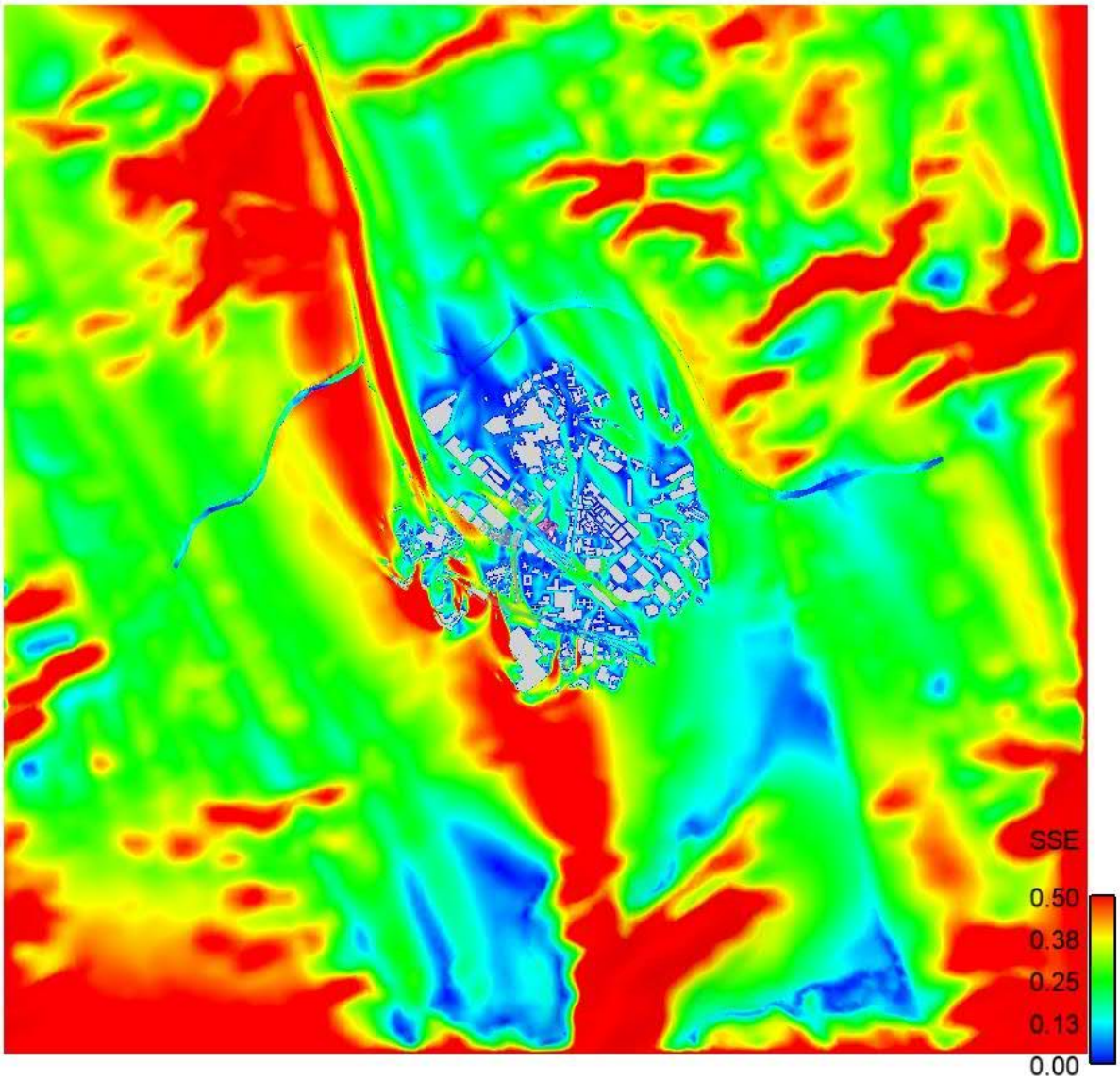
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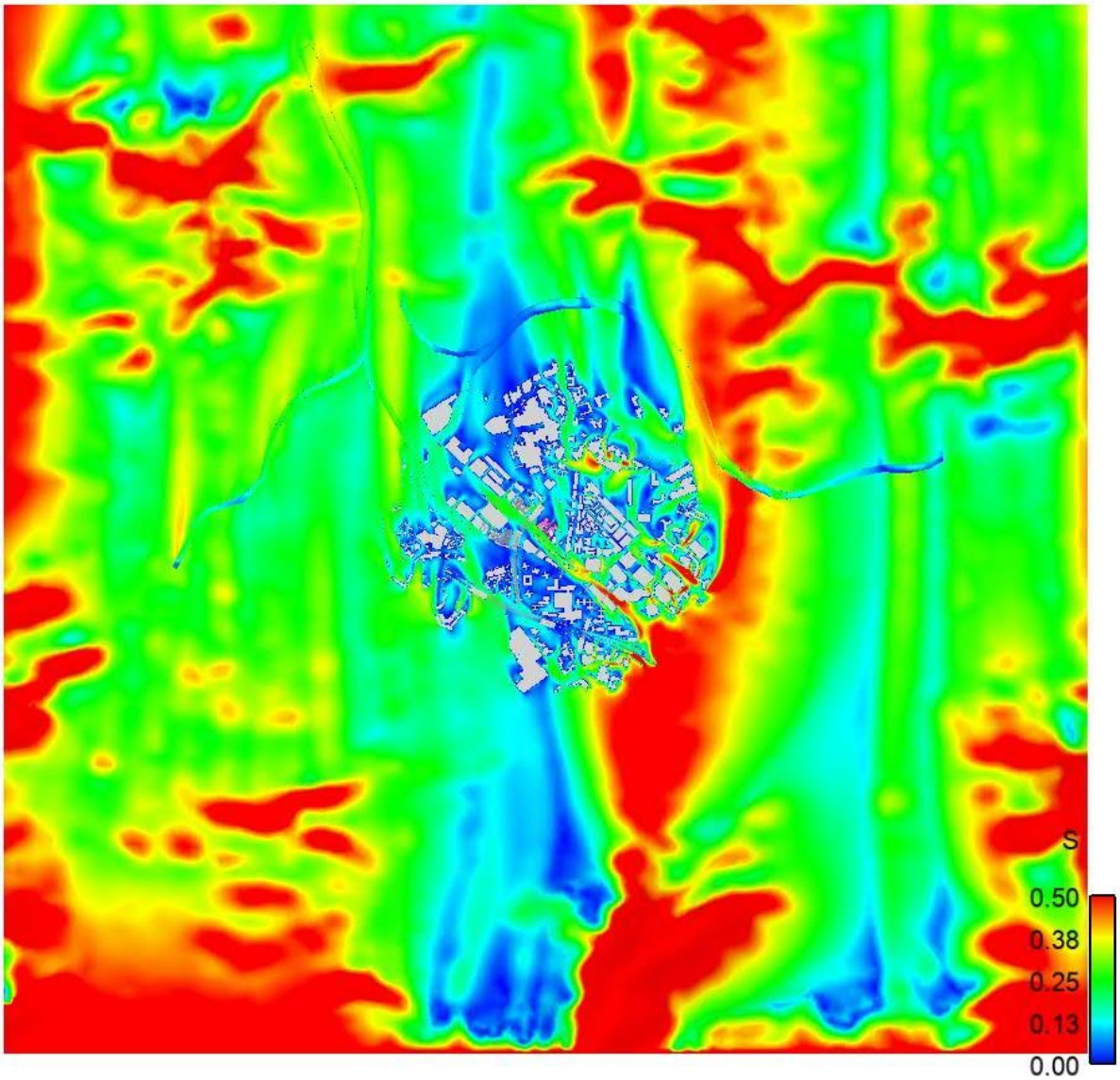
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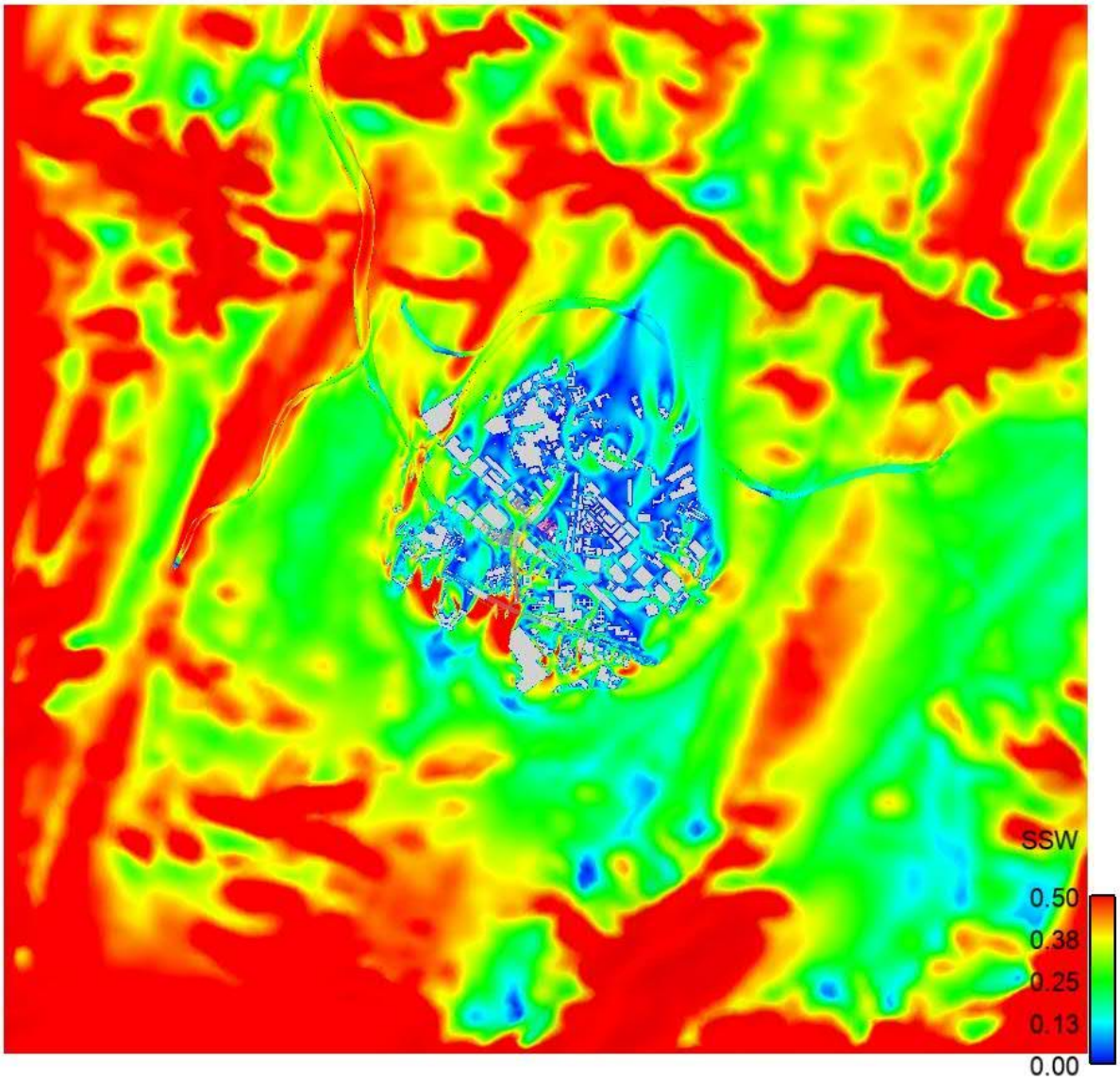
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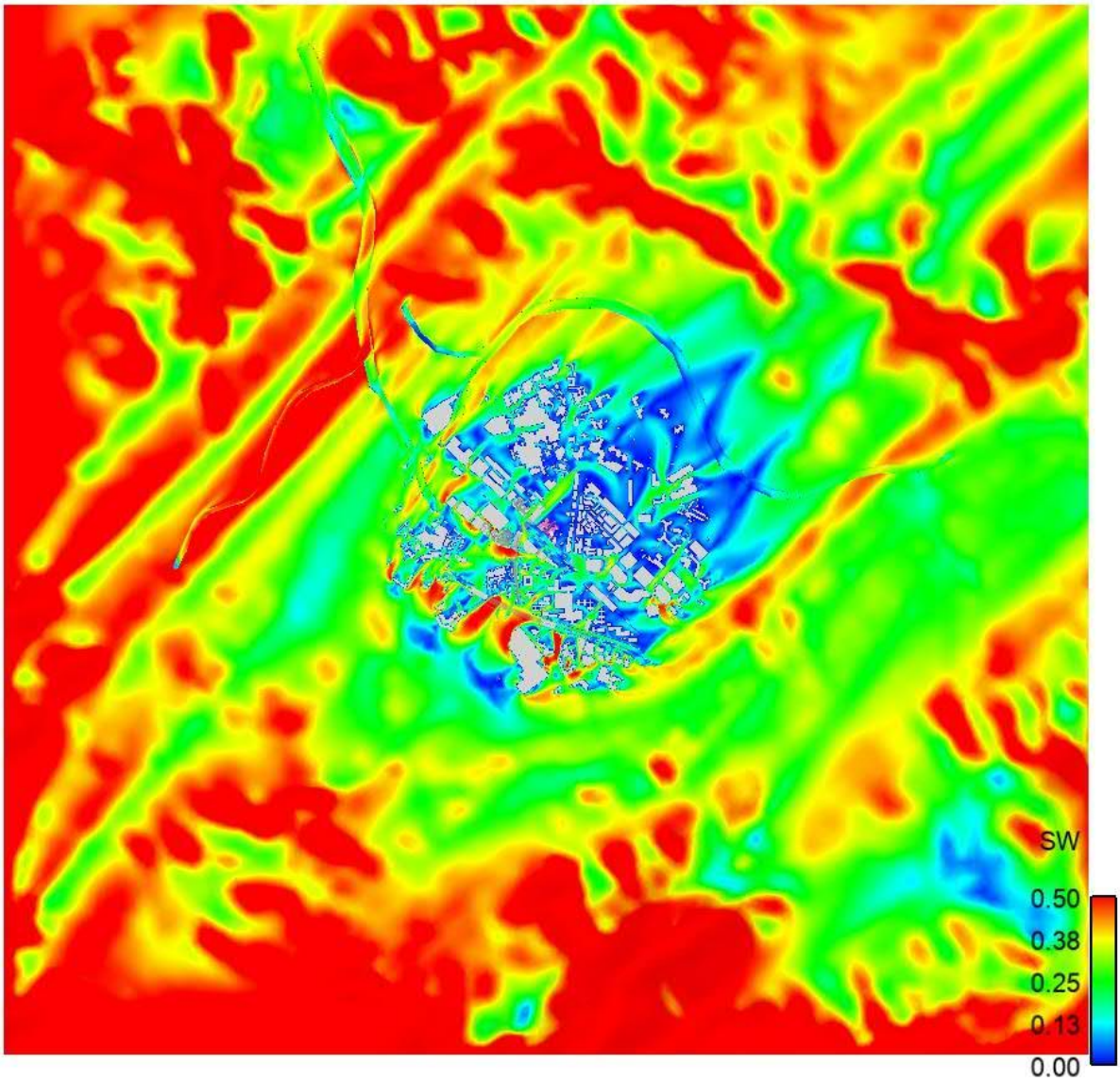
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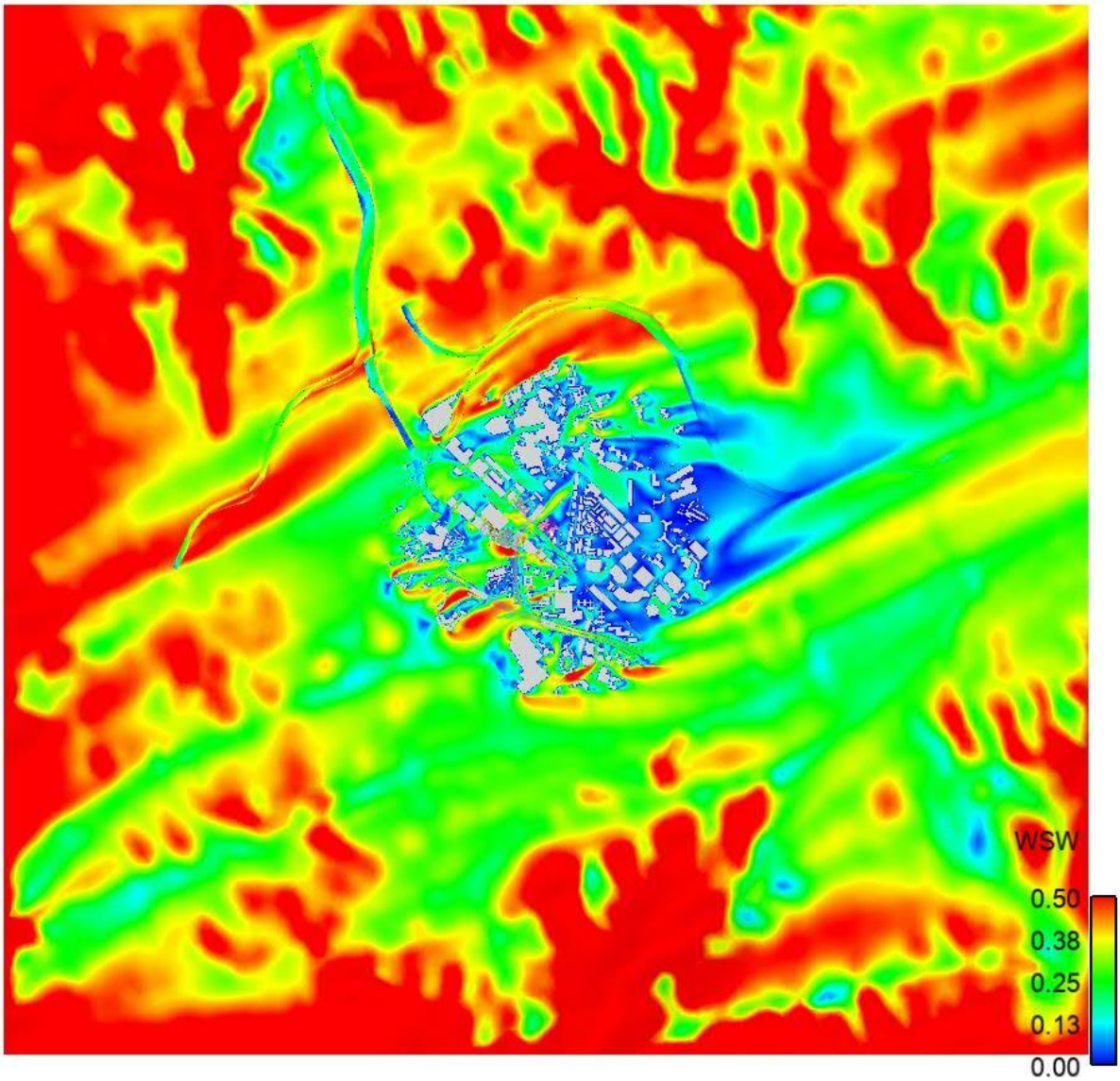
WSW
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ARUP

Appendix D

Reference:

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Vector Plots of Velocity Ratio (VR)

Job number

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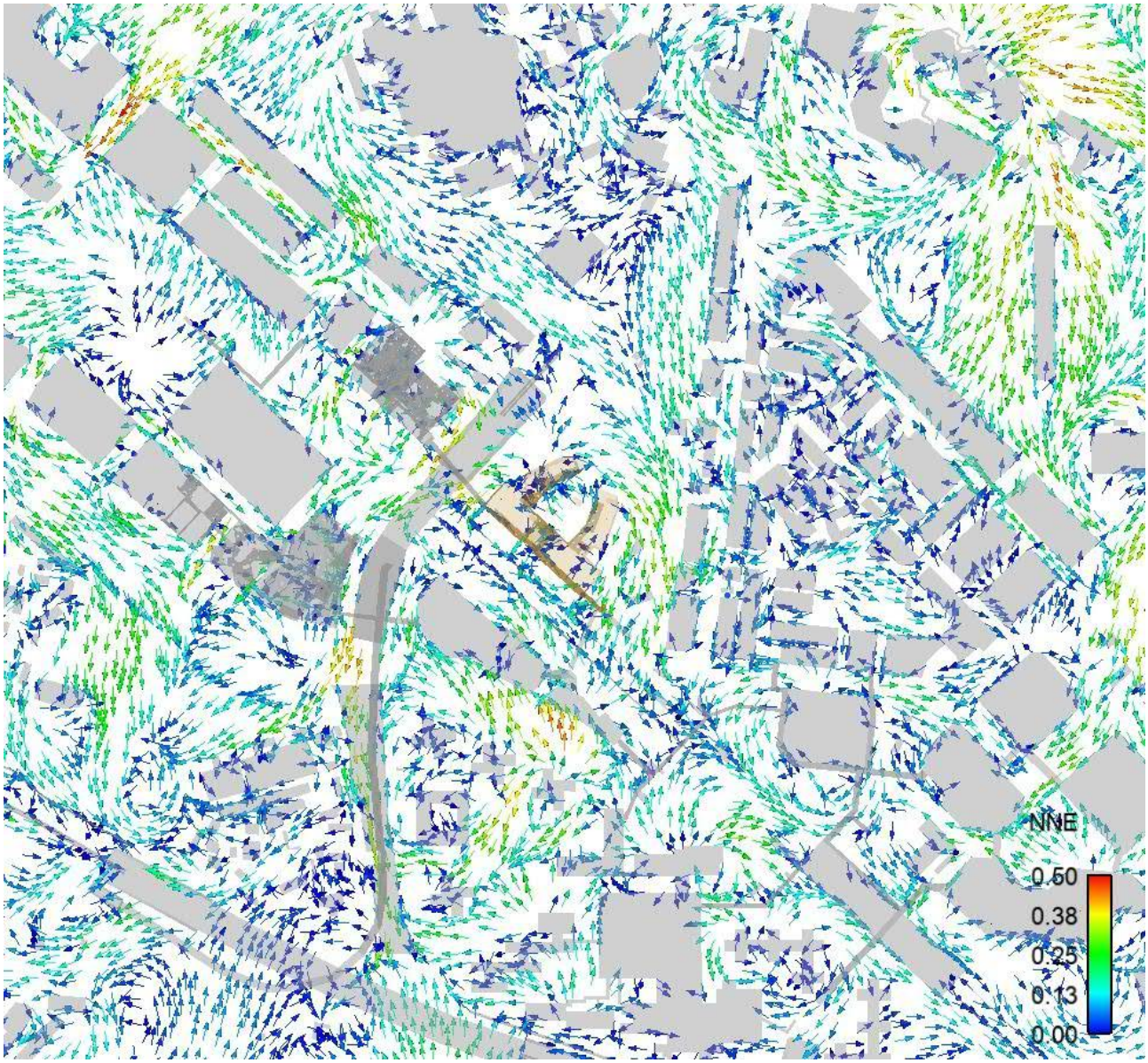
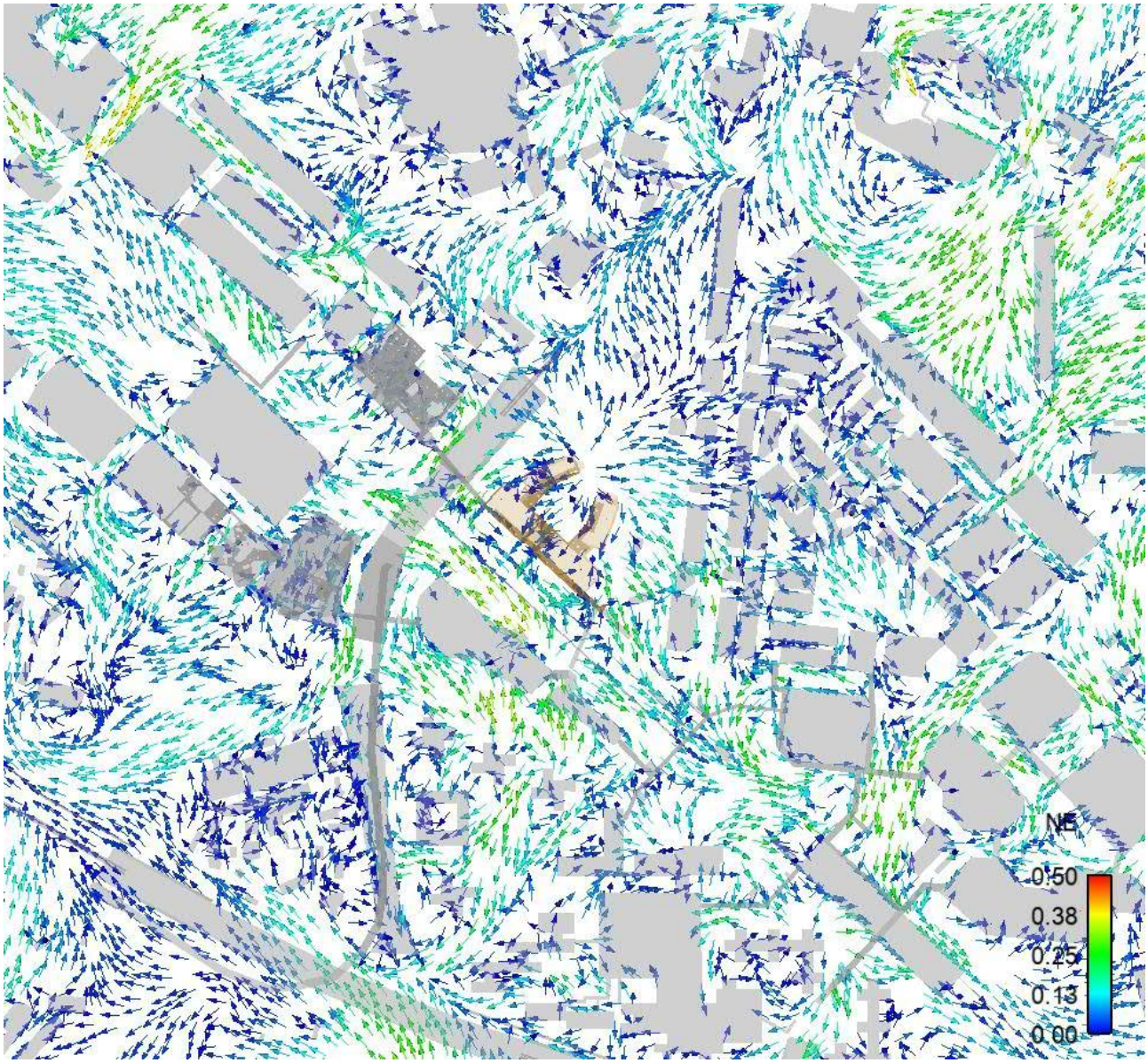
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
arup.com

D.1 Baseline Scheme

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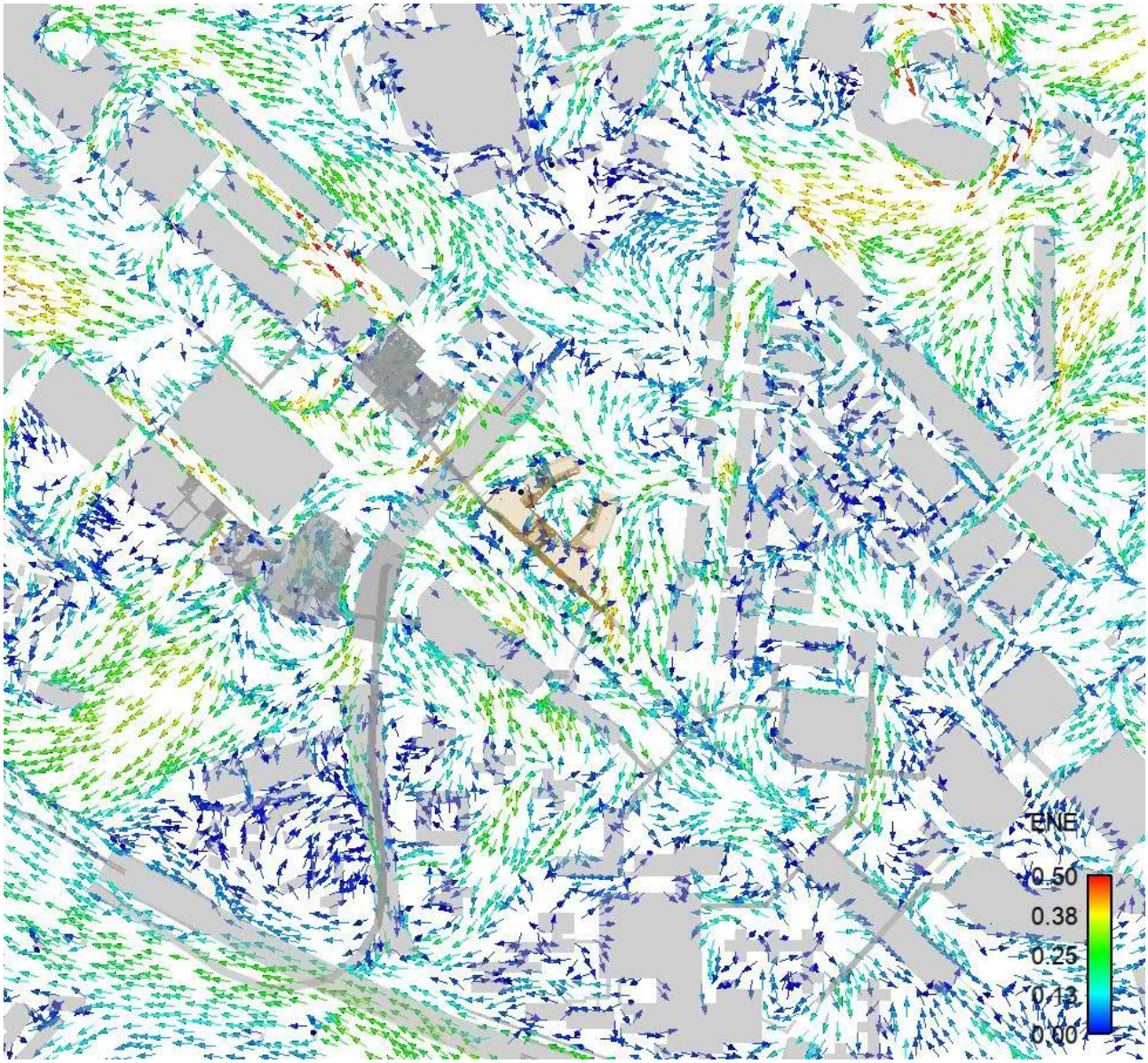
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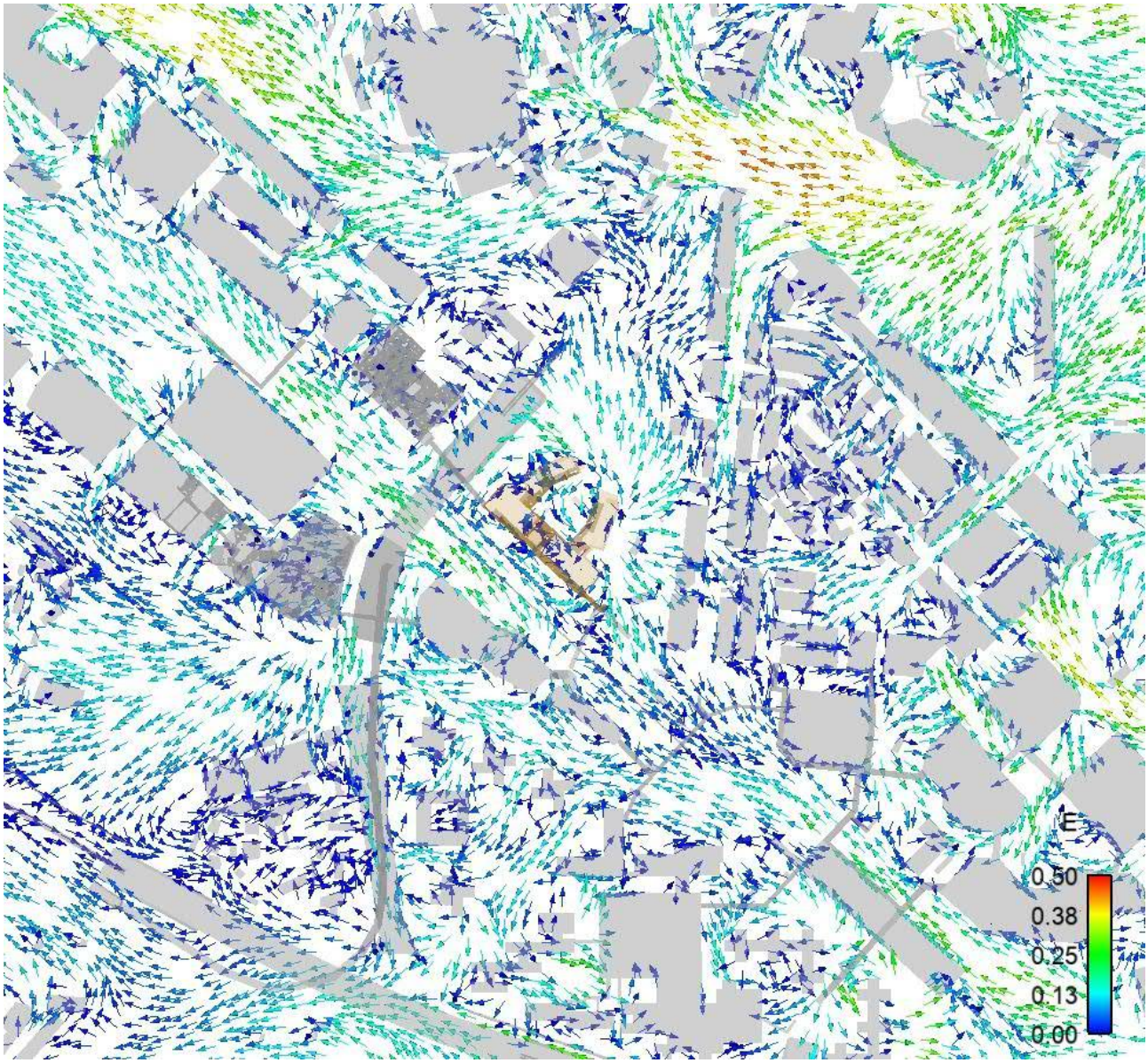
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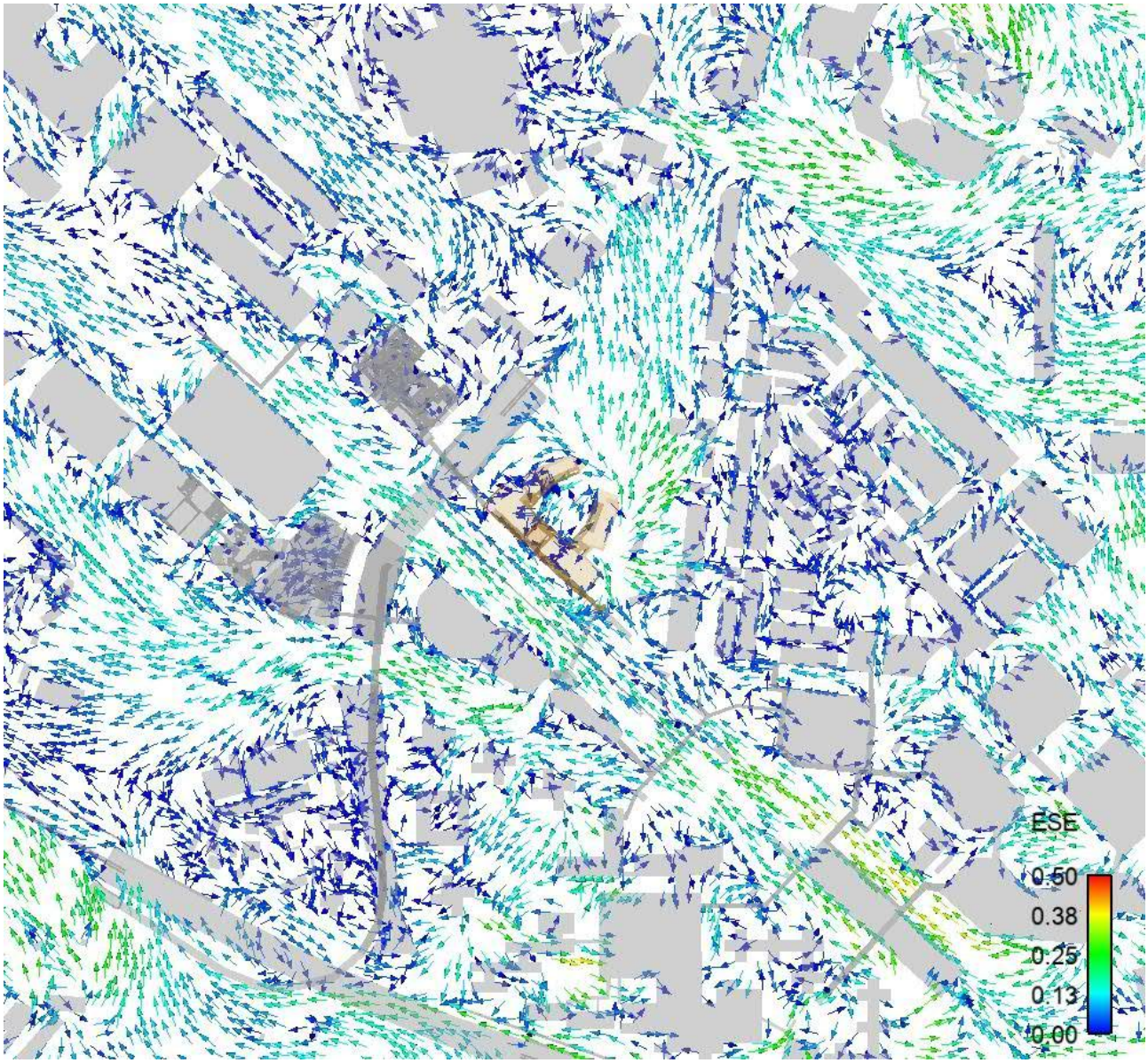
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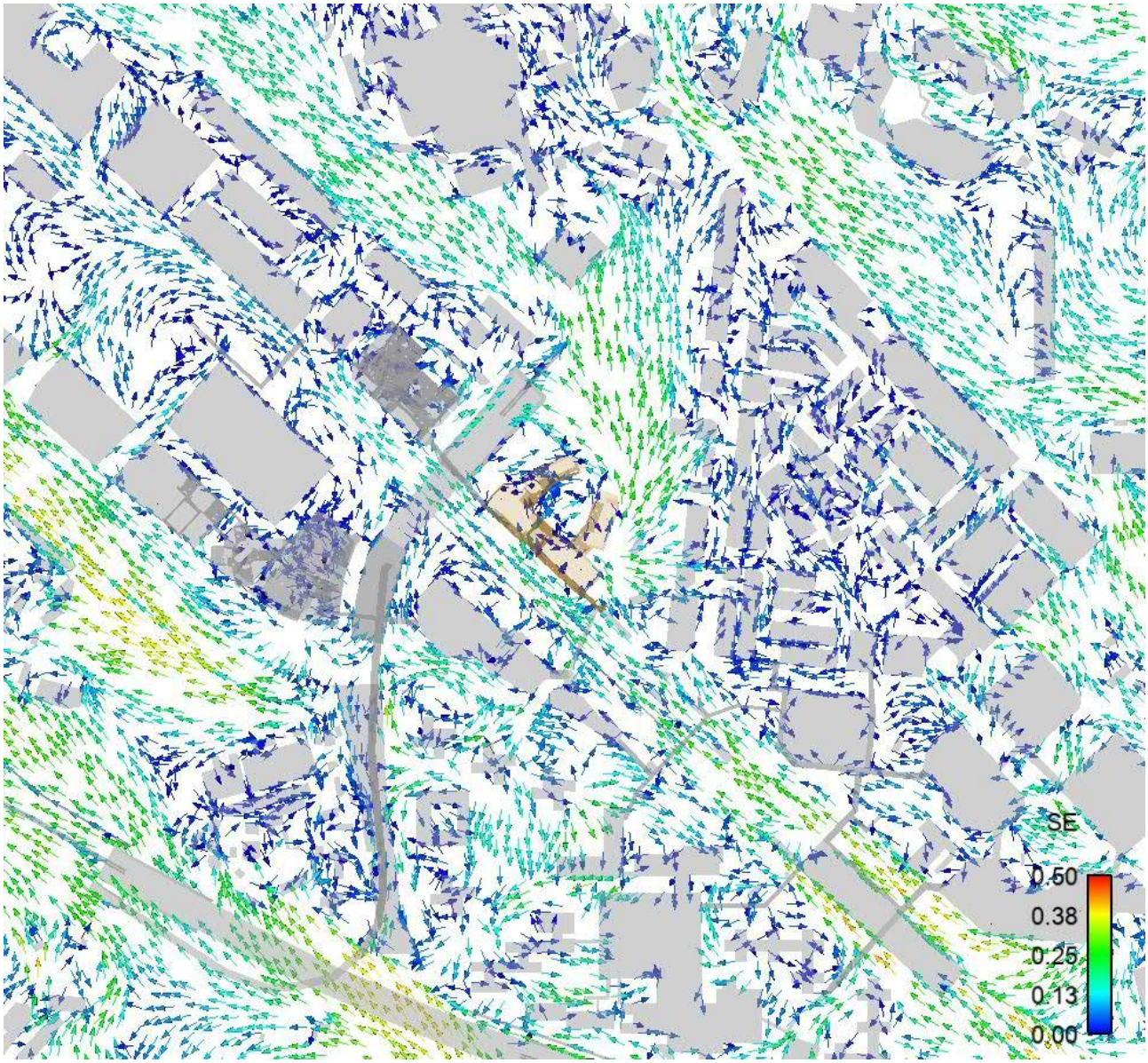
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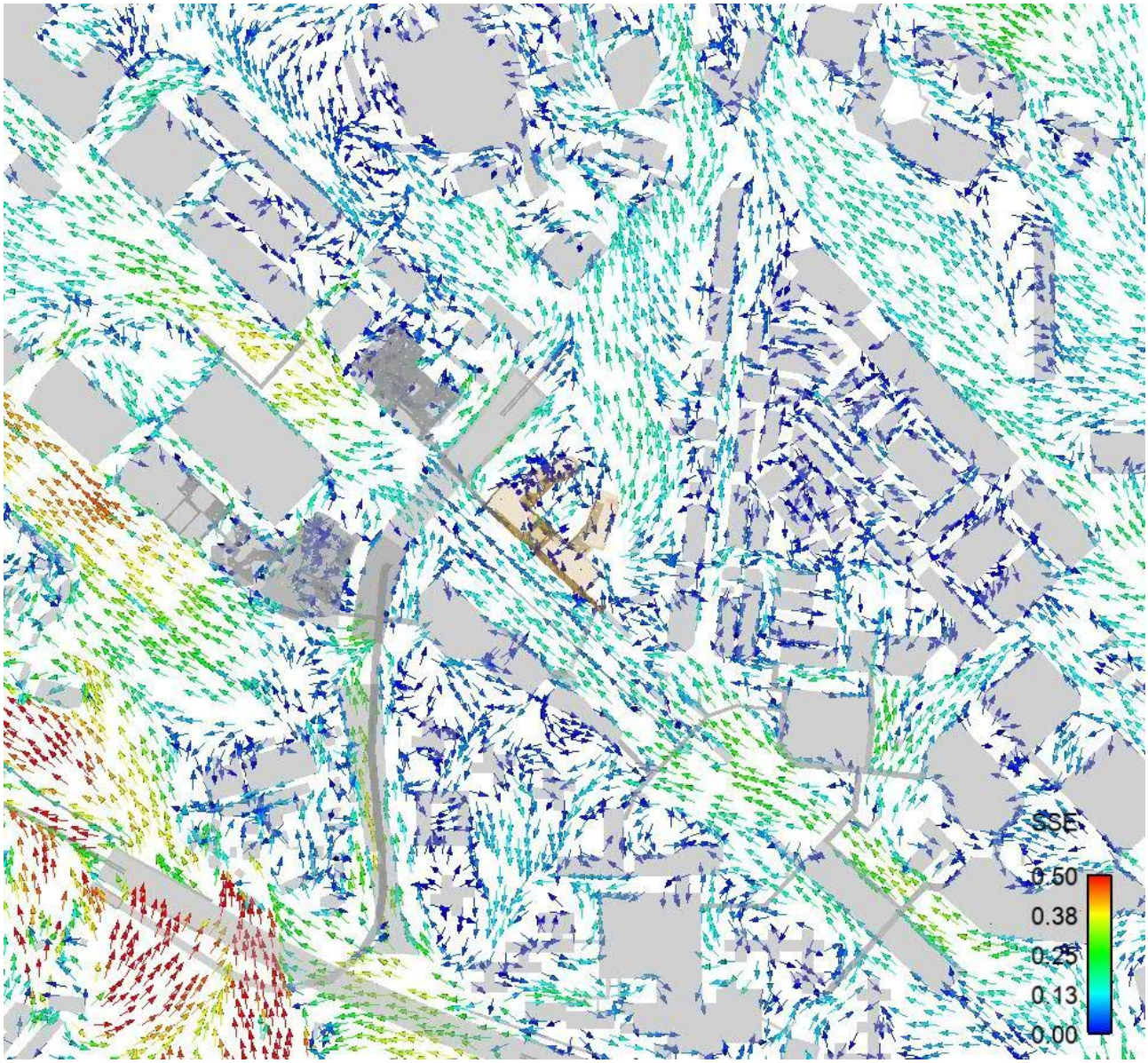
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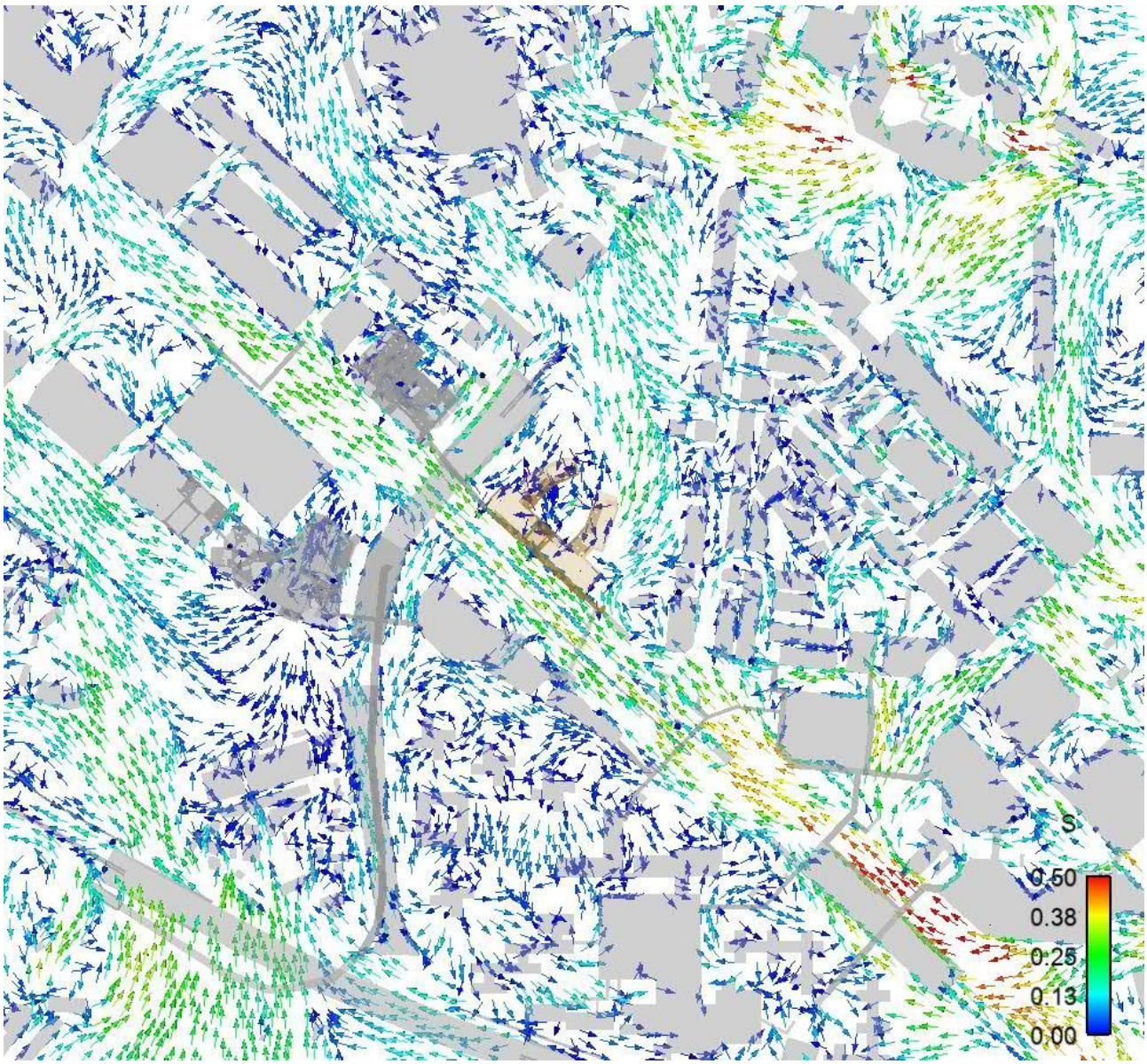
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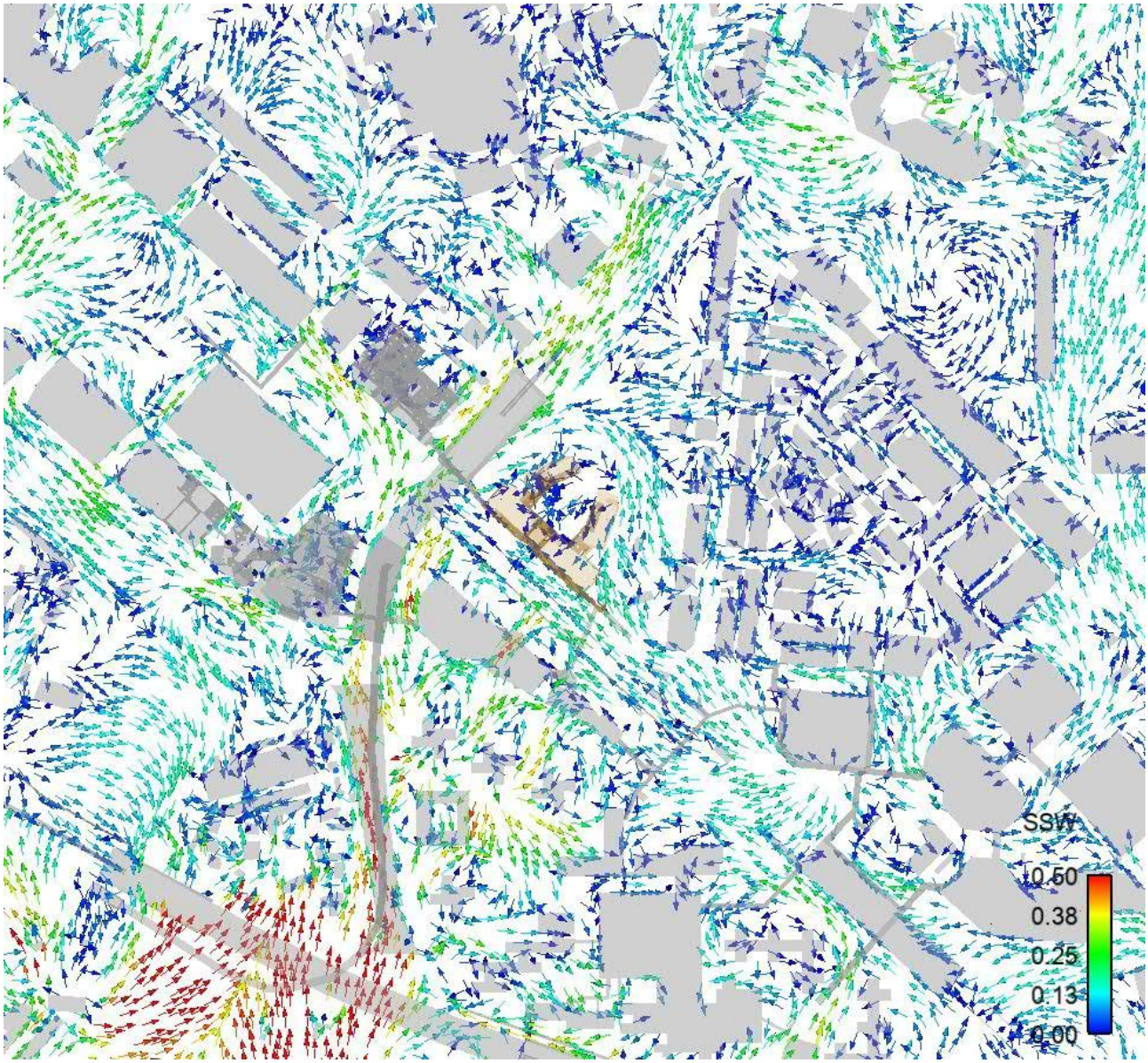
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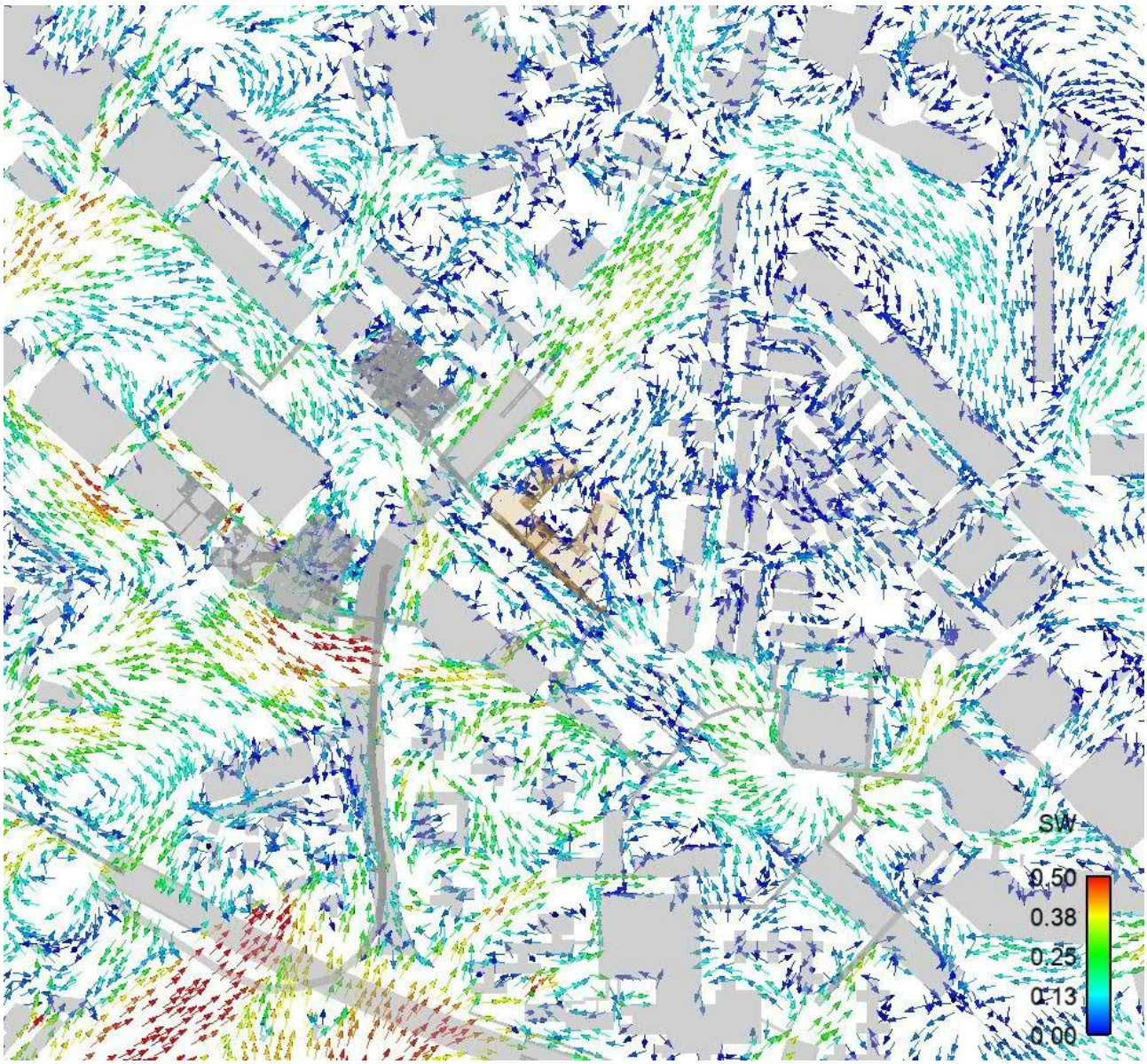
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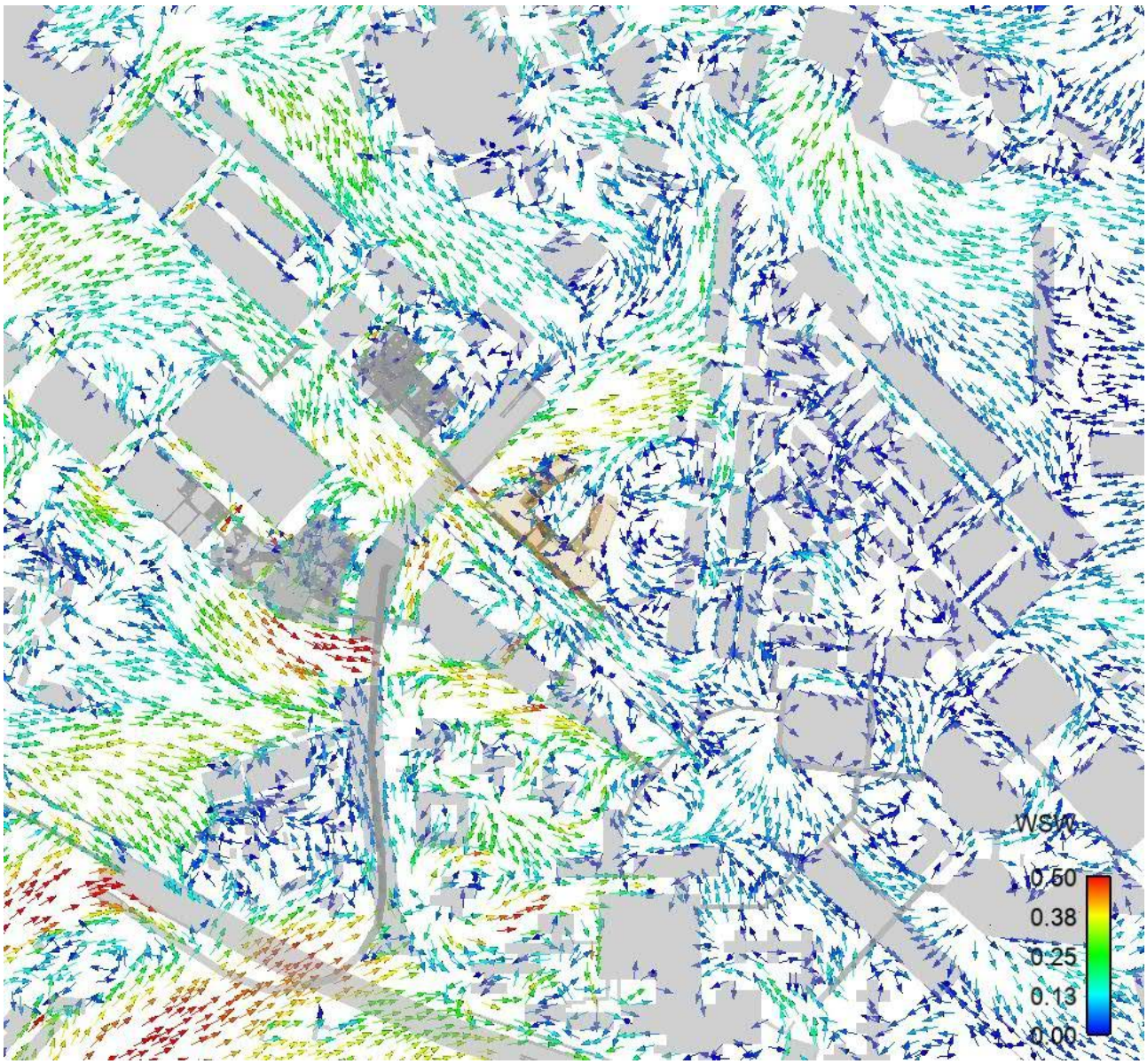
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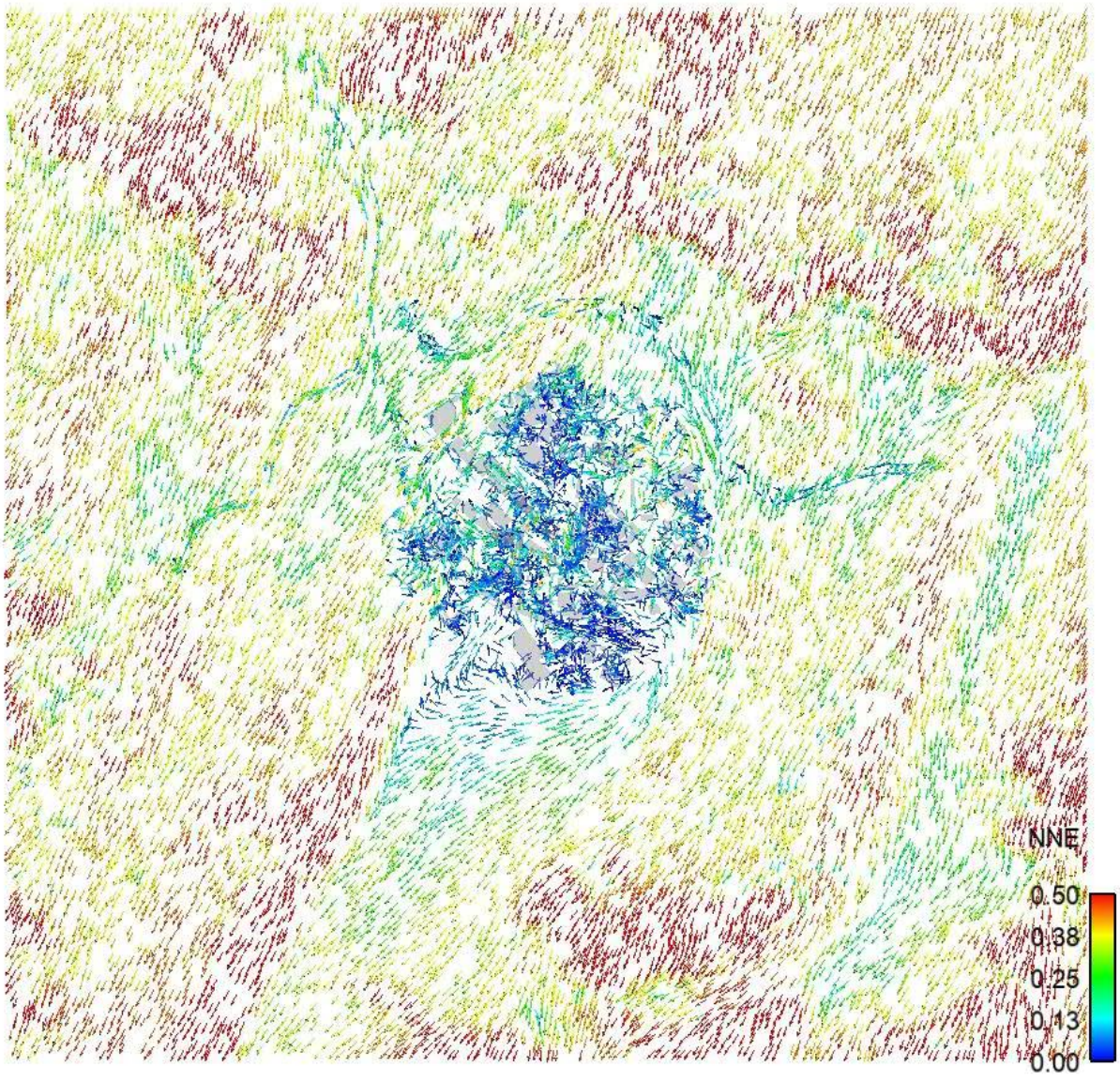
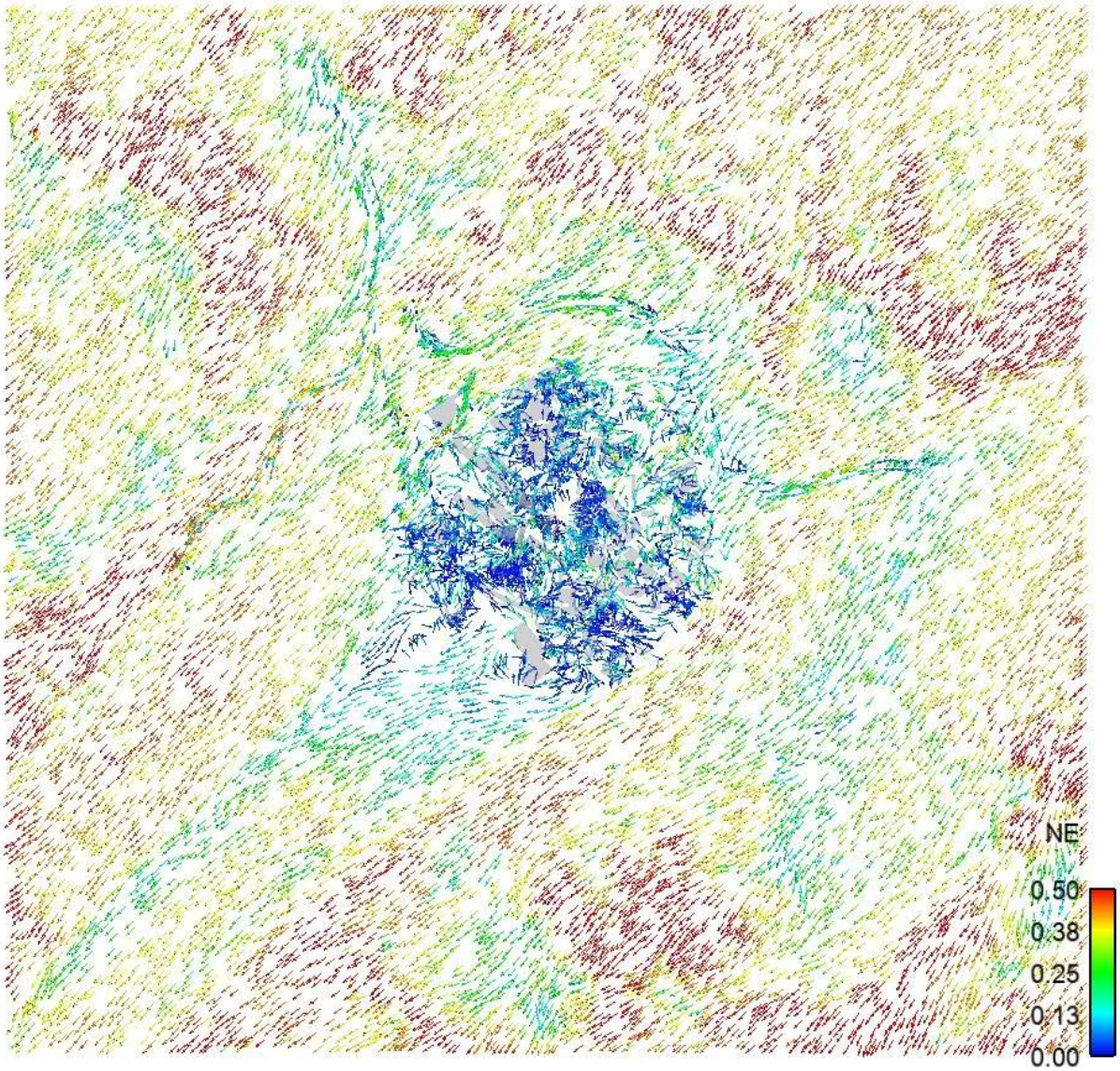
D.2 Baseline Scheme (Full Domain)

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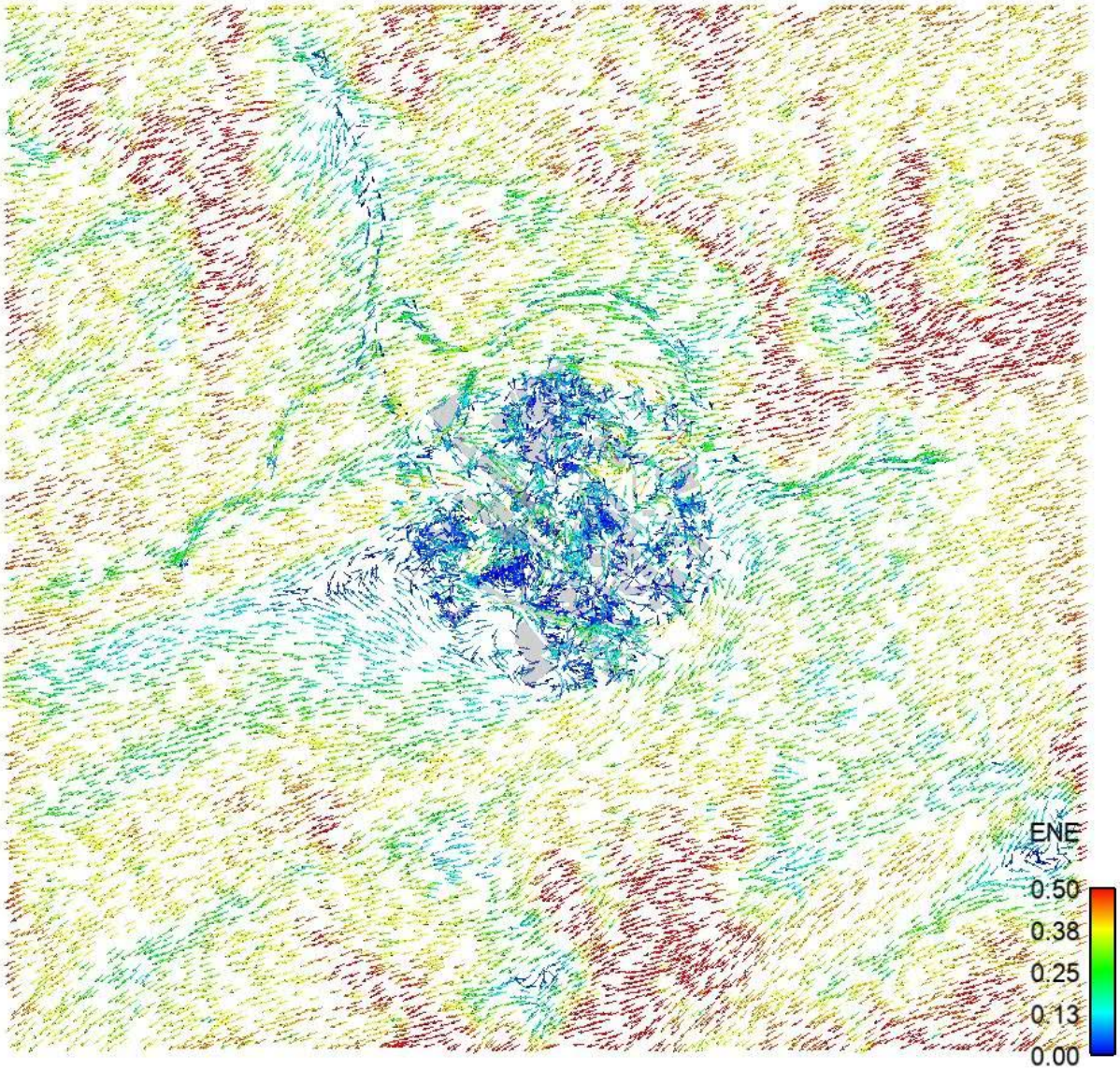
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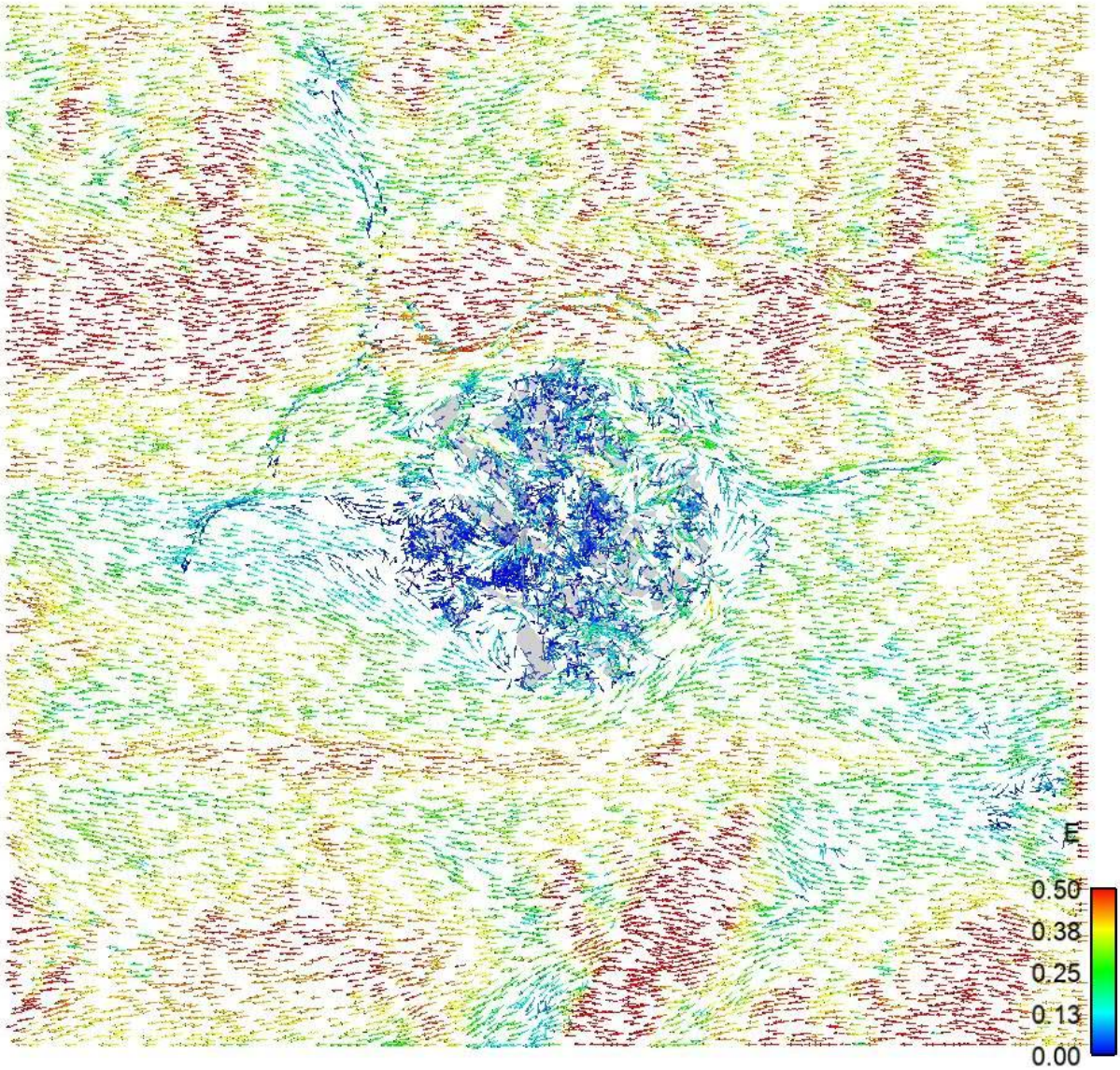
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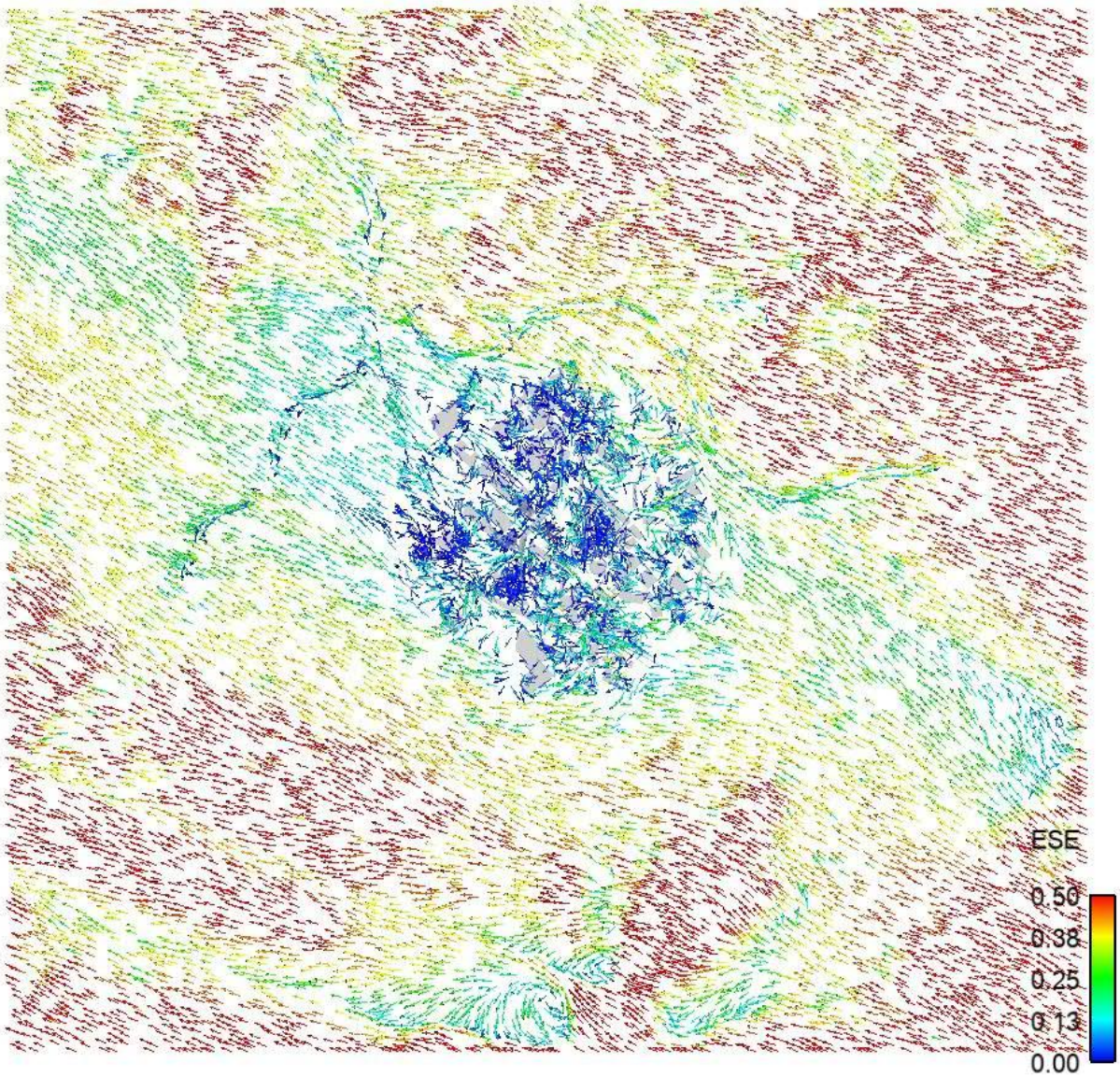
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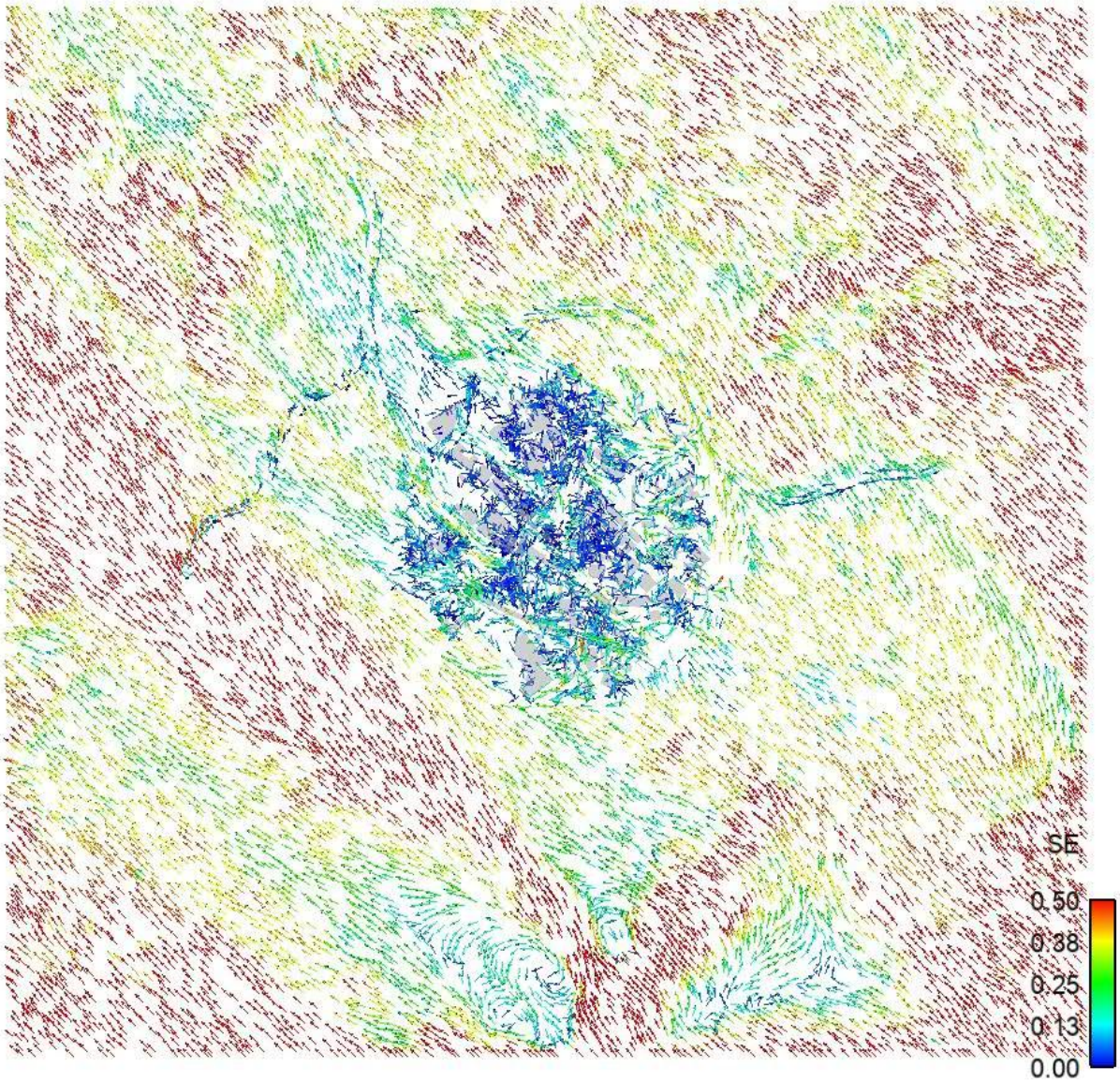
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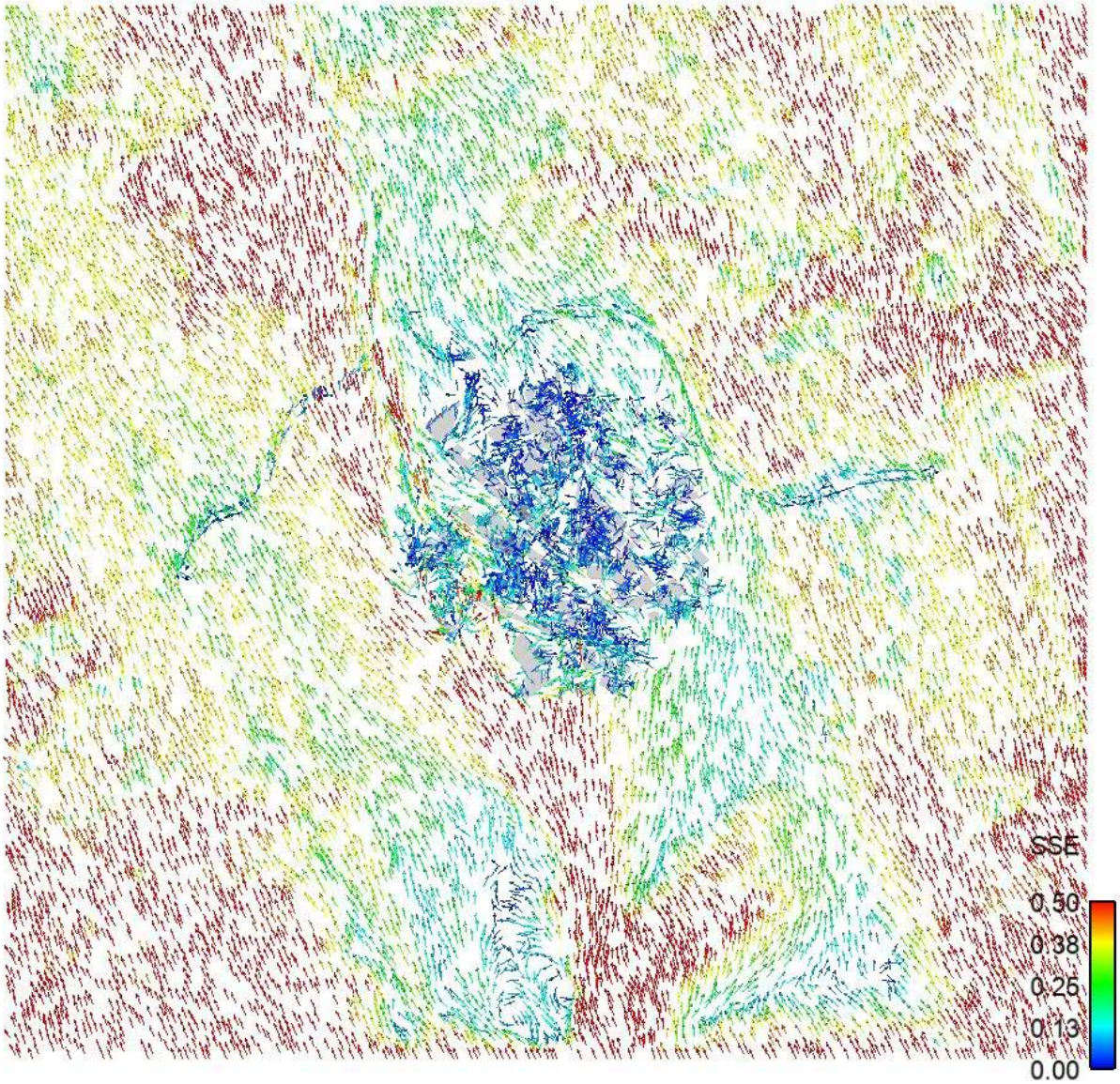
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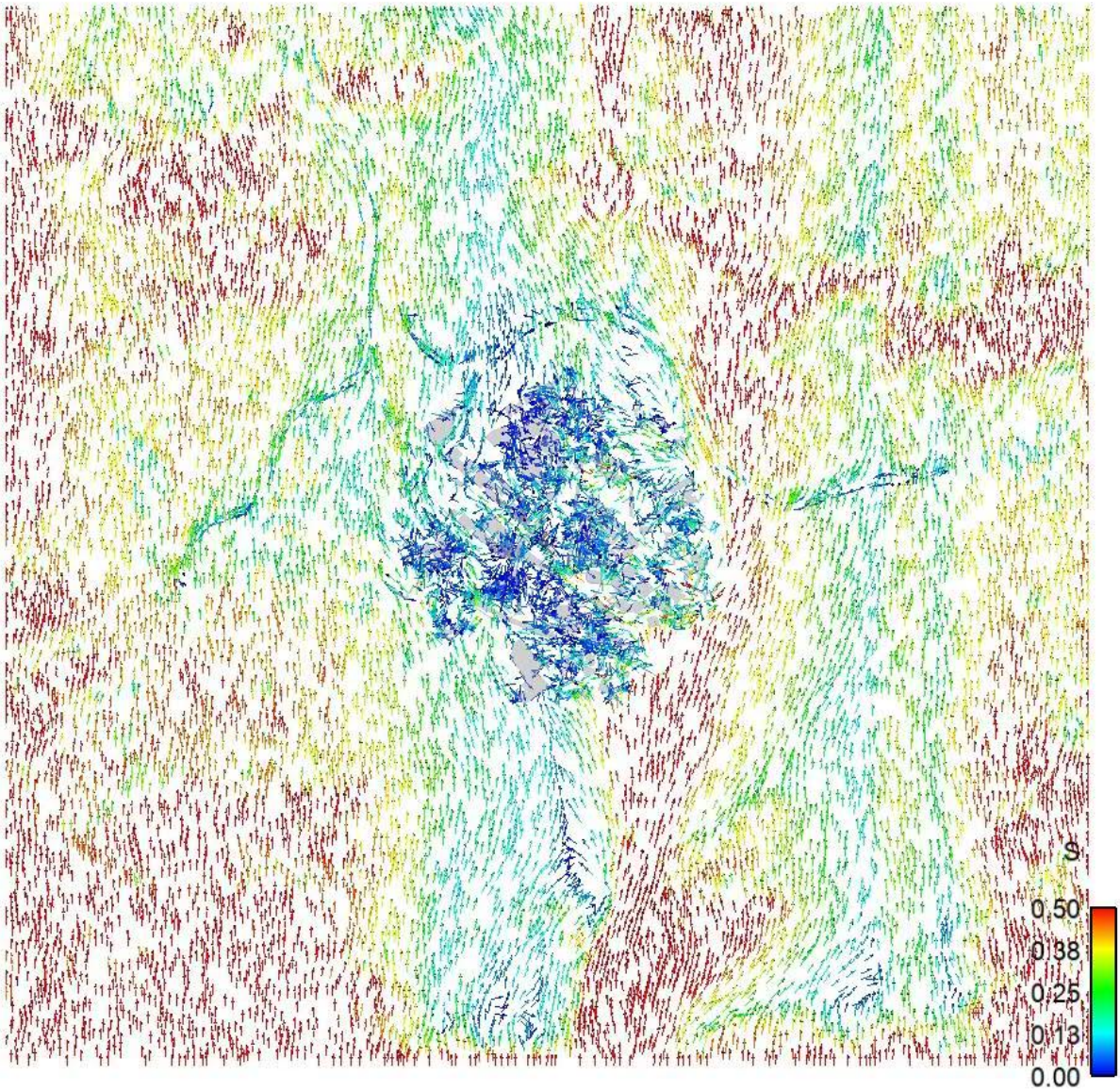
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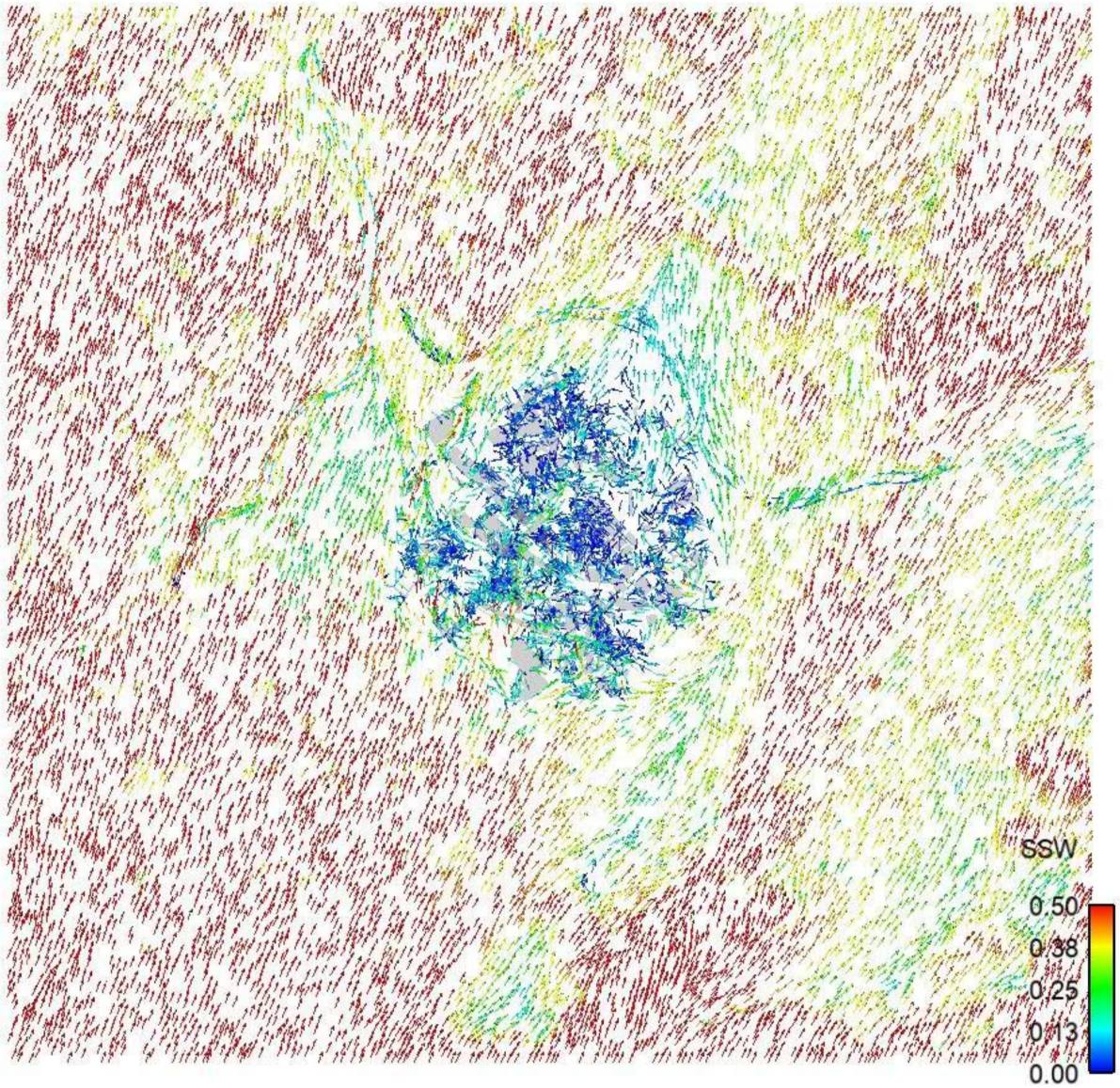
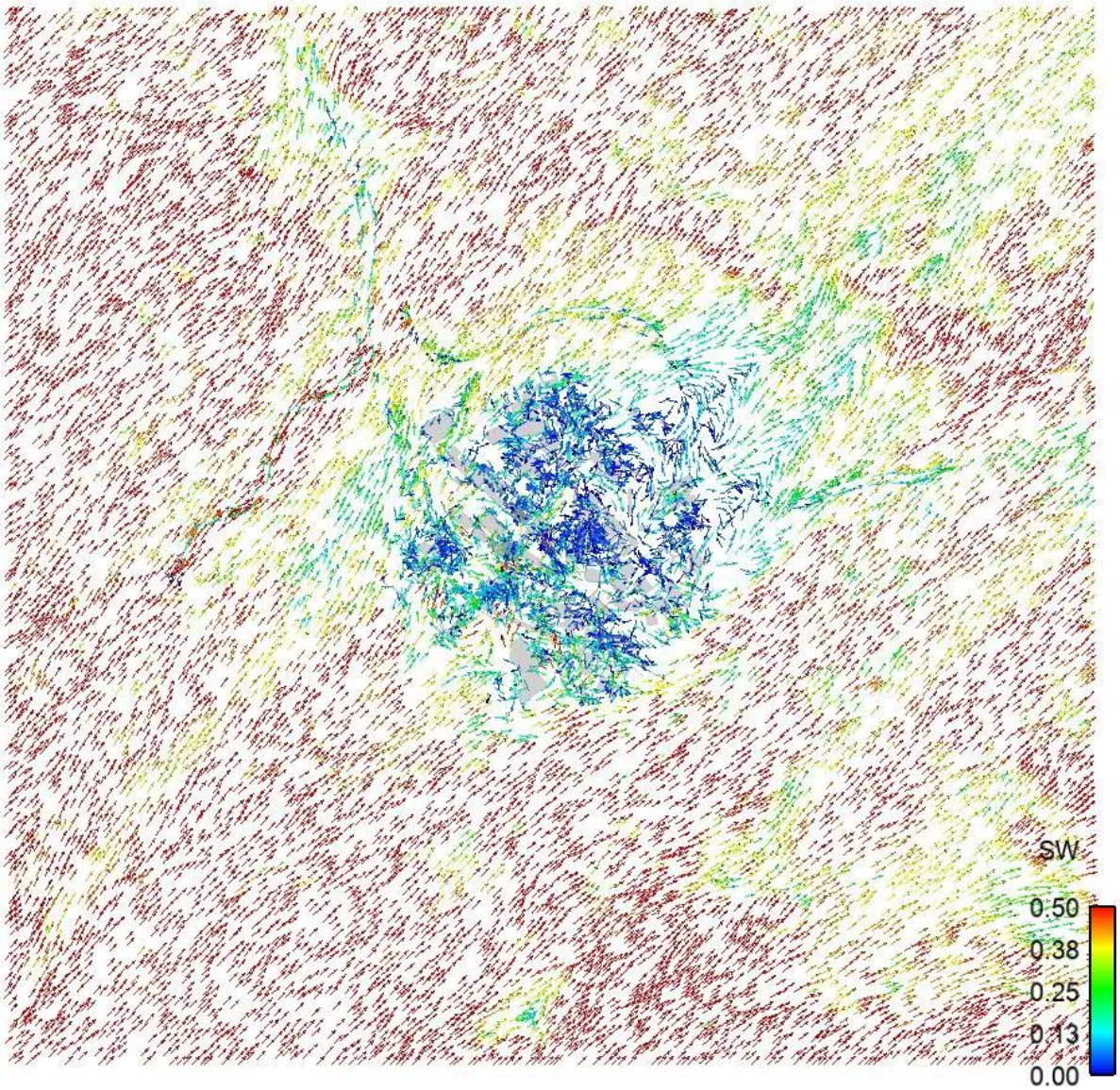


Fi u e 2 Base e S heme Fu Doma P ot unde SSW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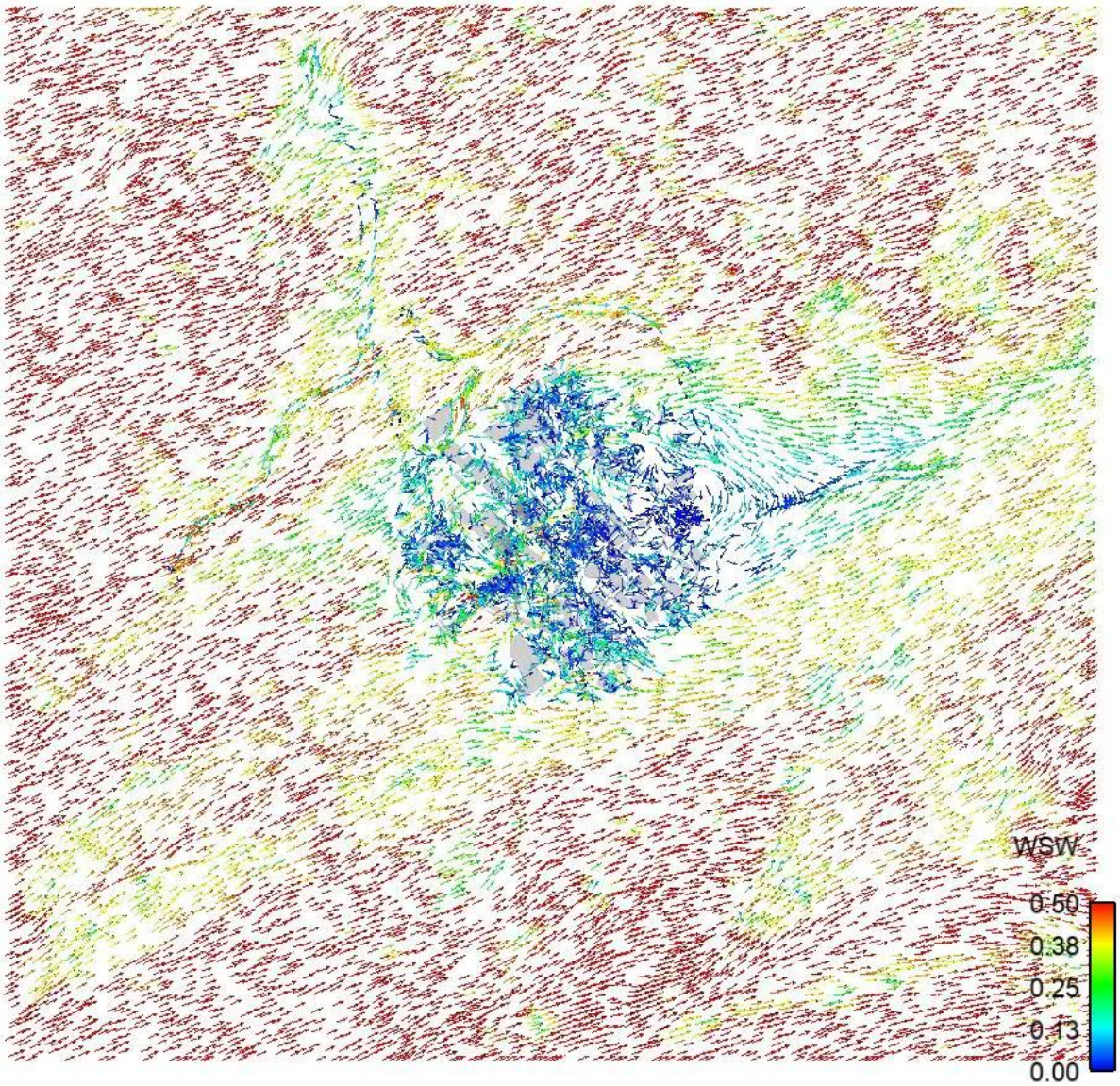
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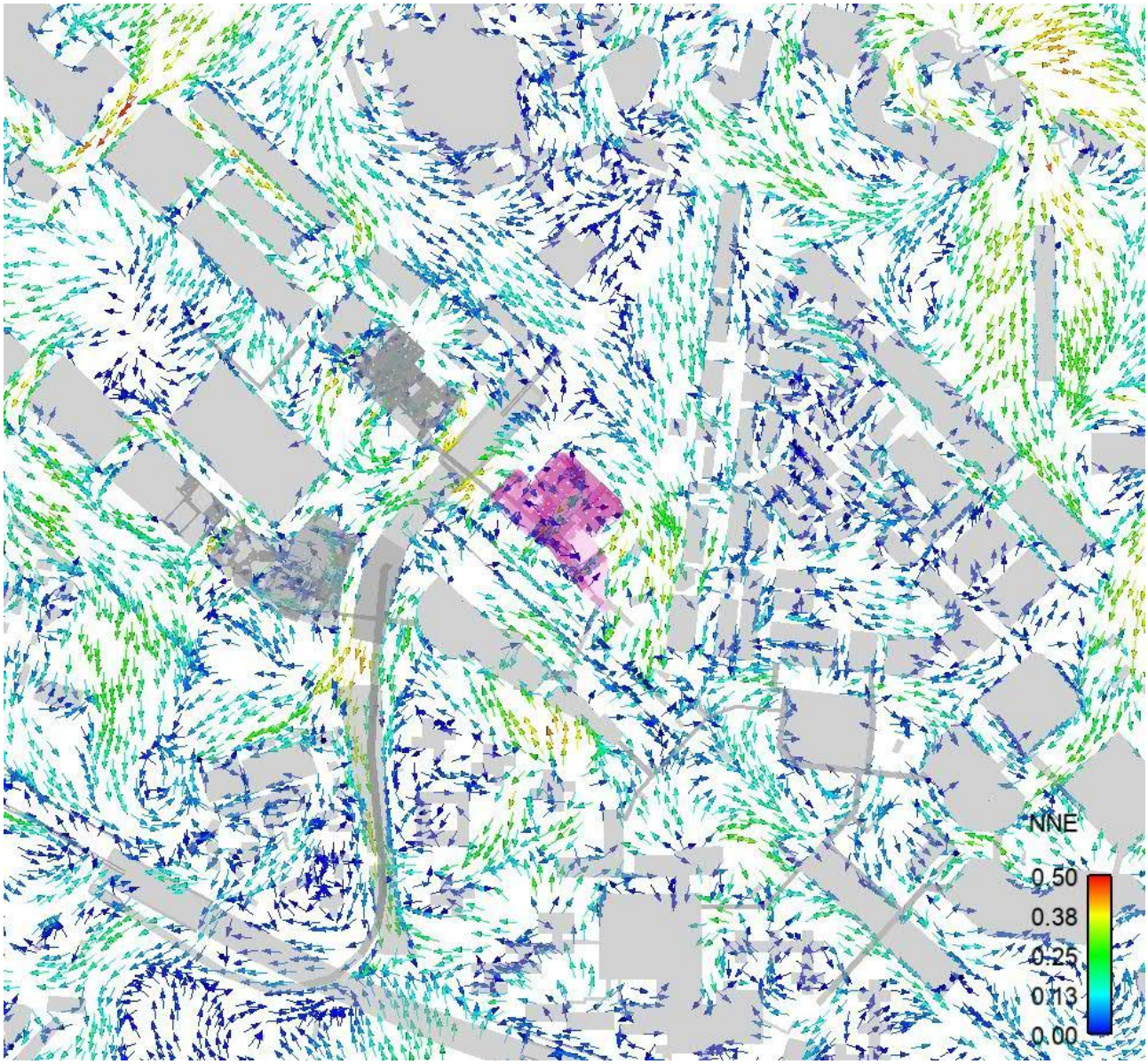
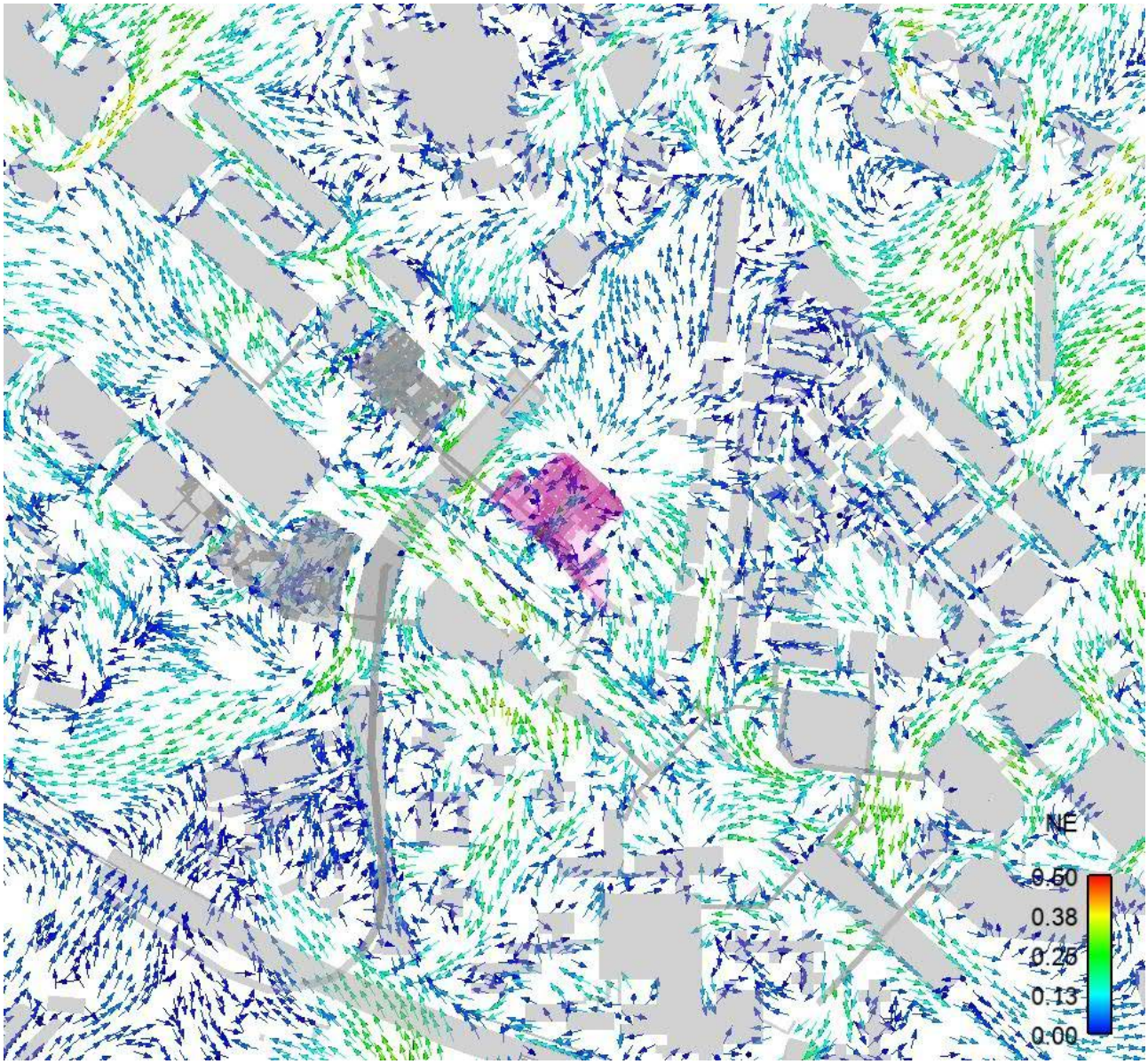
D.3 Proposed Scheme

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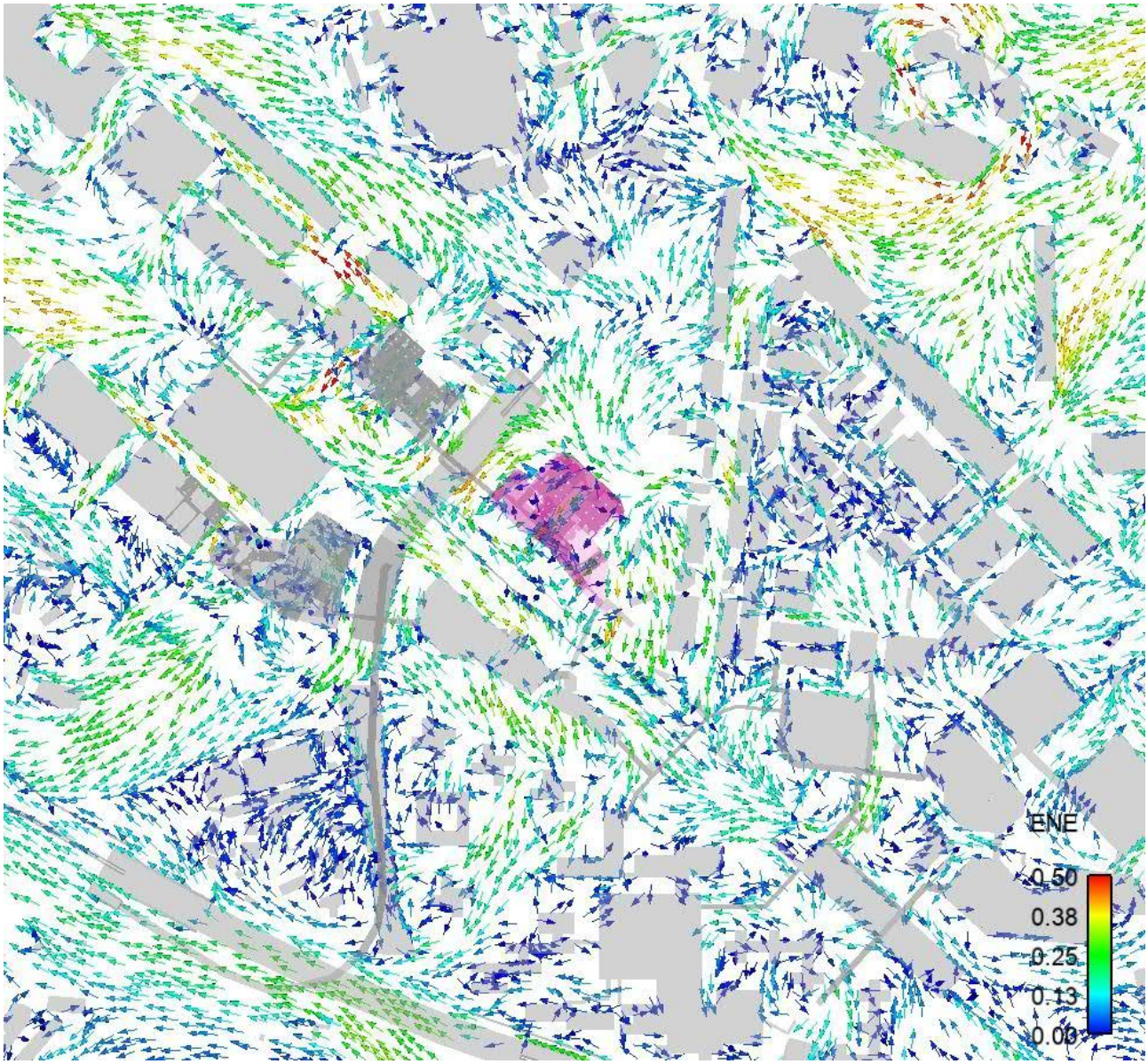
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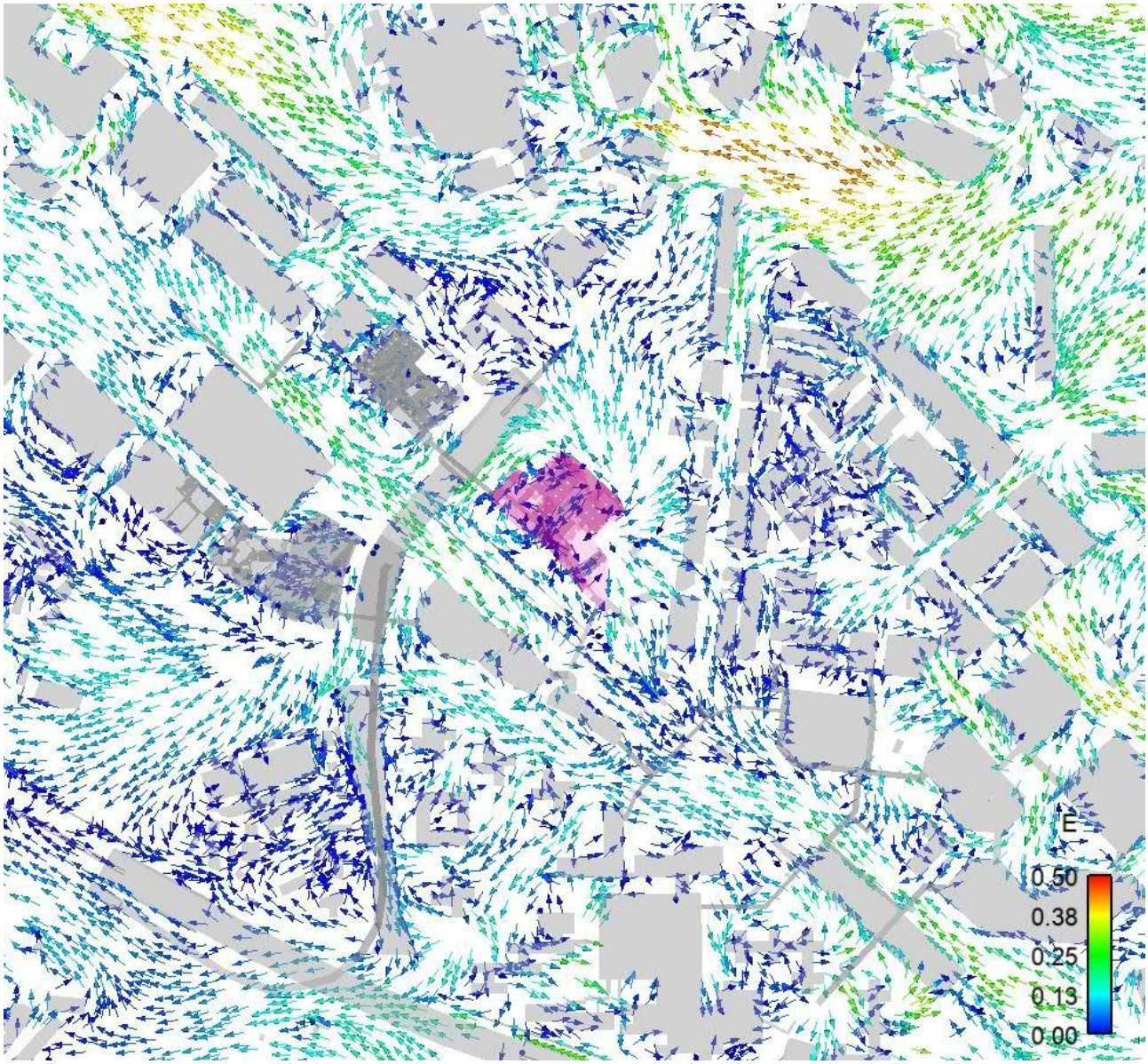
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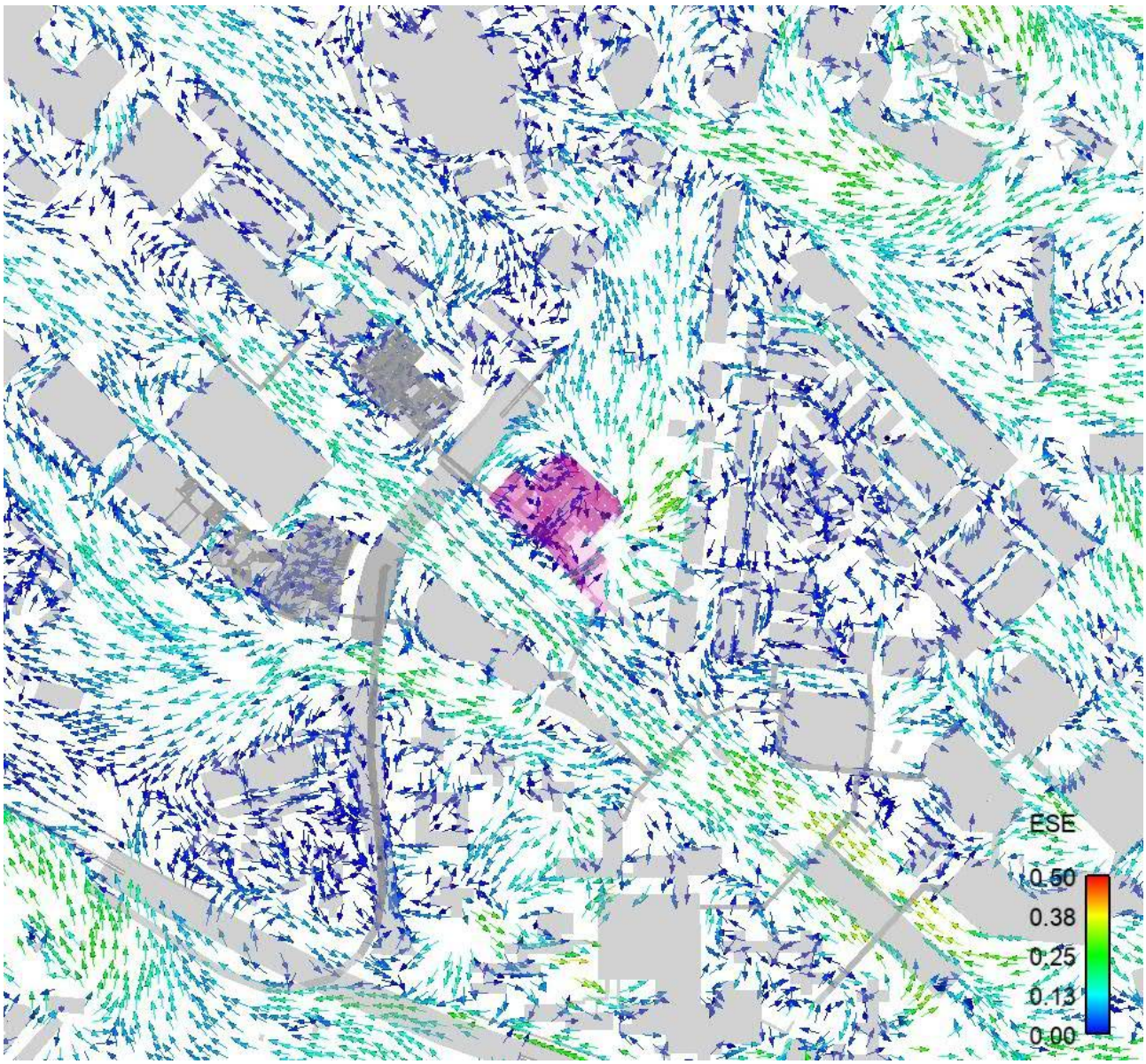
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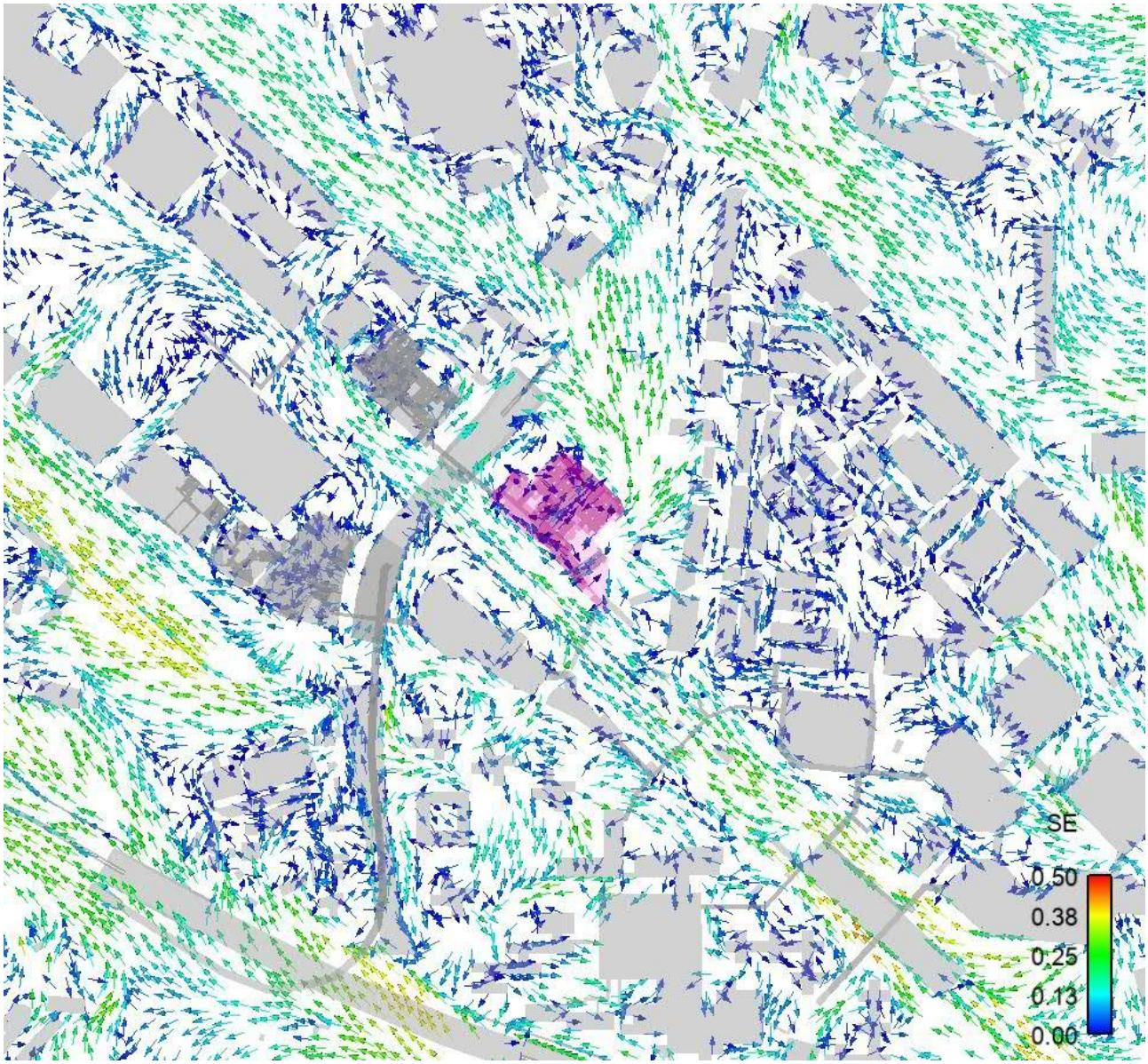
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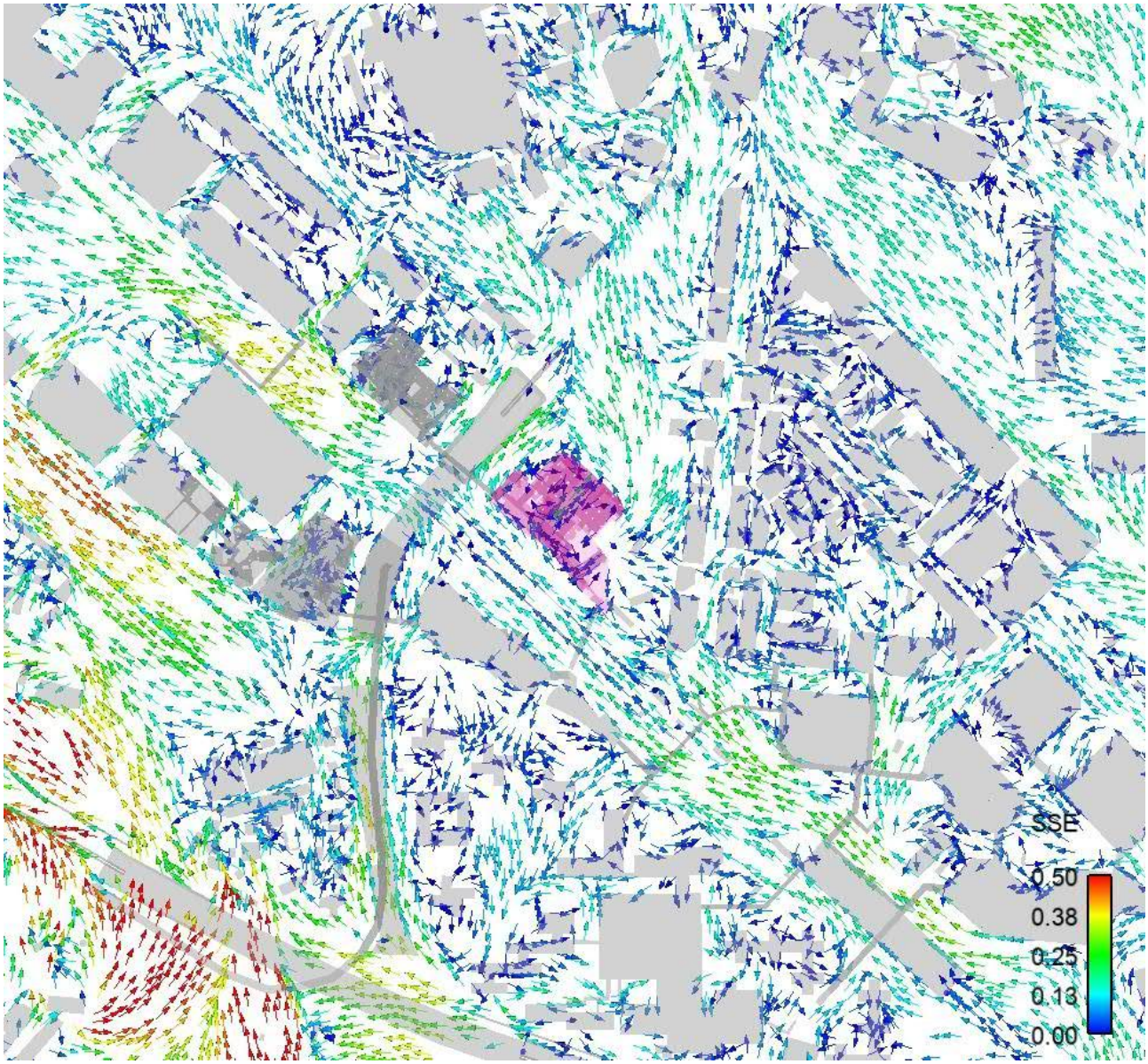
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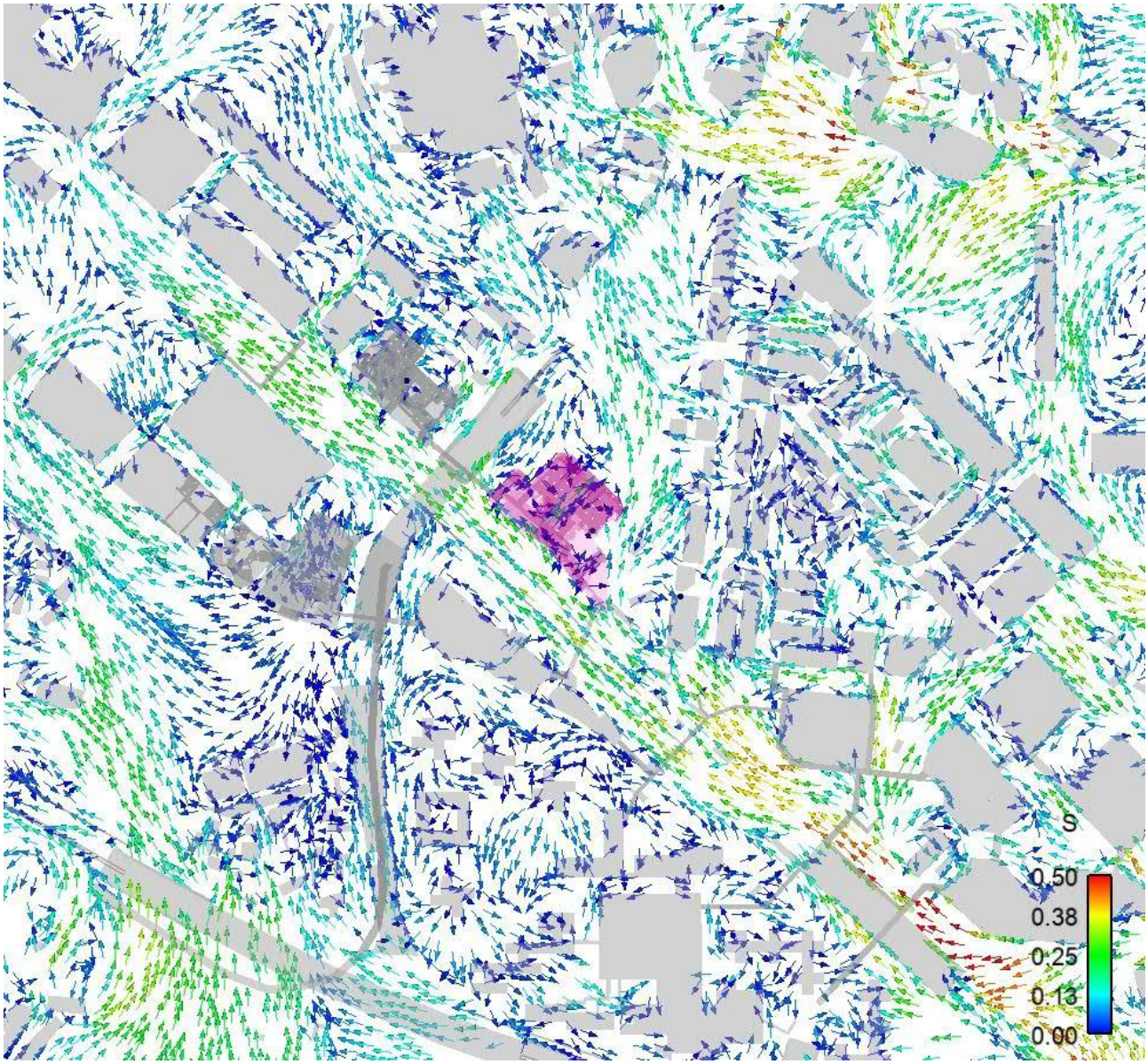
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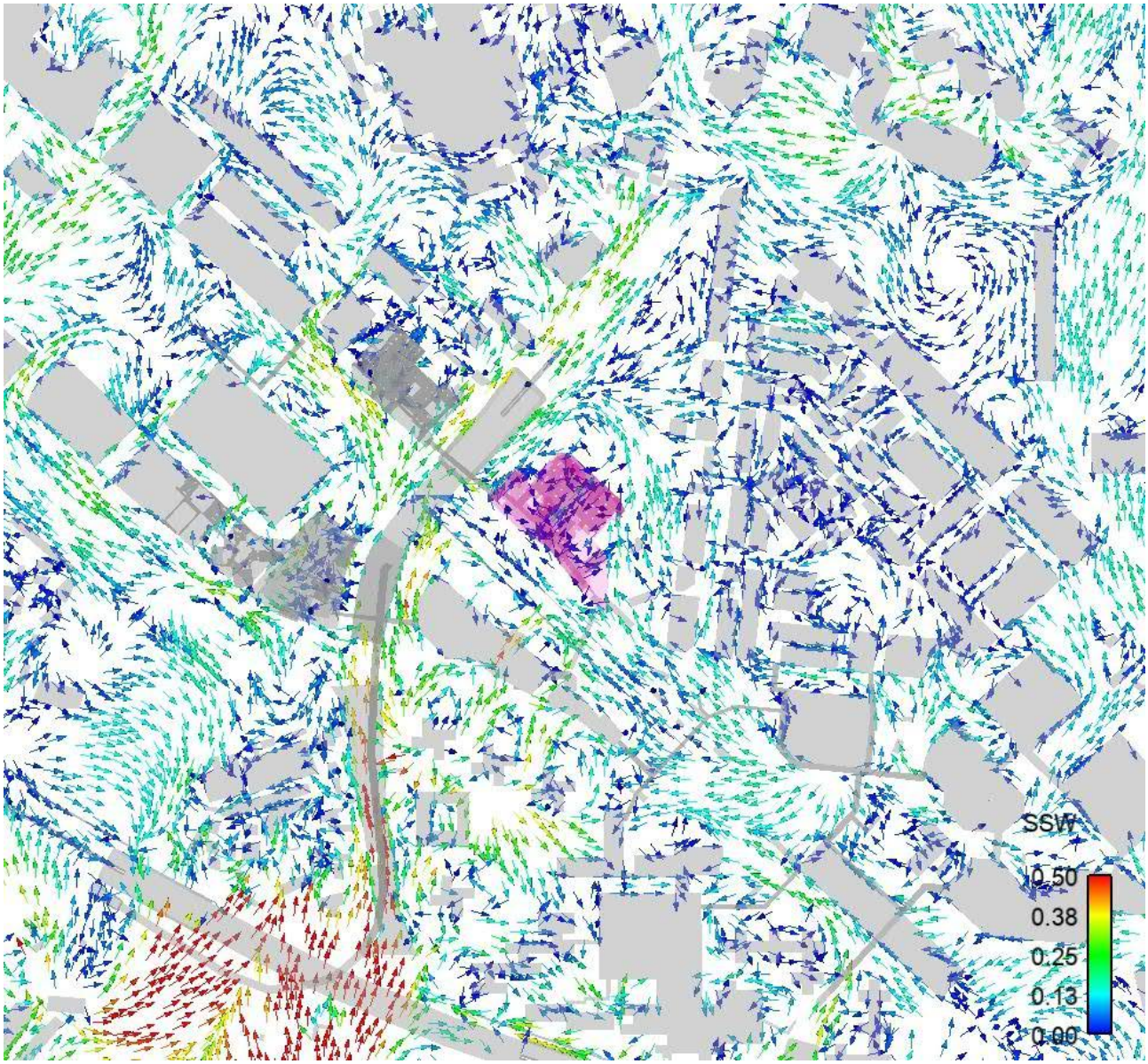
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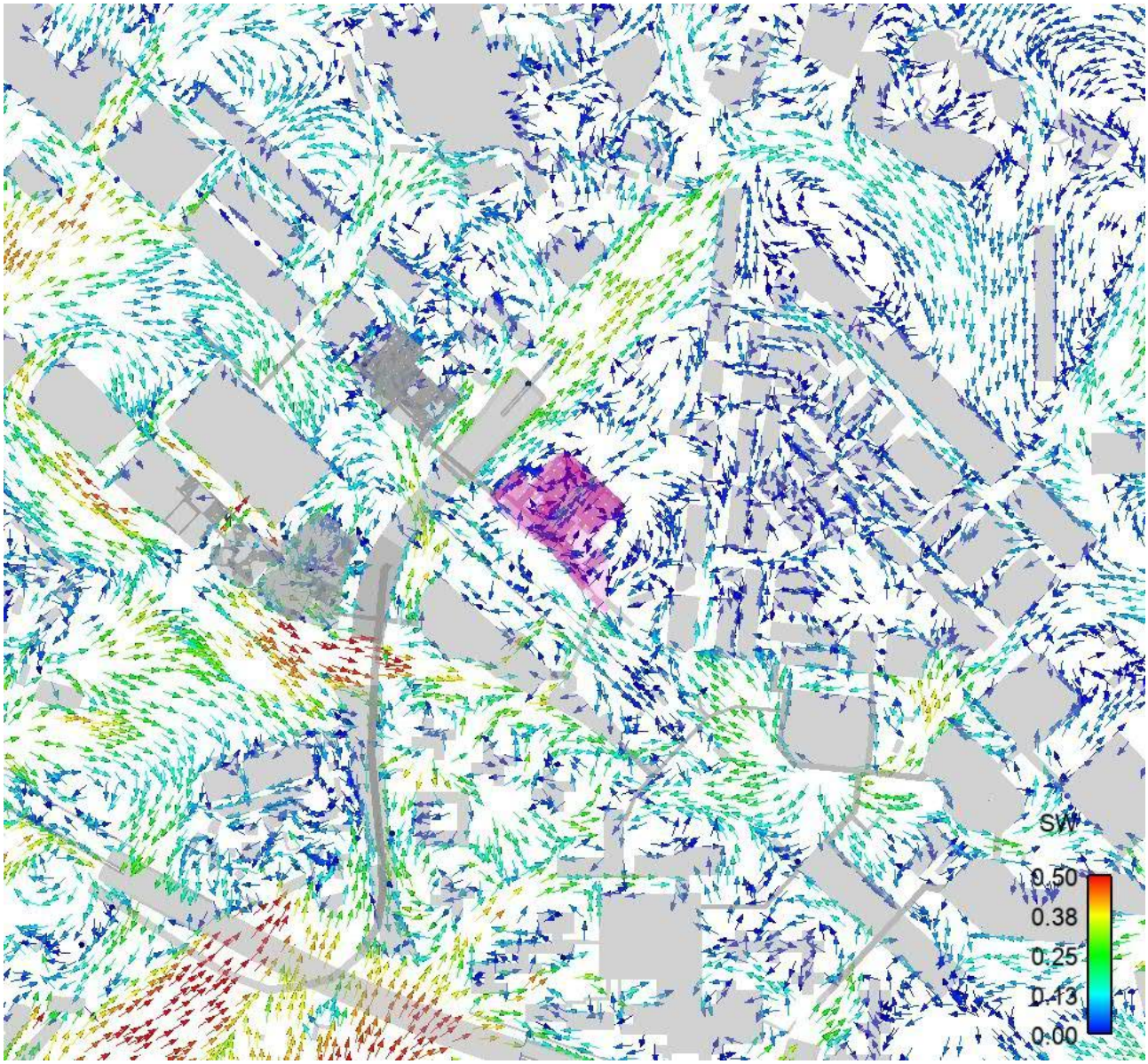
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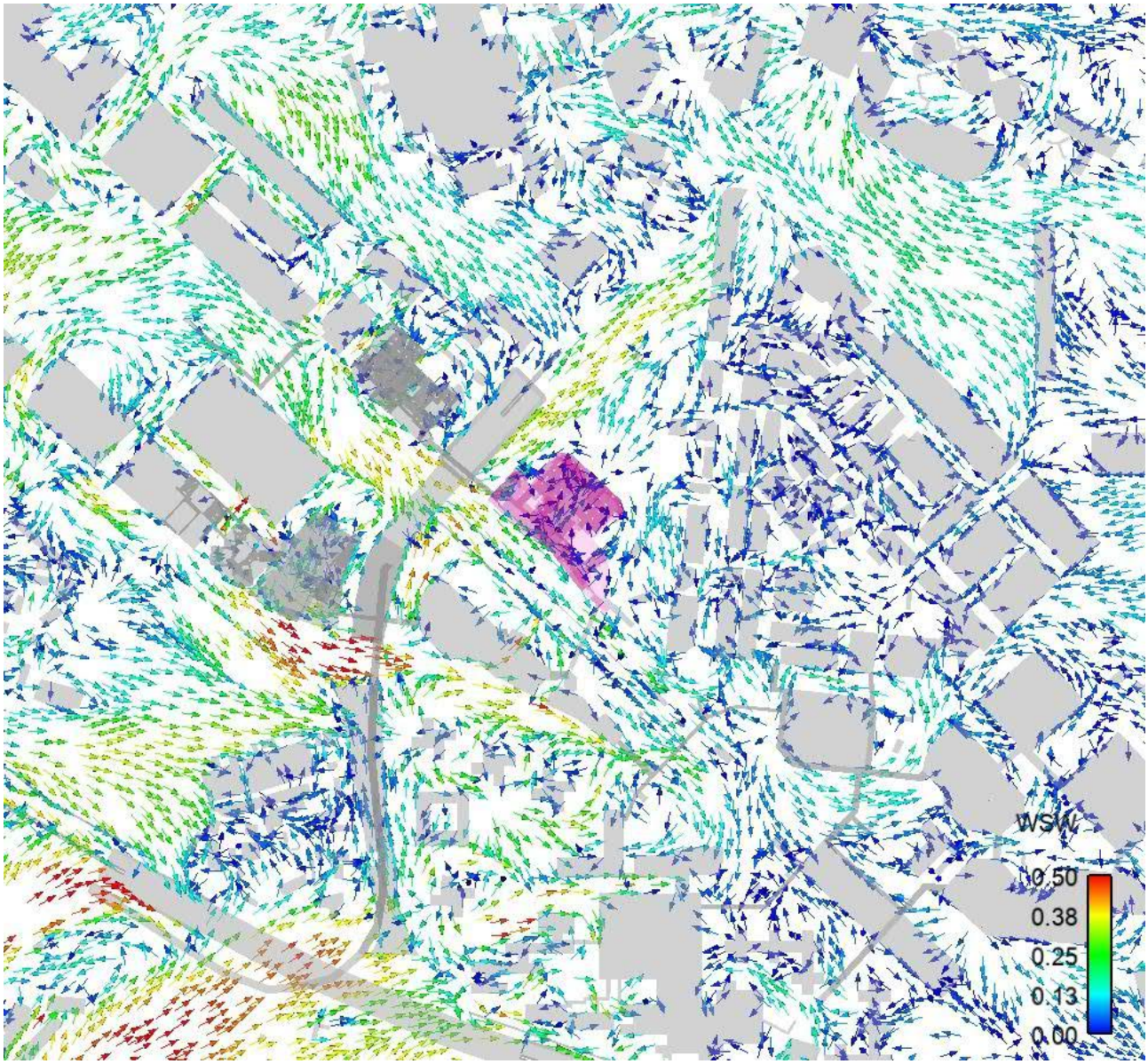
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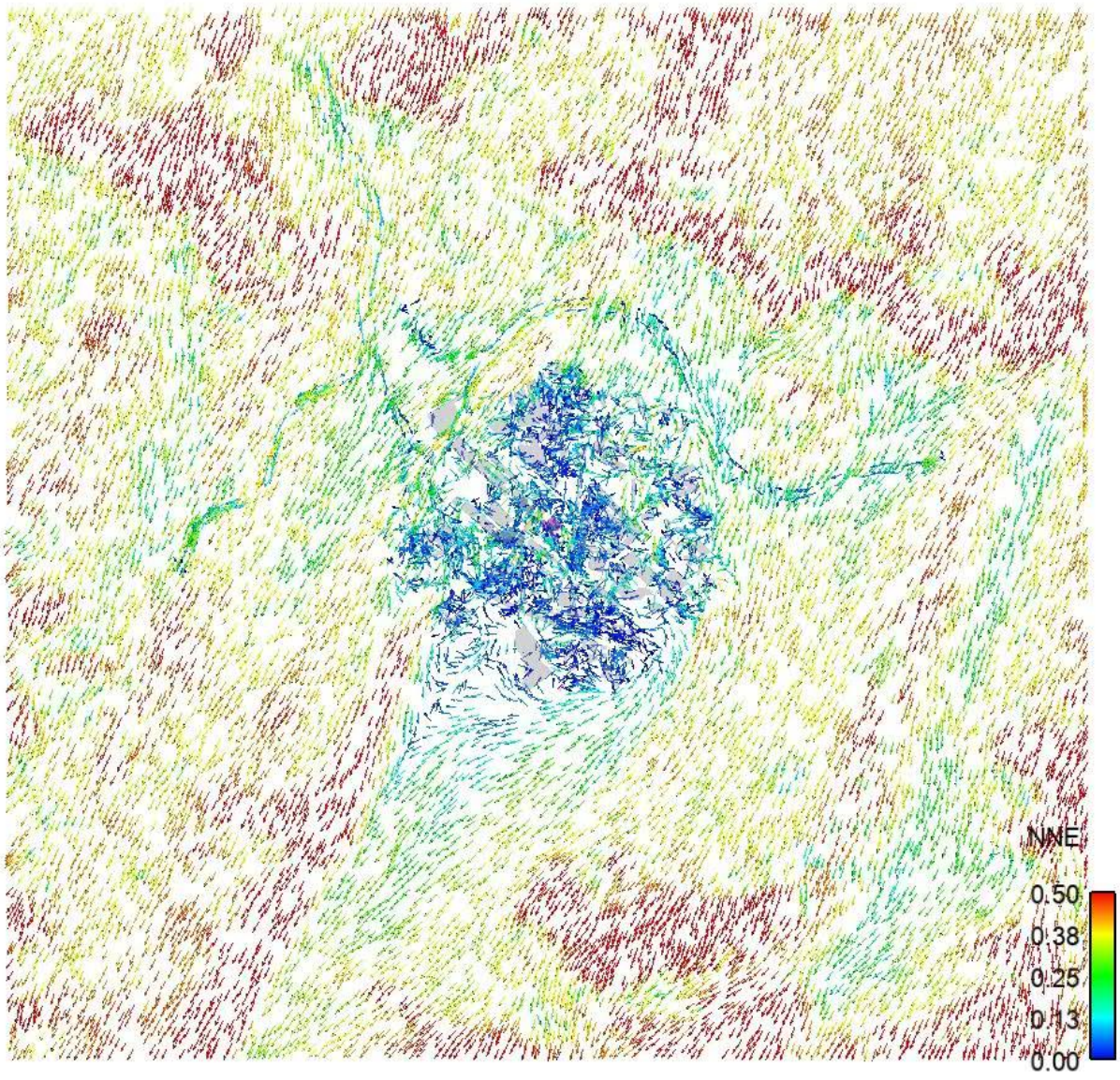
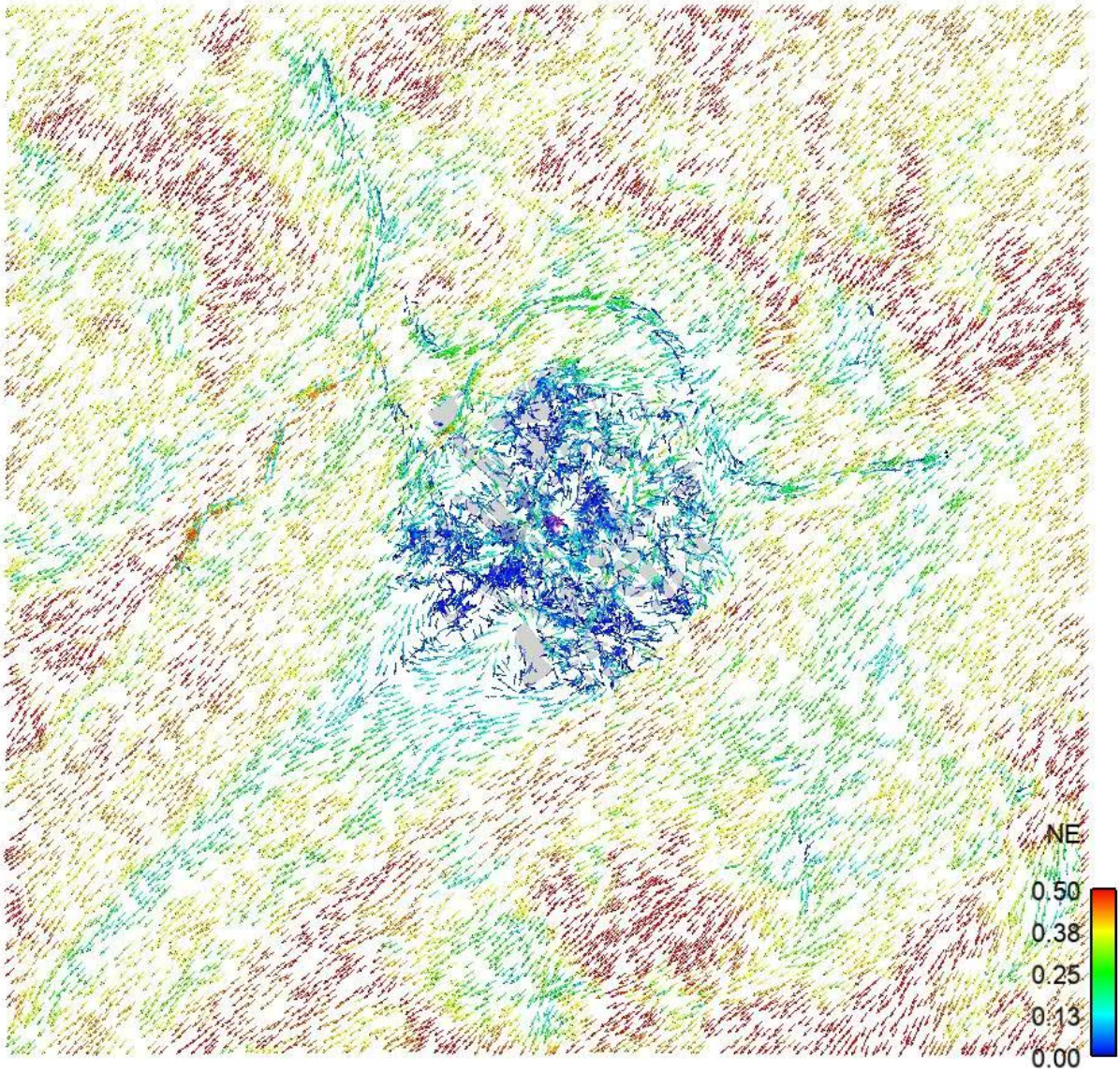
D.4 Proposed Scheme (Full Domain)

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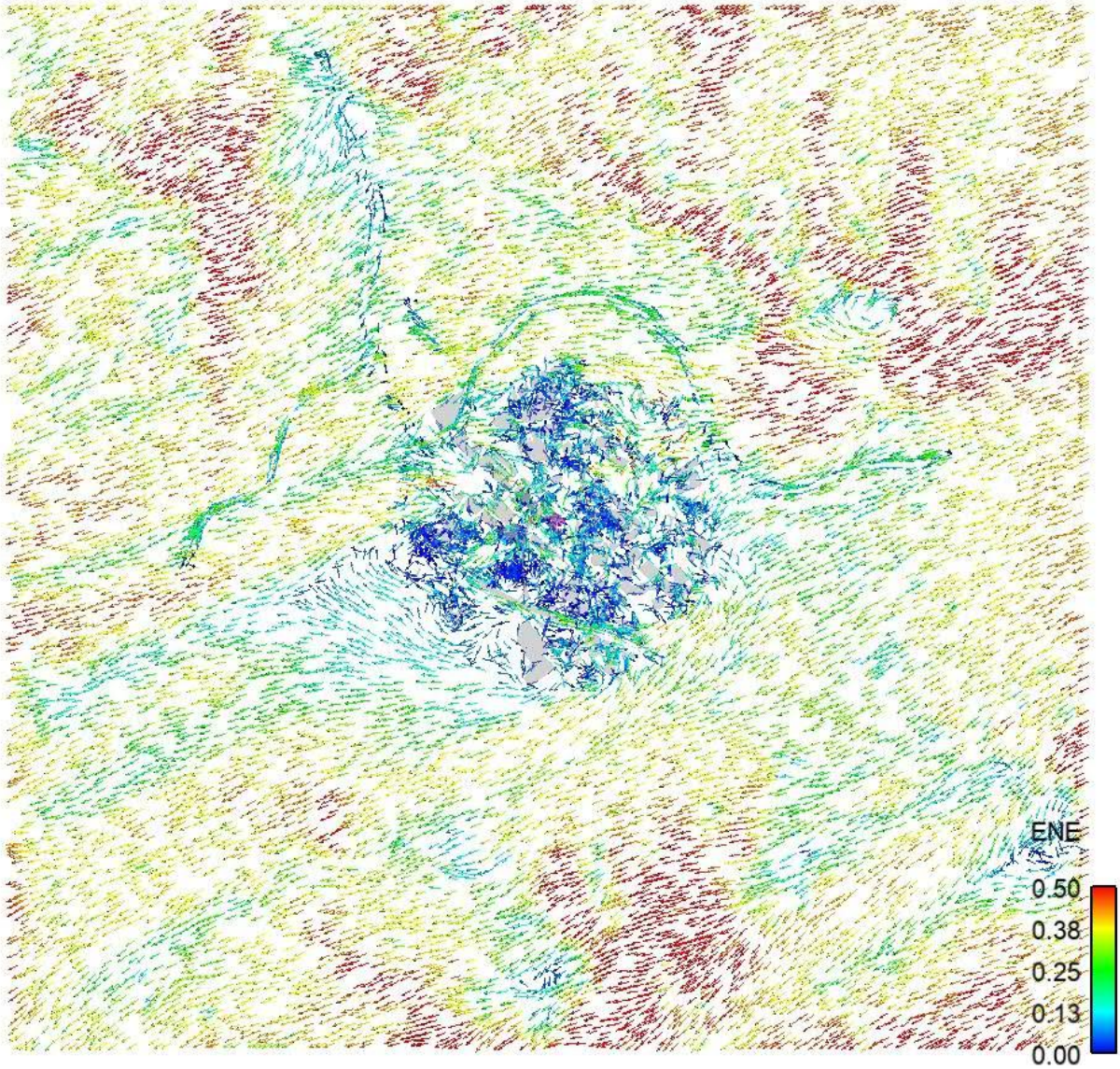
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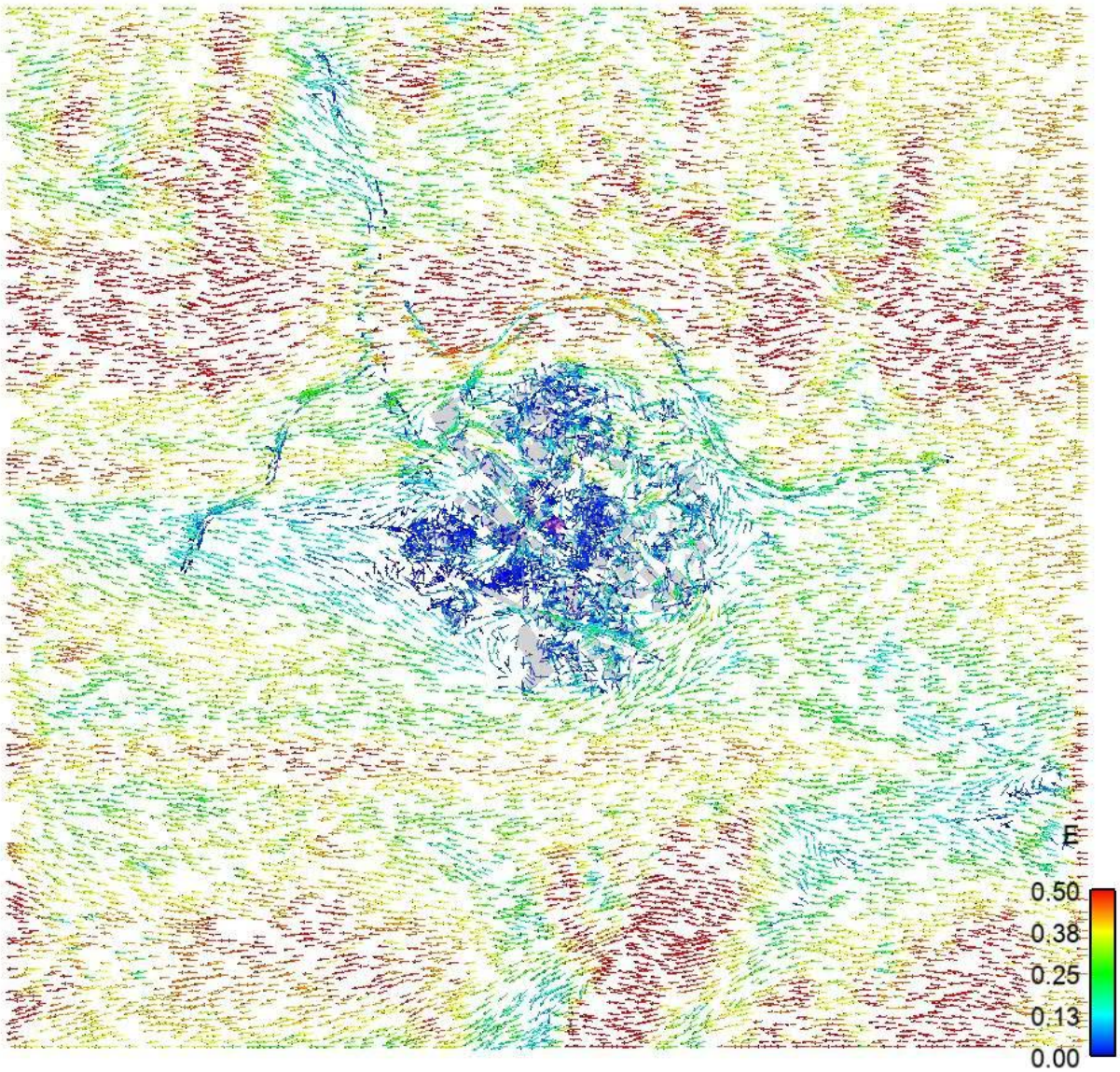
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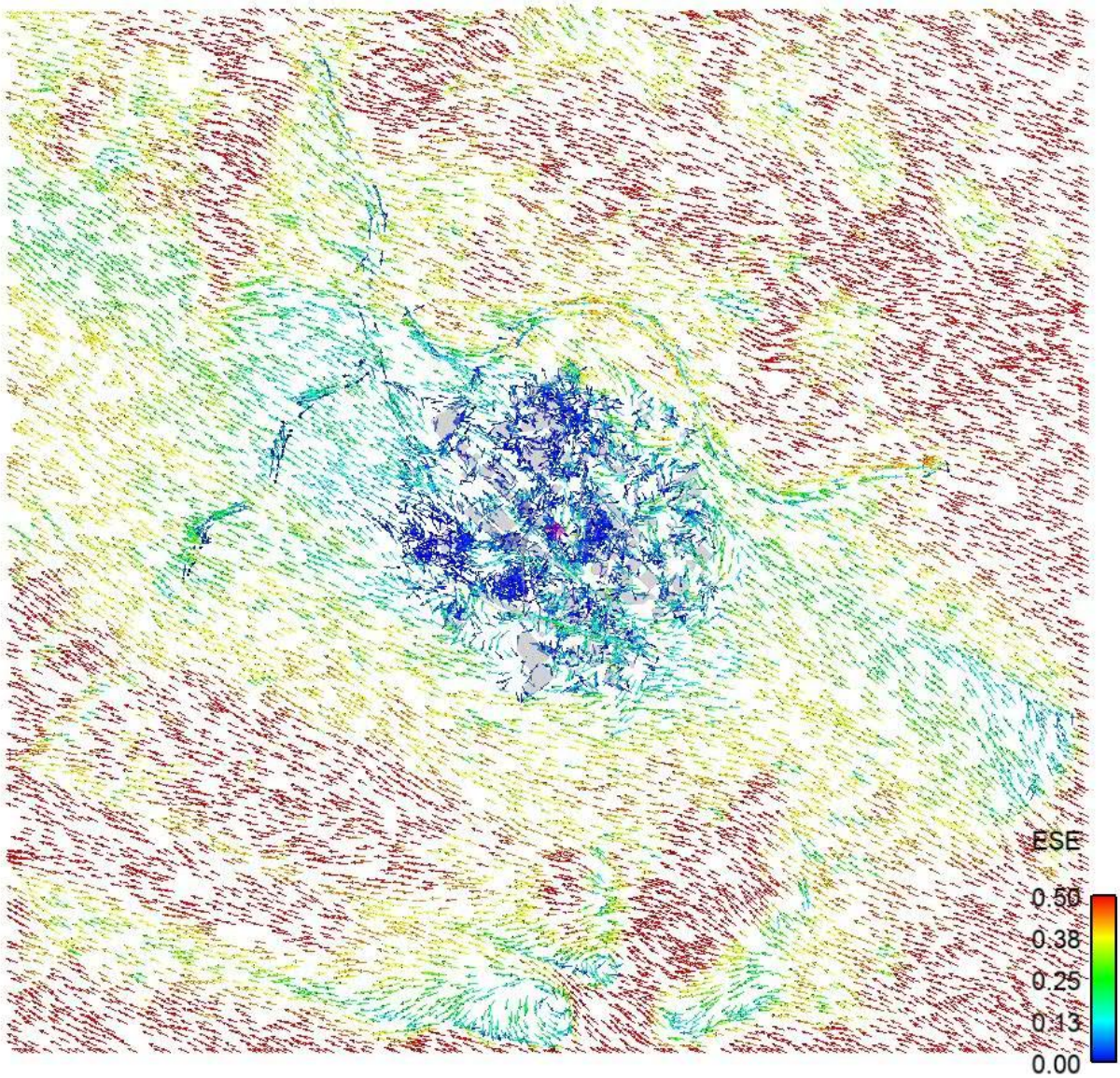
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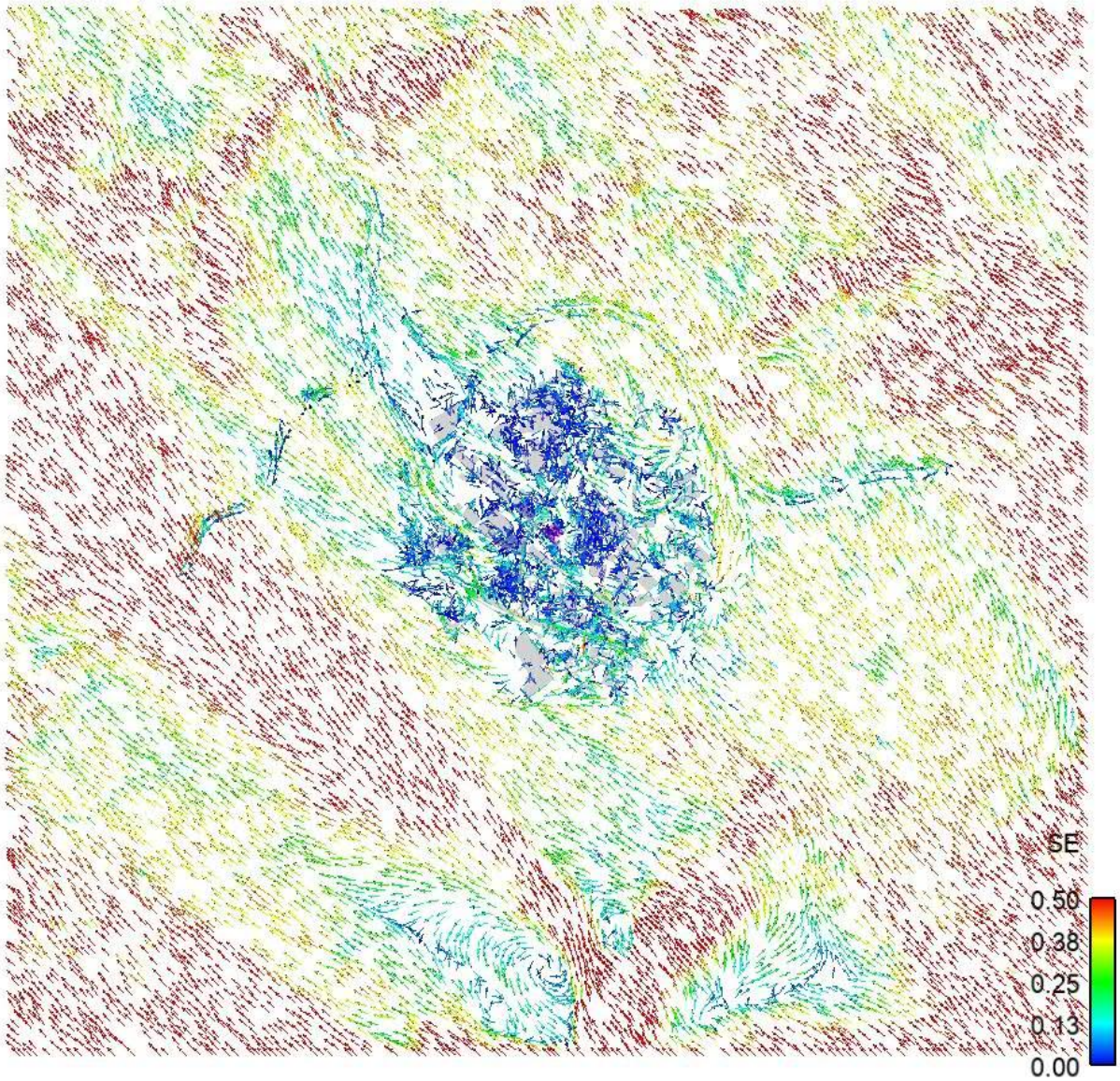
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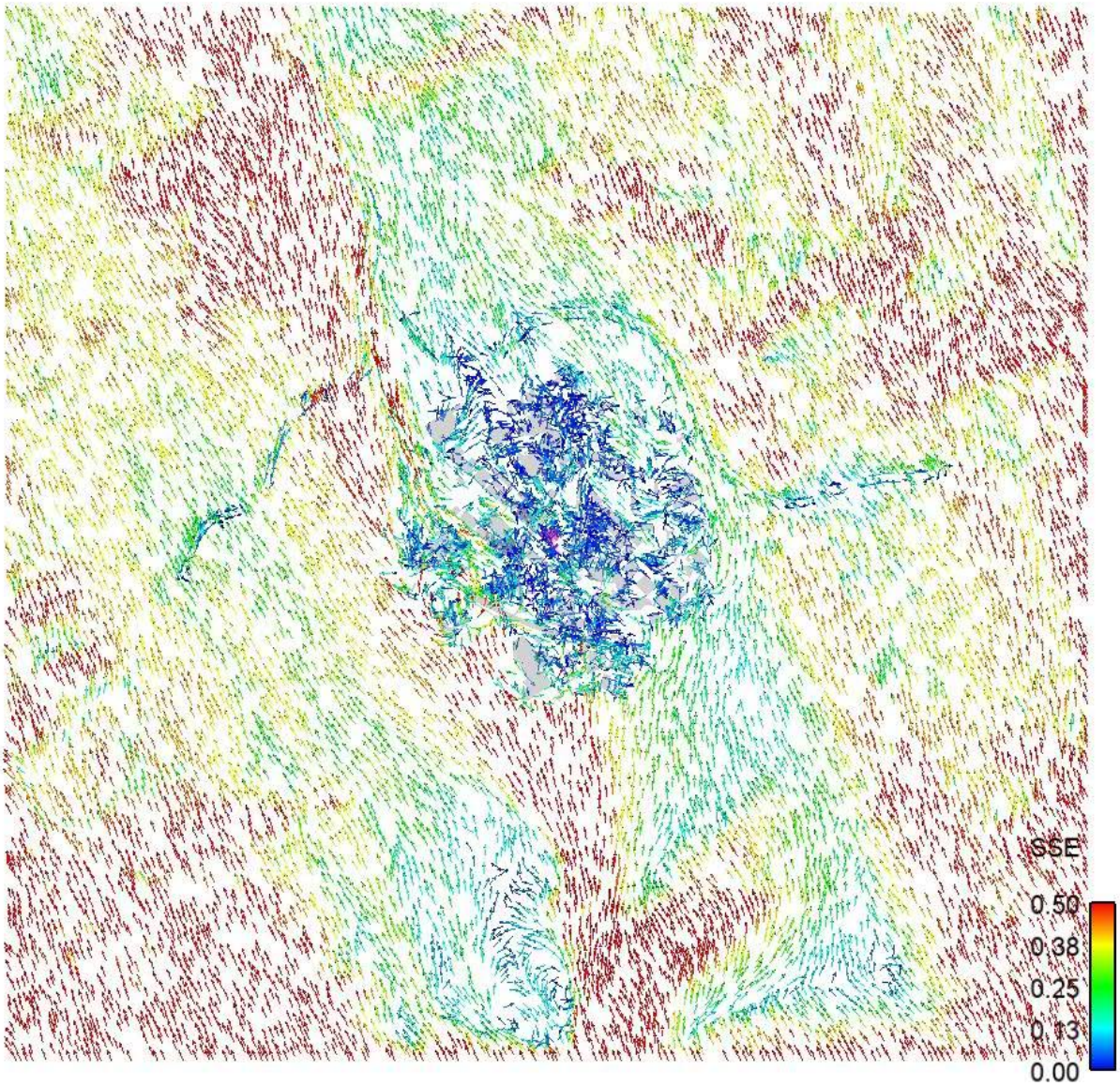
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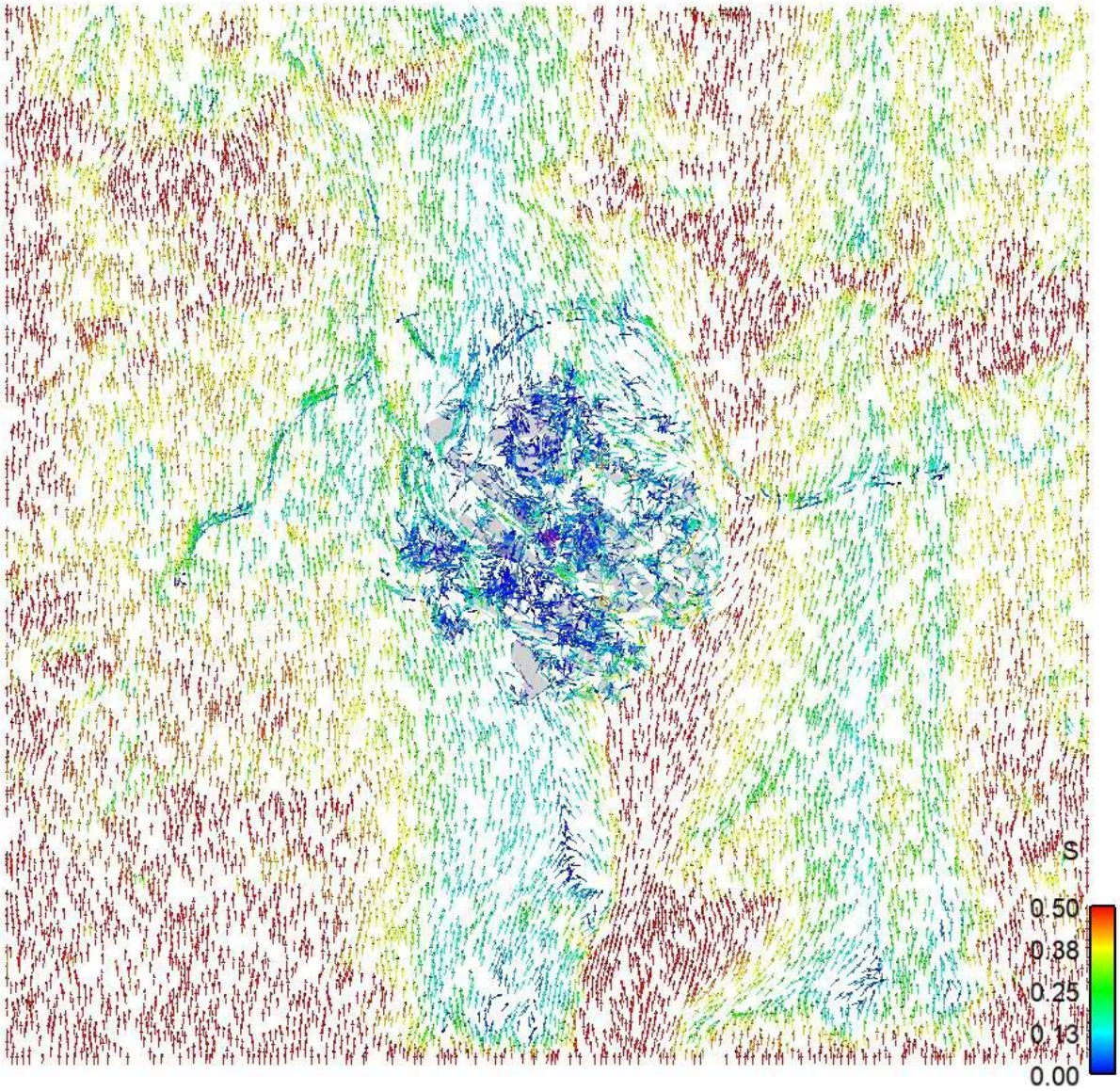
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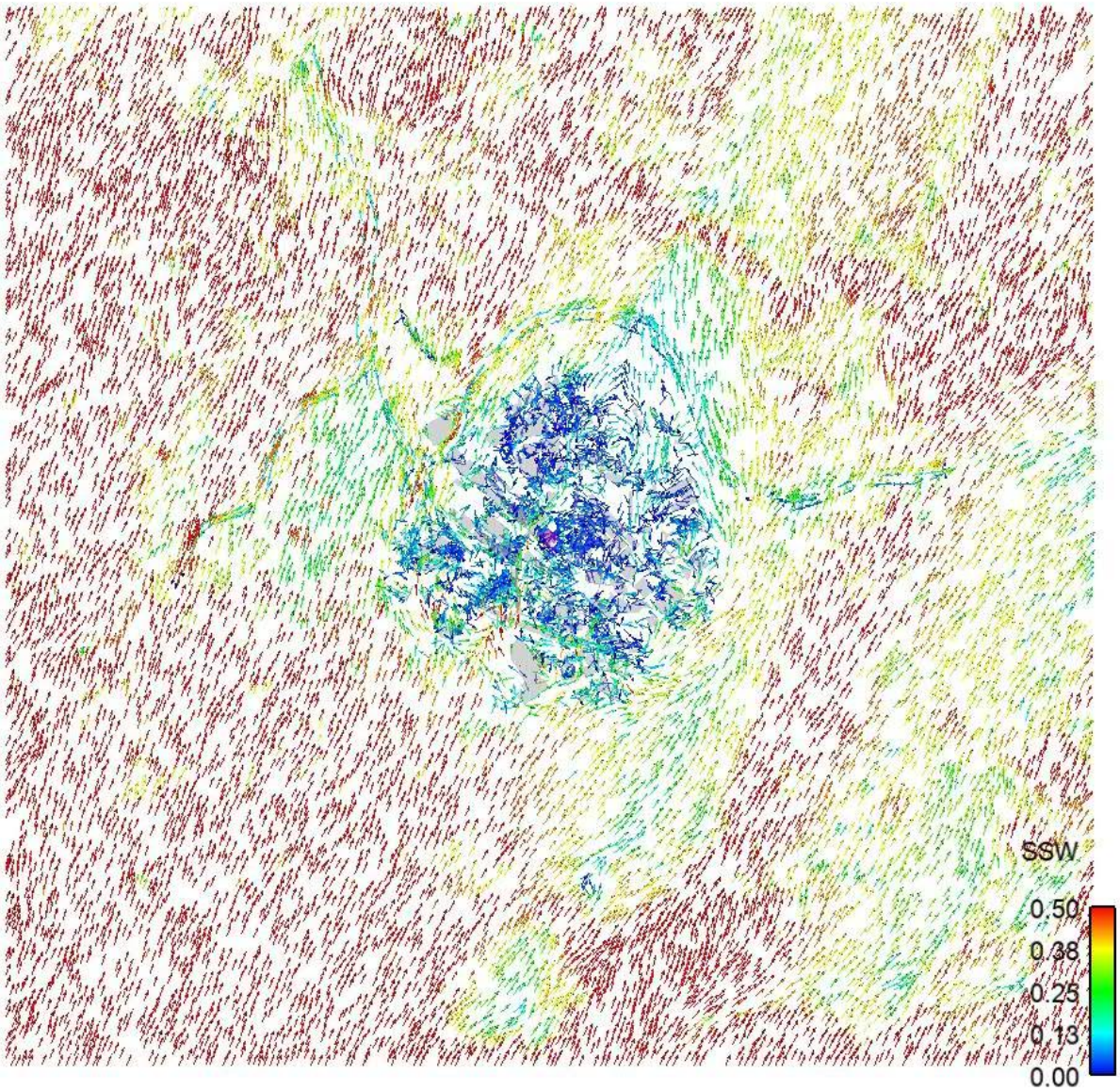
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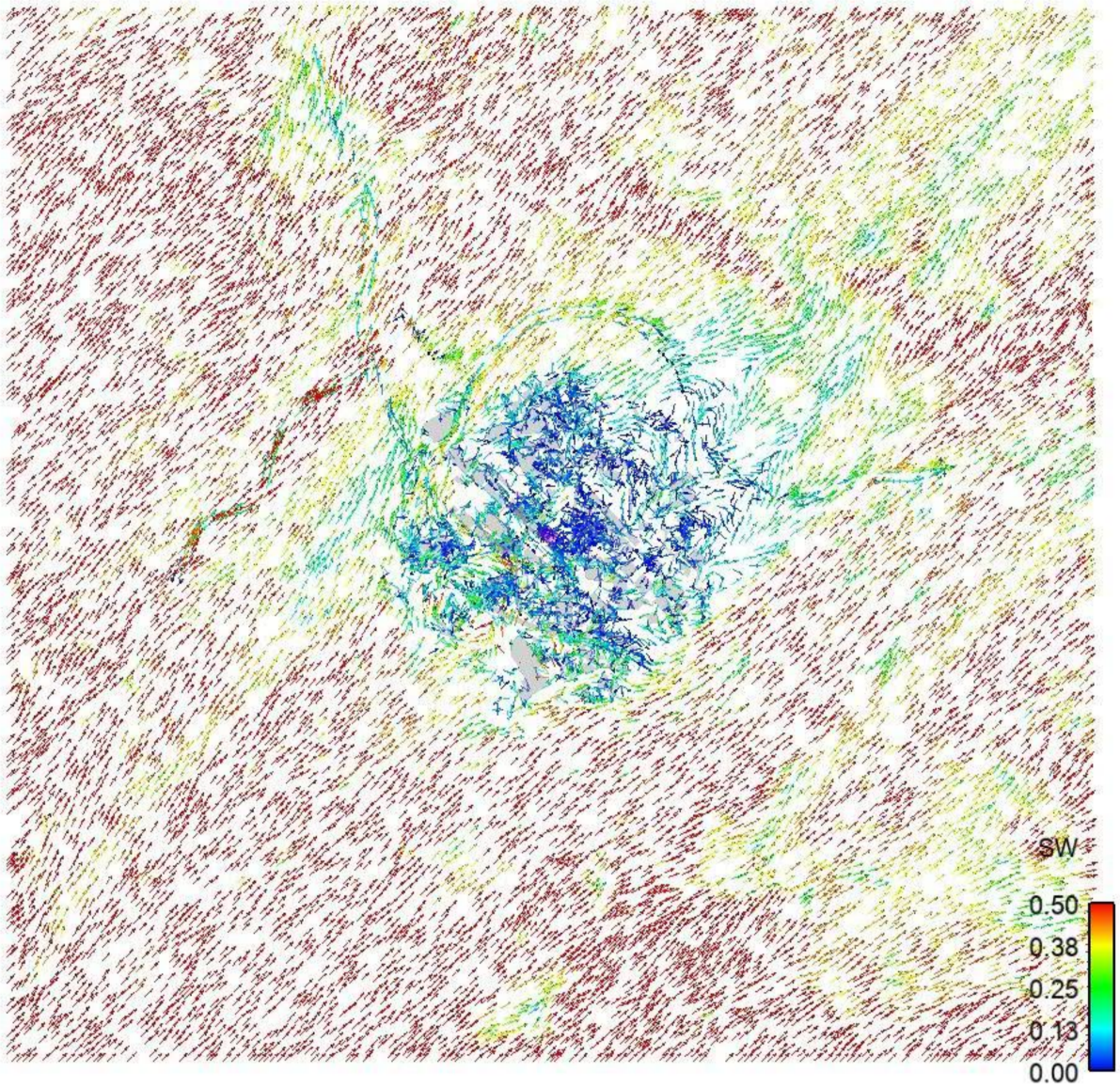
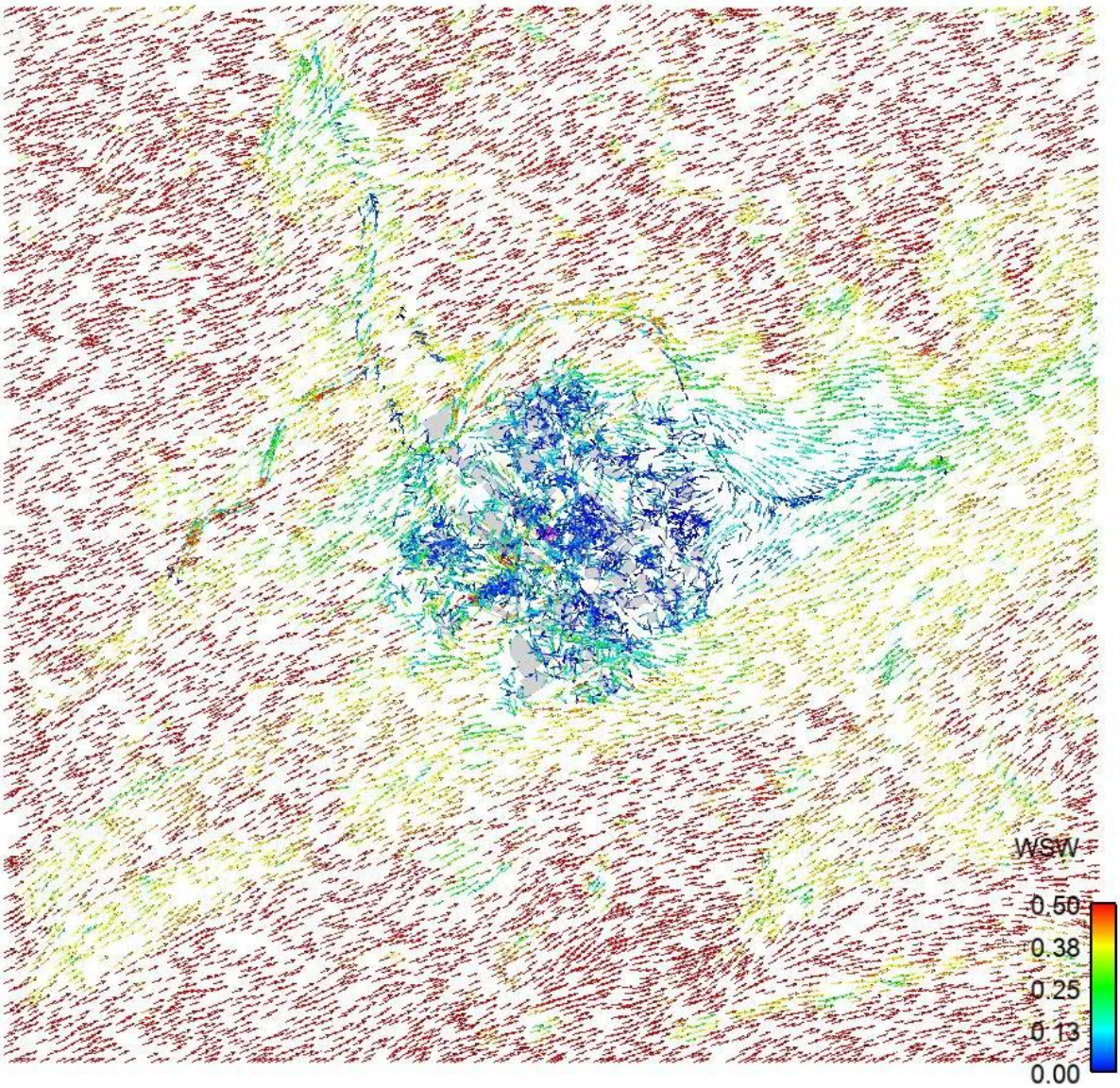


