Appendix D

Preliminary Environmental Assessment

CONFIDENTIAL

Civil Engineering and Development Department

Application for Permission under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Flat and Shop and Services and Eating Place at Non-Domestic Podium within "Government, Institution or Community (1)" Zone of Planning Area 34E of Hung Shui Kiu/ Ha Tsuen New Development Area

Preliminary Environmental Assessment Report

278463-REP-0XX-01

Job number 278463

Ove Arup & Partners Hong Kong Ltd
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
www.arup.com

ARUP

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1 INTRODUCTION

1.1 Background

1.1.1 Ove Arup and Partners Hong Kong Limited (Arup) was commissioned by the West Development Office (WDO) of the Civil Engineering and Development Department (CEDD) of the Government of Hong Kong Special Administrative Region (HKSAR) to provide a Preliminary Environmental Assessment (PEA) to support Section 16 Planning Application for proposed flat and shop and services and eating place at non-domestic podium within "Government, Institution or Community(1)" ("G/IC(1)") Zone of Area 34E of the approved Hung Shui Kiu and Ha Tsuen Outline Zoning Plan ("the approved HSK/HT OZP") No. S/HSK/2 ("the proposed development").

1.1.2 As the proposed change is related to land use only, this PEA presents a study of the potential air quality and noise impact associated with the proposed change in order to confirm the environmental suitability of the proposed development.

1.2 Site Location

1.2.1 The Application Site is located within Hung Shiu Kiu/ Ha Tsuen (HSK/HT) New Development Area (NDA). Its location is shown in **Figure 1.1**. Under the current scheme, as shown in **Appendix 1.1**, flat, shop and services, and eating place are proposed in "G/IC(1)" Zone with a total plot ratio of 6.5.

1.3 Purpose and Structure of this Report

1.3.1 This PEA report has been prepared under the Agreement CE 1/2020 (CE) "Hung Shui Kiu/Ha Tsuen New Development Area Package A Works for Second Phase Development – Design and Construction" ("the Agreement"). Considering the proposed change, nature and scope of the proposed development, it is anticipated that there would be no additional environmental impacts arising from the proposed change during the construction of the proposed development. During the operation phase, the identified potential sources of impacts on the proposed development would be vehicular emissions, traffic noise from nearby roads and fixed noise impact from nearby fixed noise sources.

1.3.2 The purpose of this PEA Report is to evaluate the identified potential environmental impacts on the proposed development with respect to the guidance for environmental considerations provided in Chapter 9 – Environment of the Hong Kong Planning Standards & Guidelines (HKPSG).

1.3.3 The structure of this Report is as follows:

Chapter	Title	Aims
1	Introduction	To give a general introduction of the Project.
2	Air Quality	To review the potential air quality impacts of the proposed development. Propose the necessary mitigation measures to be implemented during operation phase of the development.

Chapter	Title	Aims
3	Noise	To identify and assess the potential noise impacts of the proposed development. Propose the necessary mitigation measures be implemented during operation phase of the development.
4	Conclusion	To conclude the findings of this PEA

2 AIR QUALITY

2.1 General

2.1.1 The proposed change under this application includes minor change of land use of the Application Site. This PEA presents a study of the potential air quality impact associated with the proposed change in order to confirm the environmental suitability of the proposed development. As the major dusty construction activities, i.e. site formation works, for the current footprint of proposed development have been addressed in the approved Hung Shui Kiu New Development Area Environmental Impact Assessment report (AEIAR-203/2016) ("the approved HSK EIA report"), and the construction details, the construction period, the construction methods, the total area for site formation and excavation, the amount of excavated material, the number of dump trucks needed per time over work sites as well as the number of on-site mechanical equipment to be used, would be the same as that assumed in the approved HSK EIA report, no adverse construction dust impacts would be anticipated. Moreover, as prefabrication method would be adopted, superstructure works are not considered dusty construction activities, and hence significant dust impacts from superstructure works due to the change regarding land use is not anticipated. In view of the nature and scope of the proposed change to the proposed development, it is anticipated that there would be no additional environmental impacts arising from the proposed change during the construction of the proposed development.

2.1.2 This chapter reviews the potential air quality impacts on the proposed development during the operational phase. The review has been made reference to the following relevant legislation, standards and guidelines:

- Air Pollution Control Ordinance (APCO) (Cap. 311);
- Hong Kong Planning Standards and Guidelines (HKPSG).

Air Pollution Control Ordinance (APCO) (Cap. 311)

2.1.3 The principal legislation for controlling air pollutants is the APCO (Cap. 311) and its subsidiary regulations, which defines statutory Air Quality Objectives (AQOs).

2.1.4 The APCO (Cap.311) provides the power for controlling air pollutants from a variety of stationary and mobile sources and encompasses a number of AQOs. In addition to the APCO, the following overall policy objectives are laid down in Chapter 9 of the HKPSG as follows:

- Limit the contamination of the air in Hong Kong, through land use planning and through the enforcement of the APCO to safeguard the health and well-being of the community; and
- Ensure that the AQOs for 7 common air pollutants are met as soon as possible.

2.1.5 Prevailing AQOs are listed in **Table 2.1** below.

Table 2.1 Hong Kong Air Quality Objectives

Pollutant	Limits on Concentration, µg/m^3 [1] (Number of Exceedance per year allowed in brackets)				
	10-min	1-hr	8-hr	24-hr [2]	Annual [2]
Sulphur Dioxide (SO_2)	500 (3)			40 (3)	

Pollutant	Limits on Concentration, µg/m³ [1] (Number of Exceedance per year allowed in brackets)				
	10-min	1-hr	8-hr	24-hr [2]	Annual [2]
Respirable Suspended Particulates (RSP, or PM_{10}) [3]				75 (9)	30
Fine Suspended Particulates (FSP, or $PM_{2.5}$) [4]				37.5 (18)	15
Carbon Monoxide (CO)		30,000 (0)	10,000 (0)	4,000 (0)	
Nitrogen Dioxide (NO_2)		200 (18)		120 (9)	40
Ozone (O_3)			160 (9)		
Lead (Pb)					0.5

Note:
[1] Measured at 293K and 101.325 kPa (for gaseous pollutants only).
[2] Arithmetic mean.
[3] RSP means suspended particulates in air with a nominal aerodynamic diameter of 10 micrometres or smaller.
[4] FSP means suspended particulates in air with a nominal aerodynamic diameter of 2.5 micrometres or smaller.

Hong Kong Planning Standards and Guidelines

2.1.6 Chapter 9 of HKPSG outlines the environmental requirements that need to be considered in land use planning. The HKPSG lists out environmental factors influencing land use planning and recommend buffer distances for land uses. It also recommends minimum setback distance from different categories of air pollution sources. **Table 2.2** shows these minimum setback distances.

Table 2.2 Guidelines on buffer distance between air pollution sources and different land uses

Pollution Source	Parameter	Buffer Distance	Permitted Uses
Road and Highways	Type of Road		
	Trunk Road and Primary Distributor	> 20m	Active and passive recreational uses
		3 – 20m	Passive recreational uses
		< 3m	Amenity areas
	District Distributor	> 10m	Active and passive recreational uses
		< 10m	Passive recreational uses
	Local Distributor	> 5m	Active and passive recreational uses
		< 5m	Passive recreational uses
	Difference in Height between Industrial Chimney Exit and the Site		

Pollution Source	Parameter	Buffer Distance	Permitted Uses
Industrial Areas	< 20m	> 200m	Active and passive recreational uses
		5 – 200m	Passive recreational uses
	20 – 30m (*)	> 100m	Active and passive recreational uses
		5 – 100m	Passive recreational uses
	30m – 40m	> 50m	Active and passive recreational uses
		5 – 50m	Passive recreational uses
	> 40m	> 10m	Active and passive recreational uses
Construction and Earth Moving Activities	-	< 50m	Passive recreational uses
		> 50m	Active and passive recreational uses

Note:
[1] In situations where the height of chimneys is not known, use the set of guidelines marked with an asterisk for preliminary planning purpose and refine as and when more information is available.
[2] The buffer distance is the horizontal, shortest distance from the boundary of the industrial lot, the position of existing chimneys or the edge of road kerb, to the boundary of open space sites.
[3] The guidelines are generally applicable to major industrial areas but NOT individual large industrial establishments which are likely to be significant air pollution sources. Consult EPD when planning open space sites close to such establishments.
[4] Amenity areas are permitted in any situation.

2.2 Description of the Environment

2.2.1 The proposed development is situated at the southern part of the approved HSK/HT OZP. The Application Site falls within area zoned "G/IC(1)" Zone in the approved HSK/HT OZP No. S/HSK/2. It is located adjacent to Kong Sham Western Highway (KSWH).

2.2.2 It is noted that the planned Environmentally Friendly Transportation Services (EFTS) route (now referred to as the Smart and Green Mass Transit System (SGMTS)) will traverse the core residential and commercial area including the proposed development. Considering the SGMTS will be powered by electricity, there is no air pollutant emission and therefore no air quality impact associated with the SGMTS is anticipated.

2.2.3 Site surveys were conducted in February 2025 to review the validity of the existing chimneys in the vicinity of the Application Site as identified in the approved HSK EIA report. No existing and planned industrial emission was identified within 200 m from the Application Site as shown in **Figure 2.1**. The setback distance requirements as stipulated in HKPSG could be well satisfied, and air quality impact from industrial emission is not considered to be of concern to the proposed development. Therefore, this section addresses the potential air quality impact associated with road vehicular emissions on the proposed development.

2.3 Air Sensitive Receivers

2.3.1 As the major construction activities, i.e. site formation works, that would generate fugitive dust, of the Application Site are targeted to complete by Year 2030, existing Air Sensitive Receivers (ASRs) and planned/ committed ASRs (Year 2019 – 2030) in the approved HSK EIA report were reviewed. Existing ASRs identified in the approved HSK EIA report have been reviewed by means of reviewing topographic maps, aerial photos and land status plans. They mainly include place of worship, residential, educational and recreational uses. Planned/committed ASRs have been identified by referring to the approved HSK EIA report.

2.3.2 The locations of representative existing and planned ASRs within 500m from the boundary of the Application Site, with reference to the approved HSK EIA report, are summarized in **Table 2.3**. Their locations are illustrated in **Figure 2.2**.

Table 2.3 Representative ASRs

ASR ID	Description	Land Use	Approx. Distance from boundary of Application site boundary (m)
A410	Galore Garden	Res	500
A415	Tin Sum Tsuen	Res	490
P1615	Planned Industrial Uses	I	150
P1616	Planned Industrial Uses	I	300
P1617	Planned Industrial Uses	I	210
P1618	Planned Industrial Uses	I	260
P1619	Planned Industrial Uses	I	140
P1620	Planned Industrial Uses	I	250
P1621	Planned Industrial Uses	OU	130
P1622	Planned Industrial Uses	OU	170
P1623	Planned Industrial Uses	I	80
P1629	Planned Industrial Uses	I	480
R1630	Planned Industrial Uses	I	470
P1631	Planned Industrial Uses	I	400

Note:
[1] Res – Residential; OU – Other Specified Uses; I – Industrial.

2.4 Construction Dust Impact

2.4.1 According to the construction dust impact assessment in the approved HSK EIA report, the construction dust impacts of current footprint of the proposed development are included under the same assessment scenario, i.e. within Year 2019 and Year 2030. The major dusty construction activities, i.e. site formation works, for the proposed development have therefore been addressed in the approved HSK EIA report. As confirmed with the Project Engineer, the construction details, the construction period, the construction methods, the total area for site formation and excavation, the amount of

excavated material, the number of dump trucks needed per time over work sites as well as the number of on-site mechanical equipment to be used, would be the same as that assumed in the approved HSK EIA report. With the implementation of mitigation measures as recommended in the approved HSK EIA report, no adverse construction dust impacts would be anticipated.

2.4.2 Moreover, the proposed change in land use would only affect the superstructure works. As prefabrication method would be adopted, superstructure works are not considered dusty construction activities, and hence significant dust impacts from superstructure works due to the change regarding land use is not anticipated.

2.4.3 As no additional construction dust impact is anticipated due to the change regarding land use, good site practices and mitigation measures as recommended in the approved HSK EIA report shall be implemented to ensure no adverse construction dust impact is anticipated from the proposed development.

2.5 Vehicular Emission Impact

2.5.1 The corresponding recommended minimum buffer distance in the HKPSG for the surrounding major roads are summarized in **Table 2.4** below.

Table 2.4 Classification of type of road and buffer distance for nearby major roads

Name of Road	Type of Road [1]	HKPSG Recommended Setback Distance (m)
Road P1 [2]	PD	20
Road D6 [2]	DD	10
Road L25 [2]	LD	5

Notes:
[1] PD – Primary Distributor Road; DD – District Distributor Road; LD – Local Distributor Road.
[2] The road type of planned roads is determined from the road configuration by traffic engineer and submitted to TD for confirmation in the Traffic Impact Assessment Report for this study.

2.5.2 **Figure 2.3** shows the minimum setback distances from nearby roads. Based on the latest preliminary building layout plan for the proposed development at the time of this PEA submission, all air-sensitive uses, including openable windows, fresh air intake of mechanical ventilation and recreational uses in the open area, could comply with the HKPSG's minimum setback distance requirement. Adverse vehicular emission impact on the proposed development is not anticipated.

3 NOISE

3.1 Legislation, Standards and Guidelines

3.1.1 As the proposed change is related to land use only, this PEA presents a study of the potential noise impact associated with the proposed change in order to confirm the environmental suitability of the proposed development. Considering the proposed change, nature and scope of the proposed development, it is anticipated that there would be no additional environmental impacts arising from the proposed change during the construction of the proposed development.

3.1.2 This chapter reviews the potential noise impacts on the proposed development during the operational phase. The review has been made reference to the following relevant legislation, standards and guidelines:

- Noise Control Ordinance (NCO) (Cap.400);
- Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM); and
- Hong Kong Planning Standards and Guidelines (HKPSG);

Noise Standards for Road Traffic Noise

3.1.3 The criteria for assessing road traffic noise follows the HKPSG and is in L_{10} (1 hour). For domestic premises, hotels, hostels and offices, the criterion is 70dB(A). For educational institutions and places of public worship, the criterion is 65dB(A). For hospitals, clinics etc., a more stringent criterion of 55dB(A) is stipulated. It should be noted that all these L_{10} (1 hour) criteria only apply to uses that rely on openable windows for ventilation.

Noise Standards for Fixed Noise

3.1.4 The HKPSG states that in order to plan for a better environment, all planned fixed noise sources should be located and designed that when assessed in accordance with the IND-TM, the level of intruding noise at the façade of the nearest sensitive use should be at least 5dB(A) below the appropriate Acceptable Noise Levels (ANLs) shown in Table 2 of the IND-TM or, in the case of the background being 5dB(A) lower than the ANL, should not be higher than the background.

3.1.5 The ANL for a particular NSR is dependent upon the Area Sensitive Rating of the area within which the NSR is located, and the time period under consideration.

3.1.6 Area Sensitivity Rating is defined in the IND-TM issued under the NCO. The Area Sensitivity Rating depends on the type of area and the degree of impact that Influencing Factors (IFs) have on the NSRs. Industrial area, major road (with an annual average daily traffic (AADT) flow in excess of 30,000) or the area within the boundary of Hong Kong International Airport shall be considered to be an IF.

3.1.7 The appropriate Area Sensitivity Rating for the NSR shall be assigned on the basis of **Table 3.1**. Having regard to the appropriate Area Sensitivity Rating and the time period under consideration, the appropriate ANL for a given NSR could be determined from **Table 3.2**. All these criteria only apply to NSRs relying on openable windows for ventilation.

Table 3.1 Area Sensitivity Ratings

Type of area containing Area Sensitivity Rating	Degree to which NSR is affected by IF		
	Not Affected	Indirectly Affected	Directly Affected
i) Rural area, including country parks or village type developments	A	B	B
ii) Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
iii) Urban area	B	C	C
iv) Area other than those above	B	B	C

Table 3.2 Acceptable Noise Level for Different Area Sensitivity Ratings

Time Period	Area Sensitivity Rating		
	A [1]	B [1]	C [1]
Day (0700 to 1900 hours)	60 (55)	65 (60)	70 (65)
Evening (1900 to 2300 hours)			
Night (2300 to 0700 hours)	50 (45)	55 (50)	60 (55)

Notes:

[1] The brackets show the permissible noise levels at NSRs for any planned fixed plant noise sources, i.e. 5 dB(A) below the corresponding ANLs.

3.2 Description of the Environment

3.2.1 The proposed development is situated at the western part of the approved HSK/HT OZP. The Application Site falls within area zoned "G/IC(1)" Zone in the approved HSK/HT OZP No. S/HSK/2. The existing noise climate in the vicinity of these sites are mainly dominated by traffic noise from KSWH. The noise impact and potential required mitigation measures of the proposed EFTS (now referred to as the SGMTS) will be separately addressed in the PER of SGMTS.

3.2.2 In regard to the proposed change in land use, major concerns would be the potential road traffic noise impact from the nearby roads. Another concern would be the potential fixed plant noise impact on the proposed development. This section addresses road traffic noise and fixed plant noise impacts on the proposed development. The building block layouts of the Application Site have been designed agreed with respective authorities and confirmed to be practicable in fulfilling the proposed development restrictions.

3.3 Road Traffic Noise Assessment

Assessment Methodology

3.3.1 Road traffic noise calculation is based on the method of UK Department of Transport "Calculation of Road Traffic Noise (CRTN)", which is the same as that adopted in the approved HSK EIA report. The predicted noise levels at the noise sensitive receivers

(NSRs) include 2.5dB(A) facade reflection and correction factors of effects due to gradient, distance, view angle, road surface and barriers.

3.3.2 The computer programme, RoadNoise 2000, has been used to model traffic noise from road networks. It complies with the Calculation of Road Traffic Noise (CRTN) developed by the UK Department of Transport. The road traffic noise will be presented in terms of noise levels exceeded for 10% of the one-hour period during peak traffic flow [i.e. L_{10}(1hr) dB(A)].

3.3.3 Calculations of future road traffic noise are based on the peak hourly flow for the maximum traffic projected within a 15 years period upon full operation of the roadworks or full occupation of the NSRs. Representative NSRs have been identified according to the latest building block layouts of the proposed development, as shown in **Figure 3.1**.

Assessment Year

3.3.4 The population intake of proposed development will be no later than Year 2033. The population intake year is only assumed for assessment purpose only. Calculation of future road traffic noise level is based on the peak hourly flow for the maximum traffic projected within a 15-year period upon commencement of the operation of the proposed road improvement works. The traffic projection has taken into account the induced traffic due to the planned developments in the vicinity of the site. As advised by the Traffic Consultant, since the Hong Kong territory population is forecasted to reach the peak in 2041, the assessment year for road traffic noise is Year 2041 (which is the maximum traffic projection within 15 years after full operation for the proposed development/ road network). Details of traffic forecast in Year 2041 are given in **Appendix 3.1**.

Proposed Direct Noise Mitigation Measures

3.3.5 The direct mitigation measures as proposed in the approved HSK EIA report, including noise barrier and Low Noise Road Surfacing (LNRS) have been reviewed under a separate Environmental Review for the Agreement. In view of design and engineering constraints such as visibility issues, space availability, etc., the extent of some noise barriers and LNRS proposed under the approved HSK EIA report have been adjusted. Proposed direct noise mitigation measures under the separate Environmental Review for the Agreement within the 300m assessment area are indicated in **Figure 3.2** and summarised in **Table 3.4** and **3.5**, which are included in the basecase scenario.

