毅勤發展顧問有限公司
[redacted]

Date : 21st February, 2023
Your Ref. : TPB/A/NE-FTA/220
Our Ref. : ADCL/PLG-10225/L004

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

By Email and Hand

Dear Sir/Madam,

Re: Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Filling of Land for Site Formation Works at Lots 471 S.B RP (Part), 472, 473, 474, 475, 476, 483, 501, 502, 504 S.B, 505 and 506 S.B RP in D.D. 89 and Adjoining Government Land, Man Kam To Road, Sha Ling, New Territories

We refer to the comments from Environment and Ecology Bureau, Agriculture and Fisheries and Conservation Department, Environmental Protection Department, Hong Kong Police Force, Lands Department Home Affairs Department and Ta Kwu Ling District Rural Committee (dated 06.12.2022), Urban Design and Landscape Section of Planning Department (dated 08.12.2022), Drainage Services Department, Highway Department and Transport Department (dated 20.12.2022) regarding the subject application.

We submit herewith Further Information (FI) with *4 copies of Responses-to-Comments Table with Appendices* for the consideration by relevant Government departments or Town Planning Board.

In addition to the above, with a view to facilitating your consideration, we would like to provide clarifications as follows:-

- The Application Site is subject to a previously-approved application (No. A/NE-FTA/201) (hereinafter referred to as "the approved application") submitted by Hong Kong Chilled Meat & Poultry Association. In response to the most recent policies geared towards making Hong Kong an international centre for I&T and reviving the logistics industry through enhancing the use of technology and productivity of private sectors, the applicant, a key stakeholder in the logistic industry, aims to follow this regional and territorial direction and deliver the same vision by incorporating intelligent logistics solutions and the Internet of Things in the current application. The current application is also aimed at overcoming challenges in the traditional food logistic industry with the use of technology to boost efficiency and ensure public hygiene as well as safeguarding food safety. In order to put forth the concept of Innovation and Technology envisioned by the Northern Metropolis Development Strategy whilst at the same time meet the demands on chilled/frozen meat and poultry in the Territory and ensuring a centralized cold storage for poultry and distribution centre, the current application is so submitted to the Board with boundary and intensity adjustment.

- The approved application No. A/NE-FTA/201 for proposed temporary cold storage for poultry and distribution centre was approved by the Board on 28.5.2021 mainly on the grounds that (a) there was a genuine operational need for chilled meat and poultry importers and distributors for a centralized CSDC, and there was no other readily available site; (b) despite not being in line with the planning intention of the "AGR" zone, favorable consideration could be given considering the importance of the proposed

CSDC in ensuring food safety and diversity of food supply in Hong Kong; (c) the temporary nature of the proposed development would not frustrate the long-term planning intention of the "AGR" zone; (d) no significant adverse impact on the existing landscape resources was anticipated; (e) relevant Government departments did not have in-principle objections on the application; and (f) the proposed development was supported by the stakeholders of the chilled poultry/meat industry, whereas other local objections were properly addressed in the relevant impact assessments. The current application that aims to upgrade the approved cold storage facility has the same nature as the approved application and the planning grounds should remain valid.

- Regarding owners' consent for Lot 471, 476 and 502, the applicant has communicated with the relevant Tso/Tong members prior to the submission. Please see the **attached consents**.

- While the current application seeks planning permission for a temporary cold storage facility, the applicant continues to conduct site searching exercise. The progress in finding a permanent is still on-going, the applicant will continue to search for a permanent site as long-term solution.

Should you have any queries, please do not hesitate to contact our Miss Isa YUEN or Mr. Thomas LUK at 3180 7811. Thank you for your kind attention.

Yours faithfully,
For and on behalf of
Aikon Development Consultancy Limited

Encl.
c.c. Client
DPO/STN (Attn: Ms Amy CHONG) – By Email

根據(城市規劃條例)(第 131 章)第 16 條申請規劃許可

丈量約份第 89 約地段第 476 號土地擁有人同意書

申請編號	A/NE-FTA/220
申請地點	新界沙嶺文錦渡路丈量約份第 89 約地段第 471 號 B 分段餘段(部分)、第 472 號、第 473 號、第 474 號、第 475 號、第 476 號、第 483 號、第 501 號、第 502 號、第 504 號 B 分段、第 505 號及第 506 號 B 分段餘段和毗連政府土地
有關申請建議的性質	根據城市規劃條例第十六條申請作擬議臨時家禽冷藏庫及分銷中心(為期 3 年)及填土以作土地平整工程

本人(YUN HOK CHAU TSO)謹此聲明:

(i) 根據土地註冊處的記錄,**YUN HOK CHAU TSO** 是以下地段的業主:

丈量約份第 89 約地段第 476 號

(ii) **YUN HOK CHAU TSO** 同意香港冰鮮禽畜業商會有限公司提出上述規劃申請,該申請涉及在第(i)段指出由 **YUN HOK CHAU TSO** 擁有的地段。

(iii)當上述規劃申請獲批准後,**YUN HOK CHAU TSO**(土地擁有人)和香港冰鮮禽畜業商會有限公司(申請人)願意解決與丈量約份第 89 約地段第 **476 號**有關的任何土地問題,並確保擬議發展能妥善地實施。

簽署

YUN HOK CHAU TSO

日期:2023 年 2 月 1 日

聲　明

本人 袁龍穩、　　香港身分證號碼 [redacted]

現居於 [redacted]

謹以至誠鄭重聲明：茲證明本人是羅湖袁氏大祖堂袁學洲祖良名下袁光宗祖後人，有最大祖堂袁皓公祖家譜寄載及在北區民政處資料保存。（見附件1）

本人謹憑藉《宣誓及聲明條例》衷誠作出此項鄭重聲明，並確信其為真確無訛。

此項聲明於 二〇一七年 四月廿九日 在香港特別行政區 北區民政事務處 作出，是經由 ，現於 任職 作出傳譯者，而此傳譯員亦已先行聲明，他已將本文件內容向聲明人作出真實明確及清晰可聞的傳譯，並會將本人即將為聲明人主持的聲明忠實向其傳譯。

年　月　日

袁龍穩

（聲明人簽署）

在本人面前作出：

監誓員：吳偉君

本人 現於 謹以至誠鄭重聲明，本人諳熟本文件所採用的法定語文及 文，本人已將本文件內容向聲明人 作真實明確及清晰可聞的傳譯，並會將即將為其主持的聲明忠實向其傳譯。

（傳譯者簽署）

此項聲明是於 年 月 日 在香港特別行政區 作出。

在本人面前作出：

監誓員：

DECLARATION

I,

of

solemnly and sincerely declare that:

And I make this solemn declaration conscientiously believing the same to be true and by virtue of the Oaths and Declarations Ordinance.

Declared at , in the Hong Kong Special Administrative Region this day of , through the interpretation of of the said interpreter having been also first declared that he/she* had truly, distinctly and audibly interpreted the contents of this document to the declarant, and that he/she* would truly and faithfully interpret the declaration about to be administered to him/her*.

Before me,

.....
(signature of declarant)

Commissioner for Oaths

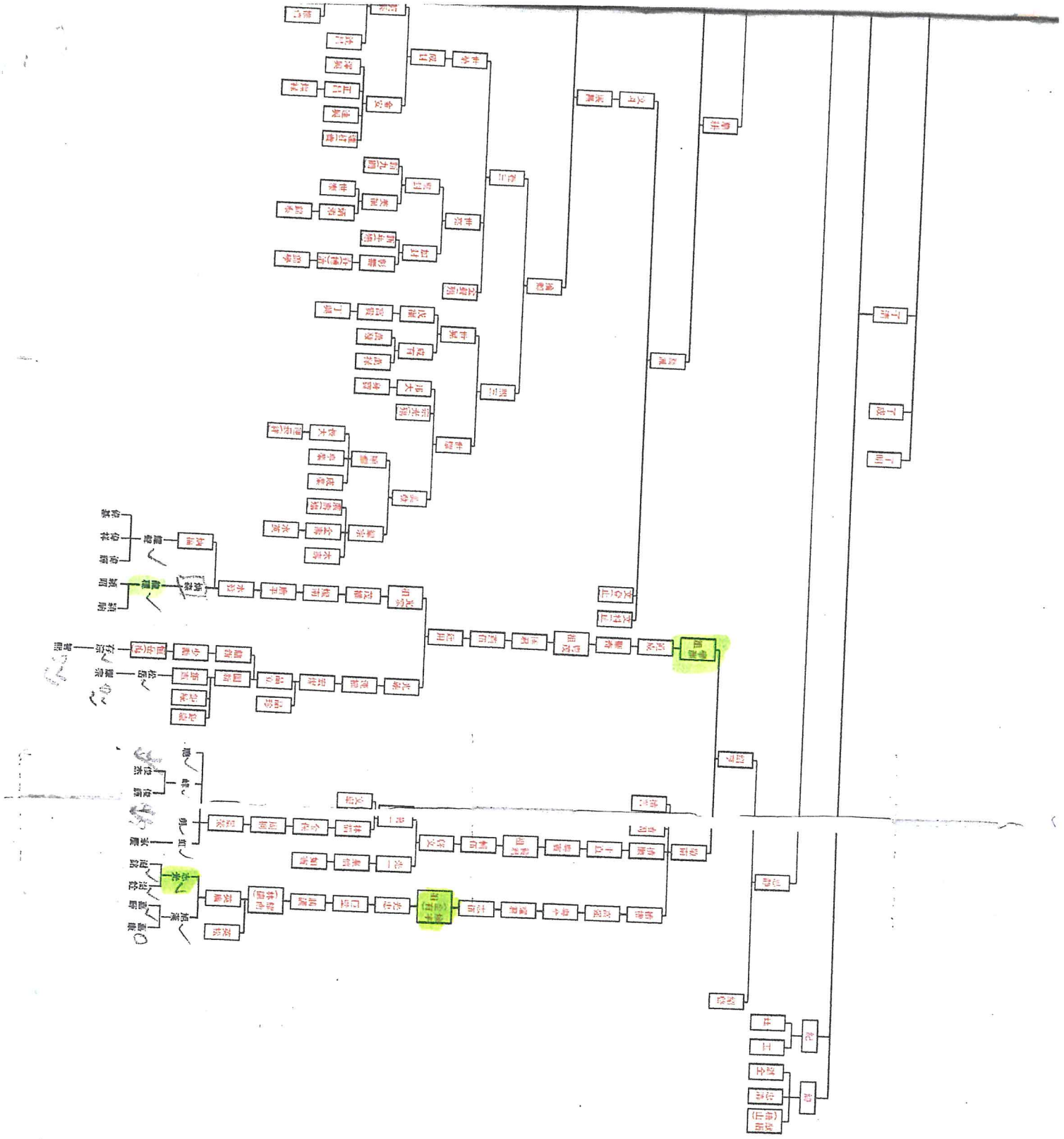
I, , of , solemnly and sincerely declare that I well understand the English and Chinese languages and that I have truly, distinctly and audibly interpreted the contents of this document to the declarant , and that I will truly and faithfully interpret the declaration about to be administered to him/her*.

Declared at
in the Hong Kong Special Administrative Region
this day of
Before me,

.....
(signature of interpreter)

Commissioner for Oaths

*Please delete where appropriate



十一庄 十二庄 十三庄 十四庄 十五庄 十六庄 十七庄 十八庄 十九庄 二十庄 二十一庄 二十二庄 二十三庄 二十四庄 二十五庄 二十六庄 二十七庄 二十八庄 二十九庄 三十庄 三十一庄 三十二庄 三十三庄

這份文件是宣誓者／確認者／聲明人 袁龍穩
於二〇一七年 三月 廿 九日 在本人面前
宣誓／確認／聲明時，其誓章／確認書／聲明書內所提及
的證物編號"　　"

監誓人 吳佩君

根據(城市規劃條例)(第 131 章)第 16 條申請規劃許可

丈量約份第 89 約地段第 471 號 B 分段餘段及第 502 號土地擁有人同意書

申請編號	A/NE-FTA/220
申請地點	新界沙嶺文錦渡路丈量約份第 89 約地段第 471 號 B 分段餘段(部分)、第 472 號、第 473 號、第 474 號、第 475 號、第 476 號、第 483 號、第 501 號、第 502 號、第 504 號 B 分段、第 505 號及第 506 號 B 分段餘段和毗連政府土地
有關申請建議的性質	根據城市規劃條例第十六條申請作擬議臨時家禽冷藏庫及分銷中心(為期 3 年)及填土以作土地平整工程

本人(YUEN WUN YU TSO)謹此聲明:

(i) 根據土地註冊處的記錄,YUEN WUN YU TSO 是以下地段的業主:

丈量約份第 89 約地段第 471 號 B 分段餘段及第 502 號

(ii) YUEN WUN YU TSO 同意香港冰鮮禽畜業商會有限公司提出上述規劃申請,該申請涉及在第(i)段指出由 YUEN WUN YU TSO 擁有的地段。

(iii) 當上述規劃申請獲批准後,YUEN WUN YU TSO (土地擁有人)和香港冰鮮禽畜業商會有限公司(申請人)願意解決與丈量約份第 89 約地段第 471 號 B 分段餘段及第 502 號有關的任何土地問題,並確保擬議發展能妥善地實施。

簽署

袁志光

YUEN WUN YU TSO

日期:2023 年 2 月 1 日

北區民政事務處
新界粉嶺
璧峰路三號
北區政府合署三樓

NORTH DISTRICT OFFICE
3/F, NORTH DISTRICT GOVERNMENT OFFICES,
3 PIK FUNG ROAD,
FANLING,
NEW TERRITORIES.

本處檔號 *Our Ref.:* (179) in HAD N TT 19/15/48/81

來函檔號 *Your Ref.:*

電　　話 *Tel.:* 2675 1780

傳　　真 Fax： 2676 9109

新界葵涌石梨村
石俊樓低座 1104 室
袁志光先生

袁先生：

有關袁煥宇祖委任司理申請

由於打鼓嶺羅湖並非新界原居民村，因此申請出任祖/堂司理的公告須於本港政府指定刊登法律廣告之報章上刊登。

現付上上述申請之公告，請將公告於報章上(名單見附頁)連續刊登三天。廣告之面積約為 5 公分乘 6 公分，公告之日期應為登報的首天。其後請將該三天廣告的整頁報紙交回本處辦理。

倘對上述有任何疑問，請致電 2675 1590 與祖堂事務組聯絡。

北區民政事務專員
（王淑嫻 代行）

2018 年 4 月 6 日

檔號 ：HAD N TT 19/15/48/81

北 區 民 政 事 務 處 公 告

申 請 出 任 祖 堂 司 理 事 宜

打鼓嶺羅湖的袁志光先生向本處報稱，**袁煥宇祖**的司理袁國仁先生已於 1987 年 12 月 31 日去世，其遺下的司理職位空缺，應由他接任。任何人士如認為不合理而反對這項申請，必須在本公告的日期起計三十天內向本處提出。本處地址是新界粉嶺璧峰路 3 號北區政府合署 4 樓 401 室北區民政事務處。

該祖之物業詳情載於北區地政處糧冊第 74 卷第 169 頁。

如有查詢，請致電 2675 1590 與本處祖堂事務組聯絡。

由申請人呈報之袁煥宇祖有份人名單如下：

＜＜參照附頁之名單列出有份人名字＞＞

北區民政事務專員

2018 年　　月　　日

1

LIST OF MEMBERS

"A" Book Vol. .... Page ....

Name of Tso/Tong	祖/堂名稱
	袁懷宇祖

Members of the Tong/Tso as follows:—

該堂/祖有份人姓名列下

1、袁志光	10、袁翊軒
2、袁旭漢	11、袁麒竣（未滿18歲
3、袁澍銘	12、袁麒傑（未滿18歲
4、袁嘉暉	
5、袁嘉康	
6、袁志明	
7、袁偉豪	
8、袁國強	
9、袁憶恆	

呈報人簽名
Reported by ....

HAD 70 (Rev. 9/91)

Further Information

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Table | 1

Response-to-Comments

Responses-to-Comments Table

Date	Bureau / Department	Comments	Responses
6.12.2022	Environment and Ecology Bureau	1. further information has yet to be ascertained from the applicant; and	Further information in justifying the proposed development and details of the proposal is elaborated further in **Appendix 1**.
		2. according to the information provided by the applicant is paragraph 4.3.6 in page 22 of the Planning Statement, the total daily import of chilled poultry from the HKCMPA members was roughly around 200,000 kg per day, which was also the proposed capacity in the original application (No. A/NE-FTA/201). As such, the applicant should further explain how the capacity of 200,000 kg per day square with the capacity increase through the use of new technology under the current proposal, as well as the basis and the assumption on which the applicant works out the required base area and / or the height of the cold storage	As refer to **Appendix 1,** the statistic of the existing daily imported chilled poultry and meat through HKCMA is clarified with further justifications.

Date	Department	Comments	Responses
6.12.2022	Agriculture, Fisheries and Conservation Department (AFCD)	<u>Agriculture</u> 1. from the agricultural perspective, the subject site is considered to have potential for agricultural rehabilitation, though whether there will be agricultural activities on a specific site will hinge on a lot of factors.	The agriculture value at the subject site is considered as low. Since the previous planning application is approved (A/NE-FTA/201), land filling and site formation works at the proposed area have been commenced, existing vegetation has been removed according to the approved scheme under A/NE-FTA/201. In addition, whether there will be agricultural activities on Site will hinge on a lot of factors, such as the landowners' willingness to lease out their land for agricultural use. According to the applicant, it is informed that the relevant owners expressed no intention to continue farming activities and have no objection to the current application.
		<u>Nature Conservation Perspective</u> 2. it is noted from the current submission that the size of the subject site is reduced but the building height is doubled to 20.675m, yet the potential ecological impact due to the revision has not been assessed. Please ask the applicant to review the ecological impact of the current design, in particular, in terms of the building height, and the impact to the freshwater crab Somanniathelphusa zanklon should be assessed again. Mitigation measures should be proposed when necessary. We will reserve our comment until these information are supplemented.	While the proposed development has increased its building height, the application site area under the current application is reduced by 21.6%. By all means, the affected site should remain unchanged when compared to the previously approved application. An Ecological Impact Assessment (EcoIA) Report dated March 2021 was conducted for the former Planning Application No. A/NE-FTA/201. In this EcoIA Report, the ecological impact was assessed by conducting literature review, ecological field surveys that:

Date	Department	Comments	Responses
			• Paragraph 4.4.4 stated that no bird species of conservation importance within the Application Site was recorded, and singles of Little Egret and Black Kite in flight within the Study Area were recorded. • Paragraph 4.4.5 stated no foraging ardeid within the Site was recorded. • Table 14 showed the evaluation results for Black Kite and Little Egret were Low because of low abundance and that both species were recorded in flight. Even though the building height of the current application will be double of the previously proposed one, no adverse ecological impact on the avifauna is anticipated which is in line with the EcoIA Report attached to the Planning Application No. A/NE-FTA/201. For the freshwater crab *Somanniathelphusa zanklon*, no *Somanniathelphusa zanklon* and other faunal species of conservation importance was encountered based on the capture survey conducted for five consecutive nights between 7 and 11 March 2022 with reference to Ecological Support for Discharge of Approval Condition (g) for the Approved S.16 Planning Application No. A/NE-FTA/201. The Report was received with no comment and Condition (g) was discharged (PlanD's ref.: ( ) in

Date	Department	Comments	Responses
			TPB/A/NE-FTA/201 dated June 2022 refers). Having a survey conducted only 5 months before the submission of current application, the survey is considered applicable to the current application and the presence of the freshwater crab *Somanniathelphusa zanklon*. *Somanniathelphusa zanklon* and other faunal species of conservation importance are unlikely to be found.

Date	Department	Comments	Responses
6.12.2022	Environment Protection Department (EPD)	<u>Noise</u> Major Comments 1. Sections 3.3.28 to 3.3.31 – i. Compared to the operation arrangement in previous application A/NE-FTA/201, there will be 8 and 3 veh/hr of container vehicle/HGV/MGV run in & out of the site in evening-time periods and night-time periods respectively, compared to 3 veh/hr and 1 veh/hr of MGV/LGV in evening-time periods and night-time periods in previous application.	Paragraphs 3.3.28 to 3.3.31 of the EA Report have been revised (**Appendix 2** refers). The number of vehicles has been revised as follows: • Day time: 16 veh/hr of CV/HGV/MGV • Evening time: 5 veh/hr of MGV Night time: 1 veh/hr of LGV.
		ii. From experience, noise nuisance from operation and manoeuvring of container vehicles and HGVs are quite disturbing but very difficult to control. Since noise sensitive uses are located in close proximity to the application site, in which some of them are located at <10m away from the site boundary only, the applicant should avoid or reduce the use of container vehicles and HGVs during evening-time and night-time period to minimise noise nuisance. In addition, in accordance with 'Code of Practice on Handling the Environmental Aspects of Temporary Uses and Open Storage Sites ', noisy operations should also be prohibited during sensitive hours, i.e. 11pm to 7am.	Considering the noise nuisance issue, the Applicant commits to allow LGV and MGV to enter the site only during evening (19:00 to 23:00) and night time (23:00 to 07:00) period.
		iii. To suit operation needs, please check if the use of container vehicles and HGVs during evening-time and night-time periods can be substituted by use of MGVs and LGVs, which	Considering the noise nuisance issue, the Applicant commits to allow LGV and MGV only to enter the site during evening (19:00 to 23:00) and night time (23:00 to 07:00) period, so as to minimise the noise

Date	Department	Comments	Responses
		pose less noise nuisance.	nuisance to the nearby NSRs.
		2. Section 3.3.30 and Figure 3.3 – i. Section 3.3.30 mentioned that the loading and unloading area of container vehicle/HGV/MGV will be set up near the site entrance to minimise on-site movement. However, Figure 3.1 shows that there are five loading and unloading area for container vehicles in the middle of the site far away from site entrance . Please review and clarify.	Paragraph 3.3.30 of the EA Report has been revised to "The loading and unloading area of container vehicle/ HGV/ MGV near the Site entrance/exit area will be used first especially during evening-time and night-time period to minimise the on-site movement these vehicles as soon as practicable as shown on *Figure 3.4*." (**Appendix 2** refers).
		ii. To minimise noise nuisance from on-site vehicles manoeuvring, especially during evening-time and night-time periods, the vehicles should use the loading and unloading area near the site entrance during evening-time and night-time periods as far as practicable. In case there are constraints to do so, please spell out such constraints in the report.	Paragraph 3.3.30 has been amended to supplement that "*4. The loading and unloading area of container vehicle/ HGV/ MGV near the Site entrance/exit area will be used first especially during evening-time and night-time period to minimise the on-site movement of these vehicles as far as practicable as shown on Figure 3.4. Except there is overloading at the loading and unloading area which is the closest to the site entrance.*" (**Appendix 2** refers).
		3. Table 3.8 - Container vehicles, especially those with five axles or more, may exceed 38-tonne. Therefore, the SWL of 105dB(A) may not be applicable for container vehicles. Please check and adopt a more appropriate SWL for container vehicles, if necessary.	Please be confirmed that there will be no vehicles with gross vehicle weight exceeding 38 tonnes. In this regard, the SWL of 105dB(A) for CV has been adopted in this assessment.
		4. Section 3.3.42 and Appendix F – i. Contrary to s.3.3.42, -20dB reduction is adopted in the	Appendix F has been revised that a 10dB(A) noise reduction has been adopted for the noise mitigation measures at sources

Date	Department	Comments	Responses
		calculation of noise levels in Appendix F. Please review and clarify.	(**Appendix 2** refers).
		ii. Contrary to s.3.3.42, noise reduction correction is still adopted for NSRs which seem to have direct line-of-sight to the enclosure opening, e.g. IN2, IN3, IN4, IN5, IN1, IN14, IN15. Please review and rectify.	Considering the worst-case scenario, there is no noise reduction for screening has been adopted to NSRs which seem to have direct line-of-sight to the enclosure opening, e.g. IN2, IN3, IN4, IN5, IN1, IN14, IN15.
		<u>Other Comments</u> 5. Section 3.3.15 – i. From Figure 3.4, it appears the depth of loading/unloading areas are more than 2m, therefore please check if the "2m extended canopy " mentioned in this section should be updated.	Figure 3.4 of the EA Report is an indicative drawing to show the proposed mitigation measures for on-site vehicle movement. It is confirmed that a 2m extended canopy is proposed at the loading/ unloading areas.
		ii. For clarity, please consider to indicate in Figure 3.4 that the loading/unloading areas will be provided with mitigation measures, i.e. canopy and side panels on both sides, and acoustic mat at open side of loading/unloading platform.	Figure 3.4 of the EA Report has been updated to indicate the 2m extended canopy with 2-side panels and acoustic mat at open side of loading/ uploading areas (**Appendix 2** refers).
		6. Section 3.3.15 and Appendix B - The example of acoustic material in Appendix B appears to have surface density of less than 6kg/m2, which do not tally with 7kg/m2 for acoustic mat mentioned in s.3.3.15.	Appendix B of the EA Report has been revised to show the example of acoustic mat with a surface density of at least 7kg/m^2 and tally with the description stated in paragraph 3.3.15 of the EA Report (**Appendix 2** refers).
		7. Table 3.6 - The noise criteria in daytime period for IN1 - IN15 seems to be 55dB(A).	Comparing the measured background noise level and ANL-5 (i.e. 55dB(A)), measured noise level is more stringent (i.e 57 dB(A) for

Date	Department	Comments	Responses
			IN1 to IN5 and IN15; 51dB(A) for IN6 to IN14) incorporating a 3 dB(A) façade correction to the background noise level. As such, the noise criteria in daytime period for IN1 to IN5 and IN15 shall be 55dB(A); for IN6 to IN14 shall be 51dB(A).
		8. Section 3.3.33 - Please clarify in the main text if NB2 and NB3 will be connected to the proposed cover and structures of Block 1 and Block 2 without slit or gap. Please also check and confirm whether the erection of noise barriers over 10m are practical from engineering perspective, and feasible from visual, ventilation and fire safety perspectives.	Paragraph 3.3.34 of the EA Report has been revised accordingly (**Appendix 2** refers).
		9. Sections 3.4.9 to 3.4.12 - A 9-tonne vehicle seems unable to represent noise from container vehicles and HGVs, which have gross vehicle weight of 24-tonnes or even more. Please review the approach in evaluating traffic noise impact from additional traffic at late night/early morning.	As mentioned in paragraph 3.3.30 and Table 3.7, only LGV (the gross vehicle weight not more than 5.5 tonnes) will enter the site during night-time period (2300-0700). A 9-tonne vehicle assessment could be considered for the worst-case scenario for the proposed development.
		10. Table 3.10 - Predicted noise level of IN6 to IN9 does not tally with Appendix F.	Table 3.10 of the EA Report has been revised (**Appendix 2** refers).
		11. Figure 3.1 - Please check if the temporary structure located at the north-west of IN14, which is in-between Man Kam To Road and site boundary, is an NSR.	There are several temporary structures at the north-west of IN14, and IN13 is the first closet NSR identified to the site. As such IN13 is representative to those temporary structures.
		12. Figure 3.4 - There appears to be a gap between NB1 and structure of Block 2. To prevent noise leakage through the gap,	Figure 3.4 of the EA Report has been revised that there is no gapping between NB1 and structure of Block 2 (**Appendix 2** refers).

Date	Department	Comments	Responses
		please consider to extend NB1 to connect to structure of Block 2.	
		13. Section 3.4 - Traffic noise model files are not provided for checking.	The traffic noise model files will be provided to the EPD for checking.
		14. Table 6.1 – i. Please check if "complete enclosure " should read as "semi-enclosure " ? Please also check other parts of report and revise accordingly.	Table 6-1 of the EA Report has been revised from "complete enclosure" to "semi-enclosure" (**Appendix 2** refers).
		ii. Please check if "3 vehicles" should read as "3 vehicles per hour ".	Table 6-1 of the EA Report has been revised from "3 vehicles" to "1 veh/hr" (**Appendix 2** refers).
		iii. Please also add the max. # of veh/hr allowed during day-time and evening-time periods.	Table 6-1 of the EA Report has been revised to include the max nos. of vehicles enter and leave the site during day and evening time period (**Appendix 2** refers).
		15. Appendix D - The content of Appendix D is missing and we are unable to verify if the SWLs for condensers used in FNIA are correct.	Appendix D of the EA Report has been provided (**Appendix 2** refers).
		16. Appendix F – i. Noise calculations for IN15 are missing.	The noise calculation of IN15 has been provided in Appendix F (**Appendix 2** refers).
		ii. Please check if the assumed vehicle speed of 25km/h for container vehicle/HGV/MGV is appropriate, and consider to adopt a lower but more realistic vehicle speed, e.g. 10km/h.	Considering the site situation, the vehicle speed of 15km/h has been adopted in this assessment. Noise calculation in Appendix F has been revised accordingly (**Appendix 2** refers).
		iii. For noise from on-site vehicle movements, it seems screening correction is not adopted for certain segments which have no direct line-of-sight to NSRs, e.g. S9 for IN13,	The screening correction for segments which have no direct line-of-sight to NSRs, including S9 for IN13 and S10 for IN14, have been adopted in the assessment, as such Appendix F has been revised

Date	Department	Comments	Responses
		S10 for IN14. Please check.	accordingly (**Appendix 2** refers).
		17. Appendix G - The traffic flow data under with proposed development scenario is same as the previous application A/NE-FTA/201. Please check with traffic consultant if such traffic data is still correct as the # and type of vehicles run in & out of the site is updated.	As confirmed by traffic consultant, the traffic flow data is still correct.
		<u>Textual/presentation comments</u> 18. Section 3.3.23 - The last sentence appears incomplete.	A complete sentence "In order to avoid over domination of traffic noise in the background noise levels of NSRs IN6 to IN14, L90 will be adopted to represent the background noise in the assessment to avoid." has been stated in Section 3.3.23 (**Appendix 2** refers).
		19. Section 3.3.30 - Please check the numbering of bullet points.	The numbering of bullet point in Section3.3.30 has been revised (**Appendix 2** refers).
		20. Table 3.6 - Since footnote 1 stated that 3dB(A) facade correction has been incorporated, please consider to update the 5th column accordingly. Please highlight all changes in the main text in the next submission for easy reference.	Table 3.6 has been updated to incorporate 3dB(A) facade correction (**Appendix 2** refers).
		<u>Water Quality</u> 21. S.4.2 - Please also include ETWB TC(W) No. 5/2005 and briefly elaborate.	A new para. 4.2.4 has been added in the EA for the mentioned Technical Circular (**Appendix 2** refers). The elaboration of the Technical Circular can be referred to para. 4.5.5 of the EA Report.
		22. S.4.4.11-12: In the revised EA under condition (m) of approved S.16 application A/NEFTA/201 for the same use, the potential water quality impact include water used in water cooling tower for the cooling function. Table 6.1 of the current EA also mentioned the cooling water. Please clarify.	A new para. 4.4.12 regarding water cooling tower has been added to this EA Report (**Appendix 2** refers). A new bullet regarding water cooling tower has also been included in Table 6.1 (**Appendix 2** refers).

Date	Department	Comments	Responses
		23. Figure 4.3: Please review if this figure is necessary, since it is not mentioned in main text of S.4.	Noted and Figure 4.3 showing the indicative drainage layout plan has been deleted from the EA Report (**Appendix 2** refers).
		24. Appendix D: No information was found in Appendix D.	The catalogue of the cooling tower has been included in Appendix D (**Appendix 2** refers).
		Annex 7 – SIA 25. S.3.1.5 & S.3.3.1: In the revised EA under condition (m) of approved S.16 application A/NEFTA/201 for the same use, the wastewater from mopping will be not more than 10m/day, which is inconsistent with the current submission. Please clarify.	Section 4.4.7 has been revised to include the estimated amount of wastewater from mopping (**Appendix 2** refers).
		Waste Management and Land Contamination 26. Section 5.3 - Some of the calculations presented in this Section seems incorrect (such as the estimated quantity of demolition waste). Please review the calculations and update this Section accordingly. Also, please consider to present all the estimation in cubic meter to avoid confusion.	***Section 5.3*** has been checked and revised All the estimation were presented in terms of tonnes to align with the unit used in Monitoring of Solid Waste in Hong Kong – Waste Statistic for 2020 (**Appendix 2** refers).
		27. Table 5.4 - Some of the figures presented in the Table do not tally with the information presented in Section 5.3 (such as the quantity of building waste to be reused. Please review.	***Table 5.4*** has been updated to align with the results presented in ***Section 5.3*** (**Appendix 2** refers).
		Air Quality 28. Please identify the nearby ASRs as well as the ASRs of the proposed development and provide their distances and the assessment heights.	Noted and a new Section 2.3 as well as Figure 2-1 ASRs have been added to the revised EA Report (**Appendix 2** refers).
		29. Please present the background air quality data (AQMS data for existing and PATH data for predicted future).	Noted. The background air quality data RSP, FSP and NO2 have been provided in a new subsection Background Air Quality under

Date	Department	Comments	Responses
			Section 2.4 (**Appendix 2** refers).
		30. Paragraph 2.2.8 - In addition to the buffer distance requirements for roads, please also present the buffer distance requirements for chimneys.	Noted and amended accordingly (**Appendix 2** refers).
		31. Paragraph 2.3.10 – i. Please provide confirmation from Transport Department on the road type of Lo Wu Station Road.	As per TD's confirmation, the eastern section (about 300m from the junction with Man Kam To Road) of Lo Wu Station Road is a "Rural Road" while the western section is a "Local Distributor".
		ii. Please refer to the latest Annual Traffic Census 2021.	Noted and amended accordingly (**Appendix 2** refers).
		32. Paragraph 2.3.11 and figures - Please show the extent of the junction improvement works in the figure.	According to the latest TIA, no junction improvement will be required. Para. This paragraph has been deleted from the revised EA (**Appendix 2** refers).
		33. Paragraph 2.3.14 - Please evaluate the impact of the induced traffic of the proposed development when the traffic becomes more congested due to the cemeteries during festive days and discuss whether the road capacity of the nearby roads would be exceeded, resulting in adverse air quality impact.	Please note that according to the special traffic arrangement in 2022, Lo Wu Station Road and Sha Ling Road will be closed on festival day and several weekend before/after festival day. Vehicles could not access the cemeteries for grave sweeping purpose and hence it is envisaged that the traffic will not become more congested during festival period.
		<u>Non-fuel gas dangerous goods risk perspective</u> 34. Please provide the list of dangerous goods and their storage amount on-site at the proposed development.	No non-fuel gas Dangerous Goods ("DGs") such as chlorine will be required to be stored on site for the Proposed Development. Therefore, no risk perspective related to non-fuel gas DG due to the Proposed Development is anticipated. Please refer to the new Section 1.5 added to the revised EA Report (**Appendix 2** refers).

Date	Bureau / Department	Comments	Responses
6.12.2022	Police Force	1. Lo Wu Station Road and Sha Ling Road will be subjected to road closure for six weeks in both Ching Ming Festival and Chung Yeung Festival, particularly during Saturdays, Sundays , and public holidays. According to the proposed layout, the vehicle access to the proposed storage centre falls within the road closure area. Hence, traffic issue will be arise that vehicle access to the proposed storage centre will be affected.	Special traffic arrangement will be implemented at Lo Wu Station Road and Sha Ling Road to facilitate grave sweepers. Referenced to 2022's arrangement, the above road will be closed on festival day and serval weekend before/ after festival day from 6am and 6pm daily. Access of vehicles related to the proposed Temporary Cold Storage for Poultry and Distribution Centre via the above-mentioned closed area/ road will be avoided as much as possible. Should delivery be necessary during some time slot of the festival period, closed road permit will be applied to relevant government departments such as Transport Department, Hong Kong Police Force etc for these vehicles with need. The operation arrangement during the festival period would be subject to further discussion with related department and HKPF.

Date	Bureau / Department	Comments	Responses
6.12.2022	Home Affairs Department (HAD)	1. the 1st Vice-chairman of the Ta Kwu Ling District Rural Committee, the incumbent North District Councilor of N16 Constituency and the Chairman of 打鼓嶺沙嶺村居民福利會 objected the application with additional remarks at Annex I attached. 2. the Indigenous Inhabitant Representative (IIR) and the Resident Representative (RR) of San Uk Ling objected the application	The Application Site is subject to a previously-approved application (No. A/NE-FTA/201) (hereinafter referred to as "the approved application") submitted by Hong Kong Chilled Meat & Poultry Association. The approved application No. A/NE-FTA/201 for proposed temporary cold storage for poultry and distribution centre was approved by the Board on 28.5.2021 mainly on the grounds that (a) there was a genuine operational need for chilled meat and poultry importers and distributors for a centralized CSDC, and there was no other readily available site; (b) despite not being in line with the planning intention of the "AGR" zone, favorable consideration could be given considering the importance of the proposed CSDC in ensuring food safety and diversity of food supply in Hong Kong; (c) the temporary nature of the proposed development would not frustrate the long-term planning intention of the "AGR" zone; (d) no significant adverse impact on the existing landscape resources was anticipated; (e) relevant Government departments did not have in-principle objections on the application; and (f) the proposed development was supported by the stakeholders of the chilled poultry/meat industry, whereas other local objections were properly addressed in the relevant impact assessments. The current application that aims to upgrade the approved cold storage facility has the same nature as the approved application and the planning grounds should remain valid.

Date	Bureau / Department	Comments	Responses
			In response to the most recent policies geared towards making Hong Kong an international centre for I&T and reviving the logistics industry through enhancing the use of technology and productivity of private sectors, the applicant, a key stakeholder in the logistic industry, aims to follow this regional and territorial direction and deliver the same vision by incorporating intelligent logistics solutions and the Internet of Things in the current application. The current application is also aimed at overcoming challenges in the traditional food logistic industry with the use of technology to boost efficiency and ensure public hygiene as well as safeguarding food safety. In order to put forth the concept of Innovation and Technology envisioned by the Northern Metropolis Development Strategy whilst at the same time meet the demands on chilled/frozen meat and poultry in the Territory and ensuring a centralized cold storage for poultry and distribution centre, the current application is so submitted to the Board with boundary and intensity adjustment. As illustrated in relevant technical assessments, No adverse impacts on traffic, environmental, landscape, drainage, sewage and ecological aspects are envisaged at the Application Site and its surrounding areas Given the proposed development would handle the majority of

Date	Bureau / Department	Comments	Responses
			imported chilled poultries from Mainland China for the territory, there is a genuine need for a standardized operation for the industry. In view of recent challenge of manpower shortage and surging demand of chilled meat and poultry, as well as implementation constraints of the approved scheme, it is sincerely hoped that members of the Board will give sympathetic consideration to approve the current application for the proposed use to materialize the long-needed temporary cold storage for poultry and distribution centre at the application site.

Date	Bureau / Department	Comments	Responses
8.12.2022	Urban Design and Landscape Section, Planning Department (UD&L)	1. Based on aerial photo of 2022, the site is located in an area of rural inland plains landscape character comprising of temporary structures, small houses, vegetated areas and cluster of trees. Compared with the last approved planning application No. A/NE-FTA/201, the layout has changed with a significant increase in building height (i.e. from not more than 10.4m high to not more than 20.675m high) and site coverage (i.e. from approximately 32% to 56.94%). There is a concern that approval of the application may further alter the landscape character and degrade the landscape quality of the surrounding area. We have some reservations on the application from landscape planning perspective.	Existing open storages and logistics operations are available to the south and northeast of the Application Site, and scattered along Man Kam To Road. Hence, the proposed development of a storage and distribution centre is not incompatible with the rural character identified in the vicinity. The modified development parameters from the previous approved application enables the employment of smart intensive warehouse system which can greatly boost efficiency and reduce reliance on human input with a view to overcoming manpower shortage faced in recent years, while creating an environmentally- and labour-friendly working environment through modern logistic operation. As compared to the previous submission, the building footprint is minimized in order to preserve more existing trees on Site. The number of trees to be retained and trees to be felled were 101 nos. and 100 nos. respectively in the previous scheme while the number of trees to be retained and trees to be felled are 114 nos. and 80 nos. respectively in new scheme. Besides, roof gardens are proposed for enjoyment of the users in this scheme which results in high greenery ratio, i.e. 35.92%.

Date	Bureau / Department	Comments	Responses
			The proposed development will integrate with the surrounding landscape through a number of proposals, including provision of peripherical planting to create a soft planted edge and transparent panels along the boundary to alleviate the visual impact.

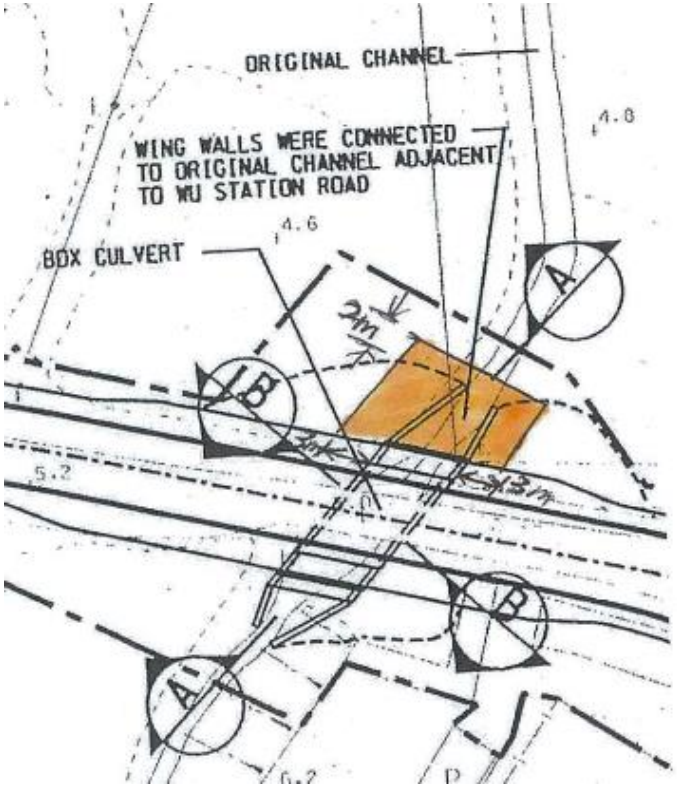
Date	Bureau / Department	Comments	Responses
20.12.2022	Drainage Services Department (DSD)	Drainage Impact Assessment 1. Please be advised that Stormwater Drainage Manual has been updated pursuant to Corrigendum No. 1/2022 promulgated recently. Please review the submission accordingly to ensure that the latest requirements are complied with.	Noted. The Corrigendum No. 1/2022 has been reviewed and the submission has complied with all applicable requirements.
		2. Climate change adjustment was not applied in the calculation. Please review the runoff calculation with due consideration of Section 6.8 of the Stormwater Drainage Manual 2018 in conjunction with its Corrigendum No. 1/2022.	The climate change adjustment was not applied as the proposed development is for temporary use for a period of 3 years only, whereas the climate change effect is for mid-21st or end of 21st Century.
		3. Para. 3.2.8 refers. The photos of relevant watercourse are missing in the Figure 3-1 and the submission.	The photos of relevant watercourse are added in the Figure 3-1 (**Appendix 3** refers).
		4. Para. 3.6.12 refers. It is mentioned that "part of the flow will adopt another arrangement at the catch pits CP7 and MH15 where partial stormwater will bypass the proposed Uchannel and overflow into the proposed underground stormwater storage tank". Please elaborate on the mechanism of separating the partial stormwater and the proposed underground stormwater storage tank. Please also specify under what condition that the concerned mechanism will be triggered.	Para 3.6.12 has been revised (**Appendix 3** refers).
		5. Para. 3.6.14 refers. i. Please provide the decking over details and proposed	i) The existing watercourse (about 1.5 m (W) x 0.9 m (D)) running in a northeast to southwest direction of the Site will be maintained and

Date	Bureau / Department	Comments	Responses
		manhole details for watercourse maintenance. You are reminded that the drainage capacity and functionality of the watercourse should not be affected by proposed works; ii. Please clarify if the future building development would impede the maintenance of the existing watercourse; iii. Please provide justification for the proposed 60m manhole interval for maintenance purpose;	not encroached. The Application Site will be partly decked over and partly filled with a range from 0.5 m to 1.5 m in depth to facilitate the proposed development to be constructed on an elevated platform at similar site levels ranging from + 6.0 to + 6.9 mPD. Decking over details and proposed manhole details for watercourse maintenance will be provided in detailed design stage after planning application is approved. As mentioned in the DIA, mitigation measures will be deployed such that the drainage capacity and functionality of watercourse are not to be affected by the proposed works. ii) The future building will be decked over. There are openings arranged at the site for maintenance. Therefore, future building development would not impede the maintenance of the existing watercourse. iii). The proposed 60m manhole interval for maintenance purpose is not a mandatory requirement. It was suggestion based on reference from Cap. 123I Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations Clause 55 (2), which mentioned manholes or cleaning eyes shall be at intervals not exceeding 60m in every drain.
		6. Figure 3-2 refers. i. Please provide future ground levels to substantiate the flow	Please refer to **Appendix 3**. i) The indicative future ground levels are indicated in Figure 3-2

Date	Bureau / Department	Comments	Responses
		path; ii. Please provide the details for flexible drains connection; iii. The details (invert level, gradient, general sections etc.) of the proposed drain/ surface channel, catchpits and the discharge structure shall be provided; iv. The cover levels of proposed channels should be flush with the existing adjoining ground level; v. Please provide details for MH7, MH9 and MH15; and vi. The surface runoff from the plant rooms at southeast corner of the proposed development is not properly collected, please review.	ii) Diagram showing the connection arrangement is in Figure 3.2. Pipe drains connection is adopted. iii) Figure 3-2 is revised to include invert levels and gradient. Please also refer to Appendix C and E for the general sections of the proposed drain/ surface channel, catchpits and the discharge structure. iv)Noted, cover levels of proposed channels will be flushed with existing adjoining ground level as far as possible. v) Manhole design will be based on DSD standard manhole drawings. Details will be provided in detailed design stage after planning application is approved. vi) The drainage arrangement at the southeast corner has been adjusted such that U-channels are arranged along the entrance of plant rooms. There will be drainage fall leading surface runoff into the U-channels.
		7. Please advise the potential impacts to existing flow paths/streams which are connected to the existing watercourse within the site and assess the potential flooding risk to adjacent villages after development. Mitigation measures should be proposed and elaborated. The applicant is reminded that all existing flow paths as well as the run-off falling onto and passing through the site should be intercepted and disposed of via proper discharge points.	There is a peripheral U-channel along the site boundary to collect additional runoff due to the proposed development. Runoff will be collected into a storage tank which is sized to include additional buffer volume. Flow is intended to be discharged to the existing stream under low flow condition. With implementation of the proposed mitigation measures as described in Section 3.7 no adverse impacts are anticipated. No works are anticipated to be adversely interfere the free flow condition of the existing drains and channels during or

Date	Bureau / Department	Comments	Responses
		The applicant shall also ensure that no works, including any site formation works, shall be carried out as may adversely interfere with the free flow condition of the existing drains, channels and watercourses on or in the vicinity of the subject site any time during or after the works.	after the works.
		8. Appendix B refers. Please substantiate on the use of 1.93 m3/s as the threshold for discharge flowrate.	Appendix B has been revised (**Appendix 3** refers).
		9. The applicant should check and ensure that the existing drainage downstream to which the proposed connection will be made have adequate capacity and satisfactory condition to cater for the additional discharge from the captioned site. He should also ensure that the flow from this site will not overload the existing drainage system.	Noted.
		10. The applicant is required to provide the sectional views of the site in 2 different directions showing clearly any walls would be erected or kerbs would be laid along the boundary of the proposed development, the proposed and existing drainage facilities, flow direction, the existing ground level of the adjacent lands and the formation level of the subject sites for our reference.	Please find the sectional views of the site in Appendix F (**Appendix 3** refers).
		11. The applicant is reminded that where walls are erected or kerbs are laid along the boundary of the same, peripheral channels should be provided on both sides of the walls or	Noted.

Date	Bureau / Department	Comments	Responses
		kerbs, and/or adequate openings should be provided at the walls/kerbs to allow existing overland flow passing through the site to be intercepted by the drainage system of the site with details to be agreed by DSD, unless justified not necessary.	
		12. The proposed drainage works, whether within or outside the site boundary, should be constructed and maintained properly by the applicant and rectify the system if it is found to be inadequate or ineffective during operation at his/her own expense.	Noted.
		13. The applicant should make good all the adjacent affected areas upon the completion of the drainage works.	Noted.
		14. For works to be undertaken outside the lot boundary, the applicant should obtain prior consent and agreement from DLO/N and/or relevant private lot owners.	Noted.
		15. The applicant and the successive lot owners shall allow connections from the adjacent lots to the completed drainage works on Government Land when so required.	Noted.

Date	Bureau / Department	Comments	Responses
20.12.2022	Highways Department (HyD)	1. Para. 1.4.2: As we repeatedly requested in our previous comments, the applicant is required to exclude the "orange area" form the site in this application to avoid complicating our maintenance of the box culvert under Lo Wu Station Road (Appendix I)  	Refer to the MLP in the planning statement**,** no structure will be sitting on the box culvert for easy clearing and maintenance by the Highways Department (HyD). The concerned orange area would remain undecked which is same as that in the previously approved application (A/NE-FTA/201). This section of the watercourse will not be decked and can be accessed for 24-hr maintenance. In addition, as shown on the MLP in **the** planning statement, the section of existing watercourse at the downstream area near the box culvert will be located within the landscape area, and the metal mesh will not restrict the access to the box culvert. Although the concerned orange area falls within the application site, it is reiterated that it will not be decked or fenced off and no structure will be placed on the concerned area. For the maintenance from HyD, the Applicant is willing to allow the staff from HyD to access the box culvert anytime to carry out maintenance works / inspection.
		2. Para. 4.6.1: As the existing railings and beam barriers will be	Noted. Please find the attached Figure RC-01 for your information

Date	Bureau / Department	Comments	Responses
		modified due to the proposed ingress/egress, please provide more details for review.	and detailed design will be further submitted for approval by relevant government departments once approval of this S16 planning application is sought (**Appendix 4** refers).
		3. Para. 4.9.2: The u-channel proposed along the site boundary should be designed so that no surface run-off will flow from the site onto the adjacent public road.	Noted. The DIA concluded that the proposed and existing stormwater system will have sufficient capacity to receive stormwater runoff from the proposed use and its surroundings, and hence, no adverse drainage impact is anticipated.
		4. If the application is approved, the applicant is required to construct a proper ingress and egress for the site according to HyD's Standard Drawings. Upon termination of the application, the applicant is required to reinstate the ingress and egress to their original state to my satisfaction at his own cost.	Noted.

Date	Bureau / Department	Comments	Responses
20.12.2022	Transport Department (TD)	1. The size of the proposed development is similar to the previous application but the no. of parking spaces for private cars is reduced from 13 to 17. Justifications for this is necessary.	The proposed development seeks to adopt an automated transport and warehouse systems via AI modelling technology and end-to-end robotic automation with a view to overcoming manpower shortage. As advised by the current supplier of robotic automation system, it is anticipated that the human input could be reduced by 50-70%. In this regard and as a conservative approach, a 50% reduction in no. of parking spaces for private cars (from 13 nos. to 7 nos.) has been adopted and justified from traffic engineering point of view. As the operation in the current application would involve mainly staff for management and some technicians which are less labour intensive, the proposed parking provision of 7 private cars is considered sufficient and adequate to cater for the peak period demand.

Appendix | 1

Revised Planning Statement

Ref.: ADCL/PLG-10225/R001b

Section 16 Planning Application

Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Filling of Land for Site Formation Works

Lots 471 S.B RP (Part), 472, 473, 474, 475, 476, 483, 501, 502, 504 S.B, 505 and 506 S.B RP in D.D. 89 and adjoining Government Land, Man Kam To Road, Sha Ling, New Territories

Planning Statement

Prepared by
Aikon Development Consultancy Ltd.

In Association with
MG Design H.K. Ltd.
CTA Consultants Ltd.
LanDes Ltd.
SMEC Asia Ltd.

August 2022

EXECUTIVE SUMMARY

(In case of discrepancy between English and Chinese versions, English shall prevail)

This Planning Statement is submitted to the Town Planning Board (hereinafter referred to as "the Board") in support of a planning application (hereinafter referred to as "the current application") for **Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Filling of Land for Site Formation Works** (hereinafter referred to as "the proposed development") at Lots 471 S.B RP (Part), 472, 473, 474, 475, 476, 483, 501, 502, 504 S.B, 505 and 506 S.B RP in D.D. 89 and adjoining Government Land, Man Kam To Road, Sha Ling, New Territories (hereinafter referred to "the Application Site"). The Planning Statement serves to provide background information and planning justifications in support of the proposed development in order to facilitate the consideration by the Board.

The Application Site is subject to a previously-approved application (No. A/NE-FTA/201) (hereinafter referred to as "the approved application") submitted by Hong Kong Chilled Meat & Poultry Association. In response to the most recent policies geared towards making Hong Kong an international centre for I&T and reviving the logistics industry through enhancing the use of technology and productivity of private sectors, the applicant, a key stakeholder in the logistic industry, aims to follow this regional and territorial direction and delivering the same vision by incorporating intelligent logistics solutions and the Internet of Things in the current application. The current application is also aimed at overcoming challenges in the traditional food logistic industry with the use of technology to boost efficiency and ensure public hygiene as well as safeguarding food safety. In order to put forth the concept of Innovation and Technology envisioned by the Northern Metropolis Development Strategy whilst at the same time meet the demands on chilled/frozen meat and poultry in the Territory and ensuring a centralized cold storage for poultry and distribution centre, the current application is so submitted to the Board with boundary and intensity adjustment.

The proposed development, with a site area of about 16,060m^2, total floor area of about 11,615m^2, comprises one 2-storey structure for cold storage and 5 ancillary structures for plant room and guard house. The proposed filling of land would not exceed 1.5m and the operation hours of the proposed development is from 9:00a.m. to 8:00p.m. and from 11:00p.m. to 3:00a.m. daily. Hong Kong Chilled Meat & Poultry Association have been looking for suitable land for a proper cold storage and distribution center since the outbreak of Avian Influenza in 2003. The proposed development is of great importance since it will be handling 95% of the imported chilled poultry from the Mainland serving Hong Kong. The current application strives to adopt modern logistics operation with a view to materializing a modern cold storage and distribution centre at the Application Site.

The Application Site currently falls within an area zoned "Agriculture" ("AGR") on the Approved Fu Tei Au and Sha Ling Outline Zoning Plan (OZP) No. S/NE-FTA/16 gazetted on 15.12.2017 (hereinafter referred to as "the Current OZP"). As detailed throughout this Planning Statement, the proposed development is well justified on the grounds that:-

(a) The proposed development is in line with Government's policy to provide a centralized cold storage and distribution centre for chilled poultry to meet the increasing demand for cold storage and distribution centre for poultry and to serve the Territory;

(b) There is an insurmountable difficulty in implementing the approved application due to change in circumstances, and adjustment on development parameters is inevitable to materialise the long-needed cold storage and distribution centre;

(c) The modified development parameters from theapproved application enables the employment of smart intensive warehouse system which can greatly boost efficiency and reduce reliance on human input with a view to overcoming manpower shortage faced in recent years, while creating an environmental and labour-friendly working environment through modern logistic operation;

(d) The Applicant is committed to reprovision the footpaths and open space such that the agreed planning gains in the previously-approved application can be materialised;

(e) The nature of the proposed development and approval period sought in the current application is the same as the approved application;

(f) The proposed development is considered compatible with the surrounding land uses;

(g) The Application Site serves the best location for the proposed development with its unique site conditions and close proximity to the Border Control Points;

(h) The Not-In-My-Backyard (NIMBY) nature of the proposed development requires a remote location away from the urban areas;

(i) There are difficulties for the proposed development to be operated in conventional industrial buildings;

(j) HKCMA and the Applicant have been putting efforts to liaise with bureaux and Government departments in order to find a suitable place for over 10 years; and

(k) No adverse impacts on traffic, environmental, landscape, drainage, sewage and ecological aspects are envisaged at the Application Site and its surrounding areas.

In view of the above and the list of detailed planning justifications in the Planning Statement, it is sincerely hoped that members of the Board will give sympathetic consideration to approve the current application for the proposed development for a temporary period of 3 years.

行政摘要

(如內文與其英文版本有差異，則以英文版本為準)

此規劃報告書旨在支持一宗遞交予城市規劃委員會（以下簡稱「城規會」）的規劃申請（以下簡稱「該申請」）作擬議臨時家禽冷藏庫及分銷中心（為期 3 年）及填土以作土地平整工程（以下簡稱「擬議用途」）。該申請所涉及地點位於新界沙嶺文錦渡路丈量約份第 89 約地段第 471 號 B 分段餘段(部分)、第 472 號、第 473 號、第 474 號、第 475 號、第 476 號、第 483 號、第 501 號、第 502 號、第 504 號 B 分段、第 505 號及第 506 號 B 分段餘段和毗連政府土地（以下簡稱「申請地點」）。此規劃報告書提供該申請的背景資料及規劃理據以支持擬議用途供城規會考慮。

申請地點是受制於香港冰鮮禽畜業商會（以下簡稱 "商會"）提交的一份已獲批准的申請（編號：A/NE-FTA/201）（以下簡稱 "批准申請"）。作為物流業界的主要的持分者，申請人希望通過該申請，將智能物流解決方案和物聯網納入該申請的發展方向，以響應香港成為國際創新科技中心和振興物流業的最新政策，共同實現願景。該申請也是為著利用科技以克服傳統食品物流行業的挑戰，提高效率，確保公共衛生和保障食品安全。為了貫徹《北部都會區發展策略》所設想的創新和技術概念，同時滿足本地區對冰鮮/冷凍肉類和家禽的需求，並確保能夠實現一個家禽冷藏庫及分銷中心，該申請在調整邊界和強度後提交給城規會作考慮。

申請地點是由香港冰鮮肉類及家禽協會提交的先前已獲批准的申請（編號：A/NE-FTA/201）（以下簡稱 "已獲批准的申請"）。。

申請地點佔地面積約 16,060 平方米，總樓面面積約 11,615 平方米。擬議用途包括一個 2 層高的構築物作冷藏庫以及 5 個附屬構築物作機房及警衛室之用。擬議填土工程牽涉的厚度將不多於 1.5 米。擬議用途的營運時間是每天上午 9 時至下午 8 時以及下午 11 時至上午 3 時。自 2003 年禽流感爆發以來，香港冰鮮禽畜業商會多年一直尋覓合適的土地作家禽冷藏庫及分銷中心。由於擬議發展將處理 95%從內地進口至香港的冰鮮家禽，擬議發展對本港的冰鮮家禽市場尤其重要。該申請致力採用現代物流營運方式，以於申請地點實現一個現代化的家禽冷藏庫及分銷中心。

申請地點現時於 2017 年 12 月 15 日刊憲公佈之虎地坳及沙嶺分區計劃大綱核准圖（編號：S/NE-FTA/16）內被劃為「農業」地帶。此規劃報告書詳細闡述擬議用途的規劃理據，當中包括：-

（一）擬議發展符合政府政策，提供一個合乎規範的冷藏庫及物流分銷中心集中處理冰鮮家禽，以應付社會對家禽冷藏庫及物流分銷中心日益增加的需求，服務全港市民；
（二）鑒於申請地點的情況有變，批准申請的發展計劃(申請編號 A/NE-FTA/201)在實行上有難以克服

的困難，為盡早實現有迫切需求的冷藏庫及分銷中心，修改批准申請的發展參數乃無可避免；

（三）修改後的發展參數有利擬議用途採用智能密集倉儲系統，將大幅提高運作效率並減少依賴人手操作，克服近年人力資源短缺問題，亦可透過現代化物流系統實現環境保護和創造理想的工作環境；

（四）申請人承諾重新設置行人通道和休憩空間，以實現批准申請的規劃增益；

（五）擬議發展的性質和期限與先前獲批申請相同；

（六）擬議發展與鄰近的土地用途兼容；

（七）申請地點的獨特位置及其鄰接邊境管制站的地理優勢為擬議用途提供最佳位置；

（八）受限於鄰避效應，擬議用途需要座落於遠離市區的偏遠地區；

（九）擬議用途在傳統工業大廈內運作有重大困難；

（十）香港冰鮮禽畜業商會及申請人於過去十年一直致力與政府各部門協商，希望尋求一個合適的位置；及

（十一）　擬議用途預計不會對交通、環境、園景、排水、排污及生態方面構成不良影響。

鑑於以上各點及此規劃報告書內所提供的詳細規劃理據，懇請城規會體恤考慮，並批准該申請作為期三年之擬議用途。

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1. INTRODUCTION

1.1 Purpose

1.1.1 Pursuant to section 16 of the Town Planning Ordinance (TPO) (Cap. 131), this Planning statement is submitted to the Town Planning Board (hereinafter referred to as "the Board") in support of a planning application (hereinafter referred to as "the current application") for **Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Filling of Land for Site Formation Works** (hereinafter referred to as "the proposed development") at Lots 471 S.B RP. 472, 473, 474, 475, 476, 483, 501, 502, 504 S.B, 505 and 506 S.B RP in D.D. 89, and adjoining Government Land, Man Kam To Road, Sha Ling, New Territories (hereinafter referred to as "the Application Site"). The Planning Statement serves to provide background information and planning justifications in support of the proposed development in order to facilitate the consideration by the Board. The Application Site has a total area of approximately 16,060m^2. **Figure 1** indicates the location and the relevant private lots and Government land that the Application Site involves.

1.1.2 The Application Site is subject to a previously-approved application (No. A/NE-FTA/201) (hereinafter referred to as "the approved application") submitted by Hong Kong Chilled Meat & Poultry Association ("hereinafter referred to as "HKCMA"). Being affiliated with HKCMA and having same objective in facilitating the materialisation of the cold storage for poultry and distribution centre at Man Kam To, **Hong Kong Chilled Meat & Poultry Association Limited** (hereinafter referred to as "**HKCMA Ltd**") (香港冰鮮家禽商會有限公司) ("the Applicant"), takes the responsibility to submit the current application with a view to seeking planning permission from the Board. Prepared on behalf of the Applicant, Aikon Development Consultancy Limited has been commissioned to prepare and submit the current application on its behalf.

1.1.3 The Application Site falls within an area zoned "Agriculture" ("AGR") on the approved Fu Tei Au and Sha Ling Outline Zoning Plan ("OZP") No. S/NE-FTA/16 (please refer to **Figure 2**). The proposed development does not involve the selling of poultry in small/large quantities to individuals or retailers. Hence, the proposed term "Distribution Centre" is used. According to paragraph 10(a) of the Notes of the OZP, it states "...temporary use or development of any land or building not exceeding a period of three years requires planning permission from the Town Planning Board...". The Remarks of "AGR" zone of the respective OZP also stated "...any filling of land shall not be undertaken...without the permission from the Town Planning Board...". Therefore, this Section 16 planning application is submitted.

1.1.4 The purpose of this planning application is to seek approval from the Board under Section 16 of the Ordinance to allow the proposed development at the Application Site with modern logistics operation in order to meet the imminent demand for such facility in the Territory.

1.2 Background

1.2.1 HKCMA members are chilled poultry importers who sell chilled poultry products including chicken, ducks, geese and squabs to meet the Territory's demand for such products. With reference to the "Import Control and Food Safety Guidelines" published by the Centre for Food Safety under the Food and Environmental Hygiene Department ("FEHD"), "chilled poultry" refers to "poultry which had been subject to the pre-chilling process immediately after slaughtering and are kept at a temperature between 0-4 degree Celsius".

1.2.2 The absence of a proper cold storage and distribution centre in Hong Kong has long been an issue for HKCMA since the outbreak of Avian Influenza in 2003. In response to the outbreak of the influenza, the Government has laid down recommended procedures for slaughtering live poultry to prevent further aggravation of the situation. Hence, the supply of live poultry was severely affected, which led to an increase in demand for chilled poultry in the territory. Currently, there is a lack of a centralised processing centre for HKCMA to handle the surging demand for chilled poultry in Hong Kong.

1.3 HKCMA's Efforts to Identify a Suitable Site for Cold Storage and Distribution Centre

Pursuit of a Permanent Site since Early 2010s

1.3.1 HKCMA has been actively searching for suitable sites for its comprehensive daily operations. Since 2009, HKCMA has been continuously liaising with the Food and Health Bureau ("FHB") and Commerce and Economic Development Bureau ("CEDB") for a suitable site to accommodate the storage and distribution activities of chilled poultry products (**Annex 1.1** refers). Meetings with the FHB and CEDB were held on December 2011 and May 2012 to bring forth the issue (**Annex 1.2** refers). In response to Legislative Council member's enquiry on May 2013, the Secretary of Food and Health, Dr. Ko Wing-man, replied that HKCMA should make enquiries and applications to the Government departments for leasing government land to set up a storage and distribution centre (**Annex 1.3** refers).

1.3.2 In response to the above, HKCMA has made various applications to the relevant Government Departments. Under HKCMA's continuous effort, policy support for setting up a storage and distribution centre was obtained from FHB. Subsequently, the FHB made a section 16 planning application (No. A/YL-ST/483) for proposed temporary chilled meat storage facilities for a period of 3 years on Government Land at the junction of Castle Peak Road - Chau Tau and Lok Ma Chau Road, San Tin, Yuen Long (**Annex 1.4** refers). Upon approval by the Board on 4.3.2016, a tendering exercise was conducted for the aforesaid site for the provision of chilled meat and poultry facilities and the storage of chilled meat and poultry thereat by way of short-term tenancy (**Annex 1.5** refers). Although HKCMA submitted a tender offer (**Annex**

1.6 refers), the short-term tenancy was unfortunately not awarded, hence the need to find a suitable site for a central processing centre for HKCMA to handle the surging demand for chilled poultry in Hong Kong has remained unresolved as of today.

Temporary Occupation as Interim Solution in the Late 2010s

1.3.3 A storage and distribution centre, whether temporary or permanent in nature, is urgently required by the Territory's poultry industry to meet the inherent demand. As mentioned above, after overcoming huge hurdles in securing a permanent Government site, HKCMA has continued to undertake a long and strenuous land search process to identify a suitable site for temporary occupation in the private land market.

1.3.4 Several criteria for identifying a suitable site for centralised processing facility are as follows:

- Site Area - a large site area that can accommodate a majority of HKCMA members' operations, and sufficient uncovered area for manoeuvring of goods vehicles within the Site;
- Terrain - a flat terrain is required to accommodate sufficient loading/ unloading platforms in support of the daily operations of the facility; and
- Location - close proximity to the Border Control Point ("BCP") and Man Kam To Animal Inspection Station to minimise transport time and distances of chilled poultry products from the Mainland to Hong Kong. This centralised facility can further facilitate the unloading and repackaging for local distribution of chilled poultry, so that heavy good vehicles from the Mainland are not required to enter the urban area thereby minimising further potential disturbances.

1.3.5 As stated by HKCMA, there were limited choices in the private land market that could fulfil the above three criteria. A rigorous site searching exercise had been conducted by the Applicant between 2011 and 2015 and none of the sites identified fulfil all the above criteria. **Table 1** lists out all the sites previously considered and the main reason(s) for not choosing them.

Table 1: Sites Considered under the Site Search Exercise

Approximate Location		Year	Land Use Zoning	Reason for Not Choosing
1	Lot 872 and various adjoining lots in DD 111, Pat Heung	2011	"Open Storage"	• Area too small • Location too far from BCP/Man Kam To
2	Lot 3576RP and various adjoining lots in DD 116, Tai Tong	2011	"Open Storage"	• Area too small • Location too far from BCP/Man Kam To
3	Lot 1477 S.B and various adjoining lots in DD 117, Tai Tong	2011	"Open Storage"	• Area too small • Location too far from BCP/Man Kam To
4	Lot 817 and various adjoining lots in DD 79, Ta Kwu Ling	2013	"Recreation"	• Area too small
5	Lot 653 and various adjoining lots in DD 79, Ta Kwu Ling	2013	"Agriculture"	• Area too small
6	Lot 1195 and various adjoining lots in DD 119, Tong Yan San Tsuen	2013	"Undetermined"	• Area too small • Location too far from BCP/Man Kam To
7	Lot 1808 and various adjoining lots in DD 125, Hung Shui Kiu	2014	"Undetermined"	• Area too small • Location too far from BCP/Man Kam To
8	Lot 129 and various adjoining lots in DD 125, Hung Shui Kiu	2014	"Open Storage"	• Area too small • Location too far from BCP/Man Kam To
9	Lot 1326 and various adjoining lots in DD 125, Hung Shui Kiu	2014	"Open Storage"	• Area too small • Location too far from BCP/Man Kam To
10	Lot 38 and various adjoining lots in DD 124, Hung Shui Kiu	2014	"Village Type Development"	• Area too small • Location too far from BCP/Man Kam To

1.3.6 After several failed attempts in securing a suitable site in the broader New Territories area, HKCMA focused their efforts on the Man Kam To Area in recent years. Along Man Kam To Road, several sites located near Hung Kiu San Tsuen to the north of Fanling North New Development Area are zoned as "Open Storage". Since these sites are just around 2 to 3km away from the Man Kam To Animal Inspection Station, HKCMA had tried to search for a suitable site for the temporary facility in the private land market. However, these sites with suitable zoning were mostly occupied by other businesses or failed to meet the above criteria (i.e. hilly terrain, not enough manoeuvring area for logistics operations etc.). HKCMA could not identify a site with suitable zoning in the private land market eventually.

1.3.7 Realising that sites under proper OZP zonings were not adequate or unavailable, there was no choice but to search for sites in the private land market which required planning permission from the Board. Given HKCMA's operational needs, this centralised facility must be located close to the BCP and the Man Kam To Animal Inspection Station.

1.3.8 After another lengthy screening process, the Application Site (**Diagrams 1 to 3 in Annex 1.7** refer) was preliminarily identified by HKCMA in 2017. It is located along Man Kam To Road with minimal traffic flow. The operation of a storage and distribution centre would not bring insurmountable traffic burden to Man Kam To Road. Moreover, given its large site area and relatively flat terrain, there would be sufficient space for internal manoeuvring of vehicles and hence would not adversely affect the traffic flow of Man Kam To Road. Besides, the close proximity to Man Kam To BCP and the Man Kam To Animal Inspection Station can reduce unnecessary transportation time and hence facilitate the operation of the poultry industry (**Diagram 2 in Annex 1.7** refers). From the planning perspective, the Application Site is designated as "AGR" zone on the prevailing OZP which requires planning permission under Section 16 of the Ordinance for the proposed temporary use.

1.4 Submission of Previous Planning Application and Changes in Circumstances

1.4.1 In consideration of the above, HKCMA submitted a planning application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Land Filling for Site Formation Works (No. A/NE-FTA/201) (i.e. the approved application), which was subsequently approved by he Board on 28.05.2021 (**Annex 2** refers). Nonetheless, due to change in circumstances, HKCMA has encountered constraints concerning the operation and implementation of the approved scheme. Being affiliated with HKCMA, the Applicant has the same objective in facilitating the materialisation of the cold storage for poultry and distribution centre at Man Kam To. The Applicant takes the responsibility and strives to negotiate with relevant parties in resolving the issues, however it is inevitable that these constraints would affect the materialisation of the approved cold storage and distribution centre. In view of the above, the current application is submitted to seek planning permission from the Board for a revised scheme with modified development parameters.

Implementation Constraints

1.4.2 One of the major differences from the approved application is the change in Application Site boundary. It has been recently noted that a few lot owners intend not to have any structures erected on their private lots nor having their lots as countable for development parameters in the current application. 5 private lots (i.e., Lot 482 RP, 483, 484, 486 and 497 S.A RP) are excluded from application site area under the current application. With a view to ensuring sufficient floor area for operation and the provision of EVA, revision on layout plans and hence related technical assessments are required. The change in Application Site boundary is presented in

Illustration 1. The current application seeks a planning permission for the proposed development such that the long-needed cold storage and distribution centre could be proceed to implementation stage and cater the imminent need of the industry.

Operation Constraints and The Aspiration to Adopt a Modern Logistics Operation

1.4.3 Another major change in the current application is the aspiration to adopt a modern logistics operation. According to the Applicant, there has been a drastic decline in the number of newcomers to the chilled poultry industry in recent years, which resulted in a severe manpower shortage. During the fifth wave of the pandemic, the operation of cold storages was also significantly affected due to widespread staff infection. Against this background, the Applicant proposed to upgrade the approved cold storage facility to the up-to-date standards in modern logistics industry. The smart logistics facility would be operated by the AI modelling technology and end-to-end robotic automation. As such, it is necessary to require a higher ceiling (proposed max. BH: 20.675m) for the IoT infrastructure built-in to the cold storage facility. The proposed cold storage can operate on a 24-hour basis at high efficiency and significantly reduce the reliance on human input to alleviate manpower shortage problem. Comparing to the approved application, there is an increase of 10.275m building height, mainly due to the technical and structural upgrades to ensure the building safety and to facilitate the operation performance.