Fi u e 43 P oposed S heme Fu Doma P ot unde SW


WSW
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ARUP

Appendix E

Reference:

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Velocity Ratio (VR) at Test Point

Job number

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Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
arup.com

E.1 Baseline Scheme

□□□□ □□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□□	0.22	0.17	0.38	0.14	0.06	0.04	0.03	0.17	0.17	0.06	0.04	0.15	0.09
□□	0.23	0.19	0.40	0.14	0.16	0.19	0.06	0.11	0.17	0.07	0.04	0.19	0.12
□□	0.24	0.21	0.39	0.13	0.20	0.23	0.09	0.10	0.17	0.06	0.06	0.21	0.13
□□	0.20	0.15	0.30	0.05	0.18	0.20	0.12	0.09	0.15	0.02	0.05	0.16	0.11
□□	0.16	0.04	0.26	0.03	0.17	0.18	0.12	0.13	0.13	0.02	0.04	0.13	0.10
□&	0.19	0.06	0.21	0.05	0.17	0.22	0.16	0.20	0.15	0.02	0.02	0.13	0.12
□□	0.31	0.10	0.15	0.10	0.18	0.25	0.18	0.21	0.15	0.09	0.02	0.16	0.14
□(	0.30	0.12	0.15	0.12	0.18	0.25	0.18	0.22	0.16	0.09	0.03	0.17	0.15
□)	0.26	0.10	0.20	0.10	0.16	0.25	0.16	0.18	0.15	0.07	0.05	0.16	0.14
□□	0.19	0.07	0.23	0.10	0.11	0.20	0.08	0.07	0.05	0.04	0.12	0.13	0.09
□□□	0.17	0.06	0.21	0.13	0.10	0.20	0.11	0.06	0.02	0.02	0.13	0.12	0.09
□□□	0.15	0.06	0.23	0.17	0.11	0.20	0.09	0.02	0.05	0.04	0.18	0.14	0.10
□□□	0.11	0.07	0.24	0.20	0.10	0.18	0.04	0.01	0.09	0.04	0.38	0.14	0.12
□□□	0.09	0.09	0.24	0.19	0.09	0.10	0.05	0.04	0.05	0.05	0.38	0.13	0.11
□□□	0.10	0.11	0.22	0.14	0.09	0.04	0.10	0.06	0.08	0.12	0.39	0.12	0.12
□□&	0.14	0.13	0.23	0.13	0.08	0.04	0.15	0.07	0.12	0.16	0.40	0.13	0.14
□□□	0.18	0.16	0.24	0.10	0.07	0.07	0.16	0.06	0.11	0.16	0.42	0.13	0.14
□□(	0.28	0.21	0.27	0.08	0.03	0.08	0.15	0.05	0.16	0.17	0.39	0.14	0.14
□□)	0.35	0.26	0.30	0.06	0.02	0.02	0.07	0.03	0.18	0.16	0.37	0.14	0.12
□□	0.31	0.24	0.27	0.05	0.03	0.09	0.16	0.14	0.09	0.15	0.32	0.13	0.13
□□□	0.07	0.07	0.08	0.04	0.02	0.17	0.16	0.27	0.08	0.09	0.21	0.07	0.13
□□□	0.11	0.11	0.17	0.08	0.04	0.15	0.12	0.24	0.02	0.06	0.24	0.09	0.11
□□□	0.07	0.02	0.06	0.06	0.04	0.13	0.10	0.22	0.02	0.08	0.24	0.06	0.11
□□□	0.32	0.16	0.11	0.09	0.02	0.12	0.10	0.18	0.06	0.06	0.21	0.10	0.10
□□□	0.06	0.06	0.09	0.02	0.02	0.14	0.12	0.17	0.08	0.07	0.12	0.06	0.09
□□&	0.09	0.08	0.12	0.02	0.04	0.08	0.08	0.15	0.09	0.07	0.10	0.07	0.08
□□□	0.08	0.03	0.10	0.07	0.09	0.04	0.03	0.13	0.07	0.04	0.09	0.07	0.07
□□(	0.05	0.01	0.08	0.06	0.06	0.05	0.02	0.14	0.07	0.04	0.10	0.05	0.07
□□)	0.18	0.16	0.32	0.15	0.15	0.15	0.07	0.18	0.13	0.06	0.16	0.17	0.13
□□	0.04	0.05	0.08	0.03	0.10	0.13	0.09	0.18	0.17	0.05	0.17	0.07	0.11
□ □	0.09	0.04	0.02	0.01	0.03	0.03	0.13	0.15	0.06	0.08	0.04	0.04	0.07
□ □	0.09	0.04	0.02	0.02	0.04	0.05	0.13	0.12	0.12	0.07	0.07	0.05	0.08
□ □	0.12	0.04	0.02	0.02	0.04	0.02	0.14	0.13	0.05	0.06	0.07	0.04	0.07
□ □	0.16	0.02	0.02	0.01	0.03	0.02	0.08	0.04	0.15	0.07	0.07	0.05	0.06
□ □	0.06	0.07	0.03	0.01	0.03	0.11	0.25	0.07	0.27	0.09	0.05	0.07	0.12
□&	0.05	0.01	0.02	0.01	0.03	0.05	0.07	0.12	0.29	0.14	0.04	0.06	0.11
□ □	0.13	0.03	0.02	0.02	0.02	0.12	0.22	0.15	0.13	0.12	0.07	0.06	0.11

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□(	0.10	0.03	0.03	0.02	0.03	0.10	0.11	0.12	0.22	0.07	0.06	0.06	0.10
□)	0.11	0.02	0.03	0.02	0.02	0.05	0.04	0.03	0.18	0.10	0.05	0.05	0.07
□ □	0.05	0.02	0.03	0.02	0.01	0.02	0.04	0.03	0.09	0.07	0.05	0.03	0.05
□ □□	0.10	0.03	0.03	0.02	0.01	0.04	0.07	0.05	0.10	0.11	0.07	0.04	0.06
□ □□	0.06	0.04	0.04	0.03	0.01	0.07	0.12	0.03	0.07	0.07	0.06	0.04	0.06
□ □□	0.05	0.04	0.04	0.03	0.01	0.06	0.08	0.01	0.07	0.07	0.05	0.04	0.05
□ □□	0.09	0.04	0.03	0.02	0.01	0.05	0.06	0.05	0.06	0.15	0.07	0.04	0.07
□ □□	0.05	0.13	0.05	0.02	0.07	0.24	0.52	0.22	0.18	0.11	0.10	0.09	0.18
□ □&	0.01	0.11	0.04	0.01	0.07	0.21	0.19	0.15	0.27	0.30	0.10	0.10	0.18
□ □□	0.01	0.05	0.02	0.01	0.02	0.17	0.08	0.10	0.32	0.27	0.11	0.08	0.15
□ □(	0.03	0.01	0.03	0.02	0.01	0.04	0.07	0.05	0.26	0.15	0.18	0.05	0.11
□ □)	0.03	0.03	0.03	0.02	0.03	0.05	0.06	0.02	0.11	0.07	0.08	0.04	0.06
□ □	0.03	0.01	0.05	0.03	0.01	0.04	0.29	0.12	0.36	0.25	0.07	0.07	0.16
□ □□	0.03	0.02	0.01	0.00	0.02	0.07	0.31	0.11	0.36	0.25	0.08	0.06	0.17
□ □□	0.01	0.02	0.03	0.02	0.01	0.04	0.12	0.05	0.17	0.10	0.05	0.04	0.08
□ □□	0.04	0.02	0.03	0.02	0.03	0.08	0.11	0.02	0.14	0.03	0.08	0.04	0.07
□ □□	0.08	0.02	0.05	0.04	0.03	0.06	0.21	0.02	0.06	0.02	0.07	0.04	0.06
□ □□	0.17	0.04	0.08	0.07	0.05	0.13	0.18	0.01	0.07	0.04	0.08	0.08	0.07
□ □&	0.13	0.06	0.10	0.07	0.03	0.08	0.07	0.02	0.05	0.20	0.29	0.08	0.10
□ □□	0.34	0.22	0.26	0.15	0.15	0.04	0.11	0.01	0.06	0.42	0.38	0.19	0.17
□ □(	0.19	0.09	0.07	0.12	0.02	0.13	0.07	0.01	0.07	0.17	0.12	0.10	0.09
□ □)	0.25	0.13	0.13	0.10	0.04	0.16	0.04	0.02	0.04	0.29	0.28	0.12	0.13
□ □	0.17	0.12	0.19	0.12	0.11	0.25	0.14	0.02	0.12	0.27	0.28	0.16	0.17
□ □□	0.14	0.11	0.13	0.12	0.14	0.32	0.22	0.03	0.05	0.26	0.25	0.15	0.17
□ □□	0.13	0.08	0.32	0.11	0.13	0.34	0.24	0.04	0.15	0.26	0.22	0.18	0.19
□ □□	0.08	0.10	0.34	0.10	0.12	0.36	0.25	0.07	0.19	0.28	0.19	0.19	0.20
□ □□	0.19	0.10	0.27	0.09	0.13	0.37	0.28	0.08	0.15	0.29	0.14	0.19	0.20
□ □□	0.26	0.10	0.33	0.08	0.14	0.36	0.31	0.10	0.04	0.32	0.10	0.19	0.18
□ □&	0.22	0.13	0.26	0.07	0.15	0.36	0.33	0.12	0.08	0.22	0.12	0.17	0.18
□ □□	0.17	0.12	0.05	0.06	0.15	0.35	0.34	0.15	0.14	0.07	0.11	0.13	0.16
□ □(	0.16	0.16	0.08	0.03	0.17	0.36	0.38	0.23	0.17	0.12	0.03	0.14	0.18
□ □)	0.21	0.05	0.12	0.04	0.13	0.36	0.37	0.16	0.13	0.18	0.05	0.14	0.17
□ □	0.26	0.07	0.08	0.06	0.12	0.36	0.35	0.16	0.11	0.15	0.08	0.13	0.17
□ □□	0.16	0.20	0.37	0.13	0.13	0.19	0.43	0.21	0.30	0.49	0.36	0.22	0.29
□ □□	0.11	0.16	0.17	0.11	0.10	0.14	0.24	0.14	0.22	0.26	0.18	0.15	0.18
□ □□	0.28	0.16	0.39	0.19	0.12	0.14	0.21	0.18	0.27	0.29	0.20	0.22	0.21
□ □□	0.03	0.07	0.11	0.06	0.05	0.08	0.07	0.13	0.26	0.27	0.14	0.10	0.15
□ □□	0.07	0.05	0.11	0.09	0.12	0.02	0.12	0.05	0.15	0.16	0.11	0.09	0.11
□ □&	0.05	0.07	0.08	0.07	0.07	0.01	0.13	0.06	0.04	0.10	0.11	0.07	0.07
□ □□	0.03	0.08	0.18	0.11	0.07	0.02	0.10	0.06	0.04	0.11	0.14	0.09	0.08

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□ □(	0.03	0.08	0.28	0.13	0.08	0.06	0.14	0.04	0.04	0.08	0.13	0.11	0.08
□ □)	0.07	0.08	0.28	0.13	0.07	0.09	0.16	0.05	0.04	0.12	0.18	0.12	0.10
□ □	0.05	0.08	0.21	0.12	0.03	0.08	0.21	0.08	0.04	0.13	0.19	0.10	0.10
□ □□	0.06	0.08	0.21	0.13	0.03	0.05	0.23	0.08	0.04	0.09	0.14	0.09	0.09
□ □□	0.06	0.10	0.17	0.12	0.02	0.02	0.22	0.07	0.08	0.13	0.15	0.09	0.10
□ □□	0.07	0.11	0.04	0.12	0.04	0.01	0.23	0.13	0.06	0.14	0.16	0.07	0.11
□ □□	0.12	0.04	0.13	0.07	0.10	0.02	0.09	0.04	0.11	0.11	0.11	0.09	0.08
□ □□	0.28	0.17	0.41	0.18	0.12	0.05	0.11	0.07	0.11	0.25	0.14	0.20	0.14
□ □&	0.17	0.08	0.40	0.15	0.09	0.02	0.19	0.16	0.20	0.46	0.37	0.18	0.22
□ □□	0.21	0.15	0.33	0.08	0.05	0.05	0.27	0.18	0.21	0.49	0.48	0.17	0.24
□ □(	0.12	0.06	0.11	0.12	0.15	0.04	0.09	0.03	0.06	0.19	0.18	0.11	0.11
□ □)	0.23	0.11	0.15	0.11	0.11	0.03	0.10	0.02	0.15	0.13	0.20	0.12	0.11
□&	0.10	0.15	0.08	0.13	0.08	0.02	0.03	0.02	0.07	0.17	0.14	0.10	0.09
□&□	0.15	0.15	0.14	0.08	0.02	0.05	0.05	0.07	0.04	0.15	0.19	0.09	0.08
□&□	0.20	0.16	0.21	0.03	0.02	0.09	0.14	0.12	0.21	0.11	0.32	0.11	0.13
□&□	0.40	0.22	0.44	0.16	0.13	0.10	0.12	0.10	0.21	0.25	0.23	0.22	0.17
□&□	0.39	0.23	0.41	0.13	0.11	0.12	0.19	0.11	0.21	0.18	0.15	0.21	0.16
□&□	0.23	0.15	0.27	0.05	0.04	0.13	0.27	0.12	0.21	0.13	0.09	0.13	0.13
□&&	0.35	0.21	0.37	0.10	0.08	0.16	0.37	0.14	0.24	0.10	0.09	0.18	0.16
□&□	0.26	0.18	0.29	0.12	0.15	0.05	0.16	0.02	0.22	0.30	0.31	0.18	0.18
□&(	0.07	0.07	0.10	0.06	0.13	0.04	0.10	0.03	0.11	0.33	0.33	0.10	0.15
□&)	0.05	0.03	0.07	0.02	0.07	0.06	0.13	0.04	0.15	0.34	0.36	0.08	0.16
□ □	0.08	0.06	0.10	0.03	0.05	0.04	0.08	0.03	0.08	0.25	0.25	0.07	0.11
□ □□	0.08	0.05	0.09	0.03	0.08	0.03	0.05	0.02	0.05	0.24	0.23	0.07	0.10
□ □□	0.39	0.24	0.41	0.14	0.13	0.05	0.05	0.03	0.06	0.49	0.48	0.22	0.19
□ □□	0.38	0.22	0.36	0.13	0.09	0.07	0.13	0.06	0.09	0.56	0.55	0.21	0.22
□ □□	0.36	0.20	0.27	0.11	0.07	0.13	0.37	0.20	0.31	0.62	0.59	0.21	0.32
□ □□	0.39	0.22	0.25	0.11	0.07	0.14	0.41	0.22	0.35	0.64	0.60	0.22	0.34
□ □&	0.09	0.03	0.11	0.04	0.03	0.07	0.24	0.12	0.18	0.28	0.27	0.09	0.16
□ □□	0.16	0.04	0.08	0.02	0.01	0.05	0.10	0.04	0.06	0.17	0.18	0.06	0.08
□ □(	0.17	0.20	0.14	0.07	0.02	0.10	0.15	0.13	0.30	0.07	0.09	0.12	0.12
□ □)	0.34	0.24	0.27	0.15	0.02	0.08	0.24	0.13	0.32	0.07	0.07	0.16	0.14
□(	0.40	0.26	0.15	0.18	0.02	0.07	0.26	0.10	0.25	0.21	0.20	0.17	0.17
□(□	0.16	0.07	0.28	0.10	0.06	0.10	0.20	0.18	0.35	0.26	0.06	0.15	0.18
□(□	0.17	0.09	0.25	0.08	0.05	0.12	0.20	0.17	0.36	0.26	0.08	0.15	0.18
□(□	0.29	0.19	0.26	0.03	0.04	0.15	0.22	0.20	0.38	0.28	0.09	0.16	0.19
□(□	0.34	0.23	0.28	0.03	0.02	0.17	0.23	0.23	0.38	0.28	0.10	0.17	0.20
□(□	0.35	0.24	0.29	0.07	0.02	0.17	0.25	0.25	0.40	0.30	0.09	0.19	0.21
□(&	0.32	0.20	0.38	0.10	0.07	0.03	0.03	0.02	0.05	0.07	0.30	0.15	0.08
□(□	0.34	0.19	0.35	0.07	0.03	0.03	0.19	0.11	0.14	0.19	0.26	0.15	0.13

□□□□ □□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□((	0.25	0.22	0.40	0.13	0.08	0.06	0.25	0.17	0.23	0.18	0.30	0.18	0.18
□()	0.28	0.24	0.40	0.13	0.09	0.02	0.20	0.09	0.08	0.21	0.15	0.17	0.12
□)	0.10	0.04	0.04	0.08	0.09	0.03	0.29	0.22	0.28	0.06	0.23	0.08	0.16
□) □	0.08	0.08	0.10	0.07	0.07	0.02	0.30	0.22	0.29	0.07	0.22	0.09	0.16
□) □	0.06	0.07	0.10	0.06	0.06	0.02	0.30	0.21	0.28	0.14	0.28	0.09	0.17
□) □	0.13	0.12	0.20	0.04	0.04	0.04	0.29	0.20	0.28	0.20	0.34	0.11	0.19
□) □	0.36	0.23	0.42	0.13	0.02	0.10	0.14	0.12	0.05	0.25	0.36	0.18	0.15
□) □	0.33	0.21	0.36	0.12	0.01	0.10	0.05	0.07	0.04	0.25	0.42	0.16	0.13
□) &	0.29	0.23	0.35	0.15	0.07	0.07	0.08	0.13	0.04	0.16	0.38	0.17	0.13
□) □	0.24	0.21	0.24	0.11	0.05	0.05	0.11	0.15	0.04	0.14	0.41	0.13	0.12
□) (	0.18	0.20	0.35	0.14	0.09	0.03	0.11	0.14	0.03	0.06	0.38	0.14	0.11
□))	0.05	0.13	0.21	0.02	0.08	0.05	0.08	0.06	0.09	0.06	0.05	0.08	0.06
□□	0.17	0.06	0.23	0.03	0.07	0.06	0.11	0.09	0.04	0.07	0.09	0.09	0.07
□□ □	0.17	0.08	0.14	0.03	0.05	0.06	0.07	0.09	0.05	0.08	0.14	0.07	0.07
□□ □	0.11	0.06	0.17	0.05	0.08	0.05	0.03	0.07	0.08	0.12	0.03	0.09	0.07
□□ □	0.19	0.19	0.40	0.14	0.14	0.02	0.08	0.10	0.06	0.13	0.27	0.16	0.11
□□ □	0.19	0.19	0.42	0.12	0.11	0.01	0.06	0.07	0.06	0.14	0.13	0.16	0.09
□□ □	0.15	0.27	0.51	0.14	0.12	0.02	0.15	0.13	0.15	0.12	0.17	0.19	0.13
□□ &	0.21	0.19	0.50	0.10	0.09	0.03	0.02	0.03	0.07	0.13	0.08	0.16	0.07
□□ □	0.12	0.13	0.42	0.23	0.05	0.08	0.03	0.07	0.07	0.10	0.16	0.16	0.09
□□ (	0.11	0.03	0.46	0.06	0.05	0.02	0.02	0.06	0.11	0.07	0.21	0.12	0.08
□□)	0.20	0.06	0.36	0.14	0.03	0.02	0.01	0.10	0.13	0.13	0.25	0.13	0.10
□ □□	0.28	0.15	0.36	0.18	0.02	0.01	0.03	0.11	0.09	0.15	0.25	0.15	0.11
□ □□□	0.36	0.22	0.34	0.15	0.01	0.01	0.03	0.05	0.06	0.13	0.20	0.15	0.08
□ □□□	0.42	0.27	0.35	0.13	0.02	0.01	0.03	0.07	0.10	0.12	0.15	0.16	0.08
□ □□□	0.41	0.28	0.32	0.11	0.03	0.01	0.04	0.04	0.07	0.15	0.18	0.16	0.08
□ □□□	0.09	0.04	0.26	0.13	0.06	0.06	0.11	0.09	0.24	0.38	0.42	0.14	0.20
□ □□□	0.06	0.04	0.14	0.11	0.06	0.04	0.13	0.08	0.14	0.26	0.39	0.10	0.16
□ □□&	0.28	0.14	0.25	0.12	0.07	0.02	0.15	0.14	0.10	0.17	0.30	0.14	0.13
□ □□□	0.12	0.09	0.06	0.08	0.05	0.02	0.10	0.13	0.06	0.13	0.25	0.07	0.10
□ □□(	0.16	0.08	0.12	0.21	0.07	0.15	0.03	0.10	0.06	0.06	0.21	0.12	0.10
□ □□)	0.15	0.04	0.16	0.22	0.07	0.14	0.02	0.12	0.10	0.06	0.25	0.13	0.11
□ □□	0.17	0.06	0.17	0.24	0.08	0.17	0.03	0.12	0.11	0.10	0.29	0.15	0.13
□ □□□	0.17	0.06	0.14	0.22	0.09	0.18	0.05	0.12	0.12	0.12	0.29	0.14	0.14
□ □□□	0.18	0.05	0.17	0.20	0.09	0.20	0.06	0.12	0.14	0.14	0.26	0.15	0.15
□ □□□	0.15	0.04	0.20	0.22	0.09	0.21	0.03	0.12	0.08	0.15	0.24	0.15	0.14
□ □□□	0.08	0.01	0.22	0.18	0.08	0.21	0.05	0.06	0.07	0.21	0.16	0.14	0.13
□ □□□	0.07	0.04	0.22	0.10	0.08	0.21	0.11	0.04	0.07	0.17	0.14	0.12	0.12
□ □□&	0.06	0.04	0.23	0.19	0.07	0.21	0.15	0.04	0.06	0.08	0.15	0.13	0.11
□ □□□	0.07	0.05	0.20	0.19	0.06	0.18	0.16	0.08	0.07	0.10	0.16	0.12	0.11

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□ □□(	0.09	0.04	0.10	0.14	0.04	0.10	0.12	0.09	0.07	0.05	0.07	0.08	0.08
□ □□)	0.12	0.05	0.11	0.16	0.06	0.14	0.02	0.12	0.09	0.11	0.28	0.11	0.12
□ □□	0.09	0.04	0.11	0.16	0.05	0.13	0.04	0.08	0.03	0.07	0.21	0.10	0.09
□ □□□	0.09	0.03	0.09	0.14	0.06	0.12	0.05	0.07	0.03	0.11	0.19	0.09	0.09
□ □□□	0.09	0.03	0.11	0.16	0.06	0.11	0.04	0.07	0.06	0.10	0.20	0.10	0.10
□ □□□	0.09	0.04	0.12	0.19	0.06	0.13	0.03	0.10	0.08	0.09	0.29	0.11	0.12
□ □□□	0.13	0.04	0.13	0.19	0.07	0.15	0.03	0.12	0.10	0.12	0.29	0.12	0.13
□ □□□	0.10	0.05	0.09	0.13	0.04	0.10	0.04	0.06	0.04	0.05	0.17	0.08	0.07
□ □□&	0.09	0.04	0.09	0.13	0.05	0.09	0.03	0.07	0.05	0.11	0.17	0.09	0.09
□ □□□	0.08	0.04	0.10	0.13	0.03	0.08	0.01	0.10	0.08	0.09	0.18	0.08	0.09
□ □□(	0.16	0.09	0.08	0.17	0.05	0.12	0.02	0.12	0.06	0.12	0.20	0.11	0.10
□ □□)	0.18	0.08	0.12	0.12	0.01	0.10	0.04	0.11	0.04	0.08	0.20	0.09	0.08
□ □□	0.18	0.04	0.17	0.22	0.01	0.09	0.02	0.11	0.06	0.05	0.18	0.11	0.08
□ □□□	0.15	0.05	0.07	0.17	0.02	0.04	0.04	0.09	0.06	0.01	0.16	0.08	0.07
□ □□□	0.05	0.12	0.08	0.04	0.03	0.04	0.06	0.06	0.04	0.04	0.06	0.05	0.05
□ □□□	0.08	0.12	0.08	0.08	0.03	0.03	0.04	0.04	0.04	0.03	0.09	0.06	0.04
□ □□□	0.10	0.05	0.03	0.07	0.05	0.05	0.11	0.09	0.09	0.03	0.15	0.06	0.08
□ □□□	0.12	0.13	0.11	0.18	0.06	0.06	0.12	0.14	0.07	0.03	0.16	0.10	0.09
□ □□&	0.06	0.15	0.13	0.10	0.06	0.05	0.09	0.09	0.03	0.02	0.10	0.08	0.06
□ □□□	0.05	0.15	0.13	0.03	0.04	0.04	0.06	0.05	0.06	0.02	0.07	0.06	0.04
□ □□(	0.14	0.13	0.05	0.25	0.11	0.23	0.10	0.29	0.10	0.08	0.05	0.15	0.15
□ □□)	0.13	0.13	0.05	0.25	0.13	0.23	0.11	0.33	0.11	0.08	0.07	0.15	0.16
□ □□	0.08	0.10	0.10	0.09	0.05	0.09	0.12	0.16	0.05	0.03	0.05	0.07	0.07
□ □□□	0.09	0.13	0.17	0.08	0.03	0.11	0.13	0.14	0.07	0.03	0.06	0.09	0.08
□ □□□	0.13	0.14	0.14	0.20	0.08	0.19	0.12	0.23	0.08	0.07	0.06	0.14	0.12
□ □□□	0.06	0.02	0.06	0.09	0.04	0.04	0.03	0.16	0.07	0.05	0.06	0.06	0.07
□ □□□	0.07	0.03	0.06	0.20	0.10	0.09	0.04	0.27	0.13	0.08	0.08	0.11	0.12
□ □□□	0.19	0.06	0.07	0.28	0.16	0.16	0.11	0.34	0.18	0.11	0.13	0.16	0.18
□ □□&	0.20	0.04	0.07	0.21	0.11	0.13	0.11	0.33	0.17	0.05	0.15	0.13	0.15
□ □□□	0.23	0.11	0.07	0.29	0.17	0.19	0.15	0.39	0.21	0.11	0.20	0.18	0.21
□ □□(	0.23	0.12	0.12	0.35	0.20	0.21	0.14	0.38	0.20	0.15	0.16	0.21	0.22
□ □□)	0.23	0.12	0.17	0.40	0.21	0.22	0.12	0.36	0.19	0.17	0.14	0.24	0.22
□ □&	0.24	0.14	0.20	0.42	0.23	0.24	0.14	0.37	0.20	0.15	0.18	0.25	0.23
□ □&□	0.22	0.13	0.14	0.37	0.22	0.23	0.16	0.40	0.23	0.14	0.22	0.23	0.24
□ □&□	0.17	0.11	0.11	0.32	0.20	0.22	0.17	0.43	0.24	0.12	0.24	0.20	0.24
□ □&□	0.24	0.08	0.08	0.06	0.16	0.21	0.16	0.39	0.19	0.10	0.21	0.13	0.19
□ □&□	0.22	0.04	0.04	0.11	0.12	0.18	0.14	0.33	0.16	0.10	0.22	0.12	0.17
□ □&□	0.19	0.08	0.06	0.19	0.13	0.17	0.15	0.40	0.20	0.04	0.23	0.14	0.18
□ □&&	0.16	0.11	0.07	0.27	0.17	0.21	0.17	0.44	0.24	0.07	0.25	0.17	0.22
□ □&□	0.09	0.06	0.13	0.31	0.20	0.22	0.18	0.48	0.27	0.10	0.28	0.19	0.25

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□ □&	0.10	0.03	0.18	0.34	0.22	0.23	0.18	0.50	0.27	0.15	0.29	0.21	0.26
□ □&	0.10	0.05	0.23	0.38	0.24	0.22	0.17	0.45	0.23	0.18	0.24	0.23	0.26
□ □□	0.08	0.06	0.28	0.39	0.25	0.18	0.15	0.33	0.16	0.17	0.19	0.23	0.22
□ □□□	0.06	0.06	0.33	0.38	0.26	0.15	0.13	0.23	0.13	0.17	0.19	0.23	0.20
□ □□□	0.07	0.06	0.38	0.35	0.23	0.10	0.09	0.15	0.10	0.16	0.19	0.22	0.16
□ □□□	0.12	0.06	0.41	0.32	0.20	0.07	0.07	0.15	0.08	0.15	0.19	0.21	0.15
□ □□□	0.09	0.17	0.42	0.31	0.21	0.05	0.05	0.29	0.09	0.13	0.18	0.21	0.16
□ □□□	0.31	0.27	0.30	0.26	0.05	0.05	0.05	0.27	0.04	0.09	0.14	0.18	0.11
□ □□&	0.21	0.28	0.28	0.27	0.05	0.13	0.13	0.28	0.03	0.14	0.15	0.18	0.14
□ □□□	0.31	0.28	0.27	0.24	0.02	0.08	0.08	0.24	0.04	0.11	0.14	0.17	0.11
□ □□(	0.27	0.26	0.26	0.15	0.03	0.03	0.03	0.13	0.06	0.06	0.09	0.14	0.07
□ □□)	0.27	0.26	0.24	0.13	0.04	0.04	0.03	0.08	0.06	0.07	0.09	0.13	0.06
□ □(	0.31	0.28	0.22	0.19	0.02	0.09	0.09	0.17	0.04	0.11	0.12	0.15	0.10
□ □(□	0.23	0.29	0.25	0.24	0.04	0.14	0.14	0.23	0.03	0.13	0.13	0.17	0.13
□ □(□	0.24	0.28	0.22	0.19	0.09	0.16	0.16	0.14	0.03	0.12	0.08	0.17	0.11
□ □(□	0.30	0.27	0.19	0.14	0.05	0.12	0.12	0.11	0.05	0.12	0.08	0.15	0.10
□ □(□	0.29	0.24	0.14	0.08	0.04	0.05	0.05	0.08	0.06	0.08	0.07	0.11	0.06
□ □(□	0.28	0.20	0.06	0.04	0.05	0.05	0.05	0.06	0.06	0.07	0.06	0.08	0.06
□ □(&	0.29	0.24	0.16	0.08	0.09	0.12	0.13	0.08	0.04	0.11	0.08	0.13	0.09
□ □(□	0.26	0.27	0.22	0.12	0.13	0.16	0.16	0.08	0.03	0.11	0.07	0.16	0.10
□ □((	0.18	0.27	0.22	0.22	0.09	0.16	0.16	0.18	0.02	0.11	0.09	0.17	0.12
□ □()	0.16	0.28	0.27	0.27	0.06	0.16	0.15	0.28	0.03	0.13	0.15	0.18	0.14
□ □)	0.11	0.27	0.24	0.25	0.08	0.17	0.16	0.25	0.02	0.10	0.13	0.17	0.13
□ □) □	0.05	0.24	0.20	0.23	0.11	0.17	0.15	0.21	0.02	0.06	0.10	0.15	0.12
□ □) □	0.15	0.25	0.20	0.19	0.13	0.16	0.15	0.11	0.03	0.07	0.06	0.16	0.10
□ □) □	0.23	0.27	0.23	0.14	0.14	0.16	0.16	0.07	0.03	0.09	0.06	0.16	0.10
□ □) □	0.25	0.25	0.21	0.06	0.15	0.16	0.17	0.05	0.03	0.10	0.08	0.15	0.10
□ □) □	0.28	0.22	0.14	0.05	0.12	0.13	0.15	0.07	0.04	0.11	0.09	0.12	0.09
□ □) &	0.26	0.15	0.07	0.08	0.16	0.17	0.17	0.04	0.05	0.09	0.09	0.13	0.10
□ □) □	0.16	0.16	0.16	0.19	0.15	0.16	0.15	0.21	0.10	0.04	0.08	0.15	0.13
□ □) (	0.18	0.24	0.22	0.19	0.10	0.12	0.12	0.23	0.13	0.08	0.06	0.16	0.13
□ □))	0.23	0.25	0.23	0.21	0.11	0.12	0.11	0.23	0.14	0.11	0.03	0.18	0.13
□ □	0.13	0.20	0.21	0.20	0.18	0.17	0.14	0.22	0.11	0.05	0.05	0.17	0.13
□ □ □	0.13	0.24	0.27	0.23	0.20	0.18	0.13	0.21	0.12	0.05	0.02	0.19	0.13
□ □ □	0.24	0.27	0.22	0.20	0.17	0.15	0.11	0.22	0.14	0.11	0.01	0.19	0.14
□ □ □	0.24	0.22	0.24	0.22	0.08	0.10	0.10	0.21	0.14	0.14	0.02	0.17	0.13
□ □ □	0.24	0.21	0.21	0.19	0.05	0.08	0.09	0.23	0.14	0.10	0.04	0.15	0.12
□ □ □	0.07	0.10	0.18	0.16	0.06	0.14	0.14	0.22	0.12	0.08	0.19	0.12	0.13
□ □ &	0.11	0.11	0.18	0.21	0.08	0.19	0.15	0.21	0.16	0.12	0.07	0.15	0.15
□ □ □	0.17	0.13	0.08	0.21	0.09	0.18	0.18	0.19	0.17	0.14	0.04	0.15	0.15

□□□□ □□□□					□	□	□□	□	□□□□	□□	□ □□	□□) □	□) □ □ □&
□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□ □ (	0.20	0.17	0.09	0.28	0.08	0.24	0.20	0.23	0.15	0.10	0.09	0.17	0.16
□ □)	0.20	0.16	0.11	0.39	0.22	0.25	0.16	0.38	0.10	0.02	0.12	0.21	0.19
□ □□	0.20	0.13	0.06	0.43	0.19	0.16	0.15	0.32	0.04	0.04	0.11	0.19	0.16
□ □□□	0.22	0.08	0.21	0.45	0.20	0.20	0.06	0.31	0.08	0.16	0.13	0.23	0.19
□ □□□	0.25	0.13	0.35	0.43	0.21	0.24	0.10	0.29	0.14	0.05	0.13	0.26	0.18
□ □□□	0.21	0.13	0.40	0.41	0.20	0.24	0.15	0.23	0.12	0.04	0.16	0.26	0.18
□ □□□	0.14	0.09	0.32	0.33	0.16	0.22	0.16	0.12	0.08	0.02	0.14	0.20	0.14
□ □□□	0.08	0.18	0.22	0.21	0.13	0.20	0.16	0.14	0.11	0.02	0.16	0.16	0.13
□ □□&	0.04	0.21	0.15	0.20	0.13	0.16	0.14	0.18	0.04	0.03	0.09	0.14	0.11
□ □□□	0.17	0.21	0.19	0.11	0.15	0.16	0.15	0.05	0.03	0.05	0.06	0.14	0.09
□ □□(	0.18	0.20	0.16	0.16	0.15	0.16	0.16	0.06	0.03	0.07	0.09	0.15	0.10
□ □□)	0.20	0.14	0.10	0.18	0.13	0.16	0.17	0.10	0.04	0.06	0.08	0.14	0.11
□ □□	0.26	0.21	0.17	0.14	0.09	0.13	0.19	0.21	0.08	0.10	0.06	0.14	0.12
□ □□□	0.20	0.11	0.16	0.09	0.07	0.11	0.21	0.20	0.08	0.12	0.02	0.11	0.11
□ □□□	0.31	0.24	0.22	0.17	0.15	0.14	0.16	0.20	0.08	0.10	0.06	0.18	0.13
□ □□□	0.11	0.14	0.25	0.24	0.13	0.15	0.06	0.16	0.06	0.09	0.03	0.16	0.11
□ □□□	0.25	0.10	0.17	0.25	0.10	0.13	0.05	0.13	0.08	0.13	0.08	0.16	0.12
□ □□□	0.06	0.09	0.15	0.25	0.06	0.08	0.02	0.12	0.03	0.06	0.03	0.12	0.07
□ □□&	0.05	0.11	0.17	0.23	0.09	0.11	0.02	0.07	0.04	0.07	0.03	0.13	0.08
□ □□□	0.06	0.08	0.17	0.19	0.05	0.05	0.03	0.05	0.05	0.04	0.01	0.10	0.05
□ □□(	0.11	0.04	0.12	0.20	0.04	0.05	0.07	0.10	0.03	0.04	0.01	0.09	0.06
□ □□)	0.10	0.11	0.07	0.17	0.05	0.04	0.07	0.16	0.02	0.04	0.01	0.09	0.07
□ □□	0.11	0.14	0.13	0.10	0.06	0.02	0.10	0.15	0.07	0.08	0.04	0.09	0.08
□ □□□	0.10	0.12	0.15	0.08	0.04	0.06	0.10	0.16	0.07	0.07	0.13	0.08	0.09
□ □□□	0.10	0.12	0.02	0.10	0.01	0.04	0.10	0.03	0.08	0.03	0.03	0.06	0.05
□ □□□	0.11	0.16	0.13	0.06	0.05	0.06	0.13	0.10	0.08	0.04	0.09	0.08	0.07
□ □□□	0.11	0.18	0.16	0.06	0.03	0.05	0.14	0.10	0.06	0.05	0.09	0.08	0.07
□ □□□	0.09	0.11	0.04	0.05	0.04	0.05	0.07	0.08	0.04	0.04	0.03	0.05	0.05
□ □□&	0.08	0.13	0.04	0.04	0.02	0.02	0.06	0.07	0.03	0.03	0.04	0.04	0.04
□ □□□	0.05	0.08	0.08	0.05	0.04	0.04	0.11	0.12	0.03	0.04	0.03	0.05	0.06
□ □□(	0.10	0.05	0.08	0.06	0.06	0.07	0.12	0.15	0.04	0.04	0.03	0.06	0.07
□ □□)	0.10	0.09	0.13	0.05	0.07	0.07	0.13	0.15	0.03	0.06	0.04	0.07	0.07
□ □□	0.07	0.10	0.10	0.03	0.05	0.06	0.06	0.08	0.06	0.09	0.08	0.07	0.07
□ □□□	0.15	0.12	0.13	0.02	0.07	0.05	0.10	0.15	0.07	0.11	0.10	0.08	0.09
□ □□□	0.05	0.15	0.25	0.03	0.02	0.02	0.03	0.05	0.03	0.08	0.08	0.08	0.04
□ □□□	0.12	0.14	0.24	0.06	0.03	0.03	0.05	0.08	0.04	0.08	0.05	0.09	0.05
□ □□□	0.05	0.11	0.22	0.06	0.04	0.04	0.09	0.13	0.06	0.04	0.08	0.08	0.07
□ □□□	0.14	0.11	0.14	0.04	0.06	0.02	0.08	0.13	0.03	0.04	0.03	0.07	0.05
□ □□&	0.15	0.09	0.11	0.07	0.03	0.01	0.06	0.10	0.04	0.08	0.02	0.07	0.05
□ □□□	0.10	0.09	0.13	0.05	0.02	0.01	0.05	0.10	0.03	0.04	0.03	0.06	0.04

□□□□ □□□□					□	□	□□	□	□□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□ □□(	0.07	0.12	0.16	0.03	0.02	0.01	0.07	0.14	0.04	0.04	0.02	0.06	0.05
□ □□)	0.14	0.14	0.19	0.05	0.08	0.04	0.12	0.15	0.08	0.06	0.03	0.09	0.08
□ □□	0.07	0.14	0.21	0.10	0.03	0.04	0.08	0.07	0.04	0.02	0.05	0.08	0.05
□ □□□	0.05	0.10	0.19	0.08	0.05	0.03	0.06	0.16	0.04	0.03	0.11	0.08	0.07
□ □□□	0.12	0.14	0.14	0.17	0.04	0.03	0.10	0.09	0.04	0.06	0.02	0.10	0.07
□ □□□	0.09	0.15	0.16	0.11	0.05	0.03	0.06	0.11	0.06	0.05	0.07	0.09	0.06
□ □□□	0.04	0.13	0.17	0.09	0.04	0.05	0.10	0.17	0.05	0.06	0.12	0.08	0.08
□ □□□	0.09	0.05	0.06	0.09	0.03	0.05	0.06	0.06	0.07	0.07	0.11	0.06	0.07
□ □□&	0.09	0.08	0.06	0.03	0.05	0.06	0.05	0.08	0.02	0.02	0.04	0.05	0.04
□ □□□	0.15	0.16	0.11	0.03	0.06	0.08	0.06	0.08	0.06	0.03	0.03	0.08	0.05
□ □□(	0.11	0.11	0.15	0.05	0.05	0.07	0.04	0.05	0.06	0.03	0.11	0.07	0.06
□ □□)	0.11	0.05	0.16	0.05	0.03	0.03	0.05	0.08	0.08	0.02	0.08	0.06	0.05
□ □&	0.09	0.10	0.16	0.05	0.06	0.07	0.05	0.07	0.04	0.04	0.13	0.08	0.06
□ □&□	0.09	0.09	0.19	0.03	0.04	0.06	0.03	0.06	0.11	0.08	0.09	0.08	0.07
□ □&□	0.05	0.04	0.10	0.04	0.05	0.07	0.03	0.04	0.05	0.05	0.06	0.06	0.05
□ □&□	0.05	0.02	0.06	0.09	0.05	0.06	0.06	0.08	0.04	0.04	0.06	0.05	0.05
□ □&□	0.07	0.05	0.17	0.11	0.03	0.06	0.05	0.11	0.02	0.05	0.05	0.08	0.06
□ □&□	0.04	0.03	0.10	0.09	0.08	0.06	0.02	0.08	0.08	0.08	0.07	0.07	0.07
□ □&&	0.05	0.06	0.10	0.08	0.03	0.03	0.02	0.15	0.08	0.03	0.02	0.06	0.05
□ □&□	0.05	0.05	0.12	0.05	0.01	0.01	0.05	0.15	0.09	0.04	0.02	0.05	0.05
□ □&(	0.07	0.06	0.07	0.04	0.02	0.03	0.07	0.16	0.08	0.06	0.02	0.05	0.06
□ □&)	0.18	0.18	0.13	0.03	0.05	0.05	0.07	0.17	0.06	0.03	0.02	0.08	0.06
□ □□	0.19	0.12	0.09	0.05	0.02	0.06	0.08	0.19	0.05	0.07	0.06	0.07	0.07
□ □□□	0.05	0.07	0.03	0.15	0.02	0.03	0.09	0.19	0.04	0.07	0.06	0.06	0.08
□ □□□	0.07	0.11	0.05	0.18	0.04	0.04	0.08	0.18	0.03	0.07	0.05	0.08	0.08
□ □□□	0.05	0.12	0.06	0.14	0.08	0.08	0.05	0.11	0.03	0.08	0.03	0.09	0.07
□ □□□	0.08	0.12	0.13	0.14	0.04	0.03	0.05	0.07	0.03	0.09	0.01	0.09	0.06
□ □□□	0.02	0.14	0.06	0.06	0.02	0.01	0.01	0.04	0.03	0.11	0.02	0.05	0.04
□ □□&	0.05	0.12	0.06	0.12	0.03	0.03	0.03	0.03	0.01	0.10	0.02	0.07	0.05
□ □□□	0.08	0.13	0.14	0.13	0.06	0.09	0.04	0.01	0.03	0.07	0.05	0.10	0.06
□ □□(	0.09	0.13	0.16	0.14	0.15	0.21	0.06	0.11	0.07	0.08	0.08	0.14	0.11
□ □□)	0.06	0.09	0.09	0.04	0.07	0.05	0.02	0.03	0.05	0.10	0.04	0.07	0.05
□ □(	0.03	0.05	0.06	0.05	0.07	0.05	0.01	0.04	0.06	0.07	0.02	0.06	0.05
□ □(□	0.04	0.03	0.13	0.03	0.07	0.04	0.01	0.02	0.05	0.05	0.03	0.06	0.04
□ □(□	0.04	0.09	0.12	0.09	0.05	0.04	0.03	0.02	0.03	0.07	0.03	0.07	0.05
□ □(□	0.06	0.05	0.07	0.06	0.04	0.06	0.05	0.12	0.06	0.08	0.03	0.06	0.06
□ □(□	0.06	0.07	0.05	0.10	0.03	0.03	0.03	0.07	0.05	0.07	0.03	0.06	0.05
□ □(□	0.09	0.08	0.05	0.11	0.06	0.02	0.08	0.20	0.07	0.07	0.03	0.07	0.08
□ □(&	0.08	0.07	0.04	0.10	0.06	0.02	0.07	0.22	0.07	0.06	0.03	0.06	0.08
□ □(□	0.18	0.12	0.12	0.12	0.12	0.02	0.06	0.19	0.05	0.13	0.13	0.11	0.10

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□□((	0.04	0.03	0.10	0.06	0.07	0.04	0.10	0.06	0.02	0.02	0.04	0.06	0.05
□□()	0.06	0.06	0.11	0.03	0.05	0.03	0.12	0.06	0.02	0.02	0.07	0.05	0.05
□□)	0.18	0.06	0.24	0.04	0.07	0.04	0.06	0.13	0.09	0.04	0.10	0.09	0.07
□□) □	0.06	0.05	0.15	0.04	0.16	0.11	0.09	0.17	0.13	0.08	0.12	0.10	0.11
□□) □	0.03	0.05	0.20	0.07	0.06	0.03	0.03	0.13	0.11	0.07	0.06	0.08	0.07
□□) □	0.17	0.04	0.08	0.08	0.17	0.10	0.06	0.23	0.16	0.11	0.07	0.11	0.13
□□) □	0.20	0.03	0.19	0.06	0.19	0.15	0.06	0.20	0.14	0.15	0.08	0.13	0.13
□□) □	0.06	0.05	0.24	0.12	0.14	0.06	0.03	0.10	0.05	0.16	0.14	0.12	0.10
□□) &	0.15	0.09	0.15	0.12	0.13	0.02	0.04	0.09	0.03	0.16	0.14	0.11	0.09
□□) □	0.21	0.14	0.15	0.13	0.14	0.02	0.06	0.19	0.04	0.15	0.15	0.12	0.11
□□) (	0.22	0.11	0.11	0.13	0.17	0.07	0.05	0.13	0.06	0.14	0.14	0.13	0.11
□□))	0.09	0.08	0.07	0.12	0.16	0.11	0.06	0.22	0.10	0.13	0.13	0.11	0.13
□□	0.25	0.19	0.17	0.09	0.11	0.09	0.04	0.14	0.10	0.13	0.12	0.13	0.11
□□ □	0.33	0.18	0.10	0.14	0.03	0.03	0.02	0.06	0.08	0.13	0.11	0.11	0.08
□□ □	0.21	0.08	0.14	0.06	0.03	0.04	0.01	0.12	0.09	0.16	0.06	0.09	0.08
□□ □	0.19	0.16	0.24	0.07	0.03	0.05	0.01	0.14	0.10	0.11	0.07	0.11	0.08
□□ □	0.16	0.12	0.18	0.06	0.11	0.14	0.05	0.20	0.12	0.06	0.03	0.11	0.10
□□ □	0.12	0.08	0.14	0.21	0.11	0.15	0.13	0.23	0.12	0.03	0.06	0.13	0.12
□□ &	0.04	0.07	0.12	0.21	0.08	0.14	0.03	0.18	0.10	0.05	0.10	0.12	0.10
□□ □	0.06	0.09	0.12	0.28	0.16	0.22	0.09	0.16	0.10	0.05	0.08	0.16	0.13
□□ (	0.05	0.18	0.05	0.09	0.08	0.10	0.11	0.16	0.07	0.10	0.05	0.09	0.10
□□)	0.09	0.24	0.09	0.09	0.10	0.12	0.13	0.24	0.07	0.17	0.03	0.12	0.12
□ □□	0.06	0.18	0.10	0.24	0.13	0.09	0.15	0.24	0.12	0.26	0.04	0.15	0.17
□ □□□	0.18	0.06	0.06	0.08	0.12	0.03	0.14	0.20	0.12	0.28	0.04	0.10	0.14
□ □□□	0.21	0.17	0.17	0.02	0.08	0.05	0.20	0.30	0.19	0.24	0.05	0.12	0.15
□ □□□	0.15	0.22	0.05	0.01	0.11	0.07	0.17	0.24	0.12	0.13	0.11	0.09	0.12
□ □□□	0.10	0.05	0.05	0.02	0.05	0.03	0.08	0.16	0.09	0.21	0.05	0.06	0.10
□ □□□	0.12	0.20	0.08	0.21	0.10	0.12	0.14	0.24	0.10	0.30	0.02	0.15	0.16
□ □□&	0.09	0.27	0.03	0.14	0.11	0.04	0.18	0.26	0.18	0.37	0.06	0.14	0.19
□ □□□	0.04	0.30	0.02	0.15	0.07	0.06	0.18	0.23	0.17	0.28	0.07	0.13	0.16
□ □□(	0.08	0.29	0.04	0.11	0.02	0.10	0.15	0.21	0.09	0.22	0.02	0.10	0.12
□ □□)	0.05	0.28	0.02	0.02	0.03	0.03	0.11	0.17	0.02	0.07	0.03	0.06	0.06
□ □□	0.09	0.20	0.10	0.13	0.05	0.09	0.11	0.14	0.14	0.19	0.06	0.11	0.12
□ □□□	0.10	0.19	0.04	0.06	0.02	0.08	0.09	0.12	0.08	0.15	0.03	0.08	0.09
□ □□□	0.08	0.07	0.09	0.12	0.06	0.08	0.08	0.11	0.14	0.16	0.06	0.10	0.11
□ □□□	0.15	0.08	0.07	0.06	0.04	0.07	0.07	0.08	0.12	0.14	0.05	0.08	0.09
□ □□□	0.14	0.28	0.23	0.06	0.06	0.08	0.17	0.22	0.15	0.20	0.09	0.13	0.14
□ □□□	0.13	0.30	0.22	0.06	0.08	0.06	0.17	0.16	0.13	0.10	0.09	0.12	0.11
□ □□&	0.07	0.29	0.24	0.07	0.04	0.04	0.17	0.14	0.10	0.13	0.12	0.11	0.10
□ □□□	0.24	0.21	0.21	0.07	0.02	0.03	0.08	0.05	0.11	0.14	0.11	0.11	0.08

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□ □□(	0.14	0.05	0.15	0.05	0.03	0.05	0.11	0.06	0.08	0.08	0.06	0.07	0.07
□ □□)	0.07	0.04	0.30	0.08	0.02	0.05	0.10	0.07	0.08	0.02	0.19	0.09	0.07
□ □□	0.15	0.05	0.33	0.12	0.07	0.07	0.12	0.07	0.04	0.10	0.21	0.12	0.10
□ □□□	0.14	0.06	0.23	0.17	0.06	0.05	0.11	0.10	0.09	0.05	0.12	0.11	0.09
□ □□□	0.06	0.03	0.22	0.21	0.09	0.06	0.16	0.12	0.09	0.07	0.09	0.12	0.11
□ □□□	0.10	0.05	0.36	0.22	0.09	0.05	0.13	0.04	0.05	0.05	0.11	0.14	0.08
□ □□□	0.06	0.04	0.31	0.24	0.05	0.04	0.11	0.03	0.03	0.06	0.11	0.13	0.07
□ □□□	0.04	0.03	0.12	0.23	0.09	0.04	0.09	0.06	0.05	0.07	0.05	0.10	0.08
□ □□&	0.11	0.05	0.05	0.15	0.08	0.03	0.07	0.08	0.07	0.07	0.03	0.08	0.07
□ □□□	0.08	0.07	0.09	0.19	0.05	0.05	0.08	0.10	0.07	0.05	0.02	0.09	0.07
□ □□(	0.16	0.10	0.27	0.38	0.13	0.17	0.08	0.20	0.12	0.04	0.11	0.20	0.14
□ □□)	0.16	0.11	0.32	0.38	0.15	0.18	0.07	0.20	0.12	0.04	0.11	0.21	0.14
□ □□	0.07	0.10	0.32	0.30	0.10	0.14	0.05	0.11	0.10	0.02	0.10	0.17	0.10
□ □□□	0.15	0.07	0.24	0.35	0.05	0.07	0.03	0.06	0.08	0.01	0.07	0.16	0.08
□ □□□	0.16	0.20	0.42	0.35	0.15	0.21	0.11	0.12	0.06	0.01	0.11	0.23	0.12
□ □□□	0.17	0.09	0.24	0.33	0.07	0.08	0.04	0.06	0.07	0.01	0.06	0.16	0.08
□ □□□	0.14	0.02	0.05	0.27	0.03	0.02	0.04	0.09	0.08	0.02	0.05	0.10	0.07
□ □□□	0.07	0.02	0.04	0.22	0.09	0.03	0.08	0.12	0.10	0.06	0.06	0.09	0.09
□ □□&	0.15	0.04	0.04	0.09	0.08	0.05	0.10	0.04	0.02	0.20	0.23	0.08	0.10
□ □□□	0.16	0.03	0.05	0.08	0.07	0.05	0.12	0.04	0.02	0.24	0.19	0.08	0.10
□ □□(	0.16	0.04	0.08	0.08	0.09	0.06	0.14	0.07	0.03	0.27	0.12	0.09	0.11
□ □□)	0.15	0.05	0.08	0.05	0.11	0.07	0.15	0.16	0.07	0.29	0.06	0.10	0.13
□ □□	0.17	0.04	0.07	0.10	0.11	0.05	0.13	0.08	0.01	0.23	0.20	0.09	0.12
□ □□□	0.18	0.04	0.12	0.09	0.11	0.05	0.11	0.10	0.02	0.15	0.21	0.10	0.10
□ □□□	0.13	0.05	0.11	0.05	0.13	0.15	0.12	0.18	0.09	0.31	0.06	0.12	0.15
□ □□□	0.09	0.06	0.16	0.03	0.13	0.18	0.13	0.13	0.12	0.32	0.05	0.12	0.15
□ □□□	0.17	0.05	0.12	0.04	0.13	0.18	0.10	0.14	0.03	0.20	0.17	0.11	0.13
□ □□□	0.19	0.04	0.09	0.04	0.11	0.07	0.09	0.13	0.07	0.04	0.17	0.08	0.09
□ □□&	0.19	0.02	0.03	0.03	0.12	0.10	0.05	0.05	0.05	0.05	0.25	0.07	0.08
□ □□□	0.15	0.04	0.09	0.04	0.13	0.21	0.13	0.13	0.05	0.05	0.13	0.10	0.10
□ □□(	0.04	0.07	0.14	0.03	0.10	0.23	0.16	0.15	0.17	0.34	0.04	0.12	0.17
□ □□)	0.03	0.06	0.03	0.09	0.10	0.20	0.06	0.06	0.22	0.33	0.11	0.12	0.16
□ □&	0.07	0.05	0.07	0.11	0.13	0.24	0.14	0.13	0.05	0.19	0.28	0.11	0.15
□ □&□	0.12	0.02	0.14	0.11	0.17	0.25	0.19	0.20	0.06	0.04	0.36	0.12	0.16
□ □&□	0.19	0.03	0.05	0.10	0.20	0.24	0.16	0.11	0.03	0.08	0.24	0.12	0.13
□ □&□	0.22	0.07	0.03	0.10	0.21	0.22	0.16	0.15	0.06	0.06	0.06	0.12	0.12
□ □&□	0.11	0.04	0.14	0.13	0.18	0.25	0.18	0.19	0.07	0.06	0.35	0.13	0.16
□ □&□	0.04	0.06	0.16	0.14	0.13	0.24	0.10	0.08	0.03	0.10	0.33	0.12	0.13
□ □&&	0.03	0.06	0.11	0.11	0.10	0.19	0.04	0.04	0.21	0.30	0.16	0.13	0.16
□ □&□	0.04	0.07	0.19	0.14	0.08	0.18	0.10	0.06	0.18	0.25	0.23	0.14	0.16

□□□□ □□□□					□	□	□□	□	□□□□	□□	□ □□	□□) □	□) □ □ □&
□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□ □&	0.07	0.07	0.22	0.17	0.11	0.22	0.04	0.02	0.04	0.10	0.34	0.14	0.12
□ □&	0.17	0.07	0.16	0.15	0.16	0.24	0.15	0.14	0.13	0.06	0.18	0.15	0.14
□ □□	0.21	0.10	0.15	0.14	0.22	0.24	0.18	0.20	0.14	0.08	0.03	0.16	0.15
□ □□□	0.22	0.10	0.27	0.11	0.24	0.22	0.14	0.12	0.06	0.04	0.05	0.17	0.12
□ □□□	0.31	0.15	0.16	0.16	0.24	0.23	0.15	0.16	0.15	0.04	0.02	0.18	0.14
□ □□□	0.27	0.08	0.21	0.09	0.17	0.23	0.16	0.19	0.13	0.05	0.02	0.15	0.13
□ □□□	0.25	0.10	0.31	0.08	0.18	0.21	0.13	0.10	0.14	0.02	0.06	0.16	0.11
□ □□□	0.24	0.22	0.39	0.15	0.18	0.21	0.07	0.12	0.16	0.07	0.06	0.21	0.13
□ □□&	0.23	0.23	0.40	0.16	0.03	0.05	0.05	0.15	0.18	0.10	0.05	0.17	0.10
□ □□□	0.24	0.20	0.25	0.15	0.17	0.18	0.07	0.08	0.08	0.04	0.07	0.17	0.10
□ □□(	0.23	0.21	0.26	0.16	0.20	0.20	0.08	0.12	0.11	0.05	0.08	0.18	0.12
□ □□)	0.29	0.15	0.27	0.12	0.20	0.18	0.09	0.12	0.13	0.10	0.05	0.18	0.12
□ □(	0.31	0.19	0.25	0.13	0.11	0.12	0.11	0.14	0.16	0.09	0.04	0.16	0.12
□ □(□	0.15	0.19	0.18	0.15	0.25	0.24	0.11	0.14	0.13	0.03	0.08	0.18	0.13
□ □(□	0.24	0.12	0.20	0.07	0.06	0.05	0.07	0.08	0.08	0.13	0.03	0.11	0.08
□ □(□	0.28	0.14	0.22	0.04	0.08	0.08	0.05	0.08	0.05	0.12	0.01	0.12	0.07
□ □(□	0.11	0.21	0.22	0.08	0.13	0.14	0.05	0.03	0.27	0.39	0.33	0.17	0.20
□ □(□	0.09	0.16	0.14	0.06	0.12	0.06	0.15	0.13	0.17	0.10	0.06	0.11	0.11
□ □(&	0.24	0.25	0.29	0.12	0.05	0.05	0.15	0.04	0.03	0.05	0.06	0.13	0.06
□ □(□	0.13	0.29	0.29	0.22	0.14	0.05	0.09	0.02	0.08	0.09	0.12	0.18	0.10
□ □((	0.08	0.29	0.30	0.24	0.14	0.04	0.04	0.04	0.07	0.09	0.07	0.18	0.09
□ □()	0.10	0.11	0.12	0.09	0.03	0.05	0.11	0.12	0.38	0.36	0.43	0.12	0.21
□ □)	0.24	0.18	0.18	0.14	0.03	0.06	0.14	0.15	0.48	0.39	0.47	0.17	0.25
□ □) □	0.30	0.29	0.27	0.11	0.21	0.16	0.03	0.06	0.29	0.21	0.35	0.21	0.18
□ □) □	0.08	0.18	0.13	0.12	0.11	0.23	0.09	0.05	0.31	0.31	0.24	0.17	0.20
□ □) □	0.09	0.14	0.13	0.12	0.09	0.11	0.08	0.05	0.26	0.24	0.24	0.14	0.16
□ □) □	0.28	0.20	0.22	0.09	0.10	0.12	0.04	0.03	0.16	0.13	0.11	0.15	0.10
□ □) □	0.28	0.32	0.28	0.13	0.14	0.08	0.05	0.02	0.06	0.11	0.15	0.17	0.09
□ □) &	0.14	0.21	0.13	0.09	0.14	0.11	0.06	0.03	0.22	0.25	0.13	0.15	0.14
□ □) □	0.15	0.22	0.17	0.15	0.18	0.09	0.02	0.02	0.14	0.25	0.35	0.17	0.16
□ □) (	0.11	0.05	0.03	0.03	0.03	0.03	0.03	0.04	0.27	0.16	0.31	0.07	0.12
□ □))	0.04	0.07	0.03	0.04	0.04	0.13	0.02	0.07	0.27	0.14	0.16	0.08	0.12
□ □	0.06	0.04	0.03	0.05	0.05	0.25	0.03	0.06	0.49	0.35	0.19	0.13	0.21
□ □ □	0.14	0.04	0.07	0.09	0.05	0.22	0.05	0.04	0.39	0.33	0.12	0.14	0.18
□ □ □	0.05	0.01	0.03	0.03	0.01	0.12	0.03	0.06	0.09	0.16	0.16	0.05	0.09
□ □ □	0.21	0.18	0.19	0.07	0.06	0.10	0.12	0.07	0.29	0.23	0.23	0.14	0.16
□ □ □	0.05	0.06	0.07	0.03	0.02	0.03	0.02	0.06	0.33	0.21	0.20	0.08	0.13
□ □ □	0.24	0.20	0.19	0.08	0.07	0.03	0.02	0.06	0.36	0.23	0.31	0.15	0.16
□ □ &	0.21	0.18	0.17	0.13	0.09	0.03	0.02	0.05	0.34	0.26	0.38	0.16	0.18
□ □ □	0.24	0.18	0.19	0.07	0.05	0.10	0.03	0.02	0.07	0.25	0.19	0.12	0.10

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□ □ (	0.26	0.20	0.20	0.08	0.08	0.09	0.04	0.03	0.29	0.30	0.43	0.16	0.18
□ □)	0.27	0.21	0.20	0.05	0.06	0.11	0.09	0.05	0.21	0.22	0.34	0.14	0.15
□ □□	0.21	0.19	0.18	0.07	0.07	0.10	0.11	0.06	0.22	0.13	0.27	0.13	0.13
□ □□□	0.27	0.21	0.22	0.06	0.09	0.14	0.11	0.06	0.23	0.18	0.24	0.15	0.15
□ □□□	0.32	0.24	0.25	0.08	0.10	0.14	0.11	0.06	0.31	0.22	0.26	0.18	0.17
□ □□□	0.27	0.20	0.19	0.07	0.10	0.16	0.10	0.06	0.33	0.22	0.27	0.16	0.17
□ □□□	0.30	0.23	0.24	0.07	0.08	0.15	0.12	0.06	0.33	0.19	0.25	0.17	0.17
□ □□□	0.12	0.08	0.08	0.04	0.11	0.12	0.08	0.09	0.34	0.18	0.26	0.11	0.16
□ □□&	0.15	0.10	0.10	0.04	0.12	0.14	0.10	0.09	0.32	0.19	0.28	0.13	0.17
□ □□□	0.24	0.19	0.20	0.05	0.09	0.16	0.12	0.07	0.31	0.20	0.26	0.15	0.17
□ □□(	0.22	0.18	0.18	0.04	0.09	0.16	0.12	0.07	0.26	0.19	0.25	0.14	0.16
□ □□)	0.17	0.15	0.14	0.03	0.10	0.16	0.12	0.08	0.27	0.18	0.25	0.13	0.16
□ □□	0.17	0.15	0.17	0.08	0.11	0.13	0.11	0.07	0.21	0.13	0.20	0.13	0.13
□ □□□	0.20	0.17	0.18	0.07	0.09	0.13	0.11	0.07	0.21	0.15	0.21	0.13	0.13
□ □□□	0.15	0.19	0.14	0.14	0.12	0.09	0.22	0.05	0.18	0.32	0.09	0.15	0.16
□ □□□	0.21	0.19	0.19	0.15	0.16	0.11	0.03	0.09	0.22	0.35	0.30	0.18	0.19
□ □□□	0.20	0.20	0.19	0.17	0.24	0.15	0.04	0.08	0.22	0.43	0.45	0.21	0.24
□ □□□	0.15	0.19	0.17	0.12	0.25	0.12	0.10	0.08	0.11	0.40	0.38	0.18	0.20
□ □□&	0.15	0.13	0.17	0.11	0.11	0.11	0.11	0.04	0.13	0.30	0.18	0.14	0.15
□ □□□	0.12	0.13	0.18	0.12	0.11	0.09	0.10	0.05	0.16	0.16	0.12	0.13	0.12
□ □□(	0.16	0.14	0.19	0.11	0.13	0.12	0.10	0.07	0.21	0.11	0.19	0.14	0.13
□ □□)	0.21	0.16	0.22	0.13	0.17	0.17	0.09	0.07	0.25	0.18	0.22	0.18	0.17
□ □□	0.28	0.21	0.26	0.14	0.18	0.22	0.10	0.07	0.29	0.27	0.30	0.22	0.20
□ □□□	0.27	0.20	0.26	0.12	0.22	0.28	0.12	0.07	0.15	0.26	0.29	0.21	0.19
□ □□□	0.18	0.14	0.18	0.10	0.13	0.23	0.09	0.04	0.17	0.26	0.33	0.16	0.17
□ □□□	0.12	0.09	0.09	0.11	0.11	0.14	0.10	0.04	0.09	0.17	0.27	0.11	0.13
□ □□□	0.14	0.08	0.07	0.09	0.03	0.09	0.09	0.02	0.10	0.14	0.03	0.08	0.08
□ □□□	0.17	0.10	0.09	0.10	0.05	0.11	0.07	0.02	0.10	0.13	0.05	0.10	0.08
□ □□&	0.20	0.12	0.11	0.10	0.05	0.11	0.05	0.02	0.08	0.09	0.12	0.10	0.08
□ □□□	0.18	0.12	0.09	0.05	0.08	0.11	0.03	0.04	0.03	0.04	0.14	0.08	0.06
□ □□(	0.18	0.12	0.07	0.07	0.07	0.12	0.03	0.04	0.06	0.07	0.09	0.09	0.07
□ □□)	0.15	0.10	0.08	0.08	0.04	0.14	0.05	0.04	0.09	0.09	0.05	0.09	0.07
□ □□	0.22	0.15	0.21	0.09	0.22	0.28	0.08	0.07	0.18	0.26	0.28	0.19	0.19
□ □□□	0.08	0.06	0.05	0.04	0.17	0.24	0.02	0.06	0.14	0.16	0.14	0.11	0.12
□ □□□	0.11	0.05	0.10	0.04	0.11	0.14	0.04	0.04	0.18	0.12	0.11	0.10	0.10
□ □□□	0.19	0.10	0.20	0.09	0.18	0.22	0.08	0.06	0.25	0.24	0.22	0.17	0.18
□ □□□	0.25	0.08	0.08	0.04	0.13	0.20	0.08	0.03	0.04	0.26	0.46	0.12	0.15
□ □□□	0.20	0.09	0.06	0.04	0.12	0.13	0.04	0.03	0.08	0.11	0.46	0.09	0.12
□ □□&	0.19	0.09	0.04	0.08	0.12	0.10	0.06	0.03	0.07	0.09	0.41	0.09	0.11
□ □□□	0.18	0.09	0.06	0.08	0.19	0.26	0.13	0.04	0.03	0.23	0.32	0.14	0.16

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□ □□(	0.22	0.10	0.06	0.05	0.16	0.25	0.12	0.04	0.11	0.25	0.28	0.13	0.16
□ □□)	0.21	0.07	0.08	0.10	0.14	0.19	0.11	0.04	0.09	0.30	0.24	0.14	0.16
□ □□	0.20	0.08	0.09	0.11	0.13	0.18	0.11	0.05	0.07	0.35	0.36	0.14	0.18
□ □□□	0.22	0.05	0.06	0.07	0.11	0.17	0.09	0.04	0.05	0.25	0.45	0.11	0.15
□ □□□	0.17	0.06	0.06	0.11	0.20	0.15	0.11	0.07	0.10	0.24	0.49	0.13	0.18
□ □□□	0.18	0.11	0.09	0.12	0.22	0.15	0.12	0.07	0.10	0.40	0.47	0.16	0.21
□ □□□	0.17	0.10	0.08	0.14	0.22	0.13	0.10	0.08	0.19	0.25	0.44	0.16	0.20
□ □□□	0.12	0.10	0.08	0.11	0.16	0.09	0.07	0.06	0.21	0.22	0.24	0.13	0.15
□ □□&	0.17	0.15	0.13	0.14	0.19	0.11	0.06	0.07	0.24	0.36	0.35	0.17	0.20
□ □□□	0.19	0.15	0.12	0.15	0.24	0.14	0.08	0.08	0.21	0.41	0.47	0.19	0.23
□ □□(	0.15	0.11	0.04	0.26	0.36	0.15	0.12	0.12	0.23	0.31	0.20	0.21	0.23
□ □□)	0.17	0.20	0.09	0.20	0.29	0.21	0.15	0.13	0.27	0.32	0.20	0.22	0.23
□ □&	0.15	0.18	0.09	0.18	0.26	0.21	0.15	0.12	0.25	0.36	0.24	0.20	0.23
□ □&□	0.13	0.13	0.04	0.24	0.33	0.12	0.10	0.10	0.21	0.25	0.19	0.19	0.20
□ □&□	0.13	0.11	0.09	0.13	0.14	0.20	0.15	0.11	0.16	0.40	0.29	0.16	0.21
□ □&□	0.14	0.09	0.09	0.15	0.10	0.16	0.14	0.11	0.18	0.39	0.27	0.15	0.20
□ □&□	0.17	0.13	0.08	0.11	0.12	0.15	0.22	0.10	0.19	0.46	0.32	0.15	0.22
□ □&□	0.16	0.15	0.09	0.05	0.08	0.11	0.06	0.08	0.11	0.34	0.29	0.11	0.15
□ □&&	0.15	0.16	0.07	0.10	0.12	0.17	0.17	0.10	0.18	0.30	0.28	0.14	0.18
□ □&□	0.05	0.07	0.03	0.07	0.08	0.13	0.16	0.06	0.14	0.16	0.24	0.09	0.13
□ □&(	0.14	0.16	0.08	0.05	0.09	0.13	0.09	0.07	0.15	0.28	0.39	0.12	0.16
□ □&)	0.04	0.05	0.08	0.03	0.03	0.08	0.06	0.04	0.11	0.14	0.17	0.06	0.09
□ □□	0.05	0.05	0.09	0.04	0.03	0.09	0.05	0.06	0.07	0.06	0.08	0.06	0.06
□ □□□	0.06	0.06	0.06	0.05	0.05	0.06	0.04	0.05	0.06	0.07	0.16	0.06	0.07
□ □□□	0.04	0.05	0.05	0.02	0.03	0.08	0.05	0.04	0.11	0.15	0.20	0.05	0.09
□ □□□	0.04	0.04	0.02	0.03	0.04	0.09	0.05	0.05	0.09	0.17	0.22	0.06	0.10
□ □□□	0.05	0.04	0.04	0.06	0.11	0.07	0.05	0.04	0.09	0.15	0.20	0.08	0.10
□ □□□	0.11	0.15	0.10	0.06	0.09	0.05	0.02	0.08	0.03	0.06	0.04	0.08	0.05
□ □□&	0.19	0.17	0.14	0.08	0.05	0.05	0.05	0.04	0.03	0.04	0.04	0.09	0.04
□ □□□	0.21	0.20	0.16	0.14	0.03	0.05	0.05	0.01	0.08	0.05	0.09	0.11	0.06
□ □□(	0.14	0.16	0.11	0.11	0.04	0.04	0.06	0.09	0.02	0.07	0.04	0.09	0.06
□ □□)	0.19	0.19	0.17	0.10	0.08	0.07	0.06	0.07	0.04	0.03	0.06	0.11	0.06
□ □(	0.22	0.22	0.17	0.12	0.05	0.03	0.07	0.03	0.06	0.06	0.10	0.11	0.06
□ □(□	0.16	0.09	0.12	0.08	0.03	0.08	0.05	0.03	0.06	0.07	0.06	0.08	0.06
□ □(□	0.02	0.02	0.01	0.02	0.09	0.08	0.05	0.01	0.05	0.13	0.17	0.05	0.08
□ □(□	0.03	0.04	0.02	0.02	0.16	0.15	0.10	0.02	0.12	0.19	0.27	0.09	0.13
□ □(□	0.05	0.05	0.09	0.12	0.29	0.29	0.14	0.03	0.13	0.28	0.40	0.17	0.21
□ □(□	0.13	0.07	0.10	0.12	0.26	0.32	0.14	0.05	0.05	0.29	0.29	0.17	0.19
□ □(&	0.17	0.07	0.05	0.16	0.16	0.11	0.11	0.05	0.03	0.08	0.32	0.12	0.12
□ □(□	0.07	0.11	0.02	0.18	0.17	0.13	0.12	0.06	0.08	0.09	0.21	0.12	0.12

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□□((	0.13	0.08	0.03	0.18	0.19	0.12	0.12	0.10	0.09	0.12	0.16	0.13	0.13
□□()	0.17	0.10	0.05	0.22	0.31	0.17	0.12	0.14	0.25	0.28	0.20	0.20	0.22
□□)	0.12	0.16	0.09	0.17	0.23	0.13	0.14	0.15	0.17	0.31	0.25	0.17	0.20
□□) □	0.04	0.13	0.06	0.09	0.17	0.14	0.17	0.10	0.21	0.15	0.18	0.12	0.15
□□) □	0.03	0.10	0.03	0.07	0.07	0.07	0.10	0.05	0.14	0.09	0.11	0.07	0.09
□□) □	0.09	0.11	0.11	0.09	0.08	0.07	0.10	0.05	0.12	0.11	0.08	0.09	0.09
□□) □	0.19	0.11	0.12	0.14	0.09	0.12	0.11	0.08	0.13	0.13	0.06	0.13	0.11
□□) □	0.21	0.09	0.11	0.16	0.13	0.15	0.13	0.10	0.13	0.08	0.05	0.14	0.12
□□) &	0.13	0.13	0.10	0.12	0.15	0.14	0.14	0.10	0.10	0.07	0.09	0.12	0.11
□□) □	0.17	0.06	0.12	0.08	0.08	0.11	0.10	0.06	0.13	0.10	0.08	0.10	0.09
□□) (	0.13	0.07	0.05	0.09	0.07	0.12	0.05	0.04	0.13	0.16	0.06	0.09	0.10
□□))	0.25	0.20	0.13	0.03	0.10	0.08	0.12	0.03	0.14	0.16	0.06	0.12	0.10
□□	0.12	0.21	0.15	0.09	0.14	0.15	0.11	0.03	0.24	0.30	0.13	0.16	0.16
□□ □	0.16	0.10	0.08	0.15	0.19	0.13	0.15	0.09	0.19	0.10	0.07	0.14	0.13
□□ □	0.15	0.14	0.07	0.07	0.18	0.14	0.17	0.03	0.21	0.04	0.06	0.12	0.11
□□ □	0.28	0.22	0.20	0.06	0.16	0.15	0.16	0.08	0.15	0.17	0.09	0.16	0.13
□□ □	0.14	0.07	0.11	0.11	0.12	0.11	0.16	0.07	0.12	0.19	0.05	0.12	0.12
□□ □	0.11	0.09	0.09	0.10	0.10	0.13	0.06	0.03	0.07	0.17	0.27	0.10	0.12
□□ &	0.45	0.30	0.31	0.10	0.08	0.10	0.01	0.04	0.23	0.20	0.27	0.19	0.14
□□ □	0.31	0.29	0.27	0.11	0.21	0.16	0.02	0.07	0.27	0.22	0.35	0.21	0.19
□□ (	0.15	0.19	0.17	0.11	0.21	0.19	0.02	0.06	0.20	0.38	0.35	0.18	0.20
□□)	0.08	0.05	0.16	0.06	0.11	0.17	0.04	0.04	0.08	0.49	0.51	0.13	0.20
□ □□	0.08	0.07	0.09	0.04	0.09	0.10	0.23	0.05	0.29	0.39	0.39	0.12	0.21
□ □□□	0.26	0.21	0.35	0.11	0.09	0.15	0.37	0.15	0.16	0.06	0.15	0.17	0.15
□ □□□	0.21	0.09	0.01	0.01	0.06	0.19	0.44	0.20	0.19	0.43	0.30	0.11	0.24
□ □□□	0.10	0.17	0.34	0.10	0.08	0.21	0.46	0.19	0.26	0.45	0.30	0.19	0.27
□ □□□	0.27	0.13	0.05	0.02	0.05	0.24	0.43	0.16	0.11	0.32	0.15	0.11	0.19
□ □□□	0.18	0.10	0.09	0.04	0.02	0.09	0.19	0.11	0.12	0.31	0.14	0.09	0.14
□ □□&	0.09	0.13	0.06	0.09	0.05	0.10	0.21	0.12	0.14	0.13	0.14	0.09	0.12
□ □□□	0.08	0.16	0.09	0.13	0.05	0.09	0.19	0.12	0.10	0.19	0.19	0.10	0.13
□ □□(	0.10	0.20	0.17	0.10	0.03	0.08	0.36	0.27	0.12	0.20	0.19	0.12	0.17
□ □□)	0.33	0.09	0.42	0.11	0.11	0.08	0.35	0.26	0.31	0.12	0.18	0.19	0.19
□ □□	0.10	0.05	0.22	0.13	0.03	0.15	0.20	0.23	0.30	0.14	0.35	0.13	0.19
□ □□□	0.06	0.10	0.11	0.09	0.08	0.17	0.13	0.28	0.04	0.04	0.23	0.09	0.12
□ □□□	0.06	0.12	0.17	0.10	0.11	0.17	0.13	0.28	0.15	0.12	0.12	0.12	0.15
□ □□□	0.13	0.08	0.11	0.04	0.11	0.17	0.13	0.22	0.18	0.04	0.20	0.10	0.13
□ □□□	0.24	0.13	0.20	0.07	0.09	0.09	0.15	0.17	0.15	0.11	0.12	0.13	0.12
□ □□□	0.10	0.26	0.21	0.05	0.08	0.15	0.22	0.32	0.17	0.18	0.10	0.13	0.16
□ □□&	0.11	0.16	0.13	0.06	0.06	0.14	0.23	0.33	0.17	0.22	0.05	0.11	0.17
□ □□□	0.16	0.25	0.17	0.07	0.09	0.17	0.26	0.39	0.17	0.25	0.07	0.15	0.19

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□ □□(	0.13	0.23	0.15	0.05	0.14	0.17	0.27	0.41	0.17	0.21	0.09	0.14	0.20
□ □□)	0.06	0.20	0.05	0.06	0.20	0.17	0.25	0.39	0.18	0.16	0.08	0.13	0.19
□ □□	0.07	0.12	0.11	0.12	0.26	0.20	0.20	0.30	0.15	0.19	0.07	0.16	0.19
□ □□□	0.06	0.15	0.14	0.14	0.31	0.28	0.25	0.37	0.10	0.16	0.04	0.18	0.20
□ □□□	0.09	0.05	0.06	0.16	0.33	0.31	0.27	0.43	0.02	0.16	0.02	0.17	0.20
□ □□□	0.11	0.24	0.06	0.17	0.33	0.32	0.30	0.47	0.11	0.08	0.09	0.19	0.22
□ □□□	0.11	0.07	0.06	0.19	0.36	0.35	0.32	0.52	0.22	0.06	0.09	0.19	0.25
□ □□□	0.19	0.17	0.14	0.19	0.35	0.35	0.32	0.53	0.18	0.05	0.10	0.22	0.25
□ □□&	0.21	0.04	0.05	0.08	0.03	0.06	0.29	0.12	0.40	0.07	0.20	0.10	0.16
□ □□□	0.30	0.09	0.16	0.12	0.01	0.12	0.34	0.14	0.50	0.16	0.09	0.15	0.20
□ □□(	0.16	0.02	0.02	0.05	0.02	0.02	0.25	0.09	0.42	0.21	0.07	0.08	0.16
□ □□)	0.36	0.11	0.34	0.04	0.03	0.12	0.33	0.16	0.49	0.58	0.62	0.20	0.32
□ □□	0.32	0.19	0.23	0.20	0.20	0.12	0.14	0.11	0.34	0.46	0.46	0.23	0.27
□ □□□	0.35	0.23	0.35	0.15	0.06	0.13	0.17	0.23	0.37	0.34	0.38	0.22	0.24
□ □□□	0.11	0.04	0.13	0.02	0.04	0.04	0.21	0.12	0.39	0.31	0.10	0.10	0.18
□ □□□	0.03	0.08	0.06	0.08	0.09	0.10	0.06	0.03	0.23	0.22	0.04	0.10	0.12
□ □□□	0.02	0.10	0.18	0.01	0.09	0.23	0.17	0.16	0.28	0.29	0.07	0.13	0.18
□ □□□	0.09	0.07	0.07	0.04	0.13	0.14	0.14	0.20	0.19	0.28	0.08	0.11	0.16
□ □□&	0.15	0.06	0.10	0.14	0.05	0.05	0.15	0.04	0.10	0.27	0.07	0.11	0.12
□ □□□	0.07	0.12	0.15	0.28	0.10	0.17	0.12	0.04	0.05	0.07	0.29	0.15	0.12
□ □□(	0.09	0.15	0.11	0.23	0.09	0.16	0.12	0.04	0.03	0.06	0.24	0.13	0.11
□ □□)	0.05	0.11	0.18	0.19	0.09	0.16	0.12	0.05	0.06	0.05	0.21	0.12	0.10
□ □□	0.16	0.04	0.25	0.14	0.09	0.17	0.12	0.08	0.13	0.07	0.19	0.13	0.12
□ □□□	0.25	0.11	0.28	0.08	0.08	0.16	0.11	0.10	0.12	0.04	0.17	0.13	0.10
□ □□□	0.26	0.11	0.27	0.18	0.07	0.16	0.06	0.10	0.13	0.20	0.16	0.17	0.14
□ □□□	0.14	0.13	0.28	0.15	0.06	0.15	0.06	0.10	0.07	0.05	0.25	0.13	0.10
□ □□□	0.11	0.02	0.19	0.07	0.03	0.14	0.05	0.04	0.04	0.06	0.20	0.08	0.07
□ □□□	0.09	0.07	0.10	0.03	0.05	0.12	0.09	0.02	0.06	0.05	0.20	0.07	0.07
□ □□&	0.11	0.12	0.15	0.05	0.06	0.10	0.09	0.03	0.08	0.04	0.18	0.08	0.07
□ □□□	0.12	0.13	0.16	0.04	0.05	0.14	0.13	0.09	0.02	0.01	0.15	0.08	0.07
□ □□(	0.16	0.13	0.18	0.04	0.03	0.15	0.17	0.13	0.05	0.03	0.15	0.09	0.09
□ □□)	0.15	0.08	0.19	0.03	0.02	0.11	0.15	0.12	0.13	0.08	0.13	0.09	0.10
□ □&	0.14	0.05	0.17	0.03	0.02	0.14	0.13	0.09	0.31	0.21	0.10	0.11	0.15
□ □&□	0.12	0.06	0.04	0.08	0.11	0.25	0.16	0.14	0.18	0.33	0.12	0.13	0.18
□ □&□	0.09	0.05	0.05	0.08	0.13	0.25	0.18	0.19	0.03	0.13	0.30	0.10	0.15
□ □&□	0.11	0.02	0.12	0.08	0.15	0.24	0.18	0.17	0.06	0.03	0.36	0.11	0.14
□ □&□	0.18	0.02	0.08	0.06	0.13	0.19	0.08	0.11	0.10	0.07	0.32	0.10	0.12
□ □&□	0.19	0.04	0.17	0.08	0.10	0.11	0.07	0.13	0.11	0.05	0.27	0.11	0.11
□ □&&	0.12	0.05	0.21	0.13	0.03	0.01	0.10	0.12	0.09	0.04	0.23	0.09	0.09
□□	0.06	0.04	0.21	0.06	0.11	0.07	0.10	0.05	0.02	0.03	0.17	0.08	0.07

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
□□	0.09	0.04	0.21	0.09	0.13	0.04	0.09	0.05	0.01	0.03	0.16	0.09	0.07
□□	0.14	0.05	0.18	0.12	0.11	0.04	0.06	0.05	0.02	0.03	0.07	0.10	0.06
□□	0.15	0.05	0.21	0.14	0.07	0.12	0.13	0.14	0.09	0.05	0.05	0.11	0.09
□□	0.18	0.08	0.18	0.09	0.08	0.15	0.17	0.15	0.10	0.03	0.12	0.11	0.11
□&	0.25	0.13	0.21	0.11	0.03	0.15	0.15	0.13	0.09	0.02	0.14	0.12	0.09
□□	0.30	0.23	0.34	0.15	0.02	0.12	0.14	0.10	0.09	0.03	0.11	0.15	0.09
□(	0.23	0.25	0.35	0.15	0.01	0.11	0.13	0.12	0.09	0.01	0.09	0.15	0.08
□)	0.19	0.15	0.35	0.13	0.13	0.12	0.05	0.06	0.05	0.03	0.07	0.15	0.07
□□	0.19	0.11	0.36	0.12	0.11	0.11	0.05	0.02	0.12	0.02	0.02	0.15	0.07
□□□	0.23	0.20	0.43	0.13	0.17	0.19	0.06	0.05	0.16	0.06	0.04	0.20	0.11
□□□	0.24	0.21	0.41	0.14	0.18	0.21	0.07	0.10	0.17	0.07	0.06	0.21	0.13

E.2 Proposed Scheme

□□□□ □□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
P1	0.23	0.16	0.36	0.17	0.09	0.03	0.02	0.14	0.11	0.04	0.04	0.15	0.08
P2	0.26	0.16	0.38	0.16	0.18	0.12	0.07	0.16	0.16	0.04	0.09	0.19	0.12
P3	0.27	0.17	0.36	0.14	0.20	0.14	0.06	0.15	0.19	0.01	0.04	0.19	0.11
P4	0.27	0.15	0.29	0.11	0.17	0.10	0.04	0.16	0.18	0.05	0.07	0.16	0.11
P5	0.29	0.08	0.16	0.06	0.12	0.08	0.06	0.13	0.18	0.03	0.06	0.12	0.09
P6	0.32	0.05	0.15	0.09	0.26	0.18	0.14	0.15	0.10	0.02	0.07	0.15	0.12
P7	0.32	0.14	0.13	0.11	0.26	0.24	0.19	0.22	0.15	0.02	0.09	0.17	0.15
P8	0.25	0.12	0.15	0.10	0.22	0.23	0.18	0.21	0.16	0.02	0.06	0.16	0.14
P9	0.19	0.08	0.20	0.09	0.15	0.22	0.14	0.09	0.07	0.03	0.02	0.13	0.10
P10	0.14	0.05	0.22	0.10	0.10	0.20	0.13	0.04	0.03	0.05	0.03	0.12	0.08
P11	0.12	0.04	0.19	0.11	0.09	0.20	0.15	0.10	0.05	0.03	0.03	0.11	0.09
P12	0.09	0.05	0.20	0.14	0.10	0.18	0.15	0.03	0.04	0.02	0.04	0.11	0.08
P13	0.07	0.09	0.24	0.17	0.10	0.11	0.11	0.04	0.08	0.03	0.03	0.13	0.08
P14	0.06	0.12	0.28	0.18	0.10	0.03	0.07	0.05	0.04	0.03	0.17	0.12	0.08
P15	0.09	0.13	0.29	0.19	0.11	0.04	0.16	0.06	0.12	0.12	0.29	0.15	0.13
P16	0.17	0.16	0.30	0.19	0.12	0.07	0.21	0.06	0.18	0.17	0.32	0.17	0.16
P17	0.27	0.21	0.34	0.21	0.07	0.04	0.21	0.05	0.19	0.16	0.30	0.18	0.15
P18	0.31	0.25	0.37	0.19	0.03	0.02	0.21	0.03	0.18	0.15	0.25	0.18	0.13
P19	0.35	0.26	0.38	0.15	0.06	0.10	0.20	0.14	0.15	0.11	0.24	0.18	0.14
P20	0.31	0.23	0.34	0.12	0.04	0.18	0.15	0.28	0.07	0.04	0.30	0.16	0.14
P21	0.25	0.17	0.24	0.04	0.06	0.17	0.14	0.28	0.07	0.04	0.24	0.12	0.12
P22	0.04	0.06	0.11	0.07	0.06	0.15	0.11	0.27	0.04	0.06	0.24	0.08	0.12
P23	0.07	0.11	0.18	0.11	0.09	0.14	0.09	0.26	0.03	0.05	0.24	0.11	0.12
P24	0.08	0.09	0.13	0.11	0.10	0.14	0.08	0.26	0.03	0.06	0.20	0.10	0.11
P25	0.19	0.12	0.16	0.07	0.10	0.14	0.09	0.27	0.04	0.10	0.18	0.11	0.12
P26	0.14	0.07	0.09	0.04	0.08	0.12	0.08	0.26	0.05	0.13	0.17	0.08	0.12
P27	0.18	0.09	0.17	0.05	0.05	0.10	0.06	0.22	0.02	0.13	0.19	0.09	0.10
P28	0.12	0.09	0.15	0.06	0.05	0.07	0.03	0.17	0.04	0.16	0.20	0.09	0.10
P29	0.07	0.04	0.04	0.04	0.02	0.07	0.03	0.17	0.04	0.18	0.25	0.05	0.10
P30	0.17	0.07	0.25	0.10	0.09	0.12	0.06	0.17	0.10	0.16	0.23	0.13	0.13
O1	0.08	0.04	0.03	0.01	0.03	0.04	0.13	0.15	0.09	0.08	0.04	0.04	0.07
O2	0.09	0.05	0.04	0.02	0.04	0.10	0.13	0.12	0.15	0.07	0.07	0.06	0.09
O3	0.11	0.04	0.03	0.02	0.04	0.06	0.14	0.13	0.07	0.06	0.07	0.05	0.07
O4	0.14	0.03	0.03	0.02	0.03	0.03	0.07	0.04	0.13	0.06	0.07	0.05	0.06
O5	0.05	0.04	0.04	0.02	0.03	0.07	0.24	0.07	0.26	0.09	0.05	0.06	0.11
O6	0.05	0.02	0.03	0.02	0.03	0.06	0.07	0.11	0.28	0.14	0.04	0.06	0.11
O7	0.14	0.07	0.03	0.03	0.02	0.14	0.20	0.15	0.13	0.12	0.06	0.07	0.11
O8	0.11	0.05	0.04	0.02	0.03	0.11	0.10	0.12	0.23	0.06	0.06	0.07	0.10

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O9	0.11	0.04	0.04	0.03	0.02	0.08	0.05	0.03	0.19	0.10	0.05	0.06	0.07
O10	0.05	0.03	0.04	0.02	0.01	0.03	0.04	0.03	0.09	0.08	0.05	0.04	0.05
O11	0.13	0.03	0.04	0.03	0.01	0.05	0.07	0.05	0.09	0.12	0.07	0.05	0.07
O12	0.09	0.04	0.05	0.03	0.01	0.06	0.12	0.03	0.07	0.07	0.06	0.05	0.06
O13	0.08	0.04	0.05	0.04	0.01	0.06	0.08	0.01	0.07	0.07	0.05	0.04	0.05
O14	0.12	0.03	0.04	0.03	0.01	0.05	0.06	0.05	0.06	0.16	0.07	0.05	0.07
O15	0.06	0.08	0.07	0.02	0.06	0.22	0.51	0.22	0.18	0.10	0.10	0.09	0.17
O16	0.02	0.13	0.04	0.02	0.07	0.18	0.20	0.14	0.27	0.30	0.10	0.10	0.18
O17	0.02	0.08	0.02	0.01	0.02	0.15	0.09	0.09	0.32	0.26	0.11	0.08	0.15
O18	0.01	0.02	0.03	0.02	0.02	0.04	0.07	0.04	0.26	0.15	0.18	0.05	0.11
O19	0.02	0.02	0.02	0.02	0.03	0.07	0.06	0.02	0.11	0.08	0.08	0.04	0.06
O20	0.04	0.02	0.05	0.03	0.01	0.05	0.30	0.12	0.35	0.24	0.07	0.07	0.16
O21	0.07	0.03	0.04	0.01	0.02	0.03	0.31	0.11	0.36	0.25	0.08	0.07	0.16
O22	0.06	0.02	0.02	0.02	0.01	0.05	0.12	0.05	0.17	0.10	0.05	0.04	0.08
O23	0.07	0.04	0.04	0.02	0.03	0.08	0.11	0.03	0.14	0.03	0.09	0.05	0.06
O24	0.11	0.03	0.03	0.04	0.03	0.06	0.21	0.03	0.05	0.02	0.08	0.04	0.06
O25	0.14	0.04	0.06	0.07	0.05	0.14	0.19	0.01	0.06	0.03	0.09	0.07	0.07
O26	0.15	0.06	0.09	0.08	0.04	0.07	0.10	0.02	0.06	0.21	0.32	0.08	0.11
O27	0.34	0.24	0.23	0.15	0.15	0.04	0.11	0.01	0.07	0.42	0.38	0.19	0.17
O28	0.17	0.09	0.05	0.11	0.03	0.12	0.07	0.01	0.08	0.22	0.16	0.10	0.10
O29	0.25	0.13	0.09	0.08	0.05	0.16	0.07	0.02	0.04	0.30	0.28	0.12	0.13
O30	0.18	0.17	0.14	0.10	0.11	0.24	0.14	0.02	0.13	0.27	0.28	0.15	0.16
O31	0.14	0.17	0.12	0.11	0.14	0.32	0.22	0.03	0.05	0.26	0.25	0.16	0.17
O32	0.11	0.12	0.25	0.10	0.12	0.34	0.24	0.04	0.15	0.26	0.22	0.17	0.19
O33	0.06	0.10	0.28	0.10	0.12	0.36	0.26	0.06	0.18	0.28	0.19	0.17	0.20
O34	0.19	0.06	0.23	0.09	0.13	0.37	0.29	0.08	0.15	0.30	0.14	0.17	0.20
O35	0.26	0.06	0.27	0.08	0.14	0.36	0.31	0.10	0.04	0.31	0.10	0.18	0.18
O36	0.21	0.09	0.07	0.07	0.14	0.36	0.33	0.12	0.07	0.22	0.12	0.14	0.18
O37	0.18	0.15	0.12	0.06	0.15	0.35	0.34	0.14	0.14	0.07	0.11	0.14	0.16
O38	0.17	0.16	0.13	0.03	0.16	0.36	0.39	0.22	0.17	0.12	0.04	0.15	0.18
O39	0.23	0.04	0.15	0.03	0.12	0.36	0.38	0.15	0.13	0.18	0.06	0.14	0.17
O40	0.28	0.07	0.15	0.04	0.10	0.35	0.36	0.16	0.11	0.15	0.08	0.14	0.16
O41	0.15	0.20	0.32	0.13	0.12	0.19	0.44	0.21	0.30	0.49	0.38	0.21	0.29
O42	0.14	0.17	0.20	0.08	0.10	0.14	0.25	0.14	0.22	0.26	0.18	0.15	0.18
O43	0.28	0.14	0.38	0.15	0.13	0.13	0.22	0.18	0.27	0.27	0.21	0.21	0.20
O44	0.03	0.07	0.10	0.04	0.05	0.06	0.08	0.12	0.26	0.24	0.17	0.09	0.14
O45	0.07	0.05	0.10	0.06	0.06	0.02	0.13	0.05	0.15	0.15	0.11	0.08	0.10
O46	0.06	0.07	0.07	0.05	0.08	0.01	0.15	0.05	0.05	0.10	0.11	0.06	0.07
O47	0.03	0.08	0.23	0.10	0.09	0.02	0.10	0.06	0.04	0.11	0.14	0.10	0.08
O48	0.03	0.07	0.31	0.12	0.09	0.06	0.14	0.04	0.04	0.08	0.13	0.11	0.08

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□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O49	0.07	0.08	0.29	0.12	0.08	0.08	0.17	0.05	0.04	0.12	0.17	0.12	0.10
O50	0.05	0.08	0.22	0.11	0.06	0.08	0.21	0.07	0.04	0.12	0.19	0.10	0.11
O51	0.05	0.08	0.23	0.12	0.07	0.05	0.23	0.07	0.04	0.08	0.13	0.10	0.09
O52	0.07	0.10	0.20	0.11	0.08	0.02	0.21	0.08	0.09	0.12	0.15	0.10	0.11
O53	0.07	0.11	0.03	0.10	0.12	0.01	0.21	0.11	0.06	0.13	0.16	0.08	0.11
O54	0.12	0.04	0.10	0.06	0.05	0.02	0.09	0.04	0.10	0.10	0.11	0.07	0.08
O55	0.28	0.16	0.40	0.15	0.14	0.05	0.10	0.08	0.11	0.26	0.16	0.19	0.14
O56	0.17	0.08	0.39	0.14	0.10	0.02	0.18	0.16	0.20	0.44	0.37	0.18	0.21
O57	0.21	0.14	0.34	0.08	0.05	0.04	0.28	0.19	0.22	0.50	0.49	0.17	0.25
O58	0.14	0.07	0.17	0.14	0.16	0.04	0.10	0.03	0.06	0.19	0.19	0.13	0.12
O59	0.23	0.12	0.11	0.11	0.12	0.03	0.11	0.03	0.16	0.17	0.18	0.12	0.12
O60	0.09	0.16	0.05	0.12	0.09	0.02	0.03	0.03	0.05	0.13	0.13	0.09	0.07
O61	0.12	0.15	0.09	0.08	0.02	0.05	0.05	0.07	0.04	0.17	0.23	0.08	0.09
O62	0.18	0.14	0.06	0.03	0.02	0.08	0.11	0.12	0.20	0.12	0.31	0.08	0.13
O63	0.40	0.23	0.41	0.13	0.13	0.10	0.11	0.09	0.22	0.25	0.24	0.22	0.17
O64	0.40	0.23	0.38	0.11	0.11	0.11	0.19	0.10	0.20	0.18	0.16	0.20	0.15
O65	0.25	0.15	0.25	0.04	0.04	0.14	0.26	0.12	0.22	0.13	0.09	0.13	0.13
O66	0.34	0.20	0.32	0.08	0.08	0.16	0.36	0.14	0.24	0.09	0.10	0.17	0.15
O67	0.26	0.17	0.28	0.10	0.14	0.05	0.16	0.02	0.22	0.32	0.32	0.18	0.18
O68	0.08	0.09	0.15	0.06	0.13	0.04	0.10	0.03	0.13	0.32	0.32	0.11	0.15
O69	0.05	0.04	0.06	0.02	0.06	0.06	0.13	0.04	0.16	0.33	0.35	0.08	0.16
O70	0.08	0.06	0.08	0.03	0.06	0.04	0.08	0.03	0.07	0.25	0.24	0.07	0.11
O71	0.07	0.05	0.08	0.03	0.08	0.02	0.05	0.02	0.05	0.24	0.23	0.07	0.10
O72	0.40	0.23	0.38	0.14	0.14	0.07	0.05	0.03	0.05	0.49	0.49	0.22	0.19
O73	0.40	0.21	0.33	0.12	0.09	0.07	0.14	0.06	0.09	0.53	0.53	0.20	0.22
O74	0.37	0.18	0.23	0.10	0.07	0.12	0.36	0.18	0.30	0.54	0.55	0.20	0.29
O75	0.42	0.20	0.25	0.11	0.07	0.14	0.42	0.21	0.35	0.57	0.57	0.22	0.32
O76	0.09	0.02	0.10	0.03	0.03	0.07	0.23	0.11	0.18	0.26	0.29	0.08	0.16
O77	0.17	0.03	0.10	0.02	0.02	0.05	0.12	0.05	0.07	0.16	0.19	0.06	0.09
O78	0.18	0.20	0.13	0.08	0.02	0.10	0.14	0.13	0.29	0.08	0.12	0.11	0.12
O79	0.34	0.25	0.24	0.15	0.02	0.08	0.23	0.13	0.32	0.06	0.07	0.16	0.14
O80	0.40	0.28	0.26	0.17	0.02	0.06	0.25	0.10	0.24	0.26	0.25	0.18	0.17
O81	0.15	0.11	0.23	0.12	0.07	0.08	0.19	0.16	0.33	0.26	0.05	0.15	0.18
O82	0.14	0.14	0.17	0.09	0.07	0.12	0.20	0.15	0.36	0.27	0.03	0.14	0.18
O83	0.29	0.22	0.15	0.06	0.06	0.17	0.22	0.18	0.38	0.28	0.06	0.16	0.20
O84	0.36	0.25	0.22	0.03	0.04	0.19	0.23	0.22	0.39	0.29	0.10	0.18	0.21
O85	0.36	0.23	0.30	0.02	0.03	0.21	0.25	0.24	0.40	0.30	0.12	0.18	0.22
O86	0.32	0.20	0.35	0.13	0.08	0.05	0.04	0.02	0.06	0.05	0.30	0.15	0.08
O87	0.33	0.19	0.31	0.12	0.05	0.04	0.19	0.11	0.17	0.21	0.25	0.16	0.15
O88	0.27	0.22	0.42	0.15	0.10	0.06	0.25	0.18	0.26	0.19	0.29	0.20	0.19

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□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O89	0.32	0.25	0.44	0.16	0.11	0.02	0.18	0.09	0.08	0.21	0.17	0.20	0.13
O90	0.11	0.03	0.03	0.08	0.04	0.10	0.27	0.21	0.30	0.07	0.24	0.08	0.16
O91	0.08	0.07	0.08	0.07	0.07	0.10	0.28	0.21	0.30	0.09	0.21	0.09	0.17
O92	0.07	0.07	0.10	0.05	0.07	0.10	0.27	0.20	0.30	0.16	0.28	0.10	0.18
O93	0.11	0.12	0.21	0.05	0.06	0.11	0.26	0.19	0.30	0.22	0.34	0.12	0.20
O94	0.36	0.23	0.50	0.17	0.04	0.15	0.06	0.09	0.05	0.24	0.36	0.21	0.14
O95	0.34	0.21	0.45	0.15	0.01	0.10	0.09	0.11	0.08	0.24	0.41	0.18	0.15
O96	0.30	0.23	0.42	0.16	0.07	0.10	0.11	0.16	0.11	0.15	0.38	0.19	0.15
O97	0.25	0.22	0.38	0.09	0.07	0.06	0.10	0.17	0.08	0.11	0.40	0.15	0.13
O98	0.19	0.21	0.39	0.13	0.08	0.05	0.09	0.15	0.06	0.03	0.37	0.15	0.11
O99	0.04	0.14	0.16	0.02	0.08	0.05	0.08	0.06	0.10	0.08	0.06	0.08	0.07
O100	0.16	0.06	0.21	0.03	0.07	0.07	0.10	0.10	0.05	0.06	0.07	0.09	0.07
O101	0.17	0.07	0.17	0.04	0.06	0.08	0.07	0.08	0.03	0.08	0.08	0.08	0.06
O102	0.10	0.05	0.17	0.08	0.10	0.07	0.03	0.07	0.05	0.12	0.03	0.09	0.07
O103	0.19	0.19	0.38	0.15	0.16	0.03	0.07	0.10	0.06	0.13	0.27	0.17	0.12
O104	0.20	0.19	0.41	0.14	0.13	0.03	0.05	0.08	0.06	0.13	0.14	0.17	0.09
O105	0.15	0.27	0.51	0.16	0.15	0.05	0.16	0.14	0.16	0.12	0.18	0.20	0.14
O106	0.22	0.19	0.48	0.12	0.11	0.02	0.03	0.04	0.08	0.14	0.07	0.17	0.08
O107	0.13	0.14	0.43	0.21	0.06	0.09	0.02	0.08	0.08	0.10	0.15	0.17	0.10
O108	0.12	0.04	0.45	0.09	0.05	0.02	0.01	0.06	0.11	0.08	0.21	0.12	0.08
O109	0.20	0.07	0.35	0.11	0.02	0.01	0.01	0.10	0.13	0.13	0.25	0.12	0.10
O110	0.28	0.16	0.35	0.17	0.01	0.03	0.02	0.11	0.11	0.15	0.25	0.15	0.11
O111	0.35	0.22	0.33	0.15	0.00	0.03	0.03	0.04	0.06	0.13	0.19	0.15	0.08
O112	0.42	0.27	0.34	0.13	0.01	0.02	0.03	0.07	0.11	0.12	0.15	0.16	0.08
O113	0.41	0.28	0.31	0.11	0.01	0.02	0.04	0.05	0.07	0.15	0.18	0.15	0.08
O114	0.09	0.04	0.27	0.12	0.03	0.04	0.11	0.09	0.24	0.38	0.42	0.13	0.19
O115	0.06	0.04	0.15	0.11	0.02	0.05	0.13	0.08	0.13	0.26	0.39	0.09	0.15
O116	0.28	0.15	0.27	0.11	0.05	0.06	0.16	0.14	0.10	0.17	0.30	0.14	0.13
O117	0.12	0.09	0.06	0.07	0.05	0.04	0.10	0.13	0.07	0.13	0.25	0.07	0.10
O118	0.16	0.08	0.13	0.22	0.07	0.15	0.04	0.08	0.06	0.06	0.21	0.13	0.10
O119	0.15	0.04	0.17	0.23	0.07	0.14	0.03	0.10	0.09	0.06	0.25	0.13	0.11
O120	0.17	0.06	0.16	0.25	0.08	0.17	0.03	0.11	0.11	0.10	0.28	0.15	0.13
O121	0.17	0.06	0.13	0.22	0.09	0.19	0.05	0.10	0.12	0.12	0.28	0.14	0.14
O122	0.17	0.05	0.19	0.19	0.09	0.21	0.06	0.11	0.14	0.14	0.24	0.15	0.14
O123	0.15	0.04	0.24	0.21	0.09	0.21	0.03	0.12	0.09	0.15	0.23	0.16	0.14
O124	0.07	0.02	0.25	0.18	0.08	0.21	0.05	0.06	0.08	0.22	0.15	0.15	0.13
O125	0.06	0.05	0.22	0.12	0.08	0.20	0.09	0.05	0.08	0.18	0.14	0.13	0.12
O126	0.06	0.04	0.24	0.17	0.07	0.21	0.12	0.04	0.06	0.08	0.14	0.13	0.10
O127	0.07	0.06	0.21	0.18	0.06	0.18	0.13	0.06	0.08	0.10	0.15	0.12	0.11
O128	0.08	0.05	0.11	0.13	0.05	0.10	0.12	0.10	0.07	0.06	0.06	0.09	0.08

□□□□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O129	0.12	0.05	0.12	0.16	0.06	0.14	0.02	0.12	0.09	0.11	0.27	0.11	0.12
O130	0.09	0.04	0.11	0.16	0.06	0.14	0.03	0.09	0.04	0.07	0.20	0.10	0.09
O131	0.09	0.03	0.08	0.13	0.06	0.12	0.03	0.08	0.03	0.11	0.18	0.09	0.09
O132	0.08	0.04	0.10	0.16	0.06	0.10	0.03	0.08	0.07	0.11	0.19	0.10	0.10
O133	0.09	0.04	0.12	0.19	0.06	0.13	0.02	0.11	0.08	0.10	0.28	0.11	0.12
O134	0.13	0.05	0.13	0.19	0.07	0.16	0.03	0.12	0.10	0.12	0.27	0.12	0.13
O135	0.09	0.05	0.08	0.13	0.05	0.09	0.04	0.07	0.04	0.05	0.16	0.08	0.07
O136	0.08	0.04	0.09	0.13	0.05	0.09	0.03	0.08	0.06	0.12	0.17	0.09	0.09
O137	0.07	0.04	0.09	0.13	0.04	0.08	0.01	0.10	0.08	0.09	0.18	0.08	0.09
O138	0.15	0.08	0.07	0.18	0.06	0.12	0.03	0.12	0.05	0.12	0.20	0.11	0.11
O139	0.17	0.08	0.14	0.13	0.04	0.09	0.04	0.10	0.03	0.09	0.20	0.10	0.09
O140	0.18	0.04	0.20	0.25	0.03	0.09	0.03	0.11	0.06	0.05	0.18	0.12	0.09
O141	0.15	0.05	0.08	0.19	0.01	0.05	0.05	0.09	0.05	0.01	0.16	0.08	0.07
O142	0.05	0.11	0.07	0.05	0.03	0.04	0.06	0.05	0.04	0.05	0.06	0.05	0.05
O143	0.08	0.11	0.05	0.10	0.02	0.03	0.05	0.04	0.04	0.02	0.09	0.06	0.04
O144	0.09	0.04	0.02	0.08	0.05	0.05	0.11	0.10	0.10	0.03	0.14	0.06	0.08
O145	0.12	0.13	0.08	0.16	0.06	0.06	0.12	0.15	0.07	0.03	0.14	0.10	0.09
O146	0.06	0.15	0.12	0.07	0.06	0.05	0.10	0.09	0.04	0.02	0.09	0.08	0.06
O147	0.05	0.15	0.11	0.03	0.04	0.04	0.06	0.05	0.07	0.02	0.06	0.06	0.05
O148	0.14	0.13	0.05	0.34	0.10	0.24	0.11	0.26	0.10	0.08	0.04	0.17	0.15
O149	0.12	0.13	0.05	0.34	0.13	0.23	0.12	0.28	0.11	0.09	0.06	0.17	0.16
O150	0.08	0.10	0.10	0.15	0.05	0.09	0.12	0.10	0.04	0.04	0.03	0.09	0.07
O151	0.08	0.14	0.16	0.15	0.03	0.11	0.13	0.08	0.08	0.04	0.04	0.10	0.08
O152	0.13	0.14	0.13	0.27	0.07	0.19	0.12	0.21	0.09	0.07	0.04	0.15	0.12
O153	0.06	0.02	0.07	0.07	0.04	0.04	0.02	0.16	0.07	0.05	0.04	0.05	0.06
O154	0.07	0.03	0.07	0.19	0.11	0.09	0.02	0.28	0.14	0.09	0.07	0.11	0.12
O155	0.19	0.05	0.07	0.31	0.16	0.16	0.10	0.35	0.18	0.12	0.09	0.17	0.18
O156	0.19	0.04	0.07	0.24	0.12	0.13	0.10	0.33	0.17	0.05	0.10	0.14	0.15
O157	0.23	0.10	0.07	0.33	0.18	0.20	0.14	0.39	0.21	0.11	0.12	0.19	0.21
O158	0.23	0.11	0.12	0.37	0.20	0.21	0.13	0.38	0.20	0.16	0.10	0.22	0.22
O159	0.23	0.11	0.19	0.41	0.22	0.23	0.11	0.36	0.19	0.17	0.12	0.24	0.22
O160	0.24	0.13	0.21	0.42	0.23	0.24	0.13	0.38	0.20	0.16	0.12	0.25	0.23
O161	0.22	0.12	0.14	0.40	0.22	0.23	0.16	0.41	0.23	0.15	0.13	0.23	0.23
O162	0.17	0.11	0.11	0.36	0.20	0.22	0.17	0.43	0.24	0.13	0.16	0.21	0.23
O163	0.23	0.08	0.08	0.17	0.17	0.22	0.16	0.39	0.18	0.10	0.17	0.15	0.19
O164	0.22	0.05	0.05	0.22	0.13	0.18	0.14	0.33	0.15	0.10	0.16	0.14	0.17
O165	0.19	0.06	0.07	0.25	0.13	0.18	0.15	0.40	0.20	0.04	0.17	0.15	0.18
O166	0.16	0.10	0.07	0.32	0.18	0.21	0.17	0.44	0.24	0.08	0.17	0.19	0.22
O167	0.09	0.07	0.12	0.35	0.20	0.23	0.19	0.48	0.27	0.11	0.22	0.20	0.25
O168	0.10	0.03	0.18	0.39	0.22	0.23	0.19	0.50	0.27	0.15	0.24	0.22	0.27

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□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O169	0.10	0.05	0.23	0.42	0.24	0.22	0.18	0.45	0.23	0.18	0.23	0.24	0.26
O170	0.08	0.06	0.28	0.44	0.26	0.18	0.16	0.34	0.16	0.17	0.19	0.24	0.23
O171	0.06	0.06	0.32	0.44	0.26	0.15	0.13	0.23	0.12	0.15	0.20	0.24	0.20
O172	0.07	0.06	0.39	0.39	0.23	0.11	0.10	0.14	0.09	0.14	0.20	0.23	0.16
O173	0.12	0.06	0.42	0.34	0.20	0.07	0.08	0.15	0.08	0.12	0.19	0.21	0.15
O174	0.09	0.17	0.44	0.32	0.21	0.05	0.06	0.29	0.08	0.08	0.18	0.21	0.15
O175	0.31	0.27	0.29	0.26	0.05	0.05	0.06	0.27	0.04	0.08	0.16	0.17	0.11
O176	0.21	0.28	0.27	0.27	0.05	0.13	0.14	0.28	0.03	0.11	0.19	0.18	0.14
O177	0.31	0.27	0.27	0.23	0.02	0.08	0.09	0.24	0.04	0.08	0.18	0.16	0.11
O178	0.27	0.26	0.26	0.15	0.03	0.03	0.03	0.12	0.06	0.07	0.11	0.14	0.07
O179	0.27	0.26	0.25	0.12	0.04	0.04	0.03	0.08	0.06	0.07	0.13	0.13	0.07
O180	0.31	0.28	0.23	0.19	0.02	0.09	0.10	0.17	0.05	0.09	0.18	0.15	0.10
O181	0.23	0.28	0.24	0.24	0.04	0.14	0.15	0.23	0.03	0.11	0.19	0.17	0.13
O182	0.24	0.28	0.22	0.18	0.09	0.16	0.16	0.14	0.03	0.10	0.18	0.16	0.12
O183	0.30	0.27	0.19	0.13	0.06	0.12	0.13	0.11	0.05	0.09	0.18	0.14	0.10
O184	0.29	0.24	0.14	0.07	0.04	0.06	0.06	0.08	0.06	0.07	0.16	0.11	0.07
O185	0.28	0.20	0.07	0.04	0.05	0.05	0.06	0.06	0.05	0.06	0.15	0.08	0.06
O186	0.29	0.24	0.17	0.07	0.09	0.12	0.13	0.08	0.04	0.08	0.17	0.13	0.09
O187	0.25	0.27	0.23	0.11	0.13	0.16	0.16	0.08	0.03	0.09	0.17	0.16	0.11
O188	0.18	0.27	0.22	0.21	0.09	0.16	0.16	0.18	0.03	0.10	0.19	0.16	0.13
O189	0.16	0.27	0.26	0.27	0.06	0.16	0.16	0.28	0.02	0.12	0.20	0.17	0.15
O190	0.11	0.26	0.23	0.25	0.08	0.17	0.16	0.25	0.02	0.10	0.19	0.17	0.14
O191	0.05	0.24	0.19	0.23	0.11	0.16	0.15	0.20	0.03	0.07	0.18	0.15	0.13
O192	0.15	0.25	0.20	0.18	0.13	0.16	0.15	0.10	0.03	0.09	0.17	0.16	0.12
O193	0.22	0.27	0.23	0.13	0.14	0.16	0.16	0.07	0.03	0.09	0.17	0.16	0.11
O194	0.25	0.25	0.21	0.05	0.15	0.16	0.16	0.05	0.03	0.08	0.16	0.14	0.10
O195	0.28	0.22	0.15	0.04	0.12	0.13	0.15	0.07	0.03	0.08	0.16	0.12	0.09
O196	0.26	0.15	0.07	0.08	0.16	0.17	0.17	0.04	0.05	0.06	0.13	0.12	0.10
O197	0.17	0.15	0.15	0.19	0.15	0.15	0.15	0.21	0.11	0.05	0.05	0.15	0.13
O198	0.18	0.24	0.22	0.20	0.10	0.12	0.12	0.24	0.13	0.09	0.04	0.16	0.13
O199	0.23	0.25	0.22	0.22	0.11	0.12	0.11	0.23	0.15	0.12	0.05	0.18	0.14
O200	0.13	0.19	0.21	0.21	0.18	0.16	0.14	0.22	0.12	0.06	0.04	0.17	0.14
O201	0.13	0.23	0.27	0.23	0.20	0.17	0.13	0.21	0.12	0.06	0.04	0.19	0.14
O202	0.25	0.27	0.22	0.21	0.17	0.15	0.11	0.22	0.14	0.12	0.05	0.19	0.15
O203	0.24	0.22	0.23	0.23	0.08	0.10	0.10	0.22	0.14	0.15	0.05	0.17	0.13
O204	0.24	0.21	0.20	0.20	0.05	0.08	0.08	0.23	0.15	0.11	0.05	0.15	0.12
O205	0.07	0.10	0.18	0.22	0.06	0.14	0.15	0.22	0.14	0.08	0.19	0.13	0.14
O206	0.11	0.11	0.18	0.26	0.08	0.19	0.16	0.21	0.16	0.12	0.06	0.16	0.15
O207	0.17	0.13	0.07	0.21	0.09	0.18	0.19	0.19	0.16	0.14	0.04	0.15	0.15
O208	0.20	0.17	0.07	0.28	0.08	0.24	0.21	0.22	0.14	0.10	0.07	0.17	0.16

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□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O209	0.20	0.15	0.06	0.43	0.23	0.26	0.17	0.38	0.12	0.02	0.11	0.22	0.20
O210	0.20	0.13	0.05	0.43	0.20	0.18	0.15	0.33	0.05	0.04	0.13	0.20	0.17
O211	0.22	0.08	0.18	0.44	0.20	0.21	0.07	0.32	0.09	0.16	0.16	0.23	0.20
O212	0.25	0.12	0.36	0.41	0.21	0.24	0.09	0.29	0.14	0.04	0.16	0.26	0.18
O213	0.21	0.13	0.41	0.40	0.21	0.24	0.13	0.22	0.12	0.02	0.16	0.25	0.17
O214	0.14	0.09	0.32	0.32	0.16	0.23	0.15	0.11	0.09	0.01	0.20	0.20	0.14
O215	0.08	0.17	0.21	0.21	0.13	0.20	0.15	0.14	0.12	0.01	0.20	0.16	0.13
O216	0.03	0.21	0.14	0.20	0.13	0.16	0.14	0.18	0.04	0.03	0.17	0.14	0.12
O217	0.16	0.21	0.19	0.10	0.15	0.16	0.15	0.05	0.03	0.07	0.15	0.14	0.10
O218	0.18	0.21	0.18	0.16	0.15	0.16	0.16	0.06	0.03	0.06	0.12	0.15	0.10
O219	0.20	0.14	0.10	0.18	0.13	0.16	0.17	0.10	0.04	0.05	0.07	0.13	0.10
O220	0.27	0.21	0.17	0.14	0.09	0.13	0.19	0.21	0.08	0.11	0.04	0.14	0.12
O221	0.22	0.11	0.19	0.15	0.07	0.11	0.21	0.20	0.09	0.13	0.06	0.13	0.13
O222	0.32	0.24	0.22	0.18	0.15	0.14	0.16	0.21	0.08	0.11	0.07	0.18	0.13
O223	0.11	0.14	0.22	0.24	0.13	0.15	0.03	0.17	0.06	0.09	0.08	0.16	0.11
O224	0.25	0.10	0.14	0.23	0.10	0.13	0.03	0.13	0.08	0.14	0.08	0.15	0.11
O225	0.06	0.09	0.13	0.24	0.06	0.08	0.03	0.12	0.03	0.06	0.09	0.11	0.08
O226	0.07	0.11	0.14	0.22	0.09	0.11	0.03	0.07	0.04	0.06	0.09	0.12	0.08
O227	0.07	0.08	0.13	0.17	0.05	0.05	0.05	0.05	0.05	0.04	0.08	0.09	0.06
O228	0.11	0.03	0.06	0.18	0.04	0.05	0.07	0.10	0.02	0.05	0.07	0.08	0.07
O229	0.11	0.11	0.08	0.17	0.06	0.03	0.07	0.16	0.02	0.04	0.05	0.09	0.07
O230	0.12	0.14	0.12	0.10	0.06	0.02	0.08	0.15	0.07	0.09	0.05	0.09	0.08
O231	0.13	0.12	0.14	0.08	0.04	0.05	0.10	0.16	0.07	0.07	0.11	0.09	0.08
O232	0.11	0.11	0.02	0.10	0.01	0.04	0.12	0.03	0.08	0.03	0.08	0.06	0.06
O233	0.13	0.14	0.15	0.06	0.04	0.06	0.13	0.10	0.07	0.05	0.11	0.08	0.08
O234	0.12	0.16	0.17	0.06	0.03	0.06	0.14	0.10	0.06	0.04	0.09	0.08	0.07
O235	0.10	0.11	0.05	0.05	0.03	0.06	0.07	0.08	0.04	0.03	0.06	0.06	0.05
O236	0.09	0.14	0.05	0.04	0.01	0.03	0.06	0.07	0.03	0.03	0.06	0.05	0.04
O237	0.07	0.08	0.07	0.06	0.04	0.05	0.11	0.12	0.04	0.02	0.03	0.05	0.05
O238	0.12	0.06	0.08	0.07	0.06	0.07	0.12	0.15	0.04	0.03	0.05	0.07	0.07
O239	0.12	0.09	0.12	0.05	0.07	0.07	0.13	0.15	0.03	0.06	0.08	0.07	0.08
O240	0.08	0.10	0.10	0.04	0.05	0.06	0.07	0.08	0.06	0.09	0.08	0.07	0.07
O241	0.15	0.13	0.12	0.02	0.07	0.05	0.10	0.15	0.06	0.11	0.12	0.08	0.09
O242	0.06	0.16	0.23	0.03	0.02	0.02	0.02	0.05	0.04	0.07	0.14	0.07	0.05
O243	0.13	0.14	0.22	0.06	0.03	0.03	0.05	0.08	0.06	0.07	0.05	0.09	0.06
O244	0.05	0.12	0.20	0.07	0.04	0.04	0.08	0.13	0.05	0.05	0.05	0.08	0.06
O245	0.14	0.12	0.14	0.05	0.05	0.02	0.07	0.13	0.03	0.03	0.04	0.07	0.05
O246	0.16	0.09	0.12	0.07	0.03	0.01	0.06	0.10	0.04	0.08	0.01	0.07	0.05
O247	0.11	0.09	0.13	0.05	0.02	0.01	0.04	0.10	0.03	0.04	0.01	0.06	0.04
O248	0.08	0.12	0.16	0.03	0.01	0.01	0.06	0.14	0.04	0.04	0.01	0.06	0.04

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O249	0.15	0.14	0.18	0.05	0.08	0.04	0.12	0.16	0.08	0.06	0.03	0.09	0.08
O250	0.06	0.14	0.20	0.10	0.02	0.04	0.08	0.07	0.04	0.03	0.04	0.08	0.05
O251	0.06	0.10	0.17	0.08	0.05	0.03	0.05	0.16	0.04	0.03	0.05	0.08	0.06
O252	0.12	0.14	0.14	0.18	0.04	0.03	0.12	0.09	0.05	0.06	0.03	0.10	0.07
O253	0.09	0.15	0.15	0.11	0.04	0.03	0.06	0.11	0.05	0.05	0.05	0.09	0.06
O254	0.04	0.13	0.16	0.09	0.04	0.05	0.10	0.17	0.05	0.05	0.08	0.08	0.08
O255	0.10	0.06	0.07	0.09	0.02	0.05	0.07	0.05	0.07	0.07	0.15	0.06	0.07
O256	0.09	0.09	0.06	0.04	0.05	0.05	0.05	0.07	0.02	0.02	0.05	0.05	0.04
O257	0.16	0.17	0.12	0.04	0.05	0.08	0.05	0.07	0.07	0.02	0.04	0.08	0.05
O258	0.12	0.11	0.14	0.04	0.05	0.05	0.05	0.05	0.06	0.03	0.10	0.07	0.05
O259	0.13	0.05	0.17	0.04	0.02	0.03	0.06	0.08	0.08	0.02	0.05	0.06	0.05
O260	0.09	0.09	0.15	0.05	0.06	0.06	0.05	0.06	0.04	0.05	0.11	0.07	0.06
O261	0.09	0.09	0.15	0.03	0.04	0.06	0.03	0.06	0.11	0.08	0.06	0.07	0.06
O262	0.05	0.04	0.08	0.04	0.05	0.08	0.04	0.04	0.04	0.05	0.04	0.05	0.05
O263	0.05	0.03	0.05	0.09	0.05	0.07	0.06	0.08	0.03	0.04	0.05	0.06	0.06
O264	0.08	0.05	0.14	0.11	0.03	0.05	0.06	0.11	0.02	0.07	0.05	0.07	0.06
O265	0.04	0.03	0.09	0.08	0.08	0.05	0.02	0.07	0.09	0.08	0.04	0.07	0.07
O266	0.05	0.06	0.09	0.08	0.03	0.05	0.03	0.15	0.08	0.03	0.08	0.06	0.07
O267	0.05	0.05	0.12	0.05	0.01	0.01	0.03	0.16	0.09	0.05	0.07	0.05	0.06
O268	0.06	0.07	0.08	0.05	0.02	0.03	0.06	0.17	0.09	0.06	0.05	0.05	0.07
O269	0.18	0.19	0.14	0.04	0.05	0.04	0.07	0.17	0.07	0.03	0.04	0.08	0.06
O270	0.19	0.12	0.08	0.06	0.02	0.05	0.08	0.19	0.06	0.08	0.06	0.07	0.08
O271	0.06	0.08	0.04	0.15	0.02	0.03	0.09	0.19	0.05	0.08	0.10	0.07	0.08
O272	0.08	0.11	0.05	0.19	0.04	0.04	0.09	0.18	0.04	0.08	0.09	0.09	0.09
O273	0.05	0.12	0.07	0.16	0.08	0.08	0.05	0.11	0.04	0.08	0.06	0.09	0.08
O274	0.08	0.12	0.12	0.13	0.03	0.03	0.06	0.07	0.03	0.09	0.06	0.08	0.06
O275	0.02	0.13	0.08	0.06	0.02	0.01	0.02	0.05	0.04	0.11	0.02	0.05	0.04
O276	0.04	0.12	0.08	0.12	0.03	0.03	0.04	0.03	0.02	0.10	0.04	0.07	0.05
O277	0.08	0.14	0.16	0.12	0.06	0.09	0.04	0.01	0.03	0.08	0.02	0.10	0.06
O278	0.10	0.13	0.17	0.14	0.15	0.21	0.06	0.11	0.06	0.07	0.09	0.14	0.11
O279	0.06	0.09	0.09	0.05	0.06	0.05	0.02	0.04	0.06	0.10	0.05	0.07	0.06
O280	0.04	0.07	0.06	0.06	0.07	0.05	0.01	0.04	0.06	0.06	0.07	0.06	0.05
O281	0.04	0.02	0.14	0.04	0.07	0.04	0.01	0.02	0.05	0.05	0.08	0.06	0.05
O282	0.04	0.10	0.14	0.08	0.05	0.04	0.03	0.02	0.04	0.07	0.07	0.07	0.05
O283	0.05	0.05	0.07	0.07	0.04	0.06	0.04	0.12	0.06	0.08	0.03	0.06	0.07
O284	0.04	0.07	0.05	0.11	0.03	0.04	0.04	0.07	0.06	0.08	0.03	0.06	0.06
O285	0.08	0.08	0.05	0.11	0.06	0.04	0.07	0.21	0.08	0.08	0.02	0.07	0.08
O286	0.07	0.07	0.04	0.09	0.06	0.04	0.07	0.22	0.07	0.07	0.02	0.06	0.08
O287	0.18	0.11	0.11	0.12	0.12	0.02	0.06	0.20	0.05	0.12	0.08	0.11	0.10
O288	0.04	0.03	0.09	0.06	0.07	0.04	0.11	0.07	0.03	0.02	0.05	0.05	0.05

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□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O289	0.07	0.07	0.11	0.05	0.05	0.02	0.13	0.06	0.02	0.03	0.07	0.05	0.05
O290	0.18	0.06	0.24	0.03	0.07	0.05	0.07	0.13	0.10	0.04	0.07	0.09	0.07
O291	0.07	0.05	0.15	0.04	0.16	0.11	0.11	0.16	0.14	0.08	0.05	0.10	0.11
O292	0.03	0.05	0.18	0.07	0.06	0.04	0.04	0.13	0.11	0.07	0.05	0.08	0.07
O293	0.17	0.04	0.03	0.07	0.17	0.11	0.05	0.23	0.17	0.10	0.05	0.10	0.13
O294	0.20	0.03	0.17	0.06	0.19	0.15	0.07	0.20	0.15	0.15	0.03	0.13	0.13
O295	0.06	0.05	0.22	0.11	0.14	0.06	0.02	0.10	0.05	0.15	0.06	0.12	0.09
O296	0.15	0.08	0.15	0.11	0.13	0.02	0.04	0.09	0.03	0.15	0.09	0.11	0.09
O297	0.21	0.13	0.15	0.12	0.14	0.02	0.06	0.19	0.04	0.13	0.10	0.12	0.10
O298	0.22	0.11	0.11	0.13	0.16	0.05	0.04	0.12	0.07	0.13	0.10	0.13	0.10
O299	0.09	0.09	0.07	0.12	0.16	0.11	0.06	0.24	0.11	0.13	0.09	0.12	0.13
O300	0.25	0.19	0.18	0.10	0.11	0.09	0.05	0.14	0.11	0.13	0.07	0.14	0.10
O301	0.32	0.18	0.12	0.13	0.03	0.03	0.02	0.06	0.08	0.13	0.05	0.12	0.07
O302	0.21	0.08	0.12	0.06	0.03	0.04	0.02	0.12	0.10	0.17	0.06	0.09	0.08
O303	0.18	0.15	0.24	0.09	0.03	0.05	0.01	0.14	0.11	0.12	0.06	0.11	0.08
O304	0.16	0.11	0.18	0.06	0.11	0.14	0.05	0.20	0.13	0.06	0.04	0.11	0.10
O305	0.12	0.07	0.14	0.22	0.12	0.16	0.13	0.23	0.12	0.03	0.08	0.14	0.13
O306	0.04	0.07	0.11	0.22	0.08	0.14	0.02	0.18	0.10	0.04	0.08	0.12	0.10
O307	0.06	0.10	0.13	0.27	0.16	0.22	0.09	0.15	0.10	0.06	0.07	0.16	0.13
O308	0.06	0.19	0.05	0.09	0.08	0.10	0.11	0.16	0.07	0.11	0.07	0.09	0.10
O309	0.10	0.25	0.08	0.09	0.11	0.12	0.13	0.24	0.07	0.17	0.07	0.12	0.13
O310	0.06	0.18	0.10	0.25	0.13	0.08	0.15	0.24	0.13	0.26	0.05	0.16	0.17
O311	0.16	0.06	0.06	0.09	0.12	0.03	0.14	0.20	0.13	0.27	0.11	0.11	0.15
O312	0.21	0.17	0.16	0.02	0.07	0.05	0.20	0.30	0.18	0.25	0.12	0.11	0.16
O313	0.15	0.21	0.06	0.01	0.10	0.07	0.16	0.24	0.11	0.11	0.16	0.09	0.12
O314	0.10	0.05	0.05	0.02	0.05	0.03	0.09	0.16	0.09	0.19	0.10	0.06	0.10
O315	0.10	0.21	0.08	0.22	0.10	0.12	0.14	0.24	0.10	0.30	0.09	0.15	0.17
O316	0.11	0.28	0.03	0.14	0.11	0.04	0.18	0.26	0.19	0.37	0.17	0.14	0.20
O317	0.04	0.31	0.05	0.16	0.08	0.06	0.18	0.23	0.18	0.28	0.16	0.13	0.18
O318	0.08	0.30	0.04	0.11	0.02	0.10	0.15	0.21	0.09	0.20	0.11	0.10	0.13
O319	0.06	0.28	0.02	0.03	0.03	0.03	0.11	0.17	0.02	0.07	0.07	0.06	0.07
O320	0.08	0.21	0.12	0.14	0.05	0.09	0.11	0.14	0.15	0.16	0.08	0.12	0.12
O321	0.10	0.19	0.05	0.07	0.03	0.08	0.09	0.12	0.09	0.13	0.05	0.08	0.09
O322	0.08	0.07	0.11	0.14	0.04	0.08	0.08	0.11	0.15	0.13	0.05	0.10	0.10
O323	0.15	0.08	0.08	0.06	0.04	0.07	0.07	0.09	0.13	0.12	0.05	0.08	0.08
O324	0.14	0.27	0.25	0.07	0.06	0.08	0.16	0.22	0.15	0.20	0.08	0.14	0.14
O325	0.13	0.28	0.25	0.07	0.07	0.05	0.16	0.16	0.13	0.10	0.07	0.13	0.10
O326	0.07	0.27	0.26	0.08	0.04	0.06	0.16	0.14	0.11	0.11	0.07	0.12	0.10
O327	0.26	0.20	0.23	0.07	0.01	0.03	0.09	0.06	0.13	0.06	0.06	0.11	0.07
O328	0.16	0.05	0.17	0.06	0.03	0.04	0.11	0.07	0.09	0.03	0.09	0.08	0.06

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□&□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O329	0.07	0.04	0.31	0.07	0.02	0.04	0.11	0.08	0.08	0.02	0.10	0.09	0.06
O330	0.13	0.06	0.32	0.11	0.07	0.08	0.13	0.08	0.05	0.05	0.09	0.12	0.08
O331	0.14	0.06	0.20	0.16	0.06	0.06	0.12	0.10	0.09	0.05	0.07	0.11	0.08
O332	0.06	0.04	0.26	0.19	0.09	0.06	0.18	0.13	0.08	0.08	0.04	0.12	0.10
O333	0.11	0.06	0.34	0.21	0.09	0.07	0.15	0.05	0.05	0.06	0.07	0.14	0.09
O334	0.06	0.05	0.33	0.22	0.04	0.04	0.12	0.02	0.03	0.04	0.08	0.13	0.07
O335	0.04	0.02	0.14	0.22	0.09	0.04	0.10	0.06	0.06	0.06	0.11	0.10	0.08
O336	0.11	0.05	0.07	0.14	0.08	0.03	0.09	0.08	0.06	0.06	0.13	0.08	0.08
O337	0.08	0.06	0.09	0.18	0.05	0.05	0.09	0.10	0.07	0.05	0.09	0.09	0.08
O338	0.15	0.09	0.27	0.36	0.14	0.17	0.09	0.20	0.11	0.03	0.11	0.20	0.14
O339	0.16	0.10	0.32	0.36	0.15	0.19	0.07	0.20	0.12	0.03	0.12	0.21	0.14
O340	0.08	0.09	0.31	0.28	0.10	0.14	0.04	0.10	0.10	0.01	0.12	0.17	0.10
O341	0.15	0.07	0.23	0.33	0.05	0.07	0.03	0.06	0.08	0.01	0.11	0.15	0.08
O342	0.16	0.19	0.42	0.34	0.15	0.21	0.10	0.11	0.07	0.01	0.18	0.22	0.13
O343	0.18	0.09	0.23	0.29	0.07	0.08	0.03	0.06	0.07	0.02	0.12	0.15	0.08
O344	0.15	0.03	0.04	0.23	0.03	0.02	0.05	0.09	0.08	0.02	0.09	0.09	0.07
O345	0.07	0.02	0.07	0.20	0.08	0.02	0.09	0.12	0.10	0.04	0.11	0.09	0.09
O346	0.15	0.05	0.07	0.09	0.07	0.05	0.10	0.03	0.03	0.18	0.20	0.08	0.09
O347	0.15	0.04	0.06	0.08	0.06	0.05	0.13	0.03	0.02	0.23	0.16	0.08	0.10
O348	0.15	0.05	0.08	0.07	0.08	0.05	0.15	0.07	0.03	0.26	0.12	0.09	0.11
O349	0.14	0.05	0.09	0.05	0.11	0.07	0.16	0.16	0.06	0.30	0.10	0.10	0.13
O350	0.16	0.05	0.12	0.10	0.10	0.05	0.13	0.08	0.02	0.21	0.21	0.10	0.11
O351	0.17	0.06	0.20	0.08	0.11	0.05	0.11	0.10	0.03	0.12	0.26	0.10	0.10
O352	0.13	0.06	0.17	0.04	0.12	0.15	0.11	0.18	0.07	0.31	0.21	0.12	0.16
O353	0.09	0.07	0.13	0.03	0.12	0.19	0.12	0.13	0.10	0.32	0.27	0.11	0.17
O354	0.16	0.06	0.05	0.05	0.13	0.18	0.09	0.14	0.03	0.15	0.33	0.10	0.13
O355	0.18	0.05	0.11	0.04	0.10	0.05	0.11	0.14	0.06	0.04	0.07	0.08	0.08
O356	0.18	0.04	0.12	0.03	0.12	0.09	0.05	0.06	0.06	0.06	0.05	0.08	0.07
O357	0.14	0.06	0.07	0.05	0.12	0.22	0.13	0.14	0.06	0.03	0.10	0.09	0.10
O358	0.03	0.08	0.05	0.05	0.08	0.23	0.17	0.15	0.14	0.33	0.34	0.10	0.19
O359	0.03	0.08	0.17	0.09	0.09	0.19	0.08	0.04	0.20	0.32	0.32	0.14	0.18
O360	0.06	0.08	0.20	0.10	0.11	0.23	0.16	0.09	0.04	0.16	0.34	0.13	0.15
O361	0.09	0.06	0.21	0.10	0.14	0.25	0.21	0.20	0.07	0.05	0.12	0.13	0.13
O362	0.18	0.06	0.06	0.08	0.19	0.24	0.17	0.17	0.03	0.05	0.02	0.11	0.11
O363	0.19	0.10	0.04	0.07	0.20	0.22	0.18	0.19	0.10	0.09	0.01	0.13	0.13
O364	0.09	0.08	0.19	0.12	0.15	0.24	0.20	0.18	0.14	0.05	0.13	0.14	0.14
O365	0.03	0.10	0.23	0.13	0.12	0.22	0.14	0.03	0.05	0.05	0.27	0.13	0.11
O366	0.02	0.10	0.20	0.11	0.10	0.17	0.09	0.06	0.18	0.29	0.32	0.14	0.17
O367	0.02	0.12	0.23	0.13	0.09	0.18	0.15	0.08	0.19	0.24	0.35	0.14	0.18
O368	0.04	0.11	0.24	0.15	0.11	0.21	0.08	0.06	0.09	0.08	0.26	0.14	0.12

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O369	0.11	0.09	0.17	0.13	0.14	0.24	0.19	0.11	0.07	0.06	0.11	0.13	0.12
O370	0.17	0.12	0.18	0.10	0.23	0.23	0.18	0.21	0.16	0.08	0.03	0.16	0.15
O371	0.20	0.13	0.28	0.08	0.26	0.22	0.16	0.15	0.11	0.05	0.09	0.17	0.13
O372	0.30	0.17	0.15	0.14	0.29	0.22	0.17	0.19	0.16	0.03	0.11	0.19	0.16
O373	0.36	0.10	0.18	0.11	0.26	0.21	0.16	0.19	0.11	0.02	0.09	0.17	0.14
O374	0.35	0.15	0.30	0.12	0.19	0.12	0.05	0.16	0.20	0.02	0.08	0.18	0.12
O375	0.24	0.17	0.40	0.16	0.16	0.13	0.05	0.17	0.18	0.04	0.10	0.19	0.12
O376	0.30	0.20	0.43	0.18	0.06	0.05	0.05	0.18	0.16	0.07	0.09	0.18	0.11
O377	0.28	0.18	0.28	0.16	0.18	0.14	0.07	0.07	0.08	0.08	0.07	0.18	0.10
O378	0.29	0.19	0.28	0.17	0.21	0.16	0.08	0.10	0.10	0.07	0.07	0.19	0.11
O379	0.33	0.18	0.30	0.12	0.19	0.13	0.09	0.11	0.15	0.05	0.12	0.18	0.12
O380	0.33	0.23	0.26	0.13	0.23	0.11	0.11	0.14	0.18	0.03	0.13	0.19	0.13
O381	0.21	0.19	0.19	0.17	0.26	0.17	0.09	0.14	0.13	0.04	0.05	0.18	0.13
O382	0.25	0.14	0.25	0.05	0.06	0.04	0.07	0.07	0.10	0.07	0.13	0.11	0.08
O383	0.30	0.16	0.27	0.05	0.08	0.06	0.04	0.08	0.09	0.06	0.03	0.12	0.06
O384	0.16	0.24	0.26	0.10	0.13	0.14	0.05	0.02	0.30	0.42	0.36	0.19	0.21
O385	0.03	0.18	0.14	0.05	0.11	0.07	0.14	0.12	0.17	0.06	0.04	0.10	0.10
O386	0.21	0.23	0.27	0.13	0.05	0.04	0.14	0.03	0.02	0.08	0.09	0.13	0.07
O387	0.13	0.30	0.31	0.23	0.15	0.06	0.09	0.02	0.08	0.11	0.12	0.18	0.10
O388	0.06	0.30	0.32	0.25	0.16	0.04	0.05	0.03	0.06	0.13	0.07	0.18	0.10
O389	0.14	0.13	0.15	0.08	0.03	0.06	0.11	0.11	0.39	0.36	0.44	0.13	0.22
O390	0.26	0.19	0.23	0.12	0.02	0.07	0.14	0.14	0.49	0.39	0.47	0.18	0.25
O391	0.22	0.27	0.28	0.12	0.21	0.16	0.03	0.07	0.29	0.21	0.34	0.21	0.18
O392	0.04	0.18	0.15	0.12	0.12	0.23	0.09	0.04	0.31	0.31	0.24	0.16	0.19
O393	0.05	0.17	0.16	0.13	0.10	0.11	0.08	0.04	0.24	0.23	0.24	0.14	0.15
O394	0.29	0.19	0.22	0.09	0.09	0.12	0.05	0.03	0.16	0.13	0.11	0.15	0.10
O395	0.20	0.31	0.30	0.14	0.14	0.08	0.05	0.02	0.06	0.11	0.15	0.17	0.09
O396	0.06	0.19	0.15	0.09	0.14	0.11	0.06	0.02	0.21	0.24	0.13	0.14	0.14
O397	0.05	0.20	0.17	0.16	0.18	0.09	0.03	0.02	0.14	0.26	0.35	0.16	0.16
O398	0.05	0.04	0.03	0.03	0.03	0.03	0.04	0.04	0.27	0.16	0.30	0.06	0.12
O399	0.03	0.07	0.05	0.04	0.04	0.13	0.02	0.06	0.26	0.13	0.16	0.08	0.12
O400	0.01	0.04	0.06	0.04	0.05	0.25	0.02	0.06	0.49	0.35	0.19	0.13	0.21
O401	0.04	0.04	0.08	0.09	0.05	0.22	0.05	0.04	0.38	0.33	0.12	0.13	0.18
O402	0.04	0.01	0.01	0.03	0.01	0.12	0.03	0.06	0.11	0.15	0.16	0.05	0.09
O403	0.13	0.18	0.19	0.07	0.07	0.11	0.11	0.07	0.31	0.23	0.23	0.14	0.16
O404	0.02	0.05	0.07	0.03	0.02	0.03	0.02	0.06	0.33	0.21	0.20	0.07	0.13
O405	0.16	0.20	0.19	0.08	0.07	0.03	0.02	0.06	0.36	0.23	0.31	0.14	0.16
O406	0.13	0.18	0.17	0.13	0.10	0.03	0.02	0.04	0.34	0.26	0.38	0.15	0.18
O407	0.20	0.16	0.19	0.07	0.05	0.10	0.02	0.02	0.07	0.25	0.18	0.12	0.10
O408	0.20	0.19	0.20	0.08	0.09	0.09	0.04	0.03	0.29	0.29	0.43	0.15	0.18

□□□□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O409	0.20	0.20	0.20	0.05	0.06	0.11	0.09	0.06	0.22	0.22	0.34	0.14	0.15
O410	0.15	0.18	0.19	0.07	0.07	0.10	0.10	0.06	0.22	0.13	0.27	0.12	0.13
O411	0.22	0.20	0.22	0.06	0.09	0.14	0.11	0.07	0.24	0.18	0.24	0.15	0.15
O412	0.25	0.22	0.25	0.08	0.10	0.14	0.11	0.07	0.31	0.21	0.25	0.17	0.17
O413	0.20	0.18	0.19	0.08	0.10	0.16	0.09	0.07	0.34	0.22	0.26	0.16	0.18
O414	0.25	0.22	0.24	0.07	0.09	0.15	0.12	0.07	0.34	0.19	0.25	0.17	0.17
O415	0.10	0.09	0.08	0.04	0.11	0.12	0.08	0.09	0.34	0.18	0.25	0.11	0.16
O416	0.13	0.10	0.10	0.05	0.13	0.14	0.09	0.10	0.33	0.19	0.28	0.13	0.17
O417	0.20	0.18	0.20	0.05	0.09	0.16	0.12	0.08	0.31	0.20	0.26	0.15	0.17
O418	0.17	0.17	0.18	0.04	0.09	0.16	0.12	0.08	0.27	0.19	0.25	0.14	0.16
O419	0.15	0.14	0.15	0.04	0.10	0.16	0.11	0.09	0.27	0.18	0.25	0.13	0.16
O420	0.16	0.14	0.17	0.09	0.11	0.13	0.10	0.08	0.21	0.13	0.20	0.13	0.13
O421	0.17	0.16	0.18	0.08	0.10	0.13	0.11	0.07	0.21	0.15	0.20	0.13	0.13
O422	0.17	0.18	0.14	0.14	0.12	0.09	0.23	0.05	0.18	0.33	0.08	0.16	0.17
O423	0.21	0.19	0.19	0.15	0.16	0.11	0.03	0.09	0.23	0.35	0.30	0.18	0.19
O424	0.20	0.19	0.19	0.17	0.24	0.15	0.04	0.08	0.23	0.44	0.45	0.21	0.24
O425	0.18	0.18	0.18	0.12	0.25	0.11	0.10	0.08	0.11	0.41	0.38	0.18	0.21
O426	0.18	0.12	0.18	0.12	0.11	0.12	0.11	0.04	0.13	0.31	0.18	0.14	0.15
O427	0.14	0.13	0.19	0.12	0.12	0.09	0.09	0.06	0.16	0.17	0.12	0.13	0.12
O428	0.16	0.13	0.19	0.11	0.14	0.12	0.09	0.08	0.21	0.11	0.19	0.14	0.13
O429	0.21	0.15	0.23	0.13	0.18	0.17	0.09	0.08	0.26	0.18	0.22	0.18	0.17
O430	0.26	0.21	0.27	0.15	0.18	0.22	0.10	0.07	0.30	0.27	0.30	0.22	0.21
O431	0.25	0.20	0.27	0.13	0.22	0.28	0.12	0.08	0.15	0.25	0.29	0.21	0.19
O432	0.16	0.14	0.18	0.10	0.13	0.24	0.10	0.05	0.17	0.25	0.33	0.16	0.17
O433	0.16	0.09	0.10	0.11	0.10	0.14	0.10	0.03	0.09	0.19	0.29	0.12	0.13
O434	0.14	0.09	0.07	0.09	0.03	0.09	0.08	0.02	0.10	0.15	0.04	0.09	0.08
O435	0.16	0.11	0.09	0.10	0.06	0.11	0.07	0.02	0.10	0.11	0.05	0.10	0.08
O436	0.18	0.12	0.11	0.10	0.06	0.11	0.04	0.02	0.08	0.05	0.08	0.10	0.07
O437	0.18	0.12	0.09	0.06	0.08	0.11	0.03	0.04	0.03	0.02	0.10	0.08	0.05
O438	0.18	0.12	0.07	0.07	0.07	0.12	0.03	0.04	0.06	0.05	0.07	0.09	0.06
O439	0.17	0.11	0.08	0.08	0.04	0.14	0.05	0.04	0.09	0.09	0.05	0.09	0.07
O440	0.20	0.14	0.21	0.09	0.22	0.28	0.08	0.08	0.18	0.25	0.28	0.19	0.19
O441	0.08	0.06	0.05	0.04	0.17	0.24	0.02	0.06	0.14	0.15	0.14	0.11	0.12
O442	0.11	0.05	0.09	0.03	0.11	0.14	0.04	0.04	0.18	0.12	0.11	0.09	0.10
O443	0.16	0.09	0.20	0.09	0.18	0.22	0.08	0.07	0.25	0.24	0.22	0.17	0.18
O444	0.26	0.08	0.07	0.04	0.13	0.20	0.08	0.04	0.04	0.25	0.46	0.12	0.15
O445	0.20	0.09	0.05	0.04	0.12	0.13	0.04	0.03	0.08	0.11	0.45	0.09	0.12
O446	0.20	0.09	0.04	0.08	0.12	0.10	0.07	0.03	0.07	0.09	0.40	0.09	0.11
O447	0.18	0.09	0.06	0.09	0.19	0.27	0.13	0.04	0.03	0.23	0.33	0.14	0.16
O448	0.22	0.10	0.06	0.05	0.16	0.25	0.13	0.04	0.11	0.25	0.29	0.13	0.16

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O449	0.22	0.07	0.08	0.10	0.14	0.20	0.11	0.04	0.09	0.30	0.24	0.14	0.16
O450	0.22	0.07	0.09	0.11	0.13	0.19	0.11	0.04	0.07	0.36	0.36	0.14	0.18
O451	0.23	0.06	0.06	0.07	0.11	0.17	0.08	0.04	0.06	0.25	0.45	0.11	0.15
O452	0.18	0.06	0.05	0.10	0.20	0.14	0.11	0.07	0.11	0.24	0.49	0.13	0.18
O453	0.19	0.10	0.10	0.12	0.22	0.16	0.12	0.07	0.11	0.40	0.47	0.16	0.21
O454	0.16	0.10	0.08	0.14	0.22	0.13	0.10	0.08	0.20	0.25	0.44	0.16	0.20
O455	0.12	0.10	0.08	0.11	0.16	0.08	0.07	0.06	0.21	0.21	0.23	0.13	0.15
O456	0.17	0.14	0.13	0.14	0.19	0.11	0.06	0.08	0.25	0.36	0.35	0.17	0.21
O457	0.18	0.14	0.12	0.15	0.24	0.14	0.08	0.08	0.22	0.40	0.46	0.19	0.23
O458	0.15	0.10	0.04	0.26	0.36	0.16	0.12	0.12	0.23	0.31	0.21	0.21	0.23
O459	0.16	0.20	0.09	0.21	0.29	0.21	0.15	0.13	0.27	0.32	0.20	0.22	0.23
O460	0.14	0.18	0.09	0.18	0.27	0.21	0.15	0.12	0.25	0.36	0.23	0.20	0.23
O461	0.13	0.12	0.04	0.24	0.33	0.12	0.11	0.10	0.21	0.25	0.19	0.19	0.20
O462	0.12	0.11	0.09	0.14	0.14	0.20	0.15	0.11	0.16	0.40	0.28	0.16	0.21
O463	0.14	0.09	0.08	0.15	0.10	0.16	0.14	0.11	0.18	0.39	0.27	0.15	0.20
O464	0.17	0.12	0.08	0.11	0.12	0.15	0.23	0.10	0.19	0.46	0.32	0.15	0.22
O465	0.18	0.14	0.09	0.05	0.08	0.11	0.06	0.08	0.11	0.34	0.29	0.11	0.15
O466	0.16	0.16	0.07	0.10	0.12	0.16	0.18	0.10	0.18	0.30	0.28	0.14	0.18
O467	0.06	0.07	0.03	0.08	0.08	0.13	0.17	0.07	0.14	0.16	0.24	0.09	0.13
O468	0.15	0.16	0.08	0.06	0.10	0.13	0.10	0.07	0.15	0.28	0.39	0.12	0.17
O469	0.05	0.05	0.09	0.03	0.04	0.08	0.06	0.04	0.11	0.13	0.16	0.06	0.09
O470	0.07	0.05	0.09	0.04	0.03	0.09	0.04	0.06	0.07	0.07	0.07	0.06	0.06
O471	0.08	0.06	0.06	0.06	0.05	0.06	0.04	0.05	0.07	0.07	0.14	0.06	0.07
O472	0.05	0.05	0.05	0.02	0.03	0.08	0.05	0.04	0.12	0.14	0.18	0.06	0.09
O473	0.05	0.04	0.02	0.03	0.04	0.09	0.05	0.05	0.10	0.15	0.19	0.06	0.09
O474	0.06	0.04	0.04	0.07	0.11	0.09	0.06	0.04	0.10	0.13	0.18	0.08	0.10
O475	0.12	0.16	0.11	0.06	0.09	0.05	0.02	0.08	0.04	0.05	0.02	0.08	0.05
O476	0.22	0.18	0.14	0.08	0.05	0.05	0.05	0.04	0.04	0.03	0.02	0.09	0.04
O477	0.24	0.20	0.16	0.14	0.03	0.05	0.06	0.01	0.06	0.05	0.05	0.11	0.06
O478	0.16	0.17	0.13	0.11	0.04	0.04	0.06	0.08	0.02	0.06	0.02	0.09	0.05
O479	0.21	0.20	0.18	0.10	0.08	0.06	0.06	0.07	0.03	0.04	0.02	0.11	0.05
O480	0.24	0.22	0.18	0.12	0.04	0.04	0.07	0.03	0.09	0.07	0.05	0.12	0.06
O481	0.16	0.10	0.13	0.08	0.02	0.09	0.06	0.03	0.06	0.07	0.06	0.08	0.06
O482	0.02	0.02	0.01	0.02	0.09	0.08	0.05	0.01	0.05	0.14	0.17	0.05	0.08
O483	0.03	0.04	0.02	0.02	0.16	0.16	0.11	0.02	0.12	0.19	0.28	0.09	0.14
O484	0.05	0.05	0.09	0.12	0.29	0.29	0.15	0.02	0.13	0.28	0.41	0.17	0.21
O485	0.14	0.07	0.10	0.12	0.26	0.32	0.15	0.05	0.05	0.29	0.30	0.17	0.19
O486	0.17	0.07	0.05	0.16	0.16	0.11	0.11	0.05	0.03	0.08	0.32	0.12	0.12
O487	0.10	0.12	0.02	0.18	0.18	0.13	0.12	0.06	0.08	0.09	0.13	0.12	0.11
O488	0.13	0.08	0.03	0.18	0.20	0.12	0.11	0.10	0.09	0.12	0.14	0.13	0.13

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□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □□) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O489	0.16	0.09	0.05	0.23	0.31	0.17	0.12	0.14	0.25	0.28	0.19	0.20	0.22
O490	0.10	0.16	0.10	0.17	0.23	0.12	0.13	0.15	0.17	0.32	0.25	0.17	0.20
O491	0.03	0.13	0.07	0.09	0.17	0.13	0.17	0.10	0.21	0.16	0.18	0.12	0.15
O492	0.03	0.10	0.03	0.07	0.07	0.07	0.10	0.05	0.14	0.10	0.10	0.07	0.09
O493	0.12	0.10	0.11	0.09	0.08	0.07	0.11	0.05	0.12	0.11	0.08	0.10	0.09
O494	0.21	0.10	0.12	0.14	0.09	0.12	0.12	0.08	0.13	0.14	0.05	0.13	0.11
O495	0.22	0.09	0.12	0.16	0.13	0.16	0.14	0.10	0.13	0.08	0.03	0.14	0.11
O496	0.15	0.13	0.11	0.12	0.14	0.14	0.15	0.09	0.11	0.07	0.05	0.12	0.11
O497	0.17	0.06	0.12	0.08	0.08	0.11	0.12	0.06	0.12	0.10	0.06	0.10	0.09
O498	0.13	0.07	0.05	0.09	0.07	0.12	0.05	0.04	0.12	0.16	0.07	0.09	0.09
O499	0.28	0.20	0.13	0.03	0.09	0.09	0.12	0.03	0.13	0.16	0.07	0.12	0.10
O500	0.13	0.21	0.16	0.09	0.12	0.14	0.12	0.03	0.24	0.29	0.11	0.16	0.16
O501	0.19	0.10	0.10	0.15	0.18	0.14	0.16	0.08	0.18	0.08	0.04	0.14	0.13
O502	0.18	0.14	0.05	0.07	0.16	0.15	0.17	0.03	0.21	0.06	0.02	0.12	0.11
O503	0.28	0.21	0.20	0.06	0.15	0.16	0.16	0.07	0.15	0.16	0.09	0.16	0.13
O504	0.11	0.08	0.11	0.11	0.12	0.10	0.16	0.06	0.12	0.17	0.11	0.11	0.12
O505	0.16	0.09	0.11	0.09	0.10	0.12	0.06	0.02	0.07	0.18	0.25	0.11	0.11
O506	0.43	0.31	0.32	0.10	0.07	0.10	0.01	0.04	0.23	0.20	0.28	0.19	0.14
O507	0.24	0.27	0.28	0.13	0.21	0.16	0.03	0.07	0.27	0.22	0.35	0.21	0.19
O508	0.08	0.18	0.18	0.12	0.20	0.19	0.02	0.05	0.19	0.38	0.35	0.18	0.20
O509	0.09	0.06	0.09	0.04	0.11	0.18	0.05	0.04	0.08	0.49	0.51	0.12	0.20
O510	0.10	0.05	0.07	0.04	0.09	0.11	0.23	0.06	0.28	0.39	0.39	0.11	0.21
O511	0.25	0.19	0.30	0.10	0.09	0.15	0.37	0.15	0.15	0.05	0.14	0.15	0.14
O512	0.22	0.13	0.03	0.01	0.06	0.19	0.45	0.20	0.19	0.42	0.30	0.12	0.24
O513	0.11	0.15	0.30	0.11	0.07	0.21	0.46	0.19	0.26	0.45	0.31	0.18	0.27
O514	0.29	0.14	0.06	0.01	0.05	0.23	0.44	0.15	0.11	0.32	0.15	0.12	0.19
O515	0.18	0.10	0.09	0.04	0.02	0.08	0.20	0.12	0.10	0.31	0.14	0.09	0.14
O516	0.09	0.13	0.05	0.07	0.04	0.09	0.22	0.13	0.15	0.12	0.14	0.08	0.12
O517	0.07	0.16	0.10	0.11	0.05	0.09	0.19	0.13	0.09	0.18	0.19	0.10	0.13
O518	0.10	0.20	0.15	0.09	0.05	0.07	0.37	0.27	0.10	0.20	0.19	0.11	0.17
O519	0.33	0.09	0.43	0.09	0.10	0.16	0.34	0.25	0.32	0.11	0.19	0.19	0.20
O520	0.09	0.04	0.25	0.15	0.03	0.20	0.20	0.23	0.30	0.13	0.35	0.14	0.20
O521	0.13	0.13	0.19	0.07	0.15	0.18	0.11	0.27	0.05	0.12	0.28	0.13	0.15
O522	0.23	0.12	0.20	0.10	0.12	0.20	0.11	0.28	0.05	0.12	0.14	0.14	0.14
O523	0.05	0.07	0.06	0.04	0.14	0.19	0.13	0.24	0.16	0.19	0.27	0.10	0.17
O524	0.25	0.13	0.24	0.06	0.09	0.08	0.14	0.16	0.13	0.06	0.15	0.12	0.11
O525	0.11	0.25	0.23	0.05	0.07	0.15	0.22	0.32	0.16	0.18	0.14	0.14	0.17
O526	0.11	0.15	0.12	0.07	0.06	0.14	0.23	0.33	0.17	0.21	0.05	0.11	0.16
O527	0.17	0.25	0.17	0.08	0.09	0.17	0.26	0.38	0.17	0.25	0.04	0.15	0.19
O528	0.13	0.24	0.15	0.06	0.15	0.17	0.27	0.41	0.17	0.21	0.08	0.14	0.20

□□□□ □□□□					□	□	□□	□	□□□	□□	□ □□	□□) □	□) □ □ □&
□&□□) □□ □ □□) □	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
□&□□) □□ □ □) □ □ □&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
O529	0.05	0.19	0.06	0.05	0.21	0.17	0.25	0.39	0.17	0.17	0.12	0.13	0.20
O530	0.05	0.11	0.09	0.12	0.27	0.21	0.20	0.30	0.15	0.17	0.12	0.15	0.19
O531	0.11	0.17	0.16	0.14	0.31	0.28	0.24	0.37	0.09	0.14	0.09	0.19	0.20
O532	0.09	0.05	0.03	0.15	0.33	0.31	0.27	0.42	0.02	0.15	0.03	0.16	0.20
O533	0.11	0.24	0.05	0.16	0.33	0.32	0.30	0.46	0.11	0.09	0.07	0.19	0.22
O534	0.12	0.07	0.09	0.18	0.36	0.35	0.32	0.51	0.22	0.06	0.09	0.20	0.25
O535	0.19	0.17	0.15	0.19	0.35	0.35	0.31	0.53	0.18	0.05	0.10	0.22	0.25
O536	0.21	0.07	0.06	0.06	0.03	0.09	0.30	0.12	0.40	0.09	0.21	0.10	0.17
O537	0.30	0.11	0.09	0.08	0.01	0.19	0.35	0.14	0.50	0.16	0.09	0.14	0.20
O538	0.15	0.02	0.01	0.02	0.02	0.03	0.27	0.09	0.43	0.22	0.06	0.08	0.16
O539	0.38	0.11	0.22	0.06	0.03	0.11	0.33	0.15	0.48	0.59	0.63	0.19	0.32
O540	0.34	0.19	0.16	0.18	0.21	0.12	0.14	0.10	0.33	0.44	0.47	0.22	0.27
O541	0.36	0.26	0.31	0.21	0.05	0.15	0.16	0.24	0.34	0.36	0.36	0.23	0.25
O542	0.12	0.03	0.11	0.02	0.04	0.05	0.24	0.20	0.38	0.32	0.05	0.10	0.19
O543	0.03	0.10	0.16	0.09	0.10	0.07	0.04	0.05	0.20	0.24	0.13	0.12	0.13
O544	0.02	0.10	0.13	0.02	0.07	0.23	0.18	0.15	0.26	0.30	0.10	0.12	0.18
O545	0.08	0.07	0.11	0.04	0.13	0.13	0.13	0.20	0.17	0.30	0.03	0.11	0.16
O546	0.15	0.06	0.09	0.15	0.05	0.04	0.16	0.03	0.08	0.27	0.05	0.11	0.11
O547	0.08	0.12	0.15	0.27	0.09	0.18	0.10	0.03	0.05	0.07	0.28	0.14	0.12
O548	0.09	0.15	0.10	0.21	0.08	0.18	0.10	0.02	0.04	0.06	0.23	0.13	0.10
O549	0.05	0.10	0.19	0.16	0.08	0.17	0.11	0.03	0.06	0.05	0.20	0.12	0.10
O550	0.16	0.03	0.26	0.12	0.09	0.17	0.12	0.06	0.12	0.06	0.18	0.13	0.11
O551	0.25	0.11	0.29	0.07	0.08	0.16	0.11	0.09	0.13	0.05	0.16	0.14	0.10
O552	0.26	0.12	0.29	0.16	0.07	0.16	0.06	0.08	0.14	0.22	0.15	0.17	0.13
O553	0.13	0.14	0.30	0.14	0.06	0.16	0.04	0.08	0.06	0.06	0.23	0.14	0.10
O554	0.10	0.02	0.23	0.06	0.02	0.13	0.06	0.03	0.06	0.06	0.17	0.08	0.07
O555	0.07	0.06	0.15	0.04	0.05	0.11	0.09	0.02	0.07	0.05	0.18	0.07	0.07
O556	0.10	0.13	0.11	0.02	0.06	0.10	0.09	0.04	0.10	0.05	0.17	0.08	0.08
O557	0.12	0.14	0.13	0.02	0.06	0.14	0.11	0.08	0.02	0.01	0.13	0.08	0.07
O558	0.15	0.13	0.13	0.02	0.02	0.15	0.16	0.12	0.05	0.04	0.13	0.08	0.08
O559	0.14	0.07	0.12	0.02	0.02	0.13	0.16	0.11	0.13	0.08	0.10	0.07	0.10
O560	0.13	0.04	0.08	0.01	0.01	0.18	0.15	0.08	0.30	0.22	0.08	0.09	0.14
O561	0.10	0.08	0.13	0.08	0.09	0.24	0.16	0.13	0.16	0.31	0.35	0.13	0.20
O562	0.08	0.06	0.16	0.08	0.11	0.24	0.20	0.19	0.02	0.06	0.29	0.11	0.14
O563	0.09	0.04	0.18	0.08	0.13	0.24	0.19	0.20	0.05	0.05	0.10	0.11	0.12
O564	0.17	0.05	0.12	0.06	0.13	0.20	0.09	0.10	0.09	0.06	0.03	0.11	0.09
O565	0.18	0.04	0.15	0.07	0.10	0.11	0.08	0.12	0.11	0.05	0.08	0.10	0.09
O566	0.13	0.04	0.20	0.12	0.03	0.02	0.11	0.12	0.09	0.05	0.07	0.09	0.08
S1	0.14	0.08	0.29	0.10	0.09	0.03	0.04	0.14	0.10	0.10	0.05	0.12	0.09
S2	0.13	0.10	0.18	0.07	0.04	0.05	0.06	0.14	0.10	0.10	0.05	0.09	0.08

Base ine					S	S	SS	S	SSW	SW	WSW	nn) a	S) mme &
F&eq) en y nn) a	0.06	0.08	0.11	0.17	0.15	0.09			0.06	0.06		0.78	
F&eq) en y □) □□□&				0.08	0.10	0.09	0.09	0.10	0.13	0.15	0.08		0.82
P=Perimeter Test Points, O=Overall Test Points, S=Special Test Points													
S3	0.26	0.20	0.27	0.08	0.05	0.09	0.16	0.18	0.11	0.11	0.04	0.13	0.10
S4	0.30	0.22	0.31	0.09	0.06	0.08	0.15	0.15	0.10	0.10	0.04	0.15	0.10
S5	0.32	0.24	0.33	0.10	0.06	0.09	0.17	0.16	0.11	0.11	0.05	0.16	0.11
S6	0.31	0.24	0.33	0.10	0.06	0.08	0.17	0.16	0.11	0.11	0.06	0.15	0.11
S7	0.30	0.23	0.32	0.10	0.06	0.08	0.15	0.16	0.09	0.10	0.10	0.15	0.10
S8	0.28	0.23	0.32	0.07	0.04	0.10	0.09	0.23	0.03	0.08	0.22	0.13	0.10
S9	0.13	0.07	0.08	0.10	0.17	0.13	0.05	0.05	0.03	0.08	0.10	0.11	0.08
S10	0.22	0.12	0.21	0.14	0.20	0.18	0.08	0.03	0.04	0.02	0.03	0.15	0.08
S11	0.26	0.16	0.32	0.16	0.23	0.21	0.09	0.04	0.07	0.08	0.10	0.20	0.12
S12	0.25	0.15	0.31	0.16	0.22	0.20	0.09	0.04	0.07	0.09	0.12	0.19	0.12
S13	0.24	0.14	0.31	0.16	0.21	0.19	0.09	0.03	0.07	0.08	0.12	0.19	0.11
S14	0.23	0.16	0.30	0.13	0.20	0.16	0.07	0.10	0.08	0.08	0.11	0.18	0.11

香港房屋委員會
Hong Kong Housing Authority

本署檔號 Our Ref. HD(P)8/3/FL18 電話 Tel No. 2761 5342
來函檔號 Your Ref. A/FSS/299 圖文傳真 Fax No. 2761 5870

2 October 2024

By Email

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

Dear Sir/Madam,

Section 16 Planning Application for Proposed Minor Relaxation of Plot Ratio and Building Height Restriction for Permitted Public Housing Development at Po Shek Wu Road, Sheung Shui, New Territories

(Application No. A/FSS/299)

Reference is made to the captioned Section 16 application received by the Town Planning Board on 6.8.2024 and the comments received from Planning Department dated 9.9.2024, 12.9.2024 and 24.9.2024. We submit herewith the table summarizing the responses to comments.