Table 3.4 Summary of Proposed Noise Barriers

Barrier ID	Barrier Type	Height, mAG [1]	Approx. Length (m)
VB35	Vertical Barrier	7m	75
VB36	Vertical Barrier	6m	50
NCB37	Cantilevered Barrier	5+3m at 45 degrees	90
NCB38	Cantilevered Barrier	5+3m at 45 degrees	95
CB3	Cantilevered Barrier	5.5+2.5m at 45 degrees	140
CB3a	Cantilevered Barrier	5.5+2.5m at 45 degrees	80

Note:
[1] mAG means meter above ground level

Table 3.5 Summary of Proposed Low Noise Road Surfacing (LNRS)

LNRS ID	Road	Approx. Length (m)
LNS11	Proposed Road L5	410
LNS32	Proposed Road P1	760
NLNS1	Road L23	95

Road Traffic Noise Assessment Result – Basecase Scenario

3.3.6 Results of the road traffic noise assessment for the proposed residential development are summarised in **Table 3.6.** Details are presented in **Appendix 3.2**.

3.3.7 It is estimated that a total of 22 residential flats will be exposed to noise level in excess of the 70dB(A) criterion with an overall noise compliance rate of 97.6%.

Table 3.6 Road traffic noise assessment results – Residential Blocks (Basecase Scenario)

Total No. of Flats	No. of Flats Exceeding the Noise Criteria	Max. Noise Level, dB(A)	Compliance Rate
931	22	71.5	97.6%

Road Traffic Noise Assessment Result – Mitigated Scenario

3.3.8 At-receiver mitigation measures are proposed with reference to the approved HSK EIA report for the Project, which include:

- Acoustic window: -5dB(A)

3.3.9 Locations of the proposed acoustic windows are indicated in **Figure 3.3** and are summarised in **Table 3.7**.

Table 3.7 Locations of Proposed Acoustic Windows for Mitigating Road Traffic Noise

Acoustic Window at NSR	Floors Requiring Acoustic Window
R301c	5/F-20/F
R402a	5/F-10/F

3.3.10 With the provision of acoustic windows in place, all residential flats will be protected and a compliance rate of 100% could be achieved. Detailed results are presented in **Appendix 3.3**. It is considered that with proper design and provision of additional at-receiver mitigation measures, no adverse road traffic noise impact is anticipated. The detailed design of the at-receiver mitigation measures shall be reviewed at a later stage.

3.4 Fixed Noise Assessment

Assessment Methodology

3.4.1 The fixed noise impact assessment has been assessed in the approved HSK EIA report. The assumptions, such as source term, operation, tonal characteristics and screening, adopted in the approved HSK EIA report have been reviewed and considered still valid for the fixed noise impact assessment. Therefore, this assessment adopted the same methodology, assumptions and noise criteria as in the approved HSK EIA report. Potential fixed noise sources during operational phase in this assessment remains the same as those presented in the approved HSK EIA report. Representative NSRs have been updated according to the latest block layout plan of the proposed development.

Fixed Noise Assessment Result

3.4.2 Representative worst affected NSRs at each proposed development are selected for the assessment. The locations of the selected representative assessment points at the proposed residential block are illustrated in **Figure 3.4**. The predicted fixed noise levels are summarised in **Table 3.8** and detailed calculation shall be referred to **Appendix 3.4**.

Table 3.8 Predicted Fixed Noise Levels at Representative NSRs

Representative NSR	ASR	Noise Criteria, dB(A)			Predicted Leq30mins. dB(A)		
		Day-time	Evening-time	Night-time	Day-time	Evening-time	Night-time
R101a	C	65	65	55	63	63	53
R301c	C	65	65	55	63	63	53
R402a	C	65	65	55	57	57	47

3.4.3 Results indicate that the predicated fixed noise impact on the proposed development would comply with the respective noise criteria stipulated in the HKPSG and NCO. Adverse fixed noise sources impacts are not anticipated and mitigation measures on the proposed development are therefore not required.

4 CONCLUSION

4.1 General

4.1.1 In view of the nature and scope of the proposed change to the proposed development, it is anticipated that there would be no additional environmental impacts arising from the proposed change during the construction stage of the proposed development. In order to confirm the acceptability of the proposed development, a PEA has been conducted to evaluate the potential environmental impacts due to proposed change during the operation phase of the proposed development. Potential environmental impacts include air quality and noise impacts. It is concluded that there are no insurmountable environmental impacts on the proposed development and the key findings are summarized as below.

4.2 Air Quality

4.2.1 The current design scheme has allowed sufficient setback from the surrounding roads to ensure no air sensitive uses, including openable windows, fresh air intake of mechanical ventilation and recreational uses in the open area, would be located within the buffer zones, in order to meet the minimum requirement as stipulated in the HKPSG. Hence potential vehicular emission impact to the proposed development is not anticipated, subject to further review to be undertaken in detailed design stage where necessary.

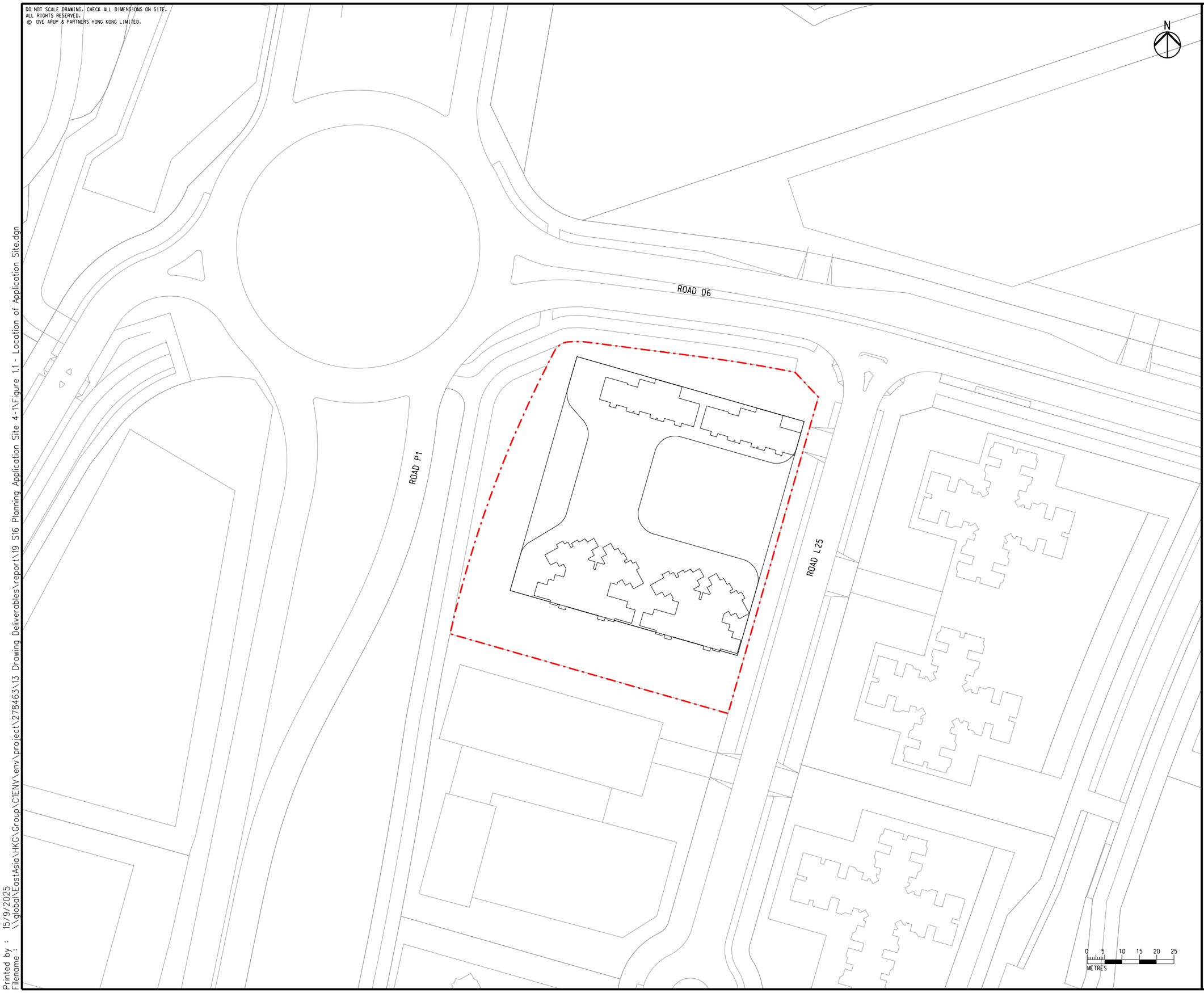
4.2.2 No existing and planned industrial emission was identified within 200 m from the proposed development. Hence, adverse air quality impact due to chimney emission is not anticipated.

4.3 Noise

4.3.1 Based on traffic forecast at year 2041, the predicted traffic noise levels of most assessment points for residential use due to existing and future roads at all noise sensitive receivers would comply with the noise standard of 70 dB(A). For the facades predicted with noise exceedance, acoustic windows could be adopted to minimise the traffic noise level to acceptable level. With the adoption of acoustic windows, no adverse road traffic noise impact on the proposed development is anticipated.

4.3.2 Based on the fixed plant noise assessment findings, the predicted noise level at all representative NSRs within the proposed development would comply with the respective noise criteria and hence no mitigation measures are required.

Figures of Preliminary Environmental Assessment Report



LEGEND

APPLICATION SITE

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/25

Consultant

ARUP

Project Title

Agreement No. CE 1/2020 (CE)
Hung Shui Kiu / Ha Tsuen
New Development Area Package A
Works for Second Phase Development
– Design and Construction

Drawing title

LOCATION OF APPLICATION SITE

Drawing no.	Rev.
FIGURE 1.1	A

Drawn	Date	Checked	Approved
GL	09/25	JS	FC

Scale	Status
1:1000 @ A3	PRELIMINARY

CEDD 土木工程拓展署
Civil Engineering and Development Department

Printed by : 15/9/2025
Filename : \\global\EastAsia\HKG\Group\C1ENV\env\project\278463\13 Drawing Deliverables\report\19 S16 Planning Application Site 4-1\Figure 1.1 - Location of Application Site.dgn

N

P1616
P1615
P1623
P1620
P1619
P1618
P1617
P1622
P1621
P1631
P1630
P1629

KONG SHAM WESTERN HIGHWAY

SAN SANG TSUEN

A410

A415

TIN SAM

0 20 40 60 80 100
METRES

LEGEND

- APPLICATION SITE
- 500m ASSESSMENT AREA
- EXISTING AIR SENSITIVE RECEIVERS
- PLANNED AIR SENSITIVE RECEIVERS

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/25

Consultant

ARUP

Project Title

Agreement No. CE 1/2020 (CE)
Hung Shui Kiu / Ha Tsuen
New Development Area Package A
Works for Second Phase Development
– Design and Construction

Drawing title

LOCATIONS OF REPRESENTATIVE AIR SENSITIVE RECEIVERS

Drawing no.	Rev.
FIGURE 2.2	A

Drawn	Date	Checked	Approved
GL	09/25	JS	FC

Scale	Status
1:4000 @ A3	PRELIMINARY

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 15/9/2025
Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\278463\13 Drawing Deliverables\report\19 S16 Planning Application Site 4-1\Figure 2.2 - Locations of Representative Air Sensitive Receivers.dgn

RELOCATED CHIMNEYS

RELOCATED CONCRETE BATCHING PLANTS

SAN SANG SAN TSUEN

SAN SANG TSUEN

TIN SAM

KONG SHAM WESTERN HIGHWAY

N

0 20 40 60 80 100
METRES

LEGEND

- APPLICATION SITE
- 200m ASSESSMENT AREA
- RELOCATED CHIMNEY

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/25

Consultant

ARUP

Project Title

Agreement No. CE 1/2020 (CE)
Hung Shui Kiu / Ha Tsuen
New Development Area Package A
Works for Second Phase Development
– Design and Construction

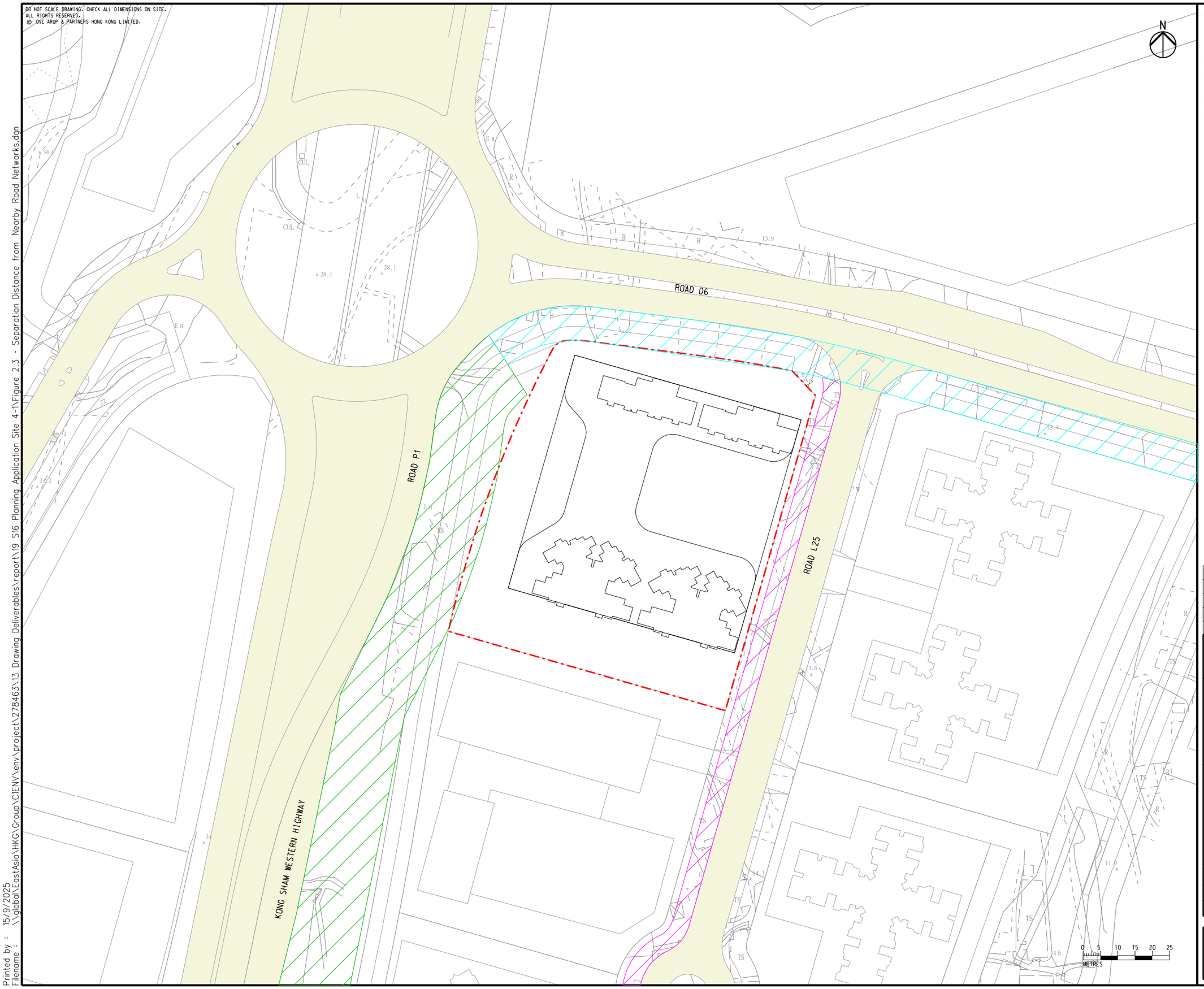
Drawing title

LOCATIONS OF CONCRETE BATCHING PLANTS AND CHIMNEYS

Drawing no.			Rev.
FIGURE 2.1			A
Drawn: GL	Date: 09/25	Checked: JS	Approved: FC
Scale: 1:4000 @ A3		Status: PRELIMINARY	

CEDD 土木工程拓展署
Civil Engineering and Development Department

Printed by : 15/9/2025
Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\278463\13 Drawing Deliverables\report\19 S16 Planning Application Site 4-1\Figure 2.1 - Locations of Concrete Batching Plants and Chimneys.dgn



LEGEND

- APPLICATION SITE
- PUBLIC ROAD
- 20m SETBACK DISTANCE
- 10m SETBACK DISTANCE
- 5m SETBACK DISTANCE

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/25

Consultant

ARUP

Project Title

Agreement No. CE 1/2020 (CE)
Hung Shui Kiu / Ha Tsuen
New Development Area Package A
Works for Second Phase Development
– Design and Construction

Drawing title

SEPARATION DISTANCE
FROM NEARBY ROAD NETWORKS

Drawing no.			Rev.
FIGURE 2.3			A
Drawn: GL	Date: 09/25	Checked: JS	Approved: FC
Scale: 1:1000 @ A3		Status: PRELIMINARY	

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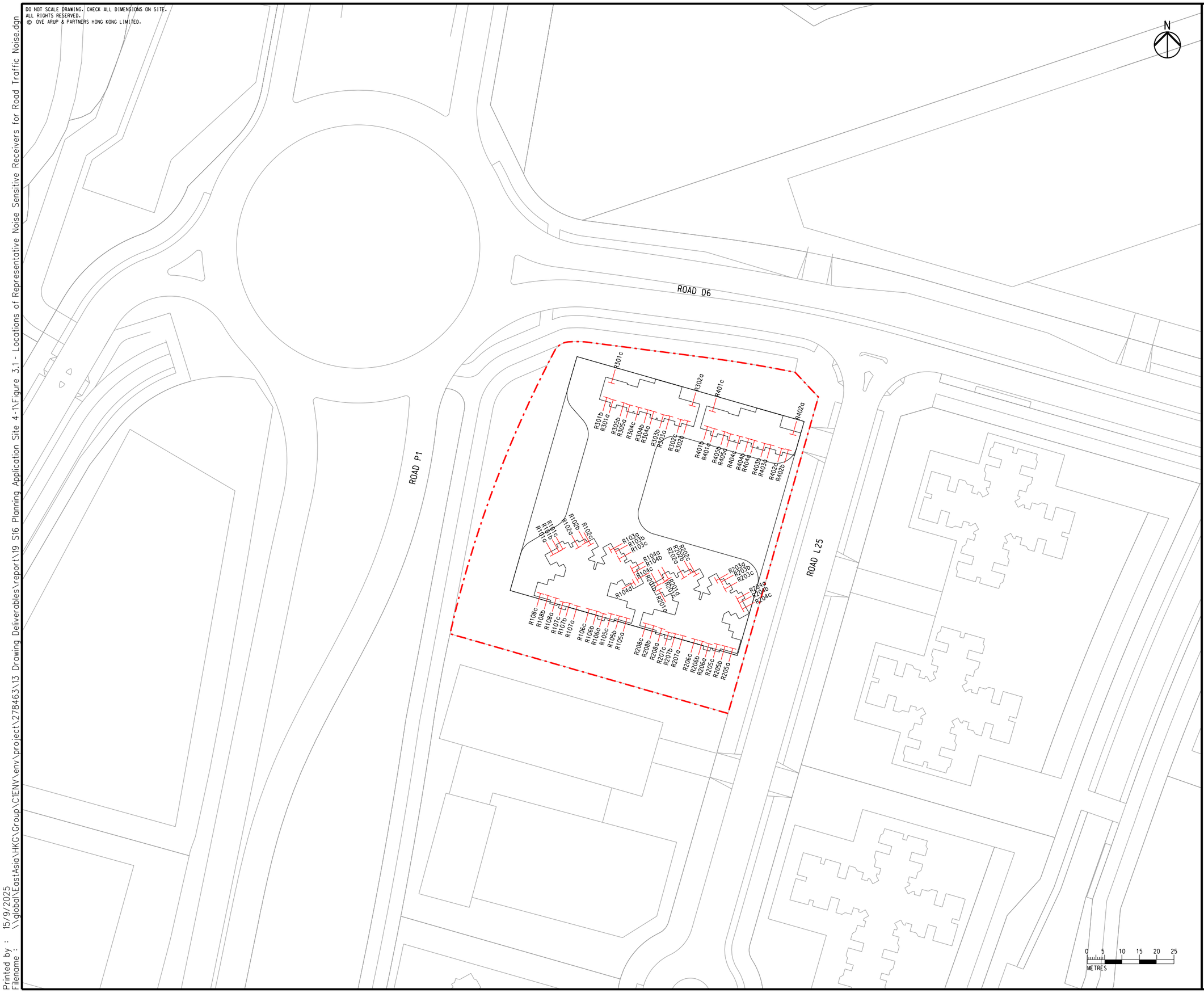
Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\278463\13 Drawing Deliverables\report\19 S16 Planning Application Site 4-1\Figure 2.3 - Separation Distance from Nearby Road Networks.dgn