1.4.4 In light of the above, the Applicant submits the current application to seek planning permission from the Board. It is sincerely hoped that sympathetic considerations could be given in order to ensure the materialisation of a cold storage and distribution centre that has long been striving for

1.5 Temporary Nature of the Application

1.5.1 A temporary planning permission of three years is applied for this development since HKCMA is still searching for suitable sites for a permanent centralised facility. It should be noted that HKCMA has been actively liaising with the Government for a permanent location for over 10 years. Given that the New Territories North (NTN) development is still at the conceptual planning stage with no known implementation programme, this lengthy negotiation process is anticipated to continue with a high degree of uncertainty as to when a permanent centralized facility in the border area could be established. In view of the imminent demand for a centralized facility of chilled poultry, HKCMA and the Applicant thus opts to develop a temporary facility at present to meet such demands.

1.5.2 A permanent storage and distribution centre is still required by the Territory's poultry industry. Searching for a suitable site for the permanent centralised facility near the border area will still be an on-going task for HKCMA and the Applicant, even if the current application for temporary use is approved by the Board .

1.6 Objectives

1.6.1 The current application strives to achieve the following objectives:-

(a) To respond to the Government's policy to provide a centralized cold storage and distribution centre for chilled poultry to serve the Territory;
(b) To meet and relieve the persistent demand for cold storage and distribution centre for poultry;
(c) To demonstrate HKCMA's efforts in finding a suitable location for over 10 years;
(d) To ensure the materialisation of the cold storage and distribution centre at the Application Site with the adoption of modern logistic operation; and
(e) To induce no adverse traffic, environmental, landscape nor infrastructural impacts on its surroundings by providing adequate protection and mitigation measures.

1.7 Structure of the Planning Statement

1.7.1 This Planning Statement is divided into 5 chapters. **Chapter 1** is the above introduction outlining the purpose and background of the current application. **Chapter 2** gives background details of the Application Site in terms of the current land-use characteristics and neighbouring developments. Planning context of the Application Site is reviewed in **Chapter 3 whilst Chapter 4** provides details of the current application as well as the design of proposed development. A full list of planning justifications is given in **Chapter 5** whilst **Chapter 6** summarizes the concluding remarks for the proposed development.

2 SITE PROFILE

2.1 Location of the Application Site

2.1.1 The Application Site covers a total land area of about 16,060m^2. The Application Site is located close to the border in the North District, between the Lo Wu BCP and Man Kam To BCP. It is bounded by a rural road - Man Kam To Road to the east and a rural road - Lo Wu Station Road to the south (**Figure 1 and Illustration 2-I** refer). The Application Site has a relatively flat terrain with an elongated strip profile.

2.2 Current Condition of the Application Site

2.2.1 The Application Site is subject to the approved application with approval conditions. Since the application is approved, land filling and site formation works at the proposed area have been commenced, existing vegetation has been removed as approved (**Illustration 2-II** refers). In addition, HKCMA has been working closely in complying with the approval conditions of planning application (A/NE-FTA/201), in particular, the reprovision of a footpath on the site is about to be commenced. As evidenced in **Illustration 2-II**, the Application Site is no longer an uncultivated land overgrown with weeds and different tree groups compared to that in the approved application.

2.2.2 There is a drainage channel cutting in the middle of the site running from the northeast to southwest direction, separating the Application Site into two halves (**Figure 1.1 in Annex 8** refers). There is a road access (i.e. Lo Wu Station Road) connecting to the southwest end of the Application Site. Several footpaths are also found within the Application Site which connects the existing temporary structures near the freshwater pipelines to the residential dwellings to the northwest of the Application Site (**Illustration 3** refers).

2.3 Surrounding Land-use Characteristics

2.3.1 As shown in **Illustration 2-II**, to the northwest of the Application Site are existing residential dwellings and temporary structures surrounded by dense tree groups. Hence, there is sufficient buffer between the proposed development and nearby residential dwellings. The intensity and scale of the trees provide adequate screening between the proposed development and the surrounding residences.

2.3.2 To the further northwest is the existing Sandy Ridge Cemetery which is currently used for coffin and um burial. The Government has planned to develop a cluster of columbarium developments and related facilities at Sandy Ridge Cemetery for one-stop funeral services and will be completed by phases.

2.3.3 To the southeast of the Application Site, along Man Kam To Road are the fresh water pipelines of the Dongjiang Water major aqueduct system. Across Man Kam To Road,

there is a small cluster of temporary structures and "G/IC" uses including Border District Police Headquarters, Police Dog Unit and Force Search Unit Training School.

2.3.4 Opposite to Lo Wu Station Road at the southwest is Sha Ling Playground. The surrounding context of the Application Site is considerably rural in character, predominated by rural settlements with scattered limited farming activities amongst vacant/abandoned fields. The Application Site has a strategic advantage for logistical uses given its close proximity to the Man Kam To BCP, which is Hong Kong's second busiest BCP in terms of freight transport. Open storages, port back-up uses and logistic operations are commonly found to the further northeast and south of the Application Site, which allow operators to run their business more cost-effectively.

3 PLANNING CONTEXT

3.1 The Current OZP

3.1.1 The Application Site falls within an area zoned "AGR" on the approved Fu Tei Au and Sha Ling Outline Zoning Plan (OZP) No. S/NE-FTA/16 (**Figure 2** refers). According to the Notes of the OZP, temporary use not exceeding a period of three years within "AGR" zone requires planning permission from the Town Planning Board (the Board) notwithstanding that the use is not provided for under the Notes of the OZP. The Notes for the "AGR" zone also provide that filling of land requires planning permission from the Board.

3.2 Previously-approved Planning Application

3.2.1 The Application Site is subject to a previous planning approval for the same proposed development. The approved application No. A/NE-FTA/201 for proposed temporary cold storage for poultry and distribution centre was submitted by HKCMA and was approved by the Board on 28.5.2021 (**Annex 2** refers) mainly on the grounds that (a) there was a genuine operational need for chilled meat and poultry importers and distributors for a centralized CSDC, and there was no other readily available site; (b) despite not being in line with the planning intention of the "AGR" zone, favorable consideration could be given considering the importance of the proposed CSDC in ensuring food safety and diversity of food supply in Hong Kong; (c) the temporary nature of the proposed development would not frustrate the long-term planning intention of the "AGR" zone; (d) no significant adverse impact on the existing landscape resources was anticipated; (e) relevant Government departments did not have in-principle objections on the application; and (f) the proposed development was supported by the stakeholders of the chilled poultry/meat industry, whereas other local objections were properly addressed in the relevant impact assessments.

3.2.2 The nature of the current application in terms of approval period sought and proposed development are the same as that proposed in the approved application. Considering the nature of the current application remains unchanged and the supporting grounds remain valid, it is sincerely hoped that the Board could give sympathetic considerations on the current application.

4 THE DEVELOPMENT PROPOSAL

4.1 Site Configuration, Layout and Operation

4.1.1 The Application Site has a site area of approximately 16,060m^2. The Application Site comprises 12 private lots (i.e. Lot Nos. 471 S.B RP (Part), 472, 473, 474, 475, 476, 483, 501, 502, 504 S.B, 505 and 506 S.B RP in D.D. 89) with an area of about 14,191m^2 and the adjoining Government land of about 1,869m^2 (**Figure 1** refers).

4.1.2 The current application involves the development of 6 structures (**Annex 4** refers) including one main block for cold storage with a building height of not more than 20.675m, 4 plant rooms and one guard house located at the periphery of the Application Site boundary.

4.1.3 The proposed development intends to meet the long-term demand of HKCMA for having a proper cold storage and distribution centre to handle the chilled poultry imported from the Mainland, which is for daily consumption in Hong Kong. Goods vehicles from the Mainland will stop at the Application Site and unload chilled poultry products. These products will then be stored temporarily at the Application Site and will be distributed by light goods vehicles to the rest of the Territory.

4.1.4 An elevated platform accommodating all facilities for the proposed development will be constructed within the Application Site to avoid encroachment of the existing watercourse running through the Application Site from northeast to southwest direction. The Section Drawing No. SC-001 in **Annex 4** presents the configuration and layout of the proposed elevated platform. The area of the elevated platform decking over the existing water channel is about 7,029m^2 (43.8% of the Site). There is a gap of about 1.2m in height between the proposed ground level and the structures to allow clearing or maintenance of existing watercourse, while the details of the elevated platform construction will be further studied in the detailed design stage. The existing watercourses will not be affected by filling of land, in both construction and operation phase. No construction activities will be conducted within the water sensitive receivers including the existing watercourse.

4.1.5 The Application Site is located with uneven ground level, sloping up from +4.50mPD (Southwest portion) to +6.13mPD (Northeast portion). Thus, filling of land is proposed for levelling the existing ground level differences before constructing the elevated platform. The proposed area for filling of land is about 4,071m^2 (25.3% of the Site) with compact fill of not more than 1.5m depth for site formation. The proposed ground level after filling of land is from +6.00mPD (Southwest portion) to +7.05mPD (Northeast portion) to facilitate the proposed development. Meanwhile, the area of the elevated platform decking over the existing water channel is about 7,029m^2 (43.8% of the Site), which would not involve any filling of land. Only necessary land filling is proposed to facilitate the proposed development. In addition, land filling and site formation works in accordance with the proposal as stated in the approved

application have been commenced, and there is no additional increase in filling of land under the current application.

4.1.6 Excavation of land is proposed for the underground stormwater tank at the manoeuvring area at the southwestern portion of the Application Site. The approximate area of excavation is about 787m^2 and the approximate depth of excavation is about 4.8m. The proposed excavation of land would not intact the existing watercourse (**Annex 4** refers). The Applicant is committed to hiring professional land surveyors to conduct a detailed land survey during the submission of the Building Plan should the current planning application be approved by the Board.

4.1.7 The key development parameters of the proposed development and details of site formation dare summarised in **Table 2**:

Table 2: Major Development Parameters of the Proposed development

Major Development Parameters	
Site Area	**About 16,060 m²** (Including Government Land of about 1,869m²)
No. of Structures	**6**
Height of Structures	**About 3 m – Not more than 20.675 m**
Total Floor Area Main Block - Area for Cold Storage - Area for Ancillary Storage/Office - Area for Corridor, staircase and lift Plant Room and Transformer Room Guard House	**About 11,615 m²** About 10,509 m² (Building Height: 20.675m) - About 9,625 m² - About 483 m² - About 401 m² About 1,088m² (exempted from GFA) About 18 m² (Building Height:3m)
Proposed Plot Ratio	**0.723**
Site Coverage	**About 56.94%**
No. of Loading/Unloading Bays Light Goods Vehicles (LGVs) Heavy Goods Vehicles (HGVs) Container Vehicles	**Total 30** 0 22 8
No. of Parking Spaces Private Car Parking Spaces Motorcycle Paing Spaces	**Total 9** 7 (including 1 disabled carparking space) 2
Provided Common Greenery	**4,105.6 m²**
Greenery Ratio	**About 25.6%**
Area of Decking Over	**7,029 m²** (43.8% of the Site)
Filling of Land for Site Formation Area of Filling Depth of Filling Type of Filling Materials Existing Ground Level Proposed Ground Level	 4,071 m² (25.3% of the Site) Not more than 1.5 m Compact fill +4.50 mPD (Southwest portion) +6.13 mPD (Northeast portion) +6.00 mPD (Southwest portion) +7.05 mPD (Northeast portion)
Excavation of Land for Proposed Underground Stormwater Tank Area of Excavation Depth of Excavation	 About 787 m² (4.9% of the Site)* About 4.8 m*
* *The area and depth of excavation will be confirmed in detailed design stage. The Applicant will commit to hire professional land surveyor to conduct a detailed land survey and provide the exact area and depth of excavation involved in the proposed development should the current application be approved.*	

4.1.8 As shown on the **Master Layout Plans** in **Annex 4,** G/F of the Main Block is divided by the proposed loading and unloading area (hereinafter referred to as "L/UL area"). G/F

of the Main Block is of a floor height of about 4.8m and the two sections of building at G/F will be accommodating a total GFA of approximately 4,910m^2 for cold storage. 1/F of the Main Block would be fully connected with a floor height of about 15.2m. The Main Block consists of cold storage area, transformation/utilities room and office/ancillary use.

4.2 Comparison of the Major Development Parameters of the Current Application and the Approved Application

4.2.1 **Table 3** encapsulates a comparison of the major development parameters/items of the current application and the approved application.

4.2.2 In comparison with o the approved application, the current application has a significant reduction in Application Site area (about 21.6%) after excluding 5 private lots (i.e., Lot 482 RP, 497 S.A RP, 484, 486 and 487 RP). With a view to maintaining the sufficient GFA and room for operation, the proposed site coverage and building height would be increased correspondingly. However, there is no significant increase in plot ratio when comparing to the approved application.

Table 3: Comparison of the Major Development Parameters of the Current Application and the Approved Application

Major Development Parameters	**Approved Application No. A/NE-FTA/201 (a)**	**Current Application (b)**	**Difference/Remark(s) (b) – (a)**
Site Area	**About 20,506 m²** (Including G.L. of about 1,903 m²)	**About 16,060 m²** (Including G.L. of about 1,869 m²)	-4,446m² (-21.6%)
No. of Structures	**4**	**6**	+2 (+50%)
Height of Structures	**About 3 m – 10.4 m** **Block 1**: About 10.4 m **Block 2**: About 10.4 m **Transformer Room**: About 6 m **Guard House**: About 3 m	**About 3 m – Not more than 20.675 m** **Main Block**: Not more than 20.675 m **Plant Room 1,2,3,4**: About 4 m **Guard House**: About 3 m	+ 10.275 m (+98.8%)
Total Floor Area	**About 12,736 m²** **Block 1** - Area for Cold Storage: About 6,700 m² - About 6,700 m² **Block 2** - Area for Cold Storage: About 5,850 m² - About 3,305 m² - Area for Ancillary Storage/Office: About 2,545 m² **Transformer Room** (exempted from GFA): About 180 m² **Guard House**: About 6 m²	**About 11,615 m²** **Main Block** - Area for Cold Storage: About 10,509m² - About 9,625 m² - Area for Ancillary Storage/Office: About 483 m² - Area for Corridor, staircase and lift: About 401 m² **Plant Room and Transformer Room** (exempted from GFA): About 1,088m² **Guard House**: About 18 m²	- 1,121 m² (-8.8%)
Proposed Plot Ratio	**0.621**	**About 0.723**	+0.102 (+16.4%)
Site Coverage	**31.51%**	**About 56.94%**	+25.43% (+80.7%)

No. of Loading/Unloading Bays Light Goods Vehicles (LGVs) Heavy Goods Vehicles (HGVs) Container Vehicles	**Total 34** 25 7 2	**Total 30** 0 22 8	-4 (-11.7%)
No. of Parking Spaces Private Car Parking Spaces Motorcycle Parking Spaces	**Total 15** 13 (including 1 disabled carparking space) 2	**Total 9** 7 (including 1 disabled carparking space) 2	-6 (-40%)
Landscape and Open Space Area	**6,666 m²**	**About 5,152 m²** (About 4,105.6 m² for common greenery provision and About 1,045.9 m² for open space provision)	-1,514 m² (-22.7%)
Greenery Ratio	**About 32.51%**	**About 25.6%**	-6.91%
Area of Decking Over	**6,890 m²** (33.6% of the Site)	**About 7,029 m²** (43.8% of the Site)	+139 m² (+2.01%)
Filling of Land for Site Formation Area of Filling Depth of Filling Type of Filling Materials Existing Ground Level Proposed Ground Level	 5,810 m² (28.3% of the Site) Not more than 1.5 m Compact fill +4.50 mPD (Southwest portion) +6.13 mPD (Northeast portion) +6.00 mPD (Southwest portion) +6.90 mPD (Northeast portion)	 **About 4,071 m² (25.3% of the Site)** Not more than 1.5 m Compact fill +4.50 mPD (Southwest portion) +6.13 mPD (Northeast portion) +6.00 mPD (Southwest portion) +**7.05** mPD (Northeast portion)	 -1,739 m² (-3%) +0.15mPD

Excavation of Land for Proposed Underground Stormwater Tank	N.A.	**About 787 m^2 (4.9% of the Site)***	+787m^2
Area of Excavation	N.A.	**About 4.8 m***	+4.8m
Depth of Excavation			

* *The area and depth of excavation will be confirmed in detailed design stage. The Applicant will commit to hire professional land surveyor to conduct a detailed land survey and provide the exact area and depth of excavation involved in the proposed development should the current application be approved.*

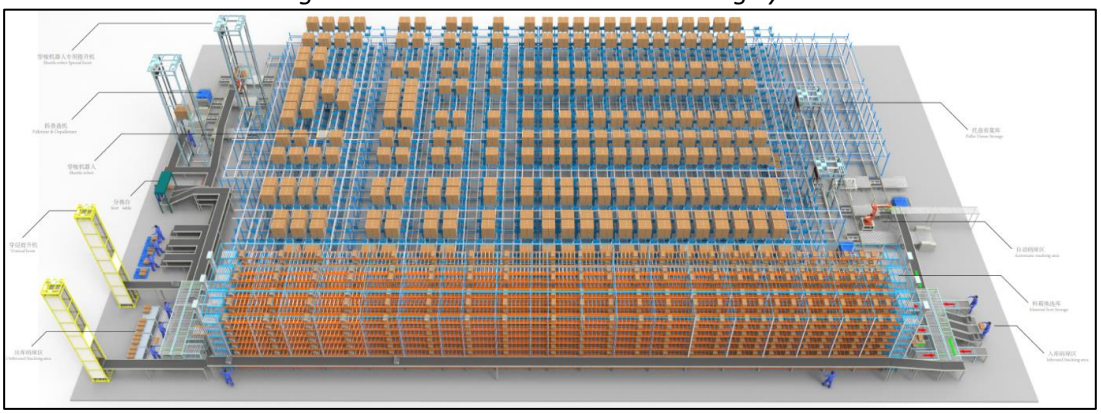
4.3 Modern Logistics Operation in the Cold Storage Facility

4.3.1 Allowing the current application will enable to effectively upgrading the approved cold storage facility to the up-to-date standards in modern logistics industry. The traditional practice for chilled meat distribution requires substantial labour input for loading and unloading, goods handling and storage. To keep the goods refrigerated at 4 degree celsius in ensuring food safety, an efficient and smooth loading and unloading and storage chain is necessary. However, the frozen storage area where activities are carried out are undesirable for human work in long duration in traditional practice. In addition, according to the Applicant, there is also an increasing labour shortage observed in recent years. While many industries have accelerated the adoption of automation and digitalisation to maintain competitiveness to prepare for uncertain future, the proposed development seeks to adopt an efficient logistics system that is less-labour intensive with a view to overcoming manpower shortage, promoting the application of smart innovation and technology, and safeguarding food safety.

Maximisation of Storage Capacity

4.3.2 As mentioned above, the proposed cold storage will be handling 95% of all imported chilled poultry from Mainland China. Since the start of the COVID-19 pandemic, the popularisation of online shopping has led to a skyrocketing demand for chilled food storage and delivery services. It is evident that the storage capacity of the proposed warehouse shall be increased accordingly. According to the Applicant, with the adoption of the 4-way shuttle automation system, the high-density cubic storage of racks, pallets or totes could allow the maximisation of warehouse space utilisation and greater flexibility in warehouse utilization with the space saving (**Annex 12** refers). As such, the proposed high-density intelligent storage system will certainly accommodate more storage capacity than tradition racking system, which assists in stabilising the supply of chilled poultry to the market.

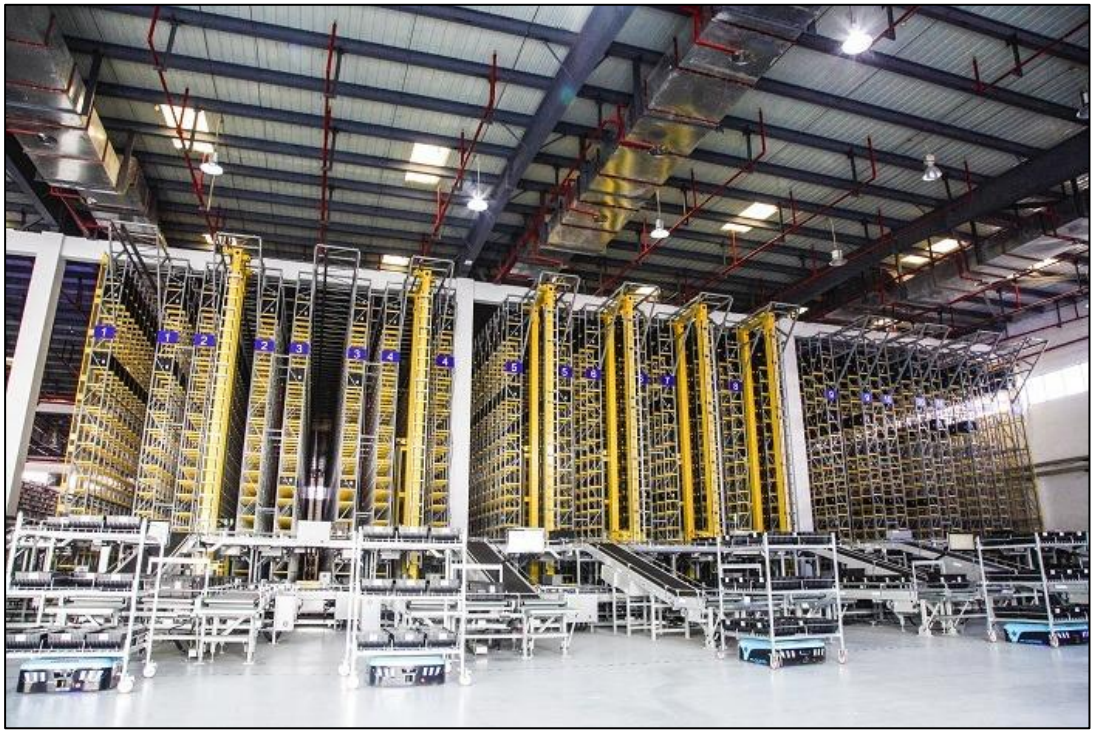
Diagram 1: Smart Intensive Warehousing System



Improvement in Operation Efficiency and Reduction in Manual Operation

4.3.3 According to the Applicant, there has been a drastic decline in the number of newcomers to the chilled poultry industry in recent years, which resulted in a severe manpower shortage. During the fifth wave of the pandemic, the operation of cold storages was significantly affected due to widespread staff infection. The proposed increase in building height allows the use of intelligent logistics transport equipment such as fully-automated shuttle robots and special hoists. The proposed cold storage can be managed through a smart and integrated control system and operate on a 24-hour basis with a 50-70% reduction in human input to alleviate manpower shortage problem. With a high throughput volume and a simplified operation flow, the efficiency of the modern logistics operation can be greatly accelerated compared to manual operation, and the accuracy can reach up to 99.99%.

Diagram 2: Shuttle Robot Special Hoists



Ensuring Public Hygiene and Safeguarding Food Safety

4.3.4 The proposed development involves a centralized distribution centre that helps minimize cross-contamination for food contact surfaces and refrigerators in different cold storages. The proposed cold storage facility is fully enclosed for sorting and storage of processed chilled meat and poultry and does not involve any food processing activity, therefore, no adverse public health and safety issue is anticipated. And given the long history and rich operation experience of HKCMA, hygienic issues would be taken care vigilantly. In addition, compared to the approved application, the proposed development in the current application involves an upgrade of the approved cold storage facility with intelligent logistics transport equipment and a smart intensive warehouse system, which will be operated by AI modelling technology and end-to end robotic automation. The proposed cold storage facility

that can be managed through a smart and integrated control system, offers a more organized and contactless operation. The proposed development is considered as an optimization of the approved scheme in the approved application and shall better safeguard public hygiene and food safety.

Creating an environmental-friendly and labour-friendly working environment

4.3.5 In addition, the adoption of modern logistic operation in the proposed cold storage can significantly reduce its energy and electricity consumption, considering that 40-50% of the warehouse area can operate under zero lighting with robotic operation. The current application also strives to create a safe and labour friendly environment by separating human work from undesirable frozen storage area. It should also be noted that the Applicant's proposal received appreciation from the industry as it will facilitate and encourage the future development of the industry and the society (**Annex 12** refers).

Prevailing Trend to Adopt Modern Logistic Operation

4.3.6 The adoption of modern logistic operation is a prevailing trend in the logistic industry and is widely recognised and supported by operators and distributors. A similar application (No. A/YL-PH/804) for proposed temporary wholesale trade (food) at Pat Heung was approved by the Board in 2019. The proposed development in Application No. A/YL-PH/804 comprises two single storey structures with a building height of 15m and a total floor area or cover area of about 15,916m^2 and a site coverage of 76%, which is in similar nature and scale with the current application. Following the planning approval in 2019, an increase of building height from 15m to 18m (+20%) was approved under Class B amendment in the same year. The proposed development has employed the same automated storage system within the 18m building envelope (**Annex 12** refers). As tabulated in **Table 4**, there are other similar planning applications with similar building envelopes to the current application (about or over 15m) approved by the Board in recent years. As per experiences of the local logistic industry, the proposed building height in the current application (i.e, BH: 20.675m) is considered to be essential in accommodating the aforementioned automation system.

Table 4: Approved Planning Application with Similar Development Intensity to the Current Application

Application No.	Proposed development	Decision	Proposed Building Height
A/YL-PH/804	Proposed Temporary Wholesale Trade (Food) for a Period of 5 Years	Approved with condition(s) on a temporary basis on 12.04.2019	15m
A/YL-PH/804-1	Proposed Temporary Wholesale Trade (Food) for a Period of 5 Years (Class B Amendment)	Approved on 05.07.2019	18m
A/YL-NTM/393	Temporary Warehouse (Excluding Dangerous Goods Godown), Goods Vehicle Park (Not Exceeding 24 Tonnes) and Container Carrying Cargo Weighing Station with Ancillary Site Office and Staff Canteen for a Period of 3 Years	Approved with condition(s) on a temporary basis on 01.11.2019	Not More than 15m (1-2 storeys)
A/YL-PH/846	Proposed Temporary Wholesale Trade (Food) for a Period of 5 Years	Approved with condition(s) on a temporary basis on 01.09.2020	Not More than 15m (2 storeys)
A/HSK/312	Temporary Logistics Centre, Warehouse, Cold Storage, Open Storage of Containers and Container Vehicle Park with Ancillary Workshop (including Compacting, Unpacking and Tyre Repairing) and Canteen for a Period of 3 Years	Approved with condition(s) on a temporary basis on 09.07.2021	Not More than 15m (2 storeys)

4.3.7 With a view to facilitating separate or/and cooperative operation and management among members of HKCMA, the proposed development involves a generally extensive cold storage area (about 9,625m^2) and sufficient ancillary storage/office space (about 483m^2) for multiple operators/distributors under HKCMA. **Table 5** shows the major chilled poultry operators and distributors of the proposed development, as well as the approved Mainland chilled poultry importers. Since there are multiple operators/distributors to handle about 200,000 chilled poultry daily, sizeable cold storage area with high ceiling for automatic storage system is necessary for a hygienic and orderly environment and adhere to the cold storage license requirements.

Table 5: Major Chilled Poultry Operators and Distributors of the Proposed development

Category	Company Name
Chilled Poultry Operator	Best Union Chilled Meat Company (佳聯冰鮮禽畜有限公司)
	Tong Shun Hing Poultry (Hong Kong) Company Limited (唐順興家禽(香港)有限公司)
	Lun Kee Poultry Limited (倫記家禽有限公司)
	Ching Da Trading (Hong Kong) Company Limited (正大貿易(香港)有限公司)
	Kwong Lee Trading Company (廣利貿易公司)
	New Sam Hing Food Trading Company Limited (新三興食品貿易有限公司)
	Lilai Foods Company Limited (利來食品貿易有限公司)
Mainland Chilled Poultry Importers	廣州市大鵬家禽養殖有限公司
	廣東溫氏佳潤食品有限公司新興肉食品加工廠
	惠州順興食品有限公司
	東莞市虎門聯歡家禽加工廠
	佛山市高明海達高新科技孵化養殖基地有限公司加工場
	河源市匯先豐食品有限公司
	惠東縣百事盛農牧有限公司
	廣東得寶食品有限公司
	廣州市百興畜牧飼料有限公司
	深圳市龍崗區邢記綜合農場
Chilled Poultry Distributor	Prominent Sharp Limited (金利進有限公司)
	Admire Kingdom Limited (利立有限公司)
	Rexfield Development Limited (朗豐環球有限公司)
	Frans Trading Enterprises Company Limited (鎮威貿易帝國有限公司)

4.3.8 According to the Applicant, sufficient storage space is essential for daily operation as is it is estimated that around 40,000 vented plastic crates will be stored and will be used for handling about 200,000 chilled poultry every day. In order to facilitate separate or/and cooperative operation and management among members of HKCMA, the proposed ancillary office is necessary for daily operation and administration works.

4.4 Re-provision of Footpath and Greenery as Proposed in Approved Application

4.4.1 Compared to the approved application, the current application has a significant reduction in site area (about 21.6%). In particular, the reprovisioning of agreed footpath is concerned with regards to the exclusion of lots 482 RP, 484, 487 RP and 497 S.A. RP from the Application Site boundary. Notwithstanding the subject lots are excluded from the Application Site, the subject lot owners expressed no objection to utilise the abovementioned 4 private lots for the reprovisioning of existing footpath and greenery. In this connection, the Applicant takes this opportunity to implement the proposed footpath as agreed in the approved application and propose greenery and communal open space at the subject area (hereinafter referred to as "proposed amenity area") (**Illustration 4** refers). The preliminary proposal is presented in Appendix II of **Annex 9**. The Applicant is willing to comply with departmental requirements by way of approval conditions should the current application be approved.

4.4.2 Notwithstanding there is an increase in site coverage and reduction in greenery provision within the Application Site, a total of about 2,867.5m^2 common greenery and about 249m^2 of communal open space at the proposed amenity area are to be provided for public enjoyment and amenity purpose (See Appendix II of **Annex 9** and **Annex 10**). The provision of common greenery and communal open space at the proposed amenity area is equivalent to about 60% provision of the that within the Application Site. While the landscape value of the Application Site is not considered high, the proposed development has respected the existing landscape settings. The proposed development will integrate with the surrounding landscape through a number of proposals, including provision of peripherical planting to create a soft planted edge and transparent panels along the boundary to alleviate this visual impact.

4.4.3 A 2.5m metal mesh will be erected mainly along the northwestern to northeastern and western boundary of the Application Site for security purposes. The proposed footpath along the northern boundary of the Application Site will not be obstructed by this metal mesh. The following segments of fixed/movable noise barriers will be installed to minimise the potential noise impact (Revised Master Layout Plan in **Annex 4** and **Figure 3.4** of **Annex 6** refer):

i. A 5m barrier along the internal road in the southeast portion of the Site;
ii. A 10m barrier along the internal road in southwest portion of the Site;
iii. A 12m barrier towards the northwest direction of the central L/UL area of the Site.

4.5 Operational Arrangement

4.5.1 The proposed development will operate 24 hours a day, 7 days per week on a year-round basis. The major operating hours are from 9:00a.m. to 8:00p.m. and from 11:00p.m. to 3:00a.m. The presence of two major timeslots is to cater to different operational activities at the Application Site and to accommodate the needs of on-

time delivery and normal delivery for chilled poultries.

4.5.2 The 9:00a.m. to 8:00p.m. timeslot is mainly for importing and sorting different types of chilled poultries imported to the Application Site from Mainland China and examined by Man Kam To Animal Inspection Station. The chilled poultries will be distributed to goods vehicles and delivered to the respective destinations in Hong Kong.

4.5.3 During 11:00p.m. to 3:00a.m., the workers will sort and deliver the remaining chilled poultries. Some industries like retail and food and beverage require on-time delivery before their operation hours in the early morning. Thus, the proposed development will also operate at night to cater those needs. This is similar to the existing operation period for fish, vegetables and meat wholesale markets.

4.5.4 For any food business involving storage of food under refrigeration in any warehouse, a Cold Storage License must be obtained from FEHD before commencement of business. The Applicant will adhere to and fulfil those relevant requirements for the license upon obtaining planning permission from the the Board and prior to the formal commencement of business.

4.5.5 **Table 6** and **Table 7** shows the latest internal statistics of estimated quantities of imported chilled poultry and chilled meat by the member of HKCMA which accounts for about 95% of the market share in Hong Kong. This estimation may vary according to supply and demand of chilled poultry consumption, festive needs and prevailing Government policies.

Table 6: Number of Daily Imported Chilled Poultry through HKCMA

Category		Quantity
Chilled Poultry (80%)	Chicken	130,000
	Duck	40,000
	Squab	30,000
Frozen Poultry (20%)		50,000
Total		**250,000**

Table 7: Number of Daily Imported Chilled Meat through HKCMA

Category	Quantity (tonnes)
Chilled Meat	44
Total	**44**

4.5.6 It is estimated that the daily operation would involve 7,634.7 pallets of goods, which is equivalent to about 72,300 trays of chilled/frozen meat and poultry. To accommodate huge amounts of these goods, the proposed layout in the approved application with a limited floor height can no longer serve the surging demand.

4.5.7 In addition, as refer to **s.1.4.2 of the Planning Statement,** due to implementation constraints, the application site boundary has been further reduced when compared to the approved application, resulting in an insurmountable reduction in building

footprint of the proposed development with its layout subject to more constraints. Leaving no other alternatives to accommodate the required pallets of goods for operation, the current application has to explore an inevitable increase in building height to materialize the agreed temporary cold storage for poultry and distribution center within the application site. **Table 8** shows the minimum space required for accommodating the required pallets of goods. The current layout of the proposed development is considered the most optimal design in meeting the minimum horizontal and vertical space required (9 levels which is equivalent to a building height of 20.675m) to accommodate the required pallets for operation.

Table 8: Minimum Room and Levels Required to Accommodate the Required Pallets for Operation

Footprint (m^2)	Layout Level	Capacity
1,266	3	3,798 Pallets
650	6	3,900 Pallets
Total	N.A.	7,698 (> 7,634.7 pallets required)

4.5.8 Apart from providing sufficient to accommodate the required pallets of goods, the proposed increase in building height is considered necessary to accommodate intelligent logistics transport equipment and a smart intensive warehouse system, which will be operated by AI modelling technology and end-to-end robotic automation. It is clarified that the current layout that is similar to a cube, which is the **most efficient layout** in optimising both vertical and horizontal movement via robotic automation from technical points of view. Compared to the flat layout in the approved application, which the adoption of such technology is unlikely, the current application seeks to maximise the efficiency and fulfilling minimum spatial requirement. For more details, the catalogue of the proposed system is enclosed in **Annex 12**.

4.6 Transports and Traffic Arrangement

Vehicular Access and Transports Facilities Provision

4.6.1 The Application Site has several site constraints including its elongated shape, the presence of residential dwellings to the west of the Application Site and the existing Dongjiang freshwater pipelines to the east of the Application Site which reduce the design flexibility. Subject to the above, the ingress/egress point is located at the southwest of the Application Site, abutting Lo Wu Station Road. A 10m-wide run-in and a 14m-wide run-out site access can provide ample space for internal manoeuvring of different types of goods vehicles. An Emergency Vehicular Access ("EVA") with minimum width of 7.3m is also provided along all vehicular access.

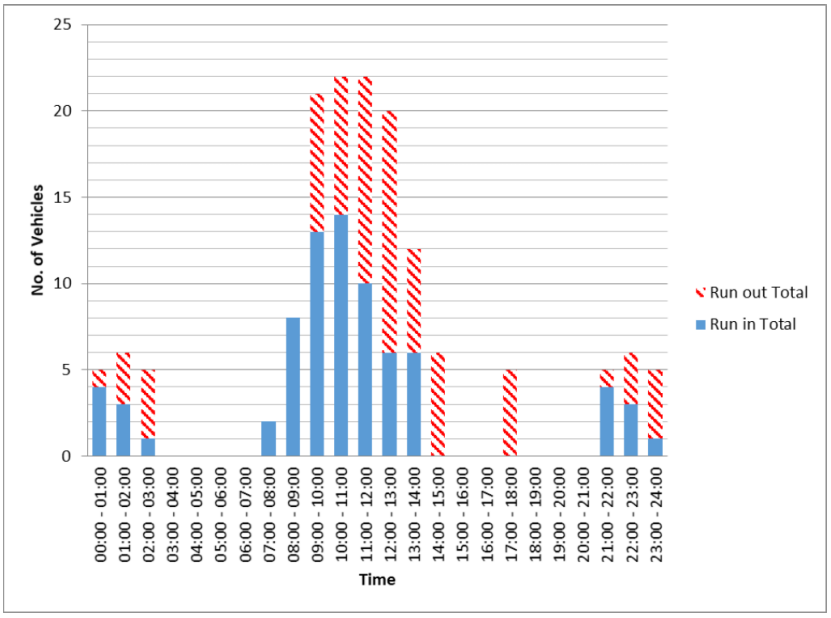
4.6.2 The proposed cold storage block is accessible through a 7.3m wide internal road network to ensure smooth and efficient daily operation. There are altogether 7 car parking spaces (including 1 disabled car parking space), 2 motorcycle parking spaces and 22 loading/unloading (L/UL) bays for HGVs and 8 for Container Vehicles. **Figure**

3.3 of the Environmental Assessment in **Annex 6** shows the road segment and the L/UL bay arrangements. The proposed development will include an internal road with a width of 7.3m (Master Layout Plan in **Annex 4** refers). With reference to the Revised Traffic Impact Assessment ("TIA") (**Annex 5**), there is sufficient space for different types of goods vehicles circulating from the ingress/egress and within the Application Site.

4.6.3 The L/UL bays are designed at the front and centre of the cold storage block, which enables the operator to simultaneously handle a significant number of goods vehicles. The loading docks facilitate the handling and transfer of chilled poultries to and from the cold rooms and transport vehicles for distribution. The L/UL platforms are located at the front and centre of the cold storage block.

4.6.4 Based on the data provided by the Applicant, a traffic forecast has been conducted and the results are extracted from the TIA in **Annex 5** (**Diagram 3 refers**).

Diagram 3: Traffic Forecast for the Proposed development



4.6.5 As described in the previous paragraphs, the major operation timeslots are from 9:00a.m. to 8:00p.m. and from 11:00p.m. to 3:00a.m. There are only a minimal number of vehicles running in/out of the Application Site during the non-major operation timeslots.

4.6.6 The results of the revised TIA under conservative assumptions revealed that the additional traffic trips related to the proposed development are considered insignificant and can be accommodated by the surrounding existing road networks. All critical junctions are expected to operate within their capacities in design year 2026. Results from the pedestrian flow assessment also revealed that the uncontrolled cautionary crossing at Lo Wu Station Road will still operate with amble capacity after the introduction of the proposed development. Thus, the proposed

development is considered acceptable and supported from traffic engineering point of view.

Improvement of Pedestrian Safety

4.6.7 To improve the safety of pedestrians at the access point of the Application Site, additional road markings and road signs are proposed to alert the drivers and pedestrians. This will encourage them to proceed in a cautionary manner when approaching the access points to the Application Site.

Improvement of Pedestrian Access in the surroundings

4.6.8 Currently, there is an existing footpath connecting to and from the village settlement and the bus stop requiring users to travel down the slope to walk across the Application Site, as the Application Site is situated in a low-lying area. The users/visitors would also need to walk across the Dongjiang Pipelines via ramps / elevated walkways to reach the bus stops (**Illustration 3** refers).

4.6.9 The existing pedestrian access affected by the proposed development will be re-provisioned and improved. The total length of the new footpath will be around 400m along the northwestern and northern site boundary (**Illustration 5** refers). The improved pedestrian access/footpath will be widened to a width of 5m as indicated on the revised Master Layout Plan (**Annex 4** refers).

4.6.10 Apart from the widening measure, sufficient lighting, greenery and seating benches will be provided along the pedestrian access by the Applicant (**Illustration 6** refers). The measure could substantially improve the footpath condition, allowing villagers to enjoy a safe, hygienic and pleasant access from Man Kam To Road back to their dwellings. The design of the improved footpath will be presented in the detail design stage.

4.6.11 The proposed pedestrian footpath can facilitate villagers travelling between the bus stop on Man Kam To Road and the residential dwellings west of the Application Site (**Illustration 5** refers). An access cutting through the Application Site providing the shortest distance had been considered but was not adopted due to pedestrian safety concerns related to on-site vehicle traffic and night-time operation. The construction and maintenance of the proposed footpath, including but not limited to the provision and repair of lighting facilities, will be taken up by the Applicant.

4.7 Environmental Aspect

4.7.1 An Environmental Assessment has been conducted to evaluate the potential environmental impacts resulting from this Application (**Annex 6** refers). By implementing the recommended mitigation measures and good site practices, it is anticipated that the proposed development will not generate any unacceptable environmental impacts on air quality, noise, water quality, waste management and land contamination perspectives. Mitigation measures and the good site practices are

described in **Annex 6** in detail.

4.7.2 No adverse air quality impact is anticipated during both construction and operation phases. A buffer zone of 5m will be provided between the Proposed Development and Lo Wu Station Road, where no fresh air intake/ openable window of air sensitive uses will be located (**Figure 2.2 of Annex 6** refers).

4.7.3 No adverse noise impact is anticipated during both construction and operation phases. Quantitative assessment for fixed noise sources during operation phase was conducted. The results show that the noise generated is expected to comply with the relevant noise criterion after implementing proper mitigation measures, such as enclosing the loading/unloading platforms, provision of complete enclosure with silencers to the condenser, proper orientation of the opening of enclosures, and erection of barriers with height ranging from 5m to 12m at appropriate locations within the Application Site (**Figure 3.4 of Annex 6** refers). Results from the quantitative assessment for off-site road traffic noise also concluded that the traffic noise generated from the proposed development is considered as insignificant.

4.7.4 No adverse water quality impact is anticipated during both construction and operation phases, with adequate provision of portable toilets and proper control of wastewater discharge. Upon further consideration during detailed design stage, the final design would be incorporated in the revised Environmental Assessment to the satisfaction of EPD under approval condition. The Applicant will ensure that the final design of the Project would not adversely affect the surrounding environment, including watercourses on site and in the vicinity.

4.7.5 No adverse impact related to the management, handling and transportation of waste is anticipated during both construction and operation phases. During the operation phase, commercial waste will be collected on a regular basis and disposed at landfill. No land contamination issue is anticipated.

4.8 Sewerage Aspect

4.8.1 A Sewerage Impact Assessment ("SIA") has been undertaken, as presented in **Annex 7**, to assess the potential sewerage impact arising from the proposed development.

4.8.2 Given that the proposed development does not involve any selling, slaughtering or cleaning of chilled poultry/meat or cooking/kitchen provided for the canteen, the major source of wastewater will be limited to the sewage from toilets, and floor cleaning water for loading/unloading area and loading platform. The total wastewater generated during operation is estimated at about 11.4m^3/day. By adopting low flow portable toilet and carrying out floor cleaning by mopping, the wastewater generated would be further reduced. The sewage generated will be collected by portable toilets and tankered away for off-site disposal by a licenced collector. As such, no adverse sewerage impact is anticipated.

4.9 Drainage Aspect

4.9.1 A Drainage Impact Assessment ("DIA") has been conducted to review the drainage arrangements for the proposed development (**Annex 8 refers**).

4.9.2 U-shape peripheral channels of size 300-650mm are proposed to be installed at the boundary of the Site to collect surface runoff. With an estimated utilisation rate of about 39-73% under 50 years return period, the channels are expected to have sufficient capacity to accommodate flow from the Site. An on-site underground stormwater storage tank with a volume of approximately 2,190m^3 is also proposed to store the additional runoff generated by the Site.

4.9.3 Under the condition that at least 25.6% of the Site area shall be soft landscape, the DIA concluded that no adverse drainage impact to the existing drainage system is anticipated due to the proposed development. Upon further consideration during detailed design stage, the final design would be incorporated in the Drainage Proposal to the satisfaction of EPD and DSD under approval condition.

4.10 Proposed Landscape Treatment and Open Space Provision

4.10.1 The landscape and greenery provision is detailed in the Tree Preservation and Landscaping Proposal (**Annex 9** refers). Communal open space on the roof level of the Main Block and at the proposed amenity area are proposed to cater passive recreational needs of the users and visitors (See Appendix II of **Annex 9 and Annex 10**).

4.10.2 As the Application Site is generally flat with existing levels ranging from +4.50mPD to +6.13mPD, the proposed site formation levels of the building block are carefully designed to follow the natural topography of the site, so as to minimise the extent of site formation work and the landscape impact. Consequently, this has greatly reduced the amount of slope cutting/filling required for the proposed development.

4.10.3 The buildings and associated vehicular access are strategically located at the central portion of the Application Site in order to minimize the disturbance on trees. There are peripherical planting areas along the east, north and west boundary for the preservation of existing trees, transplanted trees and new tree planting. This will help create a soft planted edge along the Application Site enhancing its interface with the surrounding natural context, blending in with the naturalistic vegetation. The refined paving and selection of plant combinations can enrich the colour complexity and visual gradation of the development. Landscape treatment is proposed on fence walls/ noise barriers in order to alleviate their visual intrusion.

4.10.4 The proposed amenity area will predominantly be green in nature with open spaces for enjoyment of the users and visitors. Besides, the northern portion of proposed amenity area will be utilized as the final receptor location of the transplanted trees. This will help to minimize disturbance to the transplanted trees during construction of the proposed development and in turn enhance the survival rate of the transplanted trees.

4.10.5 Overall, the proposed development will provide extensive at-grant planting of up to 4,105.6m^2 within the Application Site and 2,867.5m^2 within the proposed amenity area for visual enhancement and public enjoyment. The greening ratio of the current application is approximately 25.6%.

4.11 Tree Preservation Proposal

4.11.1 The tree survey is conducted and is presented in the revised Tree Preservation and Landscaping Proposal (**Annex 9** refers). In order to investigate the landscape impact on existing vegetation within Application Site, proposed amenity area and adjoining areas, trees located within and/or immediate outside the Application Site boundary were recorded. A total of 237 nos. of trees including 138 within Application Site, 34 within the proposed amenity area and 65 outside both Application Site and proposed amenity area were recorded.

4.11.2 Among 138 existing trees within the Application Site, 18 nos. of trees are proposed to be retained, 77 nos. of trees are proposed to be felled, while 43 nos. of them are proposed to be transplanted. Regarding 34 existing trees within the proposed amenity area, 31 nos. of trees are proposed to be retained and 3 nos. of trees are proposed to be felled. The presence of the 3 dead trees within the proposed amenity area will cause potential danger to the users, it is proposed to fell them and compensated by quality trees. No trees outside the Application Site and the proposed amenity area will be affected by the proposed development. In gist, 114 nos. of the surveyed trees (about 48.10%) will be retained, 80 nos. of the surveyed trees (about 33.76%) will be felled while 43 nos. of the total surveyed trees (about 18.14%) will be transplanted (**Table 3.0** in **Annex 9** refers).

4.11.3 Apart from the preserved trees, 202 heavy standard trees with average DBH approx. 80mm including 151 trees within Application Site and 51 within proposed amenity area are proposed to be planted to compensate the loss of existing trees. The conscious green design will provide greening to further enhance the overall appearance and visual quality of the proposed development.

Table 9: Summary of Tree Compensation Proposal at Application Site and Amenity Area

	Application Site	Proposed Amenity Area	Overall
Quantity of Loss of Trees:	77 nos.	3 nos.	80 nos.
Accumulated DBH loss of Trees:	13.22m	0.362m	13.58m
Quantity of Compensatory Trees:	151	51	202
Quantity Compensation Ratio	1:1.96	1:17	1:2.53
DBH Compensation:	12.08	4.08	16.16
DBH Compensation Ratio:	1:0.92	1:11.27	1:1.19

4.11.4 During the construction and operation phase, the Applicant will be responsible to undertake vegetation maintenance and tree risk assessment in accordance with the Handbook on Tree Management (HTM) by DEVB. Besides, the Applicant shall

maintain all the preserved trees, proposed trees, shrubs, groundcovers and lawn in healthy conditions.

4.12 Ecological Aspect

4.12.1 An Ecological Impact Assessment ("EcoIA") has been conducted to evaluate the potential ecological impacts resulted from the proposed development in the approved application (No. A/NE-FTA/201). Field survey activities were carried out between May and August 2020 to reflect the latest conditions of the Application Site and the adjacent environs.

4.12.2 As referred to the submitted EcoIA, it was concluded that the ecological impact on the semi-natural and natural habitat loss, including watercourse and agricultural land, in the Application Site is low, thus mitigation measures are considered not required. Flora and fauna species of ecological importance found in the Application Site include a floral species of *Aquilaria sinensis*, two butterfly species of Grass Demon *Udaspes folus* and Metallic Cerulean *Jamides Alecto*, and one freshwater crab species of Freshwater Crab *S.Zanklon*. The ecological impact to *Aquilaria sinensis* is low given the commonness of the species and low abundance of the species. The ecological impact to the two butterfly species and one freshwater crab species mentioned are low as well given only a single individual was recorded for all three species respectively.

4.12.3 On the whole, the overall impact severity is low, and mitigation is not required apart from impacts on water quality during construction phase. Mitigation measures for construction phase water quality impacts have been proposed. Proposed mitigation measures will be adopted according to the requirements of relevant Technical Memorandums of the Environmental Impact Assessment Ordinances. No insurmountable ecological impact is anticipated of the proposed development at the Application Site.

4.12.4 While the application has been approved in 2021, the approval condition of the approved application for submission and Implementation of ecological mitigation measures has been complied with in June 2022 (**Annex 11** refers). As referred to the accepted submission, as freshwater crab *Somanniathelphusa zanklon* has been recorded within the Application Site, it was recommended by AFCD to conduct a detailed survey to check for the presence of any individual of *S. zanklon* prior to any site clearance or construction works. According to the translocation capture surveys carried out from 7th March to 11th March 2022, it is concluded that no freshwater crab *S. zanklon* or any other species of conservation importance were encountered in the 5-day translocation surveys. No other faunal species of conservation importance were recorded neither.

4.12.5 Given that translocation surveys have been carried out in March 2022, it is considered that the result would still be applicable to the current application, which the Application Site is of low ecological value. Furthermore, the current application involves no increase but a significant reduction in Application Site area (-21.6%), it is

anticipated that the overall impact as investigated in the previously conducted EcoIA would remain unchanged, and the overall impact severity would be remained as low. The Applicant is well prepared and committed to implementing the mitigation measures, if and when required by relevant departments in accordance with the requirements of relevant Technical Memorandums of the Environmental Impact Assessment Ordinances should the current application be approved.

5 PLANNING JUSTIFICATIONS

5.1 Genuine Aspiration to Materialize the Long-Needed Cold Storage and Distribution Centre with the Adoption of Modern Logistic Operation

5.1.1 In 2000s, HKCMA first reckoned the necessity for a centralised processing centre for storage and distribution of chilled poultries to meet the pressing demand, due to the outbreak of Avian Influenza.

5.1.2 Despite the Government's support on the proposal and provision of land for HKCMA to operate the proposed development in 2013, HKCMA has not been successfully awarded any suitable site through public tender. As such, HKCMA decided to rent land from private land-owners for operation as a temporary solution after rigorous land search exercises were conducted. Given the proposed development will handle the majority of imported chilled poultries from Mainland China, there is a genuine need for a standardized operation for the industry.

5.1.3 Being affiliated with HKCMA, the Applicant will provide a hygienic and orderly environment for the chilled poultry industry to operate and adhere to the cold storage license requirements. The proposed development offers a centralized distribution centre and storage environment that minimise cross-contamination for food contact surfaces and refrigerators in different cold storages. Meanwhile, safety guidelines will be provided to the personnel who work at the Application Site.

5.1.4 The centralised cold storage facility allows all the chilled poultry to undergo inspection works at a single venue since it will be handling 95% of all imported chilled poultry from Mainland China. In an event of an outbreak HS Avian Influenza, the Government departments would be able to effectively carry out inspection works at the Application Site which could shorten the time to identify and control the source of the outbreak. The proposed development should be treated as a public project since it caters to the demand for chilled poultry for the entire Territory.

5.1.5 While planning application No. A/NE-FTA/201 has been approved by the Board in 2021, due to change in circumstances and insurmountable issues encountered, it is inevitable to submit the current application with a view to materialising the long-needed cold storage and distribution centre. Despite efforts on countless negotiations have been made, the Applicant was left no other alternatives but to submit the current application for the proposed development with a change in site configuration and scale of development. The proposed development that involves a change in development site boundary would ensure the proposed development could proceed to implementation stage.

5.1.6 On the other hand, the proposed development that follows the trend in adopting modern logistic operation is well supported by the industry and the involved operators and distributors. Similar approved applications with high ceiling (i.e., proposed building height of 15m-18m) are evidenced in the territory. In particular, there is a precedent approved application adopted the same automatic logistic system presented in **Chapter 4**. The proposed increase in building height in the

current application allows the accommodation of intelligent logistics transport equipment such as fully automated shuttle robot and shuttle robot special hoist. The accommodation of intelligent logistics transport equipment and a smart intensive warehouse system enable a boost in efficiency and significantly reduce the reliance on human input with a view to alleviating manpower shortage faced in recent years. The new mode of operation within the proposed building envelope also enables energy and electricity saving as well as the creation of a safe and labour friendly environment by separating human work from undesirable frozen storage area.

5.1.7 The proposed cold storage facility can be managed through a smart and integrated control system and offers a more organized and contactless operation. The proposed development is considered as an optimization of the approved scheme in the approved application and shall better safeguard public hygiene and food safety.

5.2 Horning the Competitive Edge of Logistics Industry and Introduction of Innovation & Technology

5.2.1 Hong Kong's vital role as an international and regional logistics hub has been increasingly emphasised in recent national and local policy documents, including the most up-to-date Policy Address and the 14th Five-Year-Plan. It is highly anticipated that cross-boundary logistics and flow of goods will be tightened, especially after previous waves of epidemic where logistics industry has been severely hindered. Government has stressed on the importance of smart and efficient transport infrastructure in supporting the development of logistics industry. According to the most recent policies, apart from launching the Pilot Subsidy Scheme for Third-party Logistics Providers to enhance the use of technology and productivity of the sector, Government has also started searching for suitable sites for developing multi-storey modern logistics facilities. These efforts demonstrate current mainstream policy direction by Government to promote and revive the logistics industry through both hard and soft implementations.

5.2.2 With a view to responding to this policy context and increasing the flexibility of the industry during uncertainties, the current application strives to adopt automated transport and warehouse systems via AI modelling technology and end-to-end robotic automation to efficiently respond to the growing demand for chilled food storage and delivery services. It also creates a more environmentally-friendly and labour-friendly working environment, incorporating minimum electricity consumption and maximum accuracy, which is expected to establish a benchmark in the industry by being the primary operator of imported chilled poultry from Mainland China. As such, the current application does not only align with the general policy direction to strengthen the competitiveness of logistics industry, but it also sets standards for a smart and flexible logistics operation system with a view to bringing about the concept of Innovation and Technology envisioned by the Northern Metropolis Development Strategy.

5.3 Promoting the Proliferating of Smart Technology Application In Private Logistics Sectors

5.3.1 The proposed development is considered to be a good demonstration of innovative smart technology application in the industry. As refer to the Logistics and Supply Chain MultiTech R&D Centre Logistics Summit 2022, the prolonged COVID-19 pandemic has led to significant disruptions in the global supply chain and economy. Many industries have accelerated the adoption of automation and digitalisation to maintain competitiveness and prepare for the challenges in the New Normal. As refer to **S.1.4 of the Planning Statement**, the operation of cold storage was significantly affected due to the widespread of staff-infection of Covid19. Being a key sector that is having a 95% market share of imported chilled meat in Hong Kong, there is an imminent need in readjusting the operation mode and enhance the efficiency so as to serve and stabilize the supply of chilled meat in the territory. In fact, it is high time for the industry to employ advanced technology and further unlock the potential and overcome the constraints. The proposed smart logistic approach and technology can help the industry in simplifying the process and providing a stabilized supply chain management. The proposed development that incorporated intelligent logistics solutions, and the Internet of Things are considered to be the key factors in enhancing efficiency in the logistics industry and proliferating the application of smart technology in private logistics sectors in long run.

5.4 Benefits for Minority Communities

5.4.1 Apart from the addressing the current need and serving the existing supply chain, the current application also aims at providing support for the Muslim community. Given that the Muslim population in Hong Kong amounts to about 300,000 people, portion of the stocks would be reserved for Muslim Community in supplying chilled poultry for their festive use and weekly gathering.

5.5 No reduction in Planning Gain Compared to the Approved Application

5.5.1 The current application aims not only at materialising the long-needed cold storage facility but also the planning gains as committed in the approved application. Notwithstanding there is a reduction in site area (about 21.6%), the amenity area proposed at the northeastern part from the Application Site would ensure the reprovisioning of footpath as agreed in the approved application and the provision of greenery and communal open space. As referred to **Section 4.4**, a total of about 2,867.5m^2 common greenery and about 249m^2 of communal open space at the proposed amenity area outside the Application Site would be provided for public enjoyment and amenity purpose (**Annex 9** and **Annex 10** refer). The provision of common greenery and communal open space at the proposed amenity area is equivalent to about 60% provision of the Application Site. On the whole, the total greenery covered by the Application Site and proposed amenity area is about 6,973m^2, with a greenery ratio of approximately 35.9%, which has increased by 3.39% when compared to the approved application. The Applicant is well prepared and committed to ensure the implementation of footpath re-provisioning and the proposed greenery and communal open space at the proposed amenity area. The Applicant is also willing

to fulfil the requirements set out by relevant Government departments through complying with approval conditions upon approval of the current application.

5.6 Same Nature as the Approved Application

5.6.1 The nature of the current application in terms of proposed development and approval period sought is same as that proposed in the approved application. Considering the nature of the current application remains unchanged, the supporting grounds on the approved application should remain valid and applicable to the current application, in this regard, it is sincerely hoped that the Board could give sympathetic considerations on the current application.

5.7 Suitable Location for the Proposed development

5.7.1 The Application Site is highly suitable for the proposed development in terms of the location as it is only 1.5km away from the Man Kam To Animal Inspection Station. Therefore, the goods vehicles from Mainland could reach the Application Site right after passing the Animal Inspection Station. Hence, it will reduce traffic pressure and adverse traffic impacts since the Mainland goods vehicles do not need to travel all the way to the urban areas for the distribution of chilled poultries.

5.7.2 In terms of the operation scale, the area of the Application Site is suitable to allow most of HKCMA's members to operate together. Apart from the proposed cold storage facility, there is adequate space within the Application Site for the goods vehicles to manoeuvre. Hence, the proposed development can optimise the use of under-utilised land resources to meet the increasing territorial need for cold storages.

5.8 Meeting Increasing Demand for Cold Storage

5.8.1 The proposed development will relieve the soaring demand for cold storage for chilled poultry products as its consumption rate for Hong Kong is anticipated to increase continuously. Should the planning application be approved by the Board , Hong Kong citizens could enjoy a more stable supply of chilled poultry products and selling prices would less be subjected to fluctuations.

5.8.2 According to the "Hong Kong Merchandise Trade Statistics - Imports" Report published by the Census and Statistics Department, the annual quantity of poultry of items 00141 (i.e. Poultry, live, weighing not more than 185g) and 00149 (i.e. other poultry, live (i.e. fowls of the species gallus domesticus, ducks, geese, turkeys and guinea-fowls), not cut in piece fresh or chilled, from Mainland China are extracted in **Table 10**. It is observed that there is a constant increase in the number and the trend is predicted to continue.

Table 10: Annual Quantity of Poultry

Year	2015	2016	2017
Annual Quantity (kg)	79,634,095	88,182,450	92,503,423

5.8.3 As of August 2022, there are only 78 licensed cold storage facilities (**Annex 3**) registered under FEHD. Among these registered licensed cold storages, some are

owned by chain restaurants/food-producing companies that will not offer rental space to other chilled poultry importers in the market.

5.8.4 Therefore, the proposed development will provide a suitable operational environment tailored for the chilled poultry importers and address the increasing territorial demand.

5.9 The NIMBY nature of the Proposed development Requires a Remote Location Away from Urban Area

5.9.1 The proposed development involves the L/UL activities which may generate a considerable amount of traffic and are not welcomed in residential districts. Communities in urban areas generally do not support such undesirable use in proximity to their neighbourhoods.

5.9.2 Nevertheless, this proposed development is of utmost importance as it provides a centralised cold storage facility handling 95% of imported chilled poultry from Mainland China that serves the whole territory, and this strategic location is highly suitable for its operation. In view of the above, HKCMA had previously conducted a dialogue with the nearby residents on the proposed development to solicit their comments/opinions and to minimise negative sentiment from the community.

5.9.3 Scattered residential dwellings are identified in the vicinity of the Application Site and technical assessments such as Environmental Assessment and Traffic Impact Assessment are conducted. It is shown that there will be no insurmountable disturbances from the proposed development, with the implementation of suitable mitigation measures.

5.10 Compatible with the Surrounding Land Uses

5.10.1 The proposed development involves one main block of cold storage facility, with the main operation taking place within the enclosed structures. The nature and scale of the proposed development are compatible with the surroundings, where there are existing open storages and logistics operations to the south and northeast of the Application Site and scattered along Man Kam To Road connecting Sheung Shui to the Man Kam To BCP. The proposed development of a cold storage and distribution centre is not incompatible with the rural character identified in the vicinity.

5.10.2 The proposed landscape and noise buffers along the western and eastern boundary allow the development to be better blend in with its surrounding rural settings and minimize the adverse impacts to the residential dwellings in the vicinity of the Application Site.

5.11 Difficulties for the Proposed development to Operate in Conventional Industrial Building

5.11.1 Under typical circumstances, the proposed cold storage facility may not be able to

operate in conventional industrial premises. Cold storage facilities require additional power backup to ensure an environment with stable temperature control to ensure the quality of the stored chilled poultry products. If the additional backup fuel exceeds the permitted storage capacity of Dangerous Goods ("DG") in a building, consensus from each tenant/owner of the building to store such DG would be required by the cold storage operator.

5.11.2 Generally, it is extremely difficult to obtain this unanimous consensus from all other tenants/owners of an industrial building as it would incur additional cost and/or uncertain risks which may not be covered by insurance. Therefore, industrial premises must be owned solely or rented by a single tenant or else the conversion from an entire general industrial building to a cold storage facility would be very difficult to accomplish.

5.11.3 Unless it is a purposely-designed cold storage facility, the required completely-sealed and refrigerated L/UL docks cannot be provided in existing industrial premises and the required temperature-controlled rooms for operations would not be achieved.

5.11.4 The existing flatted industrial buildings in the North District and Tai Po are located far away from Man Kam To BCP and Man Kam To Animal Inspection Station. Should the cold storage facilities be located in existing flatted industrial buildings, it will inevitably pass through the densely populated new town centres and lengthen travel and delivery times between the Mainland and these facilities.

5.11.5 Taking into consideration that purposely-designed permanent cold storage buildings will not be able to meet the market demand within a short period, the approval of this temporary cold storage represents the most appropriate alternative measure to relieve the soaring market demand pressure across the Territory.

5.12 HKCMA and the Applicant's Effort in Liaising with Bureaux and Departments

5.12.1 HKCMA and the Applicant have been liaising with relevant Bureaux and Government Departments in the search for a suitable site for cold storage and distribution of chill poultries for over 10 years. HKCMA and the Applicant have demonstrated their substantial effort in hoping to secure a suitable site and further liaised with relevant Bureaux and Government Departments in an attempt to provide a hygienic, orderly and controlled environment for chilled poultry industry operations. Dialogues with Bureaux and Government Departments have been recorded and maintained from the initial site searching process up until this current planning application. Departmental views have been carefully considered and incorporated into this development proposal.

5.13 Technical Assessments Demonstration of No Adverse Impacts in terms of Traffic, Environmental, Sewerage, Drainage and Landscape Aspects

5.13.1 Various technical assessments are submitted (**Annexes 5 to 9** refer), including Traffic Impact Assessment, Environmental Assessment, Sewerage Impact Assessment,

Drainage Impact Assessment and Tree Preservation and Landscaping Proposal, in support of this application. From the findings of the assessments, it has been concluded that the proposed arrangements abovementioned have addressed key technical concerns and the proposed temporary use is sustainable and there will be no adverse impacts.

6 CONCLUSION

6.1.1 This Planning Statement is submitted to the Town Planning Board (hereinafter referred to as "the Board") in support of a planning application (hereinafter referred to as "the current application") for **Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Filling of Land for Site Formation Works** at Lots 471 S.B RP (Part), 472, 473, 474, 475, 476, 483, 501, 502, 504 S.B, 505 and 506 S.B RP in D.D. 89 and adjoining Government Land, Man Kam To Road, Sha Ling, New Territories. The Planning Statement serves to provide background information and planning justifications in support of the proposed development in order to facilitate the consideration by the Board.

6.1.2 The Application Site is subject to a previously-approved application (No. A/NE-FTA/201) (hereinafter referred to as "the approved application") submitted by Hong Kong Chilled Meat & Poultry Association. In order to put forth the concept of Innovation and Technology envisioned by the Northern Metropolis Development Strategy whilst at the same time meet the demands on chilled/frozen meat and poultry in the Territory, the current application is so submitted to the Board with boundary and intensity adjustment.

6.1.3 The proposed development, with a site area of about 16,060m^2, total floor area of about 11,615m^2, comprises one 2-storey structure for cold storage and 5 ancillary structures for plant room and guard house. The proposed filling of land would not exceed 1.5m and the operation hours of the proposed development is from 9:00a.m. to 8:00p.m. and from 11:00p.m. to 3:00a.m. daily. Hong Kong Chilled Meat & Poultry Association have been looking for suitable land for a proper cold storage and distribution center since the outbreak of Avian Influenza in 2003. The proposed development is of great importance since it will be handling 95% of the imported chilled poultry from the Mainland serving Hong Kong. The current application strives to adopt modern logistics operation with a view to materializing a modern cold storage and distribution centre at the Application Site.

6.1.4 The Application Site currently falls within an area zoned "Agriculture" ("AGR") on the Approved Fu Tei Au and Sha Ling Outline Zoning Plan (OZP) No. S/NE-FTA/16 gazetted on 15.12.2017 (hereinafter referred to as "the Current OZP"). As detailed throughout this Planning Statement, the proposed development is well justified on the grounds that:-

(a) The proposed development is in line with Government's policy to provide a centralized cold storage and distribution centre for chilled poultry to meet the increasing demand for cold storage and distribution centre for poultry and to serve the Territory;
(b) There is an insurmountable difficulty in implementing the approved application (No. A/NE-FTA/201) due to change in circumstances. To materialise the long-needed cold storage and distribution centre, adjustment on development parameters is inevitable;

(c) The modification to development parameters of the approved application enables the employment of smart intensive warehouse system which can greatly boost efficiency and reduce reliance on human input with a view to overcoming manpower shortage faced in recent years, while creating an environmental and labour-friendly working environment through modern logistic operation;

(d) The Applicant is committed to re-provision the footpaths and open space such that the agreed planning gains in the approved application can be materialised;

(e) The nature of the proposed development and approval period sought in the current application is the same as the approved application;

(f) The proposed development is considered compatible with the surrounding land uses;

(g) The Application Site serves the best location for the proposed development with its unique site conditions and close proximity to the Border Control Points;

(h) The Not-In-My-Backyard (NIMBY) nature of the proposed development requires a remote location away from the urban areas;

(i) There are difficulties for the proposed development to be operated in conventional industrial buildings;

(j) HKCMA and the Applicant have been putting efforts to liaise with bureaux and Government departments in order to find a suitable place for over 10 years; and

(k) No adverse impacts on traffic, environmental, landscape, drainage, sewage and ecological aspects are envisaged at the Application Site and its surrounding areas.

6.1.5 In view of the above and the list of detailed planning justifications in the Planning Statement, it is sincerely hoped that members of the Board will give sympathetic consideration to approve the current application for the proposed development for a temporary period of 3 years.

Appendix | 2

Revised Environmental Assessment

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D01 – Environmental Assessment Report

S16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Filling of Land for Site Formation Works at Various Lots in D.D. 89 and Adjoining Government Land, Man Kam To Road, Sha Ling, New Territories

20 January 2023

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Important Notice

This report is confidential and is provided solely for the purposes of supporting S16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Filling of Land for Site Formation Works at Various Lots in D.D. 89 and Adjoining Government Land, Man Kam To Road, Sha Ling, New Territories. This report is provided pursuant to a Consultancy Agreement between SMEC Asia Limited ("SMEC") and Hong Kong Chilled Meat & Poultry Association, under which SMEC undertook to perform specific and limited tasks for Hong Kong Chilled Meat & Poultry Association. This report is strictly limited to the matters stated in it and subject to the various assumptions, qualifications and limitations in it and does not apply by implication to other matters. SMEC makes no representation that the scope, assumptions, qualifications and exclusions set out in this report will be suitable or sufficient for other purposes nor that the content of the report covers all matters which you may regard as material for your purposes.

This report must be read as a whole. Any subsequent report must be read in conjunction with this report.

The report supersedes all previous draft or interim reports, whether written or presented orally, before the date of this report. This report has not and will not be updated for events or transactions occurring after the date of the report or any other matters that might have a material effect on its contents or which come to light after the date of the report. SMEC is not obliged to inform you of any such event, transaction or matter nor to update the report for anything that occurs, or of which SMEC becomes aware, after the date of this report.

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1 PROJECT BACKGROUND

1.1 Introduction

1.1.1 Hong Kong Chilled Meat & Poultry Association (“HKCMA” or “the Applicant”) plans to construct and operate a Temporary Cold Storage for Poultry and Distribution Centre (“the Centre” or “the Proposed Development”) for a Period of 3 Years and Filling and Excavation of Land for Site Formation Works at Lots 471 S.B RP (Part), 472, 473, 474, 475, 476, 483, 501, 502, 504 S.B, 505 and 506 S.B RP in D.D. 89 and Adjoining Government Land, Man Kam To Road, Sha Ling, New Territories (“the Site”).

1.1.2 The Site is currently zoned “Agriculture” ("AGR") under the Approved Fu Tei Au and Sha Ling Outline Zoning Plan (“OZP”) No. S/NE-FTA/16. In accordance with paragraph 10(a) of the Explanatory Note of the OZP, temporary use or development of any land or building not exceeding a period of three years would require planning permission from the Town Planning Board (“TPB”). Therefore, a Section 16 Planning Application with an application number A/NE-FTA/201 was made and approved with conditions on 28 May 2021.

1.1.3 In order to provide better design for a more cost-effective of operating the Centre, the following major modifications to the approved planning application have been proposed:

- Changing the Site boundary from 20,506m^2 to 16,060m^2 approximately;
- Combining Blocks 1 and 2 into one Main Block;
- Changing the maximum building height from 10.4m above ground to 20.675m above ground;
- Changing the Total Floor Area from 12,736m^2 to 11,615m^2 approximately;
- Changing the Plot Ratio from 0.621 to 0.723; and
- Changing the site coverage from 31.51% to 56.94%.

1.1.4 A new planning application shall be made under Section 16 of the *Town Planning Ordinance* ("TPO") for the aforementioned major modifications. SMEC Asia Ltd (“SMEC”) has been commissioned to prepare this Environmental Assessment (“EA”) Report for supporting this new planning application.

1.2 Site Description

1.2.1 The Site is an elongated strip of land bounded by Man Kam To Road to the east and Lo Wu Station Road to the south with a total area of about 16,060m^2 in Sandy Ridge, which is close to the border between Lo Wu Boundary Control Point (“BCP”) and Man Kam To BCP in North District. The Site is currently a vacant land overgrown with weeds and different tree groups. There is a watercourse cutting middle of the site running from the northeast to southeast direction, separating the Site into two halves.

1.2.2 The Site location and its environs are shown on ***Figure 1.1*** which the uses surrounding the Site include:

- To the north, northwest and west: dwellings and residential temporary structures, Sandy Ridge Cemetery and the planned Sandy Ridge Columbarium.
- To the east and southeast: The pipelines of the Dongjiang Water, Man Kam To Road, temporary structures, Boarder District Police Headquarter and Police Dog Unit and Force Search Unit Training School.
- To the south: Sha Ling Playground and Lo Wu Station Road.

