於 KTN-2 擬建

多層式禽畜養殖場的

可行性研究報告

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農業持續發展基金資助
“多層式禽畜養殖場建築設計指引” 研究及
可行性研究試點多層式禽畜養殖場項目
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1. 簡介

1.1 根據現有的佈局規劃、剖面和技術評估，對雞隻和豬隻養殖場進行了初步的成本估算。

1.2 對於在KTN-2興建多層式禽畜養殖場，進行了場地平整和其他基礎設施工程的技術評估、設計和施工監造。

1.3 根據現有的佈局規劃、剖面和技術評估，對養殖場的用水、污水產生量、用電等負荷進行初步成本估算。

1.4 由於不同層高的養殖場建築所帶來的成本和容量差異，因此對擬建的三層式養殖場和六層式養殖場進行了初步的設備成本和豬隻養殖成本的估算。

2. 禽畜飼養量的估算

2.1 豬場飼養量

養豬場的分區主要分為 2 個區域繁殖區和育肥區，並根據養殖的流程安排，由上而下從繁殖、保育到底層育肥區育肥。繁殖區是配種及產仔的區域，飼養 5 - 25 公斤的小豬、公豬及母豬，區內設有定位欄、分娩欄、保育欄和公豬欄等不同的欄位。育肥區，用於中大豬的生長和育肥，主要飼養 25 – 140 公斤的大豬。

下列表格中提供了有關區域的具體欄數和養殖量的資訊 :

					養殖區（上層）						育肥區			
	層數	每層舍數	育肥欄舍數	養殖區舍數	定位欄數量	後備母豬欄數量	分娩欄數量	保育欄數量	公豬欄數量	母豬數量	育肥豬/每欄	育肥欄數量	育肥豬數量	最大飼養量
A	3	3	5	4	364	60	110	60	18	~370	22	110	~4,400	~9,230
B	6		10	8	728	120	220	120	30	~735		220	~8,800	~18,385

表 1 – 多層式養豬場飼養量

A. 多層式三層養豬場每年的最大飼養量約為 4,788 + 4,440 = 9,230 頭豬。

- 370 頭母豬 + 18 頭公豬 + 4,400 頭育肥豬 = 4,788 頭大豬
- 平均每頭母豬可產仔豬 12 頭左右

  370 x 12 = 4,440 頭仔豬

B. 多層式六層養豬場每年的最大飼養量約為 9,565 + 8,820 = 18,385 頭豬。

- 735 頭母豬 + 30 頭公豬 + 8,800 頭育肥豬 = 9,565 頭大豬
- 平均每頭母豬可產仔豬 12 頭左右

  735 x 12 = 8,820 頭仔豬

備註

- 實際經營的養殖量應為最大飼養量的 80%
- 後備母豬欄的比例約為 15%

欄位的尺寸

妊娠欄	2200 x 600 mm	**保育欄**	2200 x 3600 mm
後備母豬欄	2200 x 3600 mm	**公豬欄**	2500 x 2500 mm
分娩欄	2200 x 1500 mm	**育肥欄**	4000 x 8000 mm

2.2 多層式養雞場飼養量

養雞場的分區都是據養殖的流程安排，由上而下分為2個區域，育雛區和肉雞區。育雛區是飼養0 – 21天的小雞。肉雞區則主要飼養21 – 90天的雞隻，用於中大雞的生長和育肥。

下列表格中提供了有關區域的具體雞籠數量和養殖量的資訊：

	層數	每層舍數	肉雞籠	育雛籠	養殖區（上層）			肉雞區			最大飼養量
					育雛籠層數	育雛籠數量/舍	雛雞數量	肉雞籠層數	肉雞籠/舍	肉雞籠數量	
C	3	3	5	4	4	1,152	~175,104	4	392	2,352	~196,000
D	6		9	9			~350,208			4,704	~392,000

表 2 – 多層式養雞場飼養量

C. 多層式三層養雞場每年的最大飼養量約為 371,110 隻雞。

- 約 196,000 隻肉雞
- 約 175,104 隻雛雞

D. 多層式六層養雞場每年的最大飼養量約為 742,210 隻雞。

- 約 392,000 隻肉雞
- 約 350,208 隻雛雞

備註

- 實際經營的養殖量應為最大飼養量的 80%。

籠子的尺寸

育雛籠	1650 x 650 x H690 mm
肉雞籠	2700 x 1600 x H820 mm

3. KNT-2 的技術評估

3.1 擬建多層式養殖場的假定投產年份

根據各相關方於 2025 年完成場地平整的情況預計的多層式養殖場最早完工時間如下：

i) 現場勘察、地面勘察和方案設計需要 4 個月的時間。

ii) 詳細設計和提交給政府部門審批需要 6 個月的時間。

iii) 招標過程和授予主承包商需要 2 個月的時間。

iv) 施工階段需要 2.5 年。

v) 設備安裝 9 個月。

此外，若多個持份者合作成立公司來經營多層式養殖場，則需要一年時間向漁護署基金申請資助或貸款，並且應在施工前確定資金來源。

預計總完工時間約需要 6 年，所以假設調試年份為 2030 年。

3.2 多層式養殖場的基礎結構類型

根據目前的已有的信息，結構工程師建議多層式養殖場採用"鑽石孔之鋼工字樁（Pre-bored socketed steel H-piles）"地基。 供參考的信息如下：

在沒有可用的特定地點岩土工程勘察 (GI) 記錄。 由於建築總壓力可能超過 100kPa，現階段不建議採用筏式地基。 請參閱 附件 E 中展示 KTN-2 鄰近 GI 記錄的資料以供參考。

據觀察，現有的場地高度比鄰近地面低約 4 米-6 米。 這表明場地區域內的表層土壤可能相對鬆軟。

關於現有草擬的佈局中的列間距，列的尺寸可能需要達到 700x700。

3.3 交通工具往返多層式養殖場的次數和模式（每日/每小時）

3.4 往返擬建多層式養殖場的車輛類型和尺寸

在 KTN-2，一座每層約 3,000 平方公尺的六層式立體禽畜養殖場的交通流量估算如下：

	車輛類型	車輛尺寸	車輛進場時間	車輛發車時間	車輛停留時間（小時）	最大條目數（每小時）	往返養殖場的次數（每日）
A	中型貨車（糧食及設施）	11000 x 2500 x 3500H	7:00 – 15:00	12:00 - 00:00	4	1	2
B	20 英尺貨車（糧食）	9800 x 2440 x 4070H	7:00 - 17:00	12:00 - 00:00	3 - 4	1	2
C	中型貨車（牲畜廢物）	9600 x 2300 x 2700H	8:00 - 18:00	8:00 - 18:00	1	1	3
D	輕型貨車(牲畜及其他 5.5 噸以下貨物)	7200 x 2300 x 2700H	6:00 - 21:00 (90%)	6:00 - 21:00 (90%)	10% 全天	1	5
E	輕型貨車（乘用車及其他 5.5 噸以下貨物）	7200 x 2300 x 2700H	9:00 - 15:00	15:00 - 22:00	1	1	4
F	私人汽車（職員用）	4700 x 1700 x 1450H	7:00 - 12:00 (70%)	12:00 - 00:00 (20%)	2 - 10 10% 全天	5	10
						通勤車輛總數（每日）:	**26**

表 3 – 不同類型車輛的尺寸和預計交通流量

3.5 多層式養殖場的通風模式

參考國內多層式養殖場較為廣泛應用的通風和空氣過濾系統，空氣會經過 5 個防護系統達到空氣淨化，包括水簾系統、空氣過濾系統、風機、除臭系統、三防網，以隧道通風(Tunnel Ventilation) 的形式安裝。通風標準根據豬隻的重量有所變化，供參考的信息如下：

豬舍	重量	冬季最小值	夏季換氣率	風速換氣率
分娩舍	-	0.32m^3 / kg	35 – 40s	0.5 – 0.75m/s
仔豬舍	< 7kg	0.48m^3 / kg	40s	0.3 - 0.5 m/s
	< 9kg	0.44m^3 / kg		
	<11kg	0.40m^3 / kg		
	< 14kg	0.36m^3 / kg		
	< 18kg	0.35m^3 / kg		
	< 23kg	0.33m^3 / kg	35s	
保育舍	< 45kg	0.30m^3 / kg	35s	1.5 - 2.5 m/s
	< 100kg	0.26m^3 / kg		
育肥舍	> 100kg	0.22m^3 / kg	35s	1.5 - 2.5 m/s
懷孕舍	-		35 - 40s	
公豬舍	-		35s	

表 4 – 多層式養豬場通風量

3.6 多層式養殖場的淡水/沖廁水需求

在 KTN-2，一座每層約 3000 平方米的六層式養殖場的食水/沖廁用水的估算如下：

最大的飼養量 =~18,385 頭豬

735 頭母豬 + 30 頭公豬 + 8,800 頭育肥豬 = 9,565 頭大豬

735 x 12 = ~ 8,820 頭仔豬

每日淡水需求量

每頭豬 10 - 20 公升 = 10 至 20 x 18,385 = 183,850 至 367,000 公升 = ~**370 平方米**

多層式養殖場的清洗用水: 90 公升每單位 = ~810 公升

停車場清潔用水

種植用水處：45 公升每處

4320 升淡水，供員工使用

	數量	流量（公升）
洗手盆 – 男洗手間	2	90
洗手盆 – 女洗手間	2	90
洗手盆 – 暢通易達洗手間	1	45
淋浴室 –男洗手間	3	270
淋浴室 – 女洗手間	1	90
儲藏室	3	135
		720

表 5 – 每日淡水需求

沖廁要求

1,560 公升沖廁水，供員工使用

	數量	流量（公升）
廁所–女洗手間	2	80
廁所–男洗手間	2	80
廁所–暢通易達洗手間	1	40
小便池	3	60
		260

表 6 –每日沖廁用水量

3.7 多層式養殖場每日產生的污水排入公共污水處理系統（在經過現場污水處理達到標準後）

a) 豬隻排泄量估算

污水處理廠的面積應由污水處理顧問確認。

在KTN-2，一座每層樓約 3000 平方米的六層式養殖場的豬隻排泄量估算如下：

最大的飼養容量 = ~18,385 頭豬

735 頭母豬 + 30 頭公豬 + 8,800 頭育肥豬 = 9,565 頭大豬

735 x 12 = ~8,820 頭仔豬

糞便排泄

豬隻: 9,565 * 1.26 至 2 = ~ 12,052 至 19,130 公斤

仔豬: 8,820 * 0.71 至 1.18 = ~ 6,263 至 10,408 公斤

總共最大糞便排泄量= 19,130 + 10,408 = 29,538 公斤 = ~ **30 立方米**

尿液排泄

豬隻: 9,565 * 2.85 至 3.26 = ~ 27,260 至 31,182 公升

小豬: 8,820 * 2.45 至 2.65 = ~ 21,609 至 23,373 公升

總共最大尿液排泄量= 31,182 + 23,373 = 54,555 公升= ~ **55 立方米**

最大豬隻排泄量 = 30 + 55 = ~ 90 m^3

20公升 / 隻豬= 20 * 18,385 = 367,700 公升 = ~ **370 立方米** 養豬用淡水

4,320 公升 供員工使用的淡水

1,560 公升 供員工使用的沖廁水

日常污水 = 367,700 + 4,320 + 1,560 = 373,580 公升 = ~375 立方米+ 90 立方米

= ~ **470 立方米**

排泄量參考信息

豬場排泄量估算如下：

豬的體重	糞便排泄量	尿液排泄量
20 公斤	0.71 - 0.93 公斤	2.45 公升
40 公斤	0.99 - 1.18 公斤	2.65 公升
60 公斤	1.26 - 1.42 公斤	2.85 公升
100 公斤	1.54 - 1.66 公斤	3.05 公升
150 – 200 公斤	~2 公斤	3.26 公升

表 7 – 對豬場排泄量的估算

b) <u>多層式養殖場的污水處理系統容量</u>

污水處理設備可分為 5 個部分，包括有污水收集池、調整池、厭氧池、曝氣池和沈澱池。在KTN-2，一座六層式的養殖場，每層樓約 3000 平方米，並以平均每頭豬用水約20公升計算，豬隻的污水處理系統容量估算如下：

污水收集池 Waste Water Tank : 40m^3
調整池 Retention Tank : 300m^3
厭氧池 Anaerobic Tank : 605 m^3
曝氣池 Aeration Tank : 605 m^3
沈澱池 Sedimentation Tank : 150 m^3

總共污水處理系統容量 **= 40 + 300 + 605 + 605 + 150 = ~1700 立方米**

實際污水處理的面積應由污水處理顧問確認。

3.8 確認多層式養殖場區域內收集的所有雨水是否均排放至公共雨水排放系統

多層式養殖場將會設有雨水收集系統，該系統將連接到公共雨水排水系統。該系統不僅可以提供用於清潔和冷卻目的的回收水，還可以幫助減少約 10%的電力消耗。

3.9 多層式養殖場的電力需求。

電力負荷估算

0.25 kVA/sqm

= 0.25 x 3000 * 6 * 0.8

= 3600 kVA

因此，我們建議在該開發案安裝一個 4000 kVA 的變壓器。

香港現有養豬場的尖峰電力需求約為 250 千瓦。

供電系統：40 kWh/天
飼料攪拌機: 每 1000 公斤使用 11 kWh, 4 噸 / 小時
飼料輸送機: 80 千瓦 x 4 公斤 = 320kWh
破碎機: 120 kWh/天
通風系統: 65 台 1.1kW 的風扇共使用 71.5kW
71.5 kW x 20 小時 = 1430 kWh
廢水處理: 200 kWh
其他用電量: 200 千瓦時，每天約 2310 千瓦時

多層式養殖場的電力需求會受到多種因素的影響，包括農場規模、設備類型及其使用頻率、氣候條件和照明要求。多層式養殖場的主要用電設備包括通風系統、照明系統、飼料加工系統、水泵、保溫設備、污水處理設施等。 其中，通風系統通常是最大的電力消耗設備之一，因為它需要持續運行來保持養殖場內的空氣流通。

4. 初步成本估算

4.1 背景

擬在香港新界河上鄉開發一座新的多層式禽畜養殖場，用於養殖豬/肉雞。
初步成本估算是根據現在的佈局規劃、剖面和技術評估來準備的。

- **初步成本估算**

  新垂直農場的總建造成本初步估算為：
  a. 方案 1 – 位於場地 A 和場地 B 三層式養殖場及附屬建築-
  HK$319.1M (詳情請參閱 4.2)。
  b. 方案 2 – 位於場地 A 和場地 B 六層式養殖場及附屬建築 -
  HK$475.5M (詳情請參閱 4.3)。

- **此成本估算僅是的粗略計算**

- **此估算僅僅是基於最低的屋宇裝備工程規定來計算了養殖場建築成本。未來養殖場經營者應提供額外的設備、屋宇裝備工程規定和其他的飾面**

  初步成本估算包括：

  a. 前期工程，包括場地勘測、地形勘測和地底勘測。
  b. 場地準備和圍板。
  c. 基礎結構，包括樁、承台、地下室等。
  d. 上部結構包括鋼筋混凝土框架結構。
  e. 裝修工程，包括內部隔間牆、窗戶、門、內部及外部飾面，固定家具，櫃檯，櫥櫃。
  f. 與屋宇裝備安裝有關的建造商工程。
  g. 樓宇設施包括電氣安裝、空調及通風安裝(包括排風扇、過濾牆系及地下室通風)、消防安裝、給排水安裝(包括污水處理系統、雨水收集系統)及升降機安裝 (1台行人升降機，1台運貨升降機 ，1台禽畜升降機) 。
  h. 外部工程，包括緊急車輛通道（EVA）、鋪路、圍籬和大門。
  i. 前期費用包括保險、現場監工、法定意見書、遵守法定要求、臨時水電供應、所有臨時工程和安全措施。
  j. 意外開支津貼。

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- **初步成本估算不包括：**
  a. 融資/貸款成本、雇主管理費用。
  b. 專業費用開支、法律費用、銷售及租賃費用。
  c. 從2023 年 10 月至各施工包招標之日之間的施工成本或招標價格的上漲。
  d. 專門用於養殖場生產用途的建築服務，包括抽氣系統、污水處理系統、過濾牆系統、建築服務的分配以及農場設備和農場區域飾面的連接。
  e. 固件設施和農場設備（例如欄位/籠子；飼養和糧食儲存設施；豬/肉雞生產的消毒、飼養、妊娠和保育）。

- **初步成本估算中做出的假設如下：**
  a. 場地平整完成後，農場經營者無需進一步進行大規模的挖填和擋土。
  b. 基礎應根據以後的地面勘察和批准的設計。
  c. 電力供應來自場地附近的電源。
  d. 用水管道供應可由場地附近的供水點提供。
  e. 排水系統應連接至場地附近的公共沙井/污水處理廠等。
  f. 所有農場設備、農場的專業建築服務規定、農場的內部佈局和裝修應由未來的養殖場經營者提供，且不包含在此成本估算中。

4.2 初步成本估算

方案 1 - 三層式養殖場及附屬建築

編號	收費項目	總費用(HK$)
1	**前期工程，包括場地勘測、地形勘測和地底勘測**	**2,300,000**
2	**場地準備和地盤圍牆**	**5,847,000**
3	**基础結構**	**115,429,000**
4	**上部結構**	**74,664,000**
	4.1 鋼筋混凝土結構	40,478,000
	4.2 隔板、門窗	5,714,000
	4.3 內外部飾面	26,040,000
	4.4 配件、固定家具、櫃台及雜物	611,000
	4.5 與建築裝備安裝有關的建造工程	1,821,000
5	**建築裝備工程**	**64,347,000**
	5.1 電氣工程	27,983,000
	5.2 空調及通風工程	5,597,000
	5.3 消防裝置	10,074,000
	5.4 管道和排水工程	11,193,000
	5.5 升降機安裝（3 台）	9,500,000
6	**外部工程**	**17,341,000**
	6.1 消防車道、人行道和停車場	11,231,000
	6.2 柵欄和大門	6,110,000
7	**前期施工費用**	**25,194,000**
8	**意外開支津貼**	**13,996,000**
根據 2023 年 11 月的價格水平計算的預估總建築成本（四捨五入至千位）		**319,118,000**
排除情況 1. 融資/貸款成本、雇主管理費用 2. 專業費用開支、法律費用、銷售及租賃費用 3. 在2023 年 10 月至各施工包招標之日之間的施工成本或招標價格的上漲 4. 固件設施和農場設備（例如欄位/籠子；飼養和糧食儲存設施；豬/肉雞生產的消毒、飼養、妊娠和保育）		

表 8 – 三層式禽畜養殖場及附屬建築物的成本估算

4.2 初步成本估算

方案 2 – 六層式養殖場及附屬建築

編號	收費項目	總費用(HK$)
1	**前期工程，包括場地勘測、地形勘測和地底勘測**	**2,300,000**
2	**場地準備和地盤圍牆**	**5,847,000**
3	**基础結構**	**133,133,000**
4	**上部結構**	**141,340,000**
	4.1 鋼筋混凝土結構	80,024,000
	4.2 隔板、門窗	10,702,000
	4.3 內外部飾面	45,872,000
	4.4 配件、固定家具、櫃台及雜物	1,295,000
	4.5 與建築裝備安裝有關的建造工程	3,447,000
5	**建築裝備工程**	**117,161,000**
	5.1 電氣工程	54,263,000
	5.2 空調及通風工程	10,925,000
	5.3 消防裝置	19,664,000
	5.4 管道和排水工程	21,849,000
	5.5 升降機安裝（3 台）	10,100,000
6	**外部工程**	**17,341,000**
	6.1 消防車道、人行道和停車場	11,231,000
	6.2 柵欄和大門	6,110,000
7	**前期施工費用**	**37,541,000**
8	**意外開支津貼**	**20,856,000**
根據 2023 年 11 月的價格水平計算的預估總建築成本（四捨五入至千位）		**475,519,000**
排除情況 1. 融資/貸款成本、雇主管理費用 2. 專業費用開支、法律費用、銷售及租賃費用 3. 在2023 年 10 月至各施工包招標之日之間的施工成本或招標價格的上漲 4. 固件設施和農場設備（例如欄位/籠子；飼養和糧食儲存設施；豬/肉雞生產的消毒、飼養、妊娠和保育）		

表 9 – 六層式禽畜養殖場及附屬建築物的成本估算

4.3 初步設備成本估算

額外的農場設備、屋宇裝備工程規定和農場設備應由未來農場經營者提供。根據 2023 年的農場設備報價估算，一幢六層式養豬場的設備約 HK$40.0M，價格包括通風系統、空氣過濾、保溫、飼餵系統、括糞系統及欄位等。

4.4 豬隻養殖成本估算

以下皆用港元計算，並由本地的禽畜養殖業人士提供

每年母豬成本 7,380 + 500 + 1,000 + 3,500 = 12,380 元 / 年

1. 每頭料費用 7,380 元/年
2. 每頭的疫苗藥物費用 500 元/年
3. 人工費用 1,000 元/年
4. 每頭母豬損耗 3,500 元/年

小豬生產成本 12,380 ÷22 頭 = 562 元 / 年

1. 每年每頭母豬成本 12,380 元
2. 每頭母豬生產乳豬 22 頭

從小豬養到 30 公斤小豬的成本 562 + 562 = 1,124 元

1. 每頭小豬生產成本 562 元
2. 每頭 30 公斤小豬飼料費用 562 元
   i) 每 1,000 公斤飼料費用 7,500 元，料肉比 2.5 : 1
   ii) 30 公斤 x 2.5 x 7.5 元 ≈ 562 元

從小豬養到 140 公斤大豬(肉豬) 的成本 (1,124 元 +1,734 元+250 元) /90% = 3,453 元

1. 每頭 30 斤小豬成本 1,124 元
2. 每頭 30 公斤至 140 公斤大豬(肉豬) 飼料費用 1,734 元
   i) 每 1,000 公斤飼料費用 5,255 元, 料肉比 3:1
   ii) 110 公斤 x 3 x 5. 255 元=1,734 元
3. 人工費用 250 元/頭
   存活率 90%

利潤估算			
成本（元）	售價（元）	利潤（元）	備註
3453	3500	47	2023 年 11 月成本和售價
3108	3500	393	若成本降低 10%
3453	3850	397	若售價升高 10%
以 9000 頭存欄豬場來估算，上列成本未包含下列各項 1. 每月電費 130,000 元 2. 設備折舊 20,000,000 元÷20 年 x 12 個月=8.3 萬元/每月 3. 豬場建築 300,000,000 元÷30 年=10,000,000 元/年=83 萬元/月 4. 租金			

表 10 – 養豬利潤估算

附錄

擬建多層式禽畜養殖場的指示方案

附錄 A - 多層式禽畜養殖場效果圖

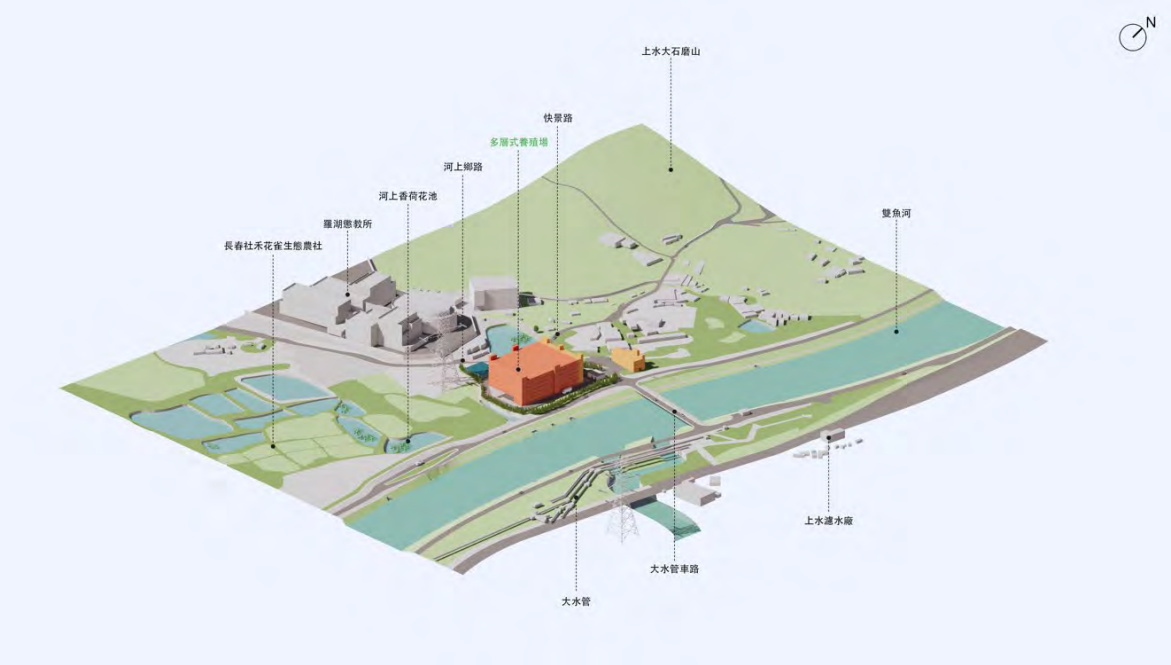


圖 1 – 概念模型

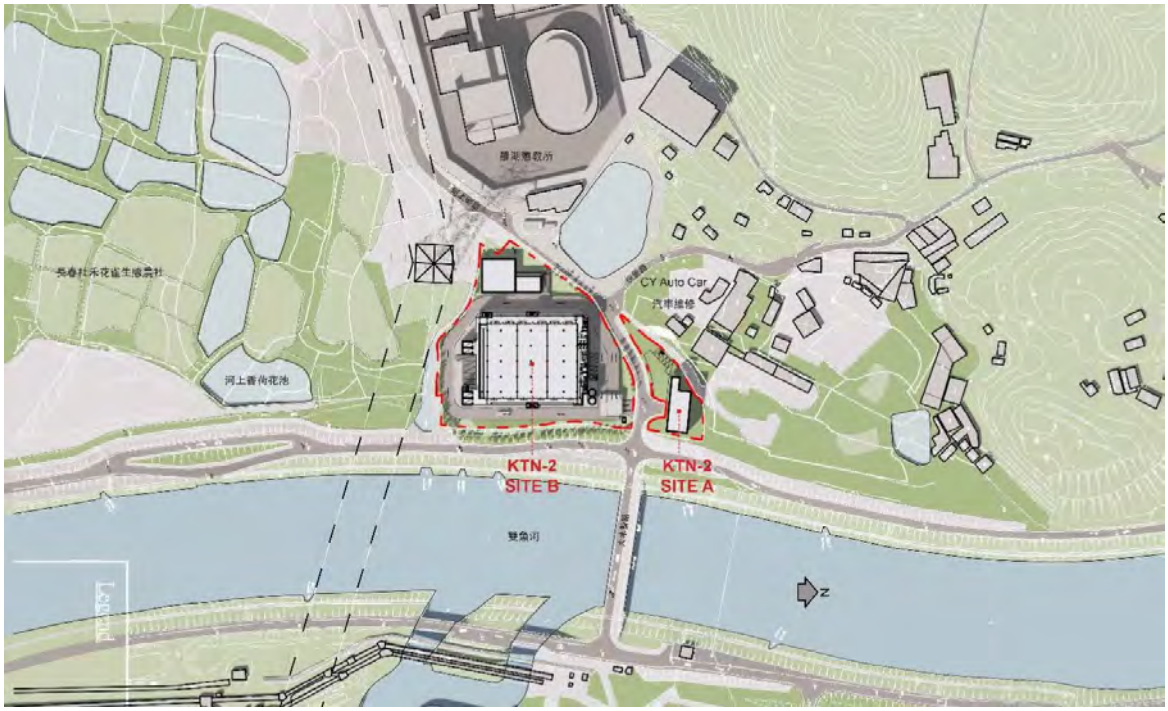


圖 2 –場地平面圖

圖 3 – 場地周邊環境圖

圖 4 – 等軸測圖 1

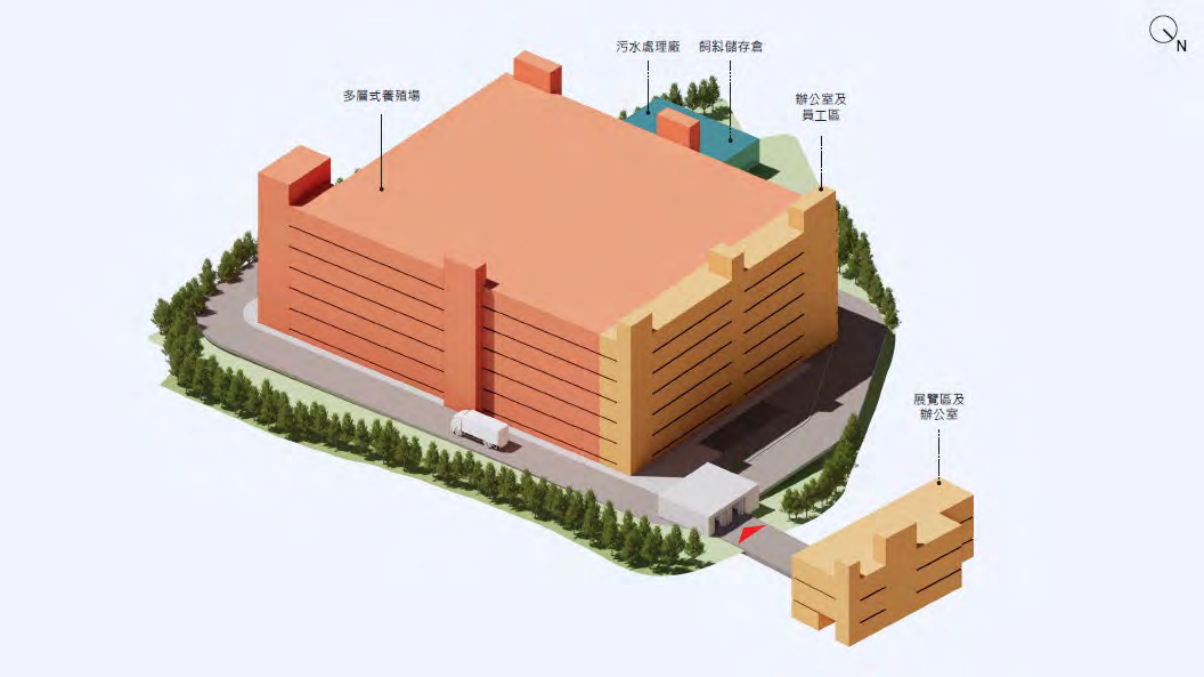


圖 5 – 等軸測圖 2

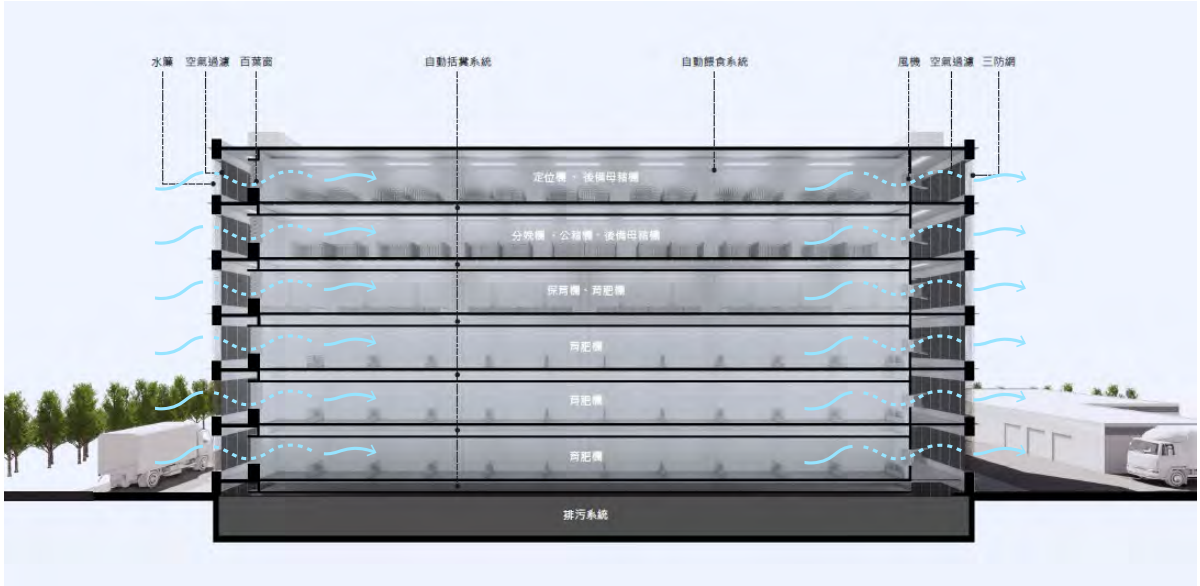


圖 6 – 機械通風剖面示意圖

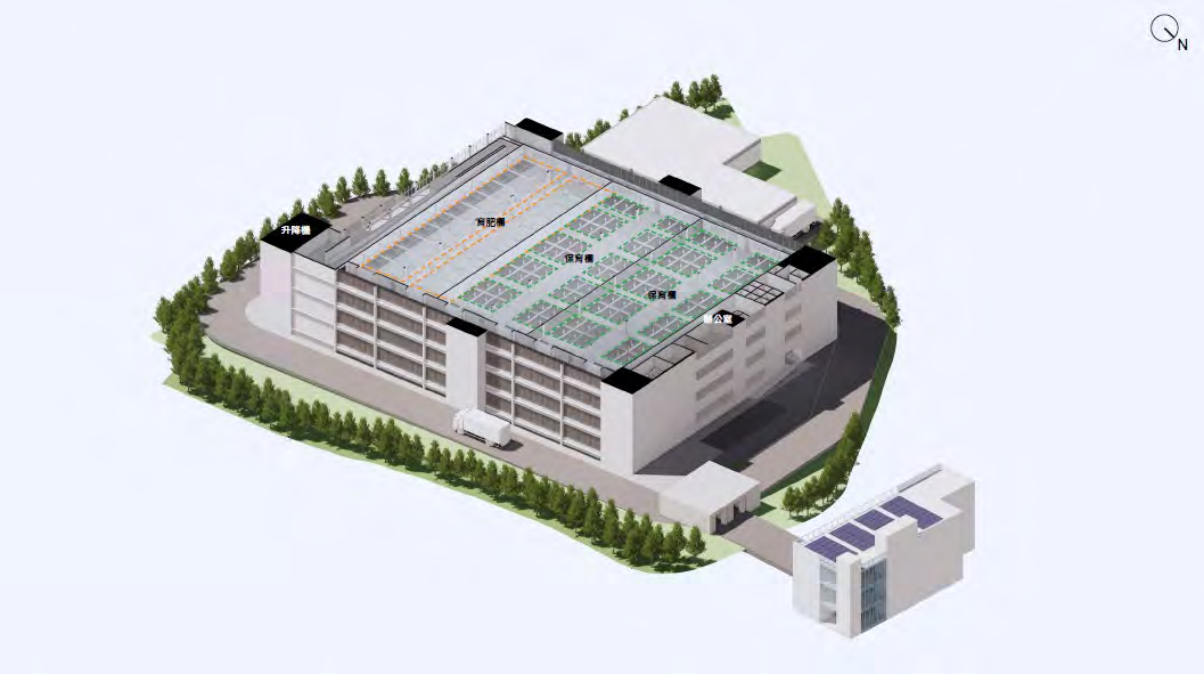


圖 7 – 多層式養豬場

圖 8 – 多層式養雞場

圖 9 – 通風系統 1

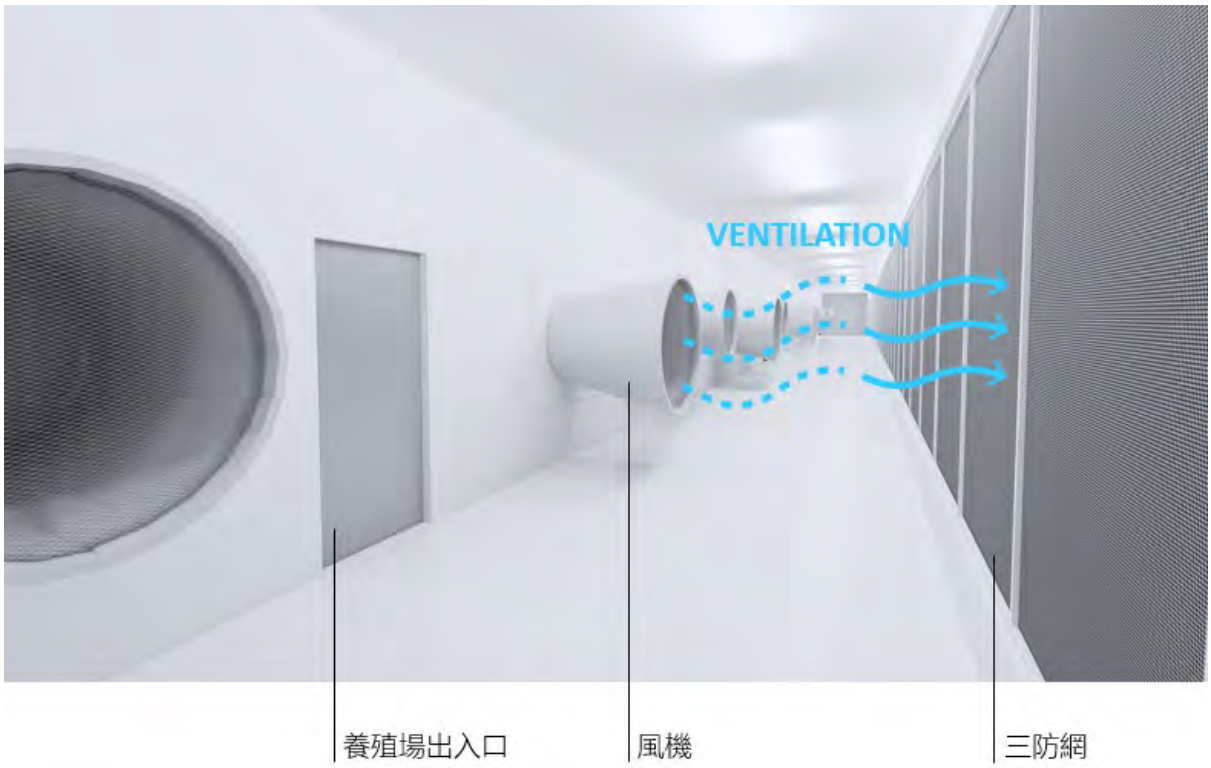


圖 10 – 通風系統 2

圖 11 – 養豬場保育欄

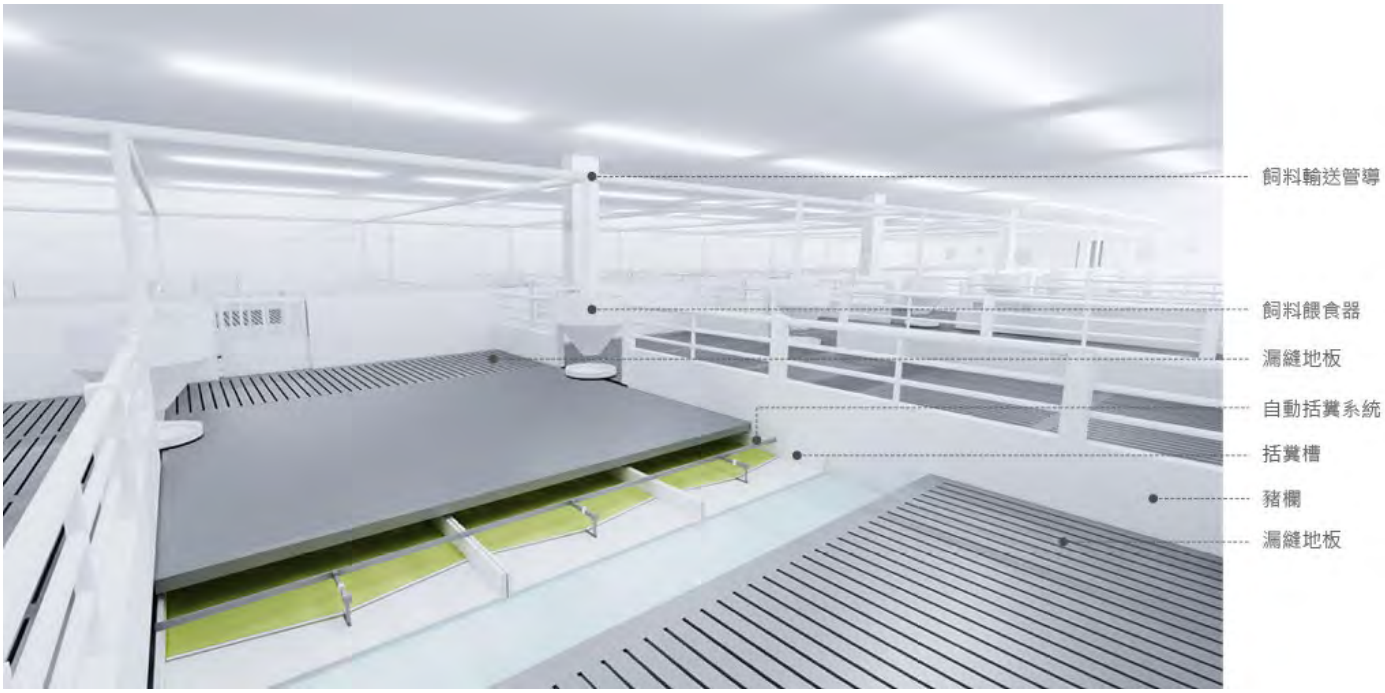


圖 12 – 養豬場刮糞系統

附錄 B
三層式禽畜養殖場圖紙

FOR BUILDINGS DEPARTMENT

CLASS OF SITE	=	A							
SITE AREA (UNDER LEASE)	=	9095.999	Sq.M. (ABOUT)						
PERMITTED PLOT RATIO	=	15							
PERMITTED PERCENTAGE SITE COVERAGE (UNDER 15M)	=	100%							
STREET LEVEL	=	(8.600	+	4.600	) / 2	=	6.600	M	
MEAN ROOF LEVEL	=	5.600	+	22.50		=	28.100	M	
HEIGHT OF BUILDING :	=	28.100	-	6.60		=	21.500	M	
ACTUAL PERCENTAGE SITE COVERAGE	=	4136.695	/	9095.999	x 100%	=	45.48%		
ACTUAL GROSS FLOOR AREA (G.F.A.)	=	21473.018							
ACTUAL PLOT RATIO	=	21473.018	/	9095.999		=	2.361	PR	

CALCULATION OF LOADING/UNLOADING PARKING

	Total GFA per site					Required	Provided
1 loading/unloading bay for goods vehicles for every 2000 to 3000m2 or part thereof, of gross floor area	21473	/	3000	=	8	8	L/UL 2 LGV 4

CALCULATION OF PARKING PROVISION

STANDARD	Total GFA per site					Required	Provided
- FOR THE FIRST 15000m2 GFA : 1 CAR SPACE PER 150-200m2 GFA	15000	/	200	=	75	75	6 (INCLUDE 1 DISABEL CARPARK)
- ABOVE 15000m2 GFA : 1 CAR SPACE PER 200-300m2 GFA	6473.02	/	300	=	22	22	

SCHEDULE OF SANITARY FITMENTS PROVISIONS

STOREY	USE	CAPACITY (P)			W.C.		BASIN		URINAL		Unisex Accessible Toilet	
					REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D
G/F	OFFICE	520	M	260	8	2	8	3	6	4	1	1
	WORKSHOP(PIGSTY)											
	WORKSHOP(PIGSTY)		F	260	11	2	8	2	-	-		
	WORKSHOP(PIGSTY)											
1/F - 5/F	OFFICE	520	M	260	8	2	8	3	6	4	1	1
	WORKSHOP(PIGSTY)											
	WORKSHOP(PIGSTY)		F	260	11	2	8	2	-	-		
	WORKSHOP(PIGSTY)											
	WORKSHOP(PIGSTY)											

SCHEDULE OF MINIMUM NUMBER & WIDTH OF EXIT ROUTE FROM EACH FLOOR

FLOOR	USE	UFA(m^2)	DENSITY	CAPACITY		MIN. NO. OF EXIT DOORS (FROM RM.) OR EXIT ROUTES (FROM STOREY)		MIN. TOTAL WIDTH IN (mm) OF				MIN. WIDTH IN (mm) OF EACH			
								EXIT DOOR		EXIT ROUTE		EXIT DOOR		EXIT ROUTE	
						REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D
G/F	OFFICE	30.747	9	4	520	DIRECT EXIT									
	WORKSHOP (PIGSTY)	770.000	4.5	172											
	WORKSHOP (PIGSTY)	770.000	4.5	172											
	WORKSHOP (PIGSTY)	770.000	4.5	172											
1/F TO 5/F	OFFICE	30.747	9	4	523	3	7	4500	6300	4500	7350	1200	900	1200	1050
	WORKSHOP (PIGSTY)	770.000	4.5	172											
	WORKSHOP (PIGSTY)	770.000	4.5	172											
	WORKSHOP (PIGSTY)	770.000	4.5	172											
	REST ROOM	12.470	4.5	3											
	TOTAL =	4,693.964		TOTAL	1,043										
				SUB-TOTAL	3,135										

SCHEDULE OF TOTAL DISCHARGE VALUE OF EACH STAIRCASE

LOCATION	TOTAL DV	NO. OF EXIT STAIR	STAIRCASE ST-01	STAIRCASE ST-02	STAIRCASE ST-03	STAIRCASE ST-04	STAIRCASE ST-05	STAIRCASE ST-06
			(1050 MIN.)	(1050 MIN.)	(1050 MIN.)	(1050 MIN.)	(1050 MIN.)	(1050 MIN.)
5/F	523	7	75	75	75	75	75	75
4/F	523	7	75	75	75	75	75	75
3/F	523	7	75	75	75	75	75	75
2/F	523	7	75	75	75	75	75	75
1/F	523	7	75	75	75	75	75	75
TOTAL PROPOSED DISCHARGE VALUE			375	375	375	375	375	375
TOTAL PERMITTED DISCHARGE VALUE			548	548	548	548	548	548

SCHEDULE OF DISCHARGE VALUE CALCULATION

STAIRCASE NUMBER	NO. OF STOREY SERVED	TYPE OF STAIRCASE	WIDTH OF STAIRCASE / TRANSFORMATION	PERMITTED DISCHARGE VALUE
ST-01	5	S	1050	548
ST-02	5	S	1050	548
ST-03	5	S	1050	548
ST-04	5	S	1050	548
ST-05	5	S	1050	548
ST-06	5	S	1050	548
ST-07	5	S	1050	548

NOTES: S SPRINKLER PROTECTED

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road, Kowloon Bay, Hong Kong
T (852) 3596 7800 F (852) 3612 4916
E green@tonyip.green

Check all measurements on site.
Do not scale off drawings.