LEGEND

APPLICATION SITE

REPRESENTATIVE NOISE SENSITIVE RECEIVERS

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/25

Consultant

ARUP

Project Title

Agreement No. CE 1/2020 (CE)
Hung Shui Kiu / Ha Tsuen
New Development Area Package A
Works for Second Phase Development
– Design and Construction

Drawing title

LOCATIONS OF REPRESENTATIVE NOISE SENSITIVE RECEIVERS FOR ROAD TRAFFIC NOISE

Drawing no.			Rev.
FIGURE 3.1			A
Drawn: GL	Date: 09/25	Checked: JS	Approved: FC
Scale: 1:1000 @ A3		Status: PRELIMINARY	

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 15/9/2025
Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\278463\13 Drawing Deliverables\report\19 S16 Planning Application Site 4-1\Figure 3.1 - Locations of Representative Noise Sensitive Receivers for Road Traffic Noise.dgn

N

VB35
7m
LNS11
VB36
6m
5+3m
NCB37
NCB38
5+3m
LNS32
CB3a
5.5+2.5m
NLNS1
CB3
5.5+2.5m

0 20 40 60 80 100
METRES

LEGEND

- APPLICATION SITE
- 300m ASSESSMENT AREA
- VERTICAL BARRIER
- CANTILEVER BARRIER
- LOW NOISE ROAD SURFACING (LNRS)

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/25

Consultant

ARUP

Project Title

Agreement No. CE 1/2020 (CE)
Hung Shui Kiu / Ha Tsuen
New Development Area Package A
Works for Second Phase Development
– Design and Construction

Drawing title

LOCATIONS OF PROPOSED DIRECT ROAD TRAFFIC NOISE MITIGATION MEASURES

Drawing no.	Rev.
FIGURE 3.2	A

Drawn	Date	Checked	Approved
GL	09/25	JS	FC

Scale	Status
1:4000 @ A3	PRELIMINARY

CEDD
土木工程拓展署
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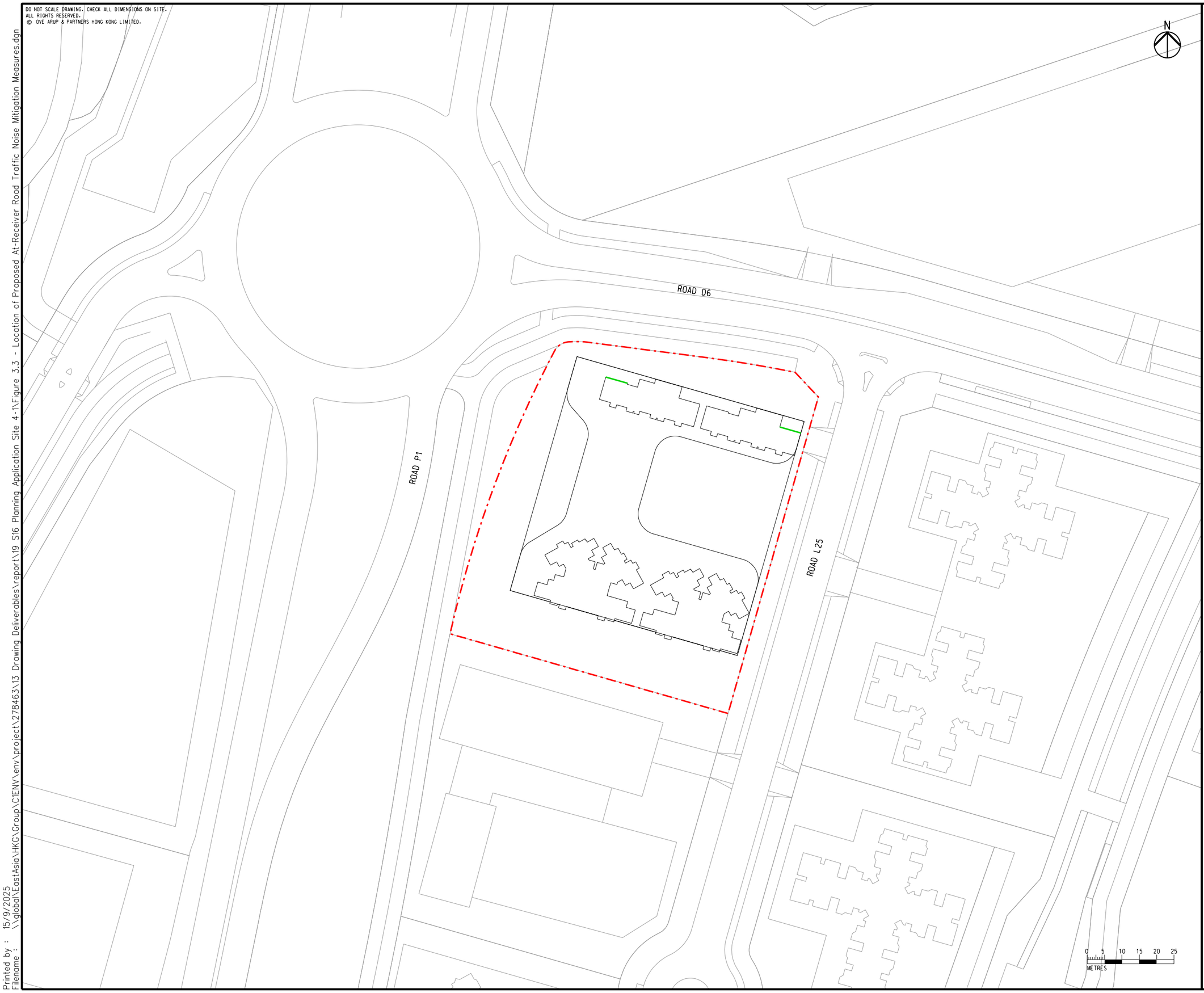
Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\278463\13 Drawing Deliverables\report\19 S16 Planning Application Site 4-1\Figure 3.2 - Locations of Proposed Direct Road Traffic Noise Mitigation Measures.dgn



LEGEND

APPLICATION SITE

ACOUSTIC WINDOW

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/25

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Agreement No. CE 1/2020 (CE)
Hung Shui Kiu / Ha Tsuen
New Development Area Package A
Works for Second Phase Development
– Design and Construction

Drawing title

LOCATION OF PROPOSED
AT-RECEIVER ROAD TRAFFIC
NOISE MITIGATION MEASURES

Drawing no.			Rev.
FIGURE 3.3			A
Drawn: GL	Date: 09/25	Checked: JS	Approved: FC
Scale: 1:1000 @ A3		Status: PRELIMINARY	

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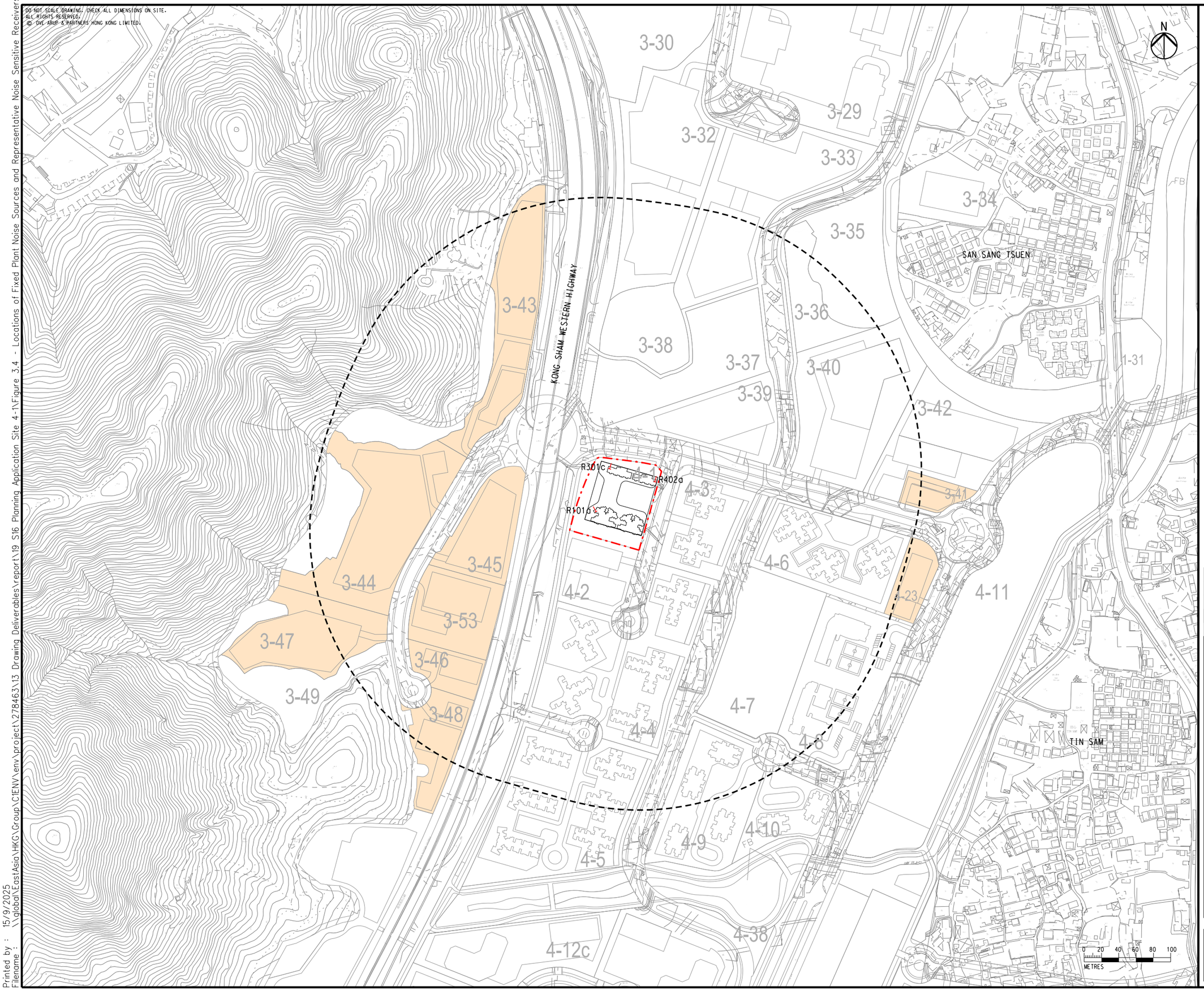
Filename : \\global\EastAsia\HKG\Group\C1ENV\env\project\278463\13 Drawing Deliverables\report\19 S16 Planning Application Site 4-1\Figure 3.3 - Location of Proposed At-Receiver Road Traffic Noise Mitigation Measures.dgn



LEGEND

- APPLICATION SITE
- 300m ASSESSMENT AREA
- PLANNED FIXED PLANT NOISE SOURCES
- REPRESENTATIVE NOISE SENSITIVE RECEIVERS

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/25

Consultant

ARUP

Project Title

Agreement No. CE 1/2020 (CE)
Hung Shui Kiu / Ha Tsuen
New Development Area Package A
Works for Second Phase Development
– Design and Construction

Drawing title

LOCATIONS OF FIXED PLANT NOISE SOURCES AND REPRESENTATIVE NOISE SENSITIVE RECEIVERS

Drawing no.	Rev.
FIGURE 3.4	A

Drawn	Date	Checked	Approved
GL	09/25	JS	FC

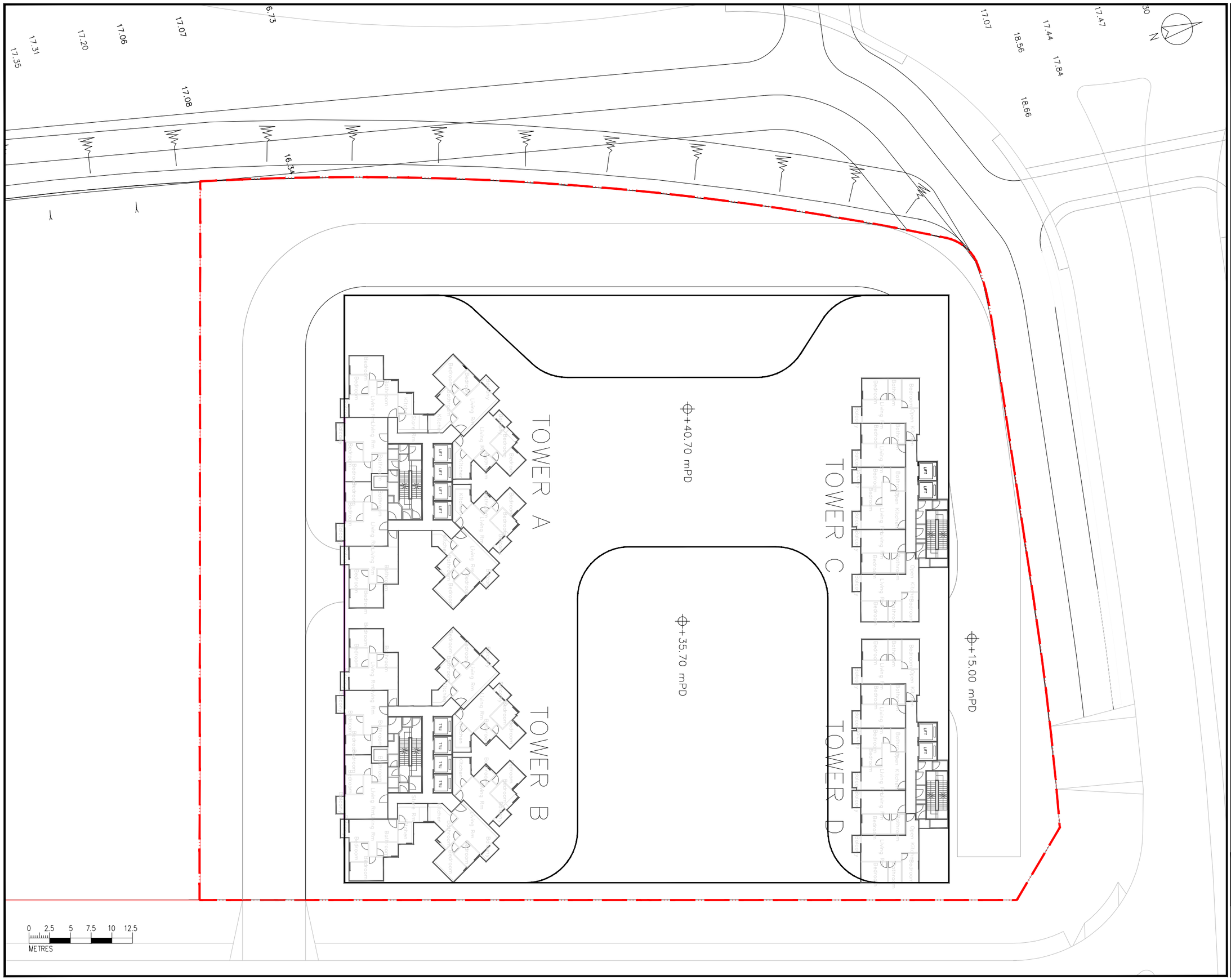
Scale 1:4000 @ A3 | Status PRELIMINARY

CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 15/9/2025
Filename : \\global\EastAsia\HKG\Group\CIENV\env\project\278463\13 Drawing Deliverables\report\19 S16 Planning Application Site 4-1\Figure 3.4 - Locations of Fixed Plant Noise Sources and Representative Noise Sensitive Receivers.dgn

Appendix 1.1 of Preliminary Environmental Assessment Report

Layout and Schematic Sections



Rev.	Date	Description	Drawn

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Application Site

CLIENT:

DESIGN CONSULTANT:

ARUP

CONTACT NO.:

PROJECT:
S16 Planning Application for Proposed Flat and Shop and Services and Eating Place at Non-Domestic Podium within "G/IC(1)" Zone of Planning Area 34E of HSK/HT NDA

DRAWING TITTLE:
TYPICAL FLOOR LAYOUT

DRAWING NO:
AR-020

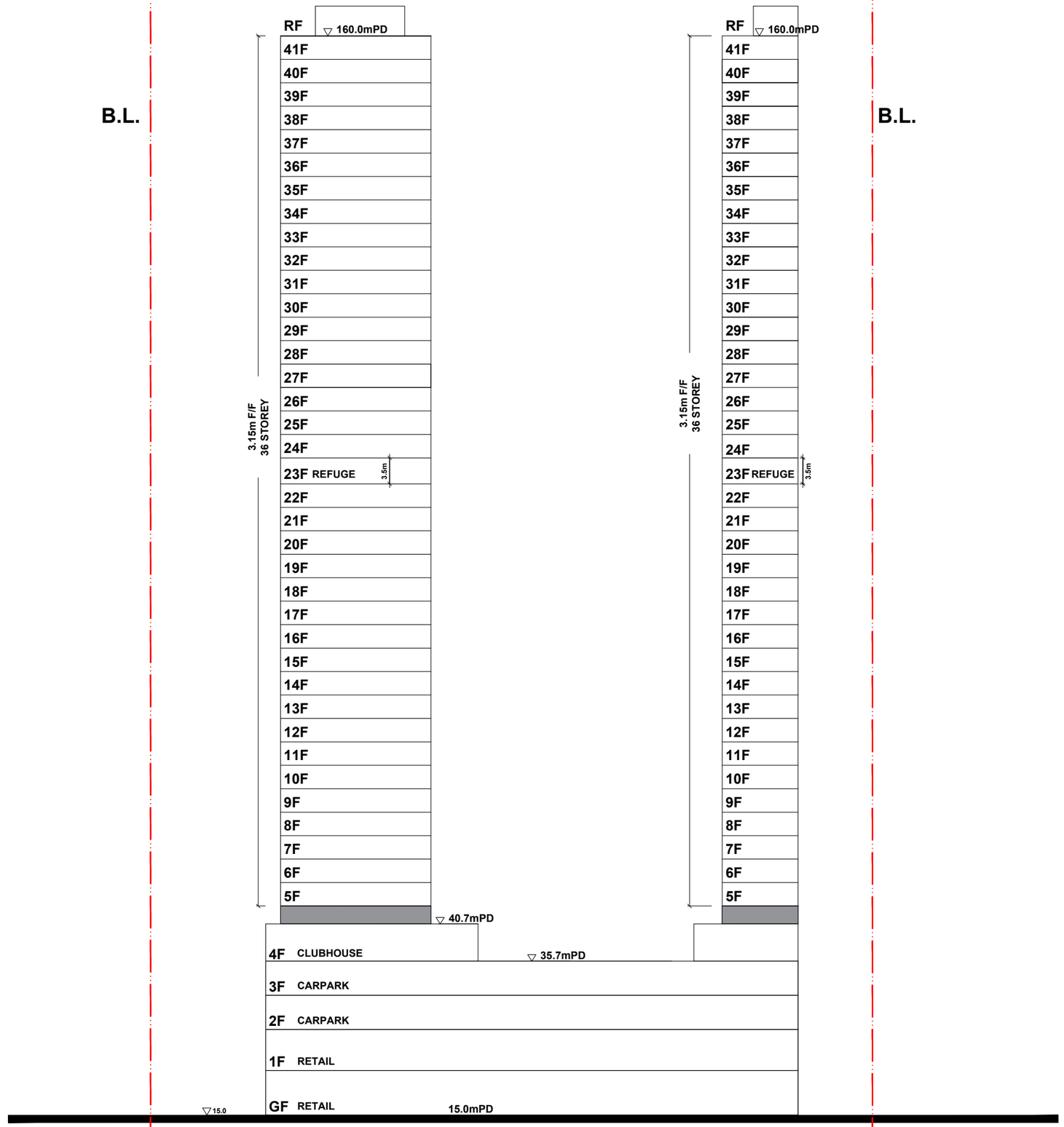
SCALE
1:400@A3

ISSUED DATE:

DRAWN BY: ES

CHECKED BY: Y

REV.