1.3 Project Description

1.3.1 The Centre will be built upon a site area of about 16,060m^2 with a Gross Floor Area ("GFA") of about 11,615m^2 and a plot ratio of about 0.723, comprising the following major components:

- Main block comprises a cold storage area, an ancillary storage/office, area for corridor, staircase and lift;
- Plant room and Transformer Room (exempted from the GFA); and
- Guard House.

1.3.2 The existing watercourse running through the Site from northeast to southwest direction will be decked over underneath the proposed development.

1.3.3 The indicative layout and sectional plans of the Proposed Development can be referred to the Planning Statement.

1.4 Environmental Impact Assessment Ordinance ("EIAO") Implication

1.4.1 In order to determine whether the Proposed Development is classified as a Designated Project ("DP") thereby requiring to apply for an Environmental Permit ("EP") under the EIAO, all the DP items listed in Part I of Schedule 2 of the EIAO have been reviewed. The following DP items of Schedule 2 of EIAO may be relevant to the Proposed Development:

1. Item I.1 (b) – a drainage channel or river training and diversion works which discharges or discharge into an area which is less than 300m from the nearest boundary of an existing or planned:
   (i) Site of Special Scientific Interest ("SSSI");
   (ii) Site of Cultural Heritage;
   (iii) Marine Park or Marine Reserve;
   (iv) Fish Culture Zone ("FCZ");
   (v) Wild Animal Protection Area;
   (vi) Coastal Protection Area ("CPA"); or
   (vii) Conservation Area ("CA").
2. Item N.3 – Wholesale Market.

1.4.2 After reviewing Item I.1(b) and N.3 of EIAO Schedule 2, the Proposed Development is not considered as a DP with the following justifications:

1. Item I.1(b) of EIAO Schedule 2
   (a) As mentioned in ***Section 1.3***, the existing watercourse running through the Site from northeast to southwest direction will be decked over and underneath the Proposed Development.
   (b) As such, the Proposed Development will not involve drainage channel or river training and diversion works. Therefore, the Proposed Development is not classified as a DP under Item I.1(b) of Schedule 2 of the EIAO.
2. Item N.3 of EIAO Schedule 2
   (a) "Wholesale Market" is not defined in Schedule 1 of the EIAO.
   (b) As mentioned in ***paragraph 1.1.1***, the Project is a Temporary Cold Storage and Distribution Centre for chilled poultry. No selling of poultry to individuals, retailers or wholesalers as well as no slaughtering or cleaning of chilled meat / poultry will be involved in the Centre.

(c) Hence, the Project is not classified as a DP under EIAO Schedule 2 Part 1 Item N.3 "*A Wholesale Market*".

1.4.3 Although the Proposed Development is not a DP as justified above, all the environmental impacts in terms of air quality, noise, water quality and waste management arising from the Proposed Development have been assessed with reference to Chapter 9 "Environment" of the *Hong Kong Planning Standards and Guidelines* ("HKPSG") in this EA Report.

1.5 Non-Fuel Gas Dangerous Goods Risk Perspective

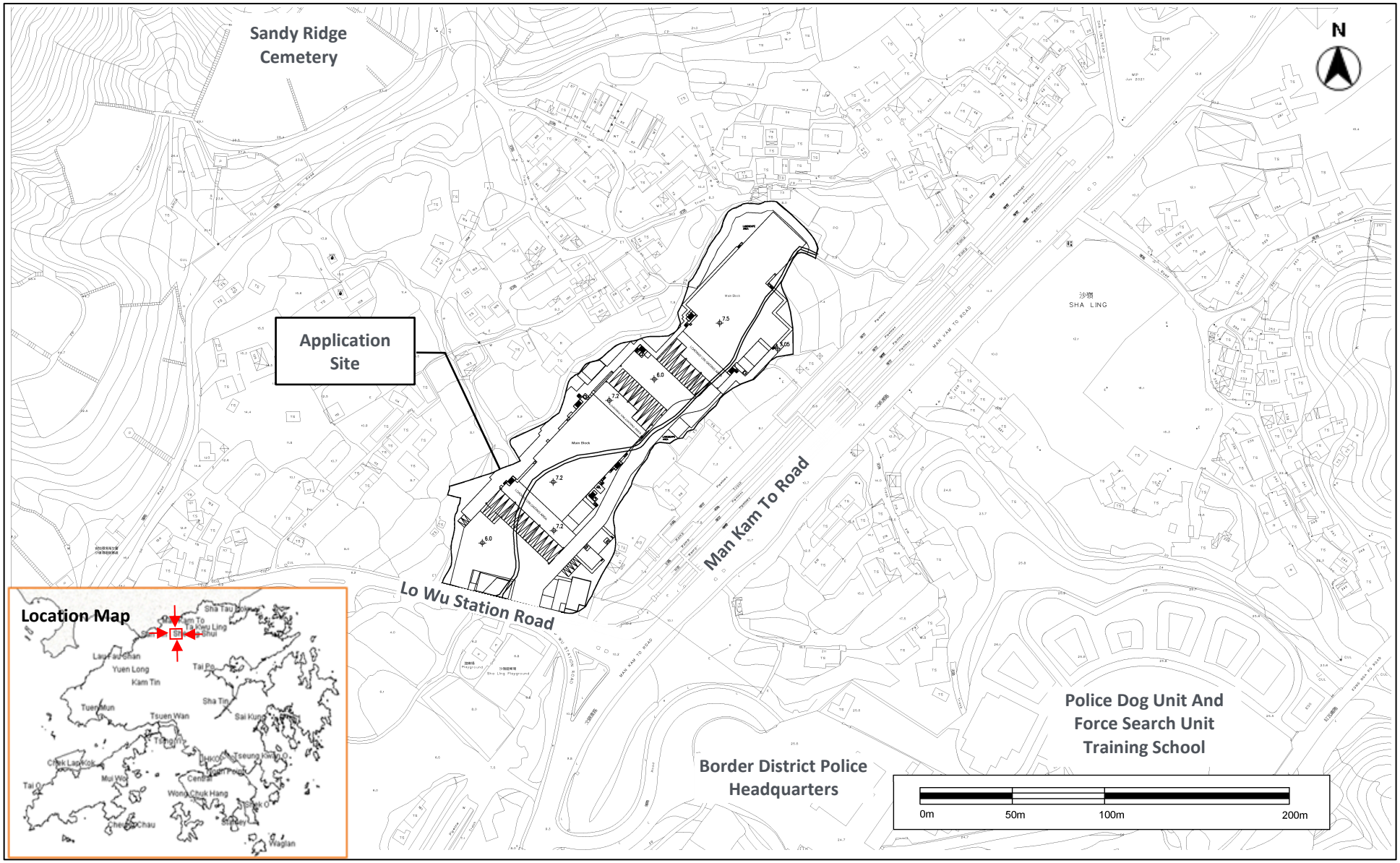
1.5.1 No non-fuel gas Dangerous Goods ("DGs") such as chlorine will be required to be stored on site for the Proposed Development. Therefore, no risk perspective related to non-fuel gas DG due to the Proposed Development is anticipated.

1.6 Objectives of this Report

1.6.1 The objectives of this EA report are to:

- Identify and qualitatively assess potential environmental impacts that may rise from the construction and operation of the Proposed Development, in terms of air quality, noise, water quality, waste management and land contamination.
- Recommend appropriate measures to mitigate any impacts that area identified.
- Propose measures for compliance with the "*The Code of Practice on Handling the Environmental Aspects of Temporary Uses and Open Storage Sites*" ("COP").

Figure 1.1: Site Location and its Environs



2 AIR QUALITY REVIEW

2.1 Introduction

2.1.1 This section assesses the potential air quality impact associated with the Proposed Development during construction and operation phases. Mitigation measures are recommended, where necessary, as part of the assessment.

2.2 Environmental Legislation and Standards

Air Quality Objectives

2.2.1 The Air Quality Objectives ("AQOs") established under the *Air Pollution Control Ordinance* ("APCO") (Cap. 311) are given in ***Table 2.1***.

Table 2.1: Hong Kong Air Quality Objectives

POLLUTANT	AVERAGING TIME	CONCENTRATION LIMIT [NOTE 1], µg/m^3	NO. OF EXCEEDANCES ALLOWED
Sulphur Dioxide ("SO_2")	10-minute	500	3
	24-hour	50	3
Respirable Suspended Particulates ("RSP" or "PM_{10}")[Note 2]	24-hour	100	9
	Annual	50	Not applicable
Fine Suspended Particulates ("FSP" or "$PM_{2.5}$")[Note 3]	24-hour	50	35
	Annual	25	Not applicable
Nitrogen Dioxide ("NO_2")	1-hour	200	18
	Annual	40	Not applicable
Ozone ("O_3")	8-hour	160	9
Carbon Monoxide ("CO")	1-hour	30,000	0
	8-hour	10,000	0
Lead ("Pb")	Annual	0.5	Not applicable

Notes:

1. All measurements of the concentration of gaseous air pollutants, i.e. SO_2, NO_2, O_3 and CO, are to be adjusted to a reference temperature of 293 Kelvin and a reference pressure of 101.325 kilopascal.
2. RSP means suspended particles in air with a nominal aerodynamic diameter of 10µm or less.
3. FSP means suspended particles in air with a nominal aerodynamic diameter of 2.5µm or less.

Air Pollution Control (Construction Dust) Regulation

2.2.2 Enacted under Section 43 of the APCO, *the Air Pollution Control (Construction Dust) Regulation* defines notifiable and regulatory works to ensure effective dust abatement measures have been properly implemented to reduce dust emissions for a number of construction activities.

2.2.3 The Regulation requires that advance notice is given to EPD for any notifiable work[Ref.#1] and the contractor shall ensure that the notifiable and regulatory works are carried out in accordance with the Schedule of the Regulation, which also includes dust control and suppression measures.

1. Notifiable works include site formation, reclamation, demolition of a building, work carried out in any part of a tunnel that is within 100m of any exit to the open air, construction of the foundation of a building, construction of the superstructure of a building and road construction work.

Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation

2.2.4 This Regulation takes effect on 1 June 2015 and requires Non-road Mobile Machinery ("NRMM"), except those exempted, to comply with the prescribed emission standards. From 1 September 2015, all regulated machines sold or leased for use in Hong Kong must be approved or exempted with a proper label in a prescribed format issued by EPD. Starting from 1 December 2015, only approved or exempted NRMMs with a proper label are allowed to be used in specified activities and locations including construction sites, container terminals and back up facilities, restricted areas of the airport, designated waste disposal facilities and specified processes.

Asbestos Containing Materials ("ACMs")

2.2.5 The owner of premises which contain or may reasonably be suspected of containing ACMs shall engage a Registered Asbestos Consultant ("RAC") to prepare an Asbestos Investigation Report ("AIR"). If any ACM is found, an Asbestos Abatement Plan ("AAP") shall be submitted to EPD for approval. EPD shall be notified in writing at least 28 days before the commencement of any asbestos abatement work.

2.2.6 For Removal of ACMs, a Registered Asbestos Contractor shall be engaged to remove the ACM in accordance with the approved AAP under a RAC's supervision as required. Depending upon the type of work to be carried out, a RAC may need to be appointed to supervise, audit and air-monitor the asbestos abatement work. After completion of the asbestos abatement work, a summary report to be prepared by the RAC shall be submitted to EPD for record and demolition work can then commence.

Air Pollution Control (Furnaces, Ovens and Chimneys) (Installation and Alteration) Regulations

2.2.7 Enacted under Section 43 of the APCO, the *Air Pollution Control (Furnaces, Ovens and Chimneys) (Installation and Alteration) Regulations* stipulate that a prior approval from EPD will be required if the total fuel consumption capacity of any fuel-burning equipment or its chimney on premises to be installed or altered exceeds (a) 25L of conventional liquid fuel per hour; or (b) 30kg of conventional solid fuel per hour; or (c) 1,150MJ of any gaseous fuel per hour.

Hong Kong Planning Standards and Guidelines ("HKPSG")

2.2.8 The minimum buffer distances required between different types of roads and active open spaces are recommended in Chapter 9 Environment of HKPSG and are summarised in ***Table 2.2*** for ease of reference. For chimney, a buffer distance of 200m is recommended in Chapter 9 of HKPSG.

Table 2.2: HKPSG Minimum Setback Distances

POLLUTION SOURCE	TYPE OF ROAD	BUFFER DISTANCE	PERMITTED USES
Road and Highways	Trunk Road and Primary Distributor	>20m	Active and passive recreation use
		3 - 20m	Passive recreational use
		<3m	Amenity areas
	District Distributor	>10m	Active and passive recreational use
		<10m	Passive recreational uses
	Local Distributor	>5m	Active and passive recreational use
		<5m	Passive recreational use
	Under Flyovers	-	Passive recreational use

Source: Adapted from Table 3.1 of Chapter 9 Environment of HKPSG.

2.3 Air Sensitive Receivers ("ASRs")

2.3.1 The representative nearby ASR are summarised in ***Table 2.3*** and their locations are shown on ***Figure 3.1***.

Table 2.3: Identified Representative ASRs

ID	DESCRIPTION	NO. OF STOREY	DISTANCE TO SITE BOUNDARY
A1	Temporary Structure	1	1m
A2	Temporary Structure	1-3	72m
A3	Temporary Structure	1-3	59m
A4	Temporary Structure	1-3	51m
A5	Village House No.220 at Sha Ling	1-3	59m
A6	Village House No.56 at Sha Ling	1-3	56m
A7	Village House No.73 at Sha Ling	1-3	2m
A8	Village House No.79 at Sha Ling	1-3	24m
A9	Temporary Structure	1-3	11m
A10	Village House No.100 at Sha Ling	1-3	18m
A11	Temporary Structure	1-3	7m
A12	Temporary Structure	1-3	16m
A13	Temporary Structure	1-3	58m
A14	Village House No.181 Sha Ling	1-3	117m
A15	Temporary Structure	1-2	12m

2.3.2 For the ASRs of the Proposed Development, the office indicated on Drawing No. PL-002 in Annex 4 of the Planning Statement will be the ASR of the Proposed Development.

2.4 Review of Air Quality Impact

Background Air Quality

2.4.1 According to the "*Guidelines on Assessing the 'TOTAL' Air Quality Impacts*" issued by EPD, *Pollutants in the Atmosphere and their Transport over Hong Kong* ("PATH") is a territory-wide air quality model developed by EPD to estimate air pollutants concentration over the whole Pearl River Delta region including Hong Kong. The latest version of the PATH model is PATH-2016.

2.4.2 The data in year 2022 have been extracted from PATH V2.1 in Grids (35, 56), which is adopted as the background pollutant concentrations for this EA study.

2.4.3 PATH V2.1 data of background concentrations of pollutants was released by EPD in July 2021, while the prevailing AQOs have been effective since 1 January 2022. As a conservative approach, the data for Year 2022 from PATHv.2.1 was adopted in this assessment even though the proposed commencement year is 2023 or 2024. The background concentrations of RSP, FSP and NO_2 in 2022 are summarised in ***Table 2-4*** below.

Table 2-4 Background Concentrations of RSP, FSP and NO_2 in 2022 from PATH V2.1

Pollutant	Averaging Time	AQO (µg/m³)	Data	Background Concentrations (µg/m³) from PATH V2.1 Grids	Past Background
				35,56	
RSP	24-hour	100 (9)	Maximum	103.5	100
			10th Maximum	71.9	62
			No. Exceedance	1	0
	Annual	50	Average	29.1	25
FSP	24-hour	50 (35)	Maximum	84.1	50
			36th Maximum	26.4	34
			No. Exceedance	11	0
	Annual	25	Average	16.6	15
NO_2	1-hour	200 (18)	Maximum	209.0	186
			19th Maximum	141.9	135
			No. Exceedance	1	0
	Annual	40	Average	16.9	36

Note:

* The data of past background at North AQMS were extracted from *Air Quality In Hong Kong 2021, EPD (2022)*.

Construction Phase

2.4.4 Fugitive dust is the major impact that will be generated during construction activities, such as excavation, stockpiling, earth moving, transferring or handling of dusty materials, filling activities and reinstatement works.

2.4.5 With the implementation of dust control measures stipulated in the *Air Pollution Control (Construction Dust) Regulation*, dust generation can be controlled and significant fugitive dust impact is therefore not anticipated.

2.4.6 To avoid adverse dust impact on the air sensitive uses nearby, good practice and dust control measures to be implemented during the construction phase are as follows:

- Provide hard paving on open area, regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.
- The working area of any excavation or earth moving operation shall be sprayed with water immediately before, during and immediately after the operation so as to maintain the entire surface wet.
- Frequent watering for particularly dusty areas and areas close to ASRs.
- Any stockpile of dusty materials shall be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides, or sprayed with water so as to maintain the entire surface wet.
- Where possible, dusty materials shall be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.
- The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures shall be sprayed with water

immediately before, during and immediately after the operation so as to maintain the entire surface wet.

- All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition.
- Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.
- Vehicle washing facilities including a high pressure water jet shall be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point shall be paved with concrete, bituminous materials or hardcore.
- Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit.
- Spray water on the surface of façade before and during grinding work.
- Equip vacuum cleaner on grinder for façade grinding work as far as practicable.
- Main haul road shall be sprayed with water so as to maintain the entire road surface wet. Imposition of speed controls for vehicles on site haul roads and confine haulage and delivery vehicles to designated roadways inside the site.
- The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit shall be kept clear of dusty materials.
- Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.
- Every stock of more than 20 bags of cement or dry Pulverised Fuel Ash ("PFA") should be covered entirely by impervious sheeting or placed in an area sheltered on the top and three sides.

2.4.7 In addition, the EPD's *Recommended Pollution Control Clause ("RPCC") for Construction Contract* in COP should be incorporated in the relevant works contract. The RPCC are generally good engineering practice to minimize inconvenience and environmental nuisance to nearby residents and other sensitive receivers. The general requirements as summarised as follows:

- The Contractor shall observe and comply with the APCO and its subsidiary regulations, particularly the *Air Pollution Control (Open Burning) Regulation* and *Air Pollution Control (Construction Dust) Regulation* and *Air Pollution Control (Smoke) Regulation*.
- The Contractor shall undertake at all times to prevent dust nuisance and smoke as a result of his activities.
- The Contractor shall ensure that there will be adequate water supply / storage for dust suppression.
- The Contractor shall devise, arrange methods of working and carrying out the works in such a manner as to minimise dust impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.
- For better smoke control, the Contractor shall not use diesel hammer for percussive piling.
- Before commencement of any work, the Engineer may require the methods of working, plant, equipment and air pollution control system to be used on the site to be made available for inspection and approval to ensure that they are suitable for the project.

2.4.8 There is a temporary structure (i.e. a small village house) within the Site which will be demolished during construction phase. The small village house is currently inaccessible. Hence, a RAC will be engaged during the detailed design stage to prepare an AIR. If any ACM is found, an

AAP shall be submitted to EPD for approval. EPD shall be notified in writing at least 28 days before the commencement of any asbestos abatement work.

2.4.9 For removal of ACMs, a Registered Asbestos Contractor shall be engaged to remove the ACM in accordance with the approved AAP under a RAC's supervision as required. Depending upon the type of work to be carried out, a RAC may need to be appointed to supervise, audit and air-monitor the asbestos abatement work. After completion of the asbestos abatement work, a summary report to be prepared by the RAC shall be submitted to EPD for record and demolition work can then commence. With the implementation of the aforementioned procedure and measures, no adverse impact from ACMs is anticipated.

2.4.10 For the emergency generator, the chimney design shall comply with the *Air Pollution Control (Furnaces, Ovens and Chimneys) (Installation and Alteration) Regulations* as mentioned in ***paragraph 2.2.7***.

Operation Phase

Industrial Emission

2.4.11 Site visits were conducted on 23 March 2018, 19 September 2018 and 18 August 2021 to identify the potential air pollution sources in the vicinity of the Site. A cement works was located to the north of the Site. The cement works is located around 220m from the air sensitive use of the Site, which can satisfy the 200m buffer distance between industrial chimneys and air sensitive uses recommended in Chapter 9 of the HKPSG. Hence, no adverse air quality impact from industrial emission on the Centre is anticipated. The location of the cement works is shown on ***Figure 2.2.***

2.4.12 As advised by the Applicant, only three to five forklifts will be used within the Centre. As the forklifts will comply the emission standards of the *Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation*. The air quality impact from the forklifts is considered insignificant. No adverse air quality impact from the operation of the Centre on the surrounding air sensitive uses is therefore anticipated.

Vehicular Emission

2.4.13 Man Kam To Road and Lo Wu Station Road are the major road near the Site as shown on ***Figure 2.3***. With reference to the *Annual Traffic Census 2021* published by the Transport Department ("TD"), Man Kam To Road is classified as a Rural Road whilst there is no relevant information for Lo Wu Station Road. By considering the nature of Lo Wu Station Road, it is classified as a Rural Road. There is no specific buffer distance requirement recommended in Table 3.1, Chapter 9 of the HKPSG. Hence, the minimum buffer distance of 5m between air sensitive uses and local road is adopted for the Centre.

2.4.14 As illustrated on ***Figure 2.3***, majority of the Site can satisfy the buffer distance of 5m between the roads and the Site. There is no air sensitive use within the 5m buffer distance between the roads and the Site. In order to avoid adverse air quality impact from traffic emission, a buffer zone is recommended for the Proposed Development with the following requirements:

- No fresh air intake / openable window of air sensitive uses shall be located within the buffer zone.
- Any air sensitive uses within buffer zone shall rely on fresh air intake / openable window located out of the buffer zone for ventilation.

2.4.15 With the provision of the buffer zone, the buffer distances recommended in HKPSG will be satisfied. Therefore, no adverse air quality impact on the Site from traffic emission is anticipated.

2.4.16 The engines of the vehicles will be switched off during loading / unloading within the Centre. Besides, Man Kam To Road and Lo Wu Station Road will still operate with ample capacity with the Proposed Development as per Section 4.8 of the TIA Report. The additional traffic trips

related to the Proposed Development are considered insignificant and can be absorbed by the road networks. Therefore, it is anticipated that the induced traffic would not cause adverse traffic congestion problem and queuing on the public road leading worsening of vehicular emission impact. In addition, 39 numbers of loading/unloading bays and parking spaces in total will be provided for the Proposed Development. As described in paragraph 2.3.7 of the TIA Report, the provided loading/unloading bays and parking spaces will satisfy the peak demand. Moreover, Swept Path analysis has been conducted as mentioned in the TIA and all the reverse movement of vehicles will be confined within the Site only. Hence, no reverse movement of vehicles on the public road due to the Proposed Development is expected. Due to the low traffic flow generated and no idling emission from the vehicles during loading/unloading activities, adverse air quality impact from the Centre on the surrounding air sensitive uses is not anticipated.

Odour

2.4.17 As mentioned in ***Section 1.1***, the Proposed Development is a temporary storage of chilled poultry. No slaughtering generating considerable odour will be conducted. Therefore, no odour nuisance form the Project is anticipated during the operation phase.

2.5 Conclusion

2.5.1 With the implementation of the recommended mitigation measures and good site practice, adverse impacts during the construction phases are not anticipated. No further mitigation measures are needed.

2.5.2 No adverse air quality impact on the Centre from industrial emission and vehicular emissions is anticipated with the implementation of the proposed mitigation measures during the operation phase. At the same time, the operation of the Centre will not cause adverse air quality impact on the surrounding air sensitive uses.

2.5.3 Overall, therefore, no adverse air quality impacts are anticipated during the construction and operation phases of the Centre.

Figure 2.1: Locations of ASRs

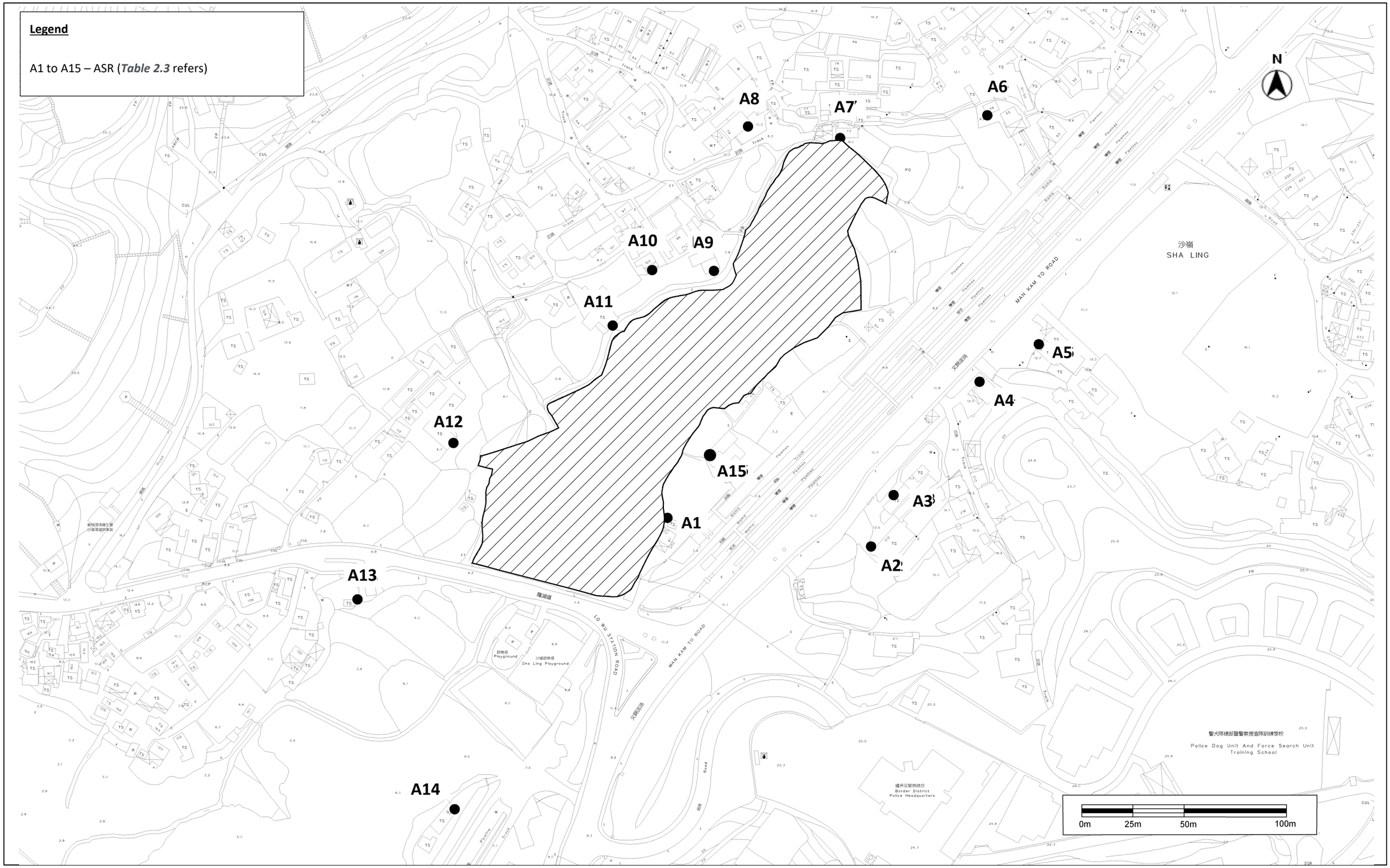


Figure 2.2: Locations of Cement Works

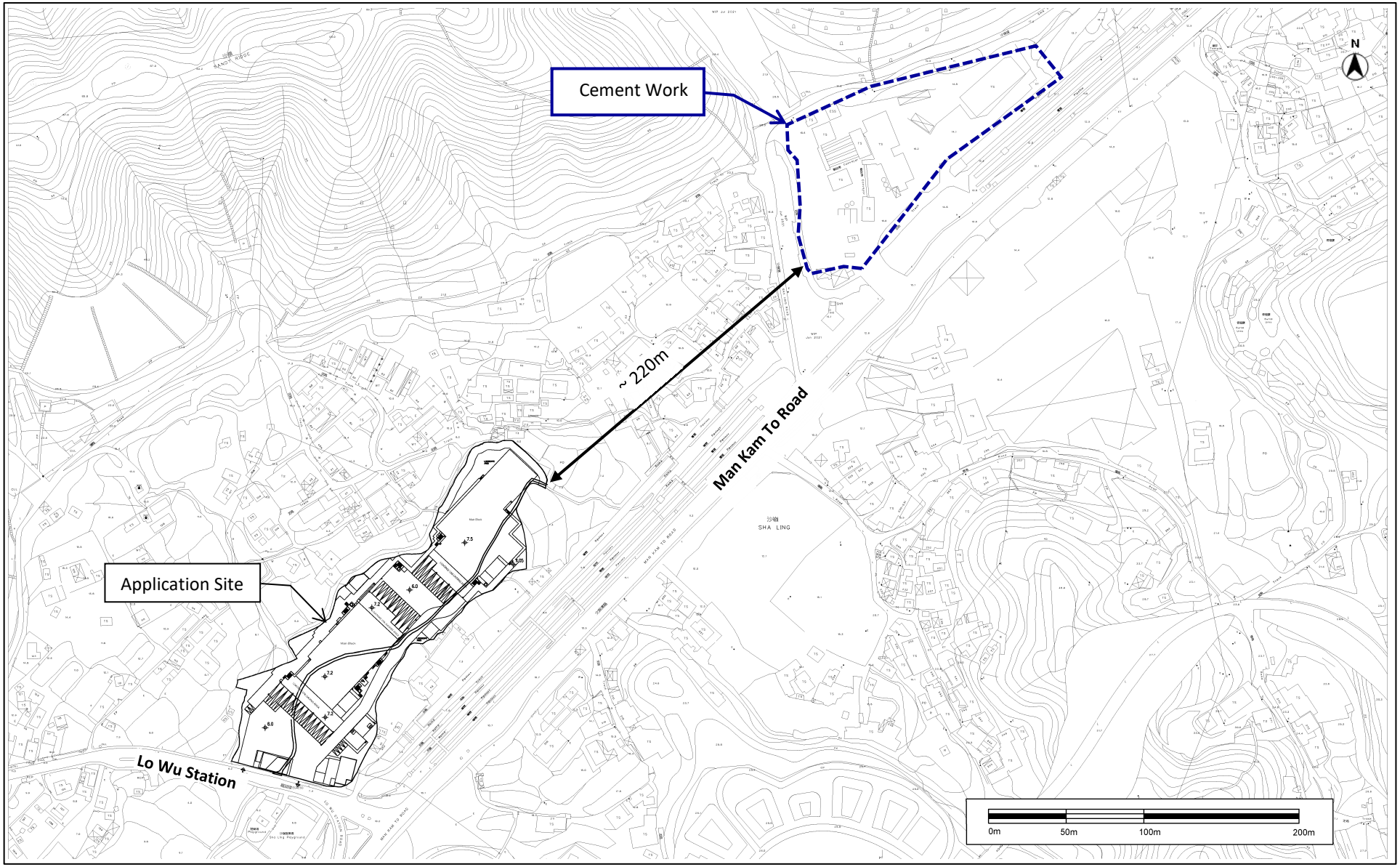
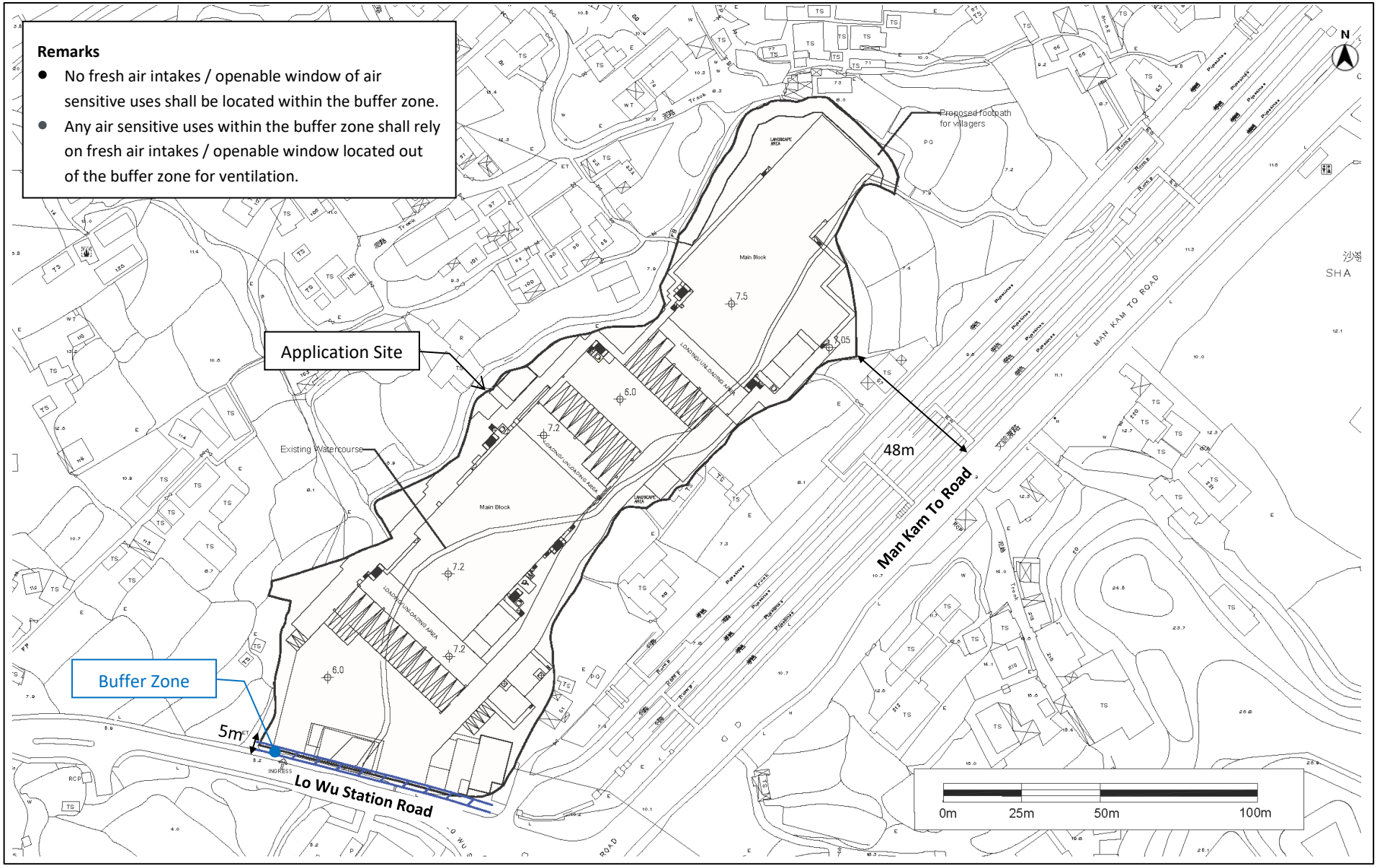


Figure 2.3: Buffer Distance Requirement from the Surrounding Roads



3 NOISE

3.1 Environmental Legislation and Standards

Noise Control Ordinance (Cap. 400)

3.1.1 The main piece of legislation controlling environmental noise impact is the *Noise Control Ordinance* ("NCO"). The NCO enables regulations and Technical Memoranda ("TMs") to be enacted, which introduces detailed control criteria, measurement procedures and other technical matters.

3.1.2 The Site does not fall within any Designated Area ("DA") in accordance with EPD's Plan No. EPD/AN/NT-01 and EPD/AN/NT-01A for Yuen Long, Tin Shui Wai, Mai Po, Shek Kong and Kwu Tung; as well as Plan No. EPD/AN/NT-02 and EPD/AN/NT-02A for Tai Po, Fanling, Sheung Shui and Sha Tau Kok. Therefore, the *Technical Memorandum on Noise from Construction Work in Designated Area* ("DA-TM") is not applicable.

3.1.3 Construction noise during noise control restricted hours is governed under the following Technical Memoranda:

- Technical Memorandum on Noise from Percussive Piling ("PP-TM").
- Technical Memorandum on Noise from Construction Work other than Percussive Piling ("GW-TM").
- Technical Memorandum for the Assessment of Noise from Places Other Than Domestic Premises, Public Places or Construction Sites ("IND-TM").

3.1.4 In addition, the following requirements are given under the NCO:

- Hand-held breakers having a mass of above 10kg and any air compressor capable of supplying compressed air at 500kPa or above must be fitted with a Noise Emission Label issued under the *Noise Control (Hand Held Percussive Breakers) Regulation and Noise Control (Air Compressors) Regulation* of NCO.
- Construction Noise Permit ("CNP") must be applied by the Contractor from EPD for any percussive piling at any time or any other construction activities conducted within restricted hours (for all days 7pm to 7am the next day and at all times on Public Holidays or Sundays) as defined in NCO.

3.1.5 There is no statutory control for noise arising from construction activities (other than percussive pilling) during normal working hours (7am to 7pm from Monday to Saturday, not including general holidays). Nevertheless, *Professional Persons Environmental Consultative Committee Practice Note PN2/93 Noise from Construction Activities – Non-statutory Controls* ("ProPECC PN2/93") recommends the noise criteria as shown in ***Table 3.1*** and guideline to minimise the potential construction noise impact during normal working hours.

Table 3.1: Construction Noise Criteria for Non-Restricted Hours

NOISE SENSITIVE USE	$L_{EQ(30\ MIN)}$ NOISE CRITERIA BETWEEN 0700 AND 1900 ON ANY DAY NOT BEING A SUNDAY OR GENERAL HOLIDAY
Dwellings	75 dB(A)
School	70 dB(A) (or 65 dB(A) during examination)

3.1.6 For fixed plant noise during operation phase, the requirements of IND-TM shall be complied with. Table 2 of IND-TM stipulates the day, evening and night time Acceptable Noise Levels ("ANLs") for Noise Sensitive Receivers ("NSRs") according to the corresponding Area Sensitive

Rating ("ASR"), which is determined by Influencing Factors ("IFs") in accordance with the IND-TM. These are summarised in ***Table 3.2***.

Table 3.2: Acceptable Noise Levels for Fixed Noise Source

TIME PERIOD	ANL, dB(A)		
	ASR "A"	ASR "B"	ASR "C"
Day (0700 to 1900 hours)	60	65	70
Evening (1900 to 2300 hours)			
Night (2300 to 0700 hours)	50	55	60

Hong Kong Planning Standards & Guidelines ("HKPSG")

3.1.7 The noise criteria for planned fixed noise source shall follow the requirements of Table 4.1 of Chapter 9 of HKPSG:

(a) 5 dB(A) below the appropriate ANLs shown in Table 2 of IND-TM, and

(b) the prevailing background noise levels

3.1.8 As recommended in Table 4.1 of Chapter 9 Environment of HKPSG, standards for road traffic noise in terms of $L_{10(1\text{-}hr)}$ for the following uses relying on opened windows for ventilation are shown in ***Table 3.3***.

Table 3.3: Summary of Road Traffic Noise Standards

USES	NOISE CRITERIA $L_{10(1\text{-}HR)}$, dB(A)
All domestic premises including temporary housing accommodation	70
Hotels and hostels	70
Offices	70
Educational institutions including kindergartens, child care centres and all others where unaided voice communication is required	65
Places of public worship and courts of law	65
Diagnostic rooms and wards of hospitals, clinics, convalescences and residential care homes for the elderly	55

EIAO Guidance Note No. 12/2010 Road Traffic Noise Impact Assessment

3.1.9 The captioned guidance note ("GN") provide general reference for practitioners to prepare Road Traffic Noise Impact Assessment ("RTNIA") for Designated Projects ("DPs") under the *Environmental Impact Assessment Ordinance* ("EIAO"). Nevertheless, the perspective regarding "significant" impact in the GN is referenced.

3.1.10 As stipulated in the GN, traffic noise impact would be considered significant if the traffic noise level with the road project would be greater than that without the road project at the design year by 1.0 dB(A) or more.

3.1.11 Similarly, by the same token, the traffic noise impact would be considered significant if the traffic noise level with the proposed development would be greater than that without the proposed development by 1.0 dB(A) or more, and vice versa.

3.2 Construction Noise Impact

3.2.1 Various construction activities such as excavation, stockpiling, earth moving, filling activities, reinstatement works and etc. will be the key noise sources generated during the construction phase. In particular, the use of PME and the vehicle movement within the Site are the major noise sources.

3.2.2 Construction shall be carried out during non-restricted hours as far as practicable. The mitigation measures recommended in ProPECC PN2/93 should be implemented where applicable. In addition, the following measures and on-site practice are recommended in order to minimise the potential construction noise impacts during daytime:

- Quiet PME and construction method should be adopted as far as practicable.
- The Contractor shall devise and execute working methods to minimise the noise impacts on the surrounding sensitive uses, and provide experienced personnel with suitable training to ensure that those methods are implemented.
- Switch off idling equipment.
- Regular maintenance of equipment.
- Fit muffler or silencer for equipment.
- Noisy equipment and noisy activities should be located as far away from the NSRs as is practical.
- Use quiet construction method, e.g. use of saw-cut or hydraulic crusher instead of excavator-mounted percussive breaker.
- PME should be kept to a minimum and the parallel use of noisy equipment / machineries should be avoided.
- Erect noise barriers or noise enclosure for the PME if appropriate.
- Implement good house-keeping and provide regular maintenance to the PME.
- Spot check resultant noise levels at nearby NSRs.

3.2.3 If construction work involving the use of PME will be required during restricted hours, a CNP shall be applied for under the NCO. The noise criteria and assessment procedures for obtaining a CNP are specified in GW-TM.

3.2.4 In addition, the EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. The RPCC are generally good engineering practice to minimize inconvenience and environmental nuisance to nearby residents and other sensitive receivers. The general requirements as summarised as follows:

- The Contractor shall observe and comply with the *NCO* and its subsidiary regulation.
- The Contractor shall ensure that all plant and equipment to be used on the Site are properly maintained in good operating condition and noisy construction activities shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings and shields, acoustic sheds or screen or other means, to avoid disturbance to nearby noise sensitive receivers.
- For carrying out any construction work other than percussive piling during the time period from 0700 to 1900 hours on any day not being a general holiday (including Sundays), the Contractor shall comply with the following requirements.
  - The noise level measured at 1m from most affected external façade of the nearby noise sensitive receivers from the construction works alone during any 30-minute period shall not exceed an equivalent sound level ("L_{eq}") of 75dB(A).
  - The noise level measured at 1m from most affected external façade of the nearby schools from the construction works alone during any 30-minute period shall not exceed L_{eq} of 70dB(A) [65dB(A) during school examination period]. The Contractor shall liaise

with the schools and/or the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract.

- Should the limits stated in the above be exceeded, the construction shall stop and shall not recommence until appropriate measures acceptable to the Engineer that are necessary for compliance have been implemented.
- The Contractor shall adopt, where necessary, the use of Quiet Construction Equipment ("QCE") and/or shall employ the quietist practicable working methods when carrying out demolition works, and /or road opening works during restricted hours.

- Before the commencement of any work, the Engineer may require the methods of working, plant equipment and sound-reducing measures to be used on the Site to be made available for trial demonstration inspection and approval to ensure that they are suitable for the project.
- The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.
- Notwithstanding the requirements and limitations set out in the bullet above and subject to compliance with the second and fifth bullet above, the Engineer may upon application in writing by the Contractor, allow the use of equipment and the carrying out of any construction activities for any duration provided that the Engineer is satisfied with the application which, in Engineer's opinion, is considered to be of absolute necessity and adequate noise insulation has been provided to the schools to be affected, or of emergency nature, and not in contravention with the NCO in any respect.
- The Contractor shall, when necessary, apply for a construction noise permit in accordance with the *Noise Control (General) Regulations* prior to the commencement of the relevant part(s) of the works, display the permit as required and provide a copy to the Engineer.
- Measures that are to be taken to protect adjacent school and adjacent noise sensitive receivers, if necessary, shall include, but not be limited to, adequate noise barriers. The barriers shall be of substantial construction and designed to reduce transmission of noise (simple plywood hoarding will not be sufficient). The barriers shall be surmounted with baffle boxes designed to reduce transmission of noise. The barriers shall be designed to BS 5228. The location and details of the barriers shall be submitted to the Engineer for approval before works commence adjacent to schools and other noise sensitive receivers.

3.2.5 With the implementation of the abovementioned mitigation measures, adverse construction noise impact is not anticipated.

3.3 Noise Impacts from Fixed Sources during Operation

General

3.3.1 The Proposed Development will be used as a temporary poultry cold storage and distribution centre. Goods vehicles from the Mainland will stop at the Site and unload the chilled poultry. The chilled poultry will then be stored temporarily at the Site and delivered to different places in Hong Kong. However, no slaughtering or cleaning of chilled meat / poultry will be involved in the Proposed Development.

3.3.2 Moreover, no selling of poultry to individuals, retailers or wholesalers will be involved in the Proposed Development. As such, no outdoor loudspeakers or any form of outdoor amplification system will be used in the Proposed Development.

3.3.3 In order to prevent the poultry from spoiling, the Proposed Development is necessary to run around the clock. Therefore, potential noise impacts due to the operation in the three periods, i.e. day, evening and night times, should be assessed.

3.3.4 The potential noise sources during the operation of the Proposed Development were identified as follow –

- On-site movements of delivery vehicles / refrigerated collection vehicles
- Mechanical and Electrical ("M&E") equipment
- Loading / unloading activities

Assessment Assumptions and Methodology

On-site movement of vehicles

3.3.5 As the Proposed Development is used for temporary chilled poultry storage and distribution, on-site movement of delivery vehicles and refrigerated collection vehicles is considered to be the major noise source.

3.3.6 For the noise generated from on-site movement of vehicles, the *Method for Mobile Plant Using a Regular Well-Defined Route* stipulated in Annex F of BS 5228-1:2009+A1:2014 has been adopted for the assessment. Calculation is based on the following standard formula:

$$SPL = SWL - 33 + 10\log Q - 10\log V - 10\log d + AC + FC$$

where:

SPL	–	Sound Pressure Levels at receiver, in dB(A)
SWL	–	Sound Power Levels of Powered Mechanical Equipment (PME), in dB(A)
Q	–	Number of vehicles per hour
V	–	Average vehicle speed, in km/h
d	–	Distance of receiving position from the centre of haul road, in meters
AC	–	Angle of view Correction = $10\log(\Theta/180)$ where Θ is the angle of view (in degree) of a particular haul road segment
FC	–	Façade Correction of +3 dB(A)

3.3.7 Sound Power Levels ("SWLs") of the manoeuvring vehicles were reference to Table 3 of the GW-TM and the *Sound Power Levels of Other Commonly Used PME* available from EPD's website[ref.:2].

3.3.8 With regard to the screening effect, a 10 dB(A) reduction was adopted for NSRs without direct line-of-sight to the particular haul road segment.

Mechanical and Electrical ("M&E") Equipment

3.3.9 Most of M&E equipment, such as water pumps, fire services pumps and transformer, will be installed inside plant rooms of the Proposed Development. Thus, no significant noise impact arising from enclosed M&E equipment is anticipated. The impact from these sources is therefore not considered in the noise assessment.

3.3.10 Small, low-power split-type air-conditioners will be installed at the site office. The noise from the outdoor units ("ODUs") of these small air-conditioners is minimal. Thus, these ODUs have not been taken into account in the noise assessment. According to the information provided by the Project M&E Consultant, 4 sets (in total of 19 units) of condenser and several units of scroll compressors will be installed on the roof of the building blocks.

3.3.11 With reference to the *ASHRAE Handbook Chapter 48 – Noise and Vibration Control*, the scroll compressors tend to produce relatively weak tone. Thus, the noise impact from the scroll compressors is considered insignificant. However, condenser could generate adverse noise impact and thus considered as noise sources that could affect off-site NSRs.

[2] http://www.epd.gov.hk/epd/sites/default/files/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf

3.3.12 The SWLs of the condenser were referred to the catalogue provided by the Applicant. The noise levels were assessed based on the standard acoustics formula as follows -

SPL = SWL – DC + FC

Where:

SPL	–	Sound Pressure Levels at receiver, in dB(A)
SWL	–	Sound Power Levels of M&E Plant, in dB(A)
DC	–	Distance Correction, in dB(A) by DC = 20log10(D) + 8
D	–	Horizontal distance between the NSR and source in meters
FC	–	Façade Correction of +3 dB(A)

3.3.13 With regard to the screening effect, a 10 dB(A) reduction was adopted for NSRs without direct line-of-sight to the opening of the enclosure.

Loading/Unloading Activities

3.3.14 All loading/unloading areas are shown on ***Figure 3.3***. The loading/unloading area is composed of two parts –

1. Loading/unloading Bays – used for vehicle parking
2. Loading/unloading Platform – used for loading/unloading the chilled poultry

3.3.15 Mitigation measures for the loading/unloading areas have been considered for the layout design. After entering the Site, vehicles will enter at the loading/unloading platforms, which will be enclosed by a 2m extended canopy with 2 side panels (minimum surface density of 10kg/m^2). Therefore, no loading/unloading activities will be undertaken at open area. In order to further minimise the noise impact, acoustic mat (minimum surface density of 7kg/m^2) will be provided to the opening side of the platforms. As such, the loading/unloading and distribution activities will be confined under the canopy and behind the side walls and acoustic mat of the loading/unloading platform. The operation will be carried out smoothly with sufficient space. The conceptual design of the mitigation measures at the loading/unloading areas is shown in ***Appendix A***. The noise reduction performance of the acoustic mat (minimum surface density of 7kg/m^2) shall be sufficient, an example of a market available product with similar surface density is given in ***Appendix B***. The mitigation measures will be applied to all loading/unloading platforms. The noise screening structures for the loading/unloading platforms, i.e. extended canopy with 2 side panels and acoustic mat, shall have no gap or slit. The extended canopy, enclosing shed and the side panels should be solid structures with acoustic mats securely installed which would not be easily tampered by on-site workers.

3.3.16 Since the loading/unloading activities will be undertaken in an enclosed area, the noise impact is anticipated to be minimal. Thus, loading/unloading activities has not been taken into account in the noise assessment.

Noise Sensitive Receivers ("NSRs")

3.3.17 There will be no NSR of the Proposed Development. Instead, the first layer of existing NSRs closest to the Proposed Development which is the most representative NSRs has been identified for the worst-case scenario.

3.3.18 The details of the selected NSRs are summarised in ***Table 3.4*** and their locations are shown on ***Figure 3.1***.

Table 3.4: Identified Representative NSRs of Noise from Fixed Sources

NSR ID	DESCRIPTION	NO. OF STOREY	DISTANCE TO SITE BOUNDARY
IN1	Temporary Structure	1	1m
IN2	Temporary Structure	1-3	72m
IN3	Temporary Structure	1-3	59m
IN4	Temporary Structure	1-3	51m
IN5	Village House No.220 at Sha Ling	1-3	59m
IN6	Village House No.56 at Sha Ling	1-3	56m
IN7	Village House No.73 at Sha Ling	1-3	2m
IN8	Village House No.79 at Sha Ling	1-3	24m
IN9	Temporary Structure	1-3	11m
IN10	Village House No.100 at Sha Ling	1-3	18m
IN11	Temporary Structure	1-3	7m
IN12	Temporary Structure	1-3	16m
IN13	Temporary Structure	1-3	58m
IN14	Village House No.181 Sha Ling	1-3	117m
IN15	Temporary Structure	1-2	12m

3.3.19 All identified NSRs are located in rural area. No major roads with annual average daily traffic flow in excess of 30,000 and industrial areas are found in the vicinity of the identified NSRs. Therefore, the ASRs of the identified NSRs are determined as Type A in accordance with IND-TM.

3.3.20 The ASR and ANLs adopted in this EA report are used for assessment purpose only, they should not bind the Noise Control Authority's decision in determining the noise criteria based on the legislation and practices being in force, and contemporary conditions/ situations of adjoining land uses.

Prevailing Background Noise

3.3.21 The most preferable locations for the background noise measurement are the sensitive facades of the representative NSRs. Therefore, villagers of the NSRs were approached to request permission for conducting background noise measurements at their premises. However, the requests were verbally refused. Moreover, they were reluctant to let us to conduct the noise measurement at the area of the village.

3.3.22 As the villagers were reluctant to let us conduct the noise measurement at their premises as well as the village, alternative locations for background noise measurement, namely BG1 and BG2, were selected at the drainage pipe near Man Kam To Road and Sha Ling Playground as shown on ***Figure 3.2.***

3.3.23 Under the circumstances as mentioned in ***paragraph 3.3.21***, BG1 is considered as the best alternative and feasible location to represent IN6 to IN14 for background noise measurement. According to the topographic map obtained from Lands Department, the level of the

measurement location BG1 is 6.2mPD, while the levels of Man Kam To Road and Lo Wu Station Road are around 9.8mPD to 10.7mPD. Although BG1 is located near to Man Kam To Road (about 60m) and Lo Wu Station Road (about 26m), the topography can shield up certain amount of traffic noise. However, it is noted that some NSRs (i.e. IN 6 to IN10) are located more than 100m from both Man Kam To Road and Lo Wu Station Road. In order to avoid over domination of traffic noise in the background noise levels of NSRs IN6 to IN14, L90 will be adopted to represent the background noise in the assessment to avoid.

3.3.24 NSRs IN1 to IN5 and IN15 are all directly affected by the traffic noise of Man Kam To Road and Lo Wu Station Road. Since the location of BG2 are next to IN1, it is expected that BG2 is capturing the same ambient noise of NSRs IN1 to IN5 and IN15.

3.3.25 The background noise levels measured at BG1 and BG2 represent the background noise for the NSRs shaded in green and yellow respectively as shown on ***Figure 3.2***. The prevailing background noise measurements were measured over 24 hours at 1.2m above ground with free-field condition.

3.3.26 The results of the background measurement are summarised in ***Table 3.5***. The detailed results are given in ***Appendix C***.

Table 3.5: Summary of Background Noise Monitoring

ID	COLOUR SHADE OF REPRESENTATIVE AREA[NOTE 1]	MEASUREMENT LOCATION	BACKGROUND NOISE LEVEL (AVERAGE $L_{90(1\ HOUR)}$), dB(A)		
			DAY	EVENING	NIGHT
BG1	Green	Sha Ling Playground	48	45	38
BG2	Yellow	Pipeline nearby NSR-IN1	54	46	41

Notes:

1. The measurement was conducted in free-field condition. Façade correction is not applied to the measured levels.

Noise Criteria

3.3.27 As discussed in ***paragraph 3.3.19***, the ASR of all identified NSRs is "A". The noise criteria for the planned fixed noise source were determined with reference to the prevailing background noise levels obtained in ***Table 3.5*** and are shown in ***Table 3.6***

Table 3.6: Noise Criteria for Planned Fixed Noise Source

NSR	ASR	COLOUR SHADE OF REPRESENTATIVE AREA[NOTE 1]	TIME PERIOD	BACKGROUND NOISE LEVEL (AVERAGE $L_{90(1\ HOUR)}$), dB(A)	ANL – 5, dB(A)	NOISE CRITERIA, dB(A)[NOTE 1]
IN1 – IN5, IN15	A	Yellow	Day	57	55	55
			Evening	49	55	49
			Night	44	45	44
IN6 – IN14	A	Green	Day	51	55	51
			Evening	48	55	48
			Night	41	45	41

Notes:

1. +3 dB(A) façade correction has been incorporated to the background noise level.

Assessment Results

On-site movement of vehicles

3.3.28 The road segments of the Proposed Development are shown on ***Figure 3.3***. Road segments S1 to S4 are one way road and S5 to S10 are two-way road.

3.3.29 During operation stage, the following types of vehicles travelling through the Site as listed in ***Table 3.8***:

- Container vehicle ("CV")/ Heavy Goods Vehicle ("HGV")
- Medium Goods Vehicle ("MGV");
- Light Goods Vehicle ("LGV"), van
- Private car.

3.3.30 It is known that the on-site movement of vehicles may cause adverse noise impact except due to private car movement, as it is considered to be negligible compare with other types of vehicles move within the Site. In order to minimise the noise impact to surrounding NSRs, following administrative controls shall be adopted during the operation phase:

1. Limit only a maximum of number of 5 vehicles per hour of MGV and 1 vehicle per hour of LGV that can run in and out of the Site in evening (1900-2300) and night time periods (2300-0700) respectively;
2. The loading and unloading area of container vehicle/ HGV/ MGV near the Site entrance/exit area will be used first especially during evening-time and night-time period to minimise the on-site movement these vehicles as far as practicable as shown on ***Figure 3.4***. Except there is overloading at the loading and unloading area which is the closest to the site entrance. The movement paths of different vehicles are summarised in ***Appendix E***.

3.3.31 According to the daily operation of the Proposed Cold Storage and Distribution Centre as provided by the applicant, the maximum numbers of different vehicle types during the peak hours in different time periods were estimated and summarised in ***Table 3.7***. The trips of vehicle of each road segment are summarised in ***Appendix E***.

Table 3.7: Number of Vehicles travelling through the Site

VEHICLE TYPE[1]	DAY* (0700-1900) (VEHICLES/HOUR)		EVENING* (1900-2300) (VEHICLES/HOUR)		NIGHT* (2300-0700) (VEHICLES/HOUR)	
	In	Out	In	Out	In	Out
CV/ HGV	16	16	0	0	0	0
MGV	0	0	5	5	0	0
LGV	0	0	0	0	1	1

Notes:

* The peak hour flow of each time period.

[1] According to Traffic Consultant, container vehicles/ heavy goods vehicle means a goods vehicle having a gross vehicle weight not exceeding 38 tonnes;

[2] According to Cap. 374 *Road Traffic Ordinance*, medium goods vehicle means a goods vehicle having a permitted gross vehicle weight exceeding 5.5 tonnes but not exceeding 24 tonnes; light goods vehicle means a goods vehicle having a gross vehicle weight not exceeding 5.5 tonnes.

3.3.33 A summary of the SWLs of vehicles are presented in ***Table 3.8***.

Table 3.8: SWLs of Vehicles

VEHICLE TYPE	SWL, dB(A)	DESCRIPTION
Container Vehicles/ Heavy Goods Vehicles/ Medium Goods Vehicles	105	Lorry, 5.5 tonne < gross vehicle weight ≦38 tonne
Light Goods Vehicles	101	Lorry, gross vehicle weight ≤ 5.5 tonne

3.3.34 The structure of cold storage blocks including the cover connecting Block 1 and Block 2 (minimum surface density of 10kg/m^2) can be used as a barrier to minimise the noise generated from on-site vehicle movement. However, NSR IN1 and IN15 are very close to the Site, a 5m high fixed/movable noise barrier (minimum surface density of 10kg/m^2) (i.e. NB1) would be constructed to further reduce the noise impact to these one to two storey high building (i.e. NSR IN1 and IN15), as shown on ***Figure 3.4.*** Besides, a 10m high fixed/movable noise barrier (minimum surface density of 10kg/m^2) (i.e. NB2) would be constructed next to NSRs IN12 and a 12m high fixed/movable noise barrier (minimum surface density of 10kg/m^2) (i.e. NB3) and cover connecting Main Block would be erected. NB2 and NB3 will be connected to the proposed cover and structures of Block 1 and Block 2 without slit or gap.

3.3.35 Regarding to the screening effect, a 10 dB(A) reduction was adopted for NSRs without direct line-of-sight to the particular haul road segment and the major noise sources (i.e. vehicle engine and chiller on the vehicle). The screening structure includes the proposed cold storage blocks and the proposed boundary wall.

3.3.36 The noise levels from on-site movement of vehicles were thus calculated as shown in ***Appendix F*** and summarised in ***Table 3.9.***

Table 3.9: Predicted Noise Levels from Vehicles travelling within the Site

NSR	PREDICTED NOISE LEVEL, dB(A)			NOISE CRITERIA, dB(A)		
	Day	Evening	Night	Day	Evening	Night
IN1	54	49	35	55	49	44
IN2	51	46	34			
IN3	51	46	35			
IN4	48	42	30			
IN5	48	43	32			
IN6	36	31	21	51	48	41
IN7	40	35	24			
IN8	41	36	25			
IN9	49	44	33			
IN10	46	41	30			

NSR	PREDICTED NOISE LEVEL, dB(A)			NOISE CRITERIA, dB(A)		
	Day	Evening	Night	Day	Evening	Night
IN11	48	43	32			
IN12	49	44	32			
IN13	51	46	35			
IN14	47	42	31			
IN15	54	49	37	55	49	44

Mechanical and Electrical (M&E) Equipment

3.3.37 As mentioned in ***paragraphs 3.3.10 - 3.3.11***, 4 sets (in total of 19) of condensers were taken into account in this assessment.

3.3.38 They are distributed on the roof top of Cold Storage Blocks 1 and 2. Seven condensers are located on Cold Storage Block 1 (SW), while six condensers are located on Block 1 (NE) and Block 2, as shown on ***Figure 3.5***.

3.3.39 According to the information provided by the Project M&E Consultant, the SWL of the condenser, 76 dB(A) shown in ***Appendix D***, has been adopted in the calculation.

3.3.40 In order to minimise the noise impact, noise enclosure should be installed for the condenser.

3.3.41 According to the *Good Practices on Ventilation System Noise Control* published by EPD, a complete acoustic enclosure (minimum surface density of 10kg/m^2) with silencer for condenser with opening could provide a noise reduction of 20dB(A) or more.

3.3.42 In order to further minimise the noise impact, it is suggested that the openings of enclosure of Block 1 and Block 2 should face Man Kam To Road and located as far as practicable from the NSRs as shown on ***Figure 3.5***.

3.3.43 Regarding the screening effect, a 10 dB(A) reduction was adopted for NSRs without direct line-of-sight to the openings.

3.3.44 The noise levels from M&E equipment were thus calculated as shown in ***Appendix F*** and summarised in ***Table 3.10***.

Table 3.10: Predicted Noise Levels from M&E Equipment

NSR	PREDICTED NOISE LEVEL, dB(A)	NOISE CRITERIA, dB(A)		
	Day / Evening / Night	Day	Evening	Night
IN1	36	55	49	44
IN2	30			
IN3	30			
IN4	30			
IN5	29			

NSR	PREDICTED NOISE LEVEL, dB(A)	NOISE CRITERIA, dB(A)		
	Day / Evening / Night	Day	Evening	Night
IN6	30	51	48	41
IN7	36			
IN8	35			
IN9	37			
IN10	37			
IN11	41			
IN12	35			
IN13	29			
IN14	26			
NI15	37	55	49	44

Overall Noise Impact from Fixed Sources

3.3.45 As the fixed noise sources include both noise from on-site vehicle movement and noise from M&E equipment, the overall noise impact from fixed sources were predicted and summarised in ***Table 3.11.***

Table 3.11: Predicted Overall Noise Impact from Fixed Sources

NSR	PREDICTED NOISE LEVEL, dB(A)			NOISE CRITERIA, dB(A)		
	Day	Evening	Night	Day	Evening	Night
IN1	54	49	39	55	49	44
IN2	51	46	36			
IN3	51	46	36			
IN4	48	43	33			
IN5	48	43	34			
IN6	37	34	30	51	48	41
IN7	41	39	36			
IN8	42	39	35			
IN9	49	45	38			
IN10	46	42	38			
IN11	49	45	41			

NSR	PREDICTED NOISE LEVEL, dB(A)			NOISE CRITERIA, dB(A)		
	Day	Evening	Night	Day	Evening	Night
IN12	50	45	36			
IN13	51	46	36			
IN14	47	42	32			
IN15	54	49	40	55	49	44

3.3.46 According to the results shown in ***Table 3.11***, potential fixed source noise impacts from the Proposed Development at the identified NSRs are anticipated to comply with the relevant noise standards.

3.4 Traffic Noise Impacts during Operation

Traffic Noise during Operation Peak

3.4.1 There will be off-site traffic as vehicles will be used for transporting the chilled poultry to the Proposed Development and delivering of the chilled poultry to different places in Hong Kong. The potential traffic noise impact during the operation peak hour advised by the Project Team Traffic Consultant has been assessed.

Assessment Assumption and Methodology

3.4.2 The road traffic noise levels of the operation peak of the Proposed Development have been predicted using a computer noise model, RoadNoise, which mainly follows the prediction procedures of the *UK Department of Transport's Calculation of Road Traffic Noise* ("CRTN"), as recommended in Chapter 9 Environment of HKPSG.

3.4.3 As mentioned in ***Paragraph 3.1.8***, the HKPSG assessment criteria for domestic premises is 70 dB(A). Having said that, as discussed in ***Paragraphs 3.1.9 to 3.1.11***, a contribution of less than 1.0 dB(A) due to the presence of the Proposed Development is also considered to be acceptable in environmental terms.

3.4.4 The commissioning year of the Project is tentatively scheduled in Year 2023 or 2024. Generally, the base traffic is expected to grow every year. Hence the noise contribution from the Proposed Development in the commission year is expected to be greater than that in the year with maximum projection within 15 years after operation. Since the commissioning year of Year 2023 or 2024 is not certain, it may shift to an earlier or later year. As such, for a conservative approach, the background traffic flow of Year 2018 (year before commission year) was proposed to be adopted in the assessment. The traffic forecasts for Year 2018 are enclosed in ***Appendix G.***

Noise Sensitive Receivers

3.4.5 According to the traffic data, the Proposed Development will only increase the traffic flow of Man Kam To Road and Lo Wu Station Road. Therefore, representative NSRs had been selected along these roads as shown in ***Table 3.12*** and ***Figure 3.6.***

Table 3.12 Representative NSRs of Traffic Noise during Operation Peak

NSR ID	DESCRIPTION	NO. OF STOREY
TN1	Village House No. 61 at Sha Ling	1

NSR ID	DESCRIPTION	NO. OF STOREY
TN2	Temporary Structure	1-3
TN3	Village House No. 185 at Sha Ling	1-3

Assessment Results

3.4.6 The predicted traffic noise levels in Year 2018 are summarised in ***Table 3.13***. The results show that the Proposed Development would generate less than 1.0 dB(A) contribution to the road traffic noise on the surrounding NSRs. Therefore, the road traffic noise impact to the NSRs due to the operation of the Proposed Development is considered to be insignificant.

Table 3.13: Summary of Road Traffic Noise Impacts during Operation Peak in Commission Year (2018)

NSR		NOISE LEVEL, $L_{10\ (1\text{-}HR)}$, dB(A))		CONTRIBUTION (2) – (1), dB(A))
ID	Floor Level	Without Proposed Development (1)	With Proposed Development (2)	
TN1	G/F	67.8	68.1	+0.3
TN2	G/F	77.6	77.7	+0.1
	1/F	77.4	77.5	+0.1
	2/F	77.0	77.1	+0.1
TN3	G/F	71.7	71.9	+0.2
	1/F	76.7	76.8	+0.1
	2/F	76.5	76.7	+0.2

Traffic Noise during late night / early morning

3.4.7 As the Site is located in rural area with low background noise level, late night and early morning hours are considered to be sensitive hours to the NSRs nearby. As such, potential traffic noise impact due to operation during the late night and early morning hours has been assessed.

3.4.8 According to ***Table 3.7***, maximum total six single trips per hour of vehicles, including container vehicle/ HGV/ MGV, will pass through Lo Wu Station Road and Man Kam To Road in the night time and early morning hours (2300 -0700).

Assessment Assumption and Methodology

3.4.9 In order to assess the noise impact from the additional traffic volume generated from the proposed development at late night / early morning, noise measurements were conducted at the representative NSRs of Lo Wu Station Road and Man Kam To Road between 02:00 and 04:30 on 27 June 2019 which was a normal weekday as shown on ***Figure 3.7***.

3.4.10 Two sets of 30 minutes noise measurement were conducted at each location. During each set of the measurement, a 9-tonne vehicle was run through the traffic access route (i.e. to and from) three times as to represent the maximum six single trips per hour of either container vehicle/ HGV/ MGV.

3.4.11 The time of vehicle passing through the road section near the receiver was marked up during the measurement. According to the mark-ups, the traffic noise level without the additional traffic

(i.e. 6 trips/hr) generated from the proposed development could be find out after extracting the noise data from the measurement.

3.4.12 Thus, the noise contribution from the additional traffic (i.e. 6 trips/hr) generated from the proposed development could be derived by comparing the noise levels between with and without the additional vehicle passing through the receiver -

$L_{eq30mins\ (Noise\ contribution)} = L_{eq30mins\ (with\ additional\ vehicles)} - L_{eq30mins\ (without\ additional\ vehicles)}$

Noise Sensitive Receivers

3.4.13 The noise sensitive receivers are chosen as close as possible to the traffic access road i.e. Man Kam To Road or Lo Wu Station Road to investigate the potential impact. Therefore, representative NSRs had been selected along these two roads as shown in ***Table 3.14*** and ***Figure 3.7.***

Table 3.14 Identified Representative NSRs of Traffic Noise during Late Night/Early Morning

NSR ID	DESCRIPTION	NEAREST ACCESS ROAD	DISTANCE TO THE NEAREST ACCESS ROAD
TN4	Village House No. 117 at Sha Ling	Lo Wu Station Road	148 m
TN5	Village House No. 9-10 at Hung Kiu San Tsuen	Man Kam To Road	14 m

Assessment Results

3.4.14 Although TN4 is the nearest NSR to the access route in representing NSRs nearby Lo Wu Station Road, the distance between TN4 and the access route is around 148m. The noise generated from vehicles going to and from the subject site was found to be almost unnoticeable compared to other non-project vehicles passing by (taxies, private cars, police cars, MTR van, motorcycles were observed during the noise measurement) the receiver. As such, after extraction the noise data from the measurement in accordance with the time marker, the noise level of $L_{eq30mins\ (without\ additional\ vehicles)}$ will be even a bit higher than $L_{eq30mins\ (with\ additional\ vehicles)}$ as shown in ***Table 3.15***. This result indicated that the dominant noise source was the non-project related vehicles passing by the receiver and the noise contribution from the project related vehicles shall be very low.

3.4.15 TN5 is located close to Man Kam To Road (i.e. perpendicular distance of 14m). As shown in ***Table 3.15***, the maximum noise contribution is 0.4 dB(A) and hence the potential noise impact from the operation of the Project is anticipated to be insignificant.

Table 3.15: Summary of Road Traffic Noise Impacts during Late Night/Early Morning

NSR		NOISE LEVEL, $L_{eq\ (30min)}$, dB(A))		CONTRIBUTION (2) – (1), dB(A))
ID	Measurement Set	Without Proposed Development (1)	With Proposed Development (2)	
TN4	1	54.5	54.3	< 0.0
	2	51.3	51.2	< 0.0
TN5	1	57.1	57.5	0.4
	2	59.6	59.2	0.4

3.5 Conclusion

3.5.1 During the construction phase of the Proposed Development, with the implementation of the noise mitigation measures recommended in ***paragraph 3.2***, no adverse noise impact is anticipated.

3.5.2 Quantitative assessment for the fixed noise sources during operation phase was conducted. The results show that the noise from the fixed sources of the Proposed Development is expected to comply with the relevant noise criterion after implementing proper mitigation measure, such as enclosing the loading/unloading platforms with a 2m extended canopy with 2 side panels (minimum surface density of 10kg/m^2) with plastic strip doors installed to the opening side of the platforms, provision of complete enclosure with silencers to the condenser, orientation of the opening of enclosures, erection of a 5m barrier (i.e. NB1) next to segments 4 to 9, a 10m barrier (i.e. NB2) next to NSR IN12 and a 12m high fixed/movable noise barrier (minimum surface density of 10kg/m^2) (i.e. NB3) and cover connecting Main Block. NB2 and NB3 will be connected to the proposed cover and structures of Block 1 and Block 2 without slit or gap.

3.5.3 Quantitative assessment for the off-site road traffic noise was also conducted. With comparing the noise impacts between the scenarios of with and without the Proposed Development in Year 2018, the results show that the Proposed Development would not generate over 1.0 dB(A) or more contribution to the road traffic noise on the surrounding NSRs. Therefore, the traffic noise impact to the NSRs is considered as insignificant.

3.5.4 Overall, therefore, there will be no adverse noise impact during the construction and operation phases of the Proposed Development.