This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

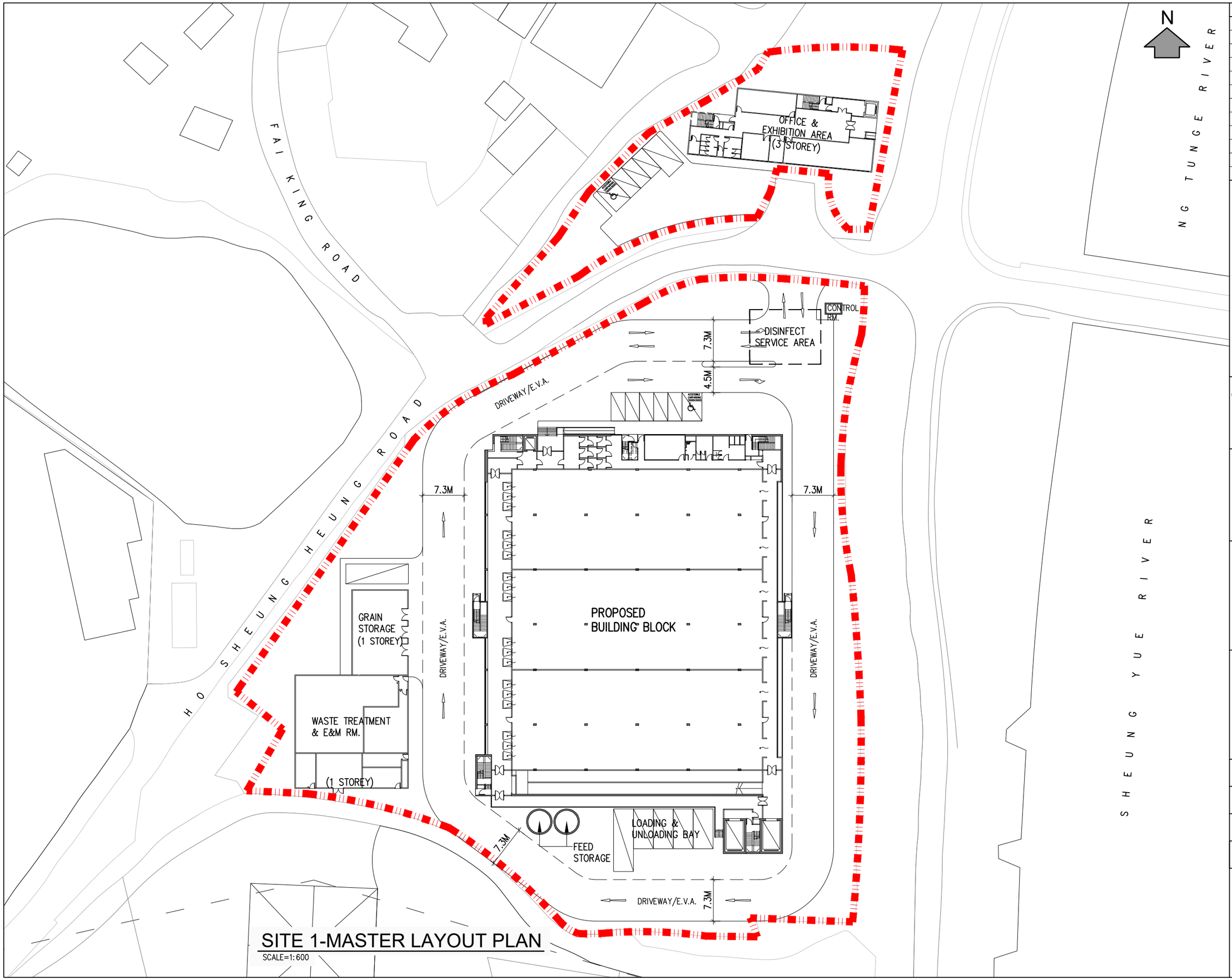
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - SCHEDULE

PROJECT NO.	DRAWN BY --
SCALE 1 :300@ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY	REV. NO. --

DRAWING PURPOSE
FOR INFORMATION

DRAFT



SITE 1-MASTER LAYOUT PLAN

SCALE=1:600

REV.	DESCRIPTION	DATE

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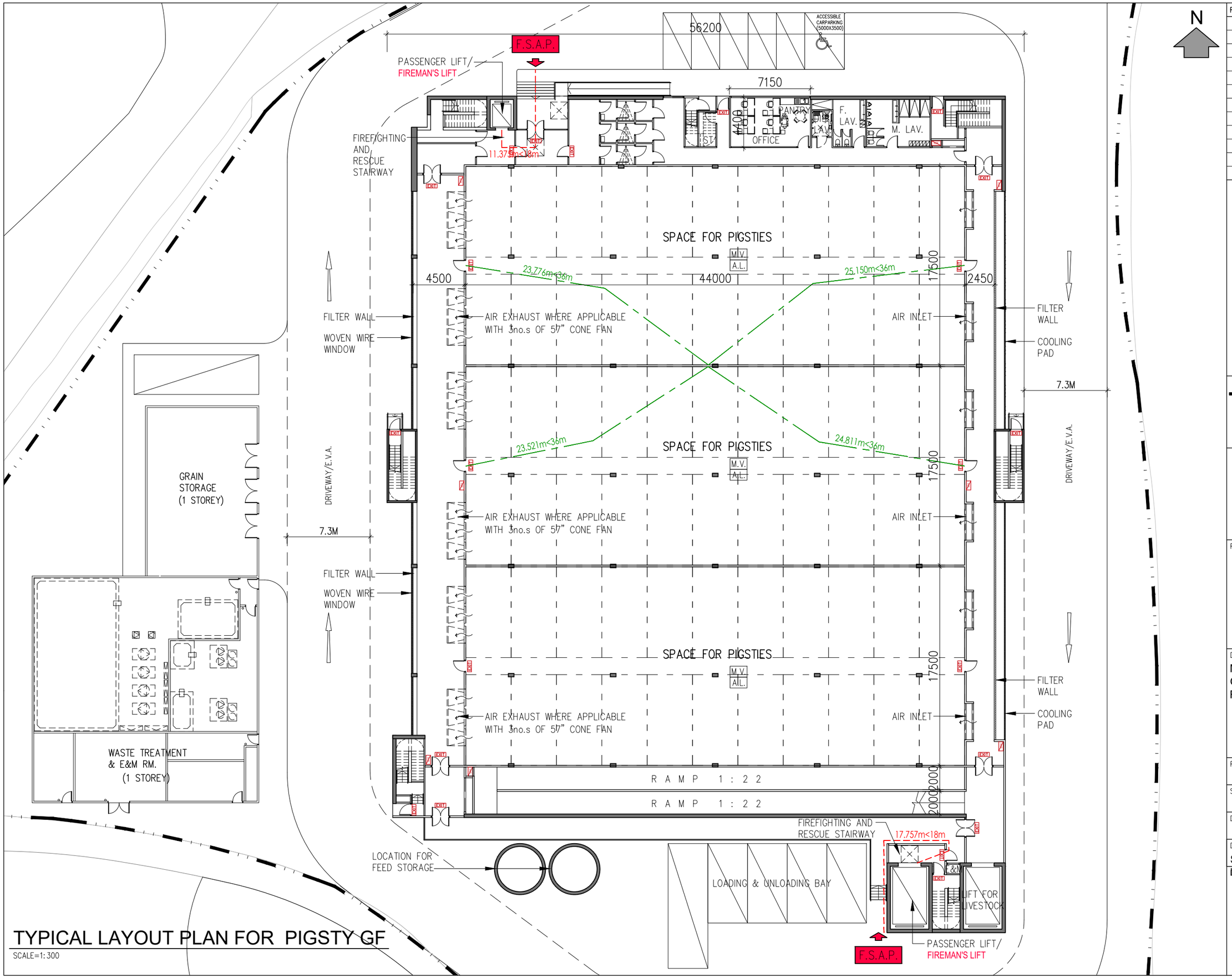
PROJECT TITLE
--

DRAWING TITLE
SITE 1 -
GROUND FLOOR
LAYOUT PLAN

PROJECT NO.	DRAWN BY --
SCALE 1 : 600 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-SITE 1_GROUND FL LAYOUT_R2	REV. NO. --

DRAWING PURPOSE

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY GF

SCALE=1:300

REV.	DESCRIPTION	DATE

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Unit 328, Mega Cube , 8 Wang Kwong Road, Kowloon Bay, Hong Kong
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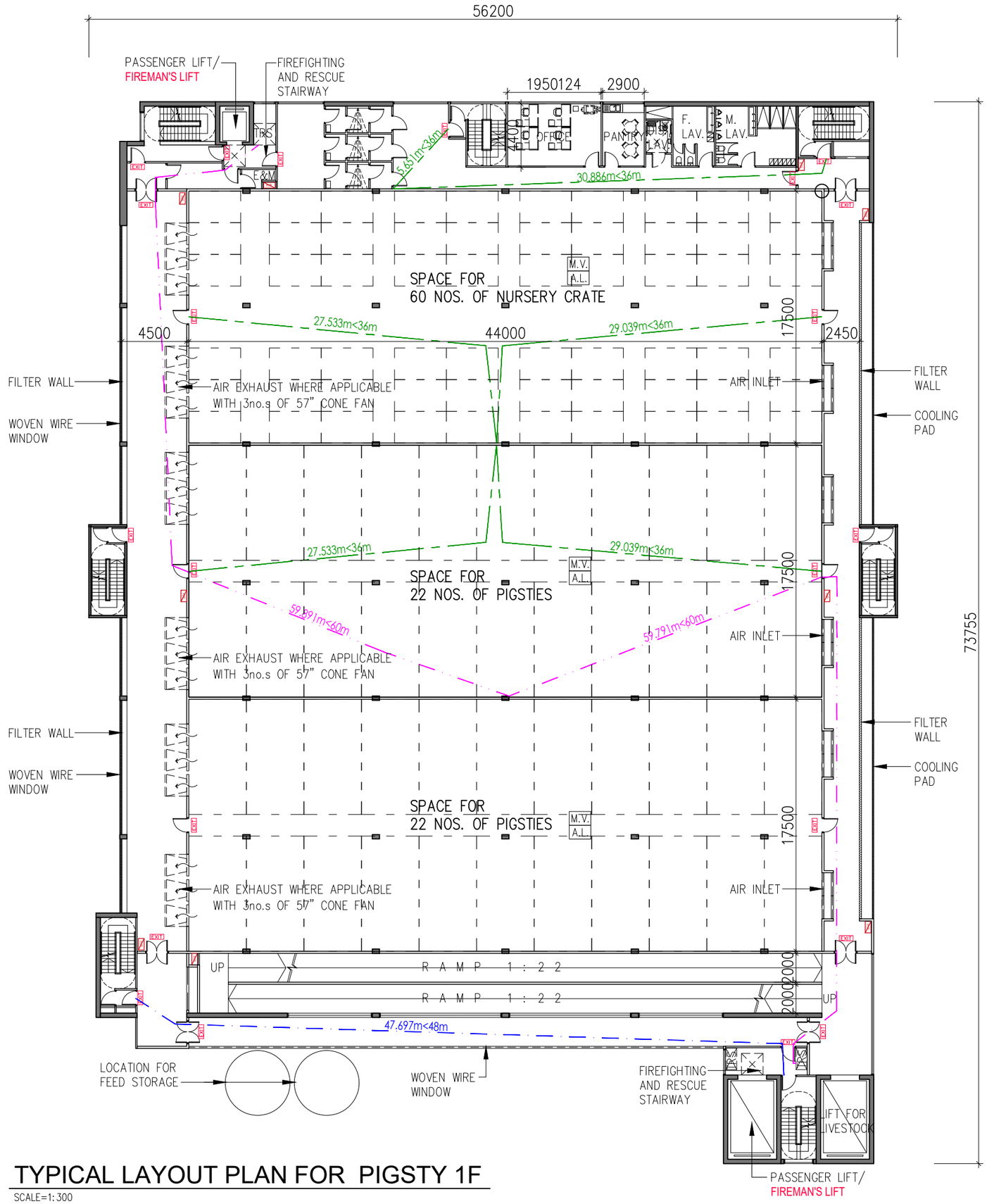
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - GROUND FLOOR PLAN FOR PIGSTY

PROJECT NO.	DRAWN BY
	--
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT PLAN_GF_R2	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY 1F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

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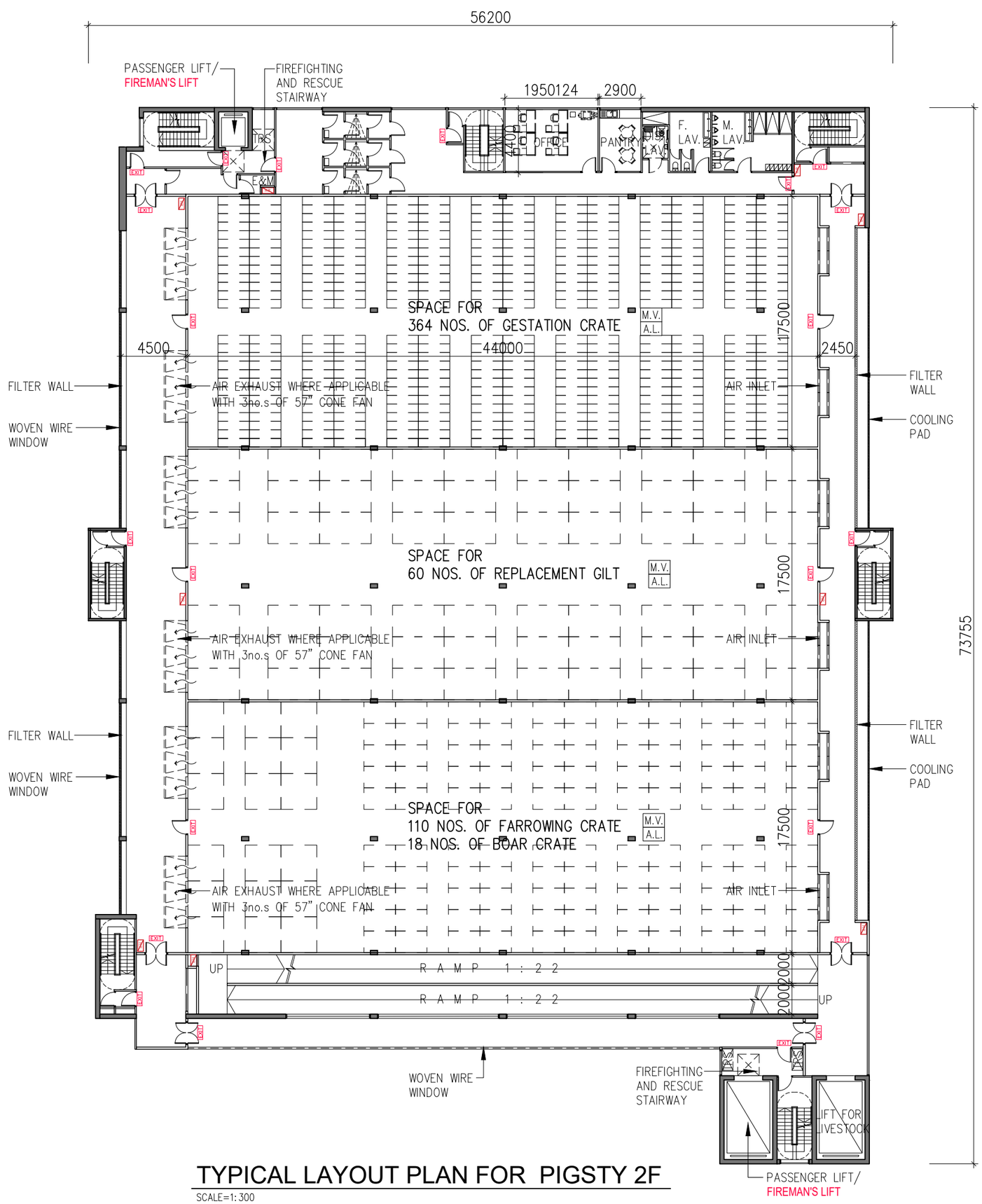
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT_15_R2	REV. NO. --

PURPOSE

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY 2F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

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Do not scale off drawings.

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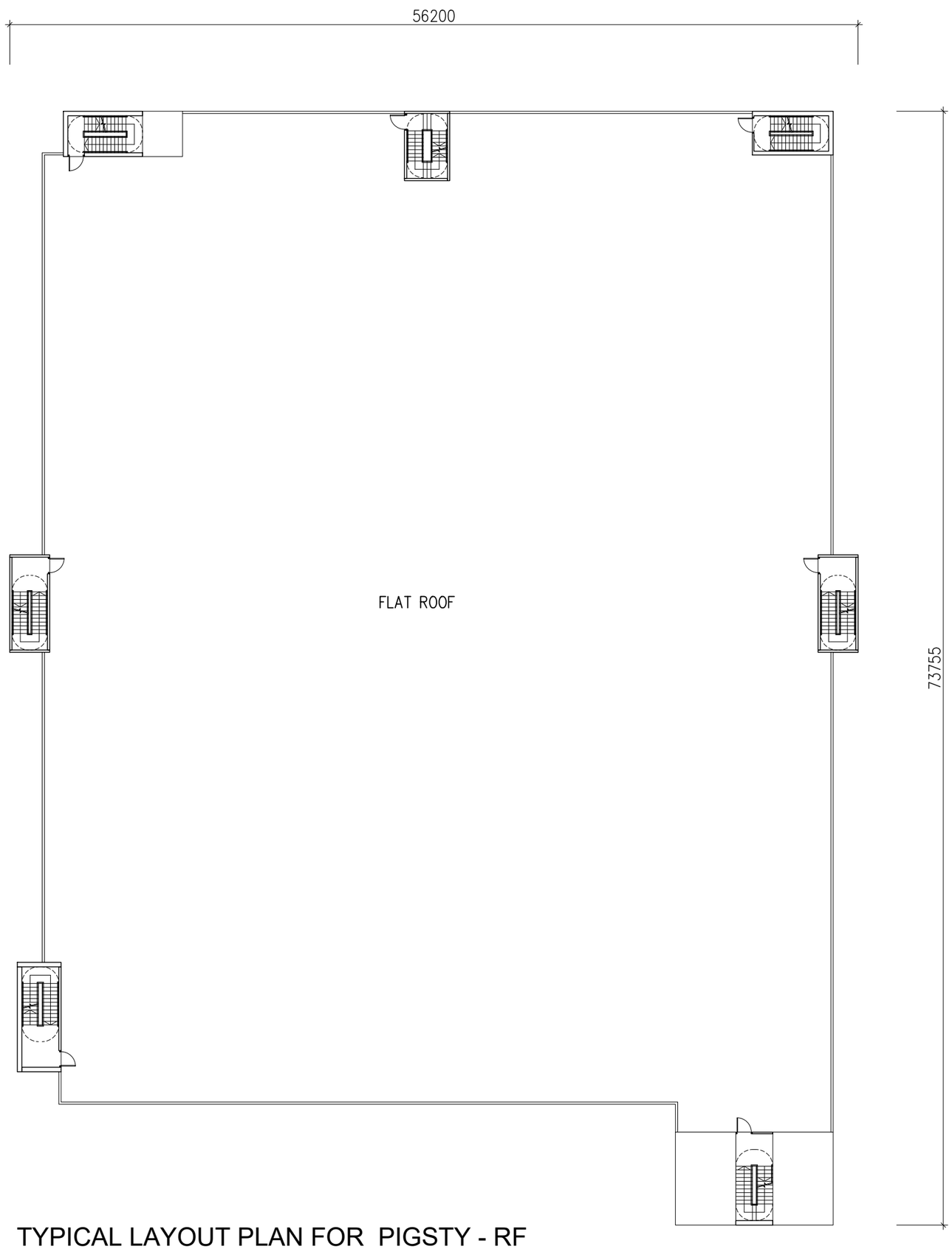
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT_2F_R2	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY - RF

SCALE=1:300

N

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road,
Kowloon Bay, Hong Kong
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E green@tonyip.green

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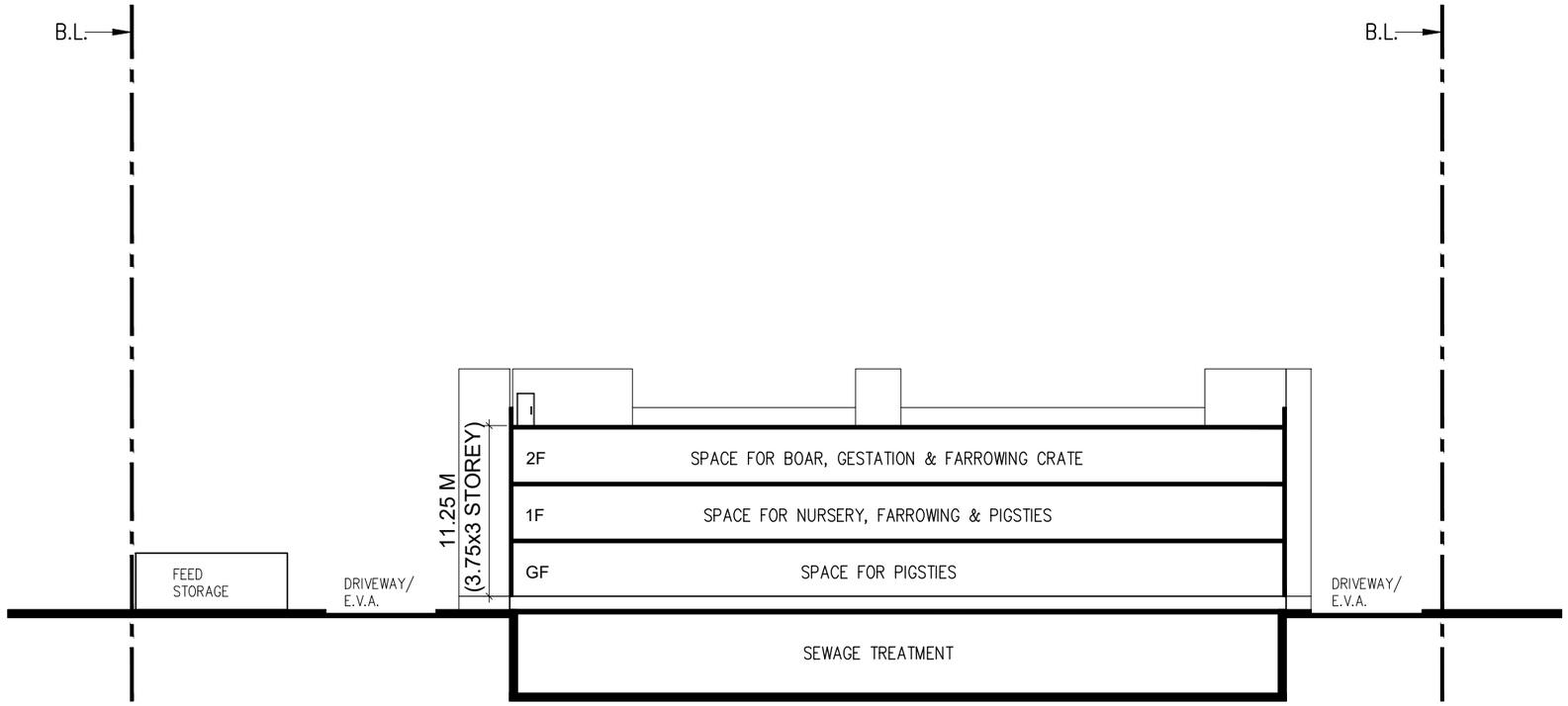
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT-RF	REV. NO. --

DRAWING STATUS

DRAFT



SCHEMATIC SECTION FOR PIGSTY

SCALE=1:400

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road,
Kowloon Bay, Hong Kong
T (852) 3596 7800 F (852) 3612 4916
E green@tonyip.green

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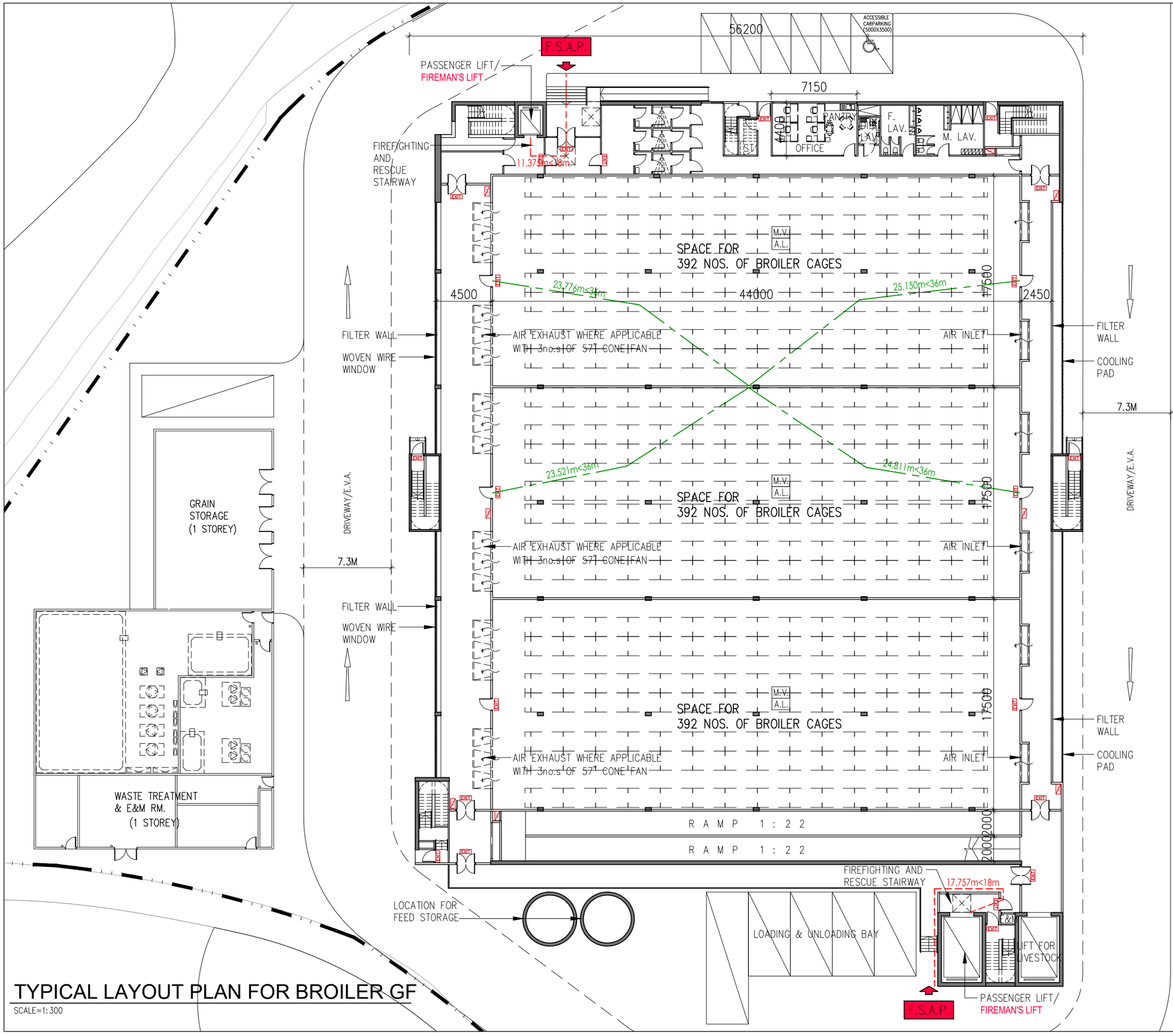
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - SCHEMATIC SECTION FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 400 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY SECTION	REV. NO. --

SUITABLE FOR PURPOSE

DRAFT



TYPICAL LAYOUT PLAN FOR BROILER GF

SCALE=1:300

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
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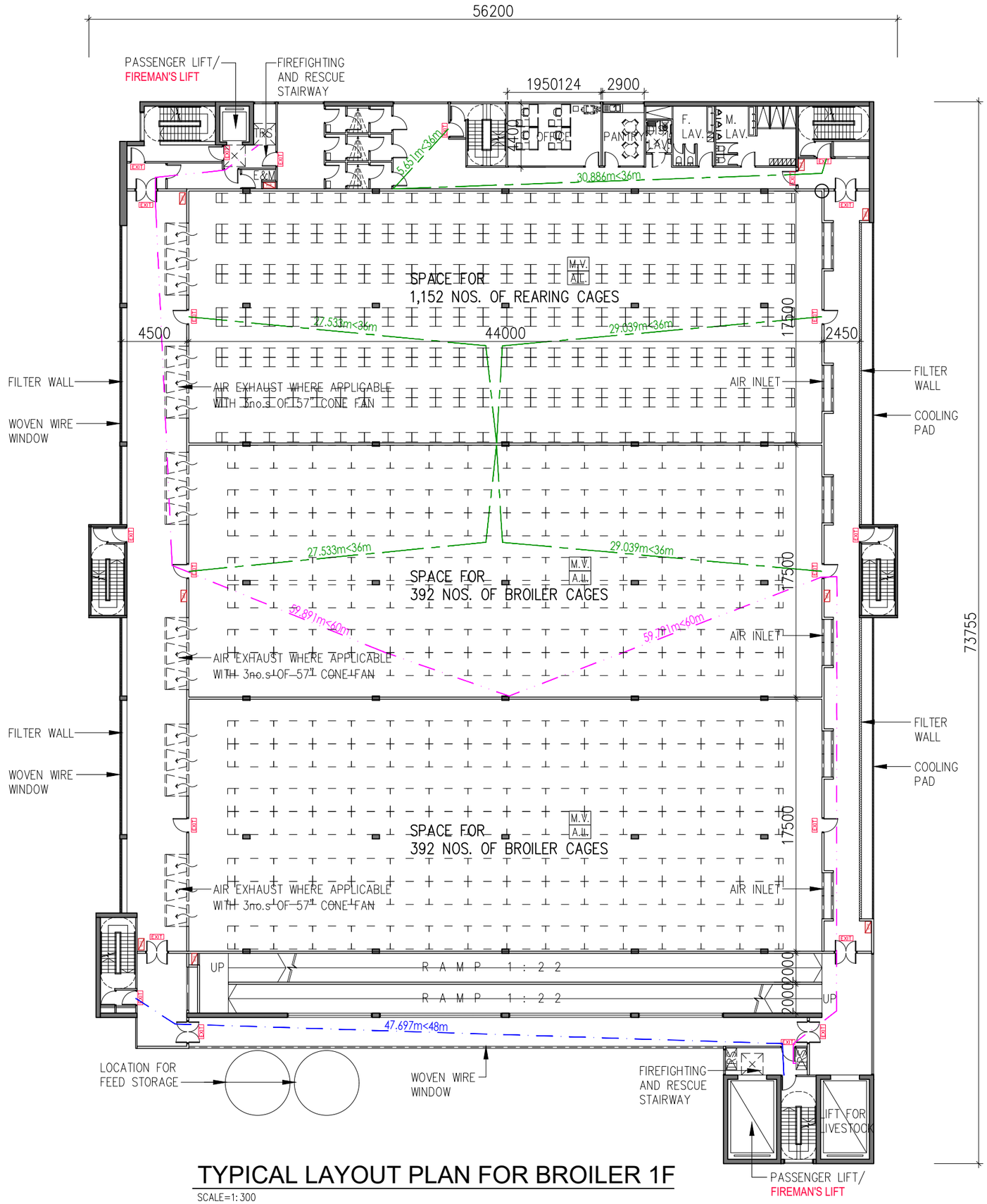
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - GROUND FLOOR PLAN FOR BROILER

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL BROILER LAYOUT GF_R2	REV. NO. --

DRAWING PURPOSE

DRAFT



TYPICAL LAYOUT PLAN FOR BROILER 1F

SCALE=1:300

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
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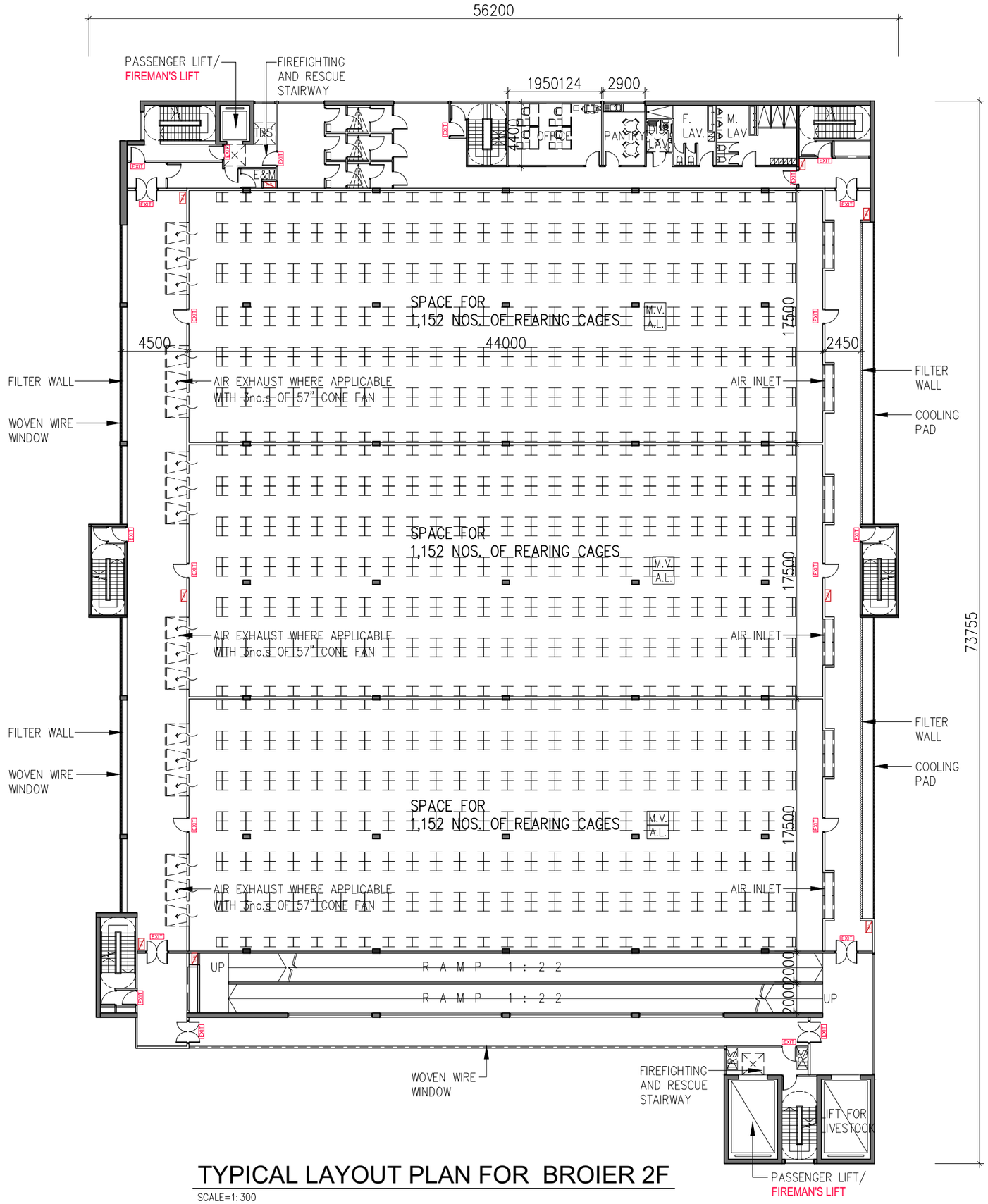
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - TYPICAL LAYOUT PLAN FOR BROILER

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL BROILER LAYOUT-15	REV. NO. --

DRAWING STATUS
DRAFT

DRAFT



TYPICAL LAYOUT PLAN FOR BROIER 2F

SCALE=1:300

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
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Unit 328, Mega Cube , 8 Wang Kwong Road,
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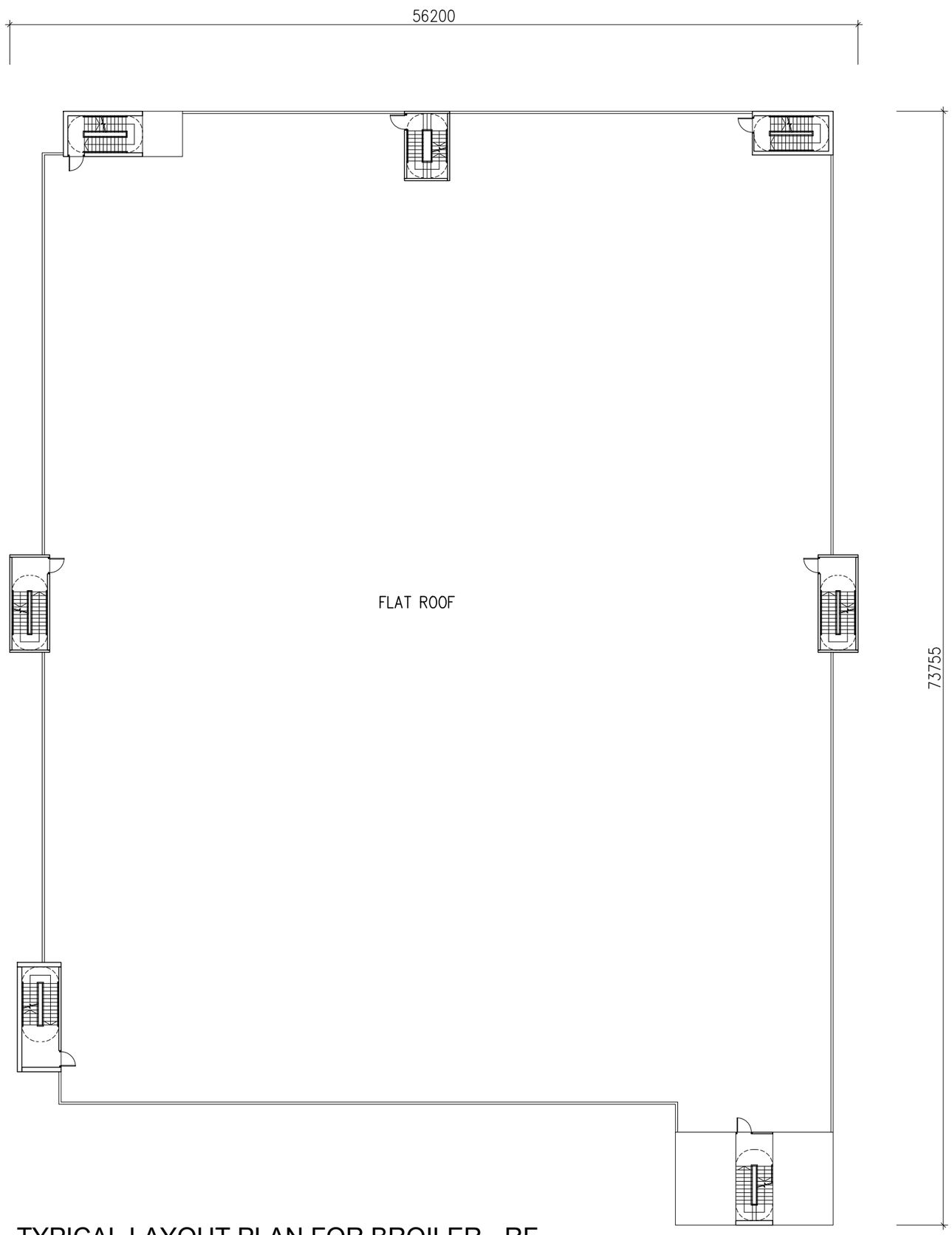
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR BROILER

