# Appendix I

Revised Air Ventilation Assessment – Expert Evaluation

Issue No. : 3

Issue Date : February 2026

Project No. : 2215

# AIR VENTILATION ASSESSMENT

# FOR

# PROPOSED SCAA SPORTS LINK AT SOUTH CHINA ATHLETIC ASSOCIATION, 88 CAROLINE HILL ROAD, HONG KONG

Prepared by

Allied Environmental Consultants Limited

**COMMERCIAL-IN-CONFIDENCE**

# Document Verification

| | | | |
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| **Project Title** | Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong | **Project No.** | 2215 |
| **Document Title** | Air Ventilation Assessment | | |

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| 1 | October 2025 | 1st Submission |
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[redacted]

[redacted]

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# 1. Executive Summary

1.1.1. An Air Ventilation Assessment – Expert Evaluation (AVA-EE) study was conducted for the Section 16 Planning Application for Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong to provide qualitative evaluation of wind performance under Baseline and Proposed Scheme.

1.1.2. The Proposed Development is a 4-story complex consist of facilities for sports and recreational usage, with the top level positioned at 61.6mPD of the golf fence. Good design features including the provision of building setback and a stepped building height profile with the surrounding structures have been incorporated in the Proposed Scheme upon the consideration of site and design constraint criterion.

1.1.3. As evaluated in the AVA-EE, with the provision of abovementioned design features, no significant adverse impact to the wind environment in the surrounding area associated with the Proposed Development is anticipated.

# 2. Introduction

2.1.1. Allied Environmental Consultants Limited (“AEC”) has been commissioned to prepare an Air Ventilation Assessment (“AVA”) in support of the Section 16 Planning Application for Proposed SCAA Sports Link (“Proposed Development”) at South China Athletic Association, 88 Caroline Hill Road, Hong Kong (“Subject Site”).

# 3. Objectives

3.1.1. The main objective of the study is to evaluate potential air ventilation impacts associated with the Proposed Development on pedestrian wind environment within and in the vicinity of the Subject Site using the methodology framework as set out by relevant government standard, guidelines and technical circulars.

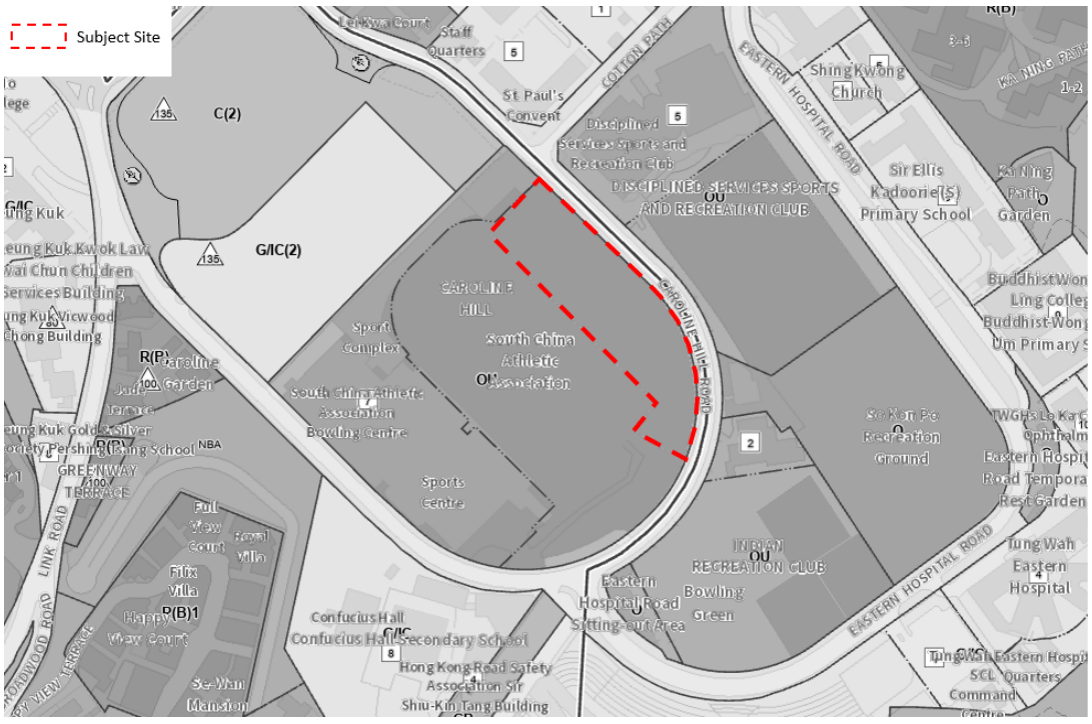
# 4. Description of the Proposed Development

4.1.1. The Proposed Development is a 4-story complex consist of facilities for sports and recreational usage (i.e., Multi-proposed/ activities Rooms, artificial turf pitches, tennis courts and ancillary office & facilities etc.). On the building side facing the South China Stadium of South China Athletic Association, a movable curtain at 2/F and golf fence with top level of 61.6mPD are provided. The site layout plans for the Proposed Development are provided in ***Appendix 4.1***.

4.1.2. Subject Site falls within Wong Nai Chung Inland Lot No. 9041 zoned Other Specified Uses (Sports and Recreation Club) ("OU (Sports and Recreation Club)") on the Approved Wong Nai Chung Outline Zoning Plan No. S/H7/21. The Proposed Development is expected to be operated in Year 2030.