Figure 3.1: Locations of NSRs of Noise from Fixed Sources

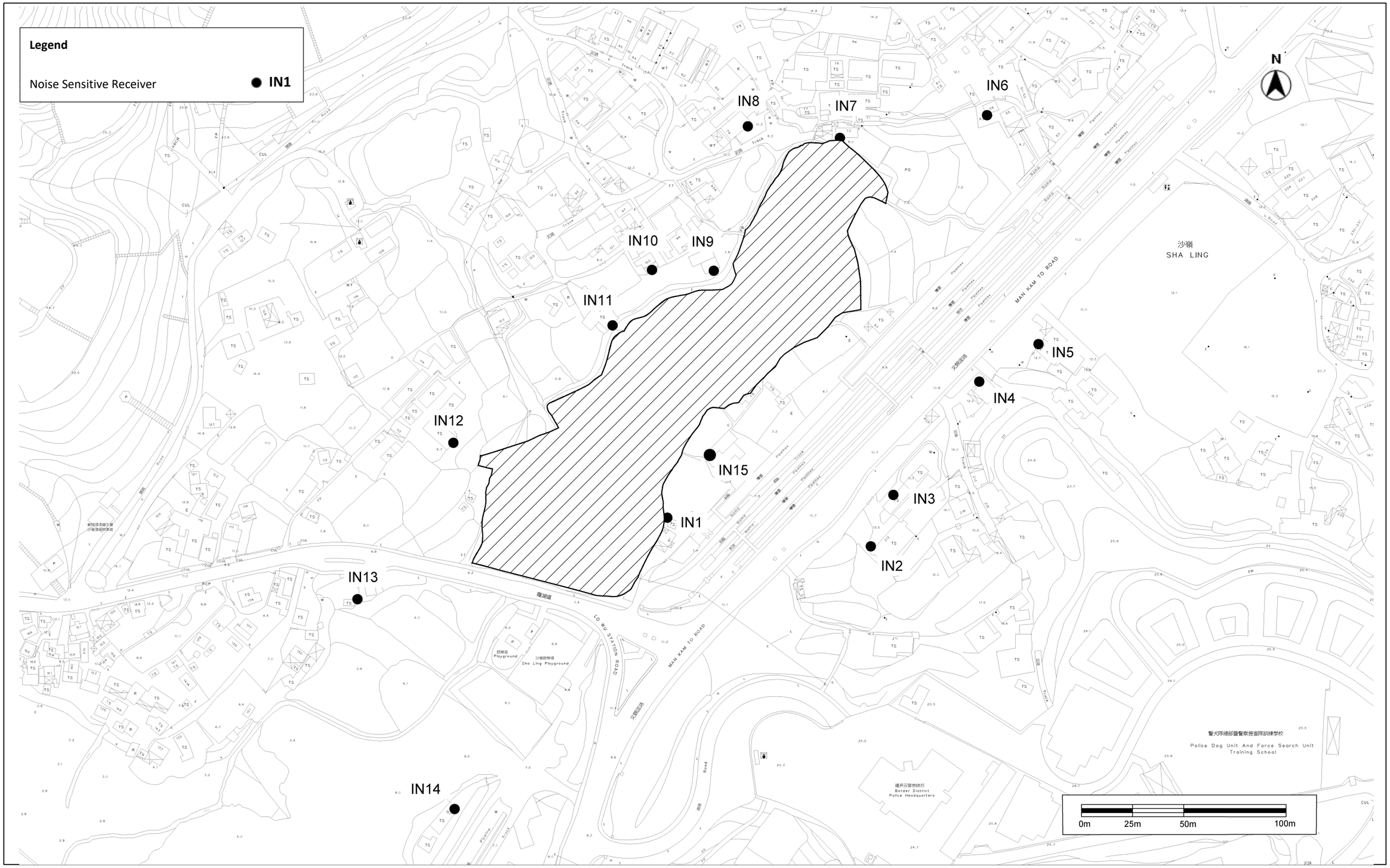


Figure 3.2: Locations of Background Noise Monitoring

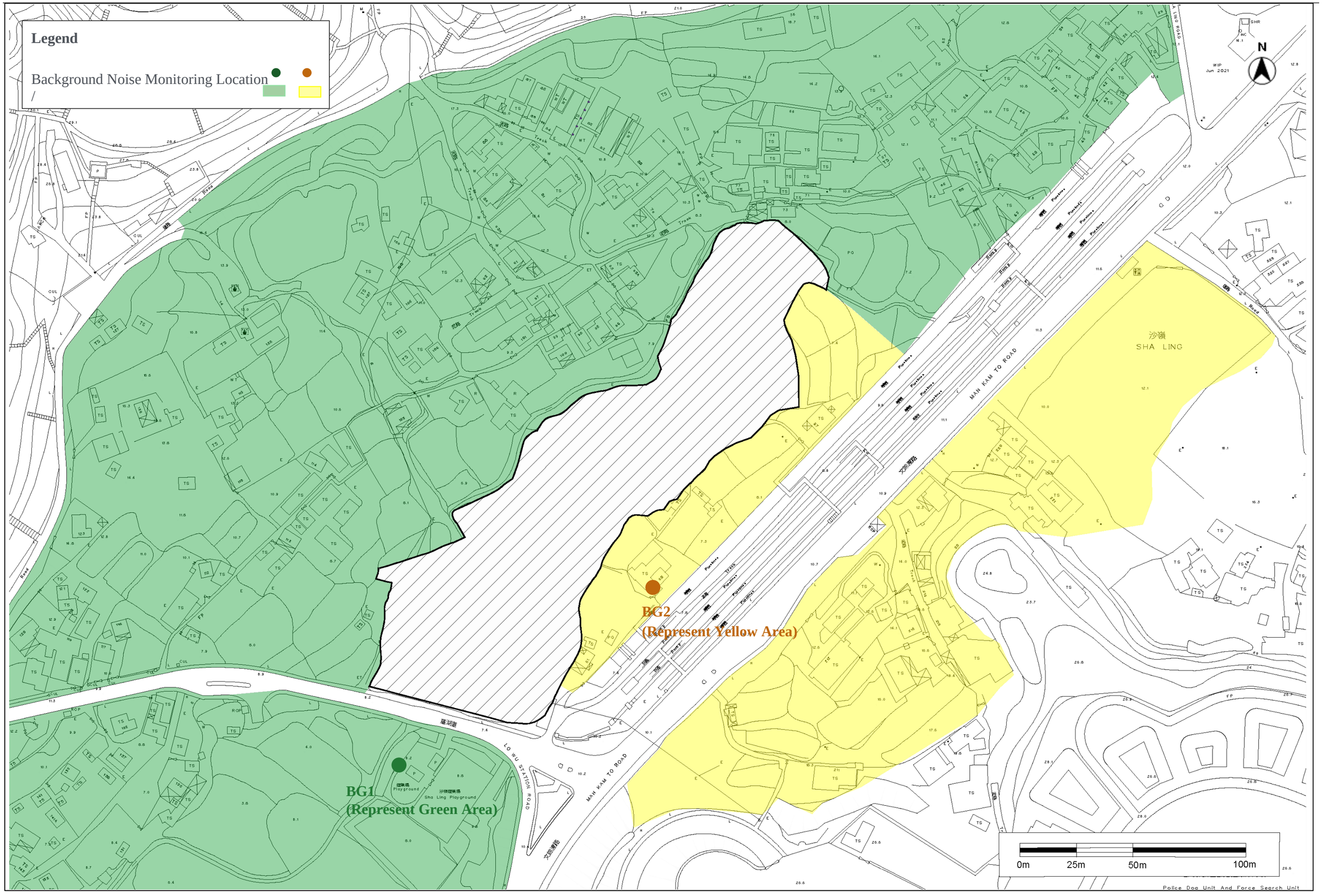

Legend
Background Noise Monitoring Location
/
BG1
(Represent Green Area)
BG2
(Represent Yellow Area)
MAN KAM TO ROAD
LO WU STATION ROAD
SHA LING
沙嶺
Sha Ling Playground
N
0m
25m
50m
100m

Figure 3.3: On-site Road Segments and Loading/ Unloading Areas

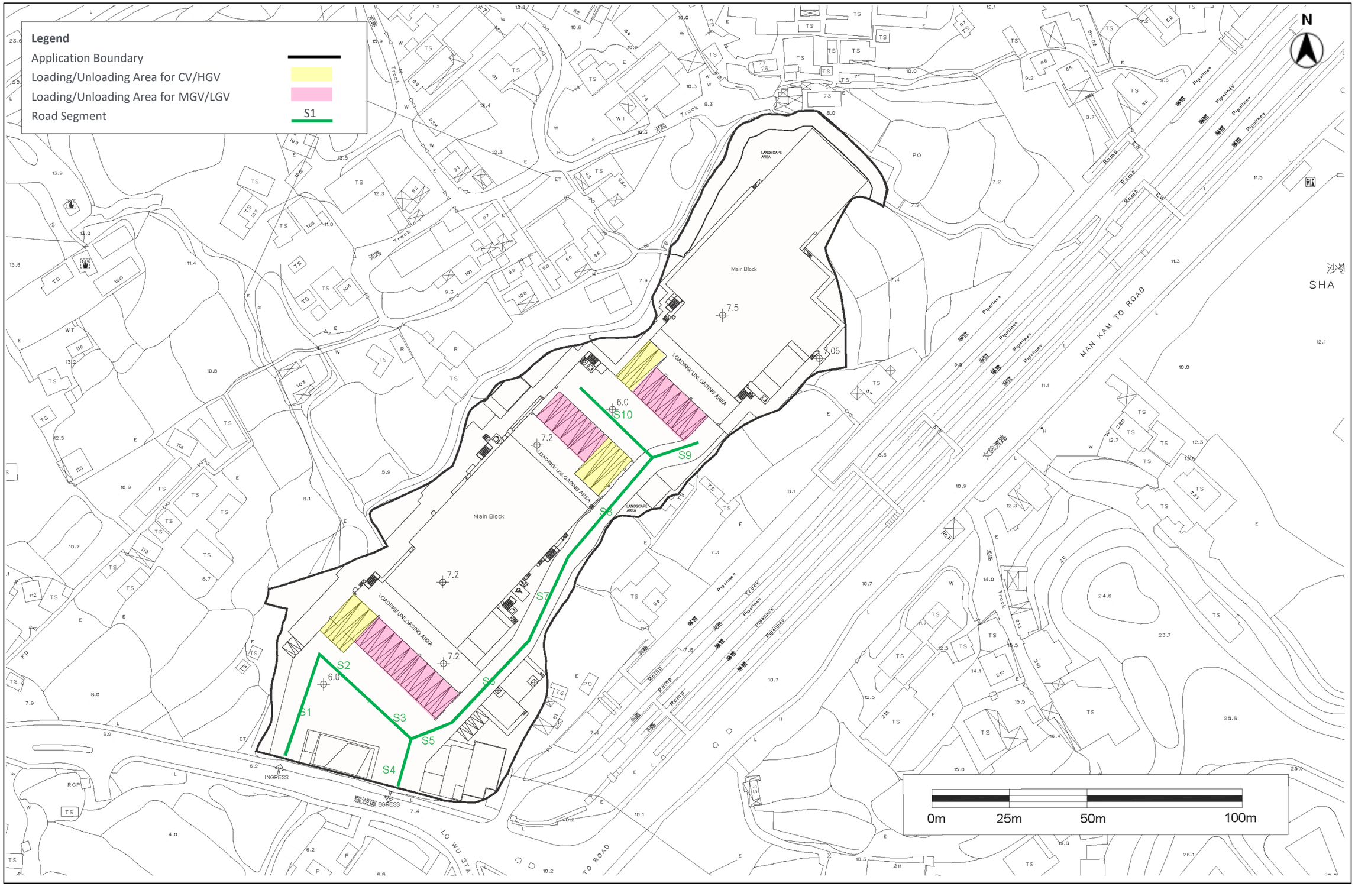


Figure 3.4: Mitigation Measures for on-site Vehicle Movement

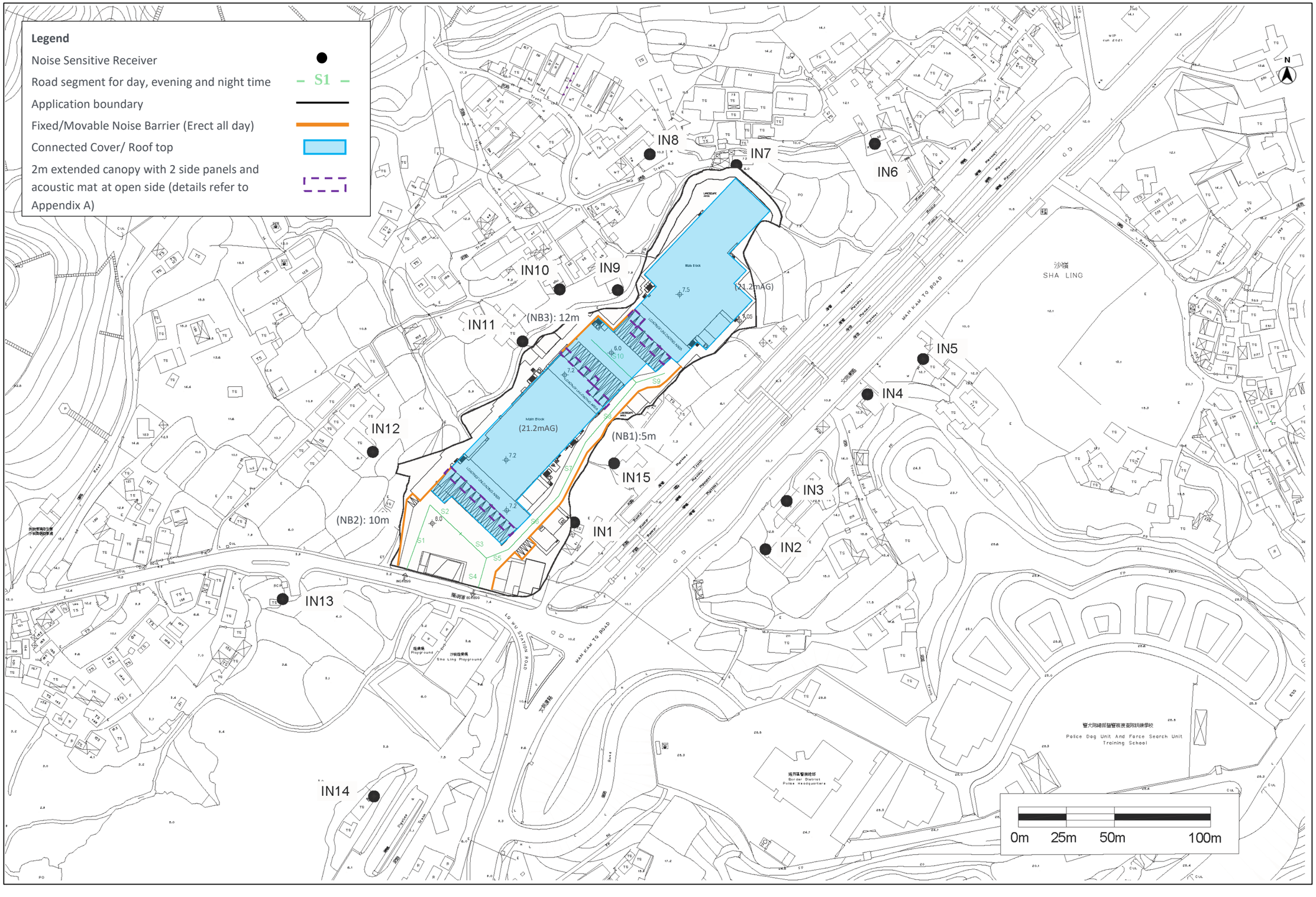


Figure 3.5: Locations and directions of the openings of the Enclosures

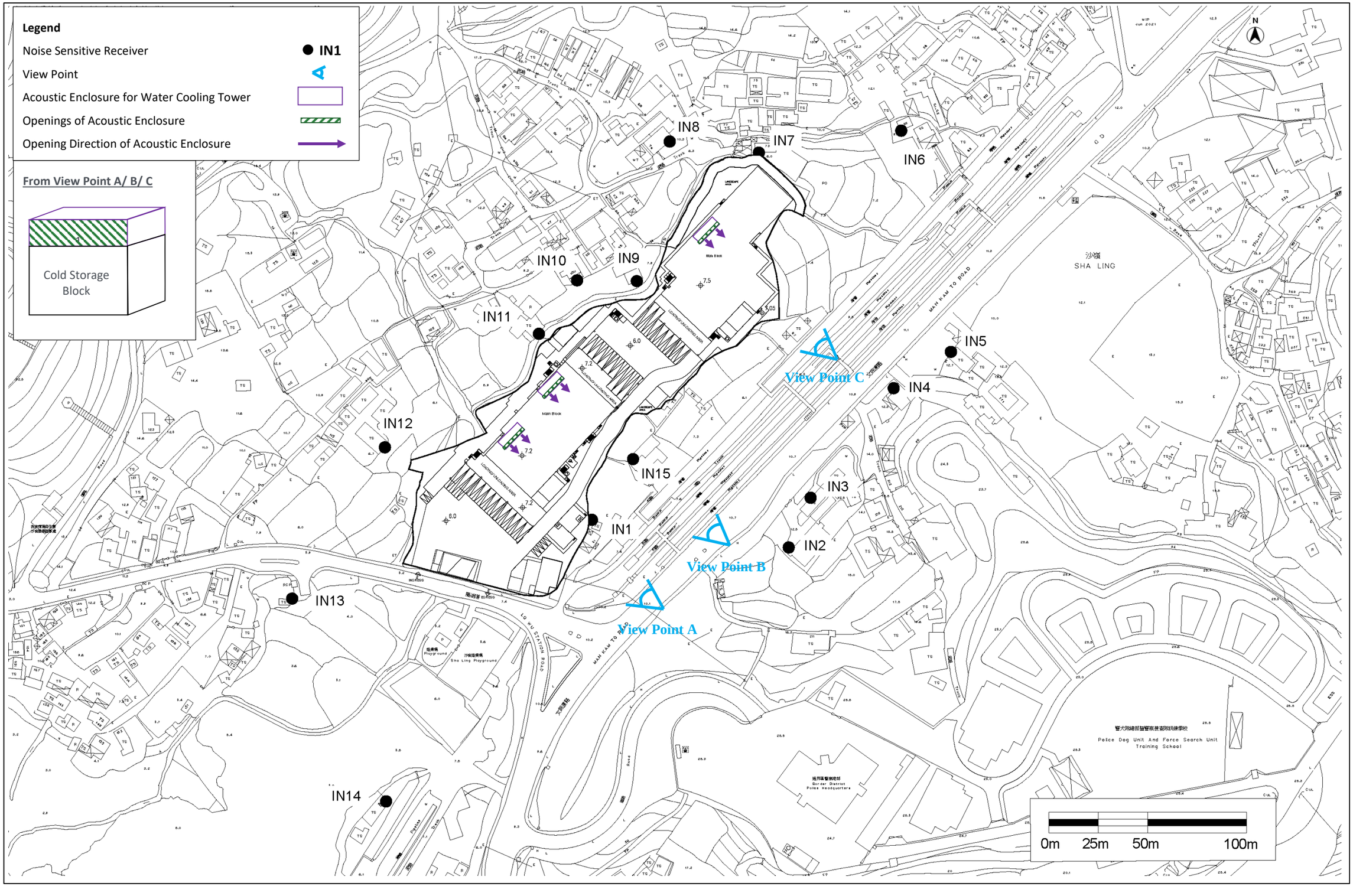


Figure 3.6: Locations of NSRs of Traffic Noise for Operation Peak

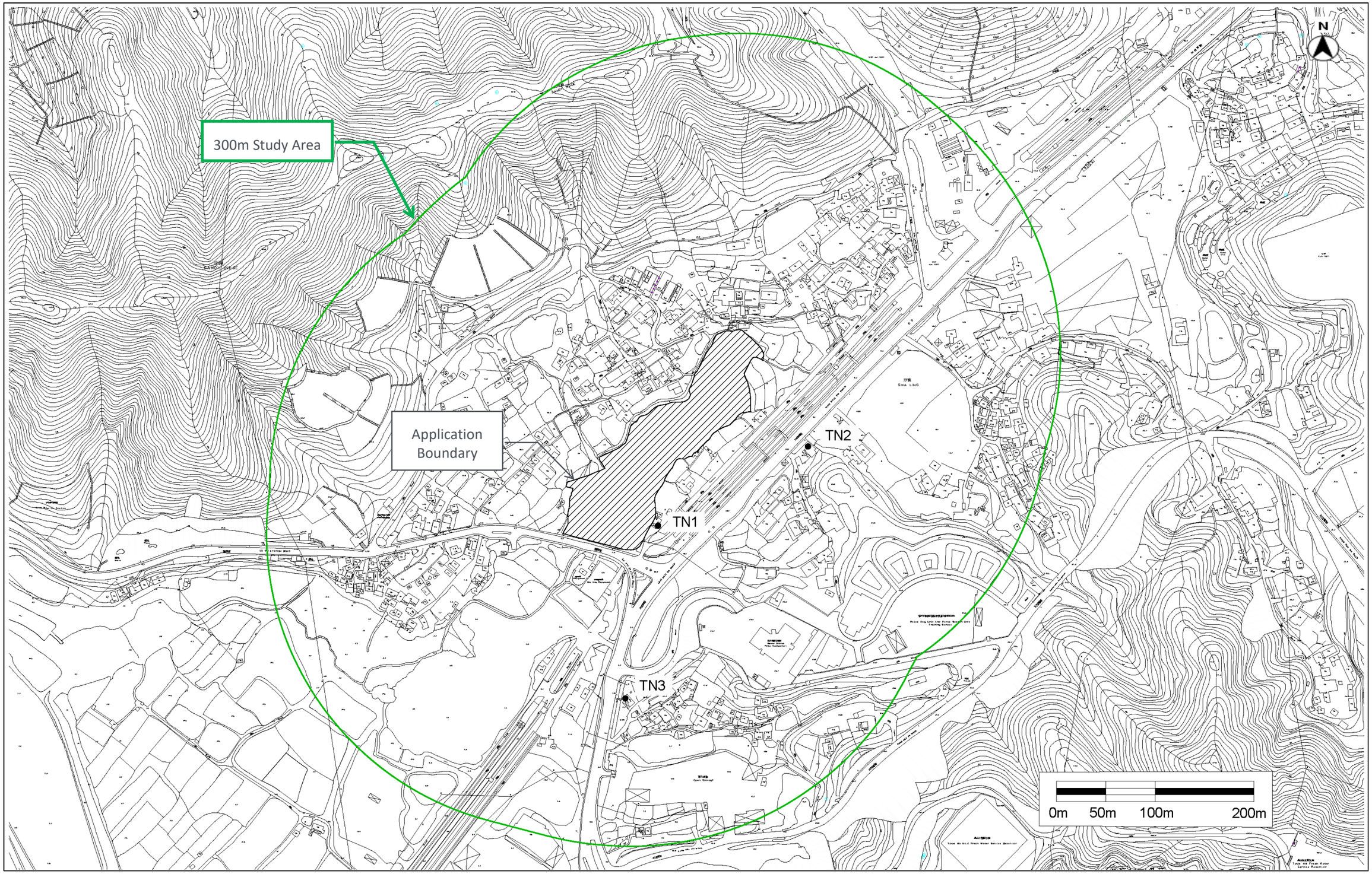
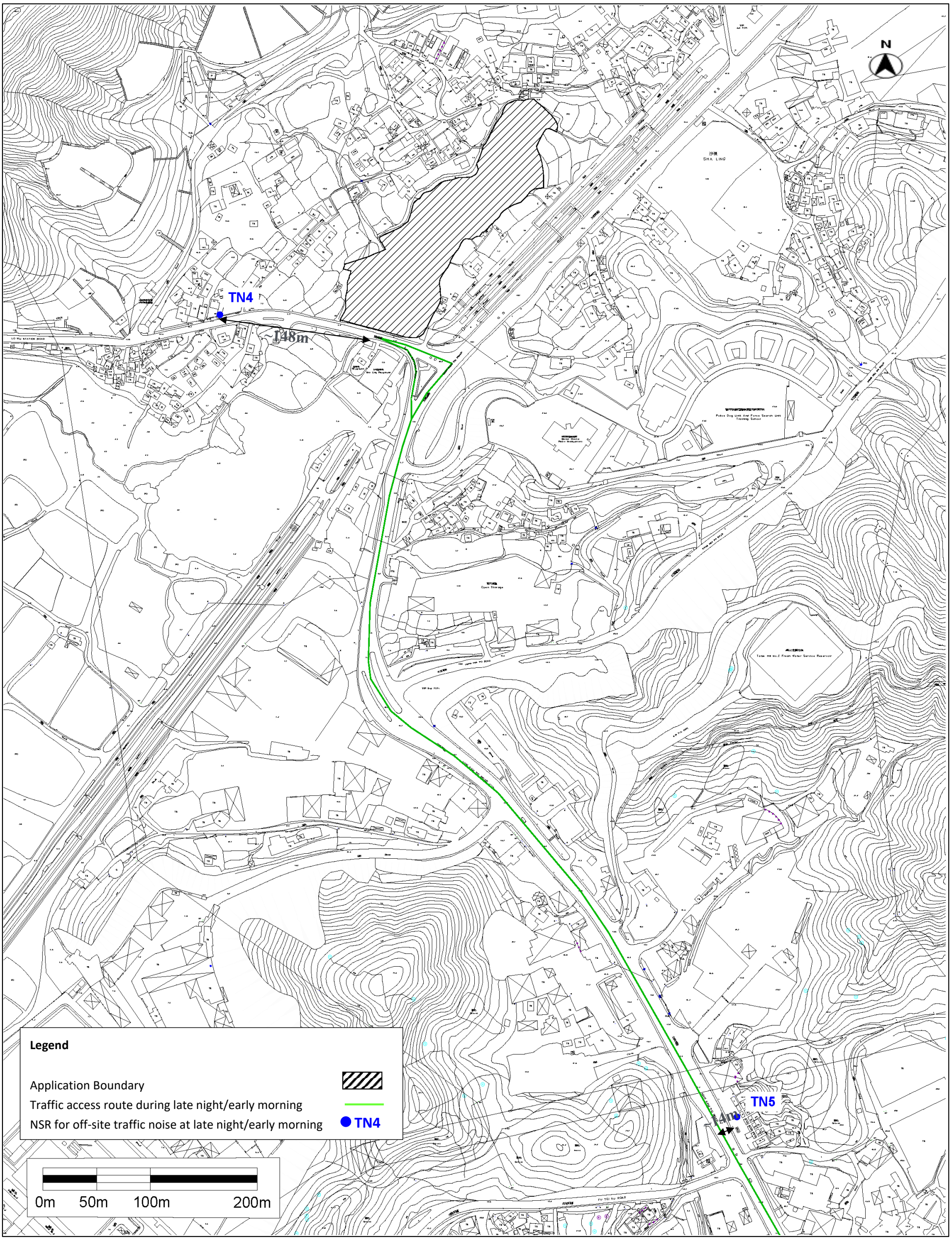


Figure 3.7: Locations of NSRs of Traffic Noise for Late Night or Early Morning



4 WATER QUALITY

4.1 Introduction

4.1.1 This section assesses the potential water quality impact associated with the Proposed Development during construction, operation and reinstatement phases. Mitigation measures are recommended, where necessary, as part of the assessment. There will be no temporary/permanent river training and/or diversion works to the existing watercourses arising from the construction, operation and reinstatement of the Proposed Development.

4.2 Environmental Legislation and Standards

Water Pollution Control Ordinance (Cap. 358)

4.2.1 An amendment to the *Water Pollution Control Ordinance* (“WPCO”) was enacted in 1990 and provides a mechanism for setting effluent standards. These are included in the *Technical Memorandum – Standards for Effluents Discharged in to Drainage and Sewerage Systems, Inland and Coastal Waters* ("WPCO-TM") issued under Section 21 of WPCO. All discharges into government sewerage systems, marine and inland waters are required to comply with the standards stipulated in the WPCO-TM.

Construction Site Drainage, ProPECC PN1/94

4.2.2 Under *ProPECC Practice Note PN1/94 Construction Site Drainage* ("ProPECC PN1/94"), various guidelines for the handling and disposal of construction site discharges are included. The guidelines include the use of sediment traps, wheel washing facilities for vehicles leaving the Site, adequate maintenance of drainage systems to prevent flooding and overflow, sewage collection and treatment, and comprehensive waste management (collection, handling, transportation, and disposal) procedures.

Drainage Plan subject to Comment by Environmental Protection Department, ProPECC PN5/93

4.2.3 Under *ProPECC Practice Note PN5/93 Drainage Plan subject to Comment by Environmental Protection Department ("ProPECC PN5/93")*, various guidelines for the pollution control for discharge to storm drains and foul sewers, such as the use of grease trap for wastewater from the restaurant kitchen, the use of silt removal facilities for open surface channel led to stormwater drains, etc., are included. The guidelines also include the requirements for submission of drainage plans.

Protection of natural streams/rivers from adverse impacts arising from construction works, ETWB TCW No. 5/2005

4.2.4 Under ETWB TCW No. 5/2005, administrative framework and procedures have been provided to clarify and strengthen existing measures for protection of natural streams/rivers from adverse impacts arising from construction works.

4.3 Identification of Water Sensitive Receivers

4.3.1 In order to identify the Water Sensitive Receivers ("WSRs"), a desktop study on the OZP, topographic maps and aerial photos has been conducted together with the site visit. The WSRs identified within 500m study area include the existing watercourse within and along the western site boundary and its upstream and downstream, a pond to the northeast of the Site and ponds

at the downstream of the existing watercourse to the southwest of the Site. The locations of these WSRs are summarised in ***Table 4.1*** and shown on ***Figure 4.1***.

Table 4.1: Water Sensitive Receivers

WSR ID	DESCRIPTION	TYPE	DISTANCE FROM THE SITE
WSR01	Existing Water Course Running Through the Site and its upstream and downstream	Modified natural watercourse with semi-natural substrate	Within the Site
WSR02	Pond	Man-made pond with natural substrates	<5m
WSR03	Ponds	Man-made ponds	260m
WSR04	Pond	Man-made pond	470m

4.4 Potential Impacts

Construction and Reinstatement Phase

4.4.1 The Proposed Development, including all cold storage buildings and road, will be constructed on an elevated platform supported by scattered piles within the Site. No construction/ reinstatement activities will be conducted within the water sensitive receivers (i.e. the existing watercourse). There will be no temporary/permanent river training and/or diversion works to the existing watercourses arising from the construction and reinstatement of the Proposed Development. Direct impact to the existing watercourse is not anticipated.

4.4.2 Muddy runoff from the Site may be generated during the construction/reinstatement phase, including filling activities and reinstatement works, especially during the rainy season.

4.4.3 Wash water from vehicles and equipment; silt from any on-site stockpiles of soil, cement and grouting materials; and spillage of fuels, oil and lubricants from construction/reinstatement vehicles and plant may generate water quality impacts. If these pollution sources are not properly controlled, it would lead to increased amounts of suspended solids, grease and oil, pH, Biochemical Oxygen Demand ("BOD"), etc. in the drainage system.

4.4.4 There is also the issue of sewage generated by construction/reinstatement workers on-site.

Operation Phase

4.4.5 During operation of the Centre, all the vehicle movement, loading/unloading activities and staff activities will be confined on the road and cold store building on the platform, no activities will be conducted near the water sensitive receivers (i.e. the existing watercourse). There will be no temporary/permanent river training and/or diversion works to the existing watercourses arising from the operation of the Proposed Development.

4.4.6 The major source of sewage / wastewater during operation phase would be sewage and grey water from toilets. Adequate capacity and number of wastewater storage tanks for temporarily storing all the wastewater will be provided onsite. All such kinds of wastewater need to be properly collected and tankered away with adequate frequency for offsite disposal by a licenced collector.

4.4.7 Daily floor cleaning will be also provided in the covered lorry loading / unloading area and loading platform. Floor cleaning is expected to be provided by mopping inside bucket. Therefore, no significant amount (i.e. less than 10m^3/day) of wastewater due to floor cleaning will be discharged into storm water drainage system. Oil interceptors will be provided at the drainage system of the covered lorry loading / unloading area and loading platform in accordance with the ProPECC PN 5/93 to allow stormwater bypass during peak flow periods. The wastewater generated will be poured into the wastewater storage tanks and tankered away with adequate frequency for offsite disposal by a licenced collector. Hence, no adverse impact is anticipated.

4.4.8 The Centre is a cold storage for frozen poultry, the meat unloaded from the lorry will be delivered to cold storage immediately. Hence, the wastewater generated from the melting is considered negligible. In addition, no vehicles washing and repairing will be conducted onsite, wastewater from vehicles washing and repairing is not anticipated. The loading and unloading platform is located within covered area.

4.4.9 A Sewerage Impact Assessment ("SIA") for the Centre is provided in a separate SIA report, which covers the assumptions and methods commonly adopted in Hong Kong. The SIA has concluded that there will be no unacceptable sewerage impact from the Site with the provision of recommended mitigation measures, i.e. Adequate capacity and number of toilets and wastewater storage tanks for sewage generated from the staff and wastewater generated from floor cleaning by mopping.

4.4.10 Non-point/diffuse source pollution, such as dust, tyre scraps, oil, etc. might be washed from road surface, proposed footpath and/or open areas into watercourses during regular cleaning or during rainstorms. In order to minimise this pollution loading, silt/sand traps and oil interceptors should be provided for the drainage systems of open areas in accordance with the relevant government guidelines. The onsite stormwater collection system and stormwater storage tank will be separates systems from the existing watercourse as shown on ***Figure 4.2***. No drainage diversion of the existing watercourse will be involved in the Project. A stormwater storage tank will be constructed to store the excessive runoff during extreme rainfall when the proposed stormwater collection system capacity of the U-channel has been exceeded, in order to minimise the occurrence of flooding of the site/ downstream area due to proposed development as far as possible. No wastewater will be collected by the stormwater storage tank. The underground stormwater storage tank with the capacity volume of approx. 2190 m^3 with dimensions of an area of 730 m^2 and 3m deep is proposed and located at the southwest of main block and near to the site entrance. During low intensity rainfall (normal operation), flow will be collected to the peripheral U-channel and discharged to the existing downstream box culvert. During heavy raining, runoff collected by the proposed peripheral U- channels, however, partial stormwater will bypass the U-channel and overflow into proposed stormwater storage tank. So that, no additional runoff flow from the Site. Catchpit with sand trap will be provided at the inlet and outlet of the stromwater storage tank to prevent debris. The stored stormwater from the water tank will be reused as much as practicable, including re-use on-site (e.g., floor mopping, toilet flush, etc.). The surplus water will be drained off to the existing downstream box culvert when there is low intensity rainfall. As sedimentation of collected runoff could take place inside the stormwater storage tank, due to a longer retention time. Therefore, the water quality could be better. The effluent from the internal stormwater system and stormwater storage tank will be rainwater after sedimentation, which is considered as "unpolluted water" in accordance with WPCO. Hence, it is considered that emergency plan is not required of overflow or leakage of stormwater storage tank. With the provided silt/sand traps and oil interceptors, debris/oil can be trapped and removed before being washed into watercourses. Regular cleaning and maintenance of these mitigation measures will be provided by the operator. Hence, no adverse impact on the existing watercourse is anticipated.

4.4.11 Moreover, runoff should be controlled by best management practice. At the outlets to watercourses, the Applicant or their delegated operation parties should manage the cleaning of roads and open areas within the Site before heavy rain. To further minimise pollution loading, cleaning should be carried out during low traffic periods. Cleaning methods for roads/open areas, such as manual cleaning or mechanical methods and including street sweepers are recommended to be adopted. The substances during cleaning should be collected as far as practicable for off-site disposal at landfill sites. After the removal of the substances, the pollution loading of runoff would be reduced.

4.4.12 Water would be used in water cooling tower for the cooling function in which, chemical such as biocide will be applied to prevent algae bloom, all the chemicals used, operation and maintenance shall comply with the requirements as stipulated in the Code of Practice for Fresh Water Cooling Towers – Part 2: Operation and Maintenance 2016 Edition published by the Electrical and Mechanical Services Department ("EMSD"). During the operation of the water cooling tower, water will be evaporated, so refilling water will be needed to maintain sufficient water for cooling function. During the operation, water inside cooling towers will evaporate and so it will be filled when needed. Besides, such water will be discharged only when needed, e.g., too much algae grown, etc.. Thus, small amount (i.e. less than $10m^3$) of the water inside the cooling system would be discharged as toilet flushing water. Moreover, water sampling and water quality test will be conducted before the discharge to the portable toilet and to ensure it will comply with the requirements stipulated in Water Pollution Control Ordinance and its Technical Memorandum for discharge which is also required by the EMSD's Code of Practice. Further treatment will be conducted if there is any exceedance of the WPCO before discharge. The installation work of the water cooling tower is simply and is expected will not generated any polluted or waste water during construction. Therefore, it is expected no adverse water quality impact is anticipated during construction and operation phases. Because the water inside the water cooling towers, sewage and other kinds of wastewater will be tankered away, pollution loading to Deep Bay will not be increased during the operation phase.

4.4.13 Agrochemical, including pesticides or fertilisers, may be used in the maintenance of the greenery area, subject to the practice by the future landscape contractor. Under normal circumstances, any application of pesticides and fertilisers would only be on a need basis based on the health condition of the vegetation and confined within a small area. Since the scale of the greenery area is relatively small, the amount of agrochemicals to be used would be very limited and will not cause adverse water quality impact on the runoff. Only registered agrochemicals under the Pesticides Ordinance shall be used. Bio-pesticides and pesticides with shorter half-life (i.e. non-persistence in nature) is recommended. The amount of agrochemicals to be applied and application frequency should follow the manufacturer's instructions. In addition, the application of agrochemicals before heavy rainstorm should be avoided. With the implementation of the recommended measures, no adverse water quality is anticipated.

4.4.14 With the provision and implementation of the aforementioned mitigation measures for non-point source pollution, adverse water quality impact due to runoff is not anticipated.

4.4.15 The existing watercourse will be decked over underneath the proposed development as shown on ***Figure 4.2***. A Drainage Impact Assessment ("DIA") for the Centre has been carried out and is presented in a separate DIA report appended to the Planning Statement. The DIA has concluded that the surface runoff induced by the Centre would not cause any adverse drainage impact on the existing downstream watercourse with the provision of the proposed internal drainage system and aboveground stormwater storage tank.

4.5 Mitigation Measures

Construction and Reinstatement Phase

4.5.1 During construction including filling activities and reinstatement, it is recommended that adequate capacity and number of portable toilets with adequate frequency for offsite disposal by a licenced collector should be provided for construction/reinstatement workers. These will be supplied, maintained and emptied (at a sewage treatment facility) by a specialist contractor.

4.5.2 In order to avoid muddy surface runoff from entering the existing watercourse, earth bunds or sand bag barriers shall be provided along the watercourse. Temporary construction drainage along the watercourses and site boundary shall be also provided to collect and direct the muddy runoff to the wastewater treatment facilities for treatment prior to being discharged. The design of the construction/reinstatement site drainage system shall be independent from the existing watercourse. The details of wastewater treatment arrangement shall be submitted to EPD for review during the application of the wastewater discharge licence before commencement of the construction/reinstatement activities.

4.5.3 The construction/reinstatement contractor shall also follow good site practice and be responsible for the design construction, operation and maintenance of all the mitigation measures a specified in ProPECC PN 1/94 for construction/reinstatement site drainage:

- Surface run-off from construction/reinstatement sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Temporary construction drainage or earth bunds or sand bag barriers shall be provided on site to properly direct storm water to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the Site so that it will not wash across the Site.
- Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.
- For the purpose of preventing soil erosion, temporarily exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest/edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.
- Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary.
- Measures shall be taken to minimise the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities.
- Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. Measures shall be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.
- Manholes shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.

4.5.4 In addition, the EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. The RPCC are generally good engineering practice to minimise inconvenience and environmental nuisance to nearby residents and other sensitive receivers. The general requirements are summarised as follows:

- The Contractor shall observe and comply with the WPCO and its subsidiary regulation.
- The Contractor shall carry out the Works in such as manner as to minimise adverse impacts on the water quality during execution of the works. In particular the Contractor shall arrange his method of working to minimise the effects on the water quality within and outside the Site, on the transport routes and at the loading, dredging and dumping areas.
- The Contractor shall follow the practices, and be responsible for the design, construction, operation and maintenance of all the mitigation measures as specified in the ProPECC PN 1/94 "Construction Site Drainage" issued by the Director of Environmental Protection. The design of the mitigation measures shall be submitted by the Contractor to the Engineer for approval.
- The Contractor shall not discharge directly or indirectly or cause or permit or suffer to be discharged into any public sewer, stormwater drain, channel, stream-course or sea any trade effluent or foul or contaminated water or cooling or hot water without the prior written consent of the Engineer in consultation with the Director of Environmental Protection and Director of Water Supplies, who may as a condition of granting his consent require to the Contractor to provide, operate and maintain at the Contractor's own expense to the satisfaction of the Engineer suitable works for the treatment and disposal of such trade effluent or foul or contaminated or cooling or hot water. The design of such treatment works shall be submitted to the Engineer for approval not less than one month before commencement of the relevant works.
- If any office, site canteen or toilet facilities is erected, foul water effluent shall be directed to a foul sewer or to a sewage treatment and disposal facilities either directly or indirectly by means of pumping or other means approved by the Engineer.

4.5.5 Measures recommended in Appendix D of ETWB No.5/2005 *Protection of natural streams/rivers from adverse impacts arising from construction works* shall be also implemented by Contractor to the construction/reinstatement works in the vicinity of natural rivers and streams are listed below:

- The proposed works site inside or in the proximity of natural rivers and streams should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props, to prevent adverse impacts on the stream water qualities. Other protective measures should also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the work site.
- The natural bottom and existing flow in the river should be preserved as much as possible to avoid disturbance to the river habitats. If temporary access track on riverbed is unavoidable, this should be kept to the minimum width and length. Temporary river crossings should be supported on stilts above the riverbed.
- Stockpiling of construction/reinstatement materials, if necessary, should be properly covered and located away from any natural stream/river.
- Construction/reinstatement debris and spoil should be covered up and/or properly disposed of as soon as possible to avoid being washed into nearby rivers/streams by rain.
- Construction/reinstatement effluent, site run-off and sewage should be properly collected and/or treated. Wastewater from a construction site should be managed with the following approach in descending order:
  (i) minimisation of wastewater generation;

(ii) reuse and recycle;

(iii) treatment.

Proper locations for discharge outlets of wastewater treatment facilities well away from the natural streams/rivers should be identified.

- Removal of existing vegetation alongside the riverbanks should be avoided or minimised. When disturbance to vegetation is unavoidable, all disturbed areas should be hydroseeded or planted with suitable vegetation to blend in with the natural environment upon completion of works.
- Adequate lateral support may need to be erected in order to prevent soil/mud from slipping into the stream/river, but without unduly impeding the flow during heavy rain
- Supervisory staff should be assigned to station on site to closely supervise and monitor the works.

4.5.6 In addition, detailed design of the platform and boundary of the construction/reinstatement site would consider avoidance of encroaching and adversely affecting the existing watercourse, maximising the distance between the works/development site and the existing watercourse, and providing sufficient buffer distance from the water during construction and reinstatement phases.

Operation Phase

4.5.7 During the operation phase, the sewage generated from the staff and floor cleaning by mopping will be collected by wastewater storage tanks and tankered away with adequate frequency for offsite disposal by a licenced collector. Adequate capacity and number of wastewater storage tanks with adequate frequency for offsite disposal by a licenced collector will be provided onsite. Therefore, no adverse water quality impact arising from the Proposed Development is anticipated.

4.5.8 As mentioned in ***paragraph 4.4.7***, the loading and unloading platform will be washed by mopping. No wastewater due to floor washing will be discharged into storm water drainage system.

4.5.9 All operation activities of the Proposed Development shall be carried out within the cold store buildings and on the roads, sufficient buffer distance from the water shall be provided during operation. Non-point/diffuse source pollution, such as dust, tyre scraps, oil, etc. might be washed from road surface, proposed footpath and/or open areas into watercourses during rainstorms.

4.5.10 In order to reduce pollution due to runoff, silt/sand traps and oil interceptors should be provided for the drainage systems of open areas whilst oil interceptors should be installed for the system of covered loading/unloading area in accordance with ProPECC PN5/93. In addition, runoff shall be controlled by best management practice.

4.5.11 In order to prevent flooding of the downstream area, a stormwater storage tank will be constructed to store the excessive runoff during extreme rainfall when the stormwater collection system capacity of the u-channels has been exceeded. Trash screens will be provided at the inlet and outlet of the stromwater storage tank to prevent debris. After the rainstorm, most of the stored stormwater from the water tank will either be reused on-site as much as practicable (e.g., floor mopping, toilet flush, etc.). The surplus water will be drained off to the existing box culvert after heavy raining in which mitigation measures, including silt/sand traps and oil interceptors, recommended in ***paragraph 4.5.10*** of the EA report will be provided. The outlet of the storage tank to be equipped with control e.g. valve so that the stormwater that are not used can be discharged into the box culvert after heavy raining under a controlled manner. The detailed design of the stormwater storage tank would be submitted to EPD and DSD for approval during detailed design stage.

4.5.12 In order to reduce pollution due to the use of agrochemical, including pesticides or fertilisers, only registered agrochemicals under the Pesticides Ordinance shall be used. Bio-pesticides and pesticides with shorter half-life (i.e. non-persistence in nature) is recommended. The amount of agrochemicals to be applied and application frequency should follow the manufacturer's instructions. In addition, the application of agrochemicals before heavy rainstorm should be avoided.

4.5.13 With the provision and implementation of the aforementioned mitigation measures for non-point source pollution, adverse water quality impact due to runoff is not anticipated.

4.6 Conclusion

4.6.1 During construction, water quality impacts can be properly controlled with the implementation of good site practice, as stated in ***paragraph 4.5.3***. Adequate capacity and number of portable toilets will be provided for constructions workers on-site. Provided these measures are implemented, it is unlikely that any adverse water quality impacts from the Site will be generated during the construction phase.

4.6.2 The contractor shall apply for a Discharge Licence from EPD under the WPCO. All site discharges shall be treated in accordance with the terms and conditions of the Discharge Licence.

4.6.3 During operation, no adverse water quality impact is anticipated from the wastewater / sewage from employees and regular cleaning of the loading / unloading area. The sewage generated from the staff and wastewater generated from floor cleaning by mopping inside a bucket and water cooling tower will be collected by wastewater storage tanks and tankered away with adequate frequency for offsite disposal by a licenced collector. With the provision of adequate capacity and number of the portable toilets with adequate frequency for offsite disposal by a licensed collector, no adverse water quality impact from the Proposed Development is anticipated.

4.6.4 Moreover, there will be no adverse water quality impact due to runoff with the provision and implementation of the recommended mitigation measures for non-point sources.

Figure 4.1: Locations of Water Sensitive Receivers

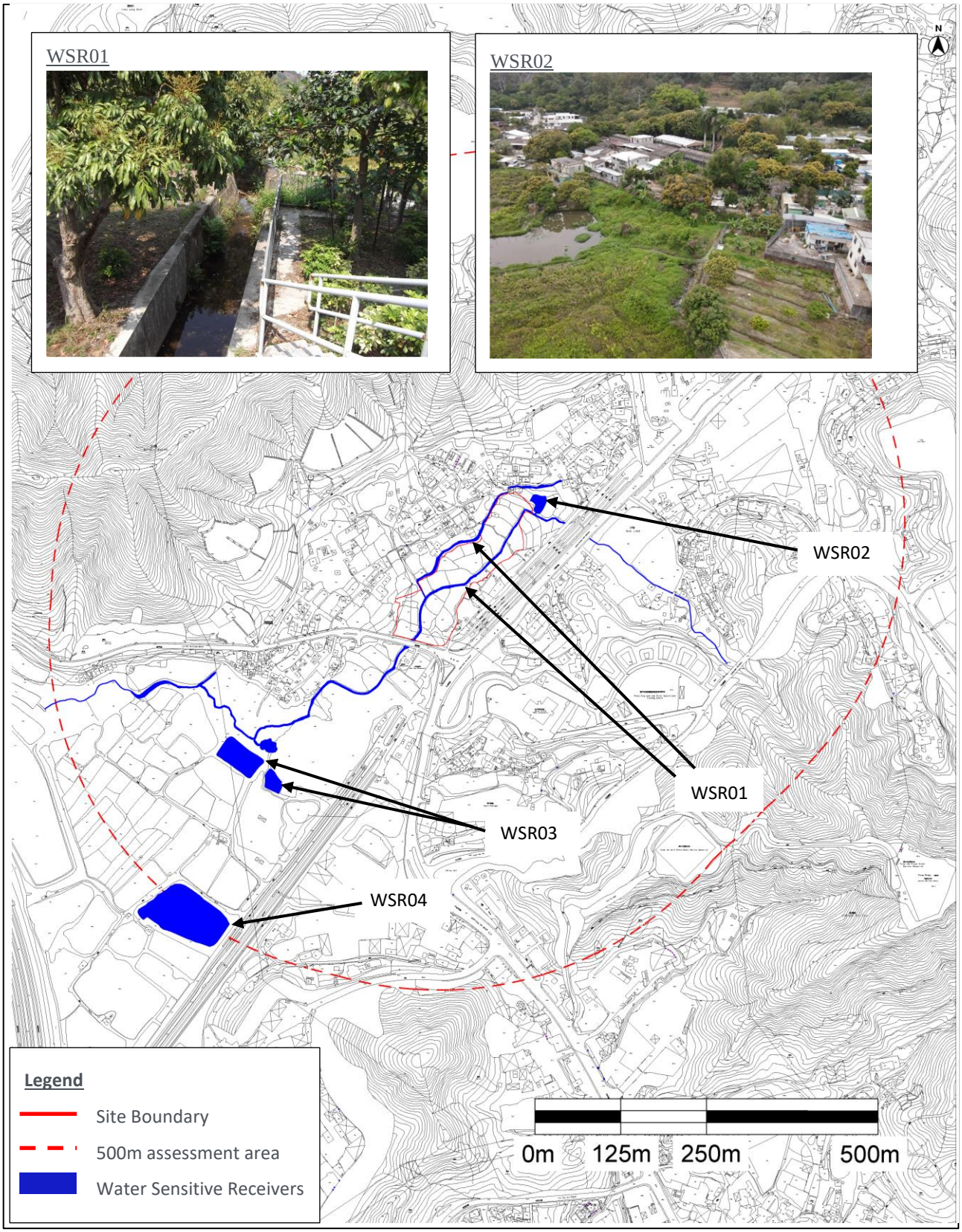
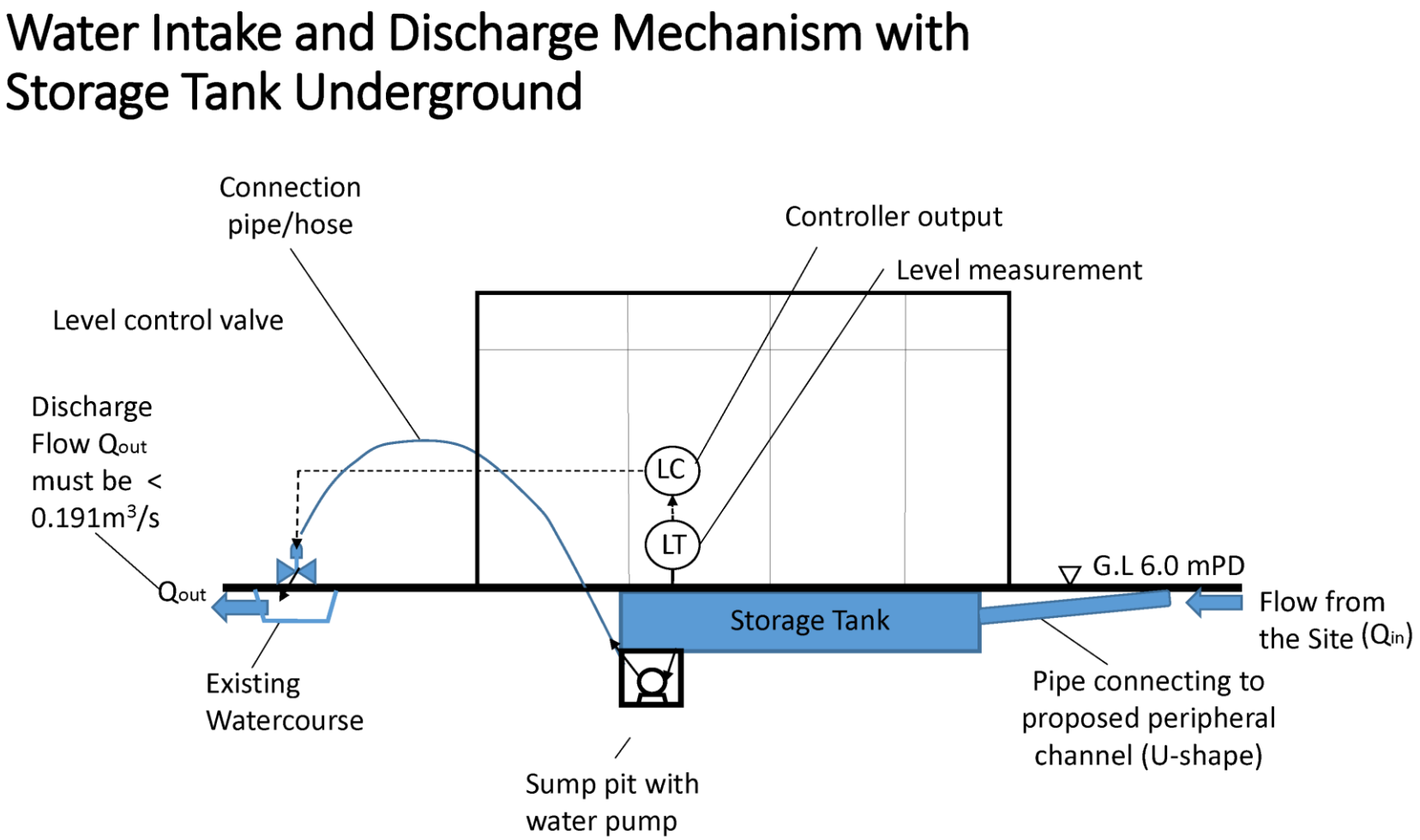


Figure 4.2: Water Intake and Discharge Mechanism with Storage Tank Underground



5 WASTE MANAGEMENT AND LAND CONTAMINATION

5.1 Introduction

5.1.1 This section assesses the potential impact related to waste management associated with the Proposed Development during construction and operation phases. Mitigation measures are recommended, where necessary, as part of the assessment.

5.2 Environmental Legislation and Standards

Waste Management

5.2.1 In carrying out the assessment, references have been made to the following relevant legislation, documents and guidelines that are applicable to waste management and disposal in Hong Kong:

5.2.2 The *Waste Disposal Ordinance* (Cap. 354) ("WDO") setting out requirements for storage, handling and transportation of all types of wastes, and subsidiary legislation such as the *Waste Disposal (Charges for Disposal of Construction Waste) Regulation* and the *Waste Disposal (Chemical Waste) (General) Regulation*.

- Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C).
- Waste Disposal (Charges for Disposal of Chemical Waste) Regulation (Cap. 354J).
- Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N).
- Land (Miscellaneous Provisions) Ordinance (Cap. 28).
- Public Health and Municipal Services Ordinance (Cap.132BK) – Public Cleansing and Prevention of Nuisances Regulation
- Environmental, Transport and Works Bureau ("ETWB") Technical Circular (Works) No. 19/2005, Environmental Management on Construction Sites.
- ETWB Technical Circular (Works) No. 22/2003A, Additional Measures to improve Site Cleanliness and Control Mosquito Breeding on Construction Sites.
- Development Bureau ("DevB") Technical Circular (Works) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials.
- Civil Engineering and Development Department ("CEDD") Technical Circulars (CEDD TC No. 11/2019), Management of Construction and Demolition Materials.
- Building Department Practice Note for Authorised Persons, Registered Structural Engineers and Registered Geotechnical Engineers Waste Minimisation – Construction and Demolition Waste ("ADV-19").
- Building Department Practice Note for Authorised Persons, Registered Structural Engineers and Registered Geotechnical Engineers Waste Minimisation – Provision of Fitments and Fittings in New Buildings ("APP-114").
- Building Department Practice Note for Registered Contractors ("PNRC 17"), Control of Environmental Nuisance from Construction Sites.
- CEDD Project Administration Handbook for Civil Engineering Works ("PAH").
- EPD Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.
- EPD Recommended Pollution Control Clauses ("RPCC") for Construction Contracts in COP.

Land Contamination

5.2.3 The land contamination assessment has been conducted in accordance with the following legislation, standard and guidelines:

- EPD Guidance Note for Contaminated Land Assessment and Remediation.
- EPD Practice Guide for Investigation and Remediation of Contaminated Land.
- Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management

5.3 Potential Impacts

Construction Phase

5.3.1 The key potential waste sources during the construction phase are:

- Inert Construction and Demolition ("C&D") materials (e.g. waste concrete, surplus soil, waste asphalt, etc.).
- Non-inert C&D Waste (e.g. wood and plastics).
- Chemical wastes such as ACMs, and waste battery and waste lubricating oil from vehicles / plant maintenance
- General refuse generated by site workers.

Inert C&D Materials

5.3.2 Inert C&D materials are those which do not decompose, such as debris, rubble, earth and concrete, and which are suitable for land reclamation and site formation.

5.3.3 The major source on inert C&D materials during construction will be excavation for removal of paving and demolition of the existing small village house within the Site.

5.3.4 The quantity of demolition waste generated from the demolition of the existing small village house within the Site has been estimated in ***Table 5.1.***

Table 5.1: Estimated Quantity of Demolition Waste

BUILDING NAME	BUILDING TYPE	GENERATION RATE (kg/m^2 GFA)*	GFA (m^2)	WASTE QUANTITY (kg)	WASTE QUANTITY (TONNES)
The Existing Village House	Residential	561	161	90,321	90

Note:

* The approximate generation rates of 561kg/m^2 for residential use were converted from the average generation rates of 115lb/ft^2 in Table 5 from *Characterization of Building-Related Construction and Demolition Debris*, Franklin Associates, USEPA, 1998.

5.3.5 According to the most recent Site inspections carried out on 23 March 2018 and 19 September 2018, majority of the Site is covered by vegetation (about 99% of the site area), paving was observed at the existing stream and a small village house at the eastern boundary (about 1% of the site area) only. An additional site visit was conducted on 23 March 2021 to verify the site condition. There is no change of the site condition in compared with the observation in 2018. The existing condition of the Site is shown on ***Figure 5.1***. Only paving of the small village house

will be removed. As a conservative estimation, the area of the paving of the small village house is about 161m^2. Assuming a typical slab thickness of 0.2m, approximately 32m^3 (161m^2 x 0.2m) or 77 tonnes waste concrete (based on a concrete density of 2,400kg/m^3) of paving to be disposed of.

Figure 5.1: Existing Condition within the Site in March 2021

5.3.6 The current elevation of the Site ranged from +4.5mPD to +6.13mPD. After re-profiling, the final elevation of the Site will be from+6.0mPD to +7.05mPD. For a conservative estimation, it is assumed to excavate an average depth of 1.0m across the 16,060m^2 site area, resulting in around 16,060m^3 or 25,696 tonnes (based on a soil density of 1,600kg/m^3) excavated materials.

5.3.7 In addition, construction wastes will also be generated during construction of the proposed development. This includes inert C&D materials, such as concrete waste, waste from blockwork and brickwork, waste from screeding and plastering; and non-inert C&D materials (or C&D waste) from timber formwork, packaging waste and other wastes.

5.3.8 Section 3.2 of A Guide for Managing and Minimizing Building and Demolition Waste published by The Hong Kong Polytechnic University in May 2001 provides a "waste index" for building waste generation in Hong Kong based on the GFA of three different building types:

- Private Housing Projects 0.250m^3/m^2 GFA
- Government Housing Projects 0.174m^3/m^2 GFA
- Commercial Office Projects 0.200m^3/m^2 GFA

5.3.9 To provide a conservative estimate of building waste from the Proposed Development, the "waste index" for commercial office projects are adopted. However, as noted above, in addition to inert C&D materials, this "waste index" also include non-inert C&D materials (or C&D wastes), such as timber formwork, packaging waste and other wastes, and the Guide does not identify what proportion of building waste is inert C&D materials and what proportion is non-inert C&D materials (or C&D waste).

5.3.10 Plate 2.12 of EPD's Monitoring of Solid Waste in Hong Kong – Waste Statistics for 2020 identifies that in 2020, 95% of construction waste was either reused on-site or off-site or was sent to public fill reception facilities, meaning it must be inert C&D materials. The proportion of inert C&D materials in the "waste index" can therefore be estimated by applying the Hong Kong-wide proportion of inert C&D materials in construction waste, i.e. 95%, to the "waste index" as follows:

$$\text{Waste Index}_{\text{Inert C\&D materials (Commercial Office Projects)}} = 0.95 \times 0.200 m^3/m^2 \text{ GFA}$$
$$= 0.19 m^3/m^2 \text{ GFA}$$

5.3.11 The inert C&D materials component of building waste from the Proposed Development, which has a GFA of about 11,615m^2, can therefore be estimated as follows:

$$\text{Building Waste} = \text{Waste Index}_{\text{Inert C\&D materials (Commercial Office Projects)}} \times \text{GFA}$$
$$= 0.19 \times 11{,}615$$
$$= 2{,}207 m^3$$

5.3.12 Assuming the density of inert C&D materials is 1.8 tonnes/m^3, the Project would give an estimated building wastes of around 3,972 tonnes to be disposed of.

Table 5.2: Total Estimated Inert C&D Materials Generated During Construction

INERT C&D MATERIAL TYPE	ESTIMATED INERT C&D MATERIAL GENERATION (TONNES)
Stage: Site Clearance and Formation	
Demolition of Existing Village House	90
Paving	77
Excavated Material	25,696
Stage: Infrastructure Construction	
Building Waste	3,972
Total	**29,835**

5.3.13 In total, therefore, an estimated 29,835 tonnes of inert C&D materials may be generated throughout the 2 years construction period, equivalent to around 48tpd on average assuming 6 working days per week (i.e. 29,835 tonnes/(365 days x (6/7) x 2 years)).

5.3.14 Inert C&D materials should be reused on-site as far as practicable and efforts should be made to optimise cut and fill requirements during the detailed design. Good site practice and mitigation measures recommended in ***Section 5.4*** should be implemented. Surplus inert C&D materials

should be sent off-site for reuse or recycle as far as practicable. The remaining materials should be sent to pubic fill reception facilities, Fill Bank at Tuen Mun Area 38 and Fill Bank at Tseung Kwan O Area 137.

5.3.15 About 4,071m^2 area of the Site area will be required to be fill with depth of not more than 1.5m during the construction phase. Hence, about 6,107m^3 fill materials will be required for the Proposed Development. Therefore, 6,107m^3 (i.e. 9,771 tonnes) excavated material will be reused onsite as fill materials. The surplus inert C&D material of about 20,064 tonnes (i.e. 32tpd on average assuming 6 working days per week) will be disposed of at public fill reception facilities. Moreover, the reuse of inert C&D materials in public filling reception facilities would be agreed with relevant authorities before disposal. As the excavated materials generated from the Site will be sufficient for the filling works. It is expected that no imported fill should be required for the Project.

5.3.16 Given the above, no adverse waste impact from the handling, transportation or disposal of inert C&D materials during construction of the Project is anticipated.

Non-inert C&D Materials (or C&D Waste)

5.3.17 Non-inert C&D materials (or C&D waste), are those which can decompose such as bamboo, timber, vegetation, packaging waste and other organic material, and which are therefore unsuitable for land reclamation.

5.3.18 The major source on non-inert C&D materials during construction will be removal of topsoil and vegetation during site formation and building waste including non-inert C&D materials such as timber formwork, packaging waste.

5.3.19 Topsoil is the uppermost layer of soil capable of growing and supporting vegetation. Assuming the average depth of the topsoil is 0.25m and with density of 1,600kg/m^3, the quantity of the topsoil generated during site formation would be 3,975m^3 (i.e. 16,060m^2 x 99% x 0.25m) or 6,360 tonnes.

5.3.20 As shown on ***Figure 5.1***, majority of the Site is covered by grass. About 100 trees will be felled in accordance with the Landscape Plan. It is estimated that the quantity of vegetation generated during site formation will be less than 200 tonnes.

5.3.21 The building waste are included in the "waste index" provided in the Guide, discussed above, however, this also includes inert C&D materials.

5.3.22 Plate 2.12 of Waste Statistics for 2020 identifies that in 2020, 5% of construction and demolition waste, which is classified as non-inert C&D materials (or C&D waste), was disposed of in landfills. The proportion of non-inert C&D materials (or C&D waste) in the "waste index" can therefore be estimated by applying the Hong Kong-wide proportion of non-inert C&D materials (or C&D waste) in construction waste, i.e. 5%, to the "waste index" as follows:

$$\text{Waste Index}_{\text{Non-Inert C\&D materials (Commercial Office Projects)}} = 0.05 \times 0.200 m^3/m^2 \text{ GFA}$$
$$= 0.01 m^3/m^2 \text{ GFA}$$

5.3.23 Hence, the non-inert C&D materials (or C&D waste) components in building waste can therefore be estimated as follows:

Building Waste = Waste Index $_{\text{Non-Inert C\&D materials (Commercial Office Projects)}}$ x GFA

= 0.01 x 11,615

= 116m^3

5.3.24 Assuming the density of non-inert C&D materials is 1.0 tonnes/m^3, the Project would give an estimated building wastes of around 116 tonnes to be disposed of, equivalent to around 0.19m^3 or 0.19tpd on average on average assuming 6 working days per week throughout the 2 years construction period.

Table 5.3: Total Estimated Non-Inert C&D Materials Generated During Construction

INERT C&D MATERIAL TYPE	ESTIMATED NON-INERT C&D MATERIAL GENERATION (TONNES)
Stage: Site Clearance and Formation	
Topsoil	6,360
Vegetation	200
Stage: Infrastructure Construction	
Building Waste	116
Total	**6,676**

5.3.25 In total, therefore, an estimated 6,676 tonnes of non-inert C&D materials may be generated throughout the 2 years construction period, equivalent to around 11tpd on average assuming 6 working days per week (i.e. 6,676 tonnes/(365 days x (6/7) x 2 years)).

5.3.26 On-site sorting should be carried out for non-inert C&D materials generated from the works. Recyclable materials, such as metal, paper product, timber and plastic, should be collected by local recyclers for recycling. All non-inert C&D materials should be recycled as far as possible and landfill disposal should be adopted as the last resort. This nearest disposal facility is North East New Territories Landfill ("NENT") Landfill.

5.3.27 With reference to the historical review in ***Section 5.5***, the Site was mainly used for farming in the past. Therefore, the topsoil is recommended to be reused for the greenery area of the Proposed Development as far as possible, which the greenery area will be approximately 4,106m^2 as shown in the Landscape Master Plan. Assuming an average depth of 0.5m soil for the greenery area, the quantity of topsoil required should be about 2,053m^3 or 3,285 tonnes (based on a soil density of 1,600kg/m^3). Hence, there will be about 3,075 tonnes surplus topsoil to be disposed of at the NENT subject to the quality of the topsoil and future detailed design of the greenery area.

5.3.28 The quantity of the generated non-inert building waste could be recycled/reused is expected to be no more than 10% of the generated amount in view of the scale of the Project. As such, it is estimated that the quantity of non-inert C&D wastes to be on-site reused / recycled is 12m^3 or 12 tonnes.

5.3.29 The surplus non-inert C&D material, including topsoil and building waste, of about 3,391 tonnes (i.e. 5.4pd) on average assuming 6 working days per week throughout the 2 years construction period (i.e. 3,391 tonnes/(365 days x (6/7) x 2 years)) would be disposed of at the NENT.

Moreover, the disposal of C&D wastes to landfills would be agreed with relevant authorities before disposal.

5.3.30 Given the above, no adverse waste impact from the handling, transportation or disposal of non-inert C&D materials (or C&D waste) during construction of the Proposed Development is anticipated.

General Refuse

5.3.31 General refuse from workers is similar to domestic waste and includes packaging and organic material.

5.3.32 The numbers of workers will depend on the construction methods employed and on which contractor carries out the work. Based on industry experience, we estimate the number of construction workers for a project of this size would average around 100 per day over the 2-year construction period.

5.3.33 Each construction worker will generate general refuse, which is similar to domestic waste. Plate 2.7 of Waste Statistics for 2020 identifies that the per capita domestic waste disposal rate in 2020 was 0.91kg/person/day, although the per worker generation rate of general refuse will likely be less than this. However, to be conservative, the per capita domestic waste disposal rate in 2020 has been adopted for general refuse generation by construction workers. On this basis:

General Refuse/Day = No. of workers/day x per capita generation rate
= 100 workers x 0.91kg/workers/day
= 91kg/day

Total General Refuse = General Refuse/Day x Duration of construction contract
= 91kg/day x [6 days/week X (365/7) weeks/years x 2 year]
= 56,940kg
= 57 tonnes

5.3.34 Hence, an estimated 57 tonnes of general refuse may be generated throughout the 2 years construction period, equivalent to around 0.091tpd on average (i.e. 57 tonnes/(365 days x (6/7) x 2 years)).

5.3.35 On-site sorting should be carried out general refuse generated from the works. Recyclable materials, such as metal, paper and plastic, should be collected by local recyclers for recycling. All general refuse should be recycled as far as possible and landfill disposal should be adopted as the last resort. This nearest disposal facility is North West New Territories Transfer Station ("NWNTRTS").

5.3.36 Plate 3.2 of Waste Statistics for 2020 identifies that in 2020, the recovery rate of domestic waste is 19%. It is therefore estimated that 19% of general refuse (i.e. 10.8 tonnes) of general refuse could be reused and recycled by the recyclers. The surplus general refuse of 46.2 tonnes (i.e. 0.074 tpd on average assuming 6 working days per week throughout the 2 years construction period) would be disposed of at the NWNTRTS.

5.3.37 Given the above, no adverse waste impact from the handling, transportation or disposal of general refuse from workforce during construction of the Proposed Development is anticipated.

Chemical Waste

5.3.38 Some temporary structure within the Site will be demolished during the construction phase. The temporary structures are inaccessible at this moment Due to the age of the structure, ACM may be present in these temporary structures. Under the APCO, asbestos investigation shall be conducted by Registered Asbestos Consultant ("RAC") before demolition work potentially involving ACMs. If any ACMs is identified, an Asbestos Investigation Report ("AIR") and an Asbestos Abatement Plan ("AAP") shall be submitted to EPD. A Registered Asbestos Contractor ("RACont") shall be engaged to carry out asbestos abatement work according to the approved AIR and AAP before demolition. The owner of the premises must notify the Labour Department and the EPD at least 28 days before the commencement of the asbestos abatement works in accordance with the regulatory requirement.

5.3.39 If additional ACMs is discovered during the work, demolition shall be suspended and inform the RAC immediately, the RAC shall submit the modified AAP to the EPD after the investigation. An air sampling test shall be conducted by a Registered Asbestos Laboratory ("RAL") at the working area when all ACMs has been removed, in order to verify there is no asbestos fibre left suspended in the air.

5.3.40 The asbestos waste labelling, handling and packaging depends on the type of ACMs. All the handling, collection and transportation and disposal of asbestos waste shall be carried out according to EPD's Code of Practice on the Handling, Transportation and Disposal of Asbestos Waste. The quantity of the asbestos to be generated depends on the investigation and asbestos abatement plan carried out by RAC.

5.3.41 Except the ACMs, no hazardous materials or hazardous wastes are expected to be generated during the construction phase. Since majority of maintenance/repairing for construction equipment to be carried out off-site during construction stage, only limited amount (i.e. < 1 tonnes) of chemical wastes including waste batteries, lubricating oil and waste paints may be generated given the small scale of the works. Other chemical wastes include waste lamp will be generated and the amount will be insignificant.

5.3.42 The Contractor shall register as a Chemical Waste Producer under the WDO. All chemical waste shall be stored at a properly designed chemical waste storage area located within the construction site in accordance with EPD's Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. A licensed collector shall be employed to handle and dispose of all chemical wastes, e.g. at the Chemical Waste Treatment Centre ("CWTC") at Tsing Yi, or other facility approved by EPD.

5.3.43 Given the above, no adverse waste impact from the handling, transportation or disposal of chemical waste during the construction of the Proposed Development is anticipated.

Summary

5.3.44 The type and estimated quantities of different types of wastes generated during the construction phase are summarised in ***Table 5.4***.