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL BROILER LAYOUT 2F	REV. NO. --

DRAWING PURPOSE
R2

DRAFT



TYPICAL LAYOUT PLAN FOR BROILER - RF

SCALE=1:300

N

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
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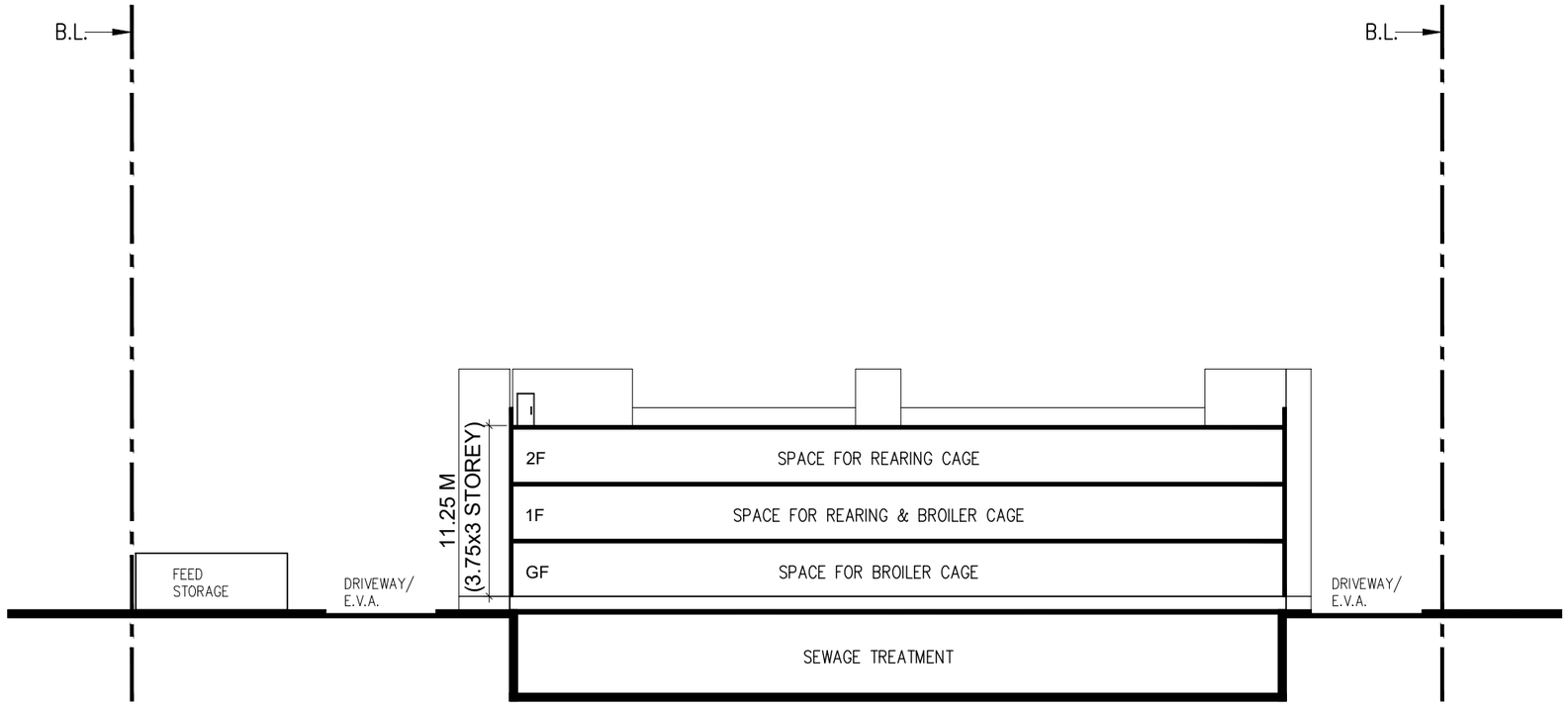
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR BROILER

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL BROILER LAYOUT - RF	REV. NO. --

DRAWING TITLE

DRAFT



SCHEMATIC SECTION FOR BROILER

SCALE=1:400

REV.	DESCRIPTION	DATE

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PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - SCHEMATIC SECTION FOR BROILER

PROJECT NO.	DRAWN BY --
SCALE 1 : 400 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL BROILER SECTION	REV. NO. --

SEC TION PURPOSE

DRAFT

FOR BUILDINGS DEPARTMENT

CLASS OF SITE	=	A							
SITE AREA (UNDER LEASE)	=	1291.160	Sq.M. (ABOUT)						
PERMITTED PLOT RATIO	=	15							
PERMITTED PERCENTAGE SITE COVERAGE (UNDER 15M)	=	100%							
STREET LEVEL	=							7.700	M
MEAN ROOF LEVEL	=	7.700	+	15.000			=	22.700	M
HEIGHT OF BUILDING :	=	22.700	-	7.700			=	15.000	M
ACTUAL PERCENTAGE SITE COVERAGE	=	370.411	/	1291.16	x	100%	=	28.688%	
ACTUAL GROSS FLOOR AREA (G.F.A.)	=	1111.233							
ACTUAL PLOT RATIO	=	1111.233	/	1291.16			=	0.861	PR

CALCULATION OF LOADING/UNLOADING PARKING

	Total GFA per site				Required	Provided
1 loading/unloading bay for goods vehicles for every 2000 to 3000m2 or part thereof, of gross floor area	1111.23	/	3000	= 1	1	L/UL - LGV 1

CALCULATION OF PARKING PROVISION

STANDARD	Total GFA per site				Required	Provided
- FOR THE FIRST 15000m2 GFA : 1 CAR SPACE PER 150-200m2 GFA	1111.23	/	200	= 6	6	4 (INCLUDE 1 DISABEL CARPARK)
- ABOVE 15000m2 GFA : 1 CAR SPACE PER 200-300m2 GFA	-	/	300	=		

SCHEDULE OF SANITARY FITMENTS PROVISIONS

STOREY	USE	CAPACITY (P)				W.C.		BASIN		URINAL		Unisex Accessible Toilet	
						REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D
G/F	OFFICE	22	22	M	9	1	2	1	2	1	2	1	1
	PANTRY												
	MEETING ROOM			F	14	2	4	1	2	-	-		
	STORAGE												
1/F	ACTIVITY AREA	137	138	M	69	3	3	3	3	2	2	1	* 1
	STORAGE	1		F	69	4	3	3	* 3	-	-		
2/F	EXHIBITION AREA	137	138	M	69	3	3	3	3	2	2	1	* 1
	STORAGE	1		F	69	4	4	3	* 3	-	-		

Noted : * Unisex Accessible Toilet included Female Sanitary Fitment provided

SCHEDULE OF MINIMUM NUMBER & WIDTH OF EXIT ROUTE FROM EACH FLOOR

FLOOR	USE	UFA(m^2)	DENSITY	CAPACITY		MIN. NO. OF EXIT DOORS (FROM RM.) OR EXIT ROUTES (FROM STOREY)		MIN. TOTAL WIDTH IN (mm) OF				MIN. WIDTH IN (mm) OF EACH			
								EXIT DOOR		EXIT ROUTE		EXIT DOOR		EXIT ROUTE	
						REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D	REQ'D	PROV'D
G/F	OFFICE	73.902	9	9	22	DIRECT EXIT									
	PANTRY	11.375	SAY	6											
	MEETING ROOM	20.640	4.5	5											
	STORAGE	41.060	30	2											
1/F	ACTIVITY AREA	273.507	2	137	138	2	2	1750	1800	2100	2100	850	900	1050	1050
	STORAGE	4.279	30	1											
2/F	EXHIBITION AREA	273.507	2	137	138	2	2	1750	1800	2100	2100	850	900	1050	1050
	ACTIVITY AREA	4.279	30	1											
	TOTAL =	**702.549**		**TOTAL**	**298**										

SCHEDULE OF TOTAL DISCHARGE VALUE OF EACH STAIRCASE

LOCATION	TOTAL DV	NO. OF EXIT STAIR	STAIRCASE ST-01	STAIRCASE ST-02
			(1050 MIN.)	(1050 MIN.)
2/F	138	2	69	69
1/F	138	2	69	69
TOTAL PROPOSED DISCHARGE VALUE			138	138
TOTAL PERMITTED DISCHARGE VALUE			452	452

SCHEDULE OF DISCHARGE VALUE CALCULATION

STAIRCASE NUMBER	NO. OF STOREY SERVED	TYPE OF STAIRCASE	WIDTH OF STAIRCASE / TRANSFORMATION	PERMITTED DISCHARGE VALUE
ST-01	2	S	1050	452
ST-02	2	S	1050	452

REV.	DESCRIPTION	DATE

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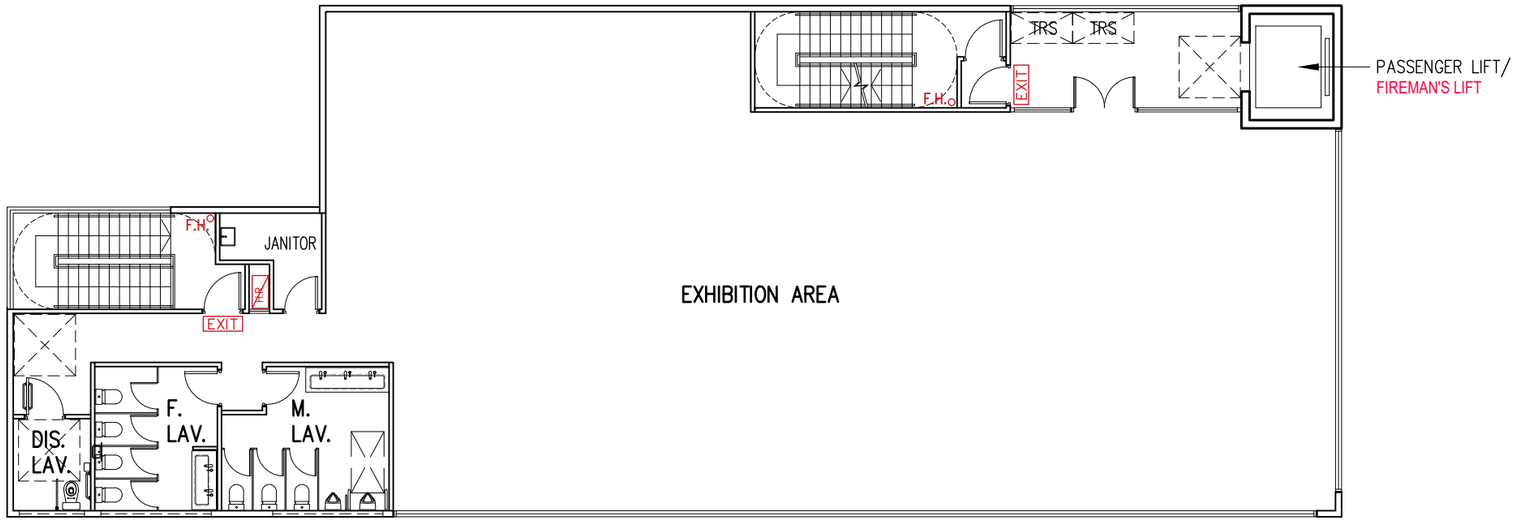
PROJECT TITLE
--

DRAWING TITLE
OFFICE BLOCK - SCHEDULE

PROJECT NO.	DRAWN BY --
SCALE 1 : 150 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-OFFICE BLOCK SCHEDULE	REV. NO. --

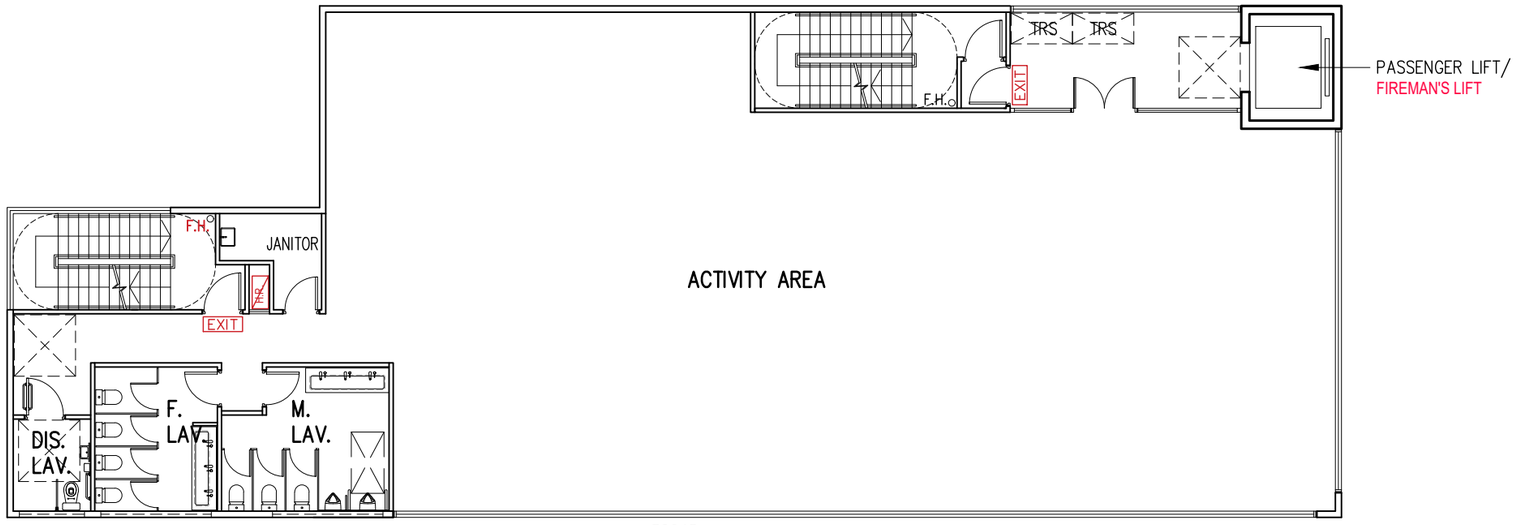
DRAWING PURPOSE

DRAFT



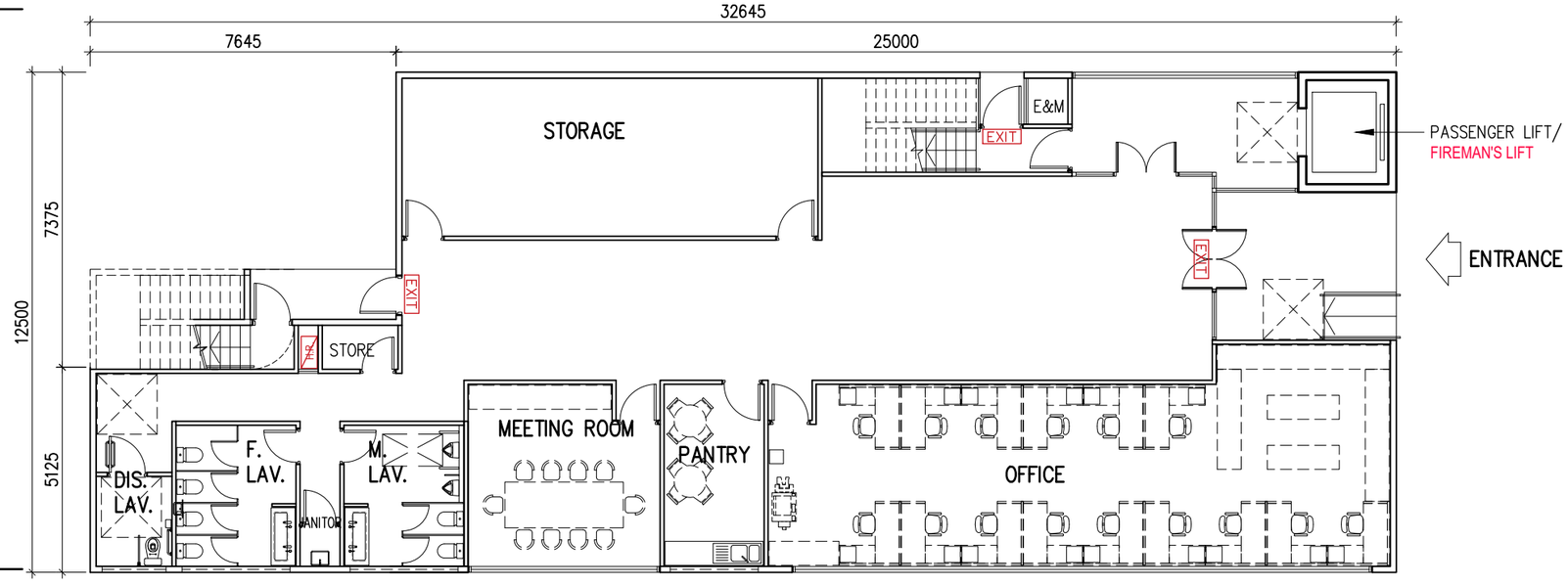
SECOND FL. PLAN

SCALE=1:150



FIRST FL. PLAN

SCALE=1:150



GROUND FL. PLAN

SCALE=1:150

REV.	DESCRIPTION	DATE

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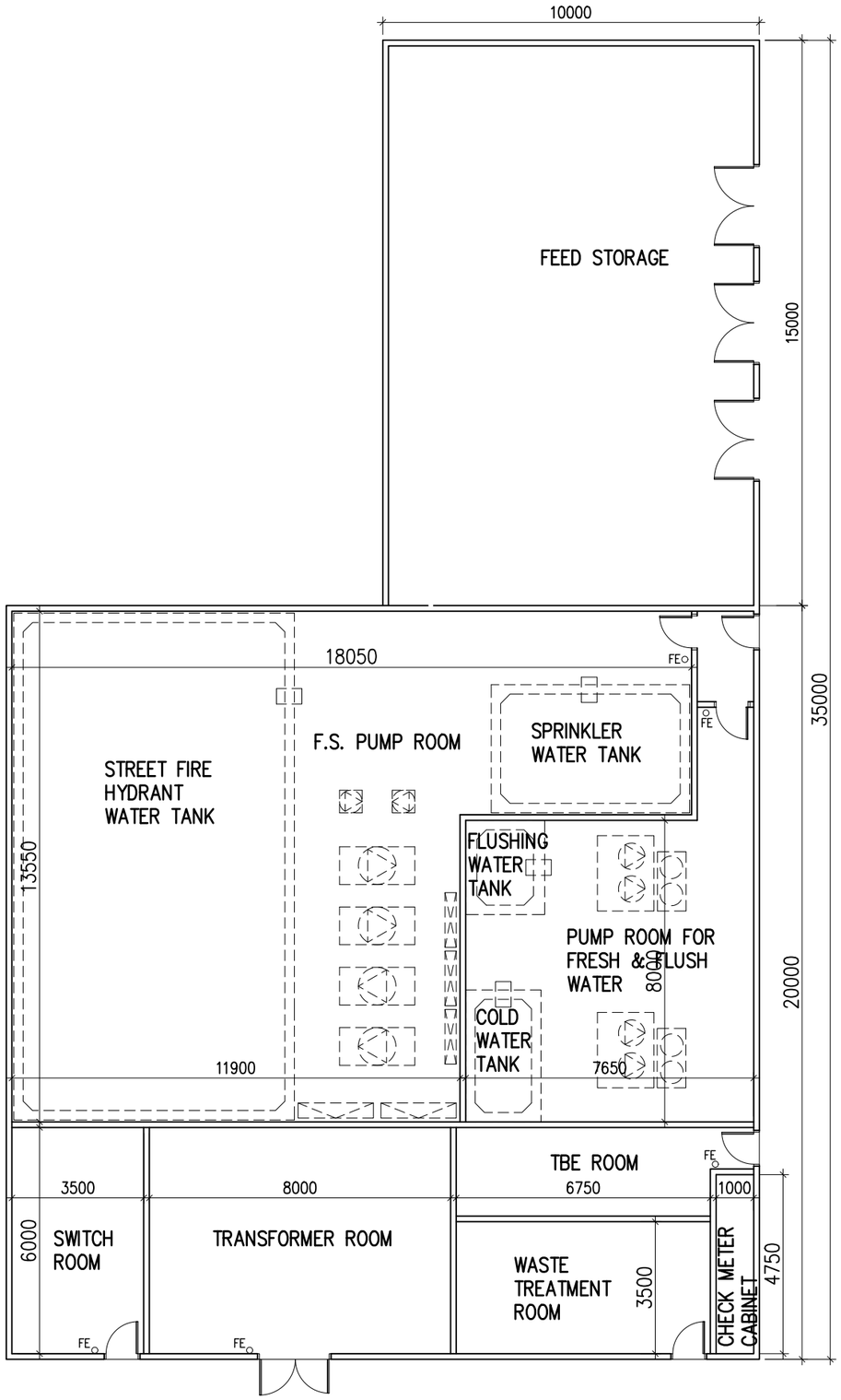
PROJECT TITLE
--

DRAWING TITLE
OFFICE BLOCK -
LAYOUT PLAN

PROJECT NO.	DRAWN BY --
SCALE 1 : 150 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-OFFICE BLOCK	REV. NO. --

DRAWING PURPOSE

DRAFT



GROUND FL. PLAN

SCALE=1:150

REV.	DESCRIPTION	DATE

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PROJECT TITLE
--

DRAWING TITLE
E&M BLOCK -
LAYOUT PLAN

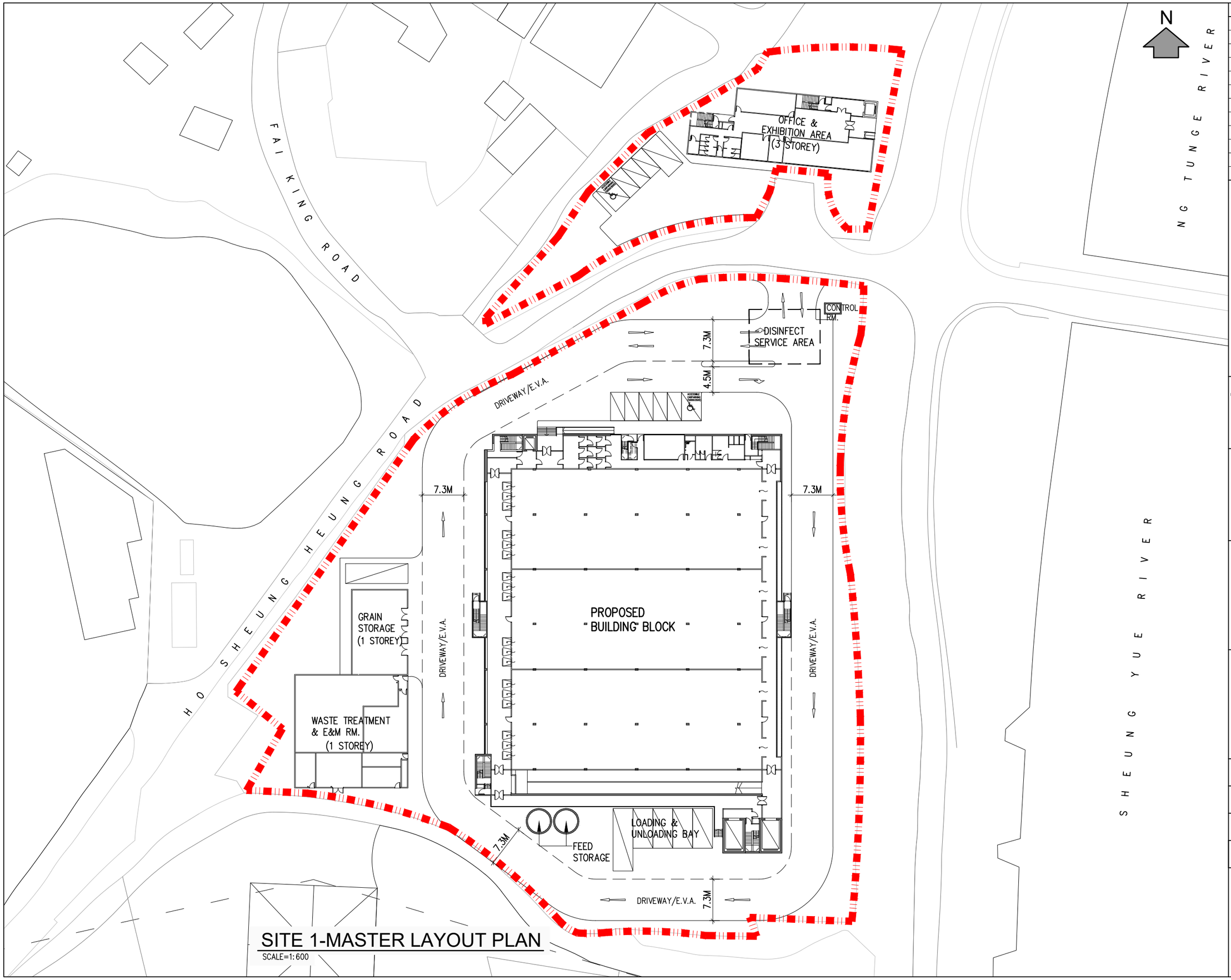
PROJECT NO.	DRAWN BY --
SCALE 1 : 150 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-E&M BLOCK	REV. NO. --

DRAWING PURPOSE

DRAFT

附錄 C

六層式禽畜養殖場圖紙



SITE 1-MASTER LAYOUT PLAN

SCALE=1:600

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
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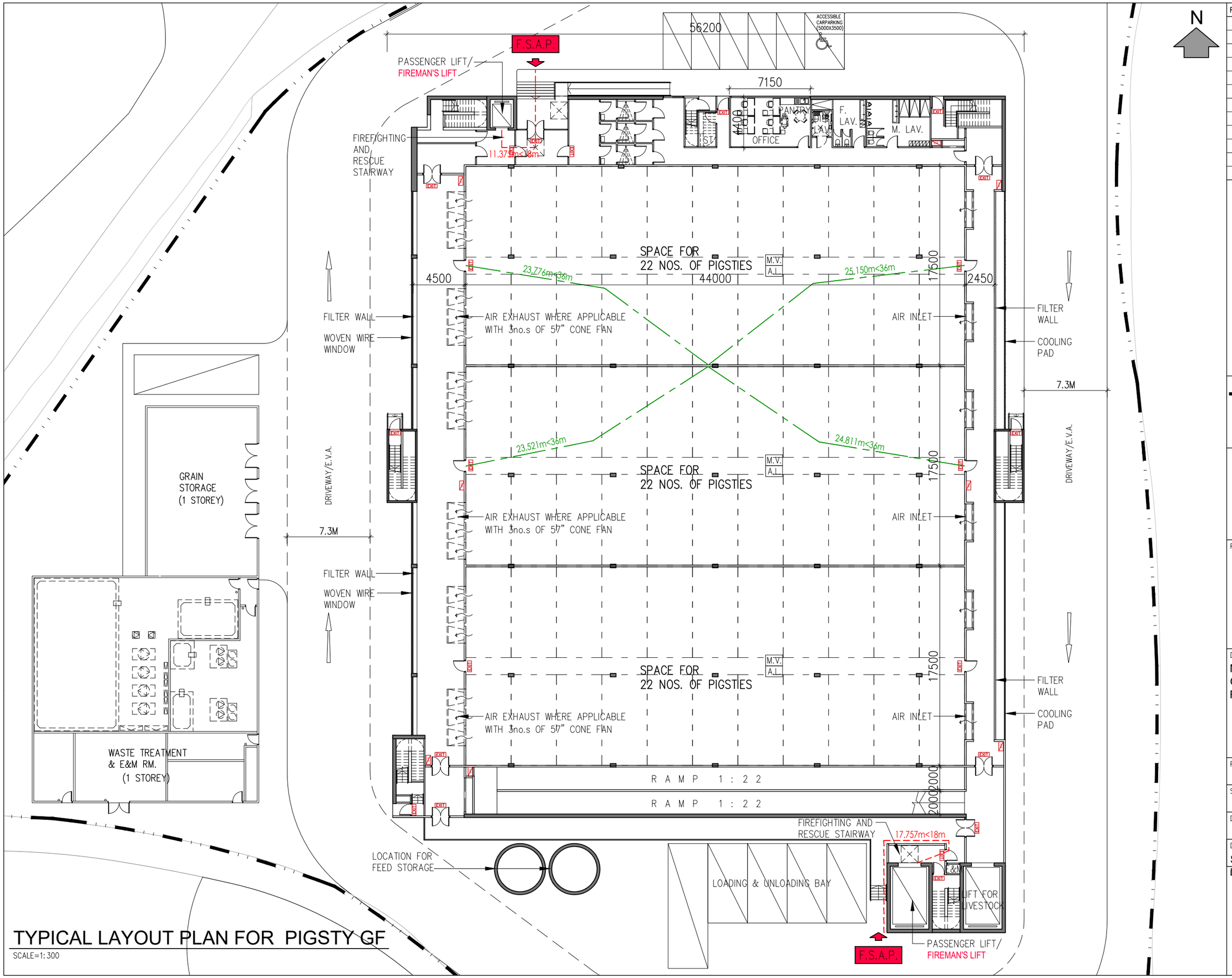
PROJECT TITLE
--

DRAWING TITLE
SITE 1 -
GROUND FLOOR
LAYOUT PLAN

PROJECT NO.	DRAWN BY --
SCALE 1 : 600 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-SITE 1_GROUND FL LAYOUT_R2	REV. NO. --

DRAWING PURPOSE

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY GF

SCALE=1:300

REV.	DESCRIPTION	DATE

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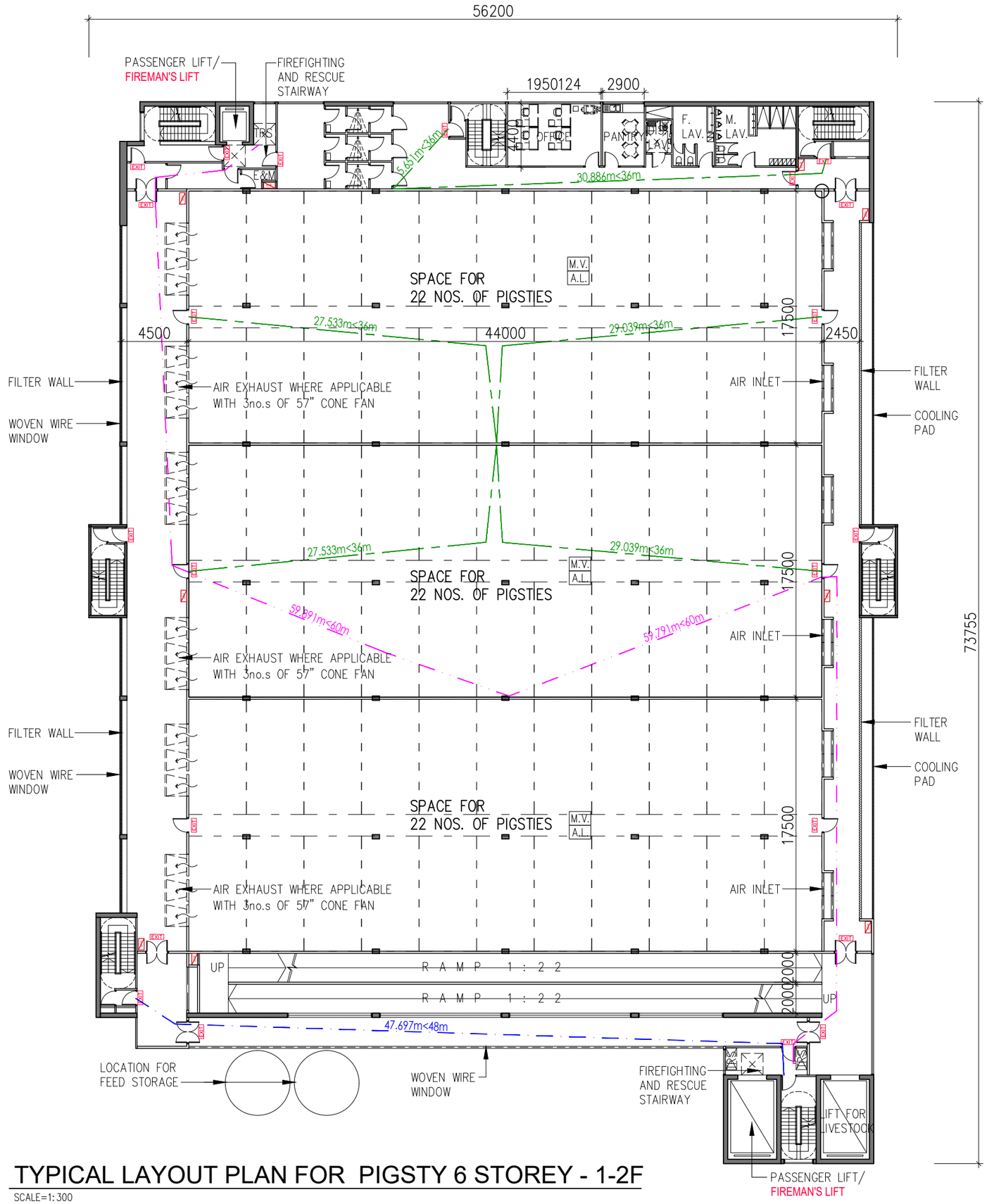
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - GROUND FLOOR PLAN FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT PLAN_GF_R2	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY 6 STOREY - 1-2F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
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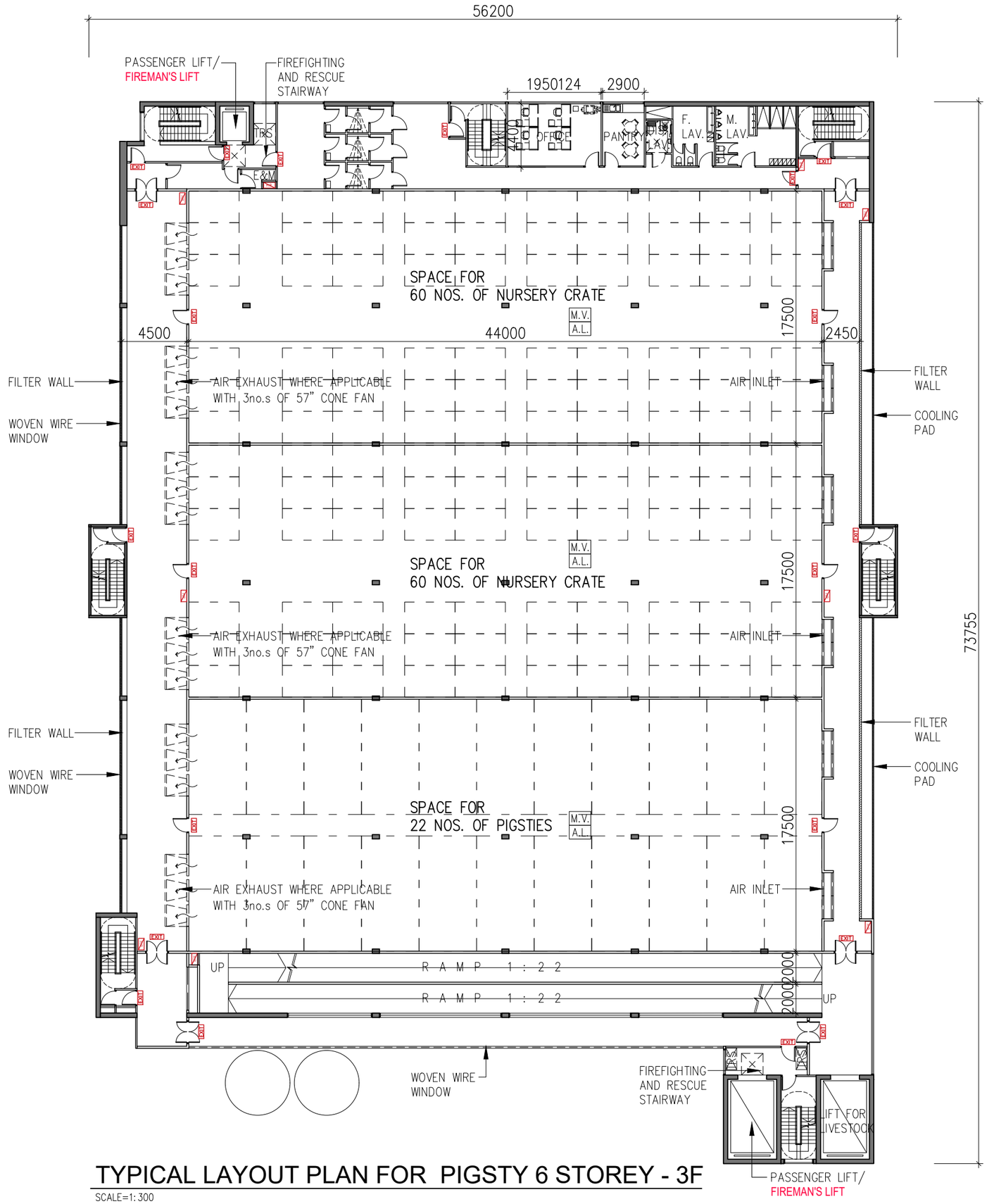
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - TYPICAL LAYOUT PLAN FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT_15_R2	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY 6 STOREY - 3F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

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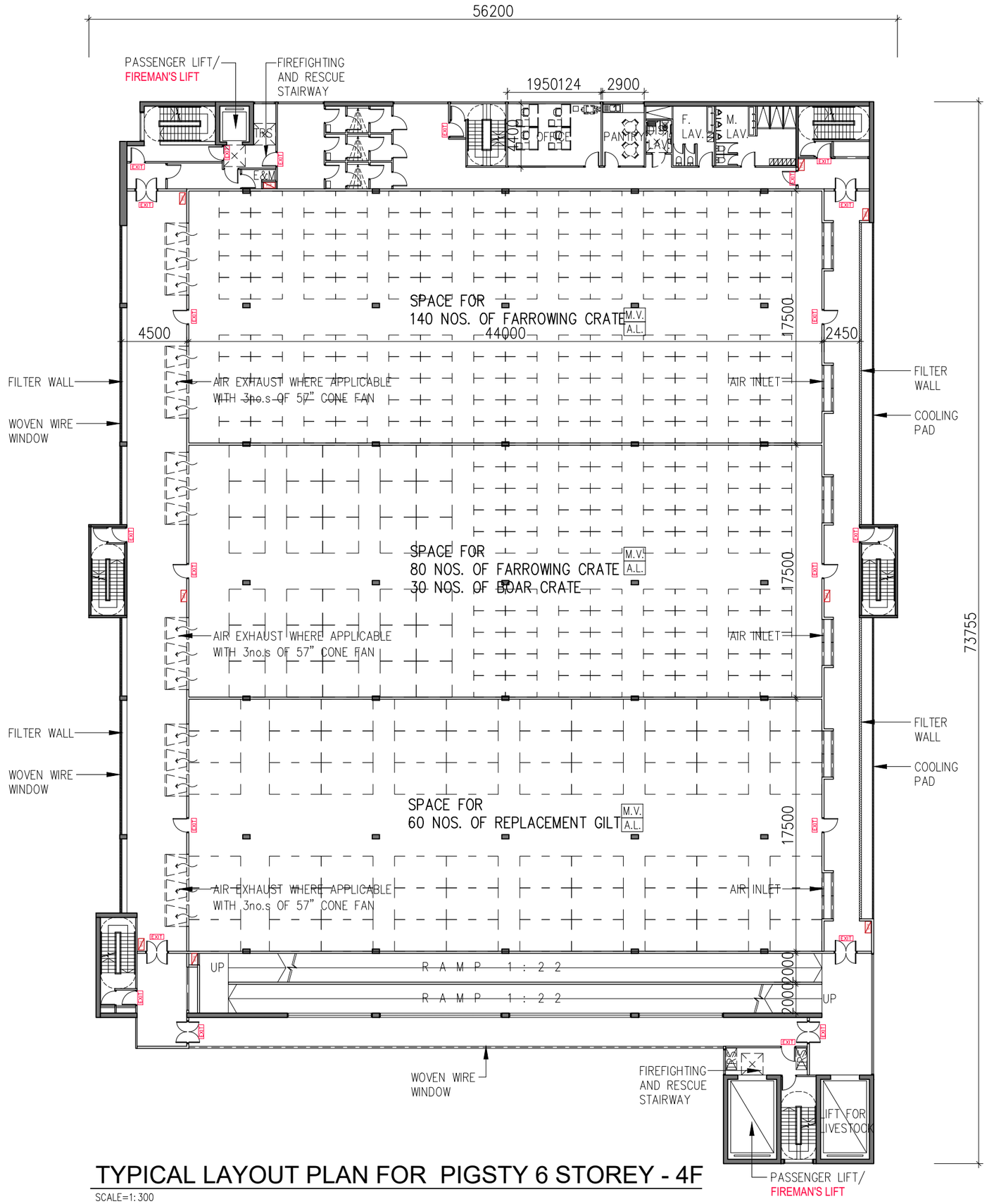
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT_3F_for 6 STOREY_R2	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY 6 STOREY - 4F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
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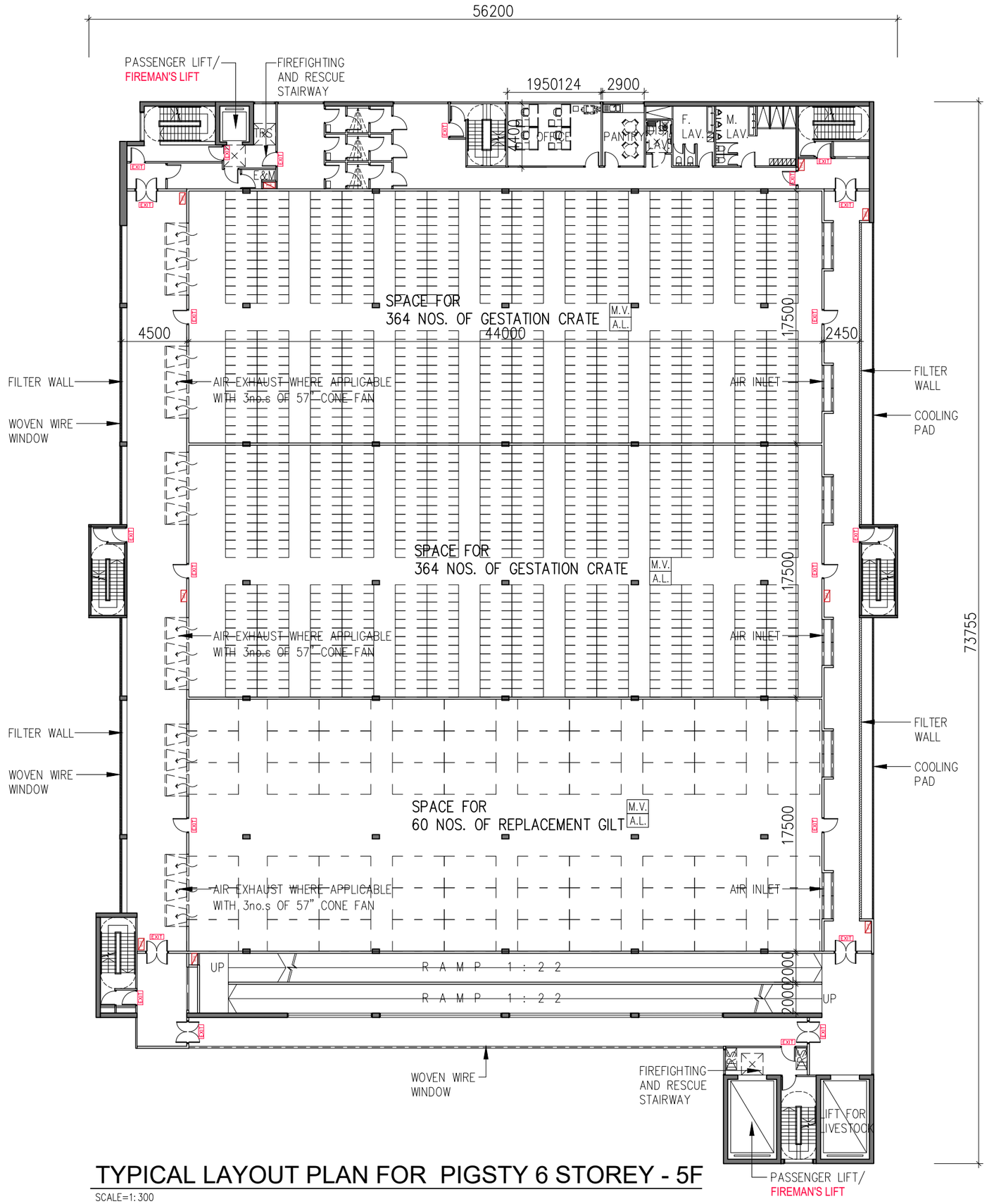
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT_4F_R2	REV. NO. --