Should you have any queries or need further information, please contact the undersigned or Ms. Alice LO at 2761 5314. Thank You.

Yours faithfully,

(Yoko CHEUNG)
for Director of Housing

Encl.

S.16 Application No. A/FSS/299

Application for Minor Relaxation of Plot Ratio and Building Height Restriction for Permitted Public Housing Development, Po Shek Wu Road, Sheung Shui, New Territories
Responses to Comments (Batch 2)

Comments	Responses
Fanling, Sheung Shui & Yuen Long East District Planning Office, Planning Department (9.9.2024)	
Figure 4 Landscape Master Plan (Overall) - The site area stated in the plan (i.e. 13,000m^2) is inconsistent with Table 2 of the supporting planning statement (i.e. 13,800m^2). The calculation for site coverage of greenery (including planting area and covered planting area) should also be rectified accordingly.	The plan is updated as attached in **Annex 1**.
Drainage Services Department (12.9.2024)	
Section 7.1.3 - Please indicate that the project proponent will be responsible for the implementation of the required sewerage works.	HD agrees that the project proponent will be responsible for the implementation of the required sewerage works. Section 7.1.3 is revised as attached in **Annex 2**.
Fanling, Sheung Shui & Yuen Long East District Planning Office, Planning Department (24.9.2024)	
1. Please clarify if the water works reserve and drainage, as indicated in Environmental Assessment Study and Air Ventilation Assessment submitted, are among the site constraints.	The water works reserve and drainage are not considered as site constraints in the EAS and AVA.
2. Para. 4.9 of Planning Statement mentions podium setback of about 16m from southwestern boundary whereas Figure 24 of Air Ventilation Assessment indicates a building setback of only about 6m along the southwestern boundary. Please clarify/rectify accordingly.	The typo in the Planning Statement is rectified from about 16m to 6m which tallies with AVAIS as attached in **Annex 3**.
3. Table 5.1 of Traffic Review (TR) – It is noted that the junction improvement	Please be advised that the junction improvement scheme for Po Shek Wu Road

Comments		Responses
	scheme for Po Shek Wu Interchange is not included in the TR. Please clarify if the junction improvement should be included/rectify the table accordingly.	Interchange as referenced in the previous assessment has been considered in the assessment in the submitted Traffic Review.
4.	Please advise the design population of the OZP-compliant scheme.	The design population of the OZP-compliant scheme is about 4,870.
5.	Please clarify if the proposed post office is countable towards the proposed non-domestic GFA/PR.	The proposed post office is countable as non-domestic GFA/PR.
6.	Please clarify if Modular Integrated Construction (MiC) method would be adopted for the subject public housing development, and if affirmative, any implication to the increase in proposed building height. Please provide explanations if the MiC arrangement is different from other public housing developments where the adoption of MiC would generally lead to increase in building height.	The conventional storey height would be adopted for the domestic floors in the subject public housing development for which no full MiC is proposed.
7.	Please clarify whether, and by how much if affirmative, the proposed local open space (of not less than 5,332 sqm, and as shown in the submitted plans) are covered, and advise on any criteria (including any requirements on degree/extent of open-air space) for accountable local open space in the proposed public housing development.	The calculation of the local open space is based on the principle as set in the chapter 4 of HKPSG. About half of the proposed local open space are located at the covered area. The proposed local open spaces primarily consist of soft landscape areas, sitting-out areas, and communal play areas, but exclude the main circulation.

- End -

Site Area	about 13800m²	
Proposed number of flats	1904	
Design population	about 5330	
Items	**Required**	**Provided**
Planting area (including uncovered green area and vertical green within primary and non-primary area)	-	about 2520 m²
Covered planting area	-	about 230 m²
Site coverage of greenery	about 2760m²	about 2770m²
Green ratio	20%	20%
Community play area	427 m²	about 460 m²
Local open space	5332 m²	about 6040 m²
Basketball Court	-	-
Badminton Court	-	-
Table Tennis Table	1	1

LEGEND

- Application Site Boundary
- Proposed Architectural Scheme
- Proposed New Tree Planting
- Proposed Shrub Planting
- Proposed Tile Paving at Podium
- Proposed Tile Paving at Ground Floor
- Proposed Seating
- Proposed Pavilion
- Proposed Community Play Area
- Proposed Bicycle Parking Area
- Proposed Vertical Greening

PROJECT

Proposed Development of Public Housing at Po Shek Wu Road, Sheung Shui

Landscape Master Plan (Overall)

SCALE	1:600 (A3)	DATE	SEP 2024
FIGURE NO.	**Figure 4**	REV	-

房屋署
HOUSING DEPARTMENT

7. CONCLUSIONS AND RECOMMENDATIONS

7.1.1 The Sewerage Impact Assessment (SIA) has been conducted to evaluate the possible impact on the existing sewerage system due to additional flow generated from the proposed public housing developments.

7.1.2 The main trunk is mainly responsible for transferring the sewage flow of the residential buildings and commercial buildings of Sheung Shui region to SWHSTW. The additional flow generated from the Site would only occupy about 1.5% of the utilization of the main trunk. The main trunk contains about 10% capacity for the further planning. Therefore, the sewage generation from the Site has minimal effect to the existing sewerage system.

7.1.3 Under Scenario 1 in Section 4.1.1, the estimated peak flow in the sewer section between manholes FMH1004664 and FMH1004662 exceeds 100% of full-bore capacity. It is recommended to upgrade the sewer section to 300dia concrete sewer. The project proponent would implement the proposed upgrade.

7.1.4 The full-bore capacity of the DN1800 sewer section between manholes FMH1004651 and FMH1004650 is lower than other DN1800 sewer sections in the vicinity due to gentle gradient.

8. REFERENCES

- Site Layout Plan (with Typical Floor) (Option 10) (Drawing No. NO09/SCHEME B/LO-00/K), HKHA
- EPD/TP1/05 "Guidelines for Estimating Sewerage Flows for Sewage Infrastructure Planning"
- The Hong Kong Planning Standards and Guidelines (HKPSG), PlanD
- Sewerage Manual Part 1, Key Planning Issues and Gravity Collection System, DSD
- Commercial and Industrial Floor Space Utilization Survey, PD
- Guidelines for Registration of a New School, EDB
- Manhole and Flow Data, EPD
- Po Shek Wu Road Sewerage Impact Assessment Report (Report no. R3509/009)

4 and 30 Sites 1 and 2 sites) in the vicinity. The Proposed Scheme is visually compatible with the surroundings. As demonstrated in the Visual Appraisal (**Appendix 1** refers), a total of six viewpoints are selected pursuant to the requirements in the Town Planning Board Guidelines, TPB PG-No. 41. The proposed revision in building mass and height comparing to the Current Scheme is considered slight and is unlikely to cause any significant adverse visual impact, which received no adverse comments from the Urban Design & Landscape Section of Planning Department.

No Adverse Impact on Air Ventilation Aspect

4.9. An AVA (**Appendix 2** refers) has been conducted to assess the ventilation performance of the Baseline Scheme and Proposed Scheme. To maintain and enhance the wind performance of the Proposed Scheme, the following wind enhancement features have been adopted -

- preserve 15m full height air path between Block A and B;
- provide a permeable podium design;
- provide a 7m G/F empty bay;
- provide a naturally ventilated carpark;
- provide building setback of about 11m from northeastern site boundary;
- provide podium setback of about 6m from southwestern site boundary; and
- provide tower setback of about 25m from southwestern site boundary.

4.10. Overall, the wind environment would be similar under Proposed and Baseline Scheme with a slight enhancement in performance under annual condition in Proposed Scheme. Under annual condition, the prevailing wind is mainly from eastern quadrant direction. A taller building height under Proposed Scheme would enhance the ventilation performance at upwind surroundings due to increased downwashing of prevailing wind on to the street level by the E/ESE/ENE facing facade. The permeable carpark and podium design would help to maintain the wind environment at leeward region. Under summer condition, prevailing wind is from the south-western quadrant direction, an overall calmer wind environment is observed under both schemes as the wind environment would be generally dominated by the relatively dense mid-rise windward surrounding environment. Similar to that of annual condition, a taller building height under Proposed Scheme would enhance the ventilation performance at upwind surrounding such as San Wan Road. While a wind shadow could be cast to the northeast

香港房屋委員會
Hong Kong Housing Authority

本署檔號 Our Ref. HD(P)8/3/FL18
來函檔號 Your Ref. A/FSS/299
電話 Tel No. 2761 5342
圖文傳真 Fax No. 2761 5870

11 November 2024

By Email and by Hand

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

Dear Sir/Madam,

Section 16 Planning Application for Proposed Minor Relaxation of Plot Ratio and Building Height Restriction for Permitted Public Housing Development at Po Shek Wu Road, Sheung Shui, New Territories

(Application No. A/FSS/299)

Reference is made to the captioned Section 16 application received by the Town Planning Board on 6.8.2024 and the comments on the Air Ventilation Assessment (AVA) received from Planning Department dated 2.10.2024. We submit herewith the table summarizing the responses to comments as well as the revised AVA report (Annex A) and extract of the Planning Statement (Annex B) with the updates highlighted to substantiate the application.

Should you have any queries or need further information, please contact the undersigned or Ms. Alice LO at 2761 5314. Thank You.

Yours faithfully,

(Yoko CHEUNG)
for Director of Housing

Encl.

香港九龍何文田佛光街33號房屋委員會總辦事處
Housing Authority Headquarters, 33, Fat Kwong Street, Ho Man Tin, Kowloon, Hong Kong.
互聯網網址：
Internet Homepage Address: http://www.housingauthority.gov.hk

Response to Comment Table	
UDL's Comments on 11 Sept 2024 AVA-IS Report (received via email dated 2 Oct 2024)	**ARUP's Response with updated AVA-IS report (Annex A dated 8 Nov 2024 refers)**
Planning Statement	
1. Paragraphs 4.9 and 4.10 - As we do not receive the revised Planning Statement in this submission, it is reminded that the consultant is required to update it based on our previous comments. We would reserve our comments on the relevant paragraphs of the Planning Statement at this juncture.	Paras. 4.9 and 4.10 of the Planning statement has been revised and highlighted in cyan (**Annex B** refers).
AVA IS Report	
2. Referring to this revised AVA IS report, the consultant fails to address our previous comments issued on 30.8.2024. We consider that it is the due diligence of the consultant to address our previous comments on the pre-submission in a proper manner to avoid abortive works.	All UDL's previous comments issued on 30.8.2024 were addressed in HD's letter (Ref.: HD(P)8/3/FL18) to Town Planning Board dated 13 September 2024. Copy of the letter is attached at **Annex C** The updates to address UDL's previous comment issued on 30.8.2024 were highlight in green in this revised report for easy reference.
3. **Building heights of the planned/committed developments** (section 2 and Figure 1)	-
a. Planning Sheung Shui Areas 4 and 30 Site 1 (~113.3-124.3mPD): Please review planning application no. A/FSS/280 and determine if the application's building heights are applicable (the proposed maximum building height is 144mPD).	The building height of Planning Sheung Shui Areas 4 and 30 Site 1 has been revised from "(~113.3-124.3mPD)" to "(144mPD)" in Figure 1 of this revised report (framed in red). The revised building height i.e. 144mPD is considered applicable and incorporated in this revised report.
b. Residential Cluster (~22-109mPD): Please review the indicative scheme of Y/FSS/19 and determine if its building heights are applicable (the proposed maximum building height is 130mPD).	The indicative scheme of Y/FSS/19 has been incorporated in figure 1 of this revised report (framed in red). The proposed maximum building height of 130mPD is considered applicable in this reviewed report. The simulation has been updated to incorporate Y/FSS/19.

Response to Comment Table	
UDL's Comments on 11 Sept 2024 AVA-IS Report (received via email dated 2 Oct 2024)	**ARUP's Response with updated AVA-IS report (Annex A dated 8 Nov 2024 refers)**
c. Po Shek Wu Road Site (~109-117mPD): Please review its building heights since the proposed maximum building heights for Po Shek Wu Road public housing development should be 149mPD (planning application No. A/FSS/299) (and the building height restriction under OZP is 130mPD).	The building height of Po Shek Wu Road has been revised from "(~109-117mPD)" to "(149mPD)" in Figure 1 of the revised report (framed in red).
4. **Baseline Scheme** (section 4.1 and Figure 12)	-
a. The consultant should confirm and clarify whether the two proposed 15m-wide building separations are above the podium level. If affirmative, the consultant should mention including the structural details of the footbridges in text where appropriate.	The 15m-wide building separation are full height, it has been clarified in the revised report that the podium structure are of permeable design with no significant impact to air flow. A minor G/F structure of ~3.8m tall (staircase and lift tower for basement) is situated near the north portion but would not impact significantly. Figure 11 is now marked with the G/F structure and figure 17 has also been updated with isometric view to show the separations more clearly.
b. Apart from labelling the height of proposed empty bay on plan, the consultant should clearly report this information in section 4.1.	The height of the proposed empty bay (i.e. ~5m tall) is reported in text in section 4.1 of this revised report.
5. **Proposed Scheme** (section 4.2 and Figure 29)	-
a. The consultant should report the building height of the proposed developments in text.	The building height of the proposed development (i.e. 149mPD) is reported in text in section 4.2 of this revised report.
b. Apart from labelling the height of proposed empty bay on Figure 29, the consultant should clearly report this information in section 4.2.	The height of the proposed empty bay (i.e. ~5m tall) is reported in text in section 4.2 of this revised report.

Response to Comment Table	
UDL's Comments on 11 Sept 2024 AVA-IS Report (received via email dated 2 Oct 2024)	**ARUP's Response with updated AVA-IS report (Annex A dated 8 Nov 2024 refers)**
6. Coverage of Assessment and Surrounding Areas (section 5.1) – While the consultant stated that the coverage of Assessment and Surrounding Areas on plan have been provided, the coverage of the Surrounding Area cannot be found in this revised AVA IS report. The consultant should show both the coverage of Assessment Area and Surrounding Area on the same figure for checking.	An additional figure (figure 31) has been included to show the Assessment Area and Surrounding Area extents on the same diagram.
7. **3D model views of the Surrounding Area** (section 5.1) – We would reiterate that the consultant should provide figures showing the entire Surrounding Area (from at least 4 directions) for checking. Figures 31 to 35 could only show the modelled topography but not the details of modelled building morphology. Without such information, we could not ascertain the accuracy of the model.	Additional close-ups of the modelled building morphology is provided in four directions in figure 37-40 of this revised report.
8. **Summer LVR** (sections 6.3 and 7.2) – Referring to the revised Table 6 and Table 7, the Proposed Scheme would have slightly higher (not similar) LVR when compared with the Baseline Scheme under summer condition. The consultant should clarify and revise the arguments where appropriate.	Section 6 and 7 are updated, and it has been ensured in the revised report that the descriptions of the LVRs and SVRs in the paragraphs would match the summary tables.

Response to Comment Table	
UDL's Comments on 11 Sept 2024 AVA-IS Report (received via email dated 2 Oct 2024)	**ARUP's Response with updated AVA-IS report (Annex A dated 8 Nov 2024 refers)**
9. **Overall test points** (Figures 39 and 41) – We do not agree on the consultant's reply. The circled areas, including Po Sheung Tsuen, Tai Yuen Tsuen, Hing Yan Tsuen, Tai Tau Leng and PTI next to Landmark North, are frequently accessed by pedestrians and should be covered by overall test points. 	Additional Overall test points have been provided. They are shown in the updated Table 5, Table 7, Figure 44, Figure 46 and appendix E. Results and discussions are revised accordingly. The below screenshot shows the added/modified focus areas, which are Po Sheung Tsuen (western portion), Po Sheung Tsuen (eastern portion), Po Sheung Tsuen Football Court, Tai Yuen Tsuen, Hing Yan Tsuen, Tai Tau Leng and Landmark North PTI. Please note that the Po Sheung Tsuen Focus Area is separated into western and eastern portion due to the extensive coverage. Additional test points have been placed to ensure these areas are covered sufficiently. 
10. **Demarcation of focus area and its corresponding test points** (Table 5 and Figure 41) – The consultant should confirm and revise the following as appropriate.	Please see responses below
a. The demarcation of focus area at Po Sheung Tsuen is too board. The consultant should divide it based on different existing developments including Po Sheung Tsuen, Tai Yuen Tsuem, Hing Yan Tsuen and the football court to the southwest of Hung Yan Tsuen.	This has been addressed together with Comment 8. The Po Sheung Tsuen focus area has been divided into Po Sheung Tsuen (western portion), Po Sheung Tsuen (eastern portion), Po Sheung Tsuen Football Court, Tai Yuen Tsuen, Hing Yan Tsuen, Tai Tau Leng and Landmark North PTI.

Response to Comment Table	
UDL's Comments on 11 Sept 2024 AVA-IS Report (received via email dated 2 Oct 2024)	**ARUP's Response with updated AVA-IS report (Annex A dated 8 Nov 2024 refers)**
b. Focus Area 3 (Choi Fat Street) – Overall test points O53 and O54 should be included in this focus area. The consultant should revise and update the SAVR where appropriate.	The two test points previously assigned Choi Fai Street mistakenly are now assigned to Choi Fat Street. (now named O82 and O83). This is evident in Table 5, Table 7 and appendix E.
c. Focus Area 4 (Choi Fai Street) – Overall test points O53 and O54 should be excluded from this focus area. The consultant should revise and update the SAVR where appropriate.	The two test points previously assigned Choi Fai Street mistakenly are now assigned to Choi Fat Street. (now named O82 and O83). This is evident in Table 5, Table 7 and appendix E.
d. The consultant should update Table 5 based on item **Error! Reference source not found.** above.	Table 5 has been updated
11. **Annual and summer weighted average VR** (sections 6.1.1 and 6.1.2) – The consultant simply noted our previous comments, but fails to address them. We would reiterate that the consultant should remove the shading on the highlighted areas VR contour plots. Taking Figures 42 and 43 as examples, we could not ascertain whether the Proposed Scheme read better VR at the Bike Kiosk and Shek Wu Hui Jockey Club Playgrounds when compared with the Baseline Scheme under annual condition. We would reserve our comments on these section.	All figures in Section 6 have been updated based on the latest results per comment 13 and the shadings have also been removed. All markups (inc. circles and arrows) under section 6 have been made less prominent to avoid compromising diagram clarity.
12. **NNE wind** (section 6.2.1 and 1st para.) – Referring to Table 2, the summer wind frequency of NNE should be 1.6%. The consultant should correct it where appropriate.	The typo has been revised in the revised report from 2.3% to 1.6%.

Response to Comment Table	
UDL's Comments on 11 Sept 2024 AVA-IS Report (received via email dated 2 Oct 2024)	**ARUP's Response with updated AVA-IS report (Annex A dated 8 Nov 2024 refers)**
13. **ENE wind** (section 6.2.3) – Referring to the simulation results shown in Appendix C, it appears that the VR contour of the Proposed Scheme in the far field area are quite different from that of the Baseline Scheme. It may imply that either one (or even both) of simulation results is not converged to satisfactory level. As such, accuracy of the simulation results is doubtful. The consultant should update the simulation results as well as the directional analysis where appropriate.	The model has been updated to ensure convergence hence accuracy and meaningful comparison. All figures showing the model have been updated, including Figure 13-18, Figure 25-36, and all figures in section 6. have been updated. The results have also been updated accordingly, which is reflected in the section 6 and 7's text, figures and tables. Appendices C to E are also updated.
14. **ESE wind** (section 6.2.5, 4th para.) – The mentioned green arrows and circles are unclear in Figure 55. The consultant should clarify and improve the presentation where appropriate.	Similar to what is mentioned in an earlier comment, all markups (inc. circles and arrows) under section 6 have been made less prominent to avoid compromising diagram clarity.
15. **SSE wind** (section 6.2.7, 3rd para.) – With reference to the simulation results, it is unable to identify how SSW wind could penetrate through the proposed G/F empty bay under the Baseline Scheme. The consultant should clarify and provide addition figures to demonstrate such phenomena.	This phenomenon is found to be no longer significant and relevant discussion has been removed from discussion
16. **SW wind** (section 6.2.9) – Referring to Table 2, the annual and summer wind frequency of SW should be 6.1% and 14.7% respectively. The consultant should correct it where appropriate.	The typo has been revised in the revised report from 3.3% and 8.4% to 6.1% and 14.7%.

Response to Comment Table	
UDL's Comments on 11 Sept 2024 AVA-IS Report (received via email dated 2 Oct 2024)	**ARUP's Response with updated AVA-IS report (Annex A dated 8 Nov 2024 refers)**
17. **WSW wind** (section 6.2.10, last para.) – With reference to the simulation results, it appears that the Proposed Scheme would have lower VR at Shek Wu Hui Jockey Club Playground when compared with the Baseline Scheme under WSW wind. This is contradictory to the discussion in last paragraph. The consultant should clarify and revise it where appropriate.	Discussion has been revised to ensure alignment with the updated simulation results in the entire section 6 and 7 (lower VR at Shek Wu Hui Jockey Club Playground under Proposed Scheme under WSW wind is discussed)
	1. Updates in this revised report are highlighted cyan for easy reference.
	2. Please note that it was noticed that the G/F empty from the previous round of simulation was modelled to be ~6m instead of ~7m as claimed. This has been rectified in this round's simulation and is evident in Figure 29's elevation view showing the empty bay

Annex A

ARUP

Hong Kong Housing Authority

Public Housing Development at Po Shek Wu Road, Sheung Shui

Air Ventilation Assessment - Initial Study

Reference:

| 8 November 2024

Job number

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Contents

1. Introduction

1.1 Background

Ove Arup & Partners Hong Kong Limited (Arup) has conducted an Air Ventilation Assessment (AVA) – Initial Study for the planning application of the proposed public housing developments at Po Shek Wu Road, Sheung Shui (The Development) in the North District.

The application site is currently zoned "Residential (Group A)" ("R(A)5") on the Approved Fanling/Sheung Shui Outline Zoning Plan (OZP) No. S/FSS/28 with maximum building height restriction of 130mPD and plot ratio 7.0. This document is to support the section 16 application for minor relaxation of building height restriction from 130mPD to 154mPD and plot ratio from 7.0 to 7.5.

The Technical Guide for Air Ventilation Assessment for the Developments in Hong Kong *(Annex A of Technical Circular No.1/06 for Air Ventilation Assessments)* [1] *(termed as AVA Technical Circular hereafter)* dated 19 July 2006 lay down the foundation of this methodology statement.

1.2 Objective of AVA Initial Study

Among all available wind data, an Initial Study will be conducted by using Computational Fluid Dynamics (CFD) techniques. It aims to achieve the following tasks:

- Initially assesses the characteristics of the wind availability of the Study Site;
- Gives a general pattern and a rough quantitative estimate of the wind performance at the pedestrian level using Velocity Ratio VR;
- Identify the air paths within the site ascertain their effectiveness; and
- Identify good design features and problematic areas if any and recommend mitigation measures.

2. Location and Site Characteristics

Development is located in Sheung Shui Area in the North District. The Development is sited on a flat topology and situated at the junction of Po Shek Wu Road (**Orange Dotted Line**) and San Wan Road (**Green Dotted Line**).

The Development is surrounded by mid-rise industrial clusters to the north to southwest, high-rise future residential developments, including planned Sheung Shui Areas 4 and 30 Site 1 and 2 (SS Site1 and Site 2) and completed Po Shek Wu Estate (PSWE) from northwest to south. At the north of the Development are the open spaces Shek Wu Hui Jockey Club Playground and at the west is a large cluster of mid-rise developments. The location of the Development and its surroundings are shown in Figure 1.

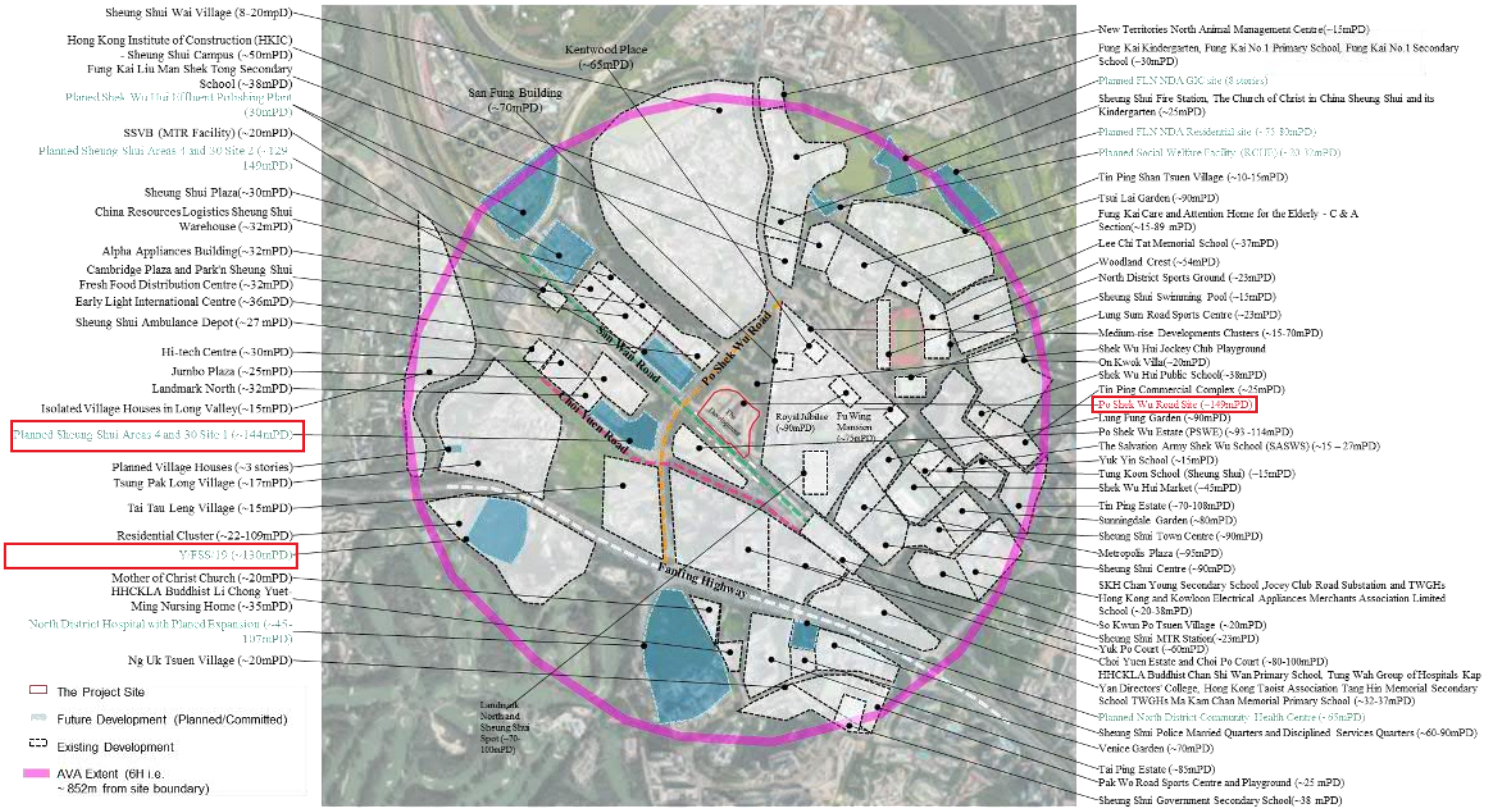


Figure 1 Site Location of the Development and Surroundings (Source: Google Map)

2.1 Proposed Development, Noise Barrier and Elevated Structure

There are several planned developments, noise barriers and elevated structures around the study sites, which will be considered in this AVA – Initial Study. Their locations are shown below.

Future Development

The planned developments are indicated in Figure 1.

Noise Barrier

Future semi-enclosures, future full-enclosures, existing noise barriers and future noise barriers would be located adjacent to the Development, as well as further south along Po Shek Wu Road, as well as Fanling Highway, in order to mitigate the noise impact, subject to detailed design.

Elevated Structure

There are multiple elevated structures located within the surrounding area, including elevated walkways, covered walkways and elevated roads. There are 4 future elevated walkways, connected to SS Site 1, SS Site2, Po Shek Wu Road and Sheung Shui MTR Station to the Development. There is also a future elevated road above Po Shek Wu Road connecting to Fanling Highway, subject to detailed design.

Figure 2 Elevated Structures and Noise Barriers

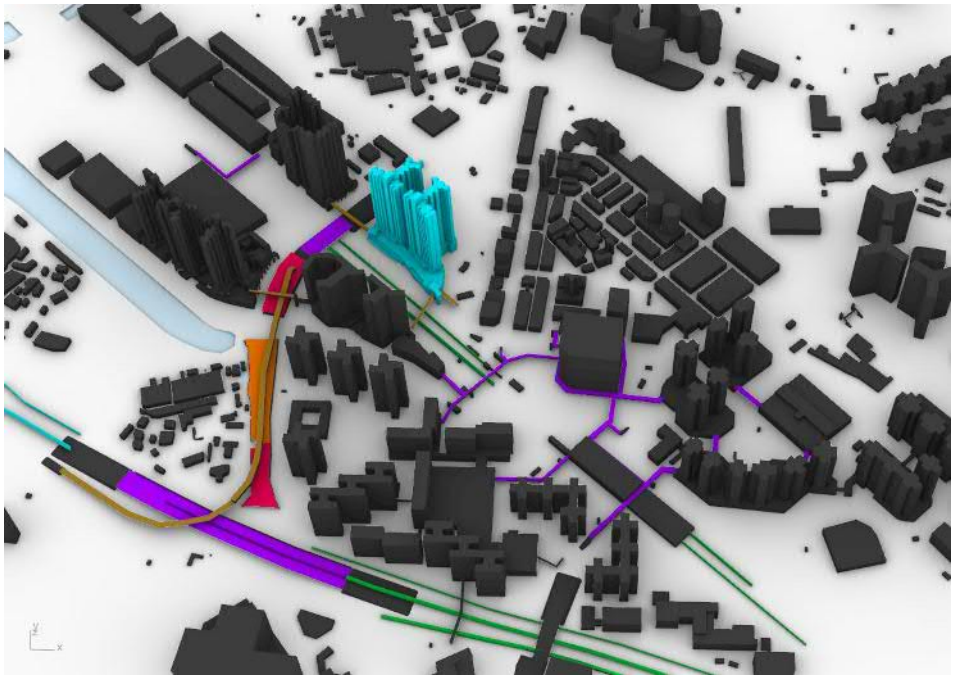
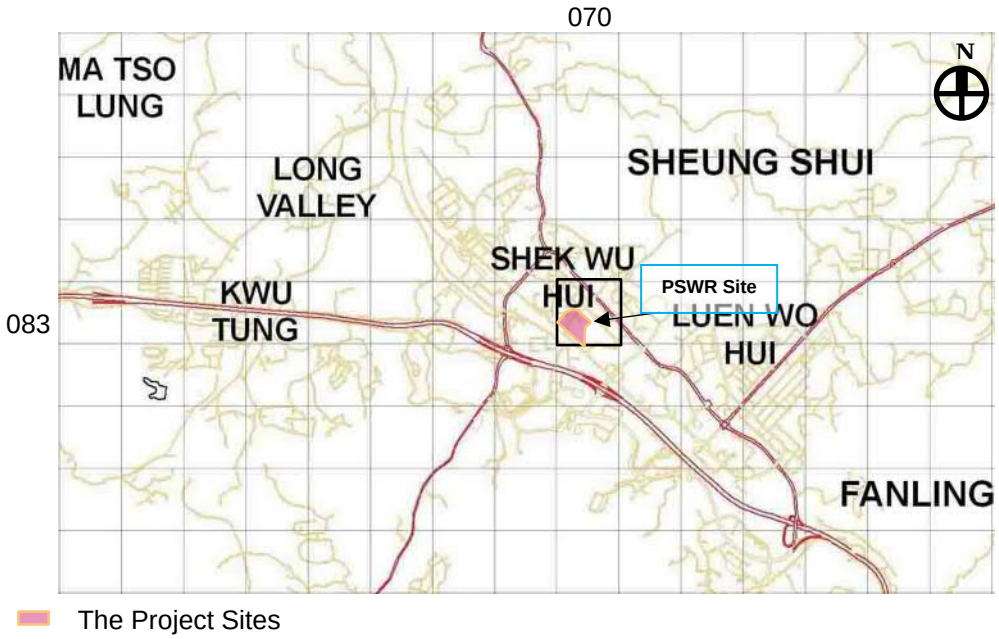


Figure 3 3D model of the Elevated Structures and Noise Barriers

3. Wind Availability Data

As per the *AVA Technical Circular,* at least 75% of the time in a typical reference year (frequency of occurrence) would be studied under both annual and summer wind condition in the Initial Study when using a Computational Fluid Dynamics (CFD) modelling technique. Since the CFD approach is adopted for the present project's AVA, this criterion together with the following selected wind data are to be applied as the methodology.

The site wind availability of the application site and its surrounding is an essential parameter for AVA. As stipulated in the *AVA Technical Circular. The* site wind availability would be presented by using appropriate mathematical models. Planning Department (PlanD) has set up a set of simulated meso-scale data of Regional Atmospheric Modelling System (RAMS) of the territory for AVA study, which could be downloaded at Planning Department Website. Simulated meso-scale data of Regional Atmospheric Modelling System (RAMS) from PlanD [2] will therefore be adopted in this AVA Study. The location of the Development falls within the location grid (x: 070, y:083) in the RAMS database as indicated below.



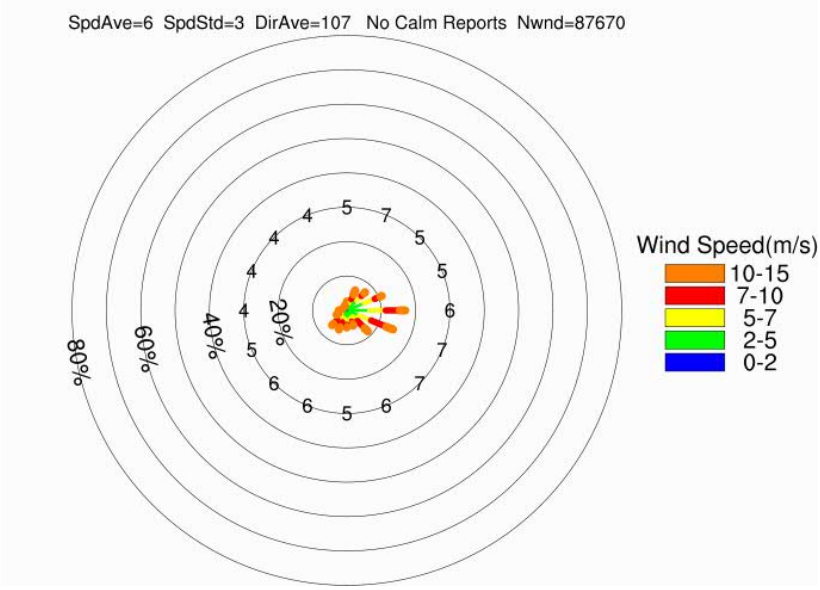


Figure 4 RAMS annual wind rose at 500mPD

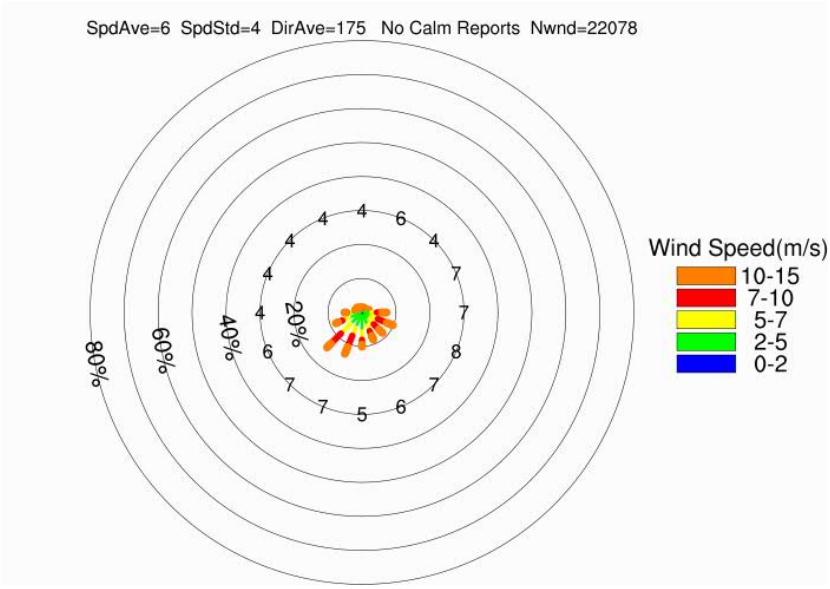


Figure 5 RAMS summer wind rose at 500mPD

3.1 Prevailing Wind Directions

As mentioned above, the RAMS wind data of location grid (x:070, y:083) is adopted for the site wind availability in this study.

3.1.1 Annual Prevailing Wind

Eight prevailing wind directions (highlighted in red colour in Table 1) are considered in this AVA Study which covers 77.8% of the total annual wind frequency. They are north-north-easterly (6.4%), north-easterly (7.5%), east-north-easterly (11.1%), easterly (17.2%), east-south-easterly (14.7%), south-easterly (8.7%), south-south-westerly (6.1%) and south-westerly (6.1%) winds.

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	
Frequency	2.6%	6.4%	7.5%	11.1%	17.2%	14.7%	8.7%	4.8%	
Wind Direction	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
Frequency	5.0%	6.1%	6.1%	3.3%	2.4%	1.2%	1.2%	1.5%	77.8%

Table 1 Annual Wind Frequency

**** The wind frequency showing in red colour represents the selected winds for the CFD simulation.***

3.1.2 Summer Prevailing Wind

Eight prevailing wind directions (highlighted in red colour in Table 2) are considered in this AVA Study which covers 81.9% of the total summer wind frequency. They are easterly (7.6%), east-south-easterly (10.2%), south-easterly (8.7%), south-south-easterly (8.7%), southerly (10.2%), south-south-westerly (13.4%), south-westerly (14.7%) and west-south-westerly (8.4%) winds.

Wind Direction	N	NNE	NE	ENE	E	ESE	SE	SSE	
Frequency	1.5%	1.6%	1.5%	2.3%	7.6%	10.2%	8.7%	8.7%	
Wind Direction	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
Frequency	10.2%	13.4%	14.7%	8.4%	5.1%	2.1%	2.0%	1.7%	81.9%

Table 2 Summer Wind Frequency

**** The wind frequency showing in red colour represents the recommended wind direction for the CFD simulation.***

3.2 Wind Profiles

The profiles of wind speed from the PlanD RAMS database (x:070, y:083) is studied and the selected extracted. In the RAMS data the vertical profiles of the normalised mean wind speed were provided and the exact profile will be modelled in the CFD model for each corresponding wind directions to be studied. The vertical wind profile for all wind directions to be studied are shown in Figure 6 through Figure 8.

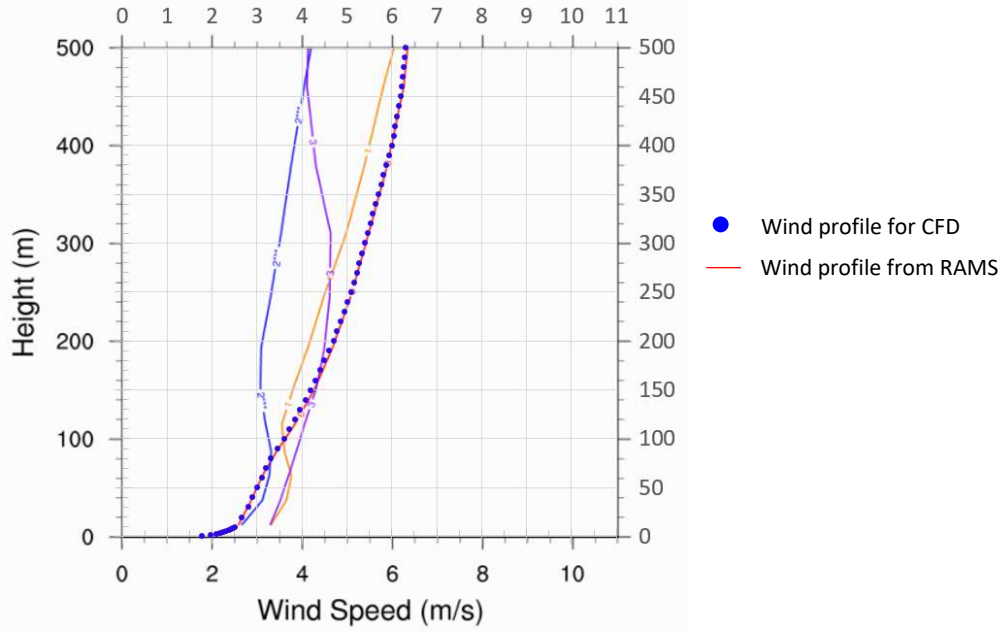


Figure 6 Vertical Wind Speed Profile of 22.5° - 112.4° winds

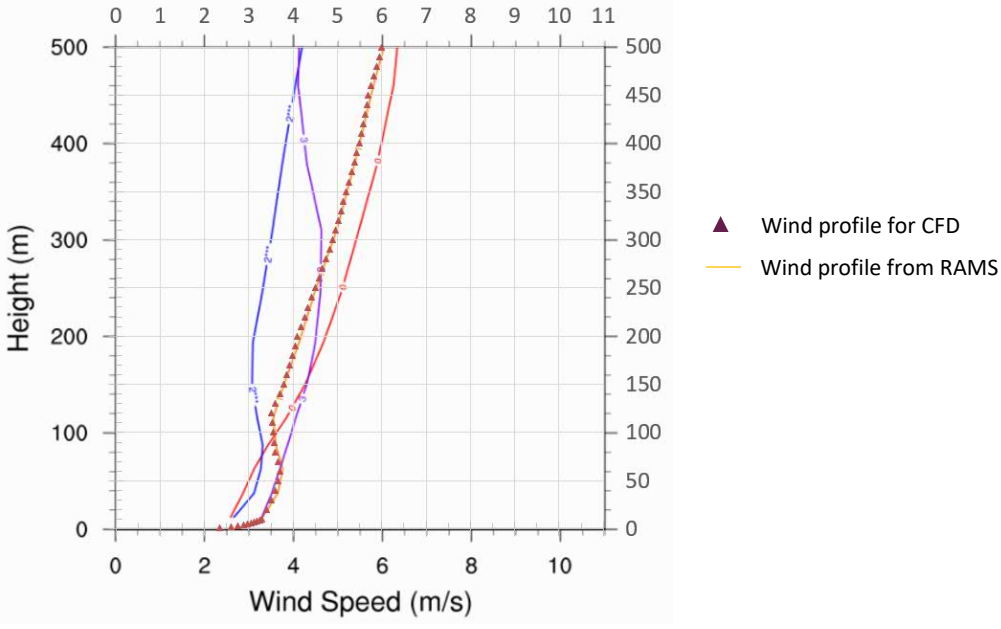


Figure 7 Vertical Wind Speed Profile of 112.5° - 202.4° winds

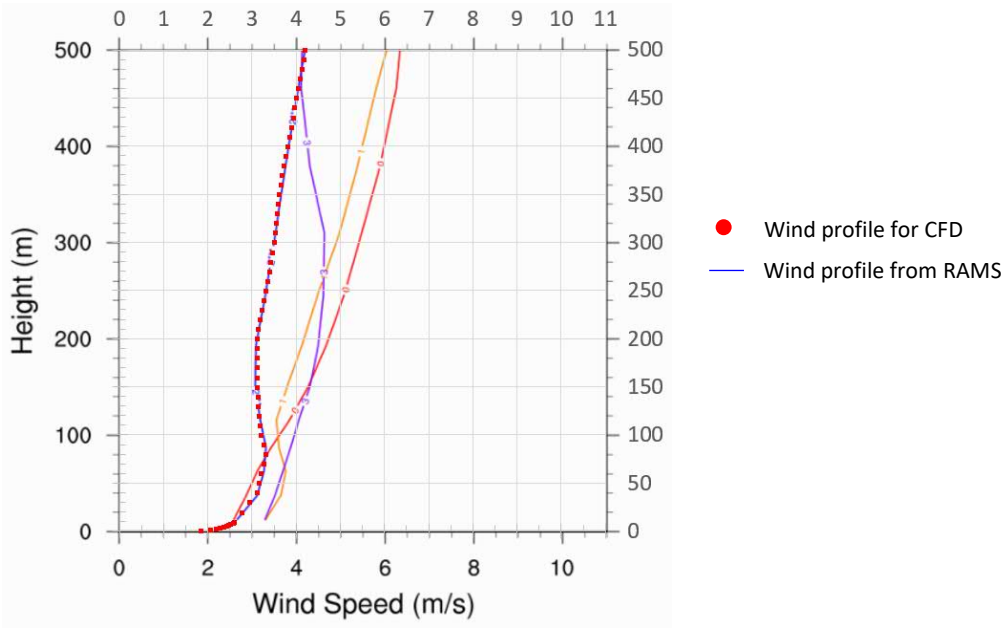


Figure 8 Vertical Wind Speed Profile of 202.5° - 292.4° winds

4. Design Schemes for Initial Study

To investigate the ventilation impacts of the Development and effectiveness of wind enhancement features. Two schemes, the Baseline Scheme and the Proposed Scheme are to be analysed and compared in this AVA Initial Study.

4.1 Baseline Scheme

The Baseline Scheme is an OZP-compliant scheme with a building height at +128mPD and a single aspect wing facing the railway. The Baseline Scheme consists of two 36-storey domestic towers atop a 4-storey podium structure and a basement carpark. It has incorporated two 15m on-site air paths, one through the building separation between the domestic towers and the other between Block B and the lift tower, the podium structure are of permeable design; a minor G/F structure of ~3.8m tall (staircase and lift tower for basement) is situated near the north portion but would not impact significantly. There is also a G/F empty bay (~14m wide and ~5m tall), building setbacks of 8m from northwestern site boundary, 22m from northern site boundary and 10m from northeastern site boundary, and a tower setback from the southwestern site boundary of ~16m.

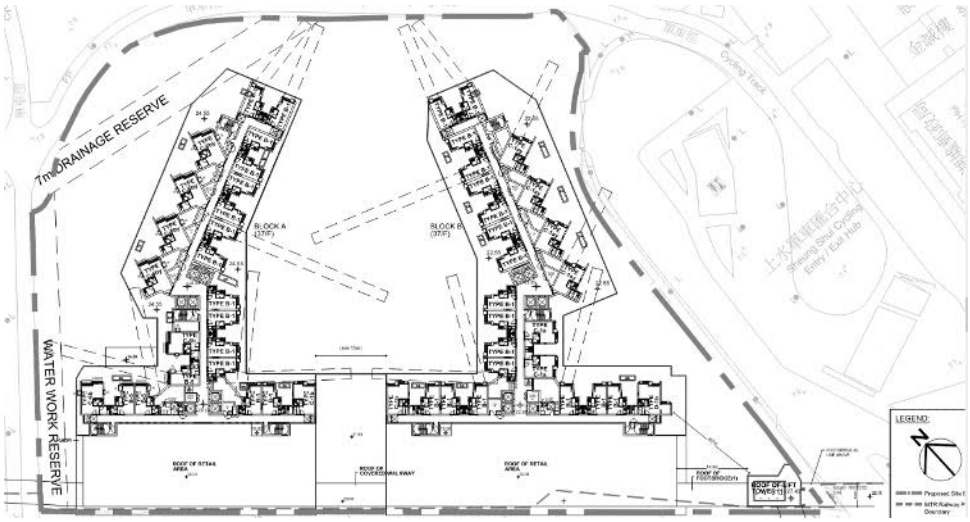


Figure 9 Baseline Scheme MLP

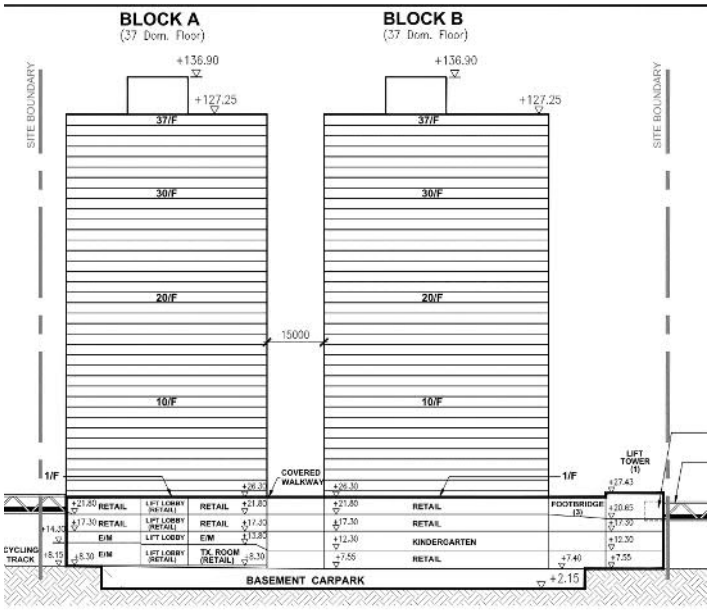
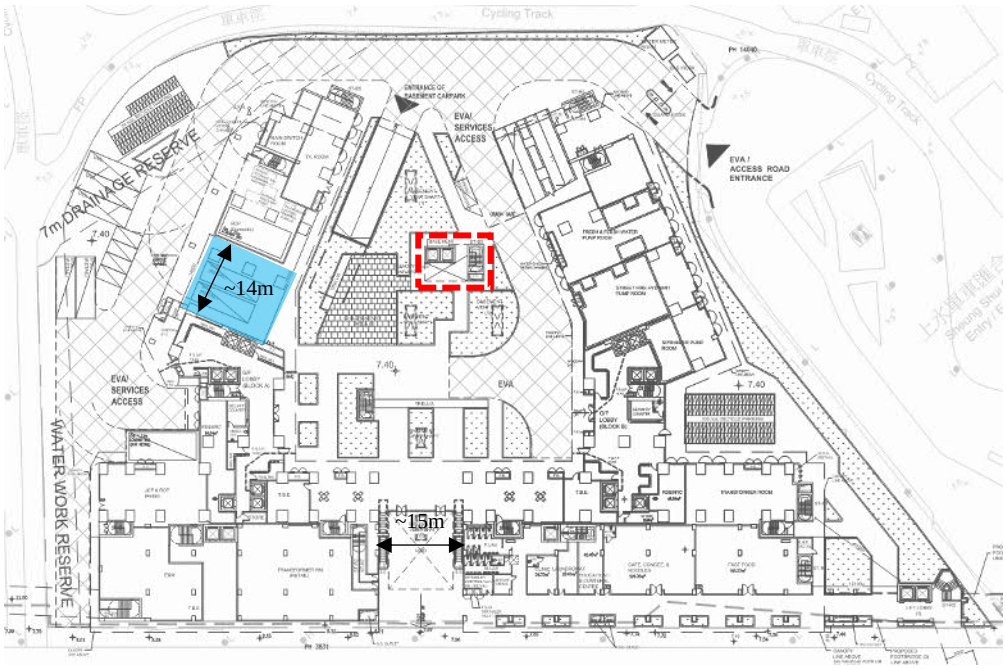


Figure 10 Baseline Scheme Section



Empty bay (~5m tall)

G/F structure (~3.8m tall)

Figure 11 Baseline Scheme Wind Enhancement Features (GF)

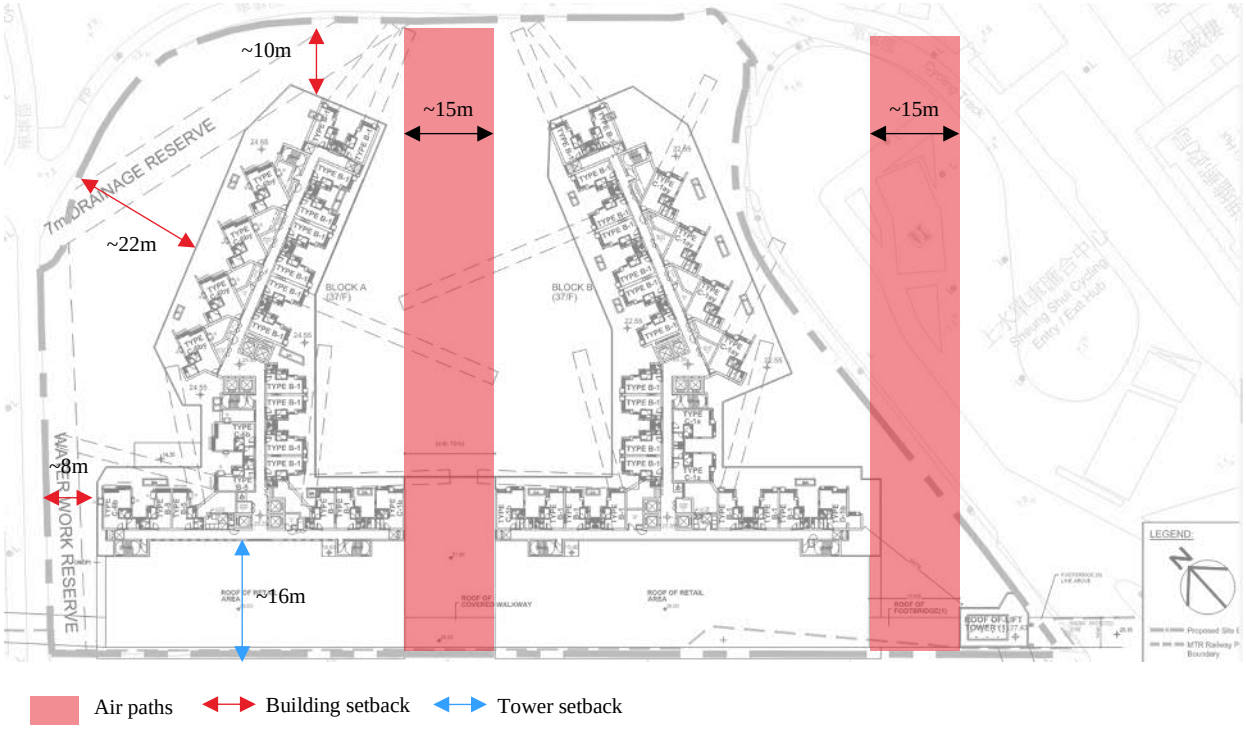


Figure 12 Baseline Scheme Wind Enhancement Features (Typical Floor)

Figure 13 Northerly view of Baseline Scheme

Figure 14 Easterly view of Baseline Scheme

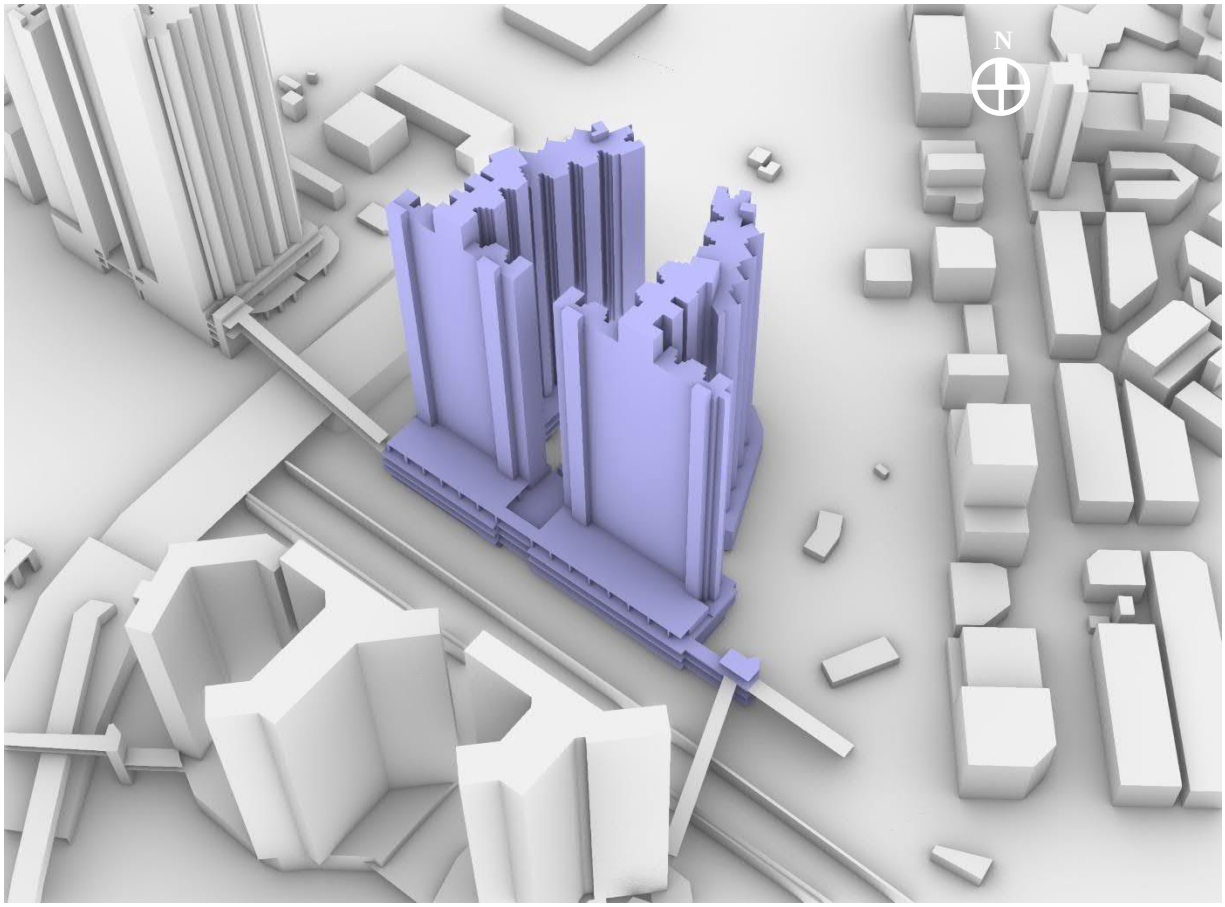


Figure 15 Southerly view of Baseline Scheme

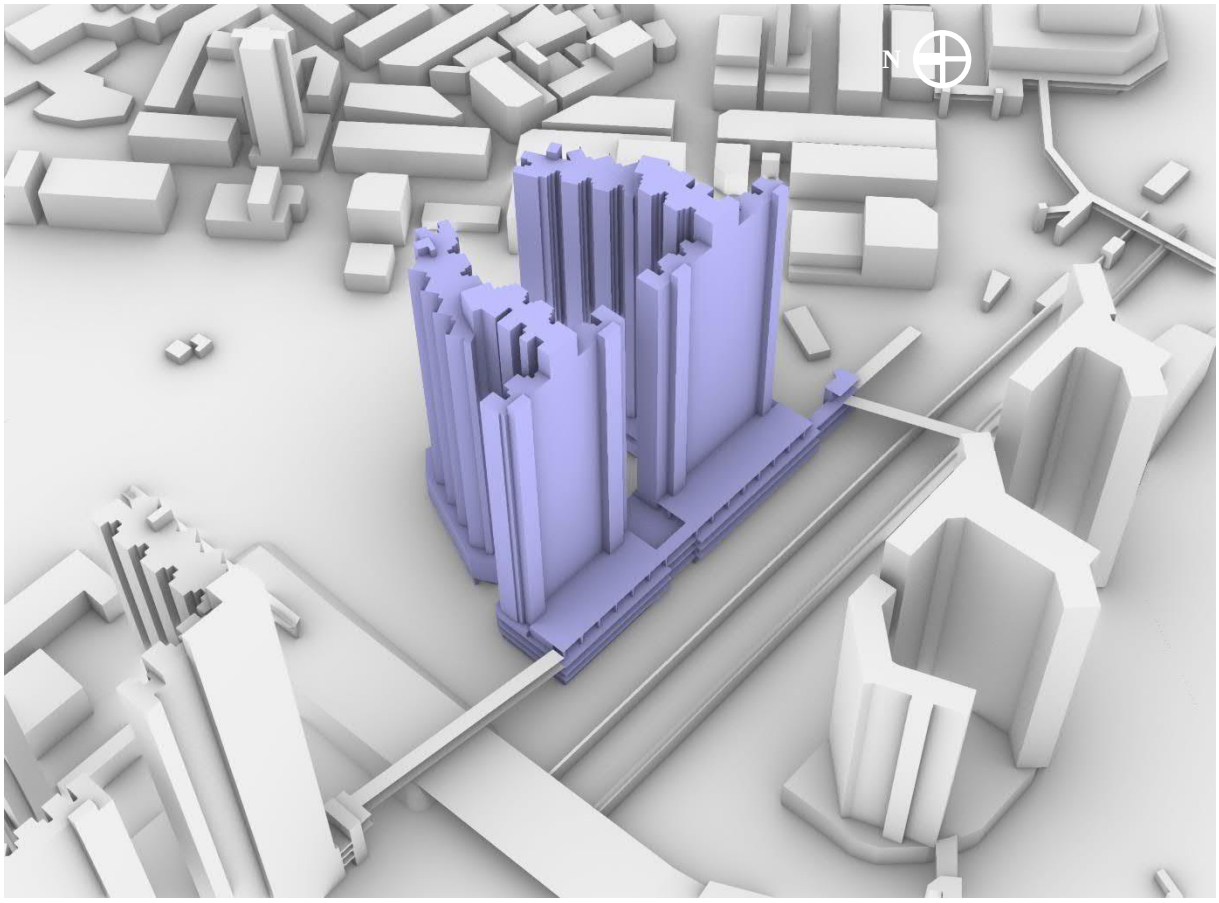


Figure 16 Westerly view of Baseline Scheme

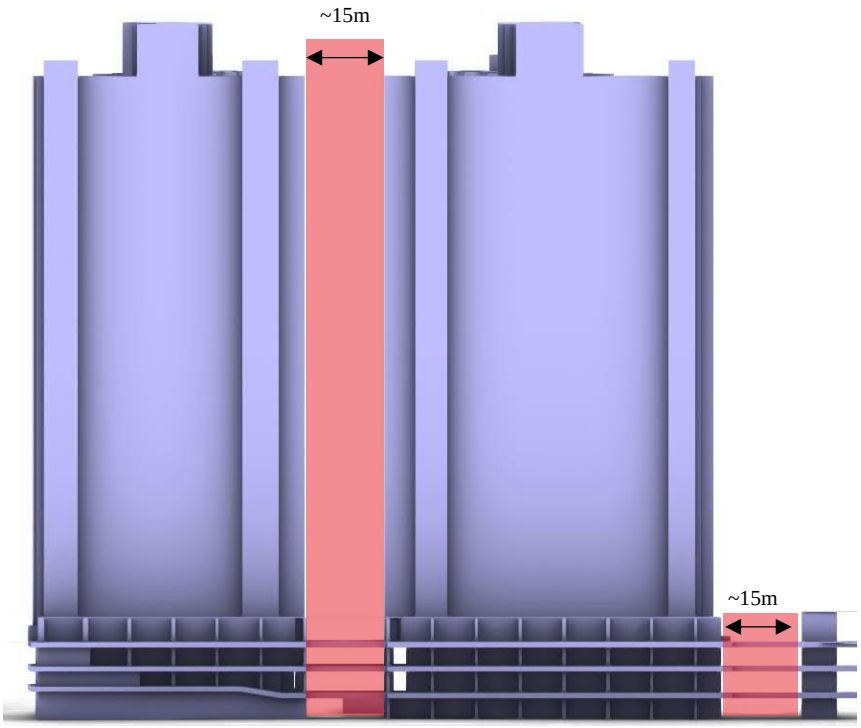


Figure 17 Wind Enhancement Features (Airpaths)

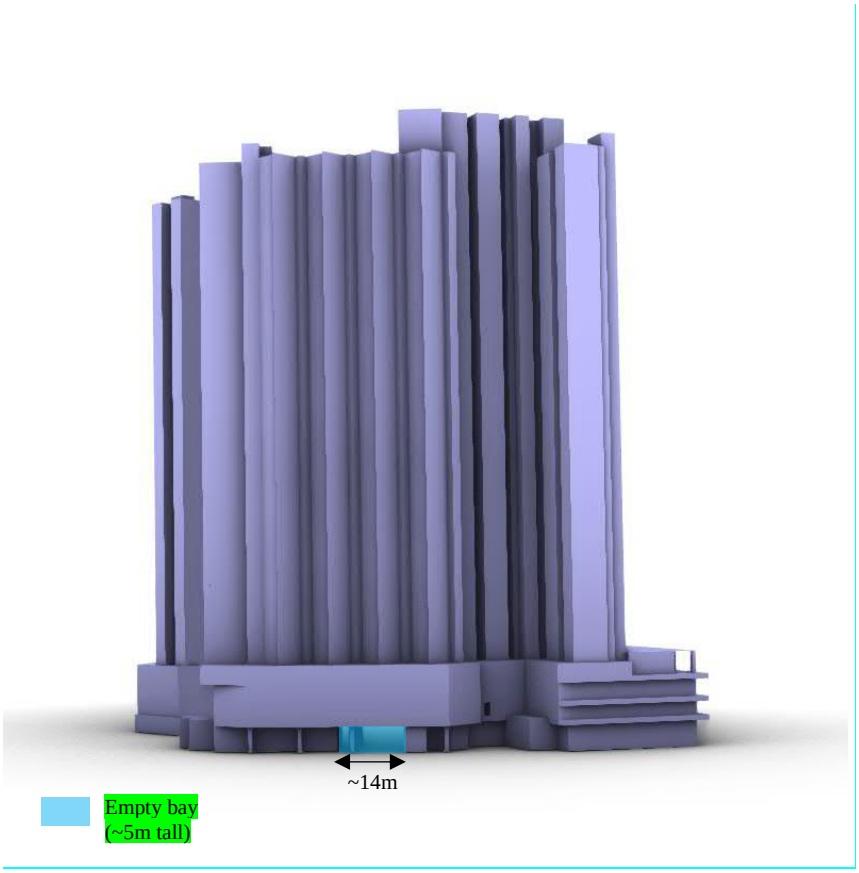


Figure 18 Wind Enhancement Features (Empty Bay)

4.2 Proposed Scheme

The Proposed Scheme consists of two domestic blocks (Block A and Block B) with 40 and 41 domestic storeys (each with an additional refuge floor) respectively atop a 4-storey podium structure which includes a naturally ventilated carpark, which would overall stand at ~149mPD tall. The Proposed Scheme consist of a full height building separation of ~15m, a G/F empty bay of ~7m wide and ~5m tall. It also has a tower setback from the southwestern site boundary of ~25m, as well as building setbacks of 6m from southwestern site boundary, 11m from northeastern site boundary, and 25m from northwestern site boundary. The naturally ventilated carpark as well as a permeable podium design would also assist the enhancement of ventilation performance.

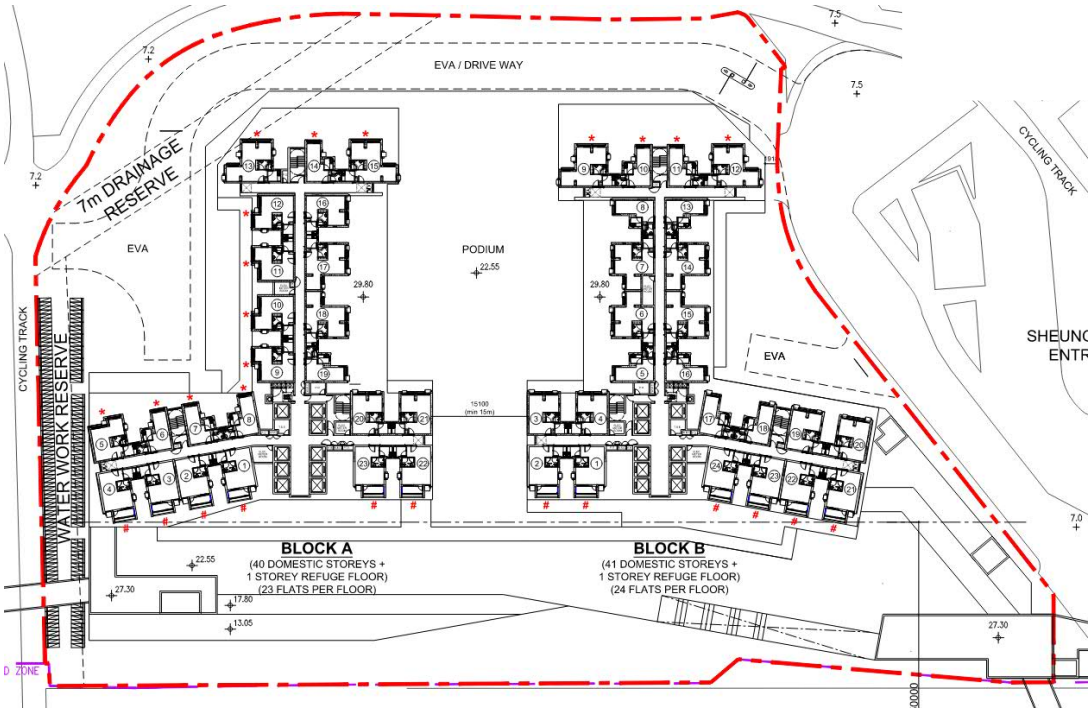


Figure 19 Proposed Scheme MLP

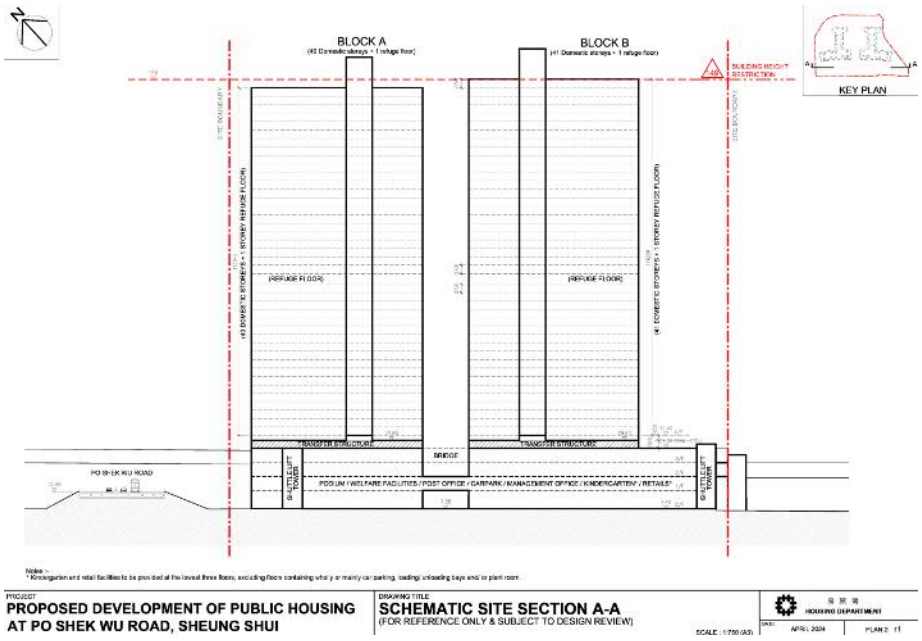


Figure 20 Proposed Scheme Section

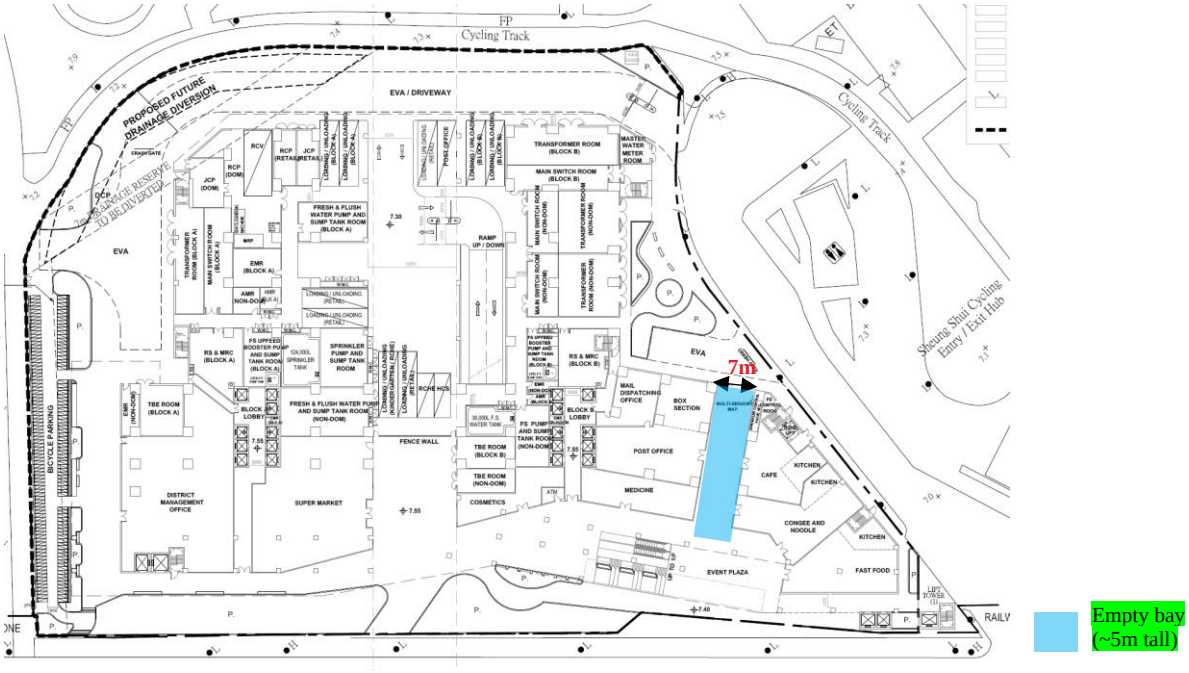


Figure 21 Proposed Scheme Wind Enhancement Features (GF)

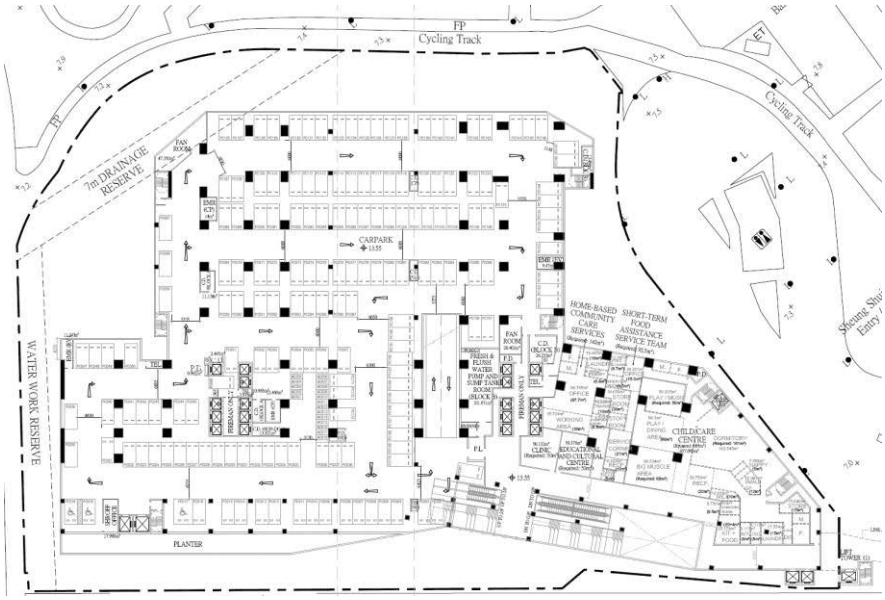


Figure 22 Proposed Scheme Wind Enhancement Features (Naturally ventilated carpark on 1/F)

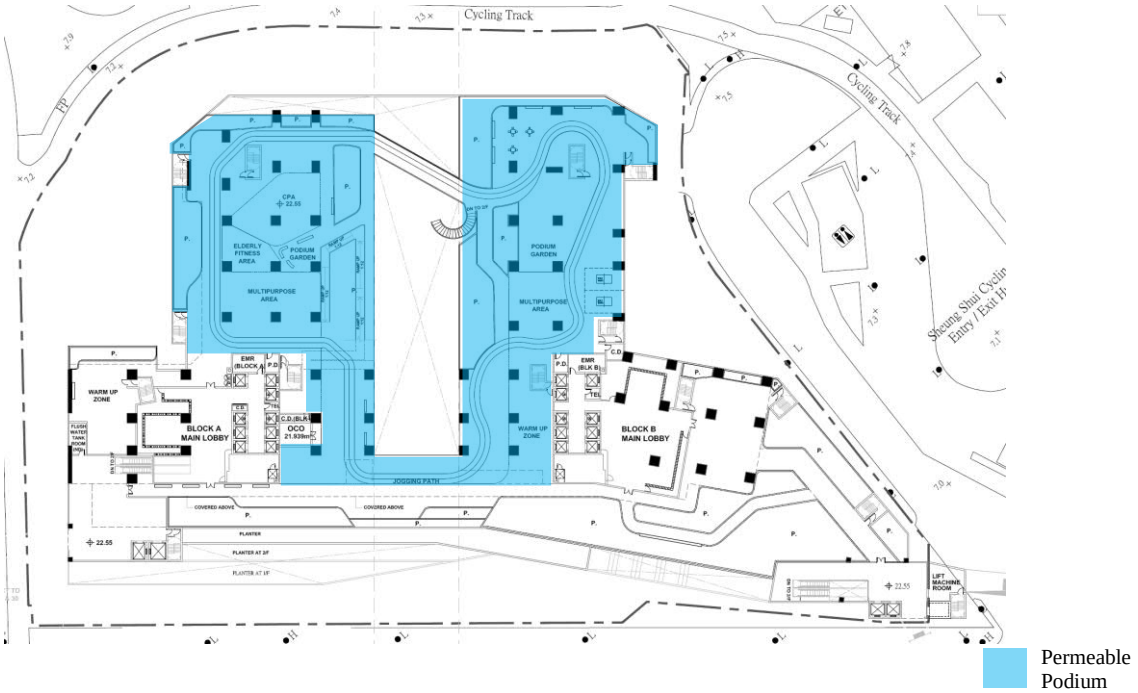


Figure 23 Proposed Scheme Wind Enhancement Features (3/F)

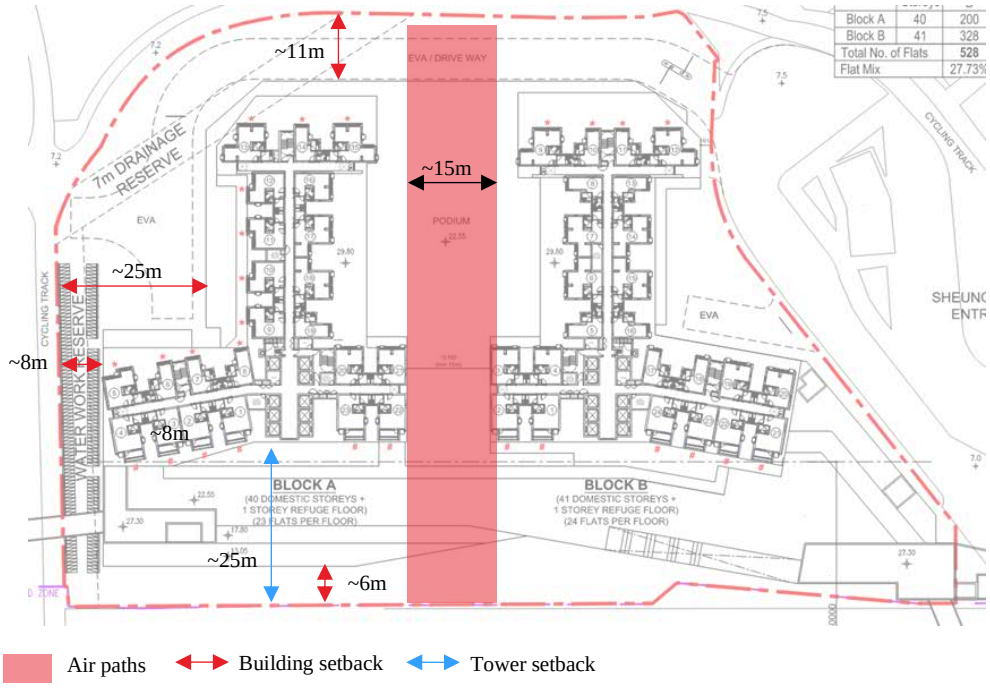


Figure 24 Proposed Scheme Wind Enhancement Features (Typical Floor)

Figure 25 Northerly view of Proposed Scheme

Figure 26 Easterly view of Proposed Scheme

Figure 27 Southerly view of Proposed Scheme

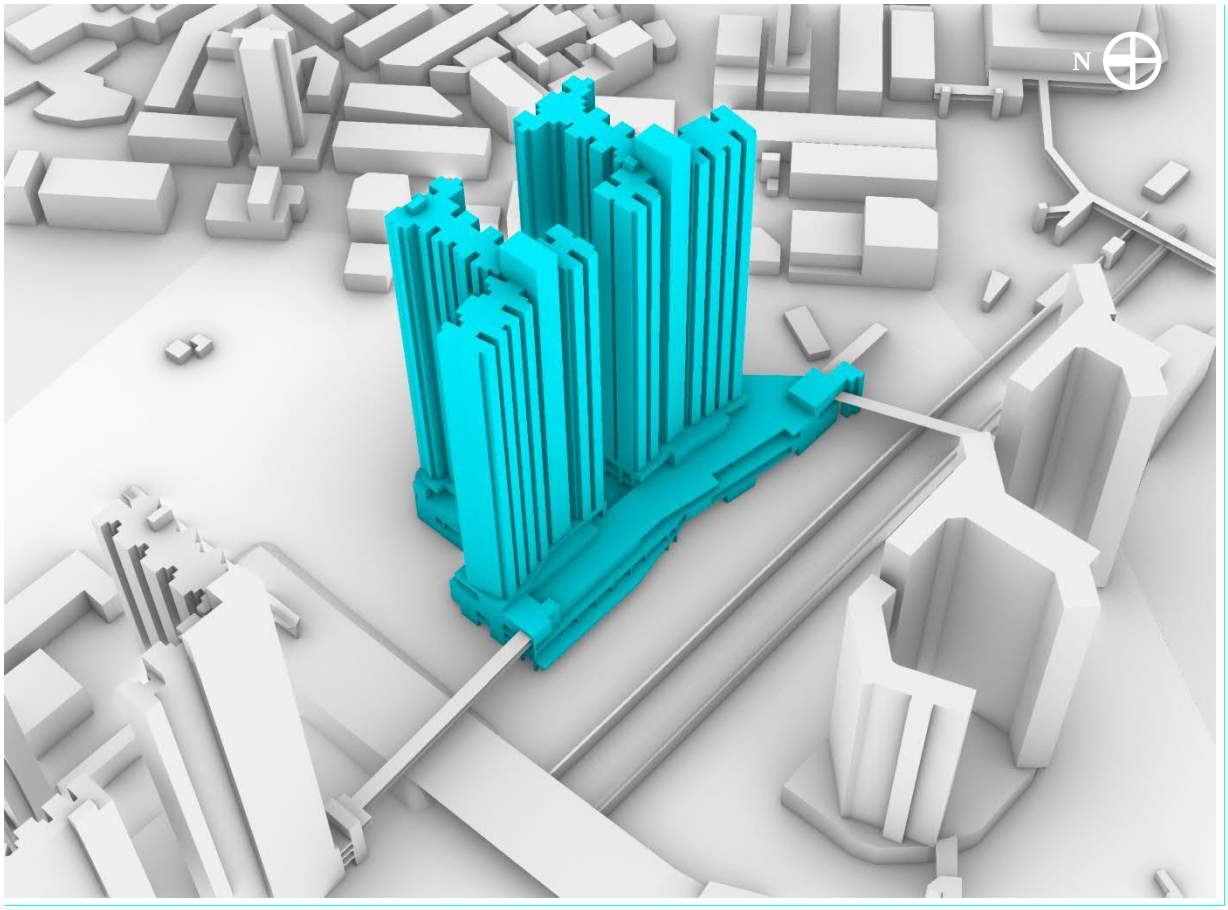


Figure 28 Westerly view of Proposed Scheme

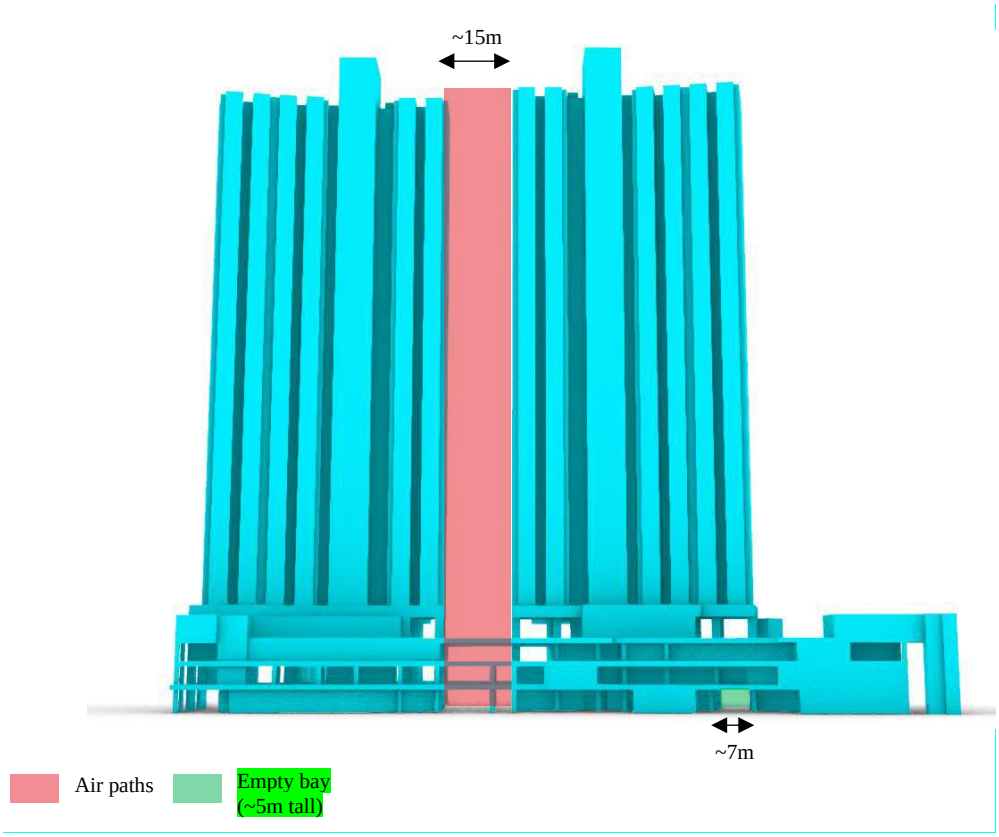


Figure 29 Wind Enhancement Features (Airpath and empty bay)

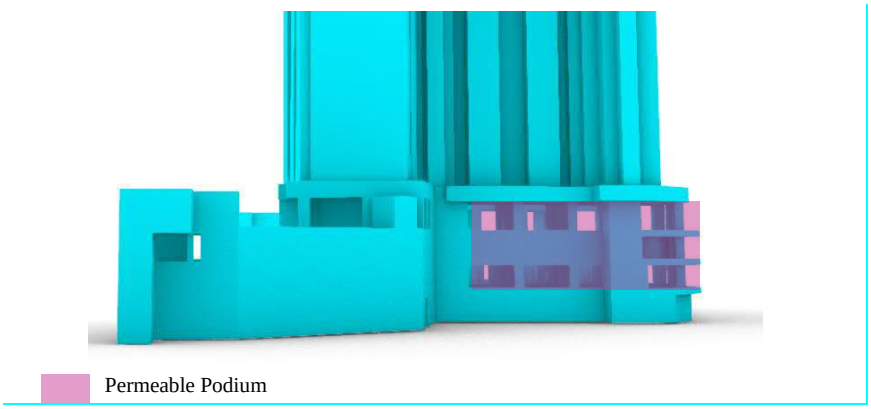
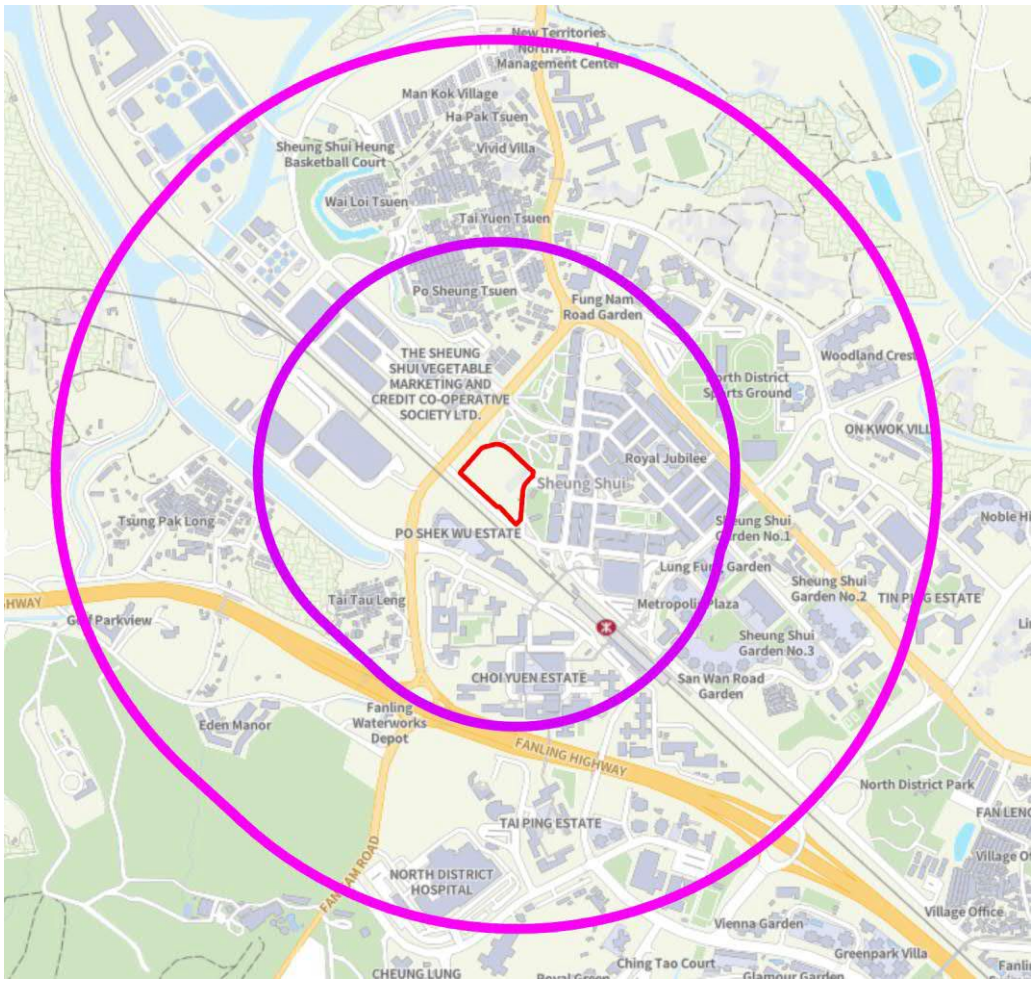


Figure 30 Wind Enhancement Features (Permeable Podium)

5. Methodology

5.1 Assessment and Surrounding Areas

The building height of the Development is around 142m, therefore the Assessment Area and the Surrounding Area are respectively 426m (3H) and 852m (6H) away from the site boundary of the Development Area. The proposed Assessment Area and the Surrounding Area are indicated in Figure 31. The computational domain would be about 6000m (L) x 6000m (W) x 1250m (H) as shown in Figure 32.



Site Boundary

Assessment Area: 3H (426m) (H=~142m)

Surrounding Area: 6H (852m) (H=~142m)

Figure 31 The Extents of the Assessment Area and Surrounding Area

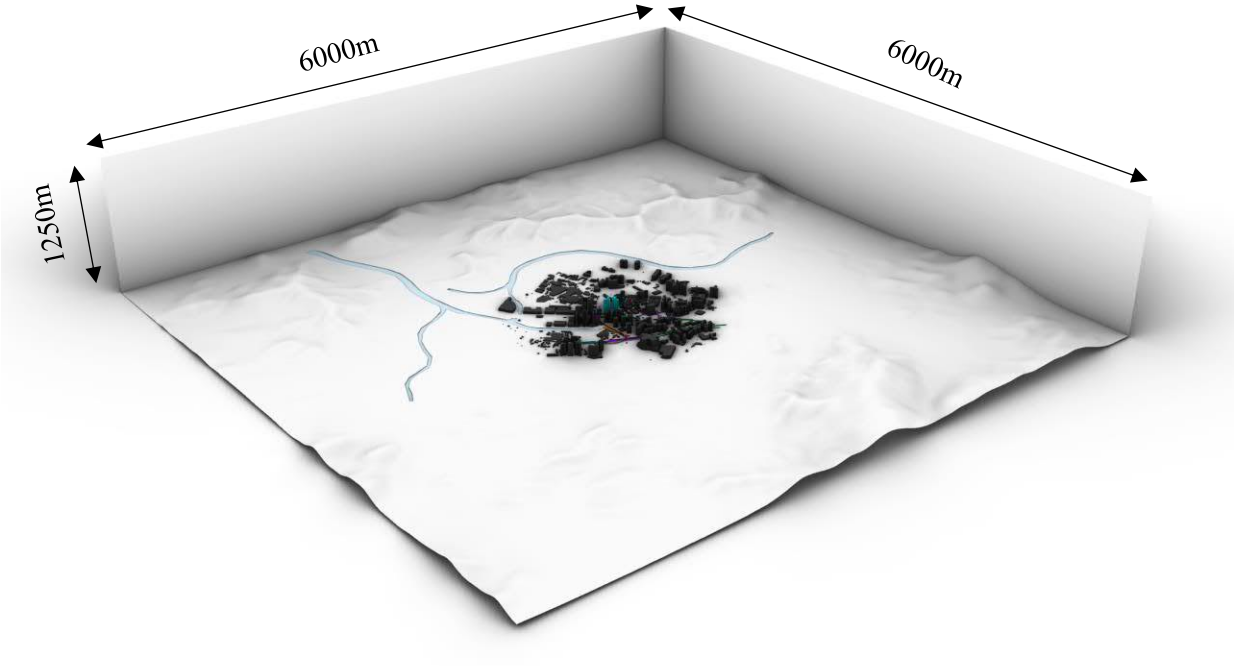


Figure 32 3D View of the Domain

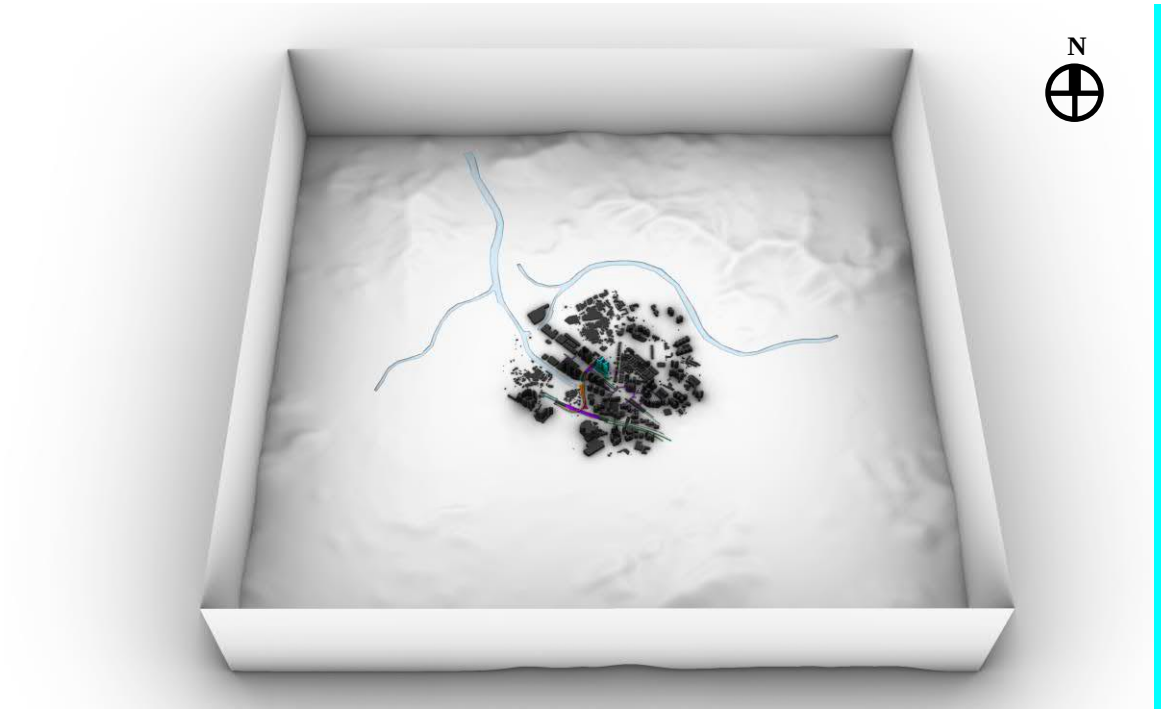


Figure 33 Southerly View of the Domain

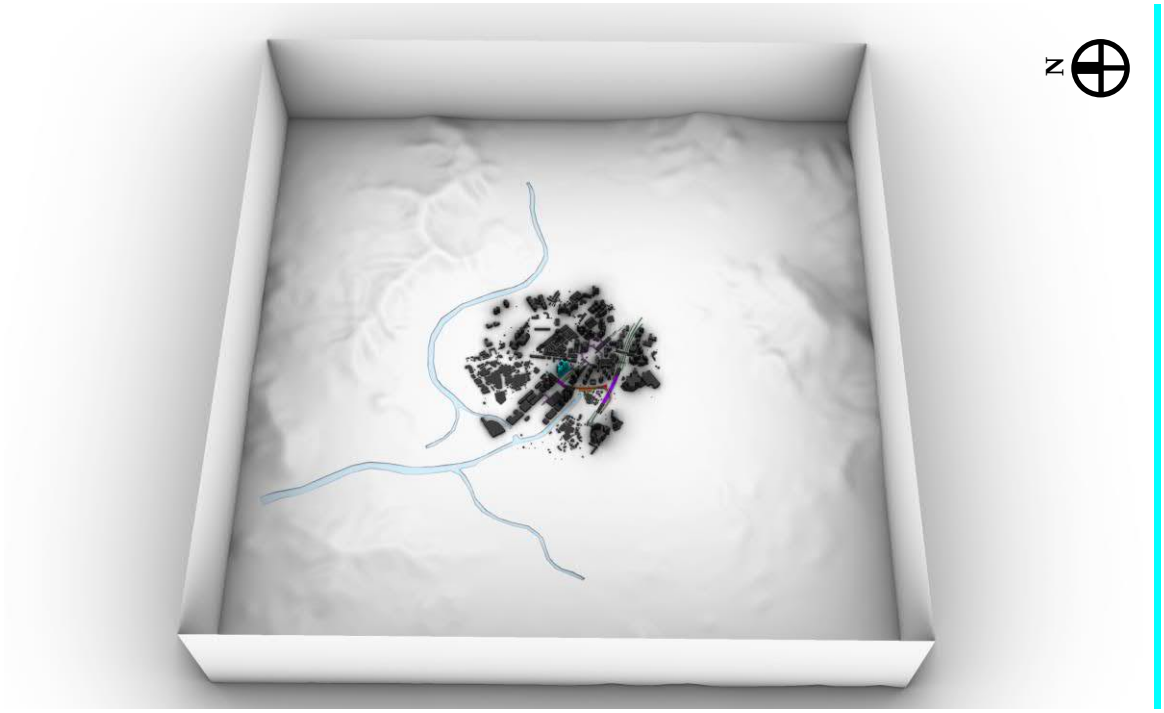


Figure 34 Westerly View of the Domain

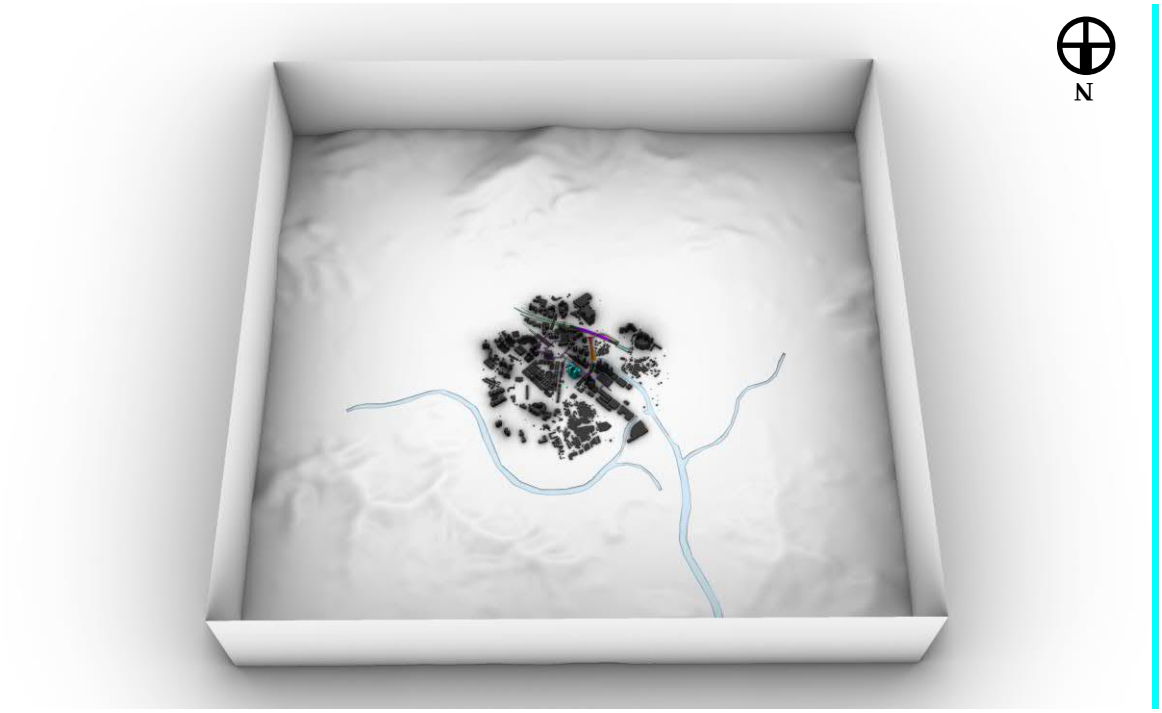


Figure 35 Northerly View of the Domain

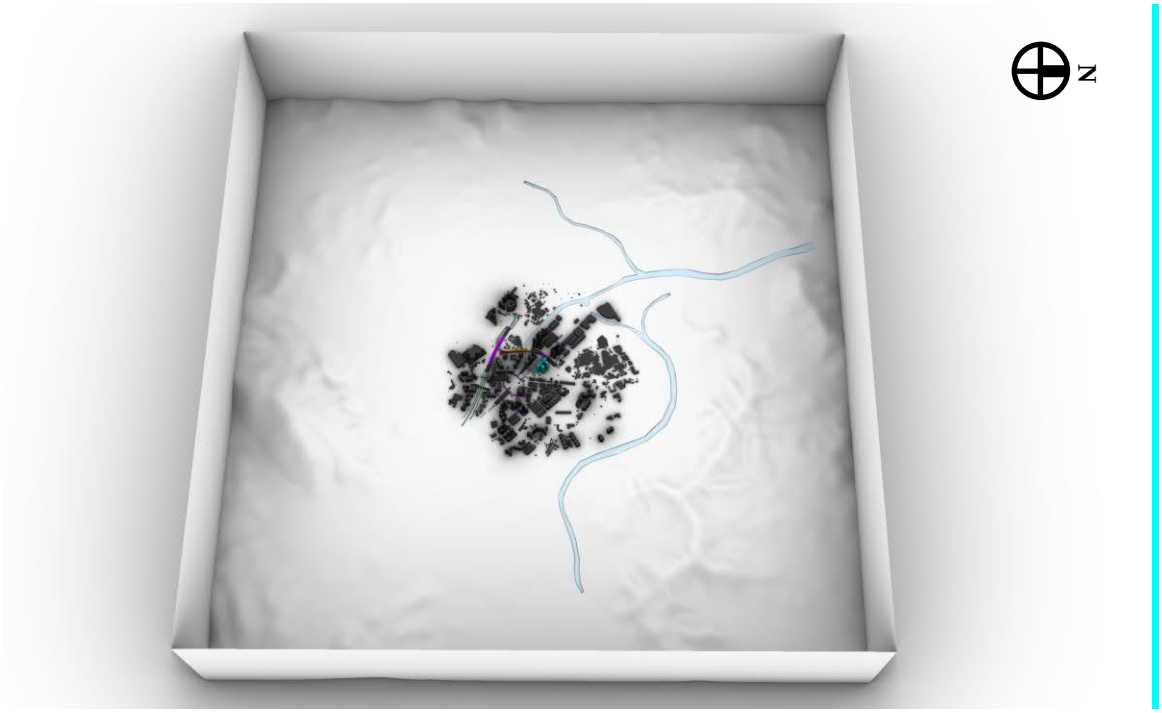


Figure 36 Easterly View of the Domain

Figure 37 Southerly View of the Building Morphology

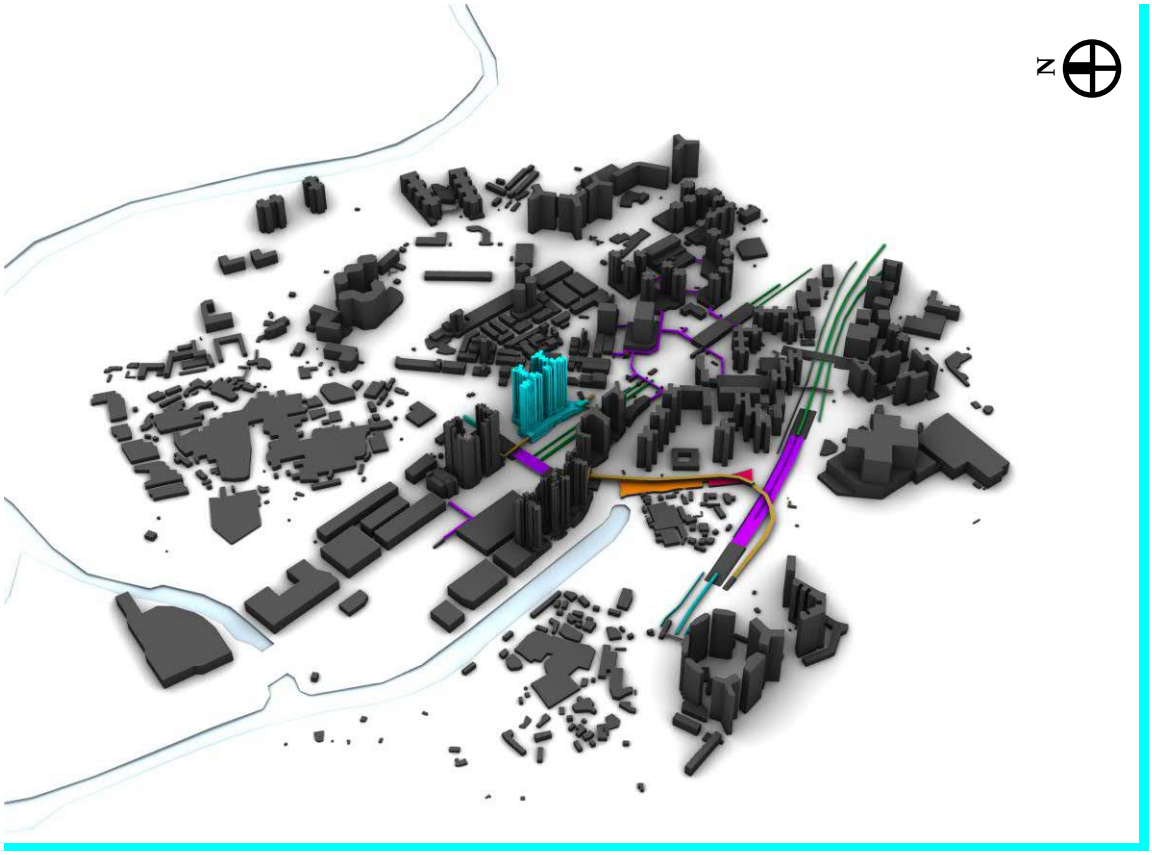


Figure 38 Westerly View of the Building Morphology

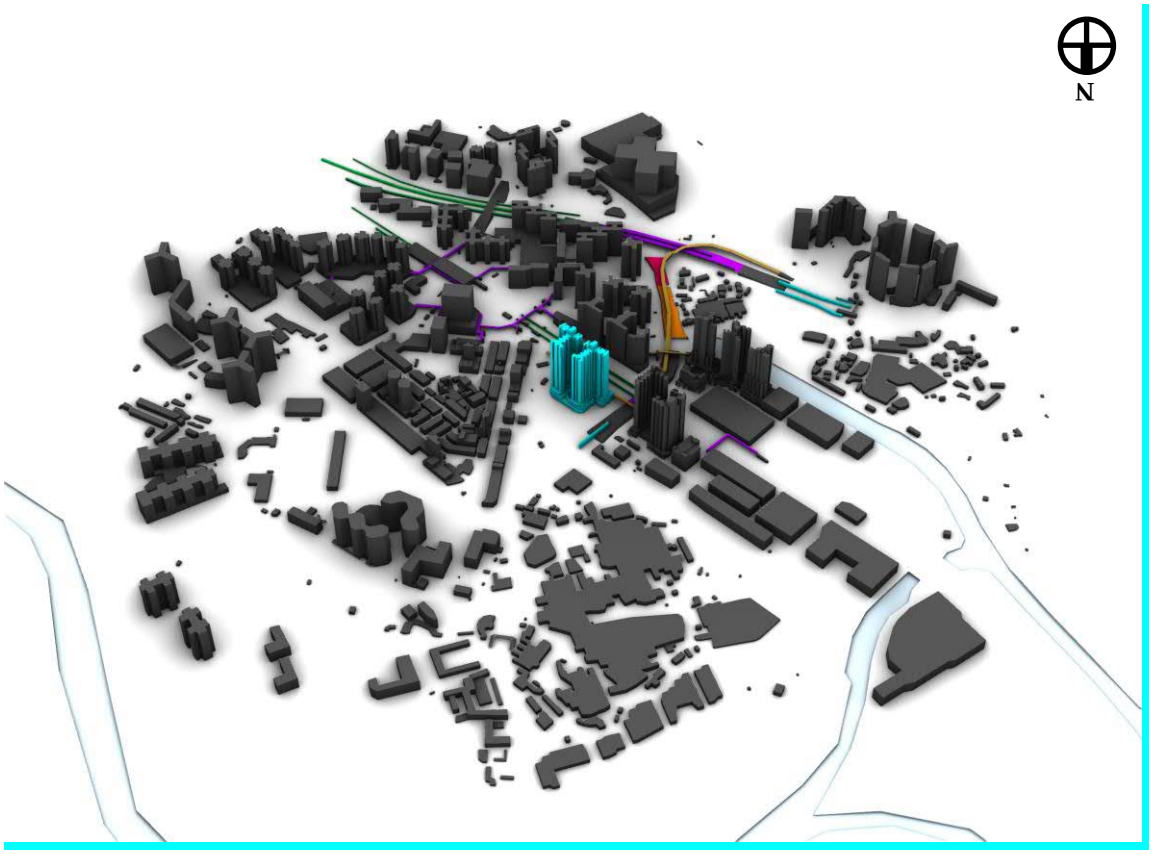


Figure 39 Northerly View of the Building Morphology

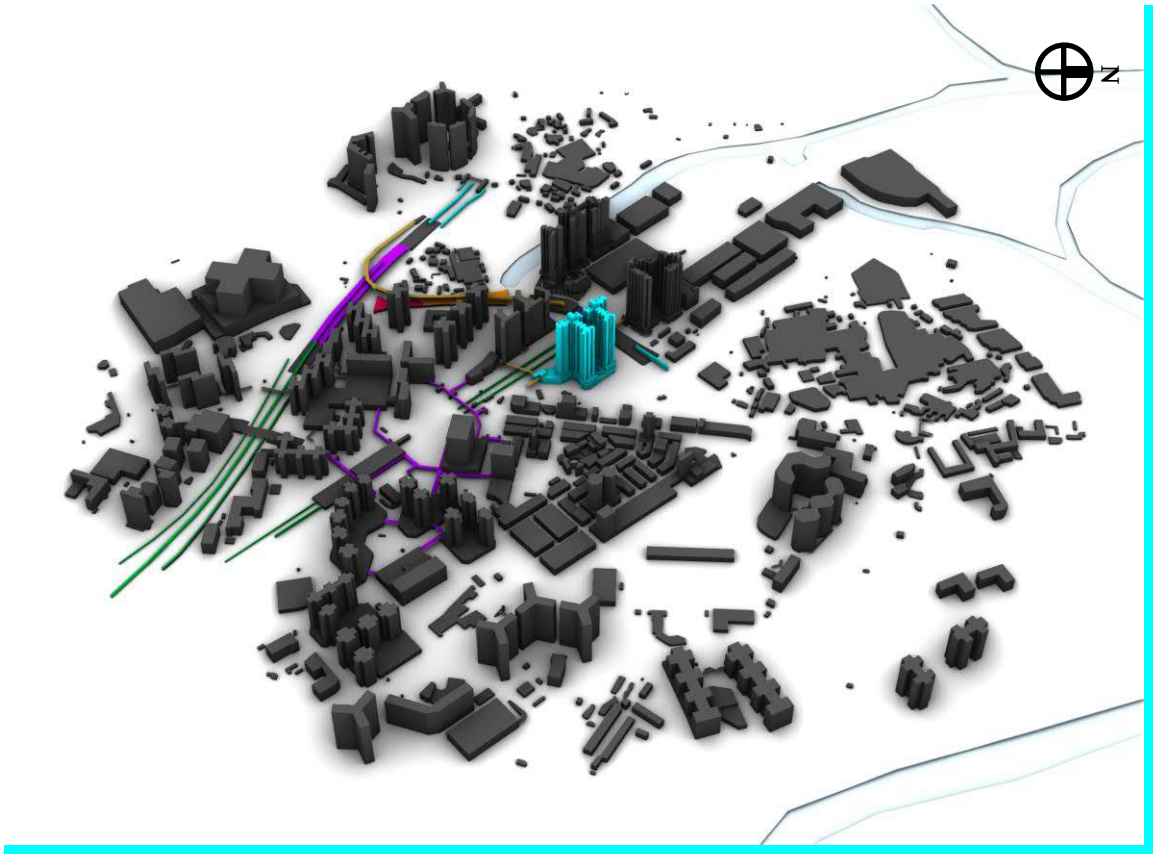


Figure 40 Easterly View of the Building Morphology

5.2 Technical Details for CFD simulation

5.2.1 Assessment Tools

Computational Fluid Dynamics (CFD) technique is utilized for this AVA study. With the use of three-dimensional CFD method, the local airflow distribution can be visualized in detail. The velocity distribution within the flow domain, being affected by the site-specific design and the nearby topography, will be simulated under selected wind directions for annual and summer wind conditions.

5.2.2 CFD Model

Following the AVA Technical Circular, buildings within Surrounding Area shall be built in the CFD model. In order to simulate the approaching wind turbulence effect in a more accurate manner, the CFD model is built to include the highways or bridges as they may affect the approaching wind, even it is falling outside the Surrounding Area. In addition, the model domain is built far beyond the Surrounding Area as required in the Technical Circular in order to eliminate the boundary effects. Therefore, the studied size of CFD model of the development is approximately 6000m (Length) x 6000m (Width) x 1250m (Height) which contains more than 9,000,000 cells as shown in Figure 41.

The computational domain covers the site of the Development and provides sufficient consideration on surrounding topography. The model contains information of the surrounding buildings and site topography via Geographical Information System (GIS) platform. The site topography would be modelled within the whole computational domain. Body-fitted unstructured grid technique is used to fit the geometry and reflect the complexity of the development geometry. A prism layer of 3m above ground (totally 6 layers and each layer of 0.5m thick, shown in Figure 42 is incorporated in the meshing so as to better capture the approaching wind and wind condition at pedestrian level. A mesh expansion ratio of 1.3 is adopted and the blockage ratio was less than 2%.

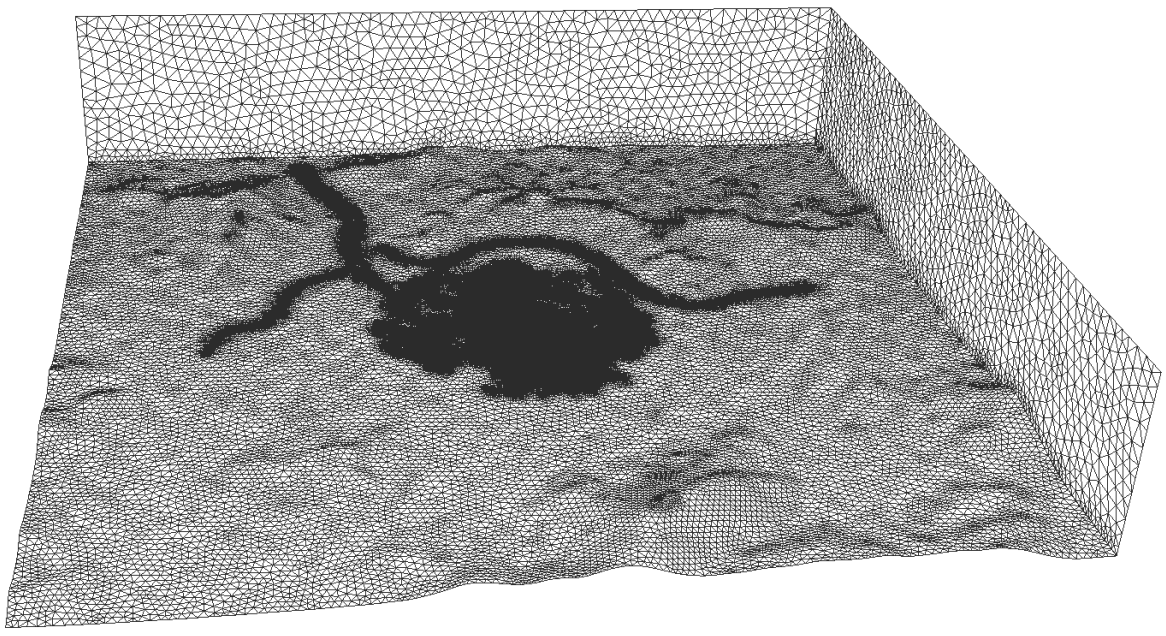


Figure 41 Mesh of Computational Domain

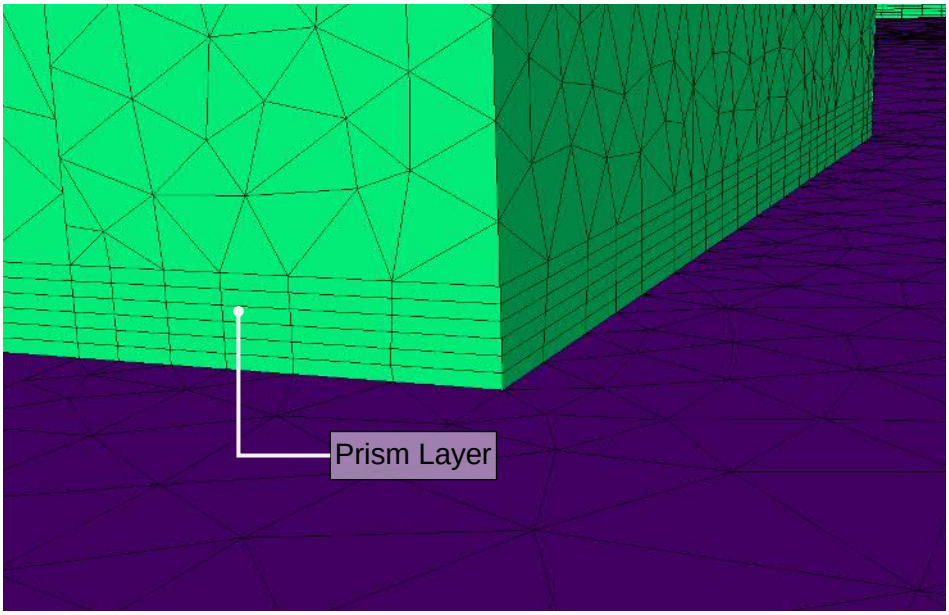


Figure 42 Prism Layers

Table 3 Detail parameters to be adopted in the CFD

	CFD Model
Model Scale	Real Scale model
Model details	Only include Topography, Buildings blocks, Streets/Highways, no landscape is included
Domain	6000m(L) x 6000m(W) x 1250m(H)
Assessment Area	≥ 3H area
Surrounding building Area	≥ 6H area
Grid Expansion Ratio	The grid should satisfy the grid resolution requirement with maximum expansion ratio = 1.3
Prismatic layer	6 layer of prismatic layers and 0.5m each (i.e. total 3m above ground)
Inflow boundary Condition	Incoming wind profile as measured from RAMS
Outflow boundary	Pressure boundary condition with dynamic pressure equal to zero
Wall boundary condition	Logarithmic law boundary
Turbulence Model	Realisable k-ε turbulence model
Solving algorithms	Rhie and Chow SIMPLE for momentum equation Hybrid model for all other equations
Blockage ratio	< 2%
Convergence criteria	Below 1.0E-4

5.3 AVA Indicator

5.3.1 Assessment Parameters

CFD simulations will be conducted to study the wind environment. As specified in the Technical Circular, indicator of ventilation performance should be the Wind Velocity Ratio (VR), defined as the ratio of the wind velocity at the pedestrian level (2m above ground) to the wind velocity at the top of the wind boundary layer. Site spatial average velocity ratio (SVR) and a Local spatial average velocity ratio (LVR) should be determined.

Table 4 Terminology of the AVA Initial

Terminology	Description
Velocity Ratio (VR)	The velocity ratio (VR) represents the ratio of the air velocity at the measurement position to the value at the reference points.
Site spatial average velocity ratio (SVR)	The SVR represent the average VR of all perimeter test points at the site boundary which identified in the report.
Local spatial average velocity ratio (LVR)	The LVR represent the average VR of all points, i.e. perimeter and overall test points at the site boundary which identified in the report.

5.4 Locations of Test Points

As per the technical circular, two types of test points – perimeter test point and overall test point will be adopted to assess the wind performance within the Assessment Area. Special test points are supplemented to assess the effectiveness of the air paths. The allocation of these test points will be distributed evenly as stated in the AVA Technical Circular.

5.4.1 Perimeter Test Points

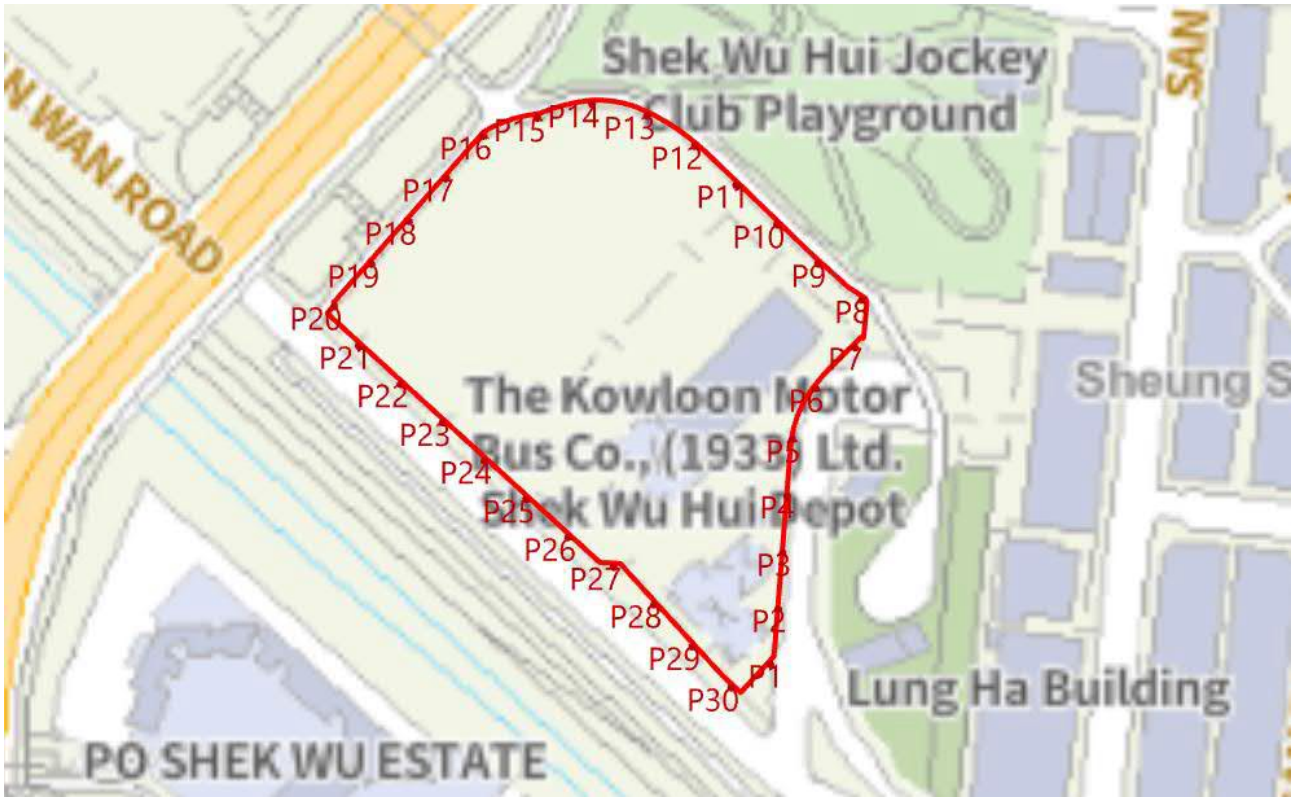
A total number of 30 perimeter test points (red spots), namely P points, are positioned at intervals of around 15m along the project site boundary in accordance with AVA Technical Circular. The locations of perimeter test points are shown below.

5.4.2 Overall Test Points

A total number of 692 overall test points (blue spots), namely O points, are evenly distributed in open areas within the assessment area, such as the streets and places where pedestrian frequently access. Their locations are shown below.

5.4.2 Special Test Points

A total number of 14 special test points (green spots), namely S points, are evenly distributed at pedestrian levels of wind enhancement features such as the air paths and empty bay. Their locations are shown below.



Site Boundary

P21 Perimeter Test Points

Figure 43 Location of Perimeter Points

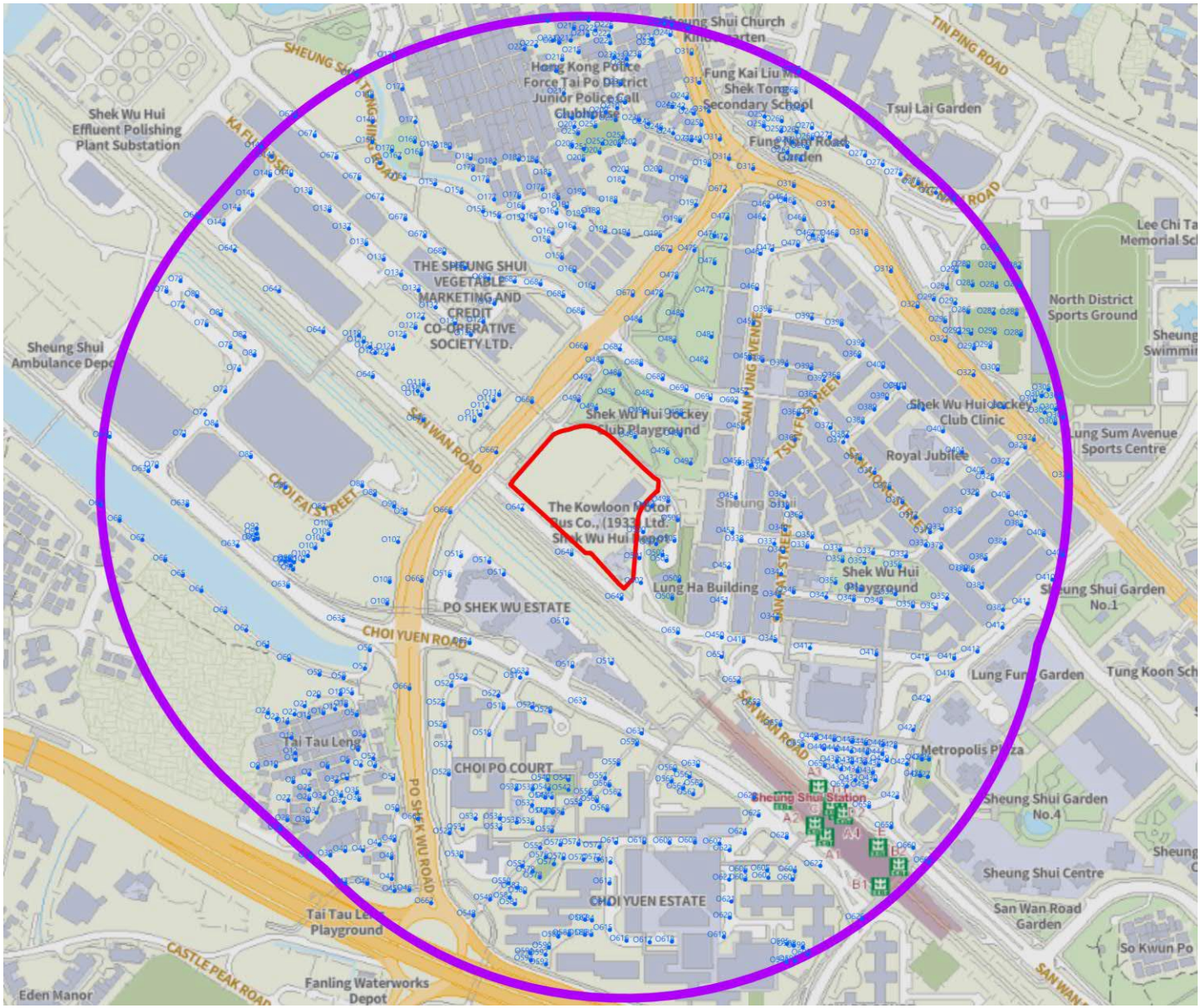
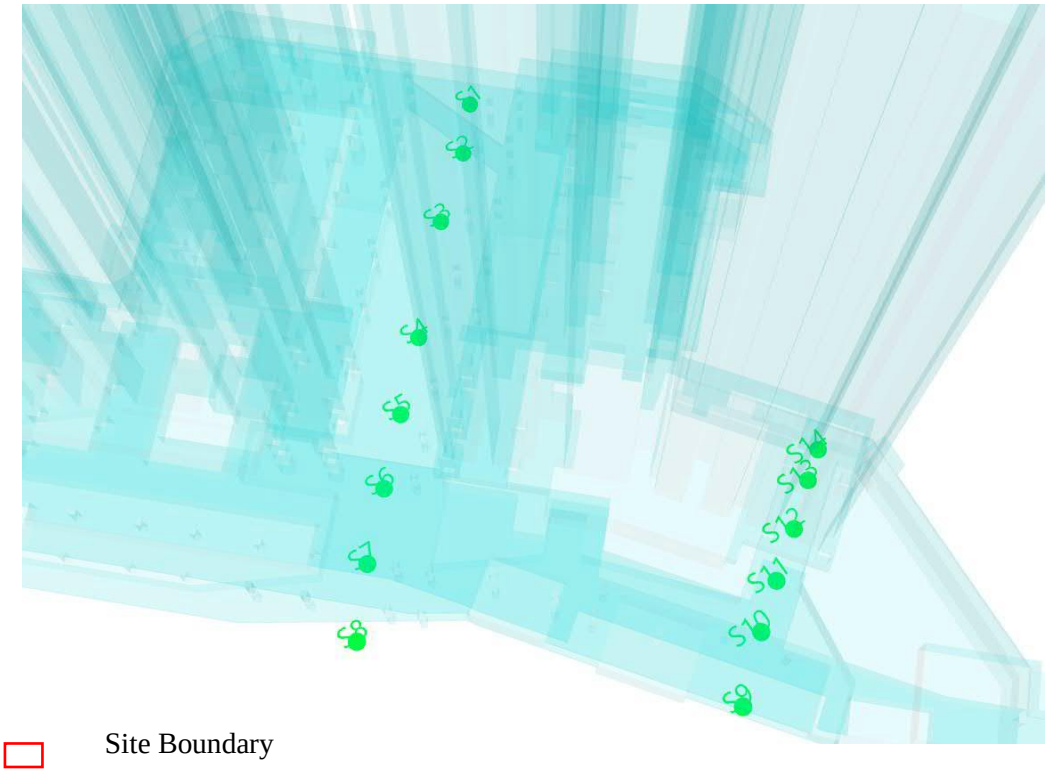


Figure 44 Location of Overall Points



Site Boundary

S3 Special Test Points

Figure 45 Location of Special Points

5.5 Focus Area

There are a total of 38 focus areas are within the assessment area. The associated test points for focus areas are tabulated below. The location of the focus areas area shown in Figure 46.

Table 5 Focus Areas and Corresponding Test Points

	Focus Area	Test Points
c	Tai Tau Leng	O1-O55
2	Village Road	O56-O69
3	Choi Fat Street	O70-O83
4	Choi Fai Street	O84-O91
5	Planned Sheung Shui Areas 4 and 30 Site 1	O92-O109
6	Planned Sheung Shui Areas 4 and 30 Site 2	O110-O127
7	Ka Fu Close	O128-O142
8	Cheuk Wan St	O143-O146
9	Po Sheung Tsuen (western portion)	O147-O194
10	Po Sheung Tsuen (eastern portion)	O195-O223
11	Tai Yuen Tsuen	O224-O231
12	Hing Yan Tsuen	O232-O250
13	Po Sheung Tsuen Football Court	O251-O256
14	Fung Kai Liu Man Shek Tong Secondary School	O257-O260
15	Fung Nam Road Garden	O261-O266
16	Fu Nam Rd	O267-O278
17	North District Sports Ground Playground	O279-O308
18	Jockey Club Rd	O309-O325
19	Fu Hing St	O326-O338
20	San Fat St	O339-O345
21	San Lok St	O346-O352
22	Shek Wu Hui Playground	O353-O358
23	San Tsoi St	O359-O363
24	Tsun Fu St	O364-O369
25	San Hong St	O370-O382
26	San Cheung St	O383-O386
27	San Kung St	O387-O391
28	San Kin St	O392-O395
29	San Shing Ave	O396-O409
30	Lung Sum Avenue	O410-O418
31	Lung Wan St	O419-O423
32	North District Town Hall Basketball Court	O424-O427
33	Landmark North PTI	O428-O449
34	Sun Fung Ave	O450-O471
35	Shek Wu Hui Jockey Club Playground	O472-O497
36	Bike Kiosk	O498-O509
37	Po Shek Wu Estate	O510-O516
38	Choi Po Court	O517-O547
39	Choi Yuen Estate	O548-O625

	Focus Area	Test Points
40	Choi Yuen Rd	O626-O640
41	San Wan Rd	O641-O661
42	Po Shek Wu Rd	O662-O672
43	Po Wan Rd	O673-O692
44	Wind Enhancement Measure 1	S1-S8
45	Wind Enhancement Measure 2	S9-S14

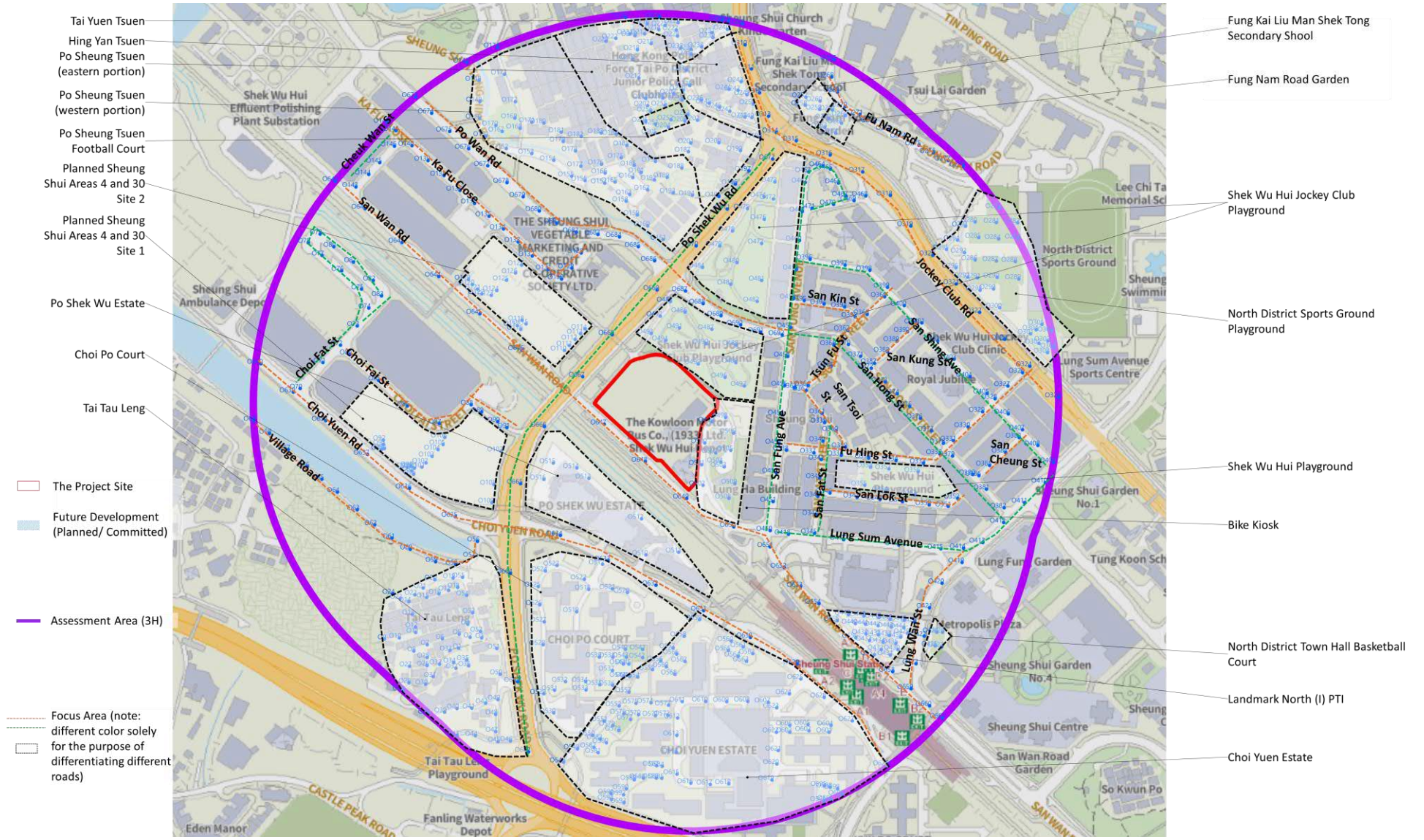


Figure 46 Location of Focus Areas outside the Application Site

6. Results and Discussion

6.1 Overview

The full set of contour and vector plots for are presented in Appendix C of the report.

The contour plots of annual weighted VR for the Baseline Scheme and Proposed Scheme are shown in Figure 47 and Figure 48.

6.1.1 Overall Ventilation Performance under Annual Wind Condition

Under annual condition, the majority of the prevailing wind would arrive at the Development from the eastern quadrant flowing over the generally low-rise eastern surroundings of the Development. A few mid-rise eastern surrounding buildings would impede a small portion of prevailing wind. Overall, the prevailing wind could reach the Development relatively freely.

The taller building under Proposed Scheme would be able to downwash more prevailing wind reaching the eastern facades of the Development, which would in turn allow for more ventilation at its immediate upwind surroundings, such as the Bike Kiosk, Shek Wu Hui Jockey Club Playgrounds etc.

Under both schemes the 15m air path between the two towers would enhance permeability of the Development and allow for prevailing to penetrate to the leeward area. However, under Proposed Scheme, the narrower tower separation in the northeastrern portion of the Development would increase the channelling effect for prevailing wind passing through it, thereby accelerating the wind penetrating to the leeward area. The wind environment at the leeward area could therefore be enhanced, such as San Wan Road.

On the other hand, the provision of a 15m wide air path between Block B and the lift tower under Baseline Scheme, as compared to a 7m empty bay under Proposed Scheme, would allow for more pedestrian level wind flowing from the eastern site boundary to San Wan Road, providing a slightly higher VR there. This would however be mitigated by the naturally ventilated carpark under Proposed Scheme, which would enhance the permeability of the Development, allowing more prevailing to penetrate through the Development at low level.

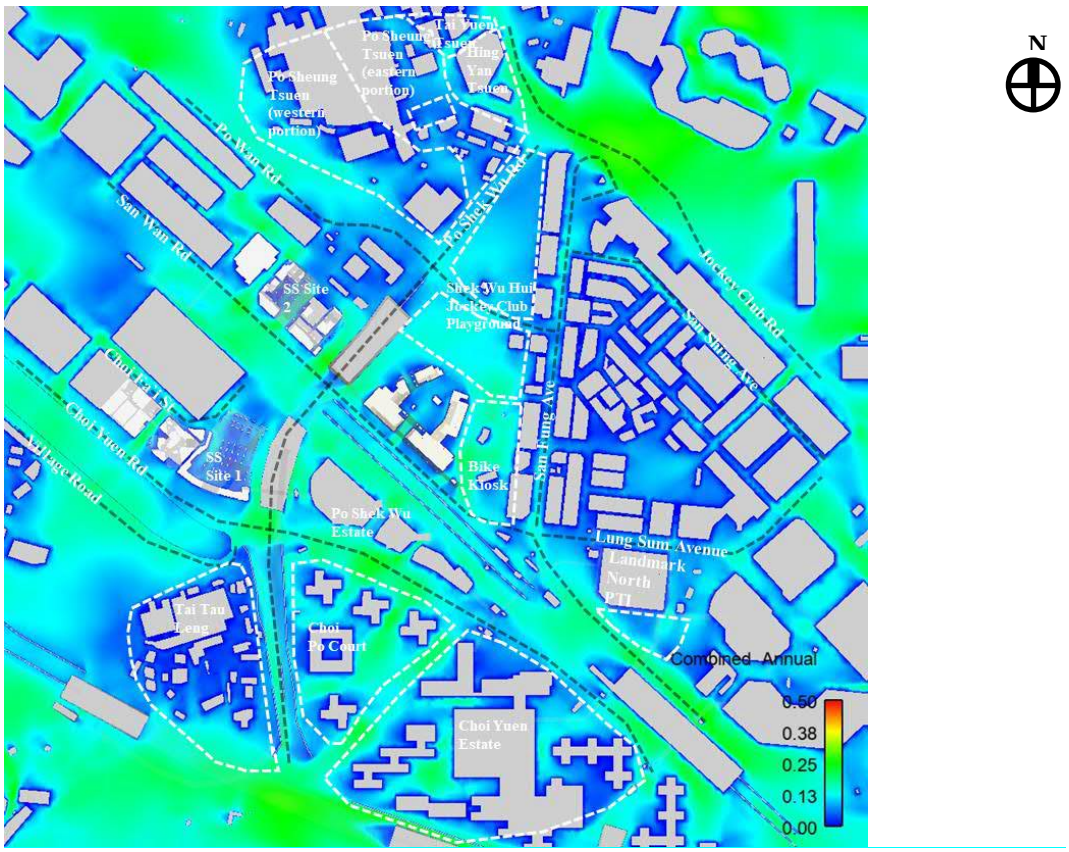


Figure 47 Contour Plot for Annual Weighted Average VR for Baseline Scheme

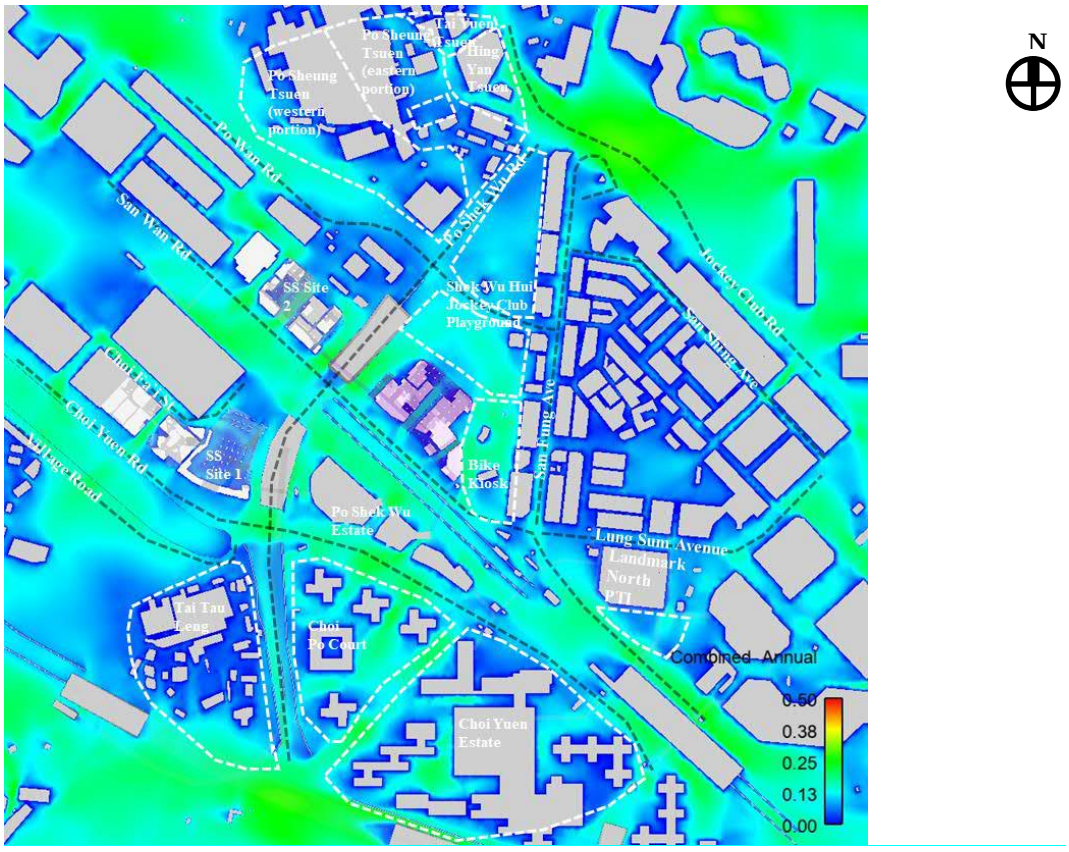


Figure 48 Contour Plot for Annual Weighted Average VR for Proposed Scheme

6.1.2 Overall Ventilation Performance under Summer Wind Condition

The contour plots of summer weighted VR for the Baseline Scheme and Proposed Scheme are shown in Figure 49 and Figure 50.

Under summer condition, prevailing wind would arrive mainly from the southwestern quadrant. As compared to annual condition, the wind environment would be relatively dominated by the windward surrounding environment as it comprises mainly of mid-rise and high-rise buildings including the planned Y/FSS/19, SS Site 1, Po Shek Wu Estate etc. A wind shadow would be created to the northeast of the Development.

The taller building under Proposed Scheme would be able to downwash more prevailing wind reaching the southern facades of the Development, which would in turn allow for more ventilation at its immediate surroundings such as a localised portion of San Wan Road. This could however limit prevailing wind at pedestrian level from reaching the downwind area such as the downwind portion of Po Shek Wu Road and San Wan Road, where a relatively higher VR would be observed Baseline Scheme. The prevailing wind under Proposed Scheme would on the other hand be diverted by the stronger downwashed wind to ventilate northwestern surroundings of the Development such as Ka Fu Close and Po Sheung Tsuen (Western Portion).

On the other hand, the building disposition of Baseline Scheme would allow for more wind to be diverted towards northeast, which would in ventilate the immediate northeastern surroundings of the Development such as Shek Wu Hui Jockey Club Playground and a localised portion of Po Wan Road under southwestern summer prevailing wind.

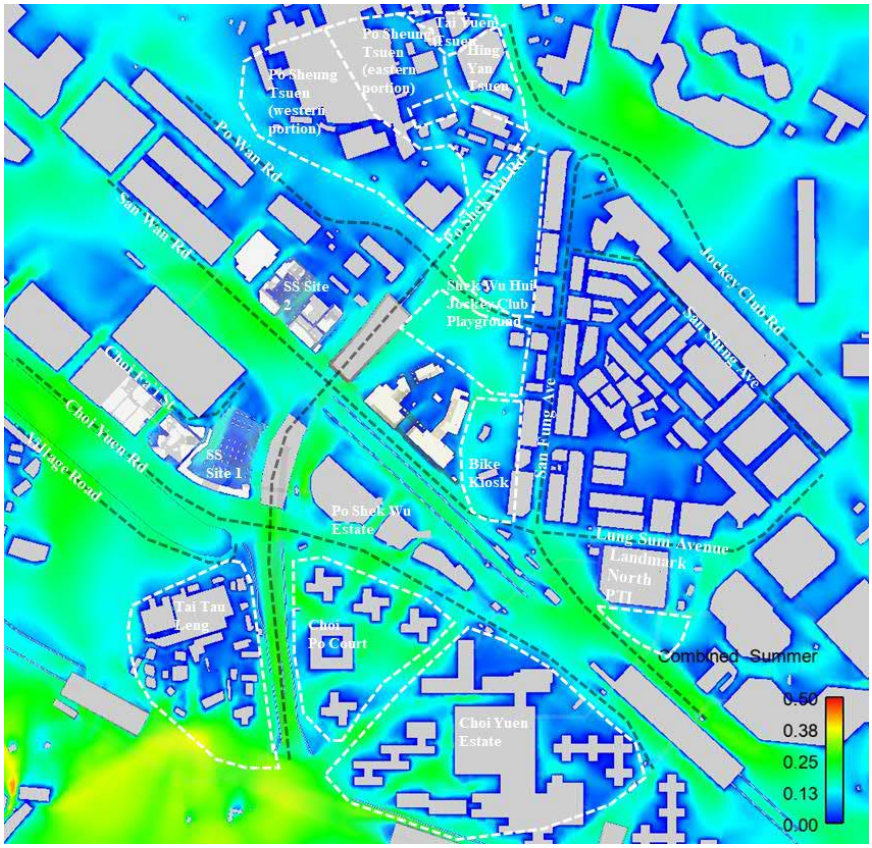


Figure 49 Contour Plot for Summer Weighted Average VR for Baseline Scheme

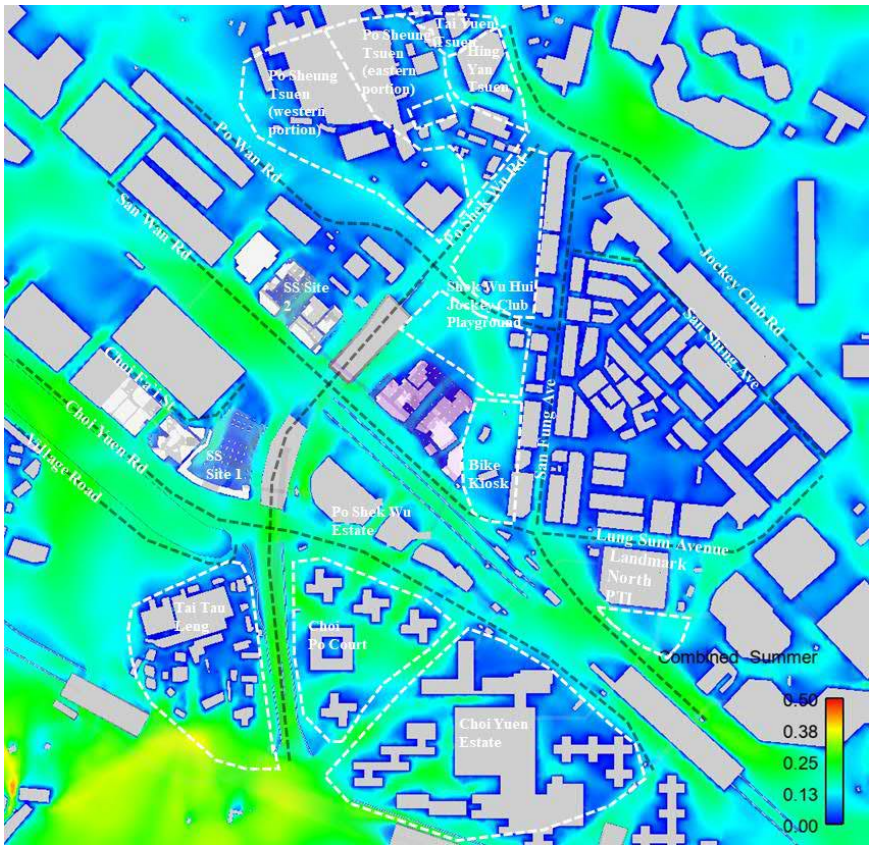


Figure 50 Contour Plot for Summer Weighted Average VR for Proposed Scheme

6.2 Directional Analysis

6.2.1 NNE Wind Direction

The NNE wind contributes to 6.4% of the annual wind and 1.6% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under NNE wind are presented below.

As the Development has an open northeastern surrounding environment, NNE wind could flow relatively freely to across open spaces such as the Shek Wu Hui Jockey Club Playground and stream along Po Shek Wu Road (**Grey Arrows**) and reach the northeast boundary of the Development.

In general, the wind environment is enhanced along the site boundary under Proposed Scheme as compared to Baseline Scheme due to the increased downwash effect from a taller Proposed Scheme; the leeward area would see a slightly calmer wind environment under Proposed Scheme as compared to Baseline Scheme.

Baseline Scheme

Under both schemes, prevailing wind would be diverted by the buildings to flow along its eastern site boundary and reach the eastern tower of Choi Po Court and be downwashed. However, under Proposed Scheme, a longer façade area along the northeastern site boundary would divert wind away from the eastern site boundary, thus allowing less wind flow to directly towards the eastern tower of Choi Po Court to be downwashed, which would in turn result in a higher VR in Choi Po court itself and Choi Yuen Road under Baseline Scheme (**Purple Arrows** & **White Circle**). On the other hand. this phenomenon would in the Proposed allow more downwash to be observed at the Choi Yuen Estate southeast of Choi Po Court, where said wind flow which is diverted away from the Development's eastern site boundary would reach after flowing past Choi Po Court; a portion of the increased downwashed wind would also flow further towards Tai Tau Leng to ventilate there (**Red Circles** and **Red Arrows**).

Proposed Scheme

Under both schemes, the northeastern façade of the Development would capture and downwash mid and high-level prevailing wind to the pedestrian level, which would then flow around the Development on the western and eastern site boundary. Under Proposed Scheme, with taller towers, more prevailing wind could be downwashed to the pedestrian level, hence an enhanced wind environment at areas abutting the western and eastern site boundary such as Bike Kiosk and Shek Wu Hui Jockey Club Playground (**Black Circles and Black Arrows**). A portion of increased downwashed wind would also be able to penetrate through the air path and empty bay of the Development and reach San Wan Road to ventilate the portion of it immediate southwest of the Development under Proposed Scheme (**Black Arrows**). Another portion of increased downwash wind would flow further towards the downwind portion of Po Shek Wu Road and Tai Tau Leng to enhance the VR at the areas (**White Arrow**).

Additionally, while under both schemes prevailing wind would travel through the air path between the two domestic blocks to reach the Po Shek Wu Estate downwind, which would then be downwashed to pedestrian level to ventilate a portion of San Wan Road, a narrower tower separation at the center and northeast of the Development under Proposed Scheme would increase the channelling effect, thereby allowing for more mid and high level prevailing wind to pass through the tower separation (**Red Circle** and **Arrows**); said phenomenon would be more prominent under Proposed Scheme, creating a higher VR at a localised portion of San Wan Road

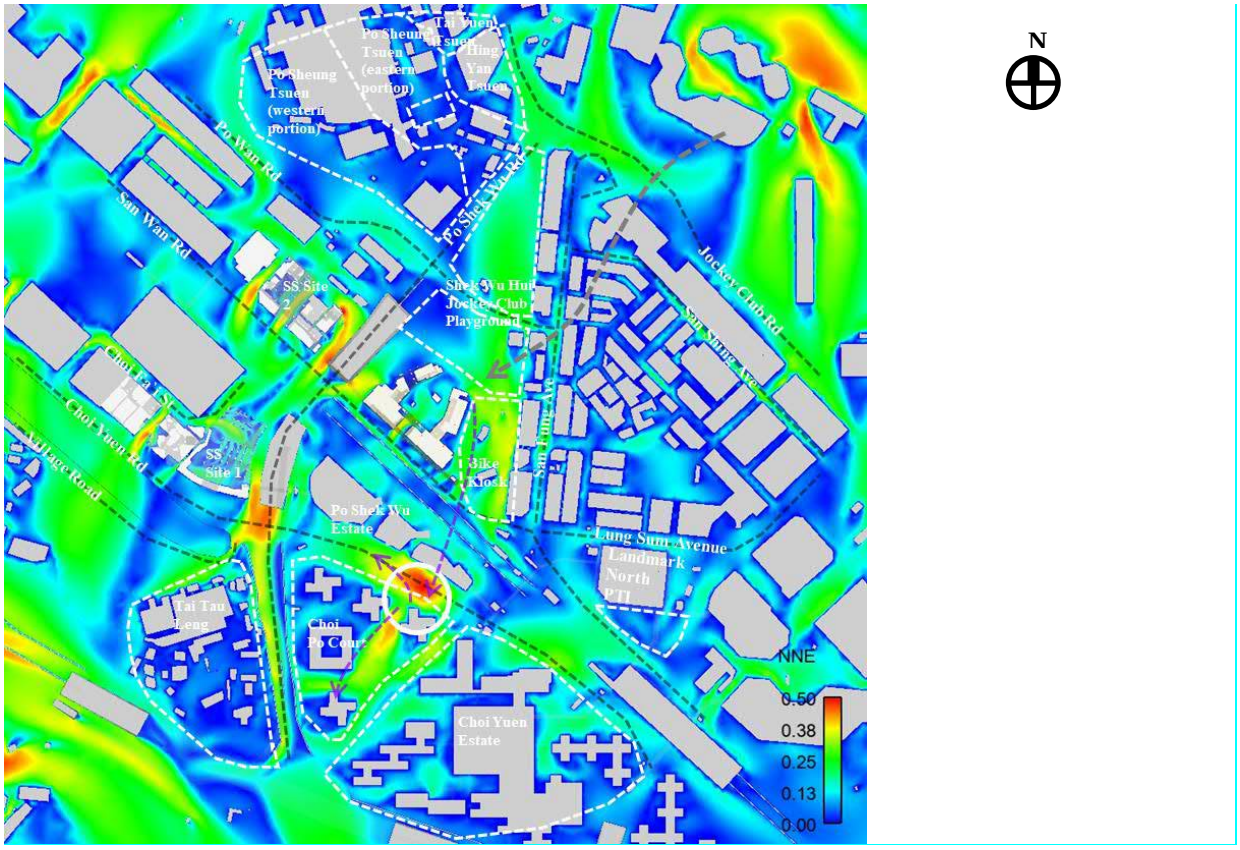


Figure 51 Contour Plot of VR for Baseline Scheme under NNE Wind

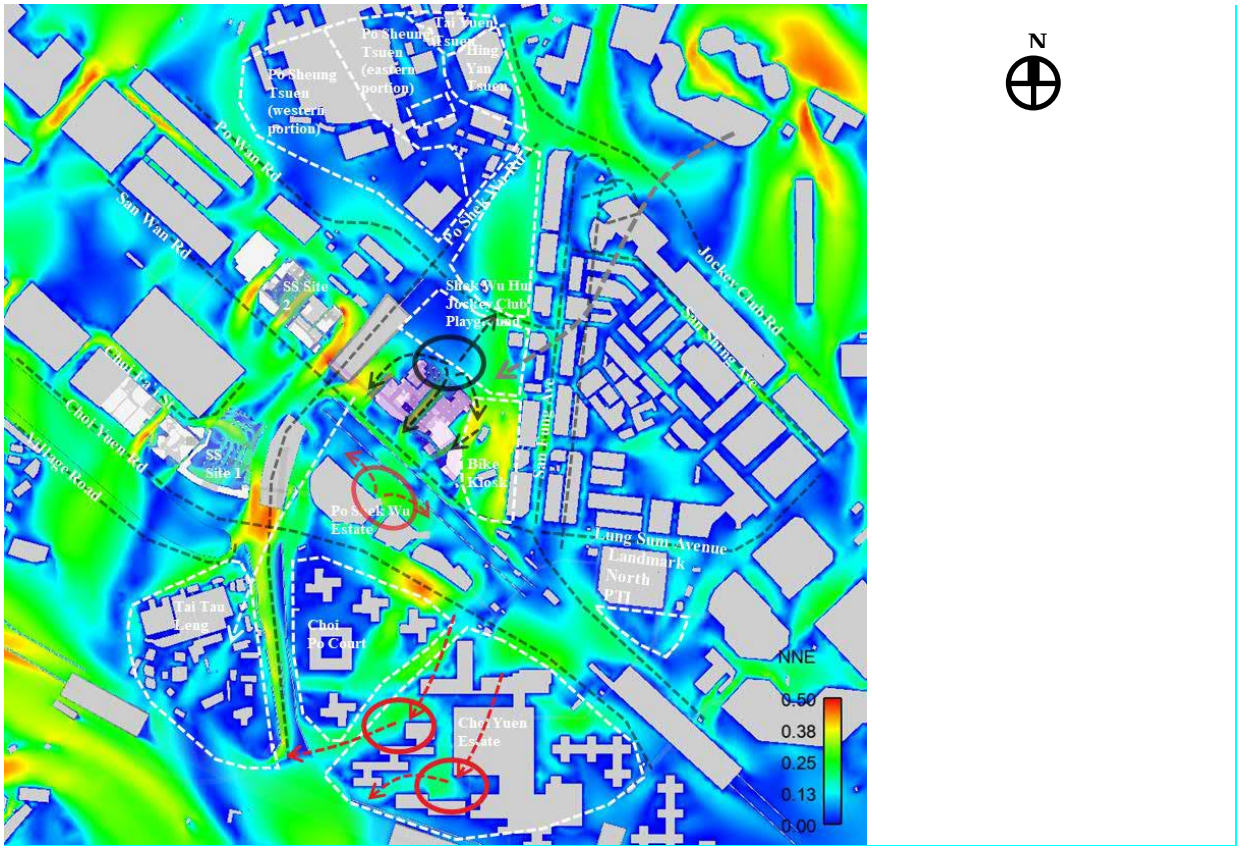


Figure 52 Contour Plot of VR for Proposed Scheme under NNE Wind

6.2.2 NE Wind Direction

The NE wind contributes to 7.5% of the annual wind and 1.5% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under NNE wind are presented below.

As the Development has an open northeastern surrounding environment, NE wind would generally reach the northeast boundary of the Development freely, from mainly Po Shek Wu Road, atop the northeastern low-rise cluster, as well as the open spaces such as the Shek Wu Hui Jockey Club Playground (**Grey Arrows**).

The general wind environment is found to be similar between the Baseline Scheme and Proposed Scheme. A different building height and disposition between the two schemes would nevertheless induce localised differences in performance in the leeward area as well as some immediate upwind locations.

Baseline Scheme

Under both schemes, a portion of prevailing wind reaching the Development would be downwashed to the pedestrian level by the northeastern façade, which would be diverted to flow along eastern site boundary of the Development and then further to San Wan Road. Under Baseline Scheme, the podium structure would be relatively less bulky with a 15m wide air path open from ground level between the lift tower and the podium, as compared to the 7m wide G/F empty bay under Proposed Scheme. Hence, under Baseline Scheme, more pedestrian level wind could penetrate through the Development to reach San Wan Road (**White Arrows**), creating a slightly higher VR there.