Table 5.4: Estimated amount of different types of wastes to be generated during construction phase

WASTE TYPE	ESTIMATED QUANTITY (TONNES)	KEY SOURCES OF WASTE GENERATION	MANAGEMENT OPTION	
			REUSE / TREATMENT	DISPOSAL
Inert C&D Material				
Demolition waste	90	Site clearance and formation	The opportunities for on-site reuse of inert C&D materials will be considered. 9,771 tonnes excavated material to be reused as fill material.	The surplus inert C&D material will be disposed of at Fill Bank at Tuen Mun Area 38 and Tseung Kwan O Area 137.
Paving	77			
Excavated Material	25,696			
Building Waste	3,972	Infrastructure construction		
Non-Inert C&D Material				
Topsoil	6,360	Site clearance and formation	About 3,285 tonnes topsoil to be reused onsite for greenery area.	About 3,391 tonnes topsoil to be disposed of at NENT landfill.
Vegetation	200		Nil	All disposed of at NENT landfill.
Building Waste	116	Infrastructure construction	About 12 tonnes to be reused onsite.	About 104 tonnes to be disposed of at NENT landfill.
General Refuse	57	Construction worker and site office	About 10.8 tonnes to be recycled by recyclers.	About 46.2 tonnes to be disposed of at NWNTRTS.
Chemical Waste	< 1	Waste batteries, lubricating oil and waste paints, etc	All to be collected by the licensed chemical waste collector and treated in the CWTC.	
ACM	Depends on the asbestos investigation and asbestos abatement plan	Asbestos waste	Supervision of the asbestos waste handling and packaging for disposal by RAC and follow the relevant legislation, guidelines and Code of Practice on Asbestos	

Operation Phase

5.3.45 During the operation phase, the major type of waste generated will be waste from office and cold store. According to the EPD's *Monitoring of Solid Waste in Hong Kong – Waste Statistic for 2020* and shows the most recent per municipal solid waste disposal rate to be 1.44kg/person/day. The estimated total staffs of the Proposed Development would be about 200 people, so the quantity of commercial waste disposed of is expected to be less than 90 tonnes per year.

5.3.46 Plate 3.2 of Waste Statistics for 2020 identifies that in 2020, the recovery rate of municipal solid waste is 28%. It is therefore estimated that 28% of commercial waste (i.e. 25 tonnes) could be reused and recycled by the recyclers.

5.3.47 The surplus commercial waste of 65 tonnes (i.e. 0.178 tpd on average assuming 7 working days per week) would be disposed of at the NWNTRTS.

5.3.48 Since commercial waste will be collected on a regular basis by registered waste collectors, and since commercial waste will be disposed at a landfill managed by EPD, no adverse waste impacts from handling, transportation or disposal are anticipated. Nevertheless, to minimise domestic waste generation mitigation measures proposed in ***Section 5.4*** should be implemented.

5.3.49 Overall, there should be no adverse waste impact from the handling, transportation or disposal of domestic waste during the operation of the Proposed Development.

Reinstatement Phase

5.3.50 During the reinstatement phase, the major type of wastes are inert construction and demolition ("C&D") materials, non-inert C&D Materials, chemical wastes and general refuse

Inert C&D Materials

5.3.51 The major source of inert C&D waste during the reinstatement phase is the filling material in the construction phase which used for adjusting the level of the Site.

5.3.52 As mentioned in ***paragraph 5.3.15***, approximately 6,107m^3 (i.e. 9,771 tonnes) of excavated material will be used for levelling the ground of the Site. Therefore, approximate 9,771 tonnes of filling material will be required to be removed during the reinstatement phase. The inert C&D materials will be disposed of at Fill Banks Tuen Mun Area 38 and/or Tseung Kwan O Area 137.

5.3.53 Given the above, with the implementation of mitigation measures in ***Section 5.4***, no adverse waste impact from the handling, transportation or disposal of inert C&D materials during construction of the Project is anticipated.

Non-inert C&D Materials (or C&D Waste)

5.3.54 The major source of non-inert C&D materials (or C&D waste) during reinstatement phase will be removal of superstructures which are mainly composed of metal (i.e. steel). It is estimated the total amount of metal of structure to be demolished to be approximately 290 tonnes. All the non-inert C&D materials (metal) should be collected by local recyclers for recycling.

General Refuse

5.3.55 It is estimated that the number of construction workers for a project of this size would average around 100 per day over the 1-year construction period.

5.3.56 With reference to plate 2.7 of Waste Statistics for 2020 identifies that the per capita domestic waste disposal rate in 2020 was 0.91kg/person/day, although the per worker generation rate of general refuse will likely be less than this. However, to be conservative, the per capita domestic waste disposal rate in 2020 has been adopted for general refuse generation by construction workers. On this basis:

General Refuse/Day	=	No. of workers/day x per capita generation rate
	=	100 workers x 0.91kg/workers/day
	=	91kg/day
Total General Refuse	=	General Refuse/Day x Duration of construction contract
	=	91kg/day x [6 days/week X (365/7) weeks/years x 1 year]
	=	28,470kg
	=	28 tonnes

5.3.57 Hence, an estimated 28 tonnes of general refuse may be generated throughout the 1 year construction period, equivalent to around 0.089tpd on average (i.e. 28 tonnes/(365 days x (6/7) x 1 year)).

5.3.58 On-site sorting should be carried out general refuse generated from the works. Recyclable materials, such as metal, paper and plastic, should be collected by local recyclers for recycling. All general refuse should be recycled as far as possible and landfill disposal should be adopted as the last resort. This nearest disposal facility is North West New Territories Transfer Station (NWNTRTS).

5.3.59 Plate 3.2 of Waste Statistics for 2020 identifies that in 2020, the recovery rate of domestic waste is 19%. It is therefore estimated that 19% of general refuse (i.e. 5.3 tonnes) of general refuse could be reused and recycled by the recyclers. The surplus general refuse of 22.7 tonnes (i.e. 0.073 tpd on average assuming 6 working days per week throughout the 1 year demolition period) would be disposed of at the NWNTRTS.

5.3.60 Given the above, with the implementation of mitigation measures in ***Section 5.4***, no adverse waste impact from the handling, transportation or disposal of general refuse from workforce during construction of the Proposed Development is anticipated.

Chemical Waste

5.3.61 No hazardous materials or hazardous wastes are expected to be generated during the reinstatement phase. Since majority of maintenance/repairing for construction equipment to be carried out off-site during reinstatement phase, only limited amount (i.e. < 1 tonnes) of chemical wastes including waste batteries and lubricating oil may be generated given the small scale of the works. Other chemical wastes include waste lamp will be generated and the amount will be insignificant.

5.3.62 The Contractor shall register as a Chemical Waste Producer under the WDO. All chemical waste shall be stored at a properly designed chemical waste storage area located within the construction site in accordance with EPD's Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. A licensed collector shall be employed to handle and dispose of all chemical wastes, e.g. at the CWTC at Tsing Yi, or other facility approved by EPD.

5.3.63 Given the above, with the implementation of mitigation measures in ***Section 5.4***, no adverse waste impact from the handling, transportation or disposal of chemical waste during the construction of the Proposed Development is anticipated.

Summary

5.3.64 The type and estimated quantities of different types of wastes generated during the reinstatement phase are summarised in ***Table 5.4***.

Table 5.5: Estimated amount of different types of wastes to be generated during reinstatement phase

WASTE TYPE	ESTIMATED QUANTITY (TONNES)	KEY SOURCES OF WASTE GENERATION	MANAGEMENT OPTION	
			REUSE / TREATMENT	DISPOSAL
Inert C&D Material				
Excavated Material	9,771	Removal of filling materials	NA	The inert C&D material will be disposed of at Fill Bank at Tuen Mun Area 38 and Tseung Kwan O Area 137.
Non-Inert C&D Material				
Building Waste (Metal)	290	Superstructure Demolition (including metal from structure)	All the metal will be collected by local recycler.	NA
General Refuse	28	Construction worker and site office	About 5.3 tonnes to be recycled by recyclers.	About 22.7 tonnes to be disposed of at NWNTRTS.
Chemical Waste	< 1	Waste batteries, lubricating oil, etc	All to be collected by the licensed chemical waste collector and treated in the CWTC.	

5.4 Mitigation Measures

Construction Phase and Reinstatement Phase

5.4.1 Waste management shall be controlled through contractual requirements as well as through statutory requirements.

5.4.2 A Waste Management Plan ("WMP") should be developed by the contractor and submitted to the Project Engineer / Architect for approval in accordance with ADV-19 before the commencement of any construction works. The objectives of the WMP will be to identify any potential environmental impacts from the generation of waste at the Site; to recommend appropriate waste handling, collection, sorting, disposal and recycling measures in accordance with requirements of the current regulations; and to categorise and permit segregation of C&D materials where practicable (i.e. inert material / non-inert material) for disposal considerations i.e. public fill / landfill.

5.4.3 The contractors should adopt good housekeeping practices with reference to the WMP such as waste segregation prior to disposal. Besides the provision of stockpiling and segregating areas at site, effective collection of site wastes is required to prevent waste materials being blown

around by wind, flushed or leached into nearby waters, or creating odour nuisance or pest and vermin problems. Waste storage areas should be well maintained and cleaned regularly.

5.4.4 A trip-ticket system should be established in accordance with DevB TC(W) No. 6/2010 and the *Waste Disposal (Charges for Disposal of Construction Waste) Regulation* to monitor the disposal of public fill and solid wastes at public filling facilities and landfills, and to control fly-tipping. A trip-ticket system should be included as one of the contractual requirements for the contractor to strictly implement.

5.4.5 Whenever there are excess recyclable construction materials, including bricks, plastics and metals, reuse and recycling should be carried out as far as practicable to minimise the amount of waste disposal. Other inert non-recyclable materials such as concrete, asphalt, etc. should be treated as public fill. Non-inert and non-recyclable wastes should be disposed at designated landfill site.

5.4.6 General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the construction contractor to remove general refuse from the Site, separately from C&D materials. Preferably an enclosed and covered area should be provided to reduce the occurrence of "wind-blown" materials.

5.4.7 For chemical waste, the Contractor should follow the 'trip-ticket' system of which the arrangement of production, collection and disposal in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.

5.4.8 In addition, the EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. The RPCC are generally good engineering practice to minimise inconvenience and environmental nuisance to nearby residents and other sensitive receivers. The general requirements as summarised as follows:

- The Contractor shall observe and comply with the *WDO* and its subsidiary.
- The Contractor shall submit to the Engineer for approval a waste management plan with appropriate mitigation measures including allocation of an area for waste segregation and shall ensure that the day-to-day site operations comply with the approved waste management plan.
- The Contractor shall minimise the generation of waste from his work. Avoidance and minimisation of waste generation can be achieved through changing or improving design and practices, careful planning and good site management.
- The Contractor shall ensure that different types of wastes are segregated on-site and stored in different containers, skips or stockpiles to facilitate reuse / recycling of waste and, as the last resort, disposal at different outlets as appropriate.
- The reuse and recycling of waste shall be practised as far as possible. The recycled materials shall include paper / cardboard, timber and metal etc.
- The Contractor shall ensure that C&D materials are sorted into public fill (inert portion) and C&D waste (non-inert portion). The public fill which comprises soil, rock, concrete, brick, cement plaster/mortar, inert building debris, aggregates and asphalt shall be reused such as earth filling, reclamation, site formation works, etc. as far as practicable, and disposed of at Fill Bank as the last resort. The C&D waste which comprises metal, timber, paper, glass, etc. shall be reused and recycled as far as practicable, and, as the last resort, disposal of at landfills.

- The Contractor shall record the amount of waste generated, recycled and disposed of (including the disposal sites).
- The Contractor shall use a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill.
- Training shall be provided for workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.
- The Contractor shall not permit sewage and untreated effluent containing sand, cement, silt or any other suspended or dissolved material to flow from the Site onto any adjoining land, or allow any solid waste including refuse which is not part of the final product from waste processing plants to be deposited anywhere within the Site and the adjoining land. He shall arrange removal of such matter from the Site in a proper manner to the satisfaction of the Engineer in consultation with the EPD.
- The Contractor shall observe and comply with the *Waste Disposal (Chemical Waste) (General) Regulation*.
- The Contractor shall apply for registration as chemical waste producer under the *Waste Disposal (Chemical Waste) (General) Regulation* when chemical waste is produced. All chemical waste shall be properly stored, labelled, packaged and collected in accordance with the Regulation.

5.4.9 When inclement weather (e.g. heavy rain, typhoon, etc.) is forecast, additional control measures should be adopted as follows:

- Construction material, stockpiles, chemical and waste storage / recycling facilities should be immediately moved to secured area.
- Construction material, stockpiles and waste storage / recycling facilities should be covered by an impermeable sheeting, if necessary.
- Intercepting channels will be provided at the edge of the excavated area to prevent storm runoff from washing across the exposed surface.
- Silt removal facilities, channels and manholes will be maintained and the deposited silt and grit will be removed regularly.

Operation Phase

5.4.10 The centre management shall encourage reuse and recycling of commercial wastes in line with government policy. The waste management hierarchy shall be adopted by the building management to manage commercial wastes in a sustainable manner. The waste management hierarchy is a concept which shows the desirability of various waste management methods and comprises the following in order of preference:

- Avoidance.
- Minimisation.
- Recycling/reuse.

5.4.11 The majority of waste generated during the operation of the Proposed Development will mainly comprise general refuse and commercial wastes such as food waste, food packaging, paper, can, plastic bottles, etc., which shall be collected and stored in appropriate waste receptacles with a secure lid to minimise the potential adverse impact due to wind blowing away any waste and to improve hygiene. Recyclable and non-recyclable waste shall be regularly collected by licenced waste collectors and taken off-site for recycling or disposal, respectively.

5.5 Land Contamination

5.5.1 Historical aerial photographs provided in ***Appendix H*** shows that the Site was an agriculture land in Year 1976 to 1990s, which the historical agricultural activities unlikely caused land contamination. In Year 1996, part of the previous agriculture land at the southern part of the Site was observed abandoned and covered with vegetation while the northern part of the Site remained as agriculture use. A village house was observed at the eastern boundary. The trend of abandoning agriculture uses within the Site was continued in 2000s and 2010s. Only a small portion of land at the northern part of the Site remained as agriculture use. In Year 2016, all the previous agriculture uses were abandoned. The entire Site was vacant and covered with vegetation and a village house was observed at the eastern boundary. There is no evidence of any past land use, either agriculture land, vacant land or residential use, within the Site that could have resulted in contamination. As such, there is no reason to suspect that contaminated land was present within the Site.

5.5.2 The Site is currently a vacant land with a village house adjacent to the eastern boundary of the Site. Majority of the Site is covered by vegetation. No landuse with potential land contamination activities on the Site was observed. The photographs taken in March 2018 and March 2021 are provided in ***Figure 5.2*** for reference. As shown on the ***Figure 5.2***, the Site is currently a vacant land covered with vegetation and the Site is surrounded by village houses. No development or activities with potential land contamination activities were identified during the site visit.

5.5.3 No existing and previous development with potential land contamination activities on the Site is identified. Hence, no land contamination issue is anticipated.

5.6 Conclusion

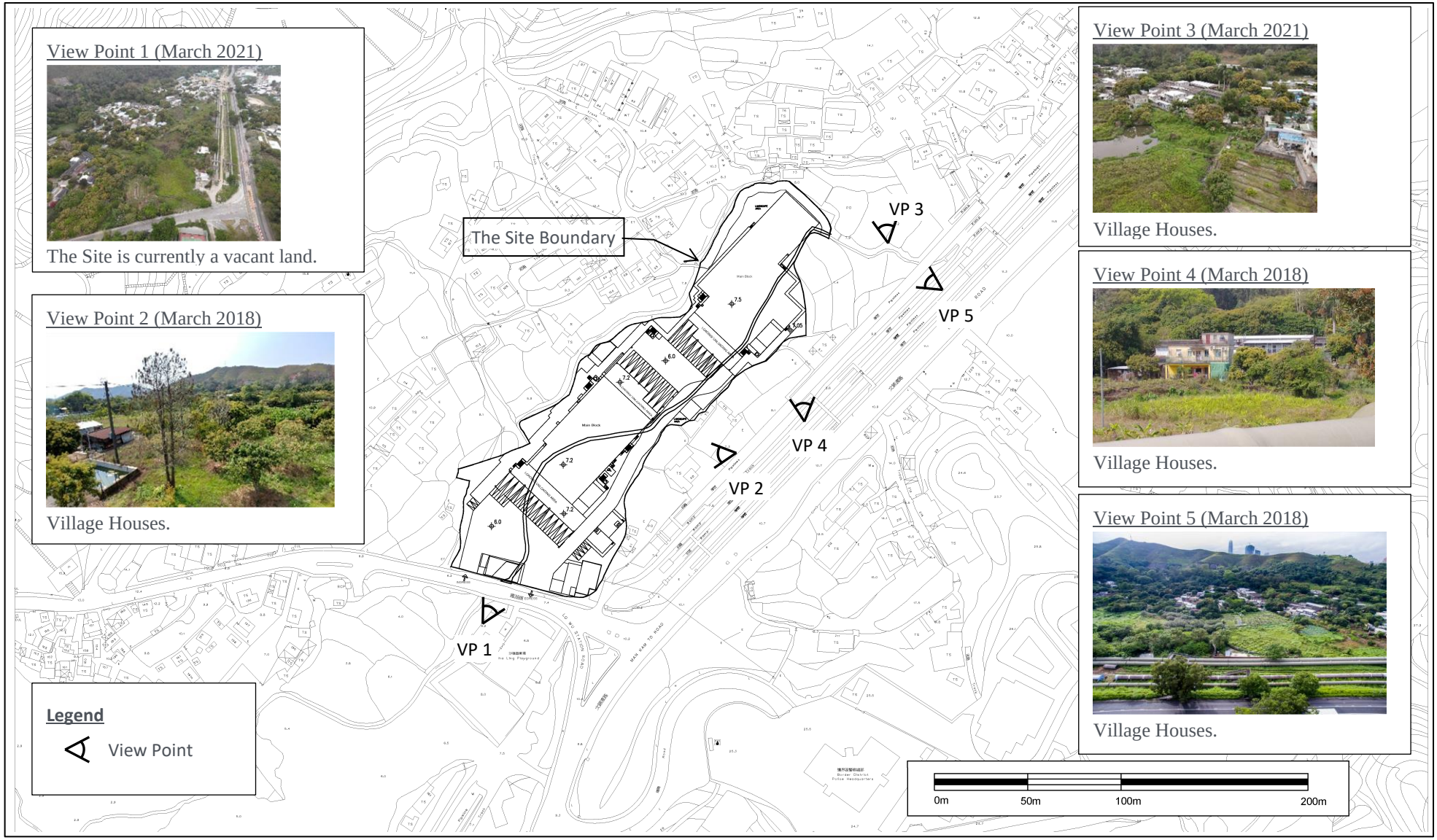
5.6.1 With the development of WMP and to implement the good site practices recommended therein, the waste generation during construction phase can be greatly reduced. Provided that good site practices as recommended in ***Section 5.4*** will be followed, there should be no adverse impacts related to the management, handling and transportation of waste during the construction and reinstatement phase.

5.6.2 During the operation phase, the major type of waste generated will be commercial wastes. Since commercial waste will be collected on a regular basis by registered waste collectors and will be disposed at a landfill managed by EPD, no adverse waste impacts from handling, transportation or disposal are anticipated during operation.

5.6.3 With the implementation of the recommended mitigation measures, adverse waste impacts generated during the construction and operational phases of the Proposed Development are not anticipated.

5.6.4 There was no previous development with potential land contamination activities on the Site. Hence, no land contamination issue is anticipated.

Figure 5.2: Site Inspection Photos of the Project Site and Surrounding Environment



6 CONCLUSIONS AND RECOMMENDATIONS

6.1.1 This EA has indicated that the Proposed Development will not generate any unacceptable environmental impacts during construction and operation phases, provided that all the recommended mitigation measures and good site practice are strictly implemented. The Applicant of the Proposed Development is committed to providing, implementing and maintaining all the mitigation measures as recommended in this EA Report. No temporary/permanent river training and/or diversion works to the existing watercourses arising from the construction, operation and reinstatement of the Proposed Development will be carried out.

6.1.2 Specific conclusions for air quality, noise, water quality and waste management are as follows:

Air Quality

6.1.3 With the implementation of the recommended mitigation measures and good site practice, adverse impacts during the construction phases are not anticipated.

6.1.4 No adverse air quality impact on the Proposed Development is anticipated with the implementation of the proposed mitigation measures during the operation phase.

6.1.5 Overall, therefore, no adverse air quality impact is anticipated during the construction or operation phases of the Proposed Development.

Noise

6.1.6 During the construction phase of the Proposed Development, with the implementation of the noise mitigation measures recommended in ***Section 3.2***, no adverse noise impact is anticipated.

6.1.7 Quantitative assessment for the fixed noise sources during operation phase was conducted. The results show that the noise from the fixed sources of the Proposed Development is expected to comply with the relevant noise criterion after implementing proper mitigation measure, such as enclosing the loading/unloading platforms with a 2m extended canopy with 2 side panels (minimum surface density of 10kg/m^2) with plastic strip doors installed to the opening side of the platforms, provision of complete enclosure with silencers to the condenser, orientation of the opening of enclosures, erection of a 5m barrier (i.e. NB1) next to segments 4 to 9, a 10m barrier (i.e. NB2) next to NSR IN12 and a 12m barrier (i.e. NB3) and cover connecting Main Block.

6.1.8 Quantitative assessment for the off-site road traffic noise was also conducted. With comparing the noise impacts between the scenarios of with and without the Proposed Development in Year 2018, the results show that the Proposed Development would not generate over 1.0 dB(A) or more contribution to the road traffic noise on the surrounding NSRs. Therefore, the traffic noise impact on the NSRs is considered to be insignificant.

6.1.9 Overall, therefore, there will be no adverse noise impact during the construction and operation phases of the Proposed Development.

Water Quality

6.1.10 During construction including filling activities and reinstatement, water quality impacts will be properly controlled with the implementation of good site practice. Portable toilets, when necessary, will be provided for construction/reinstatement workers on-site. Provided these measures are implemented, adverse water quality impact is not anticipated during the construction/reinstatement phases. The Contractor shall apply for a Discharge Licence under the

WPCO and the effluent discharged from the construction site shall comply with the terms and conditions of the Discharge Licence.

6.1.11 During operation, no adverse water quality impact is anticipated from the Proposed Development since sewage generated from staff and wastewater generated from floor cleaning by mopping will be collected by wastewater holding tanks and tankered away with adequate frequency for offsite disposal by licenced collectors. Moreover, there will be no adverse water quality impact due to runoff with the provision and implementation of the recommended mitigation measures for non-point sources.

6.1.12 Should there be any significant changes to Proposed Development resulting in potential adverse water quality impact; or any major changes to the mitigation measures for water pollution recommended in this EA Report, a revised EA Report incorporating the assessments for such significant changes to the Proposed Development and updated mitigation measures shall be prepared and submitted to the satisfaction of EPD. The technical feasibility and impacts on the surrounding environment, in particular the watercourses will be considered. The Applicant will ensure no construction works and operation activities under the final design of the Project would adversely affect the surrounding environment, including watercourses on site and in the vicinity.

Waste Management

6.1.13 With the provision and implementation of the good site practices recommended therein, the waste generation during construction phase will be reduced. Provided that good site practices are followed, there should be no adverse impacts related to the management, handling and transportation of waste during the construction and reinstatement phase.

6.1.14 During the operation phase, the major type of waste generated will be commercial waste. Since commercial waste will be collected on a regular basis by registered collectors and will be disposed of at landfill, no adverse waste impacts from handling, transportation or disposal are anticipated during the operation phase.

6.1.15 The Site is currently a vacant land and majority of the Site is covered by vegetation. Part of the Site was used for agriculture use in the past. Since there was no previous development with potential land contamination activities on the Site. Hence, no land contamination issue is anticipated.

Mitigation Measures

6.1.16 The mitigation measures recommended to be implemented for different environmental aspects are summarised below:

Table 6.1: Mitigation Measures for Potential Environmental Impact

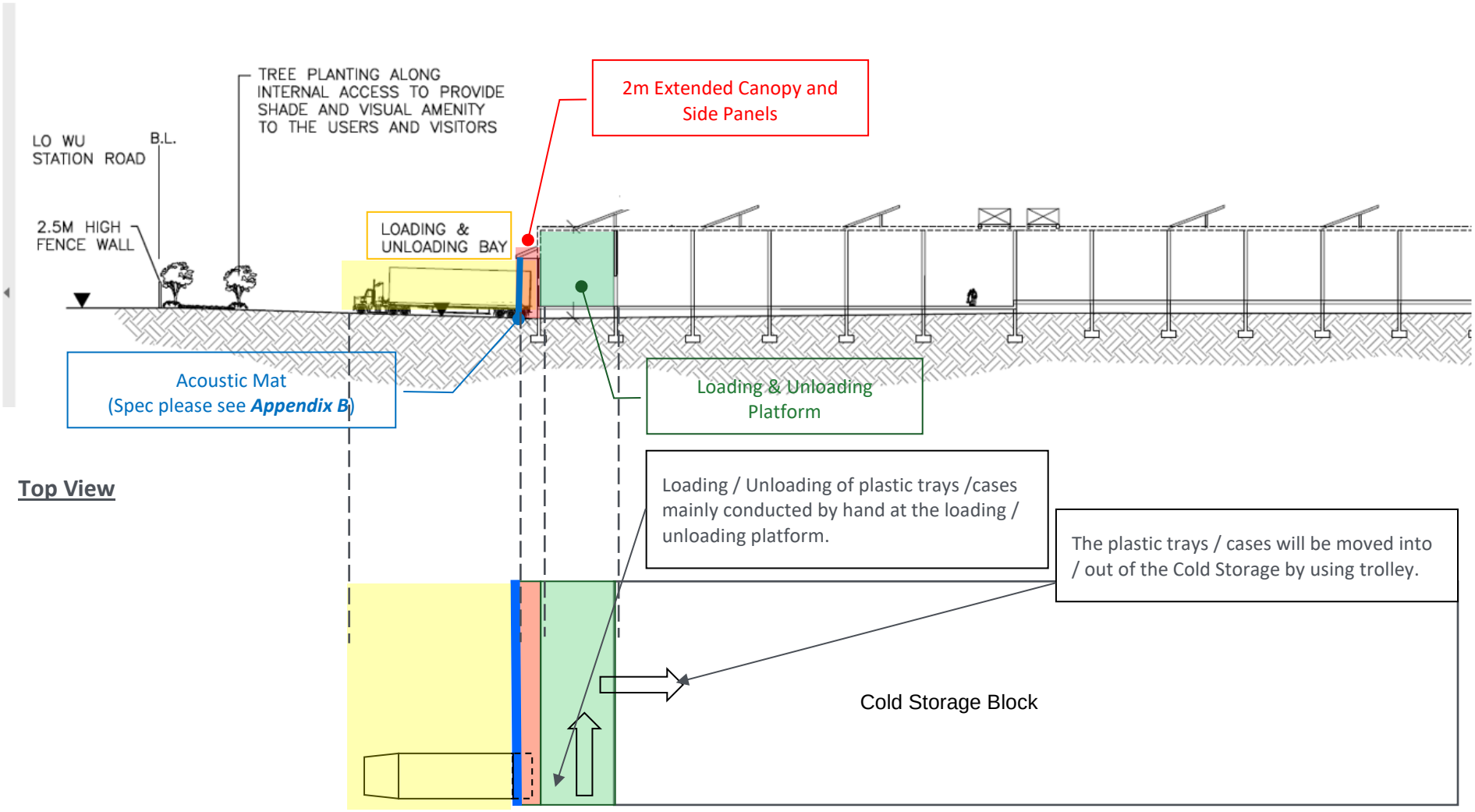
ENVIRONMENTAL ASPECTS	PROPOSED MITIGATION MEASURES
Air	<u>During Construction Phase:</u> • The good practice and dust control measures stipulated in the *Air Pollution Control (Construction Dust) Regulation* shall be implemented. • The good engineering practice as specified in EPD's Recommended Pollution Control Clause ("RPCC") for Construction Contract in COP should be incorporated in the relevant works contract. • For the emergency generator, the chimney design shall comply with the *Air Pollution Control (Furnaces, Ovens and Chimneys) (Installation and Alteration) Regulations.*

ENVIRONMENTAL ASPECTS	PROPOSED MITIGATION MEASURES
	<u>During Operation Phase:</u> • A buffer zone of 5m shall be provided between Man Kam To Road / Lo Wu Station Road and the Proposed Development as follows: ➢ No fresh air intake / openable window of air sensitive uses shall be located within the buffer zone. ➢ Any air sensitive uses within buffer zone shall rely on fresh air intake / openable window located out of the buffer zone for ventilation.
Noise	<u>During Construction Phase:</u> • The measures recommended in *ProPECC PN2/93* shall be implemented in accordance with Section 3.2.2 of the EA Report. • If construction work involving the use of PME will be required during restricted hours, a Construction Noise Permit (CNP) shall be applied for under the *Noise Control Ordinance* (NCO). • The good engineering practice as specified in EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. The general requirements are summarised in Section 3.2.4 of the EA Report. • Before the commencement of any work, the Engineer may require the methods of working, plant equipment and sound-reducing measures to be used on the Site to be made available for trial demonstration inspection and approval to ensure that they are suitable for the project. • The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimise noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented. • Measures that are to be taken to protect adjacent school and adjacent noise sensitive receivers, if necessary, shall include, but not be limited to, adequate noise barriers. The barriers shall be of substantial construction and designed to reduce transmission of noise. The barriers shall be surmounted with baffle boxes designed to reduce transmission of noise. The barriers shall be designed to BS 5228(1984). The location and details of the barriers shall be submitted to the Engineer for approval before works commence adjacent to schools and other noise sensitive receivers. <u>During Operation Phase:</u> • The loading/unloading platforms will be enclosed by a 2m extended canopy with 2 side panels (minimum surface density of 10kg/m^2). No loading/unloading activities will be undertaken at open area. Acoustic mat (minimum surface density of 7kg/m^2) will be provided to the opening side of the platforms. • Limit only a maximum of number of 1 veh/ hr of LGV that can run in and out of the Site in night time period • Limit only a maximum of number of 5 veh/hr of MGV that can run in and out for the Site in evening time period • Limit only a maximum of number of 16 veh/hr of CV/ HGV that can run in and out for the Site in day time period • A 5m barrier (i.e. NB1) along road side of the southeast of the Site • A 10m barrier (i.e. NB2) along road side of north of the Site • A 12 barrier (i.e. NB3) and cover connecting Main Block • A semi-enclosure with silencers should be installed for the condensers.

ENVIRONMENTAL ASPECTS	PROPOSED MITIGATION MEASURES
Water	<u>During Construction Phase</u>: • Adequate capacity and number of portable toilets should be provided for construction workers. • Adequate frequency of disposal of sewage by licensed contractor would be provided • Earth bunds or sand bag barriers shall be provided along the watercourse. Channels along the watercourses and site boundary shall be also provided to collect and direct the muddy runoff to the wastewater treatment facilities for treatment prior to being discharged. The design of the construction site drainage system shall be independent from the existing watercourse. • The construction contractor shall follow good site practice and be responsible for the design construction, operation and maintenance of all the mitigation measures a specified in ProPECC PN 1/94 for construction site drainage. • The good engineering practice as specified in EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. • Measures recommended in Appendix D of ETWB No.5/2005 Protection of natural streams/rivers from adverse impacts arising from construction works shall be also implemented by Contractor to the construction works in the vicinity of natural rivers and streams. • Detailed design of the platform and boundary of the construction site would consider avoidance of encroaching and adversely affecting the existing watercourse, maximising the distance between the works/development site and the existing watercourse, and providing sufficient buffer distance from the water during construction. <u>During Operation Phase:</u> • Sewage generated from the staff and wastewater generated from floor cleaning by mopping will be collected by wastewater storage tanks and tankered away for offsite disposal by licenced collectors. • All operation activities of the Proposed Development shall be carried out within the cold store buildings and on the roads, sufficient buffer distance from the water shall be provided during operation. • Silt/sand traps and oil interceptors should be provided for the drainage systems of open areas whilst oil interceptors should be installed for the system of covered loading/unloading area in accordance with the relevant government guidelines. • Trash screens will be provided at the inlet and outlet of the stormwater storage tank to prevent debris. • Only registered agrochemicals under the Pesticides Ordinance shall be used. Bio-pesticides and pesticides with shorter half-life (i.e. non-persistence in nature) is recommended. The amount of agrochemicals to be applied and application frequency should follow the manufacturer's instructions. In addition, the application of agrochemicals before heavy rainstorm should be avoided • Small amount (i.e. less than $10m^3$) of the water inside the cooling system would be discharged as toilet flushing water. Moreover, water sampling and water quality test will be conducted before the discharge to the portable toilet and to ensure it will comply with the requirements stipulated in the *Water Pollution Control Ordinance and its Technical Memorandum for discharge* which is also required by the

ENVIRONMENTAL ASPECTS	PROPOSED MITIGATION MEASURES
	EMSD's Code of Practice.
Waste Management	<u>During Construction Phase:</u> • A Waste Management Plan ("WMP") should be developed by the contractor and submitted to the Project Engineer / Architect for approval in accordance with ADV-19 before the commencement of any construction works. • A trip-ticket system should be established in accordance with DevB TC(W) No. 6/2010 and the *Waste Disposal (Charges for Disposal of Construction Waste) Regulation* to monitor the disposal of public fill and solid wastes at public filling facilities and landfills, and to control fly-tipping. • General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the construction contractor to remove general refuse from the Site, separately from C&D materials. Preferably an enclosed and covered area should be provided to reduce the occurrence of "wind-blown" materials. • Follow the good engineering practice as specified in EPD's RPCC for Construction Contract in COP should be incorporated in the relevant works contract. • Additional measures shall be implemented when inclement weather is forecast in accordance with ***paragraph 5.4.9*** of the EA Report. <u>During Operation Phase:</u> • The centre management shall encourage reuse and recycling of commercial wastes in line with government policy. The waste management hierarchy shall be adopted by the building management to manage commercial wastes in a sustainable manner. The waste management hierarchy is a concept which shows the desirability of various waste management methods and comprises the following in order of preference: ➢ Avoidance. ➢ Minimisation. ➢ Recycling/reuse. • Commercial wastes shall be collected and stored in appropriate waste receptacles with a secure lid to minimise the potential adverse impact due to wind blowing away garbage and to improve hygiene. Recyclable and non-recyclable waste shall be regularly collected by licensed waste collectors and taken off-site for recycling or disposal, respectively.

Appendix A CONCEPTUAL DESIGN OF THE MITIGATION MEASURES AT LOADING/UNLOADING AREAS


TREE PLANTING ALONG INTERNAL ACCESS TO PROVIDE SHADE AND VISUAL AMENITY TO THE USERS AND VISITORS
2m Extended Canopy and Side Panels
LO WU STATION ROAD
B.L.
2.5M HIGH FENCE WALL
LOADING & UNLOADING BAY
Acoustic Mat
(Spec please see Appendix B)
Loading & Unloading Platform
Top View
Loading / Unloading of plastic trays /cases mainly conducted by hand at the loading / unloading platform.
The plastic trays / cases will be moved into / out of the Cold Storage by using trolley.
Cold Storage Block

Appendix B **EXAMPLE OF ACOUSTIC MAT MATERIAL**


Acoustics Innovation
SilentUP®
Retractable Noise Barrier
PATENTED
Product of Hong Kong
THE WORLD'S FIRST
RETRACTABLE NOISE BARRIER
27dB(A) NOISE REDUCTION*
* Tested with white noise source with SilentUP® STC24
Happy Valley Race Course
Roadworks
Breaking
Drilling
Piling
Loading
Unloading
Concreting
aihk.hk
info@aihk.hk
(852) 2702-2007
R&D Division of
Wilson
Acoustics Limited

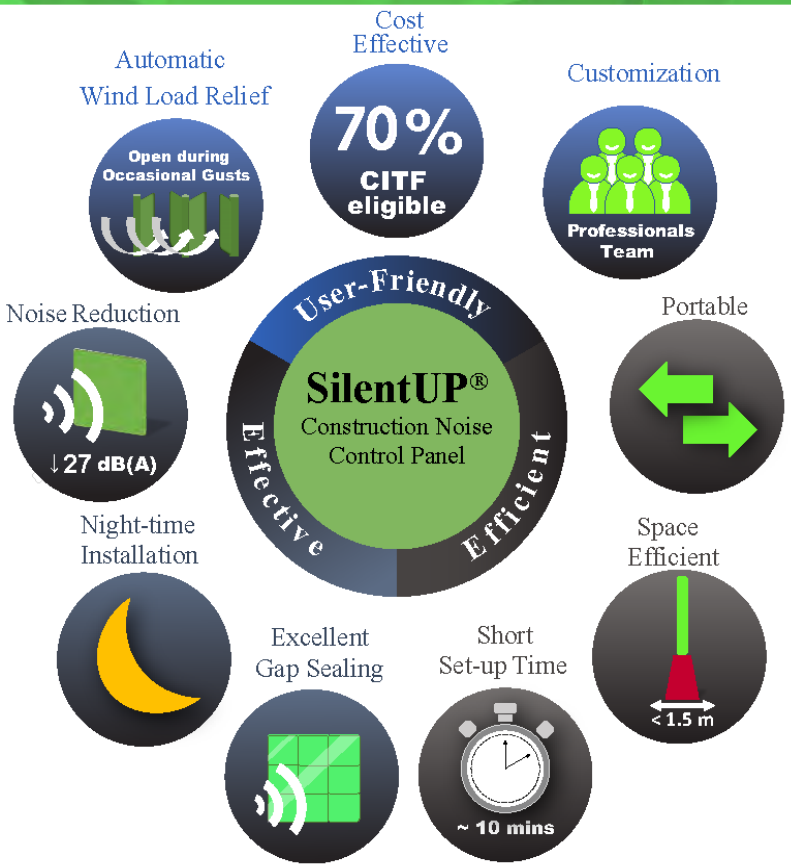
Acoustics Innovation

SilentUP®

Product Description

SilentUP® is a patented retractable noise barrier for construction works and outdoor music events. It can be easily installed and mobilized by people without using any machines. No concrete foundation is required and the installation process is quiet enough to be conducted even at night time. The panels are installed upwards from ground level and connected by magnetic gap sealing.

Our product has been widely used in Hong Kong. Visit our website for the job references aihk.hk/SilentUP/reference.



Benefits

- Minimize noise complaints
- Quiet and manual installation
- No concrete foundation required
- Flexible construction site planning
- Facilitate Construction Noise Permit (CNP) application process

Technical Information

SilentUP® noise barrier material conforms to **the flammability requirement specifications.**

BS5867-2:2008 TYPE B
GF8624

Product Specification

STC	18	24
Insertion Loss*	22 dB(A)	27 dB(A)
Modular Weight	5kg	8kg
Maximum Height	7m	5m
Modular Size	1m(H) x ..35m(W)	
Standard Colour	Grey	
Panel Thickness	100mm on edges	

* Tested with white noise source

CITF 建造業創科基金
CITF Pre-approved Product

Eligible contractors can apply for CITF.
citf.cic.hk

Client Feedback

"Some of our contractors have used the retractable noise barriers to facilitate CNP application. They have found this innovative product useful – lightweight, easy to manoeuvre, and fit for purpose."

Richard Kwan
Former Environment Manager
MTR Corporation Ltd

"We are impressed by SilentUP's quick installation and relocation, it is definitely one of the best innovations and practicable approaches for the noise mitigation measures for the construction activities."

Lighting Chan
Environmental Compliance Support Manager,
Leighton Asia Ltd

"We are happy with Acoustics Innovation's professional service (SilentUP Noise Barrier) in helping us achieve our noise mitigation goals."

Ronald Fung
Project QA & Environmental Manager
Kier - Laing O'Rourke - Kaden Joint Venture

"SilentUP is definitely a useful tool to minimize the noise pollution. We successfully obtained a CNP and most importantly no complaint has been received from the NSRs."

Clarence Yeung
Environmental Officer
Chun Wo Construction and Engineering Co. Ltd

Installation videos available at aihk.hk/youtube

aihk.hk | info@aihk.hk | (852) 2702-2007

R&D Division of Wilson Acoustics Limited

Appendix C **BACKGROUND NOISE MONITORING**

ınd Noise Monitroing Location - BG1

Start Time	Measurement Time	Period	Leq	Lmax	Lmin	L10	L90		L90 (1hr)
9/10/2018 16:03	00d 00:30:00.0	Day	58.3	83.1	41.2	58.2	47.9		47.1
9/10/2018 16:33	00d 00:30:00.0	Day	54.4	67.8	40.6	57.7	46.4		
9/10/2018 17:03	00d 00:30:00.0	Day	53.4	66.2	40.8	56.5	47.8		47.6
9/10/2018 17:33	00d 00:30:00.0	Day	52.7	64.7	41	55.6	47.4		
9/10/2018 18:03	00d 00:30:00.0	Day	52.7	65.6	38.5	55.8	46	Not Use	48
9/10/2018 18:33	00d 00:30:00.0	Day	53.7	65.2	46.8	56.5	49.4		
9/10/2018 19:03	00d 00:30:00.0	Evening	52.8	64.1	43.5	55.9	47.5		46.4
9/10/2018 19:33	00d 00:30:00.0	Evening	52.1	64.3	40.5	55.1	45.3		
9/10/2018 20:03	00d 00:30:00.0	Evening	52.4	65.8	41.2	55.5	46		46.2
9/10/2018 20:33	00d 00:30:00.0	Evening	52.9	69.6	41.1	56.1	46.4		
9/10/2018 21:03	00d 00:30:00.0	Evening	52.7	70.2	41.4	55.6	45.9		42.9
9/10/2018 21:33	00d 00:30:00.0	Evening	49.4	72.5	39.1	52.6	41.8		
9/10/2018 22:03	00d 00:30:00.0	Evening	46.2	60.2	37.7	49.4	40.2	Not Use	40
9/10/2018 22:33	00d 00:30:00.0	Evening	45.9	59.4	36.9	49.1	39.9		
9/10/2018 23:03	00d 00:30:00.0	Night	46.4	65.7	36.3	49.5	39.4		39.9
9/10/2018 23:33	00d 00:30:00.0	Night	47.1	64.6	36.6	50.3	40.8		
10/10/2018 0:03	00d 00:30:00.0	Night	47.5	62.5	36.4	51.1	40.7		39.2
10/10/2018 0:33	00d 00:30:00.0	Night	43.8	59.4	36.4	47	38.6		
10/10/2018 1:03	00d 00:30:00.0	Night	43.7	57	35.7	47	38.1		38.6
10/10/2018 1:33	00d 00:30:00.0	Night	45.1	62.4	35.8	48	39.1		
10/10/2018 2:03	00d 00:30:00.0	Night	41.6	57.9	34.6	43.6	36.4		36.1
10/10/2018 2:33	00d 00:30:00.0	Night	40.3	56.7	33.7	42.4	35.8		
10/10/2018 3:03	00d 00:30:00.0	Night	40.6	55.6	33	43.3	34.7		35
10/10/2018 3:33	00d 00:30:00.0	Night	46.5	63.1	33.3	49.4	35.5		
10/10/2018 4:03	00d 00:30:00.0	Night	42.7	64.4	35.1	44	36.9		36.8
10/10/2018 4:33	00d 00:30:00.0	Night	42.9	67.6	35.2	43.8	36.8		
10/10/2018 5:03	00d 00:30:00.0	Night	43.8	64.5	34.9	45.2	37.2		37.7
10/10/2018 5:33	00d 00:30:00.0	Night	50.6	71.6	36.8	52.8	39.1		
10/10/2018 6:03	00d 00:30:00.0	Night	54.1	73.8	39.2	55.1	41.8	Not Use	42.3
10/10/2018 6:33	00d 00:30:00.0	Night	51.0	66	39.3	54.8	42.9		
10/10/2018 7:03	00d 00:30:00.0	Day	54.2	70.1	40.8	57.4	47.4		48
10/10/2018 7:33	00d 00:30:00.0	Day	54.5	68.3	42	57.5	48.8		
10/10/2018 8:03	00d 00:30:00.0	Day	53.5	66	40.5	57	46.4		46.2
10/10/2018 8:33	00d 00:30:00.0	Day	53.1	71.4	38.8	56.3	46		
10/10/2018 9:03	00d 00:30:00.0	Day	54.8	72.7	39.8	57.5	46.8		46.4
10/10/2018 9:33	00d 00:30:00.0	Day	56.9	77.5	39.2	57.9	46.4		
10/10/2018 10:03	00d 00:30:00.0	Day	59.4	88.2	41.7	57.4	46.3		46.8
10/10/2018 10:33	00d 00:30:00.0	Day	56.7	75.2	41.7	58	47.8		
10/10/2018 11:03	00d 00:30:00.0	Day	54.5	66.9	41.1	57.5	49.5		49
10/10/2018 11:33	00d 00:30:00.0	Day	71.6	93.1	44.2	68.5	48.6		
10/10/2018 12:03	00d 00:30:00.0	Day	53.2	63.6	41.8	56.2	48.4		48.4
10/10/2018 12:33	00d 00:30:00.0	Day	54.5	65.3	40.7	57.6	48.2		
10/10/2018 13:03	00d 00:30:00.0	Day	54.5	65.4	41.4	57.7	48.3		48.0901
10/10/2018 13:33	00d 00:30:00.0	Day	53.8	70.3	41.5	56.4	48		
10/10/2018 14:03	00d 00:30:00.0	Day	54.1	79.9	39.1	56.8	45.7		46.5
10/10/2018 14:33	00d 00:30:00.0	Day	53.7	69.3	42.3	56.7	47.1		
10/10/2018 15:03	00d 00:30:00.0	Day	55.3	73.5	38.8	58.4	46.9		48.2
10/10/2018 15:33	00d 00:30:00.0	Day	58.0	82.7	41.1	60.1	49.3		

	Minmum Noise Level, dB(A)	Leq	Lmax	Lmin	L10	L90	Average	L90
	Day	52.7	63.6	38.5	55.6	45.7		47.5
	Evening	45.9	59.4	36.9	49.1	39.9		45.2
	Night	40.3	55.6	33.0	42.4	34.7		37.6

Background Noise Monitroing Location - BG2

Address	Start Time	Measurement Time	Period	Leq	Lmax	Lmin	L10	L90		L90 (1 hr)
1	9/10/2018 15:45	00d 00:30:00.0	Day	63.4	80.2	42.5	68	53.4		54
2	9/10/2018 16:15	00d 00:30:00.0	Day	63.0	79.1	45.8	67.7	54.6		
3	9/10/2018 16:45	00d 00:30:00.0	Day	62.7	78.9	43.5	67.4	52.3		53.6
4	9/10/2018 17:15	00d 00:30:00.0	Day	62.7	79.3	43.6	67.2	55.2		
5	9/10/2018 17:45	00d 00:30:00.0	Day	61.9	82.5	40.5	66.3	54.3		51.9
6	9/10/2018 18:15	00d 00:30:00.0	Day	61.7	74.5	39.5	66.8	49.3		
7	9/10/2018 18:45	00d 00:30:00.0	Not Use	61.7	76.2	43.1	66.8	51.5	Not Use	50.1
8	9/10/2018 19:15	00d 00:30:00.0	Evening	61.4	76.3	41.5	66.2	48.4		
9	9/10/2018 19:45	00d 00:30:00.0	Evening	62.1	78.7	39.8	66.7	50.8		50
10	9/10/2018 20:15	00d 00:30:00.0	Evening	61.6	76.1	40.7	66.4	49.2		
11	9/10/2018 20:45	00d 00:30:00.0	Evening	62.0	79.8	40.6	66.4	51.1		47.1
12	9/10/2018 21:15	00d 00:30:00.0	Evening	59.8	75.2	39.5	65.2	45.2		
13	9/10/2018 21:45	00d 00:30:00.0	Evening	56.4	83.5	39.1	61.8	41.9		41.6
14	9/10/2018 22:15	00d 00:30:00.0	Evening	54.0	66.3	38.9	60.5	41.2		
15	9/10/2018 22:45	00d 00:30:00.0	Not Use	53.5	74.5	38.1	60	40.1	Not Use	40.1
16	9/10/2018 23:15	00d 00:30:00.0	Night	53.2	67.6	38.2	59.9	40		
17	9/10/2018 23:45	00d 00:30:00.0	Night	53.3	67.2	38.6	60	40.5		40
18	10/10/2018 0:15	00d 00:30:00.0	Night	52.9	69.9	38.3	60	39.8		
19	10/10/2018 0:45	00d 00:30:00.0	Night	49.2	66.3	38.1	55.7	39.2		39.3
20	10/10/2018 1:15	00d 00:30:00.0	Night	49.2	68.4	37.8	55.1	39.4		
21	10/10/2018 1:45	00d 00:30:00.0	Night	50.5	70.3	37.4	57.1	38.5		38.3
22	10/10/2018 2:15	00d 00:30:00.0	Night	44.1	62.3	37.1	49.8	38.2		
23	10/10/2018 2:45	00d 00:30:00.0	Night	48.2	67.5	37.2	53.6	38.8		39
24	10/10/2018 3:15	00d 00:30:00.0	Night	49.3	66.7	37.1	55.8	39.2		
25	10/10/2018 3:45	00d 00:30:00.0	Night	48.5	72.7	37.7	52.9	39.9		40.3
26	10/10/2018 4:15	00d 00:30:00.0	Night	46.4	69.3	38.2	48.6	40.8		
27	10/10/2018 4:45	00d 00:30:00.0	Night	47.6	64.1	39.5	53.9	41.9		42.1
28	10/10/2018 5:15	00d 00:30:00.0	Night	51.4	69.4	40	57.9	42.4		
29	10/10/2018 5:45	00d 00:30:00.0	Night	56.1	73	41	62.7	44.5		45.3901
30	10/10/2018 6:15	00d 00:30:00.0	Night	58.6	74.1	42.9	64.4	46.9		
31	10/10/2018 6:45	00d 00:30:00.0	Not Use	61.6	82.2	42.8	67.2	49.4	Not Use	52.6
32	10/10/2018 7:15	00d 00:30:00.0	Day	63.9	76.5	48.5	68.3	56.5		
33	10/10/2018 7:45	00d 00:30:00.0	Day	62.3	78.4	45.6	67.1	54		53.6
34	10/10/2018 8:15	00d 00:30:00.0	Day	62.4	79.3	45.1	67.3	53.2		
35	10/10/2018 8:45	00d 00:30:00.0	Day	63.3	77.8	43.8	68.1	53.2		53.1
36	10/10/2018 9:15	00d 00:30:00.0	Day	63.4	77.5	43.4	68.3	53		
37	10/10/2018 9:45	00d 00:30:00.0	Day	63.8	81.4	43.5	68.4	52.3		52.4
38	10/10/2018 10:15	00d 00:30:00.0	Day	62.5	75.2	43.9	67.6	52.5		
39	10/10/2018 10:45	00d 00:30:00.0	Day	64.6	81.1	43.6	68.8	54.6		55.9
40	10/10/2018 11:15	00d 00:30:00.0	Day	62.6	78.4	51.5	66.9	56.8		
41	10/10/2018 11:45	00d 00:30:00.0	Day	62.8	75.8	52	67.6	55.2		54.3
42	10/10/2018 12:15	00d 00:30:00.0	Day	61.8	78.5	44.2	66.4	52.7		
43	10/10/2018 12:45	00d 00:30:00.0	Day	64.0	77	44.8	68.5	54.8		55.1
44	10/10/2018 13:15	00d 00:30:00.0	Day	63.0	74.7	47.4	67.5	55.3		
45	10/10/2018 13:45	00d 00:30:00.0	Day	64.2	91.2	43.5	67.4	53.9		52.6
46	10/10/2018 14:15	00d 00:30:00.0	Day	61.9	74.7	43.7	66.8	51.9		
47	10/10/2018 14:45	00d 00:30:00.0	Day	63.3	85.2	43.7	67.9	53.5		53.6
48	10/10/2018 15:15	00d 00:30:00.0	Day	62.4	78.1	43.1	67.1	53.5		

	Minmum Noise Level, dB(A)	Leq	Lmax	Lmin	L10	L90	Average	L90
	Day	61.6	74.5	39.5	66.3	49.3		53.6
	Evening	54.0	66.3	38.9	60.5	41.2		46.2
	Night	44.1	62.3	37.1	48.6	38.2		40.6

Appendix D **CATALUGUE OF WATER COOLING TOWER**

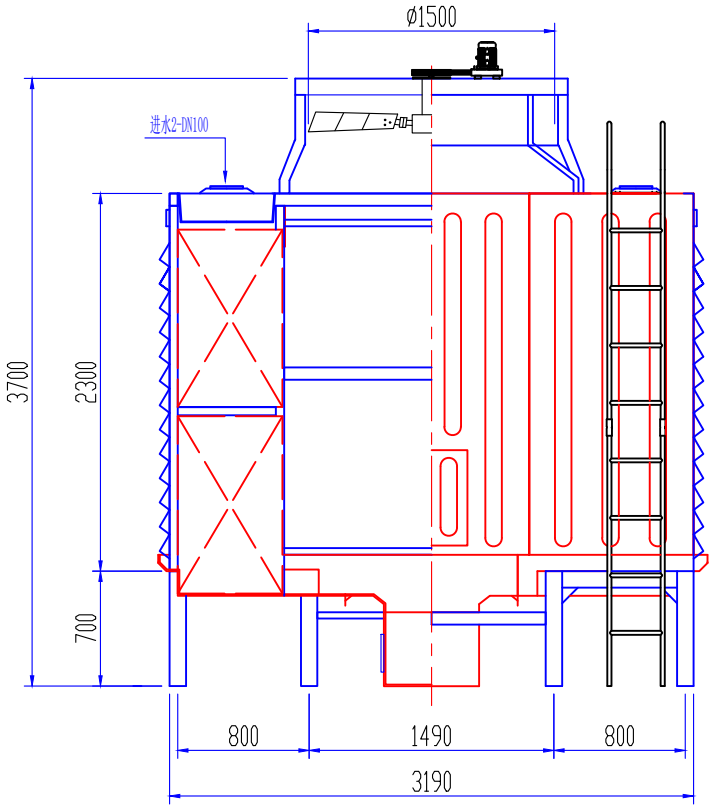
FT-100L/SB 型技术参数总表

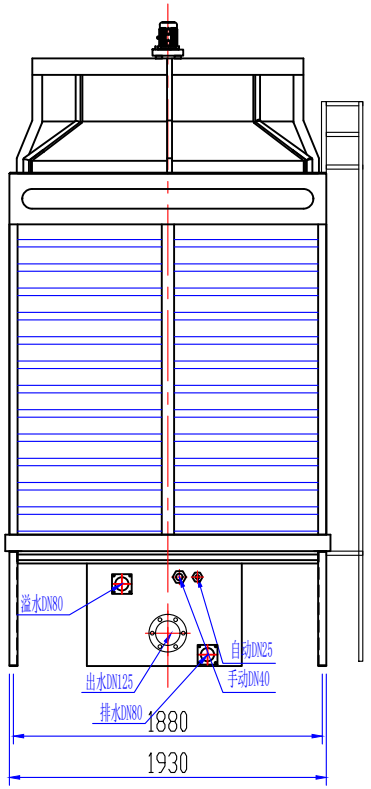
技术编号： 项目名称：

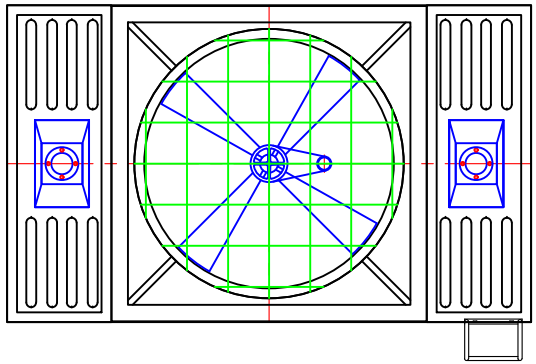
项 目	内 容	数 据	备 注
基本参数	冷却塔类型	横流式方形水塔	
	冷却塔型号	FT-100L/SB	低噪音型
	单台冷却循环水量	100 m^3/h	
	总冷却循环水量	100 m^3/h	
	进水温度 / 出水温度	37℃ / 32℃	降温 5℃
	环境干球 / 湿球温度	31.5℃ / 28℃	
	冷却能力	500,000 kcal/h	
	噪音值	64.0dB(A)	16 米处
	电源	380V / 3P / 50Hz	
	水质要求	P H值＝ 6 — 8	
设计参数	气水比	0.78 kg/kg	
	水阻	49Kpa	
	飞水损失	≤0.005%	
	蒸发损失	≤0.833%	
	净重 / 运行重量（吨）	0.86/2.26	
风机参数	风扇形式	轴流式	
	风量	65,000m^3/h	
	风扇转速	410r/min	
	风叶直径（Φ）	1,500 mm	
	叶片数量	1 套	4 片 / 套
	电机形式	全封闭防水型	
	传动方式	带传动	
	电机功率	4.0 kW(5HP-4P)	
	电机极数	4P	
	电机启动方式	直接启动	
主要尺寸	长×宽×高（L×W×H）	1,930×3,190×3,700 mm	
	进水管尺寸（DN）	100mm	共 2 套
	出水管尺寸（DN）	125mm	
	溢水管 / 排水管尺寸（DN）	80mm / 80mm	
	自动 / 手动补水尺寸（DN）	25mm / 40mm	
材质	颈口	玻璃钢	优质玻璃纤维毡和树脂合成
	围板		
	洒水系统		
	水盆、水缸		
	皮带	复合材料	
	风扇	铝合金	大弦弧
	电机	全封闭防水型	
	胶片	P.V.C.材料	阻燃型
	铁框架、电机架	热浸镀锌钢	符合英国 BS EN ISO1461：1999 标准

“HKa”

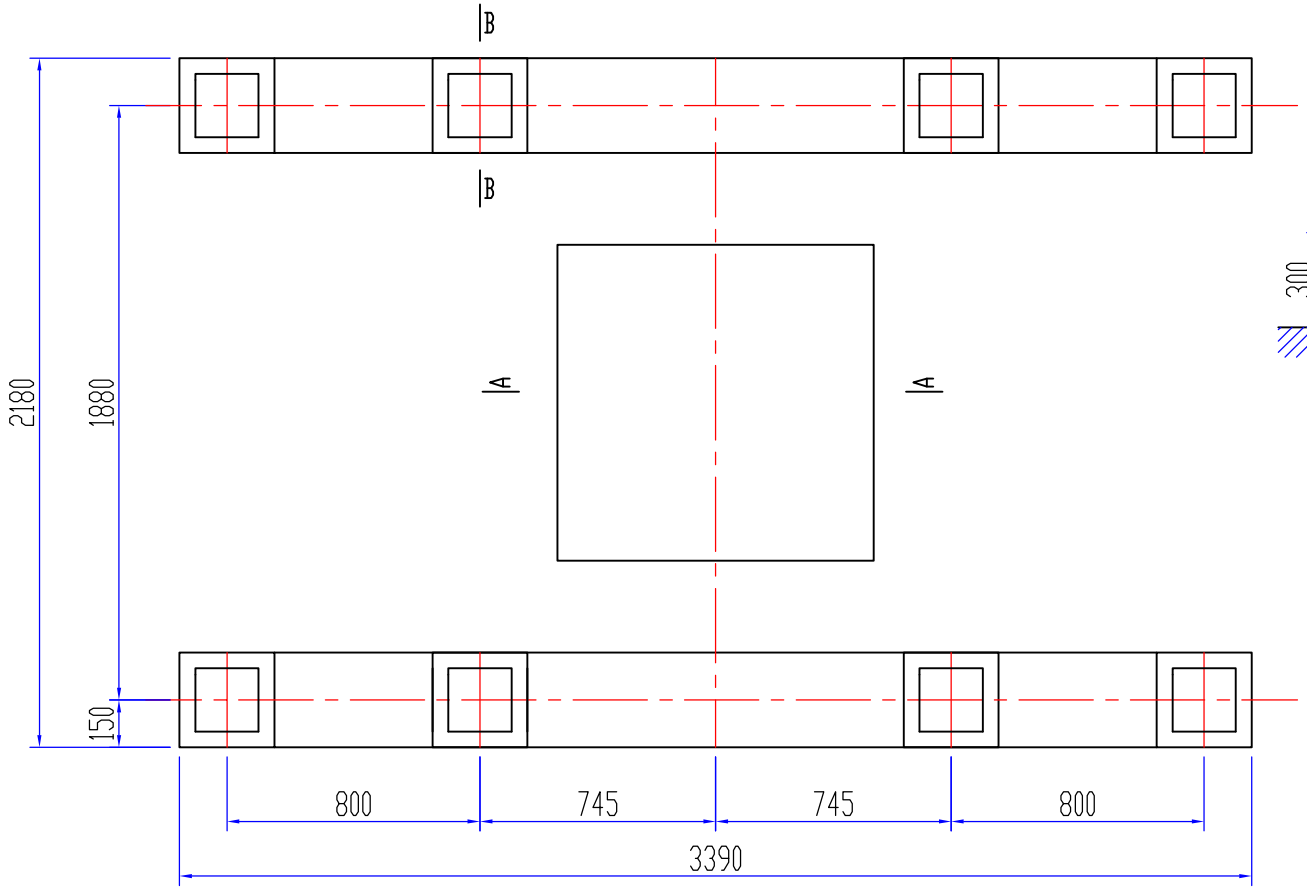
2017 年 8 月 28 日

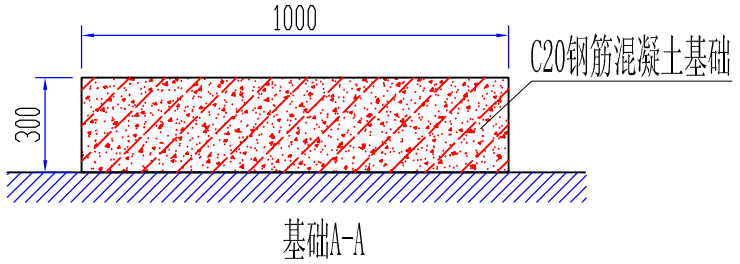




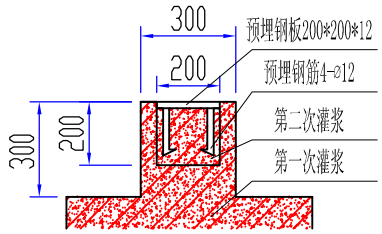


						100L/SB			
标记	处数	更改文件号	签字	日期					
制图		OXQ	标准化			图样标记	重量	比例	方形横流式冷却塔外形图
设计			批准					1:15	
审核			日期	2017/03/13					
工艺			版本	A		共 张	第 张		100L/SB-02-C1-A





基础A-A



基础B-B

基础制作注意事项：

1、横梁承载，参考冷却塔运行重量以及设计的安装系数，

校核安装地基的承载能力。

2、预埋钢板表面水平误差±2mm。

3、如有疑问，可来电技术部咨询。

标记	处数	更改文件号	签字	日期
制图		OXQ	标准化	
设计			批准	
审核			日期	2017/03/04
工艺			版本	A

FT-100L/SB			
图样标记	重量	比例	
		1:15	
共 张	第 张		

广林冷却塔

方形横流式冷却塔基础图

FT-100L/SB-01-A

Appendix E **DETAILS OF VEHICLE MOVEMENT**

Use of Road Segments by Different Vehicle Types

Road Segment ID	S1	S2	3	4	5	6	7	8	9	10
Container Vehicle/ Heavy Goods Vehicles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Medium Goods Vehicles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Light Goods Vehicle, Van	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Hourly Trips of Vehicle on each Road Segment – during the peak of the corresponding time period

Segment ID	Descripiton	Trips/hr (Day)		Trips/hr (Evening)			Trips/hr (Night)	
		Container Vehicle/ MGV	LGV, van	MGV	LGV, van		MGV	LGV, van
S1	One-Way	16	0	5	0	0	0	1
S2	One-Way	16	0	5	0	0	0	1
S3	One-Way	16	0	5	0	0	0	1
S4	One-Way	16	0	5	0	0	0	1
S5	Two-way	32	0	10	0	0	0	2
S6	Two-way	32	0	10	0	0	0	2
S7	Two-way	32	0	10	0	0	0	2
S8	Two-way	32	0	10	0	0	0	2
S9	Two-way	32	0	10	0	0	0	2
S10	Two-way	32	0	10	0	0	0	2

Appendix F NOISE CALCULATIOS OF FIXED SOURCE

IN1 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	81.2	105	16	22.5	15	-19.1	-9.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	37.2
	L	81.2	101	0	22.5	15	-19.1	-9.0	-10		3	0
S2	C	66.9	105	16	12.7	15	-18.3	-11.5	-10		3	35.5
	L	66.9	101	0	12.7	15	-18.3	-11.5	-10		3	0
S3	C	53.7	105	16	16.5	15	-17.3	-10.4	-10		3	37.6
	L	53.7	101	0	16.5	15	-17.3	-10.4	-10		3	0
S4	C	54.4	105	16	12.1	15	-17.4	-11.7	-10		3	36.2
	L	54.4	101	0	12.1	15	-17.4	-11.7	-10		3	0
S5	C	43.0	105	32	0.2	15	-16.3	-29.7	-10		3	22.3
	L	43.0	101	0	0.2	15	-16.3	-29.7	-10		3	0
S6	C	21.1	105	32	82.1	15	-13.2	-3.4	-10		3	51.6
	L	21.1	101	0	82.1	15	-13.2	-3.4	-10		3	0
S7	C	27.3	105	32	35.7	15	-14.4	-7.0	-10		3	46.9
	L	27.3	101	0	35.7	15	-14.4	-7.0	-10		3	0
S8	C	60.3	105	32	15.8	15	-17.8	-10.6	-10		3	39.9
	L	60.3	101	0	15.8	15	-17.8	-10.6	-10		3	0
S9	C	84.9	105	32	7.3	15	-19.3	-13.9	-10		3	35.1
	L	84.9	101	0	7.3	15	-19.3	-13.9	-10		3	0
S10	C	86.3	105	32	18.6	15	-19.4	-9.8	-10		3	39.1
	L	86.3	101	0	18.6	15	-19.4	-9.8	-10		3	0
											Total SPL, dB(A)	**54**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	81.2	105	5	22.5	15	-19.1	-9.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	32.1
	L	81.2	101	0	22.5	15	-19.1	-9.0	-10		3	0
S2	M	66.9	105	5	12.7	15	-18.3	-11.5	-10		3	30.4
	L	66.9	101	0	12.7	15	-18.3	-11.5	-10		3	0
S3	M	53.7	105	5	16.5	15	-17.3	-10.4	-10		3	32.5
	L	53.7	101	0	16.5	15	-17.3	-10.4	-10		3	0
S4	M	54.4	105	5	12.1	15	-17.4	-11.7	-10		3	31.1
	L	54.4	101	0	12.1	15	-17.4	-11.7	-10		3	0
S5	M	43.0	105	10	0.2	15	-16.3	-29.7	-10		3	17.2
	L	43.0	101	0	0.2	15	-16.3	-29.7	-10		3	0
S6	M	21.1	105	10	82.1	15	-13.2	-3.4	-10		3	46.6
	L	21.1	101	0	82.1	15	-13.2	-3.4	-10		3	0
S7	M	27.3	105	10	35.7	15	-14.4	-7.0	-10		3	41.9
	L	27.3	101	0	35.7	15	-14.4	-7.0	-10		3	0
S8	M	60.3	105	10	15.8	15	-17.8	-10.6	-10		3	34.9
	L	60.3	101	0	15.8	15	-17.8	-10.6	-10		3	0
S9	M	84.9	105	10	7.3	15	-19.3	-13.9	-10		3	30.0
	L	84.9	101	0	7.3	15	-19.3	-13.9	-10		3	0
S10	M	86.3	105	10	18.6	15	-19.4	-9.8	-10		3	34.0
	L	86.3	101	0	18.6	15	-19.4	-9.8	-10		3	0
											Total SPL, dB(A)	**49**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	81.2	105	0	22.5	15	-19.1	-9.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	0
	L	81.2	101	1	22.5	16	-19.1	-9.0	-10		3	20.8
S2	M	66.9	105	0	12.7	17	-18.3	-11.5	-10		3	0
	L	66.9	101	1	12.7	18	-18.3	-11.5	-10		3	18.7
S3	M	53.7	105	0	16.5	19	-17.3	-10.4	-10		3	0
	L	53.7	101	1	16.5	20	-17.3	-10.4	-10		3	20.3
S4	M	54.4	105	0	12.1	21	-17.4	-11.7	-10		3	0
	L	54.4	101	1	12.1	22	-17.4	-11.7	-10		3	18.5
S5	M	43.0	105	0	0.2	23	-16.3	-29.7	-10		3	0
	L	43.0	101	2	0.2	24	-16.3	-29.7	-10		3	4.2
S6	M	21.1	105	0	82.1	25	-13.2	-3.4	-10		3	0
	L	21.1	101	2	82.1	26	-13.2	-3.4	-10		3	33.2
S7	M	27.3	105	0	35.7	27	-14.4	-7.0	-10		3	0
	L	27.3	101	2	35.7	28	-14.4	-7.0	-10		3	28.2
S8	M	84.9	105	0	7.3	29	-19.3	-13.9	-10		3	0
	L	84.9	101	2	7.3	30	-19.3	-13.9	-10		3	16.0
S9	M	84.9	105	0	7.3	31	-19.3	-13.9	-10		3	0
	L	84.9	101	2	7.3	32	-19.3	-13.9	-10		3	15.8
S10	M	86.3	105	0	18.6	33	-19.4	-9.8	-10		3	0
	L	86.3	101	2	18.6	34	-19.4	-9.8	-10		3	19.5
											Total SPL, dB(A)	**35**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	76	7	84.0	58.5	-43.3	0	Enclosure with sliencer	-10	3	33.6
Condenser	Block 1 (NE)	76	6	83.3	70.4	-44.9	0	Enclosure with sliencer	-10	3	31.4
Condenser	Block 2	76	6	83.3	160.8	-52.1	0	Enclosure with sliencer	-10	3	24.2
										Total SPL, dB(A)	**36**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	180.5	105	16	10.7	15	-22.6	-12.3	0		3	40.5
	L	180.5	101	0	10.7	16	-22.6	-12.3	0		3	0
S2	C	167.1	105	16	4.6	17	-22.2	-15.9	0		3	36.6
	L	167.1	101	0	4.6	18	-22.2	-15.9	0		3	0
S3	C	151.7	105	16	4.7	19	-21.8	-15.8	0		3	36.6
	L	151.7	101	0	4.7	20	-21.8	-15.8	0		3	0
S4	C	147.6	105	16	5.8	21	-21.7	-14.9	0		3	37.2
	L	147.6	101	0	5.8	22	-21.7	-14.9	0		3	0
S5	C	139.3	105	32	1.8	23	-21.4	-20.0	0		3	35.0
	L	139.3	101	0	1.8	24	-21.4	-20.0	0		3	0
S6	C	121.3	105	32	14.5	25	-20.8	-11.0	0	Nil	3	44.3
	L	121.3	101	0	14.5	26	-20.8	-11.0	0		3	0
S7	C	109.5	105	32	15.4	27	-20.4	-10.7	0		3	44.7
	L	109.5	101	0	15.4	28	-20.4	-10.7	0		3	0
S8	C	107.3	105	32	21.4	29	-20.3	-9.2	0		3	45.9
	L	107.3	101	0	21.4	30	-20.3	-9.2	0		3	0
S9	C	107.2	105	32	8.0	31	-20.3	-13.5	0		3	41.3
	L	107.2	101	0	8.0	32	-20.3	-13.5	0		3	0
S10	C	125.6	105	32	2.0	33	-21.0	-19.6	0		3	34.3
	L	125.6	101	0	2.0	34	-21.0	-19.6	0		3	0
											Total SPL, dB(A)	**51**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	180.5	105	5	10.7	15	-22.6	-12.3	0		3	35.4
	L	180.5	101	0	10.7	16	-22.6	-12.3	0		3	0
S2	M	167.1	105	5	4.6	17	-22.2	-15.9	0		3	31.6
	L	167.1	101	0	4.6	18	-22.2	-15.9	0		3	0
S3	M	151.7	105	5	4.7	19	-21.8	-15.8	0		3	31.6
	L	151.7	101	0	4.7	20	-21.8	-15.8	0		3	0
S4	M	147.6	105	5	5.8	21	-21.7	-14.9	0		3	32.1
	L	147.6	101	0	5.8	22	-21.7	-14.9	0		3	0
S5	M	139.3	105	10	1.8	23	-21.4	-20.0	0		3	29.9
	L	139.3	101	0	1.8	24	-21.4	-20.0	0		3	0
S6	M	121.3	105	10	14.5	25	-20.8	-11.0	0	Nil	3	39.2
	L	121.3	101	0	14.5	26	-20.8	-11.0	0		3	0
S7	M	109.5	105	10	15.4	27	-20.4	-10.7	0		3	39.6
	L	109.5	101	0	15.4	28	-20.4	-10.7	0		3	0
S8	M	107.3	105	10	21.4	29	-20.3	-9.2	0		3	40.8
	L	107.3	101	0	21.4	30	-20.3	-9.2	0		3	0
S9	M	107.2	105	10	8.0	31	-20.3	-13.5	0		3	36.2
	L	107.2	101	0	8.0	32	-20.3	-13.5	0		3	0
S10	M	125.6	105	10	2.0	33	-21.0	-19.6	0		3	29.2
	L	125.6	101	0	2.0	34	-21.0	-19.6	0		3	0
											Total SPL, dB(A)	**46**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	180.5	105	0	10.7	15	-22.6	-12.3	0		3	0
	L	180.5	101	1	10.7	16	-22.6	-12.3	0		3	24.1
S2	M	167.1	105	0	4.6	17	-22.2	-15.9	0		3	0
	L	167.1	101	1	4.6	18	-22.2	-15.9	0		3	20.3
S3	M	151.7	105	0	4.7	19	-21.8	-15.8	0		3	0
	L	151.7	101	1	4.7	20	-21.8	-15.8	0		3	20.4
S4	M	147.6	105	0	5.8	21	-21.7	-14.9	0		3	0
	L	147.6	101	1	5.8	22	-21.7	-14.9	0		3	21.0
S5	M	139.3	105	0	1.8	23	-21.4	-20.0	0		3	0
	L	139.3	101	2	1.8	24	-21.4	-20.0	0	Nil	3	18.7
S6	M	121.3	105	0	14.5	25	-20.8	-11.0	0		3	0
	L	121.3	101	2	14.5	26	-20.8	-11.0	0		3	28.1
S7	M	109.5	105	0	15.4	27	-20.4	-10.7	0		3	0
	L	109.5	101	2	15.4	28	-20.4	-10.7	0		3	28.5
S8	M	107.2	105	0	8.0	29	-20.3	-13.5	0		3	0
	L	107.2	101	2	8.0	30	-20.3	-13.5	0		3	25.4
S9	M	107.2	105	0	8.0	31	-20.3	-13.5	0		3	0
	L	107.2	101	2	8.0	32	-20.3	-13.5	0		3	25.1
S10	M	125.6	105	0	2.0	33	-21.0	-19.6	0		3	0
	L	125.6	101	2	2.0	34	-21.0	-19.6	0		3	18.1
											Total SPL, dB(A)	**34**