Layout Purpose for 6 STOREY_R2

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY 6 STOREY - 5F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
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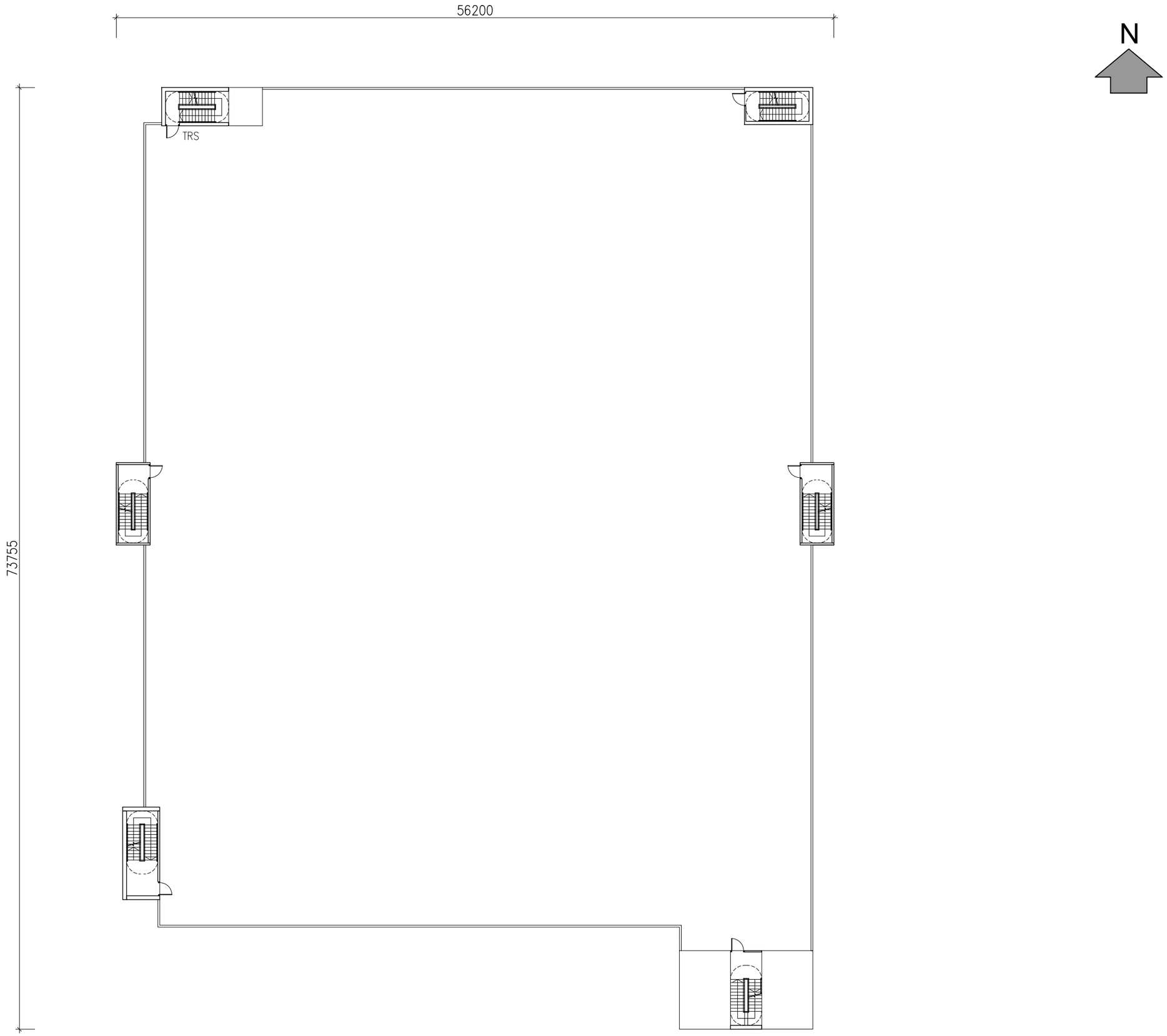
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT PURPOSE_5F	REV. NO. --

for 6 STOREY_R2

DRAFT



TYPICAL LAYOUT PLAN FOR
PIGSTY RF

SCALE=1:300

REV.	DESCRIPTION	DATE

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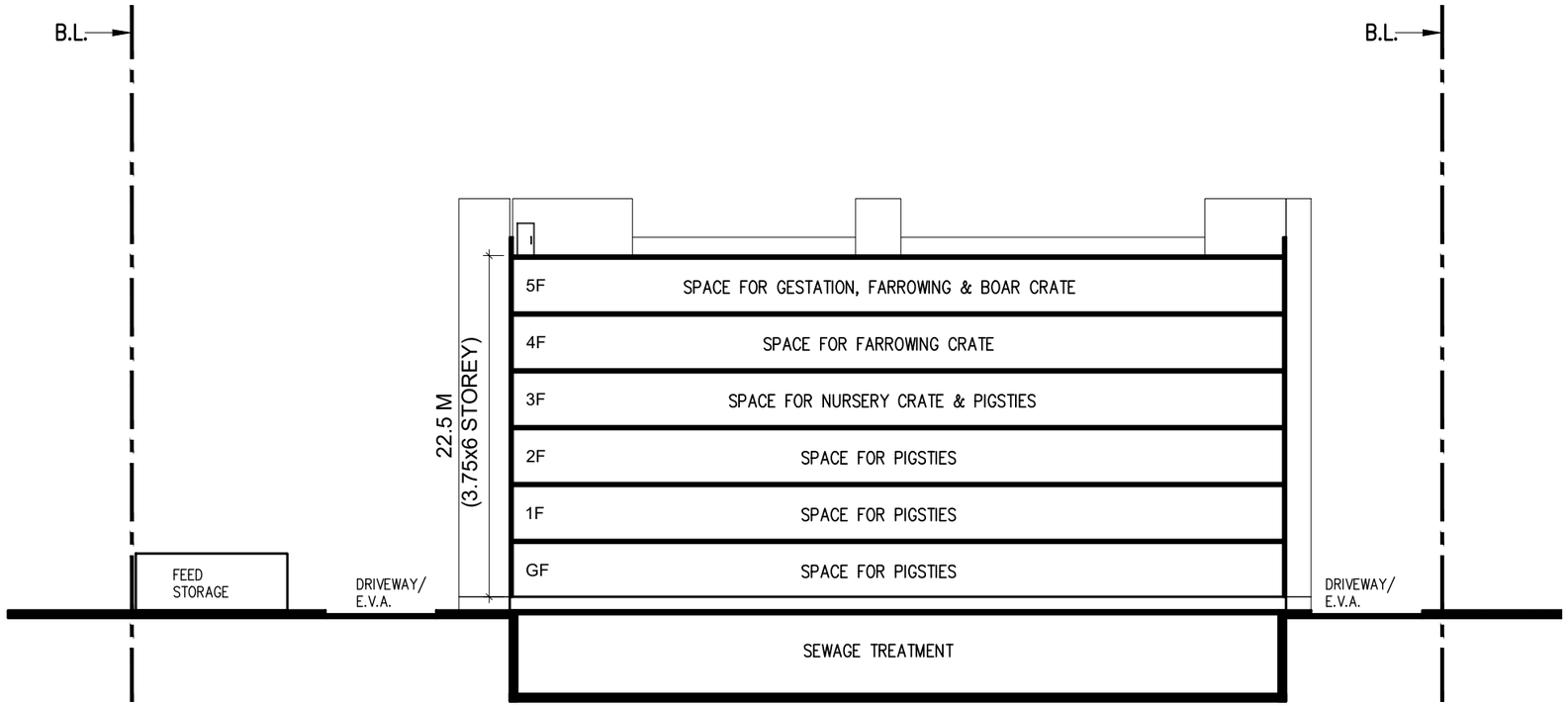
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 250 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT PLAN RF	REV. NO. --

DRAFT



SCHEMATIC SECTION FOR PIGSTY 6 STOREY

SCALE=1:400

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road, Kowloon Bay, Hong Kong
T (852) 3596 7800 F (852) 3612 4916
E green@tonyip.green

Check all measurements on site.
Do not scale off drawings.

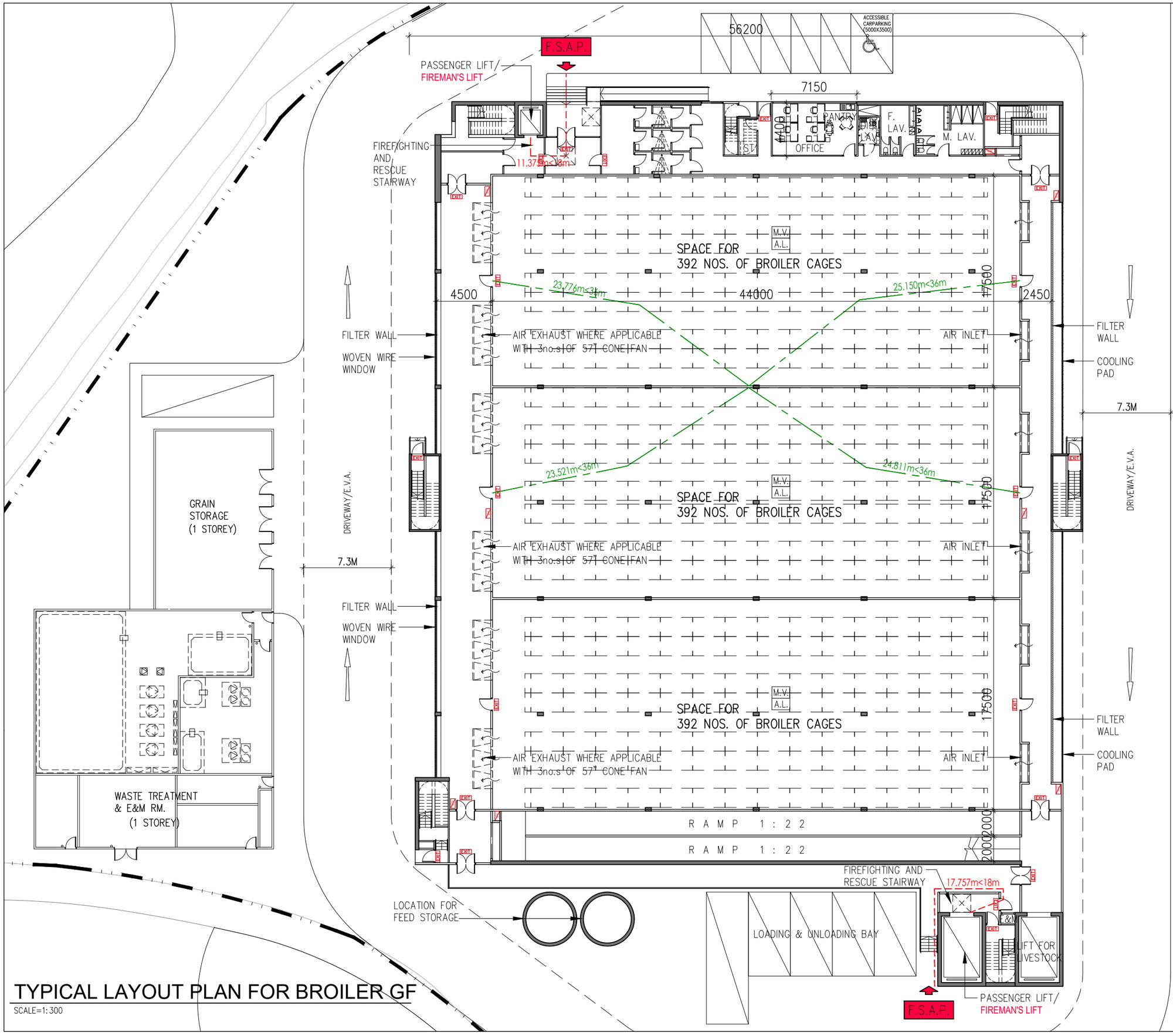
This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - SCHEMATIC SECTION FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 400 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY SECTION 6 STOREY	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR BROILER GF

SCALE=1:300

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road, Kowloon Bay, Hong Kong
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E green@tonyip.green

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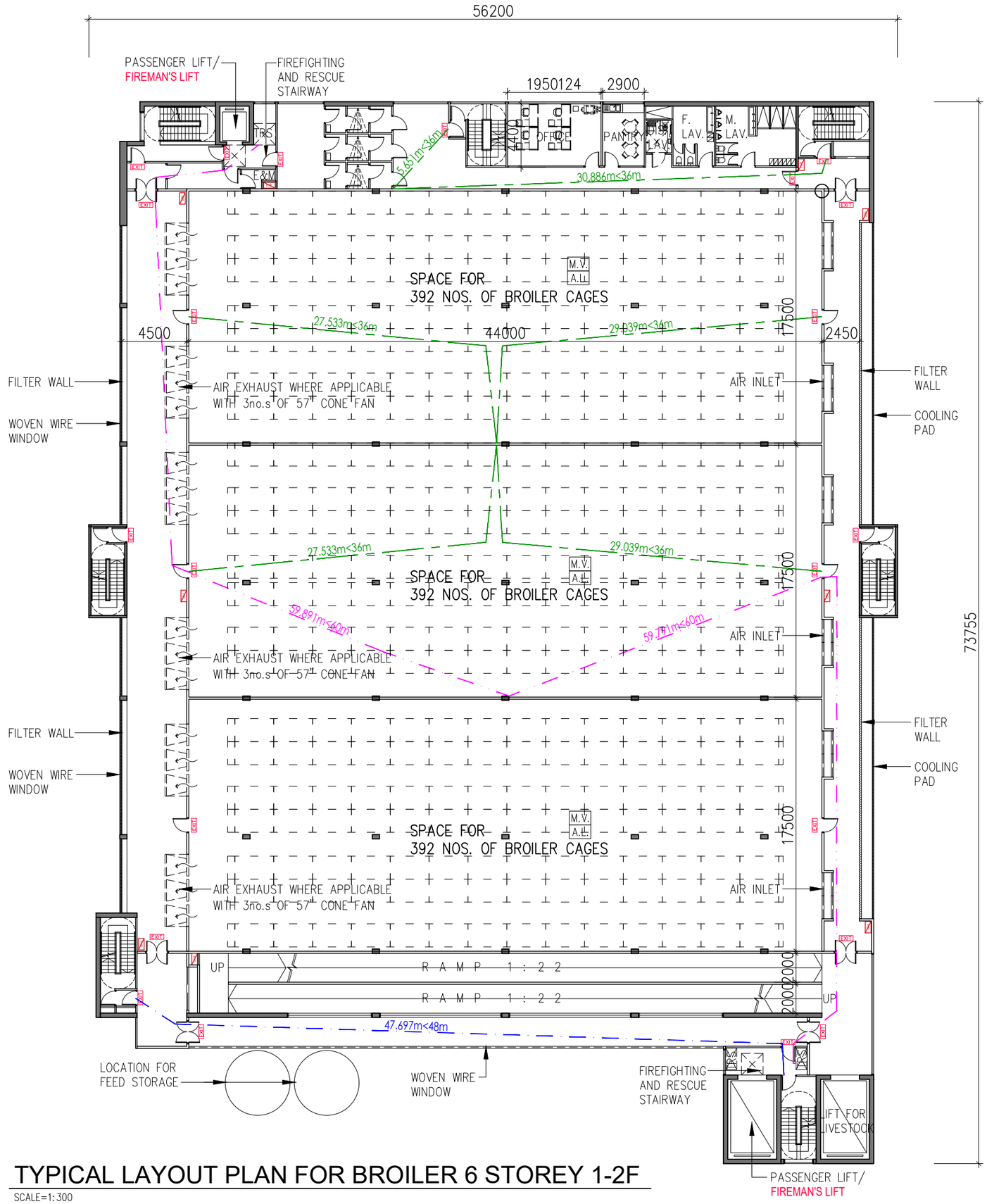
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - GROUND FLOOR PLAN FOR BROILER

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL BROILER LAYOUT GF_R2	REV. NO. --

DRAWING PURPOSE

DRAFT



TYPICAL LAYOUT PLAN FOR BROILER 6 STOREY 1-2F

SCALE=1:300

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road,
Kowloon Bay, Hong Kong
T (852) 3596 7800 F (852) 3612 4916
E green@tonyip.green

Check all measurements on site.
Do not scale off drawings.

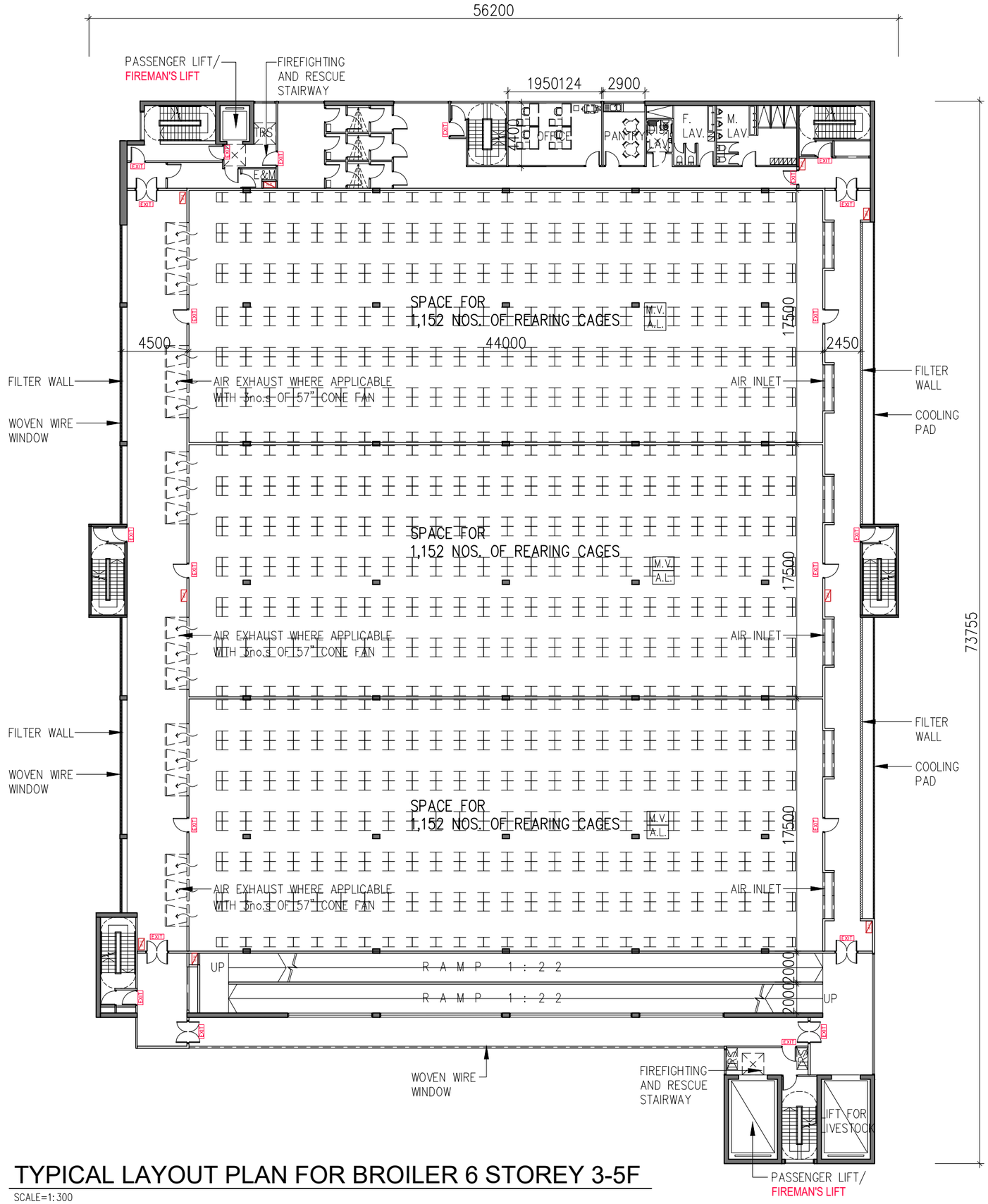
This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR BROILER

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL BROILER LAYOUT_FOR 6 STOREY_R2	REV. NO. --

DRAWING PURPOSE
DRAFT



TYPICAL LAYOUT PLAN FOR BROILER 6 STOREY 3-5F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road, Kowloon Bay, Hong Kong
T (852) 3596 7800 F (852) 3612 4916
E green@tonyip.green

Check all measurements on site.
Do not scale off drawings.

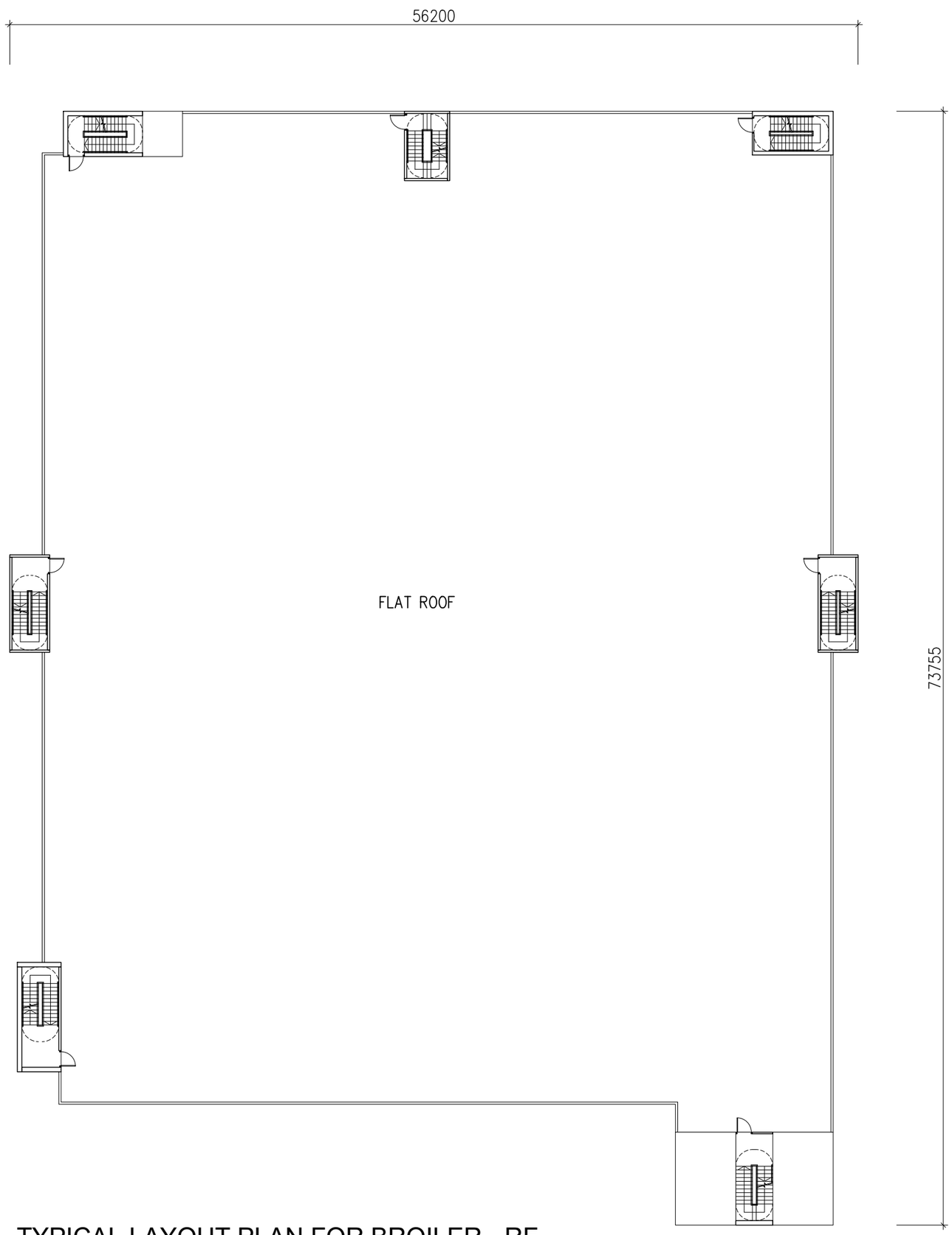
This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - TYPICAL LAYOUT PLAN FOR BROILER

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL BROILER LAYOUT_3-5F_for 6 STOREY_R2	REV. NO. --

DRAWING PURPOSE
DRAFT



TYPICAL LAYOUT PLAN FOR BROILER - RF

SCALE=1:300

N

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road,
Kowloon Bay, Hong Kong
T (852) 3596 7800 F (852) 3612 4916
E green@tonyip.green

Check all measurements on site.
Do not scale off drawings.

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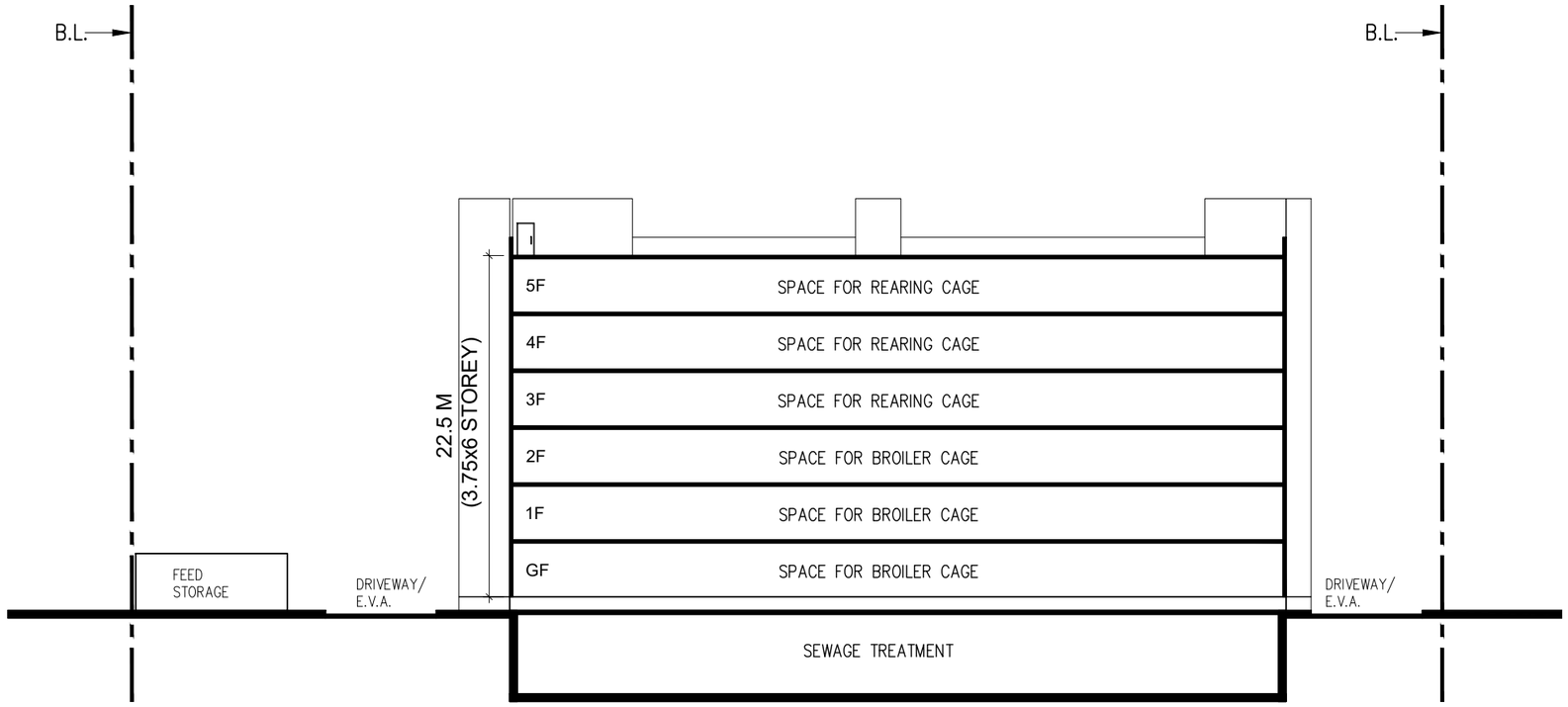
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR BROILER

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL BROILER LAYOUT - RF	REV. NO. --

DRAWING TITLE

DRAFT



SCHEMATIC SECTION FOR BROILER 6 STOREY

SCALE=1:400

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road,
Kowloon Bay, Hong Kong
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E green@tonyip.green

Check all measurements on site.
Do not scale off drawings.

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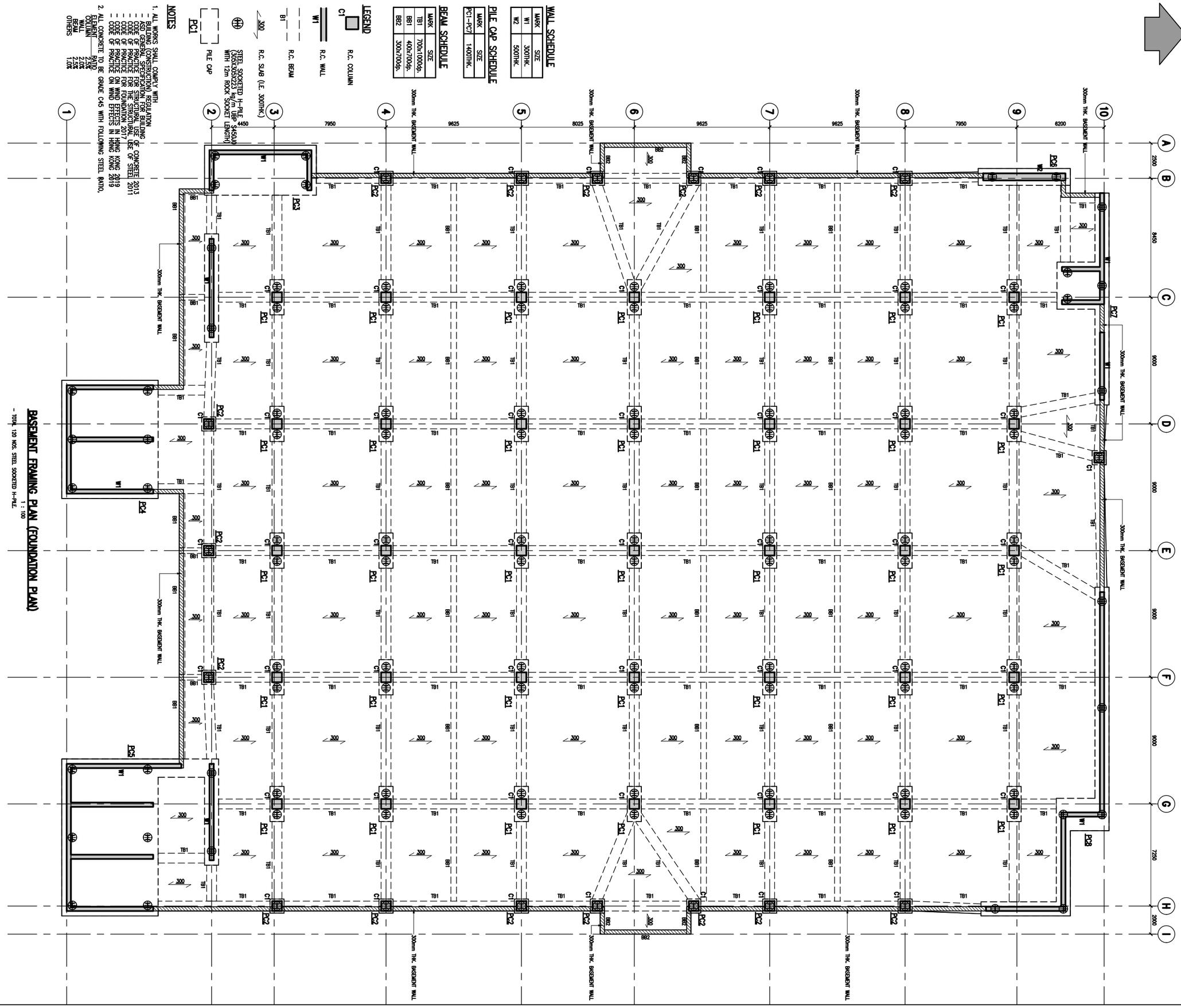
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - SCHEMATIC SECTION FOR BROILER

PROJECT NO.	DRAWN BY --
SCALE 1 : 400 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL BROILER CAGE SECTION_6 STOREY	REV. NO. --

DRAFT

附錄 D
建築結構與地基平面圖



BASEMENT FRAMING PLAN (FOUNDATION PLAN)

1 : 100

- TOTAL 120 NOS. STEEL SOCKETED H-PILE.

WALL SCHEDULE

MARK	SIZE
W1	300THK.
W2	500THK.

PILE CAP SCHEDULE

MARK	SIZE
PC1~PC7	1400THK.

BEAM SCHEDULE

MARK	SIZE
TB1	700x1000dp.
BB1	400x700dp.
BB2	300x700dp.

LEGEND

C1 R.C. COLUMN

W1 R.C. WALL

B1 R.C. BEAM

300 R.C. SLAB (I.E. 300THK.)

STEEL SOCKETED H-PILE UBP 546UU (305X305X223 kg/m UBP 546UU WITH 12m ROCK SOCKET LENGTH)

PC1 PILE CAP

NOTES

1. ALL WORKS SHALL COMPLY WITH
   BUILDING (CONSTRUCTION) REGULATION
   — ASD GENERAL SPECIFICATION FOR BUILDING
   — CODE OF PRACTICE FOR STRUCTURAL USE OF CONCRETE 2013
   — CODE OF PRACTICE FOR THE STRUCTURAL USE OF STEEL 2011
   — CODE OF PRACTICE FOR FOUNDATION 2017
   — CODE OF PRACTICE ON WIND EFFECTS IN HONG KONG 2019
   — CODE OF PRACTICE ON WIND EFFECTS IN HONG KONG 2019
2. ALL CONCRETE TO BE GRADE C45 WITH FOLLOWING STEEL RATIO,

ELEMENT	RATIO
COLUMN	2.5%
WALL	2.0%
BEAM	2.5%
OTHERS	1.0%

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road,
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MODERN
CONSULTING ENGINEERS LIMITED
Unit G, 21/F, Seabright Plaza,
9-23 Shell Street, North Point, Hong Kong
Tel: (852) 3572 0585
Fax: (852) 3020 3153
E-mail: admin@modernconsulting.com.hk

Check all measurements on site.
Do not scale off drawings.

This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - BASEMENT FRAMING PLAN (FOUNDATION LAYOUT PLAN) FOR PIGSTY

PROJECT NO. --	DRAWN BY --
SCALE 1 : 250 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SKS-002	REV. NO. --

DRAWING PURPOSE

DRAFT

COLUMN SCHEDULE

MARK	SIZE
C1	700x700

WALL SCHEDULE

MARK	SIZE
W1	300THK.
W2	500THK.

BEAM SCHEDULE

MARK	SIZE
B1	700x700dp.
B2	300x700dp.
B3	400x500dp.

LEGEND

C1 — R.C. COLUMN

W1 — R.C. WALL

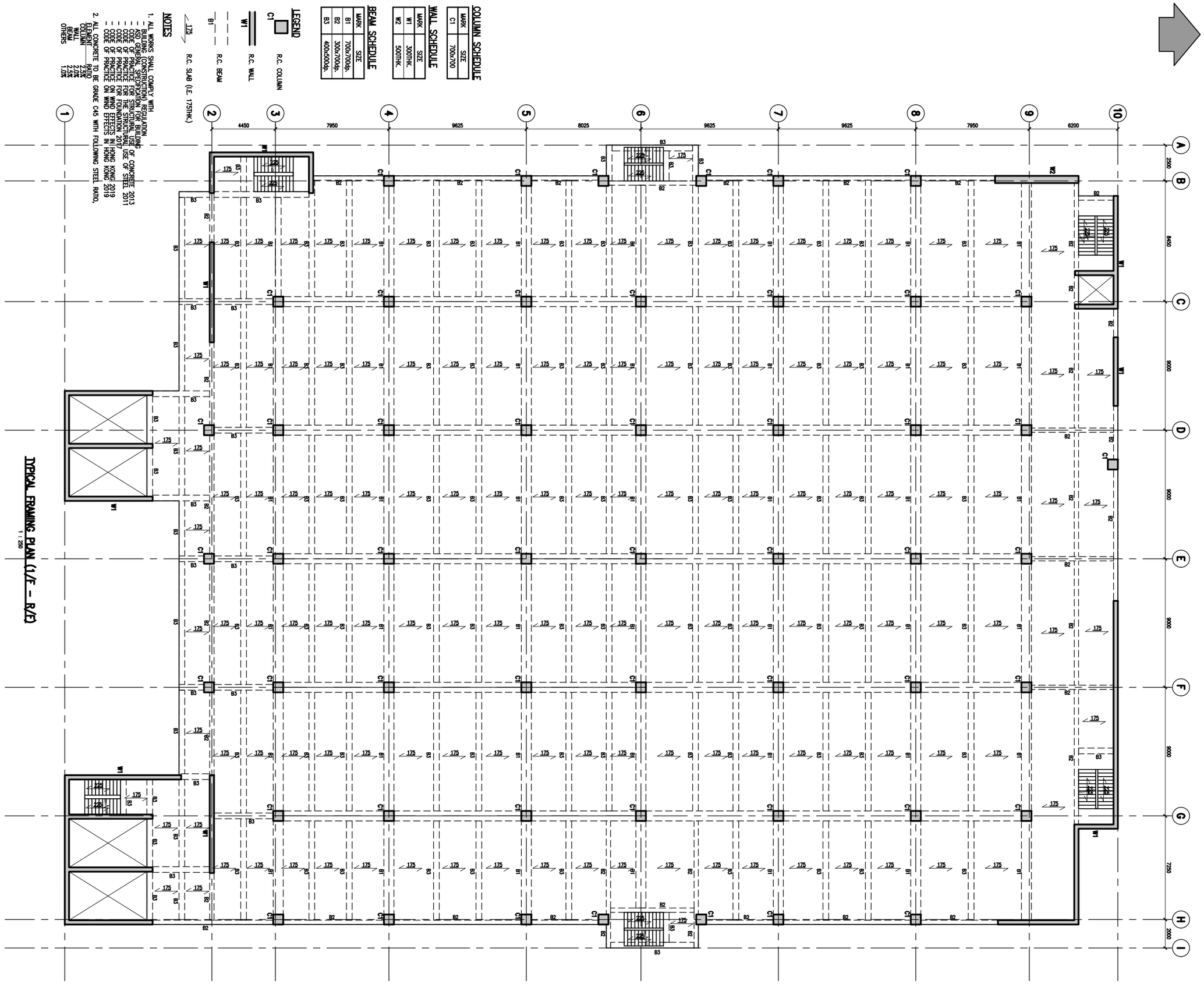
B1 — R.C. BEAM

175 — R.C. SLAB (I.E. 175THK.)

NOTES

1. ALL WORKS SHALL COMPLY WITH
   - BUILDING (CONSTRUCTION) REGULATION
   - ADD OR SPECIFICATION FOR THE USE OF CONCRETE 2013
   - CODE OF PRACTICE FOR THE STRUCTURAL USE OF STEEL 2011
   - CODE OF PRACTICE FOR FOUNDATION 2017
   - CODE OF PRACTICE ON WIND EFFECTS IN HONG KONG 2019
2. ALL CONCRETE TO BE GRADE C45 WITH FOLLOWING STEEL RATIO,

ELEMENT	RATIO
COLUMN	2.5%
WALL	2.0%
BEAM	2.5%
OTHERS	1.0%



TYPICAL FRAMING PLAN (1/F – R/F)

1 : 250

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road,
Kowloon Bay, Hong Kong
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Fax: (852) 3020 3153
E-mail: admin@modernconsulting.com.hk

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PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - TYPICAL FRAMING LAYOUT PLAN FOR PIGSTY

PROJECT NO.	DRAWN BY
--	--
SCALE 1 : 250 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SKS-001	REV. NO. --

DRAWING PURPOSE

DRAFT

附錄 E
KTN-2鄰近的GI記錄

GIRecord | District Council... | District Area...

Scale : 1:2000 | Min : 829364E 841732N Max : 830380E 842181N | Position : 829818E 841925N | Map Sheet : 3NW-21C, 2SE-5B, 2NE-25D, 3SW-1A

GEOTECHNICS & CONCRETE ENGG. (H.K.) LTD.