In addition, under both schemes, prevailing wind would be diverted by the buildings to flow along its eastern site boundary and reach the eastern portion of Po Shek Wu Estate and be downwashed. However, under Proposed Scheme, a longer façade area along the northeastern site boundary would divert wind away from the eastern site boundary, thus allowing less wind flow to directly towards the eastern tower of Choi Po Court to be downwashed, which would in turn result in a slightly higher VR at a localised portion of San Wan Road under Baseline Scheme (**Purple Arrows** & **White Circle**).

Proposed Scheme

Under both schemes, the said downwashed wind at the northeastern façade of the Development would ventilate the immediate surroundings such as Bike Kiosk and Shek Wu Hui Jockey Club Playground. With a higher building height and a longer northeastern tower façade under Proposed Scheme, the downwash effect would be more significant (**Black Circle and Arrow**), providing said area with more ventilation. A portion of downwashed wind would flow further along Po Shek Wu Road and further towards Tai Tau Leng (**Red Arrow**) to provide additional ventilation, hence a relatively higher VR there as well, compared to Baseline Scheme.

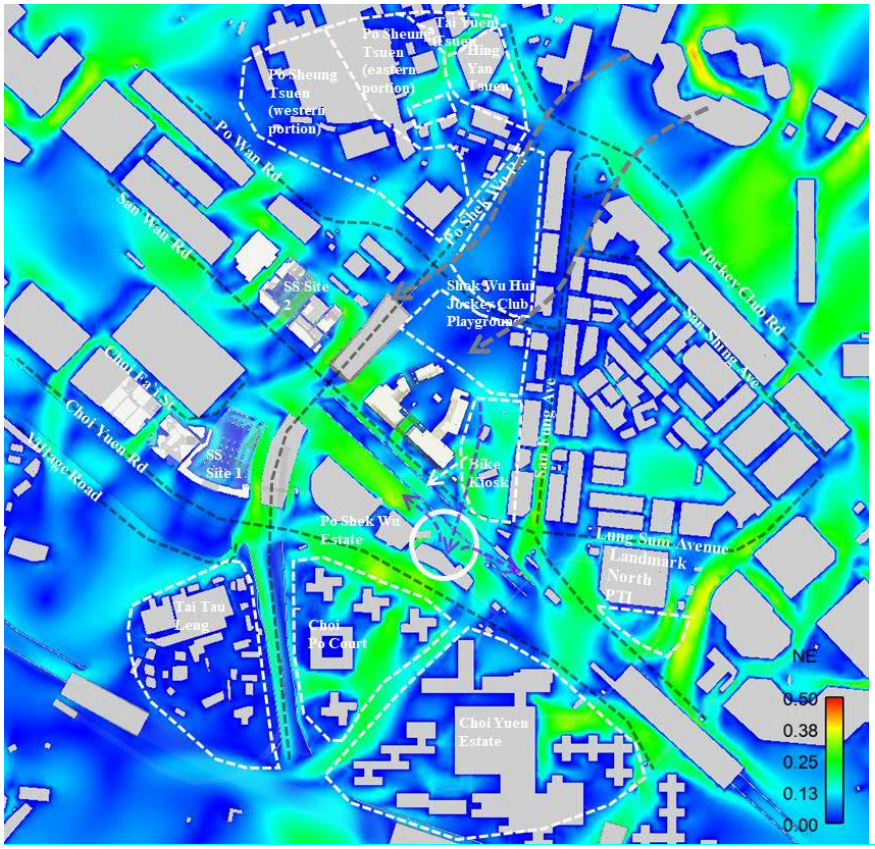


Figure 53 Contour Plot of VR for Baseline Scheme under NE Wind

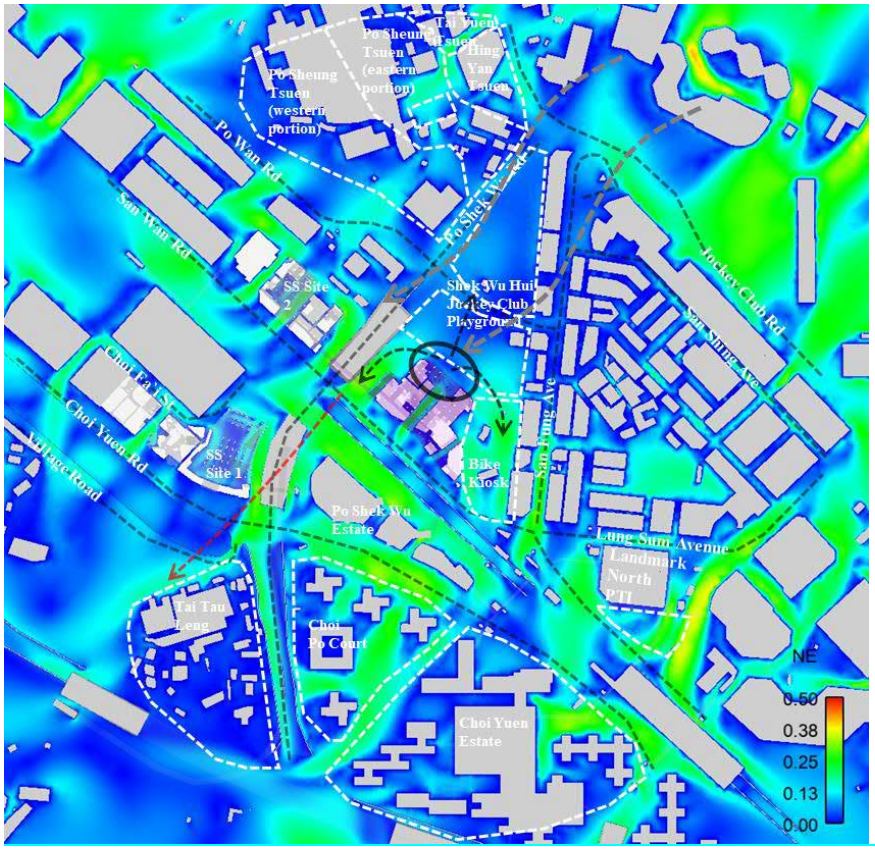


Figure 54 Contour Plot of VR for Proposed Scheme under NE Wind

6.2.3 ENE Wind Direction

The ENE wind contributes to 11.1% of the annual wind and 2.3% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under ENE wind are presented below.

Under ENE wind, a portion of incoming wind would skim over the generally low-rise cluster to the east-northeast of the Development and reach the development (**Grey Arrows**).

In general, a similar pattern and performance is found between Baseline and Proposed Scheme, a slightly enhanced wind environment can be observed under Proposed Scheme along the western and eastern site boundary, while the building disposition of the Development would allow enhanced performance in localised downwind region under Baseline Scheme and Proposed Scheme respectively.

Baseline Scheme

Under both schemes a portion of mid and high level incoming wind would penetrate through the air path through the tower separation in the development. A narrower tower separation at the center and northeast of the Development under Proposed Scheme would increase the channelling effect, thereby allowing for more mid and high level prevailing wind to pass through the tower separation (**Red Arrow**). In contrast, under Baseline Scheme, with less prevailing wind being channelled through the tower separation, more wind would be diverted to travel on the northwest of the Development; it would travel further towards the southwest where Tai Tau Leng, Choi Yuen Road, and Village Road are located (**Purple Arrow**), thereby increasing the VR there under Baseline Scheme. This phenomenon is enhacned by the shorter northeastern façade under Baseline Scheme as compared to Proposed Scheme.

Proposed Scheme

Under both schemes, a portion of mid and high-level incoming wind would be downwashed by the northeastern façade of the development to pedestrian level and would be diverted towards Bike Kiosk and San Wan Road. With a taller building height and more extensive northeastern façade under Proposed Scheme, more downwashed wind would stream along Bike Kiosk and eastern part of San Wan Road, as well as stream north towards Shek Wu hui Jockey Club Playground (**Black Arrow** and **Black circle**). However, it should also be noted that under both schemes ENE wind could reach areas directly north of SS Site 2 such as Ka Fu Close, a phenomenon that would be limited by said stronger wind streaming northwards under Proposed Scheme, thus slightl higher VR would in turn be observed in these areas under Baseline Scheme (**Black Solid Arrow** in Baseline Scheme Plot).

In addition, under both schemes, pedestrian level wind arriving at the Development would be diverted by Block A of the Devleopment to travel along its northwestern side. Under Proposed Scheme, the bulkier podium and longer northeastern façade as comapred to that under Baselien Scheme would divert more wind towards said area, a larger acceleration around the corner of Block A is also observed. Coupled with said increased downwash effect, the VR is would be higher at the northwestern site boudnary as well as a localised portion of San Wan Road (**White Arrow**).

Furthermore, under both schemes a portion of mid-level prevailing wind would travel pass SS Site 2 on its north to reach surroundings on its west; under Proposed Scheme, the more extensive northeastern façade would divert more mid-level incoming prevailing wind to join said stream to ventilate the surroundings west of SS Site 2, increasing the VR there slightly under Proposed Scheme (**Pink Arrow**). However, it should also be noted that under both scheme, prevailing wind could be downwashed by SS Site 2 to pedestrian level to ventilate the portion of Po Shek Wu Road and San Wan Road immediately adjacent to it, the said phenomenon would slighlty limit prevailing wind reaching the eastern façade of SS Site 2 hence less downwash and relatively lower VR under Proposed Scheme in those areas (**White Circle and White Arrow** in Baseline Scheme Plot). Under Baseline Scheme, the increased downwash win dfrom SS Site 2 would flow further intwo SS Site 1 and Choi Fai Street, enahncign the VR there under Baseline Scheme (**White Arrow** in Baseline Scheme Plot)

On the other hand, the aforementioned increased amount of prevailing wind travelling through the air path through the tower separation under Proposed Scheme would be downwashed by Po Shek Wu Estate onto San Wan Road, thereby providing ventialtion for a localised portion of it, increasing the VR there under Proposed Scheme (**Red Circle and Red Arrows**).

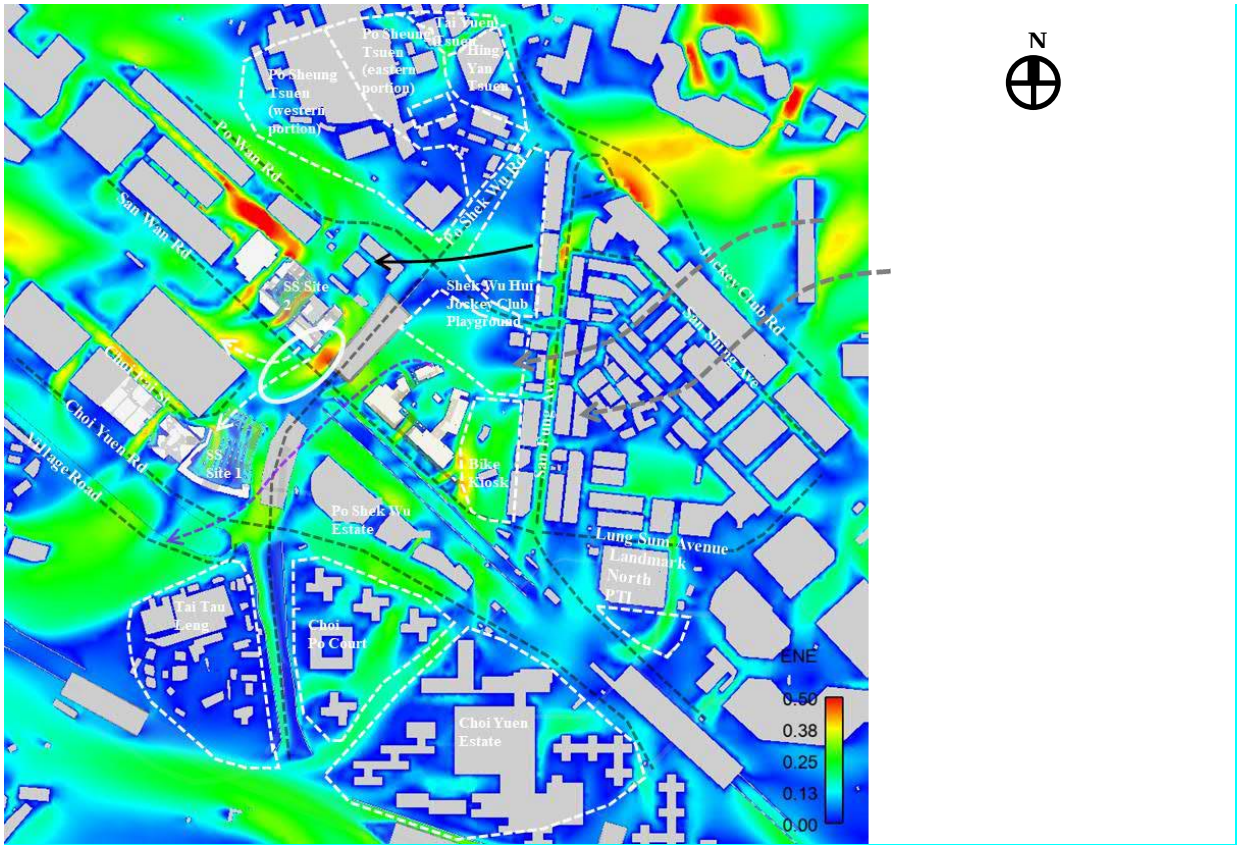


Figure 55 Contour Plot of VR for Baseline Scheme under ENE Wind

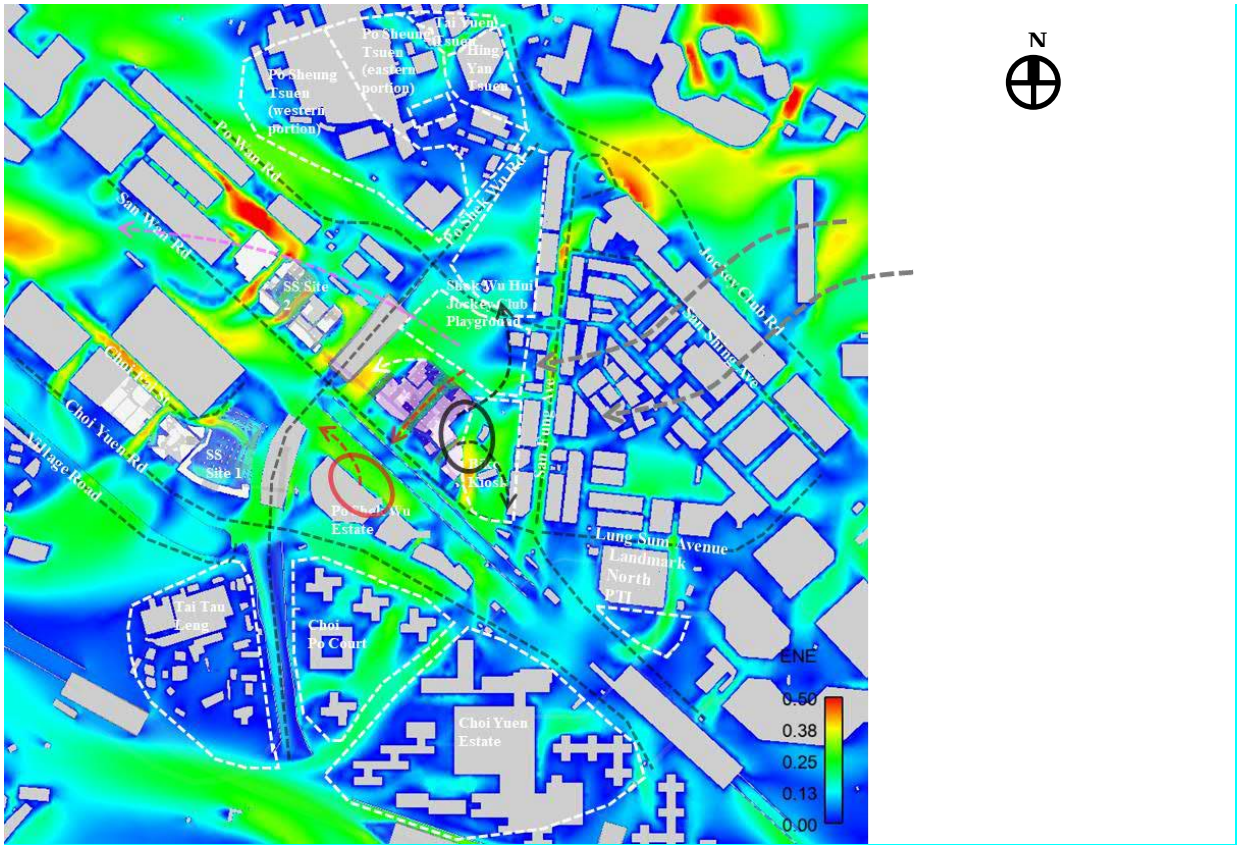


Figure 56 Contour Plot of VR for Proposed Scheme under ENE Wind

6.2.4 E Wind Direction

The E wind contributes to 17.2% of the annual wind and 7.6% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under E wind are presented below.

To the east of the Development would be mainly low-rise buildings and open area such as Bike Kiosk and Shek Wu Hui Jockey Club Playground; despite the presence of a few mid-rise buildings, prevailing wind could generally flow freely to reach the Development.

In generally the two schemes have similar flow patterns, however, the VR is observed to be slightly higher at the focus areas under Baseline Scheme. Nevertheless, a slightly higher VR is observed at portions of the site boundary under Proposed Scheme due to more downwash effect from a taller building height.

Baseline Scheme

Better wind environment is observed along San Wan Road in Baseline Scheme. Under both schemes, a portion of prevailing wind reaching the Development would be downwashed by the eastern façade to the pedestrian level, a portion of which would be diverted to flow towards San Wan Road. Under Baseline Scheme, the downwashed wind could reach San Wan Road through a 15m wide full height air path (**White Arrows**), as compared to a 7m wide G/F empty bay under Proposed Scheme; this would allow for more wind under Baseline Scheme to penetrate through the Development to reach San Wan Road and enhance the environment there. This could be mitigated under Proposed Scheme through its permeable podium and naturally ventilated carpark design.

As the orientation of the Baseline Scheme Block B eastern façade places it against E wind more directly than it would in Proposed Scheme, the aforementioned downwash would be relatively more significant. Because a portion of the downwashed wind would flow towards the immediate eastern surroundings of the Development, including the Bike Kiosk and the southeastern portion of Shek Wu Hui Jockey Club Playground, these areas would have an increased VR under Baseline Scheme (**Black Circle and Black Arrows**).

Under both schemes, prevailing wind would flow on the south and north of the Development and reach SS Site 1 and SS Site 2, which would then be downwashed to pedestrian level by their eastern and northeastern façades and flow towards its immediate surroundings. However, under Baseline Scheme, the different disposition and the smaller setback of the Development as compared to Proposed Scheme would divert wind flowing on the south of the Development to flow further south, thereby causing more downwash at northeastern façade of SS Site 1 Block 3, consequently additional ventilation is expected at the localised portion of Po Shek Wu Road (**Red Arrow and Red Circle**). Additionally, under Proposed Scheme, the different disposition would cause wind flowing on the north of the Development to be diverted further north, thus less wind would reach SS Site 1 Block 1 and SS Site 2; in other words, more downwash at SS Site 1 Block 1 and SS Site 2 eastern façades would occur under Baseline Scheme, which would ventilate a portion of San Wan Road further northwest and Choi Fai Street (**Yellow Arrows and Yellow Circles**)

Proposed Scheme

Under Proposed Scheme, however, more downwash would be observed on the northern part of the Development, where the façade is facing relatively away from the prevailing wind and the height of the tower has a more significant effect. In this case, more wind would be available to northwestern and western site boundary of the Development, as well as a localised portion of San Wan Road near its intersection with Po Shek Wu Road, thereby enhancing the wind environment in these locations (**Purple Circle and Arrows**).

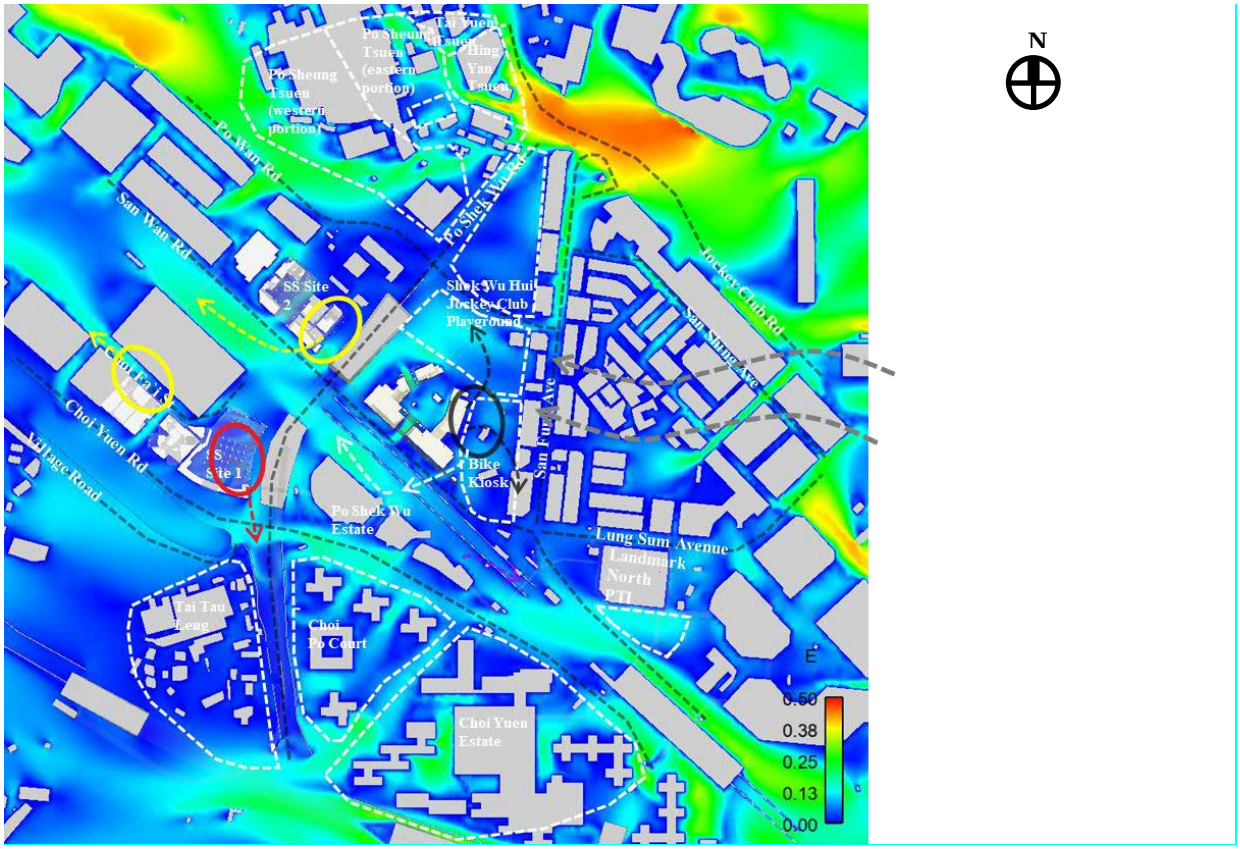


Figure 57 Contour Plot of VR for Baseline Scheme under E Wind

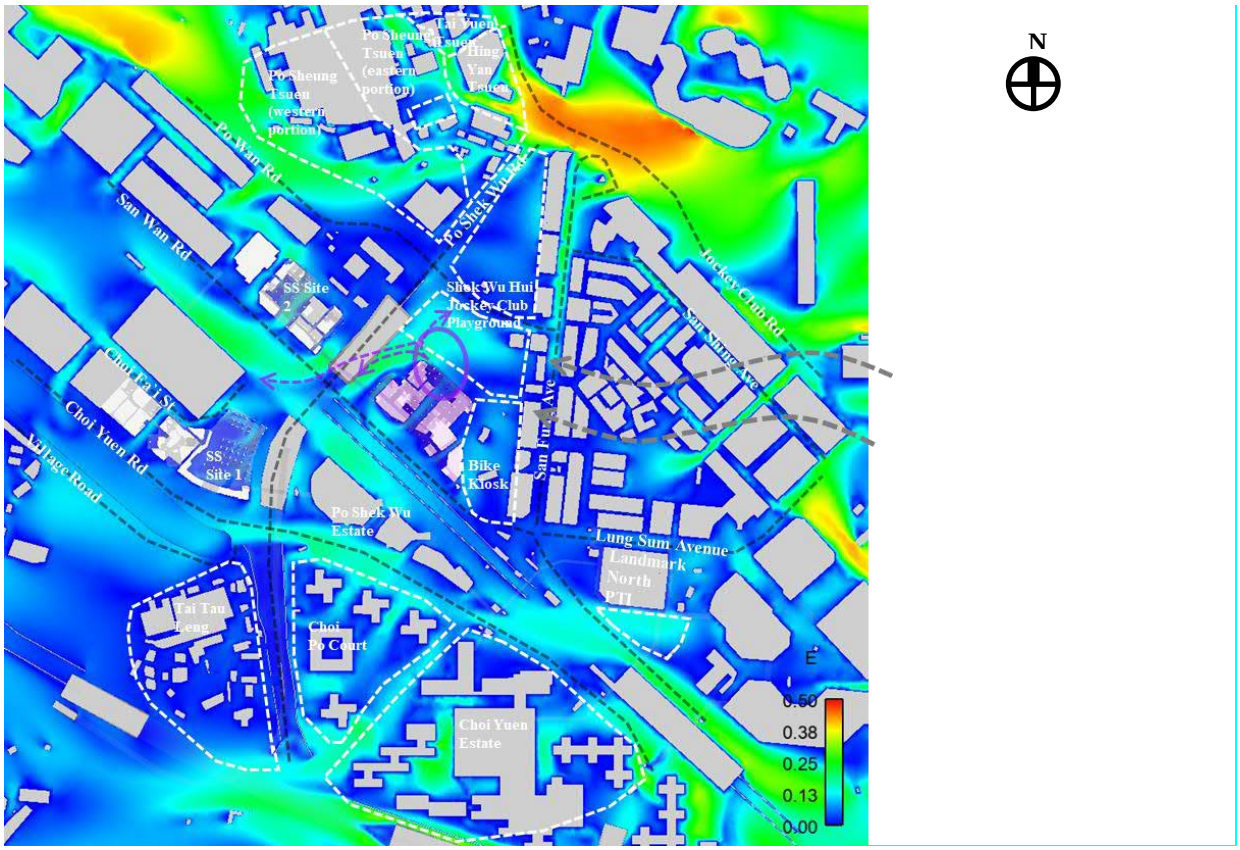


Figure 58 Contour Plot of VR for Proposed Scheme under E Wind

6.2.5 ESE Wind Direction

The ESE wind contributes to 14.7% of the annual wind and 10.2% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under ESE wind are presented below.

ESE wind would flow around the mid-rise to the east-southeast of the Development and flow towards the Development in two ways. While a portion of the ESE incoming wind would travel along San Wan Road to reach the southern boundary of the development, another portion would flow over the low-rise buildings to the east of the Development to reach it (**Grey Arrows**).

In general, the ventilation performance would be slightly enhanced under Proposed Scheme.

Proposed Scheme

Under both schemes, prevailing would be captured and downwashed by the eastern façade of Block B to the pedestrian level and be diverted towards its eastern immediate surrounding such as the Bike Kiosk and San Fung Avenue. Since Proposed Scheme is taller than Baseline Scheme, the said downwash effect would be more significant, thus more wind would be available at the mentioned areas, creating a higher VR there (**Black Circle and Arrows**). However, under Baseline Scheme, the orientation of the eastern façade of the Development would cause downwashed wind to flow more towards the northern surroundings (**Red Circle and Red Arrow** in Baseline Scheme Plot) as compared to Proposed Scheme, thereby slightly enhancing the VR of the immediate northern surroundings under Baseline Scheme.

On the other hand, under both schemes, prevailing wind would flow on southwest of the Development along San Wan Road and on northeast of the Development across the Shek Wu Hui Jockey Club Playground towards northwest surroundings such as SS Site 2. Due to the fact that under Proposed Scheme there is increased building setback at both southwest and northeast site boundaries, increased amount of said flow would be observed, thereby increasing VR at locations reached by said flow (**Pink Arrows**), such as San Wan Road itself as well as SS Site 2 and Ka Fu Close.

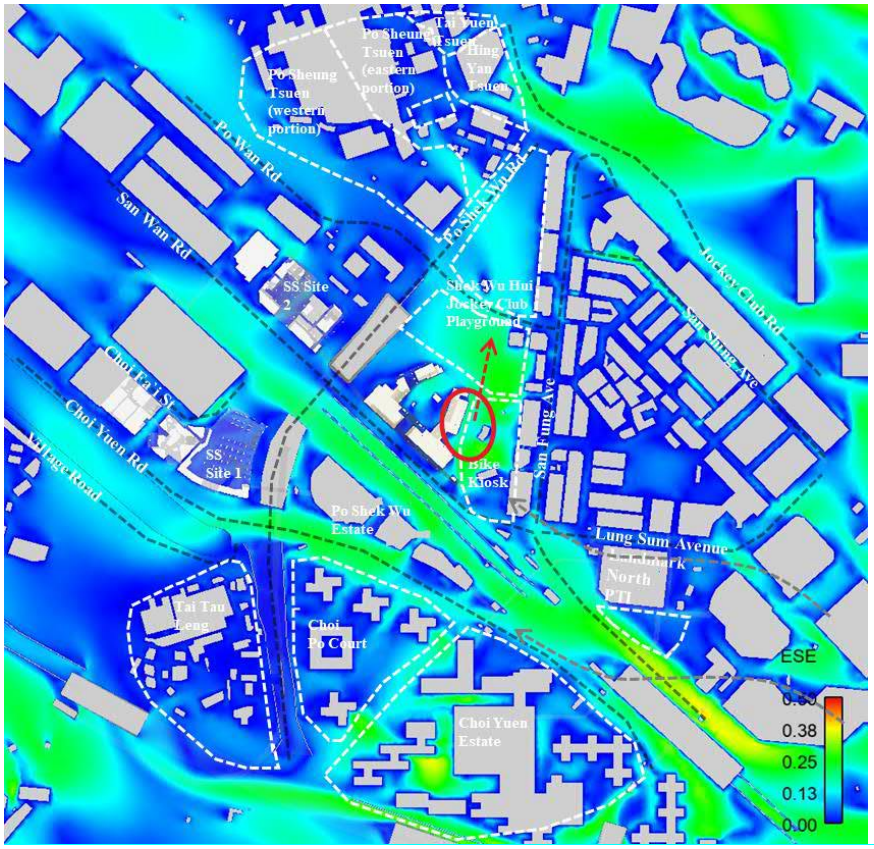


Figure 59 Contour Plot of VR for Baseline Scheme under ESE Wind.

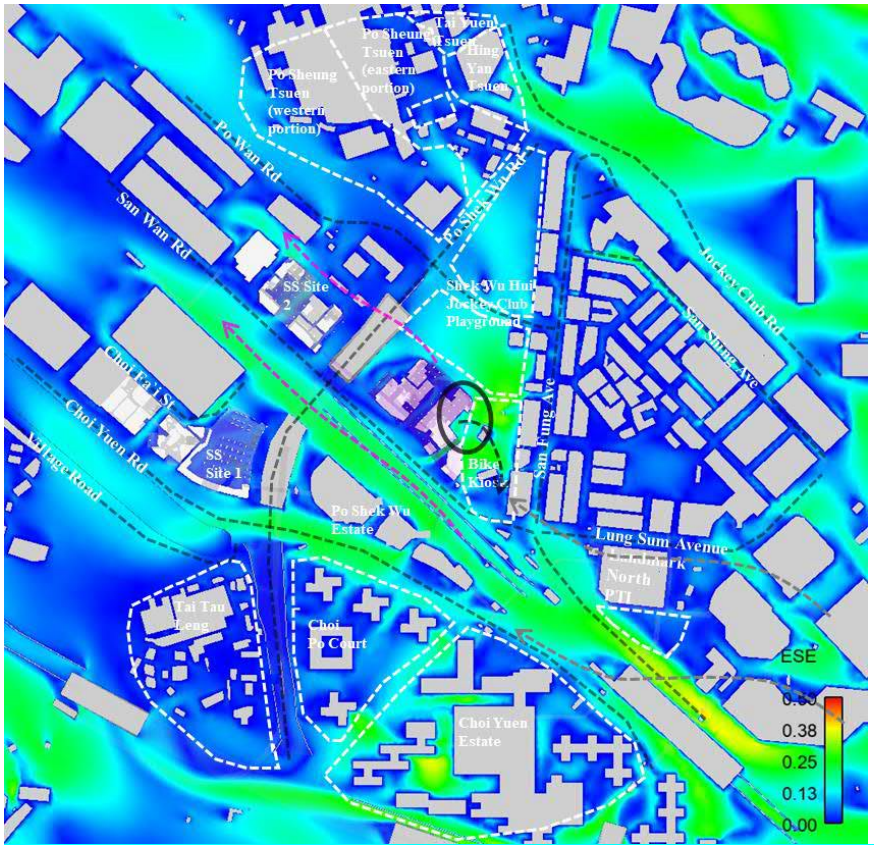


Figure 60 Contour Plot of VR for Proposed Scheme under ESE Wind

6.2.6 SE Wind Direction

The SE wind contributes to 8.7% of the annual wind and 8.7% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under SE wind are presented below.

Under SE wind conditions, the incoming wind would skim over mid-rise buildings as well as travel along San Wan Road to reach the Development (**Grey Arrows**).

Leeward area is expected to have a slightly enhanced wind environment under Proposed Scheme whereas localised immediate upwind area would have a slightly higher VR under Baseline Scheme.

Baseline Scheme

In both schemes, mid- and high-level incoming wind could would be captured and downwashed by the eastern façade of the Development to the pedestrian level to ventilate the immediate eastern surroundings such as Bike Kiosk and a localised portion of San Wan Road. Under Proposed Scheme, due to an increased setback from the southwestern site boundary, the prevailing wind is relatively more hindered by the southwestern mid and high-rises as compared to Baseline Scheme, in that under Baseline Scheme, the prevailing could reach the eastern façade of the Development more directly (**Red Arrows**). Therefore, the downwash effect would be more significant under Baseline Scheme (**Black Circle and Black Arrows**), creating a higher VR at said areas.

Proposed Scheme

Similar to ESE wind, under both schemes, prevailing wind would flow on southwest of the Development along San Wan Road and on northeast of the Development across the Shek Wu Hui Jockey Club Playground towards northwest surroundings such as SS Site 2. Due to the fact that under Proposed Scheme there is increased building setback at both southwest and northeast site boundaries, increased amount of said flow would be observed, thereby increasing VR at locations reached by said flow (**Pink Arrows**), such as San Wan Road itself as well as SS Site 2 and Ka Fu Close.

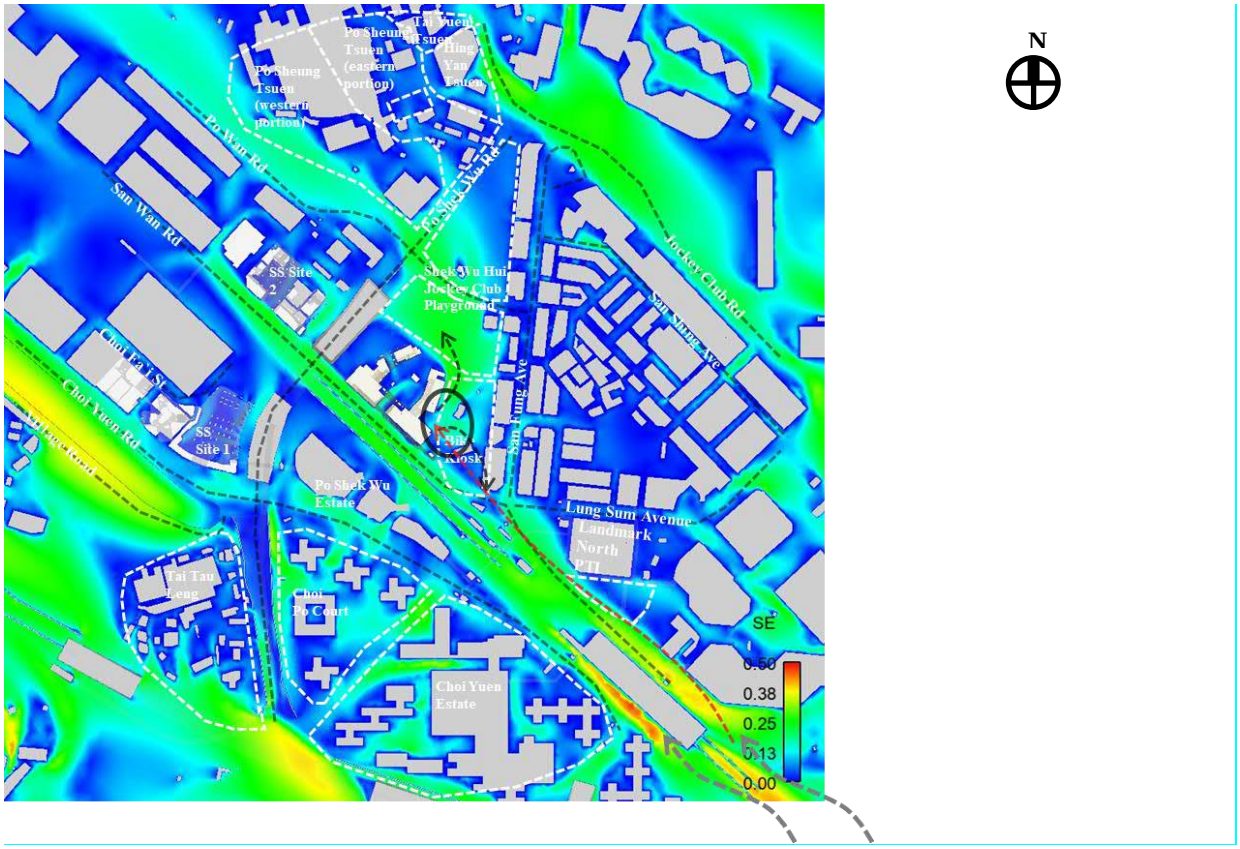


Figure 61 Contour Plot of VR for Baseline Scheme under SE Wind

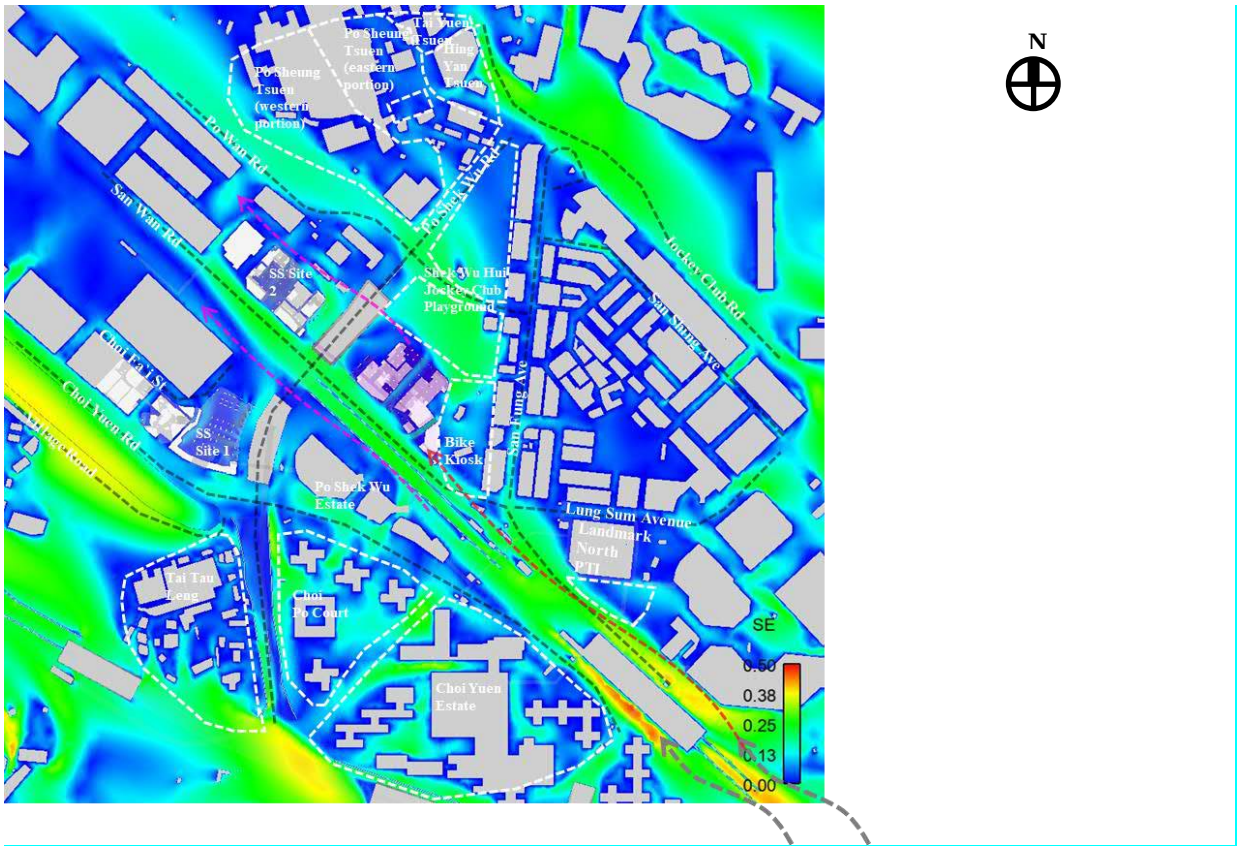


Figure 62 Contour Plot of VR for Proposed Scheme under SE Wind

6.2.7 SSE and S Wind Direction

The SSE and S wind contributes to 4.8% and 5% of the annual wind, and 8.7% and 10.2% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under SSE and S wind are presented below.

Under SSE and S wind conditions, the incoming wind would be diverted by Sheung Shui Centre to stream along San Wan Road to reach the development. On the other hand, mid and high level wind could reach the southwestern and eastern site boundary of the Development directly (**Grey Arrows**).

The ventilation performance under Baseline Scheme and Proposed Scheme is observed to be generally comparable.

Baseline Scheme

Under both schemes a portion of prevailing wind flowing along San Wan Road would be diverted to penetrate through the tower separation as well as the permeable podium structure in the development. A narrower tower separation at the center and northeast of the Development under Proposed Scheme would increase the channelling effect, thereby allowing for more mid and high level prevailing wind to pass through the tower separation (**Red Arrow**). The effect is further enhacned by the more permeable podium design under Proposed Scheme. In contrast, under Baseline Scheme, with less prevailing wind being channelled through the Development, more wind would travel along San Wan Road further which would enhacne the ventialtion perfomance at a localised portion of San Wan Road (**White Arrow**); the wind would subusequently be diverted to travel along the northwest site boundary and Po Shek Wu Road towards Po Sheung Tseun (**Purple Arrow**), thereby increasing the VR in areas including localised portions of Po Wan Road and Po Shek Wu Road, as well as the southmost portion of Po Sheung Tsuen (Western Portion) under Baseline Scheme.

Proposed Scheme

In both schemes, mid- and high-level incoming wind along San Wan Road would be captured and downwashed by the eastern façade of the Development to the pedestrian level to ventilate the immediate eastern surroundings such as Bike Kiosk and a localised portion of San Wan Road. Since Proposed Scheme is taller than Baseline Scheme, the said downwash effect would be more significant, thus more wind would be available at the mentioned areas, creating a higher VR there (**Black Circle and Arrows**).

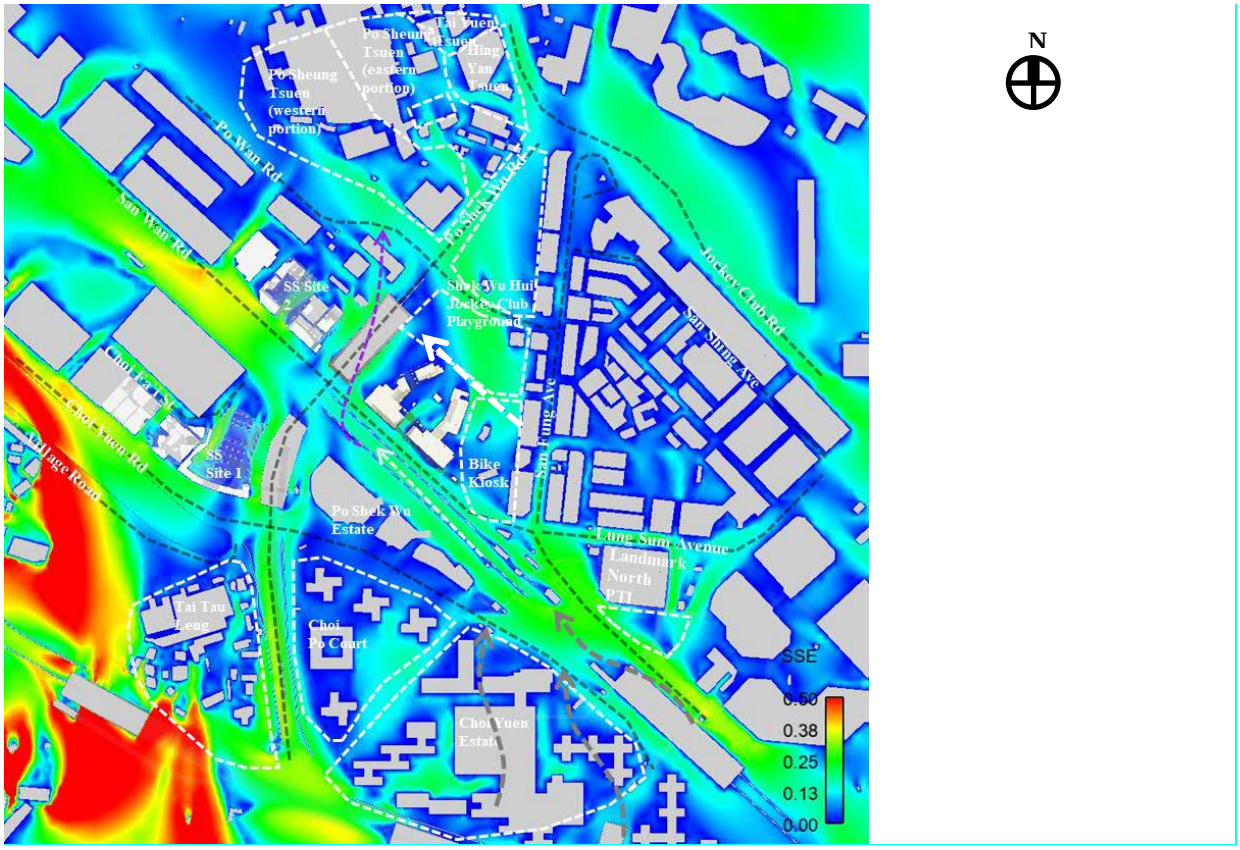


Figure 63 Contour Plot of VR for Baseline Scheme under SSE Wind

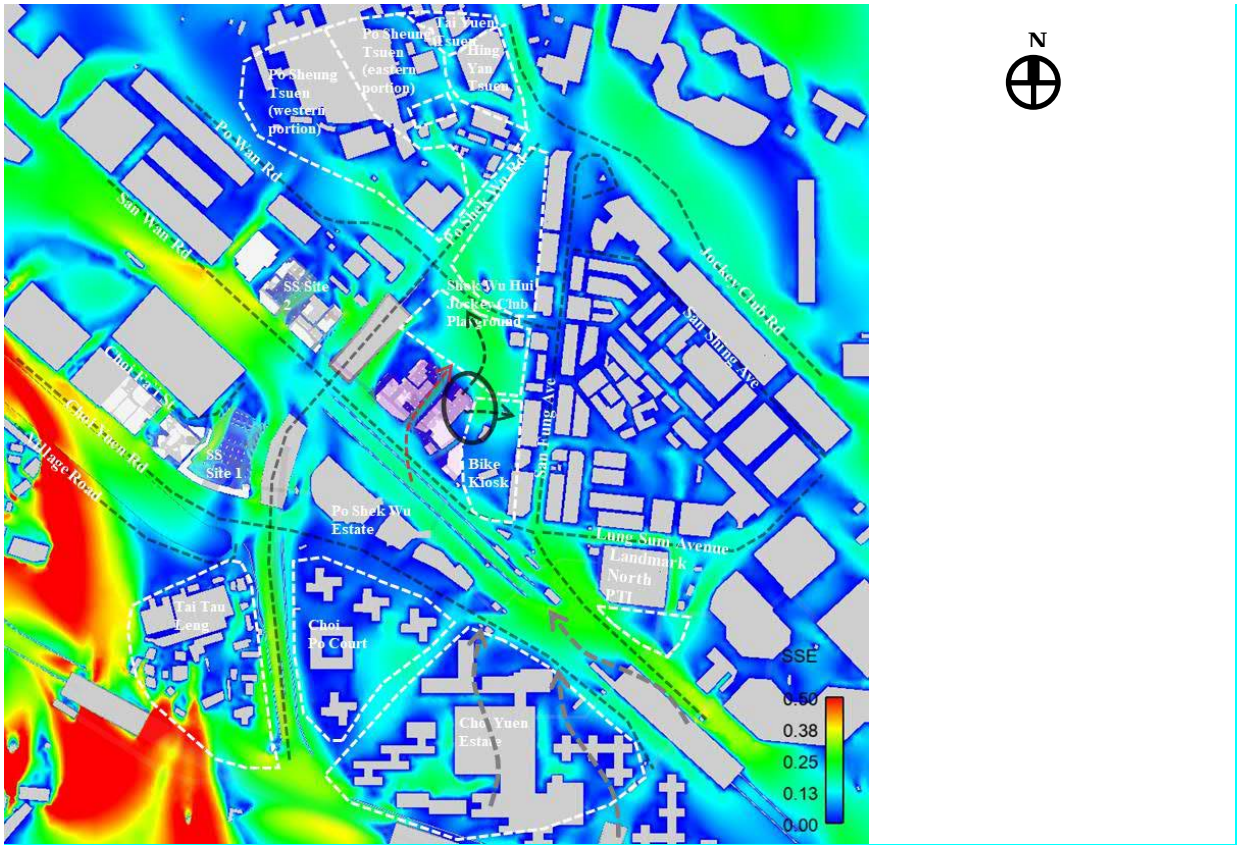


Figure 64 Contour Plot of VR for Proposed Scheme under SSE Wind

6.2.8 SSW Wind Direction

The SSW wind contributes to 6.1% of the annual wind and 13.4% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under SSW wind are presented below.

Most incoming SSW wind would be diverted by the mid- to high-rise southwestern surroundings, such as the planned high-rise Y/FSS/19 and a high-rise residential cluster next to it, causing a relatively strong stream of prevailing wind would then flow past Tai Tau Leng and Po Shek Wu Road to reach the southwest boundary of the Development, it would then continue along Po Shek Wu Road to flow around the Development on its west. A portion of high level wind, on the other hand, could reach the Development freely flowing over the mid-rise surroundings. In addition, a portion of mid-level wind would be captured by Landmark North and downwashed onto San Wan Road, which would then flow northwest along San Wan Road to reach the Development (**Grey Arrows**).

Overall, under SSW wind the ventilation performance would be slightly enhanced at areas northeast and northwest to the Development under Baseline Scheme and Proposed Scheme respectively.

Baseline Scheme

Under both schemes, a portion of high-level S and SSW wind reaching the Development would be captured and downwashed to the pedestrian level, ventilating San Wan Road. As the Proposed Scheme is taller, hence creating a larger height difference between it and its southwestern surroundings such as Po Shek Wu Estate, more high-level wind would be captured and downwashed. The downwashed wind would, however, limit the prevailing wind under Proposed Scheme flowing along San Wan Road from Landmark North, as well as that flowing NNE along Po Shek Wu Road; in other words, under Baseline Scheme wind could flow pass the Development along San Wan Road and Po Shek Wu Road to downwind areas more freely, a higher VR would be observed under Baseline Scheme at a localised portion of San Wan Road immediate southwest of the Development (**Black Circle**) and the portion of Po Shek Wu Road adjacent to the Shek Wu Hui Jockey Club Playground (**Black Arrow**) would be observed under Baseline Scheme.

Proposed Scheme

Under both schemes, prevailing wind flowing along San Wan Road would be diverted north towards Bike Kiosk and Shek Wu Hui Jockey Club Playground. The aforementioned increased downwash effect under Proposed Scheme would limit prevailing wind travelling from Landmark North past the Development on San Wan Road, consequentially, more wind would be diverted north towards said area, increasing the VR there (**Red Arrow**). Additionally, as mentioned, under Proposed Scheme, wind-flow further along Po Shek Wu Road past the Development would be limited, instead, more would be diverted towards northwest along San Wan Road, ventilating a localised portion of San Road adjacent to SS Site 2; the wind would subsequent be diverted to travel on the northwestern site boundary of SS Site 2 to travel north and reach Ka Fu Close (**White Arrows**). Additionally, under Proposed Scheme, the prevailing wind that would continue on Po Shek Wu Road past the Development would be diverted by the stronger downwashed wind to travel on the side of Po Shek Wu Road further away from the Development as compared to Baseline Scheme, allowing more ventilation to be available to a portion of Po Wan Road and Ka Fu Close (**Purple Circle**).

Furthermore, where under both scheme wind would be downwashed by the surrounding north of Jockey Club Road to travel towards Hing Yan Tsuen, Tai Yuen Tsuen and Po Sheung Tsuen (Eastern Portion), the said stronger stream of wind along Po Shek Wu Road under Baseline Scheme would limit the phenomenon under Baseline Scheme; a higher VR at said area would be observed under Proposed Scheme (**Pink Arrow**).

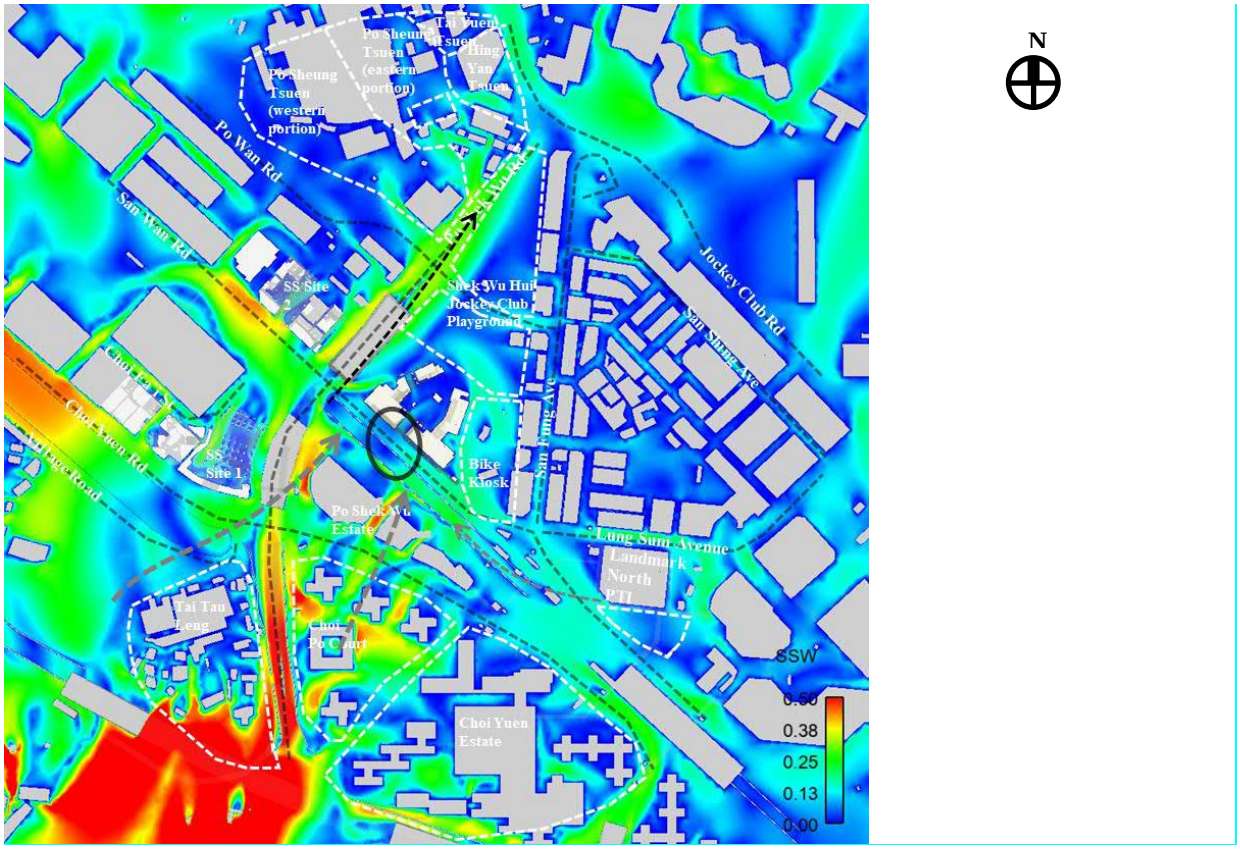


Figure 65 Contour Plot of VR for Baseline Scheme under SSW Wind

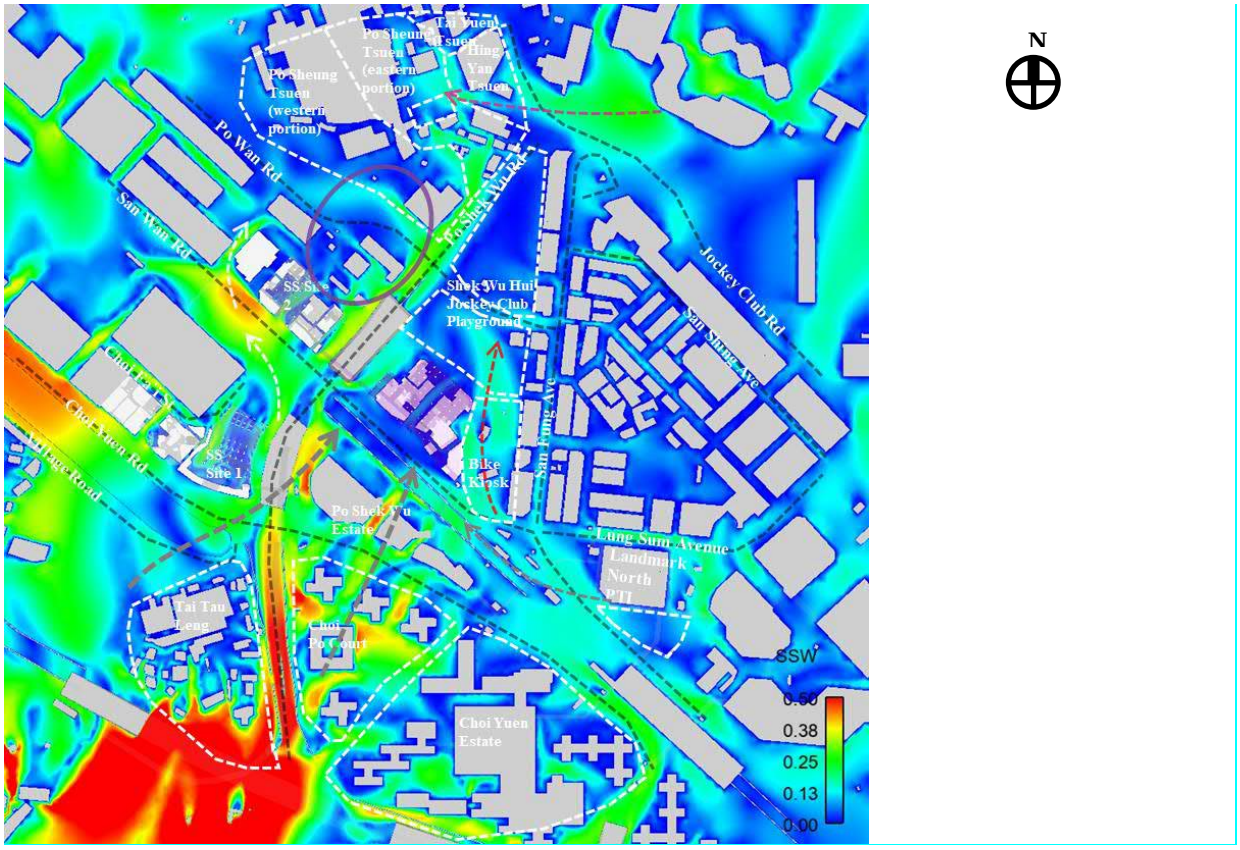


Figure 66 Contour Plot of VR for Proposed Scheme under SSW Wind

6.2.9 SW Wind Direction

The SW wind contributes to 6.1% of the annual wind and 14.7% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under SW wind are presented below.

The incoming SW wind would be hindered by the mid-rise Choi Po Court and Po Shek Wu Estate at low and mid-level, prevailing wind would mainly stream along Po Shek Wu Road to reach the Development at its western site boundary. A small portion of low and mid-level SW wind could on the other hand flow between the towers of Po Shek Wu Estate to reach San Wan Road and the Development. In addition, high level SW wind could reach the Development freely flowing over the mid-rise surroundings. Furthermore, a portion of mid-level wind would be captured by Landmark North and downwashed onto San Wan Road, which would then flow northwest along San Wan Road to reach the Development (**Grey Arrows**)

The overall ventilation performance would be generally relatively comparable under the two schemes as the wind environment but would be slightly enhanced at the immediate upwind part under Proposed Scheme and slightly enhanced performance at localised downwind region under Baseline Scheme.

Baseline Scheme

Under both schemes, wind reaching the Development from Po Shek Wu Road can flow further towards the northeastern surrounding of the Development such as the Shek Wu Hui Jockey Club Playground. Similar to that under SSW wind, a stronger downwash phenomenon is observed under Proposed Scheme, which would in turn limit the air flow under Proposed Scheme on Po Shek Wu Road flowing past the Development; this would mean under Baseline Scheme a relatively stronger stream of wind is expected along Po Shek Wu Road, as well as areas further downwind such as Jockey Club Road and Fung Nam Road Garden (**Black Arrows**).

Proposed Scheme

Under SW wind, a portion of high-level incoming wind would be captured and downwashed by the southwestern façade of the Development to pedestrian level, which would then be diverted to flow along San Wan Road. Since the taller Proposed Scheme would be produce a more significant downwash effect, an enhanced wind environment at a localised portion of San Wan Road would be observed in Proposed Scheme (**White Circle and Arrow**). This however would in turn limit some prevailing wind on San Wan Road from flowing towards the Development. Localised upwind portion of San Wan Road and the Bike Kiosk would therefore have a slightly higher VR under Baseline Scheme (**Red Circle**).

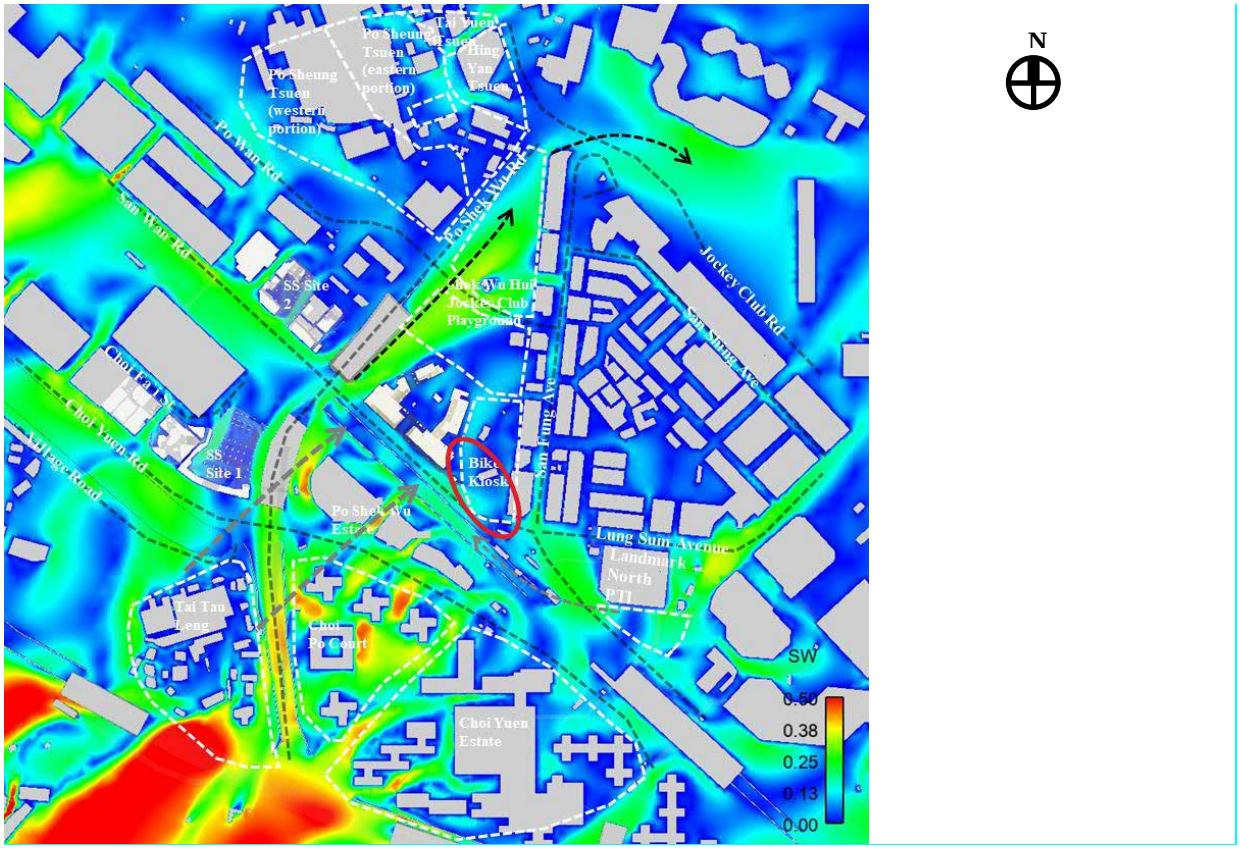


Figure 67 Contour Plot of VR for Baseline Scheme under SW Wind

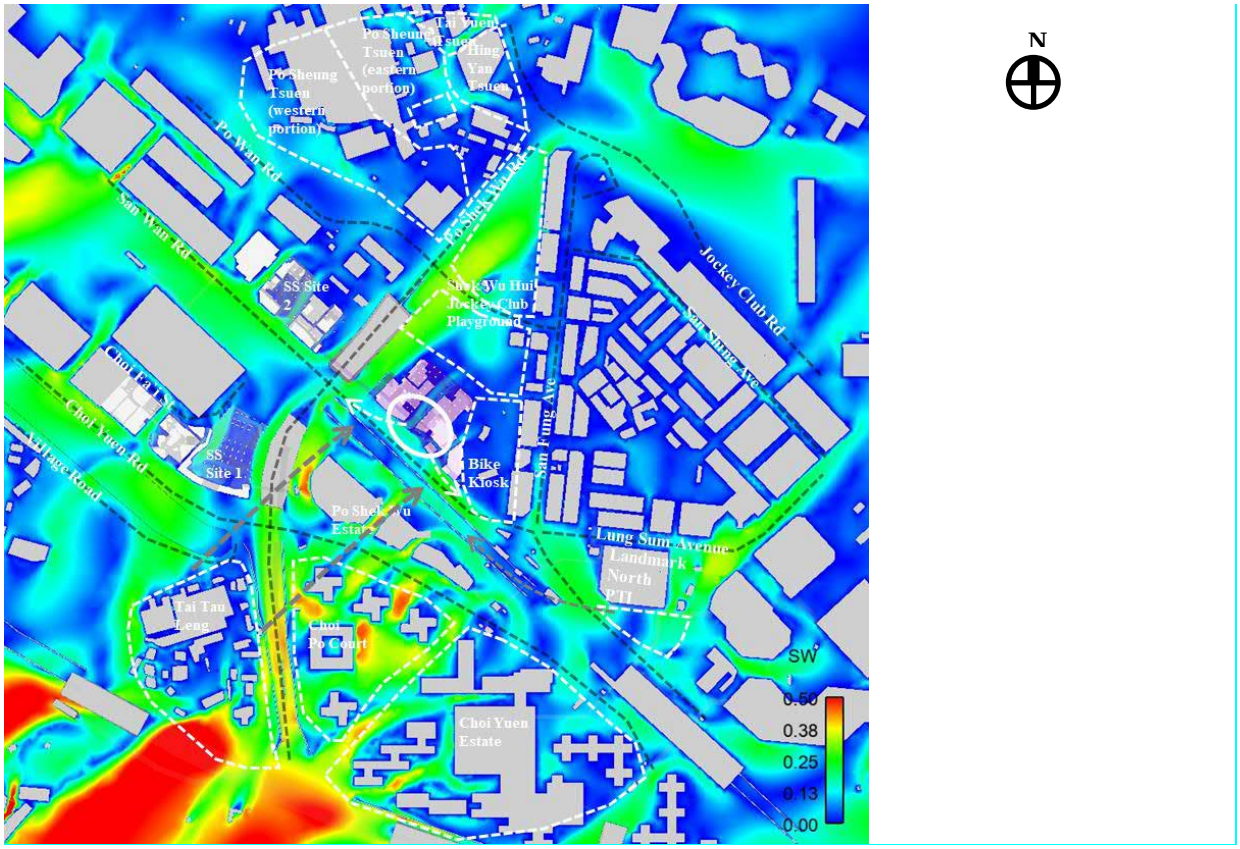


Figure 68 Contour Plot of VR for Proposed Scheme under SW Wind

6.2.10 WSW Wind Direction

The WSW wind contributes to 3.3% of the annual wind and 8.4% of summer wind rose. The overall ventilation performance of Baseline and Proposed Schemes under WSW wind are presented below. Under WSW wind condition, the incoming wind would first reach SS Site 1 and Po Shek Wu Estate, which would then flow between the two Development to enter Po Shek Wu Road, subsequently reaching the southwestern site boundary of the Development. On the other hand, a small portion of wind could flow between the towers of Po Shek Wu Estate and stream across San Wan Road to reach the southwestern site boundary of the Development. In addition, some incoming high level wind would be able to flow over Po Shek Estate to reach the Development directly. (**Grey Arrows**)

The overall ventilation performance slightly enhanced at the site boundary under Proposed Scheme and slightly enhanced at localised downwind region under Baseline Scheme.

Baseline Scheme

Under both schemes, a portion of wind arriving at the southwestern site boundary would flow further northeast along the site boundary and another portion would be diverted by the southwestern façade of the Development to be diverted into San Wan Road. However, under Proposed Scheme, similar to what is observed under SSW and SW wind, there would be more significant downwash effect at the southwestern façade of the Development as compared to Baseline Scheme, which would in turn limit the wind flow along San Wan Road under Proposed Scheme. Thus, under Baseline Scheme, a relatively higher VR would be observed at the further southeastern portion of San Wan Road just past the Bike Kiosk, and a portion of the Landmark North PTI (**Black Circle**).

Furthermore, regarding the wind flowing further northeast along the northwestern site boundary, the disposition of Block A would allow more wind to flow towards the center of Shek Wu Hui Jockey Club Playground under Baseline Scheme as compared to the Proposed Scheme. This would result in a higher VR at Shek Wu Hui Jockey Club Playground under Baseline Scheme (**Black Arrow**).

On the other hand, while under both schemes, prevailing wind at mid-level would flow around the Development on its south and reattach partially to the pedestrian level north of Lung Sum Avenue to ventilate the surroundings there, the larger façade area under Proposed Scheme would divert more mid- and high- level wind to travel on San Wan Road towards southeast rather than towards the area north of Lung Sum Avenue; thus, said phenomenon would be more significant under Baseline Scheme (**Pink Arrow**), hence a relatively higher VR at areas such as Shek Wu Hui Playground and Fu Hing Street under Baseline Scheme.

Proposed Scheme

Under Proposed Scheme, the aforementioned more significant downwash effect at the southwestern façade of the Development compared to Baseline Scheme would provide ventilation for the portion of San Wan Road immediately along the southwestern site boundary, creating a higher VR there (**White Circle and Arrows**). A portion of downwashed wind would reach the Bike Kiosk, thus creating a higher VR therein under Proposed Scheme as compared to Baseline Scheme (**White Arrow**).

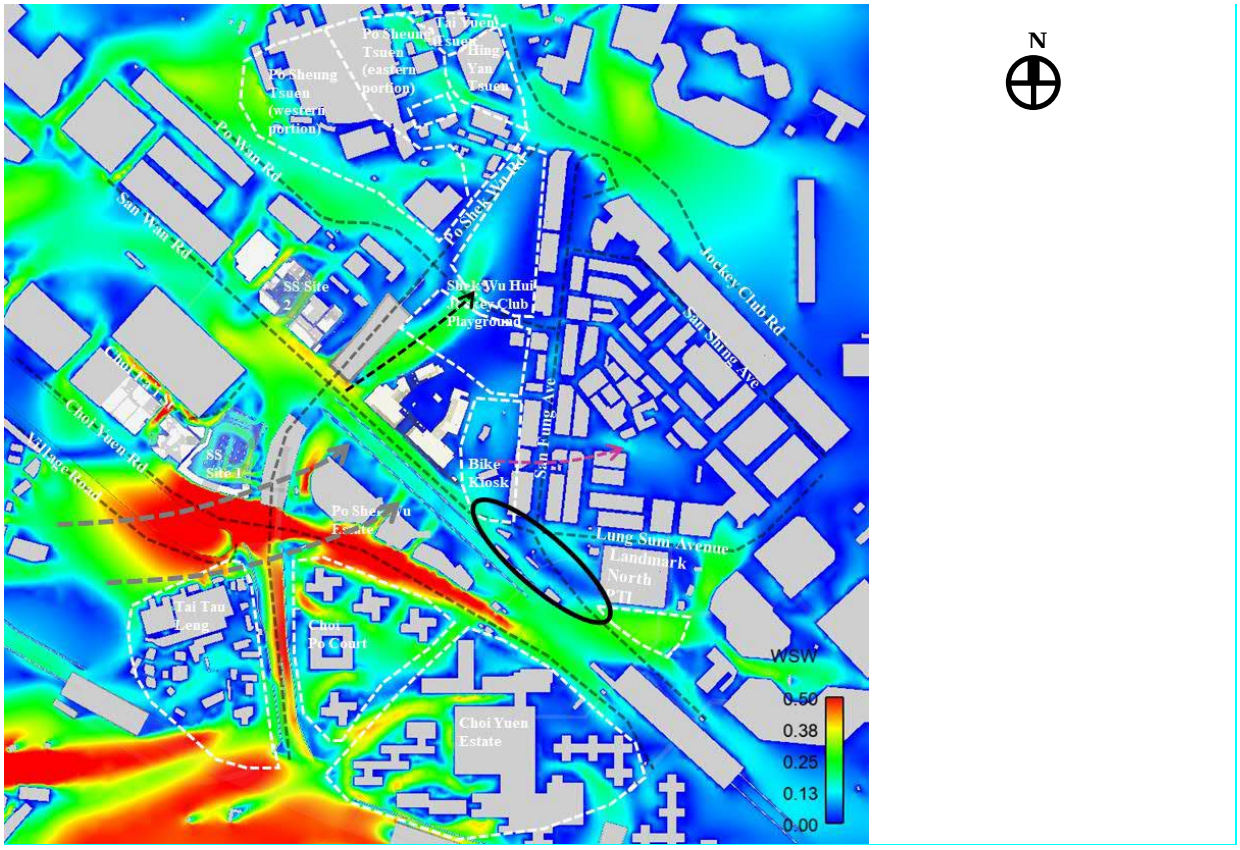


Figure 69 Contour Plot of VR for Baseline Scheme under WSW Wind

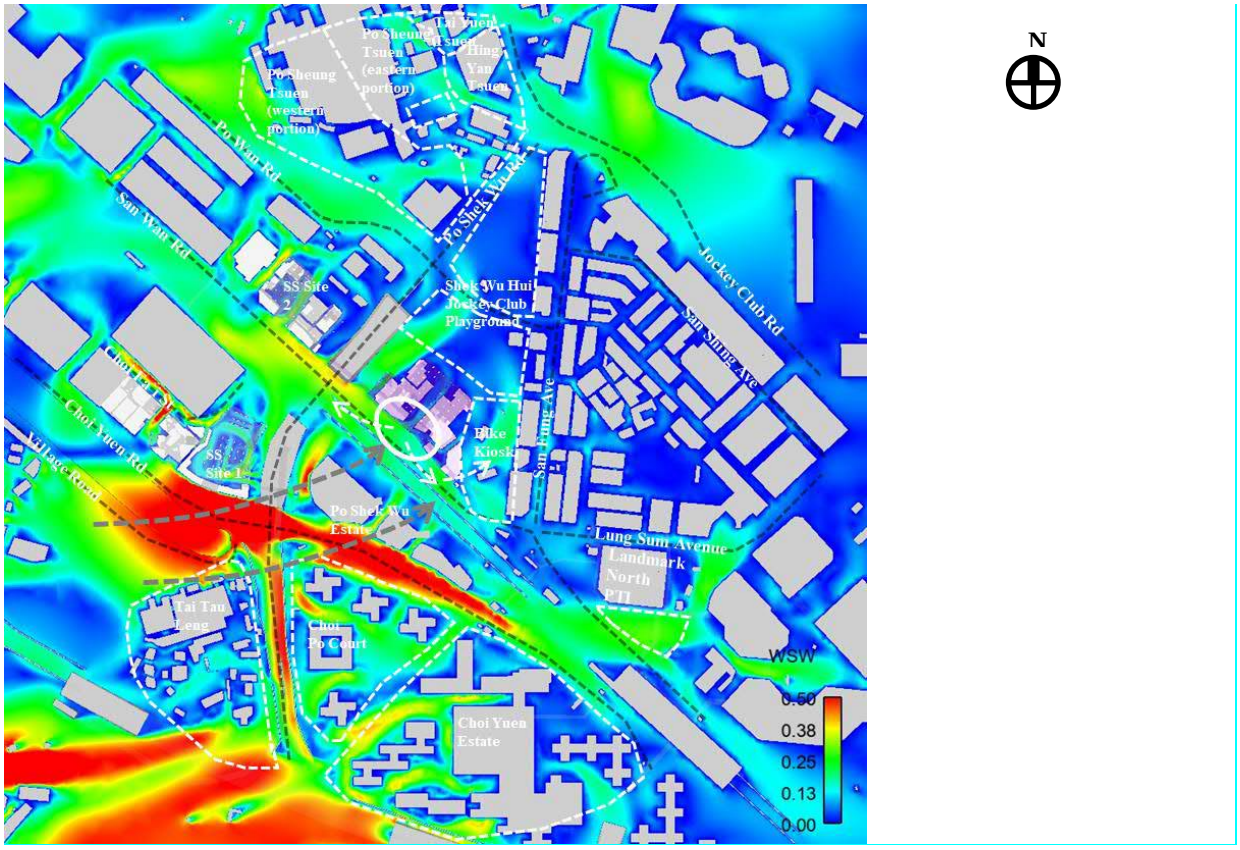


Figure 70 Contour Plot of VR for Proposed Scheme under WSW Wind

6.3 VR Results of Test Points

Table 6 summarises the value of SVR and LVR among Baseline Scheme and Proposed Scheme. The VR of individual test points may be referred to in Appendix.

Table 6 Comparison of the SVR and LVR among Baseline Scheme and Proposed Scheme

	Annual Weighted VR		Summer Weighted VR	
	Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
SVR	0.12	0.13	0.12	0.12
LVR	0.12	0.12	0.12	0.12

Under annual condition, the Proposed Scheme would obtain a slightly higher SVR as compared to Baseline Scheme, while both would have a similar LVR. The result indicate that the Proposed Scheme would achieve a slightly better wind environment at close proximity and a comparable ventilation performance within the Assessment Area when compared to Baseline Scheme.

Under summer condition, the Proposed Scheme and the Baseline Scheme would obtain a similar SVR and LVR, indicating a similar ventilation performance at close proximity and within the Assessment Area when comparing the two schemes.

6.4 Focus Areas

There are a total of 45 focus areas identified in this study, which are summarised below the Spatial Average VR (SAVR) for each focus areas under annual and summer conditions.

Table 7 Comparison of the VR of focus areas between Baseline Scheme and Proposed Scheme

	Focus Area	Annual Condition		Summer Condition	
		Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
1	Tai Tau Leng	0.06	0.06	0.11	0.11
2	Village Road	0.15	0.15	0.19	0.19
3	Choi Fat Street	0.10	0.11	0.12	0.12
4	Choi Fai Street	0.12	0.12	0.11	0.11
5	Planned Sheung Shui Areas 4 and 30 Site 1	0.14	0.13	0.14	0.14
6	Planned Sheung Shui Areas 4 and 30 Site 2	0.14	0.15	0.14	0.14
7	Ka Fu Close	0.14	0.15	0.09	0.10
8	Cheuk Wan St	0.13	0.13	0.18	0.18
9	Po Sheung Tsuen (western portion)	0.09	0.09	0.09	0.08

Focus Area		Annual Condition		Summer Condition	
		Baseline Scheme	Proposed Scheme	Baseline Scheme	Proposed Scheme
10	Po Sheung Tsuen (eastern portion)	0.08	0.08	0.08	0.08
11	Tai Yuen Tsuen	0.09	0.09	0.09	0.09
12	Hing Yan Tsuen	0.14	0.14	0.13	0.13
13	Po Sheung Tsuen Football Court	0.07	0.07	0.08	0.08
14	Fung Kai Liu Man Shek Tong Secondary School	0.15	0.15	0.15	0.15
15	Fung Nam Road Garden	0.24	0.24	0.22	0.22
16	Fu Nam Rd	0.22	0.22	0.22	0.22
17	North District Sports Ground Playground	0.16	0.16	0.11	0.11
18	Jockey Club Rd	0.18	0.18	0.15	0.15
19	Fu Hing St	0.11	0.11	0.08	0.08
20	San Fat St	0.06	0.06	0.05	0.06
21	San Lok St	0.07	0.07	0.05	0.05
22	Shek Wu Hui Playground	0.09	0.09	0.07	0.06
23	San Tsoi St	0.06	0.06	0.04	0.05
24	Tsun Fu St	0.06	0.06	0.06	0.06
25	San Hong St	0.08	0.08	0.07	0.07
26	San Cheung St	0.06	0.06	0.04	0.04
27	San Kung St	0.09	0.09	0.09	0.09
28	San Kin St	0.08	0.07	0.07	0.07
29	San Shing Ave	0.13	0.13	0.10	0.10
30	Lung Sum Avenue	0.11	0.11	0.14	0.14
31	Lung Wan St	0.11	0.11	0.13	0.13
32	North District Town Hall Basketball Court	0.08	0.08	0.09	0.09
33	Landmark North PTI	0.10	0.10	0.13	0.12
34	Sun Fung Ave	0.13	0.13	0.10	0.10

Focus Area		Annual Condition		Summer Condition	
		Baseline Scheme	Proposed Scheme	Baseline Scheme	Proposed Scheme
35	Shek Wu Hui Jockey Club Playground	0.11	0.11	0.13	0.12
36	Bike Kiosk	0.15	0.16	0.12	0.12
37	Po Shek Wu Estate	0.15	0.15	0.15	0.15
38	Choi Po Court	0.15	0.14	0.17	0.17
39	Choi Yuen Estate	0.13	0.13	0.14	0.14
40	Choi Yuen Rd	0.14	0.14	0.17	0.17
41	San Wan Rd	0.15	0.15	0.19	0.19
42	Po Shek Wu Rd	0.13	0.12	0.18	0.17
43	Po Wan Rd	0.11	0.11	0.10	0.10
44	Wind Enhancement Feature 1	0.11	0.14	0.07	0.10
45	Wind Enhancement Feature 2	0.16	0.17	0.09	0.11

6.4.1 Annual Condition

Under annual condition, most focus areas exhibit a similar VR, indicating a similar ventilation performance in most focus areas.

It could however be observed that Choi Fat Street, Planned Sheung Shui Area 4 and 30 Site 2, Ka Fu Close, and Bike Kiosk would have a slightly higher VR under Proposed Scheme. This indicates that the ventilation would be slightly enhanced in these areas under Proposed Scheme.

It can also be observed the Baseline Scheme would have a slightly higher VR at Planned Sheung Shui Area 4 and 30 Site 1, San Kin Street, Choi Po Court and Po Shek Wu Road. This indicates that the ventilation would be slightly calmer in these areas under Proposed Scheme.

It can be observed that under annual condition, the wind enhancement feature 1, which is the airpath between the two towers, would perform better under Proposed Scheme, this is due to the relatively narrower tower separation in the central portion of the Development accelerating the wind flow along the air path. Wind Enhancement Feature 2, which is the air path between Block B and Lift tower in Baseline Scheme and a G/F empty bay in Proposed Scheme, would also perform marginally better under Proposed Scheme, due to stronger downwash at the eastern façade by the taller tower under Proposed Scheme; the downwashed wind would then flow through the empty bay.

6.4.2 Summer Condition

Under summer condition, the majority of focus areas exhibit a similar VR, indicating a similar ventilation performance in most focus areas.

It could however be observed that Ka Fu Close, San Fat Street, and San Tsoi Street would have a slightly higher VR under Proposed Scheme. This indicates that the ventilation would be slightly enhanced in these areas under Proposed Scheme.

It can also be observed that Shek Wu Hui Playground, Landmark North PTI, Shek Wu Hui Jockey Club Playground, and Po Shek Wu Road would have a slightly higher VR under Baseline Scheme. This indicates that the ventilation would be slightly calmer in these areas under Proposed Scheme.

It can be observed that under summer condition, similar to annual condition, the wind enhancement feature 1, which is the airpath between the two towers, would perform better under Proposed Scheme, this is due to the relatively narrower tower separation in the central portion of the Development accelerating the wind flow along the air path. Additionally, Wind Enhancement Feature 2, under summer condition, would have a slightly enhanced ventilation performance under Proposed Scheme. This is due to the increased tower height under Proposed Scheme inducing more downwashed wind at the southern façade, thereby allowing for more wind to reach the Wind Enhancement Feature 2 of Proposed Scheme, whereas under Baseline Scheme, the wind flow available to flow through the Wind Enhancement Feature 2 would be more hindered by the southwester surroundings.

7. Conclusion

7.1 Overview

An Air Ventilation Assessment (AVA) – Initial Study was conducted to assess the ventilation performance of Baseline Scheme and Proposed Scheme in accordance with the AVA Technical Circular No. 1/06.

Two schemes were assessed using Computational Fluid Dynamics (CFD) techniques. A series of CFD simulation using Realizable k-ε turbulence model was performed under annual and summer wind conditions with reference to the AVA Technical Circular No. 1/06. For annual wind condition, NNE, NE, ENE, E, ESE, SE, SSW and SW were selected which gives total wind frequency of 77.8% over a year while E, ESE, SE, SSE, S, SSW, SW and WSW were selected for summer condition, which gives total wind frequency of 81.9%.

The Velocity Ratio (VR) as proposed by the AVA Technical Circular No.1/06 was employed to assess the ventilation performance under different schemes and its impact to the surroundings.

With reference to the AVA Technical Circular No. 1/06, 30 perimeter test points, 692 overall test points and 14 special test points were allocated to assess the local and overall ventilation performance in the Assessment Area.

7.2 Results

Upon the CFD simulation Proposed Scheme has achieved a similar LVR and a higher SVR by 0.01 comparing to Baseline Scheme under annual condition and a similar SVR and LVR under summer condition comparing to Baseline Scheme respectively.

The results of the SVR, LVR are summarized as below.

Table 8 SVR and LVR Summary

	Annual Weighted VR		Summer Weighted VR	
	Baseline Scheme	**Proposed Scheme**	**Baseline Scheme**	**Proposed Scheme**
SVR	0.12	0.13	0.12	0.12
LVR	0.12	0.12	0.12	0.12

8. Reference

[1] “Annex A of Technical Circular No. 1/06 issued by the Housing, Planning and Lands Bureau pertaining specifically to Air Ventilation Assessments, 19th July, 2006,” [Online]. Available: https://www.devb.gov.hk/filemanager/en/content_679/hplb-etwb-tc-01-06.pdf.

[2] “Planning Department RAMS Data,” [Online]. Available: http://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/.

Appendices C to E have been updated

ARUP

Appendix A

Reference:

|

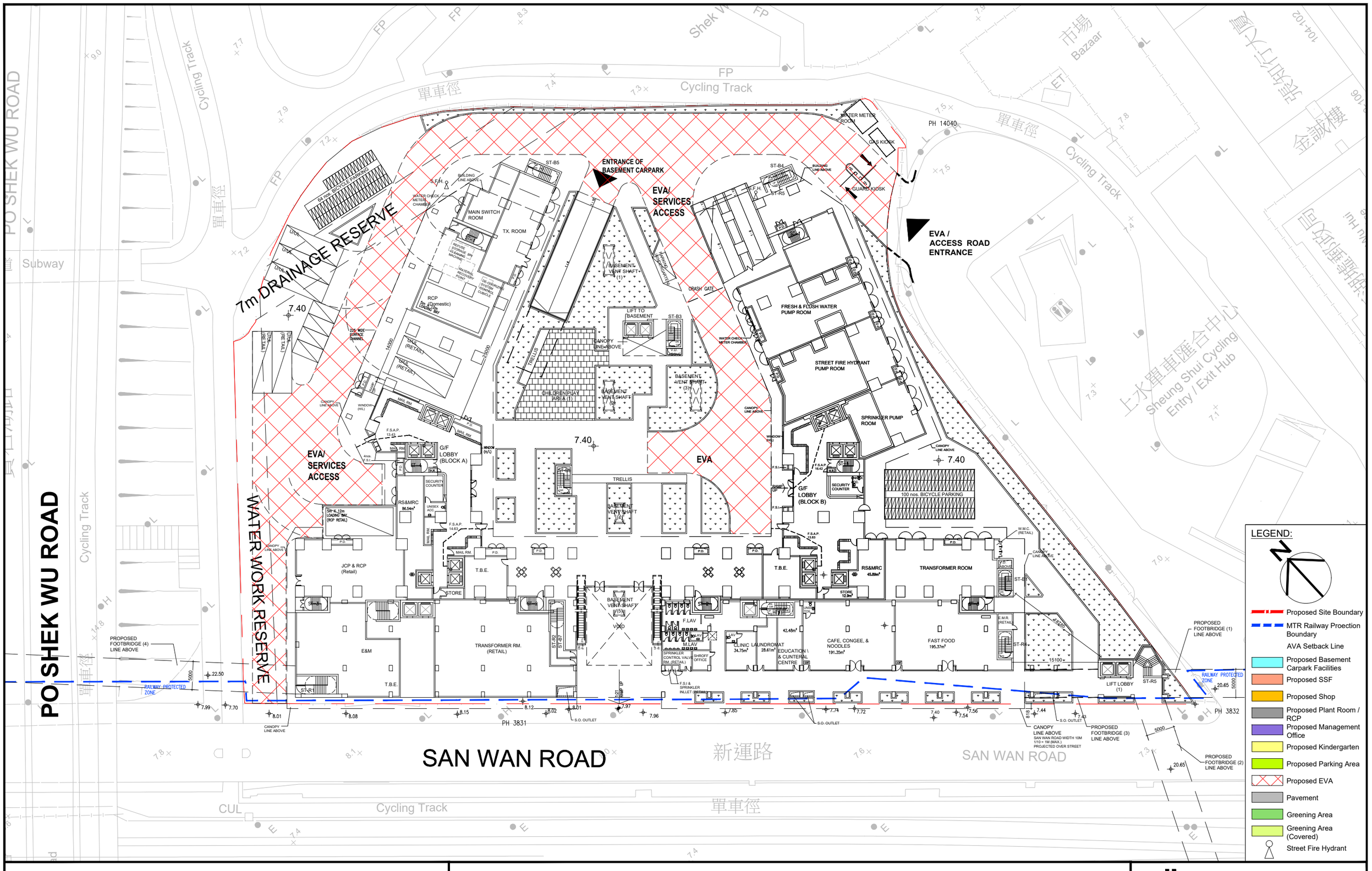
Baseline Scheme Layout

Job number

Ove Arup & Partners Hong Kong Limited (Hong Kong Branch)
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
arup.com

Contents

A.1 Baseline Scheme Layout



PO SHEK WU ROAD, SHEUNG SHUI

SITE LAYOUT PLAN - GROUND FLOOR

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No.	日 期 DATE:
NR09/-/SITE/A/P1/LO-02	31.12.2018

D:\E_Backup\share\Po Shek Wu Road (2)\DWG\2018 - 12\20181224 _ from a 59 Option _2 (Detail)

PO SHEK WU ROAD, SHEUNG SHUI

SITE LAYOUT PLAN - PODIUM LEVEL 3 FLOOR

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/-/SITE/A/P1/LO-05

日 期 DATE: 31.12.2018

D:\E_Backup\share\Po Shek Wu Road (2)\DWG\2018 - 12\20181224 _ from a 59 Option _2 (Detail)

LEGEND:

- Proposed Site Boundary
- MTR Railway Proection Boundary
- Proposed SSF
- Acoustic Window
- Fixed Glazing

PO SHEK WU ROAD, SHEUNG SHUI

SITE LAYOUT PLAN - TYPICAL FLOOR PLAN

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/-/SITE/A/P1/LO-06

日 期 DATE: 31.12.2018

D:\E_Backup\share\Po Shek Wu Road (2)\DWG\2018 - 12\20181224 _ from a 59 Option _2 (Detail)

LEGEND:

- Proposed Site Boundary
- MTR Railway Proection Boundary
- Proposed Basement Carpark Facilities
- Proposed SSF
- Proposed RC Canopy / Covered walkway
- Proposed Plant Room
- Greening Area
- Acoustic Window
- * Fixed Glazing

ARUP

Appendix B

Reference:

|

Proposed Scheme Layout

Job number

Ove Arup & Partners Hong Kong Limited (Hong Kong Branch)
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
arup.com

Contents

B.1 Proposed Scheme Layout

LEGEND:
- Site Boundary
- Driveway
- Domestic Area
- Carpark
- Retail Shop
- Post Office
- Welfare Facilities
- Management Accommodations
- Covered Amenity / Circulation Area
- Fence Wall

PROJECT

PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE

SITE LAYOUT PLAN (GROUND FLOOR)

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/MLP/A/LO-01

日 期 DATE: 08. 03. 2023

NR09_MLP_A_LO-01_20230308_GF

LEGEND:

- Site Boundary
- Domestic Area
- Carpark
- Retail Shop
- Welfare Facilities
- Covered Amenity / Circulation Area

N

Shek Wu Hui Road

Cycling Track

單車徑

FP

7m DRAINAGE RESERVE

WATER WORK RESERVE

Subway

市場 Bazaar

ET

金誠街

上水單車匯合中心 Sheung Shui Cycling Entry / Exit Hub

FOOTBRIDGE (FB3) TO MTR STATION

LINE ABOVE

LIFT TOWER (1)

新運路

CUL

CARPARK 13.55

FAN ROOM 47.350m²

EMR (CP) 14m²

C.D. (BLOCK A) 11.138m²

C.D. (BLOCK B) 13.486m²

C.D. (ND)

C.D. (BLOCK B) 26.233m²

FAN ROOM 28.402m²

P.D. 0.982m²

C.D. 2.465m²

EMR (EV) 11.347m²

TEL. 3.976m²

C.D. (BLOCK A) 10.988m²

EMR (CP) 12.460m²

C.D. (NON-DOM) 13.821m²

P.D. (ND)

FIREMAN ONLY

FRESH & FLUSH WATER PUMP AND SUMP TANK ROOM (BLOCK B) 101.871m²

W.M.C.

P.L.

SHROFF OFFICE 17.990m²

PLANTER

EMR (EV) 9.47m²

HOME-BASED COMMUNITY CARE SERVICES (Required: 142m²)

SHORT-TERM FOOD ASSISTANCE SERVICE TEAM (Required: 92.5m²)

LAUNDRY 16.007m² (16m²)

OFFICE (IN CHARGE) 12.297m² (9.7m²)

PANTRY 6.909m² (6.8m²)

OFFICE 24.201m² (13.3m²)

INTERVIEW ROOM (8m²)

OFFICE 68.795m² (67.7m²)

TRAINING 4.026m² (4m²)

STORE ROOM (30m²)

STORE ROOM 30.055m² (30m²)

WORKING AREA 35.724m² (30m²)

STORE ROOM 6.523m² (6.5m²)

PLAY / MUSIC (Required: 50m²) 50.225m²

PLAY / DINING AREA (63m²) 68.3m²

CHILD CARE CENTRE (Required: 657m²) 657.090m²

DORMITORY (Required: 163m²) 163.545m²

SERVICE CORNER (20m²)

RECP. 10.029m² (10m²)

RECP. 5.005m² (5m²)

CLINIC 50.132m² (Required: 50m²)

EDUCATIONAL AND CULTURAL CENTRE 50.378m² (Required: 50m²)

BIG MUSCLE AREA 68.534m² (Required: 63m²)

RECP. 29.750m² (30m²)

NAPPY 7.098m² (7m²)

SMALL GP 12.041m² (12m²)

MILK 10.519m² (10m²)

STAFF CHANGING ROOM 9.730m² (9.5m²)

STORE 15.040m² (15m²)

KIT + FOOD 25.378m² (Required: 20m²)

ISO 8.113m² (8m²)

LAUNDRY 17.574m² (16m²)

DIS.

M. F. P.D. RCHE LIFT

UP TO 2/F

DN TO GF

13.55

FOOTBRIDGE (FB3) TO MTR STATION

LIFT TOWER (1)

PROJECT

PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE

SITE LAYOUT PLAN (FIRST FLOOR)

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/MLP/A/LO-02

日 期 DATE: 08. 03. 2023

NR09_MLP_A_LO-02_20230308_1F

LEGEND:

- Site Boundary
- Domestic Area
- Retail Shop
- Welfare Facilities
- Kindergarten
- Podium Garden
- Management Accommodations
- Covered Amenity / Circulation Area

N

Shek Wu Hui

15100

FP

Cycling Track

單車徑

市場
Bazaar

ET

Subway

7m DRAINAGE RESERVE

WATER WORK RESERVE

KINDERGARTEN

CPA

ELDERLY FITNESS AREA

DORMITORY

DINING / MULTI-PURPOSE ROOM

FAMILY ROOM

RESIDENTIAL CARE HOME FOR THE ELDERLY

FITNESS AREA

DOM. PODIUM

18.30

DRENCHER PUMP ROOM (BLOCK A)

DRENCHER PUMP ROOM (BLOCK B)

EMERGENCY GENERATOR ROOM (NON-DOM.)

CLEANSING CONTRACTOR

WORKSHOP FOR ARTISANS

MANAGEMENT OFFICE

PMA OFFICE

SALON

SHOP

EMR (BLK A)

EMR (NON-DOM)

DOOR FOR FIREMAN ONLY

RETAIL TOILETS AND BABYCARE ROOM

FROZEN FOOD

LAUNDROMAT

GENERAL SHOPS

CONVENIENCE STORE

BAKERY

FAST FOOD

PLANTER

PLANTER AT 1/F

LIFT TOWER (1)

FOOTBRIDGE CONNECT TO SHEUNG SHUI AREA 4 & 30 SITE 2

FOOTBRIDGE (FB3) TO MTR STATION

FOOTBRIDGE TO PO SHEK WU ESTATE

上水單車匯合中心
Sheung Shui Cycling Entry / Exit Hub

新運路

CUL

Cycling Track

單車徑

PROJECT

PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE

SITE LAYOUT PLAN (SECOND FLOOR)

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/MLP/A/LO-03

日 期 DATE: 08. 03. 2023

NR09_MLP_A_LO-03_20230308_2F

LEGEND:
- Site Boundary
- Domestic Area
- Podium Garden
- Covered Amenity / Circulation Area

N

15100

Shek Wu Hui

FP

Cycling Track

單車徑

市場
Bazaar

ET

金誠樓

7m DRAINAGE RESERVE

Subway

WATER WORK RESERVE

CPA
22.55

ELDERLY FITNESS AREA

PODIUM GARDEN

MULTIPURPOSE AREA

EMR (BLOCK A)

P.D.

C.D.

C.D. (BLK A)

OCO
21.939m²

WARM UP ZONE

BLOCK A MAIN LOBBY

FLUSH WATER TANK ROOM (ND)

DN TO 2/F

TEL

JOGGING PATH

COVERED ABOVE

PLANTER

PLANTER AT 2/F

PLANTER AT 1/F

22.55

4000

FOOTBRIDGE CONNECT TO SHEUNG SHUI AREA 4 & 30 SITE 2

EMR (BLK B)

BLOCK B MAIN LOBBY

LIFT MACHINE ROOM

ROOF OF FOOTBRIDGE (FB3) TO MTR STATION

22.50

FOOTBRIDGE (FB2) TO PO SHEK WU ESTATE

新運路

上水單車匯合中心
Sheung Shui Cycling Entry / Exit Hub

CUL

PROJECT	DRAWING TITLE	房屋署 HOUSING DEPARTMENT	
PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI	SITE LAYOUT PLAN (THIRD FLOOR)	編號 PLAN No. NR09/BC/SITE/A/LO-04	日期 DATE: 08. 03. 2023
	SCALE 1 :600(A3)		

NR09_MLP_A_LO-04_20230308_3F

FLAT MIX					
	No. of Storeys	Flat Type			No. of Flats
		B	C	D	
Block A	40	200	560	160	920
Block B	41	328	410	246	984
Total No. of Flats		**528**	**970**	**406**	**1904**
Flat Mix		27.73%	50.95%	21.32%	100%

CYCLING TRACK

EVA / DRIVE WAY

7m DRAINAGE RESERVE

EVA

PODIUM

22.55

29.80

29.80

CYCLING TRACK

WATER WORK RESERVE

15100 (min 15m)

EVA

CYCLING TRACK

SHEUNG SHUI CYCLING ENTRY / EXIT HUB

PO SHEK WU ROAD

CYCLING TRACK

BLOCK A
(40 DOMESTIC STOREYS +
1 STOREY REFUGE FLOOR)
(23 FLATS PER FLOOR)

BLOCK B
(41 DOMESTIC STOREYS +
1 STOREY REFUGE FLOOR)
(24 FLATS PER FLOOR)

22.55

27.30

17.80

13.05

27.30

ROOF OF FOOTBRIDGE (FB1)

RAILWAY PROTECTED ZONE

ROOF OF FOOTBRIDGE (FB3)

50000

ROOF OF FOOTBRIDGE (FB2)

SAN WAN ROAD

CYCLING TRACK

MTR (EAST RAIL LINE)

10.8 12.4 7.2 7.2 7.5 7.5 7.0 6.7 14.8 7.8 8.1 8.0 15.6

LEGEND:

- Site Boundary
- MTR Railway Protection Boundary
- * Flat with Acoustic Windows
- \# Flat with Enhanced Acoustic Balcony

PROJECT

PROPOSED DEVELOPMENT OF PUBLIC HOUSING AT PO SHEK WU ROAD, SHEUNG SHUI

DRAWING TITLE

SITE LAYOUT PLAN (TYPICAL FLOOR)

SCALE 1 :600(A3)

房 屋 署
HOUSING DEPARTMENT

編 號 PLAN No. NR09/MLP/A/LO-05

日 期 DATE: 08. 03. 2023

NR09_MLP_LO-05_20230308_TF

ARUP

Appendix C

Reference:

|

Contour Plots of Velocity Ratio (VR)

Job number

Ove Arup & Partners Hong Kong Limited (Hong Kong Branch)
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
arup.com