Rev.	Date	Description	Drawn

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Application Site

CLIENT:

DESIGN CONSULTANT:

ARUP

CONTACT NO.:

PROJECT:

S16 Planning Application for Proposed Flat and Shop and Services and Eating Place at Non-Domestic Podium within "G/IC(1)" Zone of Planning Area 34E of HSK/HT NDA

DRAWING TITTLE:

DIAGRAMMATIC SECTION 1

DRAWING NO.: AR-030

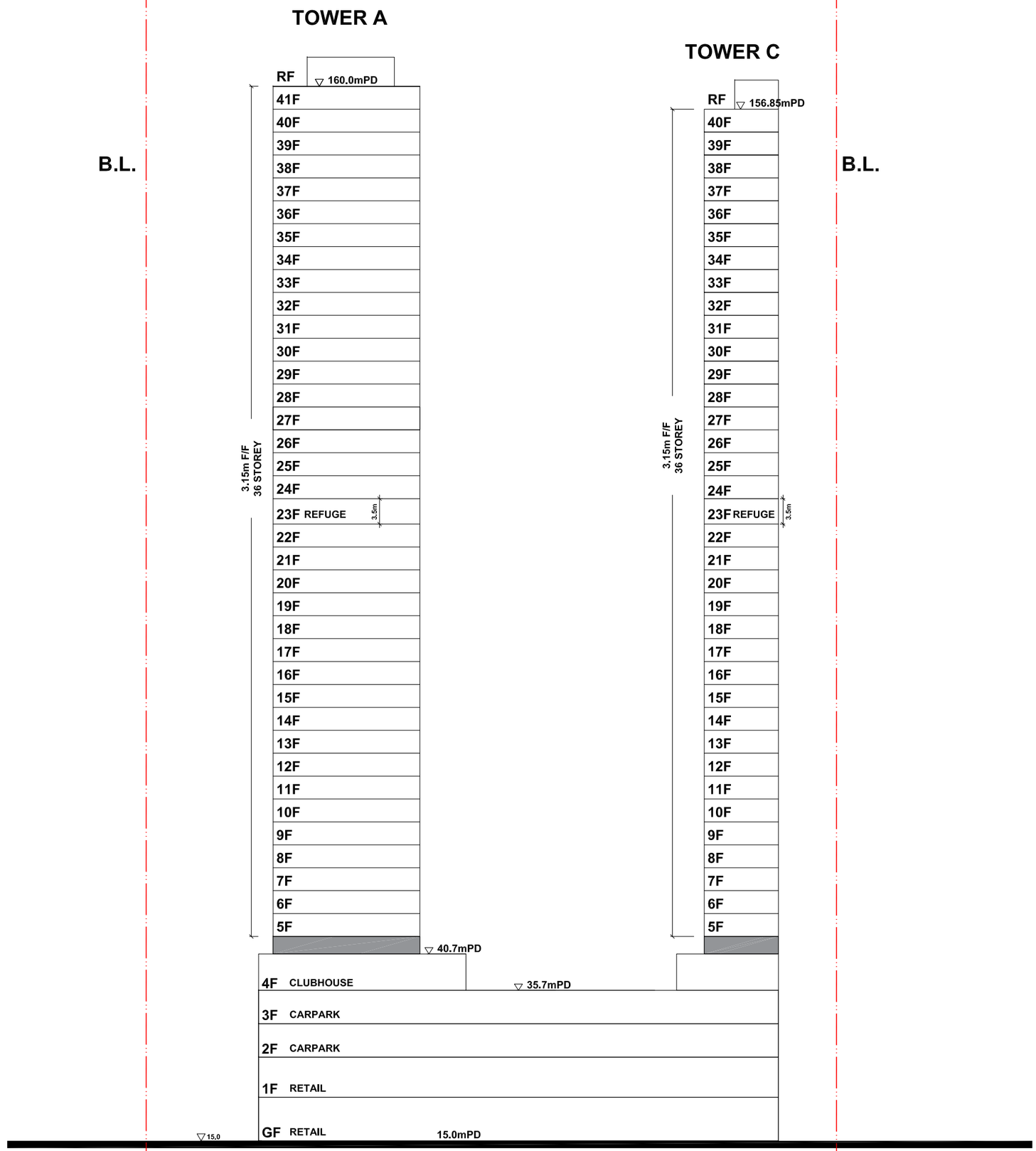
SCALE: 1:600@A3

ISSUED DATE:

DRAWN BY: ES

CHECKED BY: FY

REV.



Rev.	Date	Description	Drawn

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Application Site

CLIENT:

DESIGN CONSULTANT:

ARUP

CONTACT NO.:

PROJECT:

S16 Planning Application for Proposed Flat and Shop and Services and Eating Place at Non-Domestic Podium within "G/IC(1)" Zone of Planning Area 34E of HSK/HT NDA

DRAWING TITTLE:

DIAGRAMMATIC SECTION 2

DRAWING NO.: AR-031

SCALE: 1:600@A3

ISSUED DATE:

DRAWN BY: ES

CHECKED BY: FY

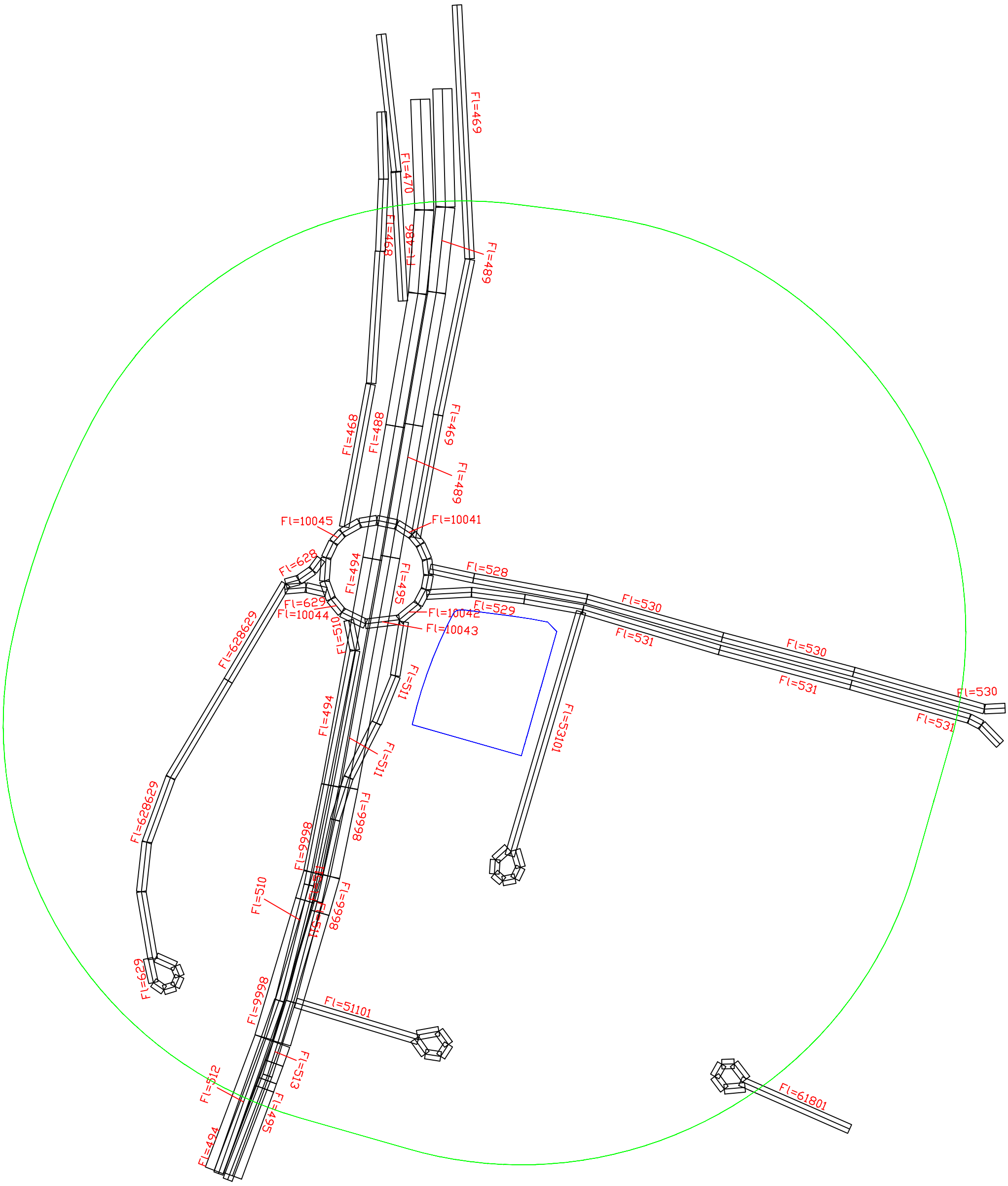
REV.

Appendix 3.1 of Preliminary Environmental Assessment Report

Traffic Forecast for Year 2041

Legend

- Application Site Boundary
- 300m Assessment Area



AM Peak Hour Traffic Forecast for Year 2041

Flow ID	Design Speed (km/h)	Vehicles / hr	Heavy Vehicle %
438	50	236	77%
439	50	529	38%
468	50	487	38%
469	50	249	39%
470	70	884	36%
486	80	1,624	36%
488	80	2,508	36%
489	80	3,289	39%
494	80	2,610	38%
495	80	3,435	41%
510	50	401	57%
511	50	437	52%
512	50	401	57%
513	50	617	47%
528	50	418	49%
529	50	753	40%
530	50	350	57%
531	50	787	39%
532533	50	981	48%
533	50	616	43%
580	50	735	40%
581	50	1,190	41%
586	50	442	39%
587	50	504	39%
586587	50	946	39%
588	50	290	33%
589	50	297	30%
588589	50	587	32%
590	50	490	31%
591	50	550	33%
590591	50	1,040	32%
592	50	297	27%
593	50	424	34%
592593	50	722	31%
594	50	878	36%
595	50	1,340	38%
596	50	354	25%
597	50	426	31%
598	50	332	42%
599	50	494	44%
600	50	802	35%
601	50	1,360	37%
616	50	244	35%
617	50	92	63%
618	50	251	35%

Flow ID	Design Speed (km/h)	Vehicles / hr	Heavy Vehicle %
619	50	100	61%
620	50	299	39%
621	50	113	61%
622	50	27	37%
623	50	47	32%
624	50	875	37%
625	50	1,360	37%
628	50	112	58%
629	50	161	39%
628629	50	273	47%
10041	50	332	47%
10042	50	175	35%
10043	50	480	26%
10044	50	868	39%
10045	50	819	42%
10081	50	434	57%
10082	50	684	45%
10083	50	684	45%
10084	50	571	42%
10085	50	366	56%
51101	50	192	28%
51401	50	920	39%
53101	50	639	20%
5901	50	211	36%
5911	50	145	29%
5921	50	362	47%
5931	50	341	60%
61801	50	230	28%
5823	50	9	90%
5824	50	12	92%
5825	50	1	6%
5833	50	30	20%
5834	50	7	14%
5835	50	27	30%

Appendix 3.2 of Preliminary Environmental Assessment Report

Road Traffic Noise Assessment Results – Basecase Scenario

Floor	R101a	R101b	R101c	R102a	R102b	R102c	R103a	R103b	R103c	R104a	R104b	R104c	R104d	R105a	R105b	R105c	R106a	R106b	R106c	R107a	R107b	R107c	R108a	R108b	R108c	R201a	R201b
41	67.0	66.9	66.8	66.1	66.5	66.1	64.6	64.9	63.6	63.5	63.1	62.6	42.9	64.0	64.0	64.0	64.1	64.1	64.1	64.2	64.3	64.4	64.3	64.5	65.2	42.8	62.9
40	67.0	66.9	66.9	66.1	66.5	66.0	64.6	65.0	63.7	63.6	63.1	62.7	40.3	64.0	64.0	64.1	64.2	64.2	64.2	64.2	64.3	64.4	64.4	64.5	65.2	40.2	63.0
39	66.9	66.9	66.9	66.0	66.6	66.1	64.7	65.1	63.7	63.6	63.2	62.7	<40	64.1	64.1	64.1	64.2	64.3	64.3	64.3	64.4	64.5	64.4	64.6	65.3	<40	63.0
38	67.0	66.9	66.9	66.0	66.6	66.2	64.8	65.1	63.8	63.7	63.3	62.8	<40	64.2	64.2	64.2	64.3	64.3	64.3	64.4	64.4	64.6	64.5	64.7	65.4	<40	63.1
37	67.1	67.0	67.0	66.1	66.7	66.2	64.9	65.2	63.8	63.8	63.4	62.9	<40	64.2	64.2	64.3	64.4	64.4	64.4	64.4	64.5	64.6	64.6	64.8	65.4	<40	63.2
36	67.2	67.0	67.0	66.2	66.7	66.3	64.9	65.3	63.9	63.8	63.4	62.9	<40	64.3	64.3	64.3	64.4	64.4	64.5	64.5	64.6	64.7	64.7	64.8	65.5	<40	63.2
35	67.2	67.1	67.1	66.2	66.8	66.4	65.0	65.4	64.0	63.9	63.5	63.0	<40	64.4	64.4	64.4	64.5	64.5	64.5	64.6	64.6	64.8	64.7	64.9	65.6	<40	63.3
34	67.3	67.2	67.2	66.3	66.9	66.4	65.1	65.4	64.1	63.9	63.5	63.1	<40	64.5	64.4	64.5	64.6	64.6	64.6	64.7	64.7	64.8	64.8	65.0	65.7	<40	63.4
33	67.3	67.3	67.3	66.4	67.0	66.5	65.1	65.5	64.2	64.0	63.6	63.1	<40	64.5	64.5	64.6	64.7	64.6	64.7	64.7	64.8	64.9	64.8	65.0	65.7	<40	63.4
32	67.4	67.3	67.3	66.4	67.1	66.6	65.2	65.6	64.2	64.1	63.7	63.2	<40	64.6	64.6	64.6	64.7	64.7	64.7	64.8	64.9	65.0	64.9	65.1	65.8	<40	63.5
31	67.5	67.4	67.4	66.5	67.1	66.7	65.3	65.6	64.3	64.2	63.7	63.3	<40	64.7	64.6	64.7	64.8	64.8	64.8	64.9	64.9	65.0	65.0	65.2	65.9	<40	63.6
30	67.6	67.5	67.5	66.6	67.2	66.8	65.3	65.7	64.4	64.2	63.8	63.4	<40	64.7	64.7	64.8	64.9	64.9	64.9	65.0	65.0	65.1	65.0	65.2	66.0	<40	63.6
29	67.7	67.5	67.6	66.7	67.3	66.8	65.4	65.8	64.4	64.3	63.9	63.4	<40	64.8	64.8	64.8	64.9	64.9	65.0	65.0	65.1	65.2	65.1	65.3	66.0	<40	63.7
28	67.7	67.6	67.7	66.8	67.4	66.9	65.5	65.9	64.5	64.4	64.0	63.5	<40	64.9	64.8	64.9	65.0	65.0	65.0	65.1	65.2	65.3	65.2	65.4	66.1	<40	63.8
27	67.8	67.7	67.7	66.8	67.4	67.0	65.6	66.0	64.6	64.4	64.1	63.6	<40	64.9	64.9	65.0	65.1	65.1	65.1	65.2	65.2	65.3	65.3	65.4	66.2	<40	63.8
26	67.9	67.8	67.8	66.9	67.5	67.1	65.7	66.1	64.7	64.5	64.1	63.6	<40	65.0	65.0	65.0	65.2	65.1	65.2	65.2	65.3	65.4	65.3	65.5	66.3	<40	63.9
25	68.0	67.9	67.9	67.0	67.6	67.2	65.7	66.1	64.8	64.6	64.2	63.7	<40	65.1	65.1	65.1	65.2	65.2	65.2	65.3	65.3	65.4	65.4	65.6	66.4	<40	64.0
24	68.1	68.0	68.0	67.1	67.7	67.2	65.8	66.2	64.8	64.7	64.3	63.8	<40	65.1	65.1	65.2	65.2	65.3	65.3	65.3	65.4	65.5	65.4	65.7	66.4	<40	64.0
23	**Refuge Floor**																										
22	68.3	68.2	68.2	67.3	67.9	67.4	66.0	66.4	65.1	64.9	64.5	64.0	40.1	65.2	65.3	65.2	65.4	65.4	65.4	65.4	65.5	65.6	65.6	65.8	66.6	40.1	64.2
21	68.4	68.3	68.3	67.4	68.0	67.5	66.1	66.5	65.1	65.0	64.6	64.1	40.2	65.3	65.3	65.3	65.4	65.4	65.4	65.5	65.6	65.7	65.7	65.9	66.7	40.1	64.3
20	68.5	68.4	68.4	67.5	68.1	67.6	66.2	66.6	65.2	65.0	64.7	64.2	40.2	65.4	65.3	65.3	65.4	65.5	65.5	65.6	65.6	65.8	65.7	65.9	66.8	40.3	64.4
19	68.6	68.5	68.5	67.6	68.2	67.7	66.3	66.7	65.3	65.1	64.7	64.3	40.3	65.4	65.4	65.4	65.5	65.5	65.5	65.6	65.7	65.8	65.8	66.0	66.9	40.3	64.5
18	68.7	68.6	68.6	67.7	68.3	67.8	66.4	66.7	65.4	65.2	64.8	64.4	40.4	65.5	65.4	65.4	65.5	65.6	65.6	65.7	65.7	65.8	65.8	66.1	66.9	40.4	64.6
17	68.8	68.7	68.7	67.8	68.4	67.9	66.4	66.8	65.5	65.3	64.9	64.4	40.5	65.6	65.5	65.5	65.6	65.6	65.6	65.7	65.8	65.9	65.9	66.1	67.0	40.5	64.6
16	68.9	68.8	68.8	67.9	68.5	68.0	66.5	66.9	65.6	65.4	65.0	64.5	40.6	65.6	65.5	65.5	65.6	65.7	65.6	65.8	65.8	65.9	65.9	66.2	67.1	40.6	64.7
15	69.0	68.9	68.9	68.0	68.5	68.1	66.6	67.0	65.7	65.5	65.1	64.6	40.7	65.6	65.6	65.6	65.7	65.7	65.7	65.8	65.8	66.0	65.9	66.1	67.2	40.7	64.8
14	69.1	69.0	69.0	68.0	68.6	68.2	66.7	67.1	65.7	65.5	65.2	64.7	40.8	65.7	65.6	65.6	65.7	65.7	65.7	65.8	65.8	65.9	65.9	66.2	67.3	40.8	64.9
13	69.2	69.1	69.1	68.1	68.7	68.3	66.8	67.2	65.8	65.6	65.2	64.8	40.8	65.7	65.6	65.6	65.7	65.7	65.7	65.8	65.9	65.9	65.9	66.2	67.4	40.9	64.9
12	69.3	69.2	69.2	68.2	68.8	68.3	66.8	67.2	65.8	65.7	65.3	64.8	40.9	65.7	65.6	65.6	65.7	65.7	65.6	65.7	65.8	66.0	66.0	66.3	67.5	41.0	65.0
11	69.4	69.3	69.3	68.3	68.9	68.4	66.9	67.3	65.9	65.7	65.4	64.9	41.0	65.5	65.5	65.4	65.5	65.5	65.6	65.8	65.9	66.1	66.0	66.4	67.6	41.0	65.0
10	69.5	69.4	69.4	68.3	69.0	68.5	66.9	67.3	65.9	65.8	65.4	65.0	41.1	65.2	65.1	65.1	65.3	65.4	65.4	65.7	65.9	66.1	66.1	66.5	67.7	41.1	65.1
9	69.6	69.4	69.4	68.4	69.0	68.5	66.9	67.4	66.0	65.9	65.5	65.0	41.2	64.8	64.8	64.7	64.8	64.9	65.1	65.4	65.7	65.9	66.1	66.4	67.8	41.2	65.2
8	69.7	69.5	69.5	68.4	69.1	68.5	67.0	67.4	66.0	66.0	65.6	65.1	41.2	64.5	64.4	64.4	64.5	64.5	64.7	65.0	65.3	65.6	65.7	66.2	67.7	41.3	65.3
7	69.8	69.6	69.6	68.5	69.1	68.6	67.0	67.5	66.0	66.0	65.6	65.2	41.3	64.5	64.3	64.3	64.3	64.4	64.5	64.7	65.0	65.3	65.5	65.9	67.6	41.4	65.3
6	69.9	69.7	69.6	68.6	69.2	68.7	67.1	67.5	66.1	66.1	65.7	65.2	41.4	64.5	64.3	64.3	64.3	64.4	64.4	64.6	64.9	65.2	65.3	65.8	67.4	41.5	65.4
5	70.0	69.8	69.7	68.6	69.2	68.7	67.1	67.6	66.1	66.2	65.8	65.3	41.4	64.6	64.4	64.3	64.4	64.3	64.4	64.7	64.8	65.2	65.3	65.8	67.5	41.5	65.4
4																											
3																											
2																											
1																											
Max	70.0	69.8	69.7	68.6	69.2	68.7	67.1	67.6	66.1	66.2	65.8	65.3	42.9	65.7	65.6	65.6	65.7	65.7	65.7	65.8	65.9	66.1	66.1	66.5	67.8	42.8	65.4
Min	66.9	66.9	66.8	66.0	66.5	66.0	64.6	64.9	63.6	63.5	63.1	62.6	<40	64.0	64.0	64.0	64.1	64.1	64.1	64.2	64.3	64.4	64.3	64.5	65.2	<40	62.9