4.1.3. The Subject Site area is approximately 6,132m$^2$. It is located at the north of the existing South China Stadium of South China Athletic Association, and at the south of the Disciplined Services Sports and Recreation Club. Its surrounding areas are zoned Other Specified Uses ("OU"), Government, Institution or Community ("G/IC"), Commercial ("C"), Open Space ("O"), Residential (Group B) ("R(B)"), Residential (Group C) ("R(C)") and Green Belt ("GB"). ***Figure 4.1*** shows the location of the Subject Site.

*Figure 4.1 Subject Site Location*



# 5. Methodology

5.1.1. The methodology framework of this study is set out in the Technical Circular No. 1/06 and its Annex A - Technical Guide for Air Ventilation Assessment for Development in Hong Kong. The Technical Circular is jointly issued by Housing, Planning and Lands Bureau (HPLB) and Environment, Transport and Work Bureau (ETWB) in July 2006 (Technical Guide).

5.1.2. The scope of this study shall cover the following:

- To identify any major wind corridors which should be preserved or reserved;
- To identify any potentially affected areas due to the Proposed design including the layout and deposition;
- To identify good design features; and
- To provide recommendations for alleviating the potential air ventilation impact identified.

# 6. Assessment Methodology

## 6.1. Wind Availability Data

Hong Kong Observatory

6.1.1. The Hong Kong Observatory records the metrological data in Hong Kong. Among all the weather stations in Hong Kong, wind data from Hong Kong Observatory station shall be used for the discussion on overall wind environment in the region.

6.1.2. According to the wind availability data from Hong Kong Observatory station from 1991 - 2020, the annual wind rose revealed winds flowing from the east throughout the year. The wind data from July to September is adopted as the summer prevailing wind, where predominant summer winds are flowing from the east and west. The wind rose during annual and summer conditions are shown in ***Figure 6.1*** and ***Figure 6.2*** respectively.

*Figure 6.1 Annual Wind Rose for Hong Kong Observatory Station, 1991 - 2020*

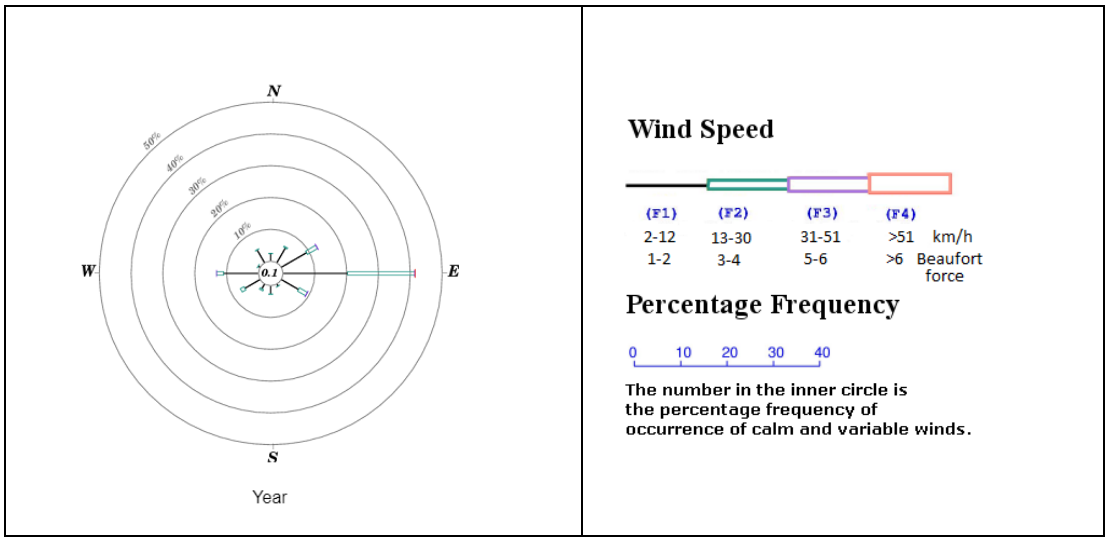
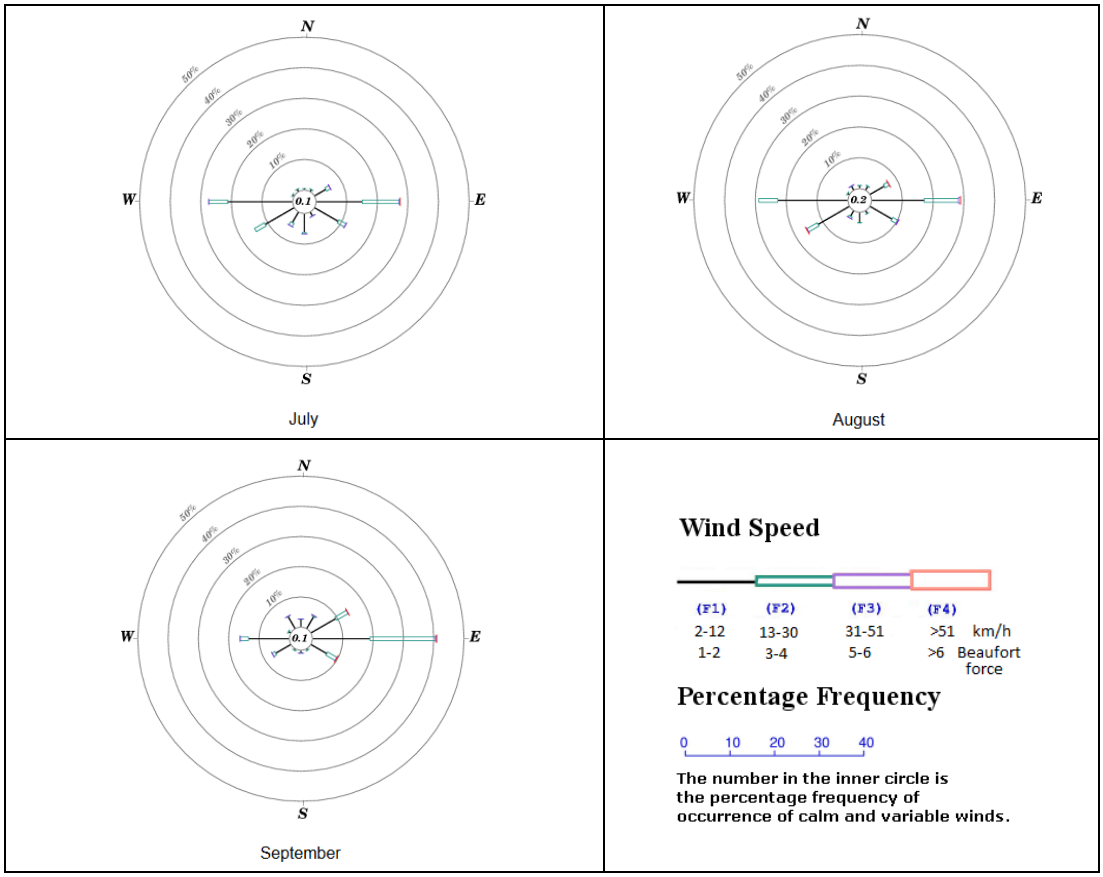