GROUND INVESTIGATION DEPARTMENT

HOLE NO. **BH13**

SHEET 1 OF 3

DRILLHOLE RECORD

CONTRACT NO. TC N307

PROJECT 074LC - Redevelopment of Lo Wu Correctional Institution

METHOD	Rotary Cored	CO-ORDINATES E 829699.49 N 841923.38	WORKS ORDER NO. ASD 010443
MACHINE & NO.	CY3		DATE FROM 06/02/2006 TO 10/02/2006
FLUSHING MEDIUM	Water	ORIENTATION Vertical	GROUND LEVEL 5.76 mPD

Drilling Progress	Casing size	Water level (m) & Time	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
06/02/2006	SX								5.76	0.00			Greyish brown (2.5Y 5/2), clayey silty fine to medium SAND with some angular fine to medium gravel sized moderately decomposed siltstone fragments. (FILL)
								A	5.26	0.50			Stiff, reddish yellow (5YR 7/8), dappled grey, sandy clayey SILT with occasional subangular fine to medium gravel sized moderately decomposed sandstone fragments. (ALLUVIUM)
1								B, C, INSPECTION PIT		1.00			
								D	4.26	1.50			Yellowish red (5YR 5/8), dappled grey, clayey silty fine to coarse SAND with much angular to subangular fine to coarse gravel moderately decomposed sandstone and quartz fragments. (ALLUVIUM)
2 08/02/2006 07/02/2006		Dry at 18:00 Dry at 08:00	80					E, 1		2.00			
			70					2	3.26	2.50			Light yellowish brown (10YR 6/4), subangular COBBLE with some coarse gravel sized moderately decomposed sandstone fragments. (ALLUVIUM)
3	SX 3.00 PX						2,2 2,5,10,20 N=37	T210 3	2.76	3.00			Dense, yellowish brown (10YR 5/8), sandy angular medium to coarse GRAVEL sized moderately decomposed sandstone fragments. (ALLUVIUM)
								4		3.45			
4			0							4.00			
5								5	0.66	5.10			
			0										Very dense, reddish yellow (5YR 7/8), sandy subangular medium to coarse GRAVEL sized moderately decomposed sandstone fragments. (ALLUVIUM)
6								6		6.20			
							45,87,68/40mm (200bls/190mm) N>200	7		6.39			
7									-1.34	7.10			
			0										Light brownish grey (10YR 6/2), silty sandy angular medium to coarse GRAVEL sized moderately decomposed siltstone and quartz fragments. (ALLUVIUM)
8								8		8.20			
			0										
07/02/2006 08/02/2006		1.73m at 18:00						9	-3.04	8.80			
9	PX 9.20 HX	2.50m at 08:00	70					T210	-3.44	9.20		V	Greyish brown (2.5Y 5/2), subangular COBBLE sized moderately decomposed siltstone fragments. (ALLUVIUM)
							35,58,84,23/15mm (200bls/240mm) N>200	10		9.44			Extremely weak, light reddish brown (5YR 6/4), completely decomposed, tuffaceous, meta-SILTSTONE. (Very stiff, sandy SILT with some angular fine to coarse gravel sized rock
10									-4.24	10.00			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- SPT LINER SAMPLE
- U76 UNDISTURBED SAMPLE
- U100 UNDISTURBED SAMPLE
- MAZIER SAMPLE
- PISTON SAMPLE
- WATER SAMPLE
- PIEZOMETER TIP
- STANDPIPE
- STANDARD PENETRATION TEST
- PERMEABILITY TEST
- IMPRESSION PACKER TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST

LOGGED [redacted]

DATE 11/02/2006

CHECKED [redacted]

DATE 13/02/2006

REMARKS
1. Standpipe was installed at a depth of 10.00m.
2. Water sample was taken at a depth of 23.00m.

GEOTECHNICS & CONCRETE ENGG. (H.K.) LTD.

GROUND INVESTIGATION DEPARTMENT

HOLE NO. **BH13**

SHEET 2 OF 3

DRILLHOLE RECORD

CONTRACT NO. TC N307

PROJECT 074LC - Redevelopment of Lo Wu Correctional Institution

METHOD	Rotary Cored	CO-ORDINATES E 829699.49 N 841923.38	WORKS ORDER NO. ASD 010443
MACHINE & NO.	CY3		DATE FROM 06/02/2006 TO 10/02/2006
FLUSHING MEDIUM	Water	ORIENTATION Vertical	GROUND LEVEL 5.76 mPD

Drilling Progress	Casing size	Water level (m) & Time	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
10	HX		90					11		10.00		V/IV	fragments) Extremely weak to very weak, purplish red (7.5Y 4/6), completely to highly decomposed, tuffaceous, meta-SILTSTONE. (Very stiff, sandy SILT with much angular fine to coarse gravel sized rock fragments)
11							42,67,80,11/15mm (200bls/240mm) N>200	12, 13		11.10, 11.34			
12			93					14		12.00			From 12.00m to 14.00m : Yellowish brown (10YR 5/8).
13							52,66,82/60mm (200bls/210mm) N>200	15, 16		13.10, 13.31			
14			92					17		14.00			From 14.00m to 16.00m : Light brownish grey (10YR 6/2).
15							64,82,54/40mm (200bls/190mm) N>200	18, 19		15.10, 15.29			
16 08/02/2006		1.00m at 18:00							-10.24	16.00		V	Extremely weak, greyish brown (2.5Y 5/2), completely decomposed, tuffaceous, meta-SILTSTONE. (Very stiff, sandy SILT)
09/02/2006		2.60m at 08:00	46					20					
17			92					21, 22		17.10			From 17.10m to 18.20m : Dark yellowish brown (10YR 3/6).
18							10,13 15,15,16,17 N=63	23, 24, 25		18.20, 18.65			
19			0						-13.24	19.00		V	Extremely weak, light yellowish brown (120YR 6/4), completely decomposed, tuffaceous, meta-SILTSTONE with quartz vein. (Very stiff, sandy SILT with much angular medium to coarse gravel sized quartz fragments)
20													

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- SPT LINER SAMPLE
- U76 UNDISTURBED SAMPLE
- U100 UNDISTURBED SAMPLE
- MAZIER SAMPLE
- PISTON SAMPLE
- WATER SAMPLE
- PIEZOMETER TIP
- STANDPIPE
- STANDARD PENETRATION TEST
- PERMEABILITY TEST
- IMPRESSION PACKER TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST

LOGGED [redacted]

DATE 11/02/2006

CHECKED [redacted]

DATE 13/02/2006

REMARKS

GEOTECHNICS & CONCRETE ENGG. (H.K.) LTD.

GROUND INVESTIGATION DEPARTMENT

HOLE NO. **BH13**

SHEET 3 OF 3

DRILLHOLE RECORD

CONTRACT NO. TC N307

PROJECT 074LC - Redevelopment of Lo Wu Correctional Institution

METHOD	Rotary Cored	CO-ORDINATES E 829699.49 N 841923.38	WORKS ORDER NO. ASD 010443
MACHINE & NO.	CY3		DATE FROM 06/02/2006 TO 10/02/2006
FLUSHING MEDIUM	Water	ORIENTATION Vertical	GROUND LEVEL 5.76 mPD

Drilling Progress	Casing size	Water level (m) & Time	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
20										20.00			
	HX		49					26, 27		20.10			See sheet 2 of 3 for details.
21													
								28	-15.44	21.20			
							13,34 43,45,46,48 N=182	29, 30		21.65		V	Extremely weak, light grey (7.5YR 7/1), completely decomposed, tuffaceous, meta-SILTSTONE. (Very stiff, sandy SILT)
22													
23	HX 23.08							31	-17.32	23.08			
			57	33	0	>20		T2I01	-18.12	23.88		IV	Weak to moderately weak, greyish brown, highly decomposed, tuffaceous, meta-SILTSTONE. Joints are very closely to closely spaced, rough and smooth planar, rough undulating, extremely narrow to very narrow, iron and manganese oxide stained, dipping at 10° to 20°, 20° to 30°, 40° to 50° and 60° to 70°. From 23.88m to 24.49m : No core recovered, assumed to be completely to highly decomposed meta-siltstone.
24		1.20m at 18:00				NR						V/IV	
09/02/2006									-18.73	24.49			
10/02/2006		2.55m at 08:00	88	94	0	>20		T2I01	-19.07	24.83		IV	
25			98	98	28	20.0		T2I01				III	Moderately strong, brownish grey, moderately decomposed, tuffaceous, meta-SILTSTONE. Joints are closely spaced, rough and smooth planar, routh undulating, extremely narrow to very narrow, iron and manganese oxide stained, dipping at 10° to 20°, 20° to 30° and 60° to 70°.
			100	98	29					25.63			
									-20.14	25.90			
26								T2I01				II	Strong, grey, slightly decomposed, tuffaceous, meta-SILTSTONE. Joints are closely to medium spaced, rough and smooth planar, rough undulating, occasional slickensided planar, extremely narrow, chlorite coated, dipping at 10° to 20°, 20° to 30°, 40° to 50° and occasional 60° to 70°.
27						6.7				27.06			
			100	100	35	15.0		T2I01					
28						4.9							
						18.9				28.49			
			100	98	61								
29						6.1							
						18.8		T2I01					
		2.45m at 18:00											
30 10/02/2006									-24.17	29.93			

- SMALL DISTURBED SAMPLE
- LARGE DISTURBED SAMPLE
- SPT LINER SAMPLE
- U75 UNDISTURBED SAMPLE
- U100 UNDISTURBED SAMPLE
- MAZIER SAMPLE
- PISTON SAMPLE
- WATER SAMPLE
- PIEZOMETER TIP
- STANDPIPE
- STANDARD PENETRATION TEST
- PERMEABILITY TEST
- IMPRESSION PACKER TEST
- IN-SITU VANE SHEAR TEST
- PACKER TEST

LOGGED [redacted]

DATE 11/02/2006

CHECKED [redacted]

DATE 13/02/2006

REMARKS Hole completed at 29.93m.

GEOTECHNICS & CONCRETE ENGG. (HK) LTD.

Response Test Record -- Standpipe

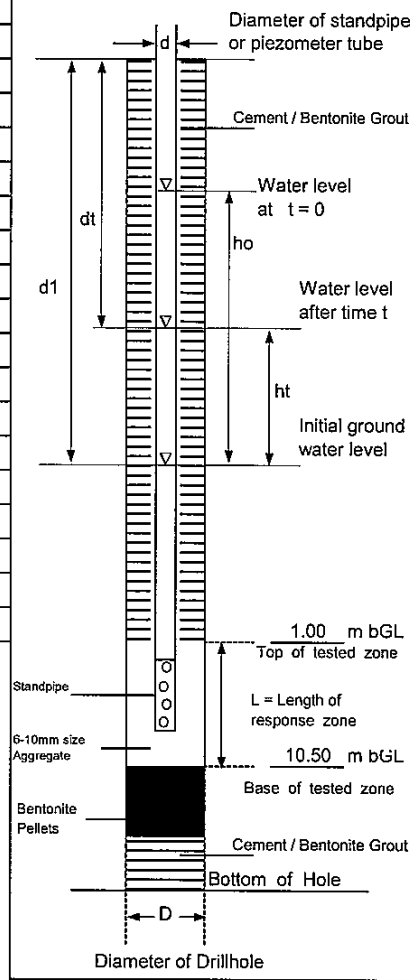
Drillhole No :	BH13		
Installation I.D. :	BH13(S)		
Contract No.:	TC N307	W. O. No. :	ASD 010443
Stop Watch ID :	M025-08	Tested Date :	13/2/2006
Contract Title :	Term Contract for Ground Investigation and Laboratory Testing for which the Architectural Services Department is Responsible in Hong Kong, Kowloon, New Territories and the Outlying Islands for the Government of the HKSAR 2004-2006	Tested by :	[redacted]
Project Title :	074LC - Redevelopment of Lo Wu Correctional Institution	Dip Meter ID :	M009-50
Checked by :	[redacted]		

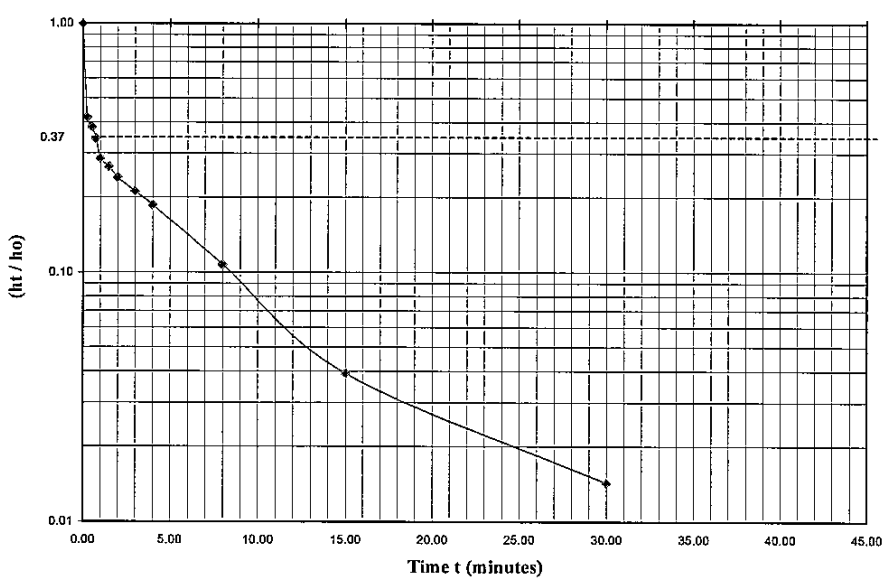
Depth to Ambient or Initial Ground Water Level = 2.79 m Tested Zone : 1.00 m to 10.50 m

Time Elapsed, t (minutes)	Water Depth, dt (m)	ht	ht / ho	Time Elapsed, t (minutes)	Water Depth, dt (m)	ht	ht / ho
0.00	0.00	2.79	1.00				
0.25	1.62	1.17	0.42				
0.50	1.72	1.07	0.38				
0.75	1.83	0.96	0.34				
1.00	1.99	0.80	0.29				
1.50	2.05	0.74	0.27				
2.00	2.12	0.67	0.24				
3.00	2.20	0.59	0.21				
4.00	2.27	0.52	0.19				
8.00	2.49	0.30	0.11				
15.00	2.68	0.11	0.04				
30.00	2.75	0.04	0.01				
45.00	2.79	0.00	0.00				

Remarks :

d = 0.019 m
D = 0.140 m
L = 9.500 m





Shape Factor (in meter) :

$$F = \frac{2.4\,\pi\,L}{\log_e\left(1.2\frac{L}{D} + \sqrt{1 + \left(1.2\frac{L}{D}\right)^2}\right)}$$

= 14.0700

Permeability :

$$k = \frac{A}{FT} = 5.3332E\text{-}07 \text{ m/sec}$$

Notes :

ht = d1 - dt (falling head)

T is time when ht / ho = 0.37 T = 37.8 sec

A is the cross-sectional area of drillhole, casing or standpipe (pvc pipe) as appropriate. $A = \left(\frac{d}{2}\right)^2 \pi$ = 0.00028 m^2

Material Surrounding Response Zone

ALLUVIUM/C.to H.D. META-SILTSTONE

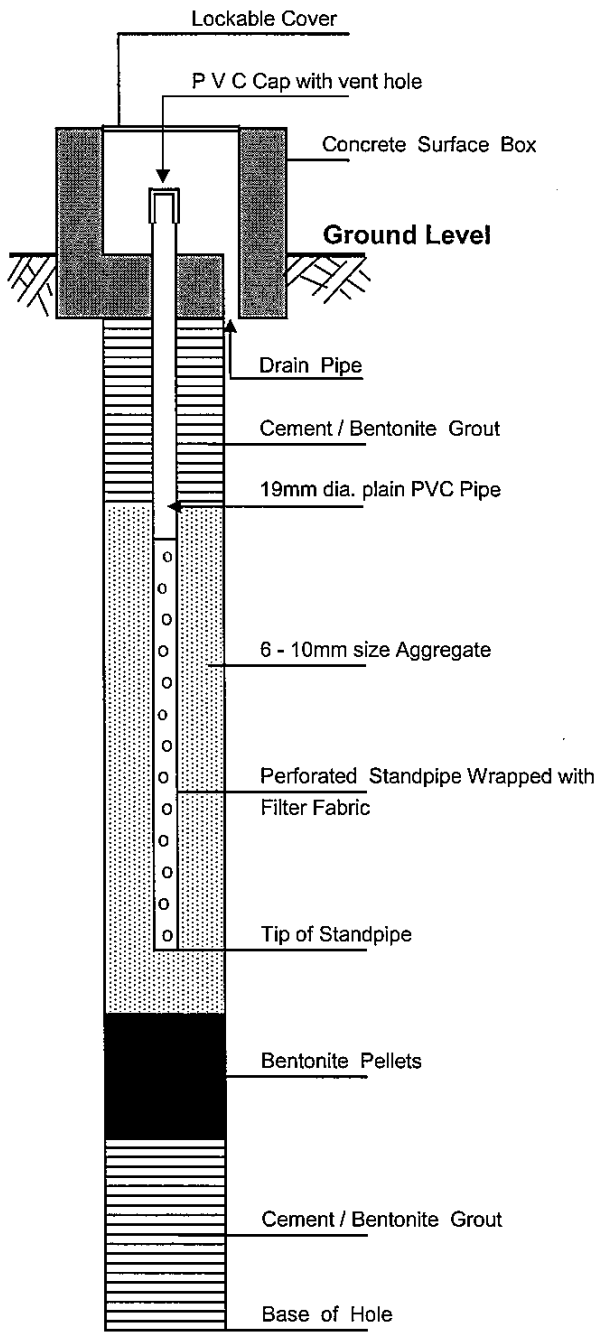
	Geotechnics & Concrete Engg. (HK) Ltd.	Hole No. :	**BH13**
	GROUND INVESTIGATION DEPARTMENT	Standpipe ID. :	**BH13(S)**
	Installation Details of Standpipe and Groundwater Record	Date Installed :	**11/2/2006**
Contract No. : **TC N307**	Works Order No. : **ASD 010443**	Installed by :	[redacted]
Contract Title : Term Contract for Ground Investigation and Laboratory Testing for which the Architectural Services Department is Responsible in Hong Kong, Kowloon, New Territories and the Outlying Islands for the Government of the HKSAR 2004-2006		Supervised by :	
		Checked by :	
Project Title : **074LC - Redevelopment of Lo Wu Correctional Institution**		Date Checked :	**13/2/2006**

Co-ordinates : E **829699.49** N **841923.38**		Ground Level :	**5.76** mPD
Response Zone : **4.76** mPD to **-4.74** mPD		Piezometer Tip Level :	**-4.24** mPD
Remarks :			

INSTALLATION DETAILS OF STANDPIPE

Date	Depth of G.W.L. (m)
13/2/2006	2.79
14/2/2006	2.83
15/2/2006	2.85
16/2/2006	2.85
17/2/2006	2.90
18/2/2006	2.92
20/2/2006	2.95

Reduced Level (mPD)	Depth (m)
5.86	-0.10
5.76	0.00
5.46	0.30
4.76	1.00
-4.24	10.00
-4.74	10.50
-5.74	11.50
-24.17	29.93



(Not to Scale)

DRILLHOLE RECORD

CONTRACT NO. GC/87/05

W.O. NO. PW7/2/22.69
HOLE NO. E/P3
SHEET 1 of 2
DATE from 6.8.88 to 9.8.88

PROJECT Shek Wu Hui Package 4, Area 30, 30B & 33 River Training, Area E, Phase 1

METHOD Rotary	CO-ORDINATES E 829839 N 841895	ROCK COREBIT T2, TNW
MACHINE & NO. Long Year D51		HOLE DIA. 140mm to 114mm P to H
FLUSHING MEDIUM Water	ORIENTATION Vertical	GROUND LEVEL 5.45 mPD

Drilling Progress	Casing depth/size	Water level/time/date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m.)	Legend	Grade	Zone	Description
6/8	P		80								0.00				
								(1,2, 2,4,5,7) N=18			1.00				Medium dense, light yellowish brown, sandy clayey SILT (ALLUVIUM)
				100							2.00				
											3.00				
								(1,1, 2,3,5,5) N=15		1.45	4.00				
				0							5.00				
								(3,1, 3,5,5,9) N=22			6.00				Medium dense, light grey, slightly silty fine to coarse SAND with quartz gravel (ALLUVIUM)
				0							7.00				
		2.60m at 19:00									8.00				
6/8										-2.85	8.30				
8/8		3.50m at 7:00		44	0	0	*		T2		9.00 9.20				Sub-rounded COBBLE , GRAVEL of quartz and volcanic rock with silty sand (ALLUVIUM)
				84	8	0	*			-4.00	9.45		IV to III		Highly to moderately decomposed SCHIST
										-4.35	9.80				See sheet 2 of 2
8/8	P		80												

• Small disturbed sample	▲ Water sample
Large disturbed sample	Water level
SPT liner sample	Standard penetration test
U76 undisturbed sample	Permeability test
U100 undisturbed sample	Piezometer tip
Mazier sample	In-situ vane shear test
P/S Piston sample	

LOGGED [redacted]
DATE 10.8.88
CHECKED [redacted]
DATE 16.8.88

REMARKS
1. * Cannot be determined

Lam Geotechnics Limited

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• Telex: 61840 LGEOL HX • Fax: 5-8932274 • Tels: 5-8910563, 5-734365

DRILLHOLE RECORD

W.O. NO. PW7/2/22.69
HOLE NO. E/P3
SHEET 2 of 2
DATE from 6.8.88 to 9.8.88

CONTRACT NO. GC/87/05

PROJECT Shek Wu Hui Package 4, Area 30, 30B & 33 River Training, Area E, Phase 1

METHOD Rotary	CO-ORDINATES	ROCK COREBIT T2, TNW
MACHINE & NO. Long Year D51	E 829839 N 841895	HOLE DIA. 140mm P
FLUSHING MEDIUM Water	ORIENTATION Vertical	GROUND LEVEL 5.45 mPD

Drilling Progress	Casing depth/size	Water level/ time/ date	Water Recovery %	Total core Recovery %	Solid core Recovery %	R.Q.D.	Fracture Index	Tests	Samples	Reduced Level	Depth (m.)	Legend	Grade	Zone	Description
8/8	P		80					(2,3, 7,11,18,24) N=60			10.00				
											11.00				
											12.00				Light grey, light brown, silty fine to medium SAND with fragments of quartz and schist
				100							13.00		V to IV		(Completely to highly decomposed SCHIST)
											14.00				
										-9.40	14.85				
8/8	15.35 P	2.20m at 19:00		92	40	0	>10		T2		15.35				
9/8		3.45m at 7:00		100	91	18	9				15.90				
				95	89	0	>10				16.35				
				100	71	0	>10				17.05				Moderately weak to moderately strong, light brown, light grey, moderately decomposed SCHIST, highly decomposed in part, closely spaced joints, dip 20°-30°, schistosity dip 45°, rock fractured below 18.05m, quartz vein at 19.00m
				96	0	0	*		TNW				III		
											18.05				
				95	0	0	*				18.40				
				100	38	38	*				18.80				
				92	17	0	*				19.40				
		2.65m at 19:00		90	29	0	>10			-14.50	19.95				End of investigation hole at 19.95m
9/8			80												

● Small disturbed sample	▲ Water sample	LOGGED [redacted]
↕ Large disturbed sample	⊻ Water level	DATE 10.8.88
SPT liner sample	↓ Standard penetration test	CHECKED [redacted]
U76 undisturbed sample	Permeability test	DATE 16.8.88
U100 undisturbed sample	Piezometer tip	
Mazier sample	In-situ vane shear test	
P/S Piston sample		

REMARKS

Lam Geotechnics Limited

● Office: 2/F., 332 Lockhart Rd., Kai Kwong Comm. Bldg., Hong Kong. ● Laboratory: G/F., 218 Wan Chai Rd., Hong Kong.
● Telex: 61840 LGEOL HX ● Fax: 5-8932274 ● Tels: 5-8910563, 5-734365

Gammon (Hong Kong) Limited
CIVIL ENGINEERS & CONTRACTORS
33rd Floor, Hopewell Centre, 183 Queen's Road, East, Hong Kong.
Tel: 5-283041 Cables: GAMMONCO Telex: HX 73526

Contract No: GC/85/08
Client Office: G.C.O.

Borehole/Drillhole No. FL30/4

Job No & Location: P.W.7/2/15.59 SHEK WU HUI PACKAGE 4, AREA 3 & 30B

Sheet 1 **of** 2

Method: ROTARY **Ground Level:** +3.5m P D **Coords E.** 29882.1

Machine: D76 **Orientation:** VERTICAL **N.** 41993.6

Hole dia.: 0m 140mm 10m 120mm 15.5m **Date: from** 25-10 **to** 27-10-86

Drilling progress	Casing depth size	Water level	Water recovery %	Core recovery %	R.Q.D. %	Fracture index	Tests	Samples	Depth metres	Reduced Level	Legend	Description	Depth	Grade
25.10.86 7:30	PW		95						0.0	+3.5		Loose, greyish brown, very coarse sandy CLAY (FILL)		
							1,1 2,2 2,3 N=9	1	1.0 / 1.5	+2.0		Firm, brown, sandy silty CLAY (FILL)		
				100			1,1 1,2 2,2 7 blows	U76 2	2.0 / 2.5	+1.0		Loose, greyish brown, grey, clayey SILT (FILL)		
							1,1 1,1 1,2 N=5	3	3.0 / 3.5	0.0		Greyish brown, silty fine SAND (FILL)		
				100			2,3 3,4 5,5 17 blows	U76 4	4.0 / 4.5	-1.0		Stiff, dark grey, clayey SILT (FILL)		
							1,1 2,1 1,2 N=6	5	5.0 / 5.5	-2.0		Medium dense, greyish white and grey, fine to coarse SAND (ALLUVIUM)		
				100			3,5 5,5 6,7 23 blows	U76 6	6.0 / 6.5					
							4,4 4,4 5,5 N=18	7	7.0 / 7.5					
				100			4,5 5,7 6,7 25 blows	U76 8	8.0 / 8.5	-4.5		Medium dense, light grey, grey, silty SAND (ALLUVIUM)		
							3,5 5,5 5,6 N=21	9	9.0 / 9.5	-5.5		Medium dense, greyish white, grey, silty medium to coarse SAND (ALLUVIUM)		
	10m								10.0	-6.5				

Legend

Samples:

- Small disturbed
- Large disturbed
- U40 undisturbed
- U76 undisturbed
- Mazier
- Liner sample
- Standard penetration test
- Permeability test
- Water sample
- Water table

Remarks

GT 51

Gammon (Hong Kong) Limited
CIVIL ENGINEERS & CONTRACTORS
33rd Floor, Hopewell Centre, 183 Queen's Road, East, Hong Kong.
Tel: 5-283941 Cables: GAMMONCO Telex: HX 73826

Contract No: GC/85/08
Client Office: G.C.O.

~~Borehole~~/Drillhole No. FL30/4

Job No & Location: P.W.7/2/15.59 SHEK WU HUI PACKAGE 4, AREA 3 & 30B

Sheet 2 of 2

Method: ROTARY
Ground Level: +3.5m P D
Coords E. 29882.1
Machine: D76
Orientation: VERTICAL
N. 41993.6
Hole dia.: AS SHEET 1
Date: from 25-10 to 27-10-86

Drilling progress	Casing depth size	Water level	Water recovery %	Core recovery %	R.Q.D. %	Fracture index	Tests	Samples	Depth metres	Reduced Level	Legend	Description	Depth	Grade
	106									-6.5				
25.10.86 18:00		3.1m 18:00		100			5,6 7,7 6,8 28 blows	U76 10	10.0			Ditto		
27.10.86 7:30		3.2m 7:30							10.5	-7.0		Very dense, brick red, mottled yellowish brown, SILT (EXTREMELY WEATHERED SILTSTONE)		V
							7,7 23,26 29,37 N=115	11	11.0					
									11.5	-8.0		Yellowish brown, mottled purple, SILT (EXTREMELY WEATHERED SILTSTONE)		V
				100			6,20 46,50 62,42 200 blows	U76 12	12.0					
									12.5	-9.0		Very dense, brick red, mottled yellowish brown, SILT (EXTREMELY WEATHERED SILTSTONE)		V
							10,16 24,30 36,46 N=136	13	13.0					
									13.5	-10.0		Very dense, yellowish brown, mottled purple, SILT (EXTREMELY WEATHERED SILTSTONE)		V
							13,25 41,52 62,69 224 blows	U76 14	14.0					
				100					14.5					
							9,10 12,15 15,17 N=57	15	15.0					
27.10.86 12:00	15.5m	3.4m 12:00							15.5	-12.0		Operation stopped at 15.5m as given on Work Order.		

Legend

Samples:

- Small disturbed
- Large disturbed
- U40 undisturbed
- U76 undisturbed
- Mazier
- Liner sample
- Standard penetration test
- Permeability test
- Water sample
- Water table

Remarks

FUGRO GEOTECHNICAL SERVICES LTD	DRILLHOLE RECORD	HOLE No. KTN-BH04
	CONTRACT No.: GE/2008/04	SHEET: 1 of 5

PROJECT: Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas Planning and Engineering Study - Investigation

METHOD: Rotary Drilling	CO-ORDINATES: E 829681.82 N 841872.79	WORKS ORDER No. GE/2008/04.29
MACHINE & No.: D-70		DATE from: 31/08/2009 to 09/09/2009
FLUSHING MEDIUM: Water	ORIENTATION: Vertical	GROUND LEVEL + 5.12 mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/ end	Water Return %	T C R %	S C R %	R Q D %	F I	Tests	Samples No. Type Depth	Reduced Level	Depth (m)	Legend	Grade	Description
									5.12		0.00			
01/09/2009	SW								1 0.45 0.50; 2 0.95 1.00; 3 1.45 1.50					Soft to firm, olive grey (5Y/5/2), mottled yellowish brown, slightly sandy, clayey SILT. (TOP SOIL)
1									INSPECTION PIT					
2			80	40					4 1.55 2.00; 5	3.12	2.00			Soft, grey (7.5YR/6/1), mottled yellowish brown, sandy, very clayey SILT with occasional subangular coarse gravel of moderately strong quartz. (ALLUVIUM)
3	SW 3.10								6 3.00 3.10; 7	2.02	3.10			
	PW		80	100					8 3.50 3.60	1.52	3.60			Light brown (7.5YR/6/3), subangular coarse GRAVEL of moderately strong quartz with some matrix of silty fine to coarse sand. (ALLUVIUM)
4			60	58					4.00					Light grey (10R/7/1), subangular medium to coarse GRAVEL of moderately strong metasandstone. (ALLUVIUM)
			80	66						0.77	4.35			
01/09/2009 02/09/2009			80	60					4.50					Light yellowish brown (2.5Y/6/4), subangular coarse GRAVEL and COBBLES of moderately strong metasandstone with some matrix of silty fine to coarse sand. (ALLUVIUM)
5									9 5.00	0.12	5.00			
			80	92										Yellowish red (5YR/5/6), subangular fine to coarse GRAVEL of moderately strong metasandstone and quartz with some matrix of sandy clayey silt. (ALLUVIUM)
6								k=2.20E-5m/s 2, 3, 8, 12, 17, 13 N=50	10 6.00 6.10; 11 6.20; 12 6.50 6.55					
7			0	0					7.00					
									13 7.70 7.80	-2.68	7.80			
8			60	57					T2101 8.10	-2.98	8.10			Light yellowish brown (2.5Y/6/4), subangular to subrounded medium to coarse GRAVEL of moderately strong metasandstone and quartz with some matrix of sandy clayey silt. (ALLUVIUM)
02/09/2009 03/09/2009			0	0										
9	PW 9.20								14 9.10 9.20	-4.08	9.20			Light yellowish brown (2.5Y/6/4), subangular coarse GRAVEL of moderately strong quartz with some matrix of clayey silt. (ALLUVIUM)
	HW		80	100					15				V	Extremely weak, dark reddish brown (2.5YR/3/4), completely decomposed foliated METASILTSTONE. (Very stiff, clayey SILT)
10										-4.88	10.00			

Small Disturbed Sample
Piston sample
U76 Undisturbed Sample
U100 Undisturbed Sample
Mazier Sample
SPT Liner Sample
Water Sample
Piezometer Tip
Standard Penetration Test
In-situ Vane Shear Test
Permeability Test
Pressuremeter Test
Televiewer Survey
Packer Test
Impression Packer Test
Standpipe

LOGGED [redacted]
DATE 16/09/2009
CHECKED [redacted]
DATE 18/09/2009

REMARKS

1. An inspection pit was excavated to a depth of 2.00m.
2. Falling head permeability tests were performed from 5.50m to 7.00m and 11.00 to 12.50m below existing ground level on 03/09/2009 and 04/09/2009 respectively.
3. Acoustic borehole televiewer test was performed from 36.16m to 42.21m below existing ground level on 08/09/2009.
4. Two piezometers were installed at 7.10m and 35.20m below existing ground level on 09/09/2009.

FUGRO GEOTECHNICAL SERVICES LTD	DRILLHOLE RECORD	HOLE No. KTN-BH04
	CONTRACT No.: GE/2008/04	SHEET: 2 of 5

PROJECT: Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas Planning and Engineering Study - Investigation

METHOD: Rotary Drilling	CO-ORDINATES: E 829681.82 N 841872.79	WORKS ORDER No. GE/2008/04.29
MACHINE & No.: D-70		DATE from: 31/08/2009 to 09/09/2009
FLUSHING MEDIUM: Water	ORIENTATION: Vertical	GROUND LEVEL + 5.12 mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/end	Water Return %	T C R %	S C R %	R Q D %	F I	Tests	Samples (No. Type Depth)	Reduced Level	Depth (m)	Legend	Grade	Description
										-4.88	10.00		V	As sheet 1 of 5.
11								6, 11, 14, 17, 22, 24 N=77	16 10.20 10.30; 17 10.40; 18 10.70 10.75					
12			90	97				k=6.47E-7m/s; 5, 12, 18, 13, 13, 22 N=66	19 11.20; 20 12.20 12.30; 21 12.40; 22 12.70 12.75					
13 (03/09/2009 04/09/2009)									23 13.20	-8.08	13.20		V	Extremely weak, light yellowish brown (2.5Y/6/4), completely decomposed foliated METASILTSTONE. (Firm, clayey SILT)
14			90	95				2, 3, 4, 6, 6, 8 N=24	24 14.20; 25 14.30 14.40; 26 14.70 14.75					
15			90	100					27 15.20					
16								3, 3, 4, 6, 9, 11 N=32	28 16.20; 29 16.30 16.40; 30 16.70 16.75	-11.18	16.30		V	Extremely weak, yellowish red (5YR/5/6) to light red (10R/6/6), striped black, completely decomposed foliated METASILTSTONE. (Stiff, clayey SILT)
17			90	85					31 17.20					
18								2, 2, 7, 6, 6, 12 N=35	32 18.20; 33 18.30 18.40; 34 18.70 18.75					
19			90	86					35 19.20					
20										-14.88	20.00			

Small Disturbed Sample	Standard Penetration Test	LOGGED [redacted]	REMARKS
Piston sample	In-situ Vane Shear Test		
U76 Undisturbed Sample	Permeability Test	DATE 16/09/2009	
U100 Undisturbed Sample	Pressuremeter Test		
Mazier Sample	Televiewer Survey	CHECKED [redacted]	
SPT Liner Sample	Packer Test		
Water Sample	Impression Packer Test	DATE 18/09/2009	
Piezometer Tip	Standpipe		

FUGRO GEOTECHNICAL SERVICES LTD	DRILLHOLE RECORD	HOLE No. KTN-BH04
	CONTRACT No.: GE/2008/04	SHEET: 3 of 5

PROJECT: Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas Planning and Engineering Study - Investigation

METHOD: Rotary Drilling	CO-ORDINATES: E 829681.82 N 841872.79	WORKS ORDER No. GE/2008/04.29
MACHINE & No.: D-70		DATE from: 31/08/2009 to 09/09/2009
FLUSHING MEDIUM: Water	ORIENTATION: Vertical	GROUND LEVEL + 5.12 mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/ end	Water Return %	TCR %	SCR %	RQD %	FI	Tests	Samples (No. Type Depth)	Reduced Level	Depth (m)	Legend	Grade	Description
										-14.88	20.00		V	As sheet 2 of 5.
14/09/2009 05/09/2009 21		2.60m at 18:00 0.76m at 08:00						3, 5, 8, 9, 11, 14 N=42	36 20.20 20.30 20.40; 37; 38 20.70 20.75	-16.08	21.20			
22			90	73					39 21.20	-17.18	22.30		V	Extremely weak, light yellowish brown (2.5Y/6/4), striped black, completely decomposed METASANDSTONE. (Silty fine to medium SAND)
23			90	99					40 22.20 22.30; 41				IV	Very weak to weak, light yellowish brown, highly decomposed foliated METASILTSTONE. (Recovered as angular coarse gravel)
24								14, 20, 25, 30, 45 / 50mm 100 bls / 200mm	42 23.30 23.40 23.50; 43; 44 23.70 23.75	-18.98	24.10			
25			90	94	47	26	7.3		24.10 T2/01 25.16				III	Moderately weak to moderately strong, light yellowish brown to greyish brown, spotted brown, moderately decomposed foliated METASILTSTONE. Joints are closely spaced, smooth planar, extremely narrow, iron oxide stained, dipping at 15°-25°, 55°-65° and subvertical.
26			90	97	63	9	12.7		T2/01 26.50					
27			90	96	72	34	9.1		T2/01	-22.28	27.40			
28			90	89	0	0	NA		27.75 T2/01 28.50	-23.38	28.50		V	Extremely weak to very weak, light yellowish brown (2.5Y/6/4), completely decomposed foliated METASILTSTONE. (Stiff, clayey SILT)
29			90	100					45				V	Extremely weak, olive grey (5Y/5/2), completely decomposed foliated METASILTSTONE. (Very stiff, clayey SILT).
30								11, 17, 20, 22, 24, 26 N=92	46 29.50 29.60 29.70; 47 30.00	-24.88	30.00			

Small Disturbed Sample	Standard Penetration Test	LOGGED [redacted]	REMARKS
Piston sample	In-situ Vane Shear Test	DATE 16/09/2009	
U76 Undisturbed Sample	Permeability Test	CHECKED [redacted]	
U100 Undisturbed Sample	Pressuremeter Test	DATE 18/09/2009	
Mazier Sample	Televiewer Survey		
SPT Liner Sample	Packer Test		
Water Sample	Impression Packer Test		
Piezometer Tip	Standpipe		

FUGRO GEOTECHNICAL SERVICES LTD	DRILLHOLE RECORD	HOLE No. KTN-BH04
	CONTRACT No.: GE/2008/04	SHEET: 4 of 5

PROJECT: Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas Planning and Engineering Study - Investigation

METHOD: Rotary Drilling	CO-ORDINATES: E 829681.82 N 841872.79	WORKS ORDER No. GE/2008/04.29
MACHINE & No.: D-70		DATE from: 31/08/2009 to 09/09/2009
FLUSHING MEDIUM: Water	ORIENTATION: Vertical	GROUND LEVEL + 5.12 mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/ end	Water Return %	T C R %	S C R %	R Q D %	F I	Tests	Samples	Reduced Level	Depth (m)	Legend	Grade	Description
08/09/2009 07/09/2009									48	-24.88	30.00		V	As sheet 3 of 5.
31			90	100					49 (30.50)					
32								7, 19, 24, 46, 30 / 50mm; 100 bls / 200mm	50 (31.50, 31.60); 51 (31.70); 52 (31.90, 31.95)					
33			90	82					53 (32.50)					
34								19, 26, 30, 36, 34 / 40mm; 100 bls / 190mm	54 (33.50, 33.60); 55 (33.70); 56 (33.80, 33.94)					
35			90	97					57 (34.50)					
36	HW 36.16							17, 32, 100 / 70mm; 100 bls / 70mm	58 (35.50, 35.60); 59 (35.70); 60 (35.82)					
									36.16	-31.04	36.16		III	Strong, grey, laminated dark grey, slightly decomposed foliated METASILTSTONE.
			90	100	80	24			T2101	-31.34	36.46		II	Joints are very closely to closely spaced, smooth planar, extremely narrow, clean, locally iron oxide stained, dipping at 15°-25°, 25°-35°, locally 50°-60°.
37									36.82					
		3.00m at 18:00	90	100	81	32	12.3		T2101					36.16 - 36.46m : Moderately strong, light yellowish brown, moderately decomposed METASILTSTONE.
07/09/2009 08/09/2009		2.30m at 08:00							37.93					
			90	100	51	43			T2101					
39									38.85	-33.73	38.85			38.85 - 40.30m : With silicification and disseminated pyrite along joint surface.
			90	100	16	16			T2101					
									39.64					
40			90				>20		T2101	-34.88	40.00			

Small Disturbed Sample
Piston sample
U76 Undisturbed Sample
U100 Undisturbed Sample
Mazier Sample
SPT Liner Sample
Water Sample
Piezometer Tip
Standard Penetration Test
In-situ Vane Shear Test
Permeability Test
Pressuremeter Test
Televiewer Survey
Packer Test
Impression Packer Test
Standpipe

LOGGED [redacted]
DATE 16/09/2009
CHECKED [redacted]
DATE 18/09/2009

REMARKS

FUGRO GEOTECHNICAL SERVICES LTD	DRILLHOLE RECORD	HOLE No. KTN-BH04
	CONTRACT No.: GE/2008/04	SHEET: 5 of 5

PROJECT: Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas Planning and Engineering Study - Investigation

METHOD: Rotary Drilling	CO-ORDINATES: E 829681.82 N 841872.79	WORKS ORDER No. GE/2008/04.29
MACHINE & No.: D-70		DATE from: 31/08/2009 to 09/09/2009
FLUSHING MEDIUM: Water	ORIENTATION: Vertical	GROUND LEVEL + 5.12 mPD

Drilling Progress	Casing depth/size	Water Level (m) Shift start/ end	Water Return %	T C R %	S C R %	R Q D %	F I	Tests	Samples No. Type Depth	Reduced Level	Depth (m)	Legend	Grade	Description
				100	0	0				-34.68	40.00		II	As sheet 4 of 5.
			90	100	18	0			40.19 T2101	-35.18	40.30			
41			90	100	76	0			40.85 T2101					
							17.5		41.31					
42		2.40m at 18:00	90	100	71	44			T2101 42.34	-37.22	42.34			
43														End of investigation hole at 42.34m.
44														
45														
46														
47														
48														
49														
50											50.00			

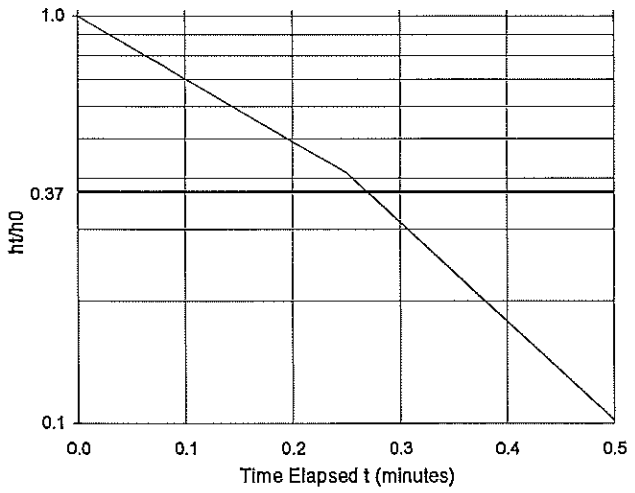
Small Disturbed Sample	Standard Penetration Test	LOGGED [redacted]	REMARKS
Piston sample	In-situ Vane Shear Test		
U78 Undisturbed Sample	Permeability Test	DATE 16/09/2009	
U100 Undisturbed Sample	Pressuremeter Test		
Mazier Sample	Televiewer Survey	CHECKED [redacted]	
SPT Liner Sample	Packer Test		
Water Sample	Impression Packer Test	DATE 18/09/2009	
Piezometer Tip	Standpipe		