# Total Flats	931
Exceedances	22
Compliance Rate	97.6%

Noise sensitive receivers with exceedance (>=70.5 dB(A))

Floor	R201c	R201d	R202a	R202b	R202c	R203a	R203b	R203c	R204a	R204b	R204c	R205a	R205b	R205c	R206a	R206b	R206c	R207a	R207b	R207c	R208a	R208b	R208c	R301a	R301b	R301c	R302a
41	63.5	63.9	63.9	64.5	64.3	64.4	65.0	63.8	64.6	64.6	64.5	64.6	64.1	64.1	64.1	64.1	64.0	64.0	64.0	64.1	64.0	64.0	64.0				
40	63.6	64.0	64.0	64.5	64.3	64.4	65.0	63.9	64.7	64.7	64.6	64.6	64.2	64.1	64.2	64.1	64.1	64.1	64.1	64.1	64.1	64.0	64.0	64.6	65.0	68.4	66.8
39	63.6	64.1	64.1	64.6	64.4	64.5	65.1	63.9	64.8	64.7	64.7	64.7	64.3	64.2	64.2	64.2	64.2	64.1	64.1	64.2	64.1	64.1	64.1	64.7	65.1	68.5	66.9
38	63.7	64.1	64.2	64.7	64.5	64.6	65.2	64.0	64.9	64.8	64.8	64.8	64.3	64.3	64.3	64.3	64.2	64.2	64.2	64.3	64.2	64.2	64.2	64.8	65.2	68.6	67.0
37	63.8	64.2	64.2	64.7	64.6	64.7	65.3	64.1	65.0	64.9	64.9	64.8	64.4	64.3	64.4	64.3	64.3	64.3	64.3	64.3	64.3	64.2	64.2	64.8	65.2	68.7	67.1
36	63.8	64.3	64.3	64.8	64.6	64.8	65.3	64.2	65.1	65.0	64.9	64.9	64.5	64.4	64.5	64.4	64.4	64.3	64.3	64.4	64.4	64.3	64.3	64.9	65.3	68.7	67.2
35	63.9	64.3	64.3	64.9	64.7	64.8	65.4	64.3	65.2	65.1	65.0	65.0	64.5	64.5	64.5	64.5	64.4	64.4	64.4	64.5	64.4	64.3	64.4	65.0	65.3	68.8	67.3
34	64.0	64.4	64.4	65.0	64.8	64.9	65.5	64.4	65.2	65.2	65.1	65.1	64.6	64.5	64.6	64.5	64.5	64.5	64.5	64.5	64.5	64.4	64.4	65.0	65.4	68.9	67.4
33	64.0	64.5	64.5	65.0	64.8	65.0	65.6	64.4	65.3	65.3	65.3	65.2	64.7	64.6	64.7	64.6	64.6	64.5	64.6	64.6	64.5	64.5	64.5	65.1	65.5	69.1	67.5
32	64.1	64.5	64.6	65.1	64.9	65.1	65.7	64.5	65.5	65.4	65.4	65.3	64.8	64.7	64.7	64.7	64.6	64.6	64.6	64.7	64.6	64.6	64.6	65.2	65.6	69.2	67.6
31	64.2	64.6	64.6	65.2	65.0	65.2	65.8	64.7	65.6	65.5	65.5	65.3	64.9	64.8	64.8	64.7	64.7	64.7	64.7	64.8	64.7	64.7	64.7	65.3	65.7	69.2	67.7
30	64.2	64.7	64.7	65.2	65.1	65.2	65.9	64.8	65.7	65.6	65.6	65.4	64.9	64.8	64.9	64.8	64.8	64.8	64.8	64.8	64.7	64.7	64.7	65.4	65.7	69.3	67.8
29	64.3	64.8	64.8	65.4	65.2	65.4	66.0	64.8	65.7	65.7	65.7	65.5	65.0	64.9	65.0	64.9	64.9	64.8	64.9	64.9	64.8	64.8	64.8	65.5	65.8	69.4	67.9
28	64.4	64.8	64.9	65.4	65.2	65.5	66.0	64.9	65.9	65.8	65.8	65.6	65.1	65.0	65.0	65.0	64.9	64.9	64.9	65.0	64.9	64.8	64.9	65.6	65.9	69.6	68.0
27	64.5	64.9	64.9	65.5	65.3	65.6	66.1	65.1	66.0	65.9	65.9	65.7	65.2	65.1	65.1	65.0	65.0	65.0	65.0	65.1	65.0	64.9	64.9	65.6	66.0	69.7	68.1
26	64.5	65.0	65.0	65.6	65.4	65.7	66.3	65.2	66.1	66.0	66.1	65.8	65.2	65.2	65.2	65.2	65.1	65.1	65.1	65.1	65.0	65.0	65.0	65.7	66.1	69.8	68.2
25	64.6	65.1	65.1	65.6	65.5	65.7	66.3	65.2	66.2	66.2	66.2	65.9	65.4	65.2	65.3	65.2	65.2	65.1	65.2	65.2	65.1	65.1	65.1	65.8	66.2	69.9	68.3
24	64.7	65.2	65.2	65.7	65.6	65.8	66.5	65.4	66.3	66.3	66.3	66.0	65.4	65.4	65.4	65.3	65.3	65.2	65.2	65.3	65.2	65.1	65.1	65.9	66.3	70.0	68.5
23														**Refuge Floor**														
22	64.9	65.4	65.4	66.0	65.8	66.1	66.7	65.6	66.6	66.6	66.6	66.2	65.7	65.6	65.6	65.5	65.5	65.4	65.4	65.5	65.4	65.3	65.3	66.1	66.5	70.3	68.7
21	65.0	65.4	65.5	66.1	65.9	66.3	66.8	65.8	66.8	66.7	66.8	66.3	65.8	65.7	65.7	65.6	65.6	65.5	65.5	65.6	65.4	65.3	65.3	66.2	66.6	70.4	68.9
20	65.0	65.5	65.5	66.2	66.0	66.3	66.9	65.9	66.9	66.8	66.9	66.4	65.9	65.8	65.8	65.8	65.7	65.6	65.6	65.6	65.5	65.4	65.4	66.3	66.7	**70.5**	69.0
19	65.1	65.6	65.6	66.2	66.1	66.5	67.1	66.0	67.0	67.0	67.0	66.5	66.0	65.9	65.9	65.9	65.8	65.7	65.7	65.7	65.6	65.5	65.5	66.4	66.8	**70.7**	69.1
18	65.2	65.7	65.7	66.3	66.1	66.6	67.2	66.2	67.2	67.1	67.2	66.6	66.1	66.0	66.0	65.9	65.9	65.8	65.8	65.8	65.6	65.5	65.5	66.5	66.9	**70.8**	69.2
17	65.3	65.8	65.8	66.4	66.2	66.7	67.4	66.3	67.3	67.3	67.4	66.7	66.2	66.1	66.1	66.0	66.0	65.9	65.8	65.9	65.7	65.6	65.6	66.6	67.0	**70.9**	69.3
16	65.4	65.8	65.9	66.5	66.3	66.8	67.5	66.5	67.5	67.5	67.5	66.8	66.3	66.2	66.2	66.1	66.0	65.9	65.9	65.9	65.8	65.7	65.6	66.7	67.1	**71.1**	69.4
15	65.4	65.9	66.0	66.6	66.4	67.0	67.6	66.6	67.6	67.6	67.7	67.0	66.4	66.3	66.3	66.2	66.1	66.0	66.0	66.0	65.8	65.7	65.7	66.8	67.2	**71.2**	69.5
14	65.5	66.0	66.0	66.7	66.5	67.1	67.8	66.8	67.8	67.8	68.0	67.1	66.5	66.3	66.4	66.3	66.1	66.0	65.9	66.0	65.8	65.7	65.7	66.9	67.3	**71.3**	69.6
13	65.6	66.1	66.1	66.8	66.6	67.3	67.9	66.9	68.0	68.0	68.1	67.2	66.6	66.4	66.4	66.3	66.2	66.1	66.0	66.0	65.8	65.8	65.8	67.0	67.4	**71.4**	69.6
12	65.6	66.2	66.2	66.9	66.7	67.4	68.0	67.1	68.2	68.2	68.3	67.2	66.5	66.4	66.4	66.3	66.2	66.1	66.0	66.0	65.8	65.7	65.7	67.1	67.5	**71.5**	69.6
11	65.7	66.3	66.3	67.0	66.8	67.6	68.2	67.3	68.4	68.4	68.5	67.3	66.7	66.4	66.4	66.3	66.2	66.0	65.9	65.9	65.7	65.6	65.6	67.2	67.6	**71.5**	69.5
10	65.8	66.3	66.4	67.1	66.9	67.7	68.4	67.5	68.6	68.6	68.8	67.4	66.8	66.5	66.5	66.3	66.2	65.9	65.8	65.8	65.6	65.5	65.3	67.3	67.7	**71.5**	69.4
9	65.9	66.4	66.5	67.2	67.0	67.9	68.5	67.7	68.8	68.8	69.0	67.6	66.9	66.6	66.6	66.4	66.2	65.9	65.8	65.7	65.5	65.3	65.1	67.4	67.8	**71.4**	69.3
8	65.9	66.5	66.6	67.3	67.1	68.1	68.7	67.8	69.1	69.1	69.3	67.8	67.1	66.8	66.7	66.5	66.2	65.9	65.8	65.7	65.4	65.2	65.0	67.4	67.8	**71.3**	69.2
7	66.0	66.6	66.6	67.4	67.2	68.2	68.9	68.1	69.3	69.3	69.5	68.1	67.3	67.0	66.9	66.7	66.4	66.0	65.9	65.8	65.4	65.2	64.9	67.5	67.9	**71.3**	69.2
6	66.0	66.6	66.7	67.5	67.3	68.4	69.1	68.3	69.5	69.6	69.8	68.4	67.6	67.3	67.1	66.9	66.6	66.2	66.0	65.9	65.5	65.3	65.0	67.6	68.0	**71.2**	69.2
5	66.1	66.7	66.8	67.6	67.4	68.6	69.3	68.5	69.8	69.9	70.1	68.7	67.9	67.5	67.4	67.1	66.8	66.4	66.2	66.0	65.7	65.4	65.1	67.7	68.1	**71.3**	69.1
4																											
3																											
2																											
1																											
Max	66.1	66.7	66.8	67.6	67.4	68.6	69.3	68.5	69.8	69.9	70.1	68.7	67.9	67.5	67.4	67.1	66.8	66.4	66.2	66.0	65.8	65.8	65.8	67.7	68.1	**71.5**	69.6
Min	63.5	63.9	63.9	64.5	64.3	64.4	65.0	63.8	64.6	64.6	64.5	64.6	64.1	64.1	64.1	64.1	64.0	64.0	64.0	64.1	64.0	64.0	64.0	64.6	65.0	68.4	66.8