Contents

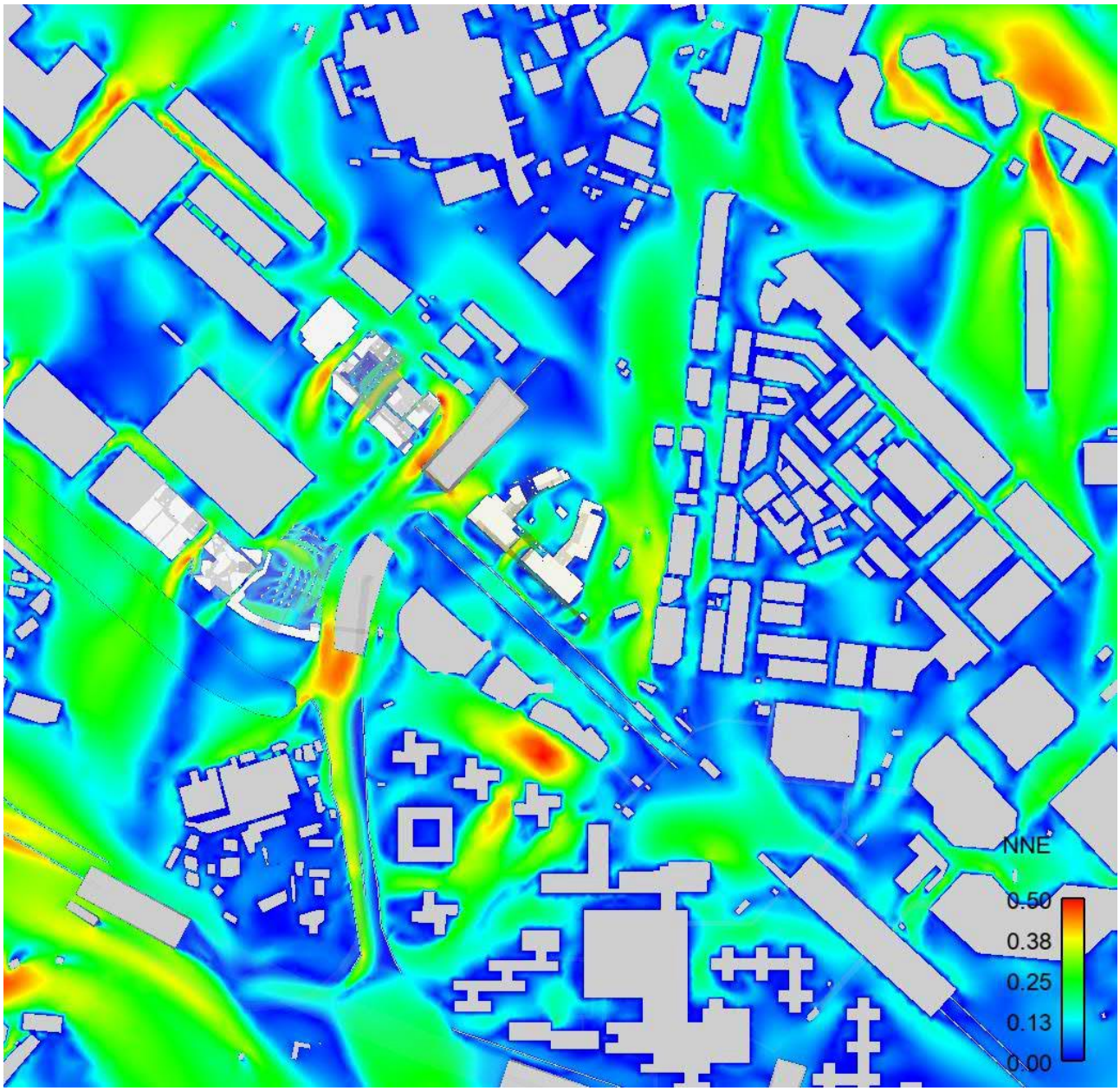


Figure 1 Baseline Scheme Velocity Contour Plot under NNE wind C-1

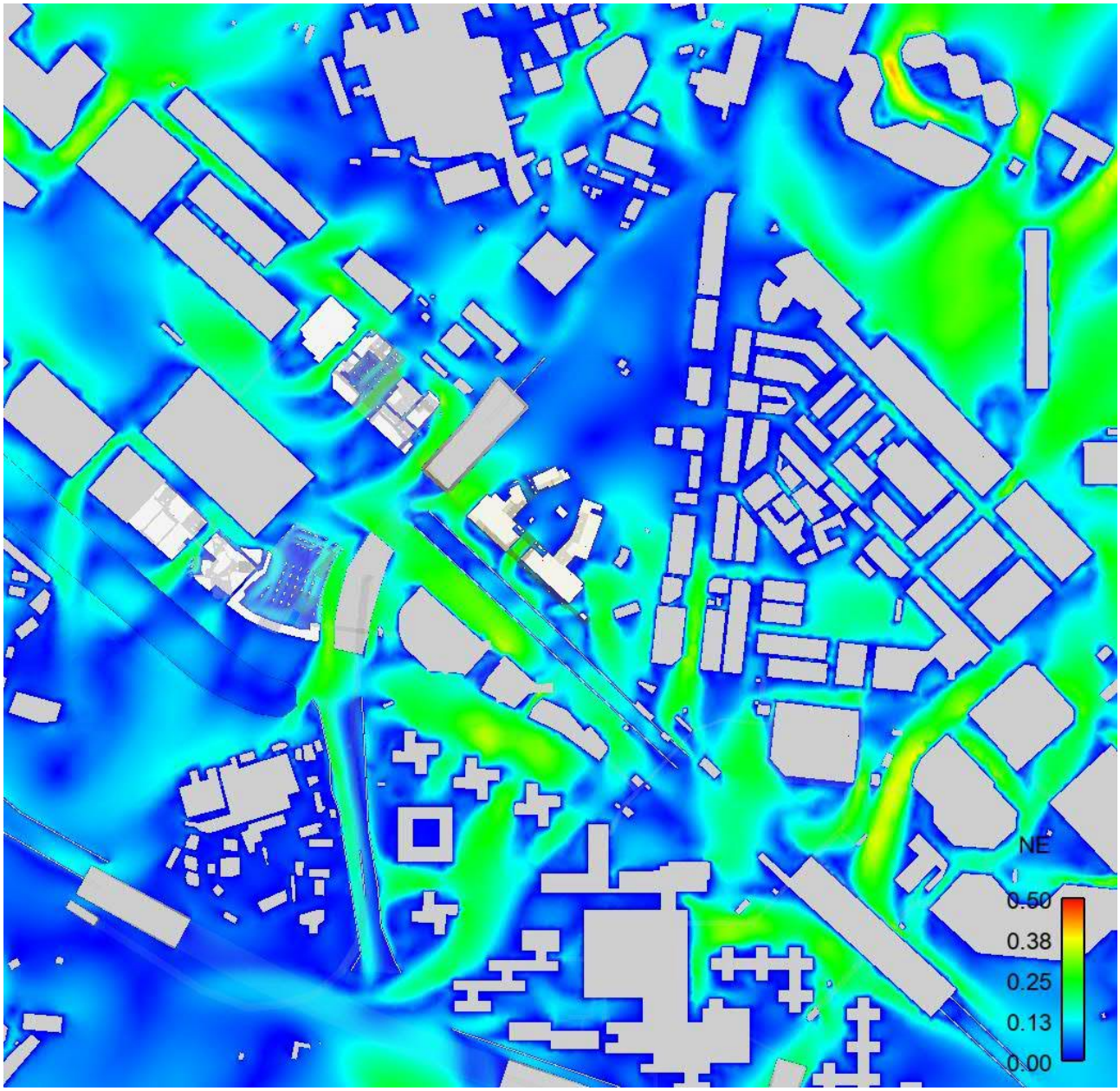


Figure 2 Baseline Scheme Velocity Contour Plot under NE wind C-2

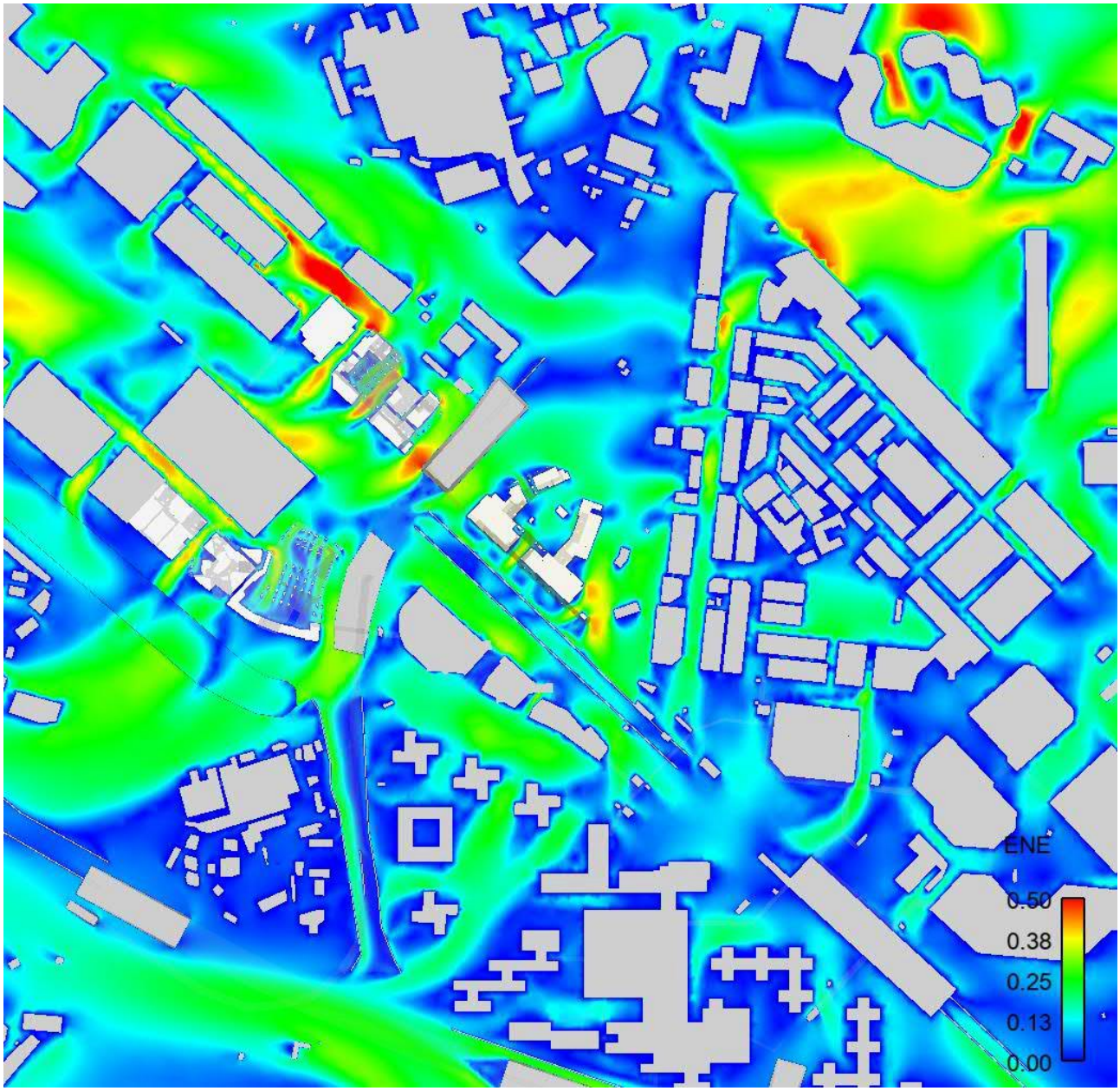


Figure 3 Baseline Scheme Velocity Contour Plot under ENE wind C-3

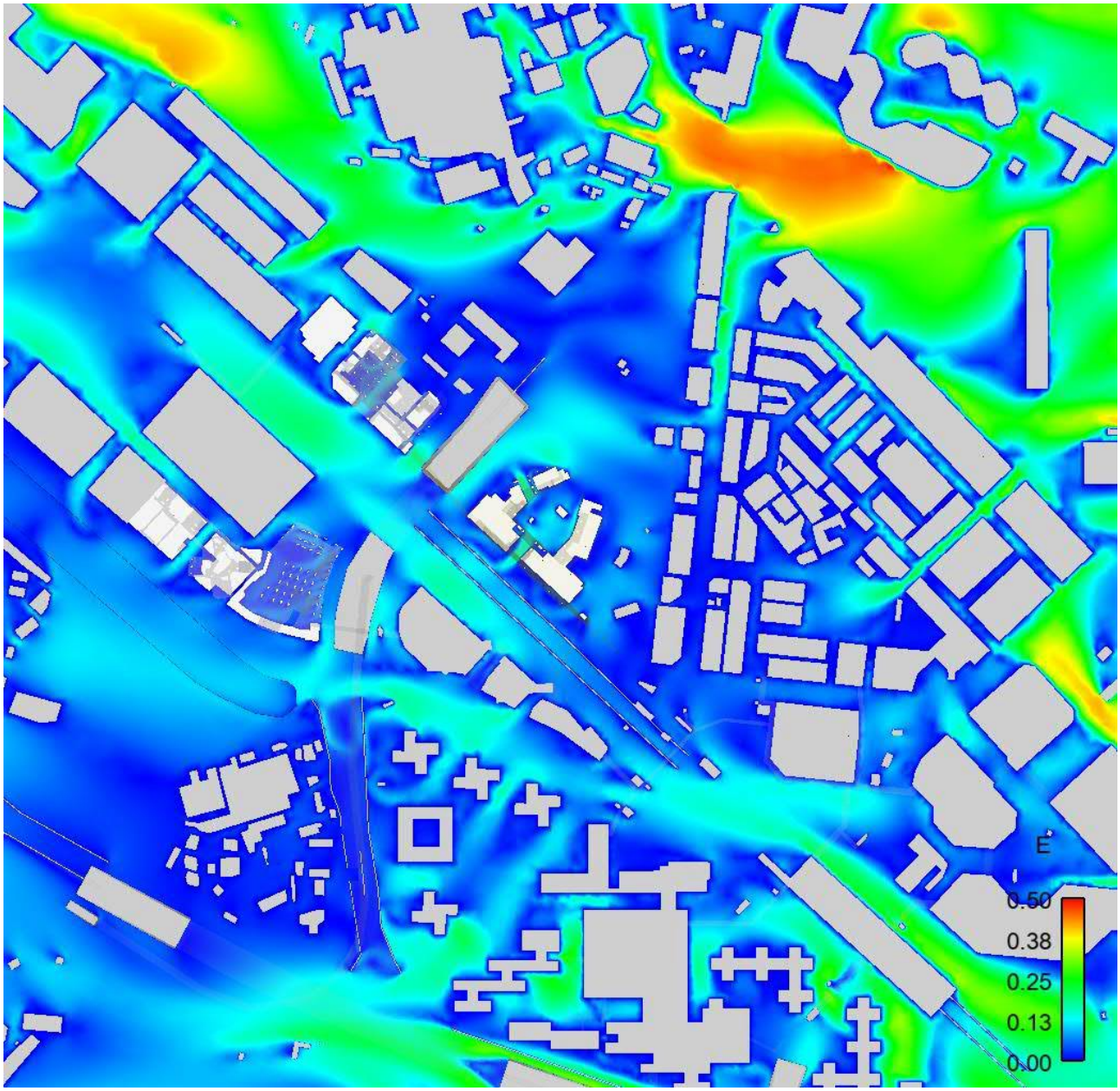


Figure 4 Baseline Scheme Velocity Contour Plot under E wind C-4

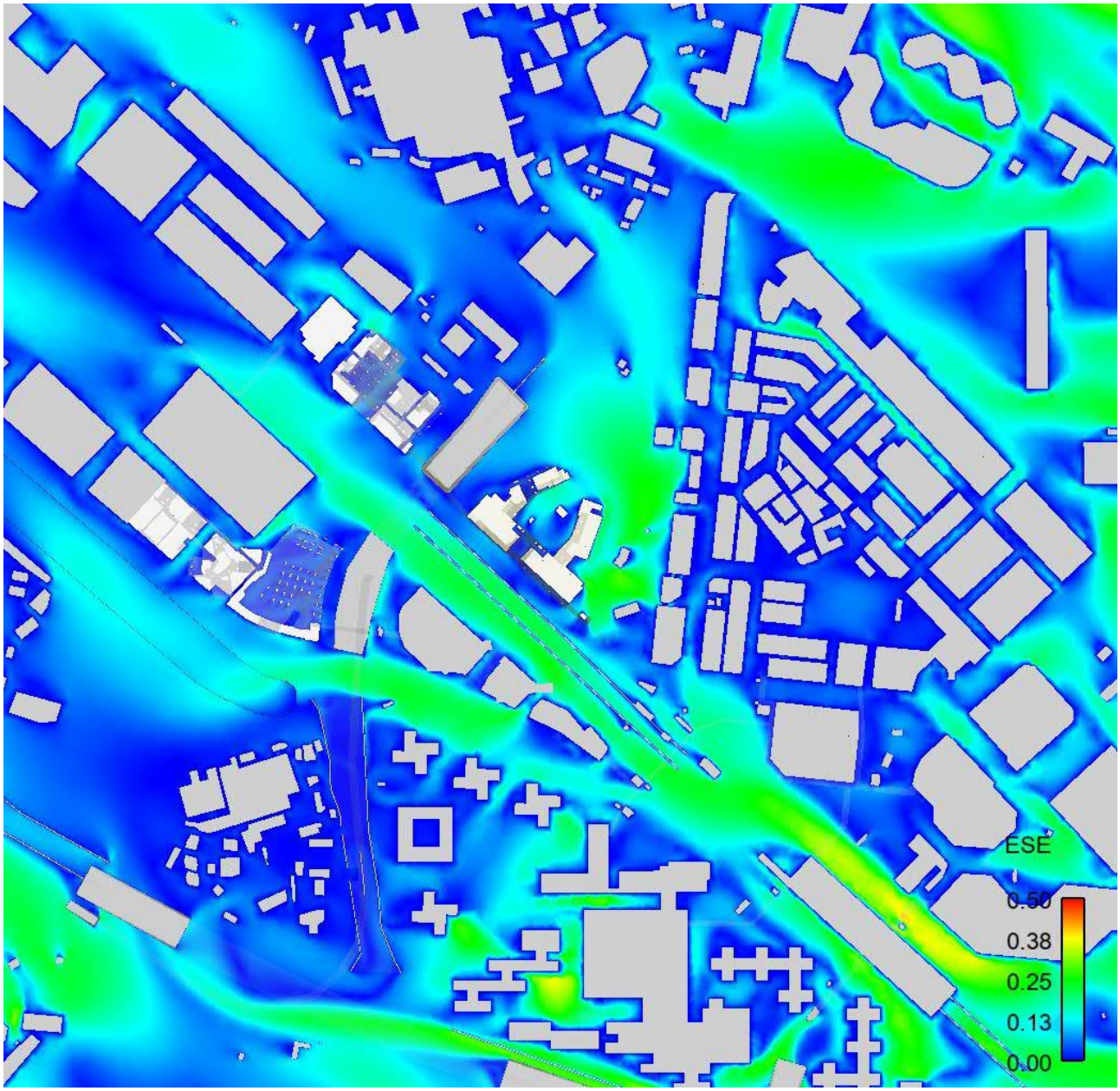


Figure 5 Baseline Scheme Velocity Contour Plot under ESE wind C-5

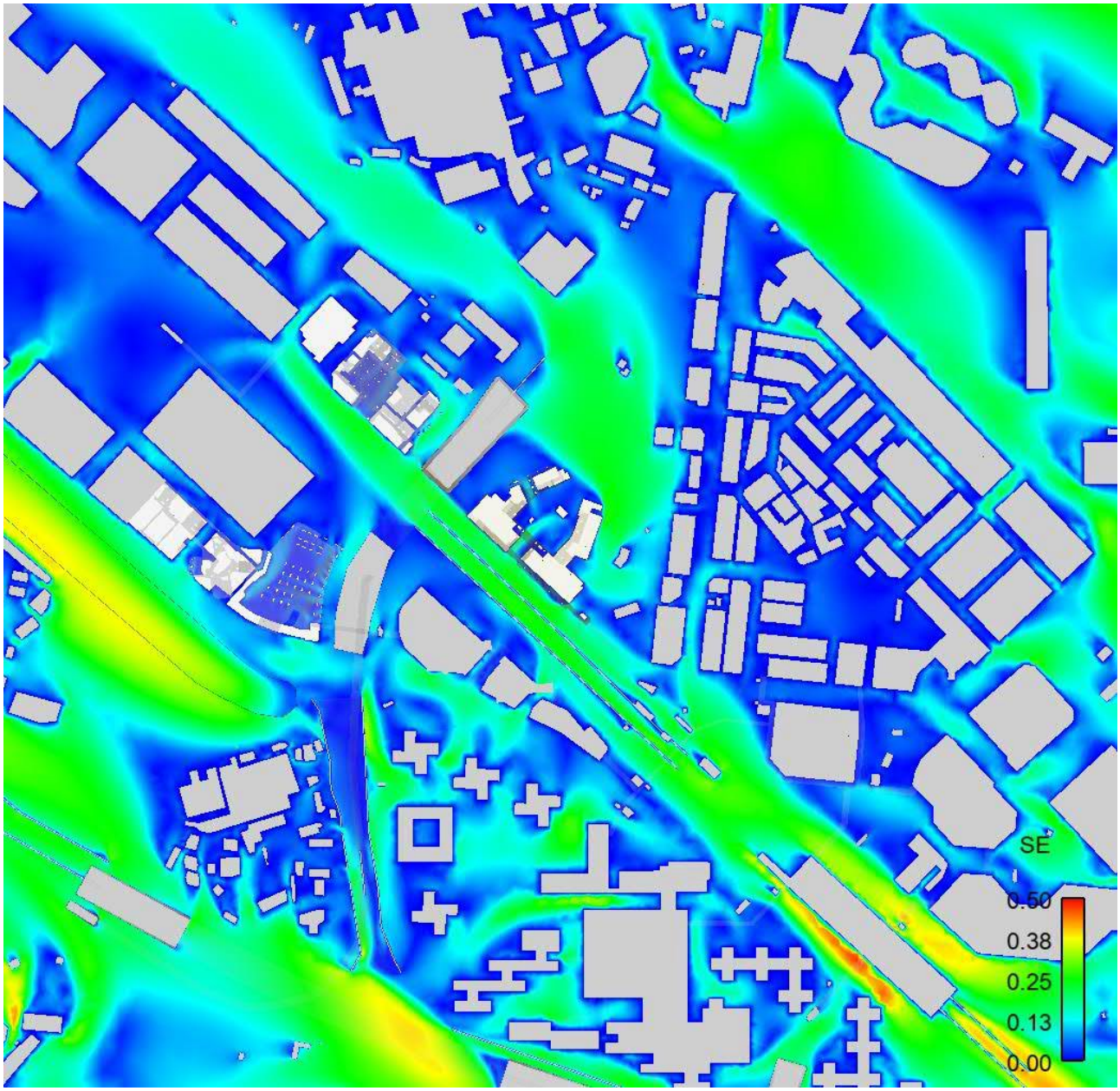


Figure 6 Baseline Scheme Velocity Contour Plot under SE wind C-6

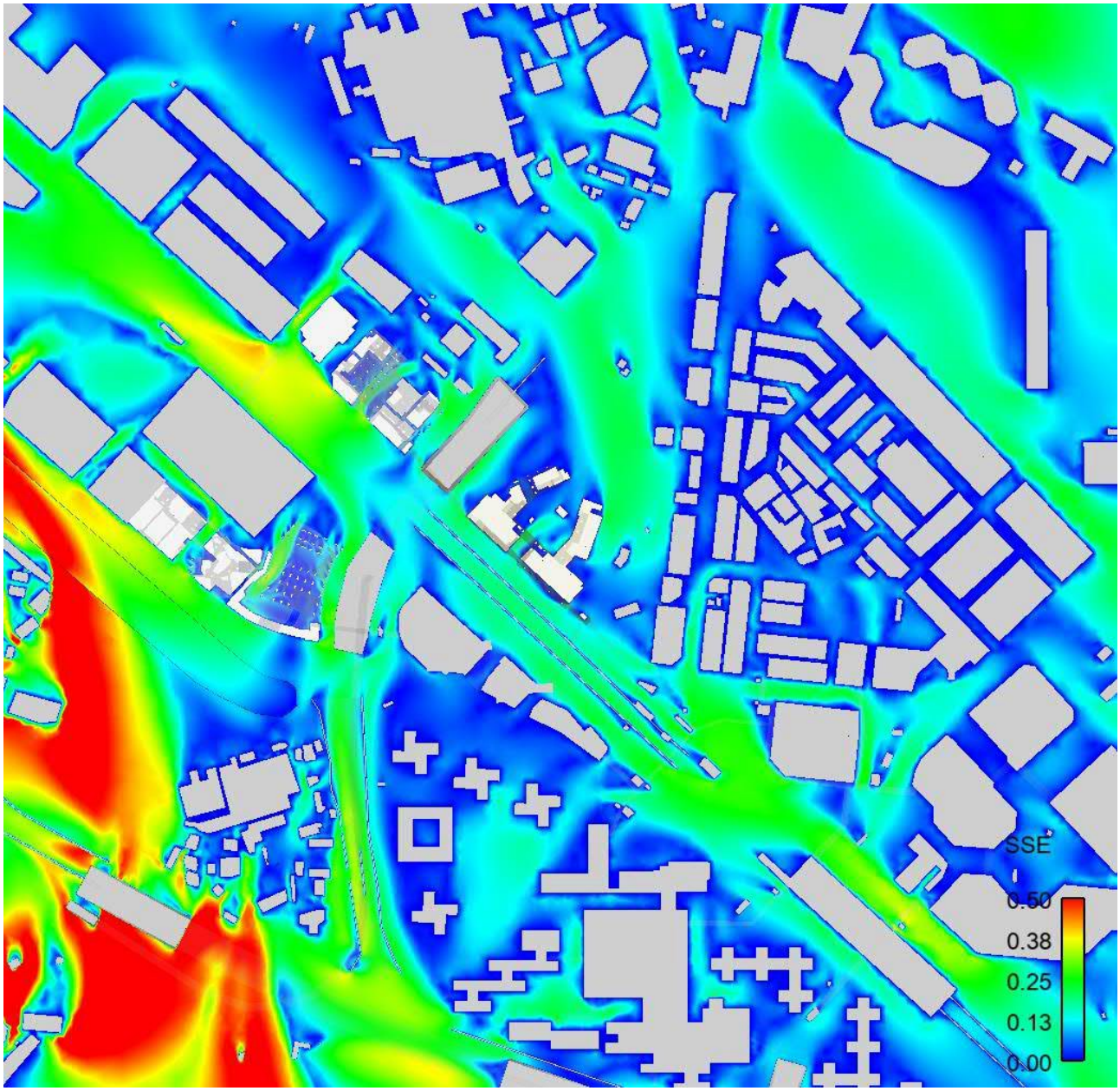


Figure 7 Baseline Scheme Velocity Contour Plot under SSE wind C-7

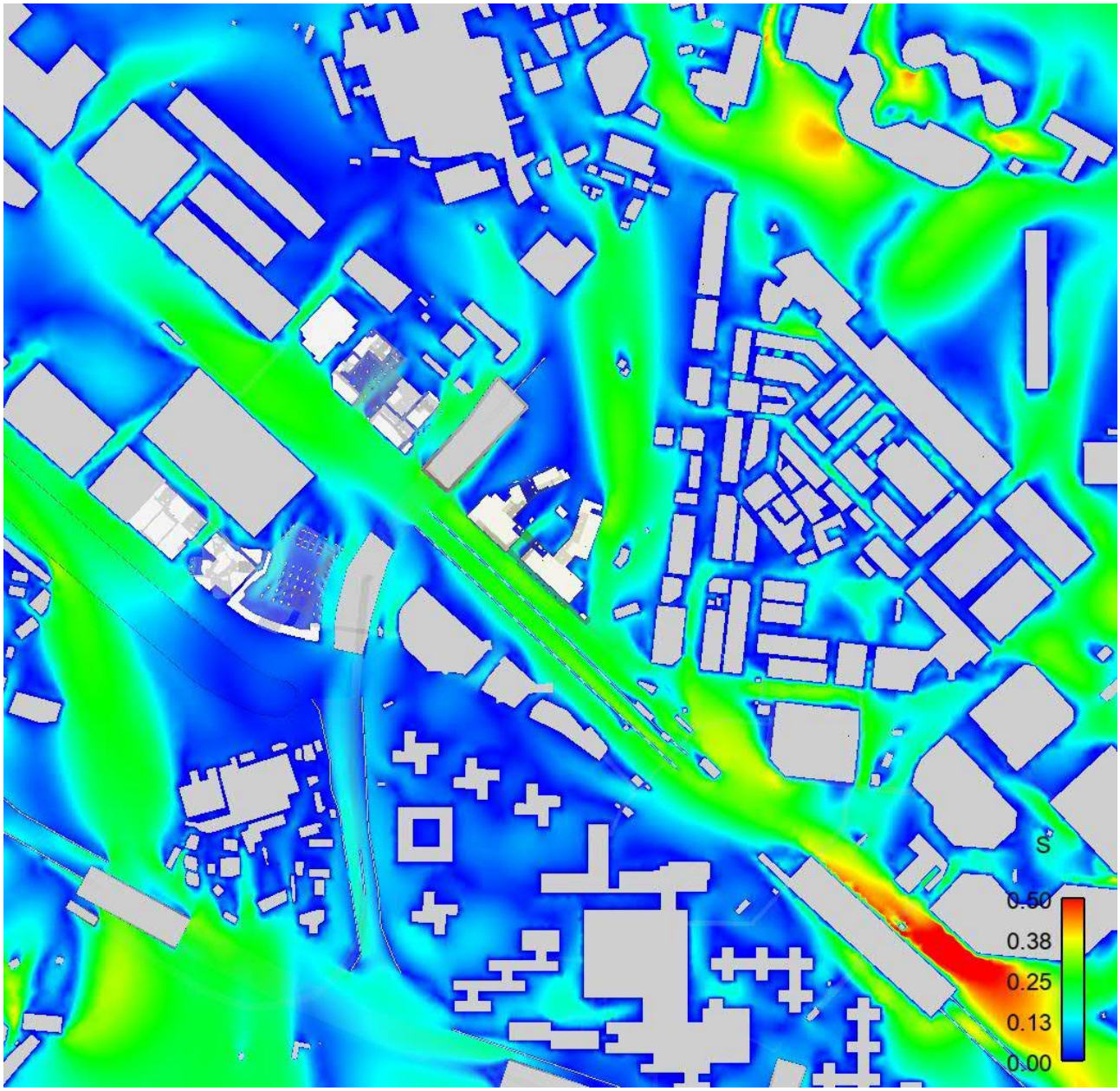


Figure 8 Baseline Scheme Velocity Contour Plot under S wind C-8

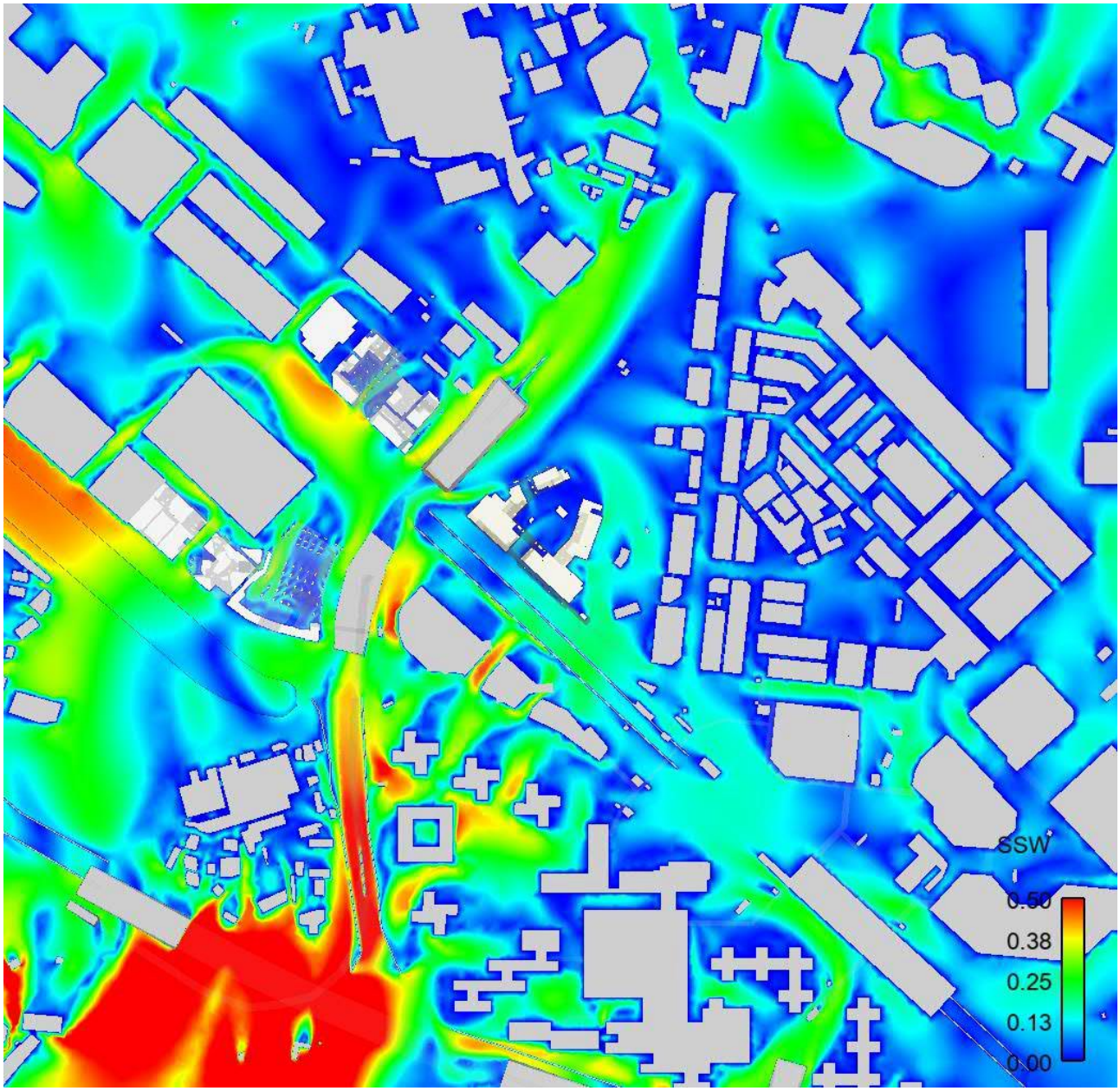


Figure 9 Baseline Scheme Velocity Contour Plot under SSW wind C-9

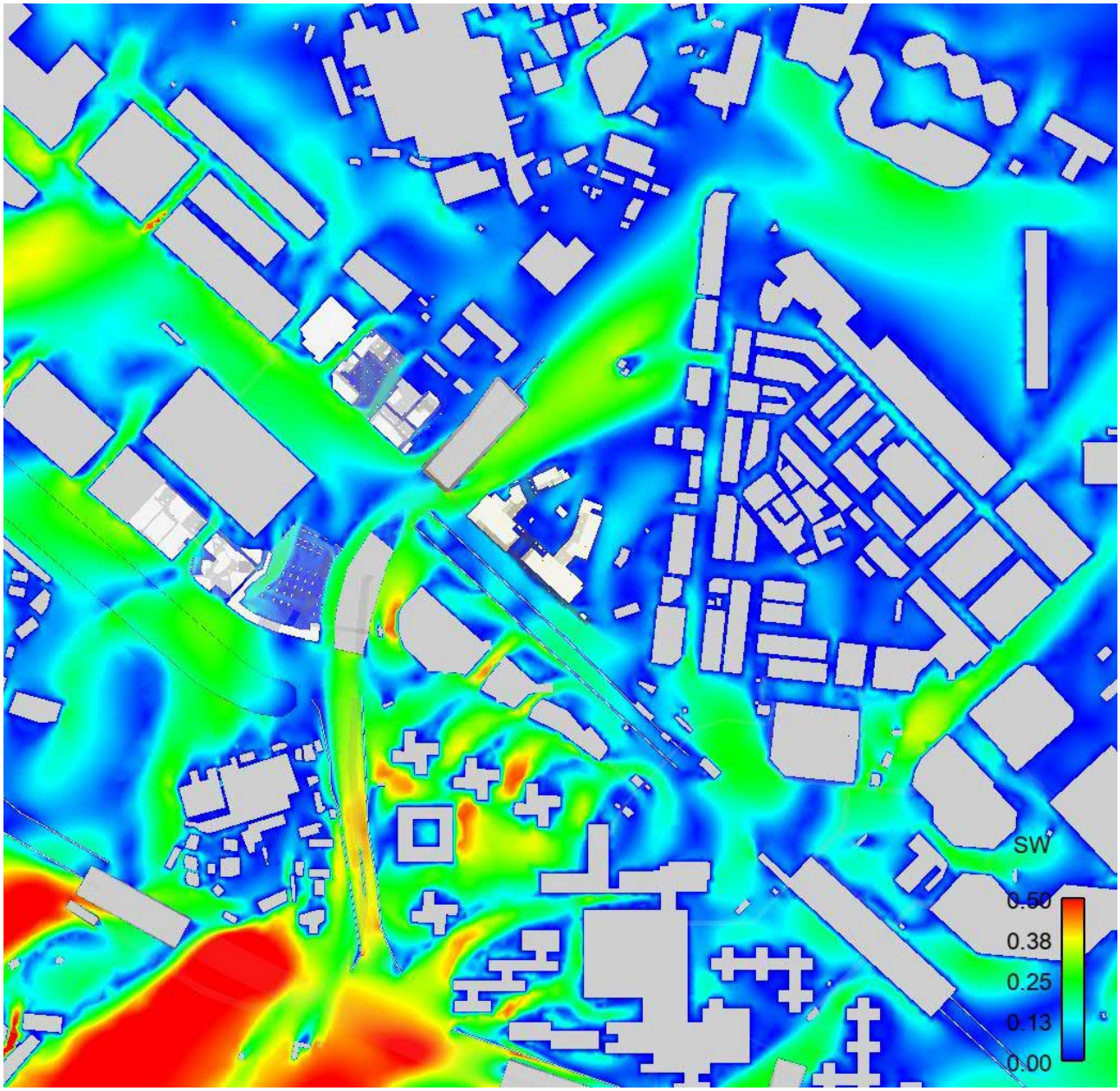


Figure 10 Baseline Scheme Velocity Contour Plot under SW wind C-10

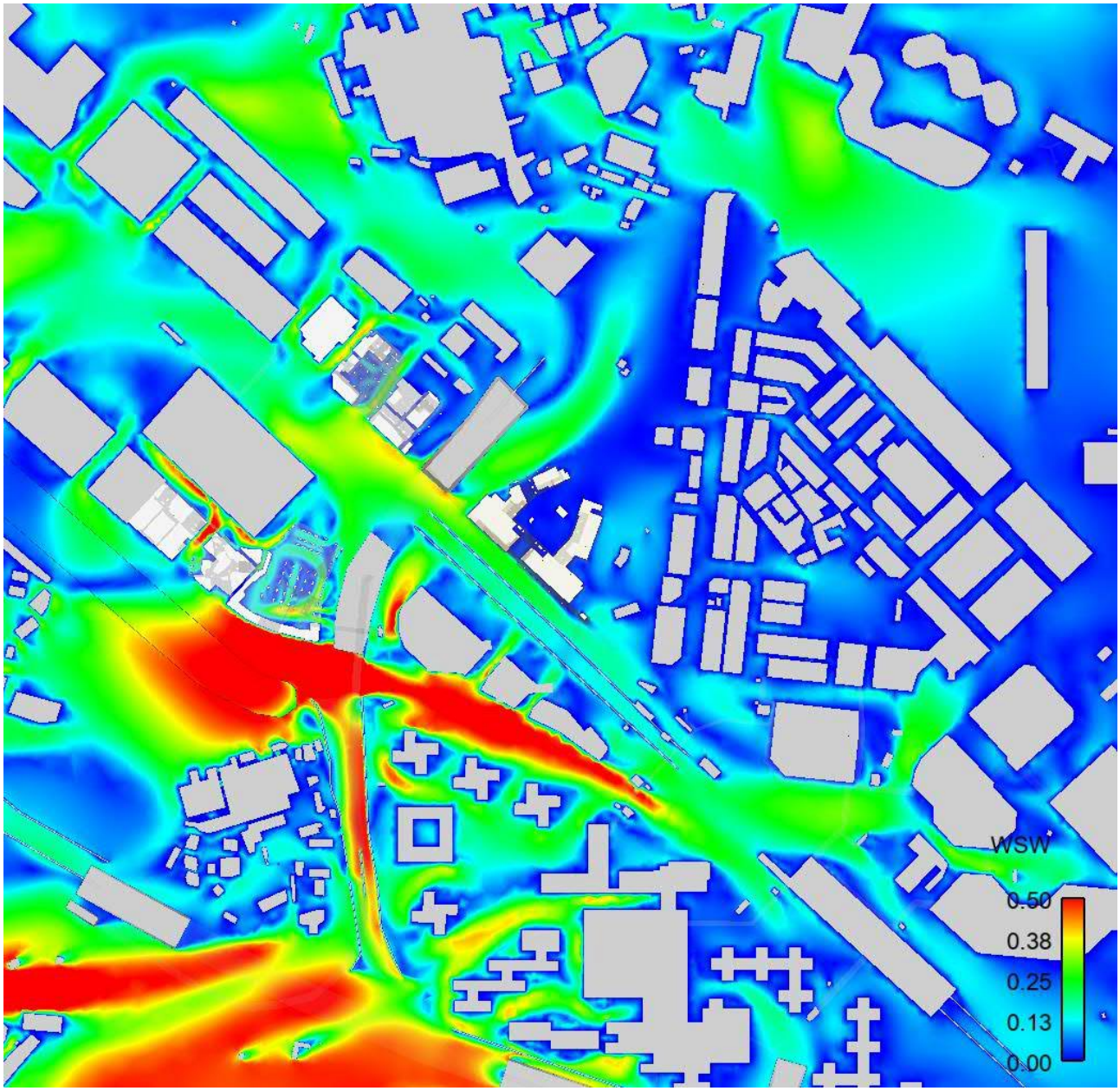


Figure 11 Baseline Scheme Velocity Contour Plot under WSW wind C-11

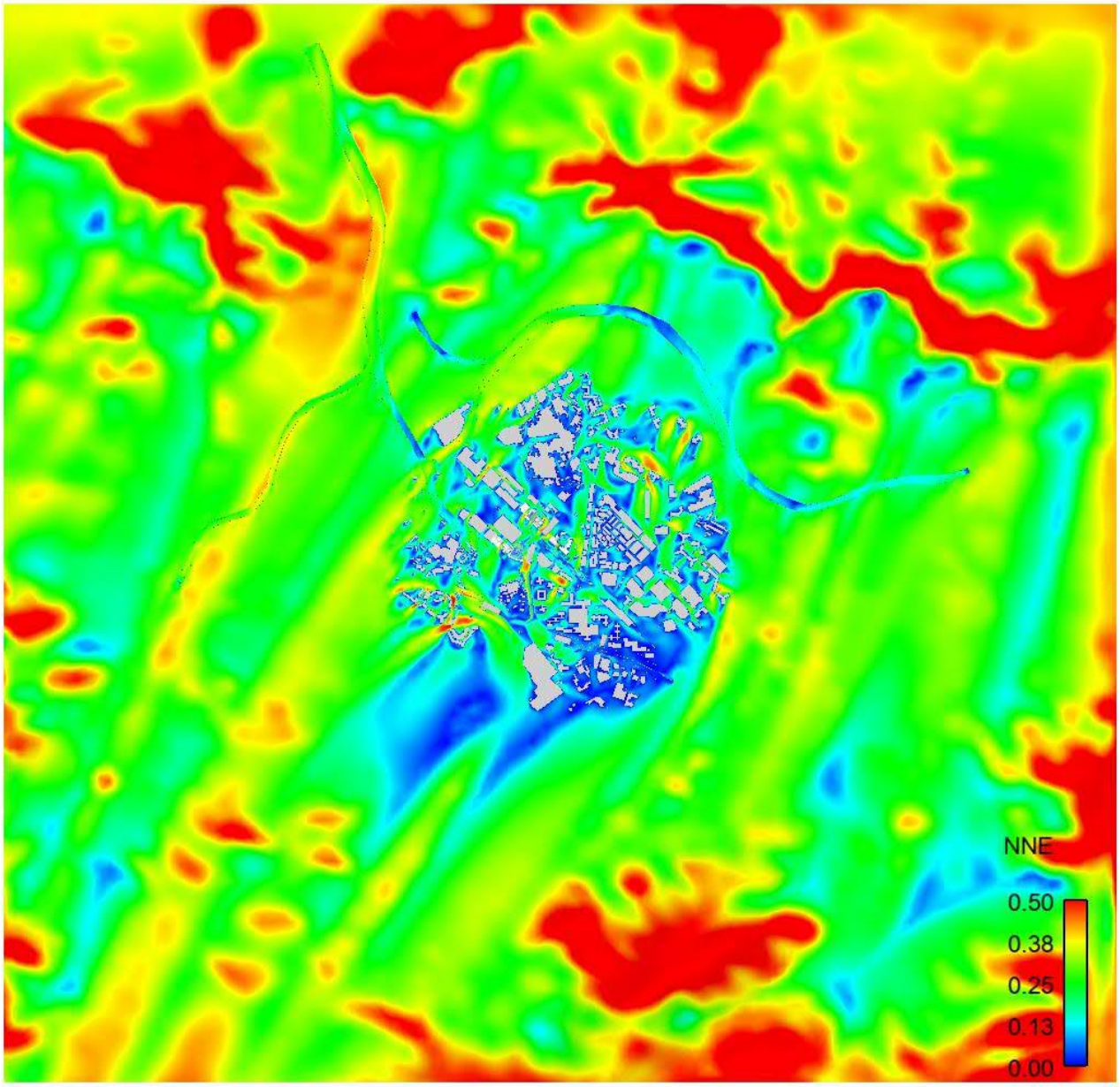


Figure 12 Baseline Scheme Full Domain Velocity Contour Plot under NNE wind C-12

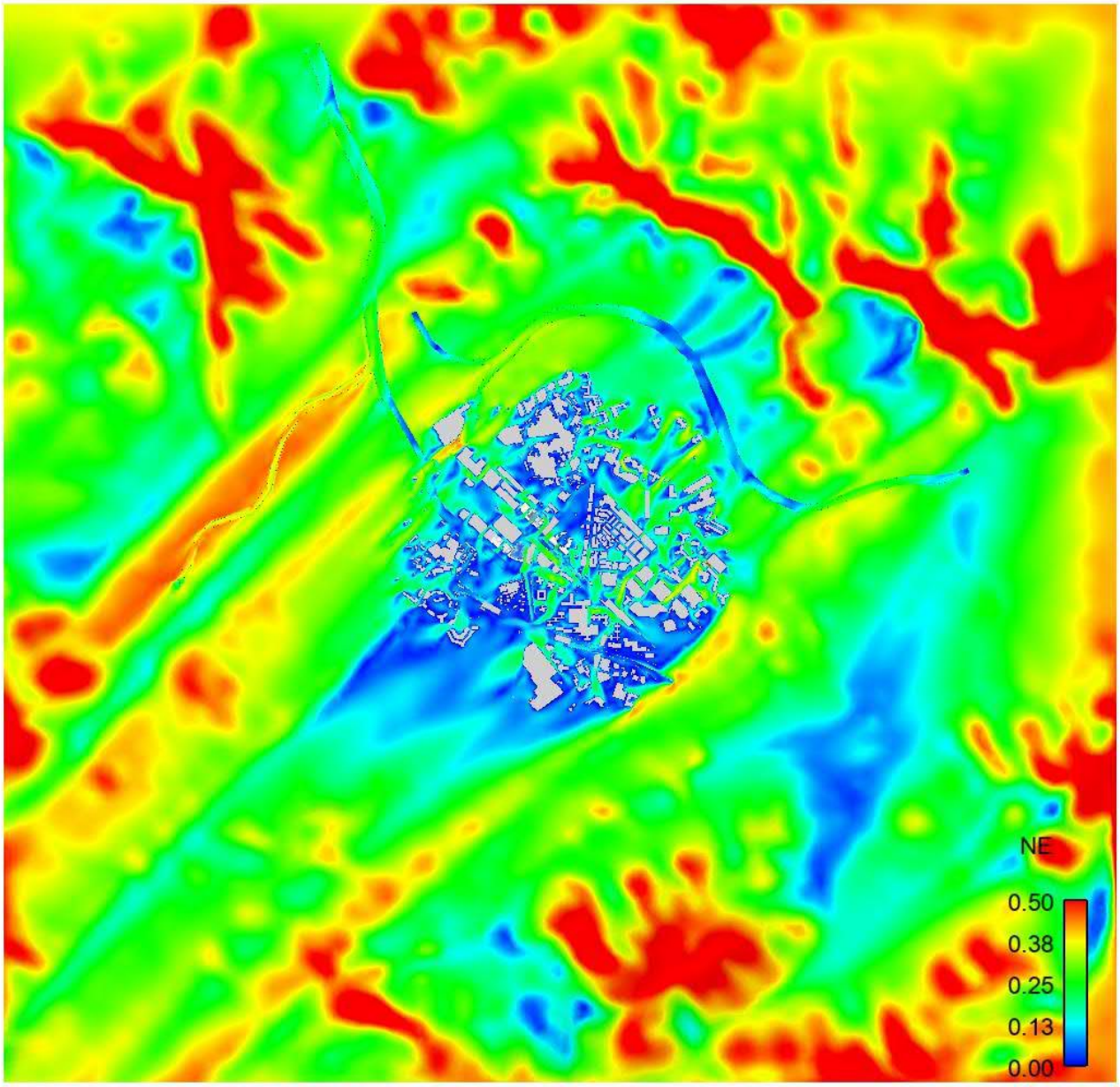


Figure 13 Baseline Scheme Full Domain Velocity Contour Plot under NE wind C-13

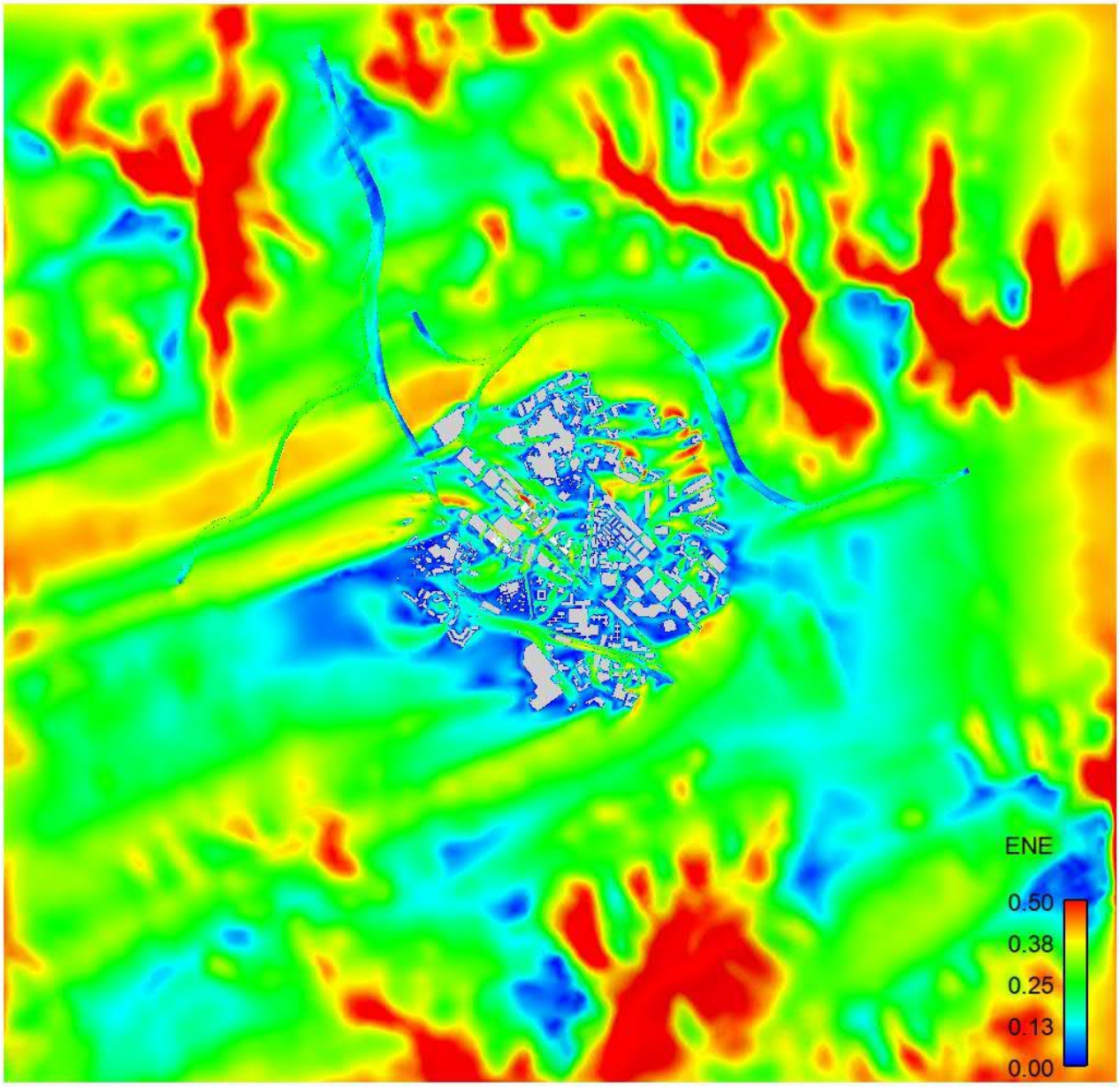


Figure 14 Baseline Scheme Full Domain Velocity Contour Plot under ENE wind C-14

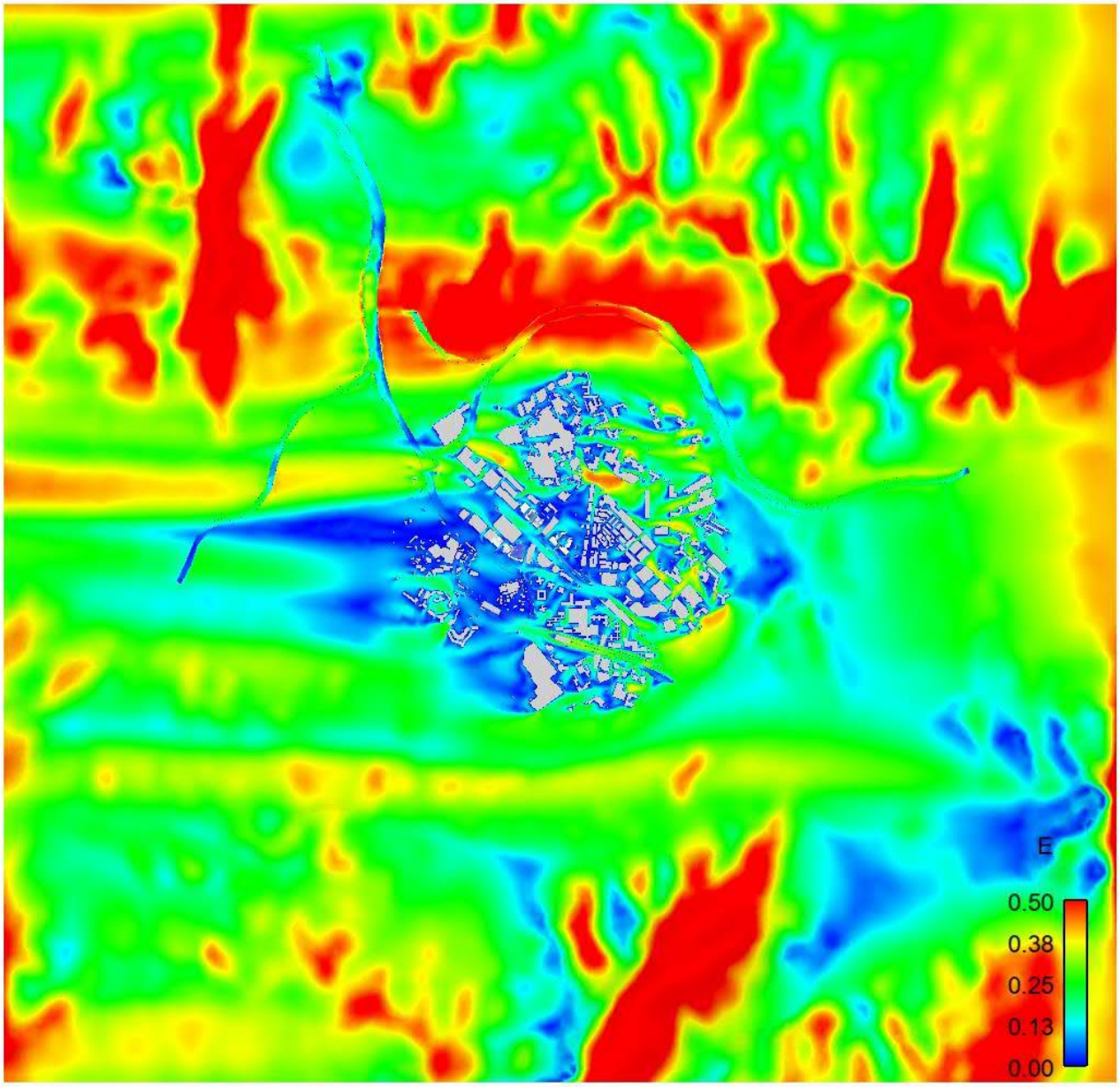


Figure 15 Baseline Scheme Full Domain Velocity Contour Plot under E wind C-15

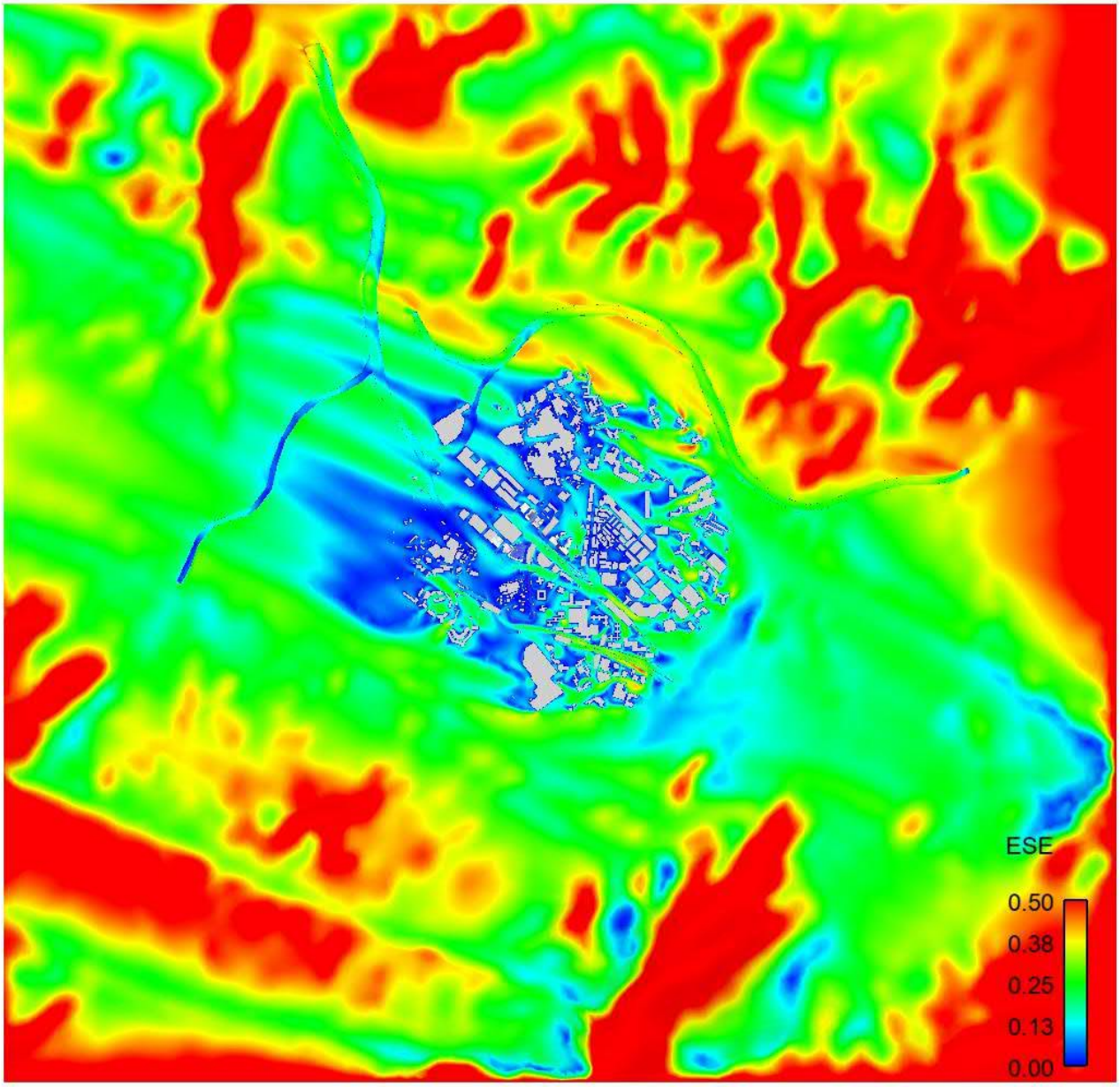


Figure 16 Baseline Scheme Full Domain Velocity Contour Plot under ESE wind C-16

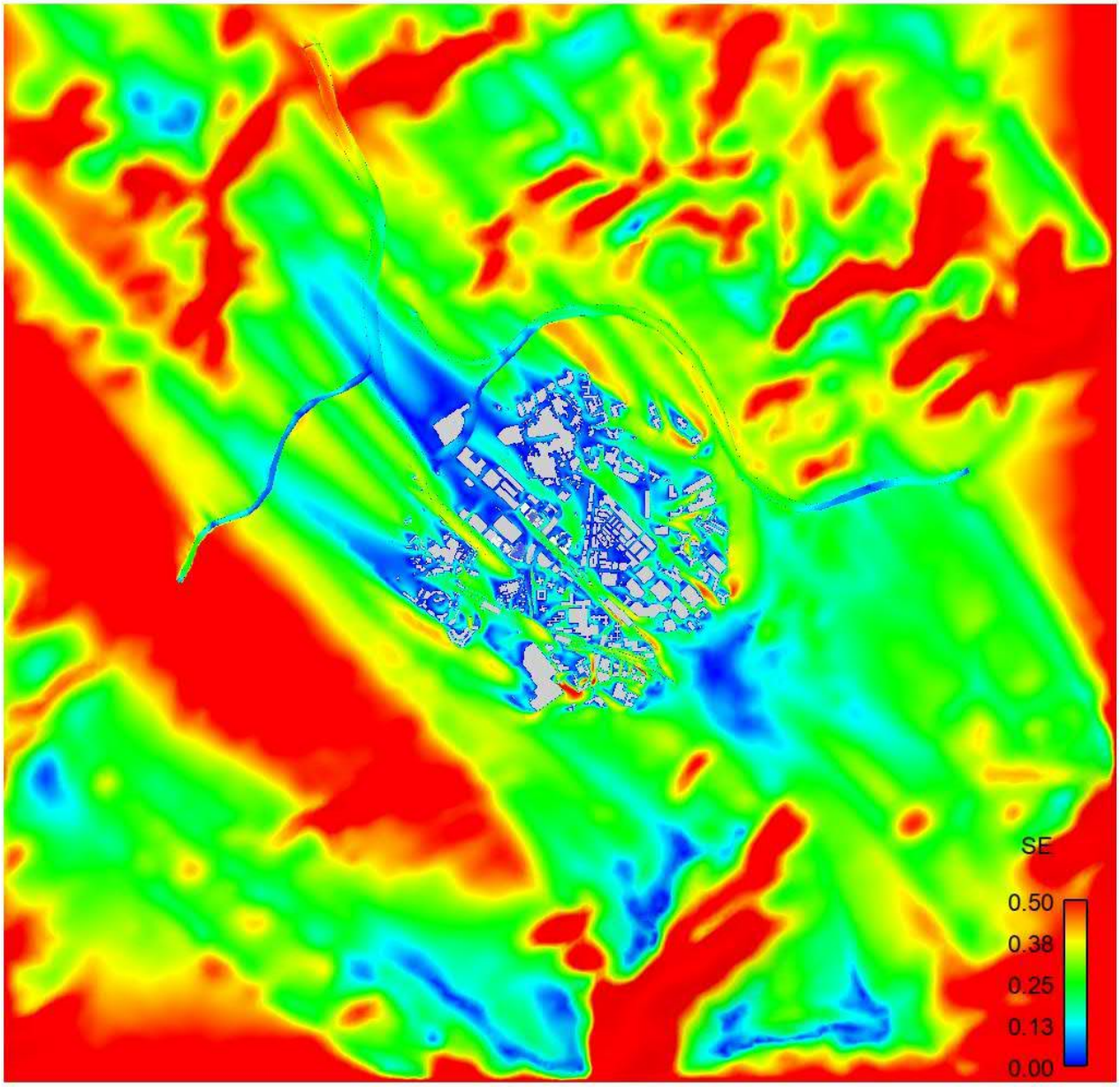


Figure 17 Baseline Scheme Full Domain Velocity Contour Plot under SE wind C-17

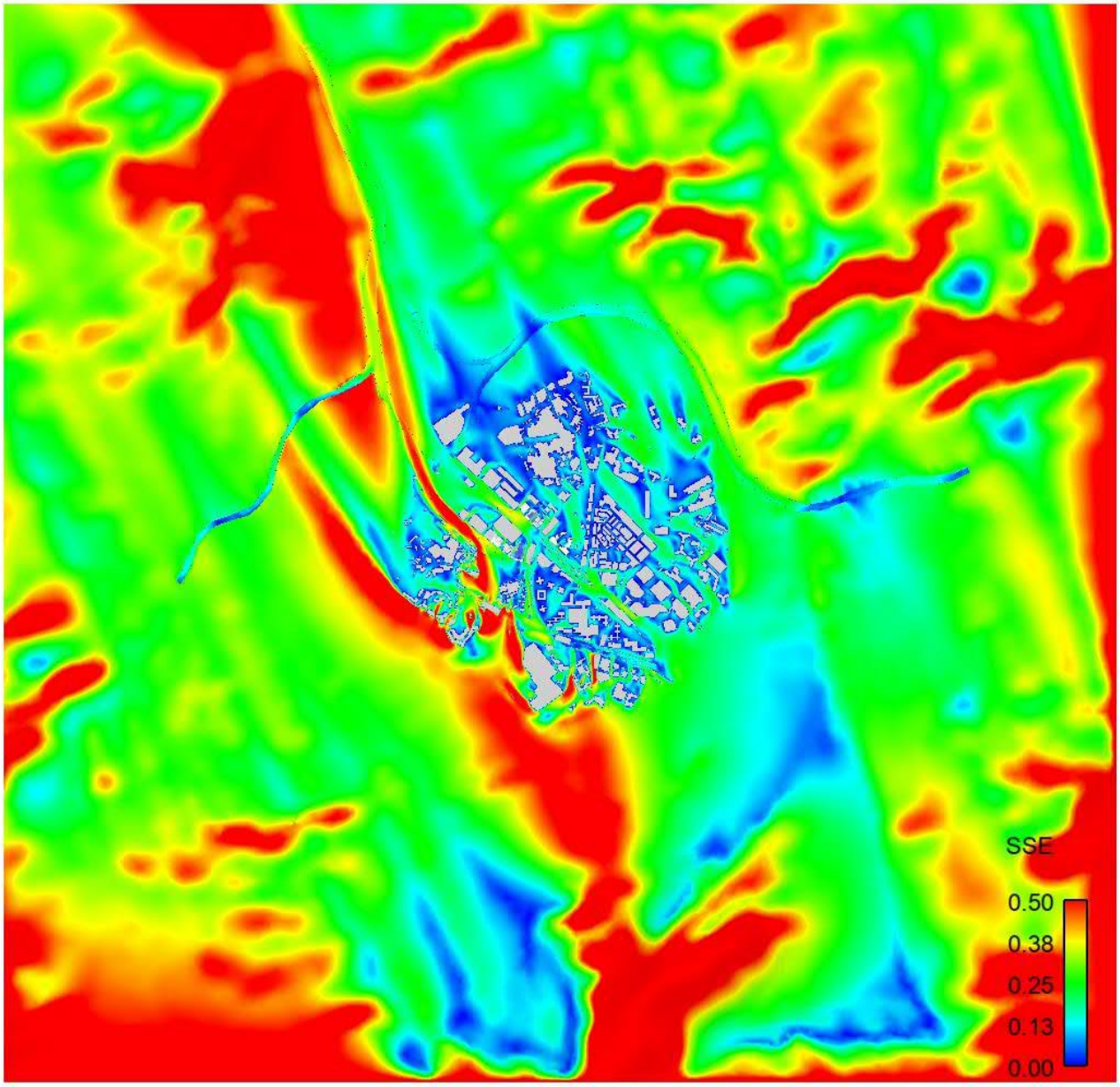


Figure 18 Baseline Scheme Full Domain Velocity Contour Plot under SSE wind C-18

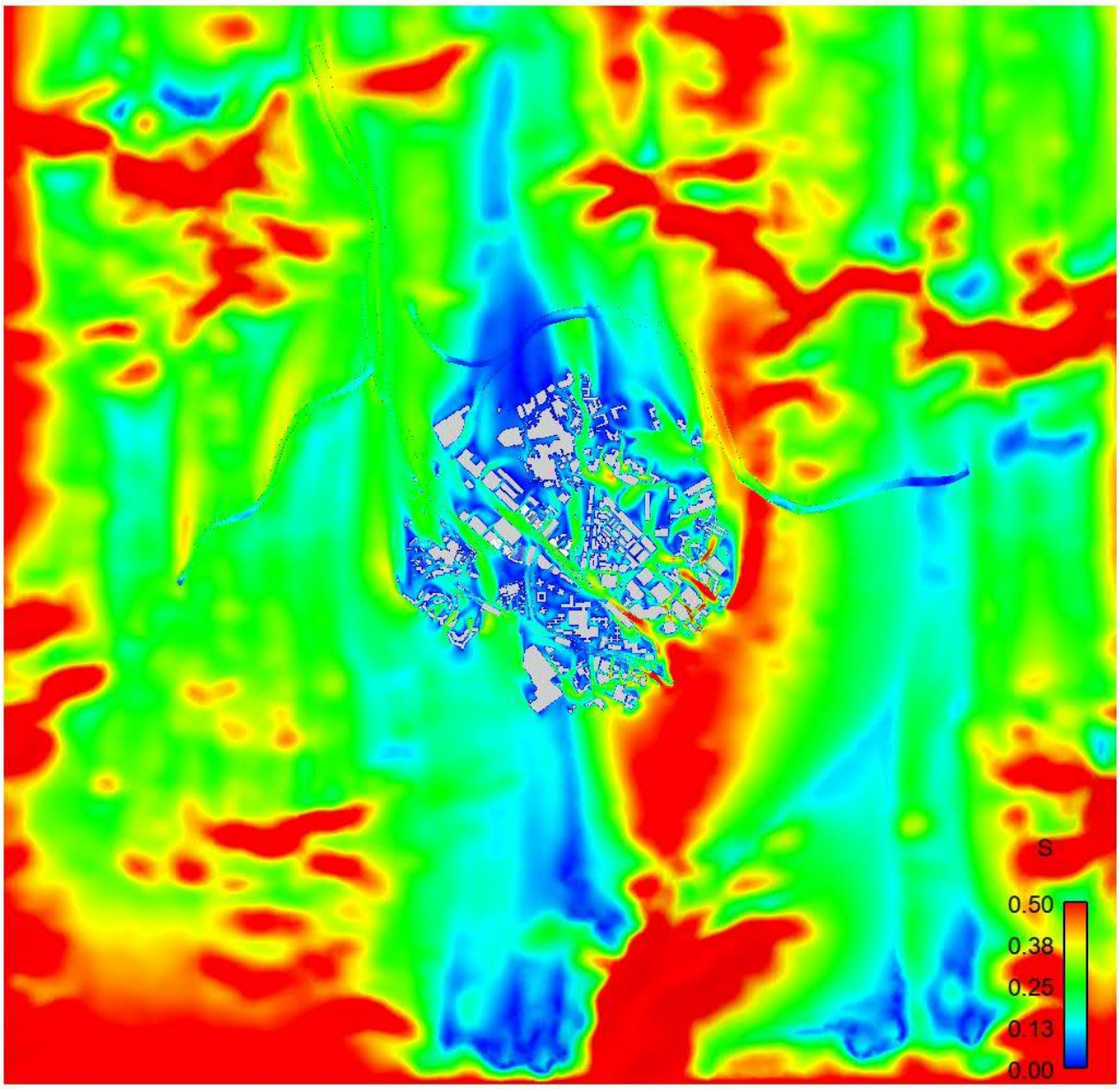


Figure 19 Baseline Scheme Full Domain Velocity Contour Plot under S wind C-19

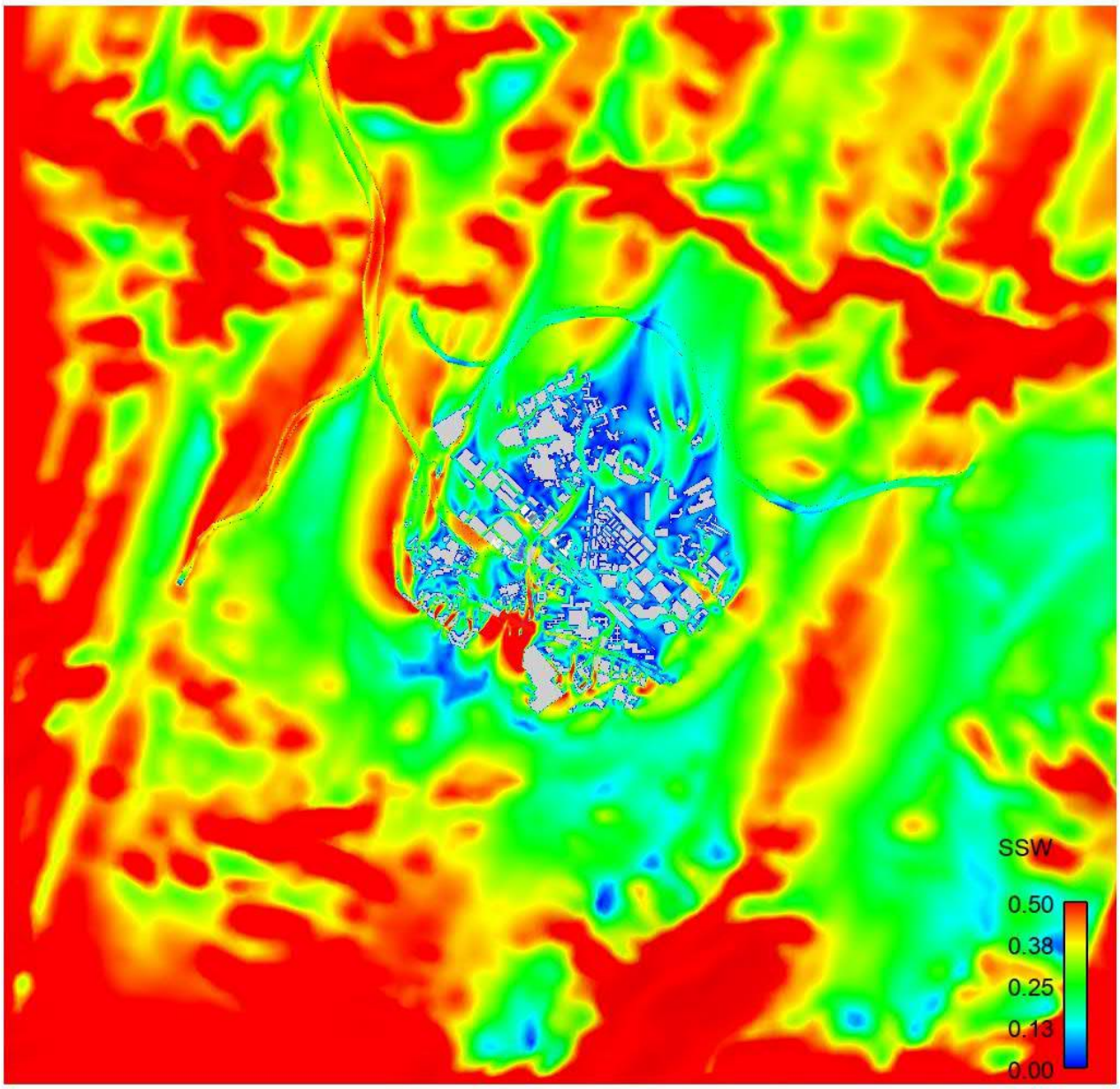


Figure 20 Baseline Scheme Full Domain Velocity Contour Plot under SSW wind C-20

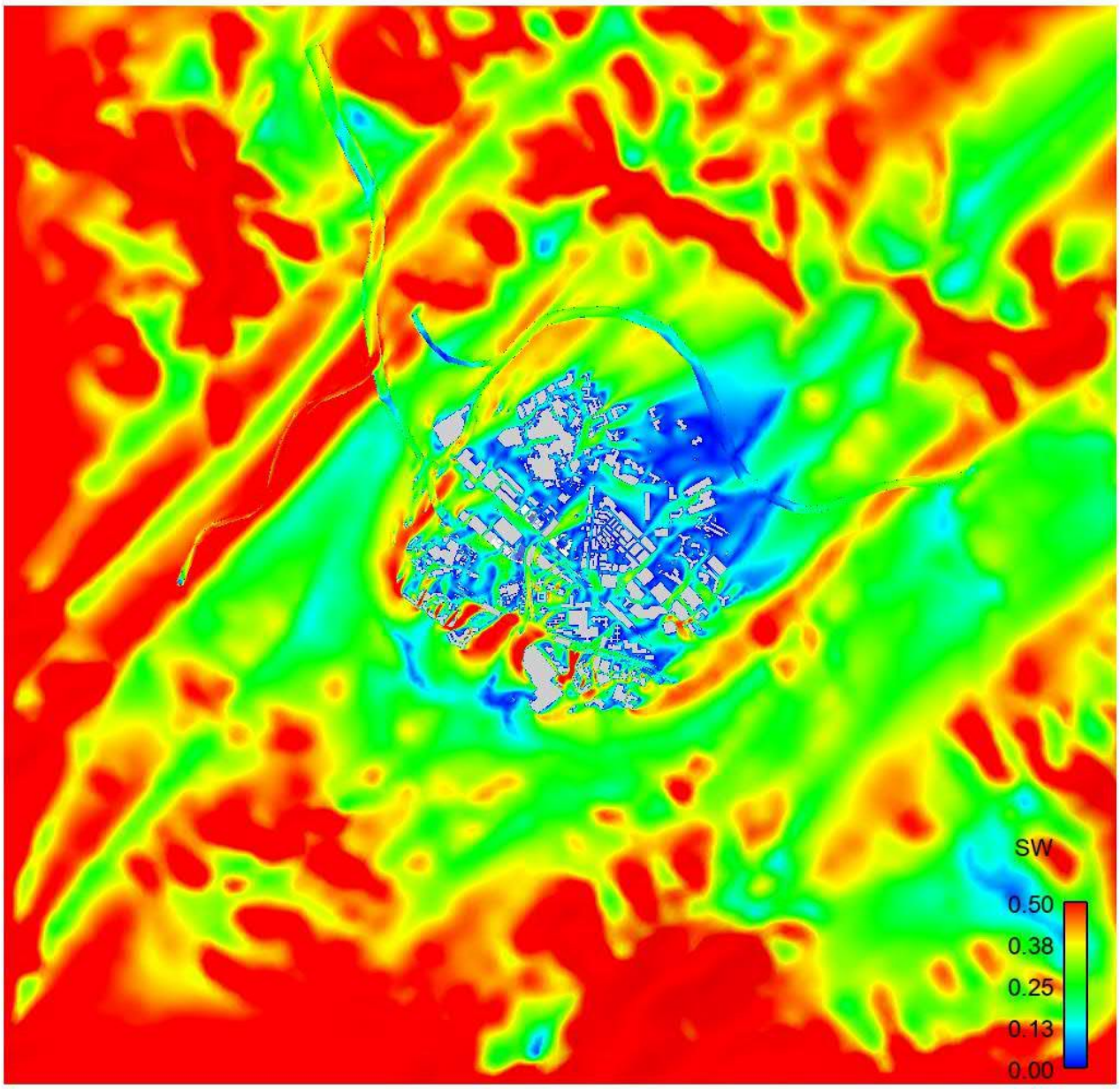


Figure 21 Baseline Scheme Full Domain Velocity Contour Plot under SW wind C-21

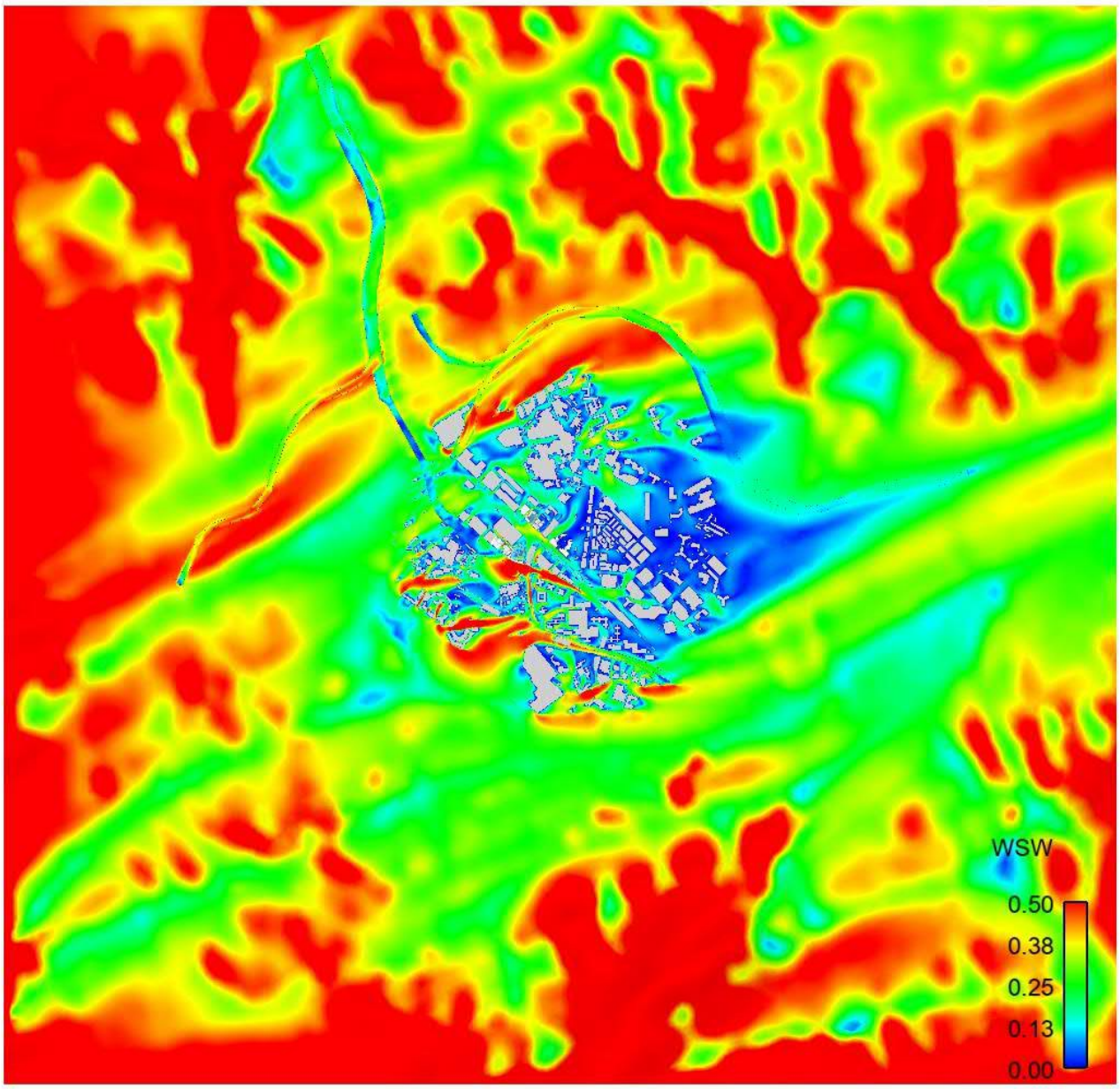


Figure 22 Baseline Scheme Full Domain Velocity Contour Plot under WSW wind C-22

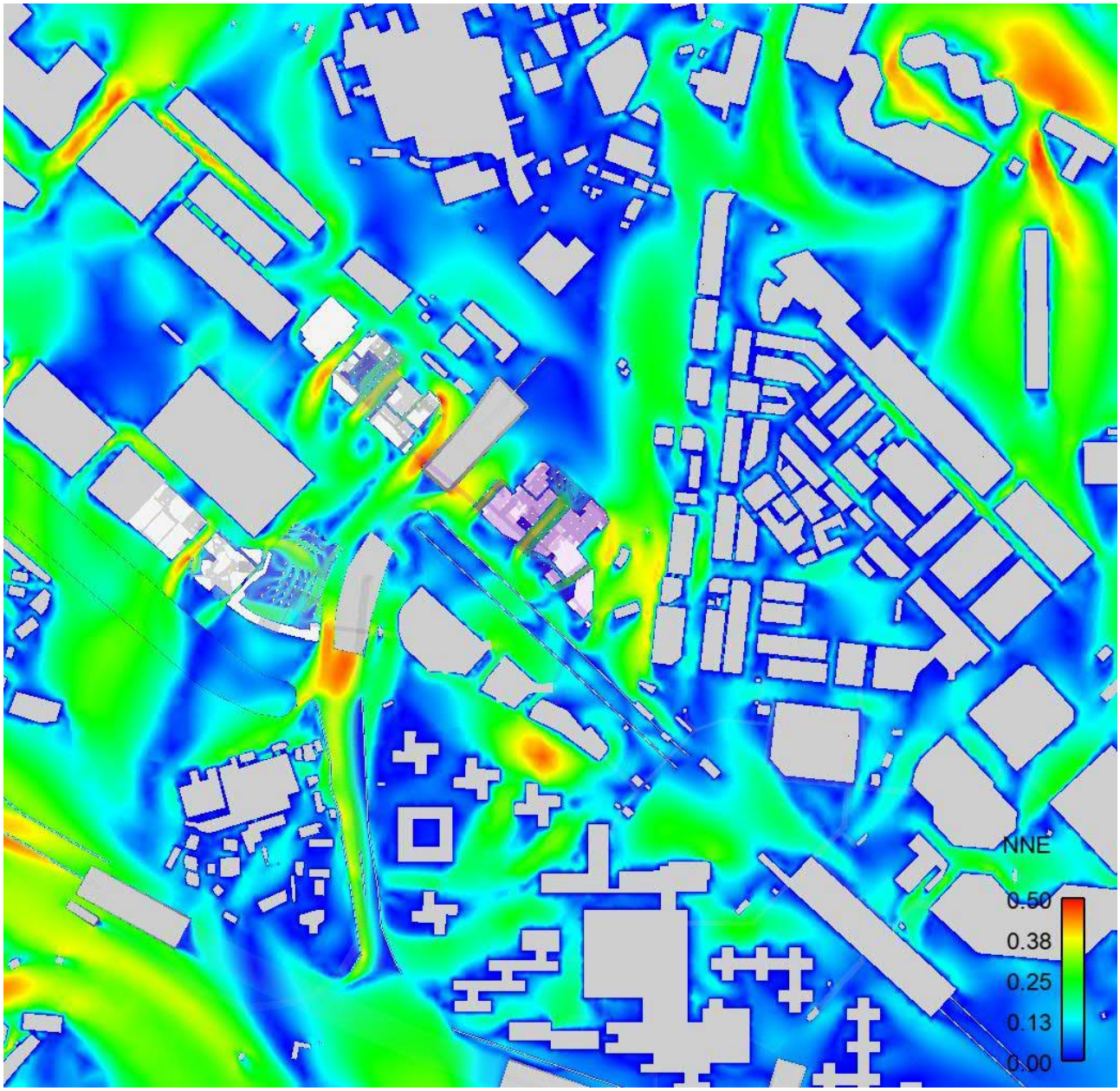


Figure 23 Proposed Scheme Velocity Contour Plot under NNE wind C-23

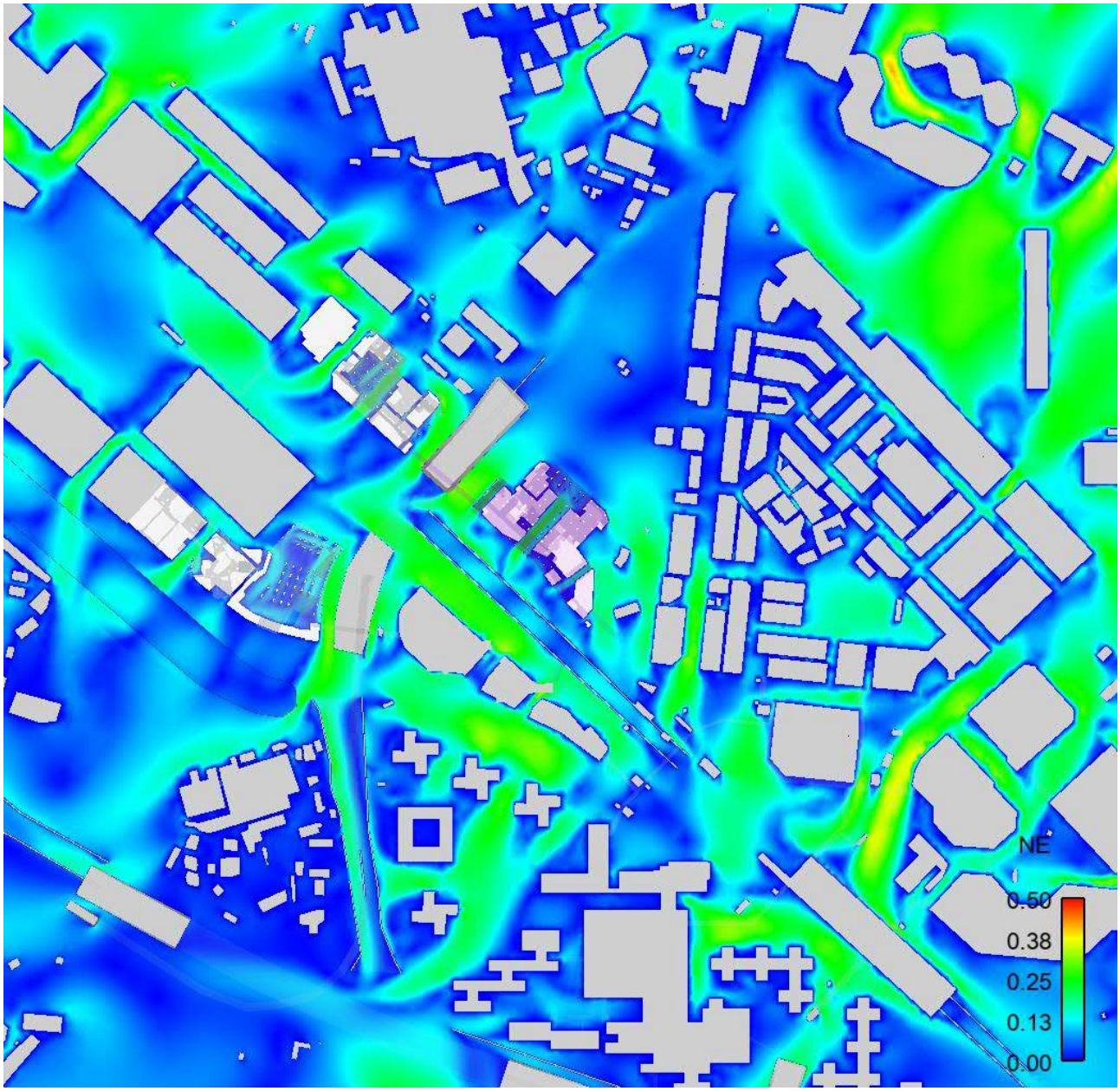


Figure 24 Proposed Scheme Velocity Contour Plot under NE wind C-24

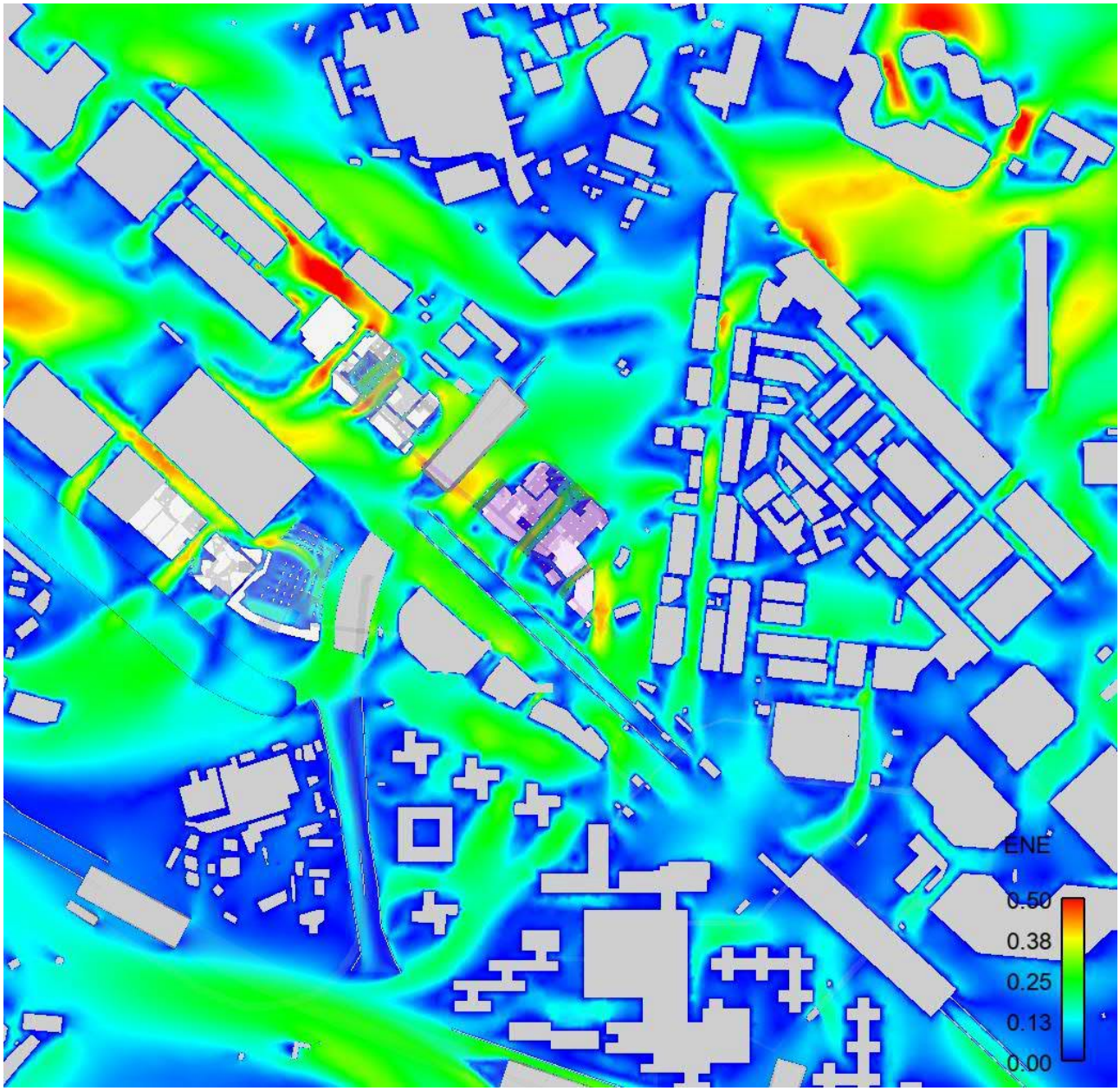


Figure 25 Proposed Scheme Velocity Contour Plot under ENE wind C-25

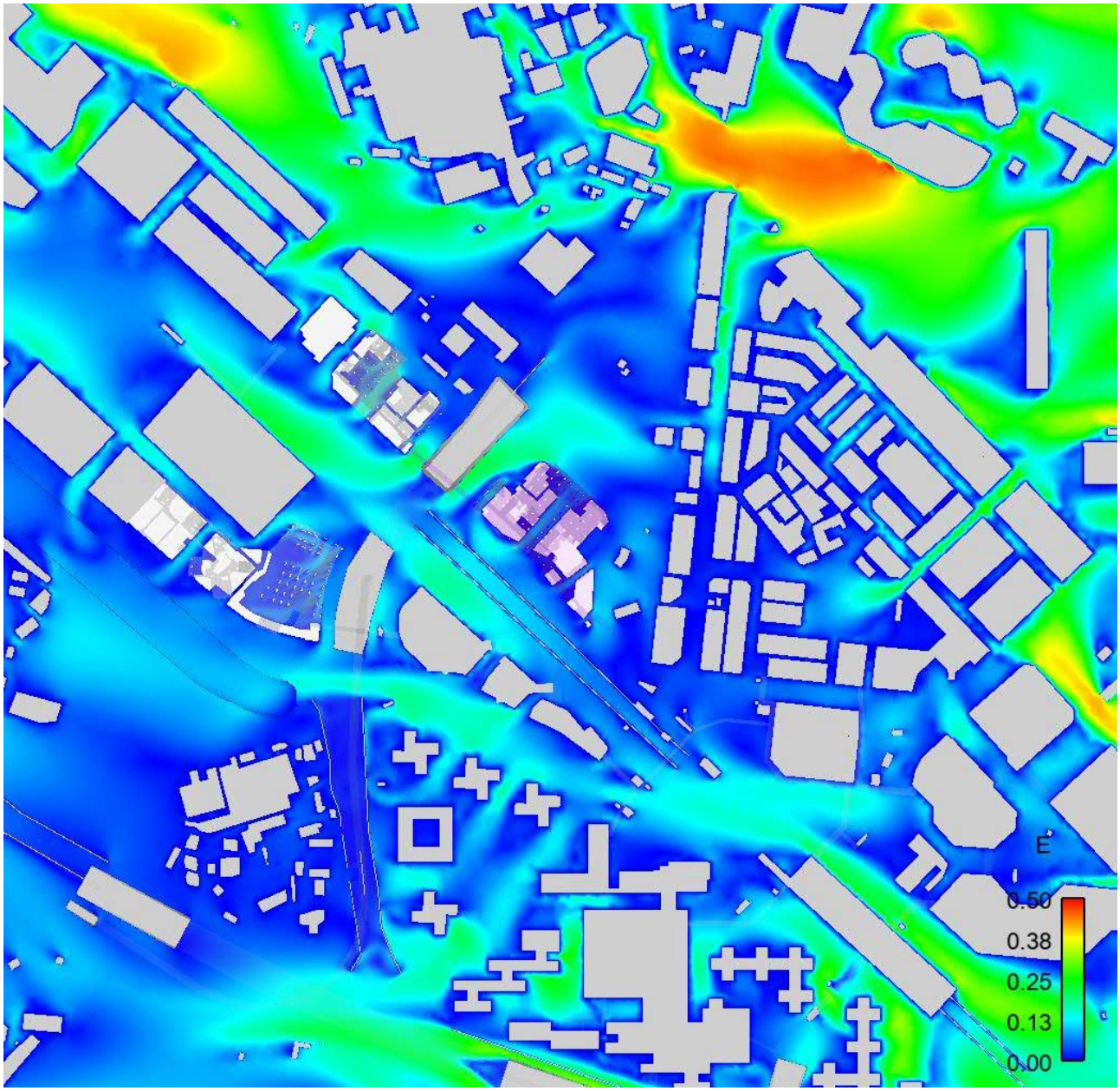


Figure 26 Proposed Scheme Velocity Contour Plot under E wind C-26

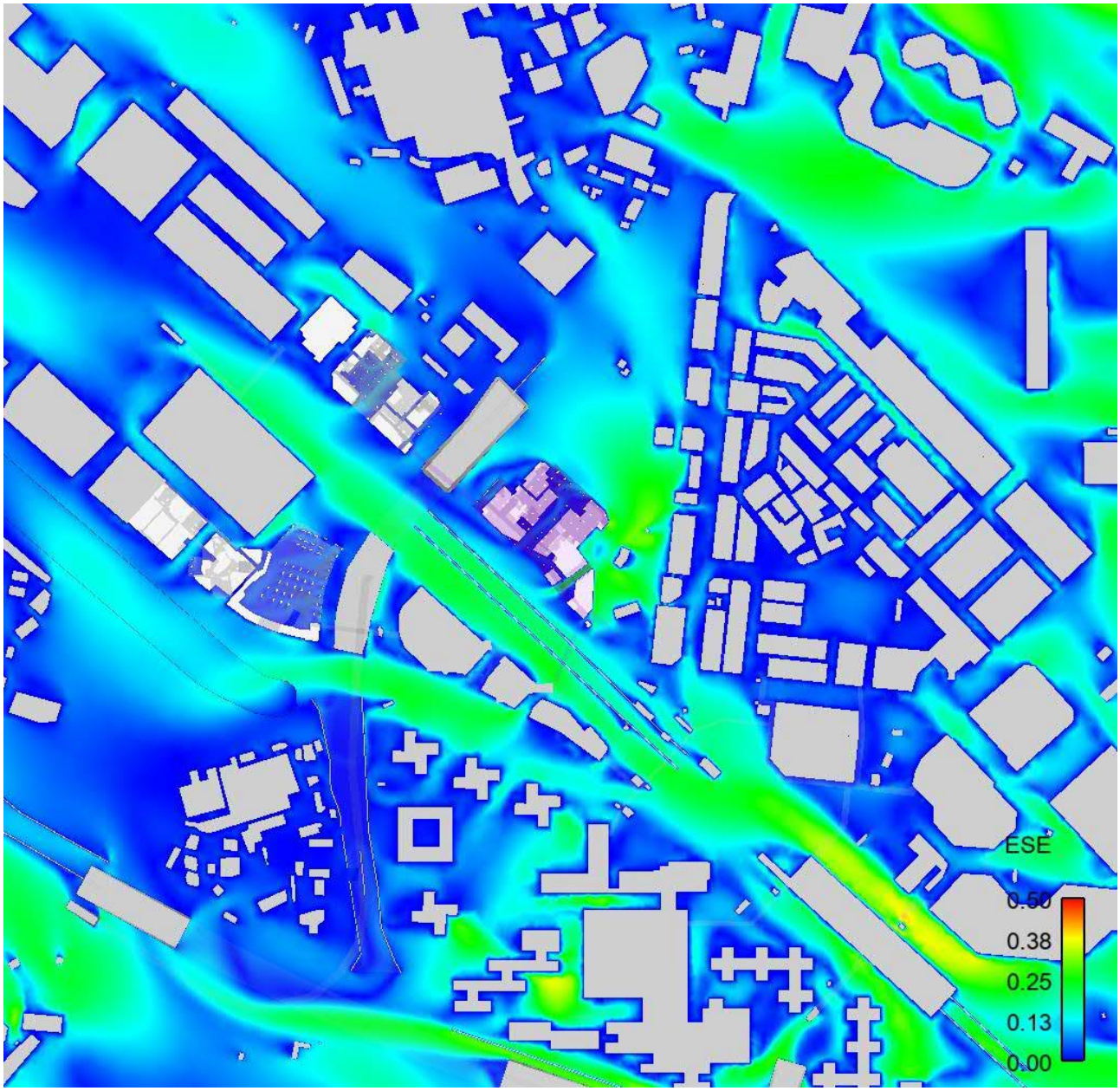


Figure 27 Proposed Scheme Velocity Contour Plot under ESE wind C-27

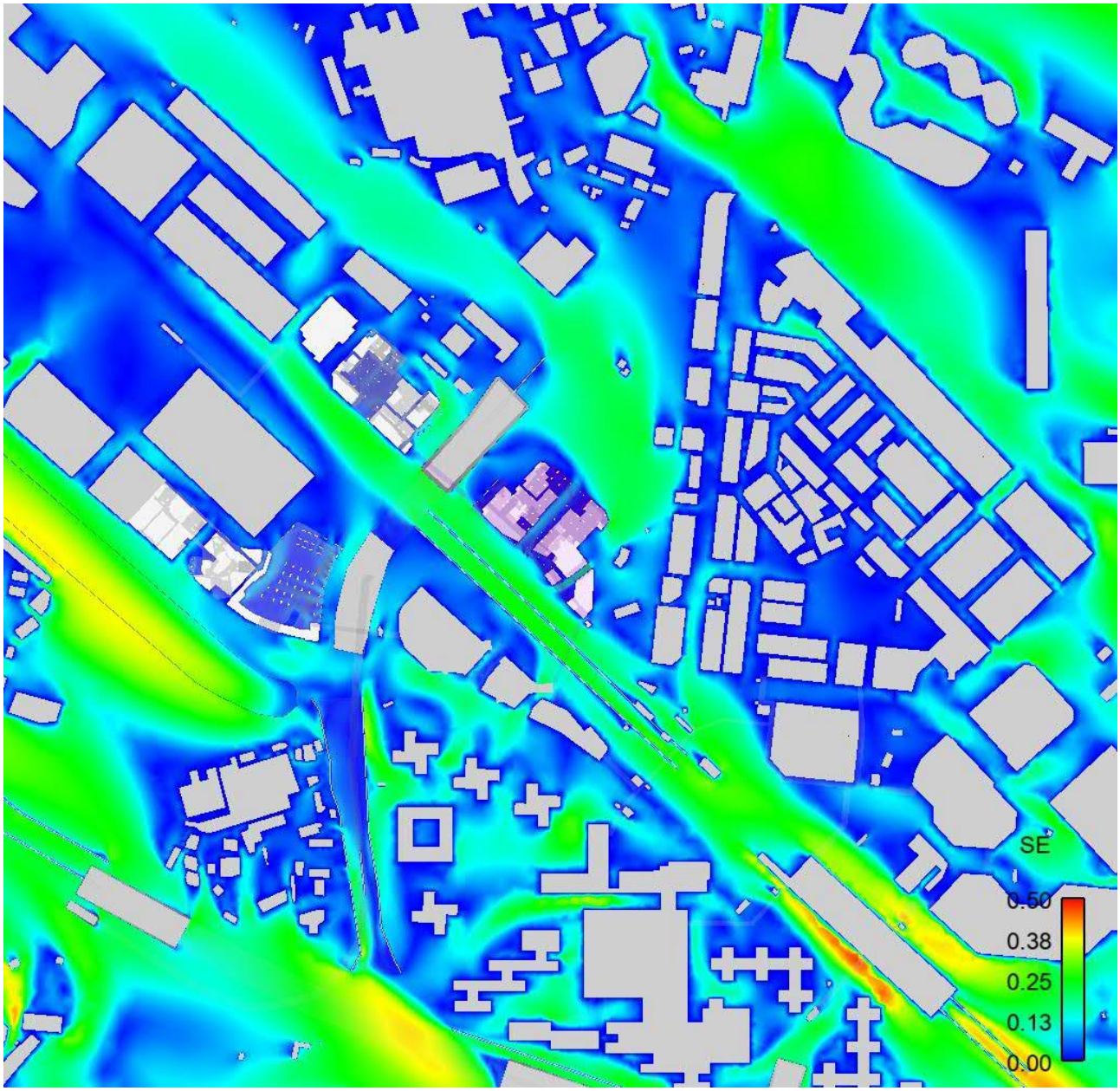


Figure 28 Proposed Scheme Velocity Contour Plot under SE wind C-28

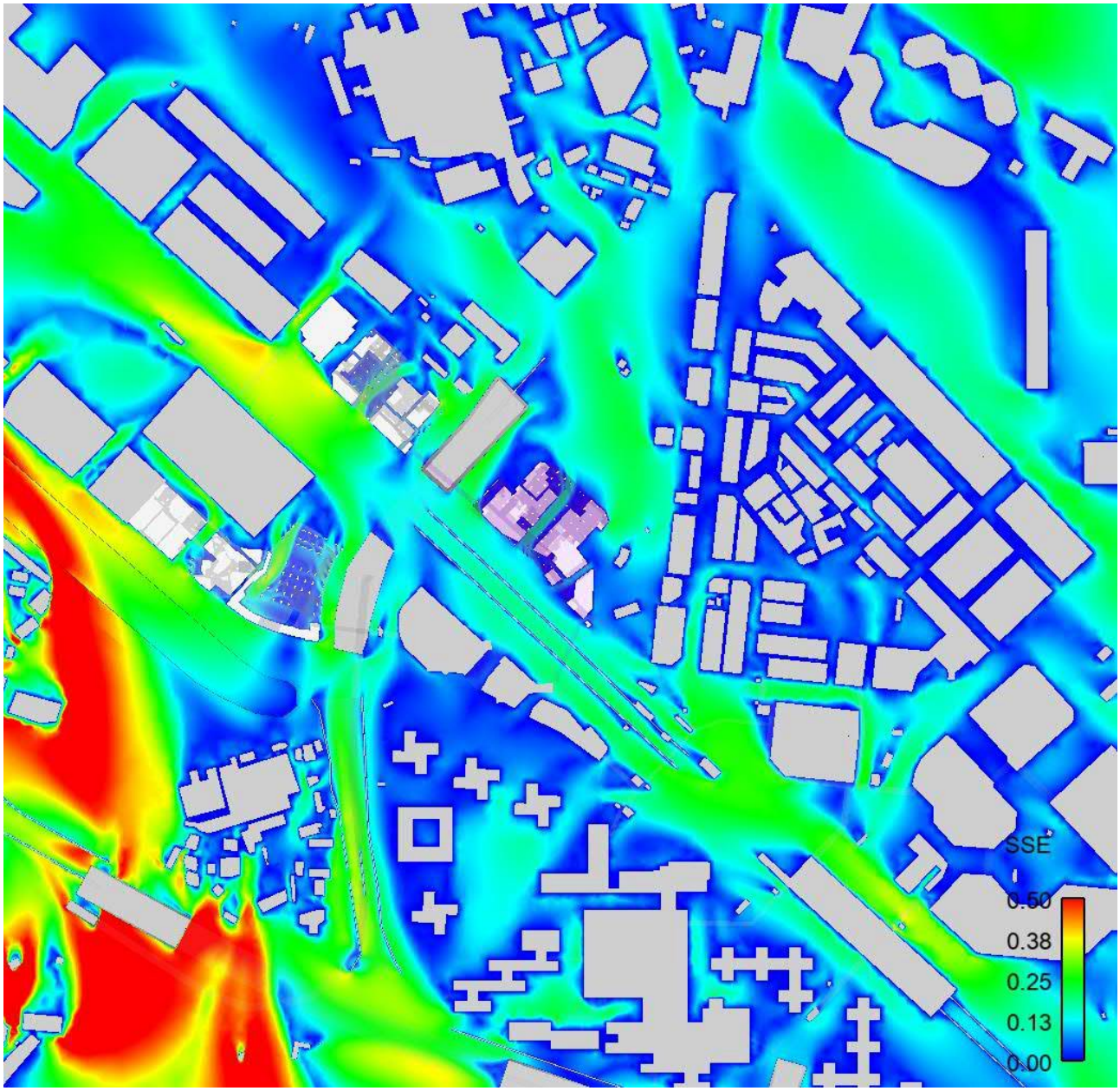


Figure 29 Proposed Scheme Velocity Contour Plot under SSE wind C-29

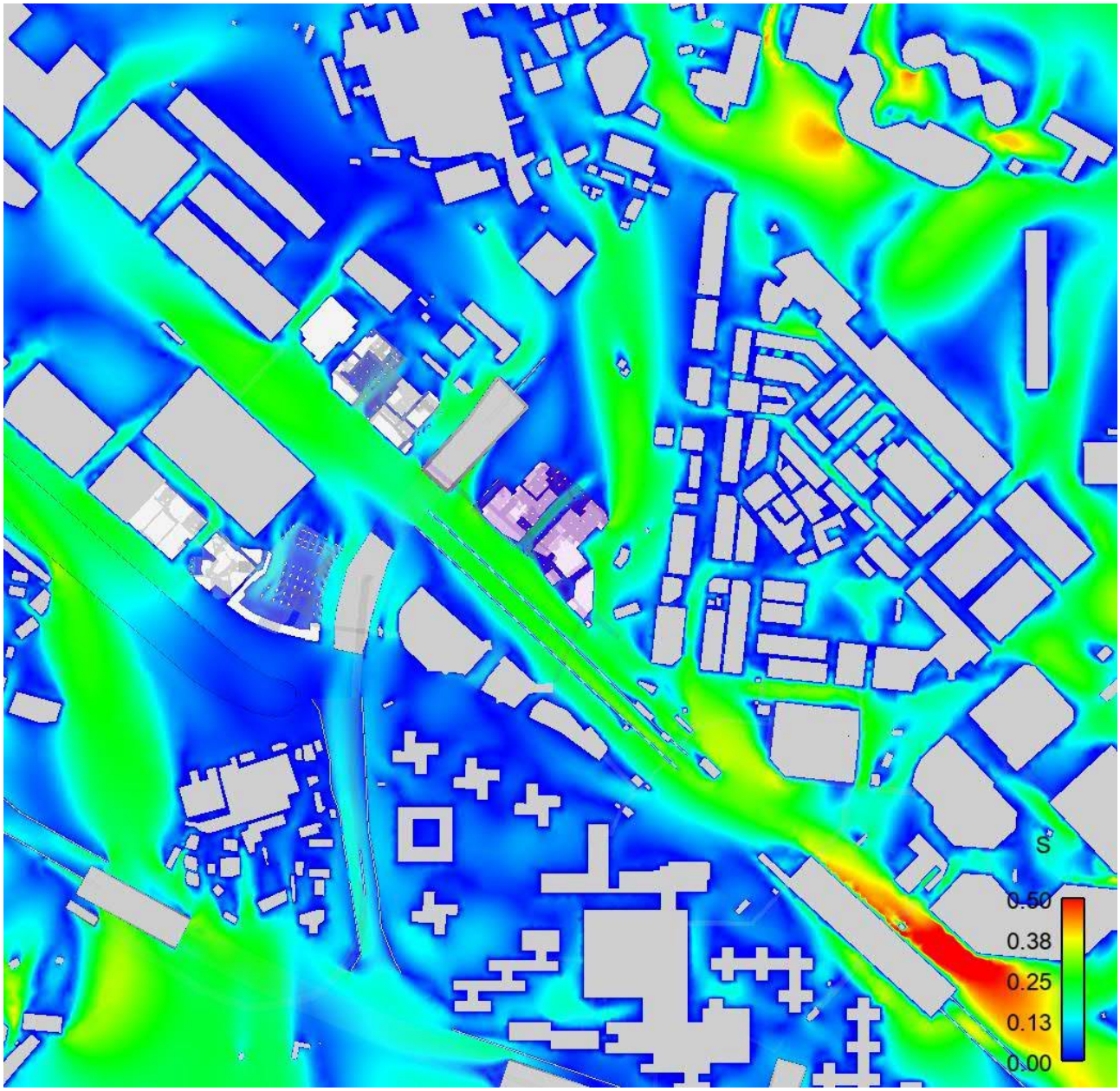


Figure 30 Proposed Scheme Velocity Contour Plot under S wind C-30

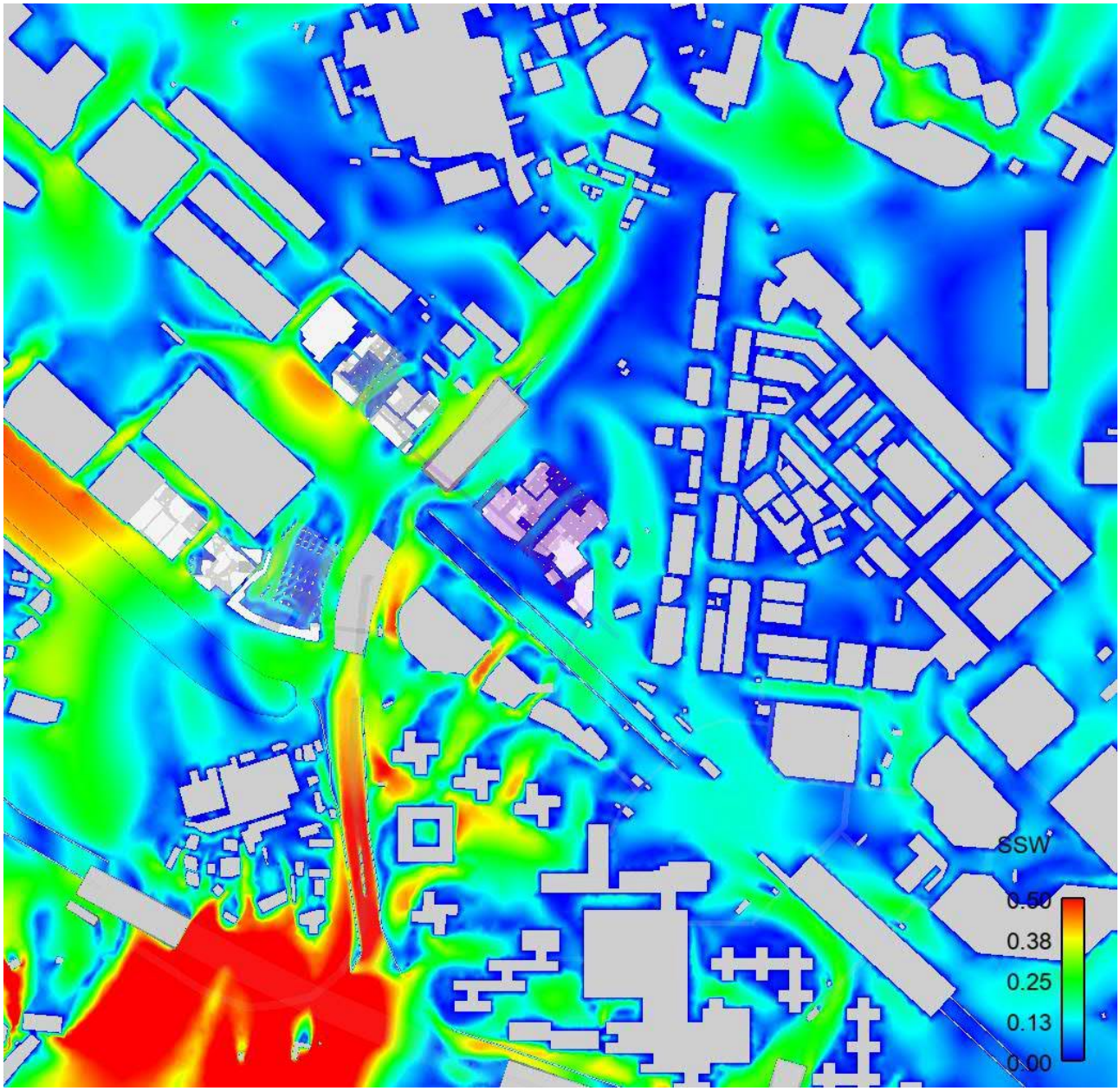


Figure 31 Proposed Scheme Velocity Contour Plot under SSW wind C-31

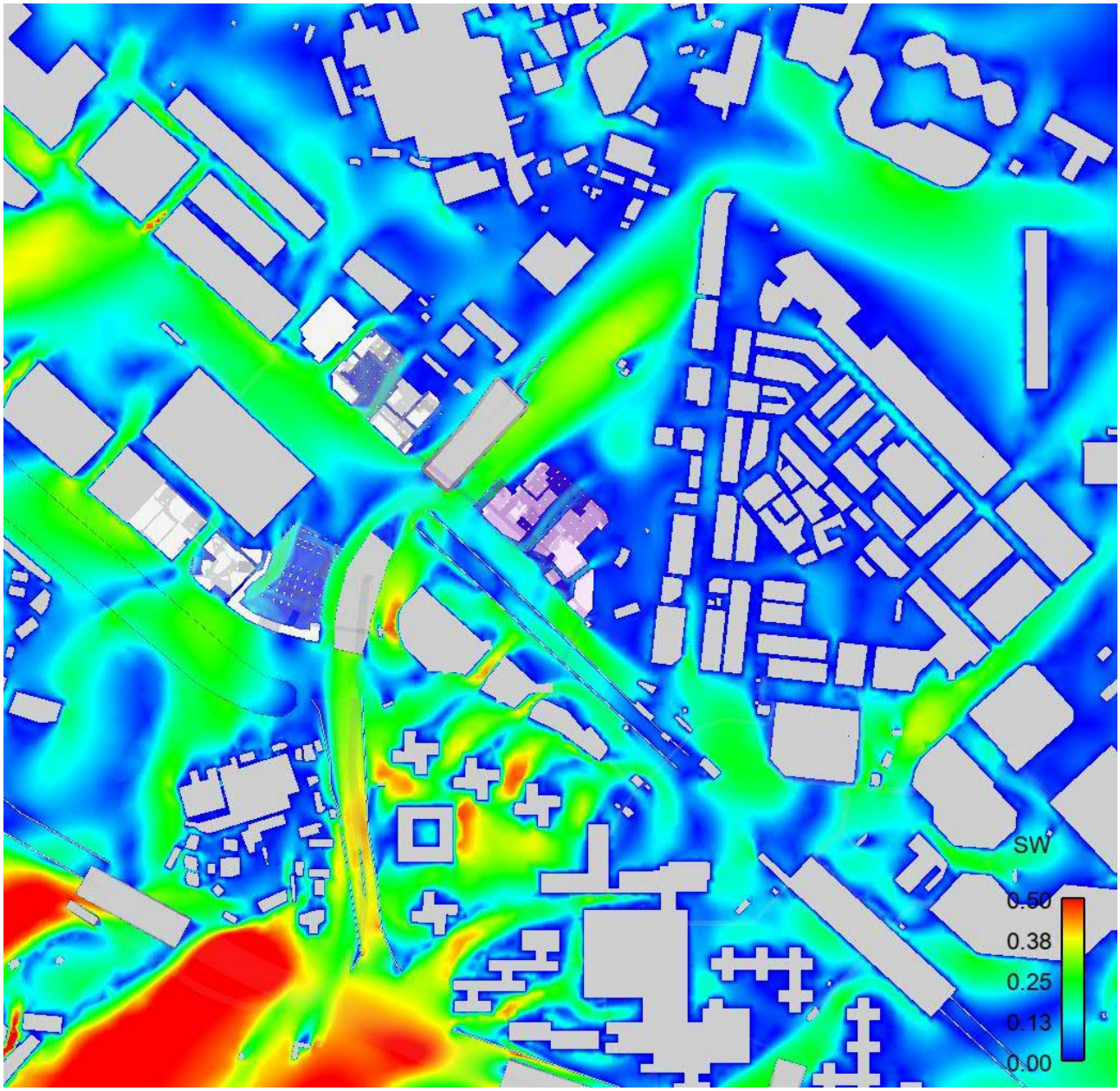


Figure 32 Proposed Scheme Velocity Contour Plot under SW wind C-32

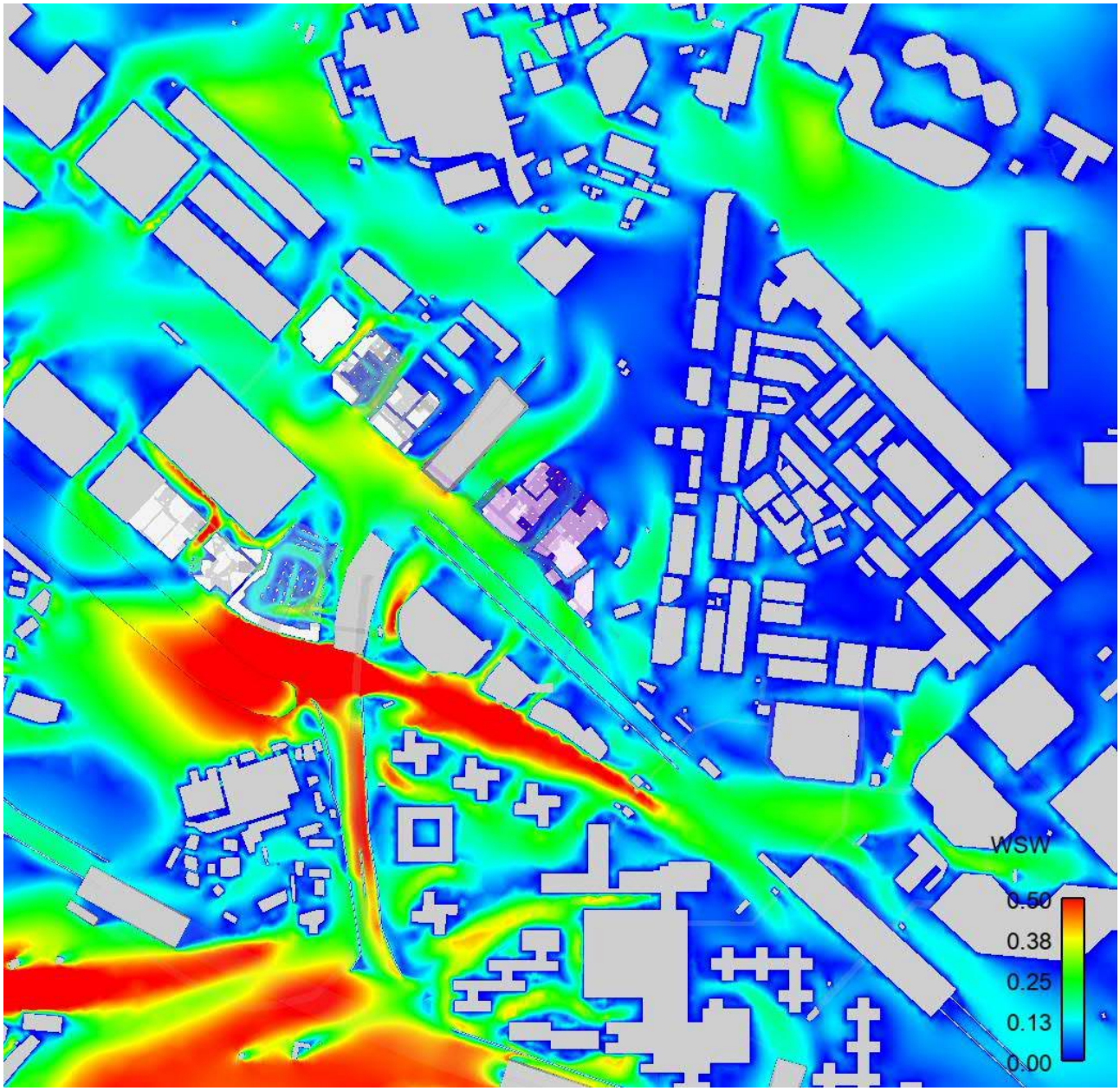


Figure 33 Proposed Scheme Velocity Contour Plot under WSW wind C-33

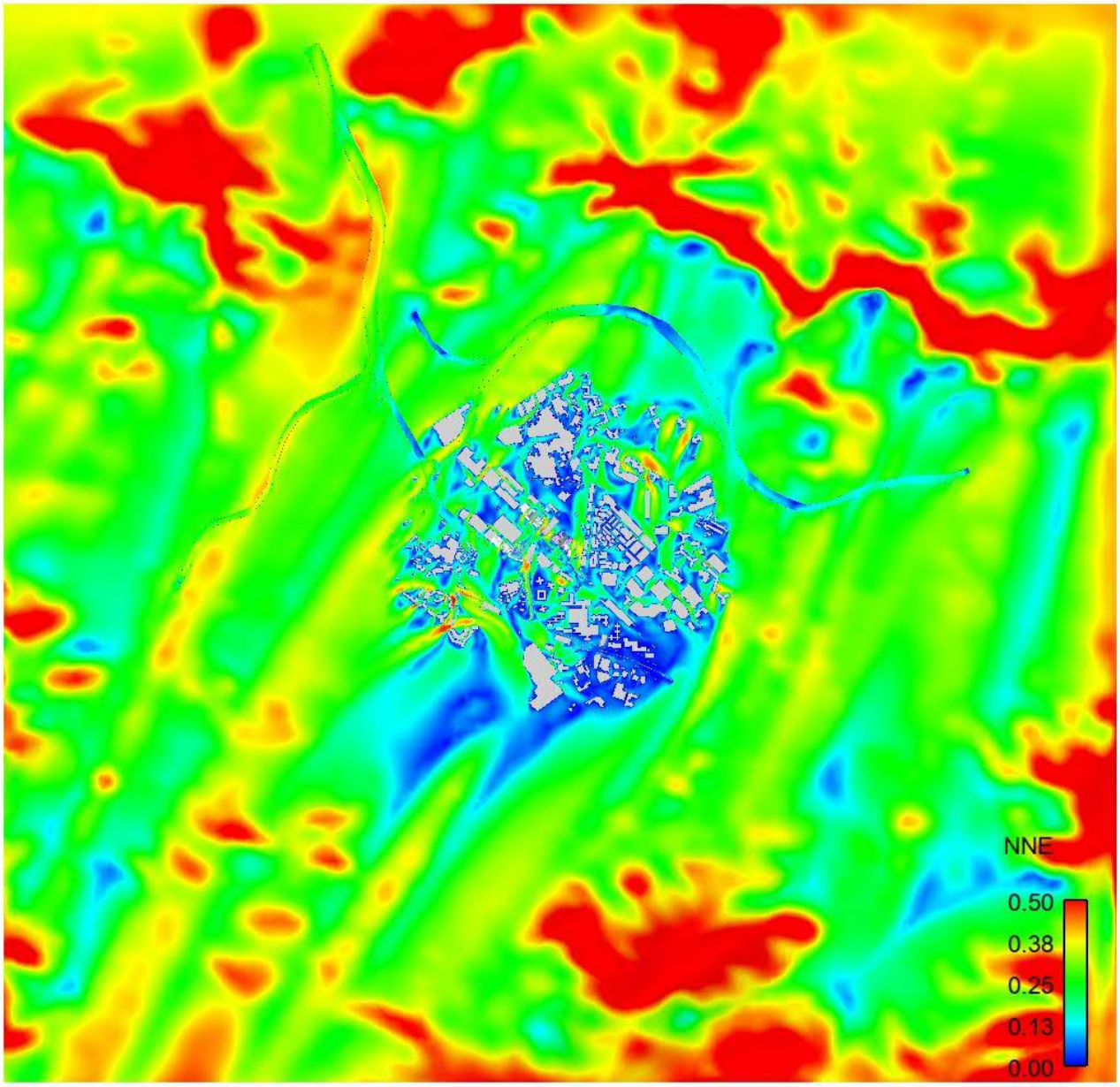


Figure 34 Proposed Scheme Full Domain Velocity Contour Plot under NNE wind C-34

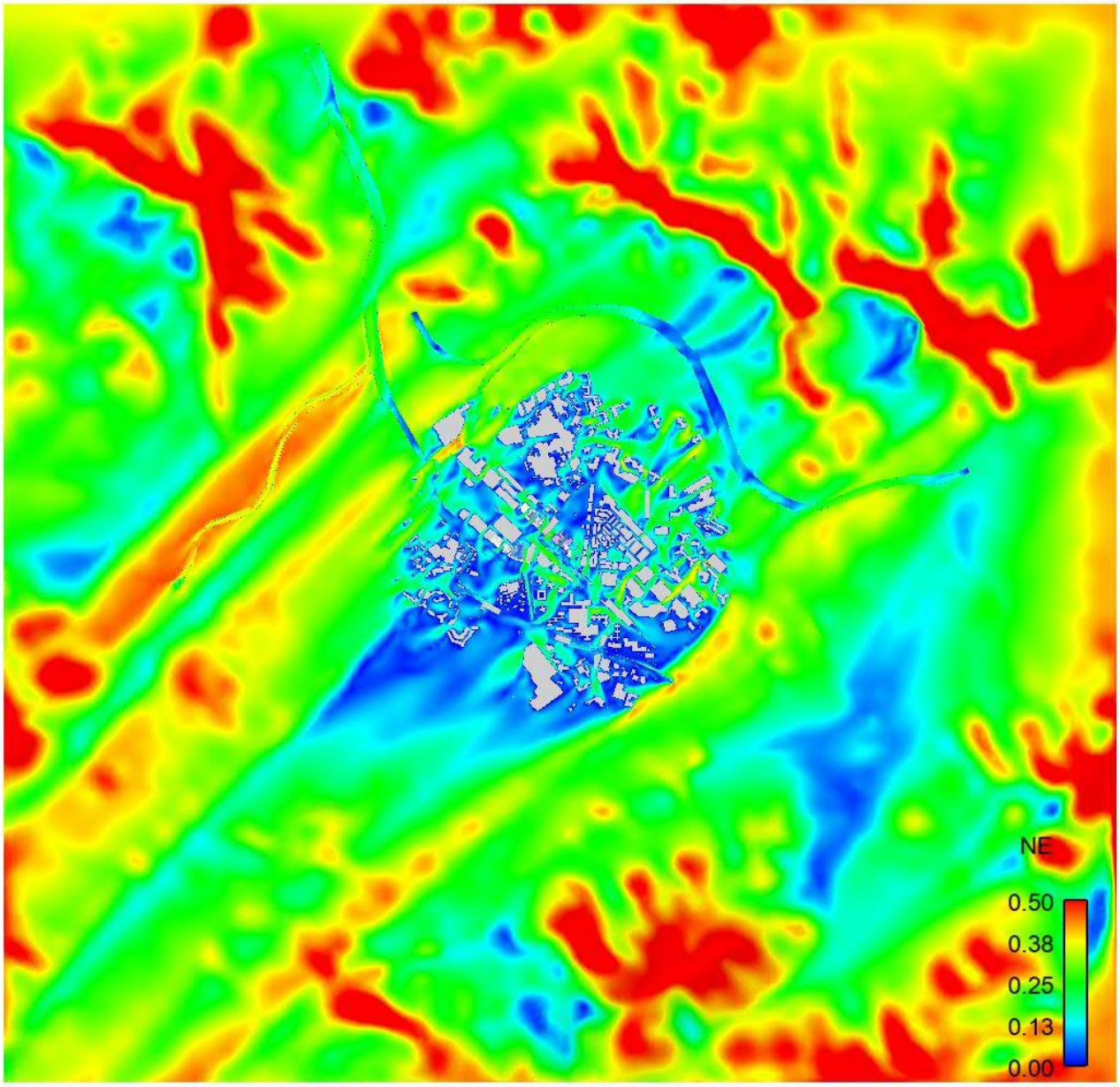


Figure 35 Proposed Scheme Full Domain Velocity Contour Plot under NE wind C-35

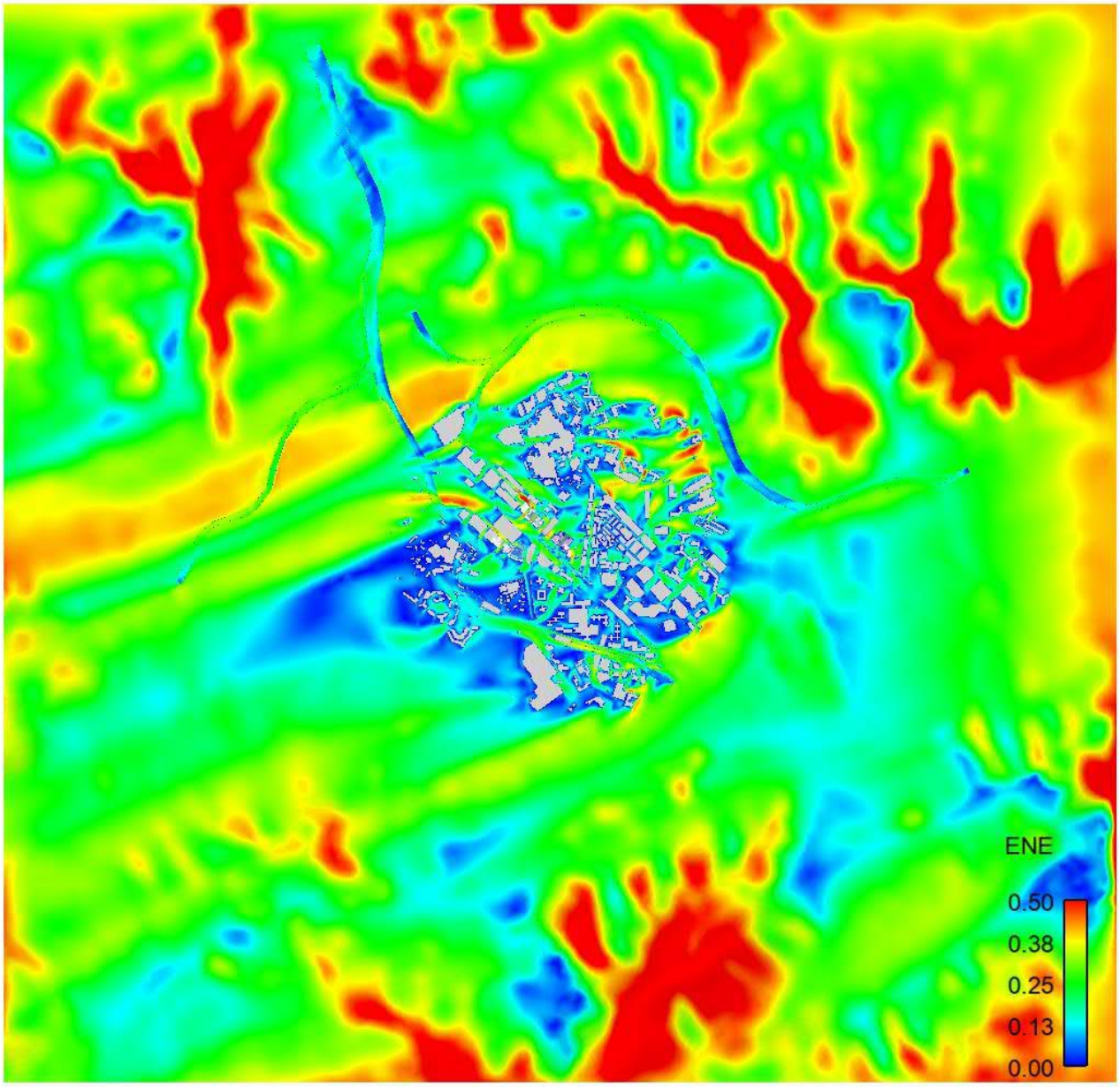


Figure 36 Proposed Scheme Full Domain Velocity Contour Plot under ENE wind C-36

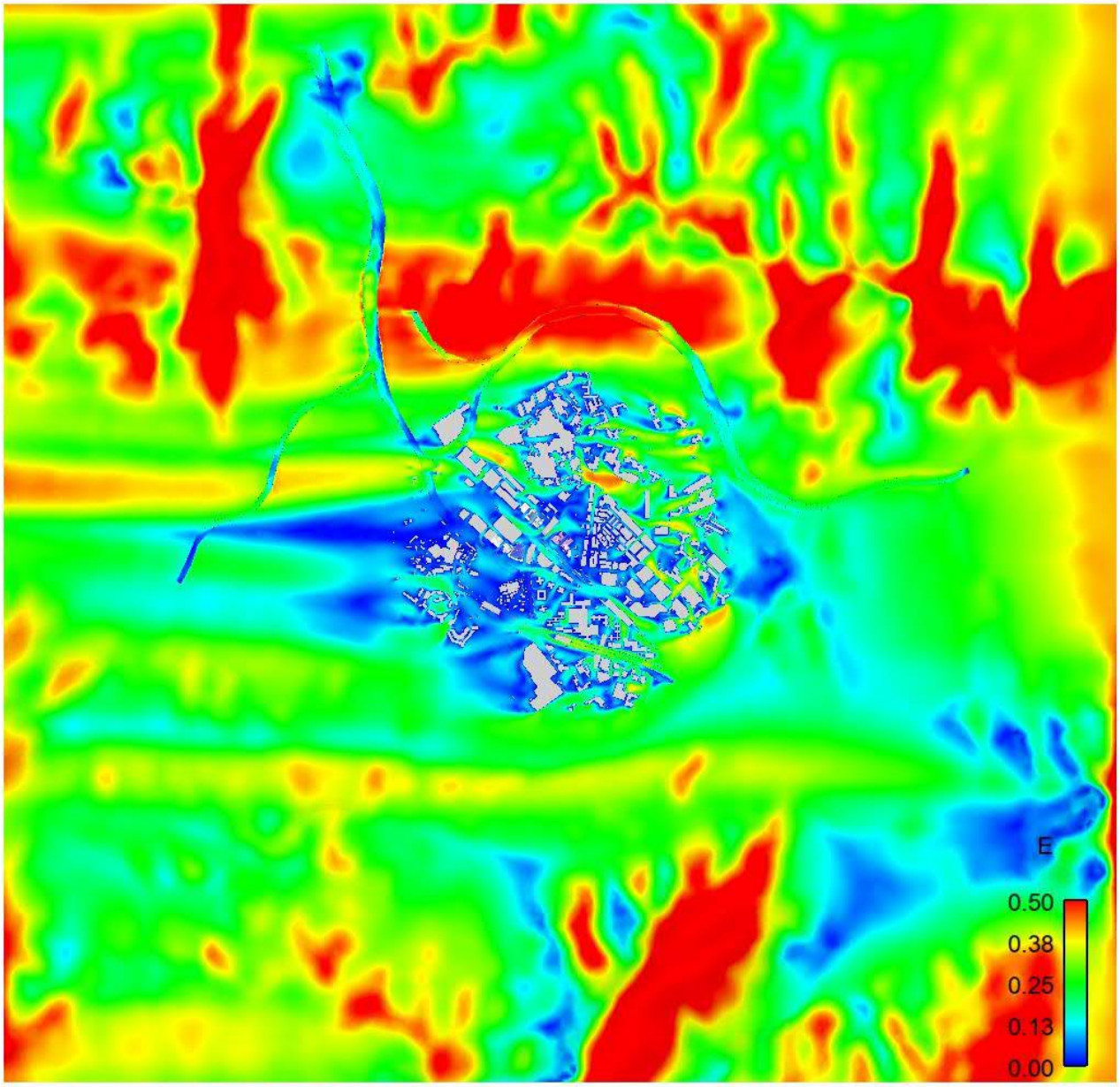


Figure 37 Proposed Scheme Full Domain Velocity Contour Plot under E wind C-37

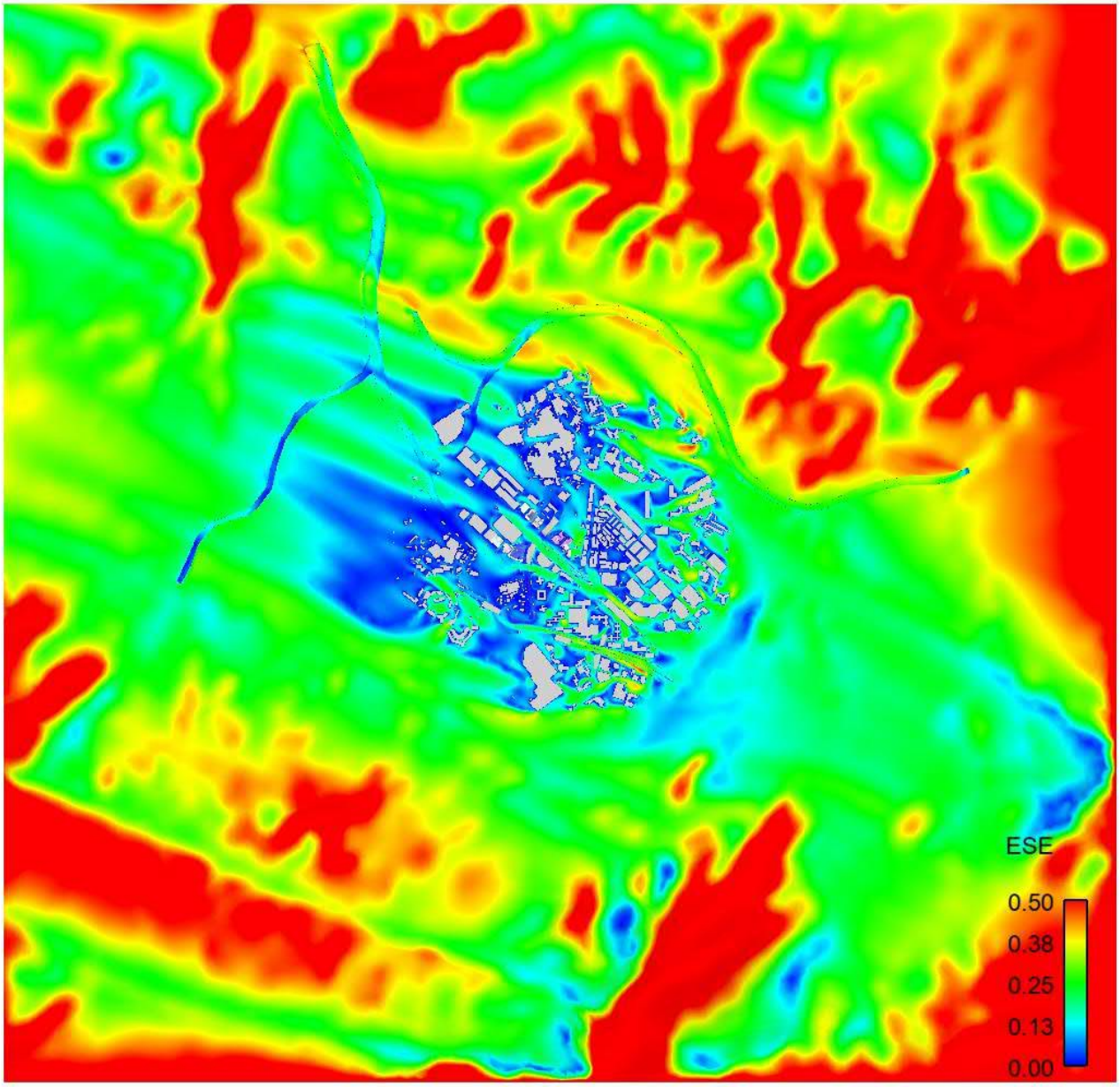


Figure 38 Proposed Scheme Full Domain Velocity Contour Plot under ESE wind C-38

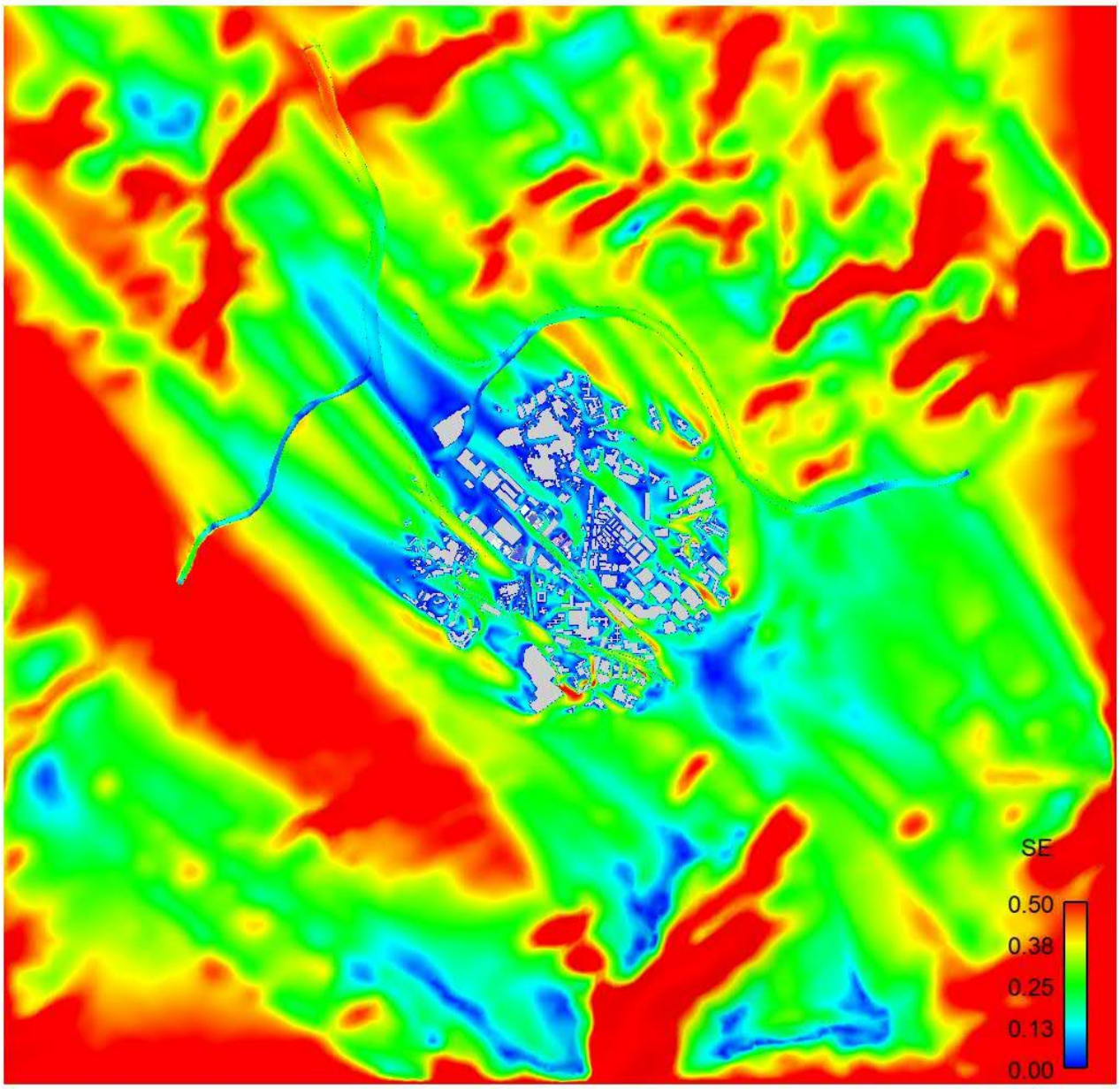


Figure 39 Proposed Scheme Full Domain Velocity Contour Plot under SE wind C-39

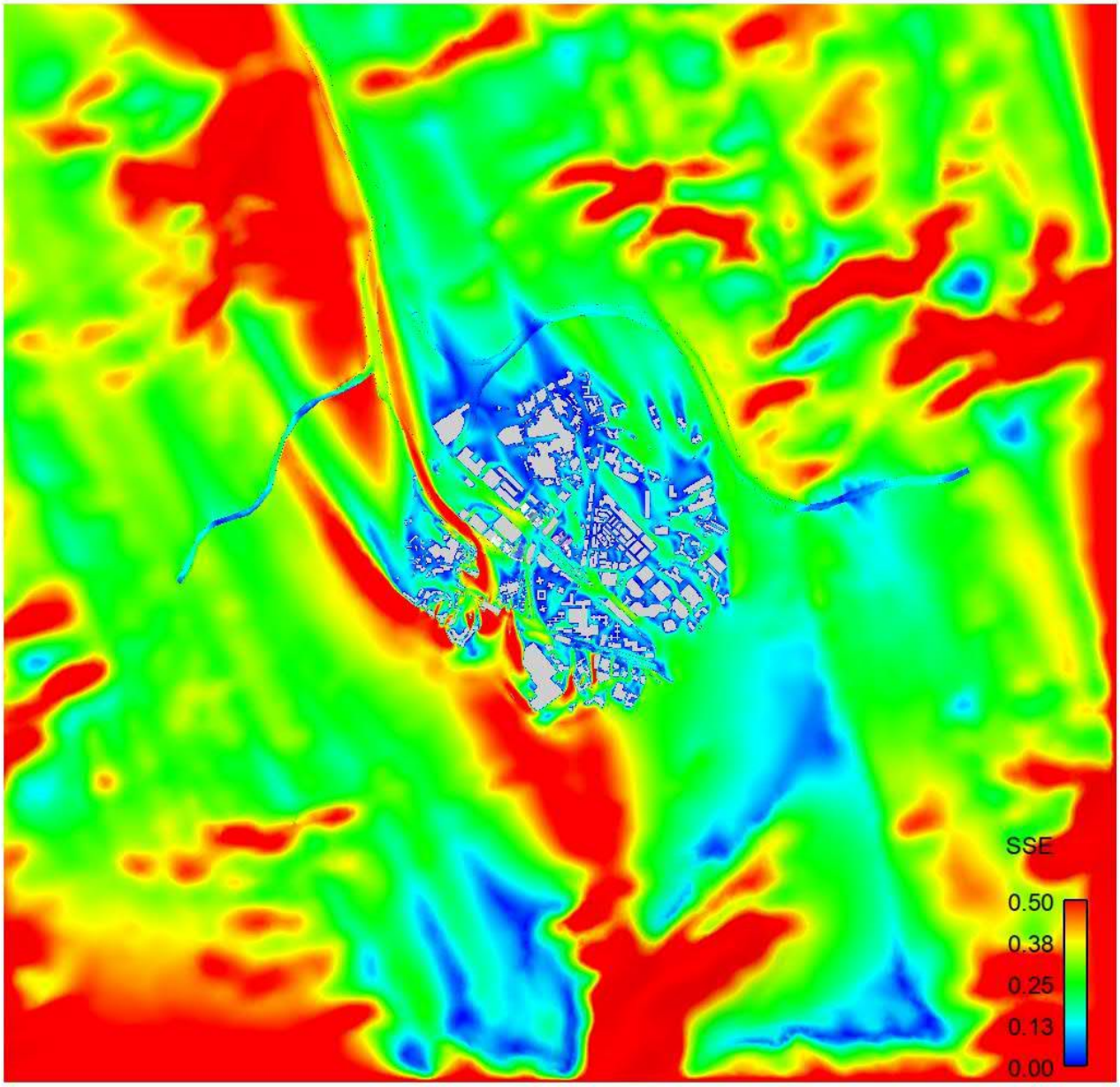


Figure 40 Proposed Scheme Full Domain Velocity Contour Plot under SSE wind C-40

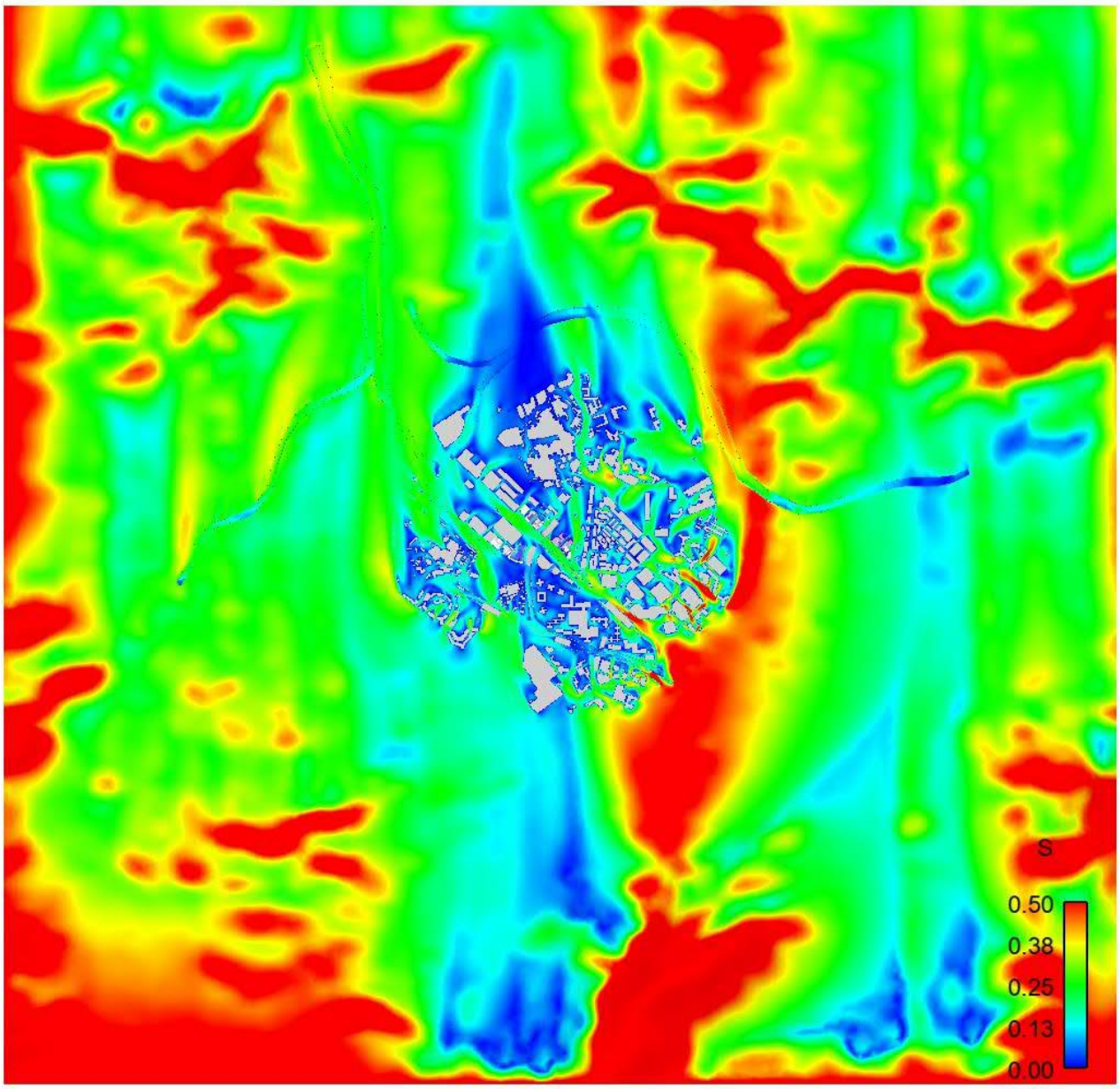


Figure 41 Proposed Scheme Full Domain Velocity Contour Plot under S wind C-41

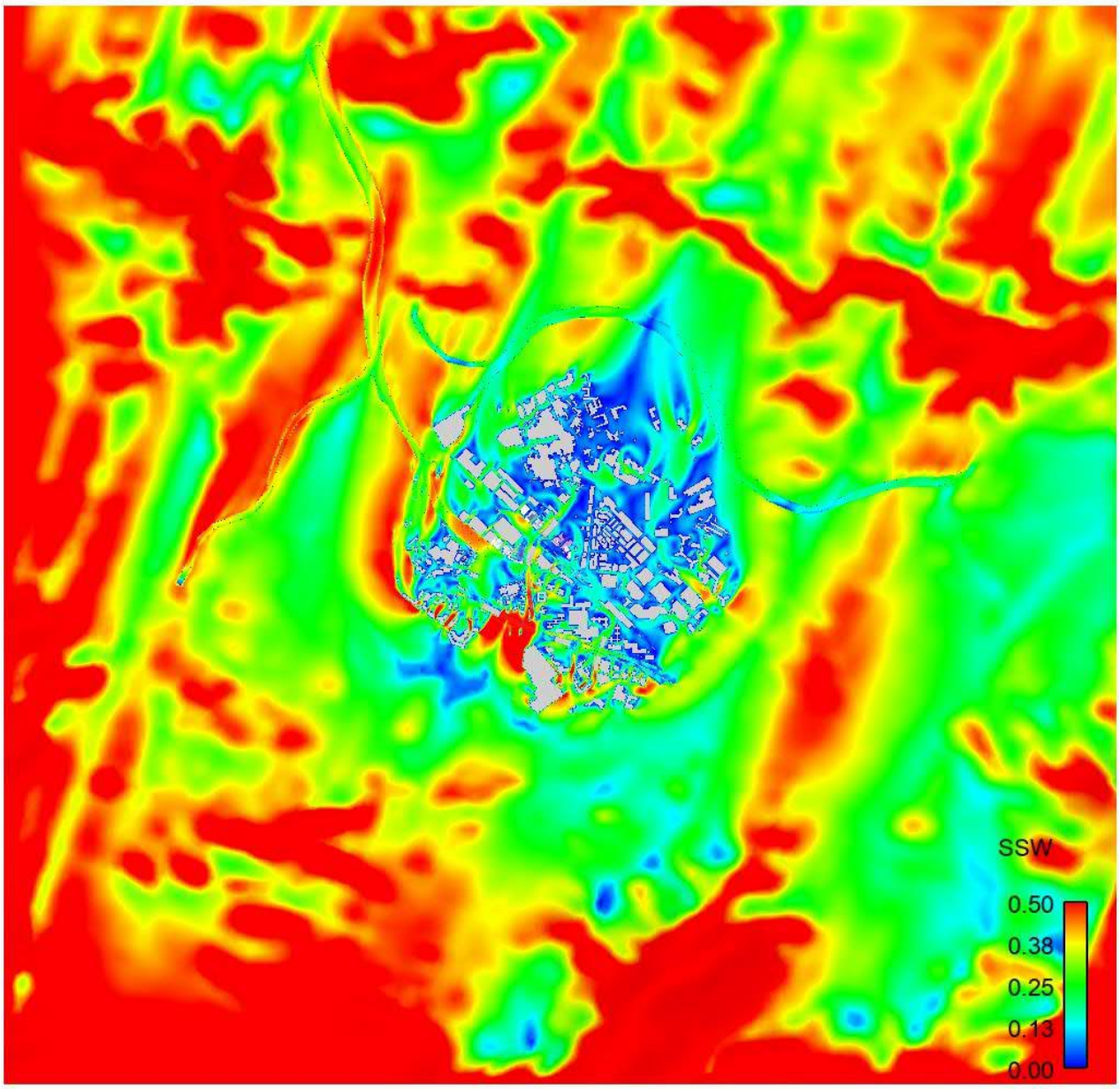


Figure 42 Proposed Scheme Full Domain Velocity Contour Plot under SSW wind C-42

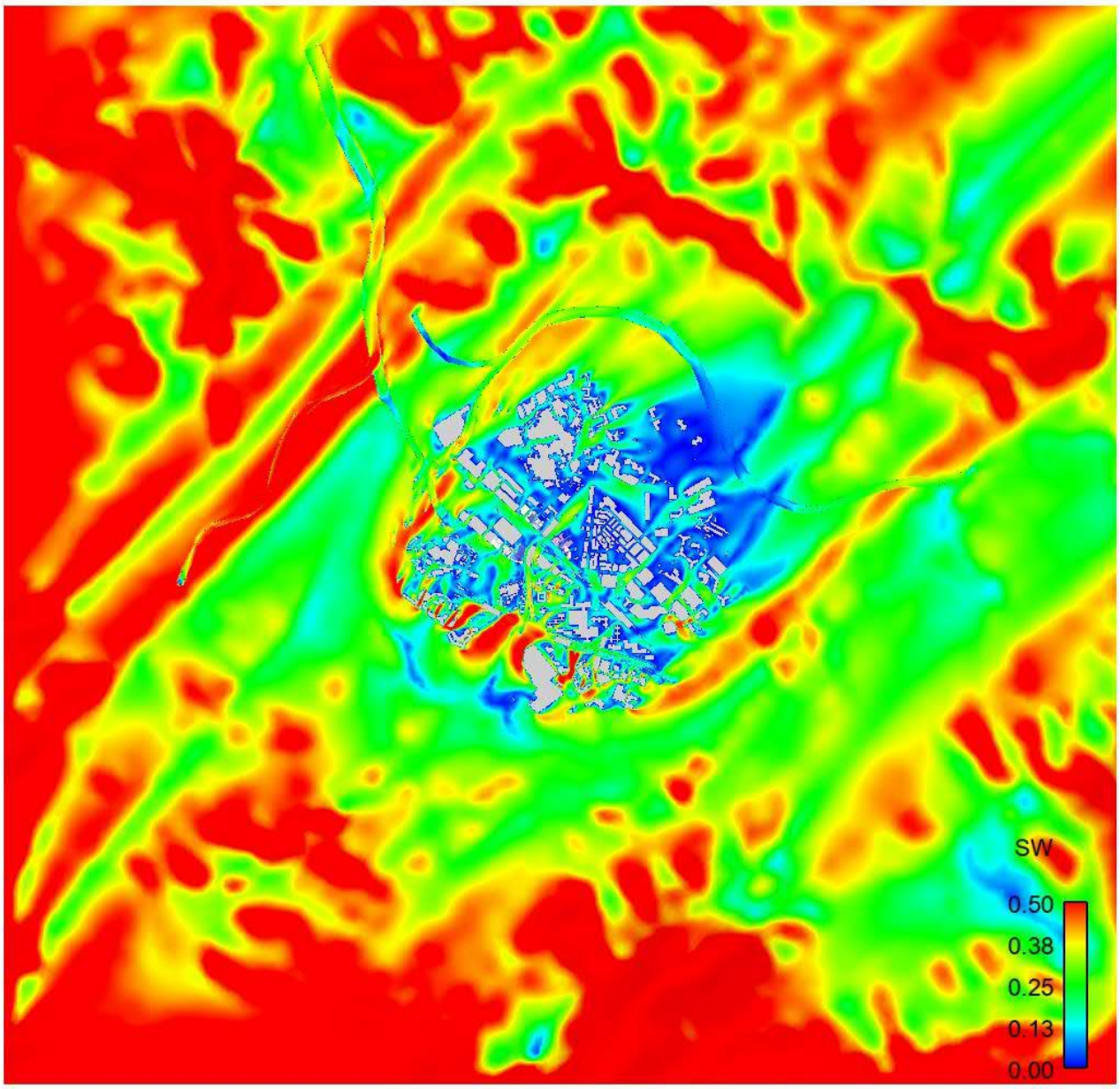


Figure 43 Proposed Scheme Full Domain Velocity Contour Plot under SW wind C-43

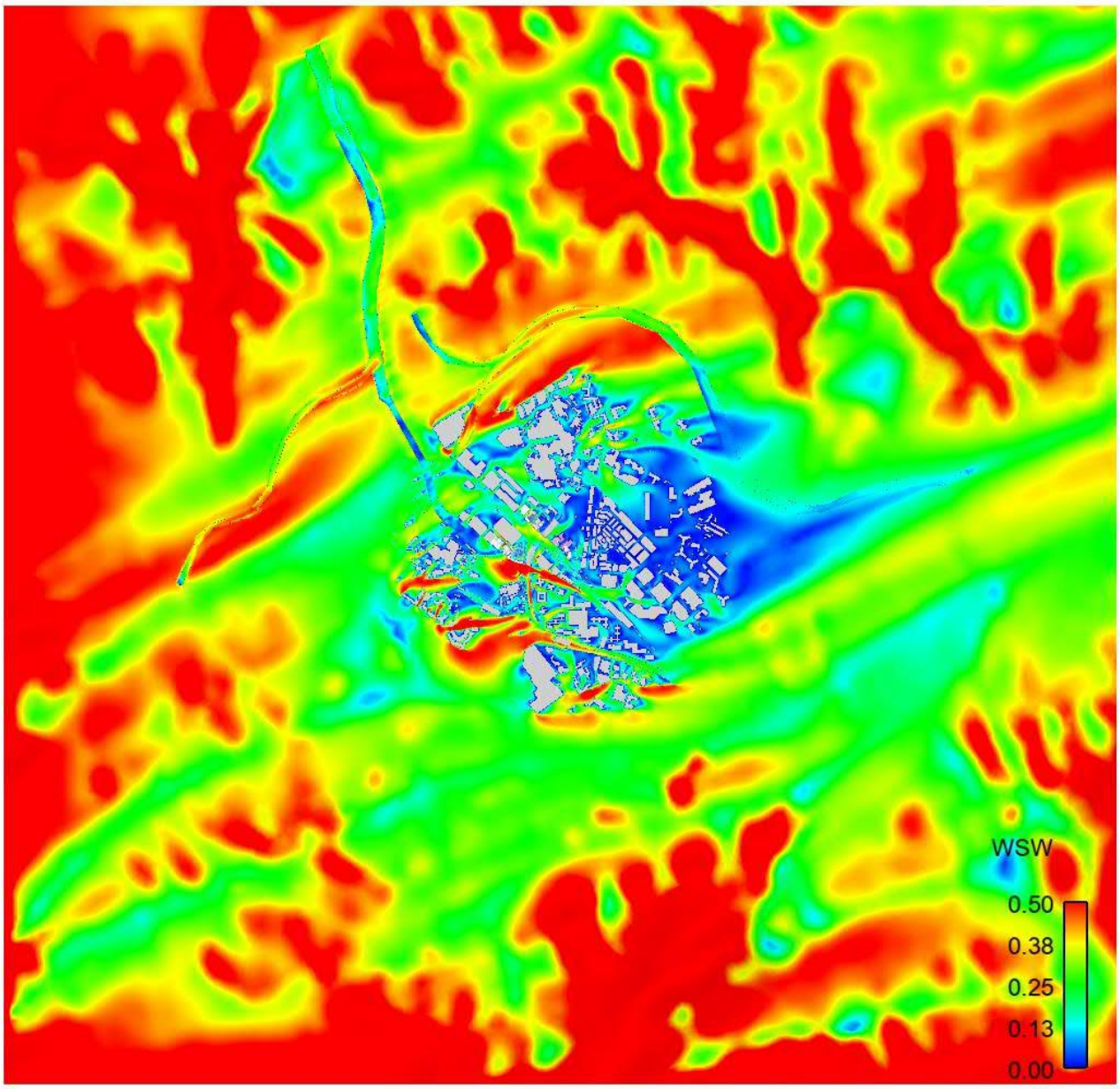


Figure 44 Proposed Scheme Full Domain Velocity Contour Plot under WSW wind C-44

C.1 Baseline Scheme

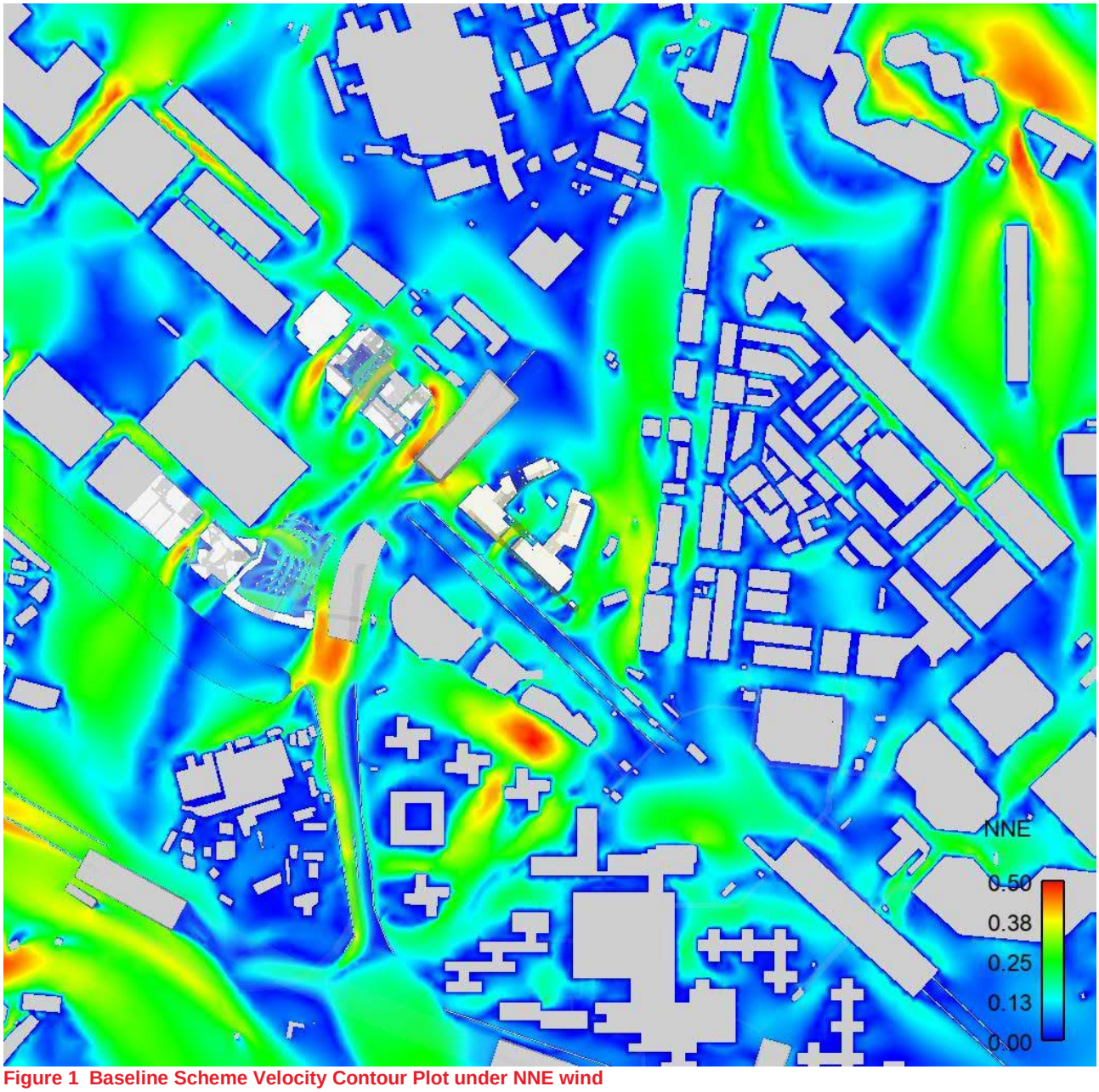


Figure 1 Baseline Scheme Velocity Contour Plot under NNE wind

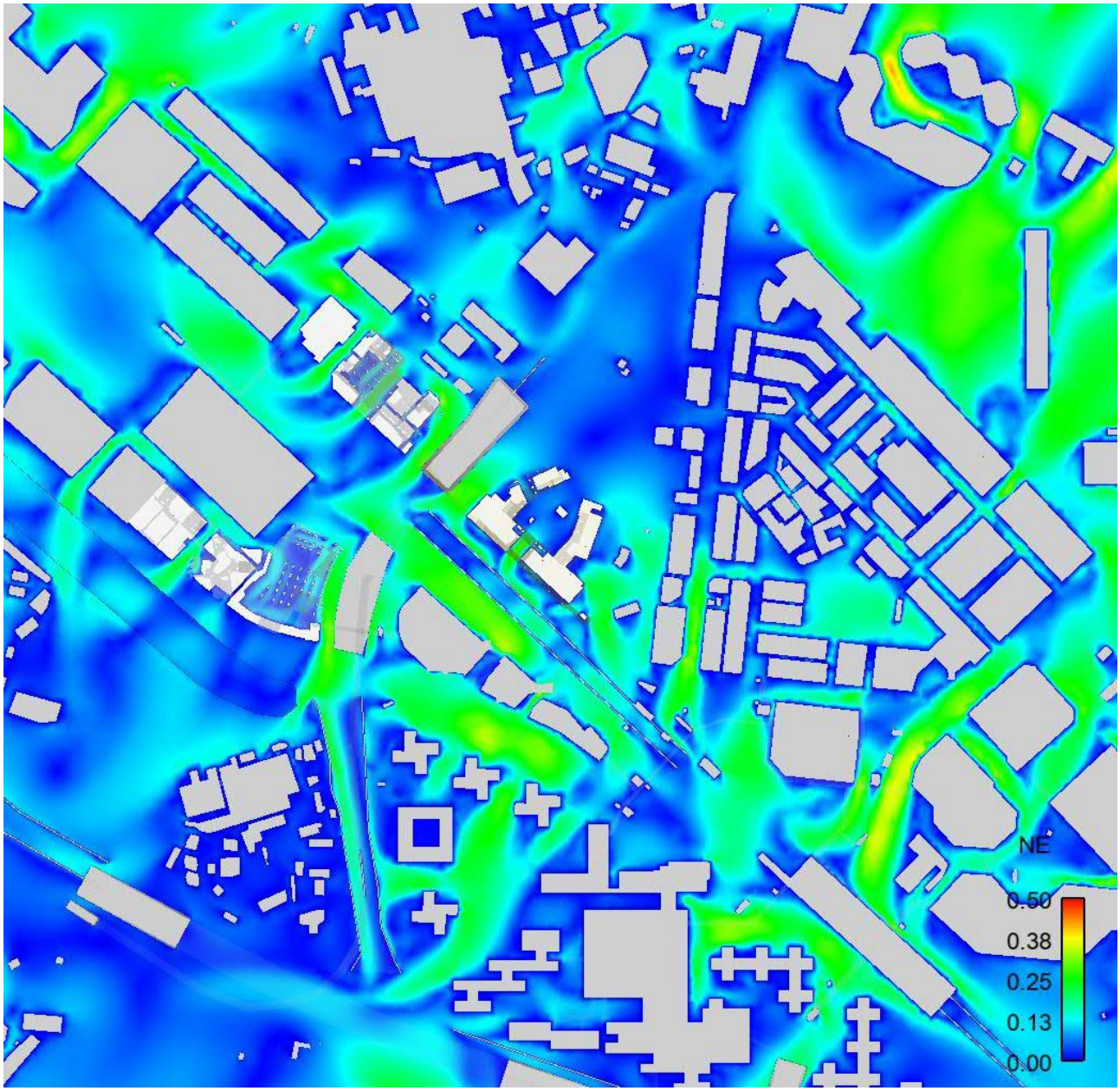


Figure 2 Baseline Scheme Velocity Contour Plot under NE wind

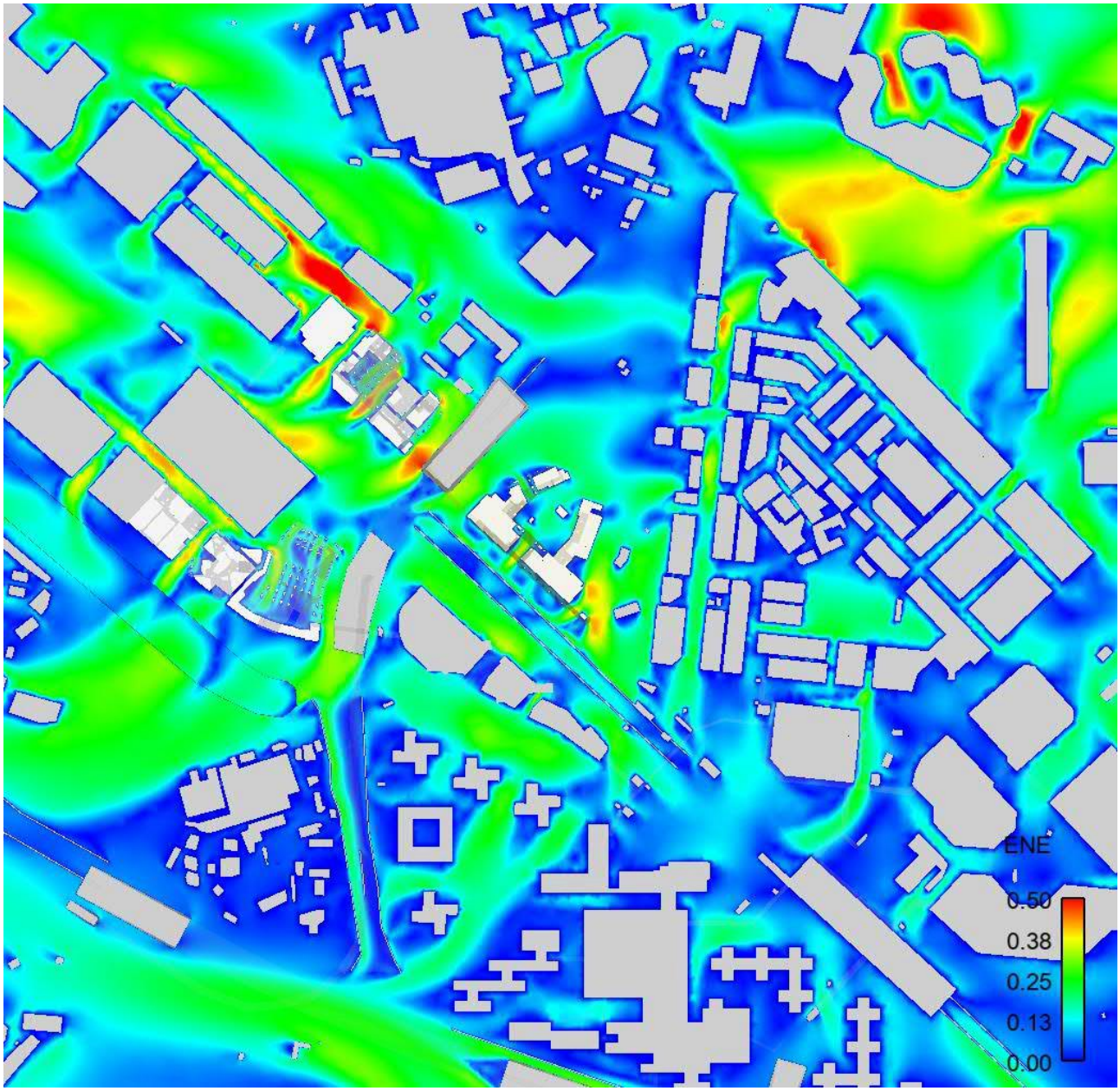


Figure 3 Baseline Scheme Velocity Contour Plot under ENE wind

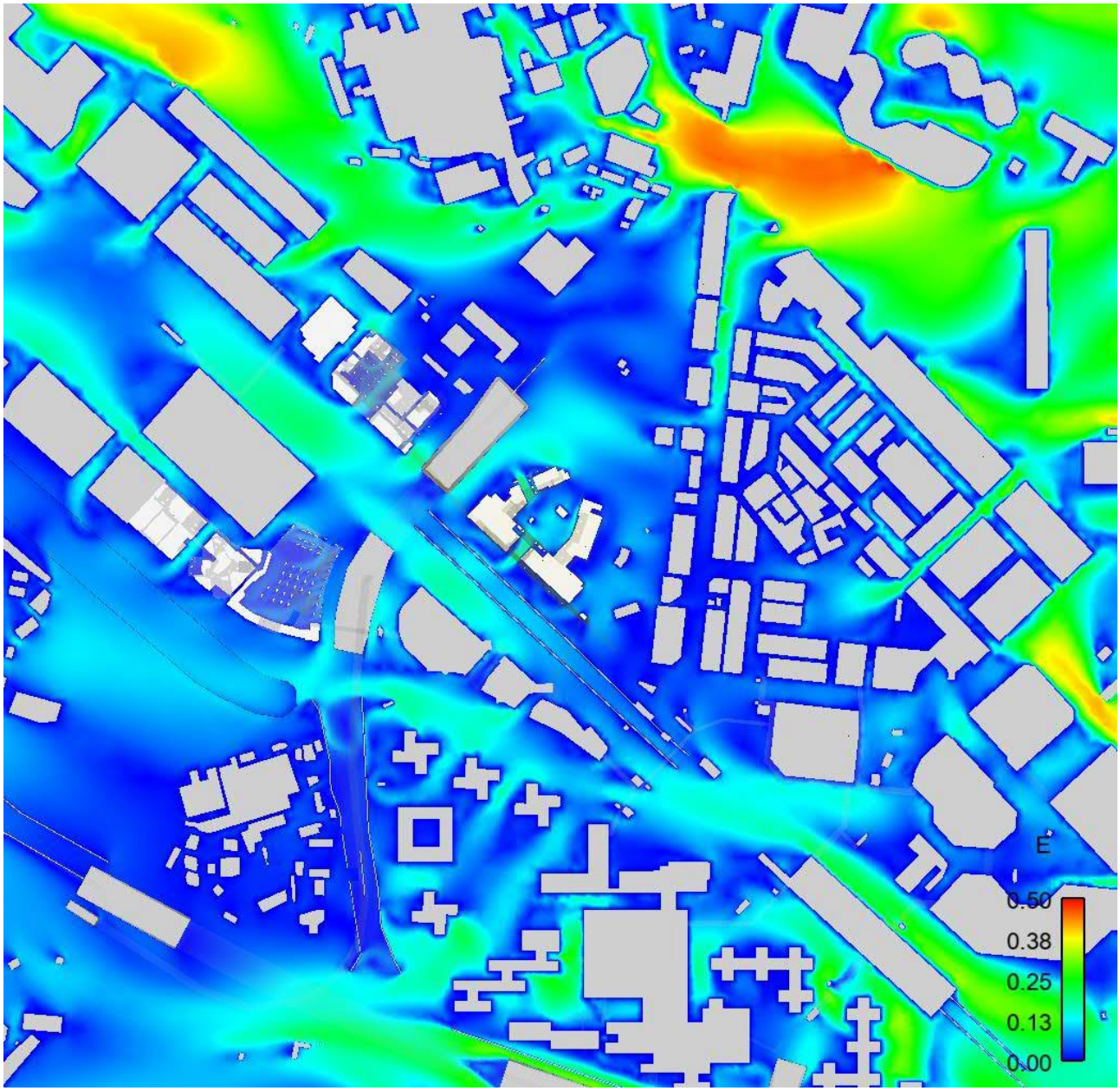


Figure 4 Baseline Scheme Velocity Contour Plot under E wind

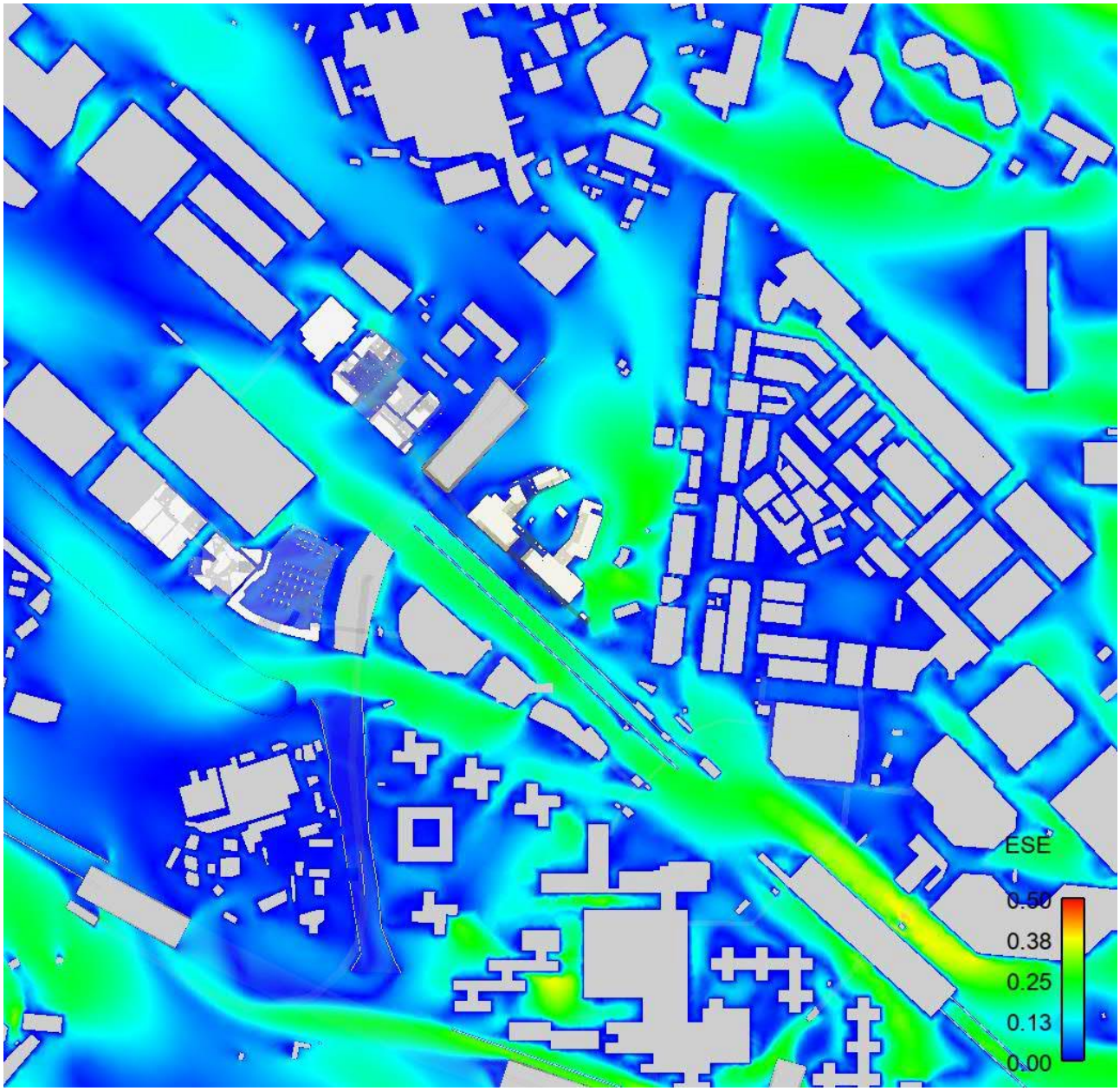


Figure 5 Baseline Scheme Velocity Contour Plot under ESE wind

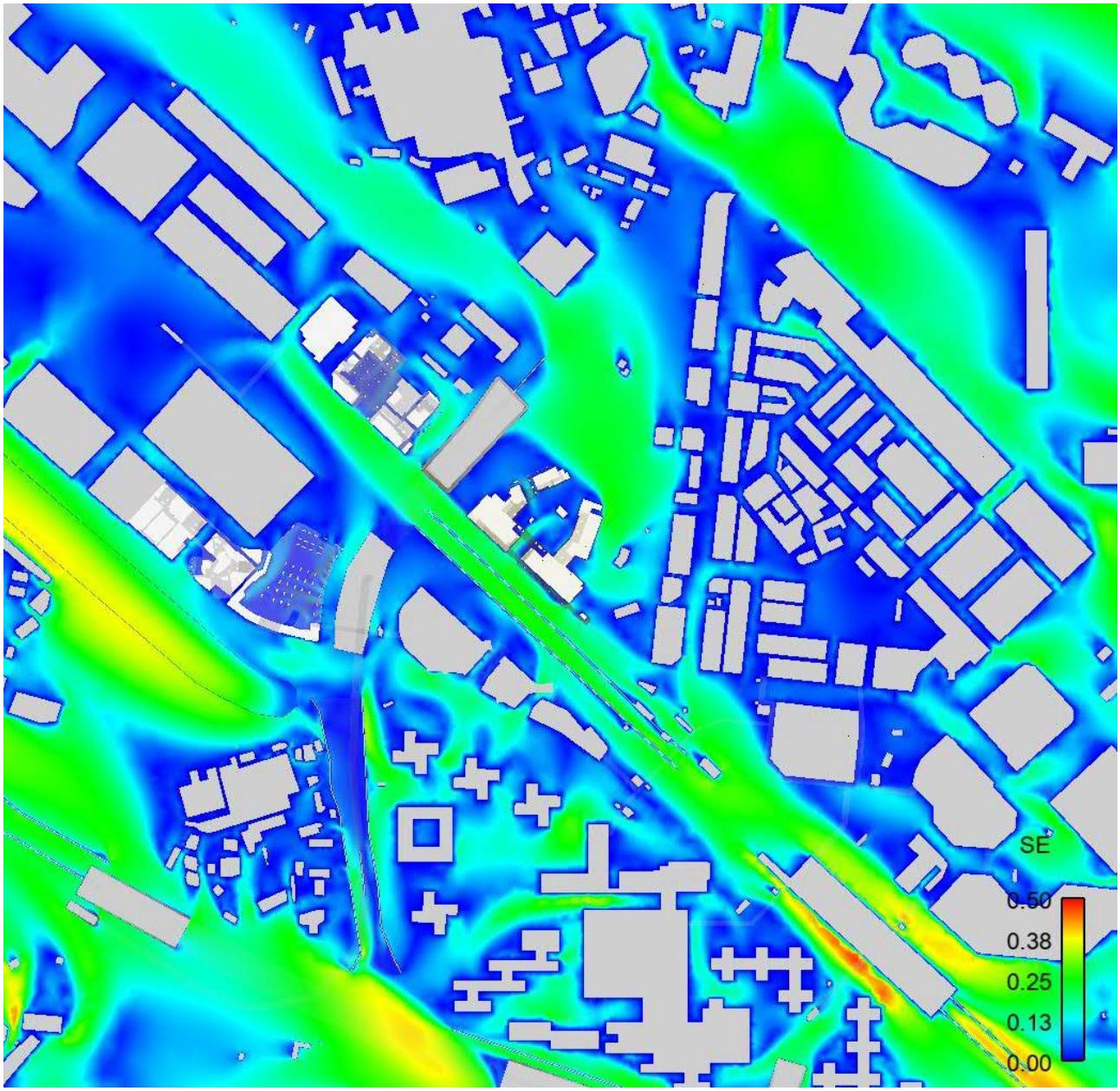


Figure 6 Baseline Scheme Velocity Contour Plot under SE wind

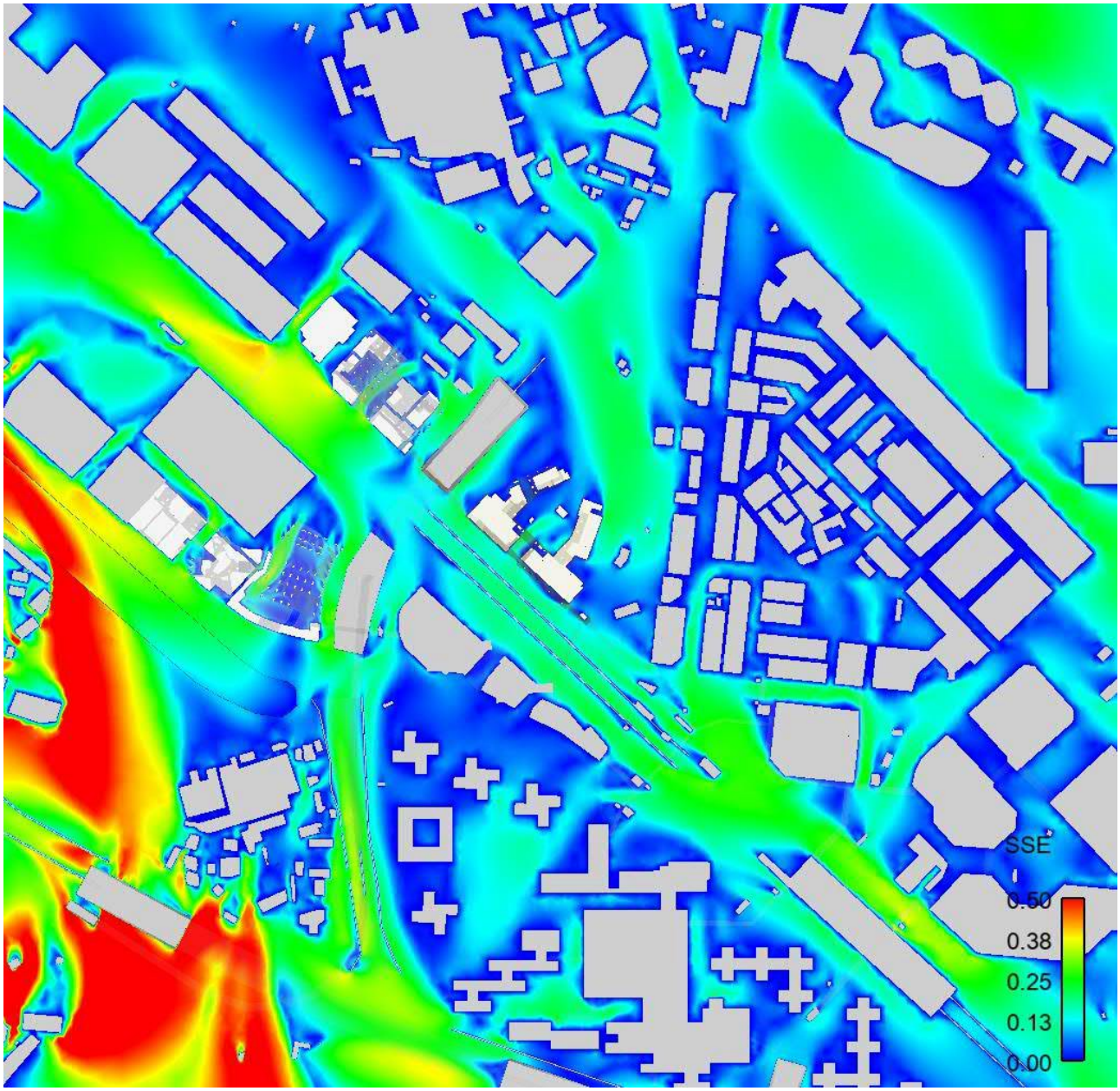


Figure 7 Baseline Scheme Velocity Contour Plot under SSE wind

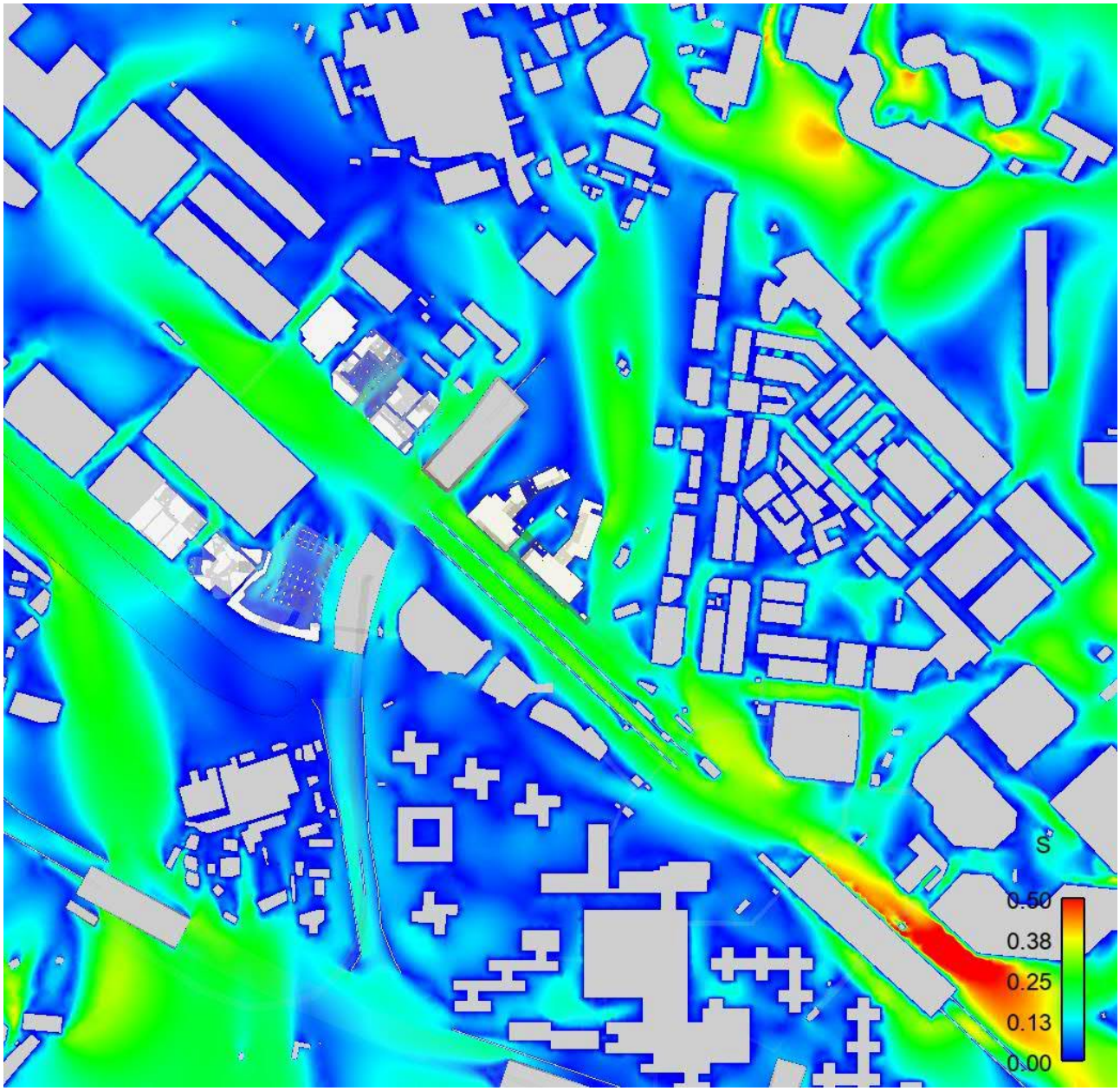


Figure 8 Baseline Scheme Velocity Contour Plot under S wind

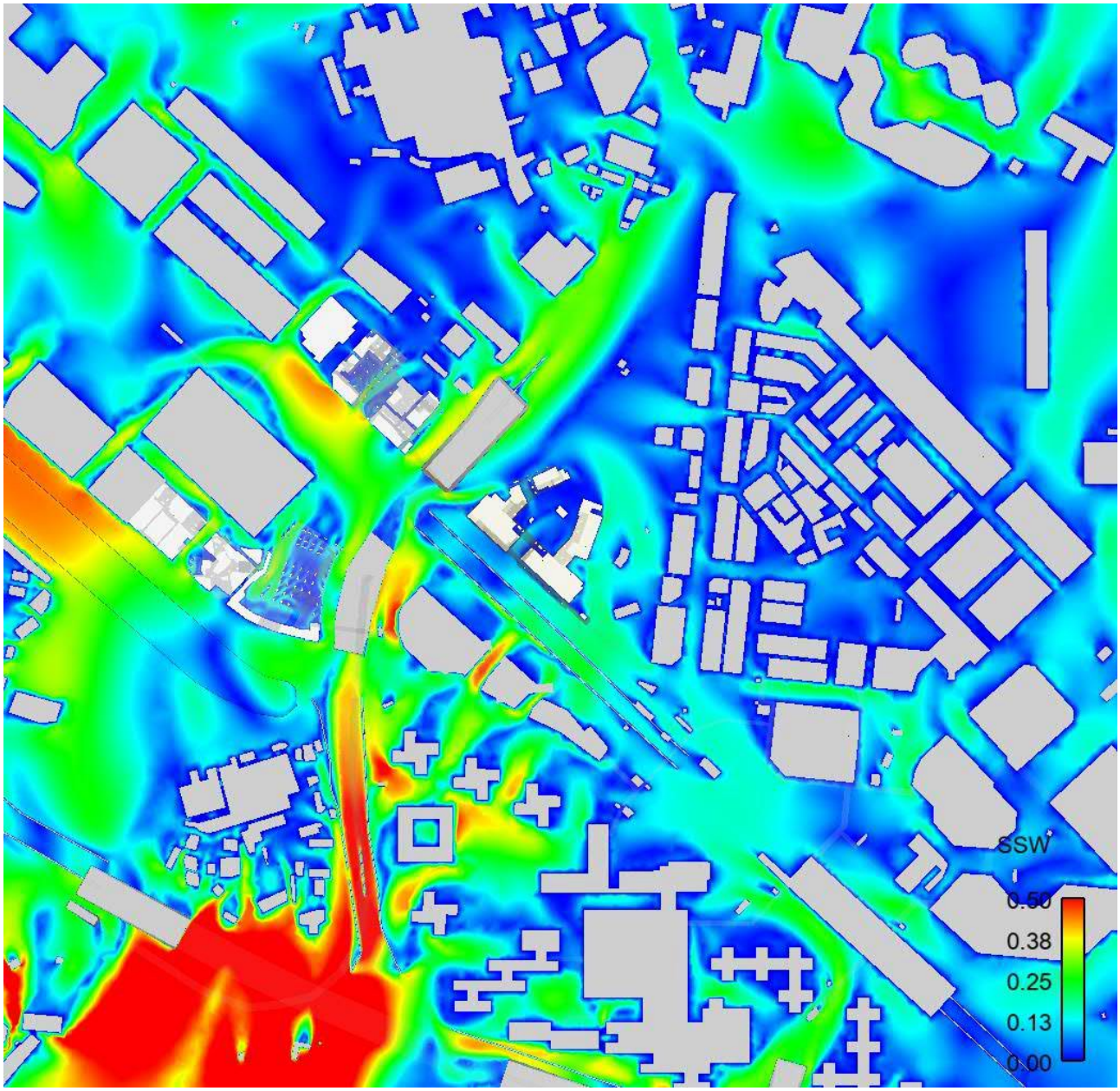


Figure 9 Baseline Scheme Velocity Contour Plot under SSW wind

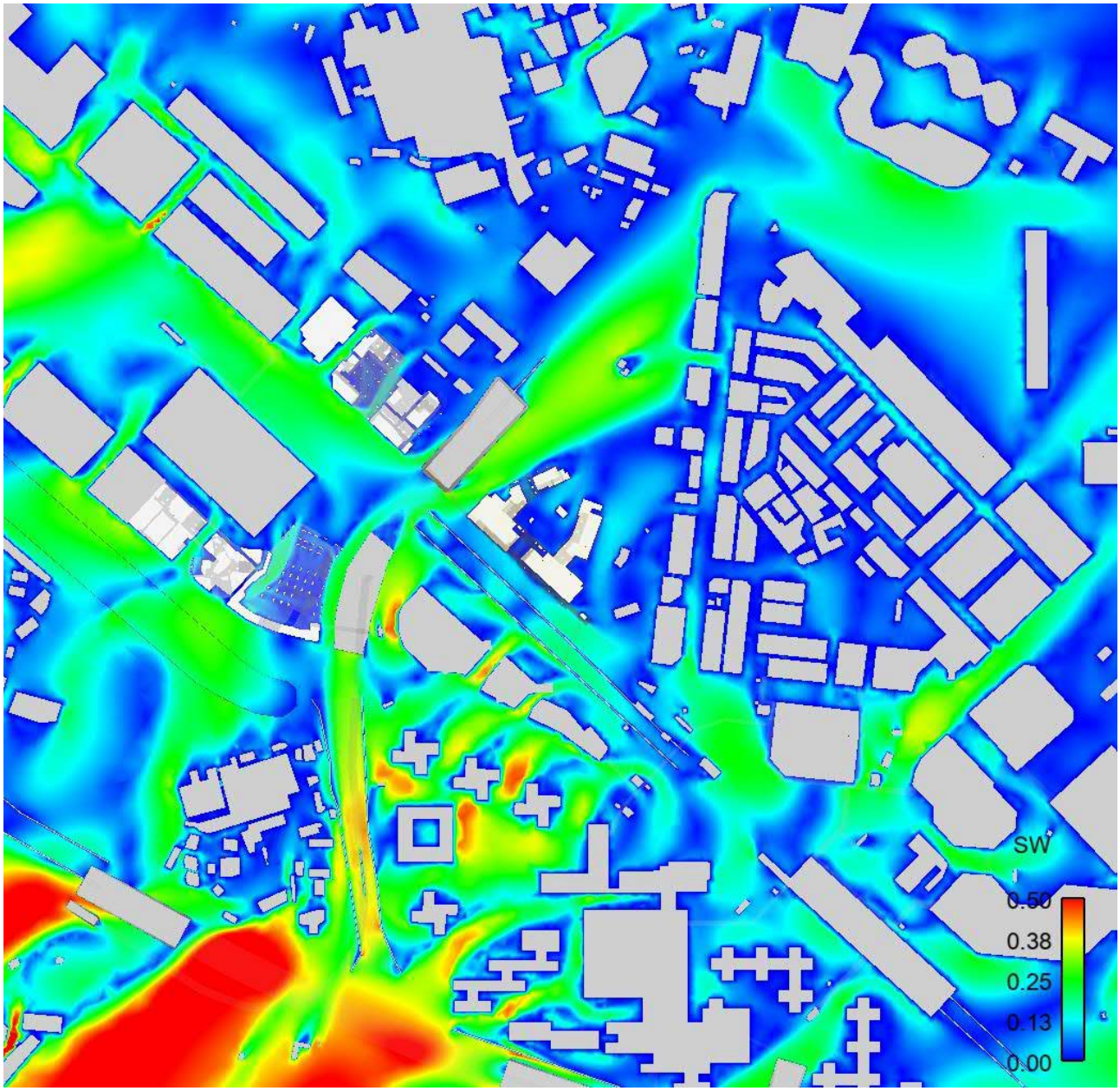


Figure 10 Baseline Scheme Velocity Contour Plot under SW wind

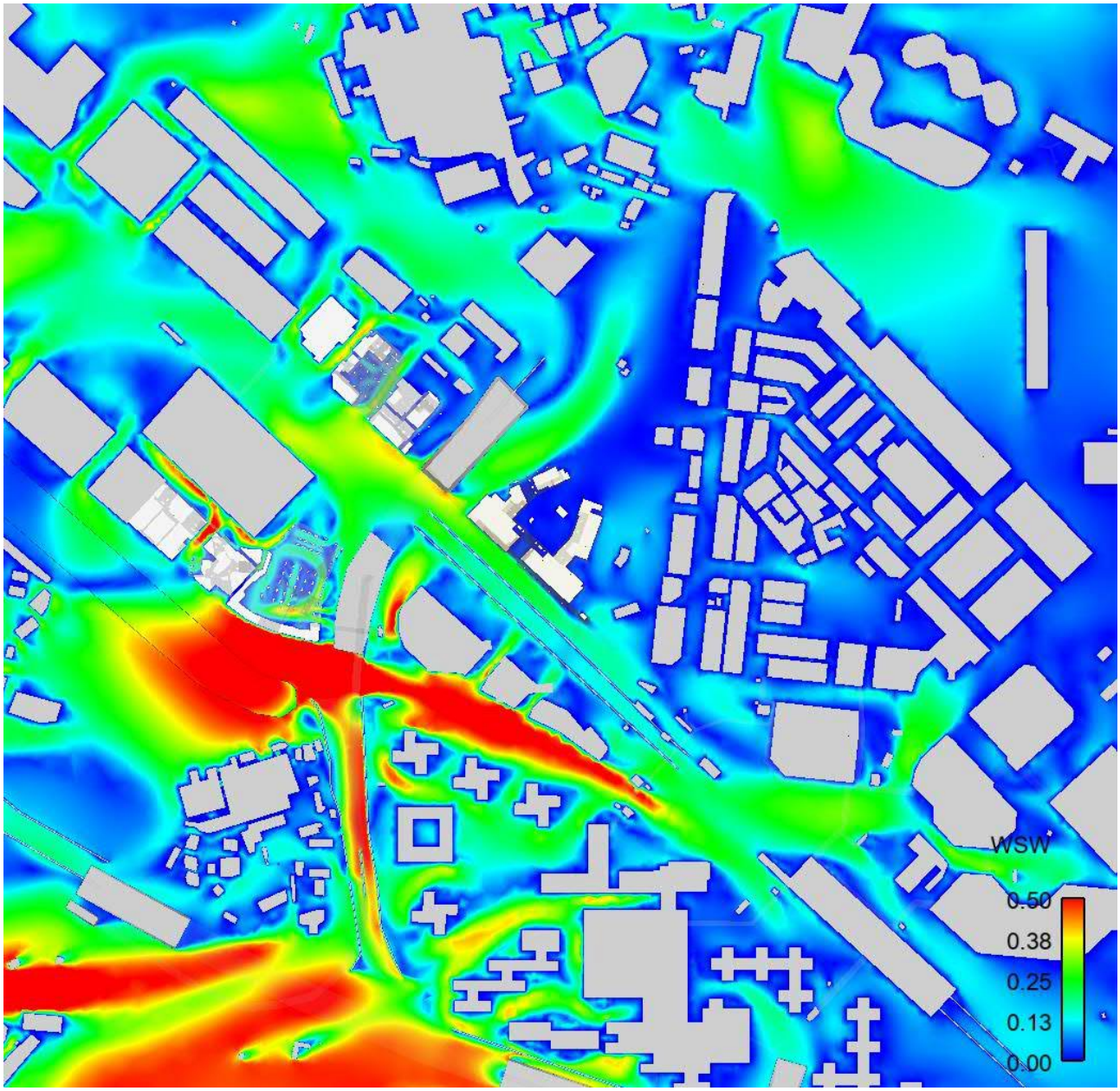


Figure 11 Baseline Scheme Velocity Contour Plot under WSW wind

C.2 Baseline Scheme (Full Domain)