FUGRO GEOTECHNICAL SERVICES LTD

FALLING HEAD PERMEABILITY TEST RECORD SHEET

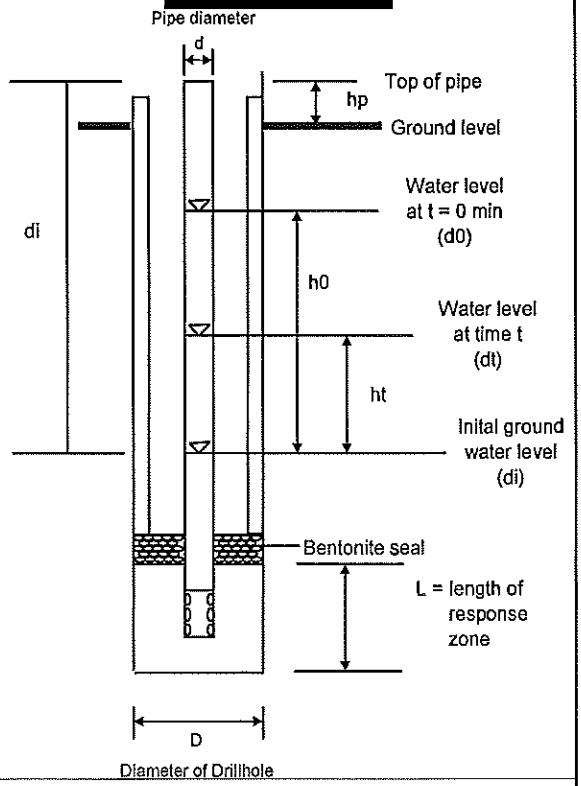
Contractor :	Fugro Geotechnical Services Ltd.	Drillhole No. : KTN-BH04	Test No 1-1
Contract No. :	GE/2008/4	Date of test : 03/09/2009	
W.O. No. :	GE/2008/4.29	Ground Level : +5.12 mP.D.	
Project :	Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas, Planning and Engineering Study - Investigation	Co-ordinates (m): E 829681.82 N 841872.79	
Initial Water Level before test	2.05 m below G.L.	Depth of test (m): 5.50m to 7.00m below G.L.	
Tested / Supervised by :	[redacted]	Checked by :	[redacted]

Elapsed Time t (minutes)	Depth of Water from top of pipe dt (m)	ht ht= di - dt (m)	ht/h0 (h0 = di - d0)
0.00	0.00	4.02	1.00
0.25	2.36	1.66	0.41
0.50	3.61	0.41	0.10
0.75	3.85	0.17	0.04
1.00	3.90	0.12	0.03
1.50	3.98	0.04	0.01
2.00	4.01	0.01	0.00
3.00	4.02	0.00	0.00



Note : T is time when ht/h0 =0.37

T = 16.8 sec



d =	0.038	m
D =	0.140	m
L =	1.50	m
hp =	1.97	m
di =	4.02	m

Where :

$$\text{Area } (m^2) = A = \frac{d^2\pi}{4} = 0.00113$$

Intake Factor = F (in metres)

$$F = \frac{2\pi L}{Ln\{(L/D) + [1 + (L/D)^2]^{1/2}\}}$$

F= 3.07

Permeability $k = \frac{A}{FT}$

k = 2.20E-05 m/sec

Material Surrounding Response Zone :
GRAVEL with matrix of sandy clayey silt. (ALLUVIUM)

Remarks:

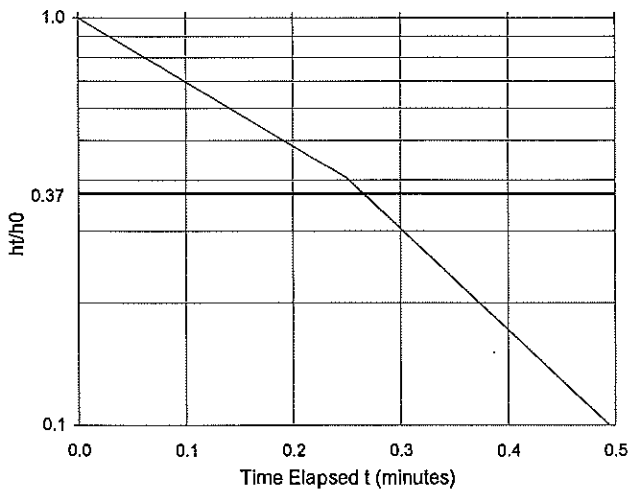
Filter Material : Granular aggregate

FUGRO GEOTECHNICAL SERVICES LTD

FALLING HEAD PERMEABILITY TEST RECORD SHEET

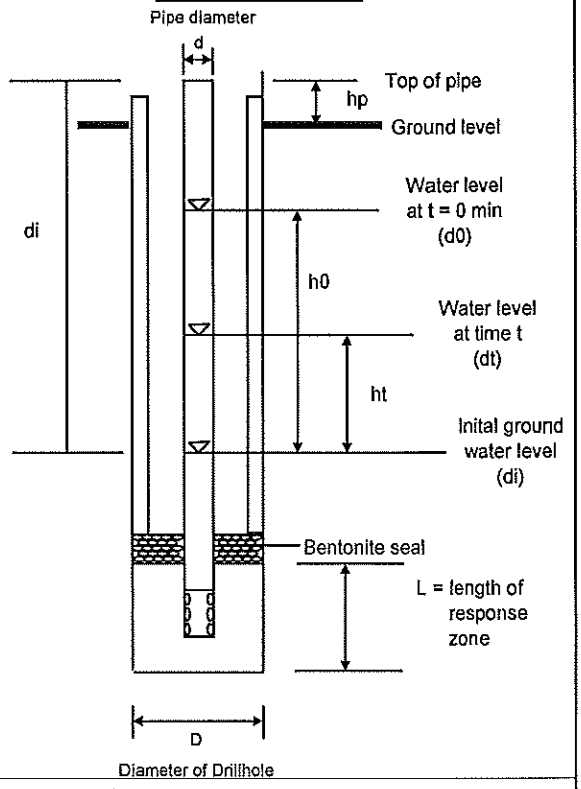
Contractor :	Fugro Geotechnical Services Ltd.	Drillhole No. : KTN-BH04	Test No 1-2
Contract No. :	GE/2008/4	Date of test : 03/09/2009	
W.O. No. :	GE/2008/4.29	Ground Level : +5.12 mP.D.	
Project :	Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas, Planning and Engineering Study - Investigation	Co-ordinates (m): E 829681.82 N 841872.79	
Initial Water Level before test	2.05 m below G.L.	Depth of test (m): 5.50m to 7.00m below G.L.	
Tested / Supervised by :	[redacted]	Checked by :	[redacted]

Elapsed Time t (minutes)	Depth of Water from top of pipe dt (m)	ht ht= di - dt (m)	ht/h0 (h0 = di - d0)
0.00	0.00	4.02	1.00
0.25	2.39	1.63	0.41
0.50	3.63	0.39	0.10
0.75	3.88	0.14	0.03
1.00	3.91	0.11	0.03
1.50	3.99	0.03	0.01
2.00	4.02	0.00	0.00



Note : T is time when ht/h0 =0.37

T = 16.8 sec



d =	0.038	m
D =	0.140	m
L =	1.50	m
hp =	1.97	m
di =	4.02	m

Where :

$$\text{Area } (m^2) = A = \frac{d^2\pi}{4} = 0.00113$$

Intake Factor = F (in metres)

$$F = \frac{2\pi L}{Ln\{(L/D) + [1 + (L/D)^2]^{1/2}\}}$$

F= 3.07

Permeability $k = \frac{A}{FT}$

k = 2.20E-05 m/sec

Material Surrounding Response Zone :

GRAVEL with matrix of sandy clayey silt. (ALLUVIUM)

Remarks:

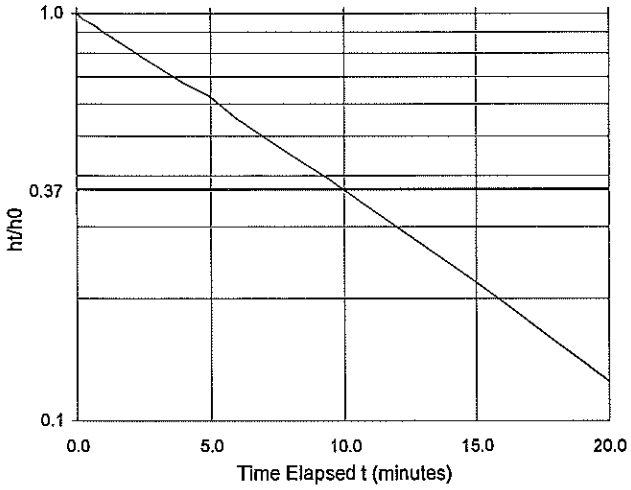
Filter Material : Granular aggregate

FUGRO GEOTECHNICAL SERVICES LTD

FALLING HEAD PERMEABILITY TEST RECORD SHEET

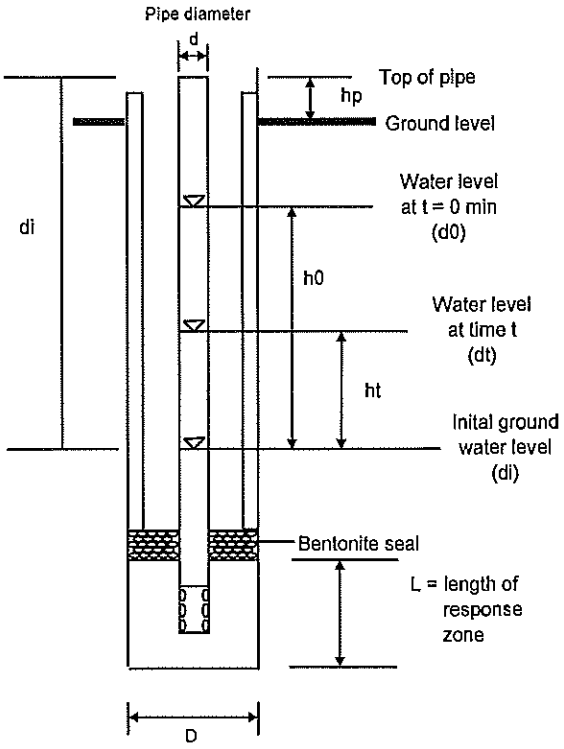
Contractor :	Fugro Geotechnical Services Ltd.	Drillhole No. : KTN-BH04	Test No 2-1
Contract No. :	GE/2008/4	Date of test : 04/09/2009	
W.O. No. :	GE/2008/4.29	Ground Level : +5.12 mP.D.	
Project :	Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas, Planning and Engineering Study - Investigation	Co-ordinates (m): E 829681.82 N 841872.79	
Initial Water Level before test	2.15 m below G.L.	Depth of test (m): 11.00m to 12.50m below G.L.	
Tested / Supervised by :	[redacted]	Checked by :	[redacted]

Elapsed Time t (minutes)	Depth of Water from top of pipe dt (m)	ht ht= di - dt (m)	ht/h0 (h0 = di - d0)
0.00	0.00	4.15	1.00
0.25	0.13	4.02	0.97
0.50	0.21	3.94	0.95
0.75	0.30	3.85	0.93
1.00	0.41	3.74	0.90
1.50	0.59	3.56	0.86
2.00	0.76	3.39	0.82
3.00	1.08	3.07	0.74
4.00	1.35	2.80	0.67
5.00	1.56	2.59	0.62
6.00	1.86	2.29	0.55
7.00	2.08	2.07	0.50
8.00	2.28	1.87	0.45
9.00	2.45	1.70	0.41
10.00	2.62	1.53	0.37
15.00	3.24	0.91	0.22
20.00	3.63	0.52	0.13
25.00	3.86	0.29	0.07
30.00	4.00	0.15	0.04



Note : T is time when ht/h0 =0.37

T = 600.0 sec



d =	0.038	m
D =	0.114	m
L =	1.50	m
hp =	2.00	m
di =	4.15	m

Where :

$$\text{Area } (m^2) = A = \frac{d^2\pi}{4} = 0.00113$$

Intake Factor = F (in metres)

$$F = \frac{2\pi L}{Ln\{(L/D) + [1 + (L/D)^2]^{1/2}\}}$$

F= 2.88

Permeability $k = \frac{A}{FT}$

k = 6.56E-07 m/sec

Material Surrounding Response Zone :

Completely decomposed METASILTSTONE. (Clayey SILT)

Remarks:

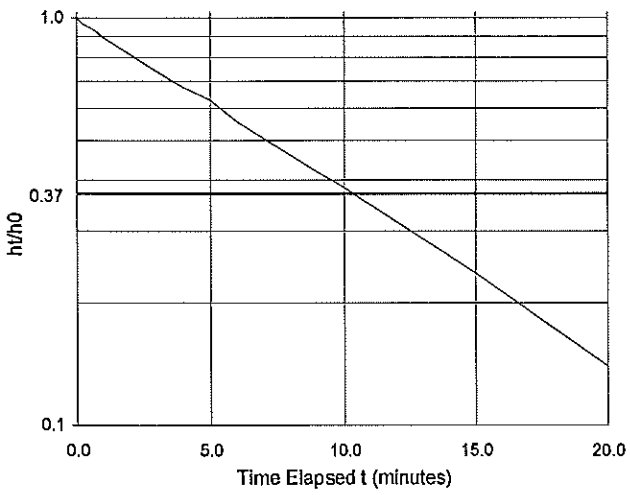
Filter Material : Granular aggregate

FUGRO GEOTECHNICAL SERVICES LTD

FALLING HEAD PERMEABILITY TEST RECORD SHEET

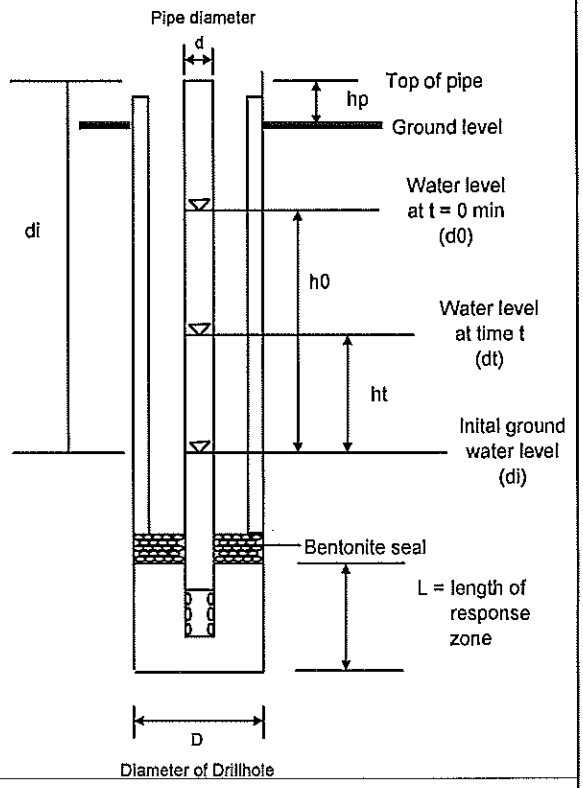
Contractor :	Fugro Geotechnical Services Ltd.	Drillhole No. : KTN-BH04	Test No 2-2
Contract No. :	GE/2008/4	Date of test : 04/09/2009	
W.O. No. :	GE/2008/4.29	Ground Level : +5.12 mP.D.	
Project :	Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas, Planning and Engineering Study - Investigation	Co-ordinates (m): E 829681.82 N 841872.79	
Initial Water Level before test	2.15 m below G.L.	Depth of test (m): 11.00m to 12.50m below G.L.	
Tested / Supervised by :	[redacted]	Checked by :	[redacted]

Elapsed Time t (minutes)	Depth of Water from top of pipe dt (m)	ht ht= di - dt (m)	ht/h0 (h0 = di - d0)
0.00	0.00	4.15	1.00
0.25	0.15	4.00	0.96
0.50	0.22	3.93	0.95
0.75	0.31	3.84	0.93
1.00	0.43	3.72	0.90
1.50	0.61	3.54	0.85
2.00	0.77	3.38	0.81
3.00	1.09	3.06	0.74
4.00	1.35	2.80	0.67
5.00	1.54	2.61	0.63
6.00	1.84	2.31	0.56
7.00	2.05	2.10	0.51
8.00	2.24	1.91	0.46
9.00	2.41	1.74	0.42
10.00	2.56	1.59	0.38
15.00	3.17	0.98	0.24
20.00	3.57	0.58	0.14
25.00	3.79	0.36	0.09
30.00	3.91	0.24	0.06



Note : T is time when ht/h0 =0.37

T = 618.0 sec



d =	0.038	m
D =	0.114	m
L =	1.50	m
hp =	2.00	m
di =	4.15	m

Where :

$$\text{Area } (m^2) = A = \frac{d^2\pi}{4} = 0.00113$$

Intake Factor = F (in metres)

$$F = \frac{2\pi L}{Ln\{(L/D) + [1 + (L/D)^2]^{1/2}\}}$$

F= 2.88

Permeability $k = \frac{A}{FT}$

k = 6.37E-07 m/sec

Material Surrounding Response Zone :
Completely decomposed METASILTSTONE. (Clayey SILT)

Remarks:

Filter Material : Granular aggregate

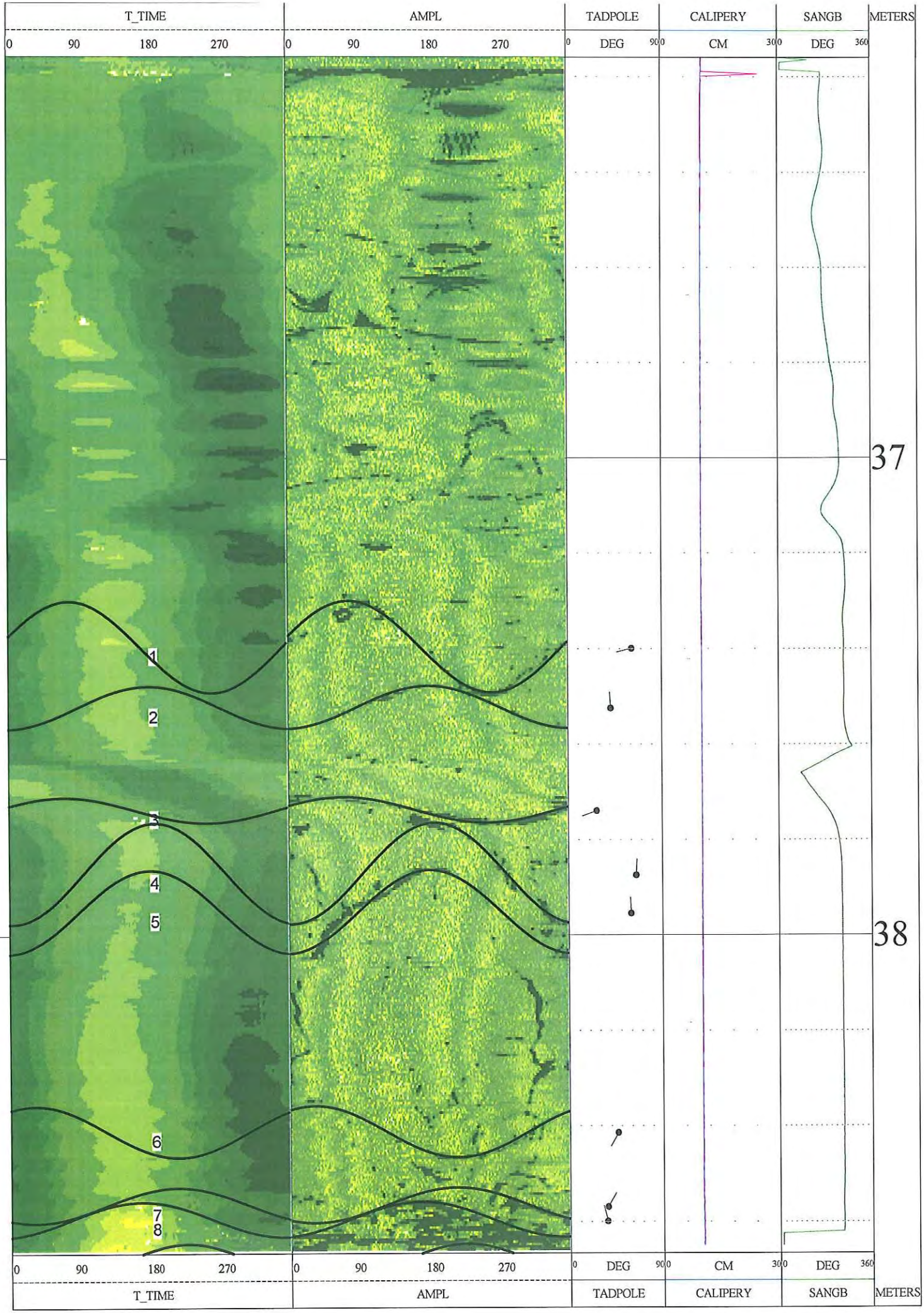
Company	: Fugro Geotechnical Services Ltd.
Borehole No.	: KTN-BH04
Contract	: GE/2008/04 Ground Investigation - New Territories West(Term contract)
Works Order No.	: GE/2008/04.29
Agreement No.	: CE61/2007(CE)
Works Order Title	: North East New Territories New Development Areas Planning and Engineering Study - Investigation
Location	: Ho Sheung Heung

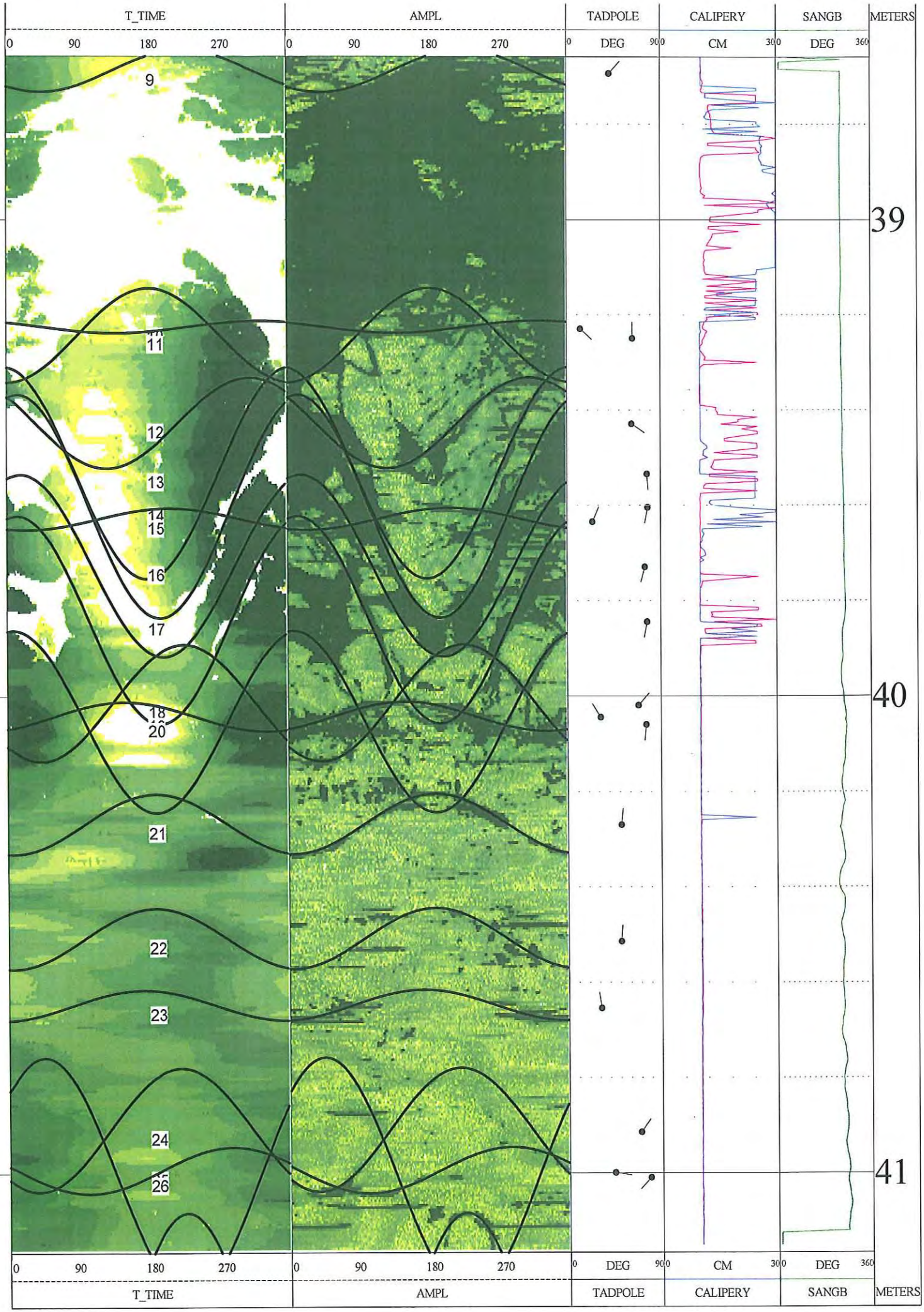
Test Date	: 08-09-2009	Permanent Datum	: None
Depth Driller	: 42.34m	Elev.Perm.Datum	: None
Log Bottom	: 42.23m	Log Measured From	: GL
Log Top	: 36.16m	Drl Measured From	: GL
Casing Driller	: 36.16m	Logging Unit	: FGS 1
Casing Type	: N/A	Field Office	: F.G.S
Casing Thickness	: N/A	Recorded by	: MH
Bit Size	: 10.1cm	Borehole Fluid	: Water
Magnetic Decl.	: -1	Sonde Type	: 8804A

Remark : All directions are relative to magnetic north from Hong Kong Metric Grid System North

Fracture Number	Dip (deg)	Azimuth (deg)	To (m)	From (m)	Diameter (cm)	Deviation (deg)	Dir. of Deviation (deg)	Category
1	61	255	37.30	37.49	10.30	0.6	257.1	Joint
2	41	356	37.48	37.57	10.30	0.6	253.0	Joint
3	27	249	37.71	37.76	10.35	0.5	179.3	Joint
4	65	003	37.76	37.98	10.30	0.5	244.3	Joint
5	60	357	37.86	38.04	10.20	0.5	245.8	Joint
6	46	210	38.36	38.47	10.20	0.6	248.4	Joint
7	36	030	38.53	38.60	10.35	0.6	245.0	Joint
8	36	345	38.56	38.63	10.35	0.6	247.0	Joint
9	41	042	38.65	38.73	10.60	0.6	247.3	Fracture Zone Top
10	13	133	39.21	39.24	10.85	0.6	247.2	Joint
11	63	359	39.14	39.34	11.45	0.6	250.3	Fracture Zone Bottom
12	62	125	39.33	39.52	15.15	0.6	246.7	Joint
13	77	176	39.31	39.75	12.00	0.6	253.5	Joint
14	78	192	39.37	39.84	11.00	0.6	257.5	Top of Joint
15	24	024	39.61	39.65	18.40	0.6	261.0	Joint
16	75	196	39.54	39.92	-	-	-	Bottom of Joint
17	77	192	39.62	40.06	11.65	0.4	262.8	Joint
18	68	041	39.89	40.14	10.25	0.4	259.9	Joint
19	32	327	40.01	40.07	10.25	0.5	252.0	Joint
20	76	186	39.86	40.24	10.25	0.4	259.5	Joint
21	51	005	40.20	40.33	10.35	0.4	216.6	Joint
22	51	005	40.44	40.57	10.30	0.4	244.6	Joint
23	32	350	40.62	40.68	10.40	0.4	261.2	Joint
24	69	036	40.78	41.04	10.25	0.4	274.0	Joint
25	44	100	40.95	41.04	10.25	0.3	275.0	Joint
26	78	224	40.76	41.26	10.20	0.3	264.1	Joint
27	81	043	41.08	41.72	10.20	0.3	266.7	Joint
28	68	010	41.32	41.57	10.20	0.2	276.1	Joint
29	66	109	41.52	41.74	10.20	0.3	247.9	Incipient Joint
30	40	343	41.70	41.78	10.25	0.3	279.1	Joint
31	46	128	41.69	41.79	10.25	0.3	279.1	Joint

Checked by: [redacted]


T_TIME
AMPL
TADPOLE
CALIPERY
SANGB
METERS
0 90 180 270
DEG
CM
37
38
1
2
3
4
5
6
7
8


T_TIME
AMPL
TADPOLE
CALIPERY
SANGB
METERS
0 90 180 270
0 DEG 90
0 CM 30
0 DEG 360
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11
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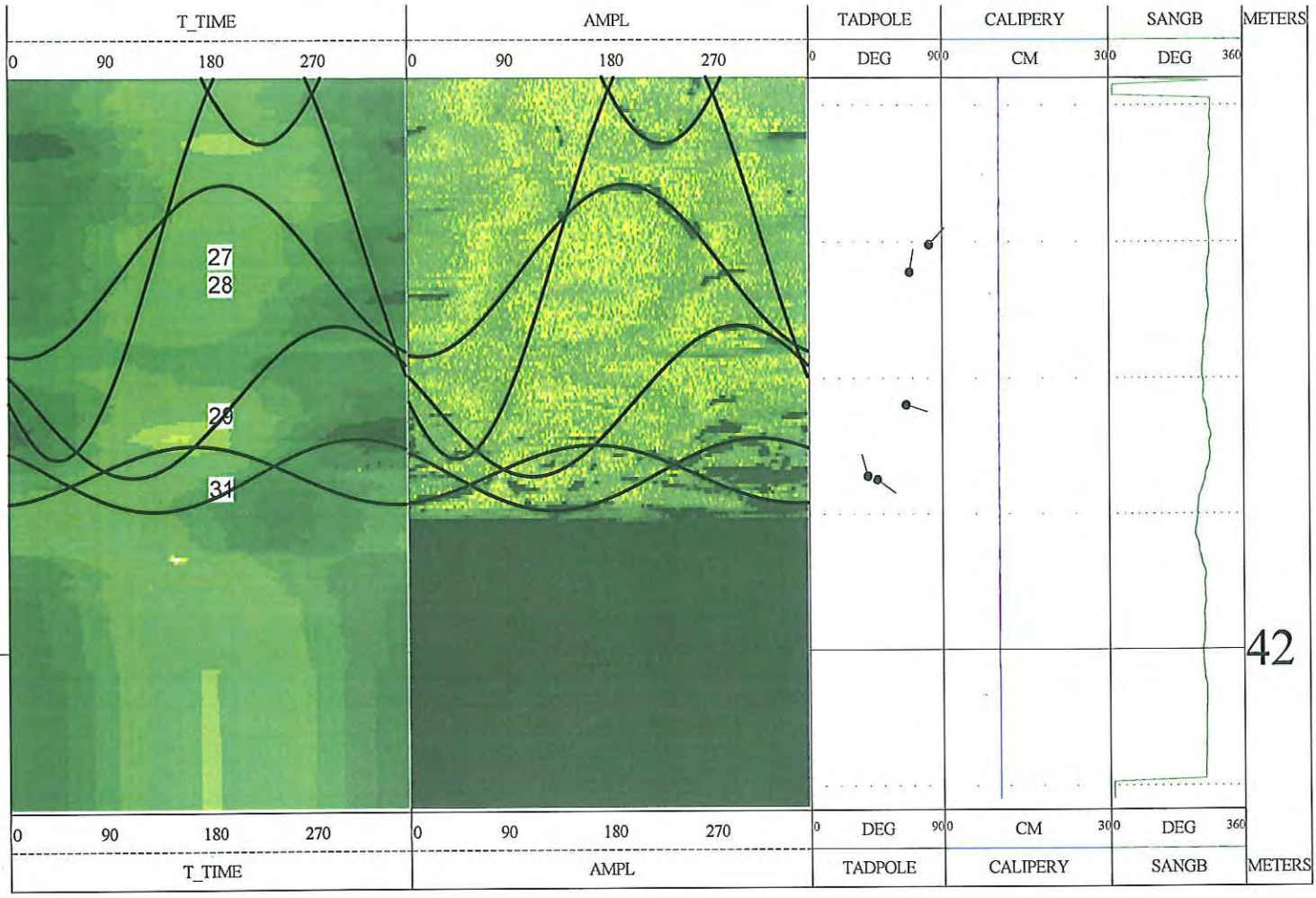
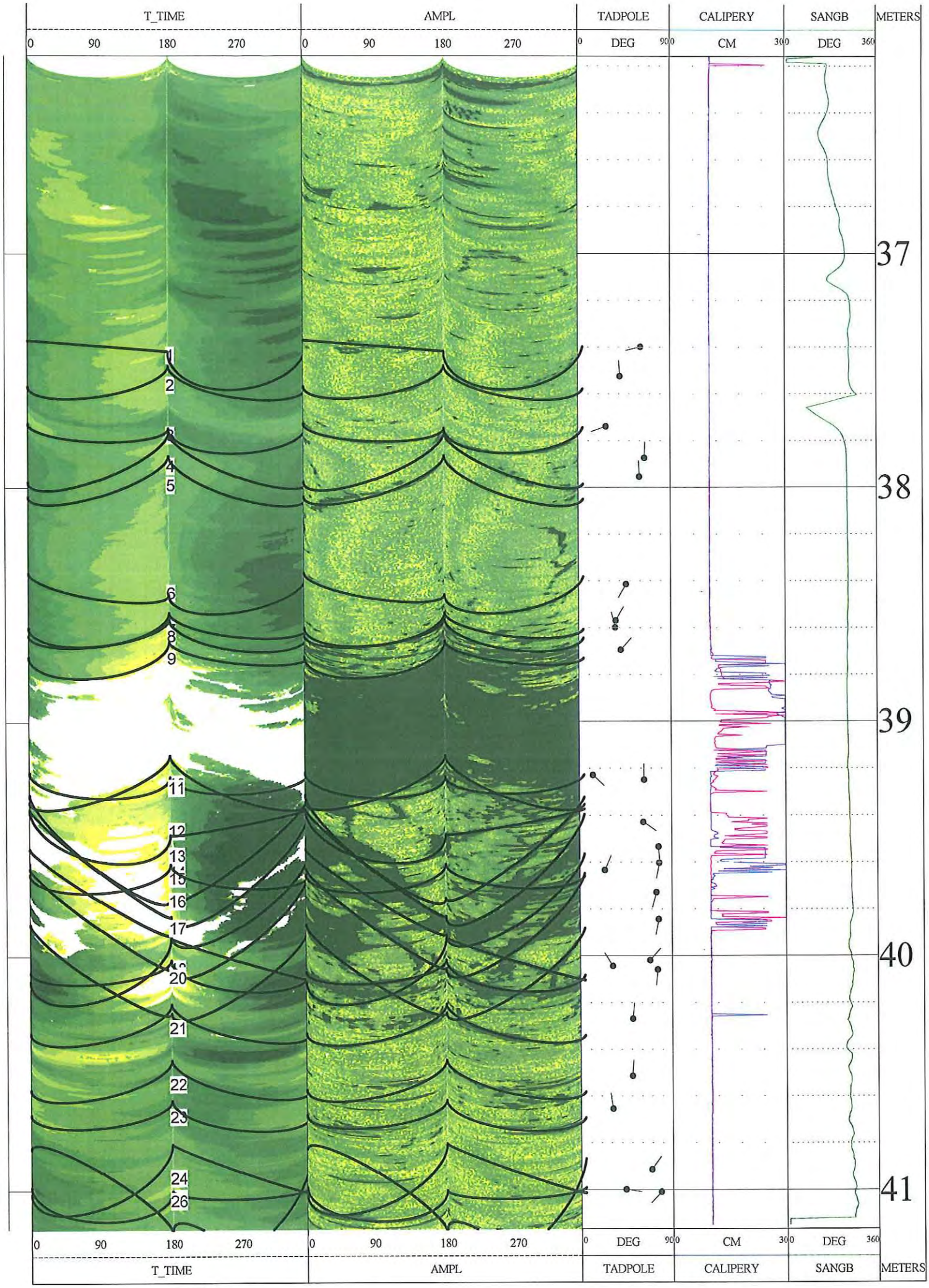

T_TIME
AMPL
TADPOLE
CALIPERY
SANGB
METERS
0 90 180 270
0 90 180 270
0 DEG 90
0 CM 30
0 DEG 360
27
28
29
31
42
0 90 180 270
0 90 180 270
0 DEG 90
0 CM 30
0 DEG 360
T_TIME
AMPL
TADPOLE
CALIPERY
SANGB
METERS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AMPL
TADPOLE
CALIPERY
SANGB
METERS
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DEG
CM
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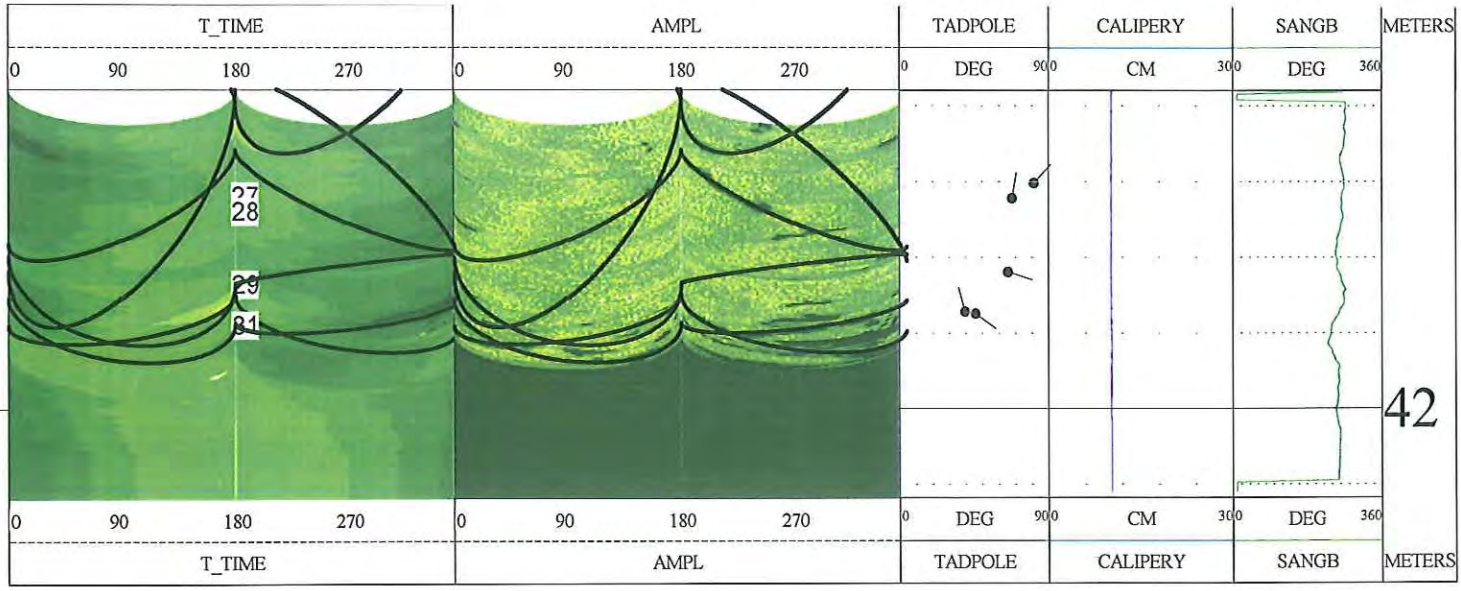
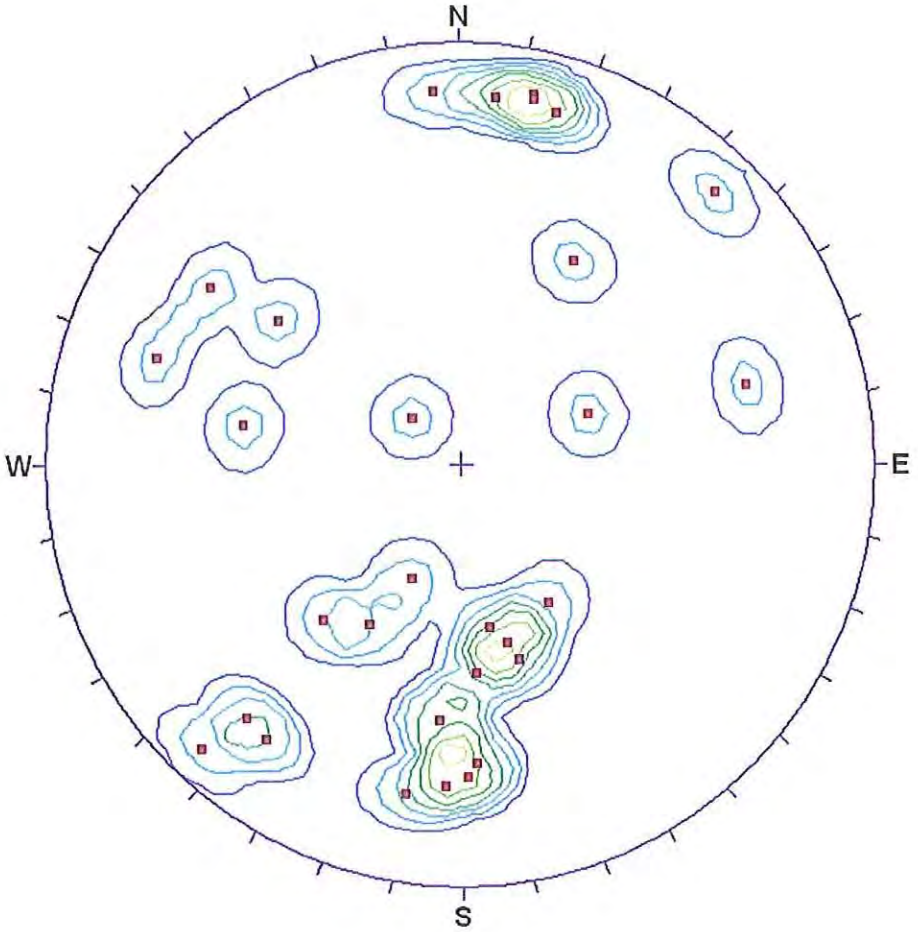
39
40
41


T_TIME
AMPL
TADPOLE
CALIPERY
SANGB
METERS
0 90 180 270
0 90 180 270
0 DEG 90
0 CM 30
0 DEG 360
27
28
29
31
42
0 90 180 270
0 90 180 270
0 DEG 90
0 CM 30
0 DEG 360
T_TIME
AMPL
TADPOLE
CALIPERY
SANGB
METERS



Poles

Equal Area
Lower Hemisphere
31 Poles
31 Entries

Contract	: Contract No. GE/2008/04 Ground Investigation - New Territories West (Term contract)
Works Order No.	: GE/2008/4.29
Agreement No.	: CE 61/2007 (CE)
Works Order Title	: North East New Territories New Development Areas Planning and Engineering Study - Investigation
Borehole No.	: KTN-BH04