HVAC Noise

Item		Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser		Block 1 (SW)	75.5	7	84.0	150.8	-51.6	0	Enclosure with sliencer	-10	3	25.4
Condenser		Block 1 (NE)	75.5	6	83.3	141.2	-51.0	0	Enclosure with sliencer	-10	3	25.3
Condenser		Block 2	75.5	6	83.3	164.0	-52.3	0	Enclosure with sliencer	-10	3	24.0
											Total SPL, dB(A)	**30**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN3 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Sheiding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	192.3	105	16	9.5	15	-22.8	-12.8	0	Nil	3	39.7
	L	192.3	101	0	9.5	16	-22.8	-12.8	0		3	0
S2	C	177.7	105	16	5.1	17	-22.5	-15.5	-10	Cold Storage Block 1	3	26.8
	L	177.7	101	0	5.1	18	-22.5	-15.5	-10		3	0
S3	C	164.4	105	16	5.0	19	-22.2	-15.5	0	Nil	3	36.6
	L	164.4	101	0	5.0	20	-22.2	-15.5	0		3	0
S4	C	162.5	105	16	4.9	21	-22.1	-15.6	0		3	36.1
	L	162.5	101	0	4.9	22	-22.1	-15.6	0		3	0
S5	C	152.8	105	32	0.9	23	-21.8	-23.0	0		3	31.6
	L	152.8	101	0	0.9	24	-21.8	-23.0	0		3	0
S6	C	132.0	105	32	11.1	25	-21.2	-12.1	0		3	42.8
	L	132.0	101	0	11.1	26	-21.2	-12.1	0		3	0
S7	C	113.7	105	32	14.3	27	-20.6	-11.0	0		3	44.2
	L	113.7	101	0	14.3	28	-20.6	-11.0	0		3	0
S8	C	102.3	105	32	21.9	29	-20.1	-9.2	0		3	46.2
	L	102.3	101	0	21.9	30	-20.1	-9.2	0		3	0
S9	C	95.4	105	32	8.1	31	-19.8	-13.5	0		3	41.9
	L	95.4	101	0	8.1	32	-19.8	-13.5	0		3	0
S10	C	115.6	105	32	1.3	33	-20.6	-21.4	0		3	32.8
	L	115.6	101	0	1.3	34	-20.6	-21.4	0		3	0
											Total SPL, dB(A)	**51**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Sheiding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	192.3	105	5	9.5	15	-22.8	-12.8	0	Nil	3	34.6
	L	192.3	101	0	9.5	16	-22.8	-12.8	0		3	0
S2	M	177.7	105	5	5.1	17	-22.5	-15.5	-10	Cold Storage Block 1	3	21.7
	L	177.7	101	0	5.1	18	-22.5	-15.5	-10		3	0
S3	M	164.4	105	5	5.0	19	-22.2	-15.5	0	Nil	3	31.5
	L	164.4	101	0	5.0	20	-22.2	-15.5	0		3	0
S4	M	162.5	105	5	4.9	21	-22.1	-15.6	0		3	31.0
	L	162.5	101	0	4.9	22	-22.1	-15.6	0		3	0
S5	M	152.8	105	10	0.9	23	-21.8	-23.0	0		3	26.5
	L	152.8	101	0	0.9	24	-21.8	-23.0	0		3	0
S6	M	132.0	105	10	11.1	25	-21.2	-12.1	0		3	37.7
	L	132.0	101	0	11.1	26	-21.2	-12.1	0		3	0
S7	M	113.7	105	10	14.3	27	-20.6	-11.0	0		3	39.1
	L	113.7	101	0	14.3	28	-20.6	-11.0	0		3	0
S8	M	102.3	105	10	21.9	29	-20.1	-9.2	0		3	41.1
	L	102.3	101	0	21.9	30	-20.1	-9.2	0		3	0
S9	M	95.4	105	10	8.1	31	-19.8	-13.5	0		3	36.8
	L	95.4	101	0	8.1	32	-19.8	-13.5	0		3	0
S10	M	115.6	105	10	1.3	33	-20.6	-21.4	0		3	27.8
	L	115.6	101	0	1.3	34	-20.6	-21.4	0		3	0
											Total SPL, dB(A)	**46**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Sheiding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	192.3	105	0	9.5	15	-22.8	-12.8	0	Nil	3	0
	L	192.3	101	1	9.5	16	-22.8	-12.8	0		3	23.4
S2	M	177.7	105	0	5.1	17	-22.5	-15.5	-10	Cold Storage Block 1	3	0
	L	177.7	101	1	5.1	18	-22.5	-15.5	-10		3	10.5
S3	M	164.4	105	0	5.0	19	-22.2	-15.5	0	Nil	3	0
	L	164.4	101	1	5.0	20	-22.2	-15.5	0		3	20.3
S4	M	162.5	105	0	4.9	21	-22.1	-15.6	0		3	0
	L	162.5	101	1	4.9	22	-22.1	-15.6	0		3	19.8
S5	M	152.8	105	0	0.9	23	-21.8	-23.0	0		3	0
	L	152.8	101	2	0.9	24	-21.8	-23.0	0		3	15.4
S6	M	132.0	105	0	11.1	25	-21.2	-12.1	0		3	0
	L	132.0	101	2	11.1	26	-21.2	-12.1	0		3	26.6
S7	M	113.7	105	0	14.3	27	-20.6	-11.0	0		3	0
	L	113.7	101	2	14.3	28	-20.6	-11.0	0		3	28.0
S8	M	102.3	105	0	21.9	29	-20.1	-9.2	0		3	0
	L	102.3	101	2	21.9	30	-20.1	-9.2	0		3	30.0
S9	M	95.4	105	0	8.1	31	-19.8	-13.5	0		3	0
	L	95.4	101	2	8.1	32	-19.8	-13.5	0		3	25.7
S10	M	115.6	105	0	1.3	33	-20.6	-21.4	0		3	0
	L	115.6	101	2	1.3	34	-20.6	-21.4	0		3	16.7
											Total SPL, dB(A)	**35**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	154.1	-51.8	0	Enclosure with sliencer	-10	3	25.2
Condenser	Block 1 (NE)	75.5	6	83.3	138.1	-50.8	0	Enclosure with sliencer	-10	3	25.5
Condenser	Block 2	75.5	6	83.3	142.6	-51.1	0	Enclosure with sliencer	-10	3	25.2
										Total SPL, dB(A)	**30**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN4 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	244.8	105	16	6.6	15	-23.9	-14.4	-10	Cold Storage Block 1 and cover	3	27.0
	L	244.8	101	0	6.6	16	-23.9	-14.4	-10		3	0
S2	C	228.8	105	16	4.7	17	-23.6	-15.8	-10		3	25.4
	L	228.8	101	0	4.7	18	-23.6	-15.8	-10		3	0
S3	C	219.3	105	16	4.3	19	-23.4	-16.2	0	Nil	3	34.7
	L	219.3	101	0	4.3	20	-23.4	-16.2	0		3	0
S4	C	220.6	105	16	3.1	21	-23.4	-17.6	0		3	32.8
	L	220.6	101	0	3.1	22	-23.4	-17.6	0		3	0
S5	C	209.4	105	32	0.1	23	-23.2	-32.5	0		3	20.7
	L	209.4	101	0	0.1	24	-23.2	-32.5	0		3	0
S6	C	185.9	105	32	5.1	25	-22.7	-15.5	0		3	37.9
	L	185.9	101	0	5.1	26	-22.7	-15.5	0		3	0
S7	C	159.4	105	32	8.4	27	-22.0	-13.3	0		3	40.4
	L	159.4	101	0	8.4	28	-22.0	-13.3	0		3	0
S8	C	133.6	105	32	12.5	29	-21.3	-11.6	0		3	42.6
	L	133.6	101	0	12.5	30	-21.3	-11.6	0		3	0
S9	C	113.1	105	32	3.0	31	-20.5	-17.8	0		3	36.8
	L	113.1	101	0	3.0	32	-20.5	-17.8	0		3	0
S10	C	133.0	105	32	8.3	33	-21.2	-13.4	0		3	40.3
	L	133.0	101	0	8.3	34	-21.2	-13.4	0		3	0
											Total SPL, dB(A)	**48**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	244.8	105	5	6.6	15	-23.9	-14.4	-10	Cold Storage Block 1 and cover	3	22.0
	L	244.8	101	0	6.6	16	-23.9	-14.4	-10		3	0
S2	M	228.8	105	5	4.7	17	-23.6	-15.8	-10		3	20.3
	L	228.8	101	0	4.7	18	-23.6	-15.8	-10		3	0
S3	M	219.3	105	5	4.3	19	-23.4	-16.2	0	Nil	3	29.6
	L	219.3	101	0	4.3	20	-23.4	-16.2	0		3	0
S4	M	220.6	105	5	3.1	21	-23.4	-17.6	0		3	27.8
	L	220.6	101	0	3.1	22	-23.4	-17.6	0		3	0
S5	M	209.4	105	10	0.1	23	-23.2	-32.5	0		3	15.6
	L	209.4	101	0	0.1	24	-23.2	-32.5	0		3	0
S6	M	185.9	105	10	5.1	25	-22.7	-15.5	0		3	32.9
	L	185.9	101	0	5.1	26	-22.7	-15.5	0		3	0
S7	M	159.4	105	10	8.4	27	-22.0	-13.3	0		3	35.3
	L	159.4	101	0	8.4	28	-22.0	-13.3	0		3	0
S8	M	133.6	105	10	12.5	29	-21.3	-11.6	0		3	37.5
	L	133.6	101	0	12.5	30	-21.3	-11.6	0		3	0
S9	M	113.1	105	10	3.0	31	-20.5	-17.8	0		3	31.7
	L	113.1	101	0	3.0	32	-20.5	-17.8	0		3	0
S10	M	133.0	105	10	8.3	33	-21.2	-13.4	0		3	35.2
	L	133.0	101	0	8.3	34	-21.2	-13.4	0		3	0
											Total SPL, dB(A)	**42**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	244.8	105	0	6.6	15	-23.9	-14.4	-10	Cold Storage Block 1 and cover	3	0
	L	244.8	101	1	6.6	16	-23.9	-14.4	-10		3	10.7
S2	M	228.8	105	0	4.7	17	-23.6	-15.8	-10		3	0
	L	228.8	101	1	4.7	18	-23.6	-15.8	-10		3	9.1
S3	M	219.3	105	0	4.3	19	-23.4	-16.2	0	Nil	3	0
	L	219.3	101	1	4.3	20	-23.4	-16.2	0		3	18.4
S4	M	220.6	105	0	3.1	21	-23.4	-17.6	0		3	0
	L	220.6	101	1	3.1	22	-23.4	-17.6	0		3	16.6
S5	M	209.4	105	0	0.1	23	-23.2	-32.5	0		3	0
	L	209.4	101	2	0.1	24	-23.2	-32.5	0		3	4.5
S6	M	185.9	105	0	5.1	25	-22.7	-15.5	0		3	0
	L	185.9	101	2	5.1	26	-22.7	-15.5	0		3	21.7
S7	M	159.4	105	0	8.4	27	-22.0	-13.3	0		3	0
	L	159.4	101	2	8.4	28	-22.0	-13.3	0		3	24.2
S8	M	133.6	105	0	12.5	29	-21.3	-11.6	0		3	0
	L	133.6	101	2	12.5	30	-21.3	-11.6	0		3	26.4
S9	M	113.1	105	0	3.0	31	-20.5	-17.8	0		3	0
	L	113.1	101	2	3.0	32	-20.5	-17.8	0		3	20.6
S10	M	133.0	105	0	8.3	33	-21.2	-13.4	0		3	0
	L	133.0	101	2	8.3	34	-21.2	-13.4	0		3	24.1
											Total SPL, dB(A)	**30**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	194.4	-53.8	0	Enclosure with sliencer	-10	3	23.2
Condenser	Block 1 (NE)	75.5	6	83.3	167.5	-52.5	0	Enclosure with sliencer	-10	3	23.8
Condenser	Block 2	75.5	6	83.3	117.9	-49.4	0	Enclosure with sliencer	-10	3	26.9
										Total SPL, dB(A)	**30**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN5 - House 220 Sha Ling

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	278.1	105	16	5.7	15	-24.4	-15.0	-10		3	25.8
	L	278.1	101	0	5.7	15	-24.4	-15.0	-10	Cold Storage Block 1 and cover	3	0
S2	C	261.9	105	16	4.2	15	-24.2	-16.3	-10		3	24.8
	L	261.9	101	0	4.2	15	-24.2	-16.3	-10		3	0
S3	C	253.0	105	16	3.8	15	-24.0	-16.7	0		3	34.5
	L	253.0	101	0	3.8	15	-24.0	-16.7	0		3	0
S4	C	254.6	105	16	2.7	15	-24.1	-18.3	0		3	33.0
	L	254.6	101	0	2.7	15	-24.1	-18.3	0		3	0
S5	C	243.3	105	32	0.2	15	-23.9	-30.8	0		3	23.7
	L	243.3	101	0	0.2	15	-23.9	-30.8	0		3	0
S6	C	219.6	105	32	4.0	15	-23.4	-16.5	0		3	38.4
	L	219.6	101	0	4.0	15	-23.4	-16.5	0	Nil	3	0
S7	C	192.3	105	32	6.6	15	-22.8	-14.3	0		3	41.1
	L	192.3	101	0	6.6	15	-22.8	-14.3	0		3	0
S8	C	164.5	105	32	9.1	15	-22.2	-12.9	0		3	43.2
	L	164.5	101	0	9.1	15	-22.2	-12.9	0		3	0
S9	C	142.0	105	32	1.5	15	-21.5	-20.8	0		3	36.0
	L	142.0	101	0	1.5	15	-21.5	-20.8	0		3	0
S10	C	160.8	105	32	8.0	15	-22.1	-13.5	0		3	42.7
	L	160.8	101	0	8.0	15	-22.1	-13.5	0		3	0
											Total SPL, dB(A)	**48**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	278.1	105	5	5.7	15	-24.4	-15.0	-10		3	20.8
	L	278.1	101	0	5.7	15	-24.4	-15.0	-10	Cold Storage Block 1 and cover	3	0
S2	M	261.9	105	5	4.2	15	-24.2	-16.3	-10		3	19.8
	L	261.9	101	0	4.2	15	-24.2	-16.3	-10		3	0
S3	M	253.0	105	5	3.8	15	-24.0	-16.7	0		3	29.5
	L	253.0	101	0	3.8	15	-24.0	-16.7	0		3	0
S4	M	254.6	105	5	2.7	15	-24.1	-18.3	0		3	27.9
	L	254.6	101	0	2.7	15	-24.1	-18.3	0		3	0
S5	M	243.3	105	10	0.2	15	-23.9	-30.8	0		3	18.6
	L	243.3	101	0	0.2	15	-23.9	-30.8	0		3	0
S6	M	219.6	105	10	4.0	15	-23.4	-16.5	0		3	33.3
	L	219.6	101	0	4.0	15	-23.4	-16.5	0	Nil	3	0
S7	M	192.3	105	10	6.6	15	-22.8	-14.3	0		3	36.1
	L	192.3	101	0	6.6	15	-22.8	-14.3	0		3	0
S8	M	164.5	105	10	9.1	15	-22.2	-12.9	0		3	38.1
	L	164.5	101	0	9.1	15	-22.2	-12.9	0		3	0
S9	M	142.0	105	10	1.5	15	-21.5	-20.8	0		3	30.9
	L	142.0	101	0	1.5	15	-21.5	-20.8	0		3	0
S10	M	160.8	105	10	8.0	15	-22.1	-13.5	0		3	37.7
	L	160.8	101	0	8.0	15	-22.1	-13.5	0		3	0
											Total SPL, dB(A)	**43**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	278.1	105	0	5.7	15	-24.4	-15.0	-10		3	0
	L	278.1	101	1	5.7	15	-24.4	-15.0	-10	Cold Storage Block 1 and cover	3	9.8
S2	M	261.9	105	0	4.2	15	-24.2	-16.3	-10		3	0
	L	261.9	101	1	4.2	15	-24.2	-16.3	-10		3	8.8
S3	M	253.0	105	0	3.8	15	-24.0	-16.7	0		3	0
	L	253.0	101	1	3.8	15	-24.0	-16.7	0		3	18.5
S4	M	254.6	105	0	2.7	15	-24.1	-18.3	0		3	0
	L	254.6	101	1	2.7	15	-24.1	-18.3	0		3	16.9
S5	M	243.3	105	0	0.2	15	-23.9	-30.8	0		3	0
	L	243.3	101	2	0.2	15	-23.9	-30.8	0		3	7.6
S6	M	219.6	105	0	4.0	15	-23.4	-16.5	0		3	0
	L	219.6	101	2	4.0	15	-23.4	-16.5	0	Nil	3	22.4
S7	M	192.3	105	0	6.6	15	-22.8	-14.3	0		3	0
	L	192.3	101	2	6.6	15	-22.8	-14.3	0		3	25.1
S8	M	164.5	105	0	9.1	15	-22.2	-12.9	0		3	0
	L	164.5	101	2	9.1	15	-22.2	-12.9	0		3	27.1
S9	M	142.0	105	0	1.5	15	-21.5	-20.8	0		3	0
	L	142.0	101	2	1.5	15	-21.5	-20.8	0		3	20.0
S10	M	160.8	105	0	8.0	15	-22.1	-13.5	0		3	0
	L	160.8	101	2	8.0	15	-22.1	-13.5	0		3	26.7
											Total SPL, dB(A)	**32**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	225.8	-55.1	0	Enclosure with sliencer	-10	3	21.9
Condenser	Block 1 (NE)	75.5	6	83.3	197.0	-53.9	0	Enclosure with sliencer	-10	3	22.4
Condenser	Block 2	75.5	6	83.3	130.9	-50.3	0	Enclosure with sliencer	-10	3	26.0
										Total SPL, dB(A)	**29**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN6 - House 56 Sha Ling

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	312.9	105	16	3.2	15	-25.0	-17.5	-10		3	22.8
	L	312.9	101	0	3.2	15	-25.0	-17.5	-10		3	0
S2	C	296.4	105	16	4.2	15	-24.7	-16.3	-10		3	24.3
	L	296.4	101	0	4.2	15	-24.7	-16.3	-10		3	0
S3	C	295.1	105	16	3.6	15	-24.7	-17.0	-10		3	23.6
	L	295.1	101	0	3.6	15	-24.7	-17.0	-10		3	0
S4	C	302.1	105	16	1.4	15	-24.8	-21.2	-10		3	19.3
	L	302.1	101	0	1.4	15	-24.8	-21.2	-10		3	0
S5	C	289.5	105	32	1.1	15	-24.6	-22.3	-10		3	21.4
	L	289.5	101	0	1.1	15	-24.6	-22.3	-10	Cold Storage Block 1 &2 and cover	3	0
S6	C	264.9	105	32	0.2	15	-24.2	-29.8	-10		3	14.3
	L	264.9	101	0	0.2	15	-24.2	-29.8	-10		3	0
S7	C	231.9	105	32	2.4	15	-23.7	-18.7	-10		3	25.9
	L	231.9	101	0	2.4	15	-23.7	-18.7	-10		3	0
S8	C	195.5	105	32	0.9	15	-22.9	-23.2	-10		3	22.2
	L	195.5	101	0	0.9	15	-22.9	-23.2	-10		3	0
S9	C	168.4	105	32	2.5	15	-22.3	-18.6	-10		3	27.5
	L	168.4	101	0	2.5	15	-22.3	-18.6	-10		3	0
S10	C	176.4	105	32	10.4	15	-22.5	-12.4	-10		3	33.4
	L	176.4	101	0	10.4	15	-22.5	-12.4	-10		3	0
											Total SPL, dB(A)	**36**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	312.9	105	5	3.2	15	-25.0	-17.5	-10		3	17.8
	L	312.9	101	0	3.2	15	-25.0	-17.5	-10		3	0
S2	M	296.4	105	5	4.2	15	-24.7	-16.3	-10		3	19.2
	L	296.4	101	0	4.2	15	-24.7	-16.3	-10		3	0
S3	M	295.1	105	5	3.6	15	-24.7	-17.0	-10		3	18.5
	L	295.1	101	0	3.6	15	-24.7	-17.0	-10		3	0
S4	M	302.1	105	5	1.4	15	-24.8	-21.2	-10		3	14.2
	L	302.1	101	0	1.4	15	-24.8	-21.2	-10		3	0
S5	M	289.5	105	10	1.1	15	-24.6	-22.3	-10		3	16.3
	L	289.5	101	0	1.1	15	-24.6	-22.3	-10	Cold Storage Block 1 &2 and cover	3	0
S6	M	264.9	105	10	0.2	15	-24.2	-29.8	-10		3	9.2
	L	264.9	101	0	0.2	15	-24.2	-29.8	-10		3	0
S7	M	231.9	105	10	2.4	15	-23.7	-18.7	-10		3	20.9
	L	231.9	101	0	2.4	15	-23.7	-18.7	-10		3	0
S8	M	195.5	105	10	0.9	15	-22.9	-23.2	-10		3	17.1
	L	195.5	101	0	0.9	15	-22.9	-23.2	-10		3	0
S9	M	168.4	105	10	2.5	15	-22.3	-18.6	-10		3	22.4
	L	168.4	101	0	2.5	15	-22.3	-18.6	-10		3	0
S10	M	176.4	105	10	10.4	15	-22.5	-12.4	-10		3	28.4
	L	176.4	101	0	10.4	15	-22.5	-12.4	-10		3	0
											Total SPL, dB(A)	**31**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	312.9	105	0	3.2	15	-25.0	-17.5	-10		3	0
	L	312.9	101	1	3.2	15	-25.0	-17.5	-10		3	6.8
S2	M	296.4	105	0	4.2	15	-24.7	-16.3	-10		3	0
	L	296.4	101	1	4.2	15	-24.7	-16.3	-10		3	8.2
S3	M	295.1	105	0	3.6	15	-24.7	-17.0	-10		3	0
	L	295.1	101	1	3.6	15	-24.7	-17.0	-10		3	7.5
S4	M	302.1	105	0	1.4	15	-24.8	-21.2	-10		3	0
	L	302.1	101	1	1.4	15	-24.8	-21.2	-10		3	3.3
S5	M	289.5	105	0	1.1	15	-24.6	-22.3	-10		3	0
	L	289.5	101	2	1.1	15	-24.6	-22.3	-10	Cold Storage Block 1 &2 and cover	3	5.3
S6	M	264.9	105	0	0.2	15	-24.2	-29.8	-10		3	0
	L	264.9	101	2	0.2	15	-24.2	-29.8	-10		3	-1.7
S7	M	231.9	105	0	2.4	15	-23.7	-18.7	-10		3	0
	L	231.9	101	2	2.4	15	-23.7	-18.7	-10		3	9.9
S8	M	195.5	105	0	0.9	15	-22.9	-23.2	-10		3	0
	L	195.5	101	2	0.9	15	-22.9	-23.2	-10		3	6.2
S9	M	168.4	105	0	2.5	15	-22.3	-18.6	-10		3	0
	L	168.4	101	2	2.5	15	-22.3	-18.6	-10		3	11.4
S10	M	176.4	105	0	10.4	15	-22.5	-12.4	-10		3	0
	L	176.4	101	2	10.4	15	-22.5	-12.4	-10		3	17.4
											Total SPL, dB(A)	**21**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	249.9	-56.0	0	Enclosure with sliencer	-10	3	21.0
Condenser	Block 1 (NE)	75.5	6	83.3	213.7	-54.6	0	Enclosure with sliencer	-10	3	21.7
Condenser	Block 2	75.5	6	83.3	103.2	-48.3	0	Enclosure with sliencer	-10	3	28.1
										Total SPL, dB(A)	**30**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN7 - House 73 Sha Ling

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	254.1	105	16	2.9	15	-24.1	-18.0	-10		3	23.2
	L	254.1	101	0	2.9	15	-24.1	-18.0	-10		3	0
S2	C	238.1	105	16	5.3	15	-23.8	-15.3	-10		3	26.2
	L	238.1	101	0	5.3	15	-23.8	-15.3	-10		3	0
S3	C	240.3	105	16	4.3	15	-23.8	-16.2	-10		3	25.3
	L	240.3	101	0	4.3	15	-23.8	-16.2	-10		3	0
S4	C	249.5	105	16	1.0	15	-24.0	-22.4	-10		3	18.9
	L	249.5	101	0	1.0	15	-24.0	-22.4	-10		3	0
S5	C	236.9	105	32	1.8	15	-23.7	-20.0	-10		3	24.5
	L	236.9	101	0	1.8	15	-23.7	-20.0	-10	Cold Storage Block 1 &2 and cover	3	0
S6	C	213.5	105	32	2.4	15	-23.3	-18.7	-10		3	26.3
	L	213.5	101	0	2.4	15	-23.3	-18.7	-10		3	0
S7	C	180.3	105	32	0.8	15	-22.6	-23.5	-10		3	22.3
	L	180.3	101	0	0.8	15	-22.6	-23.5	-10		3	0
S8	C	143.9	105	32	3.8	15	-21.6	-16.7	-10		3	30.0
	L	143.9	101	0	3.8	15	-21.6	-16.7	-10		3	0
S9	C	119.1	105	32	5.7	15	-20.8	-15.0	-10		3	32.6
	L	119.1	101	0	5.7	15	-20.8	-15.0	-10		3	0
S10	C	120.0	105	32	15.1	15	-20.8	-10.8	-10		3	36.7
	L	120.0	101	0	15.1	15	-20.8	-10.8	-10		3	0
											Total SPL, dB(A)	**40**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	254.1	105	5	2.9	15	-24.1	-18.0	-10		3	18.2
	L	254.1	101	0	2.9	15	-24.1	-18.0	-10		3	0
S2	M	238.1	105	5	5.3	15	-23.8	-15.3	-10		3	21.1
	L	238.1	101	0	5.3	15	-23.8	-15.3	-10		3	0
S3	M	240.3	105	5	4.3	15	-23.8	-16.2	-10		3	20.2
	L	240.3	101	0	4.3	15	-23.8	-16.2	-10		3	0
S4	M	249.5	105	5	1.0	15	-24.0	-22.4	-10		3	13.9
	L	249.5	101	0	1.0	15	-24.0	-22.4	-10		3	0
S5	M	236.9	105	10	1.8	15	-23.7	-20.0	-10		3	19.4
	L	236.9	101	0	1.8	15	-23.7	-20.0	-10	Cold Storage Block 1 &2 and cover	3	0
S6	M	213.5	105	10	2.4	15	-23.3	-18.7	-10		3	21.3
	L	213.5	101	0	2.4	15	-23.3	-18.7	-10		3	0
S7	M	180.3	105	10	0.8	15	-22.6	-23.5	-10		3	17.2
	L	180.3	101	0	0.8	15	-22.6	-23.5	-10		3	0
S8	M	143.9	105	10	3.8	15	-21.6	-16.7	-10		3	24.9
	L	143.9	101	0	3.8	15	-21.6	-16.7	-10		3	0
S9	M	119.1	105	10	5.7	15	-20.8	-15.0	-10		3	27.5
	L	119.1	101	0	5.7	15	-20.8	-15.0	-10		3	0
S10	M	120.0	105	10	15.1	15	-20.8	-10.8	-10		3	31.7
	L	120.0	101	0	15.1	15	-20.8	-10.8	-10		3	0
											Total SPL, dB(A)	**35**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	254.1	105	0	2.9	15	-24.1	-18.0	-10		3	0
	L	254.1	101	1	2.9	15	-24.1	-18.0	-10		3	7.2
S2	M	238.1	105	0	5.3	15	-23.8	-15.3	-10		3	0
	L	238.1	101	1	5.3	15	-23.8	-15.3	-10		3	10.1
S3	M	240.3	105	0	4.3	15	-23.8	-16.2	-10		3	0
	L	240.3	101	1	4.3	15	-23.8	-16.2	-10		3	9.3
S4	M	249.5	105	0	1.0	15	-24.0	-22.4	-10		3	0
	L	249.5	101	1	1.0	15	-24.0	-22.4	-10		3	2.9
S5	M	236.9	105	0	1.8	15	-23.7	-20.0	-10		3	0
	L	236.9	101	2	1.8	15	-23.7	-20.0	-10	Cold Storage Block 1 &2 and cover	3	8.5
S6	M	213.5	105	0	2.4	15	-23.3	-18.7	-10		3	0
	L	213.5	101	2	2.4	15	-23.3	-18.7	-10		3	10.3
S7	M	180.3	105	0	0.8	15	-22.6	-23.5	-10		3	0
	L	180.3	101	2	0.8	15	-22.6	-23.5	-10		3	6.2
S8	M	143.9	105	0	3.8	15	-21.6	-16.7	-10		3	0
	L	143.9	101	2	3.8	15	-21.6	-16.7	-10		3	14.0
S9	M	119.1	105	0	5.7	15	-20.8	-15.0	-10		3	0
	L	119.1	101	2	5.7	15	-20.8	-15.0	-10		3	16.5
S10	M	120.0	105	0	15.1	15	-20.8	-10.8	-10		3	0
	L	120.0	101	2	15.1	15	-20.8	-10.8	-10		3	20.7
											Total SPL, dB(A)	**24**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	189.9	-53.6	0	Enclosure with sliencer	-10	3	23.4
Condenser	Block 1 (NE)	75.5	6	83.3	153.3	-51.7	0	Enclosure with sliencer	-10	3	24.6
Condenser	Block 2	75.5	6	83.3	43.0	-40.7	0	Enclosure with sliencer	-10	3	35.7
										Total SPL, dB(A)	**36**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN8 - House 79 Sha Ling

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	232.2	105	16	1.7	15	-23.7	-20.1	-10		3	21.5
	L	232.2	101	0	1.7	15	-23.7	-20.1	-10		3	0
S2	C	217.3	105	16	5.6	15	-23.4	-15.1	-10		3	26.8
	L	217.3	101	0	5.6	15	-23.4	-15.1	-10		3	0
S3	C	223.0	105	16	4.5	15	-23.5	-16.1	-10		3	25.7
	L	223.0	101	0	4.5	15	-23.5	-16.1	-10		3	0
S4	C	234.1	105	16	0.4	15	-23.7	-26.2	-10		3	15.4
	L	234.1	101	0	0.4	15	-23.7	-26.2	-10		3	0
S5	C	222.0	105	32	2.3	15	-23.5	-18.9	-10	Cold Storage Block 1	3	26.0
	L	222.0	101	0	2.3	15	-23.5	-18.9	-10	&2, cover and 12m	3	0
S6	C	200.6	105	32	4.8	15	-23.0	-15.8	-10	Fixed/Movable Noise	3	29.5
	L	200.6	101	0	4.8	15	-23.0	-15.8	-10	Barrier (NB 3)	3	0
S7	C	169.1	105	32	1.7	15	-22.3	-20.3	-10		3	25.7
	L	169.1	101	0	1.7	15	-22.3	-20.3	-10		3	0
S8	C	135.4	105	32	9.2	15	-21.3	-12.9	-10		3	34.1
	L	135.4	101	0	9.2	15	-21.3	-12.9	-10		3	0
S9	C	116.1	105	32	7.3	15	-20.6	-13.9	-10		3	33.7
	L	116.1	101	0	7.3	15	-20.6	-13.9	-10		3	0
S10	C	109.0	105	32	14.2	15	-20.4	-11.0	-10		3	36.9
	L	109.0	101	0	14.2	15	-20.4	-11.0	-10		3	0
											Total SPL, dB(A)	**41**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	232.2	105	5	1.7	15	-23.7	-20.1	-10		3	16.4
	L	232.2	101	0	1.7	15	-23.7	-20.1	-10		3	0
S2	M	217.3	105	5	5.6	15	-23.4	-15.1	-10		3	21.8
	L	217.3	101	0	5.6	15	-23.4	-15.1	-10		3	0
S3	M	223.0	105	5	4.5	15	-23.5	-16.1	-10		3	20.7
	L	223.0	101	0	4.5	15	-23.5	-16.1	-10		3	0
S4	M	234.1	105	5	0.4	15	-23.7	-26.2	-10		3	10.4
	L	234.1	101	0	0.4	15	-23.7	-26.2	-10		3	0
S5	M	222.0	105	10	2.3	15	-23.5	-18.9	-10	Cold Storage Block 1	3	20.9
	L	222.0	101	0	2.3	15	-23.5	-18.9	-10	&2, cover and 12m	3	0
S6	M	200.6	105	10	4.8	15	-23.0	-15.8	-10	Fixed/Movable Noise	3	24.4
	L	200.6	101	0	4.8	15	-23.0	-15.8	-10	Barrier (NB 3)	3	0
S7	M	169.1	105	10	1.7	15	-22.3	-20.3	-10		3	20.6
	L	169.1	101	0	1.7	15	-22.3	-20.3	-10		3	0
S8	M	135.4	105	10	9.2	15	-21.3	-12.9	-10		3	29.0
	L	135.4	101	0	9.2	15	-21.3	-12.9	-10		3	0
S9	M	116.1	105	10	7.3	15	-20.6	-13.9	-10		3	28.7
	L	116.1	101	0	7.3	15	-20.6	-13.9	-10		3	0
S10	M	109.0	105	10	14.2	15	-20.4	-11.0	-10		3	31.8
	L	109.0	101	0	14.2	15	-20.4	-11.0	-10		3	0
											Total SPL, dB(A)	**36**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	232.2	105	0	1.7	15	-23.7	-20.1	-10		3	0
	L	232.2	101	1	1.7	15	-23.7	-20.1	-10		3	5.4
S2	M	217.3	105	0	5.6	15	-23.4	-15.1	-10		3	0
	L	217.3	101	1	5.6	15	-23.4	-15.1	-10		3	10.8
S3	M	223.0	105	0	4.5	15	-23.5	-16.1	-10		3	0
	L	223.0	101	1	4.5	15	-23.5	-16.1	-10		3	9.7
S4	M	234.1	105	0	0.4	15	-23.7	-26.2	-10		3	0
	L	234.1	101	1	0.4	15	-23.7	-26.2	-10		3	-0.6
S5	M	222.0	105	0	2.3	15	-23.5	-18.9	-10	Cold Storage Block 1	3	0
	L	222.0	101	2	2.3	15	-23.5	-18.9	-10	&2, cover and 12m	3	9.9
S6	M	200.6	105	0	4.8	15	-23.0	-15.8	-10	Fixed/Movable Noise	3	0
	L	200.6	101	2	4.8	15	-23.0	-15.8	-10	Barrier (NB 3)	3	13.5
S7	M	169.1	105	0	1.7	15	-22.3	-20.3	-10		3	0
	L	169.1	101	2	1.7	15	-22.3	-20.3	-10		3	9.7
S8	M	135.4	105	0	9.2	15	-21.3	-12.9	-10		3	0
	L	135.4	101	2	9.2	15	-21.3	-12.9	-10		3	18.0
S9	M	116.1	105	0	7.3	15	-20.6	-13.9	-10		3	0
	L	116.1	101	2	7.3	15	-20.6	-13.9	-10		3	17.7
S10	M	109.0	105	0	14.2	15	-20.4	-11.0	-10		3	0
	L	109.0	101	2	14.2	15	-20.4	-11.0	-10		3	20.8
											Total SPL, dB(A)	**25**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	168.8	-52.5	0	Enclosure with sliencer	-10	3	24.4
Condenser	Block 1 (NE)	75.5	6	83.3	133.9	-50.5	0	Enclosure with sliencer	-10	3	25.8
Condenser	Block 2	75.5	6	83.3	51.9	-42.3	0	Enclosure with sliencer	-10	3	34.0
										Total SPL, dB(A)	**35**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN9 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	164.3	105	16	4.1	15	-22.2	-16.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	26.7
	L	164.3	101	0	4.1	15	-22.2	-16.4	-10		3	0
S2	C	148.5	105	16	8.4	15	-21.7	-13.3	-10		3	30.2
	L	148.5	101	0	8.4	15	-21.7	-13.3	-10		3	0
S3	C	152.1	105	16	6.7	15	-21.8	-14.3	-10		3	29.2
	L	152.1	101	0	6.7	15	-21.8	-14.3	-10		3	0
S4	C	162.4	105	16	1.0	15	-22.1	-22.6	-10		3	20.5
	L	162.4	101	0	1.0	15	-22.1	-22.6	-10		3	0
S5	C	150.1	105	32	3.3	15	-21.8	-17.4	-10		3	29.1
	L	150.1	101	0	3.3	15	-21.8	-17.4	-10		3	0
S6	C	128.1	105	32	7.0	15	-21.1	-14.1	-10		3	33.1
	L	128.1	101	0	7.0	15	-21.1	-14.1	-10		3	0
S7	C	96.3	105	32	2.9	15	-19.8	-18.0	-10		3	30.5
	L	96.3	101	0	2.9	15	-19.8	-18.0	-10		3	0
S8	C	63.3	105	32	23.6	15	-18.0	-8.8	-10		3	41.5
	L	63.3	101	0	23.6	15	-18.0	-8.8	-10		3	0
S9	C	48.7	105	32	18.1	15	-16.9	-10.0	-10		3	41.4
	L	48.7	101	0	18.1	15	-16.9	-10.0	-10		3	0
S10	C	36.7	105	32	39.5	15	-15.6	-6.6	-10		3	46.1
	L	36.7	101	0	39.5	15	-15.6	-6.6	-10		3	0
											Total SPL, dB(A)	**49**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	164.3	105	5	4.1	15	-22.2	-16.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	21.6
	L	164.3	101	0	4.1	15	-22.2	-16.4	-10		3	0
S2	M	148.5	105	5	8.4	15	-21.7	-13.3	-10		3	25.2
	L	148.5	101	0	8.4	15	-21.7	-13.3	-10		3	0
S3	M	152.1	105	5	6.7	15	-21.8	-14.3	-10		3	24.1
	L	152.1	101	0	6.7	15	-21.8	-14.3	-10		3	0
S4	M	162.4	105	5	1.0	15	-22.1	-22.6	-10		3	15.5
	L	162.4	101	0	1.0	15	-22.1	-22.6	-10		3	0
S5	M	150.1	105	10	3.3	15	-21.8	-17.4	-10		3	24.1
	L	150.1	101	0	3.3	15	-21.8	-17.4	-10		3	0
S6	M	128.1	105	10	7.0	15	-21.1	-14.1	-10		3	28.0
	L	128.1	101	0	7.0	15	-21.1	-14.1	-10		3	0
S7	M	96.3	105	10	2.9	15	-19.8	-18.0	-10		3	25.4
	L	96.3	101	0	2.9	15	-19.8	-18.0	-10		3	0
S8	M	63.3	105	10	23.6	15	-18.0	-8.8	-10		3	36.4
	L	63.3	101	0	23.6	15	-18.0	-8.8	-10		3	0
S9	M	48.7	105	10	18.1	15	-16.9	-10.0	-10		3	36.4
	L	48.7	101	0	18.1	15	-16.9	-10.0	-10		3	0
S10	M	36.7	105	10	39.5	15	-15.6	-6.6	-10		3	41.0
	L	36.7	101	0	39.5	15	-15.6	-6.6	-10		3	0
											Total SPL, dB(A)	**44**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	164.3	105	0	4.1	15	-22.2	-16.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	0
	L	164.3	101	1	4.1	15	-22.2	-16.4	-10		3	10.6
S2	M	148.5	105	0	8.4	15	-21.7	-13.3	-10		3	0
	L	148.5	101	1	8.4	15	-21.7	-13.3	-10		3	14.2
S3	M	152.1	105	0	6.7	15	-21.8	-14.3	-10		3	0
	L	152.1	101	1	6.7	15	-21.8	-14.3	-10		3	13.1
S4	M	162.4	105	0	1.0	15	-22.1	-22.6	-10		3	0
	L	162.4	101	1	1.0	15	-22.1	-22.6	-10		3	4.5
S5	M	150.1	105	0	3.3	15	-21.8	-17.4	-10		3	0
	L	150.1	101	2	3.3	15	-21.8	-17.4	-10		3	13.1
S6	M	128.1	105	0	7.0	15	-21.1	-14.1	-10		3	0
	L	128.1	101	2	7.0	15	-21.1	-14.1	-10		3	17.0
S7	M	96.3	105	0	2.9	15	-19.8	-18.0	-10		3	0
	L	96.3	101	2	2.9	15	-19.8	-18.0	-10		3	14.4
S8	M	63.3	105	0	23.6	15	-18.0	-8.8	-10		3	0
	L	63.3	101	2	23.6	15	-18.0	-8.8	-10		3	25.4
S9	M	48.7	105	0	18.1	15	-16.9	-10.0	-10		3	0
	L	48.7	101	2	18.1	15	-16.9	-10.0	-10		3	25.4
S10	M	36.7	105	0	39.5	15	-15.6	-6.6	-10		3	0
	L	36.7	101	2	39.5	15	-15.6	-6.6	-10		3	30.0
											Total SPL, dB(A)	**33**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	100.1	-48.0	0	Enclosure with sliencer	-10	3	29.0
Condenser	Block 1 (NE)	75.5	6	83.3	63.6	-44.1	0	Enclosure with sliencer	-10	3	32.2
Condenser	Block 2	75.5	6	83.3	51.1	-42.2	0	Enclosure with sliencer	-10	3	34.2
										Total SPL, dB(A)	**37**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN10 - House 100 Sha Ling

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	148.0	105	16	2.4	15	-21.7	-18.7	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	24.8
	L	148.0	101	0	2.4	15	-21.7	-18.7	-10		3	0
S2	C	133.3	105	16	9.0	15	-21.2	-13.0	-10		3	31.0
	L	133.3	101	0	9.0	15	-21.2	-13.0	-10		3	0
S3	C	140.5	105	16	6.8	15	-21.5	-14.2	-10		3	29.6
	L	140.5	101	0	6.8	15	-21.5	-14.2	-10		3	0
S4	C	152.6	105	16	0.0	15	-21.8	-41.1	-10		3	2.3
	L	152.6	101	0	0.0	15	-21.8	-41.1	-10		3	0
S5	C	141.0	105	32	4.1	15	-21.5	-16.4	-10		3	30.4
	L	141.0	101	0	4.1	15	-21.5	-16.4	-10		3	0
S6	C	121.9	105	32	10.9	15	-20.9	-12.2	-10		3	35.3
	L	121.9	101	0	10.9	15	-20.9	-12.2	-10		3	0
S7	C	93.9	105	32	8.3	15	-19.7	-13.3	-10		3	35.2
	L	93.9	101	0	8.3	15	-19.7	-13.3	-10		3	0
S8	C	69.1	105	32	29.8	15	-18.4	-7.8	-10		3	42.1
	L	69.1	101	0	29.8	15	-18.4	-7.8	-10		3	0
S9	C	65.9	105	32	11.9	15	-18.2	-11.8	-10		3	38.3
	L	65.9	101	0	11.9	15	-18.2	-11.8	-10		3	0
S10	C	46.6	105	32	7.3	15	-16.7	-13.9	-10		3	37.7
	L	46.6	101	0	7.3	15	-16.7	-13.9	-10		3	0
											Total SPL, dB(A)	**46**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	148.0	105	5	2.4	15	-21.7	-18.7	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	19.8
	L	148.0	101	0	2.4	15	-21.7	-18.7	-10		3	0
S2	M	133.3	105	5	9.0	15	-21.2	-13.0	-10		3	26.0
	L	133.3	101	0	9.0	15	-21.2	-13.0	-10		3	0
S3	M	140.5	105	5	6.8	15	-21.5	-14.2	-10		3	24.5
	L	140.5	101	0	6.8	15	-21.5	-14.2	-10		3	0
S4	M	152.6	105	5	0.0	15	-21.8	-41.1	-10		3	-2.7
	L	152.6	101	0	0.0	15	-21.8	-41.1	-10		3	0
S5	M	141.0	105	10	4.1	15	-21.5	-16.4	-10		3	25.3
	L	141.0	101	0	4.1	15	-21.5	-16.4	-10		3	0
S6	M	121.9	105	10	10.9	15	-20.9	-12.2	-10		3	30.2
	L	121.9	101	0	10.9	15	-20.9	-12.2	-10		3	0
S7	M	93.9	105	10	8.3	15	-19.7	-13.3	-10		3	30.2
	L	93.9	101	0	8.3	15	-19.7	-13.3	-10		3	0
S8	M	69.1	105	10	29.8	15	-18.4	-7.8	-10		3	37.0
	L	69.1	101	0	29.8	15	-18.4	-7.8	-10		3	0
S9	M	65.9	105	10	11.9	15	-18.2	-11.8	-10		3	33.3
	L	65.9	101	0	11.9	15	-18.2	-11.8	-10		3	0
S10	M	46.6	105	10	7.3	15	-16.7	-13.9	-10		3	32.6
	L	46.6	101	0	7.3	15	-16.7	-13.9	-10		3	0
											Total SPL, dB(A)	**41**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	148.0	105	0	2.4	15	-21.7	-18.7	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	0
	L	148.0	101	1	2.4	15	-21.7	-18.7	-10		3	8.8
S2	M	133.3	105	0	9.0	15	-21.2	-13.0	-10		3	0
	L	133.3	101	1	9.0	15	-21.2	-13.0	-10		3	15.0
S3	M	140.5	105	0	6.8	15	-21.5	-14.2	-10		3	0
	L	140.5	101	1	6.8	15	-21.5	-14.2	-10		3	13.5
S4	M	152.6	105	0	0.0	15	-21.8	-41.1	-10		3	0
	L	152.6	101	1	0.0	15	-21.8	-41.1	-10		3	-13.7
S5	M	141.0	105	0	4.1	15	-21.5	-16.4	-10		3	0
	L	141.0	101	2	4.1	15	-21.5	-16.4	-10		3	14.3
S6	M	121.9	105	0	10.9	15	-20.9	-12.2	-10		3	0
	L	121.9	101	2	10.9	15	-20.9	-12.2	-10		3	19.2
S7	M	93.9	105	0	8.3	15	-19.7	-13.3	-10		3	0
	L	93.9	101	2	8.3	15	-19.7	-13.3	-10		3	19.2
S8	M	69.1	105	0	29.8	15	-18.4	-7.8	-10		3	0
	L	69.1	101	2	29.8	15	-18.4	-7.8	-10		3	26.0
S9	M	65.9	105	0	11.9	15	-18.2	-11.8	-10		3	0
	L	65.9	101	2	11.9	15	-18.2	-11.8	-10		3	22.3
S10	M	46.6	105	0	7.3	15	-16.7	-13.9	-10		3	0
	L	46.6	101	2	7.3	15	-16.7	-13.9	-10		3	21.7
											Total SPL, dB(A)	**30**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	85.2	-46.6	0	Enclosure with sliencer	-10	3	30.4
Condenser	Block 1 (NE)	75.5	6	83.3	52.7	-42.4	0	Enclosure with sliencer	-10	3	33.9
Condenser	Block 2	75.5	6	83.3	77.8	-45.8	0	Enclosure with sliencer	-10	3	30.5
										Total SPL, dB(A)	**37**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN11 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	115.1	105	16	2.6	15	-20.6	-18.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	26.3
	L	115.1	101	0	2.6	15	-20.6	-18.4	-10		3	0
S2	C	100.7	105	16	11.7	15	-20.0	-11.9	-10		3	33.4
	L	100.7	101	0	11.7	15	-20.0	-11.9	-10		3	0
S3	C	109.2	105	16	8.4	15	-20.4	-13.3	-10		3	31.6
	L	109.2	101	0	8.4	15	-20.4	-13.3	-10		3	0
S4	C	122.0	105	16	0.7	15	-20.9	-24.0	-10		3	20.4
	L	122.0	101	0	0.7	15	-20.9	-24.0	-10		3	0
S5	C	111.1	105	32	5.6	15	-20.5	-15.1	-10		3	32.7
	L	111.1	101	0	5.6	15	-20.5	-15.1	-10		3	0
S6	C	94.3	105	32	17.1	15	-19.7	-10.2	-10		3	38.3
	L	94.3	101	0	17.1	15	-19.7	-10.2	-10		3	0
S7	C	71.2	105	32	16.8	15	-18.5	-10.3	-10		3	39.5
	L	71.2	101	0	16.8	15	-18.5	-10.3	-10		3	0
S8	C	58.9	105	32	38.0	15	-17.7	-6.8	-10		3	43.8
	L	58.9	101	0	38.0	15	-17.7	-6.8	-10		3	0
S9	C	69.1	105	32	7.2	15	-18.4	-14.0	-10		3	35.9
	L	69.1	101	0	7.2	15	-18.4	-14.0	-10		3	0
S10	C	48.5	105	32	21.4	15	-16.9	-9.3	-10		3	42.2
	L	48.5	101	0	21.4	15	-16.9	-9.3	-10		3	0
											Total SPL, dB(A)	**48**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	115.1	105	5	2.6	15	-20.6	-18.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	21.2
	L	115.1	101	0	2.6	15	-20.6	-18.4	-10		3	0
S2	M	100.7	105	5	11.7	15	-20.0	-11.9	-10		3	28.3
	L	100.7	101	0	11.7	15	-20.0	-11.9	-10		3	0
S3	M	109.2	105	5	8.4	15	-20.4	-13.3	-10		3	26.5
	L	109.2	101	0	8.4	15	-20.4	-13.3	-10		3	0
S4	M	122.0	105	5	0.7	15	-20.9	-24.0	-10		3	15.4
	L	122.0	101	0	0.7	15	-20.9	-24.0	-10		3	0
S5	M	111.1	105	10	5.6	15	-20.5	-15.1	-10		3	27.7
	L	111.1	101	0	5.6	15	-20.5	-15.1	-10		3	0
S6	M	94.3	105	10	17.1	15	-19.7	-10.2	-10		3	33.3
	L	94.3	101	0	17.1	15	-19.7	-10.2	-10		3	0
S7	M	71.2	105	10	16.8	15	-18.5	-10.3	-10		3	34.4
	L	71.2	101	0	16.8	15	-18.5	-10.3	-10		3	0
S8	M	58.9	105	10	38.0	15	-17.7	-6.8	-10		3	38.8
	L	58.9	101	0	38.0	15	-17.7	-6.8	-10		3	0
S9	M	69.1	105	10	7.2	15	-18.4	-14.0	-10		3	30.9
	L	69.1	101	0	7.2	15	-18.4	-14.0	-10		3	0
S10	M	48.5	105	10	21.4	15	-16.9	-9.3	-10		3	37.1
	L	48.5	101	0	21.4	15	-16.9	-9.3	-10		3	0
											Total SPL, dB(A)	**43**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	115.1	105	0	2.6	15	-20.6	-18.4	-10	Cold Storage Block 1 &2, cover and 12m Fixed/Movable Noise Barrier (NB 3)	3	0
	L	115.1	101	1	2.6	15	-20.6	-18.4	-10		3	10.2
S2	M	100.7	105	0	11.7	15	-20.0	-11.9	-10		3	0
	L	100.7	101	1	11.7	15	-20.0	-11.9	-10		3	17.3
S3	M	109.2	105	0	8.4	15	-20.4	-13.3	-10		3	0
	L	109.2	101	1	8.4	15	-20.4	-13.3	-10		3	15.5
S4	M	122.0	105	0	0.7	15	-20.9	-24.0	-10		3	0
	L	122.0	101	1	0.7	15	-20.9	-24.0	-10		3	4.4
S5	M	111.1	105	0	5.6	15	-20.5	-15.1	-10		3	0
	L	111.1	101	2	5.6	15	-20.5	-15.1	-10		3	16.7
S6	M	94.3	105	0	17.1	15	-19.7	-10.2	-10		3	0
	L	94.3	101	2	17.1	15	-19.7	-10.2	-10		3	22.3
S7	M	71.2	105	0	16.8	15	-18.5	-10.3	-10		3	0
	L	71.2	101	2	16.8	15	-18.5	-10.3	-10		3	23.4
S8	M	58.9	105	0	38.0	15	-17.7	-6.8	-10		3	0
	L	58.9	101	2	38.0	15	-17.7	-6.8	-10		3	27.8
S9	M	69.1	105	0	7.2	15	-18.4	-14.0	-10		3	0
	L	69.1	101	2	7.2	15	-18.4	-14.0	-10		3	19.9
S10	M	48.5	105	0	21.4	15	-16.9	-9.3	-10		3	0
	L	48.5	101	2	21.4	15	-16.9	-9.3	-10		3	26.1
											Total SPL, dB(A)	**32**

HVAC Noise

Item		Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser		Block 1 (SW)	75.5	7	84.0	53.4	-42.5	0	Enclosure with sliencer	-10	3	34.4
Condenser		Block 1 (NE)	75.5	6	83.3	27.8	-36.9	0	Enclosure with sliencer	-10	3	39.4
Condenser		Block 2	75.5	6	83.3	106.7	-48.6	0	Enclosure with sliencer	-10	3	27.8
											Total SPL, dB(A)	**41**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN12 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	50.1	105	16	31.0	15	-17.0	-7.6	-10	10m Fixed/Movable Noise Barrier (NB 2)	3	40.6
	L	50.1	101	0	31.0	15	-17.0	-7.6	-10		3	0
S2	C	51.4	105	16	0.2	15	-17.1	-30.4	0	Nil	3	27.7
	L	51.4	101	0	0.2	15	-17.1	-30.4	0		3	0
S3	C	71.6	105	16	0.1	15	-18.5	-31.9	0		3	24.8
	L	71.6	101	0	0.1	15	-18.5	-31.9	0		3	0
S4	C	84.8	105	16	9.1	15	-19.3	-13.0	0		3	43.0
	L	84.8	101	0	9.1	15	-19.3	-13.0	0		3	0
S5	C	83.6	105	32	7.4	15	-19.2	-13.9	0		3	45.2
	L	83.6	101	0	7.4	15	-19.2	-13.9	0		3	0
S6	C	91.3	105	32	22.4	15	-19.6	-9.1	-10	Cold Storage Block 1 & 2 and cover	3	39.6
	L	91.3	101	0	22.4	15	-19.6	-9.1	-10		3	0
S7	C	103.0	105	32	15.5	15	-20.1	-10.6	-10		3	37.5
	L	103.0	101	0	15.5	15	-20.1	-10.6	-10		3	0
S8	C	125.5	105	32	12.1	15	-21.0	-11.7	-10		3	35.6
	L	125.5	101	0	12.1	15	-21.0	-11.7	-10		3	0
S9	C	149.3	105	32	0.3	15	-21.7	-27.7	-10		3	18.9
	L	149.3	101	0	0.3	15	-21.7	-27.7	-10		3	0
S10	C	133.8	105	32	12.5	15	-21.3	-11.6	-10		3	35.4
	L	133.8	101	0	12.5	15	-21.3	-11.6	-10		3	0
											Total SPL, dB(A)	**49**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	50.1	105	5	31.0	15	-17.0	-7.6	-10	10m Fixed/Movable Noise Barrier (NB 2)	3	35.6
	L	50.1	101	0	31.0	15	-17.0	-7.6	-10		3	0
S2	M	51.4	105	5	0.2	15	-17.1	-30.4	0	Nil	3	22.7
	L	51.4	101	0	0.2	15	-17.1	-30.4	0		3	0
S3	M	71.6	105	5	0.1	15	-18.5	-31.9	0		3	19.8
	L	71.6	101	0	0.1	15	-18.5	-31.9	0		3	0
S4	M	84.8	105	5	9.1	15	-19.3	-13.0	0		3	38.0
	L	84.8	101	0	9.1	15	-19.3	-13.0	0		3	0
S5	M	83.6	105	10	7.4	15	-19.2	-13.9	0		3	40.1
	L	83.6	101	0	7.4	15	-19.2	-13.9	0		3	0
S6	M	91.3	105	10	22.4	15	-19.6	-9.1	-10	Cold Storage Block 1 & 2 and cover	3	34.6
	L	91.3	101	0	22.4	15	-19.6	-9.1	-10		3	0
S7	M	103.0	105	10	15.5	15	-20.1	-10.6	-10		3	32.5
	L	103.0	101	0	15.5	15	-20.1	-10.6	-10		3	0
S8	M	125.5	105	10	12.1	15	-21.0	-11.7	-10		3	30.5
	L	125.5	101	0	12.1	15	-21.0	-11.7	-10		3	0
S9	M	149.3	105	10	0.3	15	-21.7	-27.7	-10		3	13.8
	L	149.3	101	0	0.3	15	-21.7	-27.7	-10		3	0
S10	M	133.8	105	10	12.5	15	-21.3	-11.6	-10		3	30.4
	L	133.8	101	0	12.5	15	-21.3	-11.6	-10		3	0
											Total SPL, dB(A)	**44**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	50.1	105	0	31.0	15	-17.0	-7.6	-10	10m Fixed/Movable Noise Barrier (NB 2)	3	0
	L	50.1	101	1	31.0	16	-17.0	-7.6	-10		3	24.3
S2	M	51.4	105	0	0.2	17	-17.1	-30.4	0	Nil	3	0
	L	51.4	101	1	0.2	18	-17.1	-30.4	0		3	10.9
S3	M	71.6	105	0	0.1	19	-18.5	-31.9	0		3	0
	L	71.6	101	1	0.1	20	-18.5	-31.9	0		3	7.6
S4	M	84.8	105	0	9.1	21	-19.3	-13.0	0		3	0
	L	84.8	101	1	9.1	22	-19.3	-13.0	0		3	25.3
S5	M	83.6	105	0	7.4	23	-19.2	-13.9	0		3	0
	L	83.6	101	2	7.4	24	-19.2	-13.9	0		3	27.1
S6	M	91.3	105	0	22.4	25	-19.6	-9.1	-10	Cold Storage Block 1 & 2 and cover	3	0
	L	91.3	101	2	22.4	26	-19.6	-9.1	-10		3	21.2
S7	M	103.0	105	0	15.5	27	-20.1	-10.6	-10		3	0
	L	103.0	101	2	15.5	28	-20.1	-10.6	-10		3	18.8
S8	M	125.5	105	0	12.1	29	-21.0	-11.7	-10		3	0
	L	125.5	101	2	12.1	30	-21.0	-11.7	-10		3	16.5
S9	M	149.3	105	0	0.3	31	-21.7	-27.7	-10		3	0
	L	149.3	101	2	0.3	32	-21.7	-27.7	-10		3	-0.5
S10	M	133.8	105	0	12.5	33	-21.3	-11.6	-10		3	0
	L	133.8	101	2	12.5	34	-21.3	-11.6	-10		3	15.8
											Total SPL, dB(A)	**32**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	64.4	-44.2	0	Enclosure with sliencer	-10	3	32.8
Condenser	Block 1 (NE)	75.5	6	83.3	95.2	-47.6	0	Enclosure with sliencer	-10	3	28.8
Condenser	Block 2	75.5	6	83.3	203.0	-54.1	0	Enclosure with sliencer	-10	3	22.2
										Total SPL, dB(A)	**35**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN13 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	77.6	105	16	19.0	15	-18.9	-9.8	0	Nil	3	46.6
	L	77.6	101	0	19.0	15	-18.9	-9.8	0		3	0
S2	C	94.1	105	16	12.5	15	-19.7	-11.6	0		3	43.9
	L	94.1	101	0	12.5	15	-19.7	-11.6	0		3	0
S3	C	103.0	105	16	8.8	15	-20.1	-13.1	0		3	42.0
	L	103.0	101	0	8.8	15	-20.1	-13.1	0		3	0
S4	C	104.7	105	16	8.0	15	-20.2	-13.5	0		3	41.6
	L	104.7	101	0	8.0	15	-20.2	-13.5	0		3	0
S5	C	114.0	105	32	1.0	15	-20.6	-22.4	0		3	35.4
	L	114.0	101	0	1.0	15	-20.6	-22.4	0		3	0
S6	C	136.3	105	32	8.1	15	-21.3	-13.5	0		3	43.5
	L	136.3	101	0	8.1	15	-21.3	-13.5	0		3	0
S7	C	163.7	105	32	7.0	15	-22.1	-14.1	-10	Cold Storage Block 1 and cover	3	32.0
	L	163.7	101	0	7.0	15	-22.1	-14.1	-10		3	0
S8	C	196.3	105	32	4.1	15	-22.9	-16.4	-10		3	28.9
	L	196.3	101	0	4.1	15	-22.9	-16.4	-10		3	0
S9	C	223.0	105	32	0.9	15	-23.5	-23.0	-10		3	21.8
	L	223.0	101	0	0.9	15	-23.5	-23.0	-10		3	0
S10	C	211.9	105	32	8.6	15	-23.3	-13.2	-10	Cold Storage Block 1 and cover	3	31.8
	L	211.9	101	0	8.6	15	-23.3	-13.2	-10		3	0
											Total SPL, dB(A)	**51**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	77.6	105	5	19.0	15	-18.9	-9.8	0	Nil	3	41.6
	L	77.6	101	0	19.0	15	-18.9	-9.8	0		3	0
S2	M	94.1	105	5	12.5	15	-19.7	-11.6	0		3	38.9
	L	94.1	101	0	12.5	15	-19.7	-11.6	0		3	0
S3	M	103.0	105	5	8.8	15	-20.1	-13.1	0		3	37.0
	L	103.0	101	0	8.8	15	-20.1	-13.1	0		3	0
S4	M	104.7	105	5	8.0	15	-20.2	-13.5	0		3	36.5
	L	104.7	101	0	8.0	15	-20.2	-13.5	0		3	0
S5	M	114.0	105	10	1.0	15	-20.6	-22.4	0		3	30.3
	L	114.0	101	0	1.0	15	-20.6	-22.4	0		3	0
S6	M	136.3	105	10	8.1	15	-21.3	-13.5	0		3	38.4
	L	136.3	101	0	8.1	15	-21.3	-13.5	0		3	0
S7	M	163.7	105	10	7.0	15	-22.1	-14.1	-10	Cold Storage Block 1 and cover	3	27.0
	L	163.7	101	0	7.0	15	-22.1	-14.1	-10		3	0
S8	M	196.3	105	10	4.1	15	-22.9	-16.4	-10		3	23.9
	L	196.3	101	0	4.1	15	-22.9	-16.4	-10		3	0
S9	M	223.0	105	10	0.9	15	-23.5	-23.0	-10		3	16.8
	L	223.0	101	0	0.9	15	-23.5	-23.0	-10		3	0
S10	M	211.9	105	10	8.6	15	-23.3	-13.2	-10	Cold Storage Block 1 and cover	3	26.8
	L	211.9	101	0	8.6	15	-23.3	-13.2	-10		3	0
											Total SPL, dB(A)	**46**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	77.6	105	0	19.0	15	-18.9	-9.8	0	Nil	3	0
	L	77.6	101	1	19.0	15	-18.9	-9.8	0		3	30.6
S2	M	94.1	105	0	12.5	15	-19.7	-11.6	0		3	0
	L	94.1	101	1	12.5	15	-19.7	-11.6	0		3	27.9
S3	M	103.0	105	0	8.8	15	-20.1	-13.1	0		3	0
	L	103.0	101	1	8.8	15	-20.1	-13.1	0		3	26.0
S4	M	104.7	105	0	8.0	15	-20.2	-13.5	0		3	0
	L	104.7	101	1	8.0	15	-20.2	-13.5	0		3	25.5
S5	M	114.0	105	0	1.0	15	-20.6	-22.4	0		3	0
	L	114.0	101	2	1.0	15	-20.6	-22.4	0		3	19.3
S6	M	136.3	105	0	8.1	15	-21.3	-13.5	0		3	0
	L	136.3	101	2	8.1	15	-21.3	-13.5	0		3	27.4
S7	M	163.7	105	0	7.0	15	-22.1	-14.1	-10	Cold Storage Block 1 and cover	3	0
	L	163.7	101	2	7.0	15	-22.1	-14.1	-10		3	16.0
S8	M	196.3	105	0	4.1	15	-22.9	-16.4	-10		3	0
	L	196.3	101	2	4.1	15	-22.9	-16.4	-10		3	12.9
S9	M	223.0	105	0	0.9	15	-23.5	-23.0	-10		3	0
	L	223.0	101	2	0.9	15	-23.5	-23.0	-10		3	5.8
S10	M	211.9	105	0	8.6	15	-23.3	-13.2	-10	Cold Storage Block 1 and cover	3	0
	L	211.9	101	2	8.6	15	-23.3	-13.2	-10		3	15.8
											Total SPL, dB(A)	**35**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	138.1	-50.8	0	Enclosure with sliencer	-10	3	26.2
Condenser	Block 1 (NE)	75.5	6	83.3	174.4	-52.8	0	Enclosure with sliencer	-10	3	23.5
Condenser	Block 2	75.5	6	83.3	286.4	-57.1	0	Enclosure with sliencer	-10	3	19.2
										Total SPL, dB(A)	**29**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN14 - House 181 Sha Ling

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	136.6	105	16	2.6	15	-21.4	-18.3	0		3	35.6
	L	136.6	101	0	2.6	15	-21.4	-18.3	0		3	0
S2	C	148.6	105	16	7.4	15	-21.7	-13.9	0		3	39.7
	L	148.6	101	0	7.4	15	-21.7	-13.9	0		3	0
S3	C	139.9	105	16	7.0	15	-21.5	-14.1	0		3	39.7
	L	139.9	101	0	7.0	15	-21.5	-14.1	0		3	0
S4	C	129.0	105	16	1.3	15	-21.1	-21.5	0		3	32.7
	L	129.0	101	0	1.3	15	-21.1	-21.5	0		3	0
S5	C	141.3	105	32	3.3	15	-21.5	-17.4	0	Nil	3	39.4
	L	141.3	101	0	3.3	15	-21.5	-17.4	0		3	0
S6	C	164.5	105	32	3.0	15	-22.2	-17.7	0		3	38.4
	L	164.5	101	0	3.0	15	-22.2	-17.7	0		3	0
S7	C	197.7	105	32	1.1	15	-23.0	-22.2	0		3	33.2
	L	197.7	101	0	1.1	15	-23.0	-22.2	0		3	0
S8	C	234.4	105	32	1.5	15	-23.7	-20.8	0		3	33.8
	L	234.4	101	0	1.5	15	-23.7	-20.8	0		3	0
S9	C	260.5	105	32	2.1	15	-24.2	-19.3	0		3	34.9
	L	260.5	101	0	2.1	15	-24.2	-19.3	0		3	0
S10	C	258.1	105	32	6.9	15	-24.1	-14.1	-10	Cold Storage Block 1 and cover	3	30.0
	L	258.1	101	0	6.9	15	-24.1	-14.1	-10		3	0
											Total SPL, dB(A)	**47**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	136.6	105	5	2.6	15	-21.4	-18.3	0		3	30.5
	L	136.6	101	0	2.6	15	-21.4	-18.3	0		3	0
S2	M	148.6	105	5	7.4	15	-21.7	-13.9	0		3	34.7
	L	148.6	101	0	7.4	15	-21.7	-13.9	0		3	0
S3	M	139.9	105	5	7.0	15	-21.5	-14.1	0		3	34.7
	L	139.9	101	0	7.0	15	-21.5	-14.1	0		3	0
S4	M	129.0	105	5	1.3	15	-21.1	-21.5	0		3	27.7
	L	129.0	101	0	1.3	15	-21.1	-21.5	0		3	0
S5	M	141.3	105	10	3.3	15	-21.5	-17.4	0	Nil	3	34.4
	L	141.3	101	0	3.3	15	-21.5	-17.4	0		3	0
S6	M	164.5	105	10	3.0	15	-22.2	-17.7	0		3	33.4
	L	164.5	101	0	3.0	15	-22.2	-17.7	0		3	0
S7	M	197.7	105	10	1.1	15	-23.0	-22.2	0		3	28.1
	L	197.7	101	0	1.1	15	-23.0	-22.2	0		3	0
S8	M	234.4	105	10	1.5	15	-23.7	-20.8	0		3	28.8
	L	234.4	101	0	1.5	15	-23.7	-20.8	0		3	0
S9	M	260.5	105	10	2.1	15	-24.2	-19.3	0		3	29.8
	L	260.5	101	0	2.1	15	-24.2	-19.3	0		3	0
S10	M	258.1	105	10	6.9	15	-24.1	-14.1	-10	Cold Storage Block 1 and cover	3	25.0
	L	258.1	101	0	6.9	15	-24.1	-14.1	-10		3	0
											Total SPL, dB(A)	**42**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	136.6	105	0	2.6	15	-21.4	-18.3	0		3	0
	L	136.6	101	1	2.6	15	-21.4	-18.3	0		3	19.5
S2	M	148.6	105	0	7.4	15	-21.7	-13.9	0		3	0
	L	148.6	101	1	7.4	15	-21.7	-13.9	0		3	23.7
S3	M	139.9	105	0	7.0	15	-21.5	-14.1	0		3	0
	L	139.9	101	1	7.0	15	-21.5	-14.1	0		3	23.7
S4	M	129.0	105	0	1.3	15	-21.1	-21.5	0		3	0
	L	129.0	101	1	1.3	15	-21.1	-21.5	0		3	16.7
S5	M	141.3	105	0	3.3	15	-21.5	-17.4	0	Nil	3	0
	L	141.3	101	2	3.3	15	-21.5	-17.4	0		3	23.4
S6	M	164.5	105	0	3.0	15	-22.2	-17.7	0		3	0
	L	164.5	101	2	3.0	15	-22.2	-17.7	0		3	22.4
S7	M	197.7	105	0	1.1	15	-23.0	-22.2	0		3	0
	L	197.7	101	2	1.1	15	-23.0	-22.2	0		3	17.1
S8	M	234.4	105	0	1.5	15	-23.7	-20.8	0		3	0
	L	234.4	101	2	1.5	15	-23.7	-20.8	0		3	17.8
S9	M	260.5	105	0	2.1	15	-24.2	-19.3	0		3	0
	L	260.5	101	2	2.1	15	-24.2	-19.3	0		3	18.8
S10	M	258.1	105	0	6.9	15	-24.1	-14.1	-10	Cold Storage Block 1 and cover	3	0
	L	258.1	101	2	6.9	15	-24.1	-14.1	-10		3	14.0
											Total SPL, dB(A)	**31**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	195.2	-53.8	0	Enclosure with sliencer	-10	3	23.2
Condenser	Block 1 (NE)	75.5	6	83.3	229.0	-55.2	0	Enclosure with sliencer	-10	3	21.1
Condenser	Block 2	75.5	6	83.3	335.2	-58.5	0	Enclosure with sliencer	-10	3	17.8
										Total SPL, dB(A)	**26**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