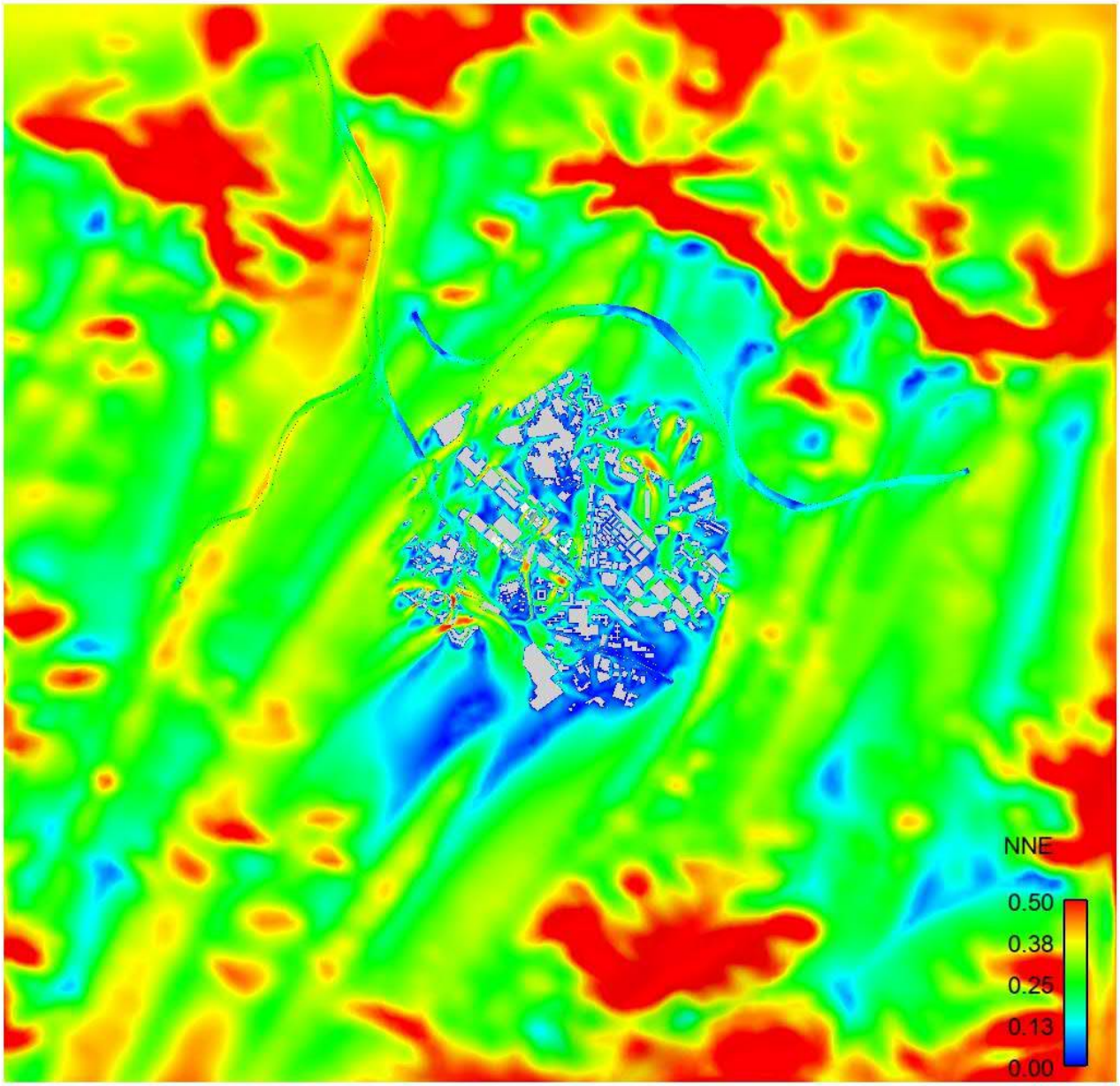


Figure 12 Baseline Scheme Full Domain Velocity Contour Plot under NNE wind

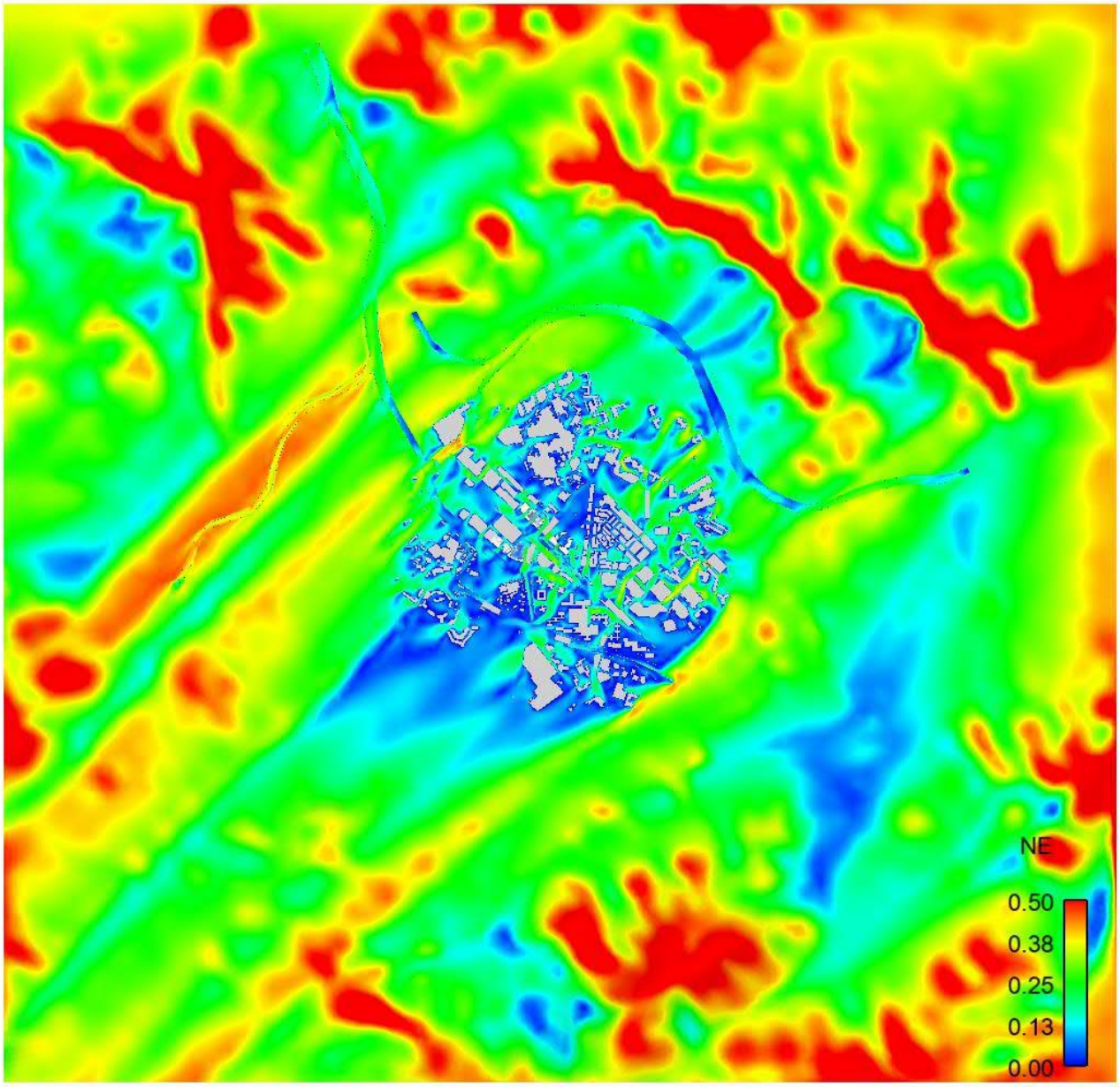


Figure 13 Baseline Scheme Full Domain Velocity Contour Plot under NE wind

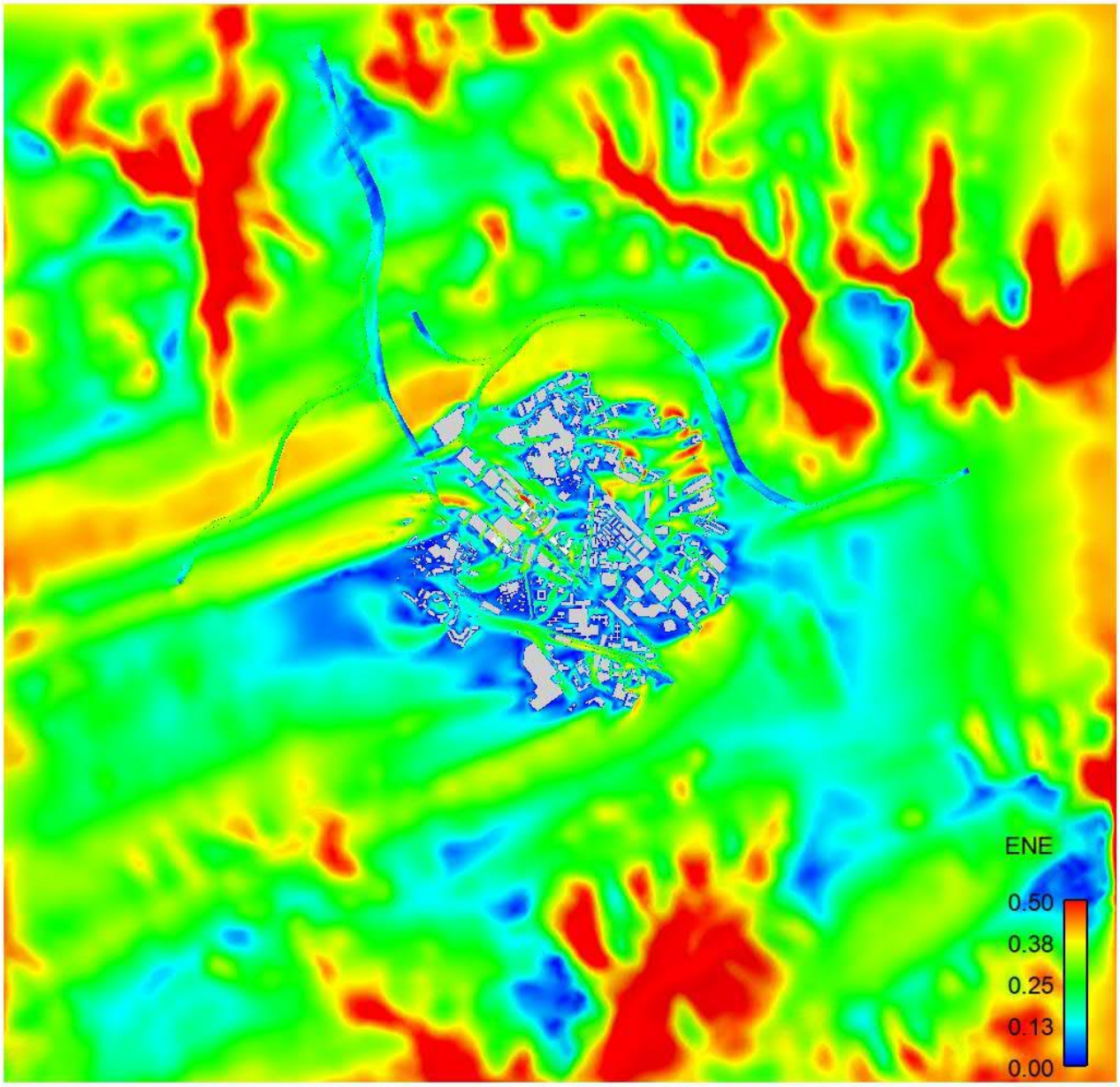


Figure 14 Baseline Scheme Full Domain Velocity Contour Plot under ENE wind

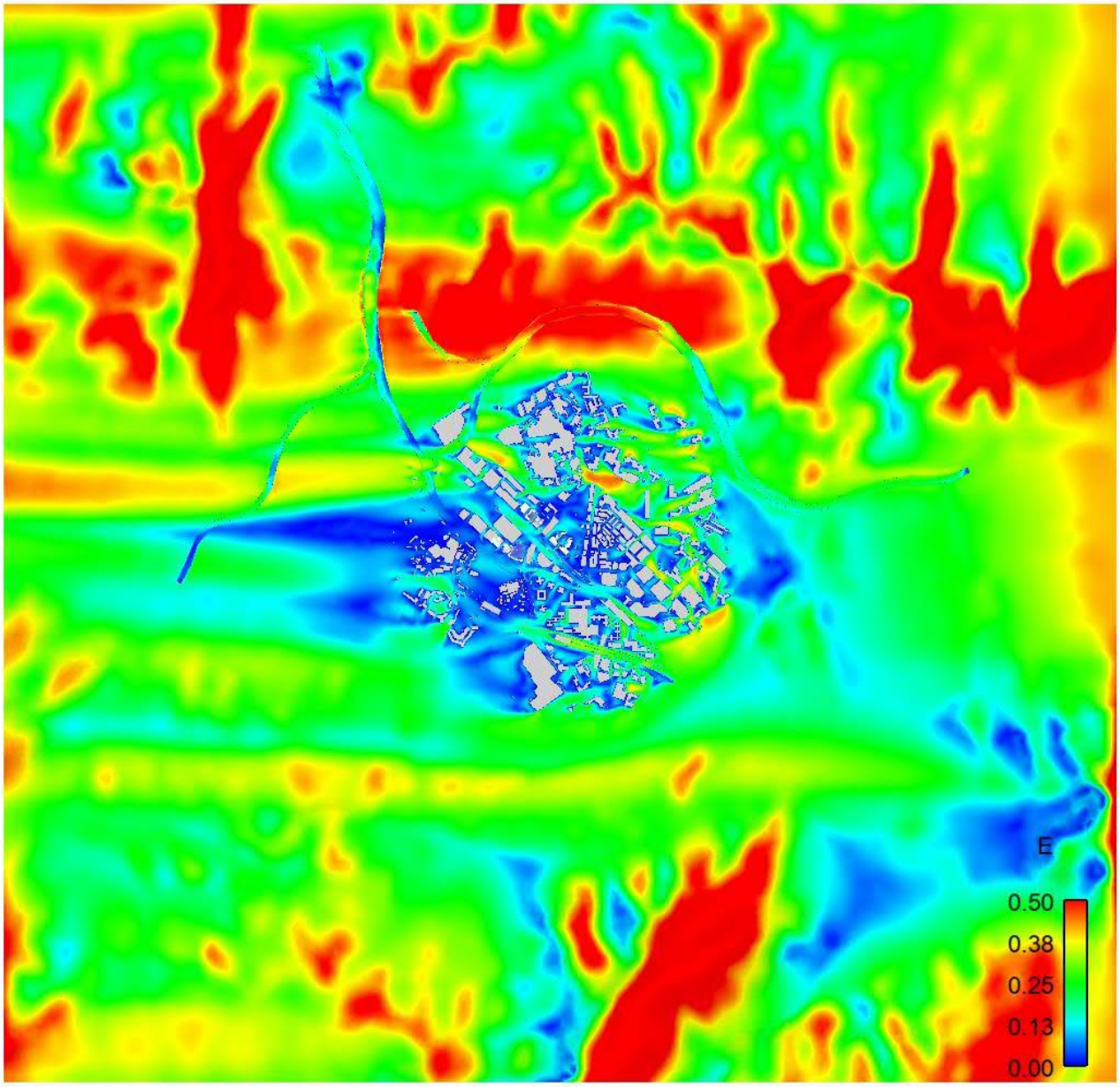


Figure 15 Baseline Scheme Full Domain Velocity Contour Plot under E wind

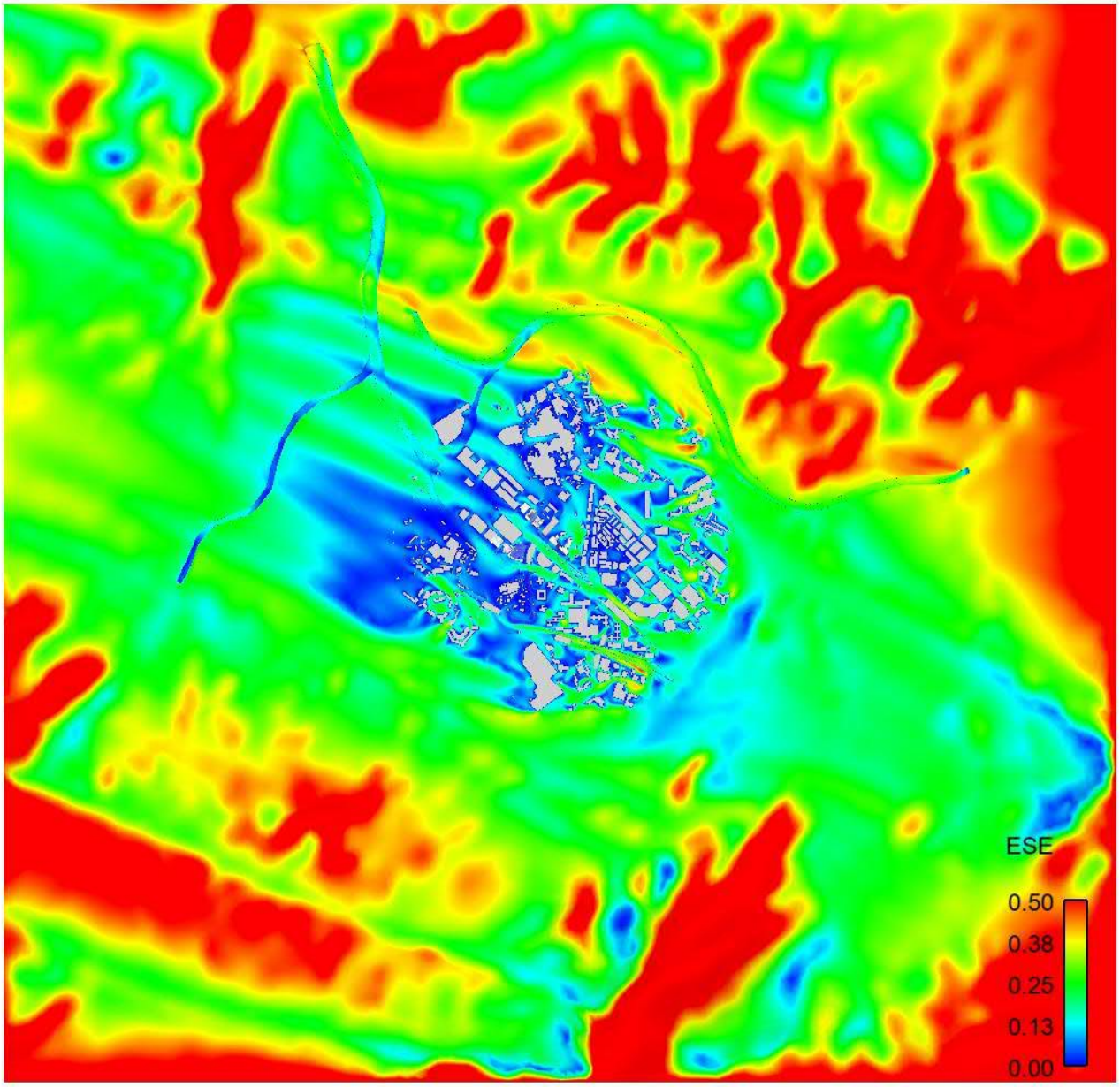


Figure 16 Baseline Scheme Full Domain Velocity Contour Plot under ESE wind

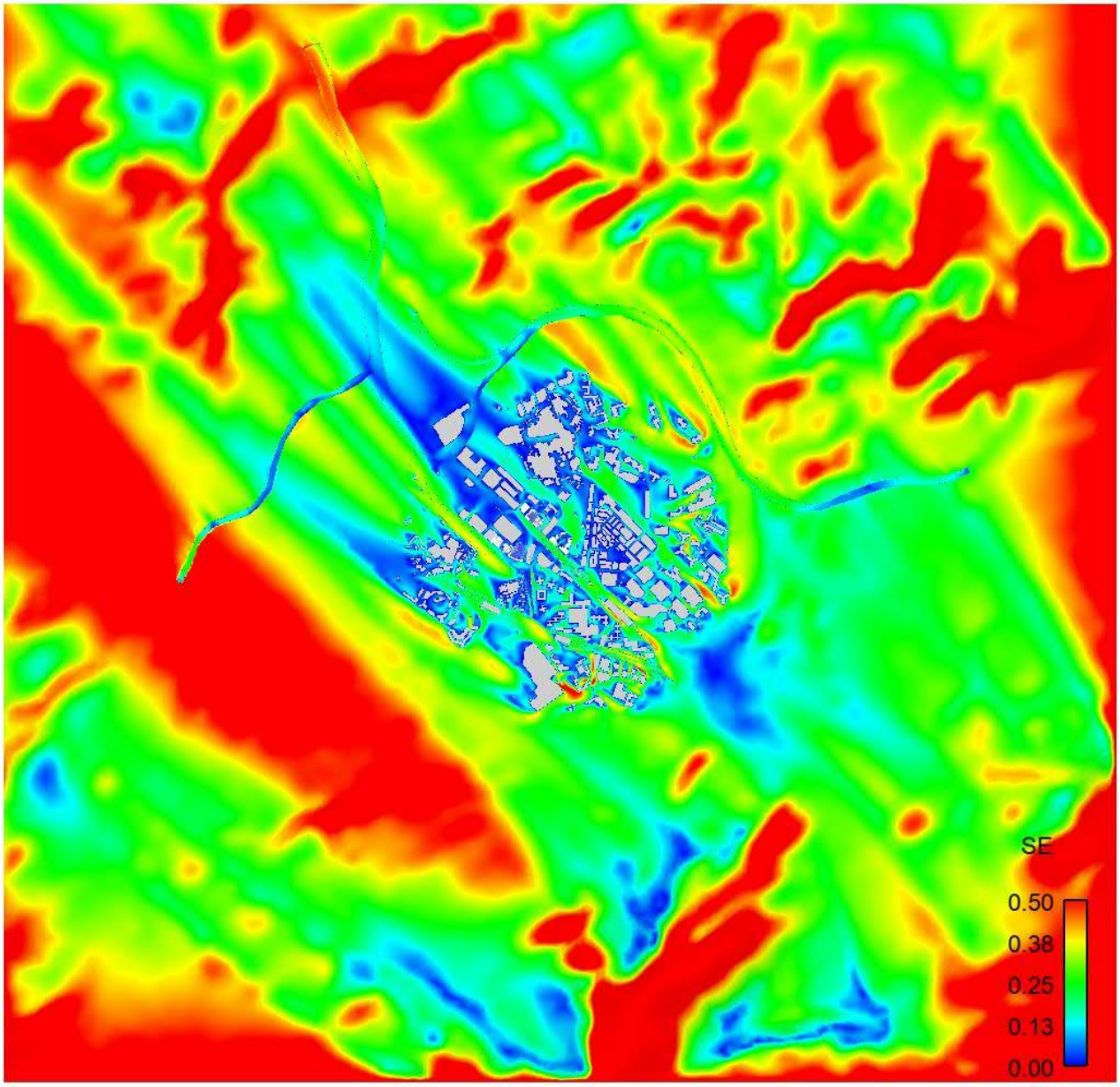


Figure 17 Baseline Scheme Full Domain Velocity Contour Plot under SE wind

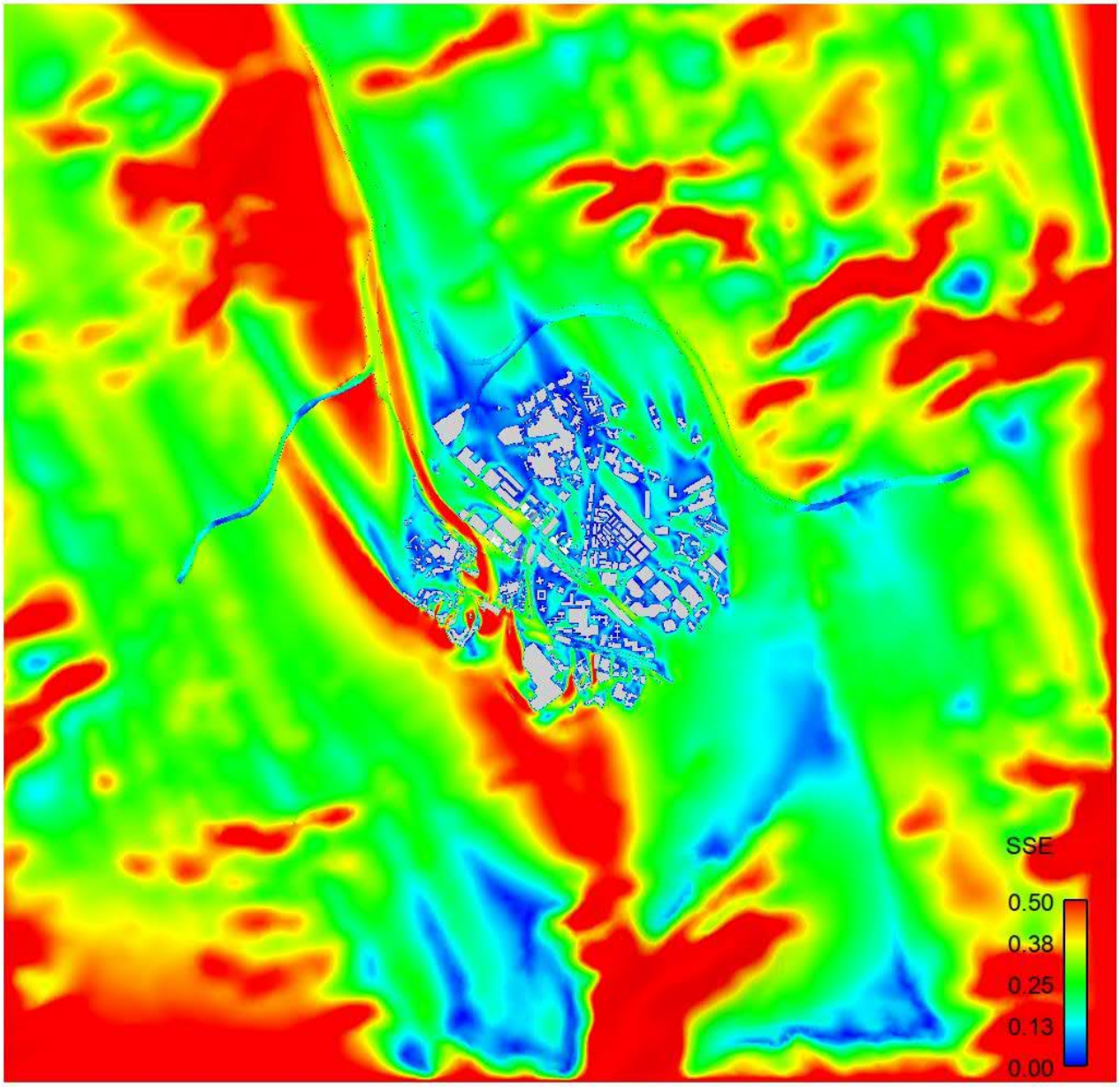


Figure 18 Baseline Scheme Full Domain Velocity Contour Plot under SSE wind

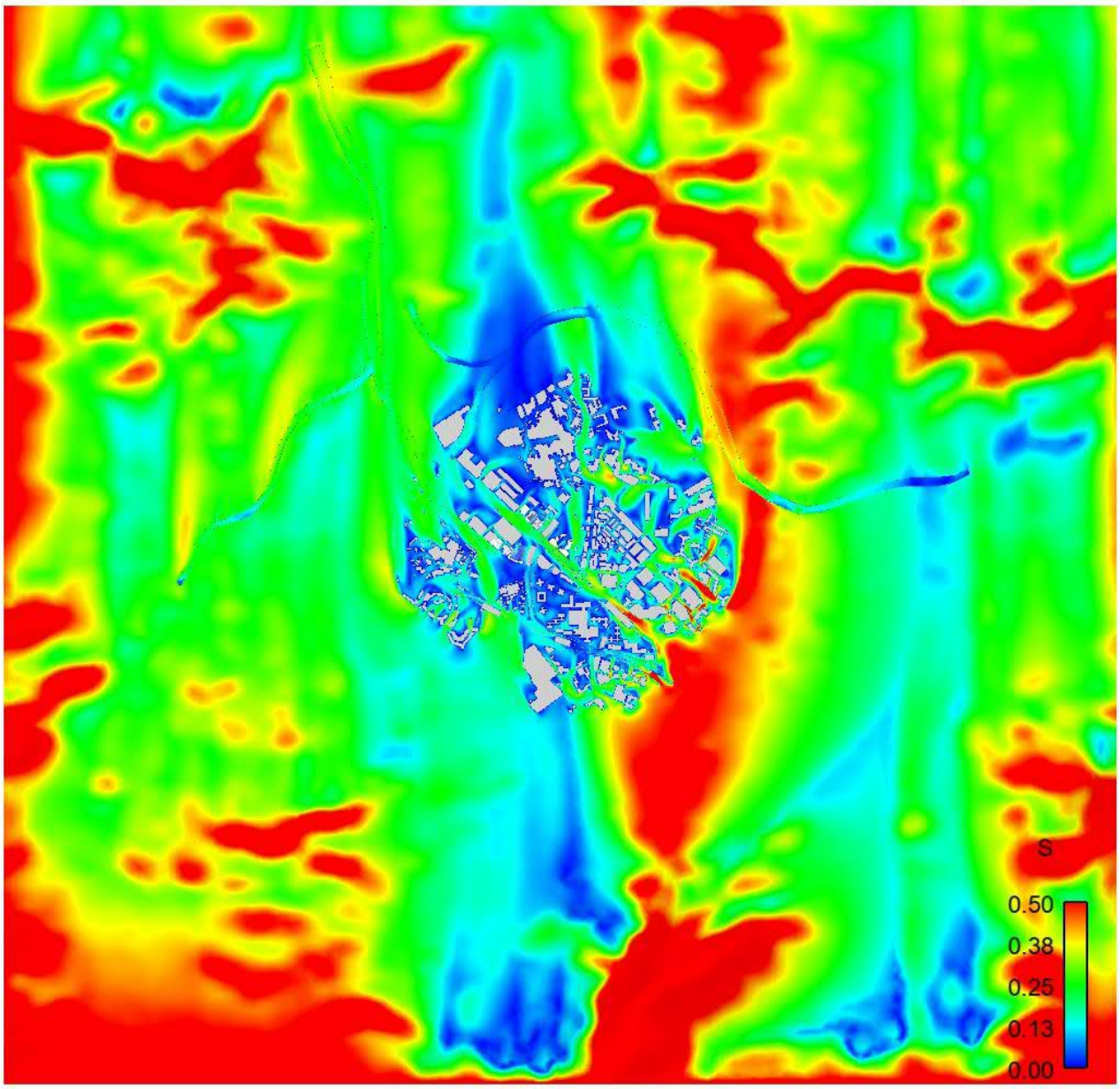


Figure 19 Baseline Scheme Full Domain Velocity Contour Plot under S wind

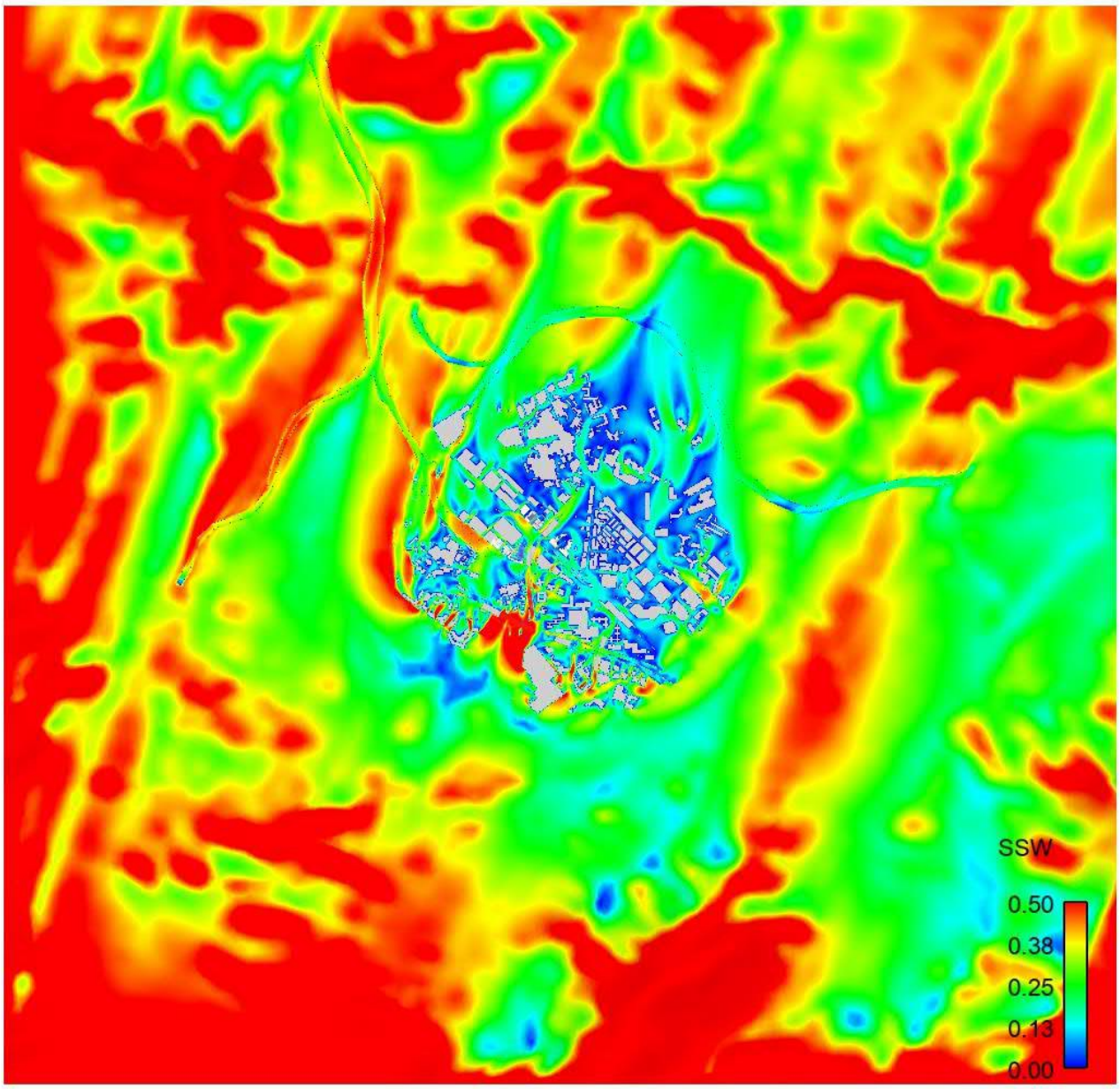


Figure 20 Baseline Scheme Full Domain Velocity Contour Plot under SSW wind

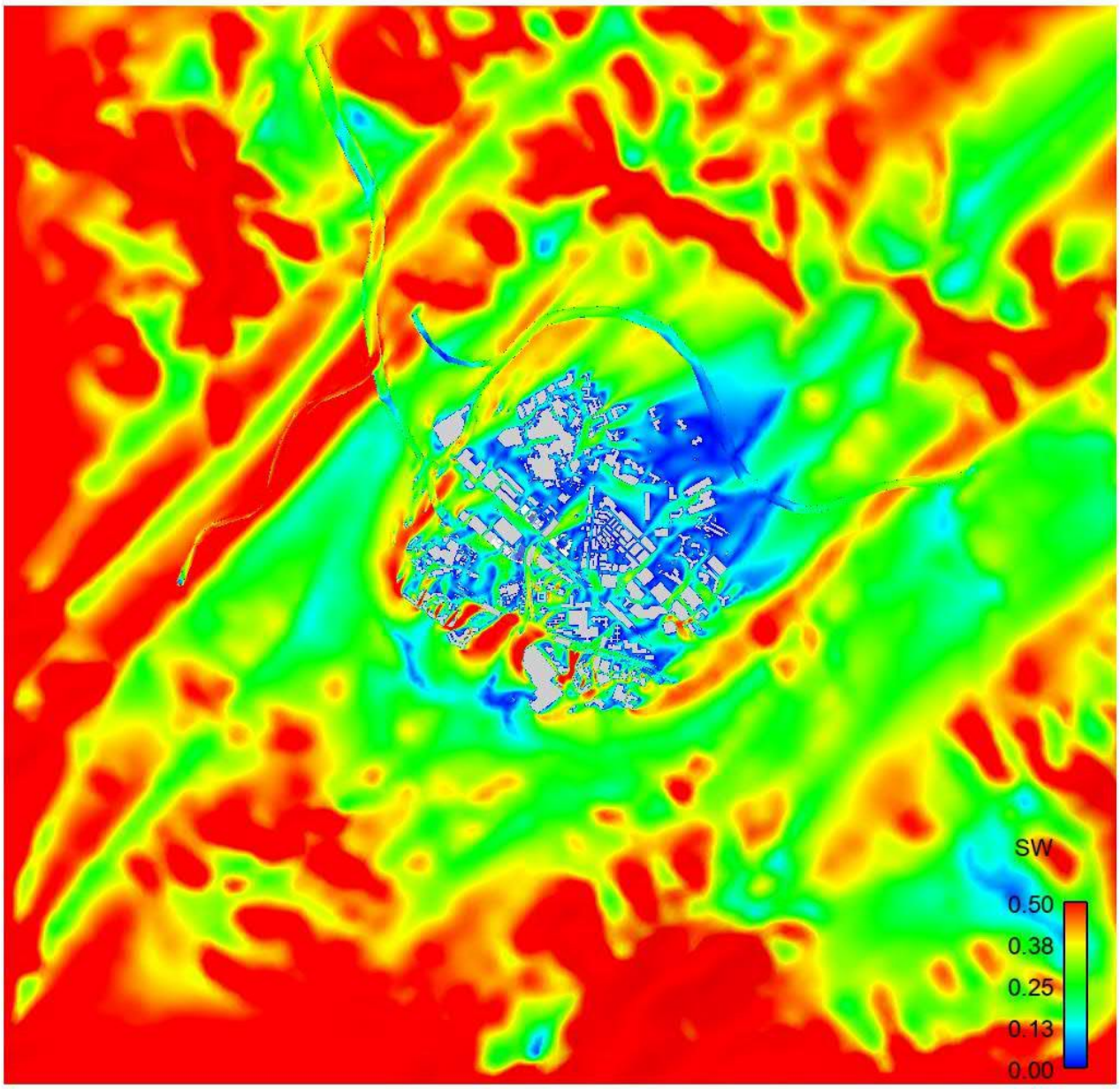


Figure 21 Baseline Scheme Full Domain Velocity Contour Plot under SW wind

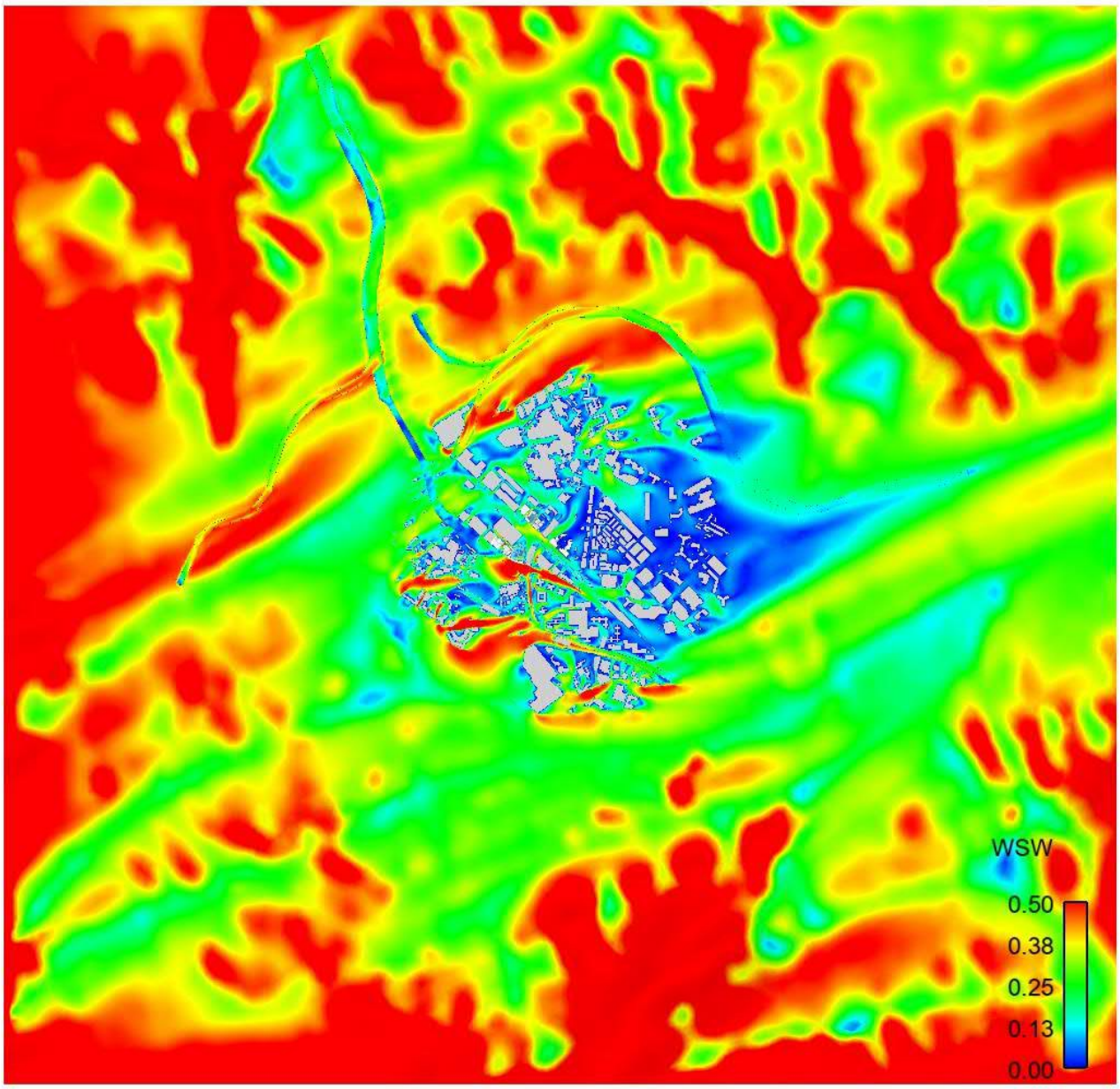


Figure 22 Baseline Scheme Full Domain Velocity Contour Plot under WSW wind

C.3 Proposed Scheme

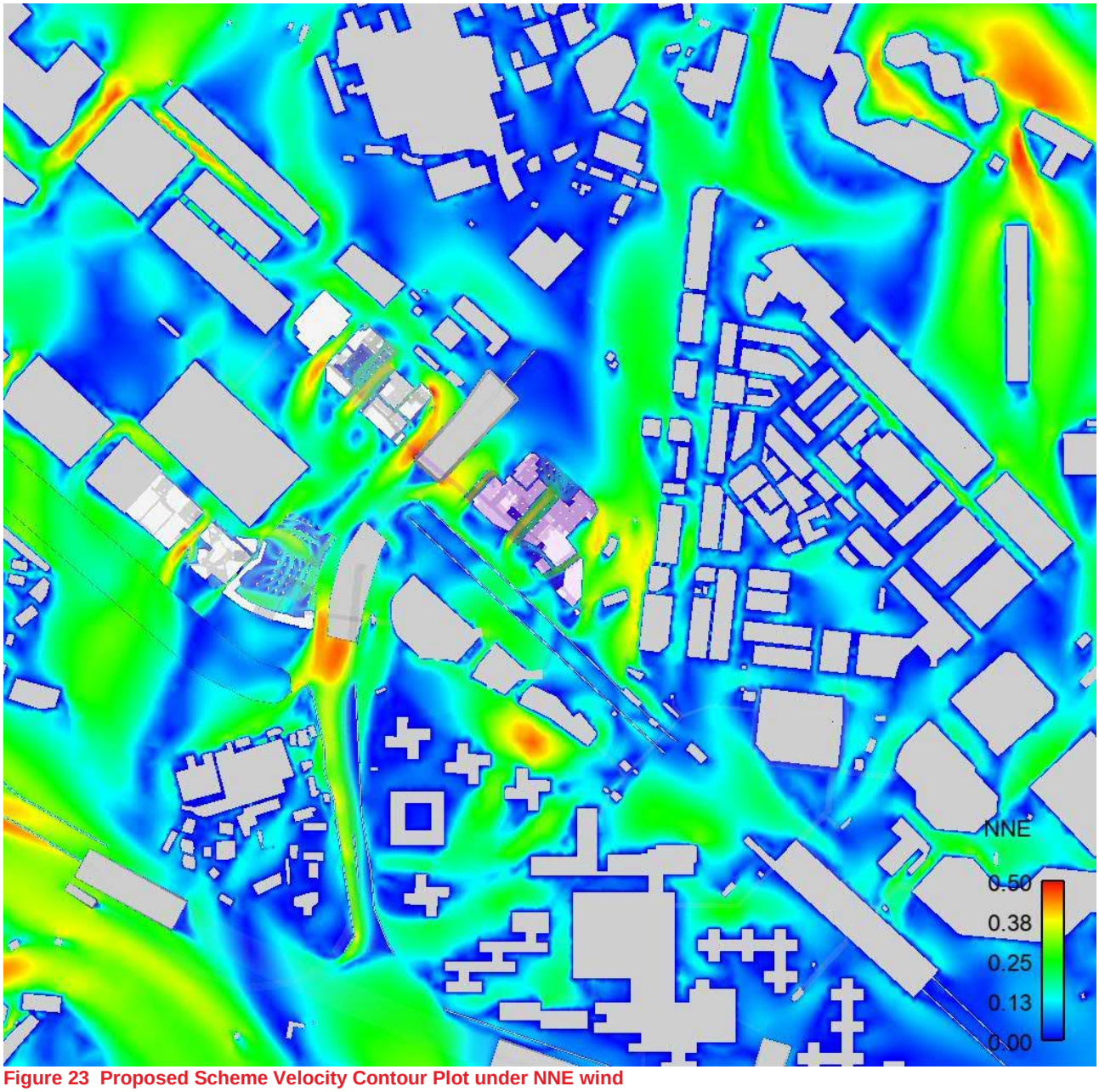


Figure 23 Proposed Scheme Velocity Contour Plot under NNE wind

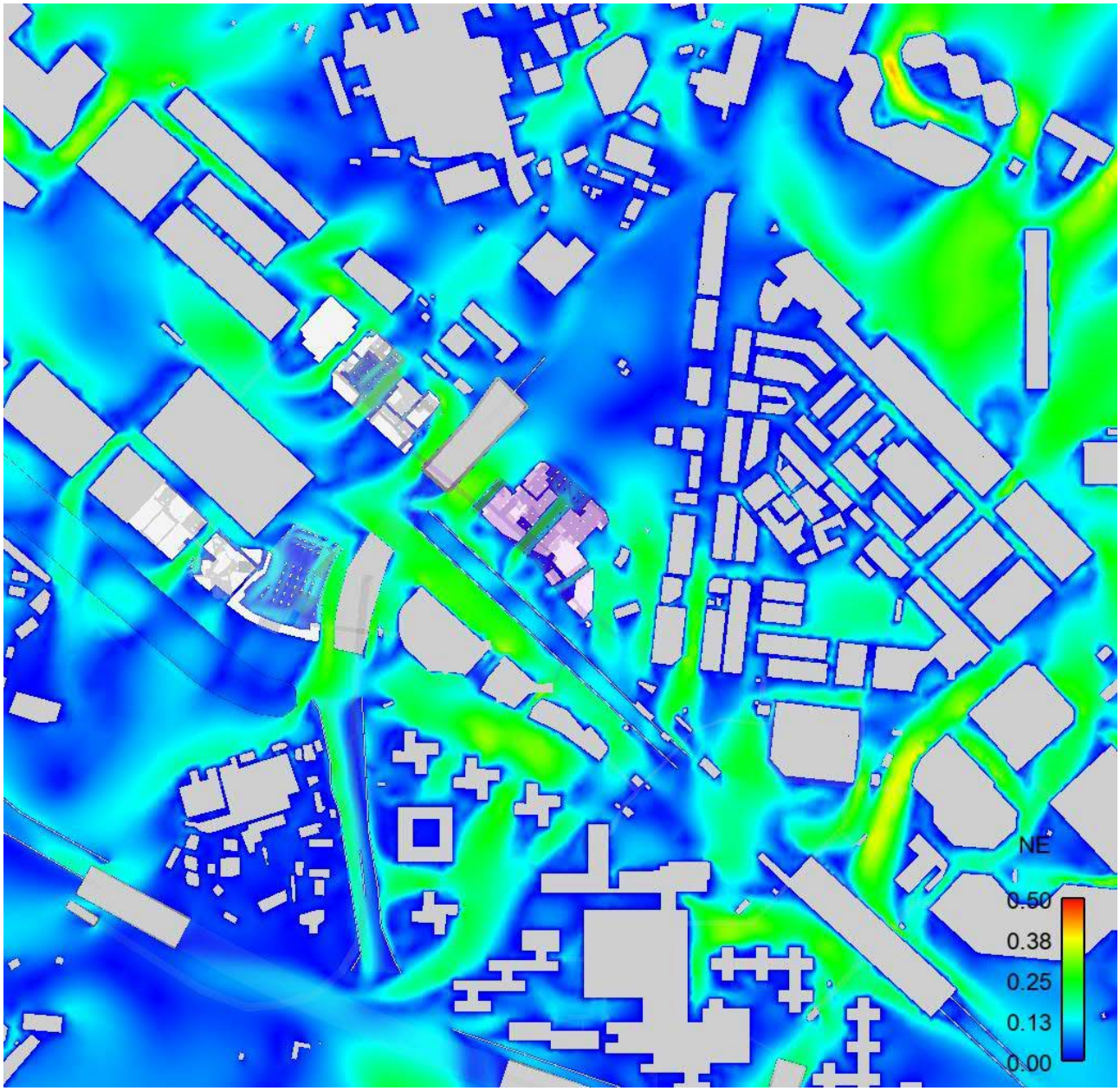


Figure 24 Proposed Scheme Velocity Contour Plot under NE wind

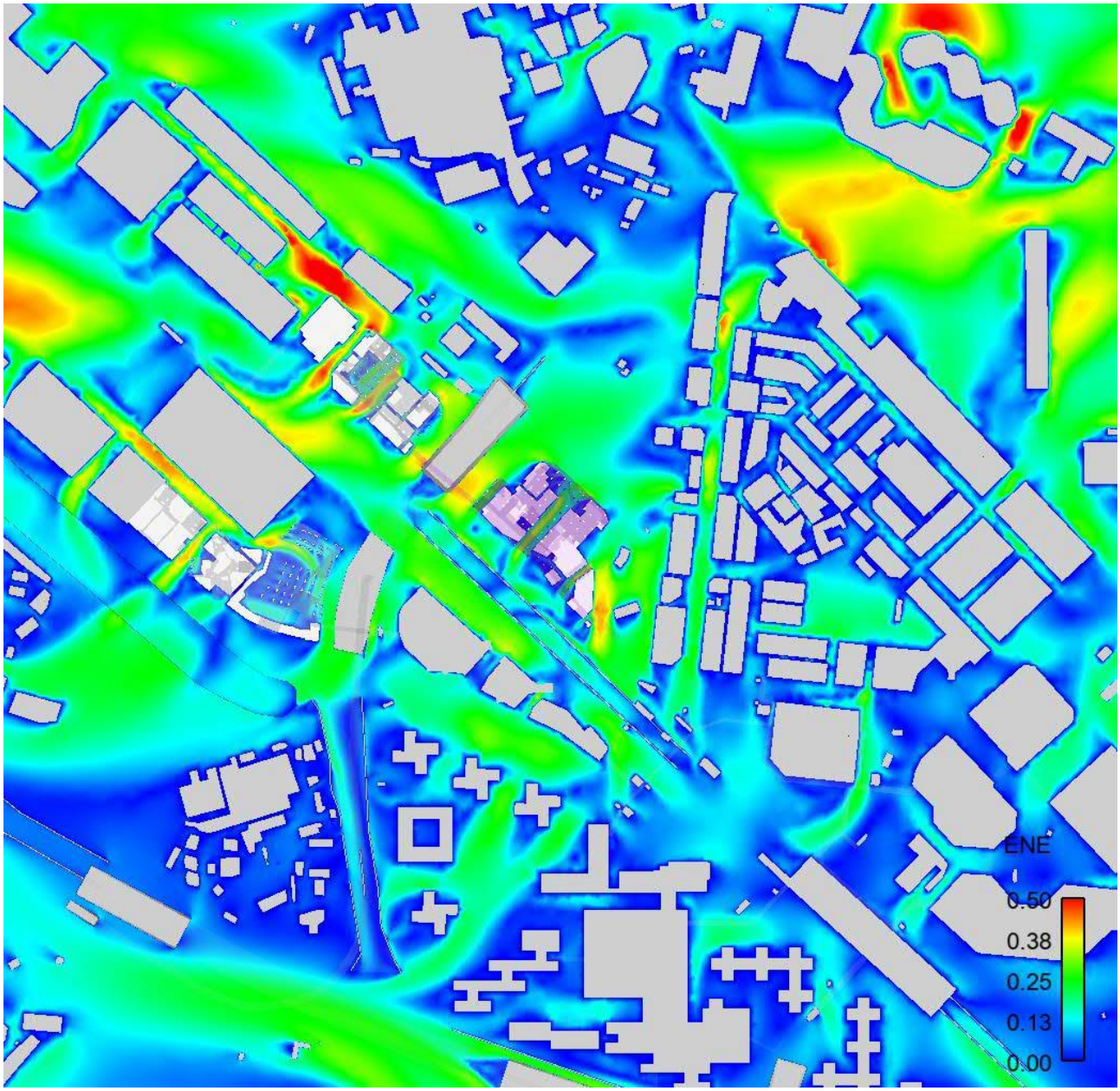


Figure 25 Proposed Scheme Velocity Contour Plot under ENE wind

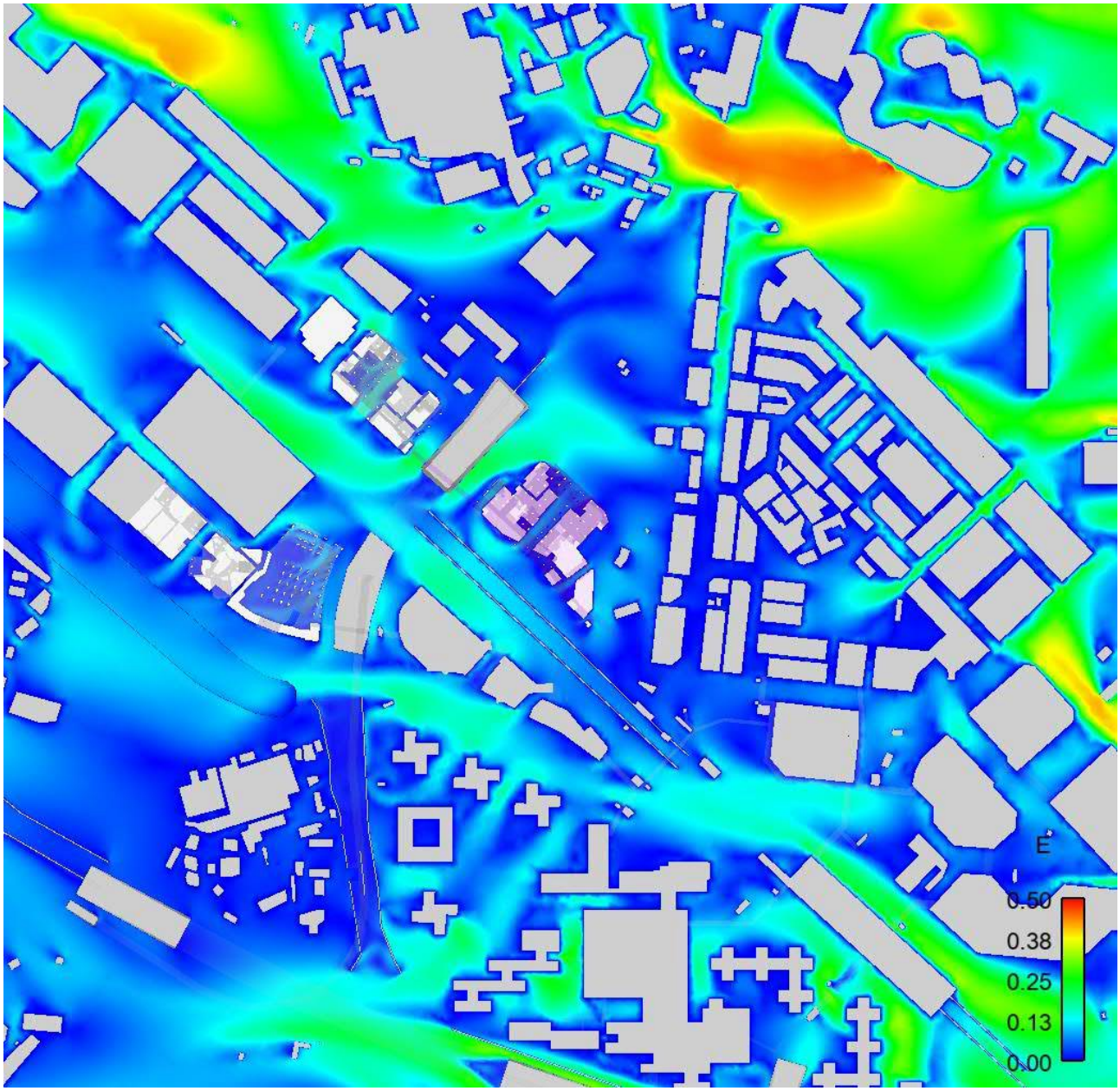


Figure 26 Proposed Scheme Velocity Contour Plot under E wind

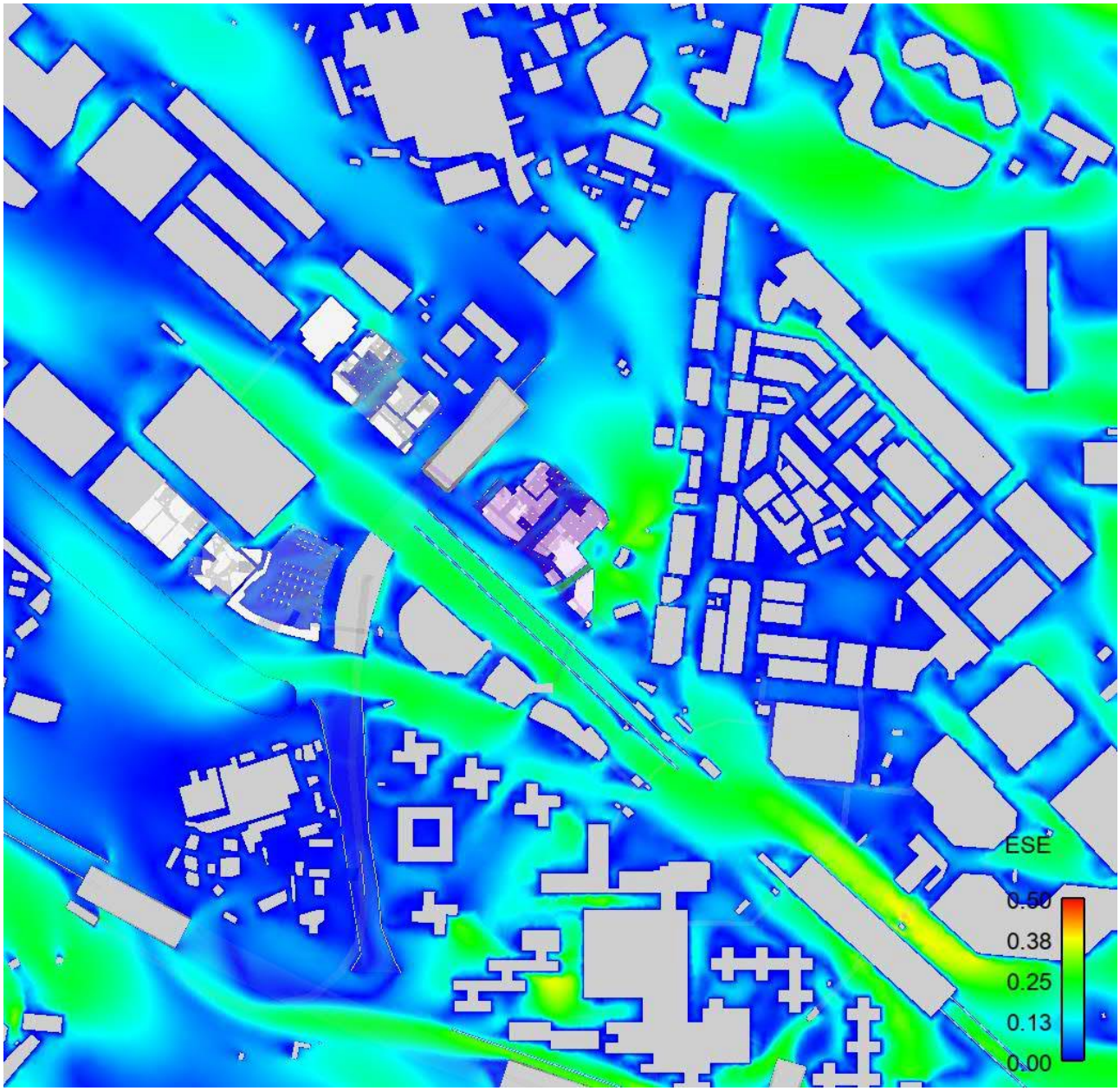


Figure 27 Proposed Scheme Velocity Contour Plot under ESE wind

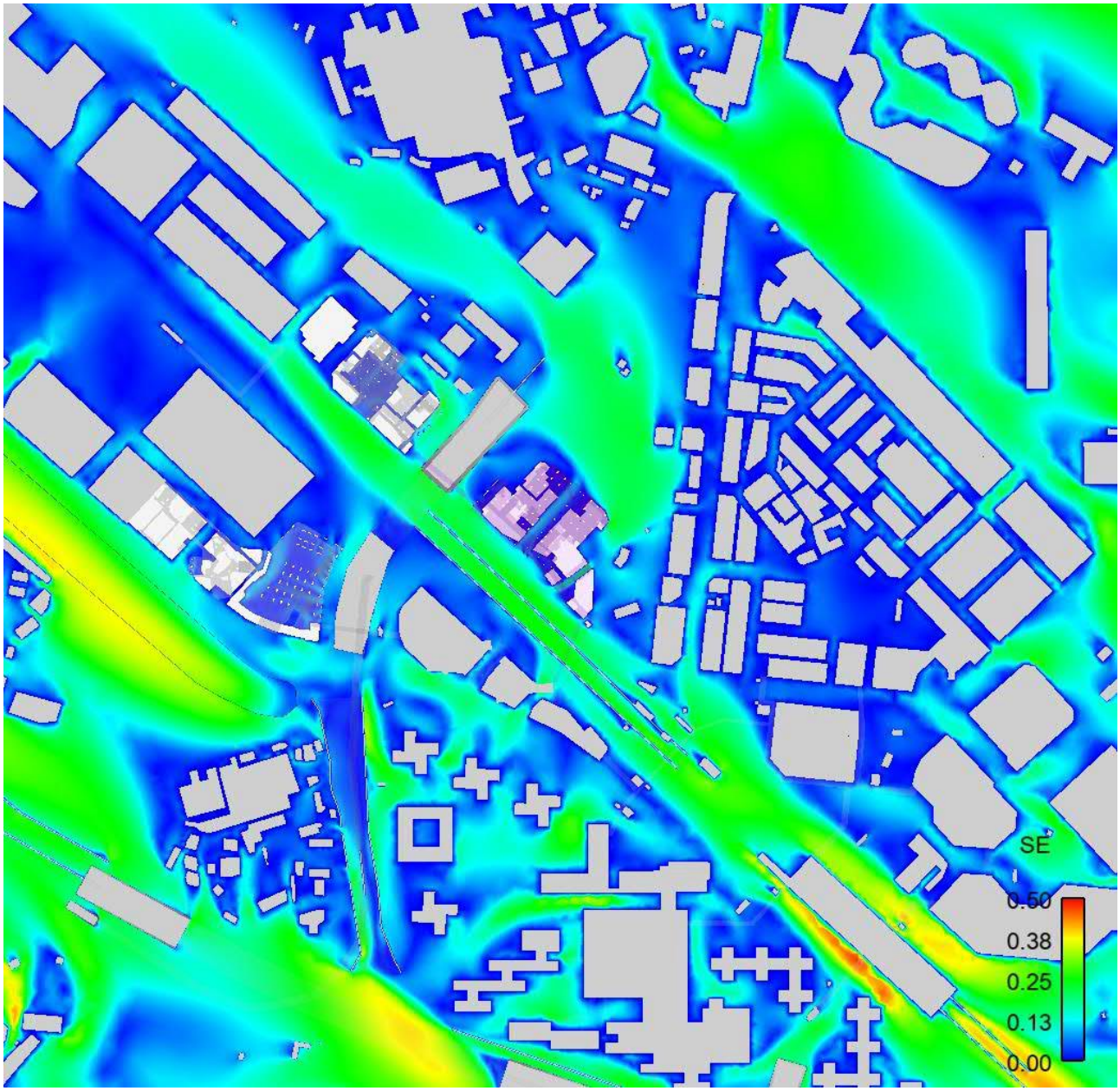


Figure 28 Proposed Scheme Velocity Contour Plot under SE wind

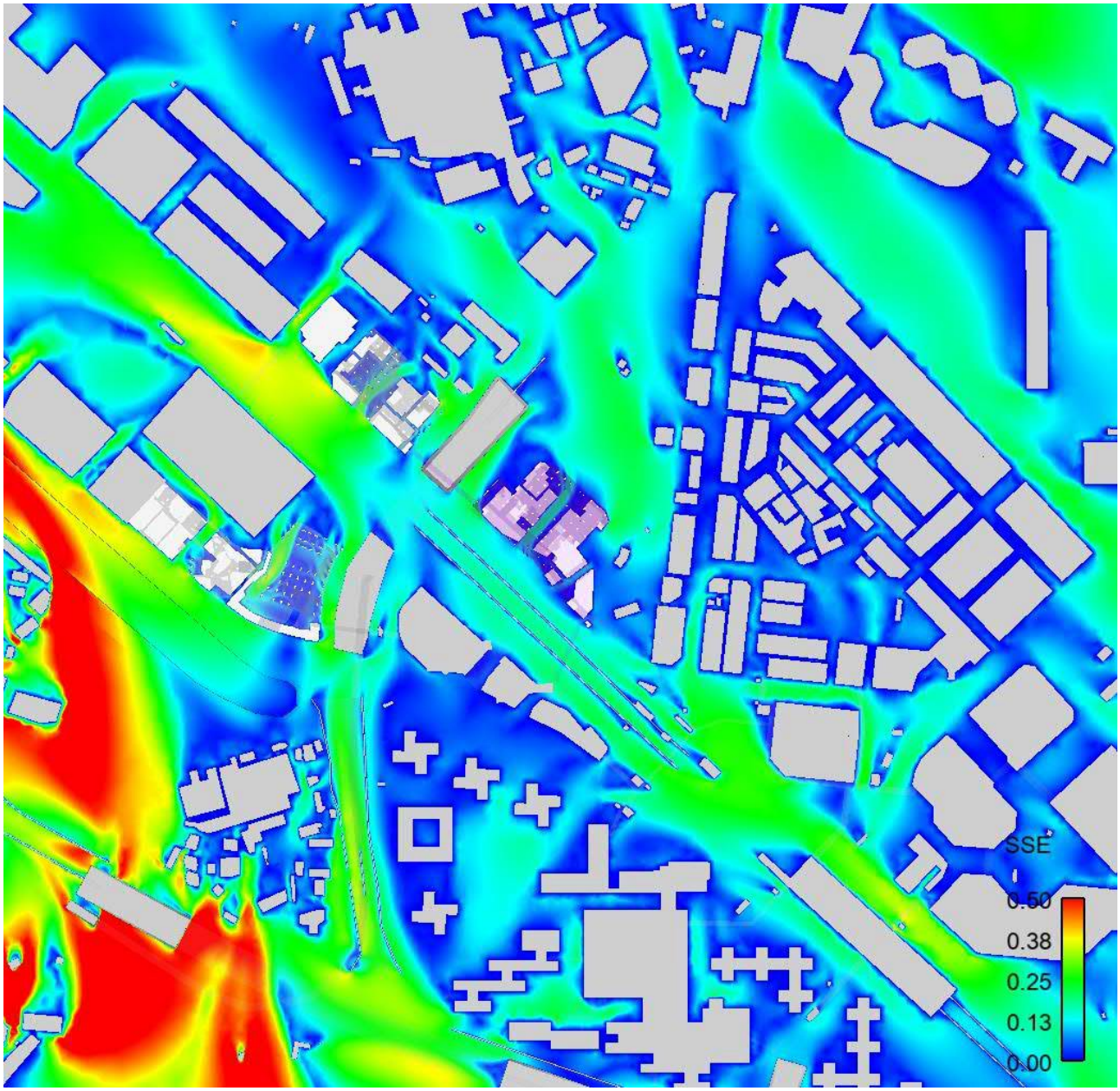


Figure 29 Proposed Scheme Velocity Contour Plot under SSE wind

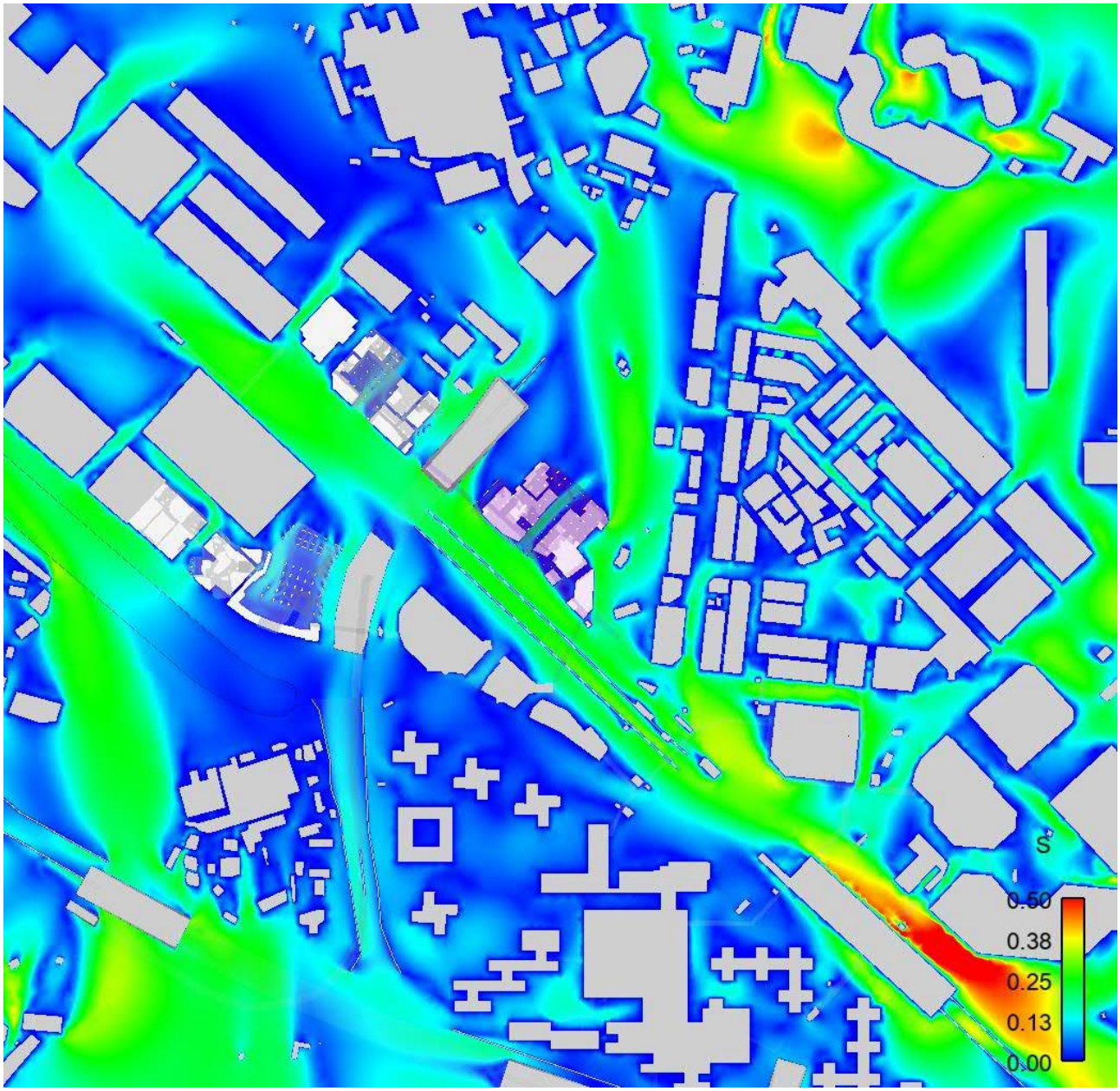


Figure 30 Proposed Scheme Velocity Contour Plot under S wind

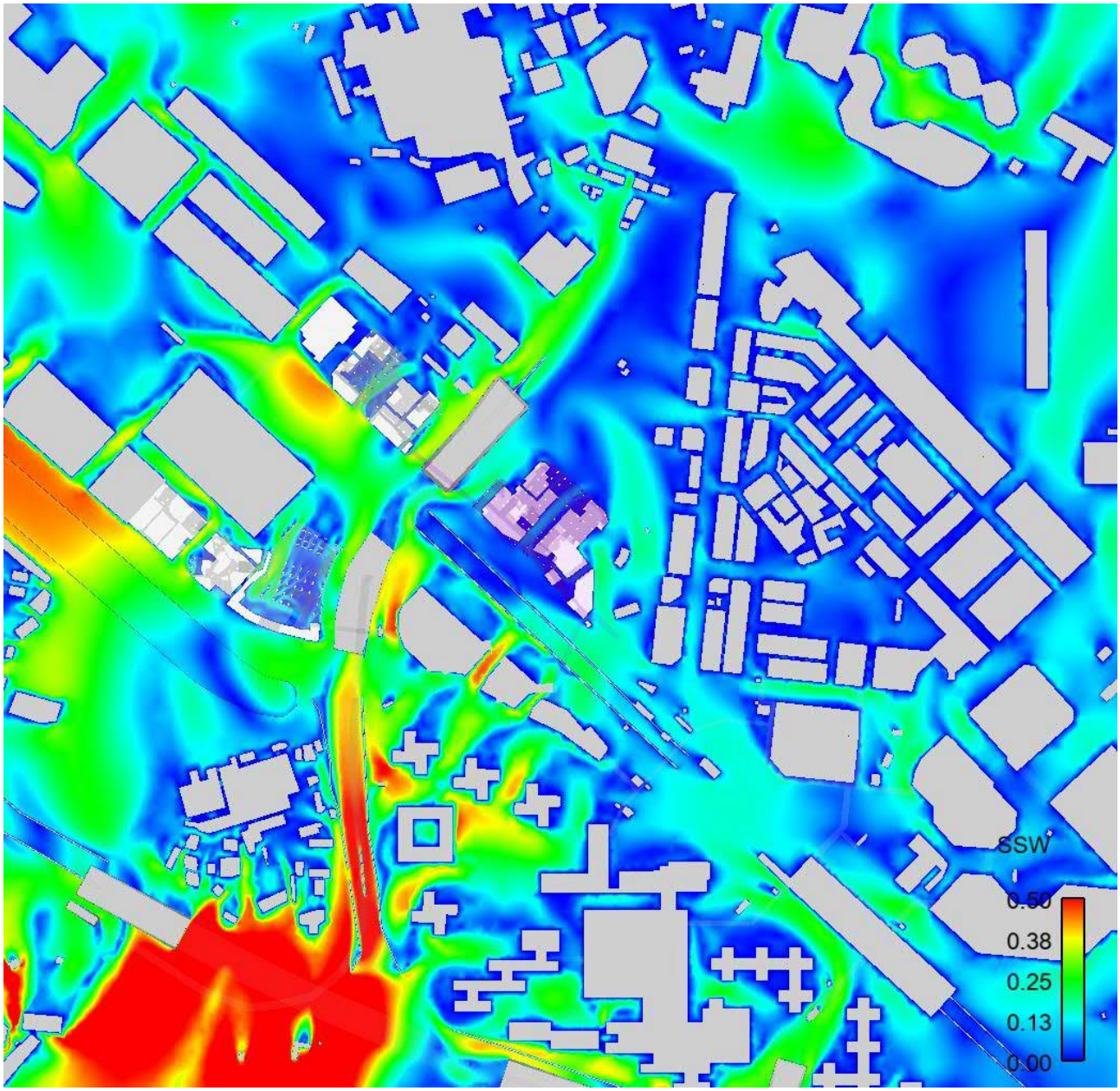


Figure 31 Proposed Scheme Velocity Contour Plot under SSW wind

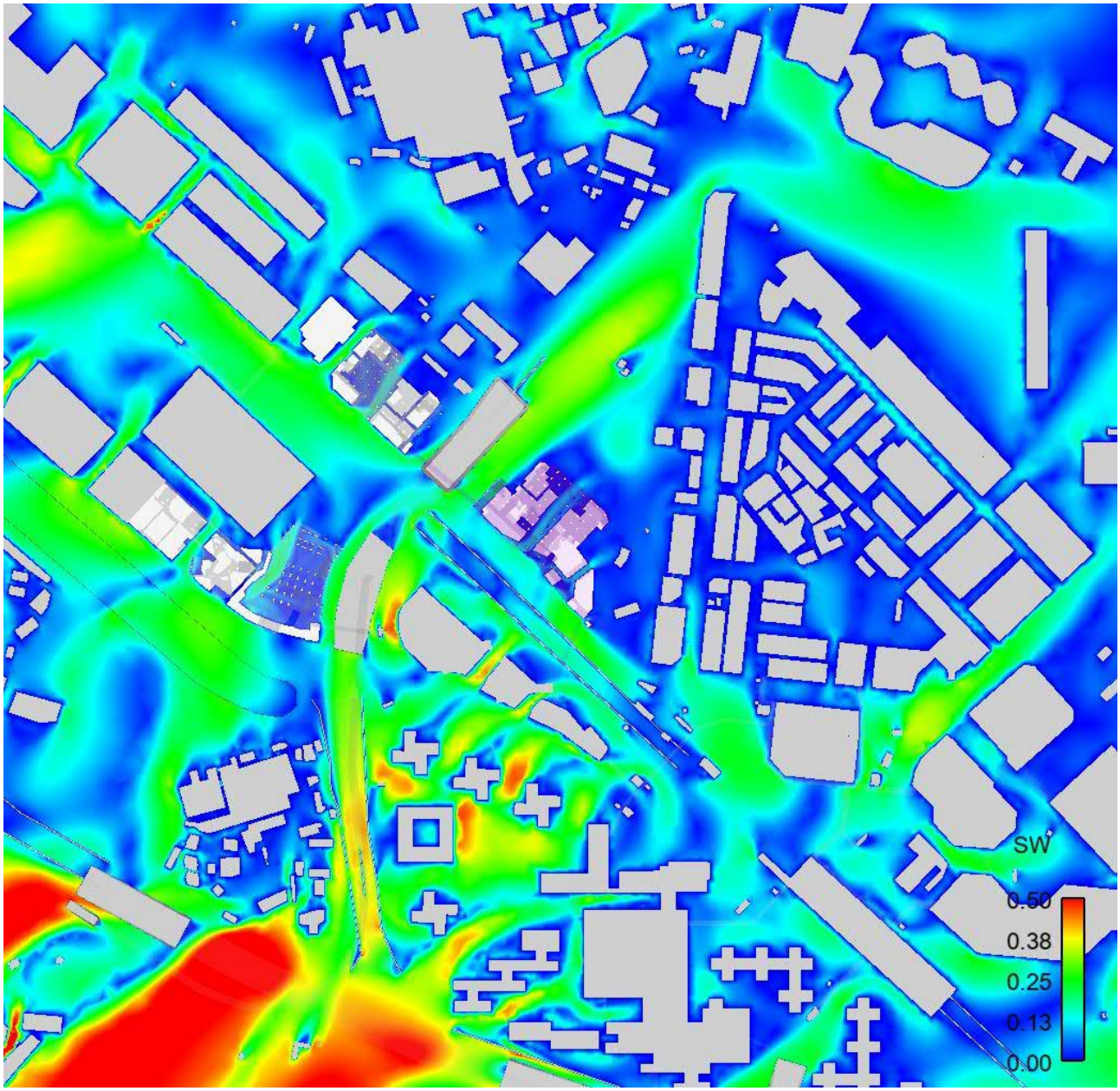


Figure 32 Proposed Scheme Velocity Contour Plot under SW wind

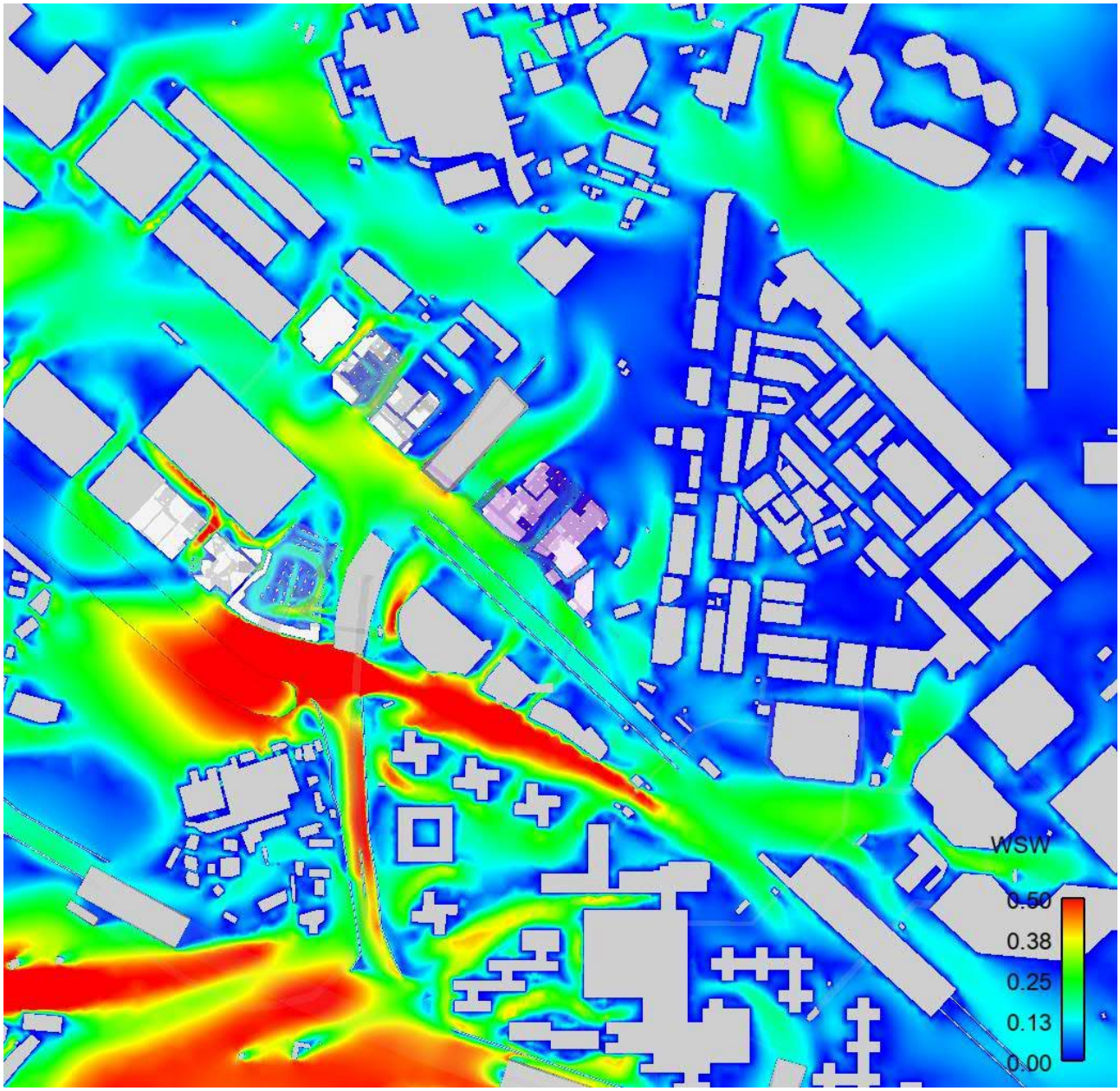


Figure 33 Proposed Scheme Velocity Contour Plot under WSW wind

C.4 Proposed Scheme (Full Domain)

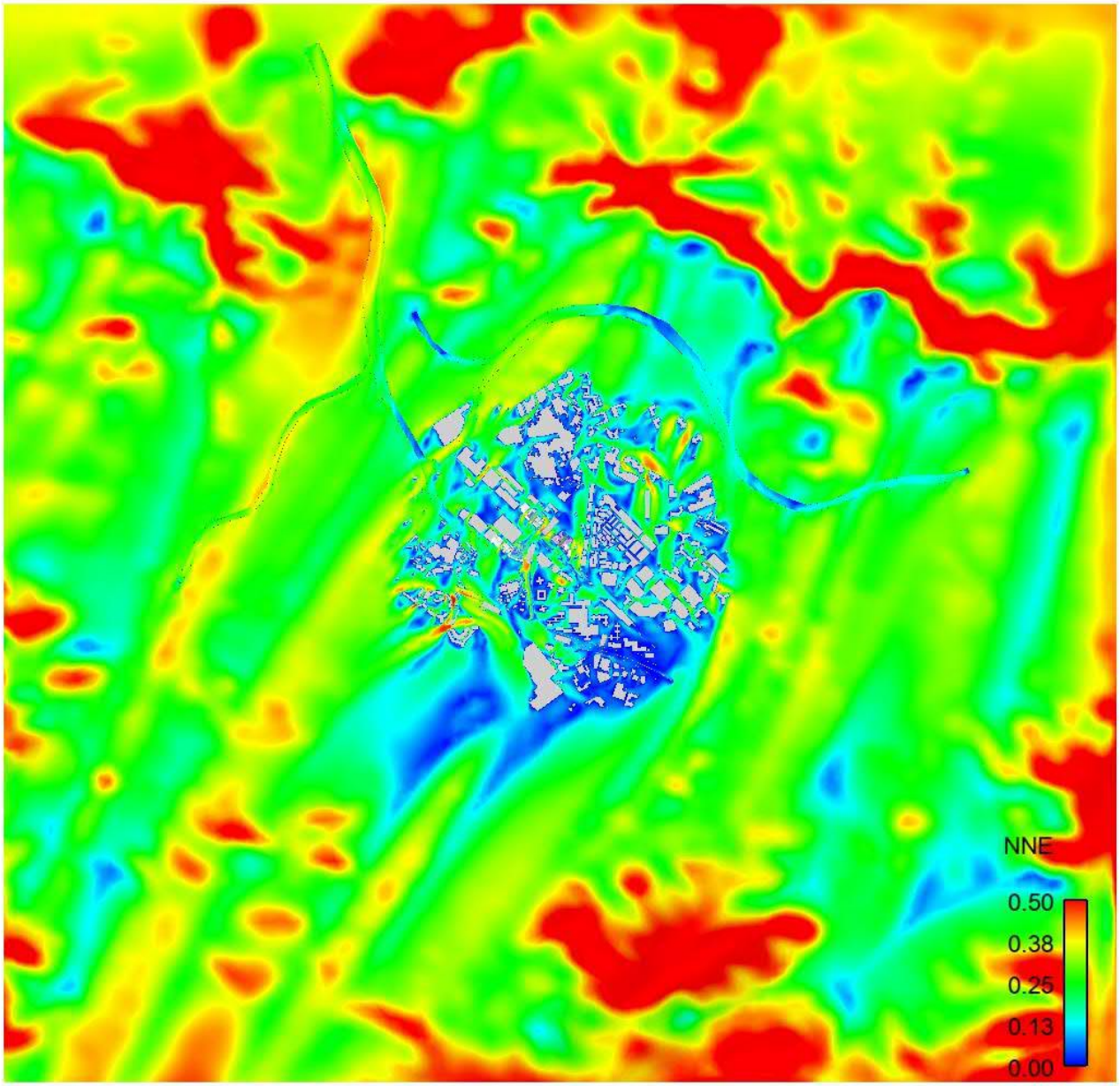


Figure 34 Proposed Scheme Full Domain Velocity Contour Plot under NNE wind

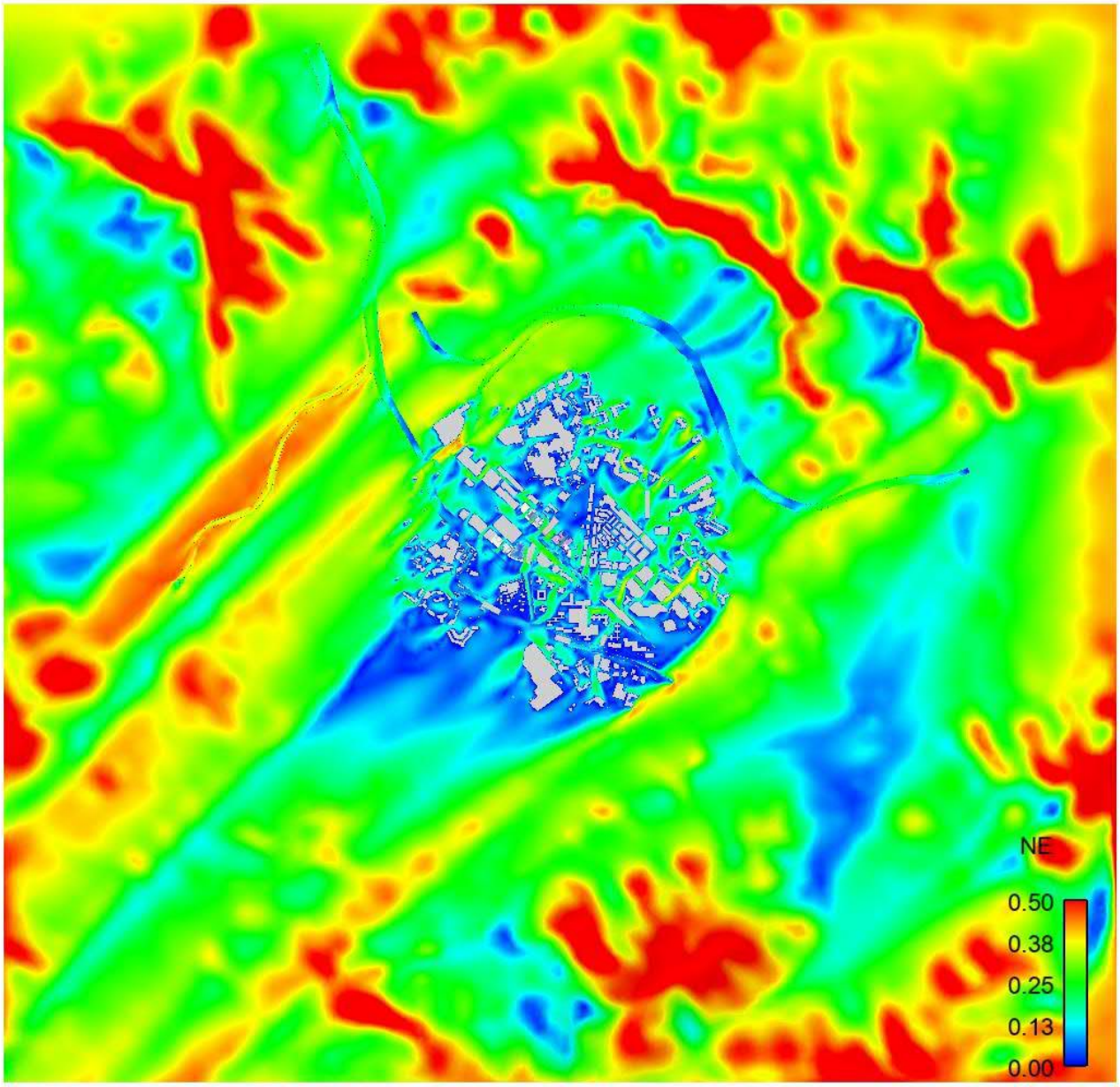


Figure 35 Proposed Scheme Full Domain Velocity Contour Plot under NE wind

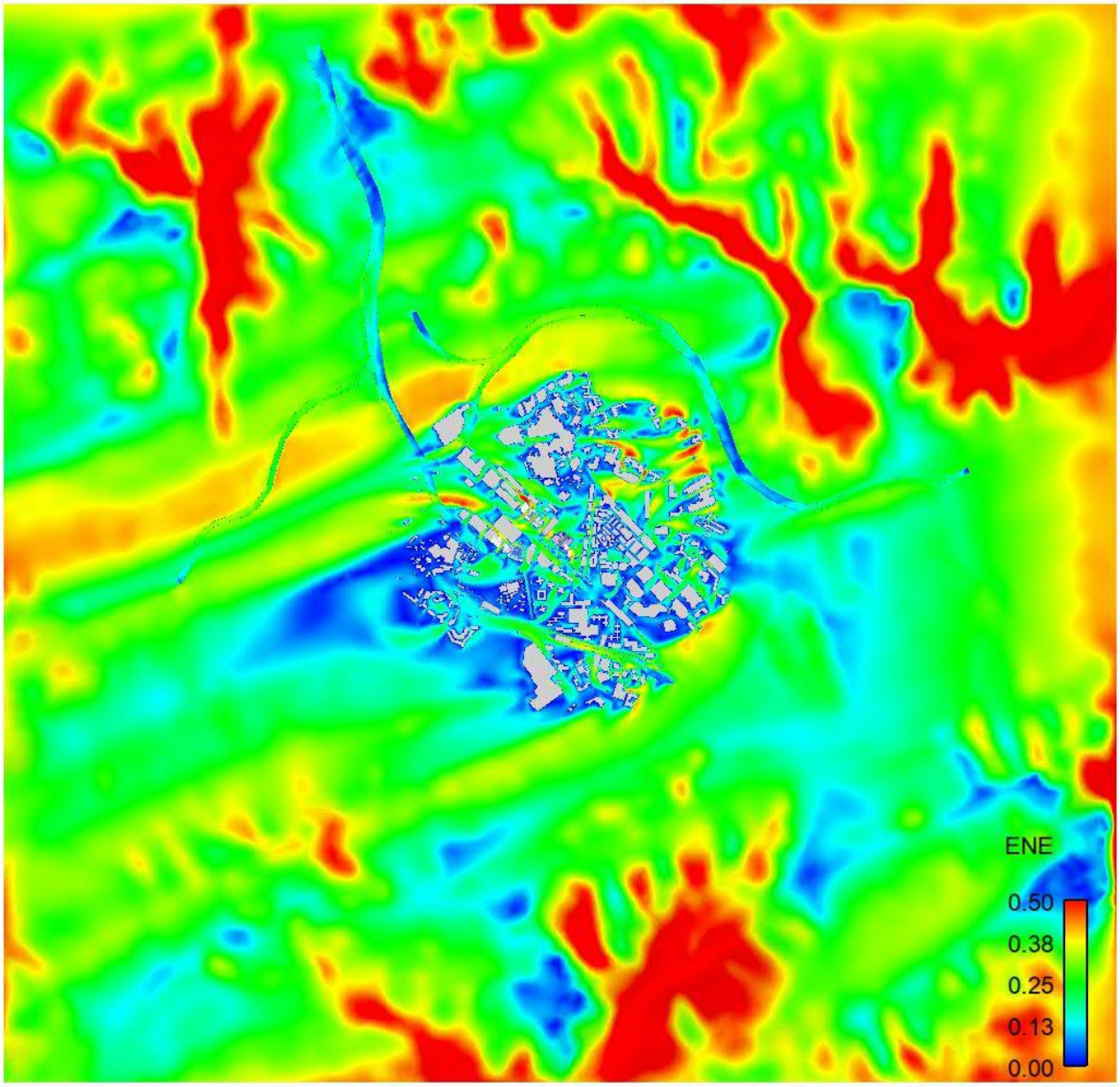


Figure 36 Proposed Scheme Full Domain Velocity Contour Plot under ENE wind

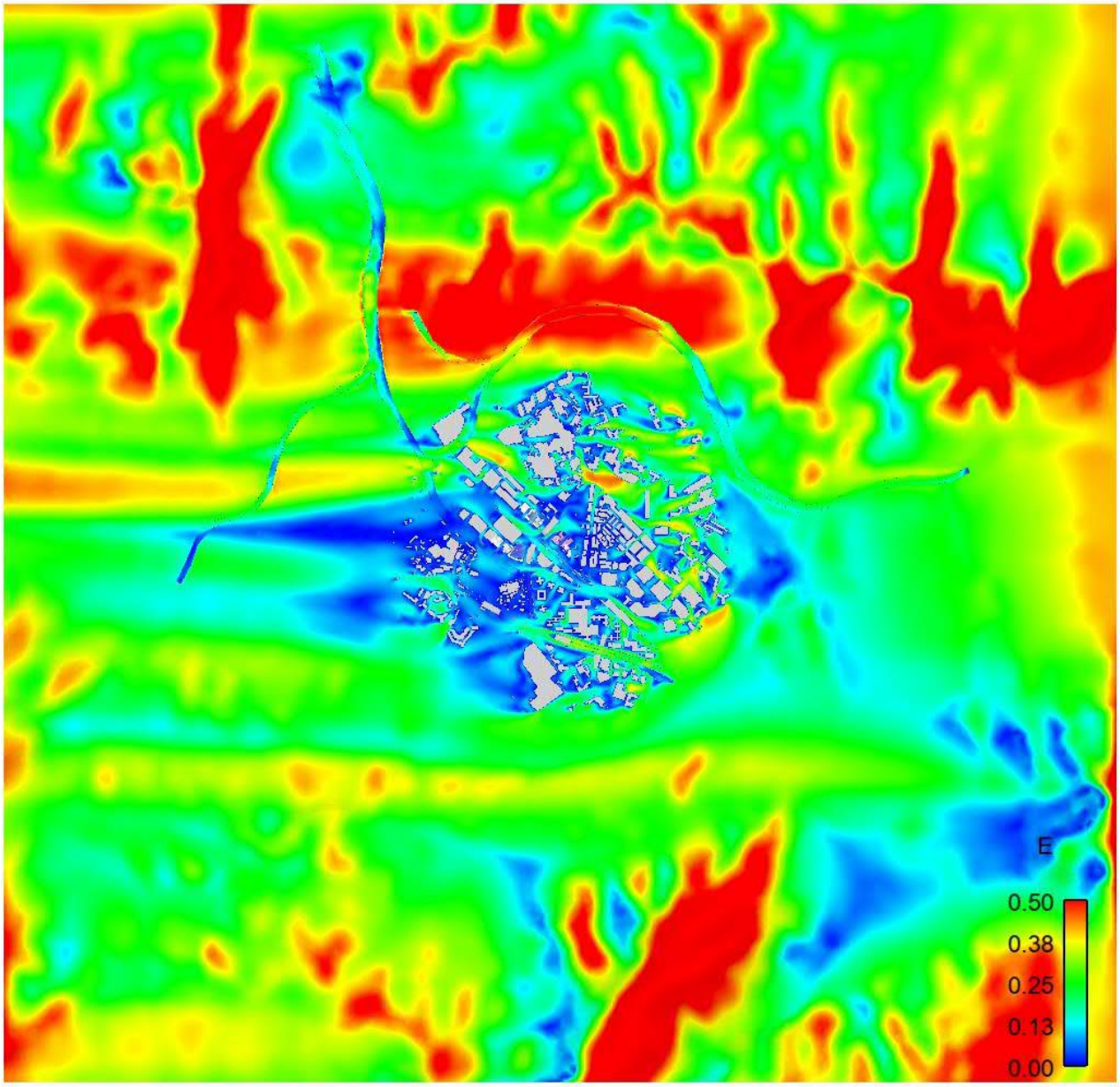


Figure 37 Proposed Scheme Full Domain Velocity Contour Plot under E wind

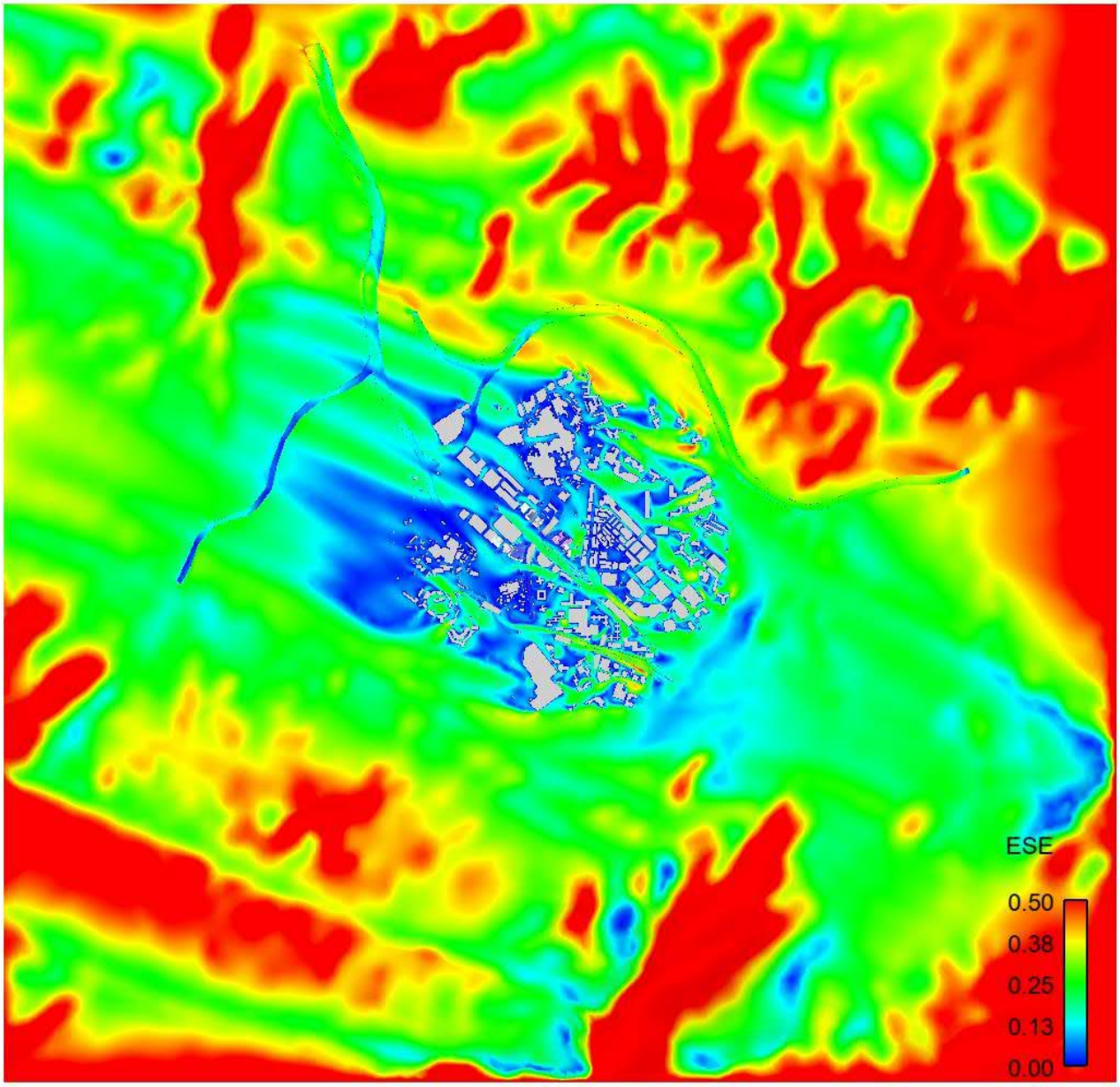


Figure 38 Proposed Scheme Full Domain Velocity Contour Plot under ESE wind

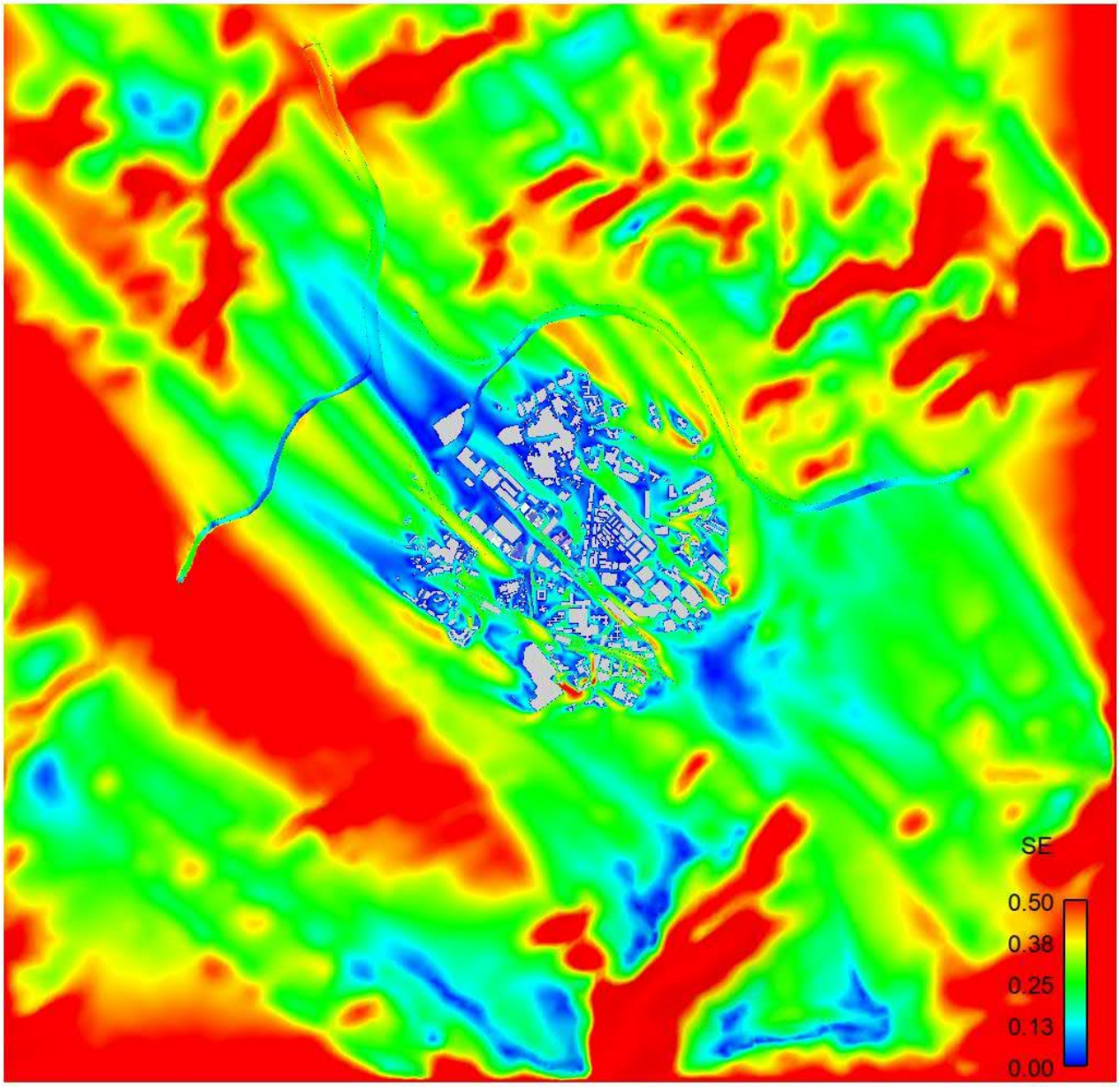


Figure 39 Proposed Scheme Full Domain Velocity Contour Plot under SE wind

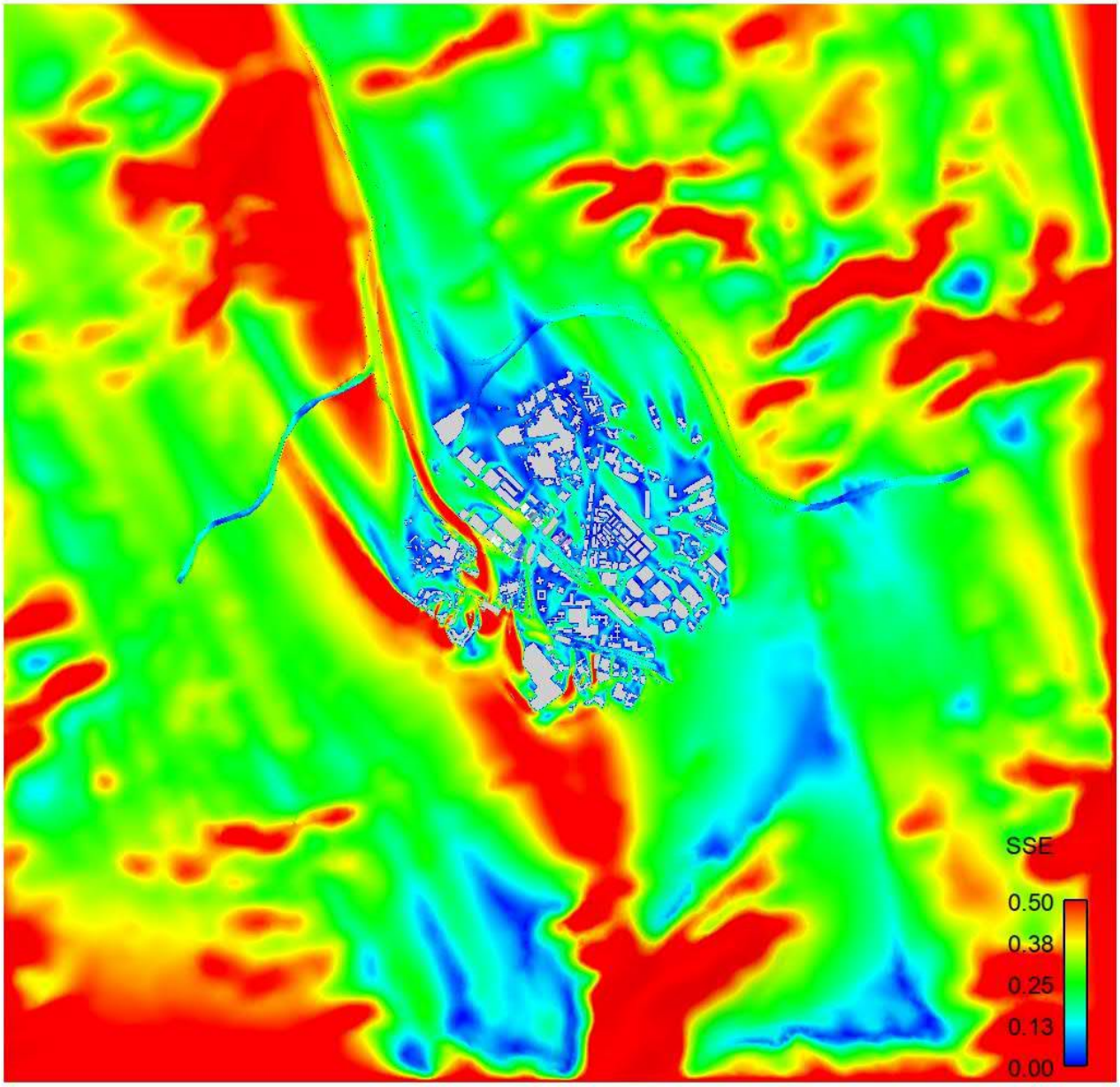


Figure 40 Proposed Scheme Full Domain Velocity Contour Plot under SSE wind

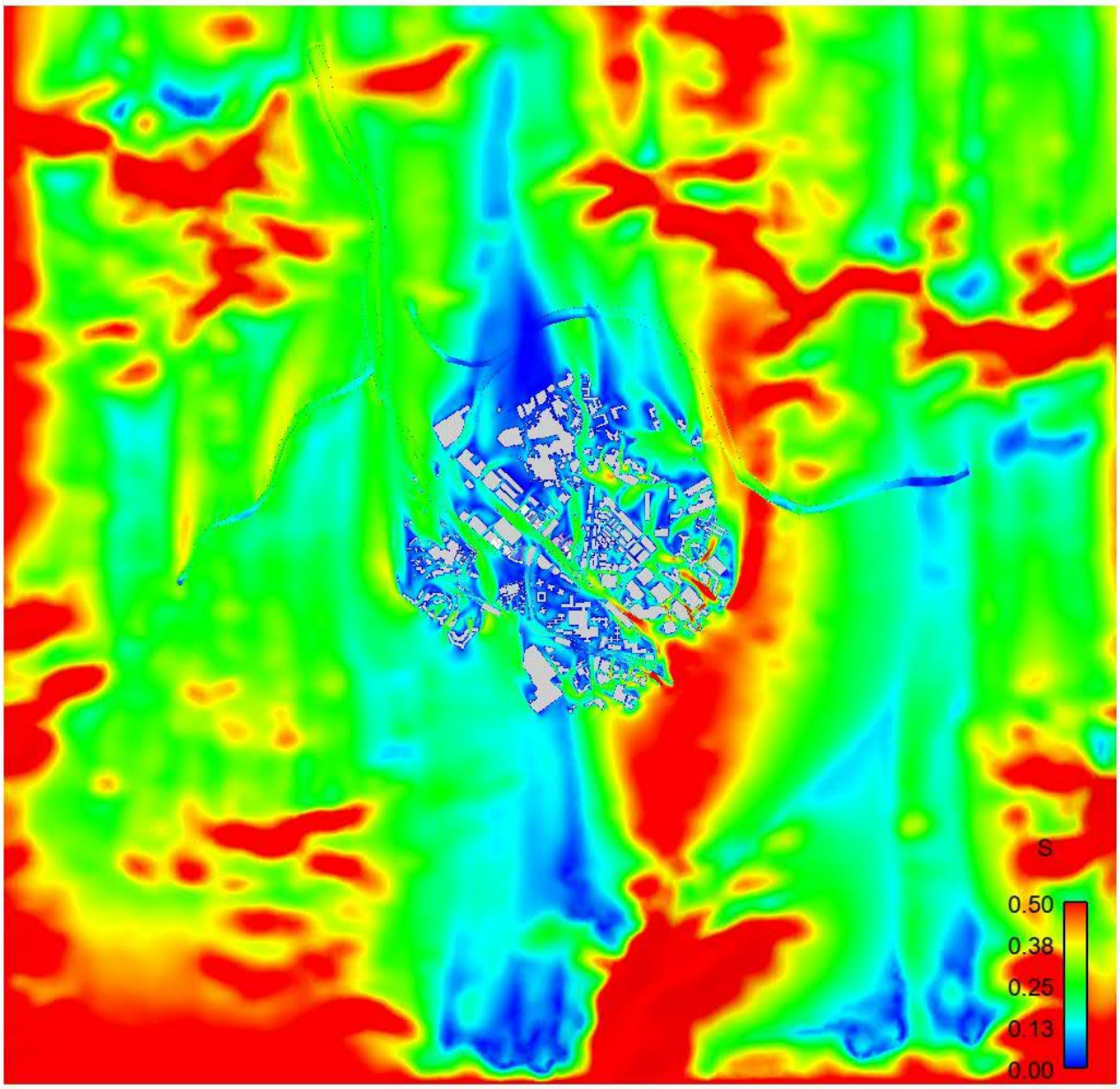


Figure 41 Proposed Scheme Full Domain Velocity Contour Plot under S wind

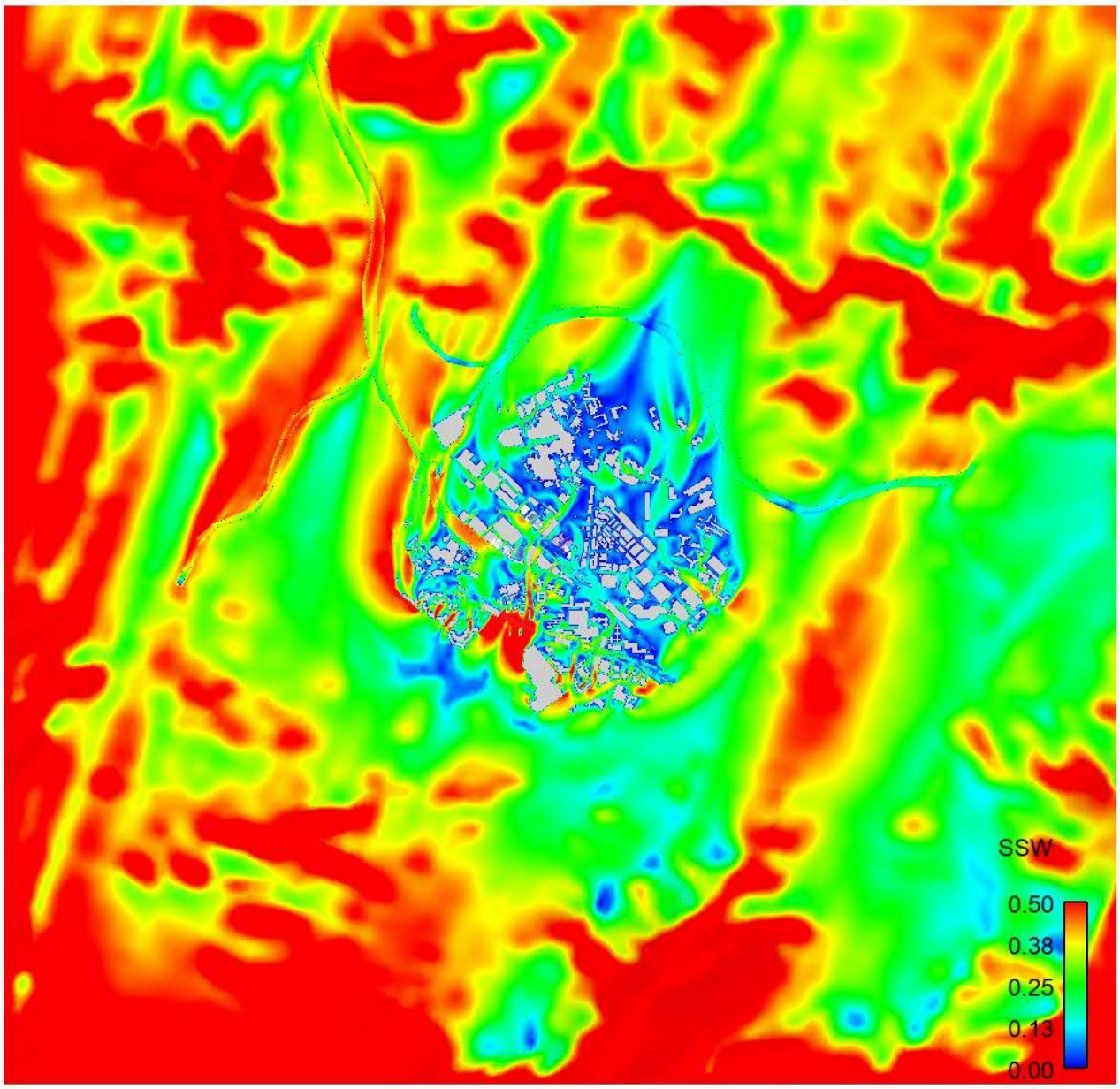


Figure 42 Proposed Scheme Full Domain Velocity Contour Plot under SSW wind

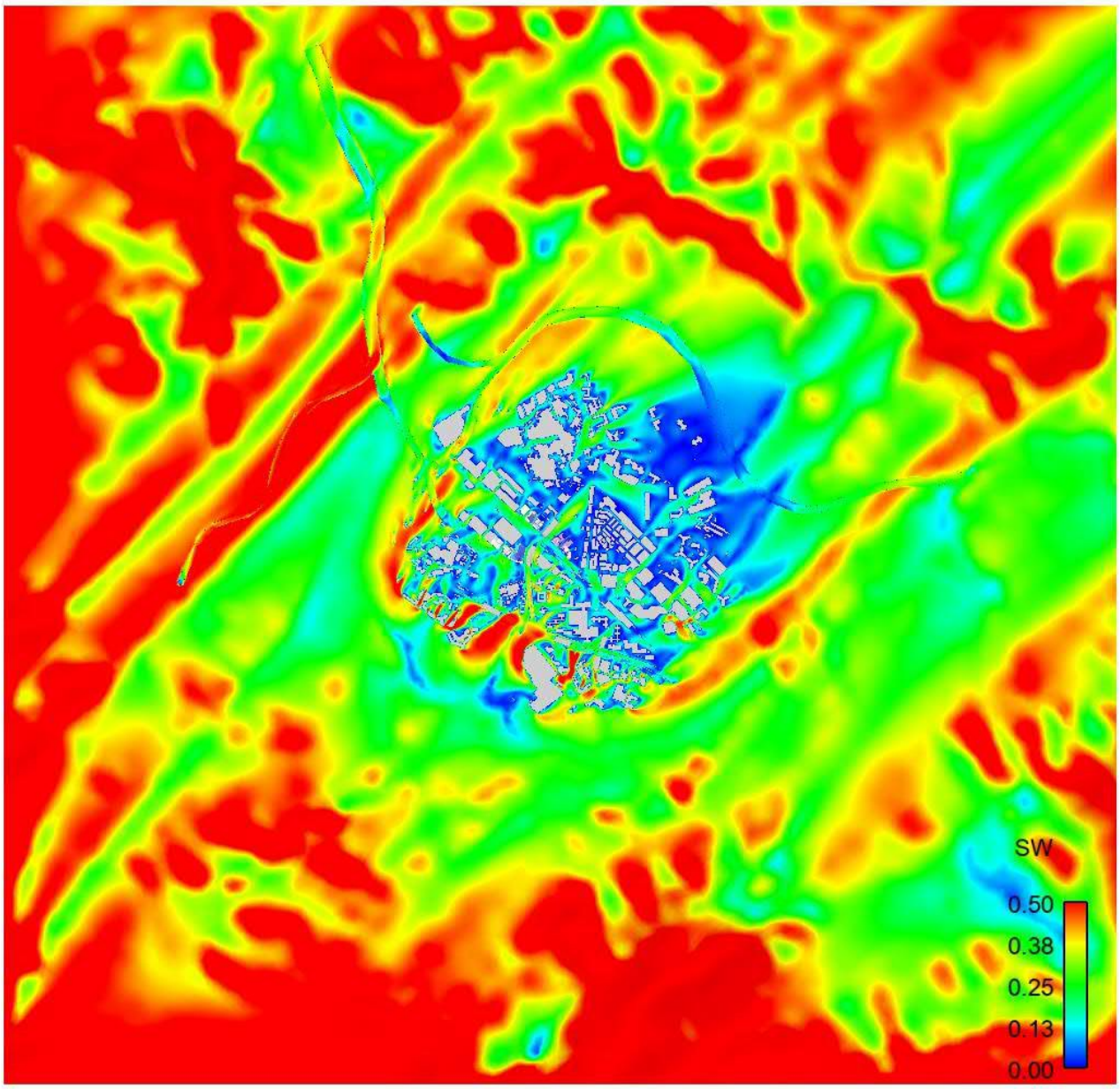


Figure 43 Proposed Scheme Full Domain Velocity Contour Plot under SW wind

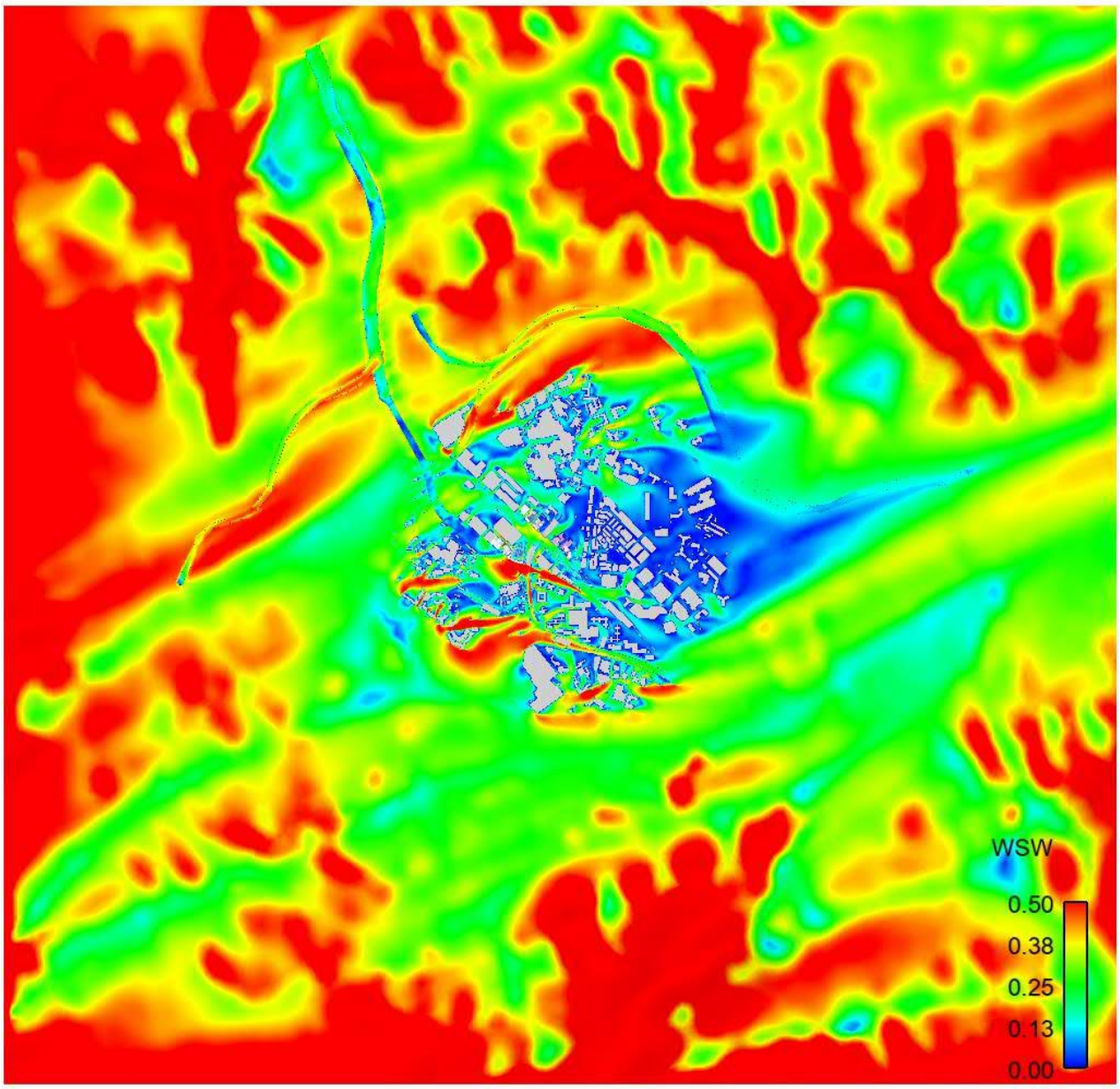


Figure 44 Proposed Scheme Full Domain Velocity Contour Plot under WSW wind

ARUP

Appendix D

Reference:

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Vector Plots of Velocity Ratio (VR)

Job number

Ove Arup & Partners Hong Kong Limited (Hong Kong Branch)
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
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Contents

D.1 Baseline Scheme

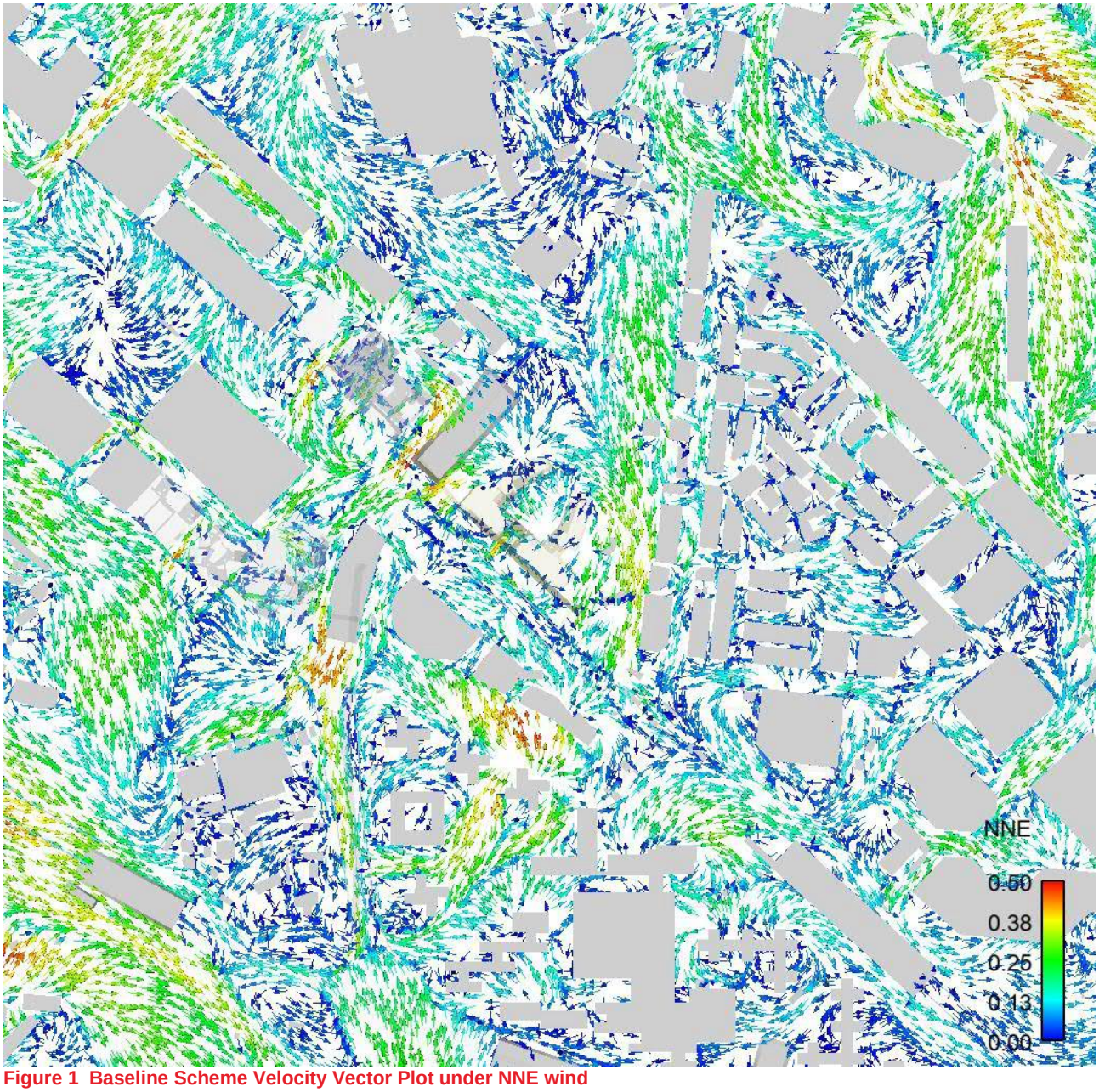


Figure 1 Baseline Scheme Velocity Vector Plot under NNE wind

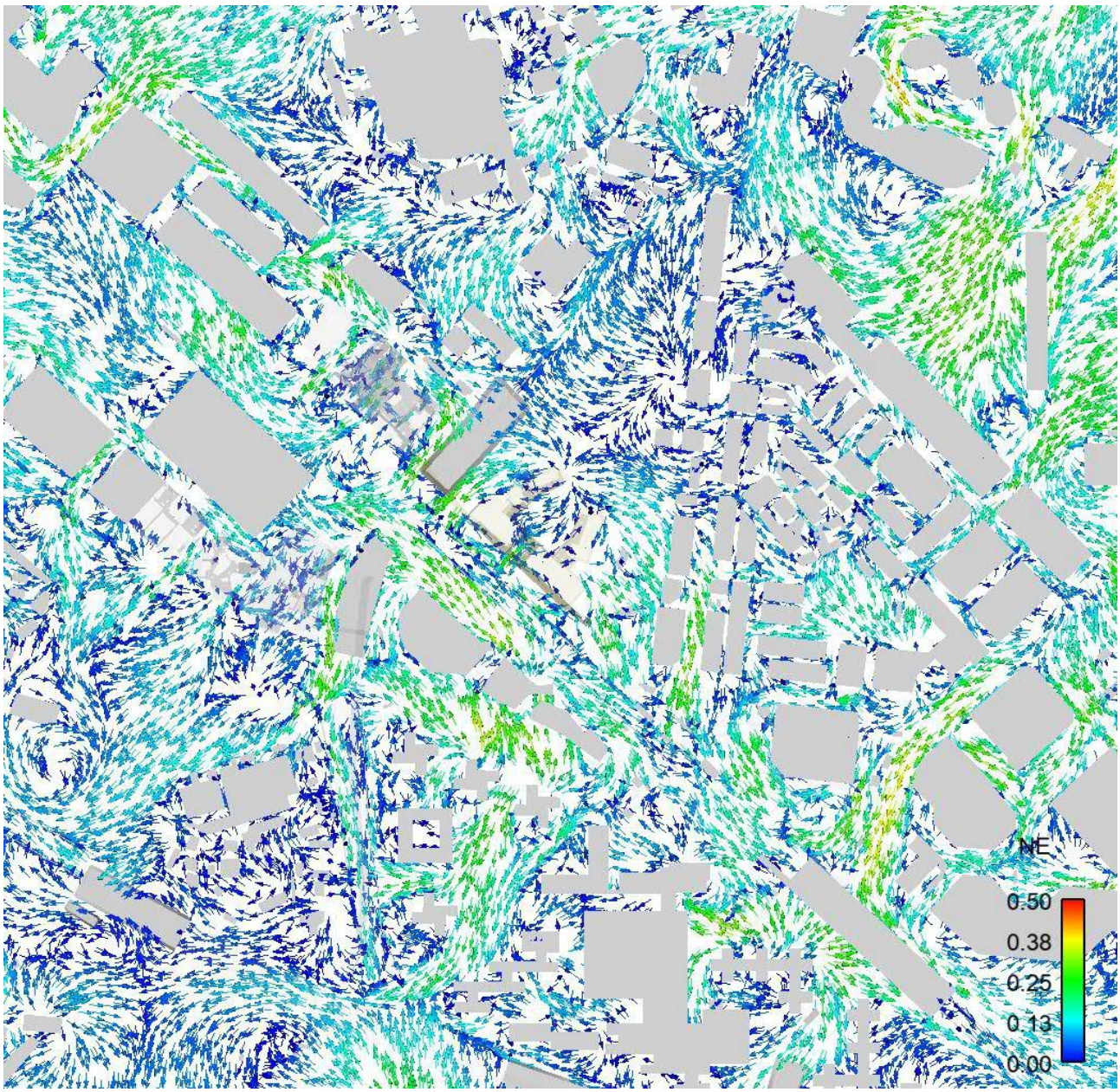


Figure 2 Baseline Scheme Velocity Vector Plot under NE wind

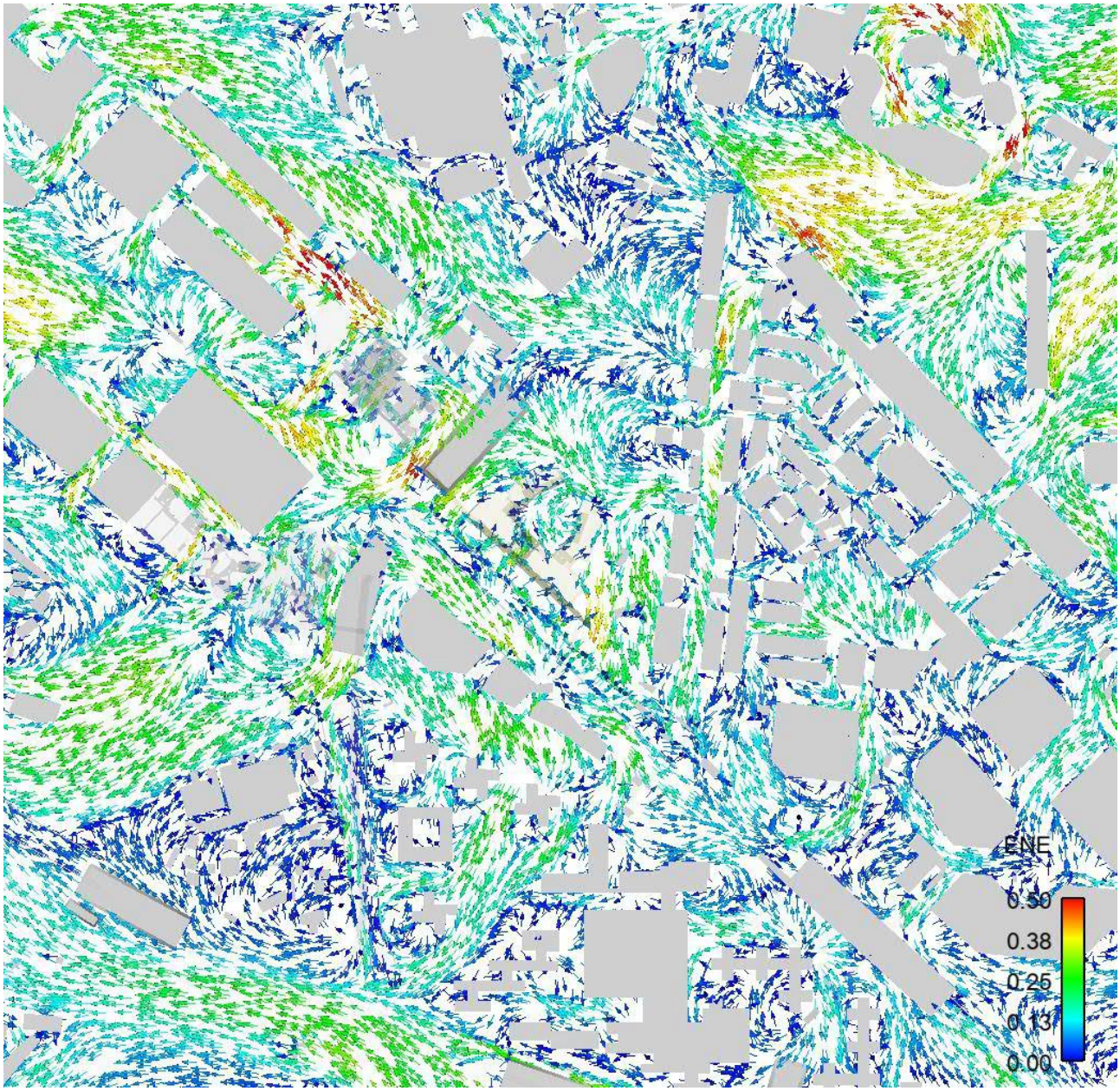


Figure 3 Baseline Scheme Velocity Vector Plot under ENE wind

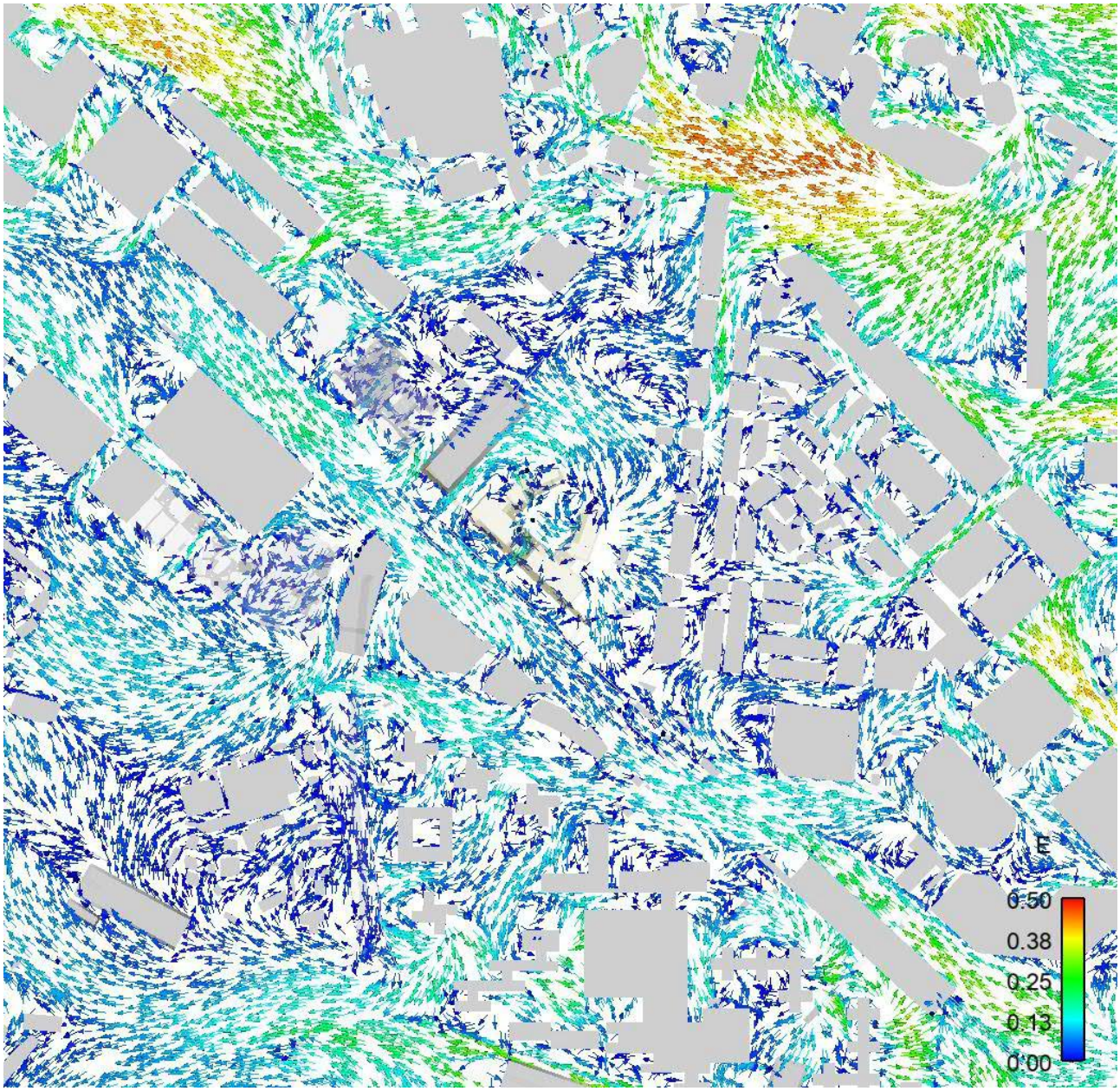


Figure 4 Baseline Scheme Velocity Vector Plot under E wind

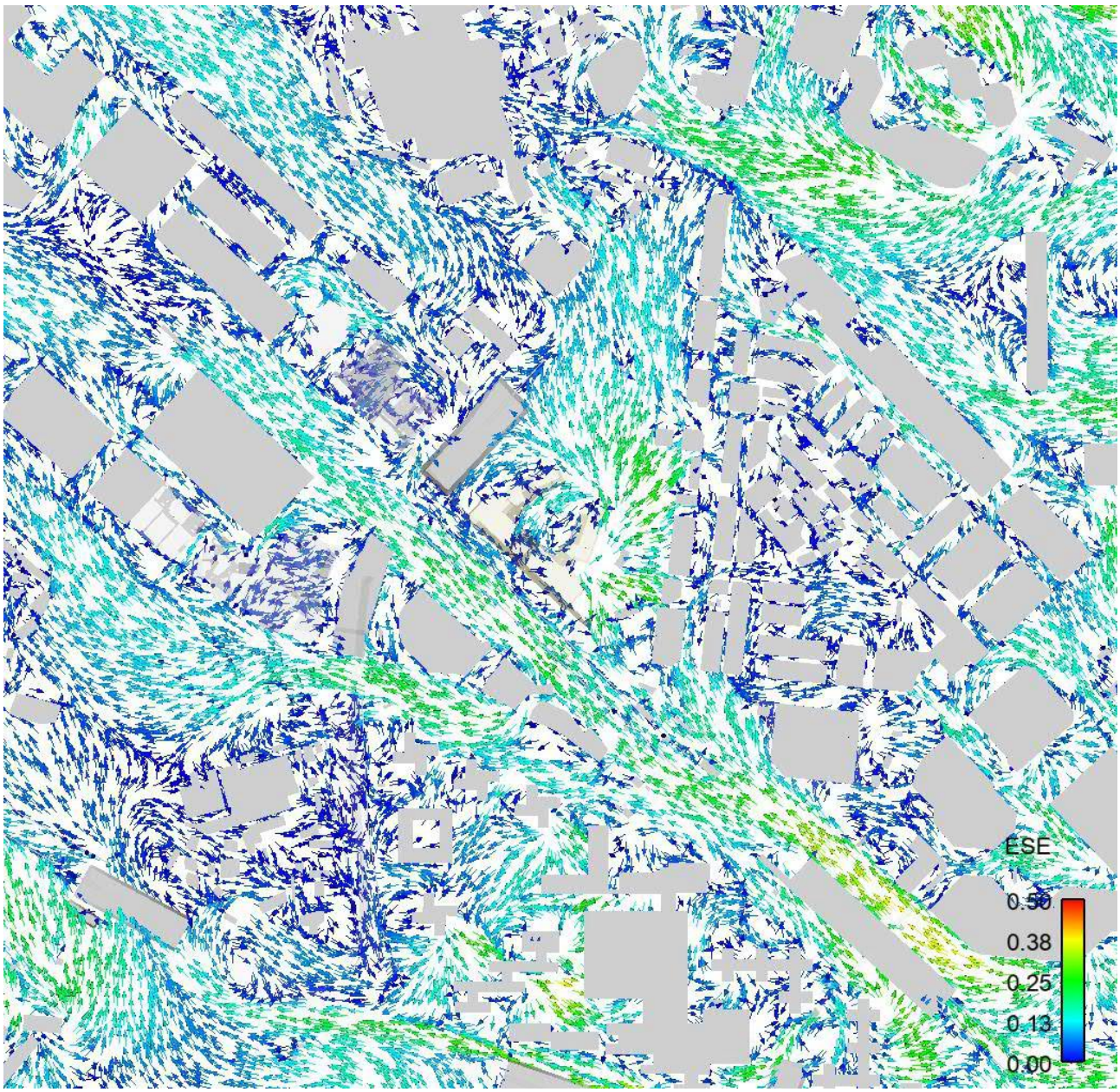


Figure 5 Baseline Scheme Velocity Vector Plot under ESE wind

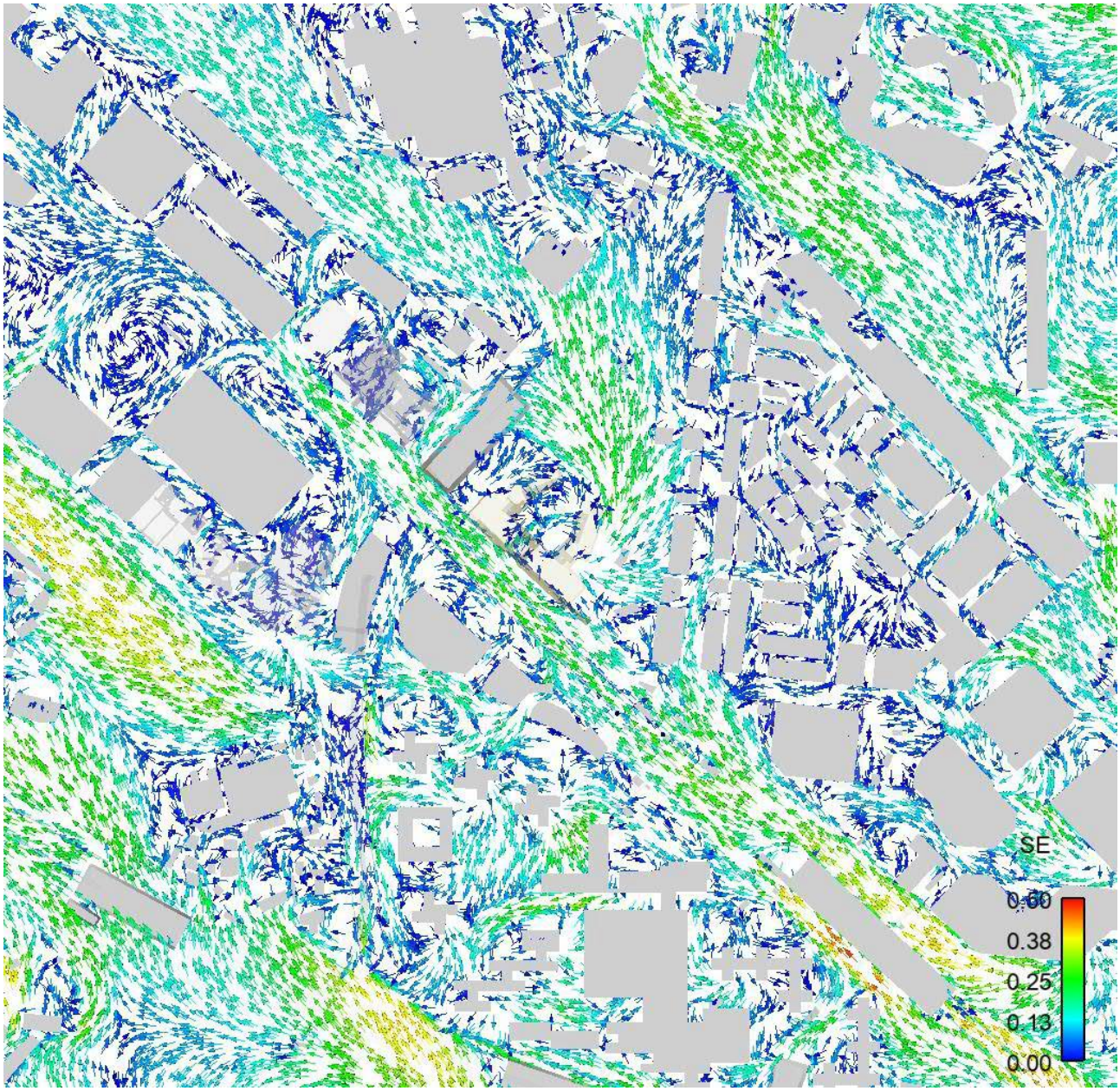


Figure 6 Baseline Scheme Velocity Vector Plot under SE wind

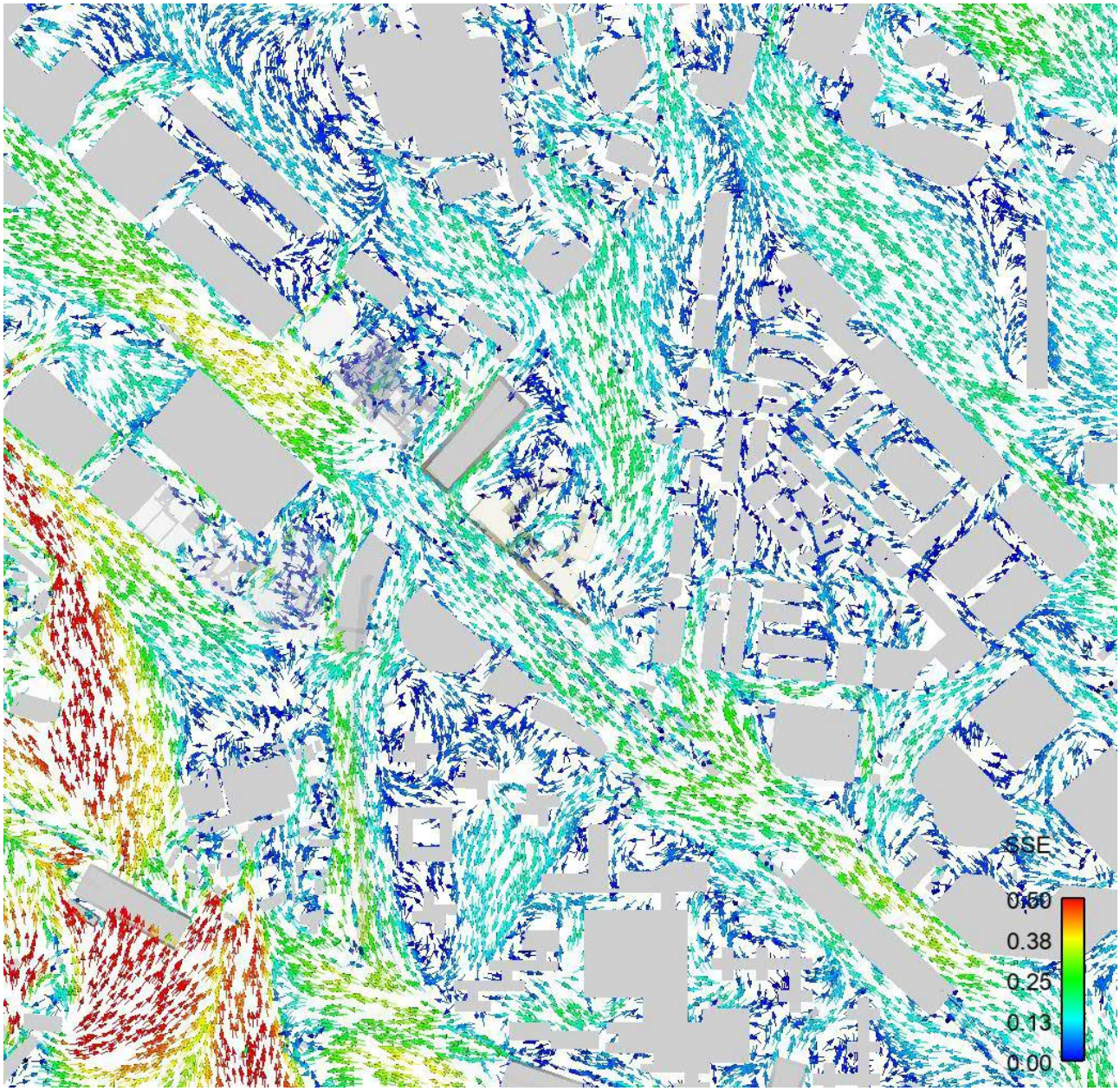


Figure 7 Baseline Scheme Velocity Vector Plot under SSE wind

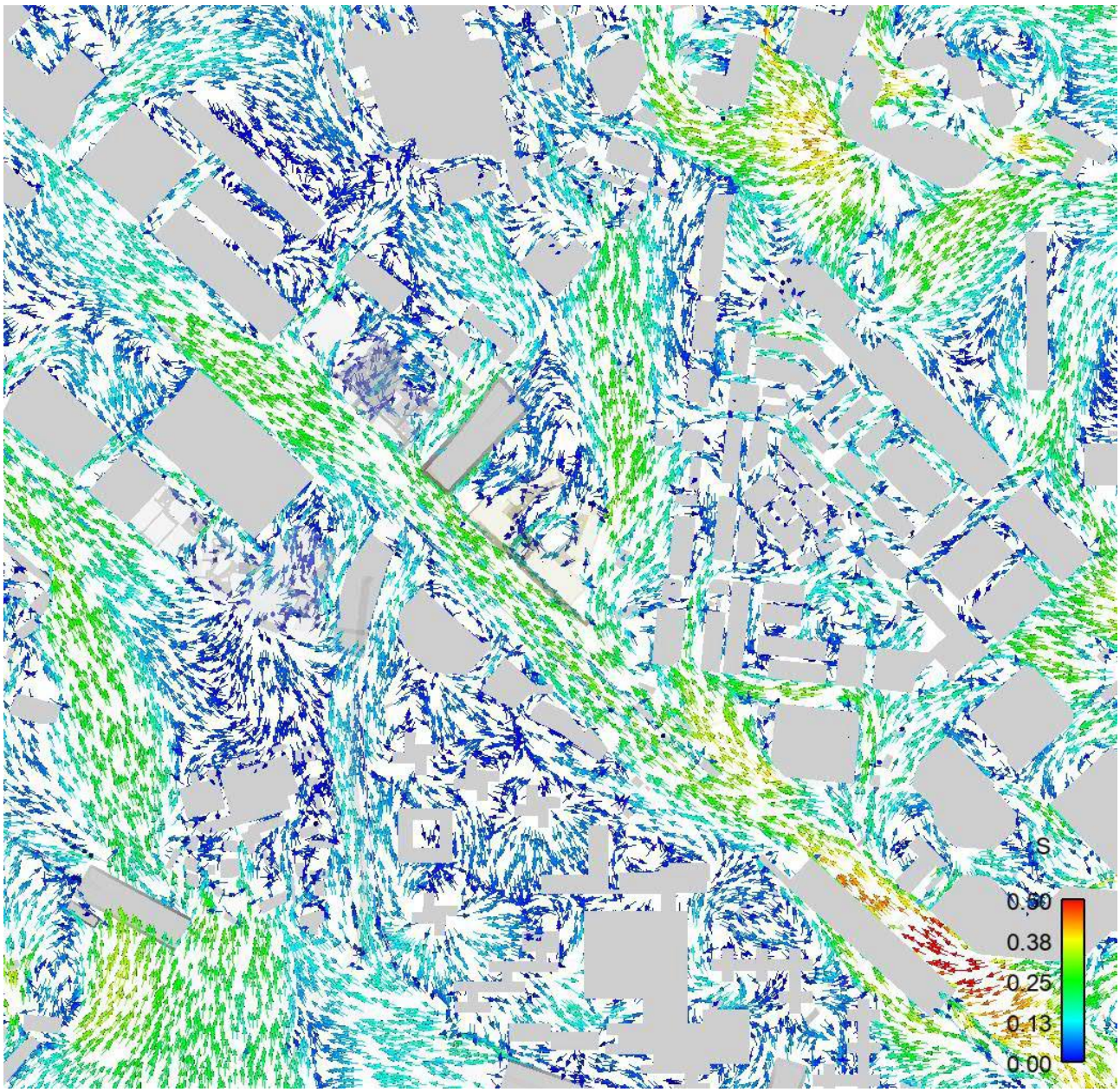


Figure 8 Baseline Scheme Velocity Vector Plot under S wind

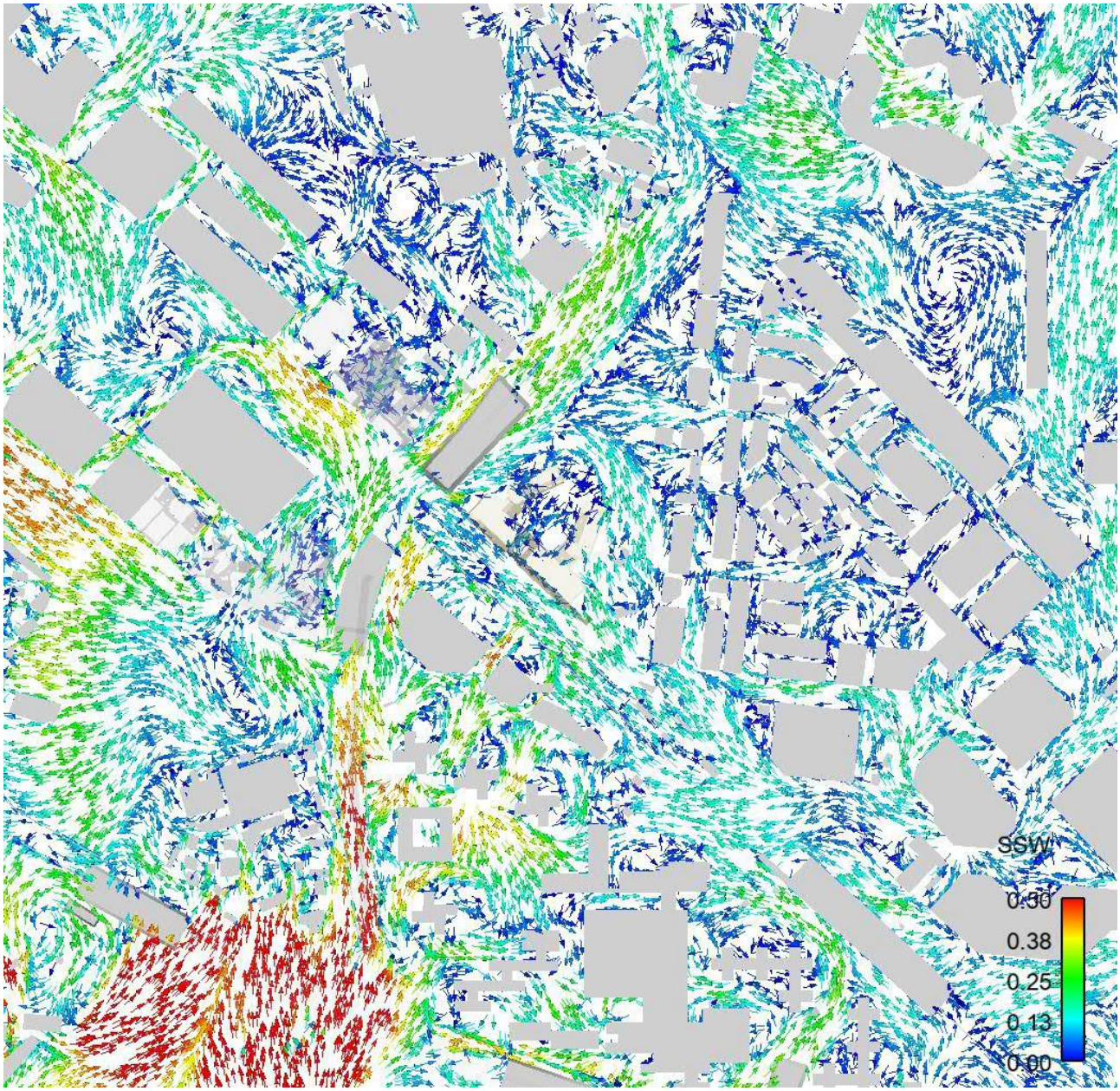
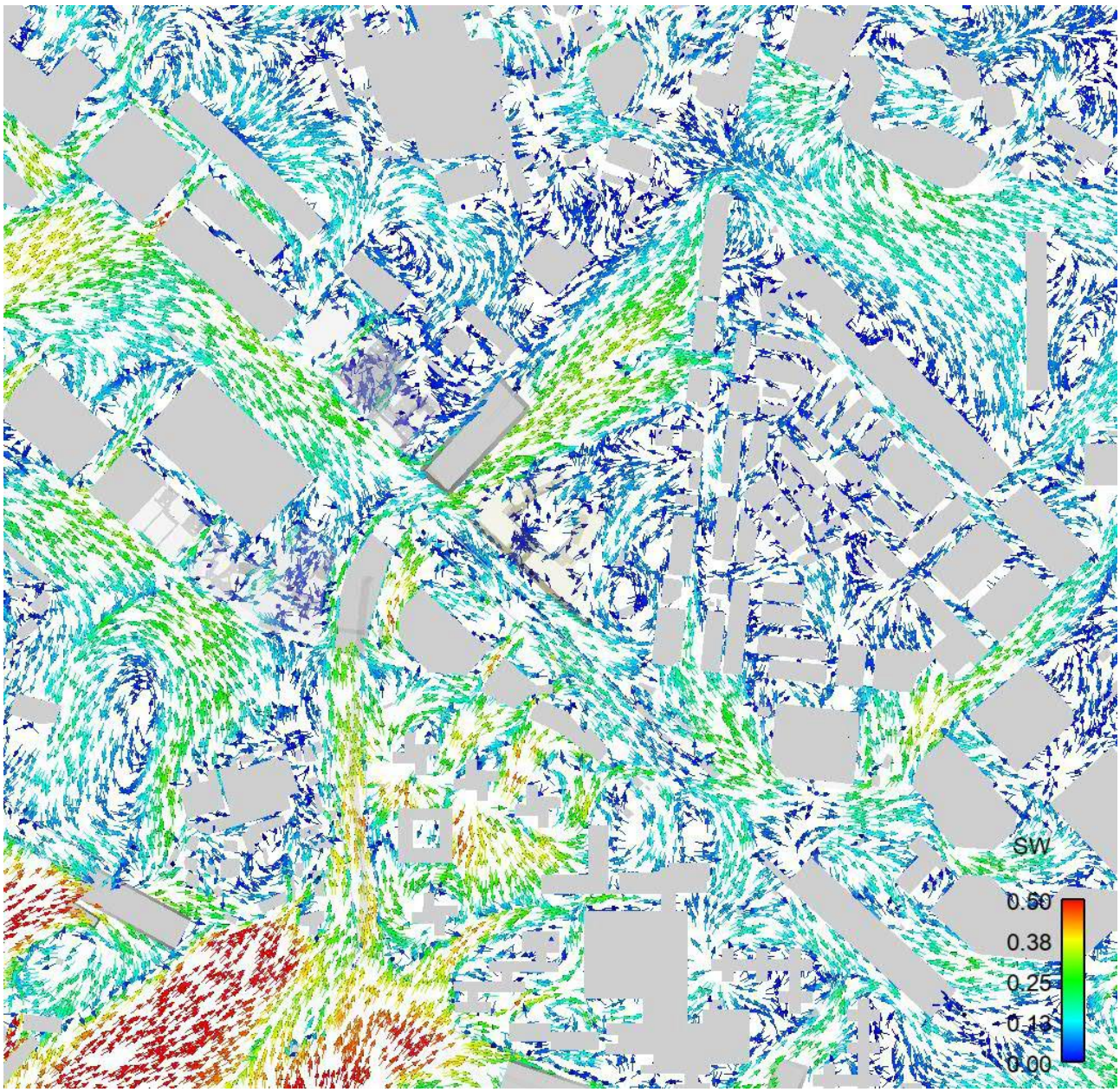


Figure 9 Baseline Scheme Velocity Vector Plot under SSW wind



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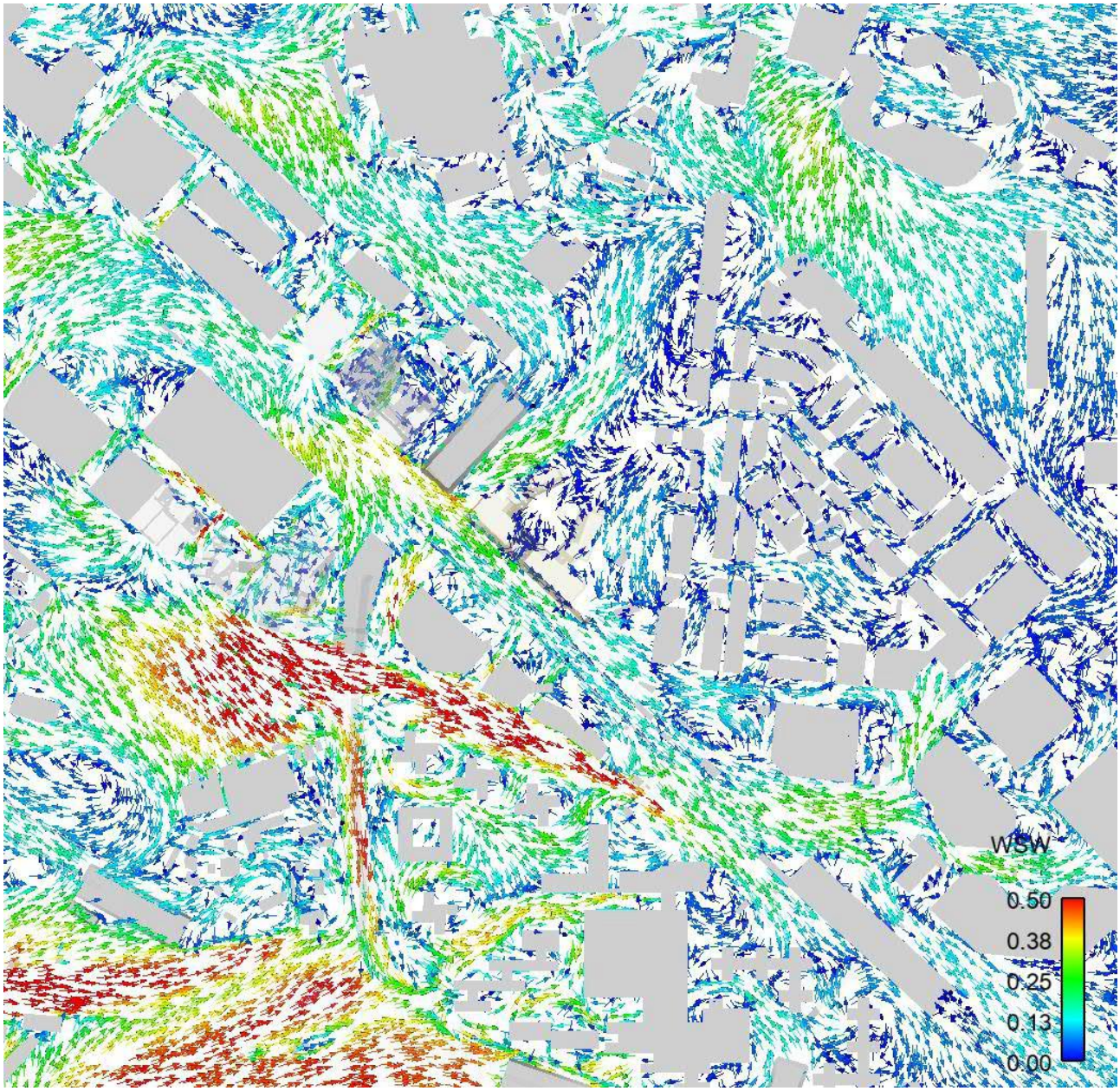


Figure 11 Baseline Scheme Velocity Vector Plot under WSW wind

D.2 Baseline Scheme (Full Domain)

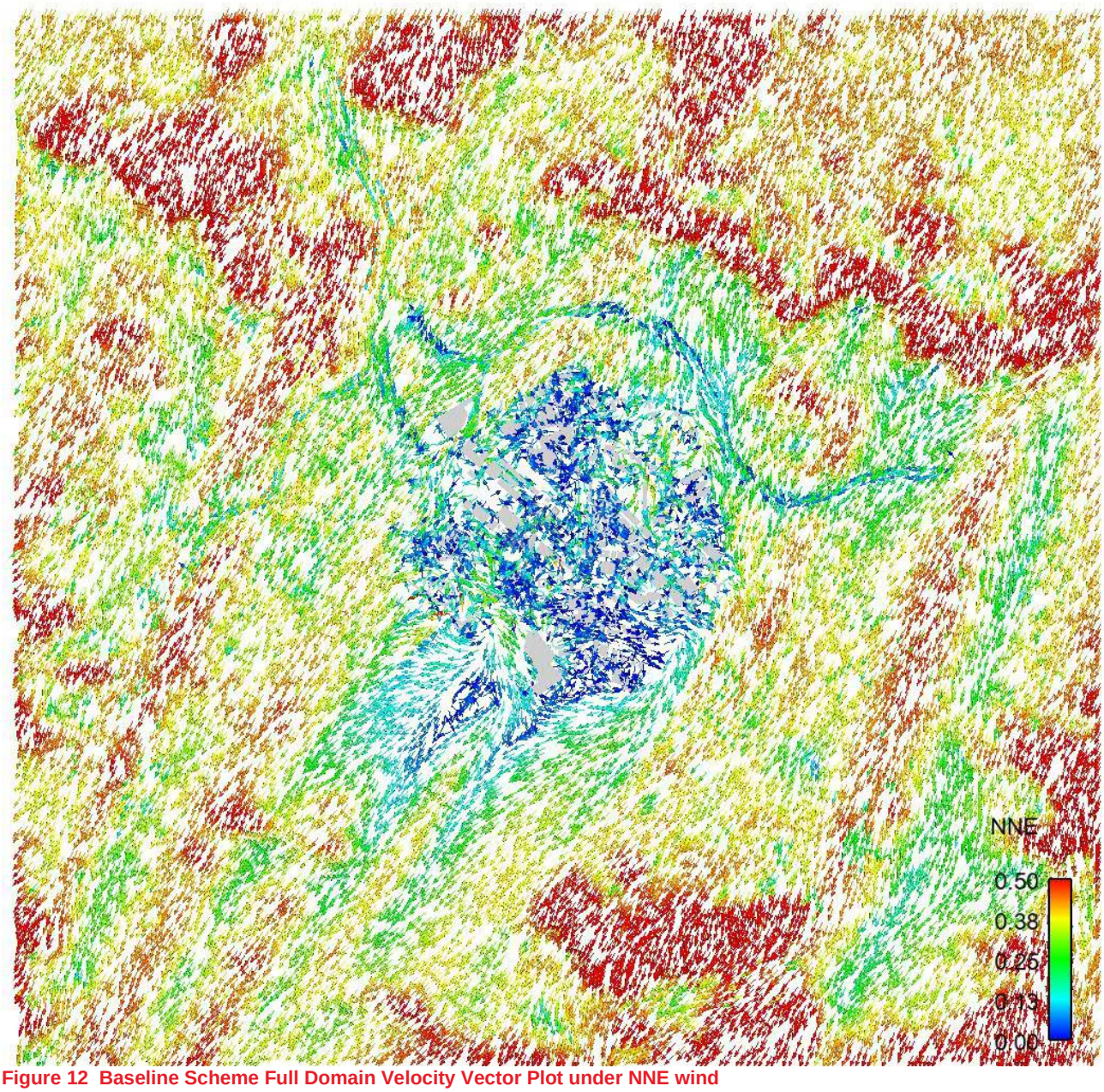


Figure 12 Baseline Scheme Full Domain Velocity Vector Plot under NNE wind

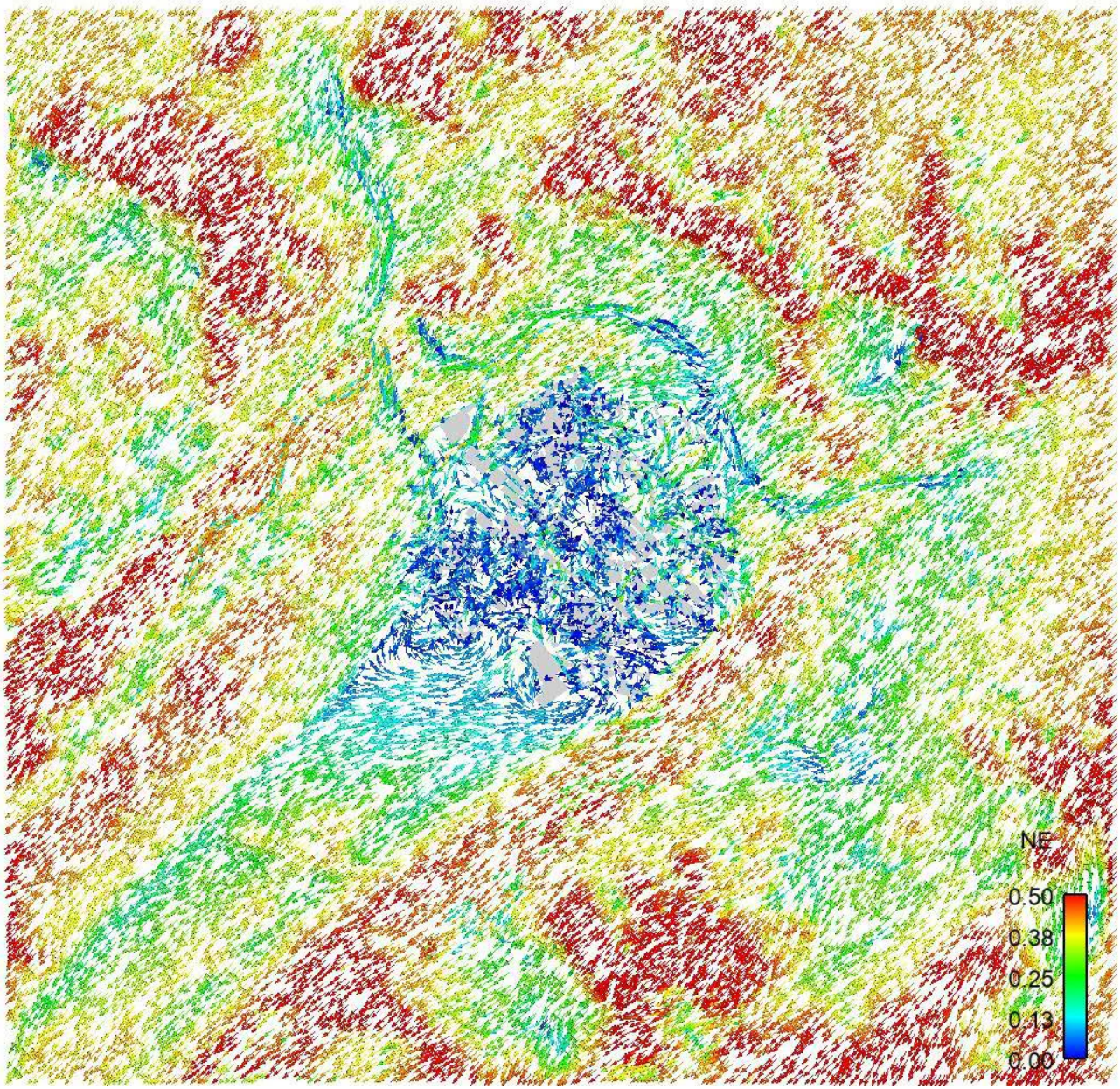


Figure 13 Baseline Scheme Full Domain Velocity Vector Plot under NE wind

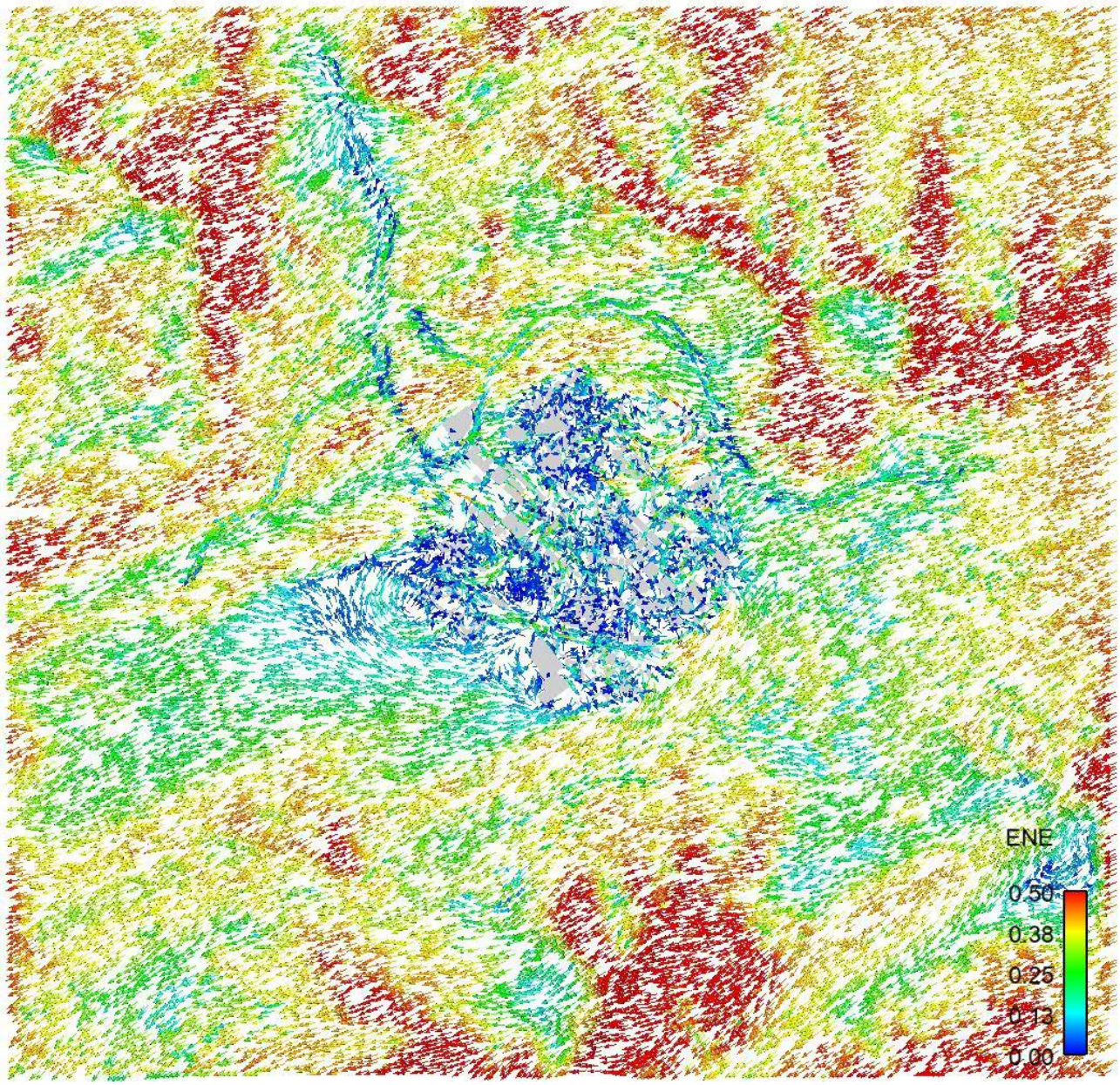


Figure 14 Baseline Scheme Full Domain Velocity Vector Plot under ENE wind

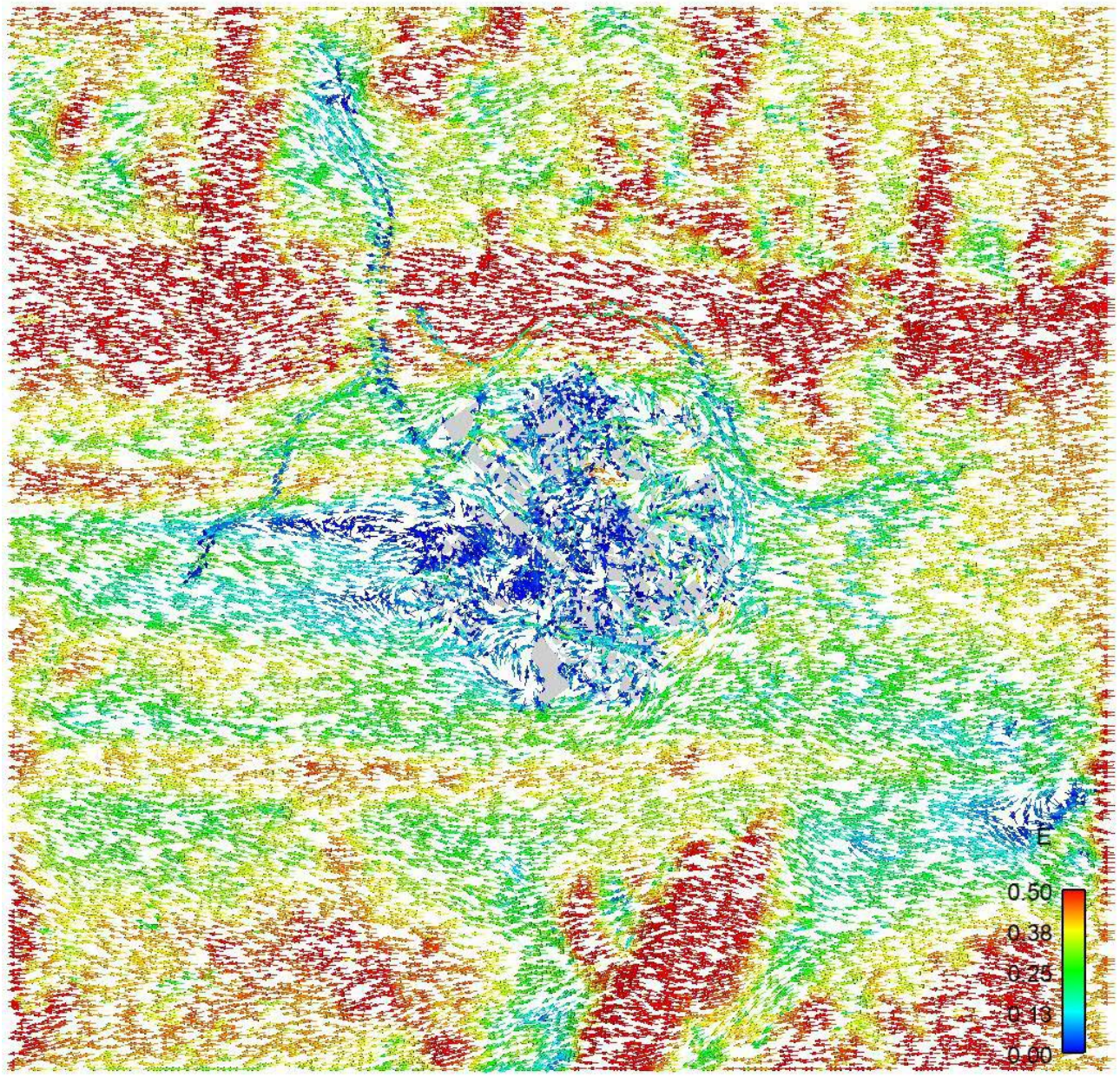


Figure 15 Baseline Scheme Full Domain Velocity Vector Plot under E wind

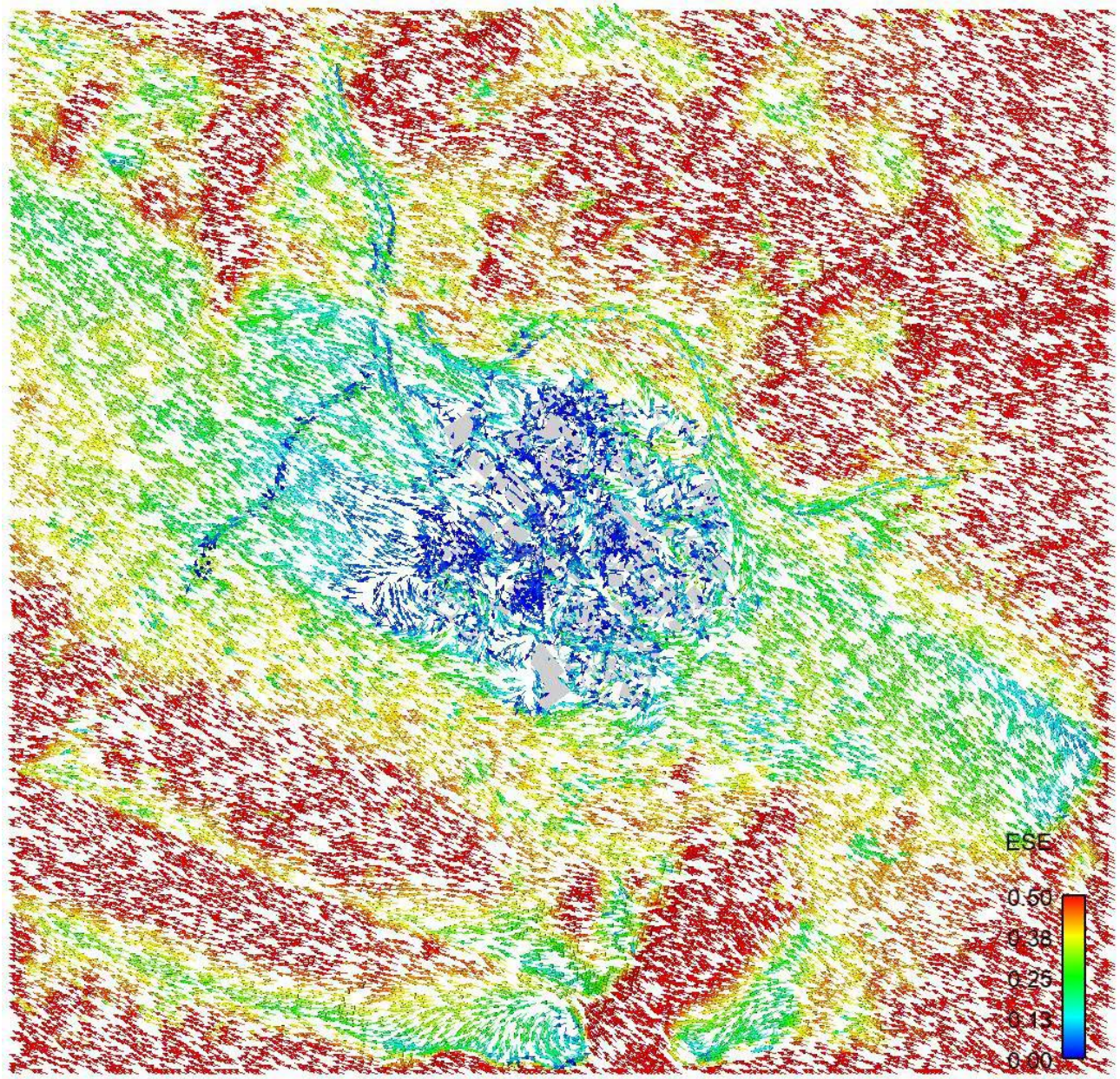
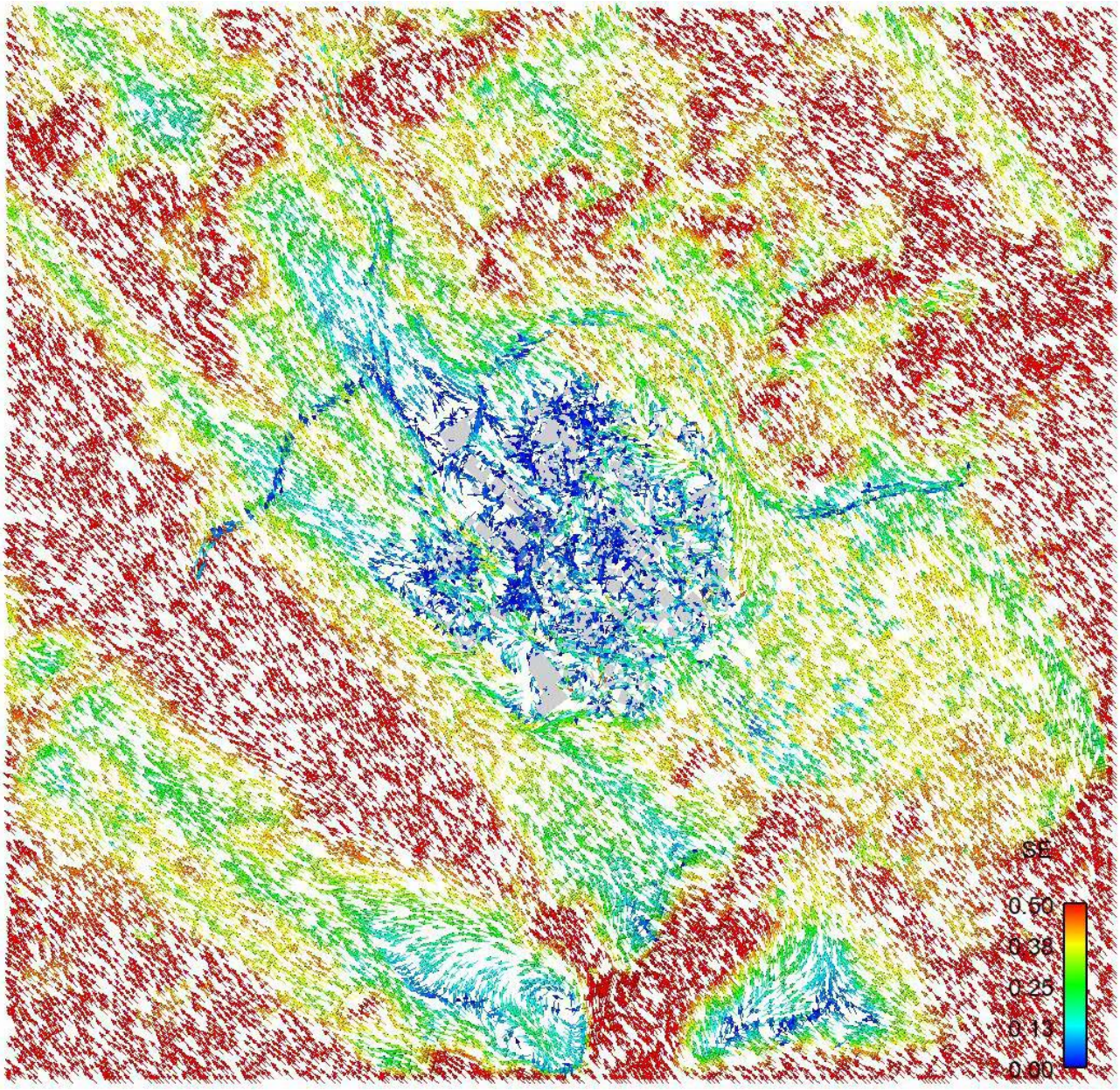


Figure 16 Baseline Scheme Full Domain Velocity Vector Plot under ESE wind



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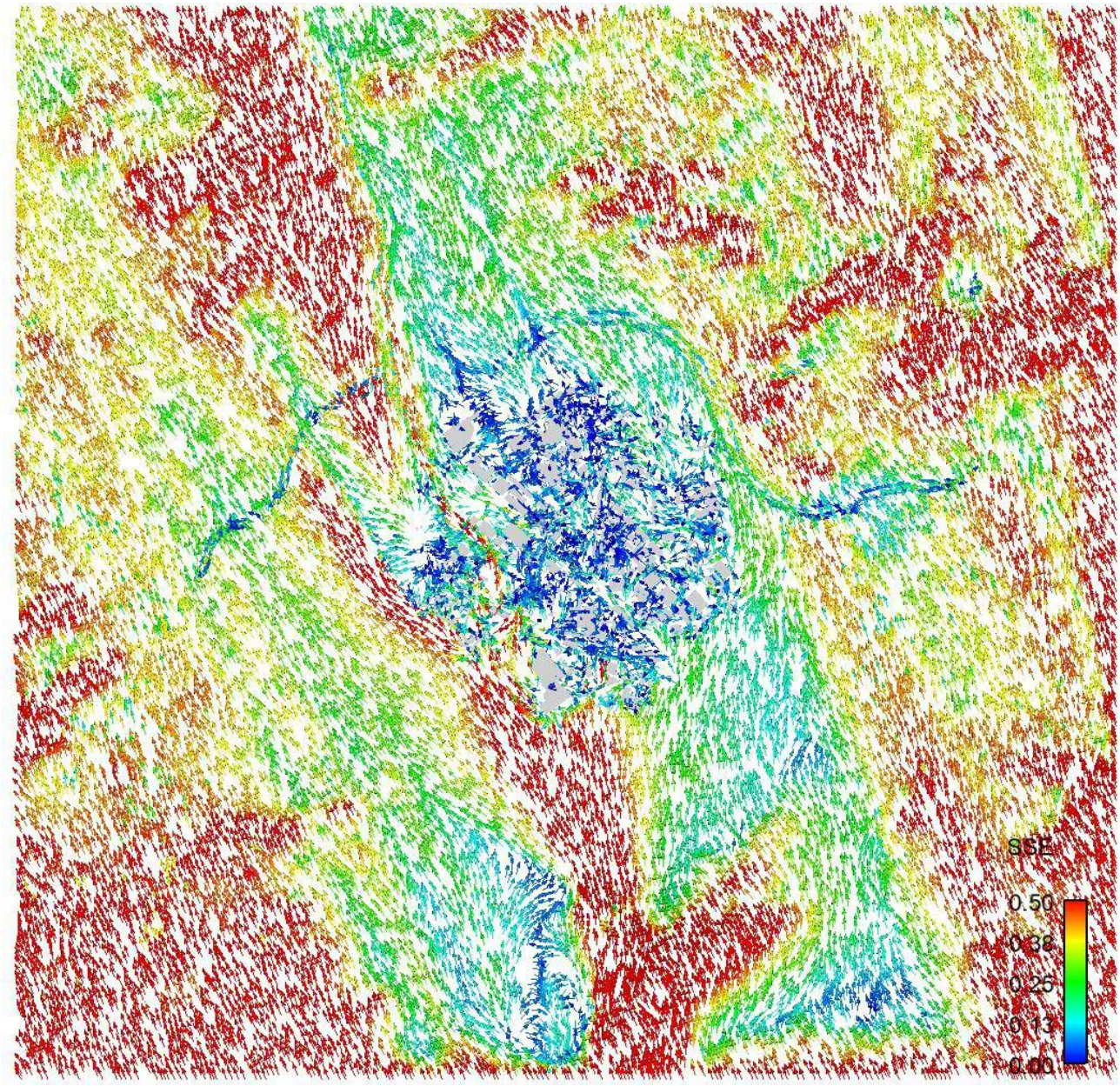