Floor	R302b	R302c	R303a	R303b	R304a	R304b	R304c	R305a	R305b	R401a	R401b	R401c	R402a	R402b	R402c	R403a	R403b	R404a	R404b	R404c	R405a	R405b	R101 Max	R102 Max	R103 Max	R104 Max	R105 Max
41										63.0	63.1	67.5	67.2	63.9	63.4	63.2	63.1	63.0	63.0	62.9	63.0	63.0	67.0	66.5	64.9	63.5	64.0
40	63.3	63.4	63.4	63.5	63.6	63.7	63.9	64.1	64.2	63.1	63.1	67.5	67.3	63.9	63.5	63.3	63.2	63.1	63.0	63.0	63.0	63.0	67.0	66.5	65.0	63.6	64.1
39	63.3	63.4	63.5	63.6	63.7	63.8	63.9	64.2	64.3	63.2	63.2	67.6	67.4	64.0	63.6	63.3	63.3	63.1	63.1	63.1	63.1	63.1	66.9	66.6	65.1	63.6	64.1
38	63.4	63.5	63.6	63.7	63.8	63.8	64.0	64.2	64.3	63.3	63.2	67.7	67.5	64.1	63.7	63.4	63.4	63.2	63.1	63.2	63.2	63.2	67.0	66.6	65.1	63.7	64.2
37	63.5	63.6	63.6	63.7	63.9	63.9	64.1	64.3	64.4	63.3	63.3	67.8	67.6	64.2	63.8	63.5	63.5	63.3	63.2	63.2	63.3	63.3	67.1	66.7	65.2	63.8	64.3
36	63.6	63.6	63.7	63.8	63.9	64.0	64.1	64.3	64.5	63.4	63.4	67.9	67.7	64.3	63.8	63.6	63.5	63.4	63.3	63.3	63.3	63.3	67.2	66.7	65.3	63.8	64.3
35	63.6	63.7	63.8	63.9	64.0	64.0	64.2	64.4	64.6	63.5	63.5	68.0	67.7	64.3	63.9	63.7	63.6	63.5	63.5	63.4	63.4	63.4	67.2	66.8	65.4	63.9	64.4
34	63.7	63.8	63.9	64.0	64.0	64.1	64.3	64.5	64.6	63.6	63.5	68.1	67.8	64.4	64.0	63.8	63.7	63.6	63.5	63.5	63.5	63.5	67.3	66.9	65.4	63.9	64.5
33	63.8	63.9	63.9	64.1	64.1	64.2	64.4	64.6	64.7	63.7	63.6	68.2	68.0	64.6	64.1	63.8	63.8	63.6	63.6	63.6	63.6	63.6	67.3	67.0	65.5	64.0	64.6
32	63.9	63.9	64.0	64.1	64.2	64.3	64.5	64.7	64.8	63.7	63.7	68.2	68.1	64.7	64.2	63.9	63.9	63.7	63.7	63.7	63.7	63.7	67.4	67.1	65.6	64.1	64.6
31	64.0	64.0	64.1	64.2	64.3	64.4	64.5	64.8	64.9	63.8	63.8	68.4	68.2	64.7	64.3	64.1	64.0	63.8	63.8	63.8	63.7	63.8	67.5	67.1	65.6	64.2	64.7
30	64.0	64.1	64.2	64.3	64.4	64.5	64.6	64.9	64.9	63.9	63.9	68.5	68.2	64.8	64.4	64.2	64.1	63.9	63.9	63.9	63.8	63.9	67.6	67.2	65.7	64.2	64.8
29	64.1	64.2	64.3	64.4	64.5	64.5	64.7	64.9	65.0	64.0	64.0	68.6	68.3	64.9	64.5	64.2	64.2	64.0	64.0	63.9	64.0	63.9	67.7	67.3	65.8	64.3	64.8
28	64.2	64.3	64.4	64.5	64.6	64.6	64.8	65.0	65.1	64.1	64.1	68.7	68.5	65.1	64.6	64.3	64.3	64.1	64.1	64.0	64.1	64.1	67.7	67.4	65.9	64.4	64.9
27	64.3	64.4	64.5	64.6	64.6	64.7	64.9	65.1	65.2	64.2	64.2	68.8	68.6	65.1	64.7	64.5	64.4	64.2	64.2	64.1	64.1	64.2	67.8	67.4	66.0	64.4	65.0
26	64.4	64.5	64.5	64.6	64.7	64.8	65.0	65.2	65.3	64.3	64.2	68.9	68.7	65.2	64.8	64.6	64.5	64.3	64.3	64.2	64.2	64.2	67.9	67.5	66.1	64.5	65.0
25	64.5	64.6	64.6	64.7	64.8	64.9	65.1	65.3	65.4	64.4	64.3	69.0	68.8	65.4	65.0	64.6	64.6	64.4	64.3	64.3	64.3	64.3	68.0	67.6	66.1	64.6	65.1
24	64.5	64.6	64.7	64.8	64.9	65.0	65.2	65.4	65.5	64.5	64.5	69.1	69.0	65.5	65.1	64.8	64.7	64.5	64.5	64.4	64.4	64.5	68.1	67.7	66.2	64.7	65.2
23														**Refuge Floor**													
22	64.8	64.9	64.9	65.0	65.1	65.2	65.4	65.6	65.7	64.7	64.7	69.4	69.2	65.8	65.4	65.0	65.0	64.8	64.7	64.7	64.7	64.7	68.3	67.9	66.4	64.9	65.3
21	64.9	65.0	65.0	65.1	65.2	65.3	65.5	65.7	65.8	64.8	64.8	69.5	69.4	65.9	65.5	65.2	65.1	64.9	64.9	64.8	64.8	64.8	68.4	68.0	66.5	65.0	65.3
20	65.0	65.1	65.2	65.2	65.3	65.4	65.6	65.8	65.9	64.9	64.9	69.6	69.5	66.0	65.6	65.3	65.2	65.1	65.0	64.9	64.9	64.9	68.5	68.1	66.6	65.0	65.4
19	65.1	65.2	65.3	65.3	65.4	65.5	65.7	65.9	66.0	65.1	65.0	69.7	69.6	66.2	65.8	65.4	65.4	65.2	65.1	65.0	65.0	65.0	68.6	68.2	66.7	65.1	65.4
18	65.2	65.3	65.3	65.4	65.5	65.6	65.8	66.0	66.1	65.1	65.1	69.8	69.7	66.3	65.9	65.6	65.5	65.3	65.2	65.2	65.1	65.1	68.7	68.3	66.7	65.2	65.5
17	65.3	65.4	65.4	65.5	65.6	65.7	65.9	66.1	66.2	65.2	65.2	69.9	69.8	66.5	66.1	65.7	65.7	65.4	65.3	65.3	65.3	65.2	68.8	68.4	66.8	65.3	65.6
16	65.4	65.5	65.5	65.6	65.7	65.8	66.0	66.2	66.3	65.4	65.3	70.0	70.0	66.6	66.2	65.9	65.7	65.6	65.5	65.4	65.4	65.4	68.9	68.5	66.9	65.4	65.6
15	65.5	65.6	65.6	65.7	65.8	65.9	66.1	66.3	66.4	65.5	65.4	70.1	70.1	66.8	66.4	66.0	65.9	65.7	65.6	65.5	65.5	65.5	69.0	68.5	67.0	65.5	65.6
14	65.6	65.7	65.7	65.8	65.9	66.0	66.2	66.4	66.5	65.6	65.5	70.1	70.1	66.9	66.5	66.2	66.0	65.8	65.8	65.7	65.6	65.6	69.1	68.6	67.1	65.5	65.7
13	65.7	65.8	65.8	65.9	66.0	66.1	66.3	66.5	66.6	65.7	65.7	70.1	70.3	67.1	66.7	66.3	66.2	66.0	65.9	65.8	65.8	65.7	69.2	68.7	67.2	65.6	65.7
12	65.8	65.9	66.0	66.0	66.1	66.2	66.4	66.6	66.7	65.8	65.8	70.1	70.3	67.3	66.9	66.5	66.4	66.2	66.1	66.0	65.9	65.9	69.3	68.8	67.2	65.7	65.7
11	65.9	66.0	66.0	66.1	66.2	66.3	66.5	66.7	66.8	65.9	65.9	70.0	70.4	67.4	67.1	66.7	66.6	66.3	66.2	66.1	66.0	66.0	69.4	68.9	67.3	65.7	65.5
10	66.0	66.1	66.2	66.2	66.3	66.4	66.5	66.7	66.8	66.1	66.0	69.9	**70.5**	67.7	67.2	66.9	66.7	66.5	66.3	66.3	66.1	66.1	69.5	69.0	67.3	65.8	65.2
9	66.1	66.2	66.2	66.3	66.4	66.5	66.6	66.8	66.9	66.2	66.2	69.9	**70.6**	67.9	67.5	67.1	66.9	66.6	66.5	66.4	66.3	66.2	69.6	69.0	67.4	65.9	64.8
8	66.3	66.3	66.3	66.4	66.5	66.6	66.7	66.9	67.0	66.3	66.2	69.8	**70.8**	68.1	67.7	67.2	67.1	66.8	66.7	66.6	66.4	66.4	69.7	69.1	67.4	66.0	64.5
7	66.4	66.4	66.4	66.5	66.6	66.7	66.8	67.0	67.1	66.4	66.4	69.8	**70.9**	68.4	67.9	67.5	67.3	67.0	66.9	66.7	66.6	66.5	69.8	69.1	67.5	66.0	64.5
6	66.4	66.5	66.5	66.6	66.7	66.8	66.9	67.1	67.2	66.6	66.5	69.8	**71.1**	68.6	68.2	67.7	67.6	67.2	67.0	66.8	66.7	66.6	69.9	69.2	67.5	66.1	64.5
5	66.6	66.6	66.6	66.7	66.8	66.8	67.0	67.2	67.3	66.7	66.6	69.8	**71.2**	68.9	68.4	67.9	67.7	67.4	67.2	67.0	66.8	66.8	70.0	69.2	67.6	66.2	64.6
4																											
3																											
2																											
1																											
Max	66.6	66.6	66.6	66.7	66.8	66.8	67.0	67.2	67.3	66.7	66.6	70.1	**71.2**	68.9	68.4	67.9	67.7	67.4	67.2	67.0	66.8	66.8	70.0	69.2	67.6	66.2	65.7
Min	63.3	63.4	63.4	63.5	63.6	63.7	63.9	64.1	64.2	63.0	63.1	67.5	67.2	63.9	63.4	63.2	63.1	63.0	63.0	62.9	63.0	63.0	66.9	66.5	64.9	63.5	64.0

Floor	R106 Max	R107 Max	R108 Max	R201 Max	R202 Max	R203 Max	R204 Max	R205 Max	R206 Max	R207 Max	R208 Max	R301 Max	R302 Max	R303 Max	R304 Max	R305 Max	R401 Max	R402 Max	R403 Max	R404 Max	R405 Max
41	64.1	64.4	65.2	63.9	64.5	65.0	64.6	64.6	64.1	64.1	64.0						67.5	67.2	63.2	63.0	63.0
40	64.2	64.4	65.2	64.0	64.5	65.0	64.7	64.6	64.2	64.1	64.1	68.4	66.8	63.5	63.9	64.2	67.5	67.3	63.3	63.1	63.0
39	64.3	64.5	65.3	64.1	64.6	65.1	64.8	64.7	64.2	64.2	64.1	68.5	66.9	63.6	63.9	64.3	67.6	67.4	63.3	63.1	63.1
38	64.3	64.6	65.4	64.1	64.7	65.2	64.9	64.8	64.3	64.3	64.2	68.6	67.0	63.7	64.0	64.3	67.7	67.5	63.4	63.2	63.2
37	64.4	64.6	65.4	64.2	64.7	65.3	65.0	64.8	64.4	64.3	64.3	68.7	67.1	63.7	64.1	64.4	67.8	67.6	63.5	63.3	63.3
36	64.5	64.7	65.5	64.3	64.8	65.3	65.1	64.9	64.5	64.4	64.4	68.7	67.2	63.8	64.1	64.5	67.9	67.7	63.6	63.4	63.3
35	64.5	64.8	65.6	64.3	64.9	65.4	65.2	65.0	64.5	64.5	64.4	68.8	67.3	63.9	64.2	64.6	68.0	67.7	63.7	63.5	63.4
34	64.6	64.8	65.7	64.4	65.0	65.5	65.2	65.1	64.6	64.5	64.5	68.9	67.4	64.0	64.3	64.6	68.1	67.8	63.8	63.6	63.5
33	64.7	64.9	65.7	64.5	65.0	65.6	65.3	65.2	64.7	64.6	64.5	69.1	67.5	64.1	64.4	64.7	68.2	68.0	63.8	63.6	63.6
32	64.7	65.0	65.8	64.5	65.1	65.7	65.5	65.3	64.7	64.7	64.6	69.2	67.6	64.1	64.5	64.8	68.2	68.1	63.9	63.7	63.7
31	64.8	65.0	65.9	64.6	65.2	65.8	65.6	65.3	64.8	64.8	64.7	69.2	67.7	64.2	64.5	64.9	68.4	68.2	64.1	63.8	63.8
30	64.9	65.1	66.0	64.7	65.2	65.9	65.7	65.4	64.9	64.8	64.7	69.3	67.8	64.3	64.6	64.9	68.5	68.2	64.2	63.9	63.9
29	65.0	65.2	66.0	64.8	65.4	66.0	65.7	65.5	65.0	64.9	64.8	69.4	67.9	64.4	64.7	65.0	68.6	68.3	64.2	64.0	64.0
28	65.0	65.3	66.1	64.8	65.4	66.0	65.9	65.6	65.0	65.0	64.9	69.6	68.0	64.5	64.8	65.1	68.7	68.5	64.3	64.1	64.1
27	65.1	65.3	66.2	64.9	65.5	66.1	66.0	65.7	65.1	65.1	65.0	69.7	68.1	64.6	64.9	65.2	68.8	68.6	64.5	64.2	64.2
26	65.2	65.4	66.3	65.0	65.6	66.3	66.1	65.8	65.2	65.1	65.0	69.8	68.2	64.6	65.0	65.3	68.9	68.7	64.6	64.3	64.2
25	65.2	65.4	66.4	65.1	65.6	66.3	66.2	65.9	65.3	65.2	65.1	69.9	68.3	64.7	65.1	65.4	69.0	68.8	64.6	64.4	64.3
24	65.3	65.5	66.4	65.2	65.7	66.5	66.3	66.0	65.4	65.3	65.2	70.0	68.5	64.8	65.2	65.5	69.1	69.0	64.8	64.5	64.5
23											**Refuge Floor**										
22	65.4	65.6	66.6	65.4	66.0	66.7	66.6	66.2	65.6	65.5	65.4	70.3	68.7	65.0	65.4	65.7	69.4	69.2	65.0	64.8	64.7
21	65.4	65.7	66.7	65.4	66.1	66.8	66.8	66.3	65.7	65.6	65.4	70.4	68.9	65.1	65.5	65.8	69.5	69.4	65.2	64.9	64.8
20	65.5	65.8	66.8	65.5	66.2	66.9	66.9	66.4	65.8	65.6	65.5	**70.5**	69.0	65.2	65.6	65.9	69.6	69.5	65.3	65.1	64.9
19	65.5	65.8	66.9	65.6	66.2	67.1	67.0	66.5	65.9	65.7	65.6	**70.7**	69.1	65.3	65.7	66.0	69.7	69.6	65.4	65.2	65.0
18	65.6	65.8	66.9	65.7	66.3	67.2	67.2	66.6	66.0	65.8	65.6	**70.8**	69.2	65.4	65.8	66.1	69.8	69.7	65.6	65.3	65.1
17	65.6	65.9	67.0	65.8	66.4	67.4	67.4	66.7	66.1	65.9	65.7	**70.9**	69.3	65.5	65.9	66.2	69.9	69.8	65.7	65.4	65.3
16	65.7	65.9	67.1	65.8	66.5	67.5	67.5	66.8	66.2	65.9	65.8	**71.1**	69.4	65.6	66.0	66.3	70.0	70.0	65.9	65.6	65.4
15	65.7	66.0	67.2	65.9	66.6	67.6	67.7	67.0	66.3	66.0	65.8	**71.2**	69.5	65.7	66.1	66.4	70.1	70.1	66.0	65.7	65.5
14	65.7	65.9	67.3	66.0	66.7	67.8	68.0	67.1	66.4	66.0	65.8	**71.3**	69.6	65.8	66.2	66.5	70.1	70.1	66.2	65.8	65.6
13	65.7	65.9	67.4	66.1	66.8	67.9	68.1	67.2	66.4	66.1	65.8	**71.4**	69.6	65.9	66.3	66.6	70.1	70.3	66.3	66.0	65.8
12	65.7	66.0	67.5	66.2	66.9	68.0	68.3	67.2	66.4	66.1	65.8	**71.5**	69.6	66.0	66.4	66.7	70.1	70.3	66.5	66.2	65.9
11	65.6	66.1	67.6	66.3	67.0	68.2	68.5	67.3	66.4	66.0	65.7	**71.5**	69.5	66.1	66.5	66.8	70.0	70.4	66.7	66.3	66.0
10	65.4	66.1	67.7	66.3	67.1	68.4	68.8	67.4	66.5	65.9	65.6	**71.5**	69.4	66.2	66.5	66.8	69.9	**70.5**	66.9	66.5	66.1
9	65.1	65.9	67.8	66.4	67.2	68.5	69.0	67.6	66.6	65.9	65.5	**71.4**	69.3	66.3	66.6	66.9	69.9	**70.6**	67.1	66.6	66.3
8	64.7	65.6	67.7	66.5	67.3	68.7	69.3	67.8	66.7	65.9	65.4	**71.3**	69.2	66.4	66.7	67.0	69.8	**70.8**	67.2	66.8	66.4
7	64.5	65.3	67.6	66.6	67.4	68.9	69.5	68.1	66.9	66.0	65.4	**71.3**	69.2	66.5	66.8	67.1	69.8	**70.9**	67.5	67.0	66.6
6	64.4	65.2	67.4	66.6	67.5	69.1	69.8	68.4	67.1	66.2	65.5	**71.2**	69.2	66.6	66.9	67.2	69.8	**71.1**	67.7	67.2	66.7
5	64.4	65.2	67.5	66.7	67.6	69.3	70.1	68.7	67.4	66.4	65.7	**71.3**	69.1	66.7	67.0	67.3	69.8	**71.2**	67.9	67.4	66.8
4																					
3																					
2																					
1																					
Max	65.7	66.1	67.8	66.7	67.6	69.3	70.1	68.7	67.4	66.4	65.8	**71.5**	69.6	66.7	67.0	67.3	70.1	**71.2**	67.9	67.4	66.8
Min	64.1	64.4	65.2	63.9	64.5	65.0	64.6	64.6	64.1	64.1	64.0	68.4	66.8	63.5	63.9	64.2	67.5	67.2	63.2	63.0	63.0