*Figure 6.2 Summer Wind Rose for Hong Kong Observatory Station, 1991 - 2020*



Regional Atmospheric Modelling System (RAMS)

6.1.3. Wind availability to the Subject Site is evaluated with reference to the "Consultancy Study on Establishment of Simulated Site Wind Availability Data for Air Ventilation Assessments in Hong Kong" simulated by the meso-scale model of Regional Atmospheric Modelling System (RAMS) Version 6.0 at the horizontal resolution of 0.5km * 0.5km.

6.1.4. The Subject Site is located within grid (083,033) in Causeway Bay. Wind availability data at 200m was adopted in this assessment. According to PlanD's simulated data, wind roses, wind direction and wind probability data are provided in ***Figure 6.3*** and ***Table 6.1***.

*Figure 6.3 Wind Rose at Grid (083,033)*

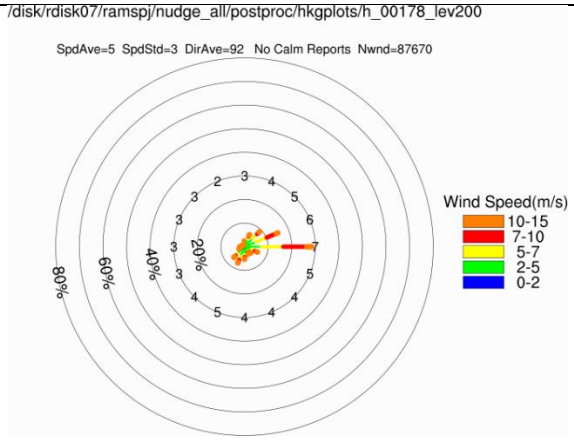
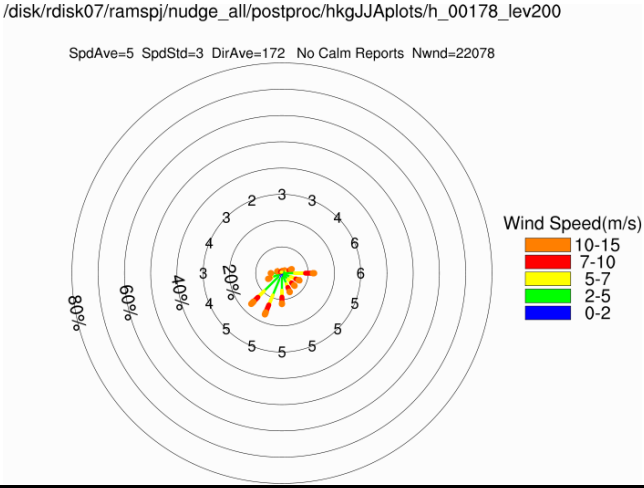
| **Wind Rose – Annual** | |
|---|---|
| 200m |  |
| **Wind Rose – Summer** | |
| 200m |  |

*Table 6.1 Wind Probability at 200m (Grid 083,033)*

| Wind Direction | Annual Probability | Summer Probability |
|---|---|---|
| N | 2% | 1% |
| NNE | 5% | 1% |
| NE | **9%** | 2% |
| ENE | **15%** | 4% |
| E | **29%** | **12%** |
| ESE | 6% | 7% |
| SE | 4% | 7% |
| SSE | 4% | 8% |
| S | 5% | **12%** |
| SSW | 7% | **17%** |
| SW | 6% | **17%** |
| WSW | 3% | 6% |
| W | 2% | 4% |
| WNW | 1% | 2% |
| NW | 1% | 1% |
| NNW | 1% | 1% |

6.1.5. According to RAMS wind data, annual prevailing winds are the incoming winds flowing from the northeast quadrant (i.e. NE, ENE, E) while summer prevailing winds are flowing from southwest quadrant (i.e S, SSW, SW) and from E directions.

6.1.6. Among the two sets of wind data, ***Table 6.2*** summarises the identified prevailing wind conditions of in Causeway Bay area. For a comprehensive discussion on air ventilation performance of the Subject Site and the wind environment at pedestrian level, RAMS data is more appropriate as it is the most updated.