Figure 18 Baseline Scheme Velocity Vector Plot under SSE wind

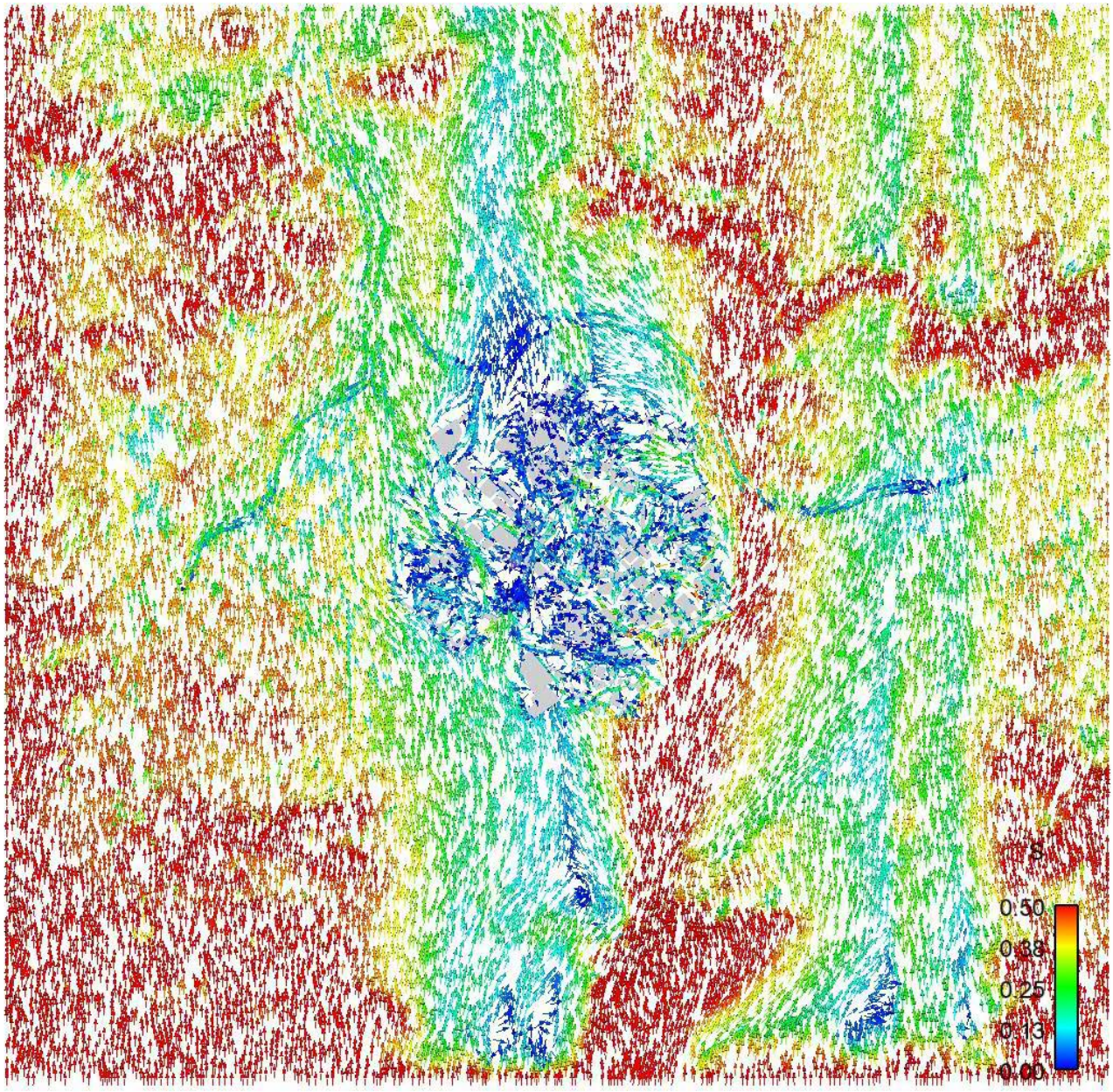


Figure 19 Baseline Scheme Velocity Vector Plot under S wind

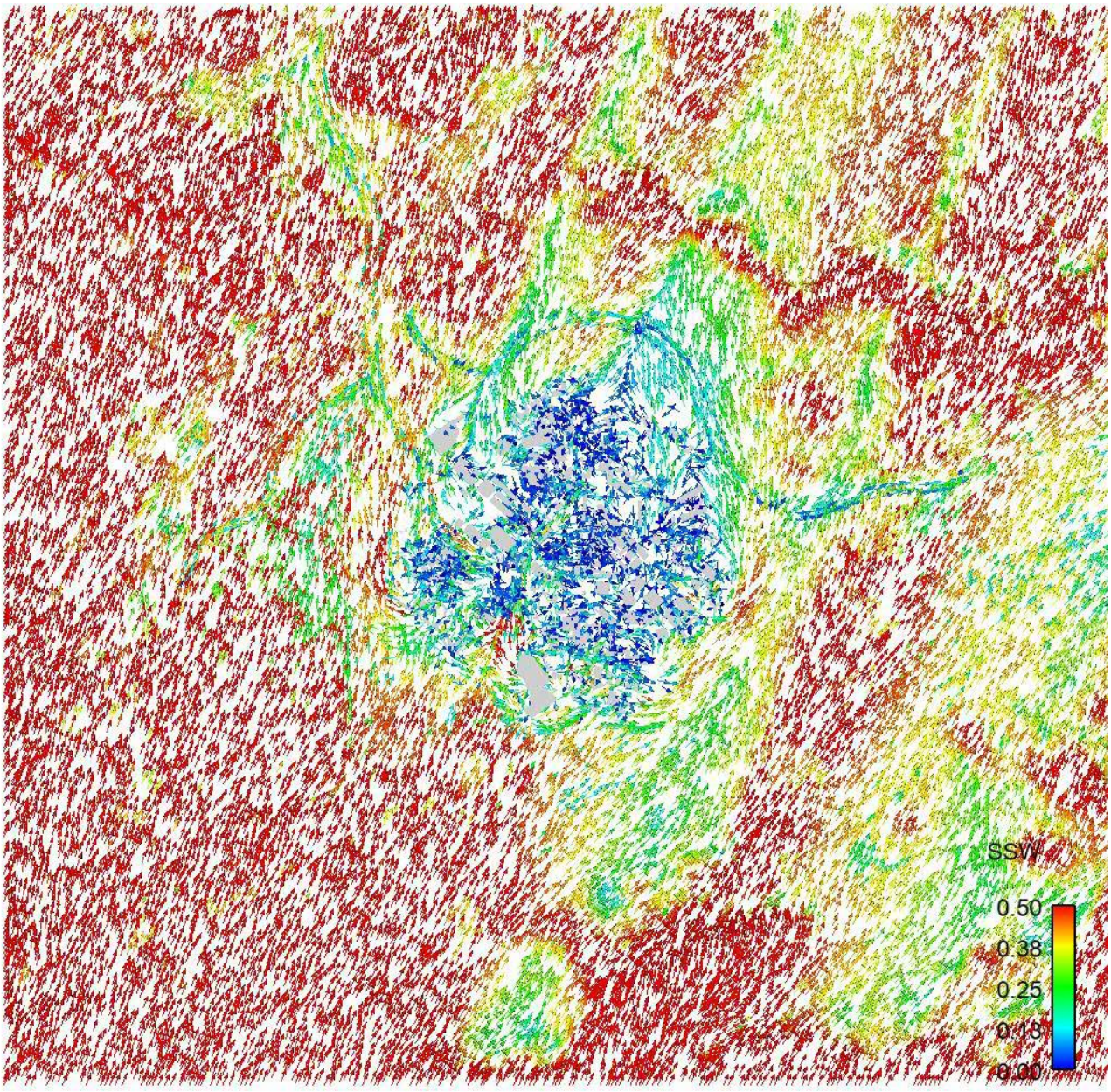
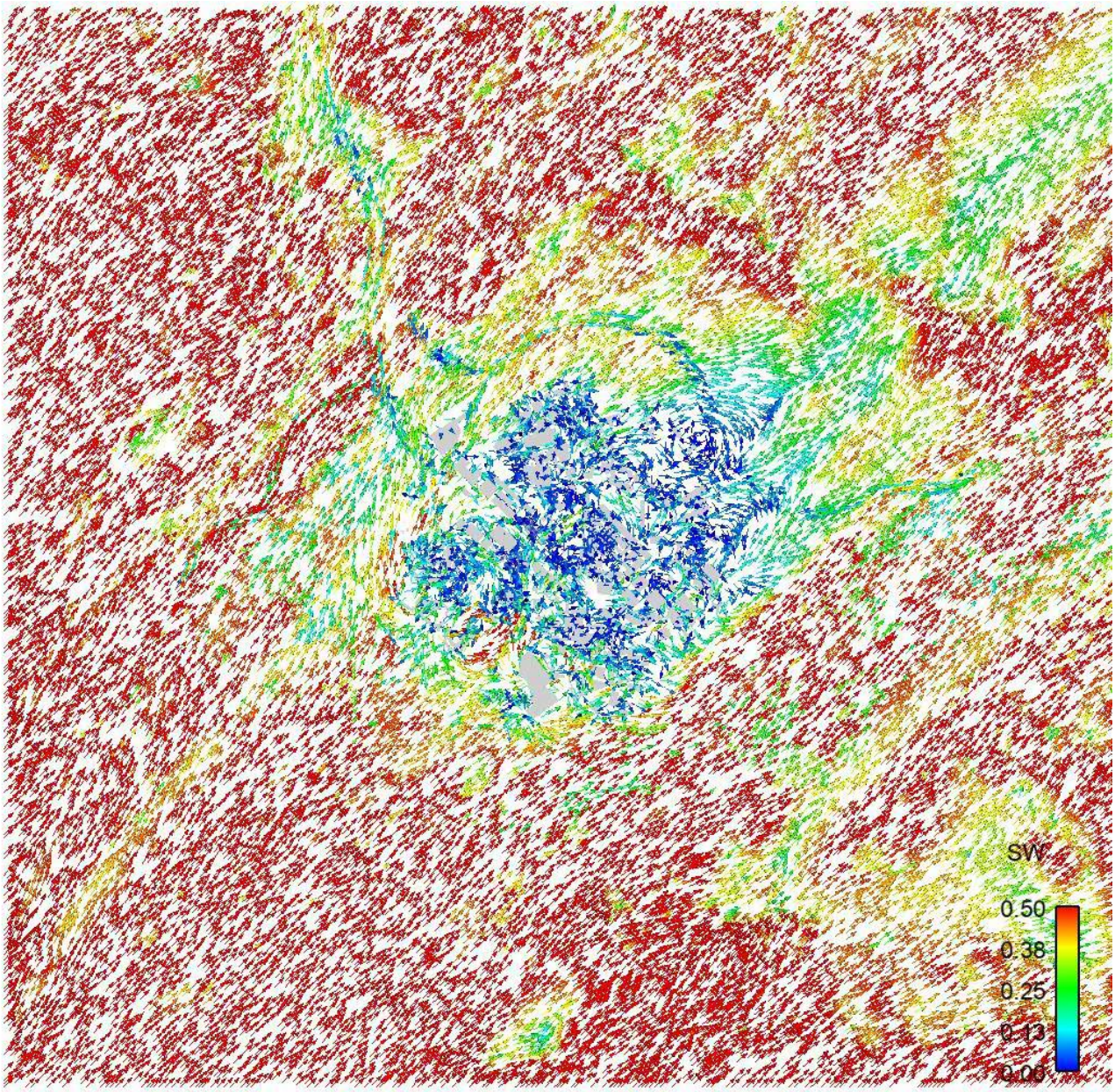


Figure 20 Baseline Scheme Full Domain Velocity Vector Plot under SSW wind



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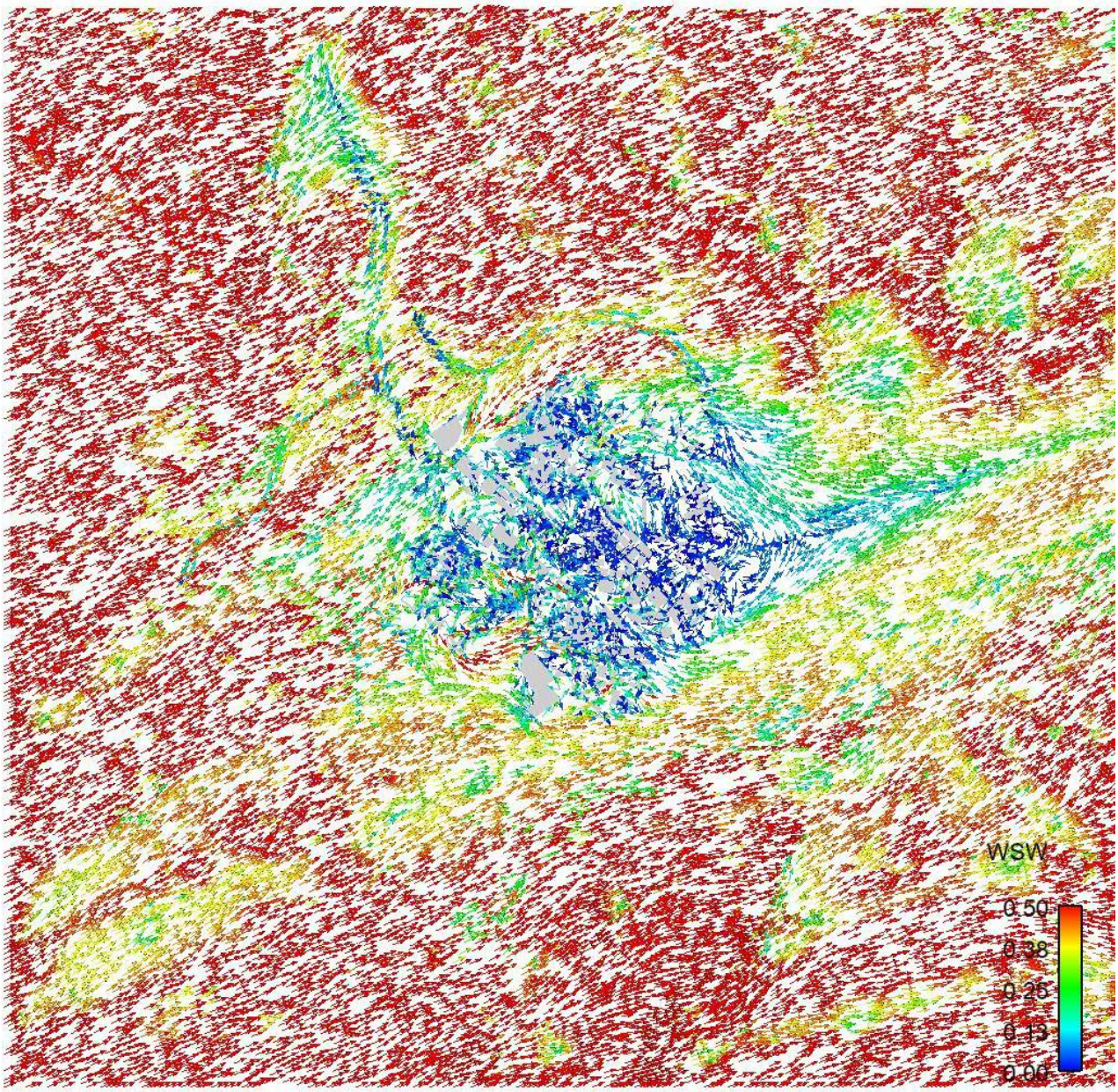

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D.3 Proposed Scheme

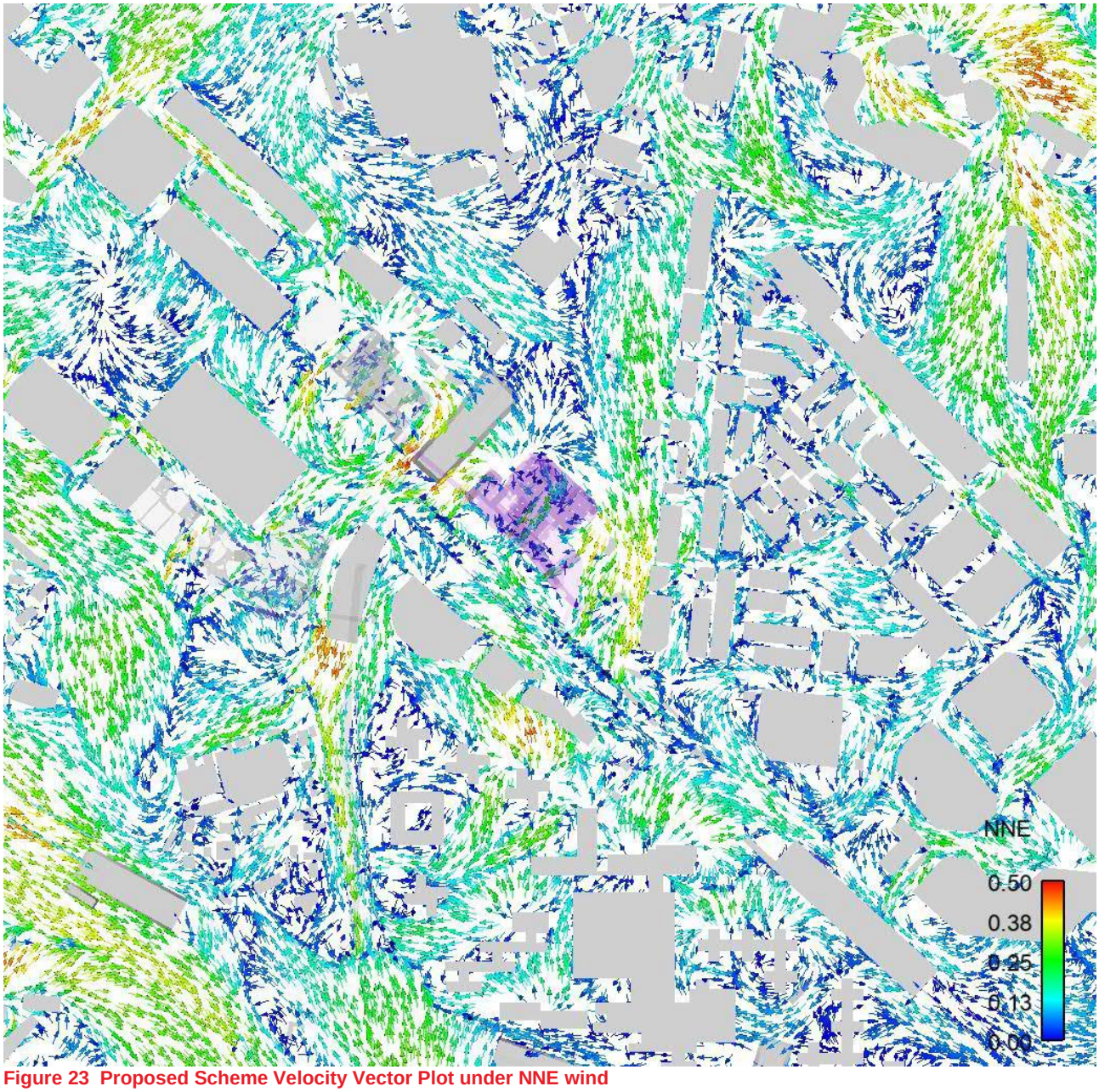


Figure 23 Proposed Scheme Velocity Vector Plot under NNE wind

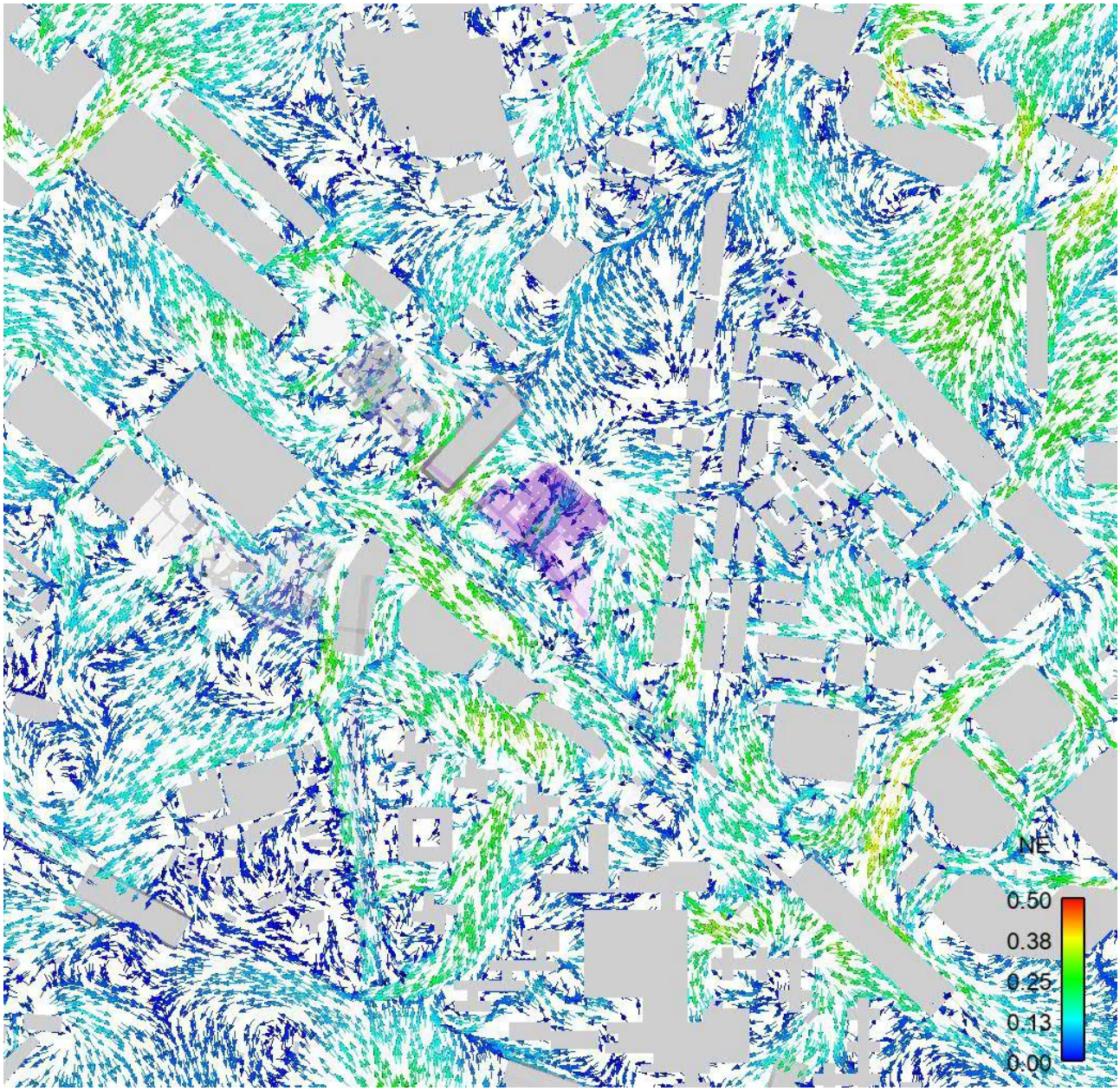


Figure 24 Proposed Scheme Velocity Vector Plot under NE wind

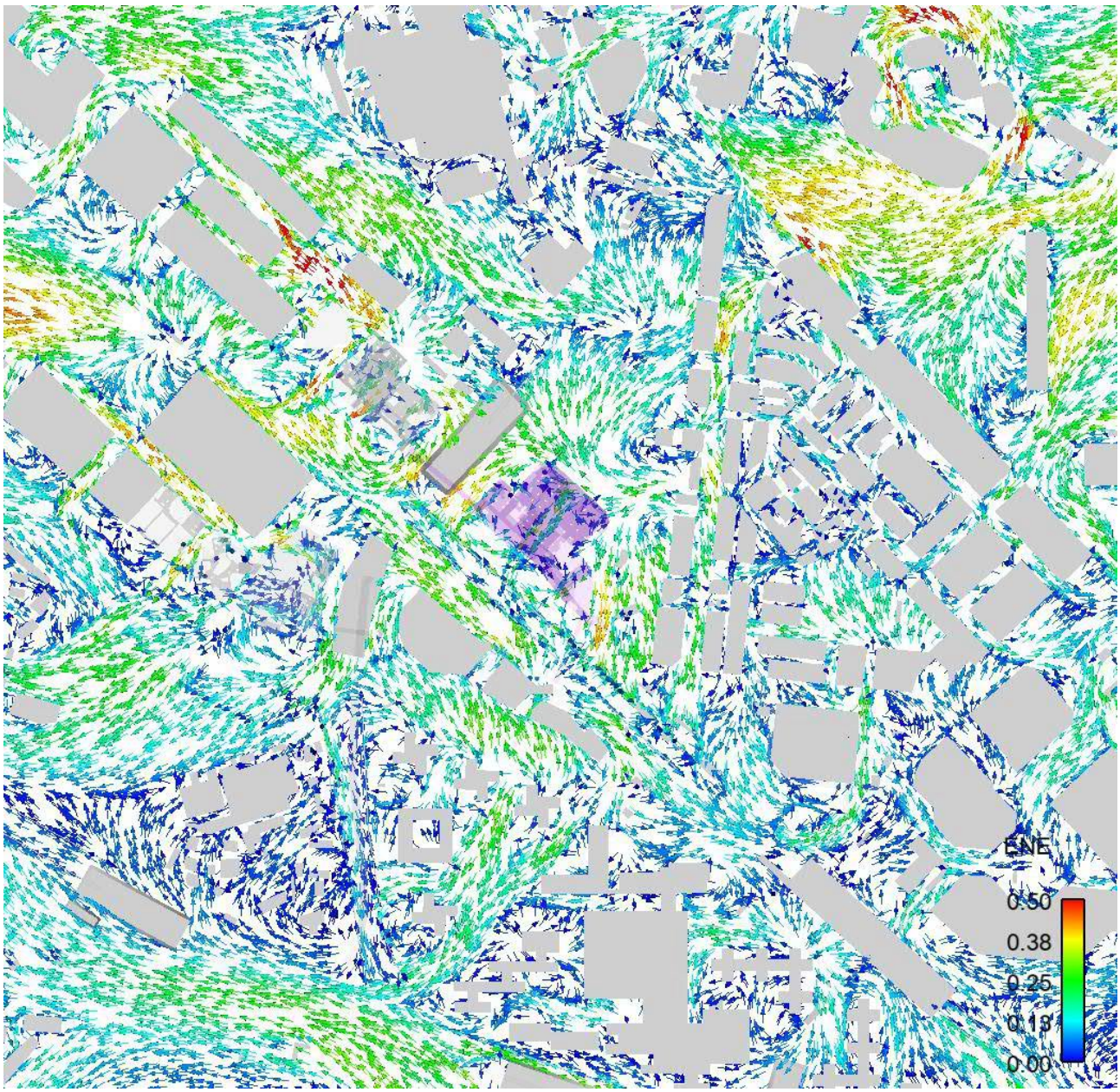


Figure 25 Proposed Scheme Velocity Vector Plot under ENE wind

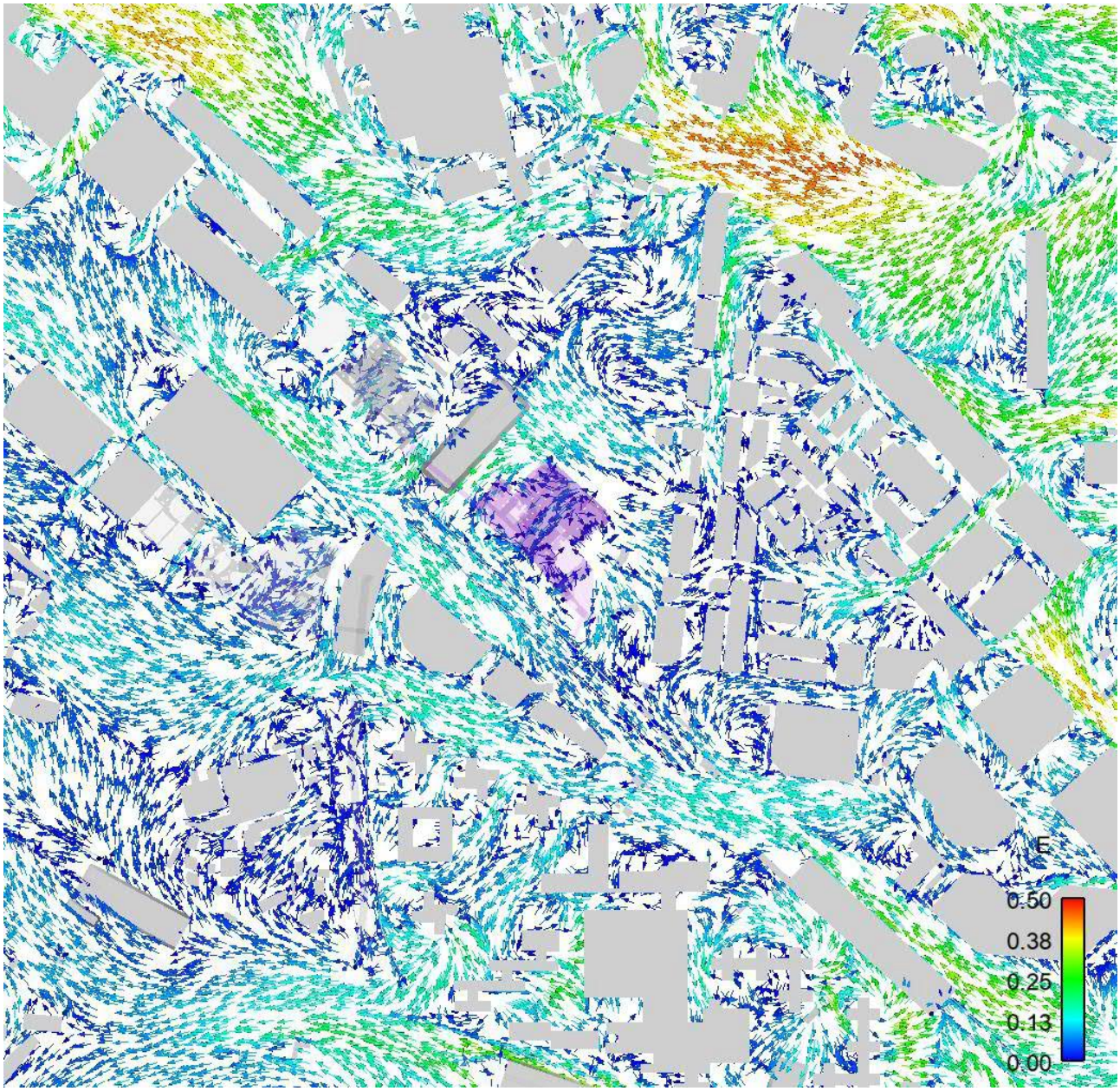


Figure 26 Proposed Scheme Velocity Vector Plot under E wind

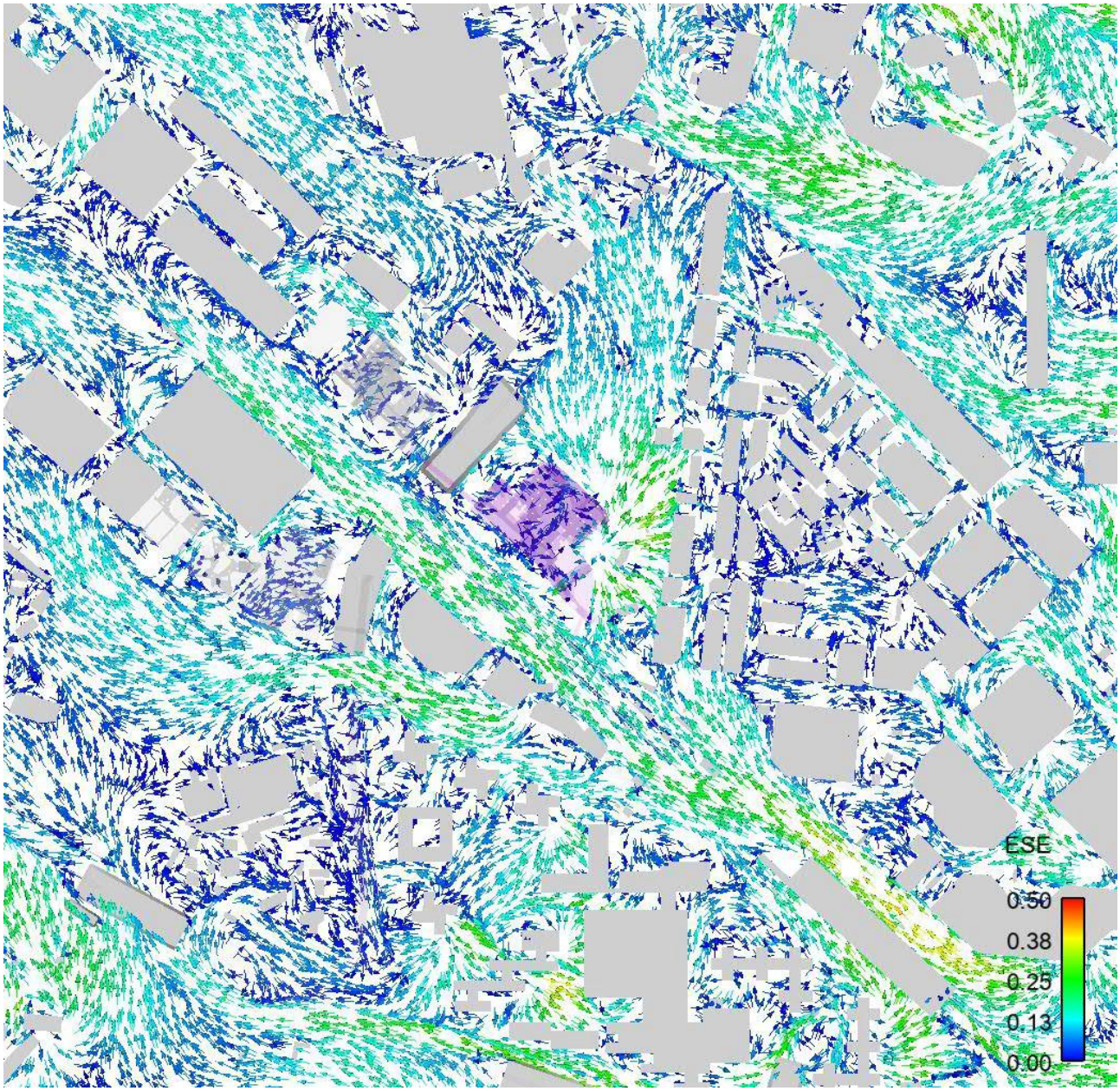


Figure 27 Proposed Scheme Velocity Vector Plot under ESE wind

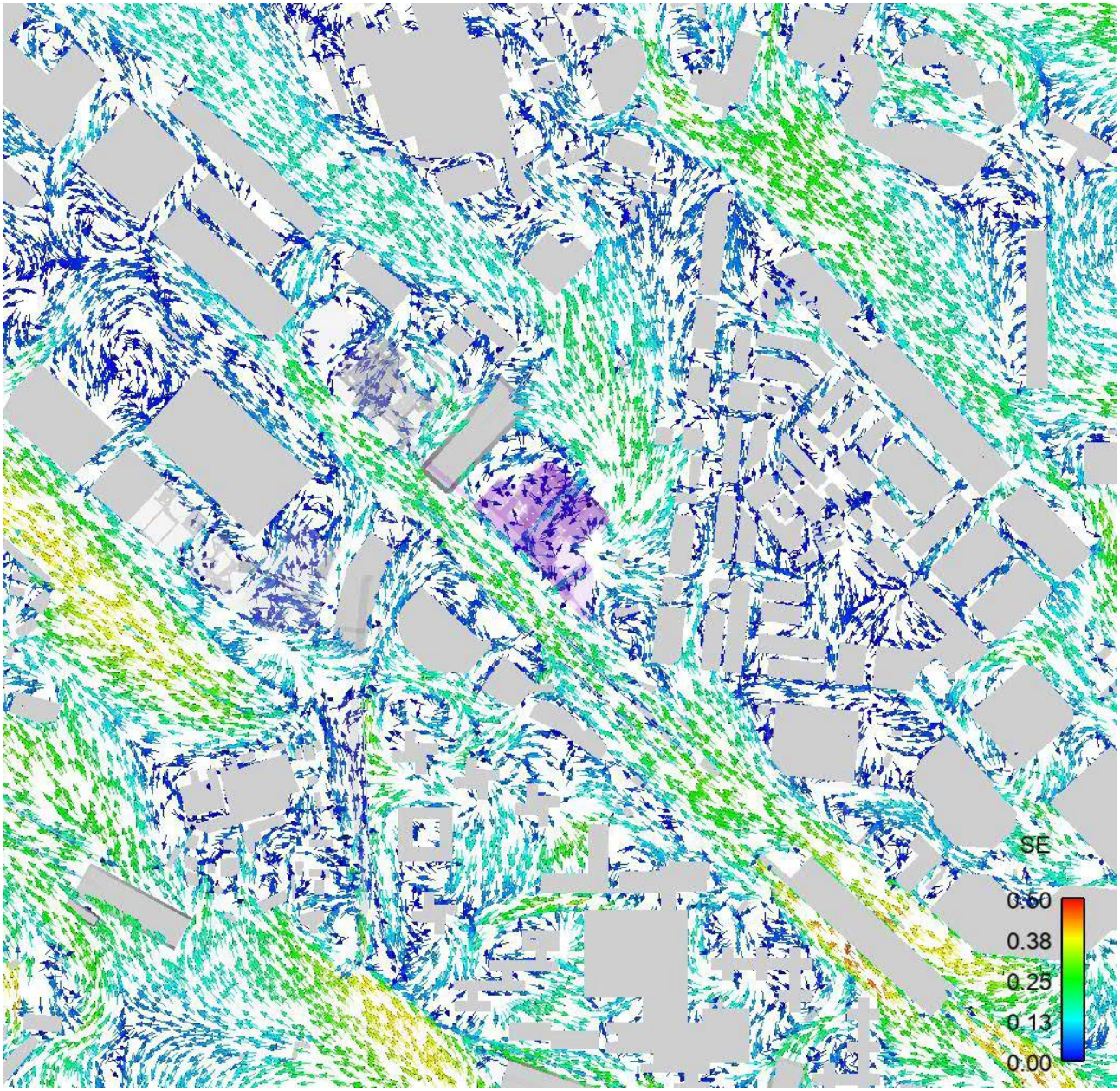


Figure 28 Proposed Scheme Velocity Vector Plot under SE wind

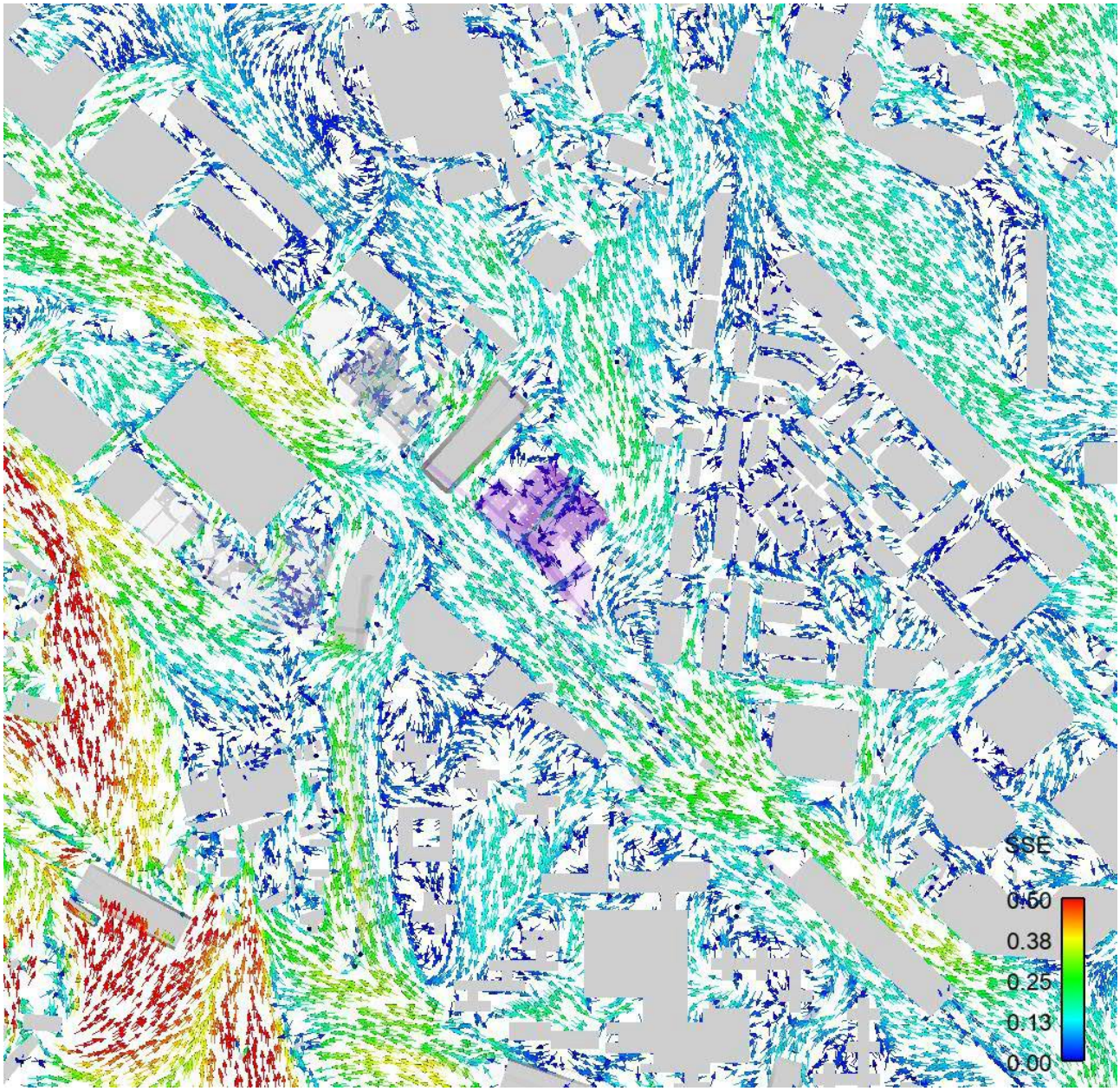


Figure 29 Proposed Scheme Velocity Vector Plot under SSE wind

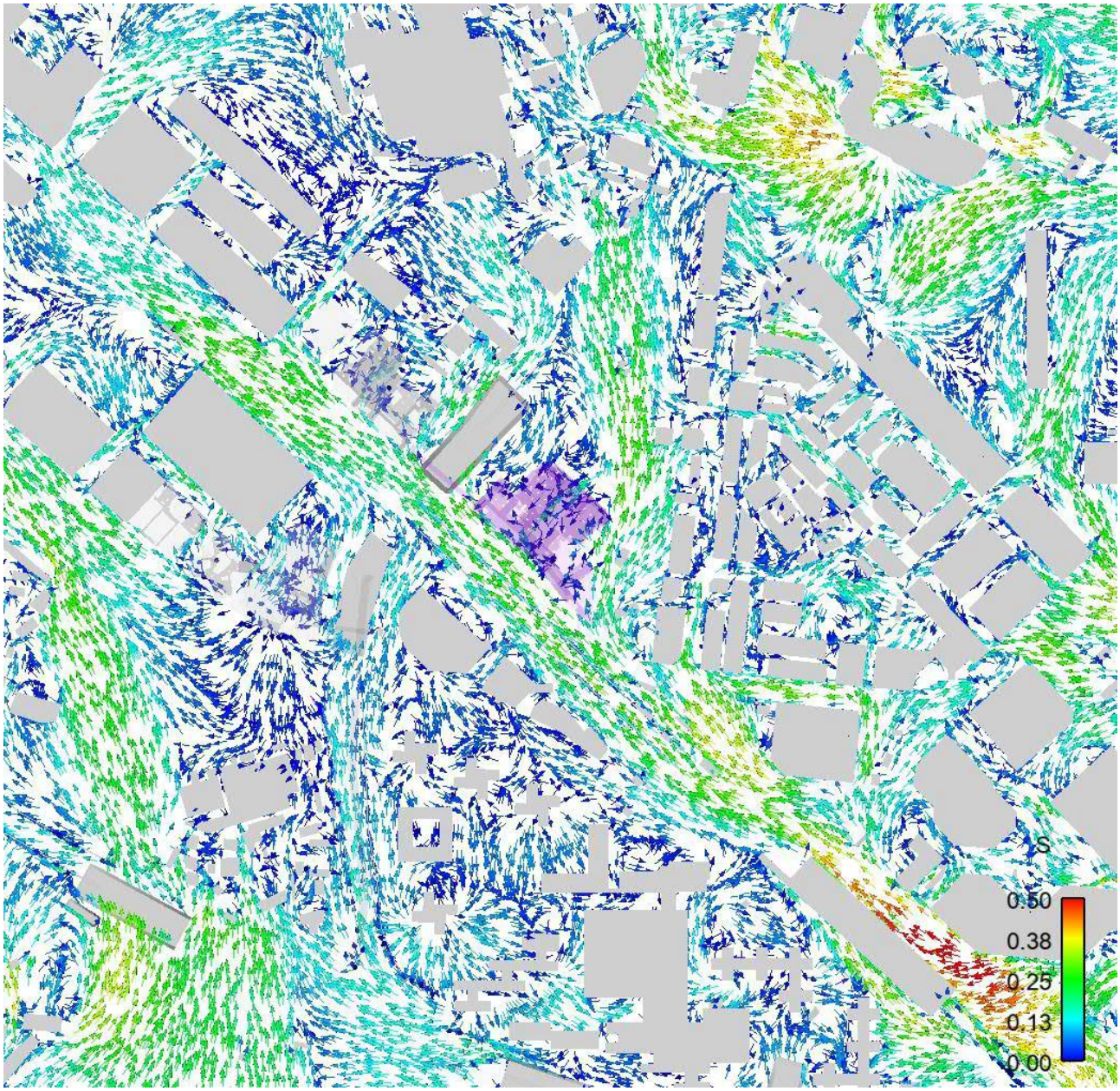


Figure 30 Proposed Scheme Velocity Vector Plot under S wind

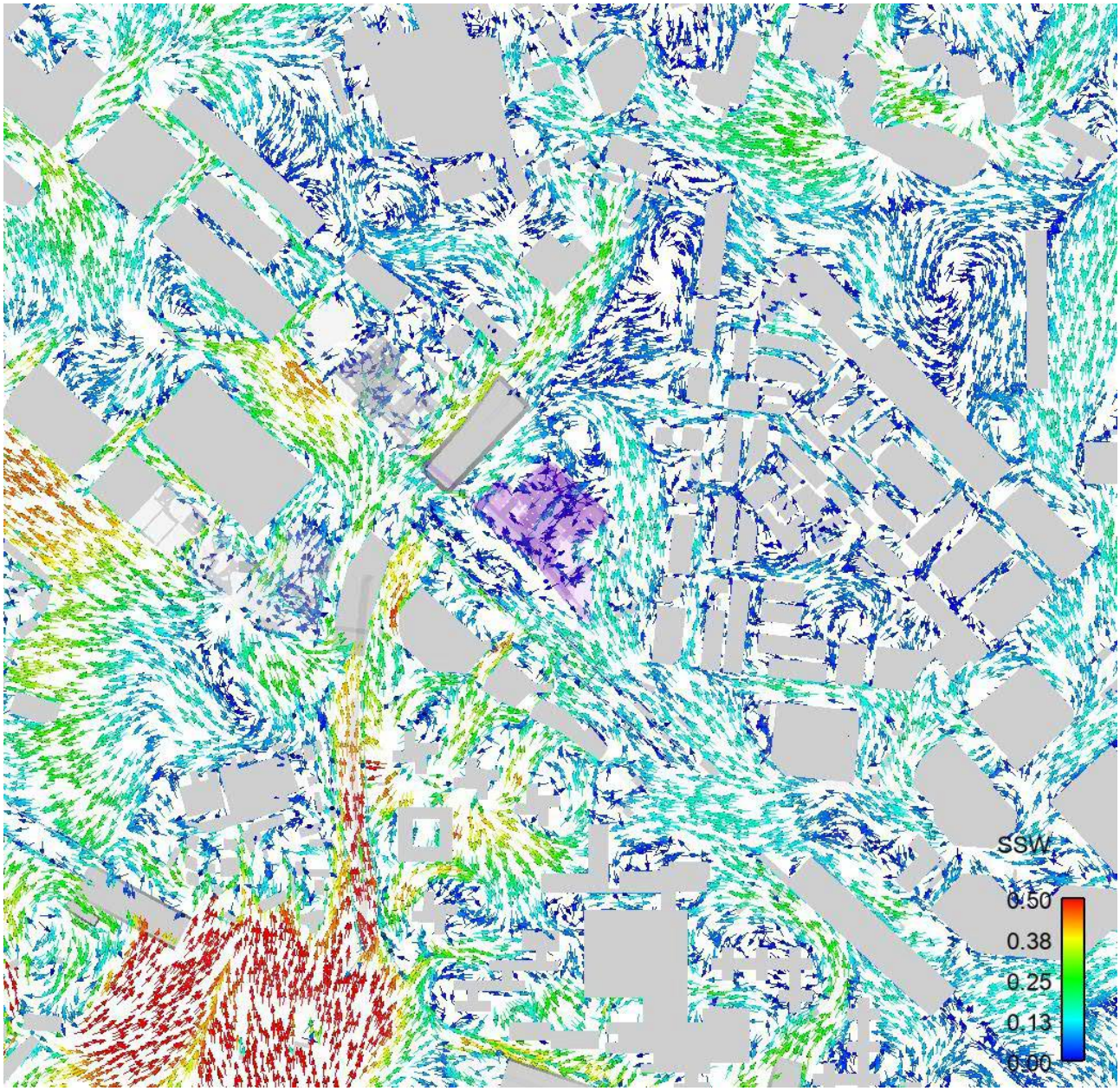


Figure 31 Proposed Scheme Velocity Vector Plot under SSW wind

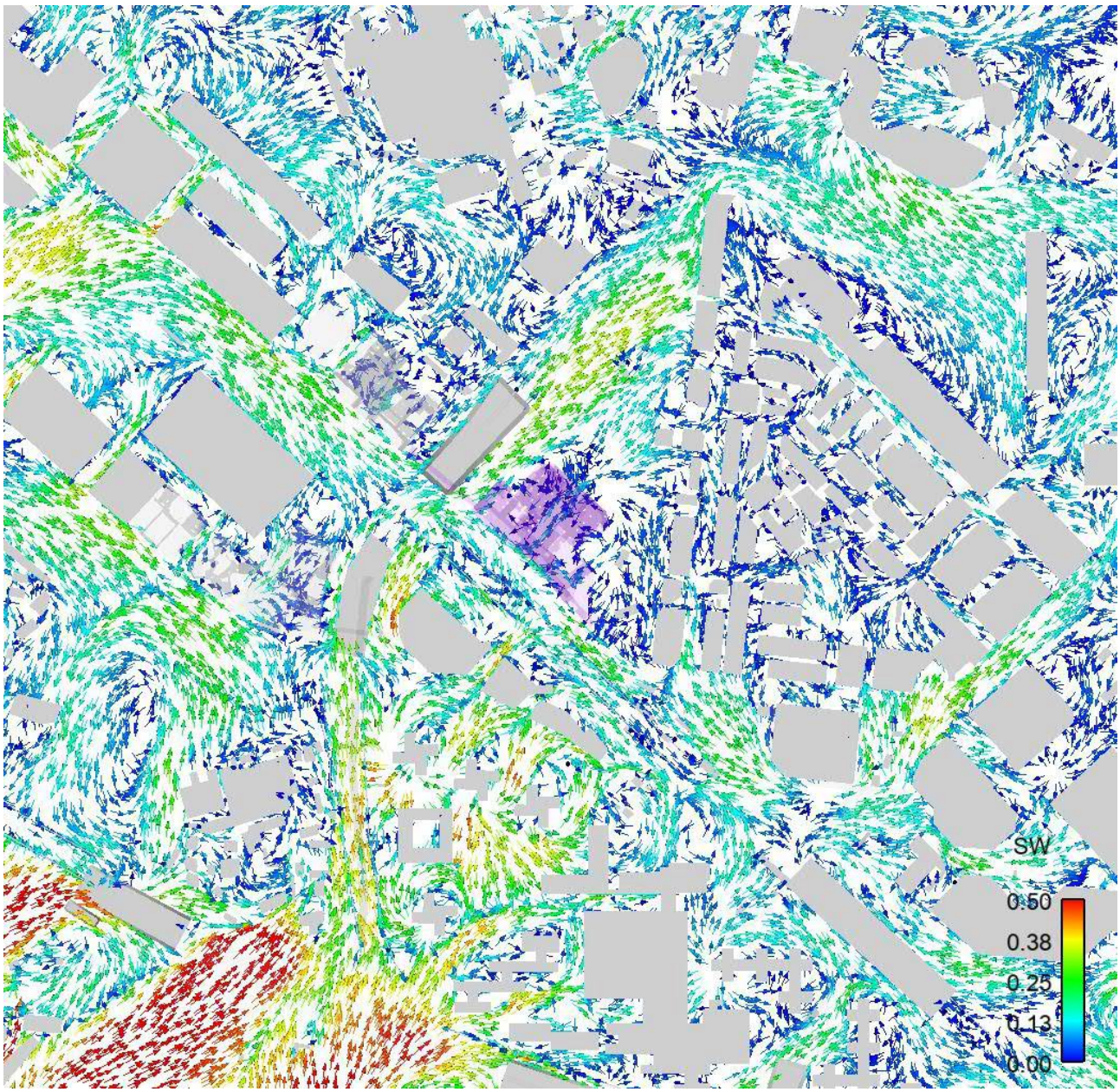


Figure 32 Proposed Scheme Velocity Vector Plot under SW wind

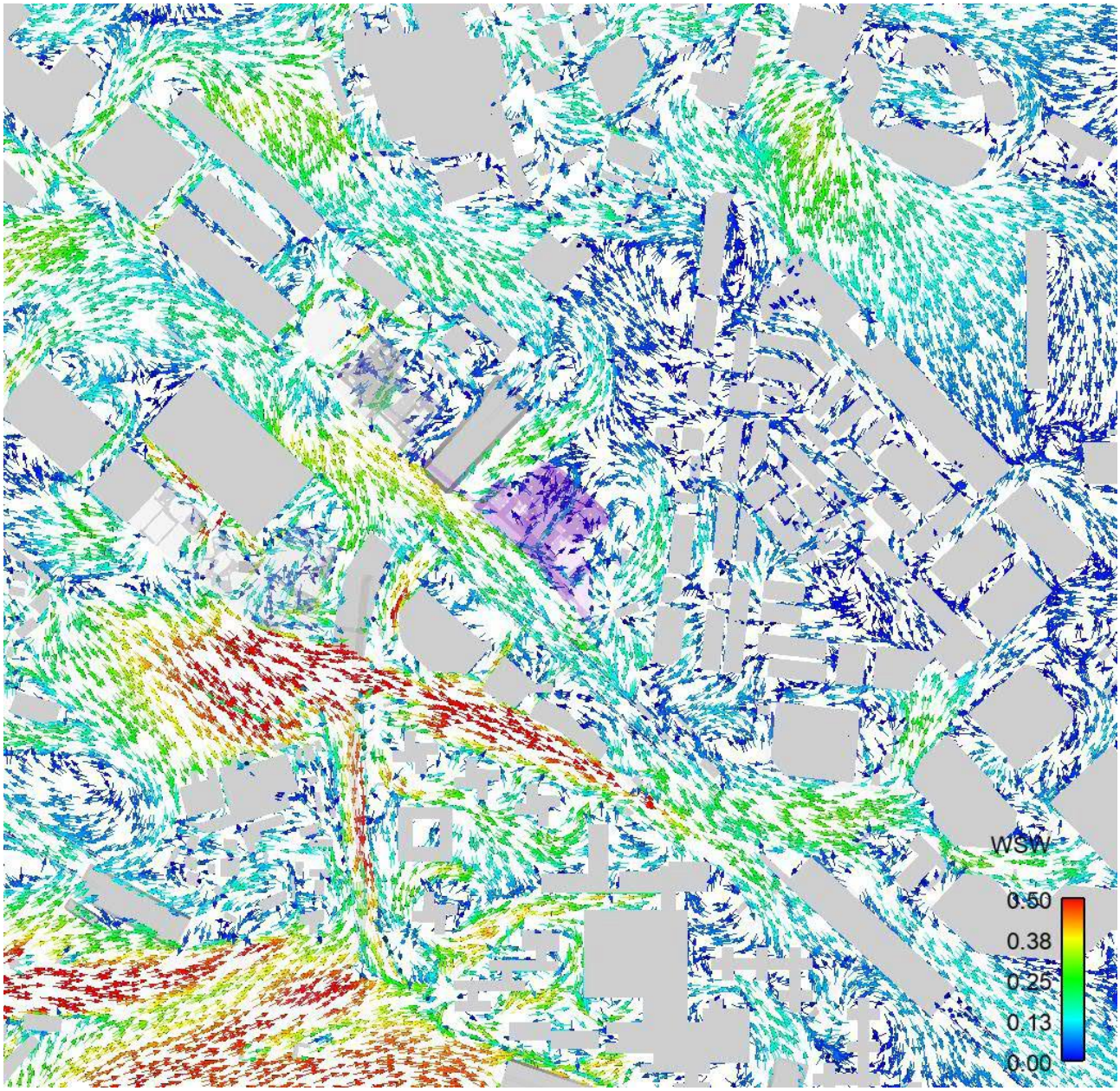


Figure 33 Proposed Scheme Velocity Vector Plot under WSW wind

D.4 Proposed Scheme (Full Domain)

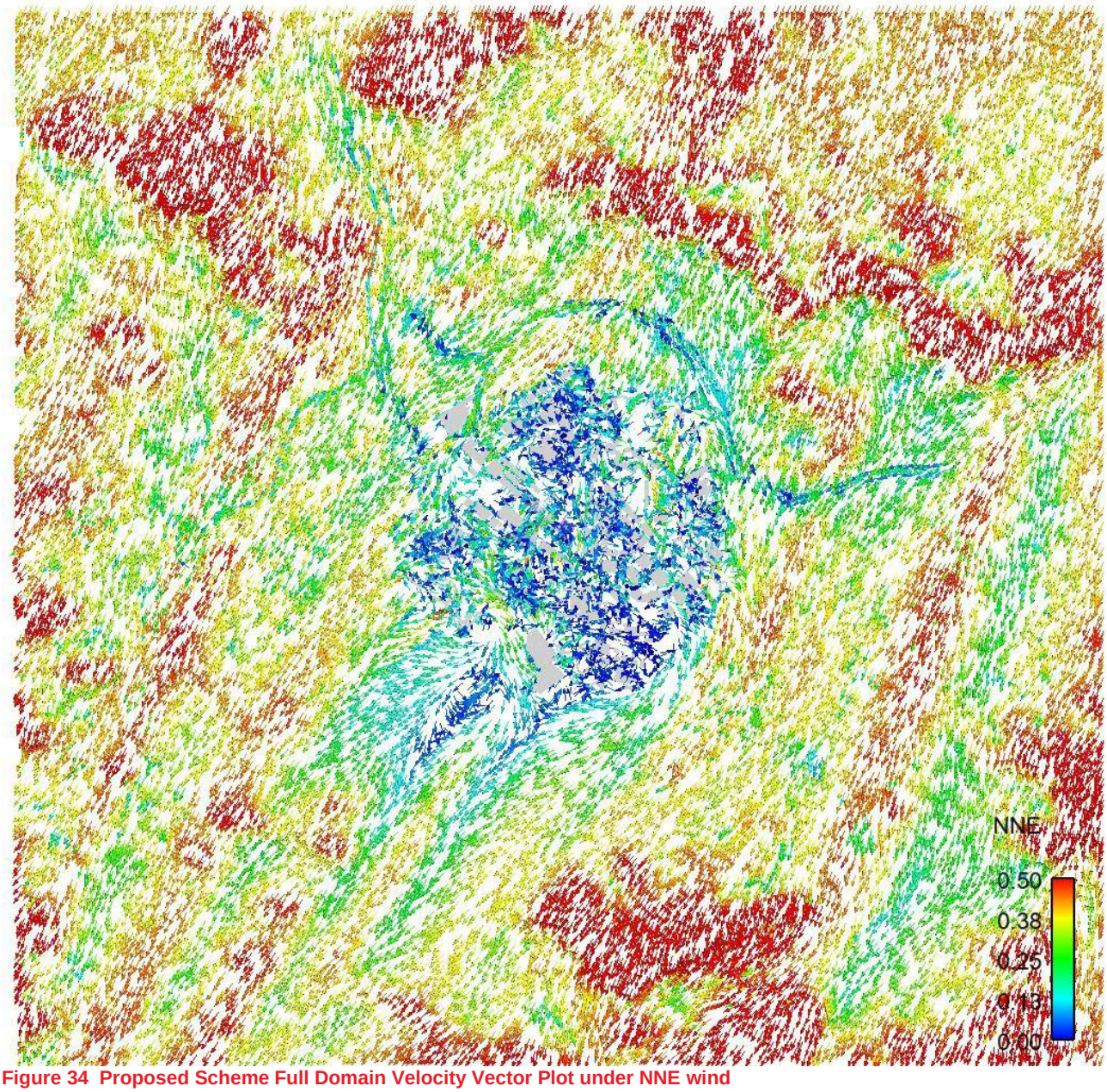


Figure 34 Proposed Scheme Full Domain Velocity Vector Plot under NNE wind

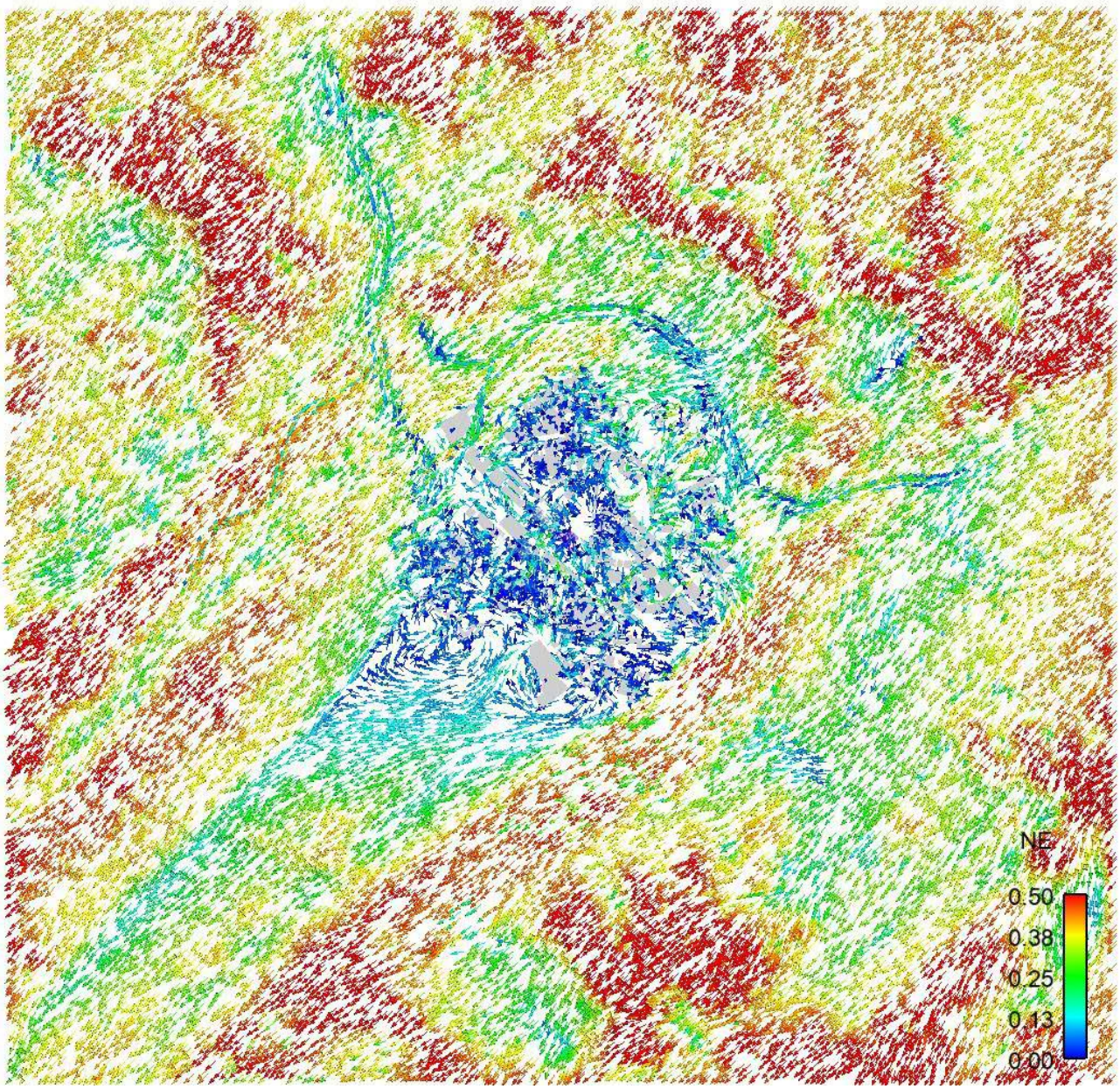


Figure 35 Proposed Scheme Full Domain Velocity Vector Plot under NE wind

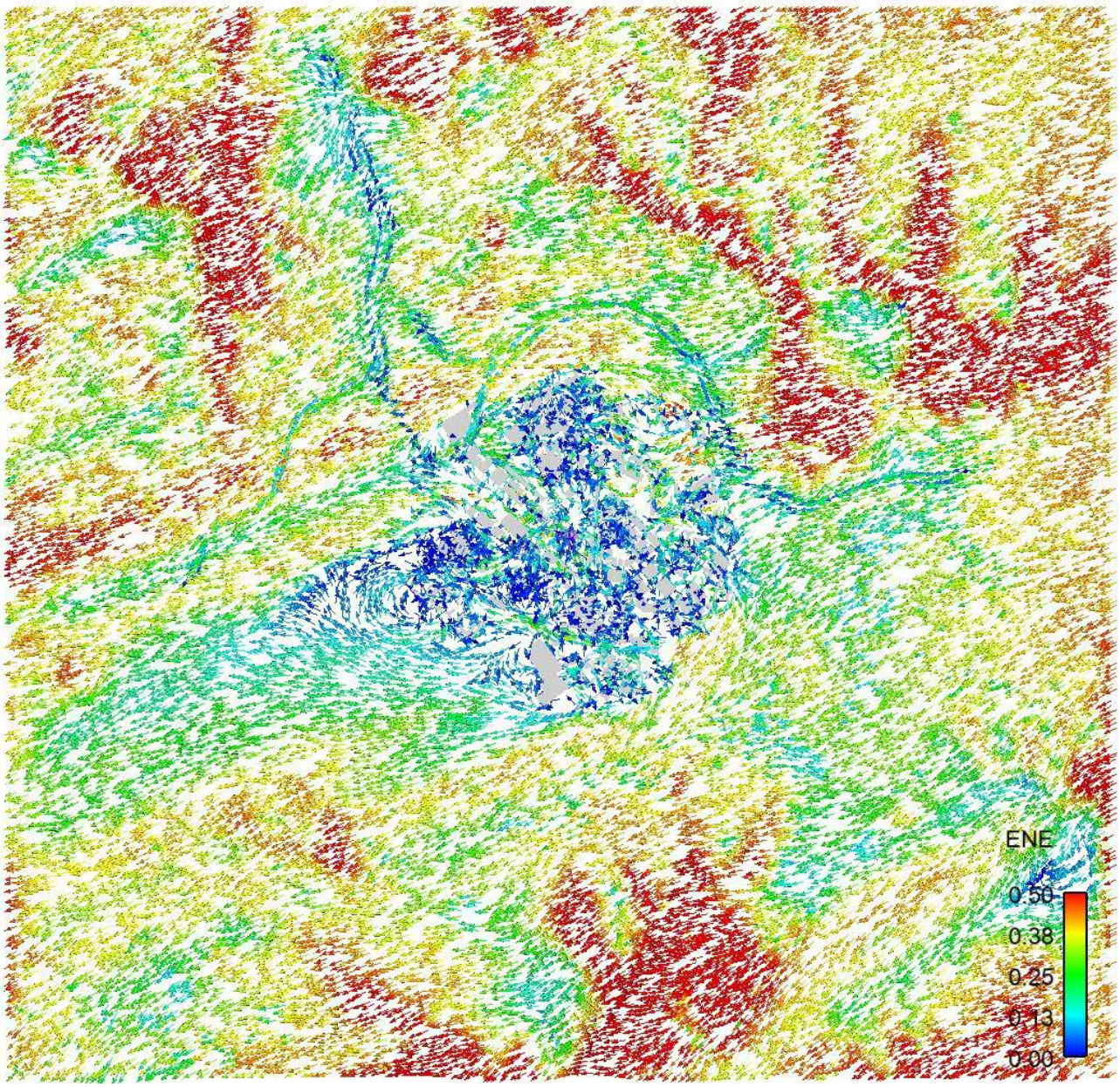


Figure 36 Proposed Scheme Full Domain Velocity Vector Plot under ENE wind

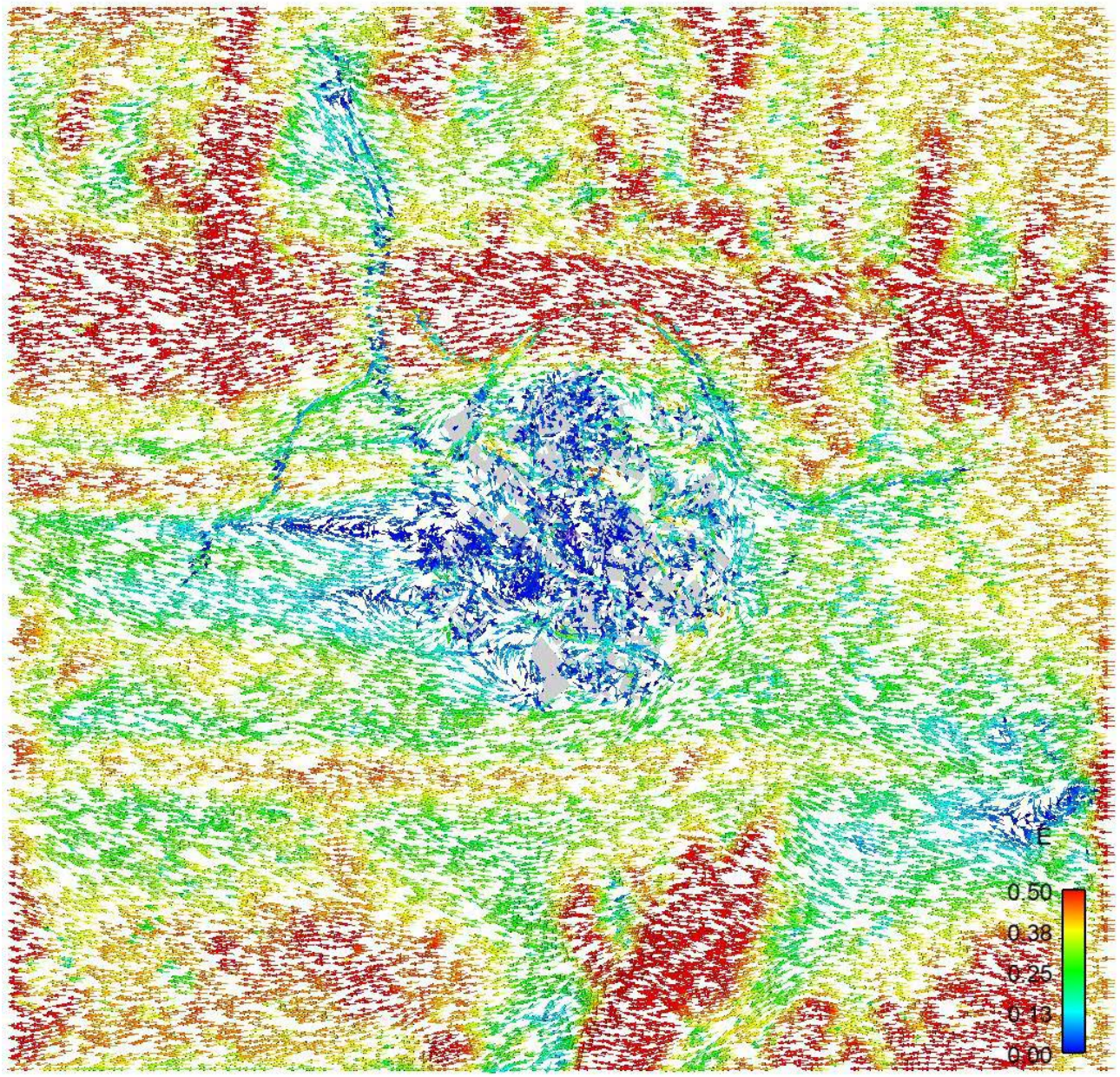


Figure 37 Proposed Scheme Full Domain Velocity Vector Plot under E wind

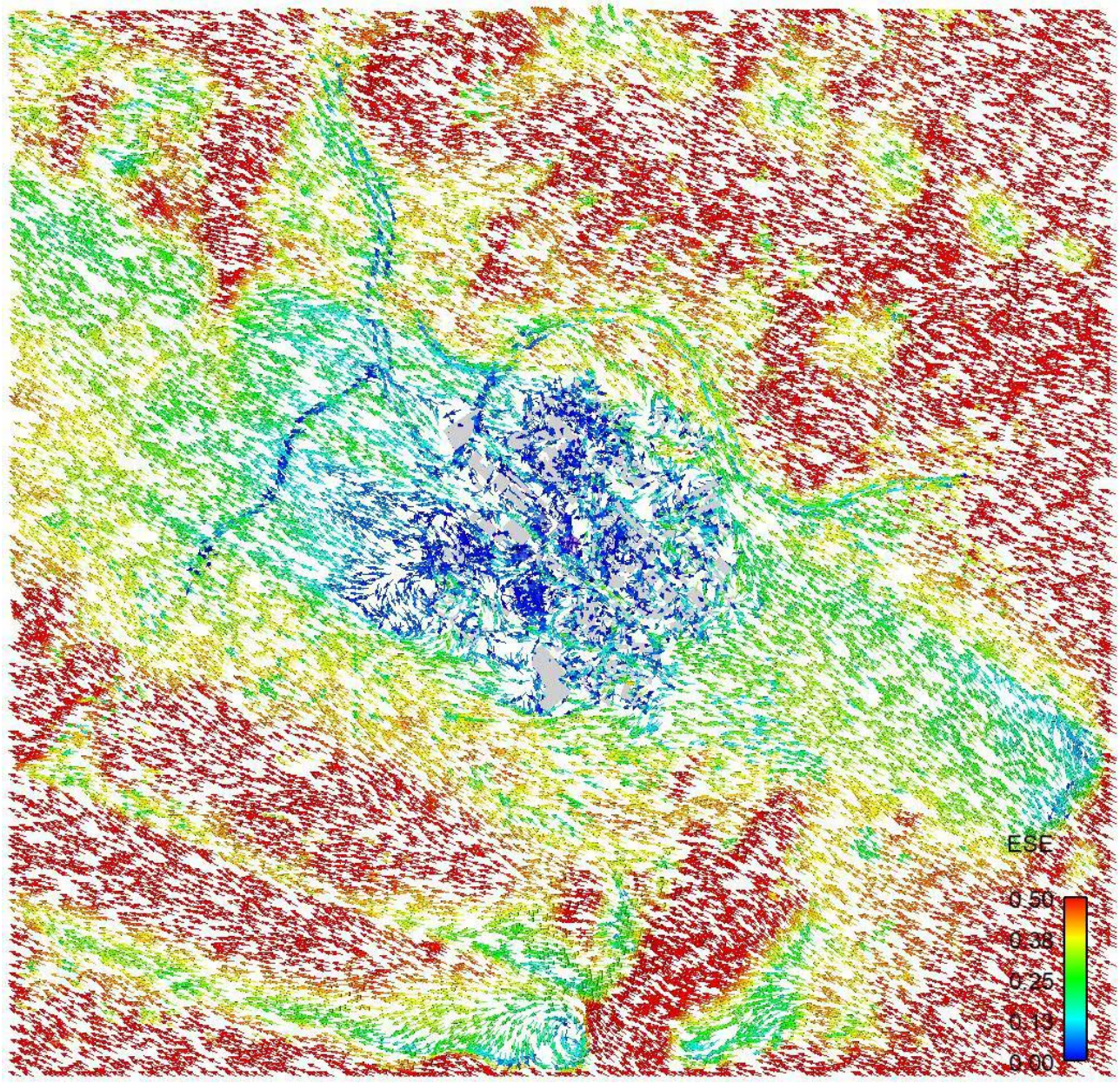


Figure 38 Proposed Scheme Full Domain Velocity Vector Plot under ESE wind

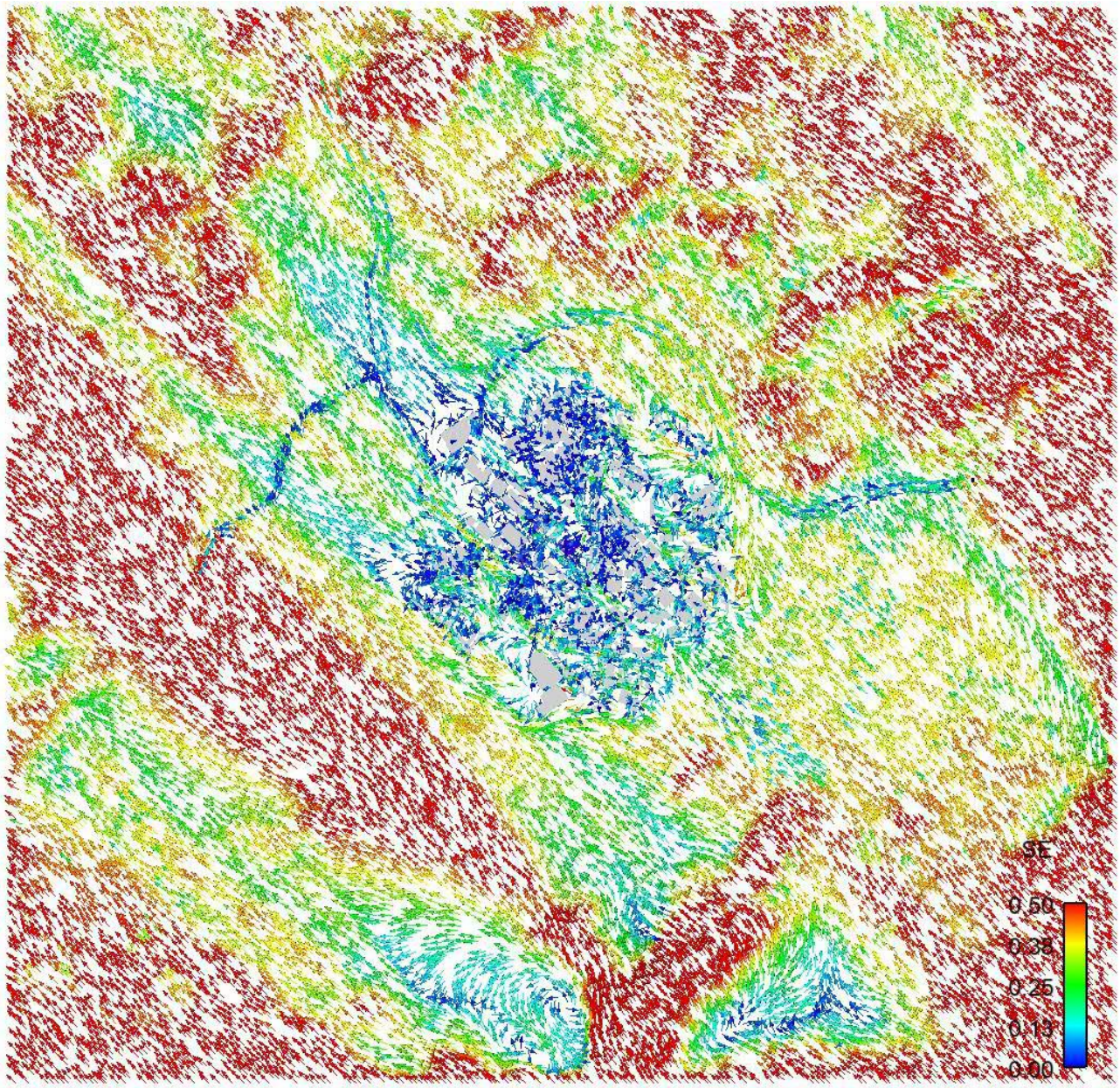


Figure 39 Proposed Scheme Full Domain Velocity Vector Plot under SE wind

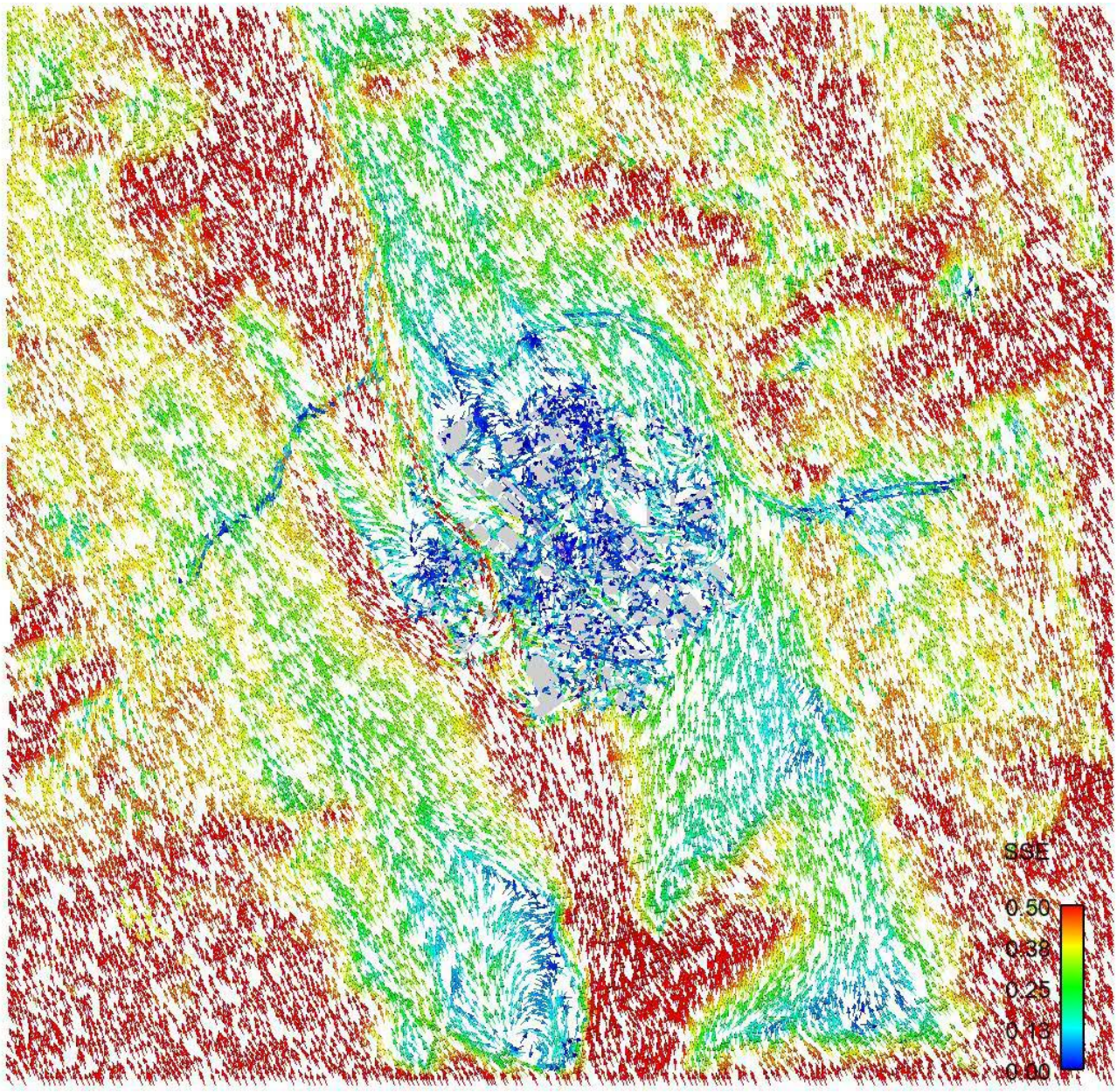


Figure 40 Proposed Scheme Full Domain Velocity Vector Plot under SSE wind

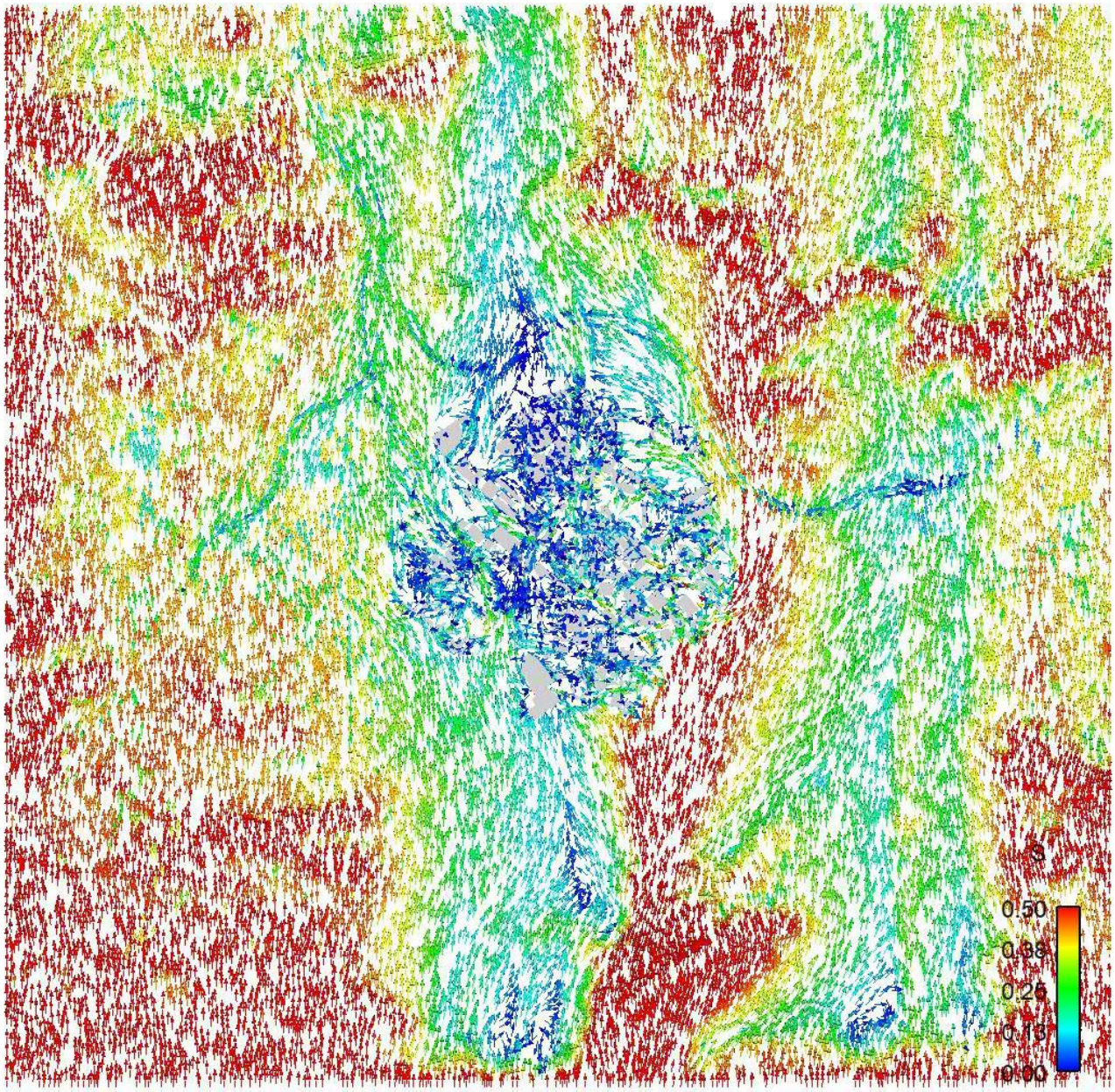


Figure 41 Proposed Scheme Full Domain Velocity Vector Plot under S wind

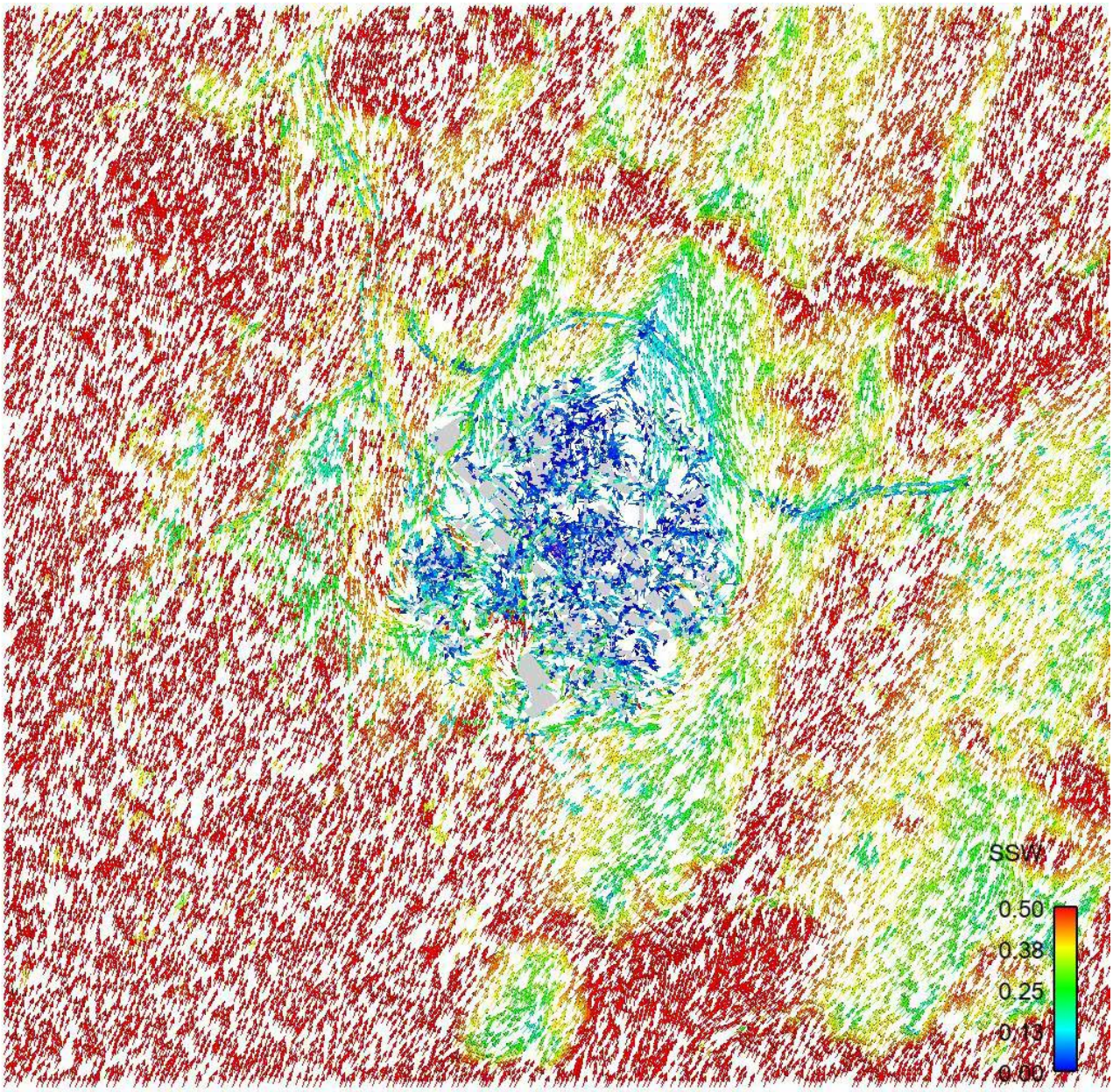


Figure 42 Proposed Scheme Full Domain Velocity Vector Plot under SSW wind

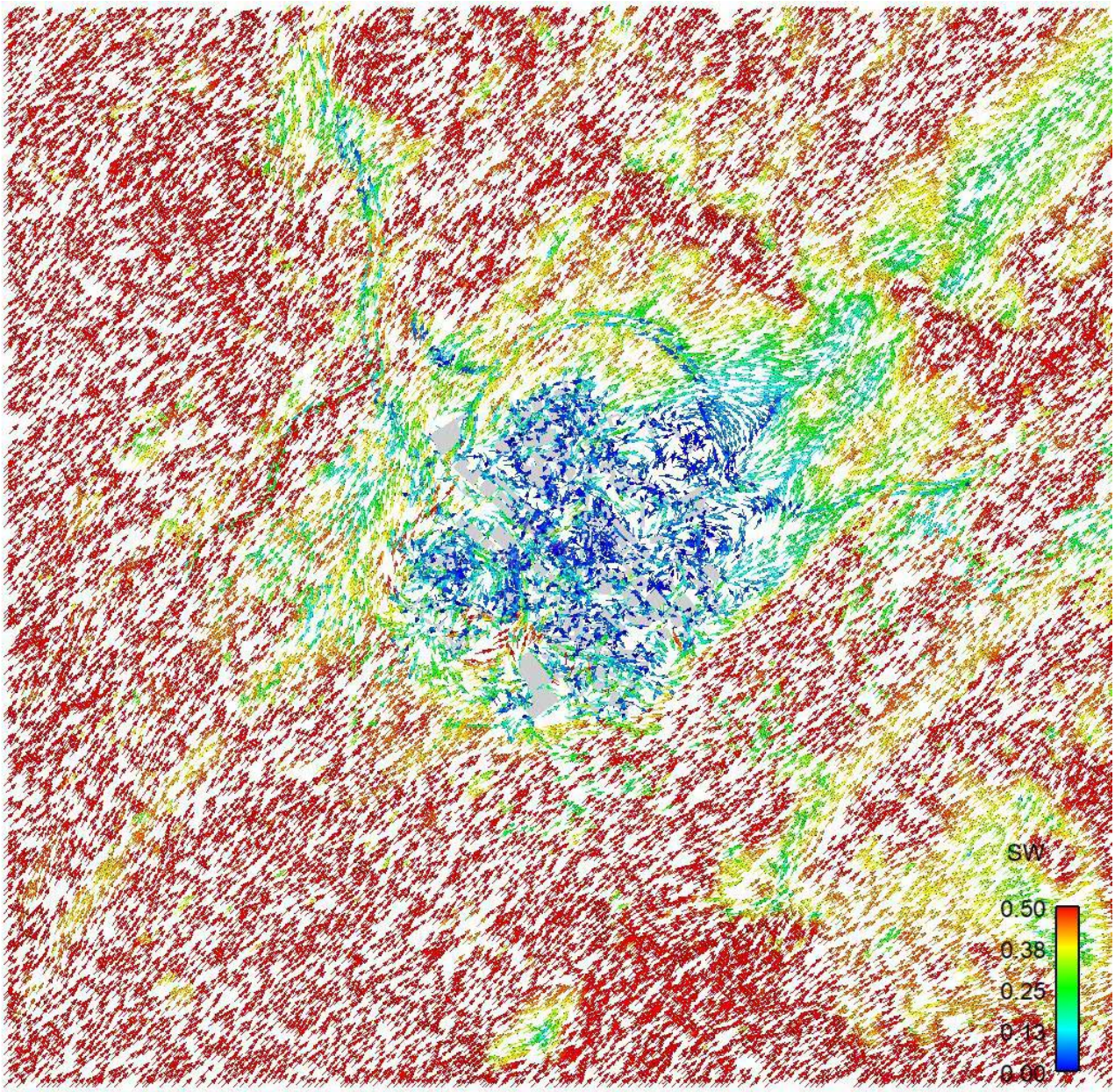


Figure 43 Proposed Scheme Full Domain Velocity Vector Plot under SW wind

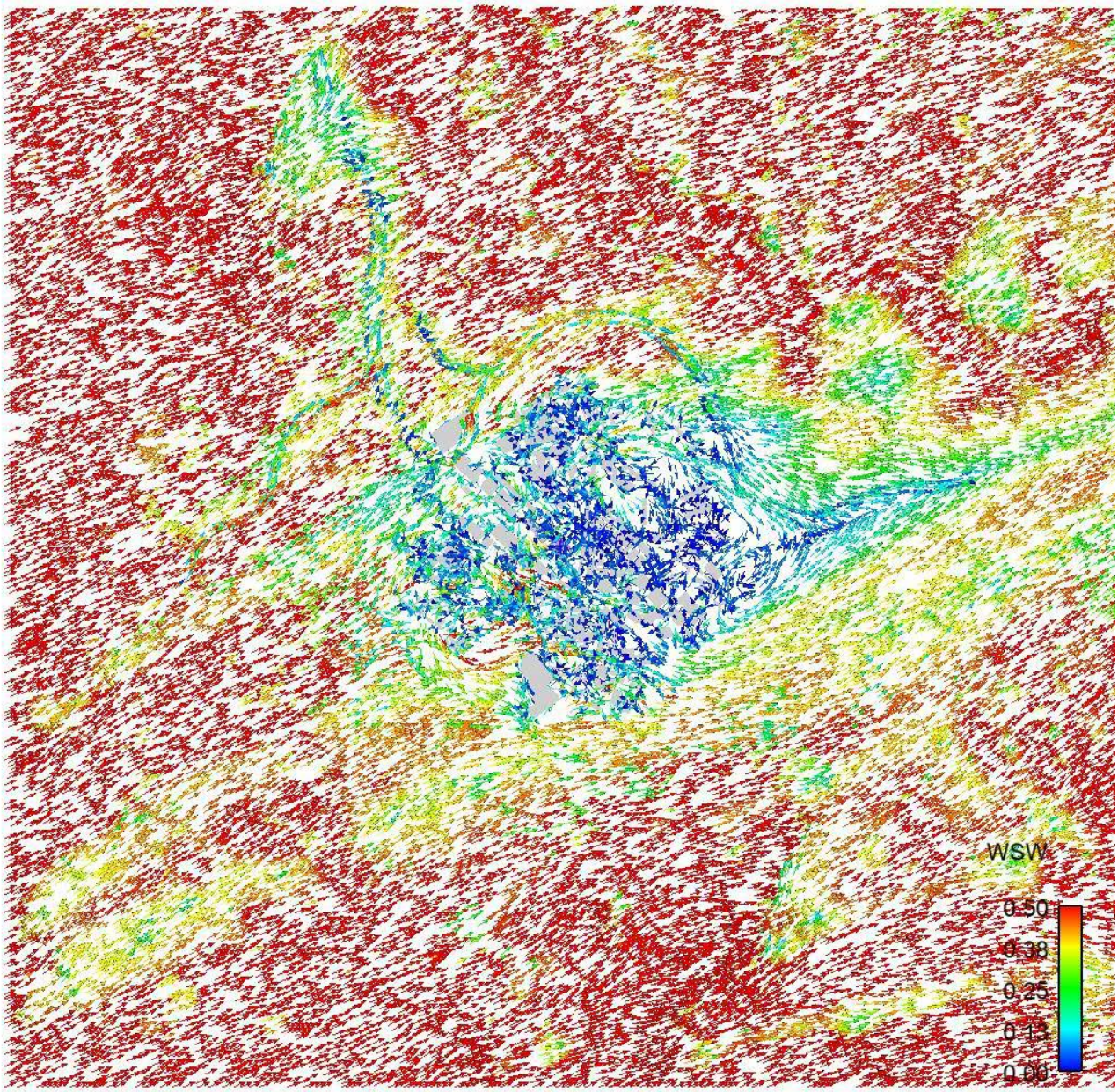


Figure 44 Proposed Scheme Full Domain Velocity Vector Plot under WSW wind

ARUP

Appendix E

Reference:

|

Velocity Ratio (VR) at Test Point

Job number

Ove Arup & Partners Hong Kong Limited (Hong Kong Branch)
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
arup.com

Contents

E.1 Baseline Scheme

Baseline	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
Frequency Annual	**0.06**	**0.08**	**0.11**	**0.17**	**0.15**	**0.09**			**0.06**	**0.06**		**0.78**	
Frequency Summer				**0.08**	**0.10**	**0.09**	**0.09**	**0.10**	**0.13**	**0.15**	**0.08**		**0.82**
P1	0.23	0.17	0.36	0.08	0.20	0.09	0.09	0.19	0.18	0.07	0.16	0.17	0.13
P2	0.26	0.20	0.39	0.08	0.24	0.07	0.05	0.19	0.18	0.07	0.08	0.19	0.12
P3	0.25	0.21	0.36	0.08	0.24	0.16	0.07	0.18	0.17	0.09	0.05	0.19	0.13
P4	0.21	0.13	0.28	0.03	0.17	0.15	0.11	0.18	0.15	0.10	0.08	0.14	0.12
P5	0.17	0.06	0.25	0.01	0.18	0.16	0.15	0.20	0.13	0.09	0.09	0.13	0.13
P6	0.19	0.08	0.19	0.03	0.17	0.21	0.18	0.26	0.15	0.11	0.10	0.13	0.15
P7	0.32	0.12	0.13	0.05	0.18	0.24	0.21	0.28	0.14	0.12	0.10	0.15	0.16
P8	0.30	0.13	0.12	0.06	0.19	0.24	0.21	0.28	0.16	0.10	0.08	0.15	0.16
P9	0.23	0.11	0.18	0.04	0.18	0.25	0.18	0.18	0.15	0.06	0.04	0.14	0.13
P10	0.16	0.07	0.20	0.06	0.14	0.18	0.07	0.05	0.05	0.05	0.01	0.12	0.07
P11	0.14	0.05	0.19	0.08	0.13	0.17	0.10	0.04	0.03	0.09	0.03	0.11	0.08
P12	0.12	0.04	0.21	0.12	0.13	0.17	0.05	0.01	0.05	0.03	0.03	0.12	0.07
P13	0.10	0.06	0.21	0.15	0.13	0.15	0.02	0.03	0.08	0.16	0.20	0.14	0.11
P14	0.10	0.09	0.21	0.15	0.11	0.07	0.05	0.07	0.06	0.26	0.28	0.13	0.13
P15	0.11	0.11	0.20	0.12	0.09	0.05	0.03	0.07	0.10	0.27	0.29	0.13	0.13
P16	0.15	0.14	0.21	0.12	0.09	0.05	0.10	0.04	0.12	0.28	0.28	0.14	0.14
P17	0.18	0.17	0.23	0.09	0.07	0.06	0.11	0.05	0.11	0.27	0.28	0.13	0.14
P18	0.29	0.22	0.26	0.07	0.03	0.05	0.11	0.05	0.12	0.29	0.21	0.14	0.13
P19	0.35	0.27	0.29	0.07	0.02	0.04	0.07	0.03	0.24	0.26	0.20	0.16	0.13
P20	0.31	0.25	0.25	0.06	0.03	0.08	0.15	0.14	0.07	0.19	0.30	0.13	0.13
P21	0.06	0.07	0.10	0.01	0.06	0.20	0.19	0.28	0.12	0.09	0.27	0.08	0.15
P22	0.10	0.12	0.18	0.05	0.09	0.19	0.16	0.26	0.08	0.10	0.24	0.11	0.14
P23	0.06	0.02	0.14	0.07	0.10	0.17	0.13	0.24	0.06	0.11	0.24	0.09	0.13
P24	0.36	0.19	0.12	0.03	0.07	0.15	0.12	0.21	0.06	0.10	0.22	0.12	0.12
P25	0.04	0.06	0.08	0.02	0.01	0.15	0.14	0.19	0.08	0.07	0.17	0.06	0.10
P26	0.07	0.08	0.11	0.03	0.04	0.12	0.09	0.16	0.09	0.03	0.12	0.07	0.08
P27	0.08	0.03	0.08	0.03	0.05	0.04	0.04	0.12	0.05	0.03	0.03	0.05	0.05
P28	0.08	0.01	0.07	0.04	0.04	0.05	0.01	0.13	0.06	0.03	0.02	0.05	0.05
P29	0.18	0.15	0.29	0.08	0.10	0.16	0.10	0.21	0.15	0.13	0.02	0.15	0.12
P30	0.03	0.06	0.07	0.02	0.03	0.15	0.13	0.21	0.18	0.16	0.10	0.07	0.13
O1	0.04	0.02	0.04	0.04	0.01	0.04	0.06	0.06	0.04	0.04	0.09	0.03	0.04
O2	0.02	0.03	0.04	0.04	0.02	0.07	0.16	0.07	0.05	0.05	0.07	0.04	0.06
O3	0.02	0.01	0.04	0.04	0.02	0.04	0.05	0.01	0.10	0.04	0.08	0.04	0.05
O4	0.02	0.01	0.01	0.02	0.01	0.04	0.10	0.03	0.04	0.03	0.03	0.02	0.04
O5	0.05	0.03	0.06	0.07	0.06	0.08	0.13	0.02	0.10	0.04	0.10	0.06	0.07
O6	0.07	0.04	0.06	0.06	0.05	0.05	0.06	0.06	0.09	0.07	0.14	0.06	0.07
O7	0.08	0.02	0.04	0.03	0.02	0.05	0.15	0.08	0.11	0.08	0.13	0.05	0.08
O8	0.06	0.01	0.04	0.03	0.02	0.05	0.09	0.06	0.15	0.12	0.14	0.05	0.09

O9	0.08	0.09	0.03	0.03	0.02	0.04	0.18	0.06	0.11	0.16	0.07	0.06	0.09
O10	0.04	0.02	0.02	0.02	0.03	0.02	0.03	0.03	0.09	0.02	0.12	0.03	0.05
O11	0.04	0.06	0.04	0.01	0.02	0.02	0.03	0.03	0.08	0.07	0.16	0.03	0.05
O12	0.05	0.08	0.07	0.01	0.01	0.02	0.03	0.01	0.06	0.14	0.22	0.04	0.07
O13	0.07	0.08	0.07	0.03	0.03	0.01	0.04	0.04	0.11	0.21	0.27	0.06	0.10
O14	0.08	0.07	0.05	0.03	0.01	0.03	0.12	0.06	0.13	0.27	0.38	0.06	0.14
O15	0.07	0.01	0.01	0.02	0.03	0.03	0.04	0.02	0.08	0.07	0.15	0.03	0.06
O16	0.18	0.10	0.08	0.02	0.03	0.04	0.03	0.02	0.07	0.06	0.26	0.06	0.06
O17	0.21	0.08	0.05	0.04	0.04	0.08	0.07	0.01	0.08	0.11	0.23	0.07	0.08
O18	0.29	0.09	0.04	0.05	0.06	0.07	0.07	0.01	0.09	0.08	0.22	0.08	0.08
O19	0.24	0.14	0.14	0.04	0.04	0.10	0.07	0.02	0.10	0.06	0.32	0.09	0.09
O20	0.29	0.11	0.16	0.05	0.03	0.13	0.03	0.03	0.10	0.06	0.41	0.10	0.10
O21	0.31	0.13	0.15	0.04	0.03	0.04	0.06	0.05	0.10	0.05	0.27	0.09	0.08
O22	0.16	0.09	0.08	0.03	0.01	0.03	0.05	0.05	0.10	0.08	0.17	0.06	0.06
O23	0.21	0.12	0.12	0.04	0.01	0.01	0.07	0.05	0.12	0.10	0.21	0.08	0.08
O24	0.19	0.13	0.19	0.05	0.01	0.04	0.06	0.04	0.12	0.11	0.28	0.09	0.09
O25	0.05	0.03	0.02	0.01	0.02	0.10	0.29	0.15	0.26	0.07	0.03	0.05	0.12
O26	0.05	0.03	0.02	0.02	0.04	0.11	0.24	0.15	0.24	0.08	0.13	0.06	0.13
O27	0.04	0.02	0.02	0.02	0.03	0.03	0.05	0.05	0.10	0.06	0.12	0.03	0.06
O28	0.04	0.03	0.02	0.02	0.04	0.06	0.13	0.07	0.15	0.08	0.07	0.04	0.08
O29	0.08	0.01	0.04	0.02	0.02	0.06	0.29	0.11	0.19	0.08	0.07	0.05	0.11
O30	0.06	0.02	0.03	0.02	0.03	0.15	0.23	0.15	0.25	0.04	0.16	0.06	0.13
O31	0.06	0.03	0.04	0.02	0.03	0.13	0.31	0.13	0.28	0.05	0.12	0.06	0.14
O32	0.06	0.02	0.04	0.03	0.01	0.10	0.15	0.05	0.14	0.03	0.13	0.05	0.08
O33	0.03	0.02	0.03	0.02	0.01	0.03	0.05	0.03	0.06	0.03	0.08	0.03	0.04
O34	0.06	0.03	0.04	0.03	0.01	0.03	0.06	0.06	0.07	0.04	0.14	0.03	0.05
O35	0.04	0.04	0.04	0.03	0.01	0.05	0.11	0.04	0.07	0.10	0.14	0.04	0.07
O36	0.04	0.03	0.04	0.03	0.01	0.05	0.07	0.02	0.08	0.08	0.13	0.04	0.06
O37	0.06	0.03	0.04	0.03	0.01	0.02	0.05	0.06	0.11	0.05	0.14	0.03	0.06
O38	0.06	0.04	0.04	0.02	0.04	0.19	0.45	0.23	0.44	0.08	0.07	0.09	0.20
O39	0.01	0.04	0.02	0.02	0.07	0.19	0.17	0.17	0.36	0.25	0.08	0.09	0.18
O40	0.01	0.03	0.02	0.02	0.02	0.13	0.10	0.11	0.35	0.31	0.08	0.08	0.16
O41	0.05	0.03	0.04	0.03	0.01	0.10	0.09	0.09	0.28	0.29	0.12	0.08	0.14
O42	0.03	0.03	0.03	0.01	0.03	0.08	0.05	0.03	0.14	0.10	0.12	0.04	0.07
O43	0.06	0.02	0.05	0.05	0.08	0.24	0.23	0.18	0.53	0.47	0.39	0.14	0.30
O44	0.05	0.01	0.05	0.05	0.08	0.25	0.25	0.13	0.42	0.33	0.29	0.12	0.24
O45	0.05	0.03	0.05	0.06	0.06	0.13	0.25	0.11	0.50	0.27	0.32	0.11	0.23
O46	0.03	0.02	0.03	0.03	0.04	0.08	0.14	0.05	0.46	0.27	0.30	0.09	0.19
O47	0.05	0.04	0.04	0.04	0.02	0.12	0.25	0.11	0.44	0.30	0.28	0.10	0.21
O48	0.07	0.03	0.03	0.01	0.02	0.08	0.26	0.11	0.40	0.27	0.11	0.08	0.18
O49	0.03	0.01	0.03	0.03	0.02	0.06	0.28	0.11	0.34	0.32	0.14	0.08	0.18
O50	0.04	0.01	0.01	0.02	0.02	0.03	0.28	0.10	0.36	0.37	0.18	0.07	0.19
O51	0.04	0.03	0.02	0.01	0.01	0.05	0.08	0.04	0.21	0.20	0.11	0.05	0.10
O52	0.02	0.02	0.03	0.03	0.02	0.07	0.12	0.02	0.10	0.06	0.08	0.04	0.06

O53	0.06	0.05	0.06	0.03	0.04	0.06	0.18	0.02	0.03	0.02	0.02	0.04	0.05
O54	0.14	0.08	0.08	0.02	0.05	0.12	0.16	0.01	0.07	0.06	0.13	0.07	0.08
O55	0.16	0.10	0.10	0.04	0.05	0.08	0.07	0.02	0.08	0.07	0.43	0.08	0.10
O56	0.37	0.22	0.29	0.13	0.11	0.06	0.14	0.02	0.19	0.07	0.54	0.17	0.15
O57	0.18	0.16	0.07	0.03	0.02	0.09	0.10	0.02	0.12	0.06	0.25	0.07	0.08
O58	0.27	0.11	0.13	0.06	0.03	0.16	0.03	0.02	0.10	0.09	0.46	0.10	0.11
O59	0.21	0.07	0.21	0.09	0.06	0.25	0.09	0.02	0.03	0.15	0.51	0.13	0.14
O60	0.13	0.06	0.21	0.11	0.14	0.31	0.10	0.03	0.10	0.26	0.51	0.16	0.19
O61	0.06	0.10	0.14	0.11	0.13	0.33	0.09	0.06	0.15	0.21	0.49	0.15	0.19
O62	0.15	0.11	0.30	0.11	0.12	0.35	0.11	0.08	0.11	0.17	0.47	0.17	0.18
O63	0.24	0.09	0.30	0.11	0.12	0.36	0.19	0.09	0.12	0.12	0.43	0.18	0.18
O64	0.28	0.11	0.25	0.10	0.13	0.37	0.35	0.14	0.20	0.22	0.37	0.19	0.23
O65	0.20	0.14	0.08	0.09	0.13	0.37	0.43	0.21	0.27	0.11	0.33	0.16	0.23
O66	0.19	0.11	0.10	0.09	0.13	0.36	0.51	0.26	0.32	0.14	0.13	0.16	0.24
O67	0.22	0.16	0.12	0.09	0.14	0.37	0.69	0.32	0.37	0.17	0.10	0.18	0.28
O68	0.28	0.07	0.12	0.01	0.07	0.38	0.27	0.18	0.40	0.19	0.06	0.15	0.21
O69	0.29	0.07	0.13	0.03	0.04	0.37	0.40	0.18	0.41	0.22	0.06	0.15	0.22
O70	0.13	0.20	0.35	0.11	0.03	0.20	0.39	0.24	0.44	0.32	0.26	0.19	0.26
O71	0.12	0.17	0.19	0.10	0.06	0.09	0.14	0.13	0.30	0.20	0.17	0.13	0.16
O72	0.30	0.15	0.37	0.17	0.11	0.07	0.20	0.18	0.36	0.25	0.16	0.20	0.20
O73	0.05	0.07	0.11	0.04	0.04	0.03	0.07	0.09	0.20	0.13	0.03	0.07	0.09
O74	0.06	0.05	0.13	0.05	0.08	0.05	0.11	0.04	0.07	0.09	0.03	0.07	0.07
O75	0.05	0.07	0.08	0.03	0.08	0.02	0.15	0.05	0.10	0.06	0.06	0.06	0.07
O76	0.03	0.08	0.16	0.06	0.08	0.01	0.11	0.06	0.08	0.13	0.14	0.08	0.09
O77	0.05	0.06	0.27	0.07	0.08	0.04	0.12	0.06	0.15	0.13	0.17	0.11	0.11
O78	0.09	0.07	0.27	0.07	0.08	0.08	0.15	0.06	0.17	0.19	0.17	0.12	0.13
O79	0.05	0.07	0.19	0.05	0.04	0.07	0.26	0.11	0.20	0.20	0.15	0.10	0.14
O80	0.05	0.07	0.21	0.05	0.04	0.04	0.24	0.10	0.15	0.15	0.17	0.09	0.12
O81	0.06	0.09	0.16	0.07	0.04	0.01	0.19	0.11	0.05	0.15	0.16	0.08	0.10
O82	0.07	0.11	0.04	0.09	0.07	0.01	0.21	0.13	0.02	0.13	0.12	0.07	0.10
O83	0.11	0.04	0.12	0.04	0.06	0.06	0.09	0.05	0.11	0.09	0.07	0.07	0.07
O84	0.31	0.18	0.39	0.16	0.11	0.11	0.09	0.07	0.16	0.05	0.13	0.18	0.11
O85	0.18	0.08	0.37	0.10	0.08	0.06	0.20	0.16	0.30	0.06	0.33	0.15	0.16
O86	0.22	0.17	0.31	0.04	0.05	0.05	0.27	0.20	0.28	0.17	0.49	0.14	0.19
O87	0.15	0.06	0.13	0.09	0.15	0.04	0.05	0.04	0.08	0.05	0.20	0.10	0.08
O88	0.26	0.08	0.17	0.08	0.11	0.05	0.10	0.03	0.18	0.09	0.15	0.12	0.10
O89	0.09	0.12	0.11	0.09	0.09	0.03	0.03	0.03	0.07	0.05	0.11	0.08	0.06
O90	0.15	0.13	0.12	0.05	0.02	0.05	0.12	0.08	0.09	0.07	0.14	0.07	0.08
O91	0.20	0.16	0.22	0.03	0.02	0.10	0.18	0.12	0.22	0.08	0.22	0.11	0.12
O92	0.41	0.22	0.40	0.13	0.12	0.10	0.13	0.11	0.27	0.23	0.21	0.21	0.17
O93	0.41	0.21	0.35	0.09	0.09	0.11	0.21	0.11	0.29	0.21	0.13	0.19	0.17
O94	0.21	0.12	0.16	0.03	0.03	0.14	0.25	0.14	0.32	0.18	0.07	0.12	0.16
O95	0.36	0.17	0.27	0.05	0.06	0.16	0.32	0.15	0.33	0.15	0.06	0.16	0.17
O96	0.28	0.11	0.20	0.06	0.11	0.06	0.17	0.02	0.07	0.20	0.35	0.12	0.13

O97	0.08	0.04	0.11	0.05	0.10	0.04	0.10	0.03	0.10	0.12	0.29	0.08	0.10
O98	0.05	0.04	0.08	0.03	0.07	0.05	0.12	0.04	0.14	0.10	0.26	0.06	0.10
O99	0.08	0.05	0.08	0.02	0.05	0.03	0.05	0.03	0.12	0.04	0.17	0.05	0.07
O100	0.09	0.06	0.10	0.04	0.07	0.03	0.06	0.02	0.10	0.06	0.13	0.06	0.06
O101	0.42	0.22	0.41	0.12	0.12	0.07	0.04	0.05	0.08	0.04	0.32	0.18	0.10
O102	0.40	0.22	0.38	0.12	0.08	0.08	0.09	0.08	0.17	0.06	0.42	0.18	0.13
O103	0.36	0.20	0.30	0.11	0.05	0.14	0.33	0.20	0.43	0.19	0.52	0.19	0.25
O104	0.38	0.21	0.32	0.12	0.06	0.16	0.36	0.23	0.48	0.21	0.55	0.21	0.28
O105	0.12	0.03	0.13	0.04	0.03	0.10	0.21	0.14	0.29	0.12	0.38	0.09	0.17
O106	0.20	0.06	0.08	0.03	0.02	0.05	0.09	0.06	0.11	0.06	0.22	0.06	0.08
O107	0.18	0.23	0.17	0.06	0.02	0.11	0.20	0.13	0.27	0.23	0.15	0.13	0.16
O108	0.35	0.27	0.29	0.09	0.04	0.08	0.28	0.13	0.25	0.22	0.04	0.17	0.15
O109	0.42	0.28	0.28	0.12	0.03	0.06	0.27	0.10	0.28	0.21	0.23	0.18	0.17
O110	0.18	0.10	0.31	0.10	0.06	0.20	0.14	0.18	0.22	0.05	0.05	0.14	0.12
O111	0.19	0.11	0.27	0.07	0.04	0.20	0.15	0.16	0.24	0.01	0.06	0.13	0.12
O112	0.31	0.20	0.28	0.04	0.01	0.20	0.19	0.19	0.27	0.01	0.05	0.14	0.12
O113	0.39	0.25	0.33	0.02	0.01	0.20	0.21	0.21	0.28	0.04	0.03	0.16	0.13
O114	0.39	0.25	0.31	0.02	0.02	0.19	0.24	0.23	0.31	0.03	0.03	0.16	0.14
O115	0.35	0.21	0.39	0.10	0.06	0.05	0.05	0.02	0.07	0.13	0.32	0.16	0.10
O116	0.37	0.20	0.36	0.07	0.03	0.05	0.25	0.13	0.21	0.21	0.30	0.16	0.16
O117	0.31	0.23	0.44	0.12	0.08	0.06	0.27	0.19	0.32	0.13	0.29	0.19	0.19
O118	0.33	0.24	0.44	0.12	0.09	0.03	0.24	0.12	0.14	0.03	0.08	0.17	0.10
O119	0.08	0.07	0.07	0.05	0.05	0.16	0.31	0.20	0.27	0.12	0.25	0.09	0.18
O120	0.07	0.08	0.10	0.05	0.05	0.15	0.31	0.21	0.27	0.10	0.22	0.09	0.17
O121	0.05	0.07	0.10	0.04	0.02	0.13	0.31	0.20	0.27	0.15	0.23	0.09	0.17
O122	0.10	0.13	0.21	0.02	0.02	0.12	0.30	0.19	0.25	0.23	0.25	0.11	0.18
O123	0.40	0.24	0.40	0.08	0.04	0.02	0.09	0.13	0.04	0.23	0.29	0.16	0.12
O124	0.38	0.23	0.33	0.07	0.03	0.01	0.04	0.06	0.03	0.25	0.35	0.15	0.11
O125	0.34	0.25	0.35	0.11	0.07	0.03	0.10	0.08	0.05	0.24	0.37	0.16	0.13
O126	0.26	0.21	0.22	0.06	0.04	0.04	0.09	0.09	0.01	0.24	0.41	0.12	0.12
O127	0.19	0.21	0.36	0.13	0.09	0.07	0.09	0.10	0.02	0.22	0.40	0.16	0.14
O128	0.06	0.12	0.20	0.02	0.07	0.06	0.08	0.05	0.07	0.08	0.04	0.08	0.06
O129	0.17	0.06	0.25	0.01	0.06	0.04	0.11	0.08	0.05	0.06	0.15	0.08	0.07
O130	0.19	0.09	0.14	0.03	0.04	0.03	0.07	0.07	0.04	0.07	0.19	0.07	0.07
O131	0.13	0.07	0.19	0.05	0.08	0.05	0.03	0.05	0.04	0.03	0.06	0.08	0.05
O132	0.23	0.20	0.43	0.14	0.14	0.04	0.06	0.07	0.04	0.13	0.26	0.17	0.11
O133	0.24	0.21	0.45	0.09	0.11	0.04	0.06	0.05	0.06	0.13	0.20	0.16	0.09
O134	0.22	0.29	0.53	0.11	0.12	0.07	0.18	0.13	0.17	0.06	0.11	0.20	0.12
O135	0.20	0.20	0.50	0.09	0.08	0.07	0.03	0.02	0.12	0.11	0.11	0.17	0.08
O136	0.13	0.20	0.43	0.25	0.06	0.08	0.02	0.04	0.18	0.13	0.11	0.19	0.11
O137	0.13	0.03	0.46	0.05	0.04	0.06	0.03	0.01	0.23	0.17	0.11	0.14	0.10
O138	0.22	0.06	0.37	0.11	0.02	0.03	0.03	0.02	0.25	0.22	0.16	0.15	0.12
O139	0.28	0.14	0.36	0.12	0.01	0.01	0.03	0.03	0.22	0.22	0.16	0.15	0.11
O140	0.34	0.21	0.35	0.09	0.01	0.02	0.03	0.04	0.14	0.15	0.13	0.14	0.08

O141	0.41	0.26	0.36	0.06	0.01	0.03	0.04	0.08	0.23	0.18	0.14	0.16	0.11
O142	0.41	0.27	0.32	0.05	0.02	0.04	0.05	0.05	0.15	0.19	0.16	0.15	0.10
O143	0.11	0.04	0.23	0.18	0.04	0.05	0.12	0.10	0.23	0.46	0.39	0.15	0.21
O144	0.06	0.04	0.15	0.10	0.04	0.03	0.14	0.11	0.23	0.39	0.30	0.11	0.19
O145	0.24	0.12	0.23	0.11	0.07	0.04	0.14	0.16	0.24	0.29	0.22	0.15	0.17
O146	0.10	0.08	0.07	0.16	0.05	0.02	0.05	0.13	0.26	0.26	0.19	0.11	0.15
O147	0.15	0.09	0.12	0.23	0.10	0.12	0.03	0.08	0.07	0.04	0.24	0.13	0.10
O148	0.15	0.05	0.15	0.24	0.09	0.11	0.03	0.08	0.03	0.06	0.28	0.13	0.10
O149	0.16	0.04	0.15	0.25	0.10	0.14	0.04	0.06	0.03	0.09	0.29	0.14	0.11
O150	0.17	0.06	0.14	0.23	0.11	0.15	0.05	0.04	0.03	0.13	0.27	0.14	0.12
O151	0.15	0.06	0.19	0.21	0.11	0.17	0.07	0.02	0.03	0.15	0.23	0.15	0.12
O152	0.10	0.02	0.23	0.23	0.10	0.17	0.04	0.02	0.01	0.12	0.23	0.14	0.11
O153	0.05	0.03	0.25	0.21	0.09	0.18	0.07	0.02	0.05	0.09	0.16	0.14	0.10
O154	0.07	0.05	0.25	0.13	0.09	0.18	0.14	0.04	0.01	0.13	0.14	0.12	0.10
O155	0.08	0.04	0.25	0.21	0.09	0.18	0.17	0.08	0.05	0.13	0.14	0.14	0.12
O156	0.09	0.05	0.21	0.22	0.07	0.15	0.16	0.09	0.05	0.16	0.15	0.14	0.13
O157	0.07	0.07	0.11	0.20	0.04	0.09	0.10	0.09	0.04	0.09	0.13	0.10	0.09
O158	0.08	0.14	0.11	0.14	0.04	0.13	0.12	0.16	0.18	0.07	0.17	0.11	0.12
O159	0.08	0.10	0.11	0.03	0.05	0.18	0.17	0.15	0.26	0.08	0.16	0.09	0.14
O160	0.08	0.03	0.07	0.02	0.06	0.19	0.17	0.11	0.24	0.02	0.16	0.08	0.12
O161	0.07	0.01	0.12	0.03	0.08	0.19	0.17	0.07	0.14	0.01	0.14	0.08	0.10
O162	0.04	0.09	0.04	0.16	0.05	0.07	0.10	0.06	0.04	0.05	0.15	0.08	0.08
O163	0.05	0.12	0.08	0.18	0.03	0.03	0.06	0.05	0.11	0.07	0.15	0.09	0.08
O164	0.04	0.08	0.08	0.20	0.06	0.05	0.11	0.07	0.08	0.07	0.14	0.10	0.09
O165	0.05	0.05	0.12	0.18	0.06	0.08	0.10	0.12	0.12	0.07	0.13	0.10	0.10
O166	0.08	0.03	0.10	0.13	0.05	0.05	0.09	0.09	0.08	0.05	0.07	0.08	0.07
O167	0.08	0.05	0.11	0.15	0.07	0.09	0.02	0.04	0.01	0.10	0.26	0.09	0.09
O168	0.07	0.03	0.10	0.15	0.07	0.11	0.06	0.04	0.03	0.08	0.20	0.09	0.09
O169	0.07	0.04	0.09	0.17	0.07	0.08	0.05	0.05	0.05	0.07	0.21	0.09	0.09
O170	0.09	0.05	0.13	0.19	0.09	0.12	0.03	0.04	0.01	0.12	0.27	0.11	0.10
O171	0.07	0.05	0.07	0.10	0.06	0.08	0.07	0.05	0.05	0.04	0.14	0.07	0.07
O172	0.06	0.04	0.08	0.13	0.05	0.06	0.05	0.07	0.07	0.05	0.15	0.07	0.08
O173	0.13	0.06	0.12	0.13	0.05	0.07	0.03	0.12	0.10	0.05	0.20	0.09	0.09
O174	0.13	0.07	0.06	0.16	0.02	0.02	0.05	0.11	0.07	0.03	0.18	0.07	0.07
O175	0.08	0.07	0.06	0.09	0.03	0.03	0.04	0.04	0.03	0.04	0.05	0.06	0.04
O176	0.11	0.03	0.05	0.14	0.04	0.02	0.07	0.06	0.09	0.02	0.02	0.07	0.06
O177	0.08	0.07	0.08	0.07	0.04	0.06	0.07	0.04	0.02	0.15	0.11	0.07	0.07
O178	0.05	0.05	0.06	0.16	0.04	0.03	0.05	0.02	0.02	0.08	0.05	0.07	0.06
O179	0.08	0.07	0.03	0.08	0.03	0.04	0.04	0.02	0.03	0.14	0.08	0.06	0.06
O180	0.07	0.03	0.07	0.16	0.05	0.06	0.07	0.04	0.05	0.07	0.13	0.08	0.07
O181	0.03	0.05	0.04	0.17	0.04	0.02	0.07	0.02	0.01	0.16	0.06	0.07	0.07
O182	0.10	0.07	0.04	0.12	0.04	0.02	0.11	0.04	0.04	0.08	0.02	0.07	0.06
O183	0.10	0.08	0.04	0.06	0.05	0.05	0.11	0.06	0.03	0.07	0.02	0.06	0.06
O184	0.05	0.05	0.04	0.08	0.02	0.03	0.07	0.05	0.04	0.05	0.04	0.05	0.05

O185	0.03	0.04	0.06	0.05	0.03	0.05	0.07	0.06	0.04	0.04	0.02	0.04	0.04
O186	0.02	0.04	0.06	0.08	0.03	0.04	0.05	0.06	0.06	0.06	0.05	0.05	0.05
O187	0.04	0.05	0.01	0.13	0.04	0.06	0.07	0.05	0.17	0.03	0.10	0.07	0.08
O188	0.05	0.10	0.03	0.15	0.12	0.10	0.18	0.13	0.16	0.04	0.13	0.10	0.12
O189	0.05	0.11	0.04	0.19	0.07	0.05	0.10	0.06	0.06	0.03	0.14	0.09	0.08
O190	0.03	0.09	0.04	0.16	0.06	0.04	0.09	0.06	0.07	0.03	0.04	0.07	0.06
O191	0.04	0.08	0.06	0.23	0.06	0.04	0.08	0.06	0.05	0.05	0.12	0.09	0.08
O192	0.03	0.04	0.07	0.13	0.06	0.05	0.09	0.05	0.04	0.01	0.17	0.07	0.07
O193	0.01	0.05	0.02	0.07	0.04	0.05	0.08	0.05	0.11	0.02	0.06	0.05	0.06
O194	0.03	0.08	0.03	0.04	0.07	0.06	0.09	0.08	0.16	0.03	0.04	0.06	0.07
O195	0.06	0.09	0.05	0.06	0.12	0.08	0.15	0.19	0.26	0.04	0.07	0.09	0.12
O196	0.06	0.10	0.07	0.12	0.09	0.04	0.11	0.15	0.25	0.05	0.09	0.10	0.11
O197	0.07	0.08	0.11	0.14	0.06	0.05	0.10	0.07	0.19	0.05	0.10	0.09	0.09
O198	0.20	0.04	0.11	0.35	0.05	0.05	0.14	0.09	0.09	0.03	0.15	0.14	0.11
O199	0.11	0.05	0.12	0.32	0.03	0.04	0.09	0.07	0.11	0.01	0.14	0.12	0.09
O200	0.04	0.07	0.06	0.14	0.03	0.06	0.12	0.10	0.20	0.01	0.12	0.08	0.09
O201	0.04	0.06	0.02	0.06	0.03	0.04	0.06	0.09	0.14	0.02	0.05	0.05	0.06
O202	0.02	0.07	0.04	0.12	0.02	0.04	0.08	0.09	0.11	0.10	0.14	0.07	0.09
O203	0.03	0.03	0.04	0.08	0.03	0.03	0.05	0.05	0.07	0.10	0.12	0.05	0.07
O204	0.05	0.12	0.04	0.14	0.04	0.06	0.10	0.11	0.06	0.04	0.05	0.08	0.07
O205	0.04	0.13	0.04	0.13	0.08	0.06	0.15	0.11	0.05	0.05	0.06	0.08	0.08
O206	0.02	0.12	0.08	0.03	0.03	0.02	0.05	0.03	0.05	0.05	0.05	0.05	0.04
O207	0.06	0.17	0.12	0.06	0.03	0.03	0.06	0.06	0.08	0.07	0.10	0.07	0.06
O208	0.05	0.17	0.13	0.08	0.05	0.06	0.10	0.08	0.07	0.08	0.13	0.08	0.08
O209	0.04	0.18	0.15	0.13	0.03	0.07	0.11	0.09	0.08	0.13	0.17	0.10	0.10
O210	0.03	0.16	0.12	0.18	0.02	0.07	0.09	0.09	0.05	0.13	0.18	0.10	0.10
O211	0.07	0.14	0.08	0.10	0.04	0.04	0.10	0.08	0.06	0.08	0.10	0.08	0.08
O212	0.09	0.06	0.09	0.09	0.01	0.05	0.09	0.10	0.10	0.07	0.11	0.07	0.08
O213	0.10	0.02	0.10	0.15	0.02	0.04	0.06	0.07	0.10	0.04	0.14	0.08	0.07
O214	0.10	0.03	0.05	0.08	0.04	0.03	0.05	0.04	0.08	0.16	0.24	0.07	0.09
O215	0.06	0.03	0.15	0.17	0.03	0.05	0.09	0.07	0.06	0.11	0.20	0.09	0.09
O216	0.05	0.02	0.06	0.04	0.04	0.03	0.03	0.03	0.03	0.08	0.08	0.04	0.05
O217	0.06	0.03	0.09	0.14	0.06	0.05	0.08	0.05	0.06	0.14	0.21	0.08	0.10
O218	0.05	0.01	0.09	0.17	0.03	0.03	0.03	0.05	0.09	0.07	0.15	0.08	0.07
O219	0.06	0.02	0.12	0.19	0.04	0.05	0.09	0.06	0.07	0.12	0.19	0.10	0.10
O220	0.09	0.08	0.06	0.12	0.02	0.02	0.03	0.02	0.03	0.09	0.11	0.07	0.06
O221	0.06	0.02	0.14	0.22	0.04	0.06	0.09	0.07	0.05	0.13	0.19	0.11	0.10
O222	0.07	0.03	0.13	0.09	0.04	0.03	0.02	0.04	0.03	0.12	0.12	0.07	0.06
O223	0.04	0.02	0.04	0.11	0.02	0.03	0.04	0.03	0.03	0.09	0.11	0.05	0.05
O224	0.13	0.06	0.05	0.06	0.04	0.03	0.08	0.05	0.10	0.07	0.07	0.06	0.06
O225	0.12	0.05	0.05	0.07	0.03	0.03	0.09	0.06	0.09	0.10	0.13	0.06	0.08
O226	0.05	0.06	0.10	0.07	0.04	0.03	0.09	0.06	0.02	0.10	0.12	0.06	0.06
O227	0.06	0.05	0.09	0.10	0.03	0.03	0.11	0.09	0.04	0.08	0.13	0.07	0.08
O228	0.03	0.03	0.15	0.11	0.04	0.04	0.12	0.11	0.02	0.09	0.17	0.07	0.08

O229	0.17	0.18	0.17	0.17	0.08	0.14	0.07	0.13	0.14	0.19	0.14	0.15	0.14
O230	0.13	0.17	0.17	0.22	0.09	0.14	0.10	0.18	0.17	0.20	0.16	0.16	0.16
O231	0.17	0.19	0.21	0.08	0.05	0.06	0.05	0.06	0.05	0.19	0.16	0.12	0.09
O232	0.11	0.22	0.26	0.17	0.08	0.04	0.10	0.09	0.05	0.20	0.16	0.15	0.11
O233	0.03	0.09	0.15	0.13	0.04	0.05	0.13	0.10	0.02	0.07	0.19	0.08	0.08
O234	0.07	0.18	0.16	0.22	0.07	0.06	0.12	0.12	0.06	0.13	0.07	0.13	0.10
O235	0.04	0.16	0.09	0.19	0.04	0.05	0.07	0.07	0.03	0.10	0.14	0.10	0.08
O236	0.04	0.09	0.03	0.18	0.04	0.06	0.10	0.08	0.07	0.14	0.20	0.09	0.11
O237	0.14	0.24	0.27	0.18	0.10	0.03	0.09	0.09	0.04	0.24	0.17	0.16	0.12
O238	0.15	0.24	0.26	0.16	0.10	0.03	0.09	0.09	0.05	0.25	0.18	0.15	0.12
O239	0.18	0.22	0.25	0.12	0.07	0.07	0.05	0.08	0.05	0.23	0.19	0.14	0.11
O240	0.09	0.16	0.21	0.19	0.08	0.15	0.08	0.14	0.14	0.19	0.17	0.15	0.14
O241	0.15	0.13	0.08	0.36	0.19	0.22	0.12	0.28	0.10	0.04	0.09	0.19	0.16
O242	0.13	0.10	0.10	0.20	0.14	0.12	0.10	0.17	0.06	0.06	0.06	0.13	0.11
O243	0.19	0.14	0.13	0.31	0.13	0.21	0.10	0.24	0.10	0.07	0.09	0.18	0.15
O244	0.14	0.14	0.11	0.18	0.08	0.13	0.12	0.09	0.11	0.09	0.10	0.12	0.11
O245	0.09	0.06	0.02	0.27	0.09	0.11	0.16	0.12	0.17	0.12	0.13	0.13	0.14
O246	0.07	0.09	0.06	0.27	0.10	0.10	0.14	0.12	0.19	0.14	0.12	0.14	0.15
O247	0.09	0.11	0.05	0.34	0.13	0.09	0.15	0.14	0.19	0.11	0.10	0.16	0.15
O248	0.06	0.08	0.08	0.40	0.15	0.10	0.15	0.15	0.11	0.10	0.11	0.17	0.15
O249	0.15	0.09	0.08	0.39	0.17	0.11	0.16	0.19	0.11	0.09	0.11	0.18	0.15
O250	0.22	0.17	0.05	0.33	0.17	0.20	0.16	0.26	0.12	0.03	0.12	0.18	0.16
O251	0.06	0.12	0.06	0.06	0.04	0.03	0.09	0.07	0.05	0.03	0.05	0.06	0.05
O252	0.05	0.11	0.04	0.11	0.03	0.04	0.05	0.06	0.06	0.08	0.08	0.07	0.06
O253	0.02	0.05	0.03	0.10	0.06	0.06	0.09	0.08	0.13	0.13	0.15	0.07	0.10
O254	0.03	0.12	0.09	0.14	0.04	0.07	0.13	0.10	0.10	0.13	0.17	0.09	0.11
O255	0.06	0.16	0.12	0.06	0.05	0.05	0.09	0.08	0.07	0.08	0.11	0.08	0.07
O256	0.07	0.17	0.12	0.05	0.04	0.03	0.07	0.07	0.06	0.03	0.07	0.07	0.05
O257	0.08	0.02	0.04	0.15	0.08	0.07	0.06	0.20	0.11	0.02	0.05	0.08	0.09
O258	0.08	0.03	0.07	0.28	0.15	0.15	0.08	0.28	0.17	0.05	0.07	0.14	0.15
O259	0.23	0.11	0.13	0.35	0.17	0.20	0.14	0.28	0.19	0.08	0.13	0.20	0.18
O260	0.23	0.09	0.10	0.29	0.13	0.16	0.13	0.27	0.17	0.10	0.13	0.17	0.16
O261	0.26	0.13	0.14	0.36	0.17	0.23	0.17	0.31	0.21	0.10	0.20	0.22	0.21
O262	0.27	0.14	0.18	0.40	0.20	0.23	0.17	0.31	0.21	0.07	0.18	0.23	0.21
O263	0.25	0.13	0.23	0.43	0.21	0.25	0.15	0.31	0.19	0.08	0.19	0.25	0.21
O264	0.27	0.15	0.26	0.43	0.22	0.25	0.17	0.31	0.20	0.09	0.22	0.26	0.22
O265	0.23	0.13	0.22	0.42	0.21	0.25	0.19	0.35	0.23	0.10	0.25	0.25	0.23
O266	0.20	0.12	0.19	0.39	0.20	0.25	0.19	0.36	0.24	0.11	0.27	0.23	0.24
O267	0.27	0.04	0.05	0.17	0.17	0.23	0.18	0.37	0.20	0.16	0.23	0.16	0.21
O268	0.24	0.08	0.04	0.24	0.12	0.20	0.15	0.26	0.16	0.15	0.23	0.16	0.18
O269	0.24	0.12	0.04	0.28	0.13	0.21	0.17	0.31	0.21	0.16	0.26	0.17	0.21
O270	0.19	0.12	0.14	0.35	0.17	0.24	0.19	0.36	0.24	0.14	0.28	0.21	0.24
O271	0.11	0.07	0.19	0.38	0.20	0.25	0.20	0.40	0.26	0.16	0.32	0.23	0.26
O272	0.10	0.03	0.24	0.41	0.22	0.26	0.20	0.42	0.27	0.18	0.33	0.24	0.28

O273	0.11	0.05	0.29	0.44	0.24	0.23	0.18	0.36	0.22	0.17	0.26	0.25	0.25
O274	0.09	0.06	0.34	0.46	0.25	0.19	0.16	0.28	0.16	0.20	0.21	0.26	0.23
O275	0.07	0.06	0.38	0.45	0.26	0.16	0.14	0.26	0.12	0.25	0.20	0.26	0.22
O276	0.05	0.06	0.39	0.39	0.22	0.11	0.10	0.20	0.09	0.26	0.19	0.23	0.19
O277	0.10	0.04	0.36	0.34	0.19	0.08	0.08	0.14	0.07	0.24	0.18	0.21	0.16
O278	0.08	0.15	0.37	0.33	0.20	0.05	0.07	0.23	0.09	0.23	0.17	0.21	0.17
O279	0.29	0.27	0.27	0.27	0.06	0.07	0.05	0.19	0.04	0.15	0.13	0.18	0.12
O280	0.14	0.29	0.29	0.29	0.05	0.15	0.14	0.23	0.02	0.14	0.14	0.18	0.13
O281	0.29	0.27	0.22	0.25	0.02	0.10	0.08	0.16	0.04	0.13	0.13	0.17	0.11
O282	0.26	0.26	0.23	0.17	0.03	0.04	0.03	0.06	0.06	0.12	0.11	0.14	0.08
O283	0.25	0.27	0.22	0.13	0.04	0.04	0.03	0.07	0.07	0.12	0.11	0.13	0.08
O284	0.29	0.28	0.18	0.21	0.03	0.11	0.10	0.09	0.05	0.12	0.12	0.15	0.10
O285	0.19	0.29	0.22	0.26	0.03	0.16	0.15	0.17	0.03	0.12	0.13	0.17	0.12
O286	0.21	0.29	0.18	0.20	0.08	0.17	0.17	0.08	0.02	0.10	0.11	0.16	0.11
O287	0.28	0.26	0.15	0.14	0.05	0.13	0.13	0.06	0.05	0.11	0.11	0.14	0.09
O288	0.27	0.22	0.10	0.07	0.04	0.06	0.05	0.10	0.07	0.12	0.11	0.10	0.08
O289	0.27	0.17	0.08	0.04	0.04	0.06	0.07	0.11	0.07	0.12	0.10	0.09	0.08
O290	0.28	0.23	0.14	0.07	0.08	0.13	0.13	0.05	0.05	0.10	0.10	0.12	0.09
O291	0.24	0.26	0.19	0.11	0.13	0.18	0.17	0.03	0.03	0.08	0.10	0.15	0.10
O292	0.11	0.27	0.19	0.24	0.08	0.17	0.17	0.14	0.02	0.10	0.12	0.16	0.12
O293	0.09	0.28	0.28	0.28	0.05	0.17	0.16	0.24	0.02	0.13	0.14	0.18	0.14
O294	0.06	0.26	0.22	0.26	0.06	0.18	0.17	0.22	0.03	0.11	0.13	0.16	0.13
O295	0.02	0.24	0.17	0.24	0.10	0.18	0.17	0.20	0.04	0.08	0.13	0.15	0.13
O296	0.09	0.26	0.18	0.19	0.13	0.19	0.17	0.08	0.03	0.06	0.11	0.15	0.11
O297	0.20	0.27	0.20	0.12	0.14	0.19	0.18	0.04	0.02	0.07	0.10	0.15	0.10
O298	0.23	0.23	0.18	0.08	0.15	0.19	0.18	0.03	0.03	0.06	0.09	0.14	0.09
O299	0.26	0.21	0.14	0.06	0.12	0.15	0.16	0.04	0.04	0.08	0.09	0.12	0.09
O300	0.24	0.14	0.07	0.13	0.17	0.19	0.19	0.06	0.06	0.07	0.08	0.14	0.11
O301	0.18	0.14	0.16	0.28	0.15	0.16	0.16	0.21	0.12	0.06	0.05	0.17	0.14
O302	0.18	0.23	0.22	0.27	0.10	0.13	0.13	0.24	0.15	0.07	0.04	0.18	0.14
O303	0.21	0.26	0.21	0.31	0.11	0.08	0.12	0.23	0.16	0.11	0.03	0.19	0.14
O304	0.13	0.16	0.18	0.28	0.17	0.13	0.15	0.22	0.13	0.05	0.04	0.17	0.14
O305	0.14	0.20	0.24	0.26	0.20	0.14	0.14	0.21	0.13	0.03	0.04	0.19	0.13
O306	0.23	0.26	0.22	0.31	0.17	0.11	0.12	0.22	0.16	0.10	0.04	0.21	0.15
O307	0.26	0.25	0.22	0.26	0.07	0.07	0.10	0.21	0.16	0.13	0.04	0.18	0.13
O308	0.22	0.24	0.20	0.22	0.05	0.09	0.09	0.22	0.15	0.12	0.03	0.16	0.12
O309	0.05	0.10	0.15	0.18	0.08	0.11	0.15	0.21	0.19	0.12	0.18	0.13	0.15
O310	0.14	0.10	0.15	0.22	0.11	0.18	0.17	0.23	0.20	0.08	0.11	0.16	0.16
O311	0.20	0.13	0.10	0.26	0.11	0.23	0.19	0.26	0.19	0.08	0.07	0.17	0.16
O312	0.22	0.15	0.07	0.39	0.18	0.29	0.18	0.31	0.16	0.02	0.13	0.21	0.19
O313	0.23	0.12	0.08	0.42	0.21	0.22	0.14	0.28	0.10	0.04	0.15	0.21	0.18
O314	0.22	0.10	0.07	0.43	0.17	0.13	0.11	0.20	0.08	0.04	0.16	0.19	0.15
O315	0.21	0.08	0.16	0.44	0.18	0.16	0.05	0.19	0.07	0.09	0.19	0.21	0.16
O316	0.26	0.15	0.34	0.42	0.20	0.24	0.12	0.20	0.15	0.12	0.21	0.26	0.20

O317	0.25	0.16	0.39	0.41	0.20	0.25	0.17	0.22	0.12	0.17	0.24	0.27	0.21
O318	0.17	0.12	0.35	0.33	0.16	0.24	0.17	0.21	0.08	0.16	0.19	0.22	0.18
O319	0.08	0.18	0.21	0.22	0.12	0.22	0.17	0.11	0.13	0.10	0.15	0.17	0.15
O320	0.04	0.21	0.12	0.21	0.13	0.18	0.15	0.19	0.05	0.05	0.12	0.14	0.12
O321	0.14	0.21	0.19	0.15	0.14	0.19	0.17	0.05	0.03	0.04	0.10	0.14	0.10
O322	0.16	0.19	0.15	0.26	0.15	0.20	0.18	0.07	0.03	0.03	0.07	0.17	0.11
O323	0.18	0.14	0.11	0.26	0.13	0.20	0.19	0.09	0.07	0.05	0.05	0.16	0.12
O324	0.27	0.19	0.15	0.14	0.10	0.16	0.20	0.24	0.10	0.12	0.04	0.15	0.14
O325	0.25	0.12	0.23	0.10	0.07	0.12	0.23	0.16	0.09	0.09	0.04	0.13	0.11
O326	0.30	0.23	0.21	0.22	0.16	0.15	0.16	0.24	0.10	0.12	0.04	0.19	0.14
O327	0.14	0.17	0.20	0.21	0.14	0.21	0.09	0.11	0.07	0.09	0.02	0.17	0.11
O328	0.22	0.12	0.12	0.23	0.07	0.17	0.06	0.10	0.06	0.11	0.04	0.14	0.10
O329	0.07	0.13	0.13	0.25	0.07	0.08	0.02	0.10	0.01	0.06	0.04	0.12	0.07
O330	0.11	0.13	0.14	0.25	0.10	0.11	0.03	0.03	0.01	0.07	0.05	0.13	0.07
O331	0.12	0.10	0.12	0.22	0.05	0.07	0.03	0.05	0.04	0.04	0.06	0.11	0.06
O332	0.03	0.06	0.06	0.22	0.03	0.04	0.06	0.11	0.03	0.06	0.04	0.08	0.07
O333	0.08	0.11	0.08	0.20	0.03	0.01	0.07	0.13	0.07	0.05	0.04	0.09	0.07
O334	0.12	0.15	0.13	0.13	0.06	0.01	0.11	0.18	0.08	0.03	0.09	0.09	0.08
O335	0.12	0.13	0.15	0.07	0.04	0.05	0.09	0.13	0.09	0.10	0.10	0.09	0.09
O336	0.10	0.14	0.02	0.07	0.03	0.07	0.08	0.12	0.09	0.02	0.04	0.06	0.06
O337	0.10	0.15	0.11	0.02	0.02	0.08	0.09	0.04	0.09	0.05	0.06	0.07	0.06
O338	0.12	0.17	0.16	0.02	0.06	0.13	0.15	0.15	0.07	0.03	0.05	0.09	0.08
O339	0.07	0.08	0.05	0.04	0.01	0.04	0.04	0.04	0.04	0.02	0.06	0.04	0.04
O340	0.08	0.10	0.06	0.03	0.02	0.05	0.04	0.04	0.03	0.03	0.06	0.05	0.04
O341	0.06	0.06	0.08	0.04	0.03	0.05	0.08	0.09	0.03	0.03	0.06	0.05	0.05
O342	0.11	0.07	0.10	0.05	0.05	0.07	0.11	0.10	0.03	0.02	0.05	0.06	0.06
O343	0.12	0.12	0.15	0.04	0.06	0.06	0.11	0.07	0.03	0.03	0.05	0.08	0.05
O344	0.08	0.10	0.11	0.04	0.06	0.06	0.08	0.09	0.07	0.07	0.06	0.07	0.07
O345	0.10	0.10	0.10	0.06	0.02	0.04	0.12	0.18	0.11	0.07	0.07	0.07	0.09
O346	0.05	0.18	0.24	0.02	0.02	0.02	0.05	0.05	0.03	0.06	0.10	0.07	0.04
O347	0.12	0.18	0.25	0.06	0.04	0.04	0.06	0.09	0.04	0.04	0.05	0.09	0.05
O348	0.08	0.17	0.23	0.05	0.02	0.06	0.07	0.08	0.05	0.11	0.03	0.09	0.06
O349	0.13	0.13	0.16	0.05	0.04	0.02	0.06	0.08	0.03	0.03	0.03	0.07	0.04
O350	0.11	0.12	0.13	0.01	0.03	0.03	0.06	0.10	0.05	0.05	0.03	0.06	0.05
O351	0.07	0.11	0.14	0.01	0.02	0.02	0.06	0.11	0.04	0.03	0.02	0.05	0.04
O352	0.04	0.15	0.17	0.02	0.02	0.01	0.07	0.11	0.05	0.04	0.02	0.06	0.05
O353	0.12	0.16	0.19	0.05	0.03	0.02	0.11	0.11	0.08	0.06	0.03	0.08	0.06
O354	0.09	0.18	0.22	0.07	0.05	0.04	0.07	0.06	0.02	0.08	0.04	0.09	0.05
O355	0.06	0.13	0.18	0.08	0.05	0.05	0.04	0.11	0.06	0.08	0.04	0.09	0.06
O356	0.10	0.18	0.17	0.15	0.04	0.02	0.07	0.12	0.04	0.05	0.05	0.10	0.06
O357	0.11	0.17	0.17	0.12	0.07	0.03	0.04	0.15	0.07	0.06	0.08	0.10	0.08
O358	0.06	0.14	0.17	0.06	0.05	0.06	0.11	0.12	0.08	0.10	0.08	0.09	0.08
O359	0.10	0.07	0.04	0.07	0.02	0.03	0.06	0.08	0.07	0.08	0.12	0.05	0.07
O360	0.09	0.07	0.05	0.02	0.02	0.04	0.04	0.05	0.02	0.02	0.03	0.04	0.03

O361	0.14	0.14	0.11	0.03	0.03	0.06	0.03	0.06	0.06	0.01	0.05	0.06	0.04
O362	0.12	0.10	0.13	0.01	0.04	0.04	0.02	0.06	0.06	0.06	0.04	0.06	0.05
O363	0.12	0.08	0.19	0.02	0.02	0.03	0.03	0.05	0.09	0.04	0.03	0.07	0.04
O364	0.11	0.07	0.14	0.01	0.05	0.05	0.03	0.08	0.05	0.08	0.06	0.06	0.06
O365	0.08	0.05	0.13	0.04	0.03	0.06	0.04	0.11	0.09	0.06	0.04	0.06	0.06
O366	0.05	0.02	0.07	0.04	0.05	0.06	0.01	0.07	0.04	0.06	0.04	0.05	0.05
O367	0.05	0.05	0.08	0.06	0.04	0.05	0.07	0.10	0.06	0.06	0.03	0.06	0.06
O368	0.05	0.02	0.16	0.08	0.06	0.08	0.04	0.10	0.03	0.05	0.01	0.07	0.06
O369	0.04	0.04	0.09	0.06	0.09	0.07	0.03	0.09	0.09	0.07	0.02	0.07	0.07
O370	0.07	0.05	0.11	0.03	0.02	0.03	0.03	0.18	0.11	0.05	0.09	0.05	0.07
O371	0.04	0.06	0.14	0.02	0.01	0.01	0.07	0.18	0.12	0.05	0.08	0.05	0.07
O372	0.09	0.08	0.09	0.05	0.03	0.03	0.10	0.19	0.11	0.05	0.05	0.06	0.08
O373	0.22	0.21	0.13	0.05	0.03	0.06	0.10	0.21	0.10	0.02	0.05	0.09	0.08
O374	0.20	0.15	0.06	0.04	0.03	0.03	0.11	0.19	0.09	0.04	0.07	0.07	0.08
O375	0.11	0.10	0.12	0.14	0.06	0.04	0.13	0.23	0.09	0.06	0.07	0.10	0.10
O376	0.06	0.16	0.12	0.14	0.06	0.06	0.10	0.15	0.06	0.06	0.06	0.10	0.08
O377	0.05	0.17	0.12	0.14	0.10	0.09	0.06	0.10	0.06	0.05	0.04	0.11	0.08
O378	0.08	0.14	0.12	0.15	0.04	0.04	0.05	0.06	0.02	0.04	0.05	0.09	0.05
O379	0.04	0.15	0.10	0.01	0.03	0.04	0.01	0.05	0.03	0.05	0.03	0.05	0.03
O380	0.09	0.13	0.10	0.09	0.03	0.04	0.03	0.03	0.02	0.09	0.05	0.07	0.05
O381	0.10	0.10	0.16	0.04	0.08	0.05	0.04	0.04	0.02	0.12	0.04	0.08	0.06
O382	0.11	0.15	0.20	0.18	0.11	0.18	0.06	0.22	0.04	0.19	0.06	0.15	0.13
O383	0.07	0.09	0.09	0.04	0.07	0.07	0.01	0.05	0.05	0.03	0.04	0.06	0.05
O384	0.03	0.04	0.06	0.04	0.07	0.07	0.01	0.06	0.06	0.04	0.04	0.05	0.05
O385	0.05	0.06	0.14	0.01	0.06	0.07	0.01	0.01	0.05	0.05	0.03	0.06	0.04
O386	0.08	0.09	0.14	0.05	0.04	0.05	0.02	0.01	0.05	0.07	0.03	0.07	0.04
O387	0.07	0.08	0.10	0.06	0.03	0.04	0.07	0.15	0.08	0.07	0.04	0.06	0.07
O388	0.09	0.09	0.07	0.12	0.04	0.04	0.06	0.12	0.08	0.08	0.07	0.08	0.08
O389	0.13	0.12	0.07	0.15	0.07	0.06	0.10	0.18	0.09	0.08	0.04	0.10	0.10
O390	0.10	0.09	0.07	0.12	0.07	0.05	0.09	0.19	0.10	0.07	0.04	0.08	0.09
O391	0.21	0.15	0.14	0.09	0.15	0.08	0.07	0.16	0.09	0.13	0.07	0.13	0.11
O392	0.04	0.06	0.12	0.04	0.06	0.06	0.10	0.09	0.04	0.02	0.04	0.06	0.05
O393	0.12	0.03	0.12	0.05	0.05	0.02	0.11	0.06	0.02	0.04	0.07	0.06	0.05
O394	0.16	0.05	0.24	0.04	0.06	0.05	0.07	0.15	0.08	0.02	0.05	0.09	0.06
O395	0.07	0.06	0.15	0.09	0.14	0.11	0.08	0.19	0.12	0.05	0.06	0.10	0.11
O396	0.03	0.07	0.22	0.07	0.08	0.08	0.03	0.11	0.10	0.07	0.06	0.09	0.08
O397	0.14	0.04	0.12	0.06	0.18	0.15	0.08	0.26	0.17	0.07	0.03	0.12	0.13
O398	0.14	0.05	0.16	0.15	0.22	0.20	0.08	0.24	0.16	0.13	0.02	0.16	0.15
O399	0.08	0.10	0.25	0.21	0.16	0.10	0.04	0.11	0.05	0.14	0.07	0.15	0.11
O400	0.17	0.13	0.16	0.15	0.16	0.08	0.05	0.11	0.04	0.14	0.10	0.14	0.10
O401	0.26	0.19	0.18	0.10	0.17	0.08	0.07	0.15	0.07	0.15	0.10	0.15	0.11
O402	0.24	0.14	0.14	0.11	0.18	0.12	0.06	0.08	0.05	0.14	0.07	0.14	0.10
O403	0.10	0.04	0.04	0.12	0.17	0.14	0.07	0.20	0.14	0.13	0.04	0.11	0.13
O404	0.26	0.19	0.17	0.13	0.13	0.12	0.05	0.16	0.12	0.12	0.01	0.15	0.11

O405	0.34	0.19	0.13	0.06	0.03	0.02	0.02	0.06	0.06	0.12	0.01	0.10	0.05
O406	0.20	0.10	0.15	0.08	0.04	0.06	0.02	0.05	0.07	0.12	0.03	0.09	0.07
O407	0.16	0.17	0.23	0.11	0.02	0.02	0.01	0.07	0.09	0.08	0.03	0.11	0.06
O408	0.15	0.14	0.17	0.09	0.09	0.09	0.05	0.13	0.11	0.07	0.01	0.11	0.08
O409	0.11	0.10	0.14	0.27	0.11	0.17	0.15	0.25	0.11	0.17	0.04	0.16	0.16
O410	0.05	0.06	0.05	0.25	0.08	0.09	0.05	0.16	0.08	0.19	0.05	0.12	0.12
O411	0.06	0.12	0.15	0.25	0.14	0.19	0.07	0.23	0.07	0.23	0.03	0.16	0.15
O412	0.06	0.23	0.05	0.09	0.09	0.12	0.10	0.09	0.10	0.27	0.04	0.11	0.12
O413	0.11	0.29	0.08	0.06	0.09	0.12	0.14	0.15	0.10	0.29	0.10	0.12	0.14
O414	0.09	0.22	0.09	0.10	0.11	0.09	0.15	0.17	0.12	0.31	0.17	0.13	0.16
O415	0.04	0.10	0.06	0.09	0.09	0.10	0.14	0.18	0.14	0.25	0.18	0.10	0.15
O416	0.13	0.21	0.17	0.05	0.05	0.05	0.19	0.25	0.19	0.10	0.13	0.10	0.13
O417	0.10	0.12	0.06	0.06	0.05	0.06	0.22	0.30	0.19	0.11	0.07	0.08	0.14
O418	0.08	0.03	0.03	0.05	0.10	0.12	0.17	0.21	0.08	0.15	0.13	0.08	0.13
O419	0.09	0.26	0.07	0.10	0.16	0.15	0.15	0.14	0.09	0.33	0.21	0.14	0.17
O420	0.14	0.33	0.04	0.07	0.07	0.04	0.18	0.16	0.18	0.32	0.28	0.12	0.17
O421	0.15	0.36	0.06	0.06	0.02	0.01	0.20	0.19	0.17	0.19	0.22	0.10	0.14
O422	0.10	0.34	0.04	0.09	0.04	0.10	0.13	0.11	0.11	0.16	0.23	0.10	0.12
O423	0.04	0.32	0.05	0.02	0.03	0.04	0.11	0.11	0.03	0.12	0.05	0.07	0.07
O424	0.07	0.15	0.10	0.07	0.02	0.11	0.09	0.06	0.13	0.13	0.15	0.09	0.10
O425	0.10	0.13	0.05	0.04	0.03	0.06	0.08	0.04	0.10	0.13	0.13	0.07	0.08
O426	0.07	0.05	0.13	0.08	0.03	0.11	0.07	0.06	0.12	0.11	0.11	0.08	0.09
O427	0.12	0.05	0.08	0.03	0.03	0.07	0.06	0.03	0.13	0.15	0.14	0.07	0.09
O428	0.09	0.24	0.05	0.11	0.07	0.12	0.16	0.17	0.10	0.21	0.24	0.11	0.15
O429	0.10	0.22	0.05	0.12	0.05	0.09	0.15	0.16	0.09	0.18	0.27	0.10	0.14
O430	0.10	0.19	0.04	0.06	0.01	0.01	0.04	0.10	0.03	0.13	0.23	0.06	0.08
O431	0.05	0.19	0.06	0.03	0.18	0.17	0.26	0.22	0.03	0.11	0.23	0.10	0.15
O432	0.05	0.24	0.19	0.06	0.23	0.20	0.25	0.23	0.03	0.15	0.27	0.15	0.17
O433	0.07	0.13	0.10	0.10	0.23	0.18	0.21	0.19	0.09	0.07	0.29	0.13	0.16
O434	0.06	0.22	0.21	0.09	0.08	0.07	0.13	0.16	0.05	0.15	0.29	0.12	0.13
O435	0.08	0.24	0.11	0.10	0.02	0.02	0.04	0.16	0.05	0.16	0.27	0.09	0.10
O436	0.08	0.22	0.11	0.12	0.04	0.06	0.10	0.16	0.07	0.18	0.28	0.10	0.13
O437	0.07	0.23	0.20	0.12	0.03	0.05	0.07	0.17	0.05	0.18	0.30	0.11	0.12
O438	0.09	0.10	0.08	0.12	0.05	0.04	0.07	0.14	0.07	0.11	0.30	0.08	0.11
O439	0.08	0.10	0.07	0.11	0.18	0.13	0.16	0.18	0.10	0.04	0.29	0.11	0.14
O440	0.06	0.17	0.08	0.13	0.15	0.10	0.15	0.23	0.10	0.08	0.27	0.12	0.14
O441	0.09	0.12	0.05	0.13	0.08	0.04	0.09	0.18	0.08	0.03	0.28	0.08	0.11
O442	0.07	0.08	0.04	0.13	0.04	0.05	0.04	0.11	0.06	0.10	0.28	0.07	0.10
O443	0.09	0.20	0.18	0.14	0.05	0.08	0.08	0.14	0.06	0.20	0.29	0.12	0.13
O444	0.05	0.22	0.14	0.13	0.06	0.10	0.14	0.15	0.09	0.19	0.27	0.12	0.14
O445	0.06	0.23	0.17	0.13	0.07	0.11	0.15	0.17	0.10	0.21	0.24	0.13	0.15
O446	0.05	0.07	0.07	0.14	0.07	0.10	0.05	0.09	0.06	0.22	0.25	0.10	0.12
O447	0.03	0.07	0.04	0.13	0.06	0.07	0.05	0.09	0.06	0.11	0.22	0.08	0.10
O448	0.07	0.10	0.03	0.13	0.04	0.03	0.13	0.20	0.08	0.05	0.21	0.07	0.10

O449	0.06	0.08	0.05	0.13	0.11	0.10	0.22	0.30	0.12	0.16	0.23	0.10	0.17
O450	0.10	0.28	0.21	0.04	0.14	0.17	0.22	0.27	0.13	0.20	0.11	0.15	0.16
O451	0.12	0.29	0.21	0.02	0.05	0.11	0.19	0.15	0.12	0.13	0.06	0.11	0.11
O452	0.09	0.27	0.22	0.02	0.09	0.13	0.17	0.18	0.09	0.10	0.03	0.12	0.10
O453	0.25	0.21	0.21	0.01	0.02	0.06	0.03	0.11	0.10	0.05	0.04	0.10	0.06
O454	0.15	0.06	0.15	0.03	0.03	0.03	0.07	0.05	0.08	0.04	0.04	0.06	0.05
O455	0.10	0.06	0.29	0.04	0.02	0.03	0.04	0.06	0.09	0.09	0.06	0.08	0.06
O456	0.19	0.04	0.30	0.08	0.06	0.04	0.05	0.03	0.05	0.11	0.09	0.11	0.07
O457	0.16	0.06	0.20	0.12	0.05	0.05	0.04	0.15	0.10	0.07	0.07	0.10	0.08
O458	0.06	0.03	0.24	0.19	0.08	0.08	0.11	0.10	0.10	0.08	0.03	0.12	0.09
O459	0.14	0.03	0.39	0.21	0.07	0.09	0.07	0.09	0.04	0.07	0.02	0.15	0.08
O460	0.07	0.03	0.29	0.23	0.09	0.06	0.05	0.04	0.04	0.08	0.02	0.13	0.07
O461	0.05	0.02	0.13	0.23	0.11	0.09	0.05	0.07	0.06	0.03	0.01	0.11	0.07
O462	0.10	0.07	0.09	0.13	0.10	0.04	0.07	0.13	0.08	0.09	0.02	0.09	0.08
O463	0.07	0.09	0.11	0.19	0.06	0.05	0.08	0.15	0.08	0.10	0.04	0.10	0.09
O464	0.18	0.13	0.25	0.36	0.13	0.17	0.09	0.15	0.12	0.12	0.16	0.21	0.15
O465	0.21	0.13	0.32	0.39	0.16	0.20	0.08	0.13	0.12	0.14	0.20	0.23	0.17
O466	0.05	0.11	0.35	0.30	0.11	0.15	0.06	0.08	0.11	0.13	0.21	0.19	0.14
O467	0.12	0.09	0.21	0.35	0.05	0.07	0.04	0.05	0.08	0.07	0.19	0.15	0.10
O468	0.15	0.21	0.47	0.35	0.15	0.24	0.13	0.15	0.06	0.13	0.19	0.25	0.16
O469	0.14	0.09	0.22	0.30	0.06	0.07	0.06	0.07	0.06	0.07	0.15	0.15	0.10
O470	0.13	0.04	0.03	0.23	0.03	0.01	0.03	0.12	0.08	0.02	0.08	0.09	0.07
O471	0.07	0.03	0.05	0.22	0.09	0.05	0.08	0.14	0.11	0.04	0.02	0.10	0.09
O472	0.19	0.05	0.03	0.10	0.06	0.07	0.07	0.04	0.02	0.20	0.04	0.08	0.08
O473	0.20	0.05	0.05	0.07	0.06	0.06	0.09	0.06	0.04	0.17	0.05	0.08	0.08
O474	0.17	0.05	0.05	0.07	0.08	0.06	0.09	0.06	0.07	0.15	0.06	0.08	0.09
O475	0.18	0.04	0.06	0.04	0.10	0.05	0.11	0.11	0.12	0.15	0.08	0.08	0.10
O476	0.18	0.05	0.05	0.09	0.08	0.05	0.08	0.05	0.04	0.20	0.03	0.09	0.09
O477	0.19	0.04	0.09	0.08	0.10	0.05	0.07	0.06	0.03	0.24	0.01	0.09	0.09
O478	0.20	0.05	0.10	0.04	0.13	0.10	0.14	0.19	0.15	0.19	0.11	0.11	0.14
O479	0.18	0.07	0.14	0.03	0.12	0.14	0.17	0.22	0.18	0.22	0.14	0.12	0.16
O480	0.24	0.06	0.11	0.05	0.13	0.12	0.14	0.18	0.03	0.30	0.08	0.12	0.14
O481	0.22	0.04	0.09	0.05	0.09	0.07	0.09	0.06	0.08	0.18	0.01	0.09	0.09
O482	0.23	0.01	0.04	0.04	0.12	0.09	0.08	0.07	0.05	0.22	0.01	0.09	0.09
O483	0.23	0.06	0.07	0.05	0.13	0.18	0.17	0.23	0.04	0.12	0.07	0.11	0.12
O484	0.07	0.08	0.13	0.05	0.09	0.20	0.20	0.23	0.23	0.28	0.14	0.12	0.19
O485	0.02	0.06	0.01	0.07	0.11	0.19	0.09	0.04	0.27	0.29	0.07	0.11	0.16
O486	0.03	0.06	0.06	0.09	0.13	0.22	0.15	0.09	0.09	0.32	0.17	0.12	0.16
O487	0.15	0.03	0.13	0.10	0.17	0.22	0.21	0.27	0.07	0.24	0.06	0.14	0.17
O488	0.26	0.03	0.05	0.04	0.20	0.21	0.19	0.23	0.04	0.02	0.01	0.11	0.11
O489	0.27	0.06	0.03	0.08	0.21	0.20	0.19	0.22	0.07	0.05	0.01	0.12	0.12
O490	0.11	0.01	0.14	0.12	0.18	0.23	0.21	0.24	0.07	0.11	0.03	0.13	0.14
O491	0.03	0.06	0.15	0.12	0.14	0.22	0.09	0.03	0.05	0.30	0.22	0.13	0.15
O492	0.03	0.06	0.07	0.09	0.10	0.17	0.03	0.06	0.25	0.29	0.05	0.12	0.15

O493	0.06	0.07	0.16	0.10	0.10	0.17	0.09	0.06	0.21	0.31	0.14	0.13	0.16
O494	0.07	0.06	0.20	0.12	0.13	0.20	0.04	0.05	0.06	0.29	0.24	0.14	0.15
O495	0.14	0.04	0.16	0.08	0.18	0.24	0.15	0.13	0.14	0.05	0.02	0.13	0.12
O496	0.24	0.09	0.13	0.05	0.24	0.22	0.20	0.26	0.14	0.08	0.04	0.14	0.15
O497	0.25	0.09	0.23	0.04	0.25	0.19	0.17	0.19	0.06	0.10	0.08	0.15	0.13
O498	0.32	0.15	0.15	0.08	0.24	0.20	0.17	0.20	0.16	0.10	0.11	0.17	0.15
O499	0.28	0.09	0.19	0.05	0.16	0.22	0.19	0.26	0.13	0.12	0.11	0.14	0.15
O500	0.26	0.08	0.29	0.05	0.16	0.17	0.12	0.21	0.15	0.11	0.10	0.15	0.14
O501	0.26	0.22	0.37	0.09	0.24	0.15	0.06	0.20	0.17	0.09	0.05	0.20	0.14
O502	0.26	0.23	0.38	0.09	0.19	0.06	0.08	0.18	0.19	0.08	0.16	0.18	0.13
O503	0.27	0.17	0.23	0.08	0.25	0.14	0.08	0.11	0.09	0.01	0.05	0.16	0.10
O504	0.27	0.18	0.25	0.09	0.27	0.15	0.08	0.15	0.11	0.02	0.05	0.17	0.11
O505	0.33	0.15	0.27	0.06	0.21	0.14	0.12	0.17	0.13	0.05	0.09	0.16	0.12
O506	0.33	0.19	0.24	0.08	0.16	0.10	0.15	0.20	0.16	0.04	0.10	0.15	0.12
O507	0.17	0.16	0.18	0.09	0.28	0.18	0.09	0.18	0.13	0.04	0.04	0.16	0.13
O508	0.29	0.13	0.18	0.01	0.07	0.05	0.07	0.07	0.10	0.07	0.11	0.10	0.07
O509	0.33	0.14	0.19	0.01	0.03	0.04	0.09	0.13	0.07	0.05	0.02	0.09	0.06
O510	0.10	0.22	0.22	0.08	0.12	0.14	0.04	0.03	0.32	0.38	0.30	0.17	0.19
O511	0.13	0.13	0.13	0.06	0.15	0.09	0.17	0.11	0.19	0.07	0.04	0.11	0.11
O512	0.20	0.24	0.28	0.10	0.09	0.06	0.13	0.04	0.03	0.11	0.05	0.14	0.08
O513	0.14	0.27	0.26	0.15	0.16	0.04	0.10	0.02	0.06	0.14	0.09	0.16	0.10
O514	0.07	0.26	0.27	0.16	0.17	0.02	0.05	0.03	0.07	0.10	0.05	0.15	0.08
O515	0.10	0.12	0.11	0.06	0.03	0.08	0.15	0.13	0.38	0.33	0.39	0.12	0.21
O516	0.23	0.18	0.15	0.10	0.04	0.11	0.19	0.16	0.48	0.43	0.52	0.17	0.28
O517	0.32	0.29	0.27	0.15	0.22	0.16	0.03	0.04	0.32	0.29	0.54	0.23	0.23
O518	0.07	0.18	0.14	0.12	0.12	0.22	0.07	0.05	0.34	0.37	0.13	0.17	0.20
O519	0.10	0.17	0.15	0.11	0.08	0.12	0.05	0.05	0.24	0.24	0.26	0.13	0.15
O520	0.31	0.20	0.20	0.10	0.11	0.10	0.07	0.02	0.14	0.26	0.29	0.16	0.14
O521	0.28	0.30	0.26	0.13	0.15	0.08	0.05	0.03	0.07	0.14	0.32	0.17	0.12
O522	0.14	0.18	0.13	0.10	0.14	0.10	0.05	0.02	0.23	0.30	0.26	0.15	0.16
O523	0.17	0.21	0.17	0.15	0.18	0.10	0.03	0.01	0.17	0.23	0.46	0.17	0.17
O524	0.10	0.04	0.04	0.04	0.04	0.02	0.03	0.04	0.28	0.26	0.23	0.08	0.13
O525	0.03	0.05	0.04	0.05	0.04	0.09	0.03	0.06	0.26	0.25	0.28	0.08	0.15
O526	0.05	0.06	0.04	0.05	0.04	0.25	0.06	0.08	0.48	0.43	0.45	0.13	0.25
O527	0.13	0.04	0.09	0.09	0.05	0.21	0.04	0.05	0.39	0.36	0.12	0.14	0.19
O528	0.04	0.01	0.01	0.03	0.02	0.11	0.01	0.08	0.08	0.03	0.12	0.04	0.06
O529	0.23	0.20	0.19	0.10	0.06	0.09	0.08	0.09	0.31	0.26	0.23	0.16	0.17
O530	0.03	0.05	0.06	0.05	0.02	0.03	0.02	0.08	0.35	0.20	0.26	0.08	0.14
O531	0.30	0.22	0.20	0.13	0.07	0.03	0.02	0.09	0.39	0.24	0.29	0.17	0.17
O532	0.23	0.19	0.16	0.13	0.09	0.04	0.02	0.07	0.36	0.25	0.31	0.16	0.17
O533	0.26	0.18	0.17	0.07	0.05	0.08	0.04	0.04	0.11	0.24	0.15	0.12	0.11
O534	0.27	0.20	0.19	0.09	0.07	0.09	0.05	0.03	0.30	0.26	0.33	0.16	0.17
O535	0.30	0.22	0.20	0.06	0.05	0.10	0.11	0.04	0.22	0.29	0.24	0.15	0.15
O536	0.28	0.21	0.18	0.06	0.07	0.09	0.13	0.05	0.19	0.26	0.15	0.14	0.13