Appendix 3.3 of Preliminary Environmental Assessment Report

Road Traffic Noise Assessment Results – Mitigated Scenario

Floor	R101a	R101b	R101c	R102a	R102b	R102c	R103a	R103b	R103c	R104a	R104b	R104c	R104d	R105a	R105b	R105c	R106a	R106b	R106c	R107a	R107b	R107c	R108a	R108b	R108c	R201a	R201b
41	67.0	66.9	66.8	66.1	66.5	66.1	64.6	64.9	63.6	63.5	63.1	62.6	42.9	64.0	64.0	64.0	64.1	64.1	64.1	64.2	64.3	64.4	64.3	64.5	65.2	42.8	62.9
40	67.0	66.9	66.9	66.1	66.5	66.0	64.6	65.0	63.7	63.6	63.1	62.7	40.3	64.0	64.0	64.1	64.2	64.2	64.2	64.2	64.3	64.4	64.4	64.5	65.2	40.2	63.0
39	66.9	66.9	66.9	66.0	66.6	66.1	64.7	65.1	63.7	63.6	63.2	62.7	<40	64.1	64.1	64.1	64.2	64.3	64.3	64.3	64.4	64.5	64.4	64.6	65.3	<40	63.0
38	67.0	66.9	66.9	66.0	66.6	66.2	64.8	65.1	63.8	63.7	63.3	62.8	<40	64.2	64.2	64.2	64.3	64.3	64.3	64.4	64.4	64.6	64.5	64.7	65.4	<40	63.1
37	67.1	67.0	67.0	66.1	66.7	66.2	64.9	65.2	63.8	63.8	63.4	62.9	<40	64.2	64.2	64.3	64.4	64.4	64.4	64.4	64.5	64.6	64.6	64.8	65.4	<40	63.2
36	67.2	67.0	67.0	66.2	66.7	66.3	64.9	65.3	63.9	63.8	63.4	62.9	<40	64.3	64.3	64.3	64.4	64.4	64.5	64.5	64.6	64.7	64.7	64.8	65.5	<40	63.2
35	67.2	67.1	67.1	66.2	66.8	66.4	65.0	65.4	64.0	63.9	63.5	63.0	<40	64.4	64.4	64.4	64.5	64.5	64.5	64.6	64.6	64.8	64.7	64.9	65.6	<40	63.3
34	67.3	67.2	67.2	66.3	66.9	66.4	65.1	65.4	64.1	63.9	63.5	63.1	<40	64.5	64.4	64.5	64.6	64.6	64.6	64.7	64.7	64.8	64.8	65.0	65.7	<40	63.4
33	67.3	67.3	67.3	66.4	67.0	66.5	65.1	65.5	64.2	64.0	63.6	63.1	<40	64.5	64.5	64.6	64.7	64.6	64.7	64.7	64.8	64.9	64.8	65.0	65.7	<40	63.4
32	67.4	67.3	67.3	66.4	67.1	66.6	65.2	65.6	64.2	64.1	63.7	63.2	<40	64.6	64.6	64.6	64.7	64.7	64.7	64.8	64.9	65.0	64.9	65.1	65.8	<40	63.5
31	67.5	67.4	67.4	66.5	67.1	66.7	65.3	65.6	64.3	64.2	63.7	63.3	<40	64.7	64.6	64.7	64.8	64.8	64.8	64.9	64.9	65.0	65.0	65.2	65.9	<40	63.6
30	67.6	67.5	67.5	66.6	67.2	66.8	65.3	65.7	64.4	64.2	63.8	63.4	<40	64.7	64.7	64.8	64.9	64.9	64.9	65.0	65.0	65.1	65.0	65.2	66.0	<40	63.6
29	67.7	67.5	67.6	66.7	67.3	66.8	65.4	65.8	64.4	64.3	63.9	63.4	<40	64.8	64.8	64.8	64.9	64.9	65.0	65.0	65.1	65.2	65.1	65.3	66.0	<40	63.7
28	67.7	67.6	67.7	66.8	67.4	66.9	65.5	65.9	64.5	64.4	64.0	63.5	<40	64.9	64.8	64.9	65.0	65.0	65.0	65.1	65.2	65.3	65.2	65.4	66.1	<40	63.8
27	67.8	67.7	67.7	66.8	67.4	67.0	65.6	66.0	64.6	64.4	64.1	63.6	<40	64.9	64.9	65.0	65.1	65.1	65.1	65.2	65.2	65.3	65.3	65.4	66.2	<40	63.8
26	67.9	67.8	67.8	66.9	67.5	67.1	65.7	66.1	64.7	64.5	64.1	63.6	<40	65.0	65.0	65.0	65.2	65.1	65.2	65.2	65.3	65.4	65.3	65.5	66.3	<40	63.9
25	68.0	67.9	67.9	67.0	67.6	67.2	65.7	66.1	64.8	64.6	64.2	63.7	<40	65.1	65.1	65.1	65.2	65.2	65.2	65.3	65.3	65.4	65.4	65.6	66.4	<40	64.0
24	68.1	68.0	68.0	67.1	67.7	67.2	65.8	66.2	64.8	64.7	64.3	63.8	<40	65.1	65.1	65.2	65.2	65.3	65.3	65.3	65.4	65.5	65.4	65.7	66.4	<40	64.0
23	Refuge Floor																										
22	68.3	68.2	68.2	67.3	67.9	67.4	66.0	66.4	65.1	64.9	64.5	64.0	40.1	65.2	65.3	65.2	65.4	65.4	65.4	65.4	65.5	65.6	65.6	65.8	66.6	40.1	64.2
21	68.4	68.3	68.3	67.4	68.0	67.5	66.1	66.5	65.1	65.0	64.6	64.1	40.2	65.3	65.3	65.3	65.4	65.4	65.4	65.5	65.6	65.7	65.7	65.9	66.7	40.1	64.3
20	68.5	68.4	68.4	67.5	68.1	67.6	66.2	66.6	65.2	65.0	64.7	64.2	40.2	65.4	65.3	65.3	65.4	65.5	65.5	65.6	65.6	65.8	65.7	65.9	66.8	40.3	64.4
19	68.6	68.5	68.5	67.6	68.2	67.7	66.3	66.7	65.3	65.1	64.7	64.3	40.3	65.4	65.4	65.4	65.5	65.5	65.5	65.6	65.7	65.8	65.8	66.0	66.9	40.3	64.5
18	68.7	68.6	68.6	67.7	68.3	67.8	66.4	66.7	65.4	65.2	64.8	64.4	40.4	65.5	65.4	65.4	65.5	65.6	65.6	65.7	65.7	65.8	65.8	66.1	66.9	40.4	64.6
17	68.8	68.7	68.7	67.8	68.4	67.9	66.4	66.8	65.5	65.3	64.9	64.4	40.5	65.6	65.5	65.5	65.6	65.6	65.6	65.7	65.8	65.9	65.9	66.1	67.0	40.5	64.6
16	68.9	68.8	68.8	67.9	68.5	68.0	66.5	66.9	65.6	65.4	65.0	64.5	40.6	65.6	65.5	65.5	65.6	65.7	65.6	65.8	65.8	65.9	65.9	66.2	67.1	40.6	64.7
15	69.0	68.9	68.9	68.0	68.5	68.1	66.6	67.0	65.7	65.5	65.1	64.6	40.7	65.6	65.6	65.6	65.7	65.7	65.7	65.8	65.8	66.0	65.9	66.1	67.2	40.7	64.8
14	69.1	69.0	69.0	68.0	68.6	68.2	66.7	67.1	65.7	65.5	65.2	64.7	40.8	65.7	65.6	65.6	65.7	65.7	65.7	65.8	65.8	65.9	65.9	66.2	67.3	40.8	64.9
13	69.2	69.1	69.1	68.1	68.7	68.3	66.8	67.2	65.8	65.6	65.2	64.8	40.8	65.7	65.6	65.6	65.7	65.7	65.7	65.8	65.9	65.9	65.9	66.2	67.4	40.9	64.9
12	69.3	69.2	69.2	68.2	68.8	68.3	66.8	67.2	65.8	65.7	65.3	64.8	40.9	65.7	65.6	65.6	65.7	65.7	65.6	65.7	65.8	66.0	66.0	66.3	67.5	41.0	65.0
11	69.4	69.3	69.3	68.3	68.9	68.4	66.9	67.3	65.9	65.7	65.4	64.9	41.0	65.5	65.5	65.4	65.5	65.5	65.6	65.8	65.9	66.1	66.0	66.4	67.6	41.0	65.0
10	69.5	69.4	69.4	68.3	69.0	68.5	66.9	67.3	65.9	65.8	65.4	65.0	41.1	65.2	65.1	65.1	65.3	65.4	65.4	65.7	65.9	66.1	66.1	66.5	67.7	41.1	65.1
9	69.6	69.4	69.4	68.4	69.0	68.5	66.9	67.4	66.0	65.9	65.5	65.0	41.2	64.8	64.8	64.7	64.8	64.9	65.1	65.4	65.7	65.9	66.1	66.4	67.8	41.2	65.2
8	69.7	69.5	69.5	68.4	69.1	68.5	67.0	67.4	66.0	66.0	65.6	65.1	41.2	64.5	64.4	64.4	64.5	64.5	64.7	65.0	65.3	65.6	65.7	66.2	67.7	41.3	65.3
7	69.8	69.6	69.6	68.5	69.1	68.6	67.0	67.5	66.0	66.0	65.6	65.2	41.3	64.5	64.3	64.3	64.3	64.4	64.5	64.7	65.0	65.3	65.5	65.9	67.6	41.4	65.3
6	69.9	69.7	69.6	68.6	69.2	68.7	67.1	67.5	66.1	66.1	65.7	65.2	41.4	64.5	64.3	64.3	64.3	64.4	64.4	64.6	64.9	65.2	65.3	65.8	67.4	41.5	65.4
5	70.0	69.8	69.7	68.6	69.2	68.7	67.1	67.6	66.1	66.2	65.8	65.3	41.4	64.6	64.4	64.3	64.4	64.3	64.4	64.7	64.8	65.2	65.3	65.8	67.5	41.5	65.4
4																											
3																											
2																											
1																											
Max	70.0	69.8	69.7	68.6	69.2	68.7	67.1	67.6	66.1	66.2	65.8	65.3	42.9	65.7	65.6	65.6	65.7	65.7	65.7	65.8	65.9	66.1	66.1	66.5	67.8	42.8	65.4
Min	66.9	66.9	66.8	66.0	66.5	66.0	64.6	64.9	63.6	63.5	63.1	62.6	<40	64.0	64.0	64.0	64.1	64.1	64.1	64.2	64.3	64.4	64.3	64.5	65.2	<40	62.9

# Total Flats	931
Exceedances	0
Compliance Rate	100.0%

Noise sensitive receivers applied with acoustic window

Floor	R201c	R201d	R202a	R202b	R202c	R203a	R203b	R203c	R204a	R204b	R204c	R205a	R205b	R205c	R206a	R206b	R206c	R207a	R207b	R207c	R208a	R208b	R208c	R301a	R301b	R301c	R302a
41	63.5	63.9	63.9	64.5	64.3	64.4	65.0	63.8	64.6	64.6	64.5	64.6	64.1	64.1	64.1	64.1	64.0	64.0	64.0	64.1	64.0	64.0	64.0				
40	63.6	64.0	64.0	64.5	64.3	64.4	65.0	63.9	64.7	64.7	64.6	64.6	64.2	64.1	64.2	64.1	64.1	64.1	64.1	64.1	64.1	64.0	64.0	64.6	65.0	68.4	66.8
39	63.6	64.1	64.1	64.6	64.4	64.5	65.1	63.9	64.8	64.7	64.7	64.7	64.3	64.2	64.2	64.2	64.2	64.1	64.1	64.2	64.1	64.1	64.1	64.7	65.1	68.5	66.9
38	63.7	64.1	64.2	64.7	64.5	64.6	65.2	64.0	64.9	64.8	64.8	64.8	64.3	64.3	64.3	64.3	64.2	64.2	64.2	64.3	64.2	64.2	64.2	64.8	65.2	68.6	67.0
37	63.8	64.2	64.2	64.7	64.6	64.7	65.3	64.1	65.0	64.9	64.9	64.8	64.4	64.3	64.4	64.3	64.3	64.3	64.3	64.3	64.3	64.2	64.2	64.8	65.2	68.7	67.1
36	63.8	64.3	64.3	64.8	64.6	64.8	65.3	64.2	65.1	65.0	64.9	64.9	64.5	64.4	64.5	64.4	64.4	64.3	64.3	64.4	64.4	64.3	64.3	64.9	65.3	68.7	67.2
35	63.9	64.3	64.3	64.9	64.7	64.8	65.4	64.3	65.2	65.1	65.0	65.0	64.5	64.5	64.5	64.5	64.4	64.4	64.4	64.5	64.4	64.3	64.4	65.0	65.3	68.8	67.3
34	64.0	64.4	64.4	65.0	64.8	64.9	65.5	64.4	65.2	65.2	65.1	65.1	64.6	64.5	64.6	64.5	64.5	64.5	64.5	64.5	64.5	64.4	64.4	65.0	65.4	68.9	67.4
33	64.0	64.5	64.5	65.0	64.8	65.0	65.6	64.4	65.3	65.3	65.3	65.2	64.7	64.6	64.7	64.6	64.6	64.5	64.6	64.6	64.5	64.5	64.5	65.1	65.5	69.1	67.5
32	64.1	64.5	64.6	65.1	64.9	65.1	65.7	64.5	65.5	65.4	65.4	65.3	64.8	64.7	64.7	64.7	64.6	64.6	64.6	64.7	64.6	64.6	64.6	65.2	65.6	69.2	67.6
31	64.2	64.6	64.6	65.2	65.0	65.2	65.8	64.7	65.6	65.5	65.5	65.3	64.9	64.8	64.8	64.7	64.7	64.7	64.7	64.8	64.7	64.7	64.7	65.3	65.7	69.2	67.7
30	64.2	64.7	64.7	65.2	65.1	65.2	65.9	64.8	65.7	65.6	65.6	65.4	64.9	64.8	64.9	64.8	64.8	64.8	64.8	64.8	64.7	64.7	64.7	65.4	65.7	69.3	67.8
29	64.3	64.8	64.8	65.4	65.2	65.4	66.0	64.8	65.7	65.7	65.7	65.5	65.0	64.9	65.0	64.9	64.9	64.8	64.9	64.9	64.8	64.8	64.8	65.5	65.8	69.4	67.9
28	64.4	64.8	64.9	65.4	65.2	65.5	66.0	64.9	65.9	65.8	65.8	65.6	65.1	65.0	65.0	65.0	64.9	64.9	64.9	65.0	64.9	64.8	64.9	65.6	65.9	69.6	68.0
27	64.5	64.9	64.9	65.5	65.3	65.6	66.1	65.1	66.0	65.9	65.9	65.7	65.2	65.1	65.1	65.0	65.0	65.0	65.0	65.1	65.0	64.9	64.9	65.6	66.0	69.7	68.1
26	64.5	65.0	65.0	65.6	65.4	65.7	66.3	65.2	66.1	66.0	66.1	65.8	65.2	65.2	65.2	65.2	65.1	65.1	65.1	65.1	65.0	65.0	65.0	65.7	66.1	69.8	68.2
25	64.6	65.1	65.1	65.6	65.5	65.7	66.3	65.2	66.2	66.2	66.2	65.9	65.4	65.2	65.3	65.2	65.2	65.1	65.2	65.2	65.1	65.1	65.1	65.8	66.2	69.9	68.3
24	64.7	65.2	65.2	65.7	65.6	65.8	66.5	65.4	66.3	66.3	66.3	66.0	65.4	65.4	65.4	65.3	65.3	65.2	65.2	65.3	65.2	65.1	65.1	65.9	66.3	70.0	68.5
23														Refuge Floor													
22	64.9	65.4	65.4	66.0	65.8	66.1	66.7	65.6	66.6	66.6	66.6	66.2	65.7	65.6	65.6	65.5	65.5	65.4	65.4	65.5	65.4	65.3	65.3	66.1	66.5	70.3	68.7
21	65.0	65.4	65.5	66.1	65.9	66.3	66.8	65.8	66.8	66.7	66.8	66.3	65.8	65.7	65.7	65.6	65.6	65.5	65.5	65.6	65.4	65.3	65.3	66.2	66.6	70.4	68.9
20	65.0	65.5	65.5	66.2	66.0	66.3	66.9	65.9	66.9	66.8	66.9	66.4	65.9	65.8	65.8	65.8	65.7	65.6	65.6	65.6	65.5	65.4	65.4	66.3	66.7	65.5	69.0
19	65.1	65.6	65.6	66.2	66.1	66.5	67.1	66.0	67.0	67.0	67.0	66.5	66.0	65.9	65.9	65.9	65.8	65.7	65.7	65.7	65.6	65.5	65.5	66.4	66.8	65.7	69.1
18	65.2	65.7	65.7	66.3	66.1	66.6	67.2	66.2	67.2	67.1	67.2	66.6	66.1	66.0	66.0	65.9	65.9	65.8	65.8	65.8	65.6	65.5	65.5	66.5	66.9	65.8	69.2
17	65.3	65.8	65.8	66.4	66.2	66.7	67.4	66.3	67.3	67.3	67.4	66.7	66.2	66.1	66.1	66.0	66.0	65.9	65.8	65.9	65.7	65.6	65.6	66.6	67.0	65.9	69.3
16	65.4	65.8	65.9	66.5	66.3	66.8	67.5	66.5	67.5	67.5	67.5	66.8	66.3	66.2	66.2	66.1	66.0	65.9	65.9	65.9	65.8	65.7	65.6	66.7	67.1	66.1	69.4
15	65.4	65.9	66.0	66.6	66.4	67.0	67.6	66.6	67.6	67.6	67.7	67.0	66.4	66.3	66.3	66.2	66.1	66.0	66.0	66.0	65.8	65.7	65.7	66.8	67.2	66.2	69.5
14	65.5	66.0	66.0	66.7	66.5	67.1	67.8	66.8	67.8	67.8	68.0	67.1	66.5	66.3	66.4	66.3	66.1	66.0	65.9	66.0	65.8	65.7	65.7	66.9	67.3	66.3	69.6
13	65.6	66.1	66.1	66.8	66.6	67.3	67.9	66.9	68.0	68.0	68.1	67.2	66.6	66.4	66.4	66.3	66.2	66.1	66.0	66.0	65.8	65.8	65.8	67.0	67.4	66.4	69.6
12	65.6	66.2	66.2	66.9	66.7	67.4	68.0	67.1	68.2	68.2	68.3	67.2	66.5	66.4	66.4	66.3	66.2	66.1	66.0	66.0	65.8	65.7	65.7	67.1	67.5	66.5	69.6
11	65.7	66.3	66.3	67.0	66.8	67.6	68.2	67.3	68.4	68.4	68.5	67.3	66.7	66.4	66.4	66.3	66.2	66.0	65.9	65.9	65.7	65.6	65.6	67.2	67.6	66.5	69.5
10	65.8	66.3	66.4	67.1	66.9	67.7	68.4	67.5	68.6	68.6	68.8	67.4	66.8	66.5	66.5	66.3	66.2	65.9	65.8	65.8	65.6	65.5	65.3	67.3	67.7	66.5	69.4
9	65.9	66.4	66.5	67.2	67.0	67.9	68.5	67.7	68.8	68.8	69.0	67.6	66.9	66.6	66.6	66.4	66.2	65.9	65.8	65.7	65.5	65.3	65.1	67.4	67.8	66.4	69.3
8	65.9	66.5	66.6	67.3	67.1	68.1	68.7	67.8	69.1	69.1	69.3	67.8	67.1	66.8	66.7	66.5	66.2	65.9	65.8	65.7	65.4	65.2	65.0	67.4	67.8	66.3	69.2
7	66.0	66.6	66.6	67.4	67.2	68.2	68.9	68.1	69.3	69.3	69.5	68.1	67.3	67.0	66.9	66.7	66.4	66.0	65.9	65.8	65.4	65.2	64.9	67.5	67.9	66.3	69.2
6	66.0	66.6	66.7	67.5	67.3	68.4	69.1	68.3	69.5	69.6	69.8	68.4	67.6	67.3	67.1	66.9	66.6	66.2	66.0	65.9	65.5	65.3	65.0	67.6	68.0	66.2	69.2
5	66.1	66.7	66.8	67.6	67.4	68.6	69.3	68.5	69.8	69.9	70.1	68.7	67.9	67.5	67.4	67.1	66.8	66.4	66.2	66.0	65.7	65.4	65.1	67.7	68.1	66.3	69.1
4																											
3																											
2																											
1																											
Max	66.1	66.7	66.8	67.6	67.4	68.6	69.3	68.5	69.8	69.9	70.1	68.7	67.9	67.5	67.4	67.1	66.8	66.4	66.2	66.0	65.8	65.8	65.8	67.7	68.1	70.4	69.6
Min	63.5	63.9	63.9	64.5	64.3	64.4	65.0	63.8	64.6	64.6	64.5	64.6	64.1	64.1	64.1	64.1	64.0	64.0	64.0	64.1	64.0	64.0	64.0	64.6	65.0	68.4	66.8