*Table 6.2 Wind Data Summary*

| Sources | Annual Wind | Summer Wind |
|---|---|---|
| Hong Kong Observatory<br>(Hong Kong Observatory station from 1991 -2020) | E | E, W |
| RAMS data (Grid 083,033) | NE, ENE, E | E, S, SSW, SW |

# 7. Surrounding Environment

## 7.1. Urban Morphology

7.1.1. The Subject Site is surrounded by low to mid-rise GIC developments (approx. 20-50mPD) and sport centre (approx. 40-90mPD). The building heights near the surrounding and the land use in surroundings are summarized in ***Table 7.1*** and ***Figure 7.1*** respectively.

*Table 7.1 Building Heights of Major Development in the Surroundings*

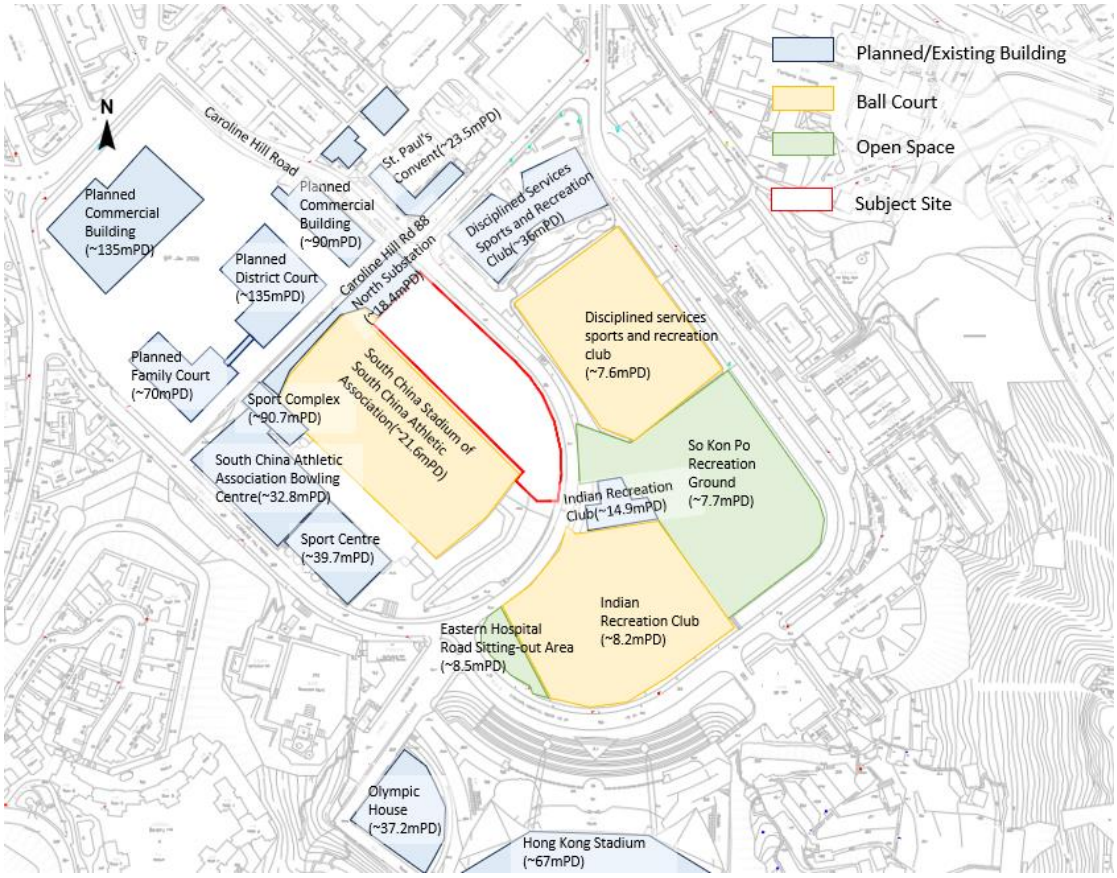
| Surrounding Buildings | Building Heights (mPD) |
|---|---|
| Sport Complex | ~90.7 |
| Sports Centre | ~39.7 |
| South China Athletic Association Bowling Centre | ~32.8 |
| Indian Recreation Club | ~8.2-14.9 |
| Disciplined Services Sports and Recreation Club | ~36 |
| South China Athletic Association | ~21.6 |
| Disciplined services sports and recreation club | ~7.6 |
| So Kon Po Recreation Ground | ~7.7 |
| Eastern Hospital Road Sitting-out Area | ~8.5 |
| St. Paul's Convent | ~23.5 |
| Staff Quarters | ~16.7 |
| Caroline Hill Rd 88 North Substation | ~18.4 |
| Olympic House | ~37.2 |
| Hong Kong Stadium | ~67 |
| Planned Commercial Buildings | ~90-135[1] |
| Planned District/Family Court | ~70-135[2] |

*Note:*

*[1] Reference to Application for Permission under Section 16 of The Town Planning Ordinance (A/H7/188).*

*[2] Reference to Legco Paper "Item for Public Works Subcommittee of Finance Committee (PWSC(2022-23)3) on 33LJ – Construction of a District Court Building at Caroline Hill Road".*

*Figure 7.1 Surrounding Environment*



# 8. Baseline Scheme and Proposed Scheme

8.1.1. The Subject Site falls within an area of OU (Sports and Recreation Club) on the Approved Wong Nai Chung Outline Zoning Plan No. S/H7/21. The existing condition of the site is incorporated in Baseline Scheme and compared with the Proposed Scheme in the discussion of this report.