FUGRO GEOTECHNICAL SERVICES LTD

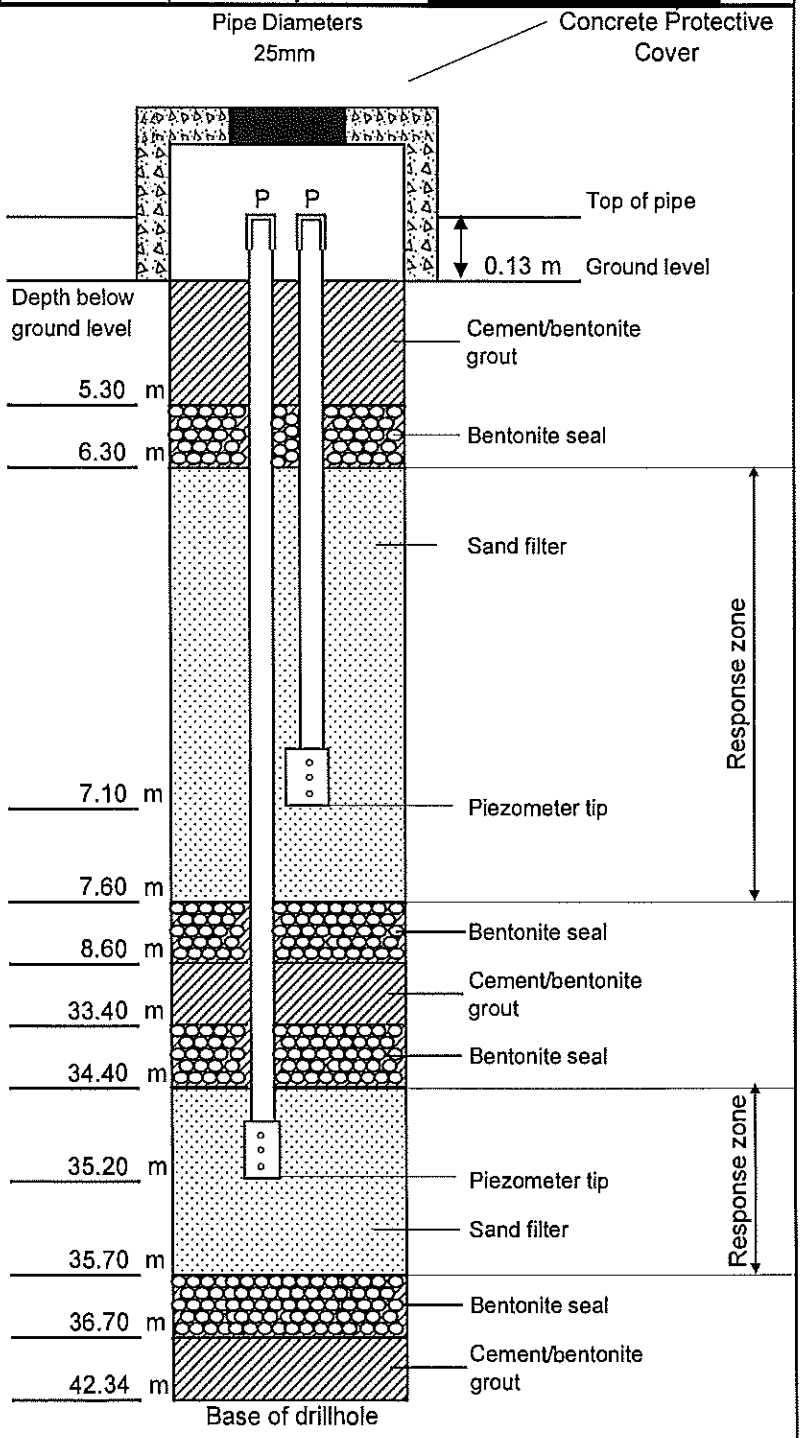
PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Contractor	Fugro Geotechnical Services Ltd	Drillhole No.:	KTN-BH04 (Upper)
Contract No.	GE/2008/4	Date of Test:	12/09/2009
W.O. No.	GE/2008/4.29	Ground Level:	+5.12 mP.D.
Project:	Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas Planning and Engineering Study - Investigation	Co-ordinates(m):	E 829681.82 N 841872.79
Initial Water Level:	2.15 m below G.L.	Piezometer Tip Level:	-1.98 mP.D.
Test/Supervised By:	[redacted]	Checked By:	[redacted]

Elapsed Time (minutes)	Depth of Water from top of pipe (m)
0.00	0.00
0.25	0.23
0.50	0.38
0.75	0.49
1.00	0.59
1.50	0.76
2.00	0.95
3.00	1.24
4.00	1.47
5.00	1.67
6.00	1.81
7.00	1.92
8.00	2.02
9.00	2.10
10.00	2.17
15.00	2.28

Material Surrounding Response Zone:
6.30m to 7.60m: GRAVEL with matrix of silty sand. (ALLUVIUM)

Remarks:



FUGRO GEOTECHNICAL SERVICES LTD

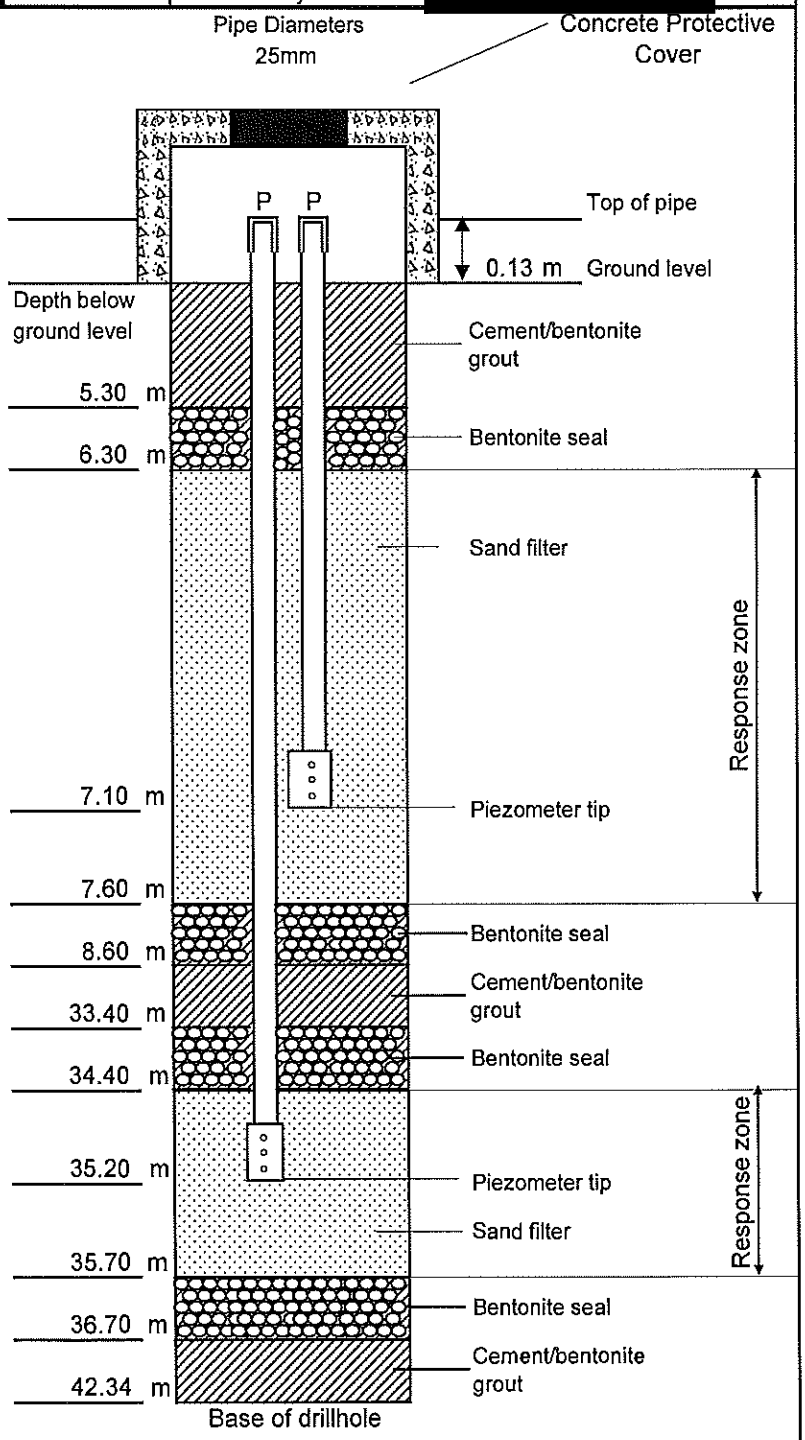
PIEZOMETER DETAIL AND RESPONSE TEST RECORD SHEET

Contractor	Fugro Geotechnical Services Ltd	Drillhole No.:	KTN-BH04 (Lower)
Contract No.	GE/2008/4	Date of Test:	12/09/2009
W.O. No.	GE/2008/4.29	Ground Level:	+5.12 mP.D.
Project:	Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas Planning and Engineering Study - Investigation	Co-ordinates(m):	E 829681.82 N 841872.79
Initial Water Level:	0.96 m below G.L.	Piezometer Tip Level:	-30.08 mP.D.
Test/Supervised By:	[redacted]	Checked By:	[redacted]

Elapsed Time (minutes)	Depth of Water from top of pipe (m)
0.00	0.00
0.25	0.02
0.50	0.04
0.75	0.06
1.00	0.07
1.50	0.08
2.00	0.09
3.00	0.10
4.00	0.11
5.00	0.12
6.00	0.12
7.00	0.13
8.00	0.13
9.00	0.14
10.00	0.14
15.00	0.15
20.00	0.16
25.00	0.17
30.00	0.18
45.00	0.20
60.00	0.21

Material Surrounding Response Zone:
34.40m to 35.70m: Completely decomposed METASILTSTONE. (Clayey SILT)

Remarks:



FUGRO GEOTECHNICAL SERVICES LTD

Groundwater Level Record Sheet

Contract No:	GE/2008/4	Works Order No :	GE/2008/4.29
Project :	Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas Planning and Engineering Study - Investigation		

Drillhole No.	KTN-BH04
Instrument No.	P (Upper)
Installation Date	10/09/2009
AGMD Level (mPD)	N/A
AGMD S/N	N/A
Logger S/N	N/A
Gauge Factor (psi/Digit)	N/A
Thermal Factor (psi/°C)	N/A
R_0 ($F^2 \times 10^{-3}$)	N/A
T_0 (°C)	N/A

Co-ordinates:

Easting	(m)	829681.82
Northing	(m)	841872.79

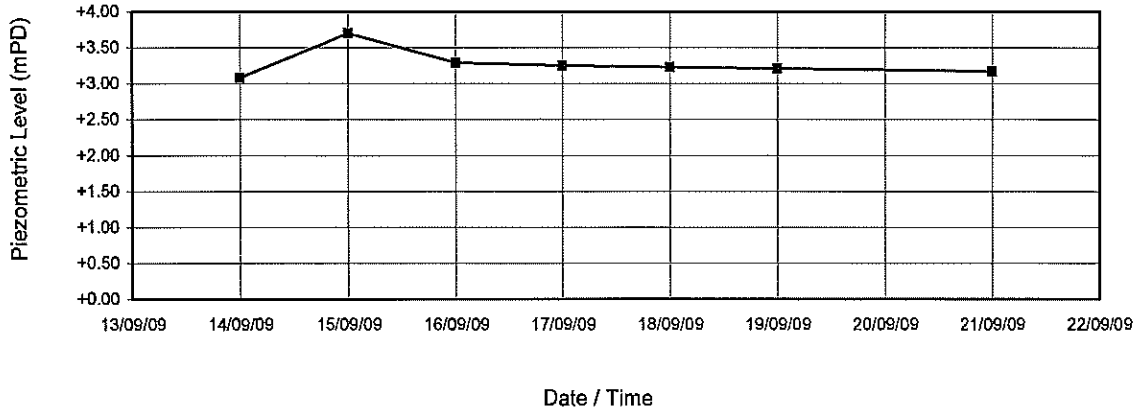
Standpipe Piezometer:

Top Level (mPD)	+5.25
Installed Tip Depth from Top Level (m)	7.23
Tip Level (mPD)	-1.98

Season:

Wet	1 Apr to 31 Oct
Dry	1 Nov to 31 Mar

Contractor: Fugro Geotechnical Services Ltd. Logged By: [redacted] Checked By : [redacted]



(Automatic Groundwater Monitoring Device)					(Piezometer/Standpipe)			
Date / Time dd/mm/yy hh:mm	R_1 (Hz)	Temp (°C)	Pressure (mH_2O) Above	Piezometric Level (mPD)	Date Time dd/mm/yy hh:mm	Manual Dip (m below top)	Piezometric Level (mPD)	Remark
					14/09/09 09:10	2.17	3.08	
					15/09/09 09:00	1.55	3.70	
					16/09/09 09:20	1.96	3.29	
					17/09/09 09:10	2.00	3.25	
					18/09/09 09:20	2.02	3.23	
					19/09/09 09:10	2.04	3.21	
					21/09/09 09:30	2.08	3.17	

* AGMD = Automatic groundwater monitoring device

FUGRO GEOTECHNICAL SERVICES LTD

Groundwater Level Record Sheet

Contract No:	GE/2008/4	Works Order No :	GE/2008/4.29
Project :	Agreement No. CE 61/2007 (CE), North East New Territories New Development Areas Planning and Engineering Study - Investigation		

Drillhole No.	KTN-BH04
Instrument No.	P (Lower)
Installation Date	09/09/2009
AGMD Level (mPD)	N/A
AGMD S/N	N/A
Logger S/N	N/A
Gauge Factor (psi/Digit)	N/A
Thermal Factor (psi/°C)	N/A
R_0 ($F^2 \times 10^{-3}$)	N/A
T_0 (°C)	N/A

Co-ordinates:

Easting	(m)	829681.82
Northing	(m)	841872.79

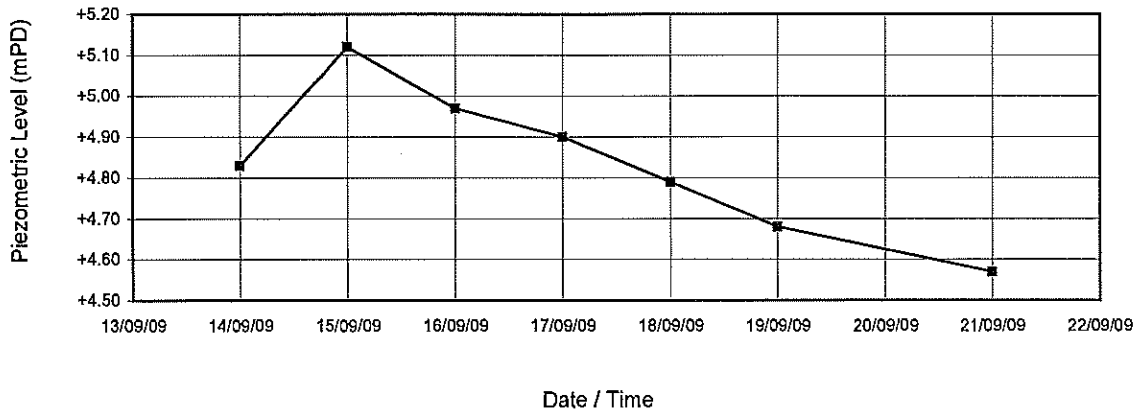
Standpipe Piezometer:

Top Level (mPD)	+5.25
Installed Tip Depth from Top Level (m)	35.33
Tip Level (mPD)	-30.08

Season:

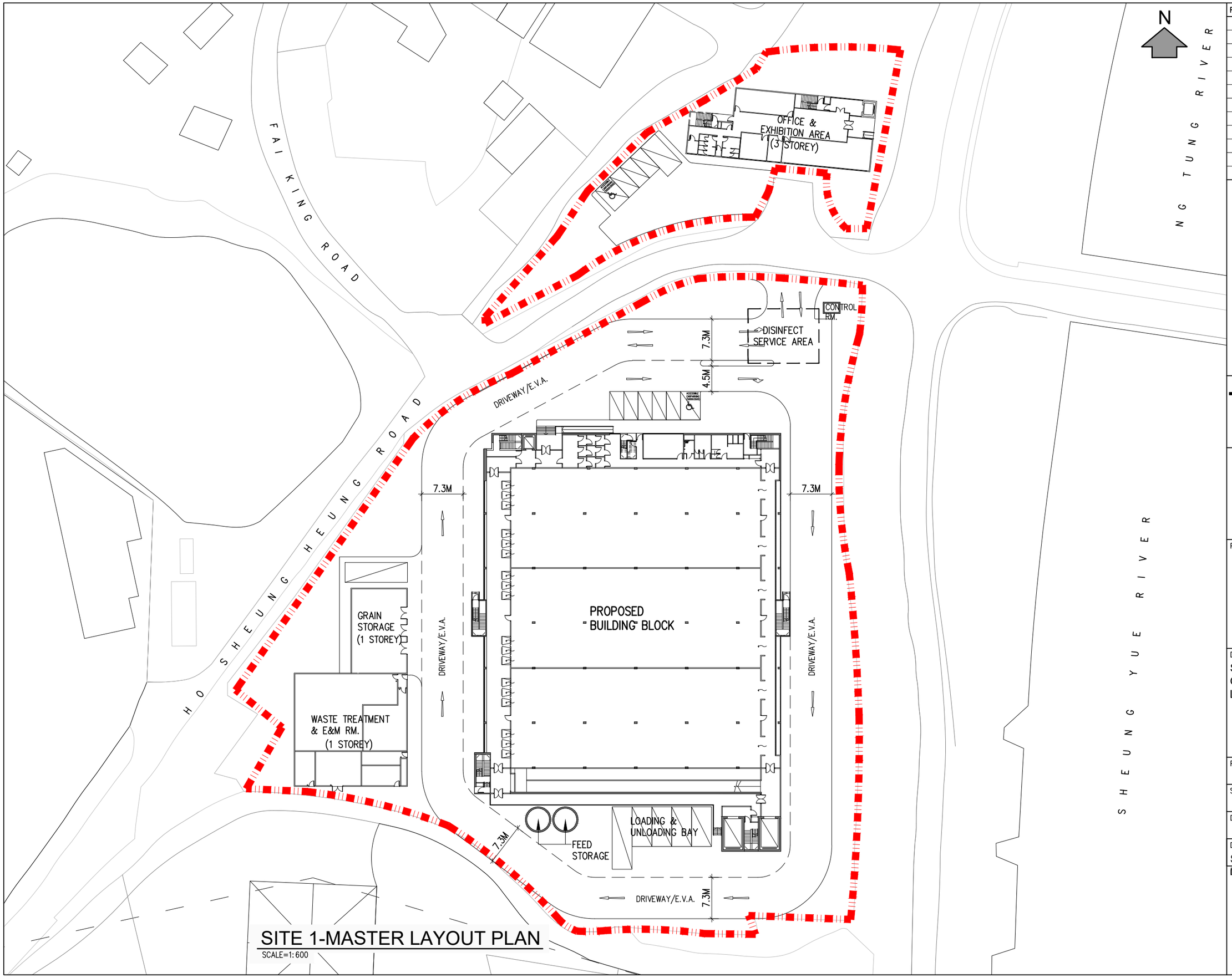
Wet	1 Apr to 31 Oct
Dry	1 Nov to 31 Mar

Contractor: Fugro Geotechnical Services Ltd. Logged By: [redacted] Checked By : [redacted]



(Automatic Groundwater Monitoring Device) —×—					(Piezometer/Standpipe) —■—			
Date / Time dd/mm/yy hh:mm	R_1 (Hz)	Temp (°C)	Pressure (mH_2O) Above	Piezometric Level (mPD)	Date Time dd/mm/yy hh:mm	Manual Dip (m below top)	Piezometric Level (mPD)	Remark
					14/09/09 09:10	0.42	4.83	
					15/09/09 09:00	0.13	5.12	
					16/09/09 09:20	0.28	4.97	
					17/09/09 09:10	0.35	4.90	
					18/09/09 09:20	0.46	4.79	
					19/09/09 09:10	0.57	4.68	
					21/09/09 09:30	0.68	4.57	

* AGMD = Automatic groundwater monitoring device



SITE 1-MASTER LAYOUT PLAN

SCALE=1:600

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road,
Kowloon Bay, Hong Kong
T (852) 3596 7800 F (852) 3612 4916
E green@tonyip.green

Check all measurements on site.
Do not scale off drawings.

This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

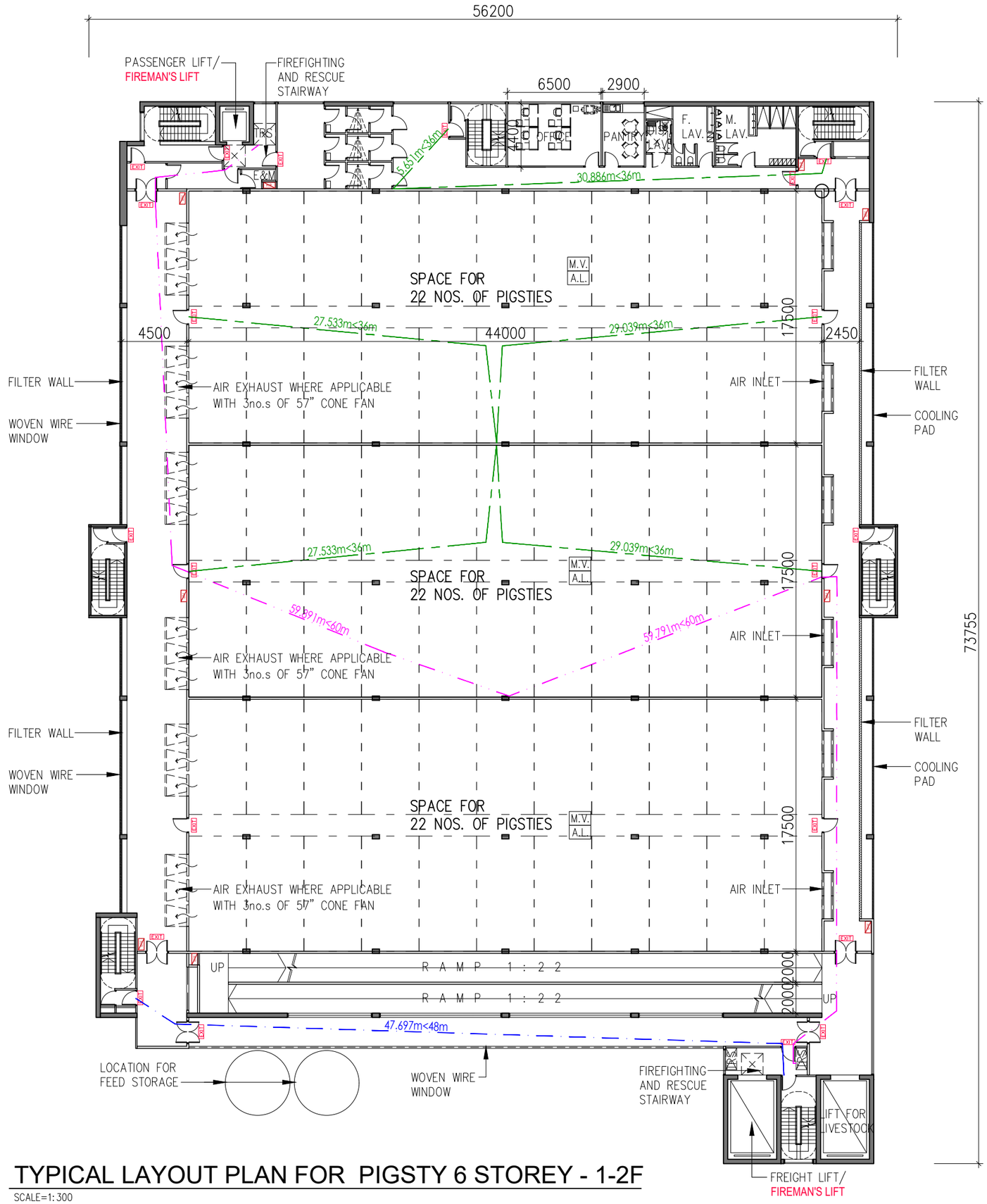
PROJECT TITLE
--

DRAWING TITLE
SITE 1 -
GROUND FLOOR
LAYOUT PLAN

PROJECT NO.	DRAWN BY --
SCALE 1 : 600 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-SITE 1_GROUND FL LAYOUT_R2	REV. NO. --

DRAWING PURPOSE

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY 6 STOREY - 1-2F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road, Kowloon Bay, Hong Kong
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E green@tonyip.green

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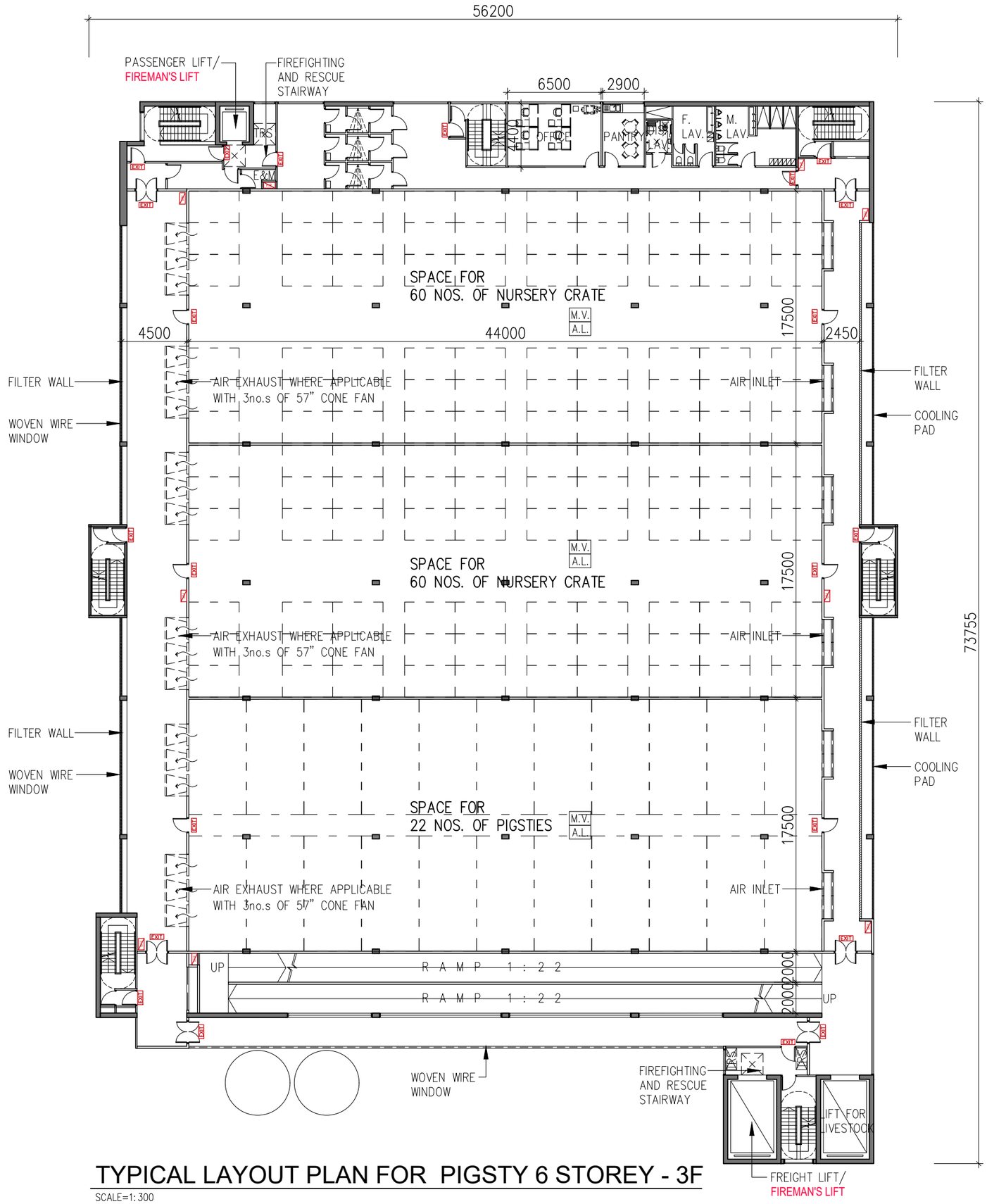
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - TYPICAL LAYOUT PLAN FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT_TURPDSF_2F_for 6 STOREY_R2	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY 6 STOREY - 3F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
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Unit 328, Mega Cube , 8 Wang Kwong Road,
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E green@tonyip.green

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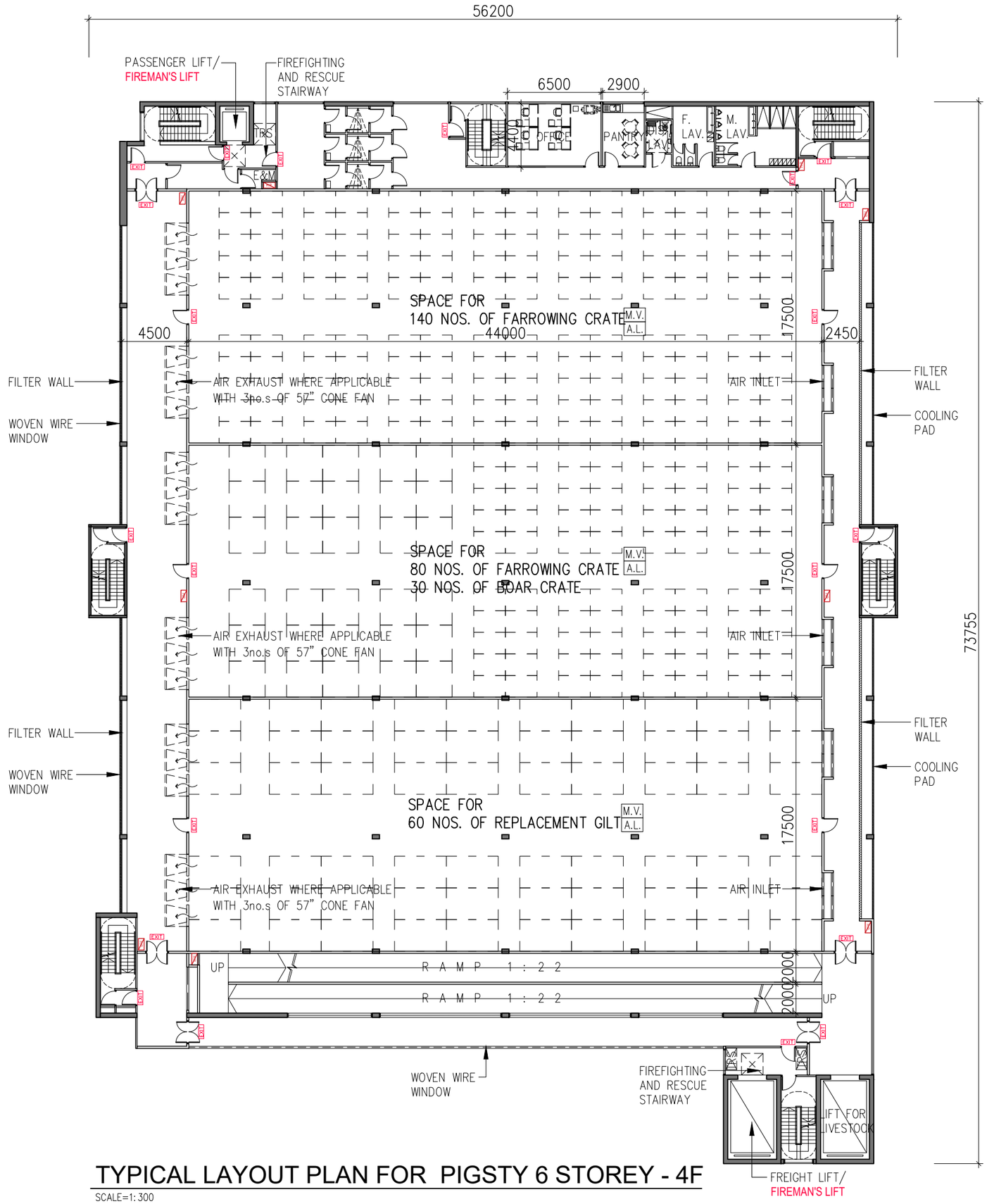
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT PLAN_3F_for 6 STOREY_R2	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY 6 STOREY - 4F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

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Kowloon Bay, Hong Kong
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E green@tonyip.green

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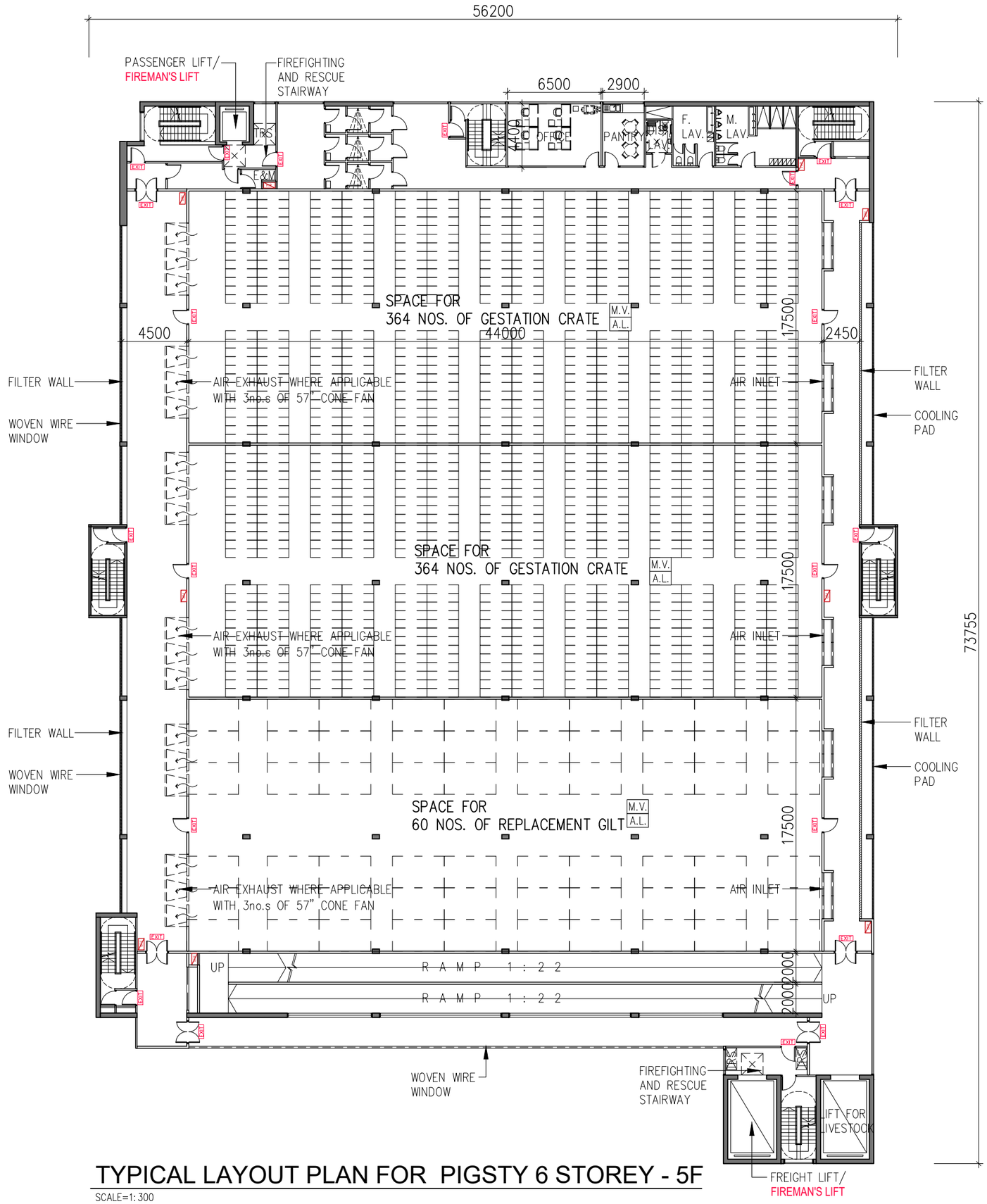
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT_FURRE_4F for 6 STOREY_R2	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY 6 STOREY - 5F

SCALE=1:300

N

REV.	DESCRIPTION	DATE

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Kowloon Bay, Hong Kong
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E green@tonyip.green

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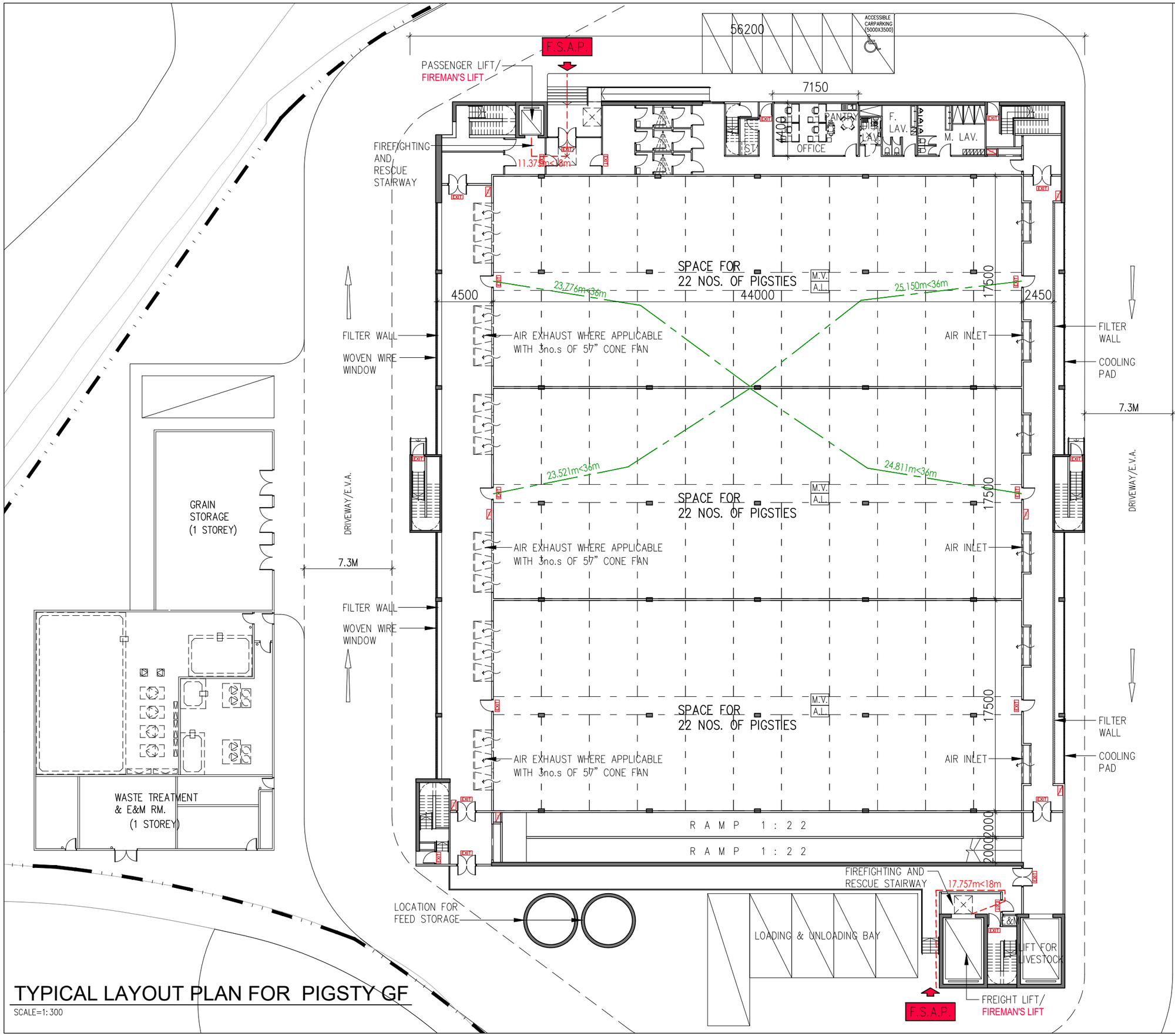
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT PLAN_5F for 6 STOREY_R2	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY GF

SCALE=1:300

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road, Kowloon Bay, Hong Kong
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E green@tonyip.green

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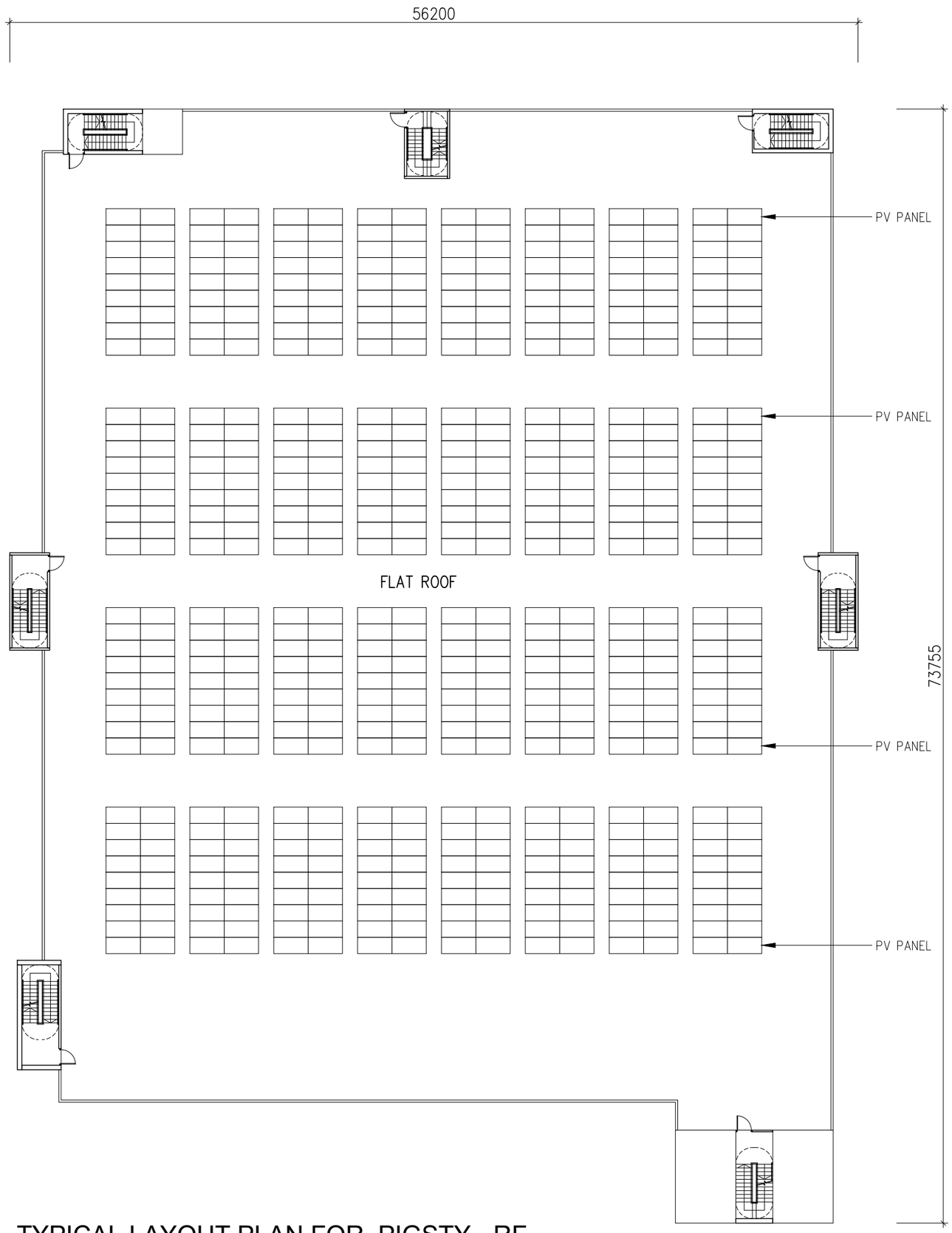
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING - GROUND FLOOR PLAN FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT PLAN_GF_R2	REV. NO. --

DRAFT



TYPICAL LAYOUT PLAN FOR PIGSTY - RF

SCALE=1:300

N

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road,
Kowloon Bay, Hong Kong
T (852) 3596 7800 F (852) 3612 4916
E green@tonyip.green

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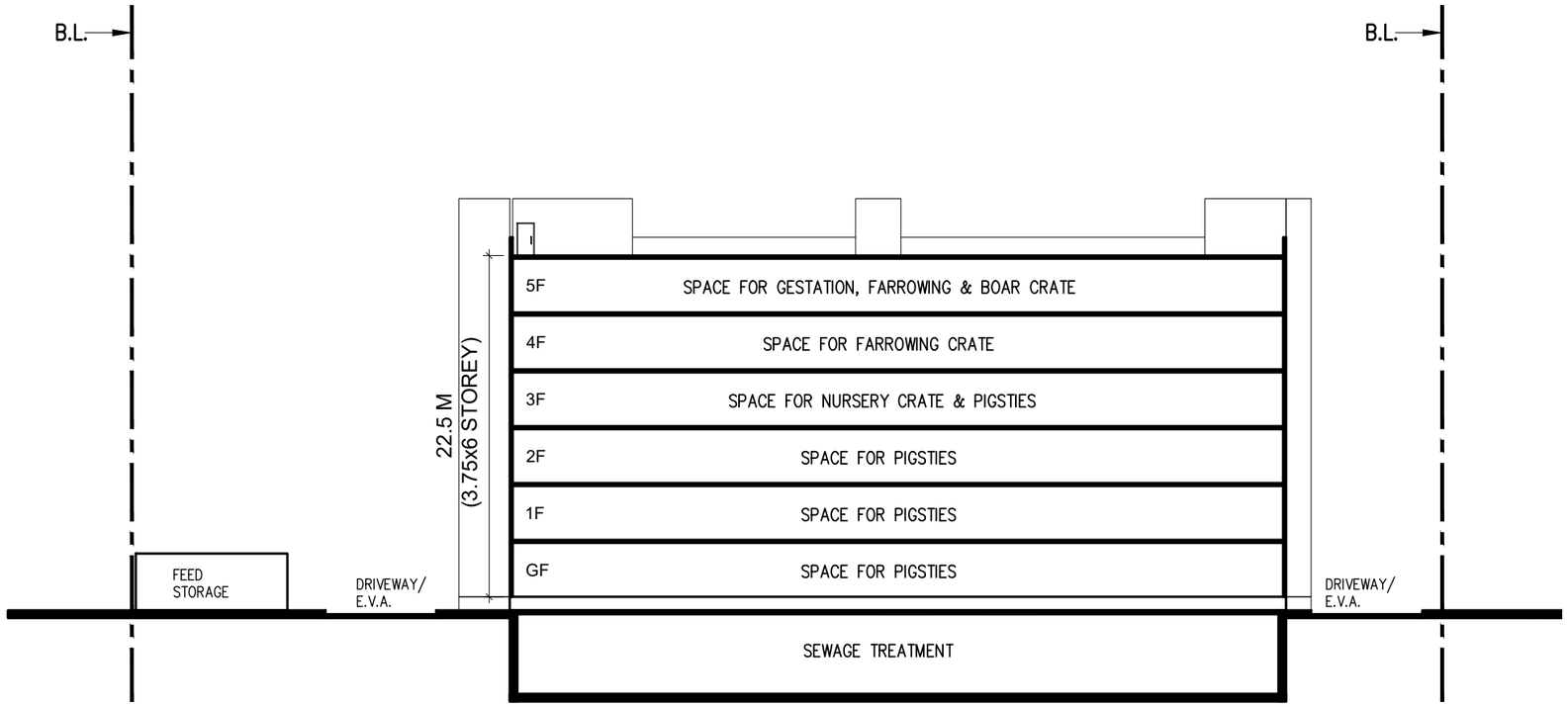
PROJECT TITLE
--

DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT-RF	REV. NO. --

DRAFT



SCHEMATIC SECTION FOR PIGSTY 6 STOREY

SCALE=1:400

REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
葉頌文環保建築師事務所
Unit 328, Mega Cube , 8 Wang Kwong Road, Kowloon Bay, Hong Kong
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PROJECT TITLE
--

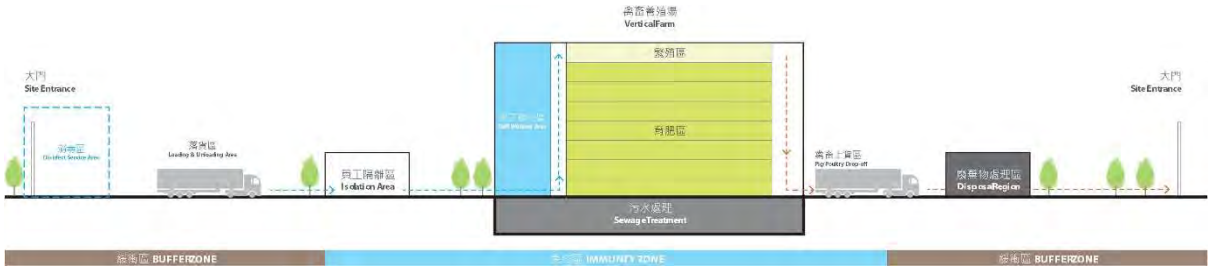
DRAWING TITLE
MAIN BUILDING - SCHEMATIC SECTION FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 400 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY SECTION 6 STOREY	REV. NO. --

DRAFT

Reasons for Choosing a Six-Story Development

A six-story building height is most suitable for the vertical farm project here, as it can meet the anticipated production needs envisioned. At the same time, when considering construction and operational costs, the six-story design has been proven to be more cost-effective than a three-story design. This height allows for the utilization of vertical space to increase yield, while still maintaining structural stability and manageability, which is crucial for long-term maintenance.