Floor	R302b	R302c	R303a	R303b	R304a	R304b	R304c	R305a	R305b	R401a	R401b	R401c	R402a	R402b	R402c	R403a	R403b	R404a	R404b	R404c	R405a	R405b	R101 Max	R102 Max	R103 Max	R104 Max	R105 Max
41										63.0	63.1	67.5	67.2	63.9	63.4	63.2	63.1	63.0	63.0	62.9	63.0	63.0	67.0	66.5	64.9	63.5	64.0
40	63.3	63.4	63.4	63.5	63.6	63.7	63.9	64.1	64.2	63.1	63.1	67.5	67.3	63.9	63.5	63.3	63.2	63.1	63.0	63.0	63.0	63.0	67.0	66.5	65.0	63.6	64.1
39	63.3	63.4	63.5	63.6	63.7	63.8	63.9	64.2	64.3	63.2	63.2	67.6	67.4	64.0	63.6	63.3	63.3	63.1	63.1	63.1	63.1	63.1	66.9	66.6	65.1	63.6	64.1
38	63.4	63.5	63.6	63.7	63.8	63.8	64.0	64.2	64.3	63.3	63.2	67.7	67.5	64.1	63.7	63.4	63.4	63.2	63.1	63.2	63.2	63.2	67.0	66.6	65.1	63.7	64.2
37	63.5	63.6	63.6	63.7	63.9	63.9	64.1	64.3	64.4	63.3	63.3	67.8	67.6	64.2	63.8	63.5	63.5	63.3	63.2	63.2	63.3	63.3	67.1	66.7	65.2	63.8	64.3
36	63.6	63.6	63.7	63.8	63.9	64.0	64.1	64.3	64.5	63.4	63.4	67.9	67.7	64.3	63.8	63.6	63.5	63.4	63.3	63.3	63.3	63.3	67.2	66.7	65.3	63.8	64.3
35	63.6	63.7	63.8	63.9	64.0	64.0	64.2	64.4	64.6	63.5	63.5	68.0	67.7	64.3	63.9	63.7	63.6	63.5	63.5	63.4	63.4	63.4	67.2	66.8	65.4	63.9	64.4
34	63.7	63.8	63.9	64.0	64.0	64.1	64.3	64.5	64.6	63.6	63.5	68.1	67.8	64.4	64.0	63.8	63.7	63.6	63.5	63.5	63.5	63.5	67.3	66.9	65.4	63.9	64.5
33	63.8	63.9	63.9	64.1	64.1	64.2	64.4	64.6	64.7	63.7	63.6	68.2	68.0	64.6	64.1	63.8	63.8	63.6	63.6	63.6	63.6	63.6	67.3	67.0	65.5	64.0	64.6
32	63.9	63.9	64.0	64.1	64.2	64.3	64.5	64.7	64.8	63.7	63.7	68.2	68.1	64.7	64.2	63.9	63.9	63.7	63.7	63.7	63.7	63.7	67.4	67.1	65.6	64.1	64.6
31	64.0	64.0	64.1	64.2	64.3	64.4	64.5	64.8	64.9	63.8	63.8	68.4	68.2	64.7	64.3	64.1	64.0	63.8	63.8	63.8	63.7	63.8	67.5	67.1	65.6	64.2	64.7
30	64.0	64.1	64.2	64.3	64.4	64.5	64.6	64.9	64.9	63.9	63.9	68.5	68.2	64.8	64.4	64.2	64.1	63.9	63.9	63.9	63.8	63.9	67.6	67.2	65.7	64.2	64.8
29	64.1	64.2	64.3	64.4	64.5	64.5	64.7	64.9	65.0	64.0	64.0	68.6	68.3	64.9	64.5	64.2	64.2	64.0	64.0	63.9	64.0	63.9	67.7	67.3	65.8	64.3	64.8
28	64.2	64.3	64.4	64.5	64.6	64.6	64.8	65.0	65.1	64.1	64.1	68.7	68.5	65.1	64.6	64.3	64.3	64.1	64.1	64.0	64.1	64.1	67.7	67.4	65.9	64.4	64.9
27	64.3	64.4	64.5	64.6	64.6	64.7	64.9	65.1	65.2	64.2	64.2	68.8	68.6	65.1	64.7	64.5	64.4	64.2	64.2	64.1	64.1	64.2	67.8	67.4	66.0	64.4	65.0
26	64.4	64.5	64.5	64.6	64.7	64.8	65.0	65.2	65.3	64.3	64.2	68.9	68.7	65.2	64.8	64.6	64.5	64.3	64.3	64.2	64.2	64.2	67.9	67.5	66.1	64.5	65.0
25	64.5	64.6	64.6	64.7	64.8	64.9	65.1	65.3	65.4	64.4	64.3	69.0	68.8	65.4	65.0	64.6	64.6	64.4	64.3	64.3	64.3	64.3	68.0	67.6	66.1	64.6	65.1
24	64.5	64.6	64.7	64.8	64.9	65.0	65.2	65.4	65.5	64.5	64.5	69.1	69.0	65.5	65.1	64.8	64.7	64.5	64.5	64.4	64.4	64.5	68.1	67.7	66.2	64.7	65.2
23														Refuge Floor													
22	64.8	64.9	64.9	65.0	65.1	65.2	65.4	65.6	65.7	64.7	64.7	69.4	69.2	65.8	65.4	65.0	65.0	64.8	64.7	64.7	64.7	64.7	68.3	67.9	66.4	64.9	65.3
21	64.9	65.0	65.0	65.1	65.2	65.3	65.5	65.7	65.8	64.8	64.8	69.5	69.4	65.9	65.5	65.2	65.1	64.9	64.9	64.8	64.8	64.8	68.4	68.0	66.5	65.0	65.3
20	65.0	65.1	65.2	65.2	65.3	65.4	65.6	65.8	65.9	64.9	64.9	69.6	69.5	66.0	65.6	65.3	65.2	65.1	65.0	64.9	64.9	64.9	68.5	68.1	66.6	65.0	65.4
19	65.1	65.2	65.3	65.3	65.4	65.5	65.7	65.9	66.0	65.1	65.0	69.7	69.6	66.2	65.8	65.4	65.4	65.2	65.1	65.0	65.0	65.0	68.6	68.2	66.7	65.1	65.4
18	65.2	65.3	65.3	65.4	65.5	65.6	65.8	66.0	66.1	65.1	65.1	69.8	69.7	66.3	65.9	65.6	65.5	65.3	65.2	65.2	65.1	65.1	68.7	68.3	66.7	65.2	65.5
17	65.3	65.4	65.4	65.5	65.6	65.7	65.9	66.1	66.2	65.2	65.2	69.9	69.8	66.5	66.1	65.7	65.7	65.4	65.3	65.3	65.3	65.2	68.8	68.4	66.8	65.3	65.6
16	65.4	65.5	65.5	65.6	65.7	65.8	66.0	66.2	66.3	65.4	65.3	70.0	70.0	66.6	66.2	65.9	65.7	65.6	65.5	65.4	65.4	65.4	68.9	68.5	66.9	65.4	65.6
15	65.5	65.6	65.6	65.7	65.8	65.9	66.1	66.3	66.4	65.5	65.4	70.1	70.1	66.8	66.4	66.0	65.9	65.7	65.6	65.5	65.5	65.5	69.0	68.5	67.0	65.5	65.6
14	65.6	65.7	65.7	65.8	65.9	66.0	66.2	66.4	66.5	65.6	65.5	70.1	70.1	66.9	66.5	66.2	66.0	65.8	65.8	65.7	65.6	65.6	69.1	68.6	67.1	65.5	65.7
13	65.7	65.8	65.8	65.9	66.0	66.1	66.3	66.5	66.6	65.7	65.7	70.1	70.3	67.1	66.7	66.3	66.2	66.0	65.9	65.8	65.8	65.7	69.2	68.7	67.2	65.6	65.7
12	65.8	65.9	66.0	66.0	66.1	66.2	66.4	66.6	66.7	65.8	65.8	70.1	70.3	67.3	66.9	66.5	66.4	66.2	66.1	66.0	65.9	65.9	69.3	68.8	67.2	65.7	65.7
11	65.9	66.0	66.0	66.1	66.2	66.3	66.5	66.7	66.8	65.9	65.9	70.0	70.4	67.4	67.1	66.7	66.6	66.3	66.2	66.1	66.0	66.0	69.4	68.9	67.3	65.7	65.5
10	66.0	66.1	66.2	66.2	66.3	66.4	66.5	66.7	66.8	66.1	66.0	69.9	65.5	67.7	67.2	66.9	66.7	66.5	66.3	66.3	66.1	66.1	69.5	69.0	67.3	65.8	65.2
9	66.1	66.2	66.2	66.3	66.4	66.5	66.6	66.8	66.9	66.2	66.2	69.9	65.6	67.9	67.5	67.1	66.9	66.6	66.5	66.4	66.3	66.2	69.6	69.0	67.4	65.9	64.8
8	66.3	66.3	66.3	66.4	66.5	66.6	66.7	66.9	67.0	66.3	66.2	69.8	65.8	68.1	67.7	67.2	67.1	66.8	66.7	66.6	66.4	66.4	69.7	69.1	67.4	66.0	64.5
7	66.4	66.4	66.4	66.5	66.6	66.7	66.8	67.0	67.1	66.4	66.4	69.8	65.9	68.4	67.9	67.5	67.3	67.0	66.9	66.7	66.6	66.5	69.8	69.1	67.5	66.0	64.5
6	66.4	66.5	66.5	66.6	66.7	66.8	66.9	67.1	67.2	66.6	66.5	69.8	66.1	68.6	68.2	67.7	67.6	67.2	67.0	66.8	66.7	66.6	69.9	69.2	67.5	66.1	64.5
5	66.6	66.6	66.6	66.7	66.8	66.8	67.0	67.2	67.3	66.7	66.6	69.8	66.2	68.9	68.4	67.9	67.7	67.4	67.2	67.0	66.8	66.8	70.0	69.2	67.6	66.2	64.6
4																											
3																											
2																											
1																											
Max	66.6	66.6	66.6	66.7	66.8	66.8	67.0	67.2	67.3	66.7	66.6	70.1	70.4	68.9	68.4	67.9	67.7	67.4	67.2	67.0	66.8	66.8	70.0	69.2	67.6	66.2	65.7
Min	63.3	63.4	63.4	63.5	63.6	63.7	63.9	64.1	64.2	63.0	63.1	67.5	67.2	63.9	63.4	63.2	63.1	63.0	63.0	62.9	63.0	63.0	66.9	66.5	64.9	63.5	64.0

Floor	R106 Max	R107 Max	R108 Max	R201 Max	R202 Max	R203 Max	R204 Max	R205 Max	R206 Max	R207 Max	R208 Max	R301 Max	R302 Max	R303 Max	R304 Max	R305 Max	R401 Max	R402 Max	R403 Max	R404 Max	R405 Max
41	64.1	64.4	65.2	63.9	64.5	65.0	64.6	64.6	64.1	64.1	64.0						67.5	67.2	63.2	63.0	63.0
40	64.2	64.4	65.2	64.0	64.5	65.0	64.7	64.6	64.2	64.1	64.1	68.4	66.8	63.5	63.9	64.2	67.5	67.3	63.3	63.1	63.0
39	64.3	64.5	65.3	64.1	64.6	65.1	64.8	64.7	64.2	64.2	64.1	68.5	66.9	63.6	63.9	64.3	67.6	67.4	63.3	63.1	63.1
38	64.3	64.6	65.4	64.1	64.7	65.2	64.9	64.8	64.3	64.3	64.2	68.6	67.0	63.7	64.0	64.3	67.7	67.5	63.4	63.2	63.2
37	64.4	64.6	65.4	64.2	64.7	65.3	65.0	64.8	64.4	64.3	64.3	68.7	67.1	63.7	64.1	64.4	67.8	67.6	63.5	63.3	63.3
36	64.5	64.7	65.5	64.3	64.8	65.3	65.1	64.9	64.5	64.4	64.4	68.7	67.2	63.8	64.1	64.5	67.9	67.7	63.6	63.4	63.3
35	64.5	64.8	65.6	64.3	64.9	65.4	65.2	65.0	64.5	64.5	64.4	68.8	67.3	63.9	64.2	64.6	68.0	67.7	63.7	63.5	63.4
34	64.6	64.8	65.7	64.4	65.0	65.5	65.2	65.1	64.6	64.5	64.5	68.9	67.4	64.0	64.3	64.6	68.1	67.8	63.8	63.6	63.5
33	64.7	64.9	65.7	64.5	65.0	65.6	65.3	65.2	64.7	64.6	64.5	69.1	67.5	64.1	64.4	64.7	68.2	68.0	63.8	63.6	63.6
32	64.7	65.0	65.8	64.5	65.1	65.7	65.5	65.3	64.7	64.7	64.6	69.2	67.6	64.1	64.5	64.8	68.2	68.1	63.9	63.7	63.7
31	64.8	65.0	65.9	64.6	65.2	65.8	65.6	65.3	64.8	64.8	64.7	69.2	67.7	64.2	64.5	64.9	68.4	68.2	64.1	63.8	63.8
30	64.9	65.1	66.0	64.7	65.2	65.9	65.7	65.4	64.9	64.8	64.7	69.3	67.8	64.3	64.6	64.9	68.5	68.2	64.2	63.9	63.9
29	65.0	65.2	66.0	64.8	65.4	66.0	65.7	65.5	65.0	64.9	64.8	69.4	67.9	64.4	64.7	65.0	68.6	68.3	64.2	64.0	64.0
28	65.0	65.3	66.1	64.8	65.4	66.0	65.9	65.6	65.0	65.0	64.9	69.6	68.0	64.5	64.8	65.1	68.7	68.5	64.3	64.1	64.1
27	65.1	65.3	66.2	64.9	65.5	66.1	66.0	65.7	65.1	65.1	65.0	69.7	68.1	64.6	64.9	65.2	68.8	68.6	64.5	64.2	64.2
26	65.2	65.4	66.3	65.0	65.6	66.3	66.1	65.8	65.2	65.1	65.0	69.8	68.2	64.6	65.0	65.3	68.9	68.7	64.6	64.3	64.2
25	65.2	65.4	66.4	65.1	65.6	66.3	66.2	65.9	65.3	65.2	65.1	69.9	68.3	64.7	65.1	65.4	69.0	68.8	64.6	64.4	64.3
24	65.3	65.5	66.4	65.2	65.7	66.5	66.3	66.0	65.4	65.3	65.2	70.0	68.5	64.8	65.2	65.5	69.1	69.0	64.8	64.5	64.5
23											Refuge Floor										
22	65.4	65.6	66.6	65.4	66.0	66.7	66.6	66.2	65.6	65.5	65.4	70.3	68.7	65.0	65.4	65.7	69.4	69.2	65.0	64.8	64.7
21	65.4	65.7	66.7	65.4	66.1	66.8	66.8	66.3	65.7	65.6	65.4	70.4	68.9	65.1	65.5	65.8	69.5	69.4	65.2	64.9	64.8
20	65.5	65.8	66.8	65.5	66.2	66.9	66.9	66.4	65.8	65.6	65.5	65.5	69.0	65.2	65.6	65.9	69.6	69.5	65.3	65.1	64.9
19	65.5	65.8	66.9	65.6	66.2	67.1	67.0	66.5	65.9	65.7	65.6	65.7	69.1	65.3	65.7	66.0	69.7	69.6	65.4	65.2	65.0
18	65.6	65.8	66.9	65.7	66.3	67.2	67.2	66.6	66.0	65.8	65.6	65.8	69.2	65.4	65.8	66.1	69.8	69.7	65.6	65.3	65.1
17	65.6	65.9	67.0	65.8	66.4	67.4	67.4	66.7	66.1	65.9	65.7	65.9	69.3	65.5	65.9	66.2	69.9	69.8	65.7	65.4	65.3
16	65.7	65.9	67.1	65.8	66.5	67.5	67.5	66.8	66.2	65.9	65.8	66.1	69.4	65.6	66.0	66.3	70.0	70.0	65.9	65.6	65.4
15	65.7	66.0	67.2	65.9	66.6	67.6	67.7	67.0	66.3	66.0	65.8	66.2	69.5	65.7	66.1	66.4	70.1	70.1	66.0	65.7	65.5
14	65.7	65.9	67.3	66.0	66.7	67.8	68.0	67.1	66.4	66.0	65.8	66.3	69.6	65.8	66.2	66.5	70.1	70.1	66.2	65.8	65.6
13	65.7	65.9	67.4	66.1	66.8	67.9	68.1	67.2	66.4	66.1	65.8	66.4	69.6	65.9	66.3	66.6	70.1	70.3	66.3	66.0	65.8
12	65.7	66.0	67.5	66.2	66.9	68.0	68.3	67.2	66.4	66.1	65.8	66.5	69.6	66.0	66.4	66.7	70.1	70.3	66.5	66.2	65.9
11	65.6	66.1	67.6	66.3	67.0	68.2	68.5	67.3	66.4	66.0	65.7	66.5	69.5	66.1	66.5	66.8	70.0	70.4	66.7	66.3	66.0
10	65.4	66.1	67.7	66.3	67.1	68.4	68.8	67.4	66.5	65.9	65.6	66.5	69.4	66.2	66.5	66.8	69.9	65.5	66.9	66.5	66.1
9	65.1	65.9	67.8	66.4	67.2	68.5	69.0	67.6	66.6	65.9	65.5	66.4	69.3	66.3	66.6	66.9	69.9	65.6	67.1	66.6	66.3
8	64.7	65.6	67.7	66.5	67.3	68.7	69.3	67.8	66.7	65.9	65.4	66.3	69.2	66.4	66.7	67.0	69.8	65.8	67.2	66.8	66.4
7	64.5	65.3	67.6	66.6	67.4	68.9	69.5	68.1	66.9	66.0	65.4	66.3	69.2	66.5	66.8	67.1	69.8	65.9	67.5	67.0	66.6
6	64.4	65.2	67.4	66.6	67.5	69.1	69.8	68.4	67.1	66.2	65.5	66.2	69.2	66.6	66.9	67.2	69.8	66.1	67.7	67.2	66.7
5	64.4	65.2	67.5	66.7	67.6	69.3	70.1	68.7	67.4	66.4	65.7	66.3	69.1	66.7	67.0	67.3	69.8	66.2	67.9	67.4	66.8
4																					
3																					
2																					
1																					
Max	65.7	66.1	67.8	66.7	67.6	69.3	70.1	68.7	67.4	66.4	65.8	70.4	69.6	66.7	67.0	67.3	70.1	70.4	67.9	67.4	66.8
Min	64.1	64.4	65.2	63.9	64.5	65.0	64.6	64.6	64.1	64.1	64.0	68.4	66.8	63.5	63.9	64.2	67.5	67.2	63.2	63.0	63.0

Appendix 3.4 of Preliminary Environmental Assessment Report

Fixed Noise Impact Assessment Results

Project: Agreement No. CE 1/2020 (CE)Hung Shui Kiu/Ha Tsuen New Development Area Package A Works for Second Phase Development – Design and Construction
Detailed Calculation of Fixed Noise Assessment

NSR ID	ASR	Noise Criteria, dB(A)			Noise Source	Corrected SEL / Max Allowed SWL,			Separation Distance between NSR and Source, m	Correction, dB(A)			Predicted SPL at NSR, dB(A)			Predicted Cumulative SPL at NSR,			Compliance (Y/N)		
		Daytime	Evening-time	Night-time		Daytime	Evening-time	Night-time		Distance	Tonal	Screening	Daytime	Evening-time	Night-time	Daytime	Evening-time	Night-time	Daytime	Evening-time	Night-time
R101a	C	65	65	55	Site 3-43	106	106	96	145	-51	3	0	58	58	48	63	63	53	Y	Y	Y
					Site 3-44	106	106	96	160	-52	3	-10	47	47	37						
					Site 3-45 & 3-53	104	104	94	85	-47	3	0	60	60	50						
					Site 3-46	104	104	94	215	-55	3	0	52	52	42						
R301c	C	65	65	55	Site 3-43	106	106	96	125	-50	3	0	59	59	49	63	63	53	Y	Y	Y
					Site 3-44	106	106	96	165	-52	3	0	57	57	47						
					Site 3-45 & 3-53	104	104	94	100	-48	3	0	59	59	49						
					Site 3-46	104	104	94	265	-56	3	-10	41	41	31						
R402a	C	65	65	55	Site 3-41	95	95	85	280	-57	3	0	41	41	31	57	57	47	Y	Y	Y
					Site 3-43	106	106	96	180	-53	3	0	56	56	46						
					Site 3-44	106	106	96	220	-55	3	-10	44	44	34						
					Site 3-45 & 3-53	104	104	94	150	-52	3	-10	45	45	35						
					Site 3-46	104	104	94	285	-57	3	-10	40	40	30						

[1] The noise source and correct SEL / Max Allowed SWL make reference to the Approved EIA Report (AEIAR-203/2016) of HSK NDA.
[2] Tonal correction for existing fixed plant noise sources have been considered in the corrected noise level already.
[3] Façade correction have been considered in the corrected noise level already.
[4] A +3dB(A) tonal corrections are assumed for all planned fixed plant noise sources.
[5] Screening correction applies when the angle of view of the NSR on the fixed plant noise source is partially (-5 dB(A)) or fully (-10 dB(A)) blocked by buildings or terrains.