8.1.2. The major design parameters of Proposed Scheme are summarized in ***Table 8-1.*** Layout plans and section drawing under Proposed schemes are shown in ***Appendix 3.1.*** Comparison between Baseline Scheme (OZP-Compliant Scheme) and Proposed Scheme are made to evaluate any impacts on the overall air ventilation performance in its surrounding area.

*Table 8-1 Major design parameters of Proposed Scheme*

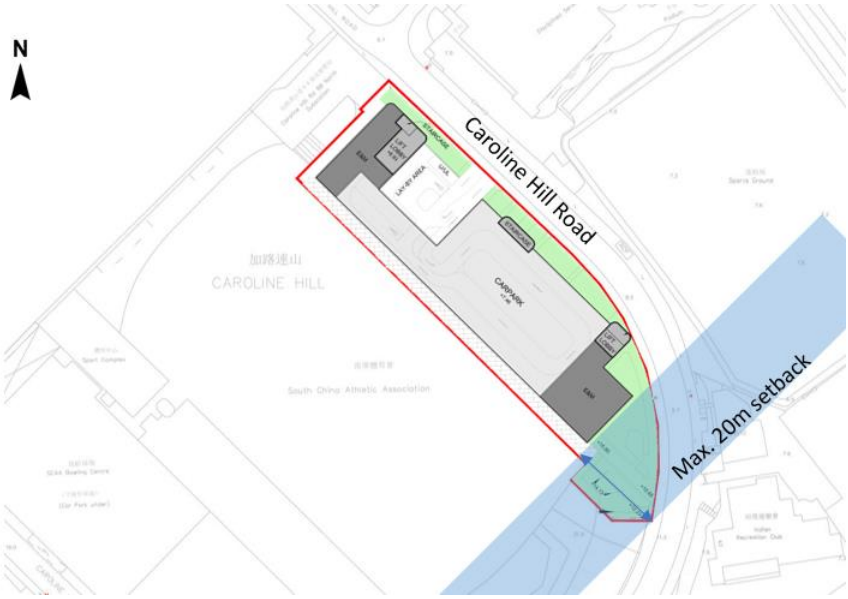
| | **Proposed Scheme** |
|---|---|
| Site Area ($m^2$) | About 6,132 |
| Gross Floor Area ($m^2$) | About 31,327.12 |
| No. of Storey | 4 |
| Building Height (mPD) | 45.4 |

8.1.3. Special design considerations have been adopted in Proposed Scheme. In particular, good design features including the provision of building setback and a stepped building height profile with the surrounding structures have been incorporated in the Proposed Scheme upon the consideration of site and design constraint criterion. These good design features are discussed in the following sections.

Building Setback

8.1.4. Building setback could reduce blockage in particular the perimeter of a development. The landscape garden at the southeastern portion is located at G/F which setbacks the building façade from the site boundary for a maximum of 20m. The building setback allows more wind at pedestrian level to flow across the site along Caroline Hill Road, thus alleviate potential air ventilation impact along the road and local areas at the northeast and southwest of the Subject Site. The building setback is indicated in ***Figure 8.1.***

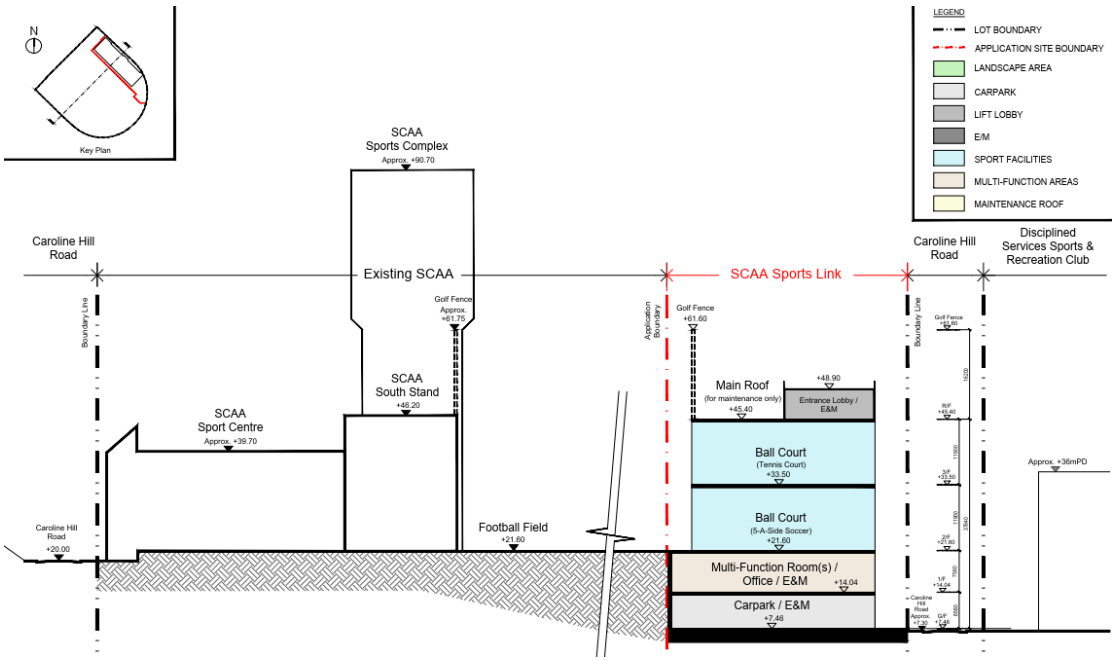
*Figure 8.1 Building Setback at G/F*



Stepped Height Profile with the surrounding structures

8.1.5. Under the Proposed Scheme, the top level of the Proposed Development with the golf fence is 61.6mPD. A stepped building height profile is formed with the surrounding, from SCAA Sports Complex at approx. 90.7mPD, the Proposed Development at 61.6mPD and Disciplined Services Sports & Recreation Club at approx. 36mPD, aligned in a NE-SW direction. It facilitate the wind flow of both incoming annual and summer prevailing winds to benefit the wind environment in the surrounding area. The section of the Proposed Development with the surrounding is shown in ***Figure 8.2.***