O537	0.32	0.23	0.21	0.05	0.07	0.13	0.13	0.06	0.24	0.33	0.16	0.16	0.16
O538	0.37	0.25	0.25	0.07	0.07	0.14	0.13	0.06	0.31	0.34	0.19	0.19	0.18
O539	0.27	0.20	0.18	0.08	0.08	0.15	0.12	0.06	0.33	0.42	0.18	0.18	0.20
O540	0.35	0.24	0.23	0.05	0.07	0.15	0.15	0.05	0.36	0.33	0.21	0.18	0.19
O541	0.15	0.10	0.08	0.03	0.10	0.11	0.14	0.08	0.32	0.31	0.22	0.12	0.18
O542	0.17	0.12	0.12	0.06	0.12	0.14	0.17	0.08	0.34	0.35	0.21	0.15	0.20
O543	0.29	0.21	0.20	0.03	0.07	0.16	0.15	0.06	0.32	0.34	0.20	0.16	0.19
O544	0.28	0.21	0.19	0.03	0.08	0.15	0.15	0.07	0.27	0.33	0.18	0.15	0.17
O545	0.23	0.16	0.15	0.03	0.09	0.15	0.16	0.07	0.28	0.34	0.18	0.14	0.18
O546	0.23	0.16	0.15	0.07	0.11	0.12	0.15	0.06	0.22	0.29	0.12	0.15	0.16
O547	0.27	0.18	0.16	0.06	0.09	0.12	0.14	0.05	0.21	0.29	0.14	0.15	0.15
O548	0.12	0.19	0.17	0.16	0.12	0.08	0.18	0.04	0.29	0.33	0.19	0.17	0.19
O549	0.18	0.18	0.20	0.17	0.15	0.10	0.04	0.11	0.24	0.35	0.23	0.18	0.19
O550	0.18	0.21	0.20	0.20	0.23	0.14	0.09	0.10	0.25	0.43	0.40	0.22	0.24
O551	0.15	0.22	0.18	0.16	0.23	0.12	0.13	0.10	0.09	0.35	0.33	0.18	0.19
O552	0.14	0.18	0.16	0.10	0.11	0.13	0.13	0.07	0.12	0.21	0.18	0.14	0.14
O553	0.18	0.16	0.16	0.10	0.12	0.09	0.14	0.04	0.17	0.19	0.10	0.14	0.12
O554	0.27	0.14	0.16	0.10	0.14	0.11	0.15	0.06	0.21	0.29	0.12	0.16	0.16
O555	0.30	0.16	0.20	0.11	0.16	0.16	0.15	0.07	0.27	0.33	0.18	0.19	0.19
O556	0.32	0.20	0.23	0.11	0.16	0.21	0.13	0.07	0.28	0.34	0.25	0.21	0.21
O557	0.33	0.19	0.23	0.11	0.20	0.27	0.14	0.08	0.14	0.24	0.22	0.20	0.18
O558	0.20	0.15	0.16	0.07	0.12	0.26	0.10	0.06	0.19	0.34	0.26	0.16	0.18
O559	0.11	0.10	0.06	0.10	0.13	0.13	0.12	0.06	0.09	0.24	0.27	0.12	0.14
O560	0.14	0.05	0.06	0.07	0.04	0.09	0.11	0.07	0.11	0.04	0.08	0.07	0.08
O561	0.20	0.06	0.07	0.08	0.07	0.11	0.09	0.07	0.11	0.13	0.15	0.09	0.10
O562	0.24	0.06	0.07	0.06	0.06	0.11	0.06	0.06	0.09	0.13	0.15	0.09	0.09
O563	0.21	0.10	0.07	0.02	0.04	0.11	0.04	0.03	0.04	0.12	0.07	0.07	0.06
O564	0.19	0.10	0.06	0.03	0.05	0.12	0.03	0.03	0.07	0.11	0.07	0.08	0.07
O565	0.14	0.08	0.07	0.05	0.04	0.13	0.06	0.05	0.10	0.05	0.06	0.07	0.07
O566	0.30	0.14	0.20	0.10	0.20	0.28	0.09	0.07	0.19	0.25	0.22	0.19	0.18
O567	0.16	0.07	0.06	0.04	0.15	0.23	0.03	0.06	0.13	0.14	0.12	0.11	0.12
O568	0.15	0.05	0.09	0.07	0.10	0.14	0.03	0.04	0.18	0.22	0.10	0.11	0.12
O569	0.26	0.11	0.19	0.10	0.15	0.21	0.10	0.06	0.24	0.30	0.20	0.18	0.18
O570	0.21	0.05	0.03	0.07	0.12	0.19	0.11	0.05	0.06	0.24	0.37	0.11	0.15
O571	0.18	0.07	0.03	0.06	0.10	0.12	0.04	0.03	0.11	0.15	0.30	0.09	0.12
O572	0.17	0.07	0.04	0.07	0.13	0.10	0.07	0.03	0.06	0.11	0.30	0.09	0.11
O573	0.16	0.06	0.08	0.09	0.18	0.26	0.11	0.05	0.02	0.17	0.30	0.13	0.14
O574	0.19	0.04	0.07	0.08	0.16	0.26	0.10	0.04	0.13	0.19	0.28	0.13	0.16
O575	0.16	0.10	0.09	0.11	0.14	0.20	0.13	0.03	0.12	0.18	0.23	0.13	0.14
O576	0.16	0.15	0.10	0.11	0.13	0.22	0.13	0.08	0.08	0.32	0.33	0.15	0.18
O577	0.20	0.09	0.03	0.10	0.11	0.17	0.13	0.07	0.04	0.26	0.39	0.11	0.16
O578	0.14	0.14	0.06	0.12	0.17	0.12	0.12	0.10	0.13	0.20	0.36	0.13	0.16
O579	0.14	0.18	0.12	0.14	0.20	0.17	0.13	0.10	0.11	0.37	0.41	0.17	0.21
O580	0.14	0.17	0.09	0.17	0.21	0.12	0.11	0.10	0.24	0.19	0.35	0.17	0.19

O581	0.10	0.15	0.08	0.14	0.14	0.09	0.08	0.08	0.13	0.19	0.34	0.13	0.15
O582	0.14	0.18	0.14	0.16	0.17	0.11	0.09	0.09	0.21	0.31	0.37	0.17	0.20
O583	0.16	0.20	0.15	0.19	0.23	0.14	0.10	0.10	0.26	0.35	0.40	0.20	0.23
O584	0.13	0.07	0.04	0.23	0.36	0.17	0.17	0.13	0.23	0.22	0.23	0.20	0.22
O585	0.15	0.11	0.11	0.19	0.31	0.20	0.20	0.14	0.27	0.23	0.30	0.20	0.23
O586	0.13	0.10	0.11	0.17	0.28	0.19	0.19	0.12	0.25	0.27	0.33	0.19	0.23
O587	0.11	0.09	0.04	0.22	0.34	0.13	0.14	0.11	0.21	0.18	0.19	0.18	0.19
O588	0.09	0.06	0.08	0.10	0.14	0.18	0.17	0.10	0.15	0.36	0.35	0.14	0.20
O589	0.10	0.06	0.06	0.13	0.06	0.15	0.17	0.10	0.19	0.39	0.34	0.13	0.20
O590	0.13	0.09	0.08	0.09	0.11	0.15	0.17	0.11	0.21	0.41	0.36	0.14	0.21
O591	0.15	0.13	0.09	0.04	0.09	0.10	0.04	0.09	0.11	0.31	0.23	0.11	0.14
O592	0.13	0.12	0.09	0.07	0.13	0.15	0.16	0.10	0.20	0.26	0.23	0.13	0.17
O593	0.03	0.04	0.03	0.04	0.07	0.11	0.14	0.06	0.13	0.11	0.11	0.06	0.10
O594	0.13	0.12	0.08	0.04	0.10	0.12	0.09	0.07	0.17	0.24	0.29	0.11	0.15
O595	0.05	0.03	0.05	0.03	0.04	0.07	0.05	0.07	0.12	0.05	0.17	0.05	0.08
O596	0.06	0.02	0.05	0.04	0.03	0.08	0.04	0.04	0.07	0.03	0.12	0.05	0.05
O597	0.08	0.03	0.03	0.05	0.02	0.05	0.04	0.04	0.07	0.03	0.16	0.04	0.05
O598	0.06	0.05	0.03	0.04	0.03	0.07	0.05	0.07	0.11	0.04	0.18	0.05	0.07
O599	0.06	0.06	0.02	0.04	0.04	0.08	0.05	0.07	0.08	0.04	0.19	0.05	0.07
O600	0.07	0.05	0.02	0.07	0.07	0.08	0.04	0.04	0.09	0.04	0.17	0.06	0.07
O601	0.11	0.23	0.13	0.06	0.10	0.05	0.04	0.07	0.03	0.11	0.06	0.10	0.07
O602	0.19	0.27	0.17	0.08	0.04	0.07	0.05	0.04	0.02	0.14	0.06	0.11	0.06
O603	0.18	0.29	0.20	0.14	0.03	0.05	0.05	0.02	0.09	0.12	0.08	0.13	0.07
O604	0.16	0.27	0.14	0.11	0.05	0.05	0.08	0.07	0.03	0.13	0.09	0.11	0.08
O605	0.20	0.31	0.18	0.11	0.07	0.08	0.06	0.06	0.04	0.15	0.04	0.13	0.08
O606	0.17	0.29	0.19	0.12	0.03	0.03	0.06	0.02	0.07	0.11	0.06	0.12	0.07
O607	0.16	0.22	0.13	0.07	0.02	0.09	0.04	0.04	0.07	0.06	0.06	0.09	0.05
O608	0.02	0.01	0.01	0.03	0.09	0.07	0.04	0.02	0.05	0.08	0.14	0.05	0.07
O609	0.04	0.02	0.02	0.02	0.15	0.15	0.08	0.03	0.12	0.09	0.25	0.07	0.11
O610	0.05	0.04	0.10	0.13	0.29	0.30	0.11	0.04	0.14	0.21	0.37	0.17	0.19
O611	0.11	0.03	0.12	0.15	0.23	0.32	0.11	0.06	0.05	0.20	0.30	0.16	0.17
O612	0.12	0.04	0.04	0.15	0.16	0.11	0.11	0.05	0.03	0.08	0.22	0.10	0.10
O613	0.06	0.07	0.06	0.19	0.18	0.14	0.13	0.05	0.06	0.12	0.18	0.13	0.12
O614	0.09	0.07	0.05	0.18	0.17	0.11	0.14	0.10	0.07	0.15	0.15	0.12	0.13
O615	0.15	0.07	0.07	0.21	0.31	0.17	0.19	0.15	0.25	0.23	0.25	0.19	0.22
O616	0.11	0.10	0.13	0.12	0.21	0.11	0.21	0.13	0.14	0.22	0.29	0.14	0.18
O617	0.08	0.08	0.13	0.10	0.17	0.14	0.20	0.12	0.21	0.13	0.15	0.13	0.15
O618	0.03	0.03	0.07	0.11	0.09	0.06	0.10	0.07	0.15	0.10	0.10	0.08	0.10
O619	0.06	0.15	0.12	0.10	0.06	0.07	0.10	0.06	0.13	0.11	0.07	0.10	0.09
O620	0.18	0.20	0.10	0.17	0.08	0.11	0.10	0.09	0.13	0.14	0.08	0.13	0.12
O621	0.20	0.20	0.12	0.18	0.11	0.15	0.13	0.11	0.09	0.11	0.03	0.15	0.11
O622	0.11	0.18	0.13	0.14	0.13	0.15	0.14	0.11	0.07	0.09	0.04	0.13	0.11
O623	0.17	0.22	0.09	0.07	0.07	0.11	0.09	0.09	0.11	0.06	0.05	0.10	0.08
O624	0.11	0.08	0.05	0.05	0.06	0.10	0.03	0.06	0.12	0.15	0.03	0.08	0.08

O625	0.22	0.17	0.08	0.05	0.07	0.14	0.11	0.04	0.14	0.16	0.17	0.11	0.12
O626	0.07	0.23	0.10	0.11	0.11	0.14	0.10	0.03	0.28	0.11	0.08	0.13	0.13
O627	0.16	0.23	0.09	0.17	0.16	0.21	0.15	0.05	0.20	0.15	0.10	0.17	0.15
O628	0.09	0.08	0.02	0.09	0.14	0.19	0.16	0.05	0.20	0.10	0.18	0.11	0.14
O629	0.30	0.18	0.12	0.05	0.12	0.21	0.16	0.05	0.17	0.14	0.25	0.14	0.14
O630	0.19	0.03	0.08	0.11	0.13	0.08	0.18	0.11	0.13	0.15	0.33	0.11	0.15
O631	0.10	0.10	0.06	0.07	0.11	0.10	0.07	0.10	0.06	0.21	0.45	0.10	0.15
O632	0.48	0.31	0.28	0.07	0.07	0.09	0.06	0.05	0.23	0.32	0.50	0.19	0.18
O633	0.32	0.29	0.27	0.15	0.22	0.15	0.02	0.04	0.29	0.29	0.55	0.23	0.22
O634	0.16	0.19	0.18	0.10	0.21	0.18	0.03	0.02	0.20	0.09	0.43	0.16	0.15
O635	0.10	0.06	0.16	0.08	0.12	0.16	0.07	0.05	0.25	0.10	0.56	0.12	0.17
O636	0.05	0.11	0.07	0.06	0.10	0.10	0.22	0.05	0.10	0.28	0.45	0.10	0.17
O637	0.26	0.21	0.27	0.07	0.07	0.17	0.30	0.17	0.28	0.08	0.11	0.16	0.16
O638	0.24	0.09	0.03	0.05	0.07	0.22	0.37	0.23	0.40	0.29	0.25	0.13	0.25
O639	0.13	0.20	0.27	0.05	0.06	0.24	0.37	0.23	0.44	0.30	0.18	0.18	0.25
O640	0.29	0.13	0.07	0.03	0.06	0.26	0.40	0.21	0.44	0.08	0.01	0.13	0.19
O641	0.20	0.10	0.07	0.06	0.02	0.06	0.25	0.15	0.12	0.23	0.21	0.09	0.14
O642	0.09	0.12	0.09	0.07	0.04	0.06	0.26	0.15	0.06	0.21	0.09	0.08	0.12
O643	0.05	0.15	0.09	0.10	0.05	0.07	0.22	0.13	0.19	0.25	0.16	0.11	0.16
O644	0.08	0.21	0.17	0.10	0.04	0.11	0.38	0.27	0.29	0.29	0.19	0.14	0.22
O645	0.36	0.14	0.39	0.13	0.12	0.20	0.35	0.25	0.41	0.25	0.10	0.23	0.24
O646	0.08	0.06	0.21	0.14	0.07	0.23	0.21	0.22	0.28	0.21	0.36	0.15	0.21
O647	0.05	0.09	0.10	0.07	0.08	0.22	0.17	0.27	0.09	0.09	0.27	0.10	0.15
O648	0.09	0.12	0.15	0.03	0.04	0.23	0.18	0.29	0.15	0.10	0.23	0.10	0.15
O649	0.16	0.10	0.09	0.02	0.03	0.19	0.15	0.24	0.18	0.17	0.18	0.10	0.15
O650	0.27	0.13	0.19	0.01	0.07	0.12	0.15	0.17	0.14	0.03	0.13	0.10	0.10
O651	0.07	0.24	0.19	0.05	0.17	0.22	0.25	0.32	0.15	0.19	0.11	0.15	0.18
O652	0.06	0.07	0.06	0.07	0.18	0.22	0.26	0.34	0.15	0.21	0.05	0.12	0.19
O653	0.12	0.19	0.11	0.06	0.17	0.23	0.27	0.35	0.15	0.25	0.05	0.15	0.20
O654	0.16	0.23	0.13	0.10	0.18	0.22	0.27	0.34	0.15	0.24	0.11	0.16	0.20
O655	0.16	0.17	0.10	0.13	0.24	0.21	0.24	0.30	0.14	0.19	0.25	0.17	0.21
O656	0.12	0.15	0.10	0.12	0.28	0.23	0.23	0.25	0.11	0.05	0.28	0.15	0.18
O657	0.13	0.22	0.17	0.10	0.32	0.29	0.27	0.31	0.06	0.14	0.25	0.19	0.21
O658	0.14	0.07	0.02	0.17	0.34	0.32	0.30	0.36	0.11	0.16	0.17	0.18	0.23
O659	0.11	0.27	0.06	0.19	0.34	0.33	0.33	0.39	0.15	0.13	0.14	0.21	0.24
O660	0.10	0.08	0.12	0.23	0.37	0.37	0.35	0.42	0.25	0.13	0.13	0.22	0.27
O661	0.18	0.15	0.15	0.23	0.36	0.36	0.34	0.44	0.20	0.08	0.12	0.23	0.25
O662	0.10	0.11	0.05	0.03	0.03	0.06	0.26	0.12	0.38	0.27	0.20	0.10	0.19
O663	0.28	0.15	0.12	0.02	0.01	0.18	0.31	0.13	0.49	0.35	0.44	0.15	0.26
O664	0.12	0.02	0.01	0.02	0.01	0.01	0.21	0.08	0.41	0.32	0.42	0.08	0.20
O665	0.44	0.07	0.35	0.04	0.01	0.05	0.32	0.18	0.49	0.33	0.51	0.17	0.26
O666	0.40	0.16	0.27	0.10	0.22	0.10	0.16	0.13	0.40	0.24	0.37	0.21	0.23
O667	0.40	0.24	0.39	0.14	0.05	0.07	0.19	0.23	0.36	0.33	0.35	0.22	0.23
O668	0.10	0.04	0.14	0.02	0.04	0.02	0.20	0.16	0.32	0.13	0.11	0.08	0.14

O669	0.02	0.07	0.05	0.07	0.10	0.09	0.03	0.05	0.25	0.15	0.05	0.09	0.11
O670	0.02	0.08	0.19	0.02	0.09	0.19	0.20	0.22	0.30	0.12	0.06	0.11	0.16
O671	0.15	0.05	0.05	0.03	0.12	0.08	0.15	0.20	0.24	0.10	0.09	0.09	0.13
O672	0.21	0.07	0.11	0.16	0.05	0.05	0.12	0.07	0.12	0.10	0.09	0.11	0.10
O673	0.06	0.11	0.15	0.29	0.11	0.14	0.10	0.01	0.09	0.07	0.31	0.15	0.13
O674	0.09	0.13	0.14	0.25	0.10	0.13	0.11	0.01	0.05	0.04	0.25	0.14	0.10
O675	0.06	0.07	0.21	0.21	0.10	0.13	0.11	0.01	0.03	0.08	0.22	0.13	0.10
O676	0.19	0.03	0.27	0.17	0.10	0.14	0.11	0.01	0.03	0.09	0.20	0.14	0.10
O677	0.23	0.08	0.30	0.10	0.09	0.13	0.10	0.01	0.03	0.10	0.16	0.13	0.09
O678	0.19	0.14	0.28	0.21	0.07	0.13	0.05	0.02	0.03	0.14	0.13	0.16	0.10
O679	0.06	0.15	0.30	0.19	0.07	0.14	0.06	0.07	0.04	0.07	0.21	0.14	0.10
O680	0.04	0.02	0.22	0.09	0.04	0.13	0.06	0.02	0.03	0.06	0.15	0.09	0.07
O681	0.06	0.07	0.10	0.05	0.06	0.12	0.09	0.02	0.05	0.05	0.20	0.07	0.07
O682	0.14	0.11	0.13	0.06	0.05	0.09	0.09	0.08	0.12	0.06	0.20	0.09	0.09
O683	0.15	0.13	0.18	0.05	0.04	0.12	0.12	0.09	0.01	0.09	0.17	0.09	0.08
O684	0.17	0.13	0.20	0.04	0.04	0.13	0.17	0.14	0.03	0.09	0.16	0.10	0.09
O685	0.16	0.09	0.22	0.02	0.03	0.09	0.14	0.14	0.11	0.05	0.13	0.08	0.09
O686	0.14	0.06	0.21	0.01	0.02	0.12	0.12	0.09	0.29	0.04	0.12	0.09	0.11
O687	0.09	0.07	0.06	0.03	0.11	0.22	0.18	0.13	0.23	0.30	0.07	0.12	0.17
O688	0.11	0.06	0.04	0.03	0.13	0.22	0.21	0.24	0.04	0.32	0.20	0.10	0.18
O689	0.15	0.04	0.10	0.04	0.15	0.21	0.21	0.26	0.08	0.28	0.07	0.12	0.17
O690	0.24	0.02	0.12	0.05	0.14	0.16	0.09	0.17	0.11	0.14	0.02	0.11	0.12
O691	0.22	0.05	0.14	0.08	0.10	0.08	0.09	0.07	0.13	0.03	0.04	0.10	0.08
O692	0.13	0.06	0.17	0.10	0.04	0.01	0.04	0.04	0.09	0.02	0.05	0.08	0.05
S1	0.06	0.04	0.18	0.03	0.13	0.04	0.09	0.04	0.01	0.09	0.02	0.08	0.06
S2	0.12	0.04	0.18	0.05	0.14	0.03	0.08	0.04	0.01	0.09	0.01	0.09	0.06
S3	0.12	0.05	0.16	0.08	0.13	0.02	0.06	0.06	0.02	0.06	0.02	0.09	0.06
S4	0.19	0.05	0.20	0.12	0.08	0.12	0.14	0.15	0.07	0.04	0.01	0.11	0.09
S5	0.21	0.08	0.17	0.10	0.09	0.12	0.16	0.15	0.08	0.03	0.02	0.11	0.09
S6	0.26	0.14	0.21	0.13	0.05	0.11	0.15	0.13	0.08	0.02	0.01	0.12	0.08
S7	0.34	0.25	0.33	0.16	0.03	0.09	0.13	0.10	0.08	0.03	0.03	0.16	0.08
S8	0.21	0.25	0.36	0.17	0.02	0.09	0.12	0.11	0.07	0.02	0.03	0.15	0.07
S9	0.20	0.14	0.34	0.08	0.10	0.11	0.06	0.04	0.03	0.08	0.05	0.14	0.07
S10	0.21	0.09	0.34	0.07	0.14	0.05	0.03	0.05	0.13	0.02	0.07	0.13	0.07
S11	0.25	0.21	0.41	0.08	0.25	0.07	0.04	0.12	0.16	0.06	0.06	0.19	0.11
S12	0.27	0.22	0.39	0.09	0.24	0.15	0.05	0.20	0.17	0.09	0.04	0.20	0.13

E.2 Proposed Scheme

Proposed	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	Annual	Summer
Frequency Annual	**0.06**	**0.08**	**0.11**	**0.17**	**0.15**	**0.09**			**0.06**	**0.06**		**0.78**	
Frequency Summer				**0.08**	**0.10**	**0.09**	**0.09**	**0.10**	**0.13**	**0.15**	**0.08**		**0.82**
P1	0.26	0.16	0.33	0.09	0.19	0.07	0.06	0.15	0.10	0.03	0.05	0.16	0.09
P2	0.28	0.17	0.36	0.09	0.26	0.02	0.07	0.20	0.15	0.03	0.11	0.18	0.12
P3	0.30	0.18	0.34	0.07	0.25	0.05	0.05	0.22	0.18	0.03	0.09	0.18	0.12
P4	0.31	0.16	0.28	0.06	0.18	0.08	0.03	0.24	0.18	0.09	0.07	0.16	0.12
P5	0.32	0.11	0.17	0.03	0.12	0.08	0.07	0.21	0.18	0.04	0.04	0.12	0.10
P6	0.34	0.09	0.16	0.02	0.24	0.17	0.16	0.21	0.10	0.03	0.08	0.14	0.12
P7	0.33	0.15	0.14	0.04	0.25	0.23	0.21	0.29	0.14	0.03	0.09	0.16	0.15
P8	0.24	0.13	0.14	0.04	0.21	0.22	0.21	0.29	0.14	0.03	0.07	0.14	0.15
P9	0.16	0.09	0.19	0.02	0.16	0.19	0.14	0.09	0.06	0.03	0.07	0.11	0.09
P10	0.11	0.06	0.21	0.04	0.13	0.16	0.11	0.07	0.04	0.06	0.04	0.10	0.08
P11	0.09	0.04	0.18	0.07	0.12	0.12	0.13	0.03	0.03	0.03	0.03	0.09	0.06
P12	0.06	0.04	0.19	0.11	0.12	0.07	0.14	0.04	0.06	0.05	0.06	0.10	0.08
P13	0.06	0.08	0.23	0.15	0.12	0.04	0.13	0.04	0.08	0.04	0.09	0.12	0.08
P14	0.09	0.12	0.26	0.18	0.12	0.04	0.05	0.07	0.09	0.21	0.26	0.14	0.13
P15	0.13	0.14	0.27	0.18	0.11	0.06	0.03	0.06	0.14	0.26	0.28	0.16	0.15
P16	0.21	0.17	0.28	0.19	0.10	0.06	0.06	0.05	0.15	0.28	0.28	0.17	0.15
P17	0.30	0.23	0.33	0.18	0.04	0.06	0.10	0.05	0.17	0.27	0.27	0.18	0.15
P18	0.32	0.27	0.36	0.10	0.06	0.02	0.14	0.02	0.20	0.25	0.19	0.17	0.13
P19	0.35	0.28	0.37	0.06	0.06	0.05	0.19	0.12	0.17	0.21	0.20	0.17	0.14
P20	0.33	0.26	0.35	0.03	0.05	0.22	0.18	0.26	0.05	0.17	0.33	0.16	0.16
P21	0.26	0.18	0.23	0.06	0.02	0.21	0.17	0.27	0.06	0.12	0.31	0.12	0.14
P22	0.03	0.06	0.14	0.12	0.02	0.19	0.15	0.26	0.05	0.13	0.28	0.09	0.14
P23	0.08	0.12	0.19	0.14	0.04	0.17	0.13	0.25	0.04	0.14	0.25	0.12	0.14
P24	0.07	0.09	0.09	0.11	0.08	0.17	0.12	0.25	0.04	0.16	0.22	0.10	0.14
P25	0.22	0.13	0.16	0.06	0.09	0.17	0.13	0.26	0.04	0.15	0.18	0.12	0.13
P26	0.19	0.09	0.05	0.06	0.08	0.16	0.11	0.26	0.03	0.14	0.17	0.09	0.12
P27	0.17	0.06	0.07	0.05	0.06	0.13	0.09	0.23	0.02	0.13	0.16	0.08	0.11
P28	0.10	0.06	0.14	0.04	0.06	0.08	0.04	0.19	0.02	0.18	0.20	0.08	0.10
P29	0.06	0.06	0.04	0.01	0.02	0.08	0.03	0.18	0.02	0.24	0.24	0.05	0.11
P30	0.16	0.07	0.22	0.06	0.07	0.14	0.09	0.17	0.09	0.22	0.19	0.12	0.13
O1	0.09	0.03	0.05	0.04	0.01	0.03	0.06	0.06	0.04	0.04	0.09	0.04	0.05
O2	0.07	0.04	0.06	0.05	0.02	0.07	0.16	0.07	0.05	0.05	0.08	0.05	0.06
O3	0.07	0.02	0.05	0.04	0.02	0.04	0.06	0.01	0.10	0.04	0.08	0.04	0.05
O4	0.07	0.01	0.02	0.02	0.01	0.04	0.10	0.03	0.04	0.03	0.04	0.03	0.04
O5	0.06	0.04	0.08	0.07	0.06	0.08	0.13	0.02	0.10	0.04	0.11	0.07	0.07
O6	0.14	0.04	0.07	0.06	0.05	0.05	0.05	0.07	0.09	0.07	0.12	0.07	0.07
O7	0.15	0.02	0.04	0.03	0.03	0.05	0.15	0.08	0.11	0.08	0.12	0.05	0.08
O8	0.08	0.02	0.04	0.04	0.02	0.06	0.08	0.06	0.16	0.12	0.13	0.05	0.09

O9	0.07	0.10	0.04	0.03	0.02	0.04	0.17	0.06	0.12	0.16	0.07	0.06	0.09
O10	0.04	0.03	0.03	0.02	0.03	0.01	0.03	0.03	0.09	0.02	0.12	0.03	0.04
O11	0.02	0.07	0.03	0.02	0.02	0.02	0.03	0.04	0.08	0.07	0.15	0.03	0.06
O12	0.03	0.09	0.05	0.02	0.01	0.03	0.03	0.01	0.06	0.14	0.22	0.04	0.07
O13	0.06	0.09	0.03	0.01	0.03	0.01	0.03	0.04	0.12	0.21	0.27	0.05	0.10
O14	0.08	0.07	0.02	0.03	0.01	0.03	0.13	0.06	0.14	0.27	0.37	0.06	0.14
O15	0.08	0.02	0.01	0.03	0.03	0.03	0.04	0.02	0.08	0.07	0.16	0.04	0.06
O16	0.19	0.12	0.05	0.03	0.03	0.04	0.03	0.02	0.07	0.06	0.26	0.06	0.06
O17	0.21	0.08	0.03	0.04	0.04	0.08	0.07	0.02	0.08	0.11	0.24	0.07	0.08
O18	0.28	0.10	0.05	0.05	0.06	0.08	0.06	0.01	0.08	0.08	0.23	0.08	0.08
O19	0.24	0.14	0.11	0.02	0.04	0.11	0.06	0.02	0.09	0.05	0.33	0.09	0.09
O20	0.27	0.14	0.12	0.03	0.03	0.13	0.03	0.03	0.10	0.06	0.40	0.09	0.10
O21	0.29	0.16	0.11	0.02	0.03	0.04	0.06	0.05	0.10	0.06	0.26	0.08	0.08
O22	0.15	0.11	0.06	0.01	0.01	0.03	0.05	0.05	0.09	0.08	0.17	0.05	0.06
O23	0.19	0.15	0.06	0.02	0.01	0.01	0.07	0.05	0.13	0.10	0.20	0.06	0.08
O24	0.18	0.16	0.09	0.03	0.01	0.04	0.06	0.04	0.13	0.11	0.27	0.07	0.09
O25	0.10	0.03	0.02	0.01	0.02	0.10	0.28	0.15	0.26	0.07	0.03	0.06	0.12
O26	0.10	0.03	0.03	0.02	0.04	0.11	0.23	0.15	0.25	0.08	0.13	0.07	0.13
O27	0.10	0.02	0.03	0.02	0.03	0.03	0.05	0.05	0.13	0.06	0.12	0.04	0.06
O28	0.06	0.02	0.04	0.02	0.04	0.04	0.14	0.07	0.13	0.08	0.07	0.04	0.08
O29	0.07	0.02	0.06	0.02	0.02	0.10	0.28	0.11	0.20	0.08	0.07	0.06	0.11
O30	0.11	0.02	0.04	0.03	0.03	0.13	0.23	0.15	0.26	0.04	0.17	0.07	0.13
O31	0.10	0.03	0.04	0.03	0.03	0.13	0.31	0.12	0.28	0.05	0.13	0.07	0.14
O32	0.10	0.03	0.05	0.03	0.01	0.11	0.14	0.05	0.14	0.03	0.13	0.05	0.08
O33	0.05	0.02	0.03	0.03	0.01	0.03	0.05	0.03	0.05	0.03	0.08	0.03	0.04
O34	0.13	0.03	0.05	0.03	0.01	0.03	0.06	0.06	0.08	0.04	0.15	0.04	0.06
O35	0.10	0.03	0.06	0.04	0.01	0.05	0.11	0.04	0.07	0.10	0.15	0.05	0.07
O36	0.09	0.02	0.06	0.04	0.01	0.05	0.07	0.02	0.08	0.08	0.15	0.05	0.06
O37	0.13	0.03	0.05	0.03	0.01	0.02	0.05	0.06	0.12	0.05	0.15	0.04	0.06
O38	0.07	0.03	0.04	0.03	0.04	0.18	0.47	0.23	0.44	0.08	0.07	0.09	0.20
O39	0.05	0.03	0.02	0.02	0.07	0.18	0.17	0.17	0.36	0.26	0.08	0.10	0.18
O40	0.05	0.01	0.03	0.02	0.02	0.13	0.10	0.11	0.35	0.31	0.08	0.08	0.16
O41	0.03	0.02	0.04	0.03	0.01	0.10	0.08	0.08	0.28	0.29	0.12	0.07	0.14
O42	0.02	0.03	0.03	0.01	0.03	0.07	0.06	0.03	0.14	0.09	0.13	0.04	0.08
O43	0.10	0.01	0.05	0.05	0.08	0.23	0.23	0.18	0.52	0.47	0.39	0.15	0.30
O44	0.04	0.01	0.04	0.05	0.08	0.24	0.25	0.13	0.42	0.33	0.29	0.12	0.24
O45	0.04	0.02	0.04	0.06	0.06	0.13	0.25	0.11	0.50	0.27	0.32	0.11	0.23
O46	0.01	0.01	0.02	0.04	0.04	0.08	0.14	0.05	0.45	0.28	0.31	0.09	0.19
O47	0.07	0.03	0.03	0.04	0.02	0.12	0.25	0.11	0.44	0.30	0.28	0.10	0.21
O48	0.03	0.02	0.02	0.01	0.02	0.08	0.26	0.11	0.40	0.27	0.11	0.07	0.18
O49	0.06	0.01	0.04	0.03	0.02	0.06	0.28	0.11	0.34	0.32	0.15	0.08	0.18
O50	0.11	0.01	0.01	0.03	0.02	0.03	0.28	0.09	0.36	0.37	0.20	0.08	0.20
O51	0.07	0.02	0.02	0.02	0.01	0.05	0.08	0.04	0.21	0.20	0.11	0.05	0.10
O52	0.09	0.03	0.04	0.03	0.02	0.07	0.12	0.02	0.10	0.06	0.08	0.05	0.06

O53	0.13	0.03	0.03	0.03	0.04	0.06	0.18	0.02	0.03	0.02	0.06	0.04	0.05
O54	0.15	0.07	0.02	0.03	0.05	0.13	0.17	0.01	0.07	0.07	0.14	0.06	0.08
O55	0.17	0.10	0.09	0.02	0.05	0.07	0.07	0.02	0.08	0.07	0.43	0.07	0.10
O56	0.35	0.24	0.22	0.12	0.10	0.06	0.14	0.01	0.20	0.07	0.54	0.16	0.15
O57	0.19	0.16	0.05	0.03	0.02	0.11	0.10	0.01	0.12	0.06	0.28	0.07	0.09
O58	0.25	0.14	0.09	0.02	0.03	0.15	0.04	0.02	0.11	0.08	0.46	0.09	0.11
O59	0.20	0.09	0.15	0.09	0.06	0.25	0.10	0.02	0.03	0.14	0.51	0.12	0.14
O60	0.13	0.07	0.15	0.10	0.13	0.31	0.11	0.03	0.09	0.26	0.50	0.15	0.19
O61	0.06	0.10	0.12	0.10	0.13	0.33	0.09	0.06	0.15	0.21	0.49	0.14	0.19
O62	0.15	0.11	0.24	0.10	0.12	0.35	0.11	0.08	0.12	0.17	0.46	0.17	0.18
O63	0.23	0.08	0.24	0.10	0.12	0.36	0.19	0.09	0.12	0.12	0.43	0.17	0.18
O64	0.28	0.12	0.25	0.10	0.13	0.37	0.35	0.14	0.20	0.21	0.37	0.19	0.23
O65	0.20	0.15	0.15	0.10	0.13	0.37	0.43	0.20	0.27	0.13	0.34	0.17	0.24
O66	0.19	0.12	0.08	0.09	0.13	0.36	0.50	0.26	0.32	0.13	0.15	0.16	0.24
O67	0.21	0.15	0.11	0.09	0.13	0.37	0.69	0.32	0.37	0.17	0.08	0.18	0.28
O68	0.28	0.07	0.10	0.02	0.07	0.38	0.28	0.18	0.40	0.19	0.06	0.15	0.21
O69	0.29	0.06	0.11	0.03	0.03	0.37	0.40	0.18	0.41	0.22	0.06	0.15	0.22
O70	0.16	0.19	0.33	0.12	0.05	0.20	0.39	0.23	0.44	0.31	0.23	0.20	0.26
O71	0.14	0.17	0.22	0.08	0.03	0.10	0.15	0.13	0.30	0.20	0.19	0.13	0.16
O72	0.30	0.14	0.40	0.14	0.09	0.09	0.19	0.18	0.36	0.25	0.17	0.20	0.20
O73	0.05	0.07	0.08	0.04	0.08	0.01	0.07	0.08	0.18	0.14	0.03	0.07	0.09
O74	0.06	0.05	0.08	0.03	0.07	0.02	0.11	0.04	0.07	0.09	0.02	0.06	0.06
O75	0.05	0.07	0.09	0.02	0.06	0.03	0.15	0.05	0.10	0.06	0.06	0.05	0.07
O76	0.03	0.08	0.21	0.06	0.07	0.02	0.12	0.06	0.07	0.13	0.14	0.09	0.09
O77	0.05	0.06	0.33	0.08	0.08	0.04	0.11	0.05	0.14	0.13	0.17	0.12	0.10
O78	0.09	0.07	0.34	0.08	0.09	0.08	0.15	0.06	0.18	0.19	0.17	0.14	0.13
O79	0.05	0.07	0.26	0.07	0.07	0.06	0.25	0.10	0.20	0.20	0.16	0.12	0.15
O80	0.05	0.07	0.28	0.07	0.08	0.04	0.23	0.09	0.14	0.15	0.17	0.11	0.12
O81	0.07	0.09	0.21	0.07	0.07	0.03	0.18	0.10	0.06	0.15	0.16	0.09	0.10
O82	0.06	0.11	0.04	0.06	0.11	0.04	0.20	0.13	0.06	0.12	0.12	0.07	0.10
O83	0.11	0.04	0.07	0.02	0.02	0.03	0.09	0.04	0.06	0.09	0.07	0.05	0.06
O84	0.32	0.17	0.41	0.14	0.11	0.10	0.11	0.08	0.16	0.05	0.15	0.18	0.11
O85	0.18	0.07	0.38	0.10	0.08	0.06	0.20	0.16	0.30	0.06	0.34	0.15	0.16
O86	0.22	0.15	0.34	0.04	0.05	0.04	0.26	0.19	0.27	0.15	0.45	0.14	0.18
O87	0.15	0.05	0.32	0.13	0.16	0.05	0.07	0.03	0.05	0.06	0.16	0.14	0.08
O88	0.26	0.09	0.11	0.10	0.11	0.05	0.09	0.03	0.16	0.08	0.15	0.11	0.10
O89	0.09	0.13	0.05	0.11	0.09	0.02	0.02	0.03	0.05	0.04	0.11	0.08	0.06
O90	0.12	0.13	0.09	0.06	0.02	0.05	0.12	0.08	0.07	0.06	0.10	0.07	0.07
O91	0.21	0.16	0.07	0.03	0.03	0.10	0.19	0.13	0.21	0.09	0.24	0.09	0.13
O92	0.41	0.22	0.40	0.10	0.12	0.11	0.13	0.10	0.28	0.24	0.21	0.21	0.17
O93	0.42	0.22	0.36	0.07	0.09	0.11	0.21	0.10	0.29	0.21	0.14	0.19	0.17
O94	0.22	0.13	0.16	0.02	0.03	0.14	0.27	0.13	0.34	0.19	0.08	0.12	0.16
O95	0.35	0.17	0.25	0.04	0.05	0.16	0.33	0.15	0.33	0.16	0.05	0.16	0.17
O96	0.28	0.12	0.20	0.07	0.10	0.06	0.17	0.02	0.08	0.19	0.34	0.12	0.13

O97	0.08	0.05	0.11	0.05	0.11	0.04	0.11	0.03	0.10	0.12	0.29	0.08	0.11
O98	0.04	0.05	0.06	0.03	0.07	0.05	0.12	0.04	0.14	0.10	0.27	0.06	0.10
O99	0.07	0.06	0.08	0.02	0.06	0.03	0.05	0.03	0.12	0.04	0.17	0.05	0.06
O100	0.07	0.07	0.11	0.04	0.09	0.03	0.05	0.03	0.09	0.06	0.19	0.07	0.07
O101	0.41	0.23	0.34	0.11	0.11	0.07	0.05	0.04	0.10	0.03	0.31	0.17	0.10
O102	0.39	0.21	0.28	0.10	0.08	0.08	0.10	0.07	0.18	0.06	0.42	0.16	0.13
O103	0.35	0.19	0.20	0.08	0.05	0.14	0.32	0.20	0.44	0.19	0.52	0.17	0.25
O104	0.37	0.21	0.22	0.09	0.06	0.16	0.35	0.23	0.48	0.21	0.56	0.18	0.27
O105	0.14	0.04	0.10	0.03	0.04	0.09	0.19	0.12	0.28	0.11	0.36	0.08	0.15
O106	0.21	0.04	0.11	0.02	0.02	0.05	0.07	0.06	0.11	0.06	0.26	0.06	0.08
O107	0.19	0.22	0.13	0.06	0.02	0.11	0.20	0.14	0.26	0.23	0.20	0.12	0.16
O108	0.36	0.27	0.22	0.09	0.05	0.08	0.27	0.14	0.24	0.23	0.06	0.16	0.15
O109	0.42	0.29	0.24	0.11	0.03	0.06	0.26	0.10	0.26	0.22	0.22	0.17	0.17
O110	0.20	0.11	0.22	0.13	0.07	0.16	0.17	0.15	0.20	0.04	0.04	0.14	0.12
O111	0.26	0.13	0.17	0.10	0.07	0.17	0.18	0.14	0.23	0.02	0.05	0.13	0.12
O112	0.33	0.22	0.18	0.06	0.05	0.20	0.20	0.17	0.26	0.04	0.04	0.14	0.13
O113	0.40	0.26	0.26	0.03	0.03	0.21	0.23	0.20	0.29	0.06	0.02	0.16	0.14
O114	0.39	0.24	0.32	0.03	0.02	0.21	0.26	0.22	0.32	0.08	0.01	0.17	0.15
O115	0.34	0.21	0.36	0.15	0.07	0.03	0.04	0.01	0.06	0.14	0.31	0.16	0.10
O116	0.33	0.20	0.28	0.15	0.04	0.03	0.22	0.12	0.23	0.20	0.30	0.17	0.17
O117	0.36	0.22	0.44	0.14	0.10	0.03	0.27	0.17	0.30	0.13	0.30	0.20	0.18
O118	0.38	0.23	0.44	0.15	0.10	0.03	0.24	0.11	0.22	0.03	0.07	0.19	0.12
O119	0.10	0.06	0.08	0.05	0.05	0.14	0.31	0.20	0.28	0.12	0.22	0.09	0.17
O120	0.08	0.08	0.11	0.05	0.05	0.13	0.31	0.20	0.28	0.10	0.20	0.10	0.17
O121	0.07	0.07	0.11	0.04	0.04	0.11	0.31	0.20	0.27	0.16	0.21	0.09	0.17
O122	0.13	0.14	0.22	0.04	0.02	0.10	0.29	0.19	0.25	0.23	0.22	0.12	0.18
O123	0.40	0.24	0.46	0.11	0.04	0.02	0.06	0.10	0.04	0.22	0.25	0.18	0.11
O124	0.38	0.23	0.41	0.09	0.02	0.02	0.06	0.04	0.04	0.25	0.33	0.16	0.11
O125	0.33	0.25	0.42	0.11	0.07	0.04	0.10	0.08	0.07	0.24	0.37	0.18	0.14
O126	0.26	0.21	0.31	0.06	0.05	0.05	0.09	0.09	0.01	0.23	0.40	0.13	0.12
O127	0.18	0.20	0.38	0.12	0.09	0.08	0.09	0.10	0.02	0.22	0.39	0.16	0.14
O128	0.06	0.13	0.13	0.02	0.07	0.06	0.07	0.04	0.05	0.09	0.04	0.07	0.06
O129	0.18	0.06	0.22	0.02	0.06	0.05	0.11	0.09	0.08	0.05	0.16	0.08	0.08
O130	0.19	0.08	0.15	0.03	0.06	0.05	0.09	0.06	0.07	0.07	0.17	0.08	0.07
O131	0.12	0.05	0.17	0.08	0.10	0.05	0.03	0.05	0.05	0.04	0.08	0.09	0.06
O132	0.22	0.20	0.42	0.15	0.15	0.04	0.05	0.07	0.05	0.12	0.25	0.18	0.11
O133	0.24	0.20	0.43	0.11	0.13	0.05	0.05	0.05	0.07	0.13	0.18	0.17	0.10
O134	0.24	0.28	0.51	0.13	0.14	0.04	0.18	0.12	0.19	0.06	0.13	0.20	0.12
O135	0.20	0.20	0.51	0.10	0.11	0.10	0.03	0.02	0.13	0.11	0.14	0.18	0.09
O136	0.13	0.19	0.45	0.24	0.06	0.11	0.02	0.05	0.20	0.12	0.10	0.19	0.11
O137	0.14	0.03	0.45	0.04	0.04	0.03	0.02	0.02	0.23	0.17	0.11	0.13	0.10
O138	0.22	0.06	0.36	0.14	0.02	0.03	0.01	0.02	0.24	0.22	0.16	0.15	0.12
O139	0.28	0.14	0.35	0.17	0.01	0.03	0.03	0.04	0.21	0.22	0.16	0.16	0.12
O140	0.34	0.21	0.33	0.15	0.01	0.05	0.03	0.04	0.14	0.15	0.13	0.16	0.09

O141	0.41	0.26	0.33	0.12	0.01	0.07	0.04	0.09	0.23	0.18	0.14	0.18	0.12
O142	0.41	0.27	0.29	0.11	0.01	0.07	0.03	0.05	0.15	0.19	0.16	0.16	0.11
O143	0.11	0.04	0.23	0.14	0.02	0.03	0.12	0.10	0.22	0.46	0.39	0.14	0.20
O144	0.06	0.04	0.15	0.11	0.03	0.04	0.14	0.10	0.23	0.39	0.30	0.11	0.18
O145	0.24	0.13	0.24	0.14	0.05	0.06	0.15	0.15	0.23	0.29	0.23	0.16	0.17
O146	0.09	0.08	0.07	0.08	0.06	0.03	0.07	0.13	0.25	0.25	0.20	0.10	0.15
O147	0.15	0.09	0.11	0.22	0.11	0.09	0.03	0.07	0.07	0.03	0.24	0.12	0.10
O148	0.14	0.05	0.14	0.23	0.09	0.09	0.03	0.06	0.05	0.06	0.28	0.12	0.10
O149	0.15	0.04	0.13	0.25	0.11	0.12	0.03	0.05	0.06	0.09	0.29	0.14	0.11
O150	0.16	0.06	0.14	0.23	0.11	0.15	0.05	0.03	0.05	0.13	0.27	0.14	0.12
O151	0.14	0.05	0.24	0.21	0.11	0.17	0.06	0.02	0.04	0.15	0.23	0.15	0.12
O152	0.10	0.02	0.29	0.23	0.10	0.17	0.03	0.02	0.05	0.12	0.23	0.15	0.11
O153	0.05	0.04	0.28	0.20	0.10	0.16	0.05	0.01	0.04	0.09	0.15	0.14	0.09
O154	0.07	0.05	0.24	0.12	0.09	0.16	0.10	0.03	0.06	0.13	0.14	0.12	0.10
O155	0.08	0.04	0.26	0.23	0.09	0.16	0.13	0.04	0.05	0.13	0.13	0.15	0.11
O156	0.08	0.06	0.21	0.21	0.07	0.14	0.14	0.07	0.07	0.16	0.15	0.14	0.12
O157	0.06	0.08	0.11	0.20	0.05	0.07	0.12	0.08	0.05	0.08	0.13	0.10	0.09
O158	0.07	0.14	0.12	0.12	0.04	0.11	0.18	0.16	0.13	0.07	0.18	0.10	0.12
O159	0.07	0.09	0.15	0.02	0.05	0.17	0.18	0.18	0.24	0.08	0.18	0.09	0.14
O160	0.07	0.02	0.10	0.02	0.05	0.17	0.14	0.13	0.23	0.04	0.16	0.08	0.12
O161	0.06	0.02	0.15	0.03	0.07	0.17	0.13	0.05	0.13	0.03	0.13	0.08	0.09
O162	0.03	0.09	0.04	0.15	0.06	0.07	0.09	0.05	0.04	0.05	0.16	0.07	0.07
O163	0.04	0.12	0.08	0.16	0.03	0.03	0.07	0.06	0.01	0.07	0.16	0.08	0.07
O164	0.03	0.08	0.08	0.19	0.07	0.05	0.09	0.07	0.02	0.07	0.15	0.09	0.08
O165	0.05	0.06	0.12	0.18	0.06	0.05	0.14	0.12	0.03	0.07	0.13	0.09	0.09
O166	0.07	0.04	0.10	0.13	0.06	0.03	0.11	0.09	0.06	0.04	0.08	0.07	0.07
O167	0.07	0.05	0.12	0.15	0.07	0.09	0.02	0.03	0.03	0.11	0.26	0.09	0.09
O168	0.07	0.03	0.10	0.15	0.07	0.10	0.04	0.04	0.07	0.08	0.20	0.09	0.09
O169	0.07	0.04	0.08	0.17	0.08	0.07	0.03	0.05	0.08	0.08	0.21	0.09	0.09
O170	0.09	0.05	0.12	0.19	0.09	0.11	0.03	0.03	0.04	0.12	0.27	0.11	0.10
O171	0.07	0.05	0.06	0.09	0.07	0.06	0.06	0.06	0.08	0.04	0.14	0.07	0.07
O172	0.06	0.03	0.07	0.13	0.05	0.04	0.04	0.07	0.11	0.06	0.16	0.07	0.08
O173	0.12	0.06	0.12	0.12	0.06	0.04	0.02	0.11	0.10	0.05	0.21	0.09	0.09
O174	0.13	0.07	0.06	0.16	0.03	0.01	0.06	0.11	0.06	0.03	0.18	0.07	0.07
O175	0.08	0.07	0.06	0.08	0.03	0.02	0.04	0.04	0.04	0.04	0.03	0.05	0.04
O176	0.11	0.03	0.05	0.14	0.05	0.02	0.07	0.06	0.05	0.02	0.02	0.07	0.05
O177	0.07	0.07	0.07	0.08	0.04	0.06	0.07	0.03	0.01	0.16	0.11	0.07	0.07
O178	0.04	0.06	0.06	0.16	0.05	0.03	0.04	0.02	0.01	0.09	0.05	0.07	0.05
O179	0.09	0.07	0.03	0.07	0.04	0.03	0.03	0.03	0.02	0.14	0.08	0.06	0.06
O180	0.07	0.03	0.06	0.16	0.05	0.05	0.06	0.05	0.06	0.07	0.13	0.08	0.08
O181	0.05	0.06	0.03	0.17	0.05	0.01	0.06	0.01	0.03	0.17	0.06	0.08	0.07
O182	0.10	0.07	0.03	0.12	0.05	0.02	0.08	0.04	0.03	0.08	0.02	0.07	0.05
O183	0.09	0.07	0.03	0.06	0.05	0.04	0.09	0.05	0.03	0.08	0.03	0.05	0.05
O184	0.04	0.05	0.03	0.08	0.02	0.03	0.06	0.04	0.03	0.05	0.03	0.04	0.04

O185	0.03	0.04	0.05	0.05	0.03	0.04	0.06	0.06	0.06	0.04	0.02	0.04	0.05
O186	0.02	0.04	0.06	0.07	0.03	0.03	0.04	0.07	0.04	0.06	0.05	0.05	0.05
O187	0.05	0.05	0.02	0.13	0.03	0.06	0.09	0.05	0.15	0.02	0.10	0.07	0.08
O188	0.05	0.10	0.06	0.14	0.12	0.10	0.18	0.13	0.15	0.04	0.14	0.10	0.12
O189	0.05	0.10	0.06	0.18	0.07	0.06	0.10	0.06	0.06	0.03	0.15	0.09	0.08
O190	0.03	0.08	0.04	0.15	0.05	0.05	0.09	0.06	0.09	0.02	0.04	0.07	0.07
O191	0.03	0.08	0.07	0.22	0.06	0.04	0.07	0.06	0.04	0.04	0.13	0.09	0.07
O192	0.03	0.04	0.08	0.12	0.06	0.04	0.08	0.05	0.05	0.02	0.19	0.07	0.07
O193	0.01	0.05	0.03	0.06	0.04	0.04	0.08	0.05	0.08	0.01	0.07	0.04	0.05
O194	0.03	0.08	0.07	0.04	0.08	0.06	0.09	0.08	0.14	0.03	0.05	0.06	0.07
O195	0.06	0.09	0.07	0.05	0.11	0.07	0.14	0.20	0.14	0.08	0.08	0.08	0.11
O196	0.06	0.09	0.07	0.11	0.08	0.04	0.12	0.15	0.07	0.10	0.10	0.08	0.09
O197	0.07	0.08	0.09	0.13	0.05	0.04	0.10	0.07	0.07	0.09	0.12	0.08	0.08
O198	0.19	0.03	0.10	0.35	0.05	0.05	0.14	0.08	0.02	0.03	0.15	0.13	0.09
O199	0.10	0.05	0.12	0.31	0.03	0.04	0.09	0.07	0.06	0.02	0.15	0.12	0.08
O200	0.04	0.07	0.07	0.14	0.03	0.05	0.12	0.10	0.18	0.01	0.13	0.08	0.09
O201	0.04	0.06	0.02	0.06	0.03	0.04	0.06	0.08	0.13	0.02	0.05	0.05	0.06
O202	0.02	0.07	0.03	0.12	0.02	0.04	0.08	0.09	0.10	0.10	0.13	0.06	0.08
O203	0.03	0.02	0.04	0.08	0.03	0.03	0.05	0.05	0.08	0.10	0.11	0.05	0.07
O204	0.04	0.12	0.03	0.14	0.04	0.05	0.10	0.10	0.06	0.04	0.05	0.07	0.07
O205	0.04	0.12	0.03	0.13	0.08	0.07	0.14	0.10	0.07	0.05	0.06	0.08	0.08
O206	0.02	0.11	0.07	0.03	0.03	0.02	0.04	0.03	0.02	0.05	0.05	0.04	0.03
O207	0.06	0.17	0.11	0.06	0.03	0.03	0.06	0.06	0.07	0.07	0.10	0.07	0.06
O208	0.05	0.17	0.12	0.08	0.05	0.06	0.10	0.08	0.13	0.08	0.13	0.09	0.09
O209	0.03	0.17	0.14	0.13	0.03	0.07	0.12	0.09	0.15	0.12	0.17	0.10	0.11
O210	0.03	0.15	0.11	0.18	0.02	0.06	0.10	0.09	0.15	0.12	0.18	0.11	0.11
O211	0.07	0.13	0.08	0.10	0.04	0.04	0.09	0.08	0.08	0.08	0.10	0.08	0.08
O212	0.09	0.06	0.10	0.09	0.01	0.05	0.08	0.09	0.12	0.07	0.11	0.07	0.08
O213	0.09	0.02	0.11	0.15	0.02	0.04	0.06	0.07	0.14	0.04	0.14	0.08	0.08
O214	0.09	0.03	0.05	0.08	0.04	0.03	0.05	0.04	0.07	0.16	0.23	0.06	0.09
O215	0.06	0.03	0.15	0.17	0.03	0.04	0.09	0.07	0.05	0.11	0.20	0.09	0.09
O216	0.05	0.02	0.05	0.04	0.04	0.03	0.04	0.03	0.05	0.09	0.08	0.04	0.05
O217	0.06	0.03	0.09	0.14	0.06	0.05	0.09	0.06	0.07	0.14	0.21	0.08	0.10
O218	0.04	0.01	0.10	0.17	0.03	0.03	0.03	0.04	0.12	0.07	0.15	0.08	0.08
O219	0.06	0.02	0.12	0.20	0.04	0.05	0.10	0.06	0.07	0.12	0.19	0.10	0.10
O220	0.09	0.08	0.06	0.13	0.02	0.02	0.03	0.02	0.02	0.10	0.10	0.07	0.05
O221	0.06	0.02	0.14	0.22	0.04	0.06	0.10	0.06	0.07	0.14	0.18	0.11	0.10
O222	0.07	0.03	0.13	0.09	0.04	0.03	0.02	0.04	0.03	0.12	0.12	0.07	0.06
O223	0.04	0.02	0.04	0.11	0.02	0.03	0.04	0.03	0.02	0.09	0.11	0.05	0.05
O224	0.13	0.05	0.05	0.07	0.04	0.03	0.08	0.05	0.05	0.07	0.07	0.06	0.06
O225	0.12	0.05	0.05	0.07	0.03	0.03	0.09	0.07	0.06	0.10	0.13	0.06	0.07
O226	0.05	0.06	0.11	0.08	0.04	0.03	0.09	0.07	0.06	0.10	0.12	0.06	0.07
O227	0.06	0.04	0.09	0.11	0.03	0.03	0.12	0.10	0.08	0.08	0.13	0.07	0.08
O228	0.03	0.03	0.15	0.11	0.04	0.02	0.13	0.12	0.07	0.09	0.17	0.07	0.09

O229	0.17	0.18	0.17	0.18	0.08	0.13	0.07	0.13	0.04	0.19	0.14	0.14	0.12
O230	0.12	0.16	0.17	0.23	0.08	0.14	0.11	0.18	0.04	0.19	0.16	0.15	0.14
O231	0.17	0.19	0.21	0.08	0.05	0.07	0.05	0.06	0.06	0.19	0.16	0.12	0.09
O232	0.11	0.22	0.26	0.18	0.08	0.03	0.10	0.10	0.10	0.20	0.16	0.15	0.12
O233	0.04	0.09	0.15	0.13	0.04	0.03	0.13	0.12	0.04	0.08	0.18	0.08	0.09
O234	0.06	0.18	0.16	0.22	0.06	0.04	0.13	0.13	0.14	0.12	0.08	0.13	0.12
O235	0.04	0.16	0.09	0.19	0.04	0.04	0.08	0.08	0.14	0.09	0.14	0.10	0.10
O236	0.04	0.09	0.03	0.18	0.04	0.05	0.11	0.08	0.11	0.13	0.20	0.09	0.11
O237	0.13	0.24	0.27	0.18	0.09	0.03	0.09	0.09	0.10	0.23	0.17	0.16	0.13
O238	0.14	0.24	0.26	0.17	0.10	0.05	0.09	0.10	0.10	0.25	0.18	0.16	0.13
O239	0.18	0.22	0.24	0.12	0.07	0.08	0.05	0.08	0.07	0.23	0.19	0.14	0.12
O240	0.09	0.16	0.21	0.20	0.08	0.15	0.08	0.14	0.06	0.18	0.17	0.15	0.13
O241	0.14	0.13	0.08	0.36	0.19	0.23	0.12	0.29	0.16	0.04	0.08	0.19	0.17
O242	0.13	0.10	0.09	0.19	0.13	0.12	0.10	0.18	0.12	0.05	0.06	0.13	0.12
O243	0.18	0.15	0.13	0.31	0.13	0.21	0.10	0.24	0.12	0.07	0.09	0.18	0.15
O244	0.14	0.14	0.11	0.18	0.08	0.13	0.12	0.10	0.08	0.08	0.09	0.12	0.10
O245	0.09	0.06	0.03	0.27	0.09	0.11	0.16	0.12	0.15	0.11	0.13	0.13	0.14
O246	0.07	0.09	0.07	0.27	0.10	0.11	0.15	0.12	0.11	0.13	0.12	0.13	0.13
O247	0.09	0.11	0.05	0.34	0.13	0.09	0.15	0.14	0.09	0.11	0.10	0.15	0.14
O248	0.06	0.08	0.08	0.40	0.15	0.10	0.15	0.15	0.08	0.09	0.11	0.17	0.14
O249	0.14	0.09	0.09	0.39	0.17	0.12	0.16	0.19	0.09	0.08	0.11	0.18	0.15
O250	0.21	0.17	0.07	0.33	0.17	0.21	0.16	0.26	0.14	0.03	0.12	0.18	0.16
O251	0.05	0.12	0.06	0.06	0.04	0.03	0.08	0.07	0.06	0.03	0.05	0.06	0.05
O252	0.04	0.11	0.05	0.10	0.03	0.04	0.05	0.06	0.07	0.08	0.08	0.06	0.06
O253	0.02	0.05	0.03	0.10	0.06	0.06	0.10	0.08	0.15	0.12	0.15	0.07	0.11
O254	0.02	0.12	0.09	0.14	0.04	0.07	0.14	0.10	0.16	0.12	0.17	0.10	0.12
O255	0.05	0.15	0.11	0.06	0.05	0.05	0.09	0.08	0.12	0.08	0.11	0.08	0.08
O256	0.07	0.16	0.11	0.05	0.04	0.03	0.07	0.06	0.07	0.03	0.07	0.07	0.05
O257	0.08	0.02	0.04	0.15	0.08	0.07	0.05	0.21	0.12	0.02	0.05	0.08	0.09
O258	0.08	0.03	0.09	0.28	0.15	0.15	0.07	0.29	0.19	0.04	0.07	0.15	0.15
O259	0.23	0.10	0.14	0.35	0.16	0.20	0.13	0.29	0.20	0.06	0.12	0.20	0.18
O260	0.22	0.08	0.10	0.29	0.12	0.16	0.12	0.28	0.18	0.08	0.12	0.17	0.16
O261	0.26	0.13	0.15	0.36	0.17	0.23	0.17	0.32	0.22	0.08	0.19	0.22	0.21
O262	0.27	0.13	0.19	0.40	0.19	0.23	0.16	0.32	0.22	0.06	0.17	0.23	0.21
O263	0.25	0.12	0.24	0.43	0.21	0.25	0.14	0.32	0.21	0.09	0.18	0.25	0.21
O264	0.27	0.15	0.27	0.43	0.22	0.26	0.16	0.32	0.21	0.10	0.21	0.26	0.23
O265	0.23	0.13	0.22	0.42	0.21	0.25	0.18	0.35	0.23	0.09	0.24	0.25	0.23
O266	0.20	0.12	0.19	0.39	0.19	0.25	0.19	0.37	0.24	0.09	0.27	0.23	0.24
O267	0.26	0.03	0.04	0.17	0.16	0.23	0.18	0.37	0.20	0.16	0.23	0.15	0.21
O268	0.24	0.07	0.05	0.24	0.12	0.20	0.16	0.27	0.15	0.15	0.22	0.15	0.18
O269	0.24	0.11	0.04	0.28	0.13	0.21	0.18	0.32	0.20	0.15	0.25	0.17	0.21
O270	0.19	0.12	0.14	0.35	0.17	0.24	0.19	0.36	0.24	0.12	0.27	0.21	0.23
O271	0.11	0.07	0.20	0.38	0.20	0.25	0.20	0.41	0.26	0.14	0.32	0.22	0.26
O272	0.10	0.03	0.24	0.41	0.22	0.25	0.20	0.43	0.26	0.17	0.32	0.24	0.27

O273	0.11	0.05	0.30	0.44	0.23	0.23	0.19	0.37	0.22	0.18	0.25	0.25	0.25
O274	0.09	0.06	0.34	0.45	0.25	0.19	0.17	0.28	0.15	0.21	0.20	0.26	0.23
O275	0.07	0.06	0.38	0.45	0.25	0.16	0.14	0.25	0.11	0.26	0.19	0.26	0.22
O276	0.05	0.06	0.39	0.38	0.21	0.11	0.11	0.19	0.07	0.27	0.18	0.23	0.19
O277	0.10	0.04	0.36	0.33	0.18	0.08	0.09	0.13	0.06	0.25	0.17	0.20	0.16
O278	0.09	0.15	0.37	0.32	0.20	0.05	0.07	0.25	0.09	0.24	0.16	0.21	0.17
O279	0.29	0.27	0.27	0.27	0.07	0.07	0.06	0.18	0.04	0.16	0.13	0.18	0.12
O280	0.13	0.28	0.28	0.28	0.05	0.15	0.14	0.22	0.02	0.15	0.13	0.18	0.13
O281	0.29	0.27	0.21	0.25	0.03	0.10	0.09	0.15	0.04	0.15	0.12	0.17	0.11
O282	0.26	0.26	0.23	0.17	0.03	0.04	0.03	0.06	0.06	0.13	0.10	0.14	0.08
O283	0.25	0.27	0.21	0.12	0.04	0.04	0.03	0.07	0.07	0.13	0.10	0.13	0.08
O284	0.29	0.28	0.18	0.21	0.03	0.11	0.10	0.08	0.06	0.14	0.11	0.15	0.10
O285	0.19	0.29	0.21	0.26	0.03	0.16	0.15	0.16	0.03	0.13	0.11	0.17	0.12
O286	0.20	0.29	0.18	0.19	0.08	0.17	0.17	0.08	0.03	0.10	0.10	0.16	0.11
O287	0.28	0.26	0.15	0.14	0.05	0.13	0.13	0.06	0.06	0.12	0.09	0.14	0.09
O288	0.27	0.22	0.10	0.07	0.04	0.06	0.06	0.10	0.07	0.13	0.09	0.10	0.08
O289	0.27	0.17	0.08	0.04	0.04	0.06	0.07	0.11	0.07	0.13	0.09	0.09	0.08
O290	0.28	0.23	0.14	0.07	0.08	0.12	0.14	0.05	0.06	0.10	0.08	0.12	0.09
O291	0.23	0.26	0.18	0.10	0.13	0.18	0.17	0.03	0.03	0.07	0.08	0.15	0.09
O292	0.10	0.27	0.18	0.23	0.08	0.17	0.17	0.14	0.02	0.09	0.10	0.16	0.12
O293	0.08	0.27	0.28	0.28	0.05	0.17	0.16	0.23	0.03	0.14	0.13	0.18	0.14
O294	0.05	0.26	0.22	0.26	0.06	0.18	0.17	0.21	0.03	0.11	0.12	0.16	0.13
O295	0.02	0.23	0.17	0.24	0.10	0.18	0.16	0.19	0.04	0.06	0.11	0.15	0.13
O296	0.09	0.26	0.18	0.18	0.13	0.18	0.16	0.08	0.03	0.05	0.09	0.15	0.10
O297	0.19	0.27	0.19	0.12	0.14	0.19	0.17	0.03	0.02	0.06	0.09	0.15	0.09
O298	0.23	0.23	0.18	0.07	0.15	0.18	0.18	0.02	0.03	0.06	0.07	0.14	0.09
O299	0.26	0.21	0.14	0.05	0.12	0.15	0.16	0.04	0.05	0.08	0.07	0.12	0.09
O300	0.23	0.15	0.07	0.13	0.17	0.19	0.19	0.05	0.06	0.07	0.06	0.14	0.11
O301	0.18	0.14	0.16	0.27	0.15	0.16	0.16	0.21	0.12	0.07	0.04	0.17	0.14
O302	0.18	0.23	0.22	0.27	0.10	0.13	0.13	0.24	0.15	0.06	0.02	0.18	0.13
O303	0.20	0.25	0.21	0.31	0.11	0.08	0.12	0.23	0.16	0.10	0.02	0.19	0.14
O304	0.13	0.16	0.18	0.27	0.17	0.14	0.15	0.21	0.13	0.05	0.02	0.17	0.14
O305	0.14	0.20	0.24	0.25	0.20	0.14	0.14	0.21	0.13	0.03	0.02	0.19	0.13
O306	0.22	0.26	0.22	0.31	0.17	0.11	0.12	0.22	0.16	0.08	0.02	0.21	0.15
O307	0.26	0.25	0.22	0.26	0.07	0.07	0.10	0.22	0.16	0.12	0.02	0.18	0.13
O308	0.22	0.24	0.20	0.22	0.05	0.09	0.09	0.22	0.16	0.11	0.02	0.16	0.12
O309	0.05	0.10	0.15	0.19	0.08	0.10	0.16	0.20	0.03	0.12	0.18	0.12	0.13
O310	0.14	0.10	0.15	0.24	0.10	0.18	0.18	0.22	0.05	0.08	0.11	0.15	0.14
O311	0.19	0.13	0.09	0.27	0.11	0.22	0.19	0.25	0.07	0.07	0.07	0.16	0.15
O312	0.22	0.15	0.05	0.39	0.18	0.29	0.18	0.31	0.14	0.02	0.13	0.20	0.19
O313	0.22	0.12	0.07	0.42	0.21	0.23	0.14	0.29	0.15	0.03	0.15	0.21	0.18
O314	0.22	0.09	0.07	0.43	0.17	0.14	0.11	0.20	0.08	0.06	0.16	0.19	0.15
O315	0.21	0.08	0.13	0.44	0.18	0.17	0.05	0.20	0.11	0.13	0.19	0.21	0.17
O316	0.26	0.14	0.33	0.42	0.20	0.24	0.11	0.21	0.15	0.15	0.21	0.26	0.20

O317	0.25	0.16	0.39	0.41	0.20	0.26	0.16	0.22	0.12	0.18	0.24	0.27	0.21
O318	0.17	0.12	0.35	0.33	0.16	0.24	0.17	0.19	0.10	0.15	0.19	0.22	0.18
O319	0.07	0.17	0.21	0.22	0.13	0.22	0.17	0.12	0.14	0.06	0.15	0.17	0.14
O320	0.04	0.21	0.12	0.21	0.13	0.18	0.15	0.19	0.06	0.03	0.11	0.14	0.12
O321	0.14	0.21	0.18	0.14	0.14	0.19	0.16	0.05	0.04	0.04	0.08	0.14	0.09
O322	0.16	0.19	0.15	0.25	0.15	0.20	0.18	0.06	0.03	0.03	0.06	0.17	0.11
O323	0.17	0.14	0.11	0.26	0.13	0.20	0.19	0.09	0.07	0.06	0.04	0.16	0.12
O324	0.27	0.19	0.15	0.14	0.10	0.15	0.20	0.24	0.11	0.11	0.05	0.15	0.14
O325	0.26	0.12	0.23	0.10	0.07	0.12	0.23	0.16	0.09	0.09	0.06	0.13	0.11
O326	0.30	0.23	0.21	0.22	0.16	0.15	0.15	0.24	0.10	0.11	0.06	0.19	0.14
O327	0.15	0.17	0.20	0.21	0.14	0.20	0.06	0.12	0.07	0.08	0.07	0.17	0.11
O328	0.22	0.12	0.12	0.23	0.07	0.17	0.05	0.10	0.07	0.11	0.06	0.14	0.10
O329	0.06	0.13	0.13	0.25	0.07	0.08	0.02	0.10	0.01	0.06	0.08	0.12	0.08
O330	0.07	0.13	0.14	0.24	0.10	0.11	0.02	0.04	0.01	0.07	0.05	0.13	0.07
O331	0.04	0.11	0.12	0.22	0.05	0.07	0.03	0.06	0.04	0.05	0.02	0.10	0.06
O332	0.10	0.06	0.06	0.22	0.03	0.04	0.07	0.11	0.02	0.05	0.01	0.09	0.06
O333	0.11	0.11	0.08	0.20	0.03	0.01	0.06	0.13	0.05	0.05	0.04	0.09	0.07
O334	0.13	0.15	0.13	0.13	0.06	0.01	0.10	0.18	0.08	0.03	0.01	0.09	0.07
O335	0.15	0.13	0.14	0.07	0.05	0.05	0.10	0.13	0.08	0.10	0.02	0.09	0.08
O336	0.11	0.13	0.02	0.06	0.03	0.07	0.08	0.11	0.09	0.02	0.05	0.06	0.06
O337	0.10	0.12	0.13	0.02	0.02	0.08	0.09	0.06	0.08	0.05	0.09	0.06	0.06
O338	0.13	0.15	0.17	0.02	0.06	0.13	0.14	0.16	0.06	0.03	0.09	0.09	0.08
O339	0.06	0.09	0.05	0.03	0.01	0.05	0.05	0.03	0.04	0.02	0.09	0.04	0.04
O340	0.08	0.11	0.07	0.02	0.02	0.05	0.04	0.05	0.03	0.03	0.09	0.05	0.04
O341	0.07	0.06	0.08	0.03	0.03	0.06	0.08	0.09	0.04	0.02	0.13	0.05	0.06
O342	0.12	0.07	0.10	0.04	0.04	0.07	0.11	0.12	0.05	0.01	0.07	0.06	0.06
O343	0.13	0.12	0.15	0.04	0.06	0.06	0.11	0.10	0.04	0.04	0.03	0.08	0.06
O344	0.10	0.10	0.11	0.03	0.06	0.06	0.08	0.08	0.07	0.07	0.03	0.07	0.06
O345	0.10	0.10	0.10	0.05	0.02	0.04	0.12	0.18	0.10	0.08	0.09	0.07	0.09
O346	0.05	0.17	0.24	0.02	0.02	0.02	0.05	0.05	0.02	0.05	0.03	0.07	0.03
O347	0.14	0.18	0.24	0.06	0.04	0.04	0.06	0.09	0.03	0.04	0.10	0.09	0.05
O348	0.07	0.17	0.22	0.06	0.02	0.06	0.06	0.08	0.05	0.11	0.06	0.09	0.07
O349	0.12	0.13	0.15	0.05	0.03	0.02	0.06	0.08	0.02	0.03	0.04	0.07	0.04
O350	0.13	0.12	0.13	0.01	0.03	0.03	0.06	0.10	0.04	0.05	0.03	0.06	0.05
O351	0.08	0.11	0.13	0.01	0.02	0.02	0.06	0.10	0.04	0.03	0.01	0.05	0.04
O352	0.05	0.15	0.16	0.01	0.02	0.01	0.07	0.12	0.05	0.04	0.03	0.06	0.05
O353	0.13	0.16	0.18	0.05	0.03	0.02	0.11	0.11	0.08	0.06	0.02	0.08	0.06
O354	0.07	0.17	0.21	0.07	0.05	0.04	0.07	0.06	0.03	0.08	0.02	0.09	0.05
O355	0.07	0.13	0.18	0.08	0.05	0.05	0.03	0.12	0.04	0.07	0.02	0.09	0.06
O356	0.11	0.18	0.16	0.15	0.04	0.02	0.09	0.11	0.05	0.05	0.01	0.10	0.06
O357	0.11	0.17	0.16	0.12	0.07	0.03	0.04	0.14	0.06	0.06	0.01	0.10	0.07
O358	0.07	0.14	0.16	0.06	0.05	0.06	0.10	0.12	0.07	0.10	0.02	0.09	0.07
O359	0.11	0.06	0.05	0.06	0.02	0.03	0.07	0.07	0.07	0.07	0.09	0.05	0.06
O360	0.10	0.08	0.05	0.02	0.02	0.04	0.05	0.05	0.01	0.02	0.08	0.04	0.03

O361	0.15	0.16	0.10	0.02	0.03	0.06	0.02	0.06	0.06	0.01	0.15	0.06	0.05
O362	0.13	0.11	0.12	0.02	0.04	0.04	0.04	0.06	0.07	0.05	0.13	0.06	0.06
O363	0.12	0.08	0.20	0.03	0.02	0.03	0.04	0.05	0.09	0.04	0.06	0.07	0.05
O364	0.11	0.07	0.12	0.02	0.05	0.05	0.02	0.07	0.04	0.07	0.07	0.06	0.05
O365	0.09	0.06	0.09	0.03	0.03	0.05	0.02	0.10	0.09	0.07	0.04	0.06	0.06
O366	0.05	0.02	0.04	0.05	0.05	0.07	0.02	0.07	0.04	0.05	0.02	0.05	0.04
O367	0.05	0.04	0.08	0.06	0.04	0.05	0.06	0.10	0.06	0.04	0.03	0.05	0.05
O368	0.05	0.03	0.11	0.06	0.06	0.07	0.04	0.11	0.03	0.05	0.03	0.06	0.06
O369	0.04	0.04	0.08	0.06	0.09	0.07	0.04	0.08	0.09	0.07	0.04	0.07	0.07
O370	0.07	0.05	0.11	0.03	0.02	0.03	0.04	0.18	0.11	0.04	0.04	0.05	0.06
O371	0.03	0.06	0.15	0.02	0.01	0.01	0.07	0.19	0.12	0.05	0.06	0.05	0.07
O372	0.09	0.08	0.10	0.05	0.03	0.03	0.10	0.20	0.12	0.05	0.06	0.06	0.08
O373	0.21	0.21	0.13	0.05	0.03	0.04	0.10	0.21	0.11	0.02	0.07	0.09	0.08
O374	0.20	0.15	0.06	0.04	0.03	0.03	0.11	0.19	0.10	0.05	0.08	0.07	0.08
O375	0.13	0.08	0.12	0.13	0.06	0.05	0.13	0.23	0.09	0.07	0.07	0.09	0.10
O376	0.08	0.15	0.12	0.13	0.06	0.06	0.10	0.15	0.07	0.06	0.05	0.09	0.08
O377	0.04	0.17	0.12	0.13	0.10	0.09	0.06	0.11	0.06	0.04	0.07	0.10	0.08
O378	0.05	0.14	0.12	0.16	0.04	0.04	0.05	0.07	0.02	0.03	0.03	0.09	0.05
O379	0.01	0.15	0.10	0.02	0.03	0.04	0.01	0.05	0.03	0.05	0.01	0.05	0.03
O380	0.05	0.13	0.10	0.09	0.03	0.04	0.03	0.03	0.02	0.09	0.01	0.07	0.04
O381	0.09	0.10	0.16	0.05	0.08	0.05	0.04	0.04	0.02	0.12	0.03	0.08	0.06
O382	0.12	0.15	0.19	0.18	0.11	0.18	0.06	0.22	0.04	0.19	0.07	0.15	0.13
O383	0.07	0.09	0.09	0.04	0.07	0.07	0.01	0.06	0.05	0.03	0.05	0.06	0.05
O384	0.02	0.04	0.07	0.05	0.07	0.07	0.01	0.06	0.05	0.04	0.01	0.05	0.05
O385	0.06	0.06	0.14	0.01	0.06	0.07	0.01	0.01	0.05	0.04	0.01	0.06	0.03
O386	0.05	0.09	0.14	0.06	0.04	0.05	0.03	0.01	0.04	0.07	0.01	0.07	0.04
O387	0.07	0.08	0.11	0.06	0.03	0.03	0.06	0.15	0.09	0.06	0.06	0.06	0.07
O388	0.07	0.08	0.08	0.13	0.04	0.03	0.04	0.11	0.08	0.07	0.07	0.08	0.07
O389	0.12	0.12	0.07	0.15	0.07	0.04	0.10	0.18	0.10	0.07	0.04	0.10	0.09
O390	0.10	0.09	0.07	0.12	0.07	0.04	0.09	0.19	0.10	0.06	0.03	0.08	0.09
O391	0.20	0.15	0.14	0.08	0.15	0.07	0.08	0.16	0.09	0.13	0.04	0.12	0.11
O392	0.04	0.06	0.11	0.04	0.06	0.06	0.10	0.08	0.04	0.02	0.03	0.06	0.05
O393	0.13	0.02	0.10	0.05	0.05	0.02	0.11	0.05	0.02	0.03	0.04	0.05	0.04
O394	0.16	0.06	0.23	0.04	0.06	0.05	0.07	0.15	0.08	0.02	0.05	0.09	0.07
O395	0.07	0.06	0.14	0.08	0.14	0.12	0.09	0.19	0.13	0.05	0.08	0.10	0.11
O396	0.04	0.06	0.21	0.07	0.08	0.08	0.03	0.11	0.11	0.04	0.05	0.09	0.07
O397	0.14	0.03	0.07	0.06	0.18	0.15	0.08	0.26	0.18	0.07	0.07	0.11	0.13
O398	0.15	0.05	0.14	0.15	0.22	0.20	0.08	0.24	0.17	0.13	0.08	0.16	0.16
O399	0.08	0.09	0.23	0.20	0.16	0.09	0.03	0.11	0.05	0.14	0.10	0.15	0.11
O400	0.16	0.12	0.16	0.15	0.16	0.07	0.04	0.10	0.04	0.14	0.08	0.13	0.10
O401	0.25	0.19	0.18	0.10	0.17	0.08	0.07	0.16	0.07	0.15	0.06	0.14	0.11
O402	0.24	0.14	0.14	0.11	0.18	0.11	0.06	0.09	0.05	0.14	0.03	0.14	0.10
O403	0.10	0.05	0.05	0.12	0.17	0.13	0.07	0.20	0.14	0.13	0.02	0.11	0.13
O404	0.25	0.20	0.17	0.13	0.13	0.12	0.05	0.15	0.12	0.12	0.02	0.15	0.11

O405	0.34	0.19	0.13	0.07	0.03	0.02	0.02	0.05	0.06	0.11	0.02	0.10	0.05
O406	0.20	0.10	0.15	0.08	0.04	0.06	0.02	0.06	0.08	0.12	0.06	0.10	0.07
O407	0.17	0.17	0.24	0.11	0.02	0.02	0.01	0.06	0.09	0.08	0.08	0.11	0.06
O408	0.15	0.14	0.17	0.09	0.09	0.10	0.05	0.13	0.11	0.07	0.04	0.11	0.09
O409	0.12	0.11	0.14	0.27	0.11	0.17	0.15	0.24	0.11	0.17	0.02	0.16	0.15
O410	0.05	0.06	0.05	0.25	0.08	0.09	0.05	0.15	0.09	0.19	0.03	0.12	0.12
O411	0.08	0.13	0.15	0.25	0.14	0.19	0.07	0.23	0.06	0.23	0.05	0.16	0.15
O412	0.07	0.23	0.05	0.08	0.09	0.12	0.10	0.09	0.10	0.26	0.06	0.11	0.12
O413	0.13	0.29	0.08	0.06	0.09	0.12	0.14	0.15	0.10	0.28	0.11	0.12	0.14
O414	0.11	0.22	0.09	0.10	0.11	0.09	0.15	0.17	0.12	0.30	0.17	0.13	0.16
O415	0.04	0.10	0.06	0.08	0.09	0.10	0.14	0.18	0.14	0.25	0.17	0.10	0.15
O416	0.13	0.21	0.17	0.06	0.04	0.05	0.19	0.25	0.18	0.11	0.12	0.11	0.13
O417	0.10	0.12	0.06	0.06	0.06	0.06	0.22	0.30	0.18	0.10	0.03	0.08	0.13
O418	0.07	0.03	0.03	0.05	0.10	0.12	0.17	0.21	0.08	0.14	0.08	0.07	0.12
O419	0.11	0.26	0.07	0.10	0.16	0.15	0.15	0.14	0.09	0.32	0.21	0.14	0.17
O420	0.15	0.33	0.04	0.07	0.07	0.04	0.18	0.16	0.18	0.31	0.27	0.12	0.17
O421	0.16	0.36	0.06	0.06	0.02	0.01	0.20	0.19	0.18	0.19	0.21	0.10	0.14
O422	0.11	0.34	0.04	0.09	0.03	0.10	0.14	0.12	0.11	0.15	0.22	0.10	0.12
O423	0.05	0.32	0.05	0.02	0.03	0.04	0.11	0.11	0.03	0.11	0.05	0.07	0.07
O424	0.07	0.15	0.10	0.07	0.03	0.11	0.09	0.07	0.13	0.12	0.14	0.09	0.10
O425	0.10	0.13	0.05	0.04	0.03	0.06	0.08	0.04	0.10	0.13	0.12	0.07	0.08
O426	0.06	0.05	0.13	0.08	0.03	0.11	0.07	0.06	0.12	0.10	0.10	0.08	0.09
O427	0.12	0.05	0.08	0.03	0.05	0.07	0.06	0.03	0.13	0.15	0.12	0.07	0.09
O428	0.10	0.24	0.05	0.12	0.07	0.12	0.16	0.16	0.10	0.19	0.23	0.11	0.14
O429	0.10	0.22	0.05	0.12	0.05	0.09	0.15	0.16	0.09	0.17	0.26	0.10	0.13
O430	0.12	0.18	0.04	0.07	0.01	0.01	0.04	0.09	0.02	0.12	0.23	0.06	0.07
O431	0.07	0.18	0.06	0.03	0.19	0.17	0.26	0.22	0.03	0.11	0.24	0.10	0.15
O432	0.06	0.25	0.19	0.06	0.23	0.20	0.25	0.23	0.03	0.15	0.27	0.15	0.17
O433	0.08	0.13	0.11	0.10	0.23	0.18	0.21	0.19	0.08	0.07	0.29	0.13	0.16
O434	0.06	0.23	0.21	0.10	0.08	0.07	0.13	0.16	0.05	0.15	0.29	0.12	0.12
O435	0.08	0.23	0.10	0.10	0.02	0.02	0.05	0.15	0.05	0.15	0.27	0.09	0.10
O436	0.09	0.22	0.10	0.12	0.04	0.06	0.10	0.16	0.07	0.16	0.27	0.10	0.12
O437	0.08	0.23	0.20	0.13	0.03	0.05	0.07	0.17	0.05	0.16	0.29	0.11	0.12
O438	0.08	0.11	0.08	0.12	0.05	0.04	0.08	0.13	0.07	0.10	0.29	0.08	0.10
O439	0.08	0.10	0.08	0.12	0.18	0.13	0.16	0.18	0.09	0.04	0.28	0.11	0.14
O440	0.06	0.16	0.09	0.14	0.15	0.10	0.15	0.23	0.10	0.08	0.26	0.12	0.14
O441	0.09	0.11	0.06	0.14	0.07	0.04	0.09	0.18	0.08	0.03	0.26	0.08	0.10
O442	0.05	0.08	0.04	0.14	0.04	0.05	0.04	0.11	0.06	0.09	0.26	0.07	0.09
O443	0.09	0.21	0.19	0.15	0.05	0.09	0.08	0.14	0.06	0.19	0.27	0.12	0.12
O444	0.06	0.21	0.14	0.14	0.05	0.10	0.14	0.15	0.09	0.18	0.26	0.12	0.14
O445	0.06	0.23	0.17	0.13	0.07	0.11	0.15	0.17	0.10	0.19	0.22	0.13	0.14
O446	0.05	0.07	0.07	0.14	0.07	0.10	0.05	0.09	0.06	0.20	0.22	0.10	0.12
O447	0.03	0.07	0.04	0.13	0.06	0.07	0.05	0.08	0.06	0.10	0.20	0.08	0.09
O448	0.07	0.11	0.03	0.13	0.04	0.03	0.13	0.20	0.08	0.05	0.19	0.07	0.10

O449	0.06	0.08	0.05	0.13	0.10	0.10	0.21	0.30	0.12	0.16	0.21	0.10	0.17
O450	0.11	0.27	0.23	0.04	0.14	0.17	0.21	0.27	0.13	0.19	0.08	0.15	0.16
O451	0.12	0.27	0.23	0.01	0.06	0.11	0.19	0.15	0.12	0.12	0.12	0.11	0.11
O452	0.10	0.25	0.24	0.02	0.10	0.13	0.17	0.18	0.10	0.09	0.03	0.12	0.10
O453	0.28	0.19	0.23	0.01	0.03	0.07	0.06	0.10	0.12	0.02	0.14	0.10	0.07
O454	0.17	0.06	0.18	0.01	0.04	0.03	0.03	0.05	0.08	0.03	0.10	0.07	0.05
O455	0.08	0.06	0.31	0.02	0.02	0.03	0.04	0.06	0.09	0.08	0.05	0.08	0.05
O456	0.16	0.05	0.30	0.14	0.06	0.04	0.05	0.04	0.06	0.08	0.02	0.12	0.06
O457	0.15	0.06	0.18	0.13	0.05	0.05	0.05	0.14	0.10	0.06	0.06	0.10	0.08
O458	0.06	0.04	0.28	0.19	0.08	0.07	0.10	0.10	0.09	0.05	0.05	0.12	0.09
O459	0.15	0.05	0.38	0.20	0.08	0.09	0.06	0.08	0.05	0.02	0.04	0.15	0.07
O460	0.07	0.05	0.31	0.22	0.09	0.06	0.03	0.05	0.04	0.08	0.03	0.14	0.07
O461	0.06	0.03	0.13	0.22	0.11	0.08	0.04	0.07	0.06	0.05	0.03	0.11	0.08
O462	0.10	0.07	0.11	0.13	0.10	0.04	0.08	0.13	0.08	0.03	0.03	0.09	0.07
O463	0.07	0.08	0.12	0.19	0.06	0.05	0.09	0.14	0.08	0.06	0.03	0.10	0.08
O464	0.18	0.12	0.24	0.36	0.13	0.17	0.09	0.16	0.12	0.12	0.15	0.20	0.15
O465	0.20	0.12	0.32	0.38	0.15	0.20	0.08	0.14	0.13	0.13	0.19	0.23	0.17
O466	0.05	0.11	0.33	0.30	0.11	0.15	0.06	0.09	0.11	0.09	0.20	0.18	0.13
O467	0.12	0.09	0.20	0.35	0.05	0.07	0.04	0.06	0.08	0.05	0.18	0.15	0.10
O468	0.15	0.21	0.47	0.35	0.14	0.24	0.12	0.15	0.07	0.10	0.19	0.24	0.16
O469	0.15	0.09	0.22	0.29	0.06	0.07	0.06	0.08	0.07	0.04	0.15	0.15	0.09
O470	0.13	0.04	0.04	0.22	0.03	0.01	0.04	0.12	0.08	0.02	0.06	0.08	0.07
O471	0.07	0.04	0.06	0.21	0.09	0.05	0.08	0.14	0.11	0.05	0.01	0.10	0.09
O472	0.18	0.06	0.08	0.10	0.06	0.06	0.07	0.04	0.04	0.21	0.07	0.09	0.09
O473	0.20	0.05	0.03	0.08	0.06	0.05	0.09	0.06	0.04	0.20	0.07	0.08	0.09
O474	0.17	0.05	0.05	0.07	0.08	0.06	0.09	0.05	0.02	0.19	0.06	0.08	0.08
O475	0.18	0.05	0.08	0.04	0.10	0.05	0.12	0.11	0.01	0.20	0.04	0.08	0.09
O476	0.17	0.05	0.14	0.09	0.08	0.05	0.08	0.05	0.03	0.23	0.03	0.10	0.09
O477	0.19	0.05	0.21	0.07	0.10	0.05	0.07	0.05	0.03	0.24	0.02	0.11	0.09
O478	0.20	0.06	0.16	0.03	0.12	0.09	0.13	0.19	0.02	0.25	0.04	0.11	0.12
O479	0.17	0.08	0.14	0.03	0.12	0.14	0.16	0.22	0.02	0.29	0.05	0.11	0.14
O480	0.23	0.07	0.08	0.06	0.12	0.12	0.13	0.18	0.03	0.30	0.05	0.11	0.13
O481	0.21	0.04	0.11	0.05	0.09	0.07	0.09	0.06	0.07	0.10	0.03	0.09	0.07
O482	0.22	0.01	0.12	0.04	0.13	0.10	0.07	0.09	0.05	0.08	0.01	0.09	0.07
O483	0.22	0.06	0.08	0.05	0.11	0.18	0.16	0.24	0.05	0.09	0.04	0.10	0.11
O484	0.06	0.08	0.04	0.05	0.08	0.19	0.19	0.21	0.02	0.33	0.09	0.09	0.15
O485	0.02	0.07	0.16	0.09	0.10	0.15	0.10	0.05	0.04	0.32	0.06	0.12	0.12
O486	0.02	0.07	0.19	0.10	0.12	0.19	0.16	0.05	0.07	0.30	0.12	0.13	0.14
O487	0.13	0.02	0.21	0.09	0.14	0.22	0.21	0.24	0.11	0.12	0.04	0.13	0.15
O488	0.25	0.03	0.06	0.05	0.18	0.22	0.19	0.26	0.04	0.11	0.02	0.11	0.13
O489	0.26	0.09	0.04	0.10	0.20	0.21	0.20	0.24	0.12	0.11	0.07	0.14	0.15
O490	0.10	0.04	0.20	0.14	0.16	0.21	0.21	0.17	0.12	0.13	0.03	0.14	0.15
O491	0.02	0.07	0.22	0.14	0.12	0.18	0.12	0.04	0.08	0.26	0.20	0.14	0.14
O492	0.03	0.07	0.20	0.11	0.10	0.13	0.06	0.07	0.04	0.30	0.05	0.12	0.12

O493	0.06	0.09	0.22	0.12	0.10	0.14	0.07	0.07	0.07	0.30	0.14	0.13	0.13
O494	0.06	0.09	0.24	0.15	0.12	0.16	0.11	0.08	0.07	0.25	0.23	0.14	0.15
O495	0.08	0.07	0.17	0.10	0.16	0.20	0.17	0.06	0.04	0.05	0.02	0.12	0.09
O496	0.21	0.12	0.16	0.04	0.23	0.21	0.21	0.28	0.16	0.08	0.07	0.15	0.16
O497	0.24	0.12	0.28	0.01	0.26	0.20	0.18	0.21	0.11	0.03	0.12	0.16	0.14
O498	0.32	0.17	0.16	0.08	0.28	0.20	0.18	0.20	0.15	0.04	0.03	0.17	0.14
O499	0.38	0.14	0.19	0.03	0.25	0.19	0.18	0.23	0.10	0.02	0.10	0.16	0.13
O500	0.38	0.15	0.29	0.07	0.20	0.10	0.06	0.24	0.19	0.06	0.07	0.17	0.13
O501	0.26	0.18	0.38	0.09	0.24	0.04	0.06	0.22	0.18	0.04	0.12	0.18	0.13
O502	0.31	0.19	0.41	0.10	0.17	0.07	0.07	0.19	0.16	0.04	0.11	0.18	0.11
O503	0.31	0.16	0.26	0.08	0.24	0.10	0.07	0.11	0.07	0.03	0.17	0.16	0.11
O504	0.33	0.17	0.27	0.09	0.26	0.10	0.07	0.15	0.11	0.03	0.17	0.17	0.12
O505	0.36	0.20	0.29	0.06	0.19	0.10	0.10	0.17	0.15	0.05	0.19	0.17	0.13
O506	0.34	0.23	0.25	0.09	0.25	0.09	0.14	0.20	0.18	0.05	0.18	0.18	0.15
O507	0.24	0.14	0.19	0.09	0.28	0.12	0.08	0.18	0.13	0.03	0.14	0.16	0.13
O508	0.31	0.14	0.22	0.01	0.06	0.05	0.07	0.09	0.11	0.02	0.14	0.10	0.07
O509	0.39	0.15	0.22	0.04	0.06	0.05	0.08	0.13	0.10	0.03	0.08	0.11	0.07
O510	0.15	0.24	0.23	0.08	0.13	0.13	0.04	0.02	0.33	0.38	0.31	0.18	0.20
O511	0.03	0.16	0.13	0.05	0.15	0.09	0.16	0.11	0.18	0.06	0.03	0.10	0.11
O512	0.23	0.21	0.26	0.10	0.09	0.05	0.11	0.04	0.06	0.05	0.09	0.13	0.07
O513	0.12	0.27	0.29	0.15	0.19	0.04	0.10	0.02	0.09	0.20	0.09	0.17	0.12
O514	0.06	0.28	0.30	0.17	0.19	0.03	0.05	0.03	0.06	0.17	0.05	0.17	0.10
O515	0.12	0.13	0.13	0.06	0.03	0.08	0.13	0.11	0.37	0.33	0.39	0.13	0.21
O516	0.25	0.19	0.20	0.08	0.02	0.11	0.17	0.15	0.47	0.43	0.48	0.17	0.26
O517	0.16	0.27	0.27	0.15	0.22	0.16	0.03	0.04	0.32	0.30	0.53	0.22	0.23
O518	0.06	0.16	0.14	0.12	0.12	0.22	0.07	0.05	0.33	0.37	0.12	0.17	0.20
O519	0.06	0.19	0.15	0.11	0.08	0.12	0.05	0.04	0.24	0.24	0.25	0.13	0.15
O520	0.29	0.20	0.20	0.11	0.11	0.11	0.06	0.02	0.14	0.27	0.31	0.16	0.15
O521	0.16	0.29	0.26	0.14	0.15	0.07	0.05	0.03	0.07	0.14	0.33	0.16	0.12
O522	0.06	0.16	0.13	0.11	0.14	0.10	0.05	0.02	0.23	0.30	0.27	0.14	0.16
O523	0.01	0.19	0.16	0.15	0.17	0.10	0.03	0.02	0.16	0.21	0.45	0.15	0.16
O524	0.01	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.28	0.26	0.23	0.07	0.13
O525	0.02	0.04	0.04	0.04	0.04	0.09	0.02	0.05	0.26	0.25	0.27	0.08	0.14
O526	0.02	0.07	0.07	0.06	0.04	0.25	0.05	0.07	0.48	0.43	0.45	0.14	0.25
O527	0.05	0.05	0.07	0.08	0.06	0.21	0.04	0.05	0.39	0.35	0.13	0.13	0.19
O528	0.02	0.02	0.03	0.03	0.02	0.11	0.01	0.08	0.08	0.04	0.11	0.04	0.06
O529	0.08	0.20	0.19	0.11	0.07	0.10	0.08	0.09	0.31	0.25	0.22	0.14	0.17
O530	0.02	0.05	0.06	0.05	0.02	0.03	0.02	0.08	0.35	0.20	0.26	0.08	0.14
O531	0.15	0.21	0.20	0.13	0.07	0.03	0.02	0.08	0.39	0.24	0.29	0.16	0.17
O532	0.15	0.18	0.16	0.13	0.09	0.04	0.02	0.06	0.36	0.25	0.31	0.15	0.17
O533	0.16	0.17	0.17	0.07	0.05	0.08	0.04	0.03	0.11	0.24	0.15	0.12	0.11
O534	0.17	0.20	0.19	0.10	0.07	0.09	0.05	0.03	0.30	0.25	0.33	0.15	0.16
O535	0.19	0.21	0.20	0.06	0.05	0.11	0.10	0.04	0.22	0.29	0.24	0.14	0.15
O536	0.18	0.20	0.19	0.06	0.07	0.09	0.12	0.05	0.19	0.26	0.15	0.13	0.14

O537	0.20	0.22	0.22	0.06	0.07	0.13	0.13	0.06	0.24	0.33	0.15	0.15	0.16
O538	0.24	0.24	0.25	0.08	0.07	0.14	0.13	0.06	0.30	0.34	0.18	0.18	0.18
O539	0.16	0.19	0.18	0.09	0.08	0.15	0.12	0.06	0.32	0.42	0.17	0.17	0.20
O540	0.24	0.23	0.23	0.06	0.07	0.15	0.15	0.06	0.35	0.33	0.22	0.17	0.19
O541	0.10	0.10	0.09	0.03	0.10	0.11	0.14	0.08	0.32	0.31	0.22	0.12	0.18
O542	0.13	0.12	0.12	0.06	0.12	0.14	0.17	0.08	0.33	0.35	0.21	0.14	0.20
O543	0.20	0.21	0.20	0.04	0.07	0.16	0.15	0.07	0.31	0.34	0.20	0.16	0.19
O544	0.19	0.20	0.19	0.03	0.08	0.15	0.15	0.07	0.27	0.33	0.17	0.15	0.17
O545	0.16	0.16	0.15	0.03	0.09	0.15	0.16	0.07	0.27	0.34	0.18	0.14	0.18
O546	0.20	0.15	0.15	0.08	0.11	0.12	0.15	0.06	0.22	0.29	0.12	0.14	0.16
O547	0.21	0.17	0.17	0.06	0.09	0.12	0.14	0.06	0.21	0.29	0.13	0.14	0.15
O548	0.13	0.19	0.18	0.16	0.12	0.09	0.18	0.04	0.27	0.33	0.19	0.17	0.19
O549	0.19	0.18	0.20	0.17	0.15	0.10	0.04	0.11	0.24	0.35	0.22	0.19	0.19
O550	0.19	0.21	0.20	0.20	0.23	0.14	0.08	0.10	0.25	0.42	0.40	0.22	0.24
O551	0.17	0.21	0.19	0.15	0.23	0.12	0.13	0.10	0.09	0.35	0.33	0.18	0.19
O552	0.16	0.17	0.17	0.11	0.11	0.13	0.13	0.06	0.12	0.20	0.17	0.14	0.13
O553	0.16	0.16	0.17	0.11	0.12	0.09	0.14	0.04	0.17	0.19	0.10	0.14	0.12
O554	0.26	0.14	0.17	0.11	0.14	0.11	0.15	0.06	0.20	0.29	0.12	0.16	0.16
O555	0.28	0.16	0.21	0.12	0.16	0.16	0.15	0.07	0.27	0.33	0.18	0.19	0.19
O556	0.30	0.20	0.24	0.12	0.16	0.21	0.13	0.07	0.29	0.34	0.25	0.21	0.21
O557	0.28	0.20	0.24	0.11	0.20	0.27	0.14	0.08	0.14	0.24	0.22	0.20	0.18
O558	0.18	0.15	0.17	0.07	0.12	0.26	0.10	0.06	0.19	0.33	0.25	0.16	0.18
O559	0.12	0.09	0.07	0.11	0.13	0.13	0.11	0.06	0.09	0.24	0.28	0.12	0.14
O560	0.20	0.05	0.06	0.08	0.04	0.09	0.11	0.06	0.11	0.03	0.10	0.08	0.07
O561	0.25	0.05	0.07	0.08	0.07	0.11	0.09	0.07	0.11	0.12	0.16	0.10	0.10
O562	0.25	0.06	0.08	0.07	0.06	0.11	0.05	0.06	0.09	0.14	0.16	0.09	0.09
O563	0.22	0.09	0.08	0.02	0.05	0.11	0.04	0.02	0.04	0.13	0.07	0.08	0.06
O564	0.23	0.09	0.07	0.04	0.05	0.12	0.03	0.03	0.07	0.10	0.07	0.08	0.07
O565	0.19	0.08	0.08	0.06	0.04	0.13	0.06	0.05	0.10	0.04	0.06	0.08	0.06
O566	0.26	0.14	0.21	0.10	0.20	0.28	0.09	0.07	0.19	0.25	0.22	0.19	0.18
O567	0.15	0.07	0.06	0.04	0.15	0.23	0.03	0.06	0.13	0.14	0.12	0.11	0.12
O568	0.16	0.05	0.09	0.06	0.10	0.14	0.03	0.04	0.19	0.21	0.10	0.11	0.12
O569	0.24	0.10	0.19	0.11	0.15	0.21	0.10	0.06	0.25	0.30	0.20	0.18	0.19
O570	0.23	0.05	0.03	0.07	0.12	0.19	0.11	0.05	0.06	0.25	0.37	0.11	0.15
O571	0.19	0.07	0.03	0.06	0.10	0.12	0.04	0.03	0.11	0.17	0.30	0.09	0.12
O572	0.15	0.07	0.04	0.07	0.13	0.10	0.07	0.03	0.06	0.12	0.30	0.09	0.11
O573	0.14	0.06	0.08	0.09	0.18	0.26	0.11	0.05	0.02	0.17	0.30	0.12	0.14
O574	0.20	0.05	0.06	0.08	0.16	0.26	0.10	0.04	0.13	0.19	0.28	0.13	0.15
O575	0.17	0.10	0.09	0.11	0.14	0.20	0.13	0.03	0.12	0.17	0.23	0.13	0.14
O576	0.21	0.15	0.10	0.12	0.13	0.22	0.13	0.08	0.07	0.31	0.33	0.15	0.18
O577	0.23	0.08	0.03	0.10	0.11	0.17	0.12	0.07	0.04	0.27	0.38	0.12	0.16
O578	0.17	0.13	0.06	0.12	0.17	0.12	0.12	0.09	0.14	0.20	0.35	0.13	0.17
O579	0.18	0.17	0.13	0.13	0.20	0.18	0.13	0.10	0.12	0.37	0.40	0.17	0.21
O580	0.15	0.16	0.09	0.17	0.21	0.13	0.11	0.10	0.24	0.19	0.35	0.17	0.19

O581	0.10	0.15	0.09	0.13	0.14	0.09	0.08	0.08	0.12	0.20	0.34	0.13	0.15
O582	0.15	0.18	0.14	0.16	0.17	0.11	0.09	0.09	0.21	0.32	0.37	0.17	0.20
O583	0.18	0.19	0.16	0.19	0.23	0.14	0.10	0.10	0.26	0.35	0.40	0.21	0.23
O584	0.15	0.07	0.04	0.24	0.36	0.17	0.17	0.13	0.23	0.21	0.23	0.20	0.22
O585	0.17	0.11	0.11	0.19	0.31	0.19	0.20	0.14	0.27	0.22	0.30	0.20	0.23
O586	0.15	0.10	0.11	0.17	0.28	0.19	0.18	0.12	0.24	0.26	0.33	0.19	0.23
O587	0.12	0.08	0.04	0.22	0.34	0.13	0.14	0.11	0.21	0.17	0.19	0.18	0.19
O588	0.12	0.06	0.09	0.11	0.14	0.18	0.17	0.10	0.15	0.35	0.35	0.14	0.20
O589	0.14	0.06	0.06	0.14	0.06	0.15	0.17	0.09	0.19	0.38	0.34	0.13	0.20
O590	0.16	0.09	0.08	0.10	0.11	0.15	0.17	0.11	0.21	0.40	0.35	0.14	0.21
O591	0.16	0.13	0.09	0.04	0.09	0.10	0.04	0.09	0.11	0.30	0.22	0.11	0.14
O592	0.15	0.11	0.09	0.08	0.13	0.15	0.16	0.10	0.20	0.26	0.23	0.13	0.17
O593	0.03	0.04	0.03	0.04	0.06	0.11	0.14	0.06	0.13	0.10	0.11	0.06	0.10
O594	0.13	0.12	0.09	0.05	0.10	0.13	0.09	0.07	0.16	0.23	0.29	0.11	0.15
O595	0.07	0.04	0.05	0.03	0.04	0.07	0.05	0.07	0.12	0.05	0.17	0.05	0.07
O596	0.08	0.02	0.05	0.04	0.03	0.08	0.04	0.04	0.07	0.03	0.12	0.05	0.05
O597	0.09	0.04	0.03	0.05	0.02	0.05	0.04	0.04	0.07	0.02	0.16	0.04	0.05
O598	0.07	0.05	0.03	0.03	0.03	0.07	0.05	0.07	0.11	0.04	0.18	0.05	0.07
O599	0.07	0.06	0.02	0.05	0.03	0.09	0.05	0.07	0.08	0.04	0.19	0.05	0.07
O600	0.07	0.05	0.02	0.07	0.07	0.08	0.04	0.04	0.09	0.04	0.17	0.06	0.07
O601	0.11	0.23	0.13	0.06	0.10	0.05	0.03	0.07	0.03	0.11	0.05	0.10	0.07
O602	0.22	0.28	0.17	0.08	0.04	0.07	0.04	0.03	0.02	0.14	0.06	0.11	0.06
O603	0.17	0.29	0.20	0.14	0.03	0.05	0.05	0.02	0.09	0.12	0.08	0.13	0.07
O604	0.17	0.27	0.14	0.11	0.05	0.05	0.07	0.07	0.03	0.13	0.09	0.11	0.07
O605	0.25	0.31	0.18	0.11	0.07	0.08	0.05	0.06	0.04	0.15	0.05	0.14	0.08
O606	0.19	0.30	0.19	0.12	0.03	0.03	0.06	0.02	0.07	0.11	0.06	0.12	0.06
O607	0.14	0.22	0.13	0.07	0.02	0.09	0.04	0.04	0.06	0.05	0.06	0.09	0.05
O608	0.03	0.01	0.01	0.03	0.09	0.07	0.04	0.02	0.05	0.09	0.14	0.05	0.07
O609	0.05	0.03	0.02	0.02	0.15	0.15	0.08	0.03	0.11	0.10	0.25	0.08	0.11
O610	0.05	0.05	0.10	0.13	0.29	0.30	0.11	0.04	0.14	0.22	0.37	0.17	0.20
O611	0.06	0.02	0.12	0.15	0.23	0.32	0.11	0.06	0.05	0.21	0.29	0.16	0.17
O612	0.12	0.04	0.04	0.15	0.16	0.11	0.10	0.05	0.03	0.07	0.22	0.10	0.10
O613	0.12	0.07	0.06	0.19	0.18	0.14	0.12	0.05	0.06	0.11	0.18	0.13	0.12
O614	0.16	0.06	0.05	0.18	0.17	0.12	0.14	0.10	0.07	0.14	0.14	0.13	0.13
O615	0.20	0.07	0.07	0.21	0.31	0.17	0.19	0.15	0.24	0.22	0.25	0.19	0.22
O616	0.13	0.10	0.13	0.12	0.21	0.11	0.20	0.13	0.14	0.22	0.29	0.15	0.18
O617	0.06	0.08	0.13	0.10	0.16	0.14	0.20	0.12	0.22	0.14	0.14	0.13	0.15
O618	0.05	0.03	0.07	0.11	0.09	0.06	0.10	0.07	0.15	0.10	0.10	0.08	0.10
O619	0.13	0.15	0.12	0.10	0.06	0.07	0.10	0.06	0.13	0.11	0.07	0.10	0.09
O620	0.08	0.20	0.10	0.16	0.08	0.11	0.11	0.09	0.13	0.14	0.08	0.13	0.12
O621	0.12	0.21	0.12	0.18	0.11	0.15	0.14	0.11	0.09	0.11	0.03	0.14	0.11
O622	0.11	0.18	0.13	0.14	0.13	0.15	0.15	0.11	0.07	0.09	0.04	0.13	0.10
O623	0.15	0.23	0.09	0.07	0.07	0.11	0.09	0.08	0.11	0.06	0.05	0.10	0.08
O624	0.11	0.07	0.05	0.05	0.06	0.10	0.04	0.06	0.12	0.15	0.03	0.08	0.08

O625	0.18	0.18	0.09	0.05	0.06	0.14	0.11	0.04	0.14	0.16	0.17	0.11	0.11
O626	0.05	0.23	0.12	0.11	0.11	0.14	0.10	0.03	0.28	0.11	0.08	0.13	0.13
O627	0.16	0.23	0.09	0.17	0.16	0.20	0.15	0.05	0.20	0.15	0.11	0.17	0.15
O628	0.12	0.08	0.03	0.09	0.14	0.19	0.15	0.05	0.20	0.10	0.18	0.11	0.14
O629	0.26	0.19	0.12	0.05	0.12	0.21	0.16	0.05	0.16	0.13	0.26	0.14	0.14
O630	0.24	0.03	0.09	0.12	0.12	0.08	0.17	0.10	0.13	0.15	0.34	0.11	0.15
O631	0.11	0.11	0.07	0.08	0.11	0.11	0.07	0.10	0.06	0.21	0.46	0.10	0.15
O632	0.43	0.31	0.29	0.08	0.07	0.09	0.05	0.05	0.23	0.32	0.50	0.19	0.18
O633	0.18	0.27	0.26	0.16	0.22	0.16	0.03	0.03	0.29	0.29	0.55	0.22	0.22
O634	0.07	0.19	0.17	0.14	0.21	0.18	0.03	0.02	0.20	0.09	0.43	0.16	0.16
O635	0.10	0.06	0.10	0.08	0.13	0.15	0.06	0.04	0.25	0.10	0.56	0.11	0.17
O636	0.05	0.10	0.04	0.07	0.10	0.10	0.23	0.05	0.11	0.28	0.45	0.10	0.17
O637	0.26	0.21	0.31	0.08	0.07	0.17	0.31	0.17	0.28	0.08	0.08	0.16	0.16
O638	0.25	0.09	0.02	0.02	0.07	0.22	0.38	0.23	0.40	0.29	0.25	0.13	0.25
O639	0.13	0.18	0.28	0.10	0.08	0.24	0.38	0.23	0.44	0.30	0.16	0.19	0.26
O640	0.29	0.13	0.05	0.05	0.06	0.26	0.40	0.20	0.45	0.09	0.01	0.14	0.20
O641	0.20	0.10	0.07	0.04	0.02	0.04	0.25	0.14	0.11	0.23	0.22	0.08	0.14
O642	0.09	0.12	0.09	0.04	0.03	0.06	0.26	0.14	0.06	0.21	0.09	0.07	0.12
O643	0.05	0.15	0.13	0.06	0.04	0.12	0.23	0.13	0.17	0.25	0.16	0.10	0.15
O644	0.08	0.20	0.18	0.07	0.05	0.15	0.39	0.24	0.30	0.28	0.20	0.14	0.22
O645	0.35	0.11	0.37	0.06	0.11	0.22	0.35	0.25	0.42	0.24	0.10	0.20	0.23
O646	0.08	0.05	0.25	0.09	0.04	0.24	0.22	0.21	0.23	0.20	0.36	0.14	0.20
O647	0.12	0.14	0.20	0.10	0.10	0.22	0.16	0.25	0.06	0.11	0.28	0.13	0.15
O648	0.26	0.12	0.19	0.08	0.12	0.24	0.15	0.27	0.04	0.14	0.16	0.14	0.14
O649	0.04	0.08	0.07	0.03	0.11	0.21	0.15	0.24	0.16	0.25	0.21	0.10	0.18
O650	0.29	0.14	0.22	0.01	0.07	0.12	0.14	0.16	0.12	0.12	0.16	0.12	0.12
O651	0.07	0.23	0.21	0.03	0.17	0.22	0.24	0.32	0.14	0.18	0.08	0.15	0.18
O652	0.06	0.07	0.07	0.05	0.18	0.22	0.26	0.33	0.15	0.20	0.07	0.12	0.19
O653	0.13	0.19	0.11	0.05	0.17	0.23	0.27	0.34	0.15	0.24	0.04	0.14	0.19
O654	0.17	0.23	0.13	0.10	0.18	0.22	0.27	0.34	0.14	0.23	0.10	0.16	0.20
O655	0.18	0.16	0.09	0.14	0.24	0.21	0.24	0.30	0.14	0.18	0.24	0.17	0.21
O656	0.13	0.15	0.10	0.12	0.28	0.23	0.23	0.25	0.11	0.05	0.28	0.16	0.18
O657	0.11	0.22	0.17	0.09	0.32	0.29	0.27	0.31	0.06	0.14	0.25	0.18	0.21
O658	0.11	0.10	0.02	0.16	0.34	0.32	0.30	0.35	0.11	0.15	0.18	0.18	0.23
O659	0.11	0.27	0.06	0.19	0.34	0.33	0.32	0.38	0.15	0.13	0.14	0.21	0.24
O660	0.11	0.08	0.12	0.22	0.37	0.37	0.34	0.42	0.25	0.13	0.14	0.22	0.27
O661	0.17	0.15	0.15	0.23	0.36	0.36	0.34	0.44	0.20	0.08	0.13	0.23	0.25
O662	0.11	0.11	0.06	0.05	0.03	0.07	0.26	0.12	0.38	0.27	0.20	0.10	0.19
O663	0.28	0.14	0.10	0.01	0.02	0.18	0.30	0.13	0.48	0.35	0.44	0.14	0.26
O664	0.15	0.02	0.01	0.01	0.01	0.01	0.21	0.08	0.41	0.32	0.42	0.08	0.20
O665	0.44	0.07	0.17	0.05	0.02	0.06	0.32	0.17	0.48	0.33	0.50	0.15	0.26
O666	0.15	0.22	0.25	0.13	0.21	0.01	0.11	0.06	0.08	0.06	0.12	0.15	0.10
O667	0.39	0.26	0.35	0.21	0.07	0.19	0.19	0.22	0.30	0.31	0.36	0.23	0.24
O668	0.09	0.03	0.12	0.02	0.04	0.03	0.24	0.24	0.37	0.22	0.11	0.09	0.18

O669	0.02	0.08	0.15	0.10	0.10	0.06	0.04	0.07	0.17	0.19	0.03	0.11	0.11
O670	0.02	0.08	0.19	0.01	0.08	0.18	0.20	0.19	0.15	0.18	0.05	0.10	0.14
O671	0.15	0.05	0.09	0.04	0.12	0.07	0.14	0.20	0.06	0.15	0.03	0.08	0.11
O672	0.20	0.07	0.09	0.15	0.05	0.05	0.12	0.07	0.04	0.16	0.08	0.10	0.09
O673	0.07	0.12	0.16	0.28	0.11	0.15	0.10	0.01	0.10	0.07	0.30	0.15	0.13
O674	0.09	0.13	0.18	0.24	0.10	0.15	0.11	0.01	0.06	0.05	0.25	0.14	0.11
O675	0.06	0.07	0.24	0.19	0.09	0.15	0.11	0.01	0.03	0.09	0.21	0.13	0.10
O676	0.19	0.03	0.29	0.16	0.10	0.15	0.12	0.01	0.02	0.10	0.20	0.14	0.10
O677	0.23	0.07	0.31	0.10	0.09	0.14	0.10	0.01	0.02	0.11	0.15	0.13	0.09
O678	0.19	0.15	0.30	0.20	0.07	0.14	0.05	0.02	0.07	0.15	0.12	0.16	0.10
O679	0.06	0.15	0.32	0.18	0.07	0.15	0.08	0.06	0.08	0.06	0.21	0.15	0.10
O680	0.03	0.02	0.26	0.09	0.04	0.13	0.05	0.01	0.09	0.06	0.16	0.09	0.07
O681	0.08	0.06	0.19	0.05	0.06	0.11	0.08	0.02	0.07	0.05	0.21	0.08	0.08
O682	0.15	0.12	0.09	0.05	0.06	0.09	0.08	0.07	0.07	0.06	0.20	0.08	0.08
O683	0.15	0.14	0.18	0.04	0.05	0.12	0.12	0.07	0.02	0.09	0.18	0.09	0.08
O684	0.16	0.12	0.23	0.03	0.03	0.13	0.17	0.12	0.04	0.09	0.17	0.09	0.09
O685	0.14	0.07	0.22	0.01	0.02	0.11	0.16	0.14	0.10	0.03	0.13	0.08	0.09
O686	0.13	0.05	0.15	0.02	0.02	0.14	0.15	0.14	0.27	0.06	0.11	0.08	0.12
O687	0.06	0.08	0.12	0.05	0.10	0.20	0.18	0.08	0.02	0.33	0.06	0.11	0.13
O688	0.10	0.06	0.16	0.02	0.11	0.21	0.21	0.20	0.04	0.29	0.15	0.11	0.16
O689	0.15	0.03	0.19	0.02	0.12	0.21	0.21	0.27	0.07	0.13	0.03	0.11	0.13
O690	0.23	0.02	0.13	0.03	0.12	0.15	0.09	0.17	0.10	0.11	0.03	0.10	0.10
O691	0.21	0.05	0.10	0.07	0.11	0.10	0.10	0.09	0.12	0.06	0.03	0.10	0.08
O692	0.13	0.05	0.15	0.09	0.04	0.01	0.05	0.02	0.09	0.05	0.01	0.08	0.05
S1	0.12	0.09	0.28	0.08	0.12	0.08	0.03	0.17	0.07	0.10	0.07	0.12	0.09
S2	0.14	0.10	0.17	0.05	0.05	0.08	0.06	0.18	0.09	0.10	0.07	0.09	0.09
S3	0.27	0.20	0.25	0.07	0.05	0.10	0.16	0.18	0.09	0.10	0.05	0.13	0.10
S4	0.34	0.24	0.31	0.09	0.06	0.09	0.16	0.17	0.08	0.11	0.06	0.15	0.10
S5	0.36	0.25	0.33	0.10	0.05	0.10	0.18	0.18	0.09	0.14	0.08	0.16	0.11
S6	0.37	0.26	0.34	0.10	0.05	0.09	0.17	0.17	0.09	0.13	0.03	0.16	0.10
S7	0.35	0.25	0.33	0.10	0.04	0.07	0.14	0.13	0.07	0.13	0.13	0.15	0.10
S8	0.34	0.25	0.33	0.07	0.04	0.13	0.12	0.24	0.05	0.17	0.22	0.15	0.13
S9	0.09	0.11	0.11	0.07	0.19	0.12	0.04	0.09	0.02	0.13	0.11	0.11	0.10
S10	0.26	0.17	0.26	0.09	0.24	0.18	0.10	0.04	0.02	0.03	0.08	0.16	0.09
S11	0.29	0.17	0.35	0.09	0.25	0.19	0.11	0.01	0.05	0.14	0.13	0.20	0.12
S12	0.30	0.18	0.37	0.10	0.26	0.20	0.11	0.01	0.05	0.15	0.13	0.21	0.12
S13	0.31	0.19	0.40	0.11	0.27	0.22	0.12	0.01	0.05	0.15	0.13	0.22	0.13
S14	0.28	0.18	0.34	0.09	0.24	0.17	0.09	0.08	0.06	0.15	0.13	0.19	0.12

4 and 30 Sites 1 and 2 sites) in the vicinity. The Proposed Scheme is visually compatible with the surroundings. As demonstrated in the Visual Appraisal (**Appendix 1** refers), a total of six viewpoints are selected pursuant to the requirements in the Town Planning Board Guidelines, TPB PG-No. 41. The proposed revision in building mass and height comparing to the Current Scheme is considered slight and is unlikely to cause any significant adverse visual impact, which received no adverse comments from the Urban Design & Landscape Section of Planning Department.

No Adverse Impact on Air Ventilation Aspect

4.9. An AVA (**Appendix 2** refers) has been conducted to assess the ventilation performance of the Baseline Scheme and Proposed Scheme. To maintain and enhance the wind performance of the Proposed Scheme, the following wind enhancement features have been adopted -

- preserve 15m full height air path between Block A and B;
- provide a permeable podium design;
- provide a 7m G/F empty bay (~5m headroom);
- provide a naturally ventilated carpark;
- provide building setback of about 11m from northeastern site boundary;
- provide podium setback of about 6m from southwestern site boundary; and
- provide tower setback of about 25m from southwestern site boundary.

4.10. Overall, the wind environment would be similar under Proposed and Baseline Scheme with a slight enhancement in performance under annual condition in Proposed Scheme at the immediate vicinity (SVR). Under annual condition, the prevailing wind is mainly from eastern quadrant direction. A taller building height under Proposed Scheme would enhance the ventilation performance at upwind surroundings due to increased downwashing of prevailing wind on to the street level by the E/ESE/ENE facing facade. The permeable carpark and podium design would help to maintain the wind environment at leeward region. Under summer condition, prevailing wind is from the south-western quadrant direction. Similar to that of annual condition, a taller building height under Proposed Scheme would enhance the ventilation performance at upwind surrounding such as San Wan Road. While a wind shadow could be cast to the northeast of the Development, the increased building setbacks, a permeable podium and naturally ventilated carpark would help to alleviate the situation. However, concurrently, the

increased downwashed wind would limit wind flow to the leeward region of the Development, allowing Baseline Scheme to perform slightly better at certain downwind regions.

No Adverse Impact on Traffic Aspect

4.11. The result of the updated Traffic Review (TR) indicated that the proposal will have no insurmountable traffic impact. Car parking and loading/unloading facilities are provided with reference to the HKPSG requirements, parking demand in the district, and to the satisfaction of Transport Department (TD). Please refer to the TR as accepted by TD at **Appendix 3** for details.

No Adverse Impact on Sewerage Aspect

4.12. Sewerage Impact Assessment (SIA) (**Appendix 4** refers) has been conducted and the study findings concluded that there is no adverse impact on the sewerage system due to the public housing development at the Application Site.

No Adverse Impact on Environmental Aspect

4.13. An Environmental Assessment Study (EAS) has been conducted for the public housing development to evaluate and address the potential road traffic noise, rail noise, fixed noise sources, air quality and land contamination impacts (**Appendix 5** refers). The EAS has concluded that the public housing development will have no insurmountable impact with proper building layout, design and mitigation measures to be incorporated in the development.

5. CONCLUSION

5.1. This Application is submitted under Section 16 of the Town Planning Ordinance for the proposed minor relaxation of maximum total PR from 7.0 to 7.5 and BHR from 130mPD to 149mPD for public housing development at Po Shek Wu Road. The Proposed Scheme is in line with the Government's initiative on optimising the intensification feasibility of public housing sites with a view to meeting the pressing demand for affordable housing and providing social welfare facilities equivalent to about 5% of the total attainable domestic GFA.

Annex C

香港房屋委員會
Hong Kong Housing Authority

本署檔號 Our Ref.	HD(P)8/3/FL18	電話 Tel No.	2761 5342
來函檔號 Your Ref.	A/FSS/299	圖文傳真 Fax No.	2761 5870

13 September 2024

By Email

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

Dear Sir/Madam,

Section 16 Planning Application for Proposed Minor Relaxation of Plot Ratio and Building Height Restriction for Permitted Public Housing Development at Po Shek Wu Road, Sheung Shui, New Territories

(Application No. A/FSS/299)

Reference is made to the captioned Section 16 application received by the Town Planning Board on 6.8.2024 and the comments received from Planning Department dated 23.8.2024, 30.8.2024 and 4.9.2024. We submit herewith the table summarizing the responses to comments as well as the revised Air Ventilation Assessment with the updates highlighted to substantiate the application.

Should you have any queries or need further information, please contact the undersigned or Ms. Alice LO at 2761 5314. Thank You.

Yours faithfully,

(Yoko CHEUNG)
for Director of Housing

Encl.

香港九龍何文田佛光街33號房屋委員會總辦事處
Housing Authority Headquarters, 33, Fat Kwong Street, Ho Man Tin, Kowloon, Hong Kong.
互聯網網址：
Internet Homepage Address: http://www.housingauthority.gov.hk

S.16 Application No. A/FSS/299

Application for Minor Relaxation of Plot Ratio and Building Height Restriction for Permitted Public Housing Development,
Po Shek Wu Road, Sheung Shui, New Territories
Responses to Comments

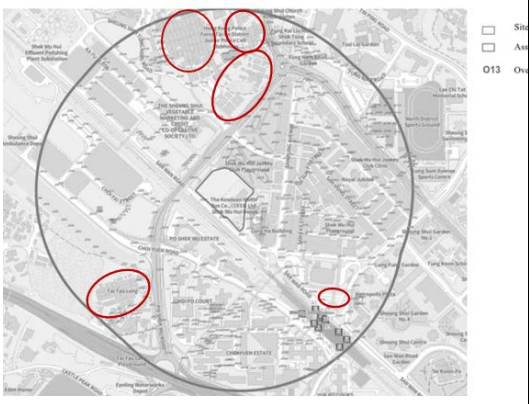
Comments	Responses
Water Services Department (23.8.2024)	
Existing water mains inside the proposed site as shown in the MRP may be affected. The applicant is required to either divert or protect the water mains found on site.	No diversion of water mains is proposed. The water mains found on site would be protected as per WSD's requirement.
If diversion is required, existing water mains inside the proposed site areas are need to be diverted outside the site boundary of the proposed site to lie in Government land. A strip of land of minimum 1.5m in width should be provided for the diversion of existing water mains. The cost of diversion of existing water mains upon request will have to be borne by the applicant; and the applicant shall submit all the relevant proposal to WSD for consideration and agreement before the works commence.	The water mains would not be diverted and would be protected.
If diversion is not required, the following conditions shall apply:	
(a) Existing water mains are affected as indicated on the site plan and no development which requires resiting of water mains will be allowed.	Noted. No structural elements, drainage, BS installation, landscape shall run within the water mains reserve area.
(b) Details of site formation works shall be submitted to the Director of Water Supplies for approval prior to commencement of works.	
(c) No structure shall be built or materials stored within 1.5 metres from the centre line(s) of water main(s) shown on the plan. Free access shall be available at all times for	

Comments	Responses
staff of the Director of Water Supplies or their contractor to carry out construction, inspection, operation, maintenance and repair works.	
(d) No trees or shurbs with penetrating roots may be planted within the Water Works Reserve or in the vicinity of the water main(s) shown on the plan. No change of existing site condition may be undertaken within the aforesaid area without the prior agreement of the Director of Water Supplies. Rigid root barriers may be required if the clear distance between the proposed tree and the pipe is 2.5m or less, and the barrier must extend below the invert level of the pipe.	
(e) No planting or obstruction of any kind except turfing shall be permitted within the space of 1.5 metres around the cover of any valve or within a distance of 1 metre from any hydrant outlet.	
(f) Tree planting may be prohibited in the event that the Director of Water Supplies considers that there is any likelihood of damage being caused to water mains.	
<u>Urban Design Unit, Planning Department (30.8.2024)</u>	
<u>Visual perspective</u> 1. According to the photomontages in the submitted Visual Appraisal (VA), there will be an increase in building bulk compare with the current scheme (i.e. the OZP compliant scheme) which will slightly block the sky view and slightly reduce visual openness from VP1, VP2 and VP5. The applicant has proposed some mitigation measures to reduce the building bulk in the VA, including buildings position to facilitate	Noted.

Comments	Responses
the 15m building separation, permeable podium structures, vertical greening, etc. With the mitigation measures incorporated, the overall visual impact of the increased building bulk is considered slightly adverse as rated by the applicant	
2. In view of the surrounding context and the minor relaxation in PR (+7.1%) and BH (+14.6%), significant visual impact on the surroundings is not anticipated.	Noted.
Air Ventilation perspective **Planning Statement** 1. Paragraphs 4.9 and 4.10 – In view of the comments on the AVA IS report, we would reserve our comments on the paragraphs at this juncture.	Noted. The AVA IS report is updated with the revision highlighted.
AVA IS report 2. As many key information was missing in this submission, we would reserve our comments on the simulation results as well as the conclusion.	Noted. The AVA IS report is updated with the revision highlighted.
3. Building heights of the existing developments (section 2 and Figure 1) – The consultant should report and indicate the building height of the existing developments located within the Surrounding Area. The consultant should clearly provide the names of the villages and existing developments (not in terms of different building clusters) on plan. The consultant should seek DPO's input on confirming the correctness of reported information.	Please note DPO's input was sought at an earlier time around pre-submission, which was incorporated as appropriate. The building height of the existing development are added in Figure 1.
4. Noise barriers, elevated structures, planned and committed developments (section 2.1) – The consultant should provide figures and layout plans to illustrate	Please note that similar to the previous comment, DPO's input was sought at an earlier time around pre-submission, which was incorporated as appropriate.

Comments	Responses
those identified noise barriers, elevated structures, planned and committed developments in the computational model for checking. The consultant should seek DPO's input on confirming the correctness of reported information.	
5. Baseline Scheme (section 4.1) – The consultant should clarify whether presented Baseline Scheme is the latest approval scheme and should seek DPO's agreement on adopting such OZP-compliant scheme as Baseline Scheme.	DPO's agreement on the presented Baseline Scheme has been sought.
6. Mitigation Measures/Good Design Features under Baseline Scheme (section 4.1) • The consultant should report the height of the proposed G/F empty bay in text.	Height of G/F empty bay marked up in revised report diagram.
• It appears that the proposed building setbacks reported in section 4.1 does not tally with that indicated on Figure 12. The consultant should clarify and indicate those proposed tower / podium setbacks with exact dimensions on plan.	The paragraph has been revised accordingly to distinguish the setback extent from each site boundary edge.
7. Mitigation Measures/Good Design Features under Proposed Scheme (section 4.2) • The consultant should report the height of the proposed G/F empty bay in text.	Height of G/F empty bay marked up in revised report diagram.
• Referring to Figure 20, it appears that there are some connecting foot bridge at podium level. As such, it may not considered as a "full height" building separation. The consultant	Please note that the footbridge is naturally ventilated with a permeable design, it should pose minimal impact to building separation's air ventilation performance.

Comments	Responses
should clarify and update the relevant texts where appropriate.	
• It appears that the proposed building setbacks reported in section 4.2 does not tally with that indicated on Figure 24. The consultant should clarify and indicate those proposed tower / podium setbacks with exact dimensions on plan.	The paragraph has been revised accordingly to distinguish the setback extent from each site boundary edge.
8. Size of computational domain (Figure 31) – The consultant should correct the typo of the computational domain length.	The typo has been revised
9. **Coverage of Assessment and Surrounding Areas** (section 5.1) – The consultant should clearly indicate the coverage of Assessment and Surrounding Areas on plan. 3D model views of the whole Surrounding Area (from at least 4 directions) should be submitted for our checking	Coverage of assessment and surrounding area on plan, as well as 3D model view of the entire domain from 4 directions, have been provided
10. Focus area (Table 5) – In view of item **Error! Reference source not found.** above, we would reserve our comments on this table. The consultant should provide sufficient information for checking.	Noted.
11. **Overall test points** (Figures 35 and 37) • As the location and ID of all test points are illegible, it is unable to ascertain whether the test points are correctly and sufficiently placed and we would reserve comment on the information shown in Table 5.	PDF resolution has been improved in the revised report, the IDs are legible.
• The consultant should provide correct demarcation of each focus area and list the relevant test points in Table 5.	The demarcation of focus areas is revised in the revised report to align with Table 5 more clearly. The resolution of the same diagram is also enhanced to improve legibility.

Comments	Responses
• The consultant should clarify whether additional test points should be placed to cover the areas highlighted (see red circles) in below. 	Reviewing these areas show that these areas are generally driveways, carparks and densely packed buildings clusters where pedestrian might not access frequently. As such, additional test points are not added at these areas.
12. VR contour plots (section 6) • The consultant should remove the shading of circled areas in Figures 38 to 61 which covered the part of VR contours. We would reserve our comments on the directional analysis.	Noted
• The consultant should provide the VR vector plots for demonstrating the identified wind arrows under each simulation wind direction.	VR vector plots are provided in the revised report's appendix
13. **Summer LVR under the Baseline Scheme** (Tables 6 and 7) – Different summer LVR under the Baseline Scheme have been presented in Tables 6 and 7. The consultant should clarify and revise the typo accordingly.	Typo has been corrected, the two tables are aligned
14. **Directional Analysis** (section 6) and **Conclusion** (section 7) – Considering our comments above, there are doubts as whether the simulation results are accurate and we would not provide comment on this	Noted.

Comments	Responses
section at this juncture.	
15. Computational Model - The consultant should provide a figure **showing** details of the 3D computational model covering for the entire Surrounding Area for checking the accuracy of the model. The consultant should also submit 3D views of the assessment schemes (from at least 4 directions) for our checking. Without providing such information, we could not ascertain the accuracy of the computational model.	3D model for the entire domain has been provided in 4 directions.
16. **VR contour and vector plots** – The consultant should show the VR contour and vector plots of the whole computational domain for **checking**.	Whole-domain VR and vector VR plots are provided in the revised report's appendices.
17. **VR wind data** – The consultant should report the VR data of each test point under each simulated wind direction in the appendix.	The VR of each of the test points are provided in the revised report's appendix.
<u>Highways Department (4.9.2024)</u>	
(a) The proposed boundary included a section of public footpath (blue circle at below sketch). Comments and agreement should be sought from TD.  	TD was consulted on the VO application where the section circled in blue was included within the site boundary and TD had no comments on the VO application in Apr 2023 and Jul 2024**.**
(b) Please note that a section of U channel and a catchpit will fall within the proposed boundary (blue circle at below sketch). Proposal of re-alignment of the U-channel	Noted. HD will provide the re-alignment proposal of U-channel and catchpit for HyD's review and comment at detailed design stage.

Comments	Responses
and catchpit should be provide for our review and comment at detailed design stage.	

- End -

香港房屋委員會
Hong Kong Housing Authority

本署檔號 Our Ref.	HD(P)8/3/FL18	電話 Tel No.	2761 5342
來函檔號 Your Ref.	A/FSS/299	圖文傳真 Fax No.	2761 5870

6 December 2024

By Email

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

Dear Sir/Madam,

Section 16 Planning Application for Proposed Minor Relaxation of Plot Ratio and Building Height Restriction for Permitted Public Housing Development at Po Shek Wu Road, Sheung Shui, New Territories

(Application No. A/FSS/299)

Reference is made to the captioned Section 16 application received by the Town Planning Board on 6.8.2024 and the comments on the Air Ventilation Assessment (AVA) received from Planning Department dated 26.11.2024. We submit herewith the table summarizing the responses to comments as well as the replacement pages of the AVA report (Annex A) and replacement pages of the Planning Statement (Annex B) with the updates highlighted to substantiate the application.

Should you have any queries or need further information, please contact the undersigned or Ms. Alice LO at 2761 5314. Thank You.

Yours faithfully,

(Yoko CHEUNG)
for Director of Housing

Encl.

香港九龍何文田佛光街33號房屋委員會總辦事處
Housing Authority Headquarters, 33, Fat Kwong Street, Ho Man Tin, Kowloon, Hong Kong.
互聯網網址：
Internet Homepage Address: http://www.housingauthority.gov.hk

UDL's Comments on AVA-IS Report (dated 8 Nov 2024) and received via email dated 26 Nov 2024	**ARUP's Response with updated AVA-IS report (Annex A refers)**
We refer to the revised AVA IS report (dated 8 November 2024) for the captioned s.16 application study received on 11.11.2024. Our observations/comments on the revised AVA IS report are as follows.	Please note the changes this round are highlighted in yellow in the Planning Statement and the AVA IS Report
Planning Statement	**-**
1. Paragraphs 4.9 –	
• Description is missing in the Planning Statement as compared with the AVA IS report (Figure 24) – provide building setbacks of about 8m to 25m-wide from northwestern site boundary;	**"Building setbacks of ~8-25m from northwestern site boundary"** is provided in Para. 4.9 of the Planning Statement (**Annex B** refers) to align with the AVA IS report (Figure 24). "… **~8-25m**…" is also provided in the updated AVA IS report section 4.2 first paragraph text to align with the AVA IS report (Figure 24).
• Description in the Planning Statement does not tally with that reported in AVA IS report (Figure 24) and please rectify – provide building setback of about 6m-wide from southwestern site boundary;	"**Podium setback**" is revised to "**Building setback**" in Para. 4.9 of the Planning Statement (**Annex B** refers) to align with the AVA IS report (Figure 24).
AVA IS report	**-**
2. **Overall ventilation performance under annual wind condition** (sections 6.1.1) – It is noted that discussions in the section 6.1.1 do not tally with those in section 6.4.1 and simulation results that shown in Table 7.	It has been ensured that the observations are tallied between section 6.1.1, 6.4.1 and the numbers in Table 7. For example, a higher VR at Wind Enhancement Feature 2 (i.e. G/F empty bay under Proposed Scheme and air path under Baseline Scheme) under Proposed Scheme has been addressed correctly in the revised report, replacing the previous discussion on Wind Enhancement Feature 2. Another example would be an improvement under Proposed Scheme in Shek Wu Hui Jockey Club Playgrounds is no longer mentioned. Additionally, where phenomena and performance differences are limited to only a localised portion of a focus area, the phrase "a localised portion of" is used to indicate so explicitly to avoid the statement being applied to the entire focus area; these phenomena are already discussed in section 6.2. For example, instead of "...San Wan Road...", it is now "…a localised portion of San Wan Road…"

UDL's Comments on AVA-IS Report (dated 8 Nov 2024) and received via email dated 26 Nov 2024	ARUP's Response with updated AVA-IS report (Annex A refers)
3. **Overall ventilation performance under summer wind condition** (sections 6.1.2) – It is noted that discussions in the section 6.1.2 do not tally with those in section 6.4.2 and simulation results that shown in Table 7.	Similarly, it has been ensured that the observations are tallied between section 6.1.2, 6.4.2 and the numbers in Table 7. For example, an improvement in Po Sheung Tsuen (Western Portion) is no longer mentioned, instead, an improvement at a localised portion of Po Wan Road is addressed. Where phenomena and performance differences are limited to only a localised portion of a focus area, the phrase "a localised portion of" is used to indicate so explicitly to avoid the statement being applied to the entire focus area; these phenomena are already discussed in section 6.2. For example, instead of "...San Wan Road...", it is now "…a downwind localised portion of San Wan Road…"
4. **Demarcation of focus area and its corresponding test points** (Table 5 and Figure 46) –	-
• Focus Area 10 (Po Sheung Tsuen (eastern portion) – It seems that overall test points of this focus area listed in Table 5 do not tally with those shown in Figure 46.	The mark-ups for Focus Area 10 in Figure 46 has been adjusted accordingly to align with Table 5.
• Focus Area 13 (Po Sheung Tsuen Football Court) – It seems that overall test points of this focus area listed in Table 5 do not tally with those shown in Figure 46.	Similarly, the mark-ups for Focus Area 13 in Figure 46 has been adjusted accordingly to align with Table 5

* * *

Annex A - Replacement pages of AVA-IS Report

Annex B - Replacement pages of Planning Statement

4.2 Proposed Scheme

The Proposed Scheme consists of two domestic blocks (Block A and Block B) with 40 and 41 domestic storeys (each with an additional refuge floor) respectively atop a 4-storey podium structure which includes a naturally ventilated carpark, which would overall stand at ~149mPD tall. The Proposed Scheme consist of a full height building separation of ~15m, a G/F empty bay of ~7m wide and ~5m tall. It also has a tower setback from the southwestern site boundary of ~25m, as well as building setbacks of 6m from southwestern site boundary, 11m from northeastern site boundary, and ~8-25m from northwestern site boundary. The naturally ventilated carpark as well as a permeable podium design would also assist the enhancement of ventilation performance.

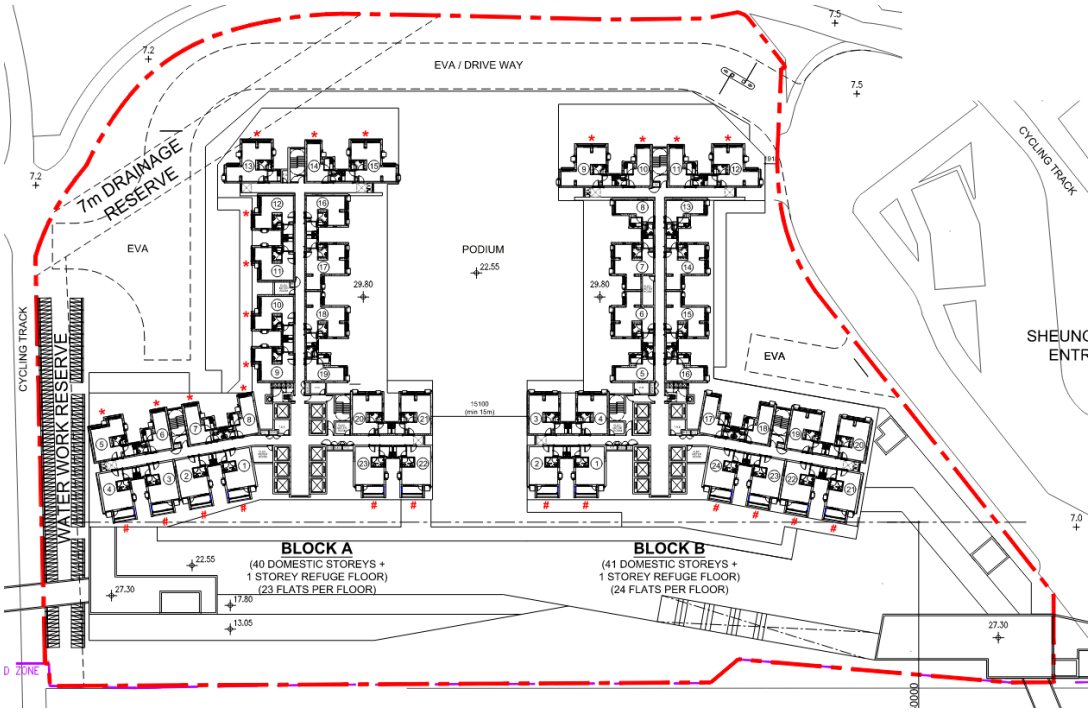


Figure 19 Proposed Scheme MLP

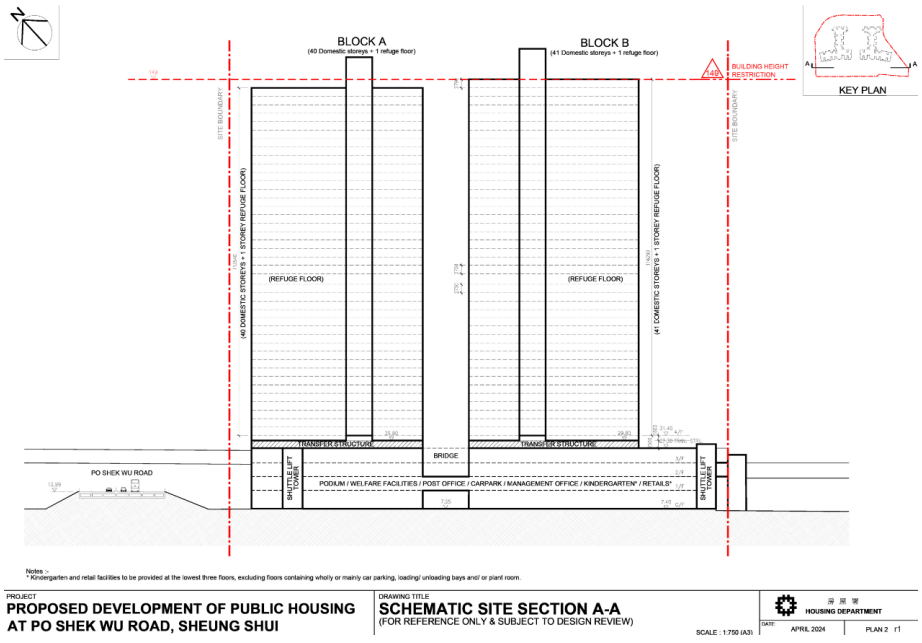


Figure 20 Proposed Scheme Section

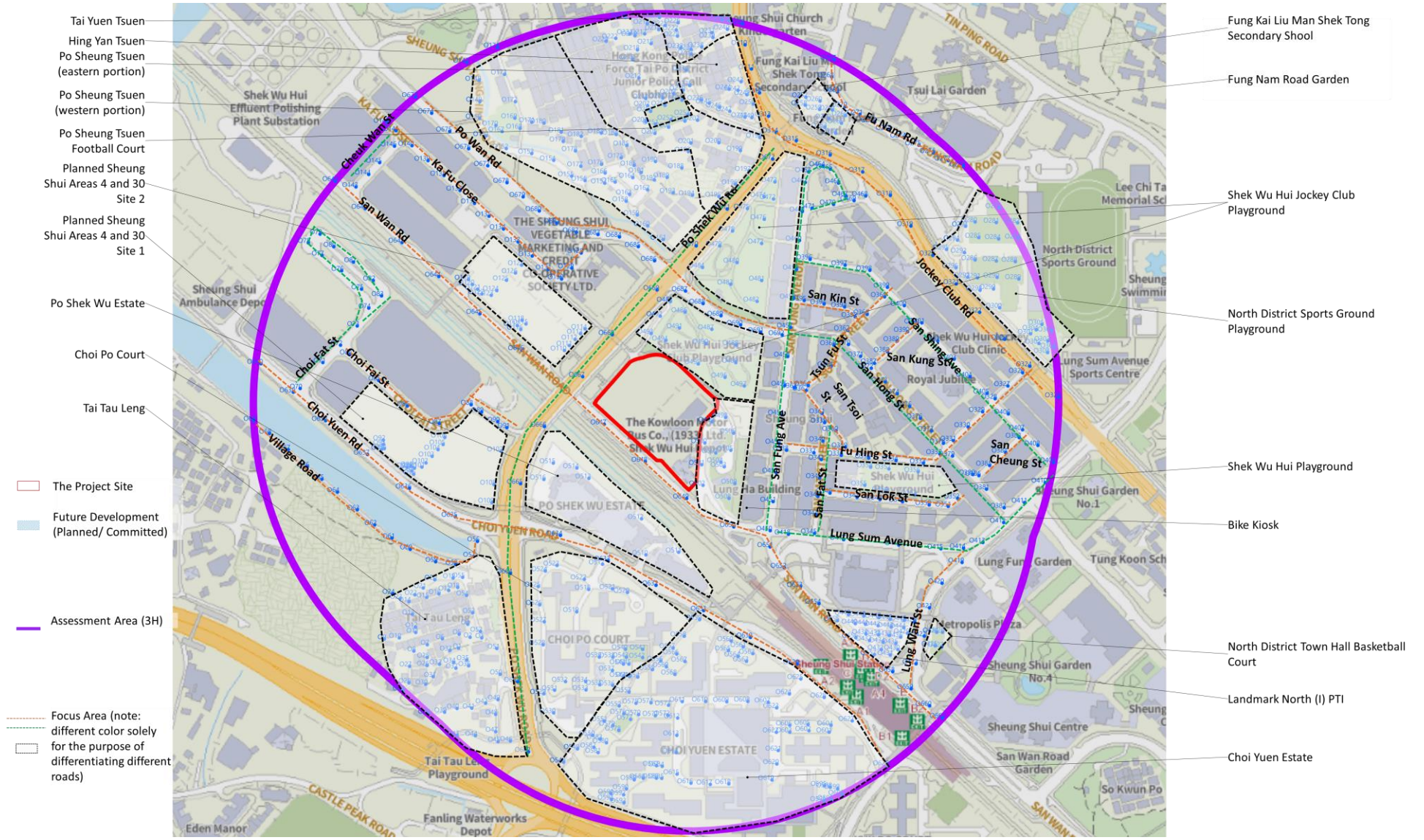


Figure 46 Location of Focus Areas outside the Application Site

6. Results and Discussion

6.1 Overview

The full set of contour and vector plots for are presented in Appendix C of the report.

The contour plots of annual weighted VR for the Baseline Scheme and Proposed Scheme are shown in Figure 47 and Figure 48.

6.1.1 Overall Ventilation Performance under Annual Wind Condition

Under annual condition, the majority of the prevailing wind would arrive at the Development from the eastern quadrant flowing over the generally low-rise eastern surroundings of the Development. A few mid-rise eastern surrounding buildings would impede a small portion of prevailing wind. Overall, the prevailing wind could reach the Development relatively freely.

The taller building under Proposed Scheme would be able to downwash more prevailing wind reaching the eastern facades of the Development as compared to Baseline Scheme, which would in turn allow for more ventilation at its immediate upwind surroundings, such as the Bike Kiosk. A marginally higher VR is also observed in the G/F empty bay in the Proposed Scheme adjacent to the Bike Kiosk, as compared to that in the air path between Block B and Lift tower under Baseline Scheme, which is also cause by a more prominent downwash under the taller tower of Proposed Scheme.

Under both schemes the 15m air path between the two towers would enhance permeability of the Development and allow for prevailing to penetrate to the leeward area. However, under Proposed Scheme, the narrower tower separation in the northeastern portion of the Development would increase the channelling effect for prevailing wind passing through it, thereby accelerating the wind penetrating to the leeward area. The wind environment at the leeward area could therefore be enhanced, such as a localised portion of San Wan Road immediate south of the Development.

6.1.2 Overall Ventilation Performance under Summer Wind Condition

The contour plots of summer weighted VR for the Baseline Scheme and Proposed Scheme are shown in Figure 49 and Figure 50.

Under summer condition, prevailing wind would arrive mainly from the southwestern quadrant. As compared to annual condition, the wind environment would be relatively dominated by the windward surrounding environment as it comprises mainly of mid-rise and high-rise buildings including the planned Y/FSS/19, SS Site 1, Po Shek Wu Estate etc. A wind shadow would be created to the northeast of the Development.

The taller building under Proposed Scheme would be able to downwash more prevailing wind reaching the southern facades of the Development, which would in turn allow for more ventilation at its immediate surroundings such as a localised portion of San Wan Road immediate south of the Development. This could however limit prevailing wind at pedestrian level from reaching the downwind area such as the downwind portion of Po Shek Wu Road, a downwind localised portion of San Wan Road and Landmark North PTI, where a relatively higher VR would be observed Baseline Scheme. The prevailing wind under Proposed Scheme would on the other hand be diverted by the stronger downwashed wind to ventilate northwestern surroundings of the Development such as Ka Fu Close and a localised portion of Po Wan Road immediately west of Po Shek Wu Road.

On the other hand, the building disposition of Baseline Scheme would allow for more wind to be diverted towards northeast, which would in ventilate the immediate northeastern surroundings of the Development such as Shek Wu Hui Jockey Club Playground under southwestern summer prevailing wind.

4 and 30 Sites 1 and 2 sites) in the vicinity. The Proposed Scheme is visually compatible with the surroundings. As demonstrated in the Visual Appraisal (**Appendix 1** refers), a total of six viewpoints are selected pursuant to the requirements in the Town Planning Board Guidelines, TPB PG-No. 41. The proposed revision in building mass and height comparing to the Current Scheme is considered slight and is unlikely to cause any significant adverse visual impact, which received no adverse comments from the Urban Design & Landscape Section of Planning Department.

No Adverse Impact on Air Ventilation Aspect

4.9. An AVA (**Appendix 2** refers) has been conducted to assess the ventilation performance of the Baseline Scheme and Proposed Scheme. To maintain and enhance the wind performance of the Proposed Scheme, the following wind enhancement features have been adopted -

- preserve 15m full height air path between Block A and B;
- provide a permeable podium design;
- provide a 7m G/F empty bay (~5m headroom);
- provide a naturally ventilated carpark;
- provide building setbacks of about 8-25m from northwestern site boundary
- provide building setback of about 11m from northeastern site boundary;
- provide building setback of about 6m from southwestern site boundary; and
- provide tower setback of about 25m from southwestern site boundary.

4.10. Overall, the wind environment would be similar under Proposed and Baseline Scheme with a slight enhancement in performance under annual condition in Proposed Scheme at the immediate vicinity (SVR). Under annual condition, the prevailing wind is mainly from eastern quadrant direction. A taller building height under Proposed Scheme would enhance the ventilation performance at upwind surroundings due to increased downwashing of prevailing onto the street level by the E/ESE/ENE facing facade. The permeable carpark and podium design would help to maintain the wind environment at leeward region. Under summer condition, prevailing wind is from the south-western quadrant direction. Similar to that of annual condition, a taller building height under Proposed Scheme would enhance the ventilation performance at upwind surrounding such as San Wan Road. While a wind shadow could be cast to the northeast of the Development, the increased building setbacks, a permeable podium and naturally

ventilated carpark would help to alleviate the situation. However, concurrently, the increased downwashed wind would limit wind flow to the leeward region of the Development, allowing Baseline Scheme to perform slightly better at certain downwind regions.

No Adverse Impact on Traffic Aspect

4.11. The result of the updated Traffic Review (TR) indicated that the proposal will have no insurmountable traffic impact. Car parking and loading/unloading facilities are provided with reference to the HKPSG requirements, parking demand in the district, and to the satisfaction of Transport Department (TD). Please refer to the TR as accepted by TD at **Appendix 3** for details.

No Adverse Impact on Sewerage Aspect

4.12. Sewerage Impact Assessment (SIA) (**Appendix 4** refers) has been conducted and the study findings concluded that there is no adverse impact on the sewerage system due to the public housing development at the Application Site.

No Adverse Impact on Environmental Aspect

4.13. An Environmental Assessment Study (EAS) has been conducted for the public housing development to evaluate and address the potential road traffic noise, rail noise, fixed noise sources, air quality and land contamination impacts (**Appendix 5** refers). The EAS has concluded that the public housing development will have no insurmountable impact with proper building layout, design and mitigation measures to be incorporated in the development.

5. CONCLUSION

5.1. This Application is submitted under Section 16 of the Town Planning Ordinance for the proposed minor relaxation of maximum total PR from 7.0 to 7.5 and BHR from 130mPD to 149mPD for public housing development at Po Shek Wu Road. The Proposed Scheme is in line with the Government's initiative on optimising the intensification feasibility of public housing sites with a view to meeting the pressing

Appendix II of RNTPC
Paper No. A/FSS/299A

Similar Applications

Approved Applications

	Application No.	Proposed Use(s) / Development(s)	Date of Consideration	Approval Conditions
1.	A/FSS/223	Minor Relaxation of Maximum Gross Floor Area and Building Height Restrictions for Permitted Residential Development	12.9.2014	A1, A2
2.	A/FSS/236	Minor Relaxation of Maximum Gross Floor Area and Building Height Restrictions for Permitted Residential Development	7.8.2015	A1, A3-A5
3.	A/FSS/280	Proposed Minor Relaxation of Plot Ratio and Building Height Restrictions for Permitted Public Housing Development	14.5.2021	A2
4.	A/FSS/295	Proposed Minor Relaxation of Gross Floor Area and Building Height Restrictions for Permitted Public Housing Development	12.1.2024	-

Approval Conditions

A1 The submission and implementation of landscape proposal.
A2 The provision of fire service installations and water supplies for firefighting.
A3 The design and provision of car parking spaces and loading and unloading facilities.
A4 The submission and implementation of traffic improvement measures.
A5 The submission and implementation of environmental mitigation measures.

Recommended Advisory Clauses

(a) to note the comments of the Chief Highway Engineer/New Territories East, Highways Department that:

- the applicant shall note that a section of U-channel and a catchpit fall within the application site (the Site). Proposal of realignment of the U-channel and catchpit should be provided for his review and comment at detailed design stage;

(b) to note the comments of the Chief Engineer/Railway Development 1-1, Railway Development Office, Highways Department that:

- the Site is within or close to the existing railway protection boundary of the East Rail Line which has been fully commissioned. With reference to Development Bureau (DEVB) Technical Circular (Works) No. 1/2019 and/or Practice Notes for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers APP-24, the Mass Transit Railway Corporation Limited shall be consulted with respect to the operation, maintenance, safety and any future works required for the existing railways;

(c) to note the comments of the Chief Engineer/Construction, Water Supplies Department (WSD) that:

- existing water mains inside the Site may be affected. The applicant is required to either divert or protect the water mains found on the Site;

- if diversion is required, existing water mains inside the Site are needed to be diverted outside the boundary of the Site to lie in Government land. A strip of land of with a minimum width of 1.5m should be provided for the diversion of existing water mains. The cost of diversion of existing water mains upon request will have to be borne by the applicant; and the applicant shall submit all the relevant proposal to WSD for consideration and agreement before the works commence; and

- if diversion is not required, the following conditions shall apply:

  i. existing water mains are affected and no development which requires resiting of water mains will be allowed;

  ii. details of site formation works shall be submitted to the Director of Water Supplies (D of WS) for approval prior to commencement of works;

  iii. no structures shall be built or materials stored within 1.5m from the centre line(s) of water main(s). Free access shall be made available at all times for staff of the D of WS or their contractor to carry out construction, inspection, operation, maintenance and repair works;

  iv. no trees or shrubs with penetrating roots may be planted within the water works reserve or in the vicinity of the water main(s). No change of existing site condition may be undertaken within the aforesaid area without the prior agreement of the D of WS. Rigid root barriers may be required if the clear distance between the proposed tree and the pipe is 2.5m or less, and the barrier must extend below the invert level of the pipe;

v. no planting or obstruction of any kind except turfing shall be permitted within the space of 1.5m around the cover of any valve or within a distance of 1m from any hydrant outlet; and

vi. tree planting may be prohibited in the event that the D of WS considers that there is any likelihood of damage being caused to water mains;

(d) to note the comments of the Director of Leisure and Cultural Services that:

- the applicant is advised that if there is any facilities or roadside amenity areas under Leisure and Cultural Services Department (LCSD)'s purview to be affected, the applicant shall act in accordance with relevant technical circulars and guidelines promulgated by DEVB and seek LCSD's prior comments at the early planning stage;

(e) to note the comments of the Director of Fire Services that:

- the applicant is advised that detailed fire safety requirements will be formulated upon receipt of a formal submission of Short Term Tenancy/Short Term Waiver, general building plans or referral of application via relevant licensing authority. Furthermore, emergency vehicular access provision in the proposed development shall comply with the standard as stipulated in Section 6, Part D of the Code of Practice for Fire Safety in Buildings 2011, which is administrated by the Buildings Department;

(f) to note the comments of the Director of Food and Environmental Hygiene (DFEH) that:

- proper licence/permit issued by the Food and Environmental Hygiene Department (FEHD) is required if there is any food business/catering service/activities regulated by DFEH under the Public Health and Municipal Services Ordinance (Cap. 132) and other relevant legislation for the public;

- proper licence issued by FEHD is required if related place of entertainment is involved. Any person who desires to keep or use any place of public entertainment for example a theatre and cinema or a place, building, erection or structure, whether temporary or permanent, on one occasion or more, capable of accommodating the public presenting or carrying on public entertainment within Places of Public Entertainment Ordinance (Cap. 172) and its subsidiary legislation, such as a concert, opera, ballet, stage performance or other musical, dramatic or theatrical entertainment, cinematograph or laser projection display or an amusement ride and mechanical device which is designed for amusement, a Place of Public Entertainment Licence (or Temporary Place of Public Entertainment Licence) should be obtained from FEHD whatever the general public is admitted with or without payment;

- there should be no encroachment on the public place and no environmental nuisance should be generated to the surroundings. Its state should not be a nuisance or injurious or dangerous to health and surrounding environment. Also, for any waste generated from such activities/operation, the applicant should arrange disposal properly at their own expenses;

- if provision of cleansing service for new roads, streets, cycle tracks, footpaths, paved areas etc., is required, FEHD should be separately consulted. Prior consent from FEHD must be obtained and sufficient amount of recurrent cost may have to be provided to FEHD; and

- if domestic waste collection service of FEHD is required in future, prior comments from FEHD on the waste collection plan, including the accessibility and maneuverability of refuse collection vehicles to refuse collection point (RCP), should be sought. The RCP of domestic waste and the commercial waste should be clearly separated. The share use of RCP for both domestic and commercial waste is not recommended;

(g) to note the comments of the Chief Town Planner/Urban Design and Landscape, Planning Department that:

- the applicant is advised that approval of the application does not imply approval of tree works, if any, such as pruning, transplanting and felling. Application for any tree works should be submitted direct to relevant authorities for approval. For the compliance of site coverage of greenery requirements under Practice Note for Authorized Persons APP-152, submission should be made separately to relevant authorities for approval;

(h) to note the comments of the Director of Environmental Protection that:

- the applicant shall take reference to current development parameters and further refine the noise assessment at future Investigation, Design & Construction (e.g. the Environmental Assessment Study submitted) and properly implement the recommended noise mitigation measures at the Noise Impact Assessment; and

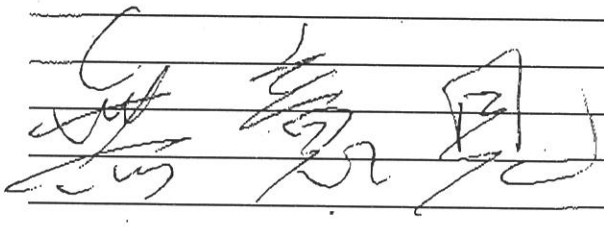
- the applicant shall properly implement the sewerage upgrading works stipulated in the agreed Sewerage Impact Assessment Report (Issue 6.0) in the submission packages.

致城市規劃委員會秘書：
專人送遞或郵遞:香港北角渣華道 333 號北角政府合署 15 樓
傳真 : 2877 0245 或 2522 8426
電郵: tpbpd@pland.gov.hk

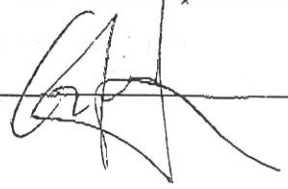
To : Secretary, Town Planning Board
By hand or post : 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong
By Fax : 2877 0245 or 2522 8426
By e-mail : tpbpd@pland.gov.hk

有關的規劃申請編號 **The application no. to which the comment relates**
A/FSS/299

意見詳情 (如有需要，請另頁說明)
Details of the Comment (use separate sheet if necessary)



「提意見人」姓名/名稱 Name of person/company making this comment 侯志強

簽署 Signature  日期 Date 2024.8.20

Seq 1 5

致城市規劃委員會秘書：
專人送遞或郵遞:香港北角渣華道 333 號北角政府合署 15 樓
傳真 : 2877 0245 或 2522 8426
電郵: tpbpd@pland.gov.hk

To : Secretary, Town Planning Board
By hand or post : 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong
By Fax : 2877 0245 or 2522 8426
By e-mail : tpbpd@pland.gov.hk

有關的規劃申請編號 The application no. to which the comment relates
A/FSS/299Received on 13/09/2024

意見詳情 (如有需要，請另頁說明)
Details of the Comment (use separate sheet if necessary)

反對

「提意見人」姓名/名稱 Name of person/company making this comment 侯志強

簽署 Signature _____ 日期 Date 2024.9.30

Seq. 3 7

致城市規劃委員會秘書：
專人送遞或郵遞:香港北角渣華道 333 號北角政府合署 15 樓
傳真 : 2877 0245 或 2522 8426
電郵: tpbpd@pland.gov.hk

To : Secretary, Town Planning Board
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By Fax : 2877 0245 or 2522 8426
By e-mail : tpbpd@pland.gov.hk

有關的規劃申請編號 The application no. to which the comment relates
A/FSS/299Received on 11/11/2024

意見詳情 (如有需要，請另頁說明)
Details of the Comment (use separate sheet if necessary)

無意見

「提意見人」姓名/名稱 Name of person/company making this comment 何志江議員

簽署 Signature _____ 日期 Date 2024.11.19

2

就規劃申請/覆核提出意見 **Making Comment on Planning Application / Review**

參考編號 **Reference Number:**	240828-002651-67551
提交限期 **Deadline for submission:**	03/09/2024
提交日期及時間 **Date and time of submission:**	28/08/2024 00:26:51
有關的規劃申請編號 **The application no. to which the comment relates:**	A/FSS/299
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Jacky Lee

意見詳情
Details of the Comment :

Housing Department claims that public housing supply is in demand and so the minor relaxation of building height and plot ratio is justified. Then how about private housing supply? It is most imbalanced now when the focus is to public housing. Also, Housing Department often opposes to private sector applications in the surroundings by all means, like always issuing repeated and unfavorable comments through circulation, while they intensify themselves! I hope that both public and private housing supply are treated not so differently in the current market... Otherwise I don't know who will continue to build flats for HK citizens other than Government.

MTR Corporation Limited
香港鐵路有限公司
www.mtr.com.hk

3

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

Our ref: T&ESD/E&IC/ES/EnvE/L1258

Date: 28 AUG 2024

By Post and Fax
(Fax no.: 2877 0245 / 2522 8426)

Dear Sir/Madam,

Comments on the Section 16 Planning Application regarding Proposed Minor Relaxation of Plot Ratio and Building Height Restrictions for Permitted Public Housing Development at Government Land at Po Shek Wu Road, Sheung Shui, New Territories (Application No. A/FSS/299)
Operational Railway Noise Concerns

The Corporation has, in general, no objection to the captioned Section 16 application (Application No. A/FSS/299) for a proposed minor relaxation of plot ratio and building height restrictions for permitted public housing development at Government Land at Po Shek Wu Road in Sheung Shui. As the proposed development is situated close to the MTR East Rail Line (EAL), noise from train operations could have a potential impact on any future occupants.

We understand that a Railway Noise Impact Assessment (RNIA) has been conducted as part of the Environmental Assessment for the development site and noise mitigation measures such as building setback, high podium design, fixed glazing and enhanced acoustic balconies have been recommended to meet the statutory requirements. We wish to caution that the proposed development is located in a noise sensitive area and could be susceptible to noise from railway operations, especially the noise emitted from the nearby rail turnout infrastructures which could result in adverse noise impact to the future occupants. While the enhanced acoustic balcony with the assumed in-out noise level difference of about 12-18dB(A) is the key noise mitigation measure for those noise sensitive receivers having direct line-of-sights towards the rail track, we recommend that the assumed noise reduction effectiveness should be verified on site before occupation, and to be reviewed and approved by the Environmental Protection Department to ensure the potential train noise issue can be satisfactorily addressed and the mitigated noise levels at the future occupants are within the statutory noise limit.

[redacted]

MTR Corporation Limited
香港鐵路有限公司
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Our ref: T&ESD/E&IC/ES/EnvE/L1258
Date: 28 AUG 2024

Should approval be granted to the Section 16 Planning Application, we urge the Town Planning Board to include in the planning approval conditions requiring the development proponent to incorporate and implement all necessary noise mitigation measures as indicated in the RNIA, at their own cost and to the satisfaction of the Director of Environmental Protection, to ensure that the future residents of the development will not be exposed to noise impacts from railway operations.

Should you have any queries, please feel free to contact our Lead Environmental Manager Ms. Catherine Leung at [redacted]

Yours faithfully,

Chan Hing Keung
Chief of Operations Engineering Service & Innovation

c.c Mr. TAM Cheuk Wai, Gary - Assistant Director of EPD (Environmental Assessment)
Mr. LEE Chee Kwan - Principal Environmental Protection Officer (Assessment & Noise)

[redacted]

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From: [redacted]
Sent: 2024-12-03 星期二 02:02:13
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: Re: A/FSS/299 Po Shek Wu Road, HA

Dear TPB Members,

It is interesting to note that this application unlike many other similar is subject to greater scrutiny by government depts. They usually sail through on the first round.

Members should therefore carefully scrutinize the application as there is usually very little comment on any PH development due to political pressure to support plans..

Mary Mulvihill

From: [redacted]
To: tpbpd <tpbpd@pland.gov.hk>
Date: Monday, 14 October 2024 2:16 AM HKT
Subject: Re: A/FSS/299 Po Shek Wu Road, ha

Dear TPB Members,

So HA has admitted that more than 50% of the erroneously named 'Open Space' is actually under cover.

Just a month ago Housing minister Winnie Ho said that public housing tenants would soon be able to enjoy a better living environment that is more age-friendly.

Ho gave an example on how a facility could achieve age inclusivity.

"Very usually, we see the grandparents bring their grandchildren to the playground. So if the grandchildren were playing, where should the grandparents sit?"

"**Can they sit comfortably under the tree when they watch the children play**, and at the same time, can the grandparents can have a social chat to share necessary information? That is the kind of environment we want to create," Ho added.

Certainly not at his estate with much of the recrational space all around cement and the little outdoor provision on a podium surrounded by high walls that will obstruct penetration of sunlight, where even potted plants will struggle to survive.

But now that any media that challenges absurd statements made by government officals is hounded and maligned, the community has no avenue through which such fabrication.

That the govt depts have not questioned the lack of detail re the provision of essential services like children's playground and elderly excercise amenities is appalling but expected.

Perhaps some TPB members would be brave enough to highlight the issue?

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Mary Mulvihill

From: [redacted]
To: tpbpd <tpbpd@pland.gov.hk>
Date: Tuesday, 3 September 2024 2:53 AM HKT
Subject: A/FSS/299 Po Shek Wu Road, ha

A/FSS/299

Government Land at Po Shek Wu Road, Sheung Shui

Site area: About 13,800sq.m

Zoning: "Res (Group A) 5"

Applied development: Proposed MR of PR and BHR for Permitted Public Housing Development

2 Towers / 1,904 Units / PR 7.5 (7.00) / 149mPD (130mPD) / OS 5,332sq.mts / 185 Vehicle Parking

Dear TPB Members,

Strong Objections. Now that the HA has finally taken steps to monitor tenants and ensure that only those who genuinely fit the criteria are allowed to occupy units, that is freeing up hundreds of units and will certainly help curb future abuses, there is no longer the excuse to cram families into ever higher towers with ever decreasing circulation and recreational space.

Members should note that the majority of the SO CALLED Open Space is actually under cover. In addition, the small section that is open to the sky is between two very high walls so penetration of natural light and ventilation will be extremely limited.

Also of note is the absence of any dedicated recreational facilities, there is only the vague reference to as Community Play Area. But with a planned population of over 5,000 there should be a dedicated Children's Playground of 400sq.mts under the HKPSG. And this playground should be genuinely open, as to the skies, so that youngsters are guaranteed the necessary exposure to sunlight so that they absorb sufficient levels of essential Vit D.

It is very clear that the limited recreational facilities provided in these new excessively high rise PH estates will generate further increases in mental health and other issues going forward.

Members have a duty to ensure that the new developments enhance the quality of life of residents.

Mary Mulvihill

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From: [redacted]
Sent: 2024-09-03 星期二 02:53:43
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
Subject: A/FSS/299 Po Shek Wu Road, ha

A/FSS/299

Government Land at Po Shek Wu Road, Sheung Shui

Site area: About 13,800sq.m

Zoning: "Res (Group A) 5"

Applied development: Proposed MR of PR and BHR for Permitted Public Housing Development

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From: [redacted]
Sent: 2024-10-14 星期一 02:16:52
To: tpbpd/PLAND <tpbpd@pland.gov.hk>
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Subject: A/FSS/299 Po Shek Wu Road, ha

A/FSS/299

Government Land at Po Shek Wu Road, Sheung Shui

Site area: About 13,800sq.m

Zoning: "Res (Group A) 5"

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Applied development: Proposed MR of PR and BHR for Permitted Public Housing Development

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