IN15 - Temporary Structure

Truck Movement - Daytime

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	C	108.6	105	16	14.3	15	-20.4	-11.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	33.9
	L	108.6	101	0	14.3	15	-20.4	-11.0	-10		3	0
S2	C	92.4	105	16	12.0	15	-19.7	-11.8	-10		3	33.8
	L	92.4	101	0	12.0	15	-19.7	-11.8	-10		3	0
S3	C	84.7	105	16	12.0	15	-19.3	-11.8	-10		3	34.2
	L	84.7	101	0	12.0	15	-19.3	-11.8	-10		3	0
S4	C	89.0	105	16	5.9	15	-19.5	-14.9	-10		3	30.9
	L	89.0	101	0	5.9	15	-19.5	-14.9	-10		3	0
S5	C	76.7	105	32	2.6	15	-18.8	-18.4	-10		3	31.0
	L	76.7	101	0	2.6	15	-18.8	-18.4	-10		3	0
S6	C	52.0	105	32	8.6	15	-17.2	-13.2	-10		3	37.9
	L	52.0	101	0	8.6	15	-17.2	-13.2	-10		3	0
S7	C	23.1	105	32	61.4	15	-13.6	-4.7	-10		3	50.0
	L	23.1	101	0	61.4	15	-13.6	-4.7	-10		3	0
S8	C	26.6	105	32	68.4	15	-14.3	-4.2	-10		3	49.8
	L	26.6	101	0	68.4	15	-14.3	-4.2	-10		3	0
S9	C	48.3	105	32	14.0	15	-16.8	-11.1	-10		3	40.4
	L	48.3	101	0	14.0	15	-16.8	-11.1	-10		3	0
S10	C	53.2	105	32	25.9	15	-17.3	-8.4	-10		3	42.6
	L	53.2	101	0	25.9	15	-17.3	-8.4	-10		3	0
											Total SPL, dB(A)	**54**

Truck Movement - Evening

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	108.6	105	5	14.3	15	-20.4	-11.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	28.9
	L	108.6	101	0	14.3	15	-20.4	-11.0	-10		3	0
S2	M	92.4	105	5	12.0	15	-19.7	-11.8	-10		3	28.8
	L	92.4	101	0	12.0	15	-19.7	-11.8	-10		3	0
S3	M	84.7	105	5	12.0	15	-19.3	-11.8	-10		3	29.2
	L	84.7	101	0	12.0	15	-19.3	-11.8	-10		3	0
S4	M	89.0	105	5	5.9	15	-19.5	-14.9	-10		3	25.9
	L	89.0	101	0	5.9	15	-19.5	-14.9	-10		3	0
S5	M	76.7	105	10	2.6	15	-18.8	-18.4	-10		3	25.9
	L	76.7	101	0	2.6	15	-18.8	-18.4	-10		3	0
S6	M	52.0	105	10	8.6	15	-17.2	-13.2	-10		3	32.9
	L	52.0	101	0	8.6	15	-17.2	-13.2	-10		3	0
S7	M	23.1	105	10	61.4	15	-13.6	-4.7	-10		3	44.9
	L	23.1	101	0	61.4	15	-13.6	-4.7	-10		3	0
S8	M	26.6	105	10	68.4	15	-14.3	-4.2	-10		3	44.8
	L	26.6	101	0	68.4	15	-14.3	-4.2	-10		3	0
S9	M	48.3	105	10	14.0	15	-16.8	-11.1	-10		3	35.3
	L	48.3	101	0	14.0	15	-16.8	-11.1	-10		3	0
S10	M	53.2	105	10	25.9	15	-17.3	-8.4	-10		3	37.6
	L	53.2	101	0	25.9	15	-17.3	-8.4	-10		3	0
											Total SPL, dB(A)	**49**

Truck Movement - Night

Segment ID	Vehicle Type*	Distance, m	SWL, dB(A)	No. of trips/hr	View Angle, deg	Speed, km/h	Distance Correction, dB(A)	View Angle Correction, dB(A)	Screening Effect, dB(A)	Shielding Object	Façade Correction, dB(A)	SPL, dB(A)
S1	M	108.6	105	0	14.3	15	-20.4	-11.0	-10	5m Fixed/Movable Noise Barrier (NB 1) & Cold Storage Block 1 and cover	3	0
	L	108.6	101	1	14.3	15	-20.4	-11.0	-10		3	17.9
S2	M	92.4	105	0	12.0	15	-19.7	-11.8	-10		3	0
	L	92.4	101	1	12.0	15	-19.7	-11.8	-10		3	17.8
S3	M	84.7	105	0	12.0	15	-19.3	-11.8	-10		3	0
	L	84.7	101	1	12.0	15	-19.3	-11.8	-10		3	18.2
S4	M	89.0	105	0	5.9	15	-19.5	-14.9	-10		3	0
	L	89.0	101	1	5.9	15	-19.5	-14.9	-10		3	14.9
S5	M	76.7	105	0	2.6	15	-18.8	-18.4	-10		3	0
	L	76.7	101	2	2.6	15	-18.8	-18.4	-10		3	15.0
S6	M	52.0	105	0	8.6	15	-17.2	-13.2	-10		3	0
	L	52.0	101	2	8.6	15	-17.2	-13.2	-10		3	21.9
S7	M	23.1	105	0	61.4	15	-13.6	-4.7	-10		3	0
	L	23.1	101	2	61.4	15	-13.6	-4.7	-10		3	34.0
S8	M	26.6	105	0	68.4	15	-14.3	-4.2	-10		3	0
	L	26.6	101	2	68.4	15	-14.3	-4.2	-10		3	33.8
S9	M	48.3	105	0	14.0	15	-16.8	-11.1	-10		3	0
	L	48.3	101	2	14.0	15	-16.8	-11.1	-10		3	24.3
S10	M	53.2	105	0	25.9	15	-17.3	-8.4	-10		3	0
	L	53.2	101	2	25.9	15	-17.3	-8.4	-10		3	26.6
											Total SPL, dB(A)	**37**

HVAC Noise

Item	Location	SWL, dB(A)	Quantity	Sub-total SWL, dB(A)	Distance, m	Distance Correction, dB(A)	Screening Effect, dB(A)	Proposed Measure	Noise Reduction by Proposed Measure	Façade Correction, dB(A)	SPL, dB(A)
Condenser	Block 1 (SW)	75.5	7	84.0	62.3	-43.9	0	Enclosure with sliencer	-10	3	33.1
Condenser	Block 1 (NE)	75.5	6	83.3	52.3	-42.4	0	Enclosure with sliencer	-10	3	34.0
Condenser	Block 2	75.5	6	83.3	124.5	-49.9	0	Enclosure with sliencer	-10	3	26.4
										Total SPL, dB(A)	**37**

Note (*) Vehicle Type:
C = Container Vehicle; H = HGV, MGV; L = MGV (up to 9 tonne), LGV, Van, Private Car

Appendix G **TRAFFIC FORECAST OF YEAR 2018 AND 2033**

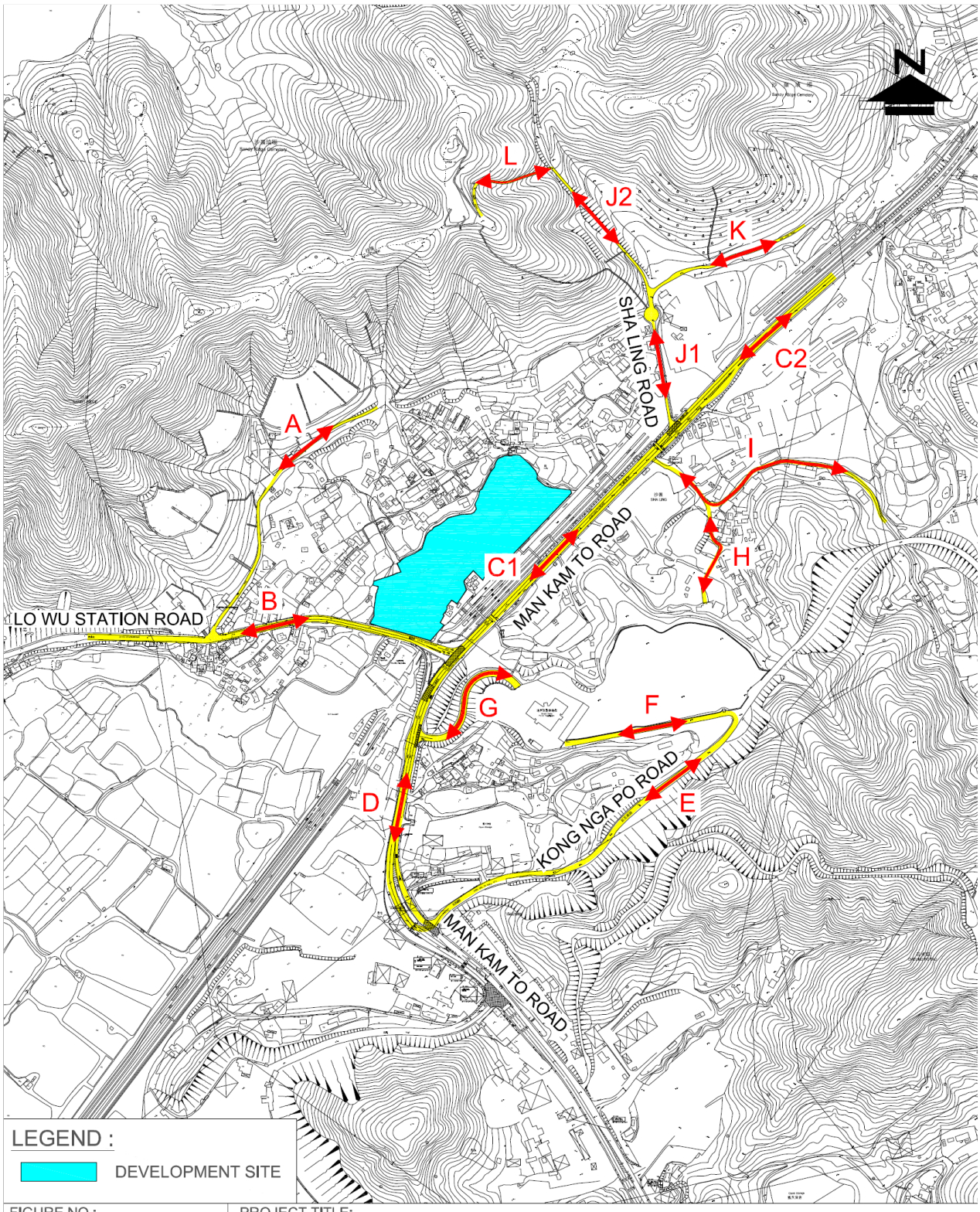


FIGURE NO.: TNIA - 1	PROJECT TITLE: Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years at Various Lots in D.D.89, and Adjoining Government Land, Man Kam To Road, Sandy Ridge, NT
PROJECT NO.: 18014HK	DRAWING TITLE: ROAD SECTION INDEX FOR TRAFFIC FORECAST
SCALE: 1 : 6000 @ A4 / DATE: 12 SEP 2018	CTA Consultants Limited 志達顧問有限公司

2018 Traffic Forecast (Operation Peak Hour 0945 to 1045)

ID	Location	Direction	Speed Limit (km/h)	Without Proposed Development (2018)		With Proposed Development (2018)	
				1 hr Flow	% HV	1 hr Flow	% HV
				Q'	P'	Q'	P'
A	Access Road to Sandy Ridge	2-WAY	50	15	33.3	15	33.3
B	Lo Wu Road	EB	50	35	57.1	45	66.7
B		WB	50	20	25.0	30	50.0
C1	Man Kam To Road (Sha Ling Road / Lo Wu Station)	NB	50	485	55.6	490	56.1
C1		SB	50	320	45.4	325	46.2
C2	Man Kam To Road (Sha Ling Road / Lo Wu Station)	NB	50	475	45.3	480	45.8
C2		SB	50	245	55.0	250	56.0
D	Man Kam To Road (Kong Nga Po Road / Lo Wu Station)	NB	50	530	54.7	535	55.1
D		SB	50	350	45.8	355	46.5
E	Kong Nga Po Road	EB	50	70	50.0	70	50.0
E		WB	50	105	38.1	105	38.1
F	Access Road to Kong Nga Po Road	2-WAY	50	10	50.0	10	50.0
G	Access Road to Man Kam Road	2-WAY	50	10	100.0	10	100.0
H	Access Road to Man Kam Road	2-WAY	50	10	100.0	10	100.0
I	Access Road to Man Kam Road	2-WAY	50	15	33.3	15	33.3
J1	Sha Ling Road	2-WAY	50	55	63.7	55	63.7
J2	Sha Ling Road	2-WAY	50	20	50.0	20	50.0
K	Sha Ling Road	2-WAY	50	40	75.0	40	75.0
L	Access Road to Sha Ling Road	2-WAY	50	10	100.0	10	100.0

CTA Consultants Limited
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Our Ref: 18014HK/hor/ysl/01

By E-mail & Post
(E-mail: smkwong@td.gov.hk)

28 March 2019

Transport Department
NT Regional Office
Traffic Engineering (NTE) Division
North Section
9/F, Mongkok Government Offices,
30 Luen Wan Street, Mongkok, Kowloon.

Attn: Mr. KWONG Siu Ming, Kelvin (Engr/North 1)

Dear Mr. Kwong,

Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years at Various Lots in D.D.89, and Adjoining Government Land, Man Kam To Road, Sandy Ridge, New Territories
Year 2036 Traffic Forecasts for Traffic Noise Impact Assessment (TNIA)

We, CTA Consultants Ltd., are commissioned as the Traffic Consultant for the proposed development at Sandy Ridge at various lots in DD89 and the adjoining Government land in Man Kam To Road.

The Traffic Noise Impact Assessment for the captioned development has already been submitted by the environmental consultant – SMEC to Environmental Protection Department (EPD). As per request by EPD, TD's endorsement on the traffic forecast used in the assessment is required. Therefore, we are pleased to submit herewith a technical note which summarizes the methodology and results of the traffic forecasts for Traffic Noise Impact Assessment (TNIA) for your kind consideration and approval.

The proposed development is targeted to be completed by 2021 tentatively and therefore year 2036 traffic forecasts (i.e. OP of the proposed development at year 2021 + 15 years) are required for the TNIA.

Thank you very much for your kind assistance and we are looking forward to hearing your favourable reply at your earliest convenience. Should you have any queries or require further information, please feel free to contact the undersigned or our Mr. Reus Leung at 2214 0849.

Yours Faithfully,
For and on behalf of
CTA Consultants Ltd.

Horace Mak
Director
Encl.

CTA Consultants Limited 志達顧問有限公司
[redacted]

Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years at Various Lots in D.D.89, and Adjoining Government Land, Man Kam To Road, Sandy Ridge, New Territories

Technical Note on Methodology for Estimating Year 2036 Traffic Forecasts for Traffic Noise Impact Assessment

1. Objective

1.1 This technical note summarizes the methodology and results of the traffic forecasts in support of the Traffic Noise Impact Assessment (TNIA) for Proposed Development at Various Lots in DD 89 and the adjoining Government Land in Sandy Ridge.

2. Approach

2.1 The Annual Growth Rate derived based on Historical Traffic Data from Annual Traffic Census (ATC) published by Transport Department.

3. Methodology

3.1 Based on the assumption that daily traffic flow in different years is in direct proportion to the peak hour traffic flow throughout the district, the annual growth rate can be taken as being representative to the peak hour growth rate.

3.2 The proposed development is planned to be completed by year 2021 tentatively and hence year 2036 traffic forecasts (i.e. OP of proposed development at year 2021 + 15 years) for the following roads are required:

- Access Road to Sandy Ridge
- Lo Wu Station Road
- Man Kam To Road
- Kong Nga Po Road
- Sha Ling Road

Growth Rate

3.3 Numerous traffic-count stations are located in the vicinity of the proposed redevelopment. The traffic counts reported in the Annual Traffic Census (ATC), which is published by Transport Department, over a period of five years, i.e. 2012 to 2017 are summarized in **Table 1**.

Table 1 Historical Traffic Data from Annual Traffic Census (ATC)

Road Name	ATC Stn	From	To	Annual Average Daily Traffic (AADT)						Avg. Annual Growth (%)
				2012	2013	2014	2015	2016	2017	
Jockey Club Road	5218	Po Shek Wu Road	Man Kam To Road	20,820	21,550	20,860	21,830	23,060	22,890	1.91%
Man Kam To Road	5465	Jockey Club Road	Boundary	15,830	15,960	15,660	16,310	16,990	16,720	1.10%
Po Wan Road	5865	Chuk Wan Road	Jockey Club Road	2,440	2,460	2,440	2,420	3,140	3,090	4.84%
Sum				**39,090**	**39,970**	**38,960**	**40,560**	**43,190**	**42,700**	**1.78%**

3.4 Therefore, the traffic forecasts for design year 2036 can be derived based on the following formula:

$$\text{Year 2036 Traffic Flow} = \{\text{Year 2018 Observed Traffic Flow} \times (1+1.78\%)^{18}\} + \text{Proposed Development Traffic Flow}$$

3.5 As a result, the traffic forecasts for design year 2036 are estimated and detailed in **Appendix A**.

Appendix A

Year 2036 Traffic Forecasts for Traffic Noise Impact Assessment

18014HK - Traffic Forecast for Traffic Noise Impact Assessment				2036 Peak Hour				Minimum Traffic Flow Peak within Operational Peak (0900-1300) 0945-1045					
Road Link	Road Name	Direction	Speed Limit (km/h)	AM Peak (1045-1145)		PM Peak (1730-1830)		2018 Without proposed development		2036 Without proposed development		2036 With proposed development	
				2036 Peak Hour Traffic Flows (in veh/hr)	% of HV	2036 Peak Hour Traffic Flows (in veh/hr)	% of HV	2018 Peak Hour Traffic Flows (in veh/hr)	% of HV	2036 Peak Hour Traffic Flows (in veh/hr)	% of HV	2036 Peak Hour Traffic Flows (in veh/hr)	% of HV
A	Access Road to Sandy Ridge	2-WAY	50	10	50.0%	30	33.3%	15	33.3%	20	25.0%	20	25.0%
B	Lo Wu Station Road	EB	50	35	57.1%	35	42.9%	35	57.1%	45	55.6%	60	66.7%
B	Lo Wu Station Road	WB	50	70	90.1%	30	50.0%	20	25.0%	25	20.0%	40	50.0%
C1	Man Kam To Road (Sha Ling Road/Lo Wu Station Road)	NB	50	775	68.7%	550	58.7%	485	55.6%	670	55.3%	680	55.8%
C1	Man Kam To Road (Sha Ling Road/Lo Wu Station Road)	SB	50	515	69.4%	700	78.8%	320	45.4%	445	45.6%	455	46.5%
C2	Man Kam To Road (Sha Ling Road/Lo Wu Station Road)	NB	50	675	70.5%	460	58.6%	475	45.3%	655	45.4%	665	46.0%
C2	Man Kam To Road (Sha Ling Road/Lo Wu Station Road)	SB	50	415	71.2%	675	78.2%	245	55.0%	335	55.1%	345	56.0%
D	Man Kam To Road (Kong Nga Po Road/Lo Wu Station Road)	NB	50	860	69.3%	520	57.6%	530	54.7%	725	55.3%	730	55.1%
D	Man Kam To Road (Kong Nga Po Road/Lo Wu Station Road)	SB	50	570	67.6%	790	78.0%	350	45.8%	480	46.4%	480	46.1%
E	Kong Nga Po Road	EB	50	125	54.2%	185	51.4%	70	50.0%	95	50.0%	95	50.0%
E	Kong Nga Po Road	WB	50	160	63.3%	155	41.4%	105	38.1%	150	39.3%	150	39.3%
F	Access Road to Kong Nga Po Road	2-WAY	50	20	50.0%	10	25.0%	10	50.0%	10	50.0%	10	50.0%
G	Access Road to Man Kam To Road	2-WAY	50	10	100.0%	10	100.0%	10	100.0%	10	100.0%	10	100.0%
H	Access Road to Man Kam To Road	2-WAY	50	10	100.0%	10	100.0%	10	100.0%	10	100.0%	10	100.0%
I	Access Road to Man Kam To Road	2-WAY	50	20	50.0%	30	33.0%	15	33.3%	20	25.0%	20	25.0%
J1	Sha Ling Road	NB	50	70	69.2%	55	70.0%	25	60.0%	30	66.7%	30	66.7%
J1	Sha Ling Road	SB	50	100	68.4%	30	83.3%	30	66.7%	40	62.5%	40	62.5%
J2	Sha Ling Road	NB	50	15	33.3%	10	50.0%	10	50.0%	15	33.3%	15	33.3%
J2	Sha Ling Road	SB	50	25	40.0%	10	50.0%	10	50.0%	15	33.3%	15	33.3%
K	Sha Ling Road	EB	50	45	77.8%	40	87.5%	15	66.7%	20	75.0%	20	75.0%
K	Sha Ling Road	WB	50	80	73.3%	20	75.0%	25	80.0%	30	83.3%	30	83.3%
L	Access Road to Sha Ling Road	2-WAY	50	10	50.0%	10	100.0%	10	100.0%	10	100.0%	10	100.0%

Notes : HV includes Light Van, Public Light Bus, Light Goods Vehicle, Medium Goods Vehicle, Heavy Goods Vehicle and Container/Tractor, Coach and Bus
Bus includes Coach and Bus

CTA Consultants Limited

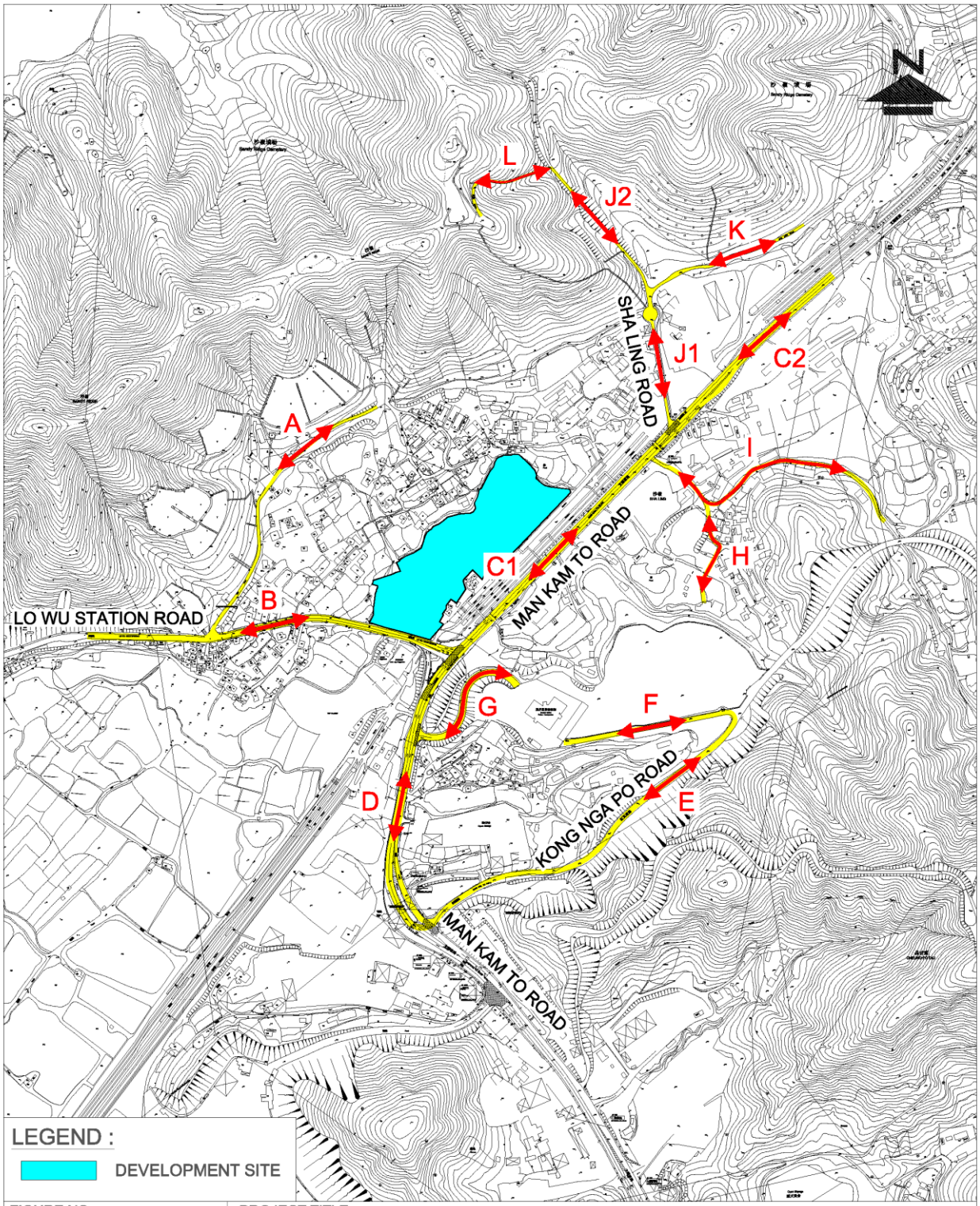


FIGURE NO.: TNIA - 1	PROJECT TITLE: Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years at Various Lots in D.D.89, and Adjoining Government Land, Man Kam To Road, Sandy Ridge, NT
PROJECT NO.: 18014HK	DRAWING TITLE: ROAD SECTION INDEX FOR TRAFFIC FORECAST
SCALE: 1 : 6000 @ A4 / DATE: 12 SEP 2018	CTA Consultants Limited 志達顧問有限公司

From: Siu Ming KWONG [mailto:smkwong@td.gov.hk]
Sent: Tuesday, April 09, 2019 6:07 PM
To: Horace Mak
Subject: Re: Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years at Various Lots in D.D.89, and Adjoining Government Land, Man Kam To Road, Sandy Ridge, New Territories

Dear Horace,

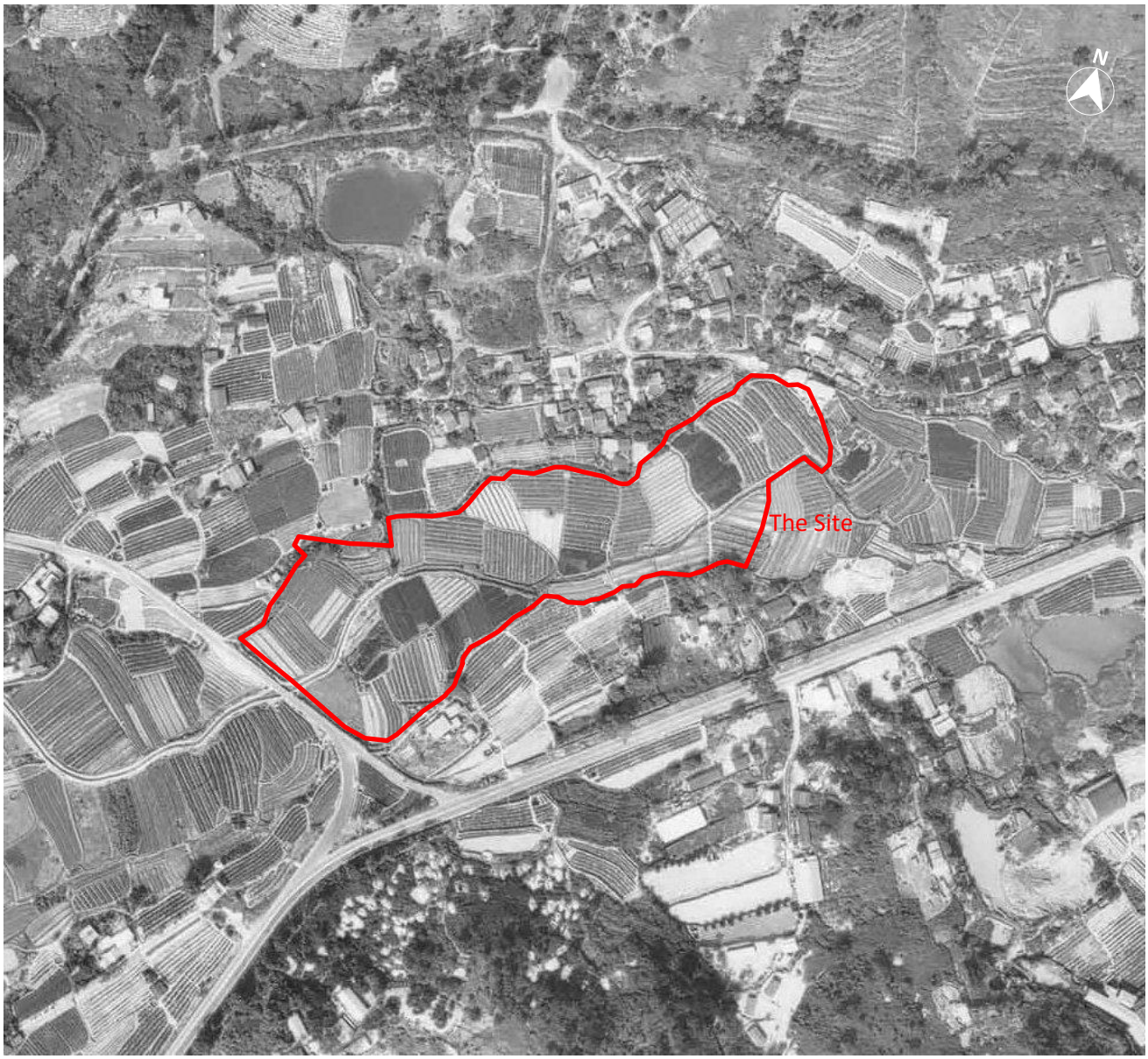
Please note I have no comment from traffic engineering viewpoint.

Regards

Kelvin KWONG
E/N1
Transport Department
Tel : 2399 2411

Appendix H **AERIAL PHOTOS**

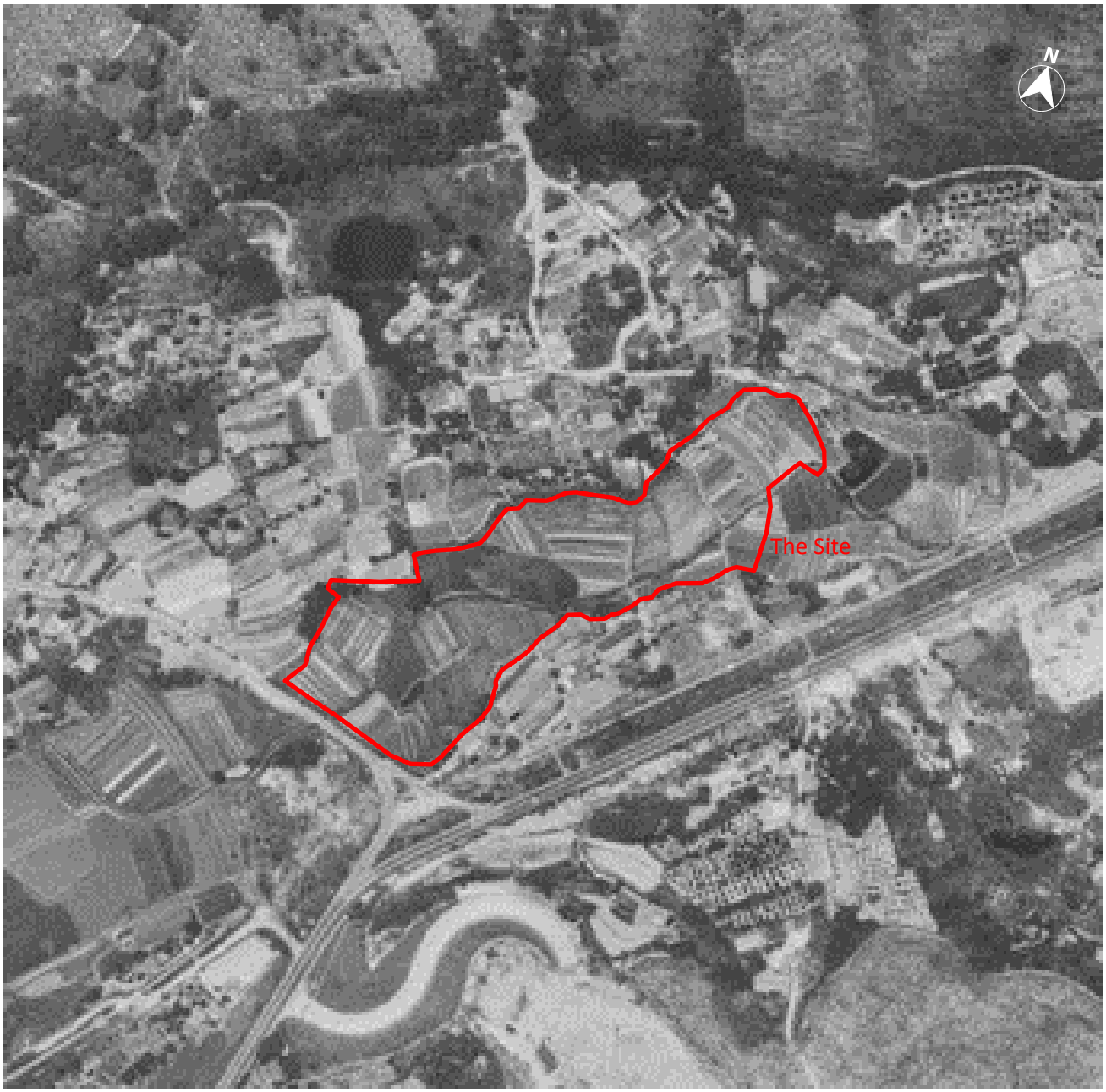
Figure I1: Aerial Photo in Year 1976



Source: Lands Department

In 1976, the Site was an agriculture land. No activities likely to result in land contamination were observed.

Figure I2: Aerial Photo in Year 1986



Source: Lands Department

In 1986, the Site remained as an agriculture land. No activities likely to result in land contamination were observed.

Figure I3: Aerial Photo in Year 1996

Source: Lands Department

In 1996, part of the previous agriculture land at the southern part of the Site was abandoned and covered with vegetation while the northern part of the Site remained as agriculture use. A village house was located at the south-eastern site boundary. No activities likely to result in land contamination were observed.

Figure I4: Aerial Photo in Year 2006

Source: Lands Department

In 2006, majority of previous agriculture land of the Site was abandoned and covered with vegetation. Only a small portion of land at the northern part of the Site remained as agriculture use. A village house was located at the south-eastern site boundary. No activities likely to result in land contamination were observed.

Figure I5: Aerial Photo in Year 2016

Source: Lands Department

In 2016, the situation of the Site was similar as 2006. Majority of Site was vacant and covered with vegetation. Only a small portion of land at the northern part of the Site remained as agriculture use. A village house was located at the south-eastern site boundary. No activities likely to result in land contamination were observed.

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Appendix | 3

Revised Drainage Impact Assessment

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D02 – Drainage Impact Assessment Report

S16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Filling of Land for Site Formation Works at Various Lots in D.D. 89 and Adjoining Government Land, Man Kam To Road, Sha Ling, New Territories

27 January 2023

SMEC INTERNAL REF. 7076864

Document Control

Document:	D02 – Drainage Impact Assessment Report
File Location:	Z:\Jobs\7076864 - Aikon - SR Cold Store_2021 \08 Submission
Project Name:	S16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Filling of Land for Site Formation Works at Various Lots in D.D. 89 and Adjoining Government Land, Man Kam To Road, Sha Ling, New Territories
Project Number:	7076864
Revision Number:	1

Revision History

REVISION NO.	DATE	PREPARED BY	REVIEWED BY	APPROVED FOR ISSUE BY
0	9 August 2022	Tommy KONG	Kitty LEE	Antony WONG
1	27 January 2023	Tommy KONG	Kitty LEE	Antony WONG

Issue Register

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Company Details

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Email:	hongkong@smec.com	Website:	www.smec.com

Important Notice

This report is confidential and is provided solely for the purposes of supporting S16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre for a Period of 3 Years and Filling of Land for Site Formation Works at Various Lots in D.D. 89 and Adjoining Government Land, Man Kam To Road, Sha Ling, New Territories. This report is provided pursuant to a Consultancy Agreement between SMEC Asia Limited ("SMEC") and Hong Kong Chilled Meat & Poultry Association, under which SMEC undertook to perform specific and limited tasks for Hong Kong Chilled Meat & Poultry Association. This report is strictly limited to the matters stated in it and subject to the various assumptions, qualifications and limitations in it and does not apply by implication to other matters. SMEC makes no representation that the scope, assumptions, qualifications and exclusions set out in this report will be suitable or sufficient for other purposes nor that the content of the report covers all matters which you may regard as material for your purposes.

This report must be read as a whole. Any subsequent report must be read in conjunction with this report.

The report supersedes all previous draft or interim reports, whether written or presented orally, before the date of this report. This report has not and will not be updated for events or transactions occurring after the date of the report or any other matters that might have a material effect on its contents or which come to light after the date of the report. SMEC is not obliged to inform you of any such event, transaction or matter nor to update the report for anything that occurs, or of which SMEC becomes aware, after the date of this report.

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Appendices

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List of Figures

1 PROJECT BACKGROUND

1.1 Introduction

1.1.1 Hong Kong Chilled Meat & Poultry Association ("HKCMA" or "the Applicant") plans to construct and operate a Temporary Cold Storage and Distribution Centre ("the Centre" or "the Proposed Development") for a period of three years at Lots 471 S.B RP (Part), 472, 473, 474, 475, 476, 483, 501, 502, 504 S.B, 505 and 506 S.B RP in D.D.89 and adjoining Government Land, Man Kam To Road, Sandy Ridge in New Territories ("the Site").

1.1.2 The Site is currently zoned "Agriculture" (AGR) under the Approved Fu Tei Au and Sha Ling Outline Zoning Plan ("OZP") No. S/NE-FTA/16. In accordance with paragraph 10(a) of the Explanatory Note of the OZP, temporary use or development of any land or building not exceeding a period of three years would require planning permission from the Town Planning Board ("TPB"). Therefore, a Section 16 Planning Application with an application number A/NE-FTA/201 was made and approved with conditions on 28 May 2021.

1.1.3 In order to provide better design to provide a more cost-effective of operating the Centre, the following major modifications to the approved planning application have been proposed:

- Changing the Site boundary from 20,506m^2 to 16,060m^2 approximately;
- Combining Blocks 1 and 2 into one Main Block;
- Changing the maximum building height from 10.4m above ground to 20.675m above ground;
- Changing the Total Floor Area from 12,736m^2 to 11,615m^2 approximately;
- Changing the Plot Ratio from 0.621 to 0.723; and
- Changing the site coverage from 31.51% to 56.94%.

1.1.4 A new planning application shall be made under Section 16 of the *Town Planning Ordinance* ("TPO") for the aforementioned major modifications. SMEC Asia Ltd ("SMEC") has been commissioned to prepare this Drainage Impact Assessment ("DIA") Report for supporting this new planning application.

1.2 Site Description

1.2.1 The Site is an elongated strip of land bounded by Man Kam To Road to the east and Lo Wu Station Road to the south with a total area of about 16,060m^2 in Sandy Ridge, which is close to the border between the Lo Wu Boundary Control Point ("BCP") and Man Kam To BCP in the North District. The Site is currently a vacant land overgrown with weeds and different tree groups. There is a watercourse cutting middle of the site running from the northeast to southeast direction, separating the Site into two halves.

1.2.2 The Site location and its environs are shown on ***Figure 1-1*** which the uses surrounding the Site include:

- To the north, northwest and west: dwellings and residential temporary structures, Sandy Ridge Cemetery and the planned Sandy Ridge Columbarium.
- To the east and southeast: The pipelines of the Dongjiang Water, Man Kam To Road, temporary structures, Boarder District Police Headquarter and Police Dog Unit and Force Search Unit Training School.
- To the south: Sha Ling Playground and Lo Wu Station Road.

1.3 Project Description

1.3.1 The Centre will be built upon a site area of about 16,060m^2 with a Gross Floor Area ("GFA") of about 11,615m^2 and a plot ratio of about 0.723, comprising the following major components:

- Main block comprises a cold storage area and ancillary storage/office, area for corridor, staircase and lift
- A Plant Room and Transformer Room (exempted from GFA)
- Guard House

1.3.2 The existing watercourse running through the Site from northeast to southwest direction will be decked over underneath the Proposed Development.

1.3.3 The indicative layout and sectional plans of the Proposed Development can be referred to the Planning Statement.

1.4 Objectives of this Report

1.4.1 The objectives of this DIA Report are to:

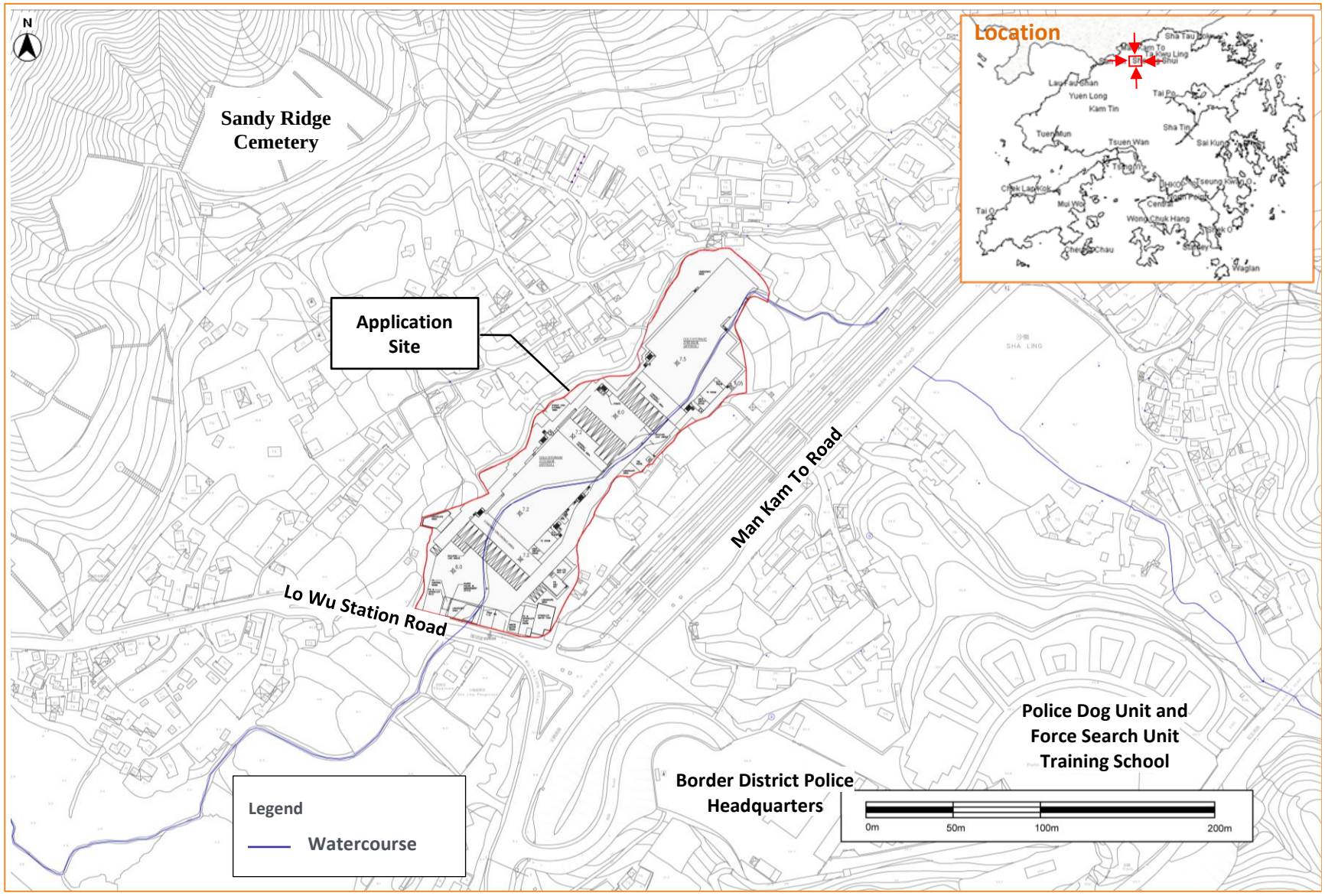
- Assess the potential drainage impacts arising from the Site.
- Recommend the necessary mitigation measures to alleviate any impacts.

1.5 Reference Materials

1.5.1 In evaluating the drainage impact arising from the Proposed Development, the following materials have been referred to:

- Drainage Services Department ("DSD") publication Stormwater Drainage Manual (with Eurocodes incorporated) – Planning, Design and Management (2018 Edition).
- DSD publication Stormwater Drainage Manual CORRIGENDUM No. 1/2022
- DSD Advice Note No. 1 – Application of the Drainage Impact Assessment Process to Private Sector Projects.
- GeoInfo Map reviewed on 16 August 2021

Figure 1-1: Site Location and its Environs



2 DESCRIPTION OF EXISTING ENVIRONMENT AND DRAINAGE CONDITIONS

2.1 Site Location and Topography

2.1.1 The area of the application site is about 16,060m^2 and is located at North District range from +4.5mPD to +6.13mPD.

2.1.2 As illustrated on ***Figure 1-1***, the Site is situated in Sandy Ridge that is an elongated strip land bounded by Man Kam To Road to the east and Lo Wu Station Road to the south. It is adjacent to the Sandy Ridge Cemetery that is bounded by Lo Wo Station Road and Shenzhen River.

2.1.3 Based on desktop study, there is an existing watercourse running from the surround of Sha Ling passing underneath the pipelines at Man Kam To Road and bisecting the whole site. It is connected to the existing box culvert at Lo Wo Station Road adjacent to the Sha Ling Playground which leads further downstream to connect to Ng Tung River.

2.2 Existing Baseline Conditions

2.2.1 According to the previous site inspection conducted on 17 August 2021, the Site is currently a vacant land overgrown with weeds and different tree groups. Moreover, several ditches/watercourses were observed inside the Site, which are connected to surrounding catchments.

2.2.2 There is continuous flow observed in the watercourse downstream of the box culvert, but relatively low level comparing to the height of the box-culvert.

2.2.3 During the site inspection, it was observed there is an on-going construction near the concrete batching plant that is upstream of the Site near the Sha Ling Road and the flow collected will eventually discharge into this box culvert.

3 DRAINAGE ANALYSIS

3.1 Assumptions and Methodology

3.1.1 Peak instantaneous runoff before and after the Proposed Development was calculated based on the Rational Method. The recommended physical parameters, including runoff coefficient (C) and storm constants for different return periods, are as per the Stormwater Drainage Manual.

3.1.2 The Rational Method has been adopted for hydraulic analysis and the peak runoff is given by the following expression:

$$\mathbf{Q_p = 0.278\ C\ i\ A} \qquad \textit{--- Equation 1}$$

where Q_p = peak runoff in m^3/s
C = runoff coefficient
i = rainfall intensity in mm/hr
A = catchment area in km^2

3.1.3 Rainfall intensity is calculated using the following expression:

$$\mathbf{i = \frac{a}{(t_d + b)^c}} \qquad \textit{--- Equation 2}$$

where i = rainfall intensity in mm/hr
t_d = duration in minutes ($t_d \leq 240$)
a, b, c = storm constants given in Table 3 of SDM

3.1.4 For a single catchment, duration (td) can be assumed equal to the time of concentration (tc) which is calculated as follows:

$$\mathbf{t_c = t_0 + t_f} \qquad \textit{--- Equation 3}$$

where t_c = time of concentration
t_0 = inlet time (time taken for flow from the remotest point to reach the most upstream point of the urban drainage system)
t_f = flow time

3.1.5 Generally, t_0 is much larger than t_f. As shown in Equation 2, t_d is the divisor. Therefore, larger t_d will result in smaller rainfall intensity (i) as well as smaller Q_p. For the worst case scenario, t_f is assumed to be negligible and so:

$$\mathbf{t_d = t_c = t_0}$$

$$\mathbf{t_0 = \frac{0.14465\ L}{H^{0.2}\ A^{0.1}}} \qquad \textit{--- Equation 4}$$

where A = catchment area (m^2)
H = average slope (m per 100 m), measured along the line of natural flow, from the summit of the catchment to the point under consideration
L = distance (on plan) measured on the line of natural flow between the summit and the point under consideration (m)

3.1.6 The capacities of the drainage pipes have been calculated using the Colebrook-White Equation, assuming full bore flow with no surcharge, as follows, incorporating 10% sedimentation in the calculation of drainage flow capacity in accordance with the Stormwater Drainage Manual:

$$V = -\sqrt{32gRs} \times \log\left(\frac{k_s}{14.8R} + \frac{1.25\upsilon}{R\sqrt{32gRs}}\right) \qquad \textbf{--- Equation 5}$$

where
- V = mean velocity (m/s)
- g = gravitational acceleration (m/s^2)
- R = hydraulic radius (m)
- k_s = hydraulic pipeline roughness (m)
- υ = kinematic viscosity of fluid (m^2/s)
- s = hydraulic gradient (energy loss per unit length due to friction)

3.1.7 On the other hand, the capacity of open channel has been calculated using the Manning's Equation:

$$V = \frac{R^{1/6}}{n} \times \sqrt{Rs} \qquad \textbf{--- Equation 6}$$

where
- V = mean velocity (m/s)
- R = hydraulic radius (m)
- n = Manning coefficient (s/m$^{1/3}$)
- s = hydraulic gradient (energy loss per unit length due to friction)

3.2 Assessment Assumptions

Identification of Catchments

3.2.1 Based on desktop study and site observation, although the Site is adjacent to the Sandy Ridge Cemetery, majority of the surface runoff from the Sandy Ridge Cemetery mainly flows to Shen Zhen River and partially to Ng Tung River via separate drainage system that is along a road which leads the Lo Wu Station Road and eventually discharge into Ng Tung River, and therefore not included as upstream catchments of the Site.

3.2.2 Catchments A to D were identified to be the catchments to be most relevant for this Site based on the topographical data available on Slope Information System of CEDD and the surveys map obtained from Lands Department. The indicative catchment plan is shown on ***Figure 3-1*** and briefly described below:

- Catchment A: covered by natural slope and village houses/ temporary structure Sha Ling area.
- Catchment B: near the pipeline area that accommodate the fresh water mains alongside the Man Kam To Road
- Catchment C: composed of farmland/ grassland and village houses/ temporary structure comprises of Sub-Catchments C1, C2 ("the Site") and C3.
- Catchment D: occupied by a concrete batching plant.

3.2.3 The surface runoff from Catchments A, B, C1, C3, D will pass through the Site (Catchment C2) and collected into the watercourse that gather at the box culvert underneath Lo Wu Station Road that eventually conveyed to Ng Tung River. Details of the catchments are described in paragraphs below.

Surface Runoff from Catchments

3.2.4 As shown on ***Figure 3-1***, runoff from Catchment A will pass underneath Man Kam To Road and run into the Site underneath the superstructures and then further drain to the existing box culvert via the existing watercourse. As such, runoff arising from Catchment A should be taken into account in this DIA.

3.2.5 Runoff from Catchment B will flow along the pipeline area and collected into a U-channel that eventually leads to the existing box culvert downstream.

3.2.6 According to the topographical data, the runoff from Catchments C1 and C3 would flow toward the stream that is along the north of site boundary. The flow will pass through the Site connecting the existing watercourse and eventually discharge to downstream via the box culvert.

3.2.7 Runoff from Catchment D will flow towards the Sha Ling Road and collected into the existing watercourse, therefore it will be taken into account in this DIA.

3.2.8 The calculation methods of corresponding catchments are summarised in ***Table 3.1*** and the photos of relevant watercourse and watercourse will be shown on ***Figure 3-1***.

Table 3.1: Method for Estimating the Surface Runoff from Surrounding Catchments

Catchment	Estimating Method for Surface Runoff
Catchment A	Rational Method
Catchment B	Rational Method
Catchment C	Rational Method
Catchment D	Rational Method

3.2.9 As the runoff from Catchments A, B, C1, C3 and D were calculated by Rational Method, information of the catchment area and runoff coefficients are necessary.

Site Surface Characteristics and Runoff Coefficient of the Site

3.2.10 The Site is located in Catchment C2. An elevated platform will be constructed above the ground of the Site and the Site including its facilities will mainly be on the platform.

3.2.11 The Site is currently a vacant land overgrown with weeds and different tree groups. As such, for conservative approach, it is assumed that the Site is currently 99% grassland and 1% concrete paved area.

3.2.12 For the Proposed Development, about 25.6% site coverage of greenery will be provided. Therefore, it was assumed that the paving condition of the Proposed Development will comprise approximately 25.6% soft landscape and 74.4% paved area.

3.2.13 The Site is relatively flat, with reference to the DSD's Stormwater Drainage Manual, the runoff coefficients of paved surface and grassland at existing site are 0.95 and 0.25, respectively. As a result, the respective average runoff coefficients of 0.26 and 0.77 were adopted for the Site before and after the Proposed Development, respectively, as summarised in ***Table 3.2***.

Table 3.2: Surface Characteristics and Runoff Coefficients of the Site

SCENARIO OF PROJECT	AREA	SURFACE CHARACTERISTICS	RUNOFF COEFFICIENT
Before Development	16,060 m^2	1%paved+99% grassland	0.26
After Development		74.4% paved + 25.6% soft landscape	0.77

Site Surface Characteristics and Runoff Coefficient of Surrounding Catchments

3.2.14 Areas of farmland, grassland and natural slope are assumed to be soft landscape, while the remaining areas of village houses, temporary structure and fresh water mains are assumed to be paved area. The paving conditions are summarised in ***Table 3.3***.

3.2.15 With reference to the Stormwater Drainage Manual, the runoff coefficients for Catchments A are assumed are 0.95 for paved surface and 0.35 for soft landscape, respectively. On the other hand, as Catchments B, C1, C3 and D are relatively flat, the runoff coefficients of paved surface and soft landscape are 0.95 and 0.25, respectively. The runoff coefficients of related catchments are summarised in ***Table 3.3***.

Table 3.3: Surface Characteristics and Runoff Coefficients of Surrounding Catchments

CATCHMENT	SURFACE CHARACTERISTICS	OVERALL RUNOFF COEFFICIENT	CATCHMENT AREA (m^2)
Catchment A	47% paved + 53% soft landscape	0.63	63,483
Catchment B	100% paved	0.95	11,345
Catchment C1	23% paved + 77% soft landscape	0.41	84,389
Catchment C3	10% paved + 90% soft landscape	0.32	6,613
Catchment D	100% paved	0.95	9,212

3.3 Estimated Existing and Future Runoff

Peak Runoff from the Site

3.3.1 Based on the assumption as described in paragraphs 3.2.1 to 3.2.13, the runoff from the Site (Catchment C2) before and after development was estimated based on the return periods of 2, 10 and 50 years.

3.3.2 The estimated peak runoff generated from the Site before development is 0.187m^3/s and after development is 0.683m^3/s under 50 years return period. There will be around 265% increase in the estimated peak runoff due to the Proposed Development under 50 years return period. Detailed calculations are provided in ***Table 3.4*** and ***Appendix A***.

Table 3.4: Estimated Peak Runoff of the Site (Catchment C2)

RETURN PERIOD	ESTIMATED PEAK RUNOFF (m^3/s)		
	BEFORE DEVELOPMENT	AFTER DEVELOPMENT	INCREMENT
2 Years	0.119	0.446	275%
10 Years	0.157	0.604	285%
50 Years	0.187	0.683	265%

3.4 Peak Runoff from Other Sub-Catchment

3.4.1 The runoff generated from other surrounding sub-catchments has been evaluated and are summarised in ***Table 3.5***. Detailed calculations are provided in ***Appendix A***.

Table 3.5: Estimated Runoff from Other Catchments

RETURN PERIOD	ESTIMATED PEAK RUNOFF FROM SUB-CATCHMENTS (m^3/s)					
	CATCHMENT					
	A	B	C1	C3	D	SUB – TOTAL
2 Years	1.09	0.35	0.10	0.07	0.34	2.84
10 Years	1.44	0.46	1.31	0.10	0.43	3.74
50 Years	1.72	0.55	1.56	0.12	0.51	4.46

3.5 Total Peak Runoff

3.5.1 Under 50 years return period, the estimated peak runoff generated from the surround sub-catchments A, B, C1, C3 and D is 4.46m^3/s; and the estimated total peak runoff from Catchment A, B, C1, C2, C3 and D from upstream to the box culvert downstream after development is approximately 5.14m^3/s. However, it should be noted to avoid adverse impact to the downstream box culvert due to the additional flow from C2, it is proposed to include a stormwater storage tank on-site for collecting stormwater generated from C2. Details are discussed in ***Section 3.6***.

3.6 Proposed Drainage Layout

On-site Storage Facility

3.6.1 It is understood that the drainage facilities at the downstream might not be capable of receiving additional flow from the Site. In order to avoid additional drainage impact on the municipal drainage system, an on-site underground stormwater storage tank is proposed to store the additional runoff due to the Site.

3.6.2 Underground storage tank is more favourable for hydraulic flow and flow can be directly collected into the storage tank by gravity. The flow from the Site will be collected by the periphery U-channel drainage network and conveyed to the underground storage tank by gravity. Level sensors will be installed to trigger the pump start/stop and activate the valve to open/ close so that the water in the storage tank can be discharged under a controlled manner. The indicative cross-section of storage tank and with water intake and discharge mechanism is provided in ***Appendix B***.

3.6.3 The stored stormwater will either be reused on-site as much as practicable (e.g., floor mopping, toilet flush, etc.) or transported to the nearby active farmlands for irrigation (i.e. the farmland to the southwest of the Site), while the exact outlet needed to be confirmed during the detailed design stage, as such only the surplus water will be drained off to the proposed stormwater system. It is proposed outlet of the storage tank to be equipped with control e.g. valve so that the stormwater that are not used can be discharged into the box culvert after heavy raining under a controlled manner.

3.6.4 In case of power failure, emergency generator will be used as the power supplier of the pump. Regular maintenance of the equipment will be carried out, spare pump will be used to maintain the operation when there is equipment failure.

3.6.5 The indicative cross-section of storage tank and the pumping system is provided on ***Appendix B***.

On site Storage Tank Sizing

3.6.6 Since Rational Method is not based on a total storm duration, but rather a period of rain that produces the peak runoff rate. The method cannot compute the runoff volumes unless the total storm duration is assumed. Therefore, 4 hours storm duration is proposed to be used as to design the size of on-site storage tank. This duration is sufficient to cover the effective life of many rainstorms (Royal Observatory, 1981). With reference to the IDF relationship of North District Area stated in Table 2d of the Stormwater Drainage Manual (DSD, 2018), the rainfall intensity of 54.9mm/h was adopted, which is based on 4 hours rainfall duration for 50 years return period.

3.6.7 The runoff coefficients of 0.26 and 0.77, as mentioned in ***paragraph 3.2.15*** were adopted for the Site before and after the Proposed Development, respectively.

3.6.8 The sizing of stormwater storage Tank is summarised and calculated in ***Table 3.6*** and in ***Appendix D***.

Table 3.6: Estimated stormwater storage tank size

SCENARIO UNDER 50 YEARS RETURN PERIOD	Area, m^2	Runoff Coefficient	Rainfall Intensity, mm/hr	Peak Runoff Rate, m^3/s	Duration, hours	Estimated Runoff Volume, m^3
Before Development	16,060	0.26	54.9	0.063	4	907
After Development		0.77		0.189	4	2,721
					Incremental Runoff	**1,814**

3.6.9 As shown in Table 3.6, the incremental runoff volume is 1,814 m^3 under 50 years return period. Thus, the designed storage capacity should be at least 1,814 m^3. The tentative location of the storage tank is shown on ***Figure 3-2.***

3.6.10 Adding buffer storage of about 20% in case of emergency, the tank volume of approx. 2,190 m^3 with dimensions of an area of 730 m^2 and 3m deep is proposed to be provided.

Proposed Stormwater Collection System

3.6.11 Two peripheral U- channels with grating covers are proposed to be running at the perimeter of the Site. The U shape channels will be in a combination of size ranging from Ø300-650mm at an average gradient 1 in 250 to collect the runoff from the Site. Each of the two peripheral U-channels will eventually connect to catchpit pit that can connect to the storage tank mentioned in ***paragraph 3.6.9***. Catchpit with sand trap and cover will also be provided on-site to minimise sand/silt go into the drainage system. The indicative location and path of proposed parameter drain was shown on ***Figure 3-2***. The typical drawing of the U-Channel and catchpit with sand trap and cover is provided in ***Appendix C***.

3.6.12 Flow collected into U-channel section *Start 1* to *MH7* will be split at *MH7*. There are two outlets at *MH7*, and MH7 is equipped with an overflow weir. Part of the flow will continue to flow along the U-channel and eventually directly discharge to watercourse, whereas flow that exceeds the U-channel capacity will be overflowed into *MH7* and will be discharged by gravity into the stormwater storage tank. Surface runoff collected in the stormwater storage tank will be stored and pumped out to the watercourse when it is low flow. See ***Appendix B*** for details of the illustration of mechanism.

3.6.13 Similar arrangement will also apply for the U-channel section *Start 2* to *MH15.* There are two outlets at MH15, and MH15 is equipped with an overflow weir. Part of the flow will continue to flow along the U-channel and eventually directly discharge to watercourse, whereas flow that exceeds the U-channel will be overflowed into the *MH15* and will be discharged by gravity into

the stormwater storage tank. Surface runoff collected in the stormwater storage tank will be stored and pumped out to the watercourse when it is low flow. See ***Appendix B*** for details of the illustration of mechanism. The total runoff to be discharged into the watercourse will not be more than the estimated peak runoff generated from the Site before development, i.e. 0.187m^3/s.

3.6.14 An indicative drawing of the catchpit with sand trap design is provided in ***Appendix C***. The typical design of the peripheral U- Channel is presented in ***Table 3.7***. Detailed calculations for impact assessment of proposed drainage channels and the design of on-site storage tank are provided in ***Appendix D***.

Table 3.7: Drainage Capacity of Proposed Peripheral Channels

Description	Size, mm	Related Catchment	Runoff, m^3/s	Capacity, m^3/s	% of Capacity Used	Sufficient Capacity?
U-shape Channel from Start 1 to Box Culvert	300 - 700	Catchment C2	0.03-0.35	0.06-0.60	46%-74%	YES
U-Shape Channel from Start 2 to Box Culvert	225 - 600	Catchment C2	0.03-0.0.4	0.06-0.40	44%-64%	YES
Pipe MH7 to Tank	Ø 700	Catchment C2	0.33	0.63	52%	YES
Pipe MH15 to Tank	Ø 600	Catchment C2	0.18	0.42	42%	YES
Pipe Tank to Box Culvert	Ø 500	Catchment C2	0.19	0.26	72%	YES

Maintenance of Existing Watercourse

3.6.15 The existing watercourse passing through the Site is proposed to be decked over to minimise disturbance to it. To support regular maintenance, manholes for watercourse are proposed to be installed along the existing watercourse with an interval of 60m in which the indicative location of maintenance manholes can be referred to ***Figure 3-2***.

Drainage Point

3.6.16 The runoff from the surrounding catchments run into the existing stream which located underneath the proposed platform inside the Site as before the Proposed Development. The collected runoff from the existing watercourse would be diverted to southwest of the Site and discharged to downstream through a box culvert with 5000mm (W) x 1550mm (H) with 1% fall laid under the Lo Wo Station Road, as shown on **Figure 3-2** and the detail drawing of the box culvert underneath Lo Wu Station is shown on ***Appendix E***.

3.7 Proposed Mitigation Measures

3.7.1 Water quality is the key environmental impact arising from the construction works. In addition, objects such as soil, construction materials, etc. accidentally falling into the watercourses/drainage can cause blockage in the watercourses/drainage. To avoid adverse impact on the watercourses and public drainage system in the vicinity of the Site during construction and operation of the Proposed Development, the guidelines published by the government shall be followed, including but not limited to those as follows:

1. Practice Notes for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers ("PNAP") ADV-27 *Protection of Natural Streams/Rivers from Adverse Impacts arising from Construction Works* published by the Building Department ("BD")
2. PNAP ADV-4 *Control of Environmental Nuisance from Construction Site* published by the BD;
3. Practice Notes for Registered Contractors ("PNRC") 61 *Protection of Natural Streams/Rivers from Adverse Impacts arising from Construction Works* published by the BD;
4. PNRC 17 *Control of Environmental Nuisance from Construction Site* published by the BD;
5. *Recommended Pollution Control Clauses for Construction Contracts* ("RPCC") published by the Environmental Protection Department ("EPD");
6. Professional Persons Environmental Consultative Committee ("ProPECC") Practice Note ("PN") 1/94 *Construction Site Drainage* published by the EPD.

3.7.2 With reference to the measures recommended in the guidelines, the following measures shall be provided, implemented and maintained by the Contractor to minimise impact to the watercourses:

1. The proposed works site in the proximity of natural rivers and streams should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props, to prevent adverse impacts on the stream water qualities.
2. Stockpiling of construction materials, if necessary, should be properly covered and located away from any natural stream/river.
3. Construction debris and spoil should be covered up and/or properly disposed of as soon as possible to avoid being washed into nearby rivers/streams by rain.
4. Construction effluent, site run-off and sewage should be properly collected and/or treated. Wastewater from a construction site should be managed with the following approach in descending order:
   (a) minimisation of wastewater generation;
   (b) reuse and recycle;
   (c) treatment.
5. Supervisory staff should be assigned to station on site to closely supervise and monitor the works.
6. Incorporate temporary drainage system with de-silting facility before connecting directly to the main drainage system.
7. Install sand trap, settling pit or grease trap as necessary.
8. Install perimeter drainage channels or place sand bags along the low end of boundary.
9. Install pH adjustment facilities or petrol interceptor as necessary.
10. Cover open site area with gravel as far as practicable.
11. For site maintenance:
    (a) clear trapped debris and sediments frequently.
    (b) maintain sanitary condition at effluent disposal point.
    (c) pump and properly drain away all stagnant water.
    (d) cover open stockpiles of construction materials and temporarily exposed slope by tarpaulin or similar fabric, especially during rainy season.
    (e) Manholes shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers.

Figure 3-1: Identification of Surrounding Catchments

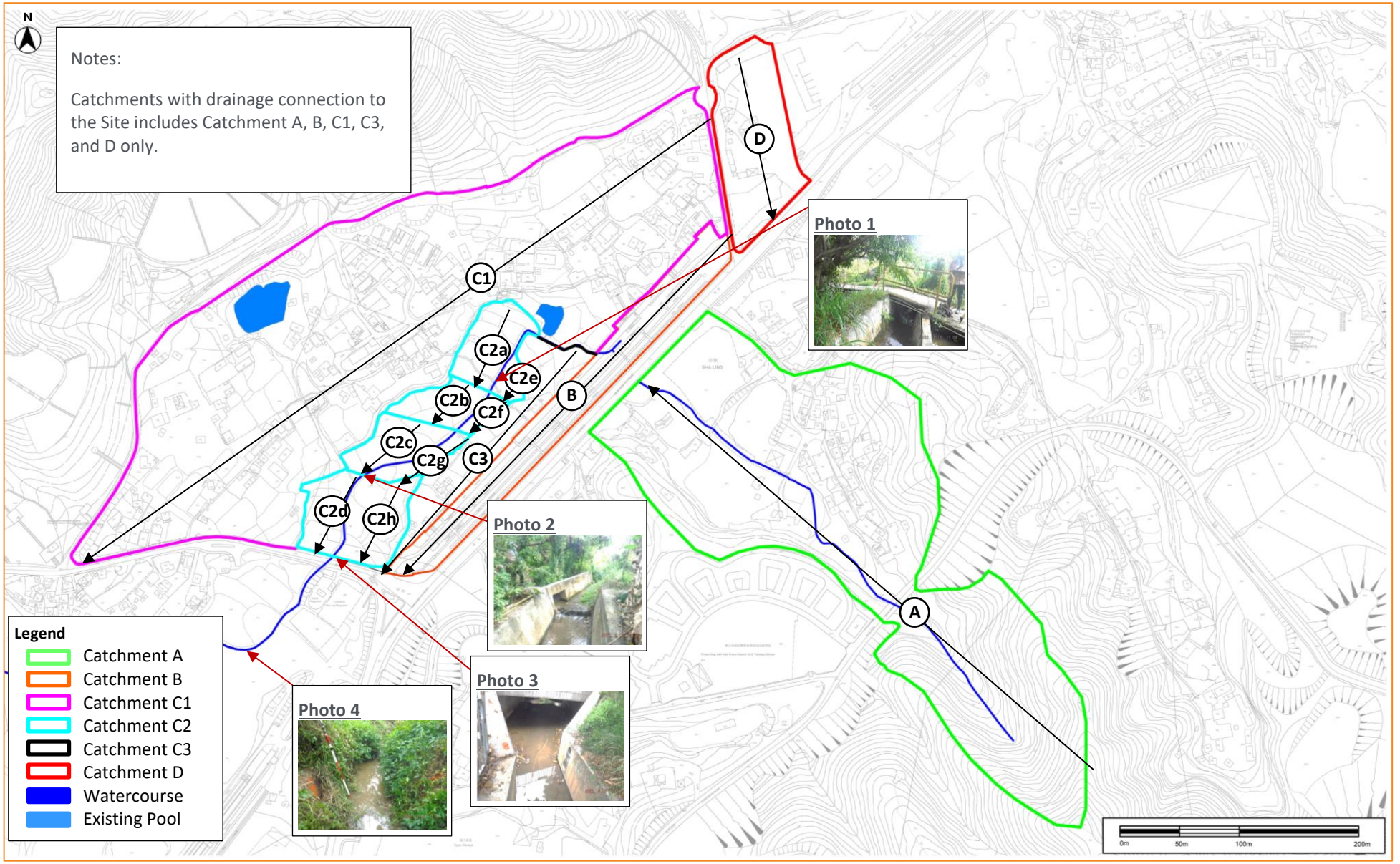
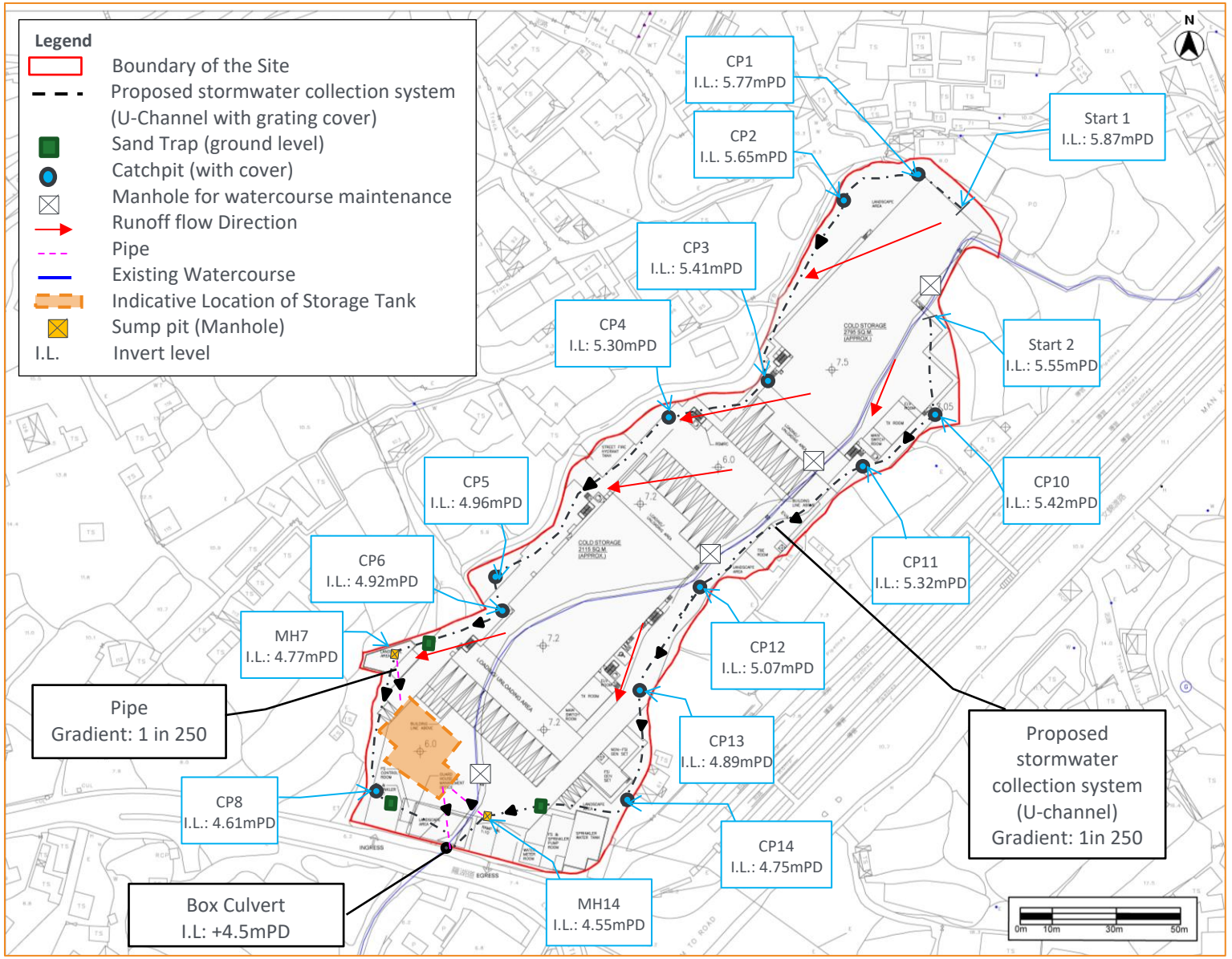


Figure 3-2: Indicative Proposed Drainage Layout



4 CONCLUSION

4.1.1 Potential drainage impacts that may arise from the Site after construction of the Proposed Development have been assessed.