*Figure 8.2 Section of the Proposed Development*



# 9. Expert evaluation

9.1.1. Reference have been made to the Term Consultancy for AVA Services – Expert Evaluation on Air Ventilation Assessment of Causeway Bay Area (Project Ref: AVR/G/50), the Term Consultancy for Expert Evaluation on Air Ventilation Assessments for an Instructed Project for Causeway Bay Area - Expert Evaluation Report (2017) (Project Ref: AVR/G/113), and the Term Consultancy for AVA Services - Expert Evaluation on Air Ventilation Assessment for Wong Nai Chung Area (Project Ref: AVR/G/23) and Initial Study on Air Ventilation Assessment for Section 16 Planning Application (A/H7/188).

**E, ENE, NE wind**

9.1.2. Under annual prevailing wind condition, incoming E, ENE and NE wind would flow through the Sport Ground of Disciplined Services Sports and Recreation Club (~7.6mPD) and along the Cotton Path between St Paul's Convent (~23.5mPD) and Disciplined Services Sports and Recreation Club (~36mPD) at the east of the Subject Site, reaching the Subject Site as shown in ***Figure 9.1.***

9.1.3. Under the Baseline Scheme, the existing condition of the Subject Site with no obstruction is beneficial to the wind flow from easterly direction. Incoming E, ENE and NE wind could penetrate through the Subject Site at the north and south, and reach the downwind area of South China Athletic Association Bowling Centre (~32.8mPD) and Sport Centre at pedestrian level (~39.7mPD). The incoming wind collides at the South China Athletic Association Bowling Centre, Sport Centre and Sport Complex, creating a downwash effect at the South China Stadium of South China Athletic Association.

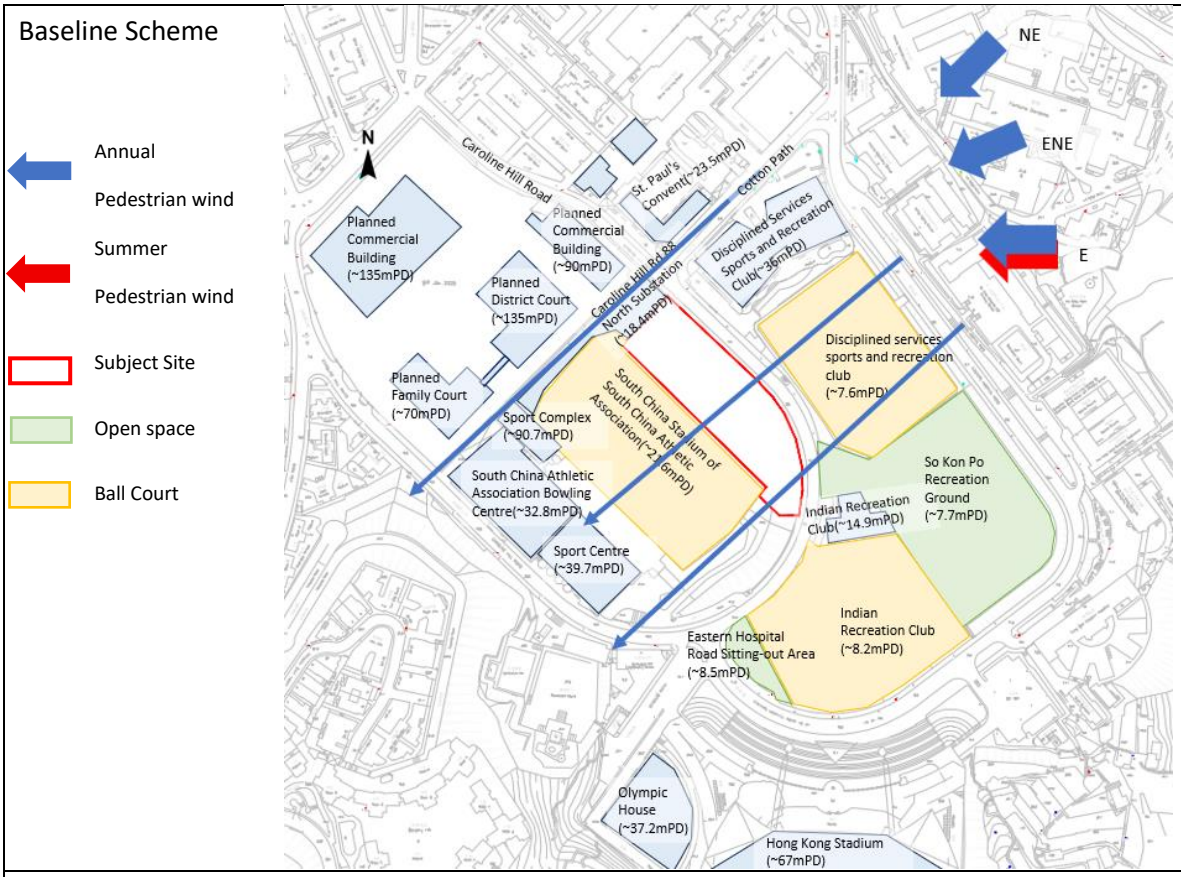
9.1.4. Under the Proposed Scheme, the southeastern portion of the Proposed Development is optimized to facilitate the flow of easterly wind by providing a maximum 20m setback from the southeastern site boundary. It allows more incoming wind to penetrate through the Subject Site at pedestrian level, thus alleviate potential air ventilation impact along the road and local areas at the southwest of the Subject Site.