Measure to reduce the environmental impacts

For the impact of the vertical farm project on the surrounding environment and residential areas, various protective measures have been considered to ensure that the impact of the farm on the environment is minimized during the operational phase. The specifics are as follows:

Environmental Integration

The vertical farm to be constructed will be designed to coexist harmoniously with the surrounding landscape. The building will be set back approximately 8.5 to 12 meters from the river and will use the natural vegetation along the bank as a shield to integrate with the landscape, achieving a seamless transition between the building and the surrounding environment. Additionally, each floor will be equipped with elongated green planters, aimed at reducing the visual bulk of the building and providing more green space for the surrounding environment, enhancing biodiversity, and improving the microclimate.

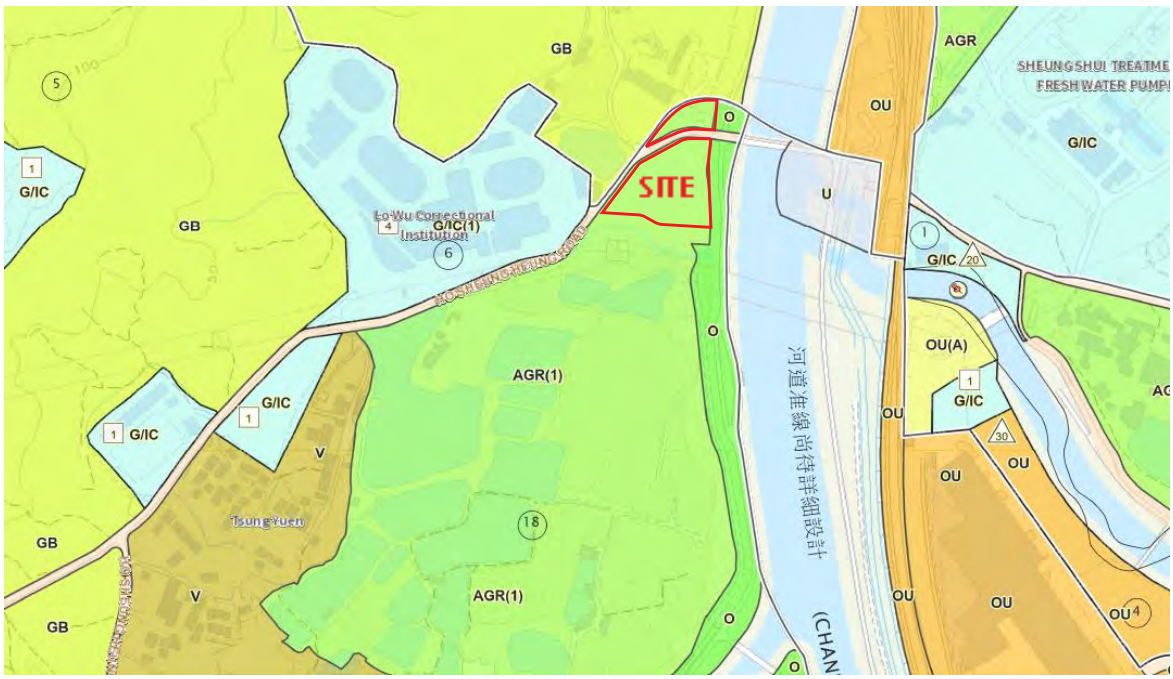


圖 – 城市規劃圖則法定編號 S/KTN/4

Traffic Flow Management

Regarding the management of transport vehicles, traffic flow estimates have been conducted, and a strict schedule will be implemented to ensure that all vehicles traveling to and from the farm will not pass through nearby villages during the local residents' peak hours and meal times. This will significantly reduce the disturbance to the residents' daily lives.

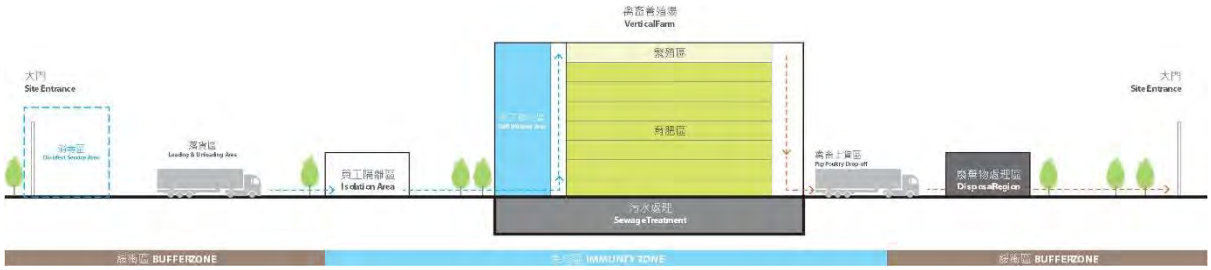
Traffic flow estimates for KTN-2, a six-story vertical livestock farm with each floor measuring approximately 3,000 square meters, are as follows:

	車輛類型	車輛尺寸	車輛進場時間	車輛發車時間	車輛停留時間（小時）	最大條目數（每小時）	往返養殖場的次數（每日）
A	中型貨車（糧食及設施）	11000 x 2500 x 3500H	7:00 – 15:00	12:00 - 00:00	4	1	2
B	20 英尺貨車（糧食）	9800 x 2440 x 4070H	7:00 - 17:00	12:00 - 00:00	3 - 4	1	2
C	中型貨車（牲畜廢物）	9600 x 2300 x 2700H	8:00 - 18:00	8:00 - 18:00	1	1	3
D	輕型貨車(牲畜及其他 5.5 噸以下貨物)	7200 x 2300 x 2700H	6:00 - 21:00 (90%)	6:00 - 21:00 (90%)	10% 全天	1	5
E	輕型貨車（乘用車及其他 5.5 噸以下貨物）	7200 x 2300 x 2700H	9:00 - 15:00	15:00 - 22:00	1	1	4
F	私人汽車（職員用）	4700 x 1700 x 1450H	7:00 - 12:00 (70%)	12:00 - 00:00 (20%)	2 - 10 10% 全天	5	10
						通勤車輛總數（每日）：	**26**

Table - Estimated Traffic Flow and Sizes of Different Vehicle Types

Biosecurity and Closed System Management

The vertical farm to be constructed will be planned in accordance with the strictest biosecurity measures and will implement a closed system management to ensure disease prevention and control as well as planting safety.



Waste and Effluent Treatment

For the waste generated by the livestock farm, the vertical farm to be constructed will establish a comprehensive collection and treatment system to ensure that all waste meets the minimum standards and prevents impact on the environment and public health. Trucks transporting manure or livestock carcasses will be completely covered and must travel on designated and approved routes. In addition, trucks will undergo thorough cleaning and disinfection after each unloading and before re-entering the farm to maintain the highest standards of hygiene.

VISUAL IMPACT ASSESSMENT

for

PROPOSED VERTICAL FARM (MSB)

at

HO SHEUNG HEUNG
NEW TERRITORIES, HONG KONG

MAY 2024

TONY IP GREEN ARCHITECTS LIMITED

Project:
Vertical Farm Feasibility Study

VISUAL IMPACT ASSESSMENT (VIA)

1. INTRODUCTION

1.1 This report on Visual Impact Assessment (VIA) was prepared in accordance with the "Town Planning Board Guidelines on Submission of Visual Impact Assessment for Planning Applications to the Town Planning Board" ("**TPB PG-No.41**"). The assessment is to evaluate the possible visual effects to be generated by the proposed 3 or 6-storey MSB farm for the pigs production at the Site KTN-2 (**Plan A**) on various selected public viewing points in both local and district-wide contexts.

1.2 As shown in **Plan A**, the Site KTN-2 is bounded by Ho Sheung Heung Road southwest to its north, and along with the Sheung Yue River on the eastside.

1.3 The Application Site falls within "Agriculture (1)" ("AGR (1)") on the KTN Outline Zoning Plan (OZP). According to the OZP's notes, the proposed MSB far, which is an agricultural use, is a Column 1 use, which is always permitted. The east side of the site is adjoining an "Open Space" ("O") zone, the proposed MSB farm will be set back from the river about 8.5 – 12m and provide vegetation screening along the Sheung Yue River to integrate with the landscape.

1.4 The present proposed MSB farm will be limited to 28.1mPD with a maximum 6-Storey.

1.5 In accordance with **TPB PG-No. 41**, "*…VIA should primarily assess the impact on sensitive public viewers from the most affected viewing points…include key pedestrian nodes, popular area used by public or tourists for outdoor activities, recreation, rest, sitting-out, leisure, walking, sight-seeing, and prominent travel routes where travellers' visual attention may be caught by the proposed development…*".

1.6 **TPB PG-No. 41** also states that "*…when the viewer is at a distance equal to three times of a building, the viewer will tend to see the building as a part of a group rather than as a single building…The visual envelope is expected to cover the fields of views from all sensitive viewers in direct sight of the proposed development…Normal field of vision is at 60° vertically and horizontally without staining the human eyes…*"

1.7 This Assessment have a total of 7 selected visually sensitive public viewing points ("**VPs**"), 4 within the visual envelope (**VP-A to VP-C**) which identified on **Plan A** and 3 district **VPs** (**VP-D to VP-F**) located about 120M, 175M and 525M away from the Application Site were identified on **Plan B**. The Location Layout Plans (**Plan A & B**) shows the **VPs** are mainly public open space, green belt, river, and major roads.

2. ASSESSMENT ON SELECTED VANTAGE POINTS

2.1 Photomontages of the proposed development (6-Storey), prepared by the project architect to reflect the proposed MSB farm proposals at these 7 selected vantage points (VPs) are provided in different range of views to facilitate this VIA exercise.

VP-A (View from Big Water Viaduct Road)

2.2 VP-A was taken at Big Water Viaduct Road, about 80M east of the Application Site. It represents a local public viewing point at a farther distance from the Application Site within the visual envelope.

Photo 2 is the photomontage of the proposed MSB farm at the Application Site.

At this public viewing point, the proposed MSB farm will be screen by the existing roadside vegetation, the additional heavy standard tree along the open space will contribute a more effective filter of the lower floors. However, the proposed MSB farm will become a strong visual in this part and the overall visual impact to be generated by the proposed MSB farm is within the level of slightly adverse.

VP-B (View from the Southeast next to Sheung Yue River)

2.3 VP-B was taken from the Southeast next to Sheung Yue River, about 80M Southeast of the Application Site. The main visual sensitive receivers ("**VSRs**") will be the users of open space (i.e. pedestrians and bikers).

Photo 4 is the photomontage of the proposed MSB farm at the Application Site.

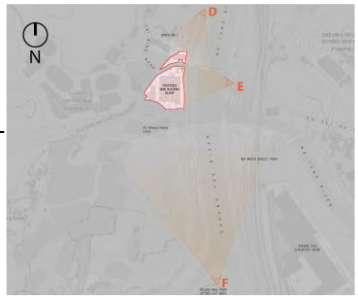
The proposed scheme photo (Photo 4) shows that the proposed MSB farm will be almost screened by the existing roadside trees and the vegetation screening along Sheung Yue River of the proposed MSB farm will provide further dense filter. Therefore, the proposed MSB farm at this close-up VP is within the level of slightly adverse.

VP-C (View from Ho Sheung Heung Road)

2.4 VP-C is the view from Ho Sheung Heung Road nearby Lo Wu Correction Institution, about 65M southwest of the Application Site. It represents a local public viewing point at a close-up distance from the Application Site. Located between this VP and the Application Site are Ho Sheung Heung Road and the existing buildings Lo Wu Correction Institution.

Photo 6 is the photomontage of the proposed MSB farm at Application Site.

This selected viewing point shows the main public vehicles access the proposed building blocks, which the main VSRs will be the drivers of Ho Sheung Heung Road. Obviously, the proposed MSB farm will become a strong visual in this area; the existing roadside vegetation along Ho Sheung Heung Lotus will contribute effective screening of the lower floors of the MSB farm; the building design with greenery on rooftop will offer significant visual mitigation measures and contribute positive effort to soften the hard lines of the building. The overall visual impact generated by the proposed MSB farm at this close-up VP is within the level of moderately adverse.



VP-D (View from the Northeast next to Ng Tung River)

2.5 VP-D was taken next to Ng Tung River, about 120M northeast of the Application Site, where designated as an "Open Space" ("**O**") zone. The main VSRs will be the users of open space (i.e. pedestrians & bikers).

Photo 8 is the photomontage of the proposed MSB farm at the Application Site.

At this public viewing point, a small portion of the fifth floor to the rooftop will be viewed; the building will almost be screened by those existing roadside trees; the proposed building design with greenery along Sheung Yue River will also contribute an effective mitigation measure to make the MSB farm blend well with surrounding. Indeed, the visual magnitude of the proposed development at these VPs is within the level of slightly adverse.

VP-E (View from the East at Ng Tung River)

2.6 VP-E was taken at Ng Tung River near the Big Water Viaduct Road, about 175M east of the Application Site. It is a district-wide public viewing point, the viewer assumed to see the proposed MSB farm as a part of a group of buildings near the Application Site. The main VSRs will be the users of Big Water Viaduct Road (i.e. pedestrians & bikers).

Photo 10 is the photomontage of the proposed MSB farm at the Application Site.

In this district-wide viewing point, the proposed 6-Storey MSB farm will become a strong visual in this part of Ho Sheung Heung area. However, the local skylines will remain very open and pass over easily with mountain backdrops. The resultant visual magnitude of the proposed development at this VP is within the level of significantly adverse.

VP-F (View from the Southside at Sheung Yue River Sitting-out Area)

2.7 VP-F was taken at the Sheung Yue River Sitting-out Area next to Long Yuen Pavilion, which is on the opposite side of Sheung Shui Slaughterhouse and about 525M south of the Application Site separated by Sheung Yue River. It is a district-wide public viewing point at a great distance from the Application Site (**Plan B**).

In view of this, the main VSRs will be the visitors of Long Valley and the users of Long Yuen Pavilion (i.e. pedestrians and bikers). Photo 12 is the photomontage of the proposed MSB farm at the Application Site.

At this selected district-wide viewing point, the lower floor of the proposed MSB farm will be screened by the existing vegetation along Sheung Yue River; the fourth to the rooftop will be viewed. In this situation, the visual impact of the proposed development at these VPs is within the level of partly adverse.

Project:
Vertical Farm Feasibility Study

VP-A (View from Big Water Viaduct Road)

Photo Date: FEB 2024

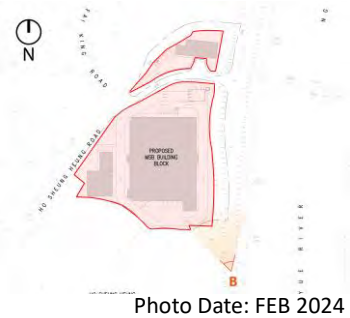
Photo 1 - Existing Situation

Photo 2 - Proposed Scheme

Notes

1. Set Back: Building set back from Sheung Yue River about 8.5 - 12M
2. Mitigation Measures: A. Additional Heavy Standard Tree, B. Green Roof, C. Vertical Greenery

Project:
Vertical Farm Feasibility Study



VP-B (View from the Southeast next to Sheung Yue River)

Photo Date: FEB 2024

Photo 3 - Existing Situation

Photo 4 - Proposed Scheme

Notes

1. Set Back: Building set back from Sheung Yue River about 8.5 - 12M
2. Mitigation Measures: A. Additional Heavy Standard Tree, B. Green Roof, C. Vertical Greenery

Project:
Vertical Farm Feasibility Study

VP-C (View from Ho Sheung Heung Road)

Photo Date: FEB 2024

Photo 5 - Existing Situation

Photo 6 - Proposed Scheme

Notes

1. Set Back: Building set back from Sheung Yue River about 8.5 - 12M
2. Mitigation Measures: B. Green Roof, C. Vertical Greenery

Project:
Vertical Farm Feasibility Study

VP-D (View from the Northeast next to Ng Tung River)

Photo Date: FEB 2024

Photo 7 - Existing Situation

Photo 8 - Proposed Scheme

Notes

1. Set Back: Building set back from Sheung Yue River about 8.5 - 12M
2. Mitigation Measures: A. Additional Heavy Standard Tree, B. Green Roof, C. Vertical Greenery

Project:
Vertical Farm Feasibility Study

VP-E (View from the Eastside at Ng Tung River)

Photo Date: FEB 2024

Photo 9 - Existing Situation

Photo 10 - Proposed Scheme

Notes

1. Set Back: Building set back from Sheung Yue River about 8.5 - 12M
2. Mitigation Measures: A. Additional Heavy Standard Tree, B. Green Roof, C. Vertical Greenery

Project:
Vertical Farm Feasibility Study

VP-F (View from the Southside at Sheung Yue River Sitting-out Area)

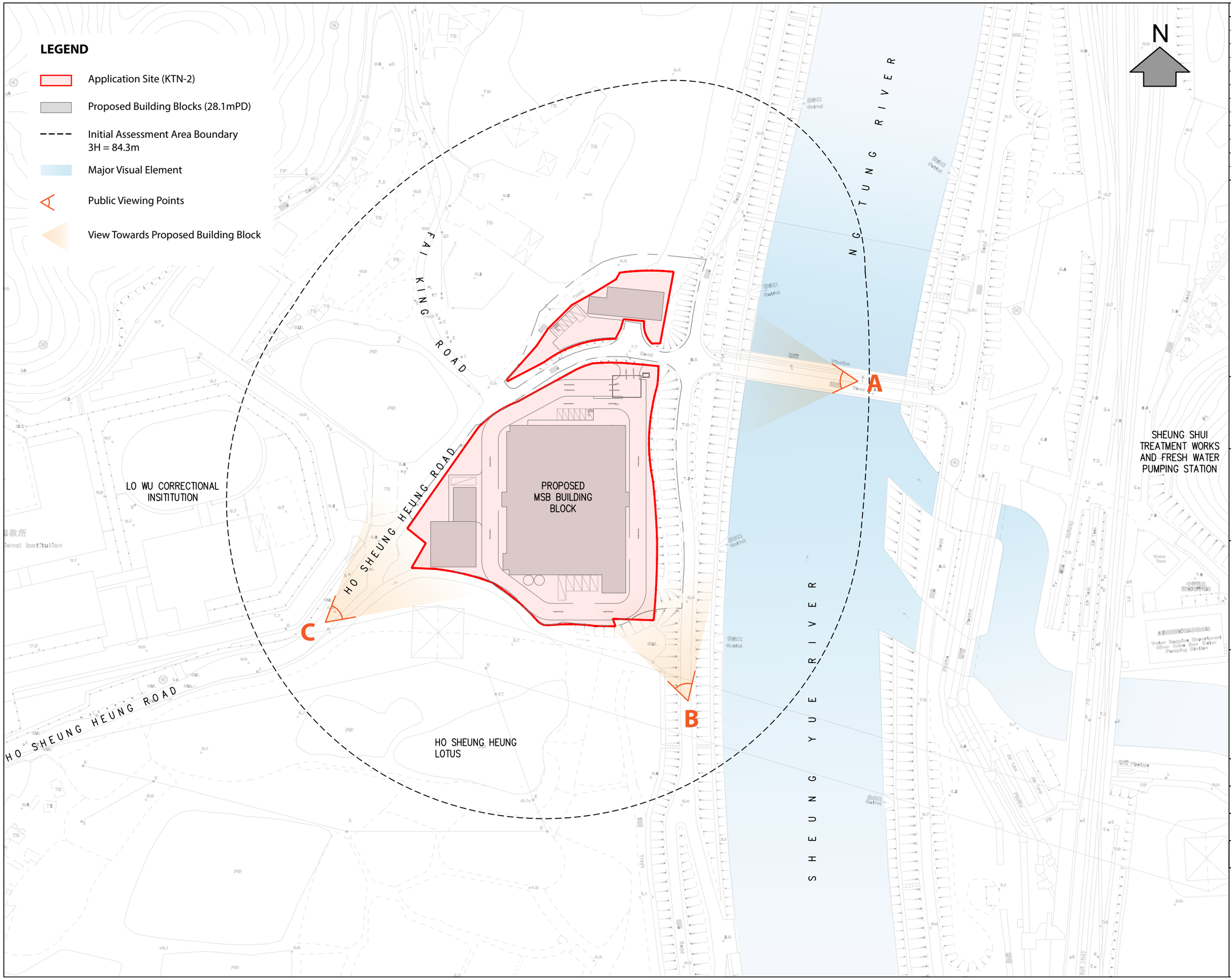
Photo Date: FEB 2024

Photo 11 - Existing Situation

Photo 12 - Proposed Scheme

Notes

1. Set Back: Building set back from Sheung Yue River about 8.5 - 12M
2. Mitigation Measures: C. Vertical Greenery



REV.	DESCRIPTION	DATE

TONY IP GREEN ARCHITECTS LTD.
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E green@tonyip.green

Check all measurements on site.
Do not scale off drawings.

This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

PROJECT TITLE
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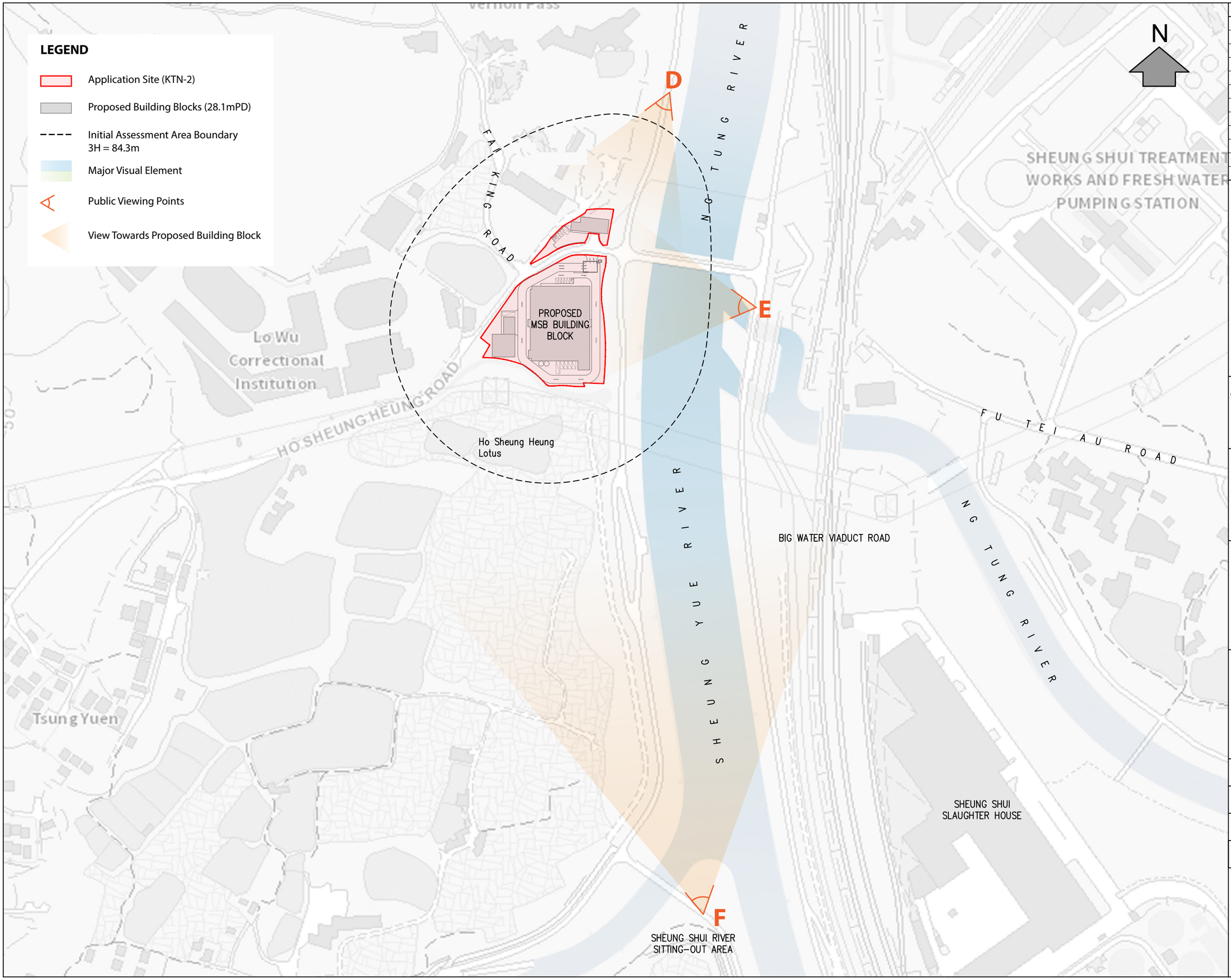
DRAWING TITLE
PLAN A - SELECTED PUBLIC VIEWING POINTS

PROJECT NO.	DRAWN BY --
SCALE 1 : 1500 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. KTN-2_SITE PLAN	REV. NO. --

DRAWING PURPOSE



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PROJECT TITLE
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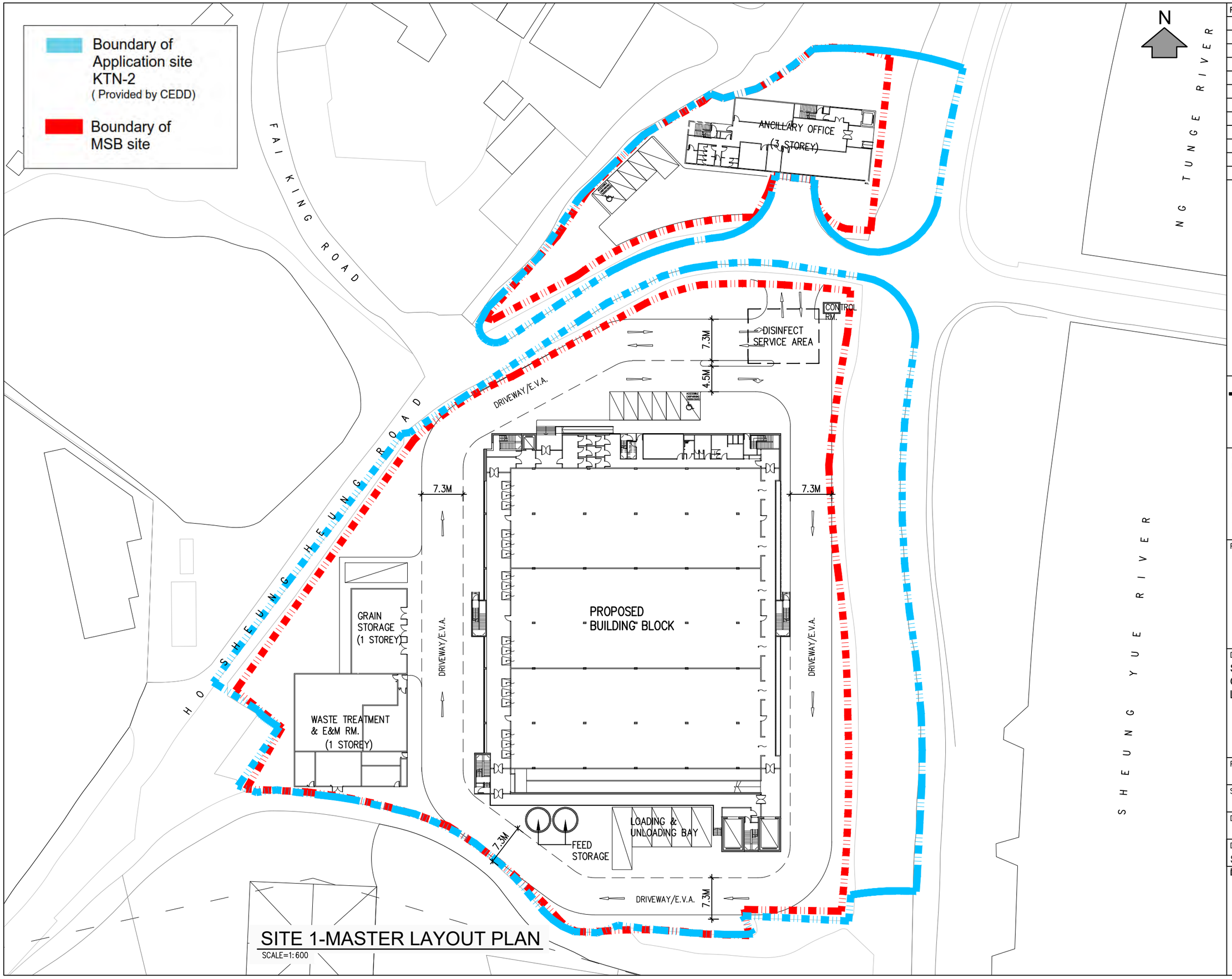
DRAWING TITLE
PLAN B -
SELECTED PUBLIC
VIEWING POINTS

PROJECT NO.	DRAWN BY --
SCALE 1 : 3000 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. KTN-2_SITE PLAN	REV. NO. --

DRAWING PURPOSE



SITE 1-MASTER LAYOUT PLAN

SCALE=1:600

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PROJECT TITLE
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DRAWING TITLE
SITE 1 - GROUND FLOOR LAYOUT PLAN

PROJECT NO.	DRAWN BY --
SCALE 1 : 600 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-SITE 1_GROUND FL LAYOUT_R2	REV. NO. --

DRAWING PURPOSE

SITE 1-MASTER LAYOUT PLAN

SCALE=1:600

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PROJECT TITLE
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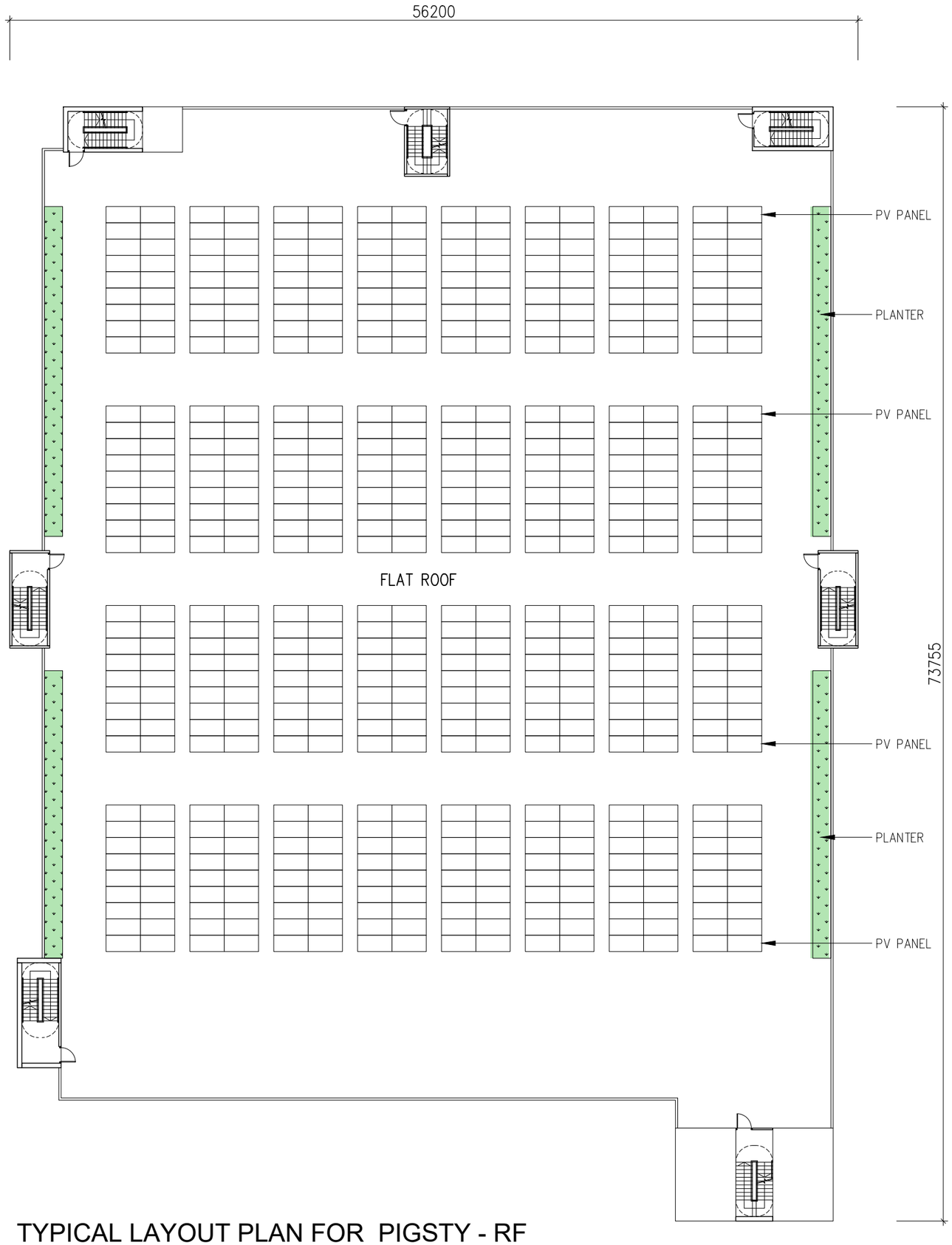
DRAWING TITLE
SITE 1 -
GROUND FLOOR
LAYOUT PLAN

PROJECT NO.	DRAWN BY --
SCALE 1 : 600 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-SITE 1_GROUND FL	REV. NO. --

DRAWING PURPOSE
FOR COMMENT



TYPICAL LAYOUT PLAN FOR PIGSTY - RF

SCALE=1:300

N

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PROJECT TITLE
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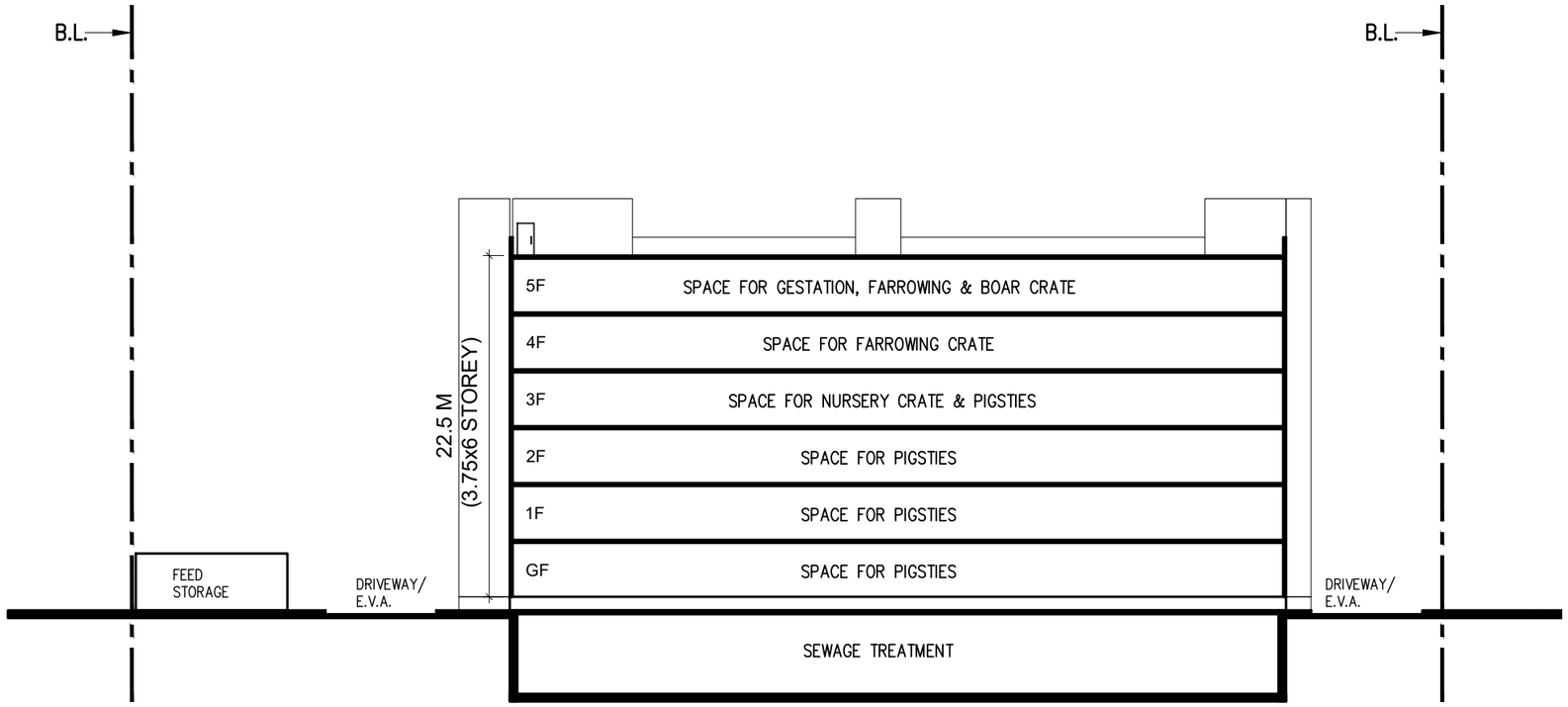
DRAWING TITLE
MAIN BUILDING -
TYPICAL LAYOUT PLAN
FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 300 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY LAYOUT-RF	REV. NO. --

PURPOSE



SCHEMATIC SECTION FOR PIGSTY 6 STOREY

SCALE=1:400

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PROJECT TITLE
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DRAWING TITLE
MAIN BUILDING - SCHEMATIC SECTION FOR PIGSTY

PROJECT NO.	DRAWN BY --
SCALE 1 : 400 @ A3	CHECKED BY --
DATE	APPROVED BY --
DRAWING NO. SK-TYPICAL PIGSTY SECTION 6 STOREY	REV. NO. --