4.1.2 The peak runoff before and after the development of the Site were estimated using Rational Method and based on the catchment surface characteristics for the existing environment and the Proposed Development. The paving area of the Site will increase to 74.4%, additional surface runoff will be generated from the site. The estimated peak runoff generated from the Site and the surrounding catchments are 0.683m^3/s and 4.46m^3/s under 50 years return period, and the total estimated peak flow from the Site and surrounding catchments to the box culvert downstream is about 5.14m^3/s.

4.1.3 U-shape peripheral channels has been proposed to be installed at the boundary of the Site to collect surface runoff from the Site (Catchment C2). The U-shape channels of size 225-650 mm dia. have been proposed. Based on the calculation, the utilisation rate of the proposed U-shape peripheral channels and pipes is about 44-74% under the 50 years return period, which shows there is sufficient capacity to accommodate flow arise Site after Proposed Development.

4.1.4 The incremental runoff before and after the development were estimated for sizing an on-site storage tank. Assuming the rainfall duration of 4 hour based on a return period of 50 years, an on-site storage tank of no less than 1,814m^3 is proposed to temporarily store the runoff due to the Proposed Development during heavy rainstorm. Adding buffer storage of about 20% in case of emergency, the tank volume of approx. 2,190m^3 with dimensions of an area of 730m^2 and 3m deep is proposed to be provided. It will be sufficient to meet the storage volume required. No adverse drainage impact to the existing drainage system is anticipated due to the Proposed Development, subject to the following condition:

(a) At least 25.6% of the Site area shall be soft landscape.

4.1.5 This DIA Report indicates the initial findings regarding drainage impact and indicative drainage layout. A qualified engineer should be engaged by the Architect/Contractor of the Proposed Development to review and provide detailed designs for the internal Site drainage layout, including the water storage tank. A “Drainage Proposal” including detailed designs based on calculations and quantitative assessments, as well as hydraulic model if necessary, shall be prepared by the qualified engineer and submitted to the drainage Authority, EPD and DSD, for their review and approval prior to the commencement of work. The Applicant shall obtain the consent from the owner of the existing watercourse for discharging of storm water prior to commencement of the proposed works. All the relevant government departments shall also be consulted with when necessary.

Appendix A RUNOFF CALCULATIONS

Calculation of Runoff for Return Period of 2 Years

Catchment ID	Catchment Area (A), km^2	Average slope (H), m/100m	Flow path length (L), m	Inlet time (t_0), min	Duration (t_d), min	Storm Constants			Runoff intensity (i), mm/hr	Runoff coefficient (C)	C x A	Peak runoff (Q_p), m^3/s
						a	b	c				
Before the Proposed Development												
Catchment A	0.0635	16.29	526.2	14.42	20.26	1004.5	17.24	0.644	97.33	0.63	0.0401	1.086
Catchment B	0.0113	1.28	164.20	8.89	10.71	1004.5	17.24	0.644	117.61	0.95	0.0108	0.352
Catchment C1	0.0844	3.94	365.80	12.94	17.00	1004.5	17.24	0.644	103.20	0.41	0.0347	0.995
Catchment C2	0.0161	0.69	237.30	14.05	16.69	1004.5	17.24	0.644	103.82	0.26	0.0041	0.119
Catchment C3	0.0066	1.51	118.90	6.57	7.89	1004.5	17.24	0.644	125.96	0.32	0.0021	0.074
Catchment D	0.0092	4.98	84.30	3.55	4.49	1004.5	17.24	0.644	138.33	0.95	0.0088	0.337
											Total (General Scenario)	**2.963**
After the Proposed Development												
Catchment A	0.0635	16.29	526.2	14.42	20.26	1004.5	17.24	0.644	97.33	0.63	0.0401	1.086
Catchment B	0.0113	1.28	164.20	8.89	10.71	1004.5	17.24	0.644	117.61	0.95	0.0108	0.352
Catchment C1	0.0844	3.94	365.80	12.94	17.00	1004.5	17.24	0.644	103.20	0.41	0.0347	0.995
Catchment C2a	0.0030	0.20	83.0	7.43	7.90	1004.5	17.24	0.644	125.94	0.77	0.0023	0.081
Catchment C2b	0.0023	0.20	56.0	5.16	5.47	1004.5	17.24	0.644	134.46	0.77	0.0018	0.066
Catchment C2c	0.0024	0.20	60.0	5.51	5.84	1004.5	17.24	0.644	133.04	0.77	0.0018	0.067
Catchment C2d	0.0024	0.20	76.1	6.98	7.40	1004.5	17.24	0.644	127.57	0.77	0.0018	0.065
Catchment C2e	0.0008	0.20	58.0	5.96	6.28	1004.5	17.24	0.644	131.45	0.77	0.0006	0.022
Catchment C2f	0.0006	0.20	45.3	4.80	5.05	1004.5	17.24	0.644	136.05	0.77	0.0004	0.016
Catchment C2g	0.0012	0.20	89.0	8.71	9.20	1004.5	17.24	0.644	121.89	0.77	0.0010	0.033
Catchment C2h	0.0034	0.20	68.3	6.04	6.42	1004.5	17.24	0.644	130.95	0.77	0.0026	0.096
Catchment C3	0.0066	1.17	85.72	4.99	5.94	1004.5	17.24	0.644	132.68	0.32	0.0021	0.078
Catchment D	0.0092	4.98	84.30	3.55	4.49	1004.5	17.24	0.644	138.33	0.95	0.0088	0.337
											Total (General Scenario)	**3.294**

Note:

1) Runoff is calculated in accordance with DSD's "*Stormwater Drainage Manual (with Eurocodes incorporated) - Planning, Design and Managemen* t" (SDM), fifth edition, January 2018.
2) Time of concentraction td= to+tf; where tf time of flow in urban drainag esystem = length of drain/ velocity. Velocity assumed 1.5m/s for natural flow and 3m/s assumed for flow in urban area.
3) The gradient of Catchement C2 after development is assumed to be 1:500.

Calculation of Runoff for Return Period of 10 Years

Catchment ID	Catchment Area (A), km^2	Average slope (H), m/100m	Flow path length (L), m	Inlet time (t_0), min	Duration (t_d), min	Storm Constants			Runoff intensity (i) mm/hr	Runoff coefficient (C)	C x A	Peak runoff (Q_p), m^3/s
						a	b	c				
Before the Proposed Development												
Catchment A	0.0635	16.29	526.2	14.42	20.26	1157.7	19.04	0.597	129.34	0.63	0.0401	1.443
Catchment B	0.0113	1.28	164.20	8.89	10.71	1157.7	19.04	0.597	152.72	0.95	0.0108	0.458
Catchment C1	0.0844	3.94	365.80	12.94	17.00	1157.7	19.04	0.597	136.20	0.41	0.0347	1.313
Catchment C2	0.0161	0.69	237.30	14.05	16.69	1157.7	19.04	0.597	136.92	0.26	0.0041	0.157
Catchment C3	0.0066	1.17	85.72	4.99	5.94	1157.7	19.04	0.597	169.52	0.32	0.0021	0.100
Catchment D	0.0092	4.98	84.30	3.55	4.49	1157.7	19.04	0.597	175.70	0.95	0.0088	0.427
											Total (General Scenario)	**3.898**
After the Proposed Development												
Catchment A	0.0635	16.29	526.2	14.42	20.26	1157.7	19.04	0.597	129.34	0.63	0.0401	1.443
Catchment B	0.0113	1.28	164.20	8.89	10.71	1157.7	19.04	0.597	152.72	0.95	0.0108	0.458
Catchment C1	0.0844	3.94	365.80	12.94	17.00	1157.7	19.04	0.597	136.20	0.41	0.0347	1.313
Catchment C2a	0.0030	0.20	83.0	7.43	7.90	1157.7	19.04	0.597	162.07	0.77	0.0023	0.105
Catchment C2b	0.0023	1.20	56.0	3.60	3.91	1157.7	19.04	0.597	178.31	0.77	0.0018	0.088
Catchment C2c	0.0024	2.20	60.0	3.41	3.74	1157.7	19.04	0.597	179.10	0.77	0.0018	0.090
Catchment C2d	0.0024	3.20	76.1	4.01	4.43	1157.7	19.04	0.597	175.96	0.77	0.0018	0.090
Catchment C2e	0.0008	4.20	58.0	3.24	3.56	1157.7	19.04	0.597	179.96	0.77	0.0006	0.030
Catchment C2f	0.0006	5.20	45.3	2.50	2.75	1157.7	19.04	0.597	183.91	0.77	0.0004	0.022
Catchment C2g	0.0012	6.20	89.0	4.38	4.88	1157.7	19.04	0.597	173.99	0.77	0.0010	0.046
Catchment C2h	0.0034	7.20	68.3	2.95	3.33	1157.7	19.04	0.597	181.07	0.77	0.0026	0.133
Catchment C3	0.0066	1.17	85.72	4.99	5.94	1157.7	19.04	0.597	169.52	0.32	0.0021	0.100
Catchment D	0.0092	4.98	84.30	3.55	4.49	1157.7	19.04	0.597	175.70	0.95	0.0088	0.427
											Total (General Scenario)	**4.345**

Note:

1) Runoff is calculated in accordance with DSD's "*Stormwater Drainage Manual (with Eurocodes incorporated) - Planning, Design and Managemen* t" (SDM), fifth edition, January 2018.
2) Time of concentraction td= to+tf; where tf time of flow in urban drainag esystem = length of drain/ velocity. Velocity assumed 1.5m/s for natural flow and 3m/s assumed for flow in urban area.
3) The gradient of Catchement C2 after development is assumed to be 1:500.

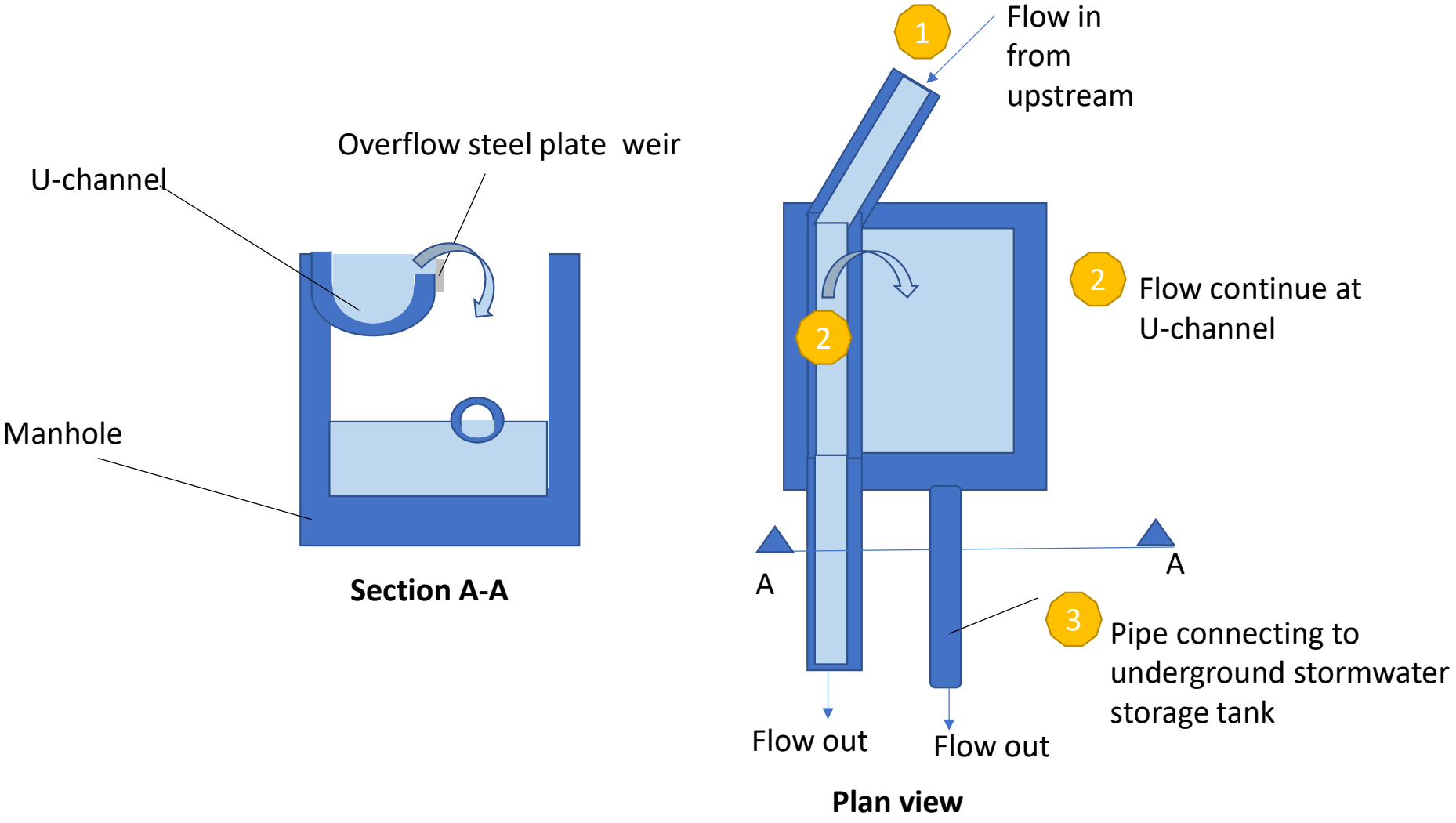
Calculation of Runoff for Return Period of 50 Years

Catchment ID	Catchment Area (A), km^2	Average slope (H), m/100m	Flow path length (L), m	Inlet time (t_0), min	Duration (t_d), min	Storm Constants			Runoff intensity (i) mm/hr	Runoff coefficient (C)	C x A	Peak runoff (Q_p), m^3/s
						a	b	c				
Before the Proposed Development												
Catchment A	0.0635	16.29	526.2	14.42	20.26	1167.6	16.76	0.561	153.95	0.63	0.0401	1.717
Catchment B	0.0113	1.28	164.20	8.89	10.71	1167.6	16.76	0.561	182.00	0.95	0.0108	0.545
Catchment C1	0.0844	3.94	365.80	12.94	17.00	1167.6	16.76	0.561	162.12	0.41	0.0347	1.563
Catchment C2	0.0161	0.69	237.30	14.05	16.69	1167.6	16.76	0.561	162.98	0.26	0.0041	0.187
Catchment C3	0.0066	1.17	85.72	4.99	5.94	1167.6	16.76	0.561	202.56	0.32	0.0021	0.119
Catchment D	0.0092	4.98	84.30	3.55	4.49	1167.6	16.76	0.561	210.22	0.95	0.0088	0.511
											Total (General Scenario)	**4.642**
After the Proposed Development												
Catchment A	0.0635	16.29	526.2	14.42	20.26	1167.6	16.76	0.561	153.95	0.63	0.0401	1.717
Catchment B	0.0113	1.28	164.20	8.89	10.71	1167.6	16.76	0.561	182.00	0.95	0.0108	0.545
Catchment C1	0.0844	3.94	365.80	12.94	17.00	1167.6	16.76	0.561	162.12	0.41	0.0347	1.563
Catchment C2a	0.0030	0.20	83.0	7.43	7.90	1167.6	16.76	0.561	193.39	0.77	0.0023	0.125
Catchment C2b	0.0023	0.20	56.0	5.16	5.47	1167.6	16.76	0.561	204.97	0.77	0.0018	0.101
Catchment C2c	0.0024	0.20	60.0	5.51	5.84	1167.6	16.76	0.561	203.05	0.77	0.0018	0.102
Catchment C2d	0.0024	0.20	76.1	6.98	7.40	1167.6	16.76	0.561	195.61	0.77	0.0018	0.100
Catchment C2e	0.0008	0.20	58.0	5.96	6.28	1167.6	16.76	0.561	200.89	0.77	0.0006	0.033
Catchment C2f	0.0006	0.20	45.3	4.80	5.05	1167.6	16.76	0.561	207.14	0.77	0.0004	0.025
Catchment C2g	0.0012	0.20	89.0	8.71	9.20	1167.6	16.76	0.561	187.86	0.77	0.0010	0.050
Catchment C2h	0.0034	0.20	68.3	6.04	6.42	1167.6	16.76	0.561	200.21	0.77	0.0026	0.147
Catchment C3	0.0066	1.17	85.72	4.99	5.94	1167.6	16.76	0.561	202.56	0.32	0.0021	0.119
Catchment D	0.0092	4.98	84.30	3.55	4.49	1167.6	16.76	0.561	210.22	0.95	0.0088	0.511
											Total (General Scenario)	**5.138**

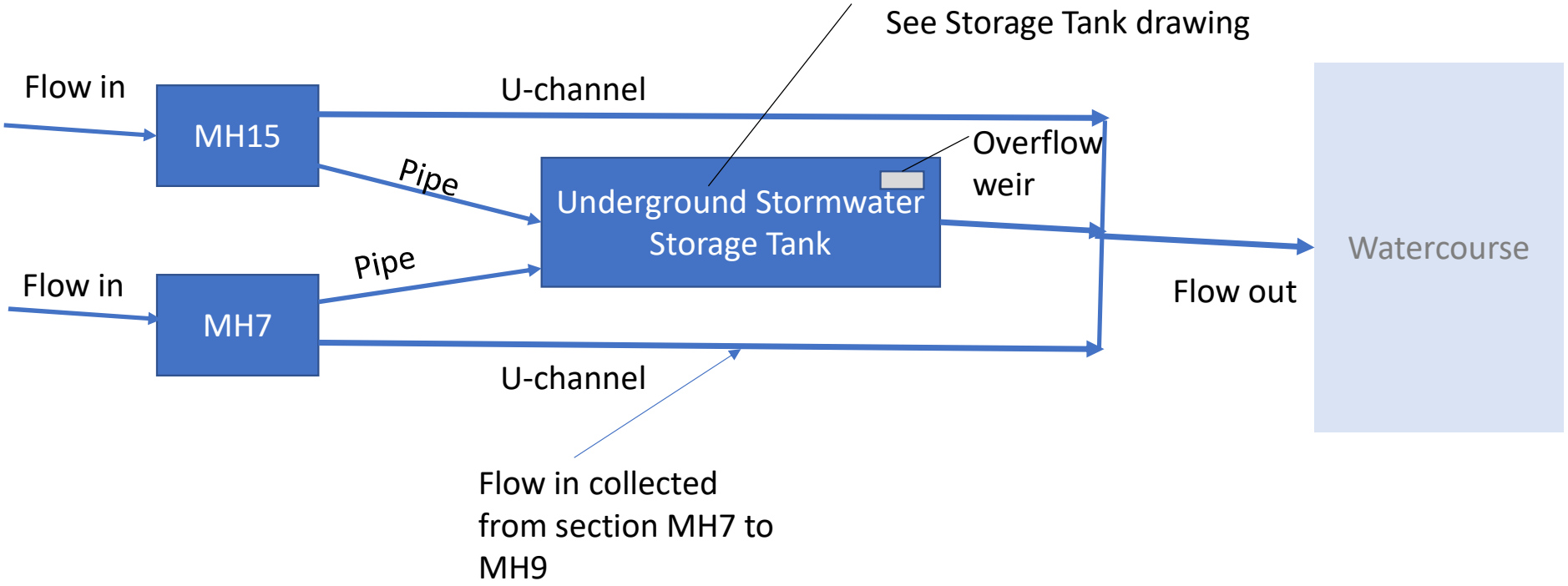
Note:

1) Runoff is calculated in accordance with DSD's "*Stormwater Drainage Manual (with Eurocodes incorporated) - Planning, Design and Managemen* t" (SDM), fifth edition, January 2018.
2) Time of concentraction td= to+tf; where tf time of flow in urban drainag esystem = length of drain/ velocity. Velocity assumed 1.5m/s for natural flow and 3m/s assumed for flow in urban area.
3) The gradient of Catchement C2 after development is assumed to be 1:500.

Appendix B INDICATIVE SCHEMATIC DIAGRAMS FOR MANHOLE AND STORAGE TANK

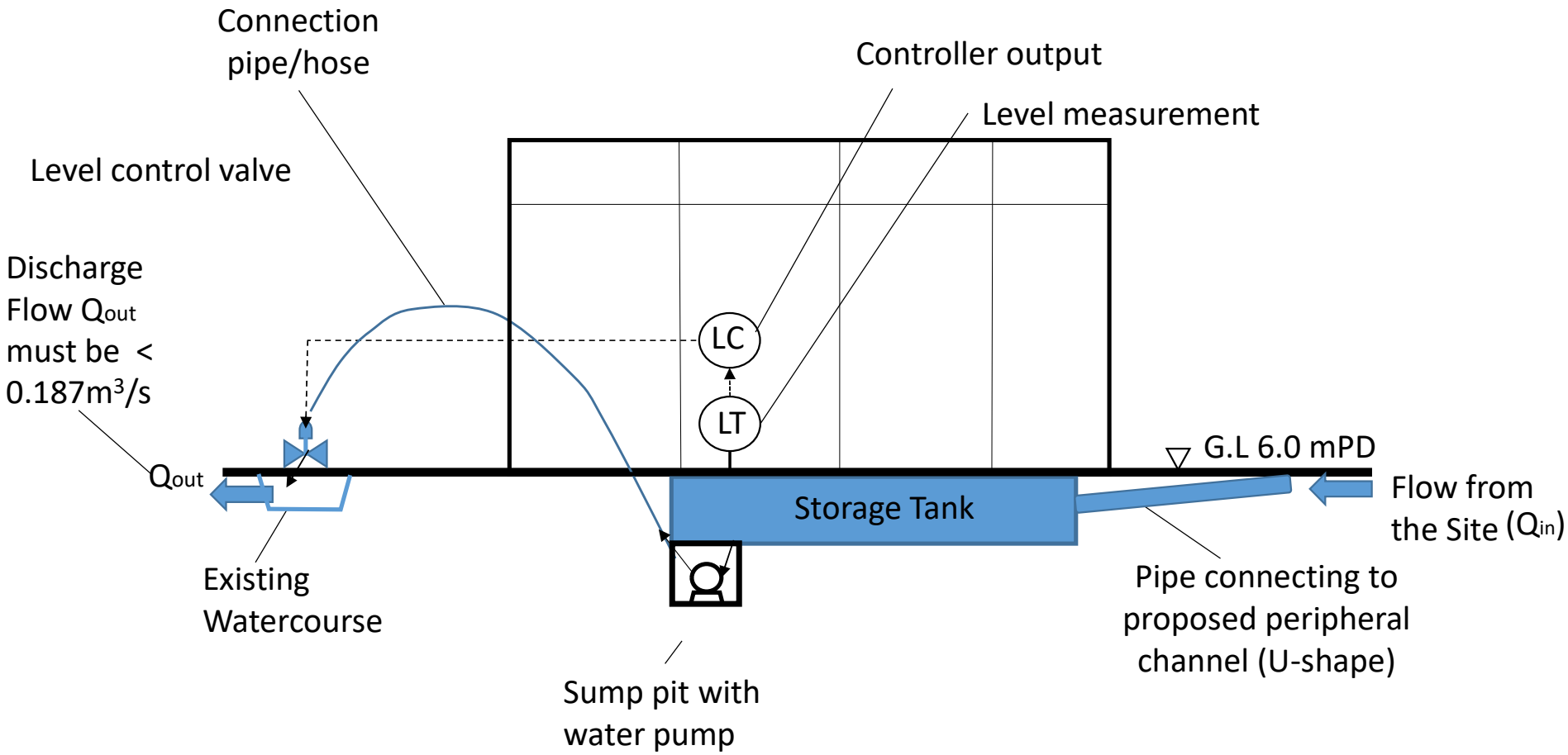


Indicative Drainage Mechanism at MH7 and MH15

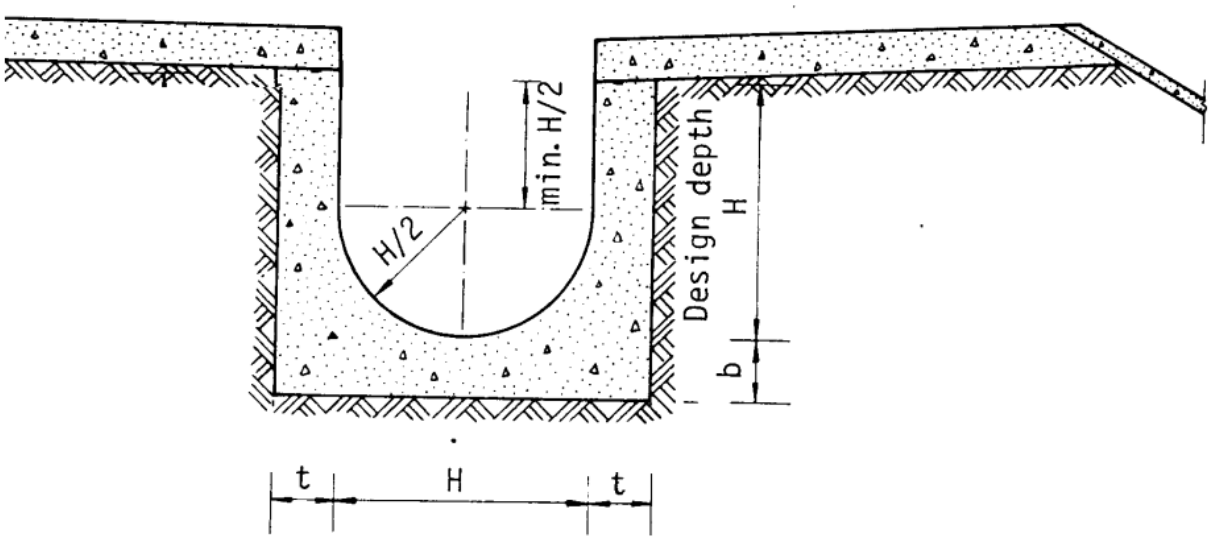


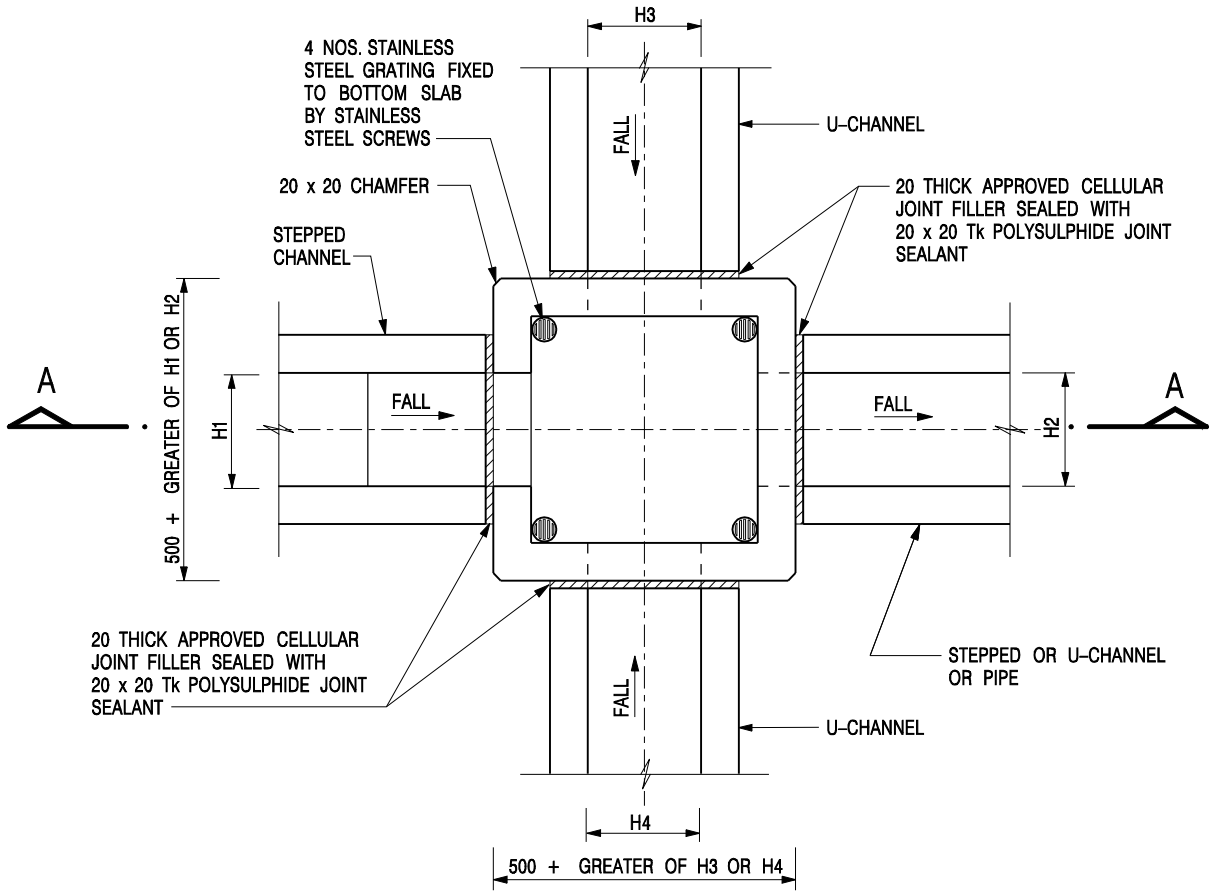
Indicative Drainage Mechanism from MH7 and MH15 to Underground Stormwater Storage Tank and Watercourse

Water Intake and Discharge Mechanism with Storage Tank Underground



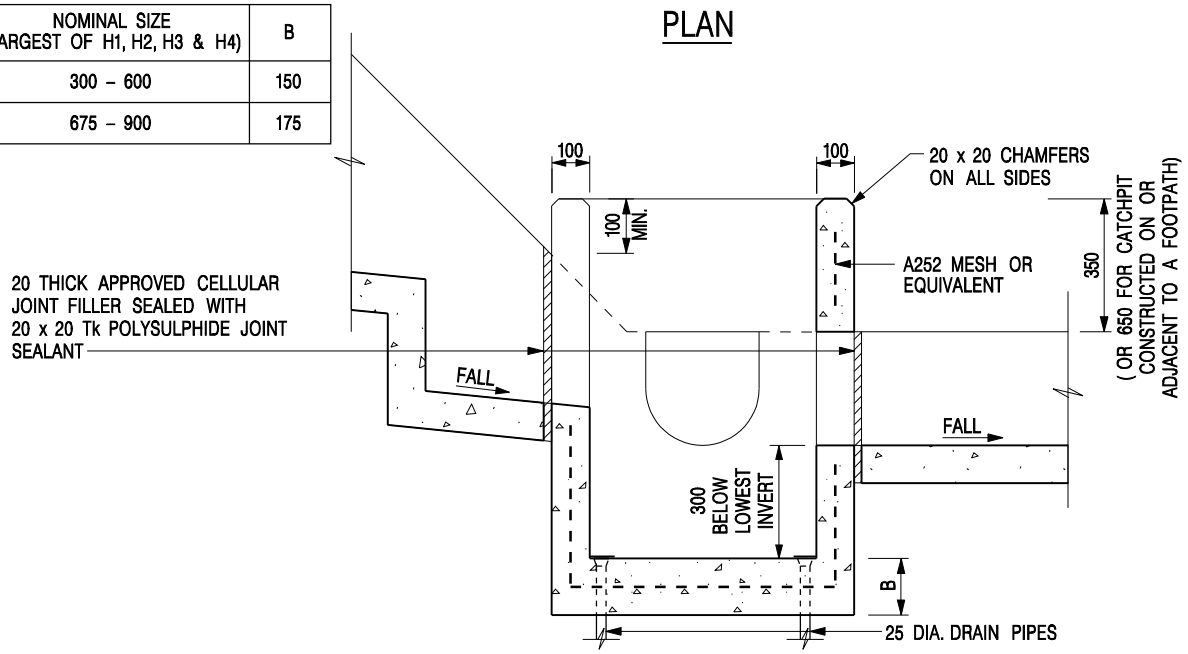
Appendix C DRAWINGS OF TYPICAL DETAILS OF U-CHANNEL AND CATCHPIT


min. H/2
H/2
Design depth
H
b
t
H
t



PLAN

NOMINAL SIZE (LARGEST OF H1, H2, H3 & H4)	B
300 – 600	150
675 – 900	175



SECTION A – A

NOTES:

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

REF.	REVISION	SIGNATURE	DATE
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

CATCHPIT WITH TRAP

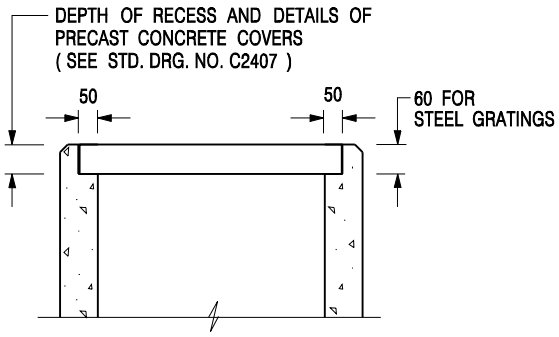
(SHEET 1 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2406 /1



ALTERNATIVE TOP SECTION
FOR PRECAST CONCRETE COVERS / GRATINGS

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL CONCRETE SHALL BE GRADE 20 /20.
3. CONCRETE SURFACE FINISH SHALL BE CLASS U2 OR F2 AS APPROPRIATE.
4. FOR DETAILS OF JOINT, REFER TO STD. DRG. NO. C2413.
5. CONCRETE TO BE COLOURED AS SPECIFIED.
6. UNLESS REQUESTED BY THE MAINTENANCE PARTY AND AS DIRECTED BY THE ENGINEER, CATCHPIT WITH TRAP IS NORMALLY NOT PREFERRED DUE TO PONDING PROBLEM.
7. UPON THE REQUEST FROM MAINTENANCE PARTY, DRAIN PIPES AT CATCHPIT BASE CAN BE USED BUT THIS IS FOR CATCHPITS LOCATED AT SLOPE TOE ONLY AND AS DIRECTED BY THE ENGINEER.
8. FOR CATCHPITS CONSTRUCTED ON OR ADJACENT TO A FOOTPATH, STEEL GRATINGS (SEE DETAIL 'A' ON STD. DRG. NO. C2405 /2) OR CONCRETE COVERS (SEE STD. DRG. NO. C2407) SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER.
9. IF INSTRUCTED BY THE ENGINEER, HANDRAILING (SEE DETAIL 'J' ON STD. DRG. NO. C2405 /5; EXCEPT ON THE UPSLOPE SIDE) IN LIEU OF STEEL GRATINGS OR CONCRETE COVERS CAN BE ACCEPTED AS AN ALTERNATIVE SAFETY MEASURE FOR CATCHPITS NOT ON A FOOTPATH NOR ADJACENT TO IT. TOP OF THE HANDRAILING SHALL BE 1 000 mm MIN. MEASURED FROM THE ADJACENT GROUND LEVEL.
10. MINIMUM INTERNAL CATCHPIT WIDTH SHALL BE 1 000 mm FOR CATCHPITS WITH A HEIGHT EXCEEDING 1 000 mm MEASURED FROM THE INVERT LEVEL TO THE ADJACENT GROUND LEVEL. AND, STEP IRONS (SEE DSD STD. DRG. NO. DS1043) AT 300 c/c STAGGERED SHALL BE PROVIDED. THICKNESS OF CATCHPIT WALL FOR INSTALLATION OF STEP IRONS SHALL BE INCREASED TO 150 mm.
11. FOR RETROFITTING AN EXISTING CATCHPIT WITH STEEL GRATING, SEE DETAIL 'G' ON STD. DRG. NO. C2405 /4.
12. SUBJECT TO THE APPROVAL OF THE ENGINEER, OTHER MATERIALS CAN ALSO BE USED AS COVERS / GRATINGS.

REF.	REVISION	SIGNATURE	DATE
A	MINOR AMENDMENT.	Original Signed	04.2016
–	FORMER DRG. NO. C2406J.	Original Signed	03.2015

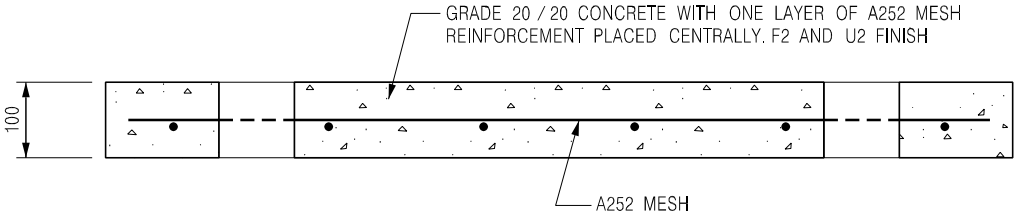
CATCHPIT WITH TRAP
(SHEET 2 OF 2)

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

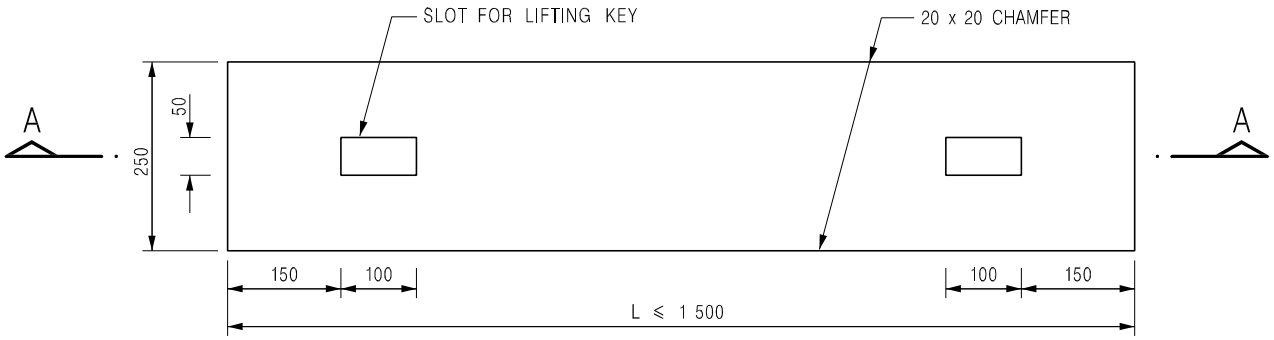
SCALE 1 : 20

DATE JAN 1991

DRAWING NO. C2406 /2A

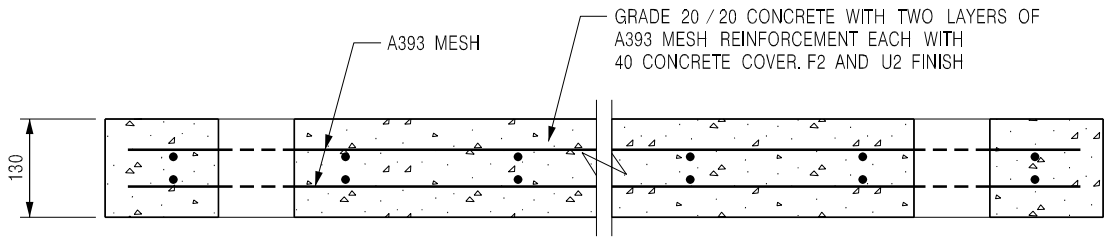


SECTION A – A

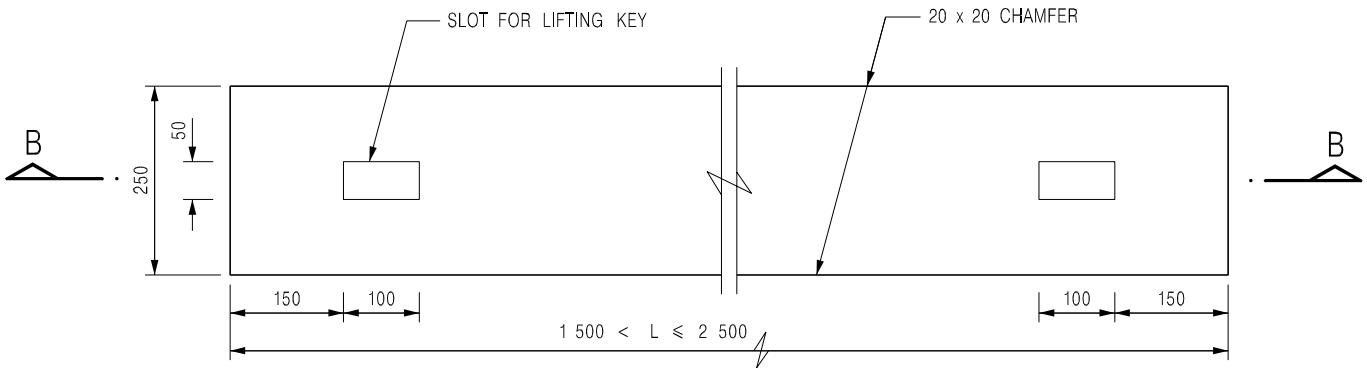


PLAN

TYPE 1 – FOR SPAN UP TO 1.5 m



SECTION B – B



PLAN

TYPE 2 – FOR SPANS 1.5 m TO 2.5 m

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. ALL EXTERNAL EDGES OF THE COVERS SHALL BE 20mm CHAMFERED.

REF.	REVISION	SIGNATURE	DATE
B	NAME OF DEPARTMENT AMENDED.	Original Signed	01.2005
A	GENERAL REVISION	Original Signed	12.2002

PRECAST CONCRETE COVERS FOR CATCHPIT AND SAND TRAP

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

SCALE 1 : 10

DATE JAN 1991

DRAWING NO. C2407B

興土木 利民生 齊拓展 創明天

We bring the best engineering to life

Appendix D CALCULATION OF DRAINAGE CAPACITY

Calculation of Drainage Capacity for Return Period of 50 Years

Drainage Capacity of Proposed Stream Course

From	To	Description	U-Shape Channel / Pipe	Length	Diameter	Upstream Invert Level	Downstream Invert Level	Slope (s)	Cross Section Area, m2	Wetted Perimeter	Hydaralius Radius, m	Manning Roughness Coefficient	Mean Velocity, m/s	Capacity Flow, m^3/s	Total Runoff, m^3/s	% of capacity	Remark
Start 1	CP1	C2a	U-Shape Channel	26.4	0.3	5.87	5.77	0.0040	0.08	0.77	0.10	0.018	0.78	0.06	0.03	50%	OK
CP1	CP2	C2a	U-Shape Channel	28.4	0.4	5.77	5.65	0.0040	0.14	1.03	0.14	0.018	0.94	0.13	0.06	46%	OK
CP2	CP3	C2a	U-Shape Channel	60.2	0.45	5.65	5.41	0.0040	0.18	1.16	0.16	0.018	1.02	0.18	0.13	68%	OK
CP3	CP4	C2a+C2b	U-Shape Channel	27.7	0.50	5.41	5.30	0.0040	0.22	1.29	0.17	0.018	1.09	0.24	0.16	65%	OK
CP4	CP5	C2a+C2b	U-Shape Channel	84.9	0.60	5.30	4.96	0.0040	0.32	1.54	0.21	0.018	1.23	0.40	0.23	57%	OK
CP5	CP6	C2a+C2b+C2c	U-Shape Channel	11.2	0.70	4.96	4.92	0.0040	0.44	1.80	0.24	0.018	1.37	0.60	0.33	55%	OK
CP6	MH7	C2a+C2b+C2c+2d	U-Shape Channel	36.2	0.70	4.92	4.77	0.0040	0.44	1.80	0.24	0.018	1.37	0.60	0.35	59%	OK
MH7	CP8	C2d	U-Shape Channel	40.9	0.40	4.77	4.61	0.0040	0.14	1.03	0.14	0.018	0.94	0.13	0.08	56%	OK
CP8	Box culvert	Flow from manhole to box culvert under normal condition	U-Shape Channel	27.3	0.40	4.61	4.50	0.0040	0.14	1.03	0.14	0.018	0.94	0.13	0.10	74%	OK
Start 2	CP10	C2e	U-Shape Channel	32.1	0.225	5.55	5.42	0.0040	0.05	0.58	0.08	0.018	0.64	0.03	0.02	57%	OK
CP10	CP11	C2e	U-Shape Channel	24.9	0.30	5.42	5.32	0.0040	0.08	0.77	0.10	0.018	0.78	0.06	0.03	53%	OK
CP11	CP12	C2e+C2f+2g	U-Shape Channel	64.3	0.50	5.32	5.07	0.0040	0.22	1.29	0.17	0.018	1.09	0.24	0.11	44%	OK
CP12	CP13	C2e+C2f+C2g+C2h	U-Shape Channel	44.2	0.60	5.07	4.89	0.0040	0.32	1.54	0.21	0.018	1.23	0.40	0.18	46%	OK
CP13	CP14	C2e+C2f+C2g+C2h	U-Shape Channel	35.2	0.60	4.89	4.75	0.0040	0.32	1.54	0.21	0.018	1.23	0.40	0.22	55%	OK
CP14	MH15	C2e+C2f+C2g+C2h	U-Shape Channel	48.8	0.60	4.75	4.55	0.0040	0.32	1.54	0.21	0.018	1.23	0.40	0.26	64%	OK
MH15	Box culvert	Flow from manhole to box culvert under normal condition	U-Shape Channel	13.2	0.4	4.55	4.50	0.0040	0.14	1.03	0.14	0.018	0.94	0.13	0.08	59%	OK

From	To	Description	U-Shape Channel / Pipe	Length	Diameter	Upstream Invert Level	Downstream Invert Level	Slope (s)	Cross Section Area, m2	Wetted Perimeter, m	Hydaralius Radius, m	k_s[2] mm	g m/s^2	Kinematic Viscosity m^2/s	V m/s	Capacity Flow, m^3/s	Total Runoff, m^3/s	% of capacity	Remark
MH7	Tank	C2a+C2b+C2c+2d	Pipe	14.2	0.7	4.77	4.72	0.0040	0.385	2.199	0.18	0.300	9.81	0.000001	1.82	0.63	0.33	52%	OK
MH15	Tank	C2e+C2f+C2g+C2h	Pipe	17.5	0.6	4.55	4.48	0.0040	0.283	1.885	0.15	0.300	9.81	0.000001	1.66	0.42	0.18	42%	OK
Tank [3]	Box culvert	C2	Pipe	17.5	0.5	4.57	4.50	0.0040	0.196	1.571	0.12	0.300	9.81	0.000001	1.47	0.26	0.19	72%	OK

Legend

d = pipe diameter, m

r = pipe radius (m) = 0.5d

A_w = wetted area (m^2) = p r^2

P_w = wetted perimeter (m) = 2pr

R = Hydraulic radius (m) = A_w/P_w

s = Slope of the total energy line

k_s = equivalent sand roughness, mm

V = Velocity of flow calculated based on Colebrook White Equation, m/s

Q_c = Flow Capacity (10% sedimentation incorporated), m^3/s

Q_p = Estimated total peak flow from the Site during peak season, m^3/s

Remarks

[1] The proposed U-channel is assumed to be concrete-lined channels under bad condition based on a conservative approach, therefore the manning coefficient of $0.018 s/m^{1/3}$ is assumed as per the SDM.

[2] The material of proposed drainage pipe is assumed to be galvanised iron with coated cast iron generally under bad condition based on a conservative approach, therefore pipelines roughness coefficient ks of 0.3mm is assumed as per the SDM.

[3] The maximun amount of runoff to be pumped from the tank to the box culvert is assumed to be the runoff of Catchment C2 before development under 50 Years Return Period.

Tank Sizing for Stormwater Storage Tank

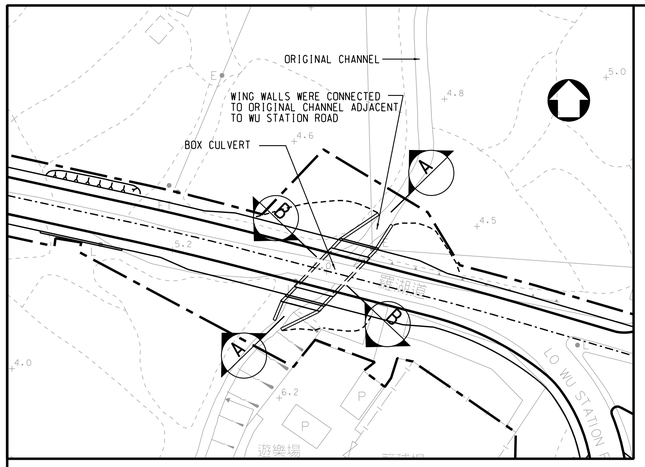
Catchment ID	Catchment Area (A), km^2	Runoff intensity (i), mm/hr [2]	Runoff coefficient (C)	C x A	Peak runoff (Q_p), m^3/s	Duration of Storm, hours	Runoff Volume Required, m^3
C2 Before Proposed Development	0.0161	54.90	0.26	0.0041	0.063	4.000	907
C2 After Proposed Development	0.0161	54.90	0.77	0.0124	0.189	4.000	2,721
						Incremental Runoff	**1,814**

Note:

1) Runoff is calculated in accordance with DSD's "*Stormwater Drainage Manual (with Eurocodes incorporated) - Planning, Design and Managemen* t" (SDM), fifth edition, January 2018.

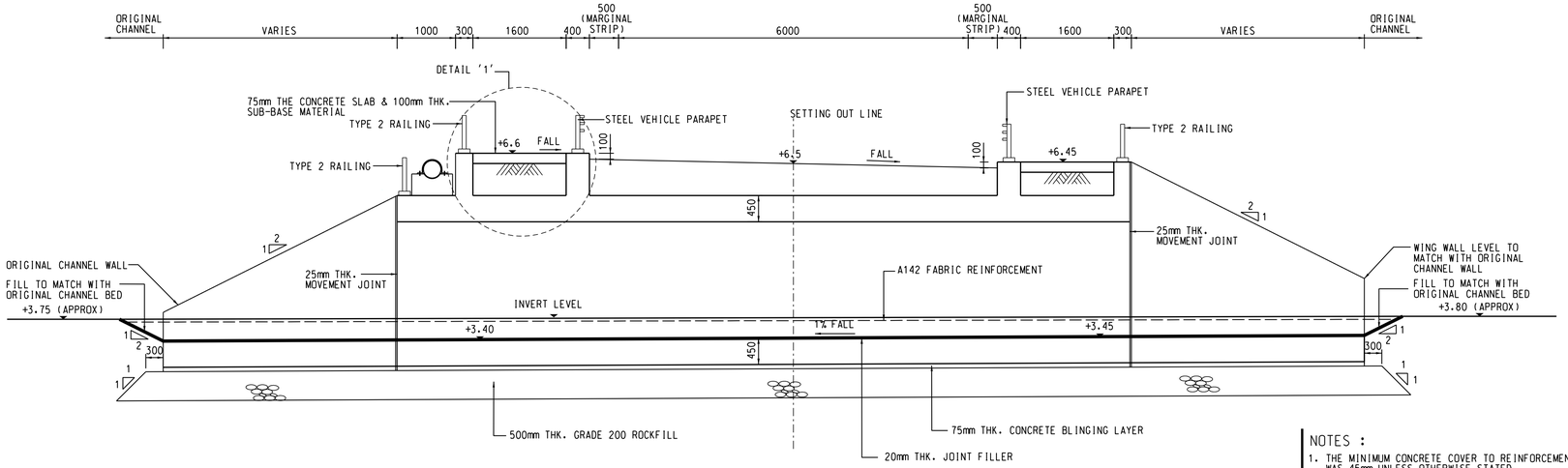
2) Extreme intensity under 50 years return period is based on Table 2a of SDM

Appendix E DRAWINGS OF BOX CULVERT UNDERNEATH LO WU STATION ROAD



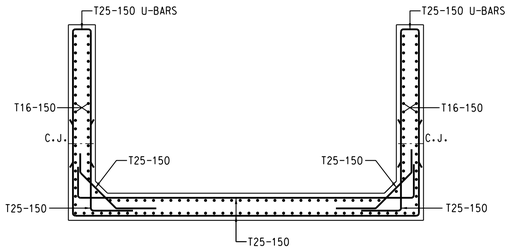
GENERAL LAYOUT OF BOX CULVERT

SCALE 1 : 500



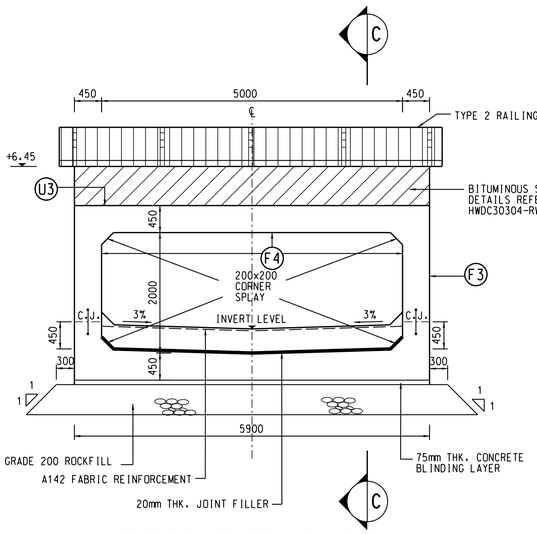
ELEVATION OF BOX CULVERT (SECTION A - A)

SCALE 1 : 50



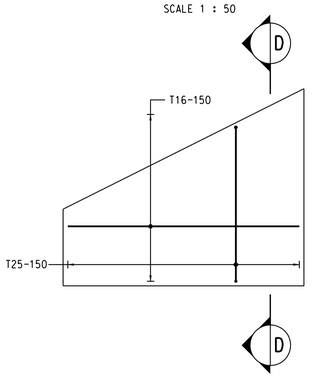
WING WALL REINFORCEMENT DETAIL (SECTION D - D)

SCALE 1 : 50



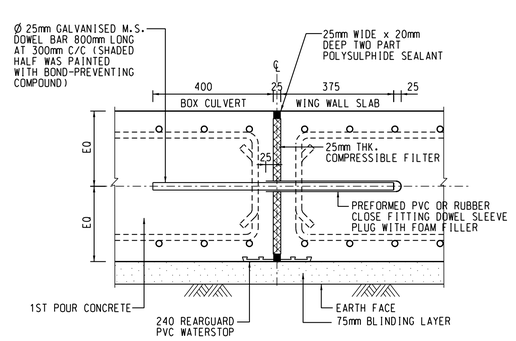
SECTION OF BOX CULVERT

SCALE 1 : 50



TYPICAL R.C. DETAILS OF WING WALL

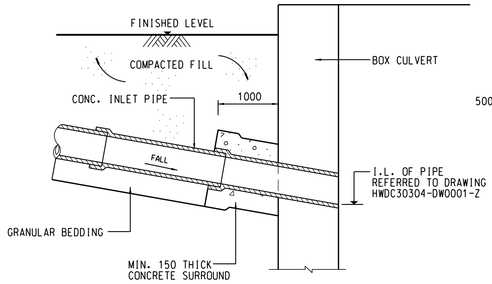
SCALE 1 : 50



MOVEMENT JOINT AT BASE SLAB WITH WATERSTOP

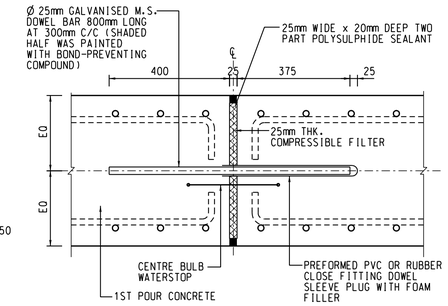
SCALE 1 : 10

NOTE : WATERSTOP ON WALL WAS EXTENDED TO 50mm BELOW FINISHING GROUND LEVEL.



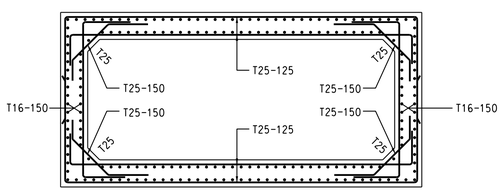
TYPICAL DETAIL OF PIPE CONNECTION TO BOX CULVERT

SCALE 1 : 5



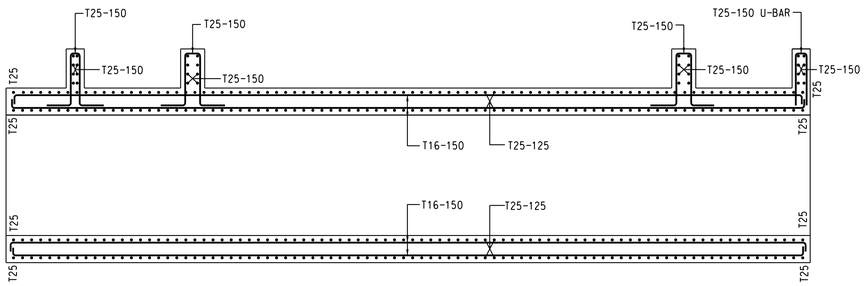
MOVEMENT JOINT AT WALL STEM WITH WATERSTOP

SCALE 1 : 10



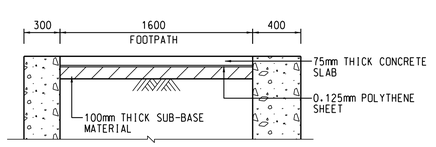
BOX CULVERT REINFORCEMENT DETAIL B - B (SECTION B - B)

SCALE 1 : 50



BOX CULVERT REINFORCEMENT DETAIL C - C (SECTION C - C)

SCALE 1 : 50



DETAIL '1'

SCALE 1 : 25

NOTES :

1. THE MINIMUM CONCRETE COVER TO REINFORCEMENT WAS 45mm UNLESS OTHERWISE STATED.
2. DETAILS STEEL VEHICLE PARAPET REFERRED TO HyD STD. DWG NO.SSD141-B.
3. ALL DIMENSIONS WERE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
4. CONCRETE GRADE WAS 40/20D AND CONFORMED TO CONSTRUCTION STANDARD CS1:1990.
5. 25 x 25 CHAMFER UNLESS STATED OTHERS WAS PROVIDED AT EXTERNAL CORNER OF CONCRETE SURFACE LESS THAN 120 DEGREES.
6. THE LEVELS SHOWN ON THE DRG WERE INDICATIVE ONLY THE EXACT LEVELS WERE DETERMINED ON SITE.
7. DETAILS OF THE DRAWING EXTRACTED FROM MCAL'S DRAWING No. 96802/14/01101C.

no.	date	description	initial
Z	22.01.14	AS CONSTRUCTED	SIGNED W.P. WONG (E/NT2-3)

REVISION

	post	name	initial	date
designed	ACE/NT2-1	C.Y. WONG	SIGNED	26.02.09
drawn	TO/3-1	S.C. CHAN	SIGNED	26.02.09
checked	SE/NT2	W.S. MAK	SIGNED	26.02.09

approved

SIGNED
S.W. CHU — 26.02.09
Chief Highway Engineer / Works — Date

contract no.

file no.

project no. 630G041X

project

IMPROVEMENT TO LO WU STATION ROAD

drawing title

BOX CULVERT DETAILS

drawing no. HWDC30304-MC0009-Z

scale A1 AS SHOWN

office

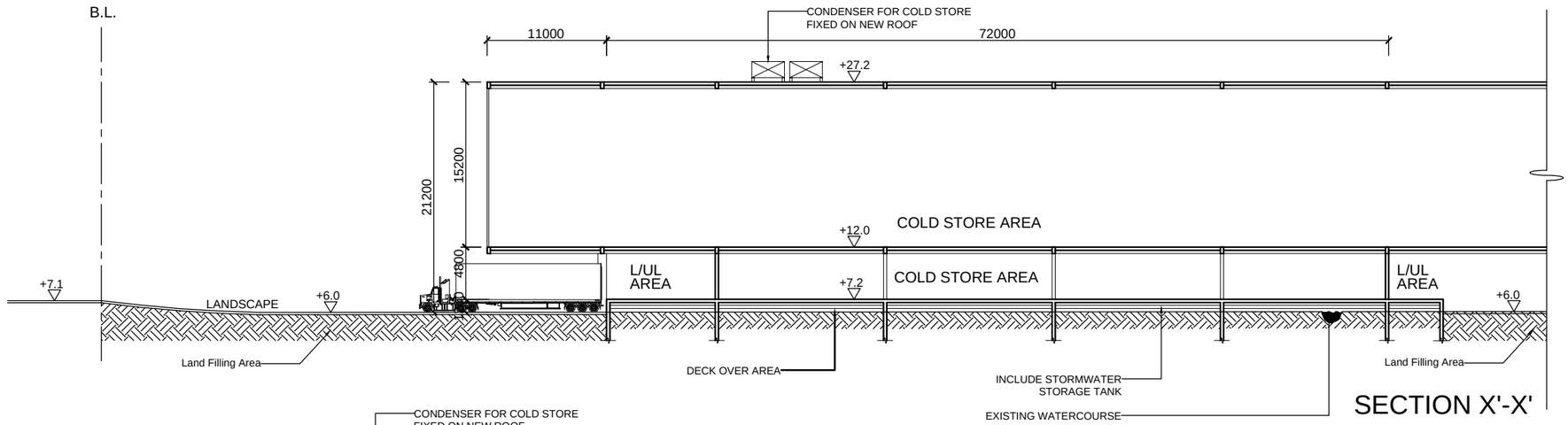
WORKS DIVISION

HIGHWAYS DEPARTMENT HONG KONG

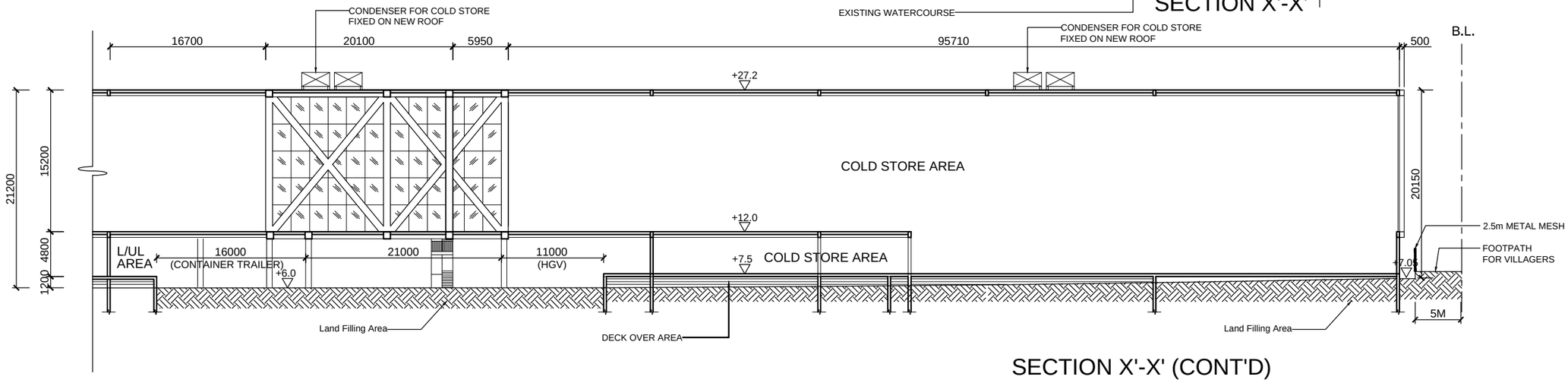
A1 841x594

0 10 20 30 40 50 60 70 80 90 100 mm SCALE 1 : 1

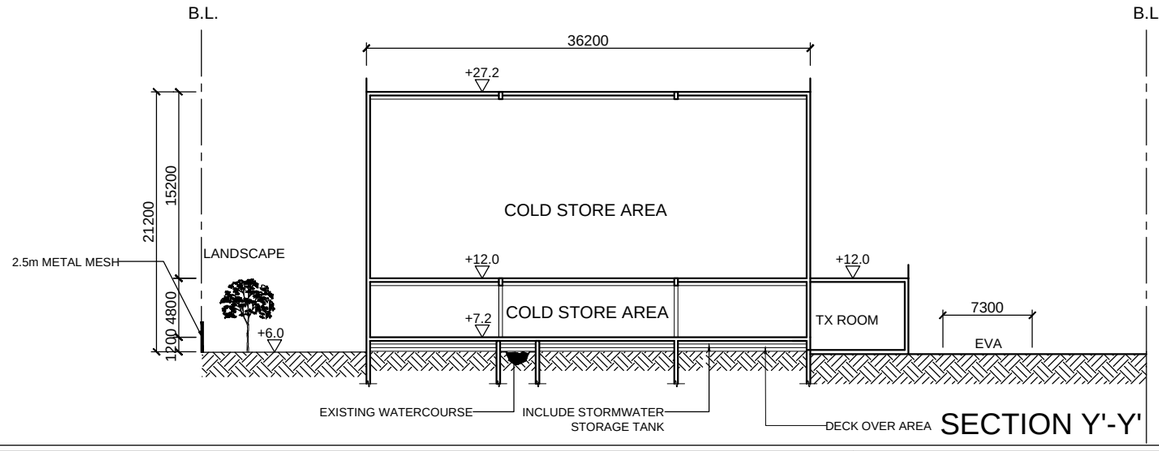
Appendix F SECTIONAL VIEWS OF THE SITE



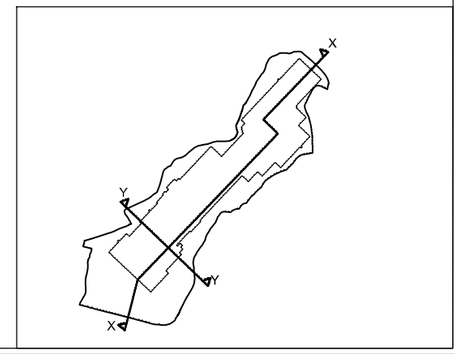
SECTION X'-X'



SECTION X'-X' (CONT'D)



SECTION Y'-Y'



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Project

PROPOSED TEMPORARY STORAGE AND DISTRIBUTION OF CHILLED POULTRY/MEAT
Lots 471 S.B RP (Part), 472, 473, 474, 475, 476, 482 RP,483, 484, 487 RP, 497 S.A RP, 501, 502, 504 S.B, 505 and 506 S.B RP and adjoining Government Land in D.D. 89, Man Kam To Road, Sandy Ridge, New Territories

Designed By	Drawn By	Date Drawn	Checked By
DY	**NC**	**2022'7'5**	**DY**

Drawing Title
SECTION X'-X' & SECTION Y'-Y'

Project No.	Scale	Drawing No.	Rev.
21/HK/MKT01	**1:500 on A3**	**SC-001**	**C**

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global experience

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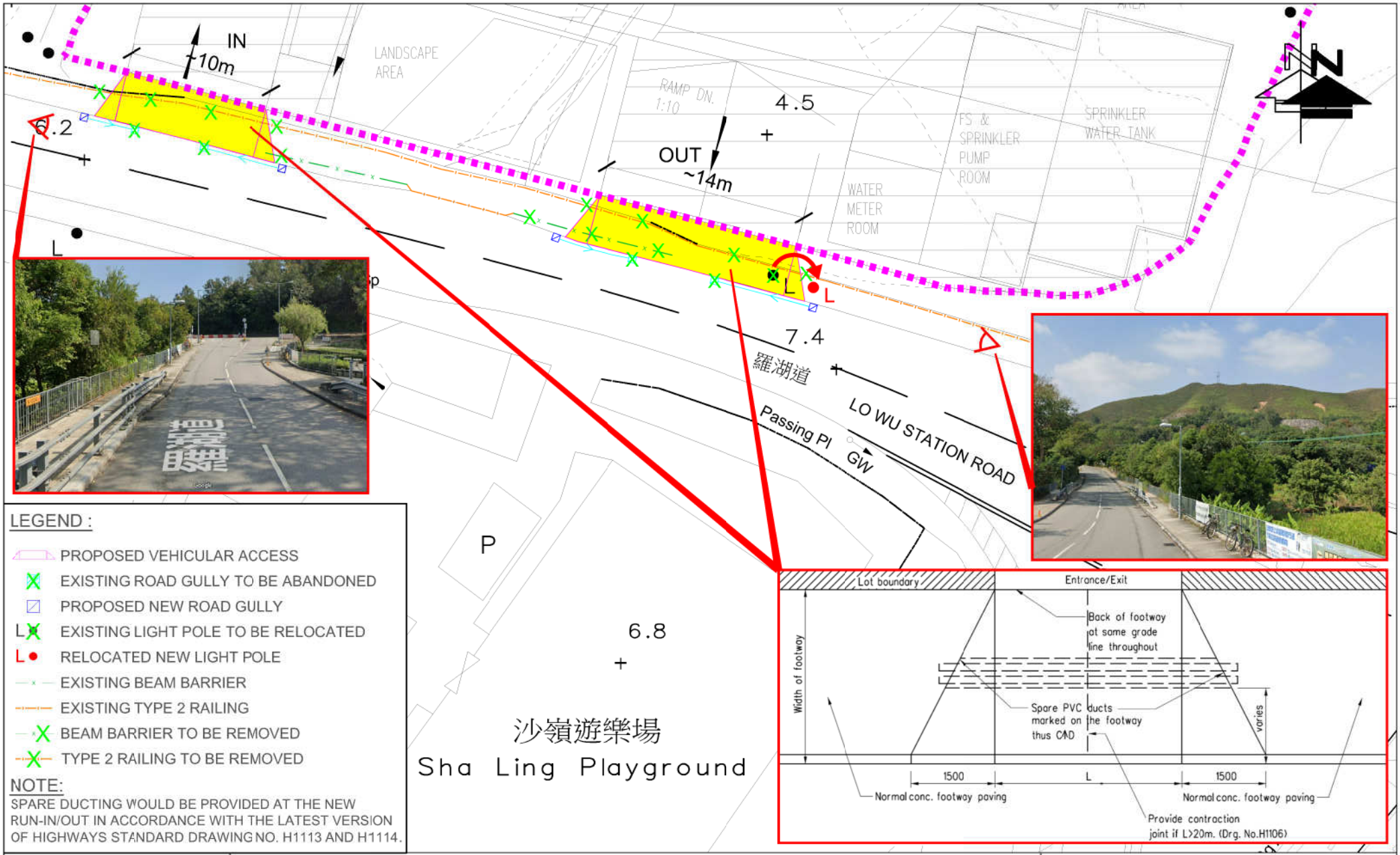
Appendix | 4

Figure RC-01



LEGEND :

- PROPOSED VEHICULAR ACCESS
- EXISTING ROAD GULLY TO BE ABANDONED
- PROPOSED NEW ROAD GULLY
- EXISTING LIGHT POLE TO BE RELOCATED
- RELOCATED NEW LIGHT POLE
- EXISTING BEAM BARRIER
- EXISTING TYPE 2 RAILING
- BEAM BARRIER TO BE REMOVED
- TYPE 2 RAILING TO BE REMOVED

NOTE:
SPARE DUCTING WOULD BE PROVIDED AT THE NEW RUN-IN/OUT IN ACCORDANCE WITH THE LATEST VERSION OF HIGHWAYS STANDARD DRAWING NO. H1113 AND H1114.

FIGURE NO.: RC-01	PROJECT TITLE: Section 16 Planning Application for Proposed Temporary Cold Storage for Poultry and Distribution Centre and Land Filling for Site Formation Works in 'Agriculture" Zone for a Period of 3 Years at Lots 471 S.B RP, 472, 473, 474, 475, 476, 483, 501, 502, 504 S.B, 505 and 506 S.B RP and in D.D. 89 and adjoining Government Land, Man Kam To Road Sandy Ridge, New Territories
PROJECT NO.: 21148HK	DRAWING TITLE: PROPOSED VEHICULAR ACCESS
SCALE: 1 : 350 @A4	DATE: 17 JAN 2023

CTA Consultants Limited
志達顧問有限公司