9.1.5. In addition, a stepped building height profile is provided for Proposed Development to the surrounding structures under the Proposed Scheme. The incoming wind flows from Disciplined Services Sports and Recreation Club and collide at the Proposed Development, creating a downwash effect at pedestrian level. In addition, by aligning the NE-SW direction, the building height of Disciplined Services Sports and Recreation Club, Proposed Development and Sport Complex are 36mPD, 61.6mPD and 90.7mPD respectively. High-to-mid-level prevailing wind can be captured and diverted downwards to the pedestrian area by the downwash effect.

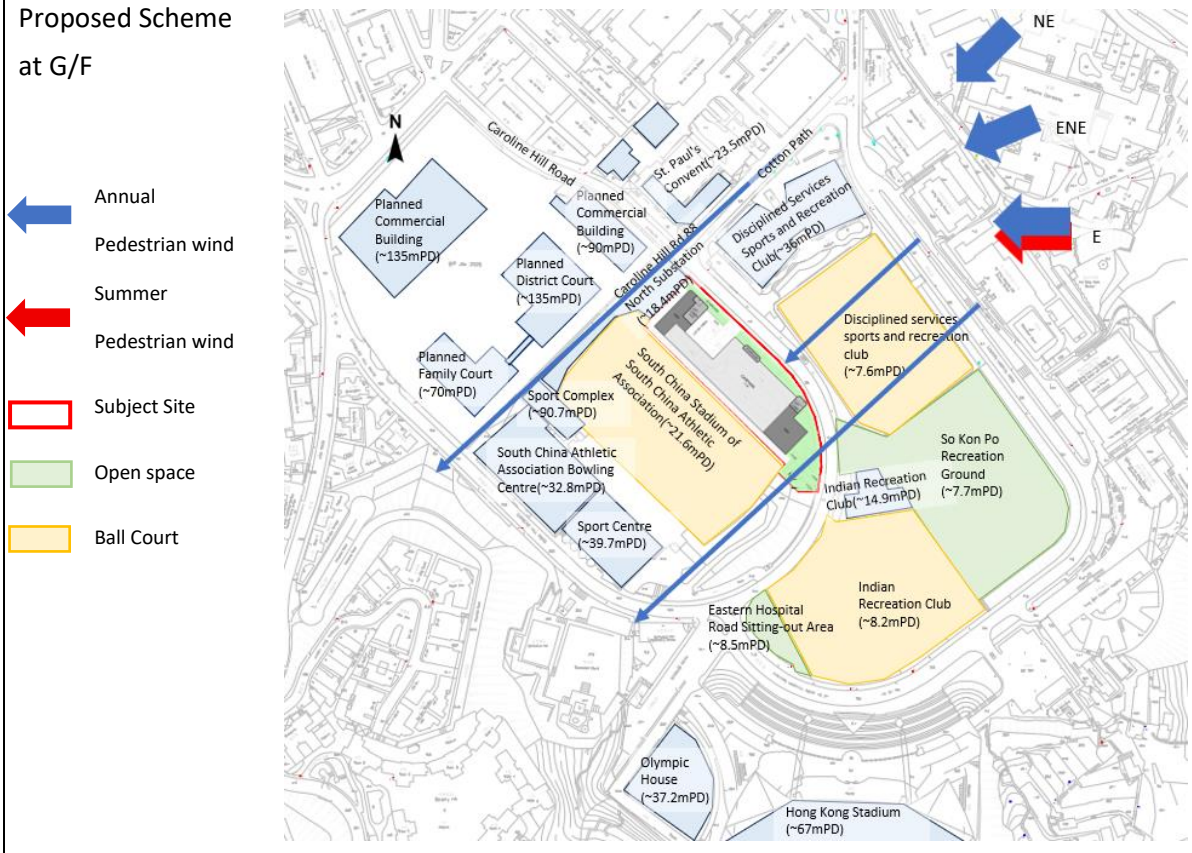
9.1.6. With the provision of building setback from the southeastern site boundary and a stepped building height profile to the surrounding structures, it is expected that the impacts on wind environment at downwind areas including South China Stadium of South China Athletic Association, South China Athletic Association Bowling Centre and Sport Centre under the Proposed Scheme could be minimized.

*Figure 9.1 Wind Environment under E, ENE, NE wind*

Baseline Scheme




Proposed Scheme at G/F



SSW, SW & S Wind

9.1.7. Under summer prevailing wind condition, the incoming SSW, SW and S wind would flow from the separation between the high-rise residential development of The Leighton Hill and Beverly Hill at the southwest of the Subject Site as shown in ***Figure 9.2***.

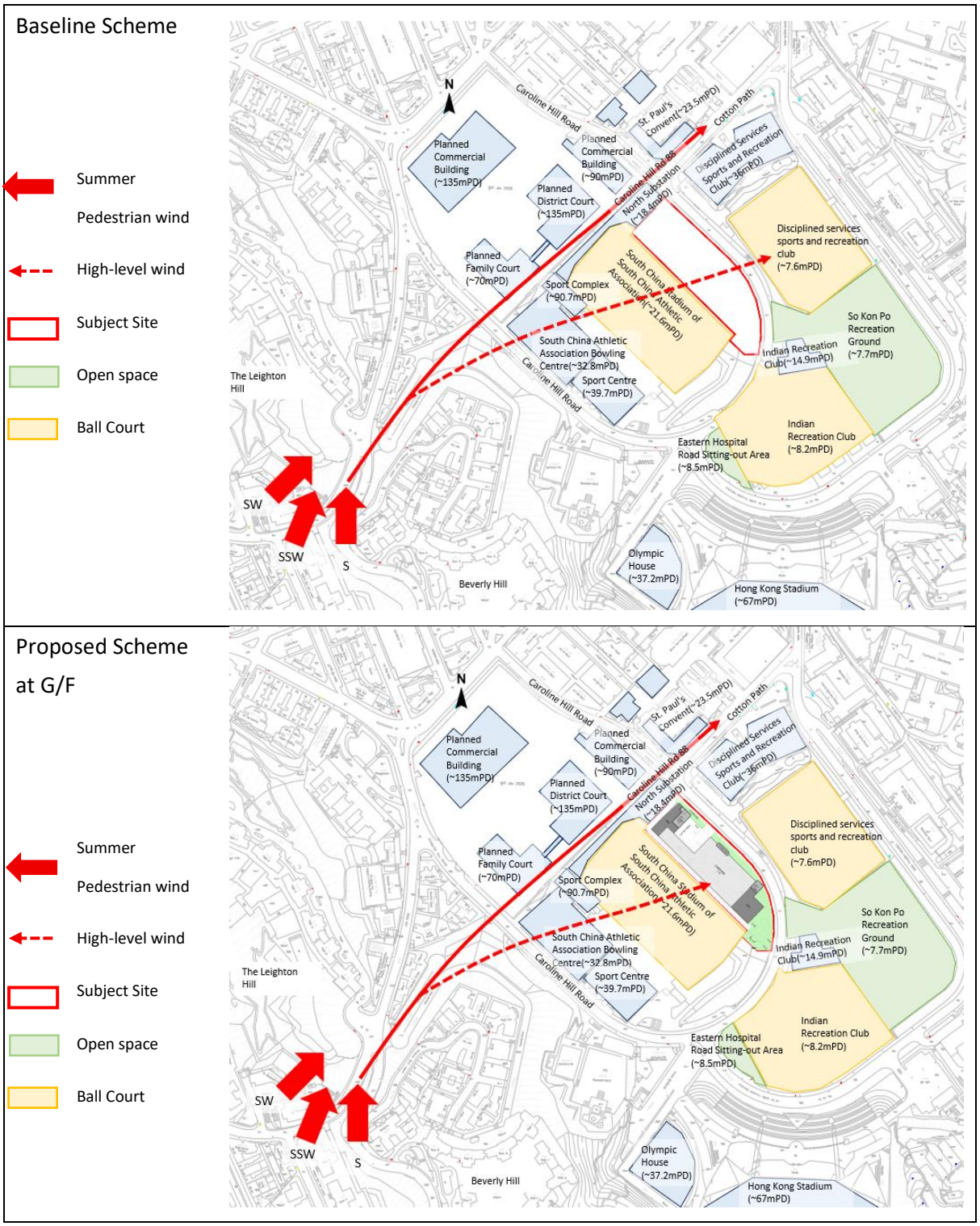
9.1.8. Under the Baseline Scheme, Incoming SSW, SW and S wind penetrate through the separation between The Leighton Hill and Beverly Hill. The high-rise buildings of Sport Complex (~90.7mPD) located at the southwest of the Subject Site pose obstruction to the prevailing wind. It is anticipated that only portion of high-level wind could skim over the high to low-rise buildings of Sport Complex, South China Athletic Association Bowling Centre (~32.8mPD) and Sport Centre (~39.7mPD), reaching the Subject Site and further to the downwind areas of So Kon Po Recreation Ground (~7.7mPD) and Disciplined services sports and recreation club (~7.6mPD) at pedestrian level.

9.1.9. Under the Proposed Scheme, high-rise building at the southwest of the Subject Site pose obstruction to the prevailing wind and only portion of high-level wind could skim over the high to low-rise buildings and reach the Subject Site. A stepped building height profile is provided for Proposed Development to the surrounding structures under the Proposed Scheme. By aligning the NE-SW direction, the building height of Disciplined Services Sports and Recreation Club, Proposed Development and Sport Complex are 36mPD, 61.6mPD and 90.7mPD respectively. High-to-mid-level prevailing wind can be captured and diverted downwards to the pedestrian area by the downwash effect.

9.1.10. To further facilitate the wind penetration of the downwind area of the Subject Site, the southeastern portion of the Proposed Development is optimized by providing a maximum 20m setback from the southeastern site boundary. It poses less obstruction by allowing more incoming wind to penetrate through the Subject Site at pedestrian level, thus alleviate potential air ventilation impact along the road and local areas at the northeast of the Subject Site. The provision of setback allows more wind penetrate the downwind areas of So Kon Po Recreation Ground and Disciplined services sports and recreation club.

9.1.11. With the provision of building setback from the southeastern site boundary and a stepped building height profile to the surrounding structures, it is expected that the impacts on wind environment at downwind areas including So Kon Po Recreation Ground and Disciplined services sports and recreation club under the Proposed Scheme could be minimized.

*Figure 9.2 Wind Environment under SW, SSW and S wind*



# 10. Conclusion

10.1.1. An AVA-EE study was conducted for Development of Comprehensive Sports & Recreation Centre to provide qualitative evaluation of wind performance of the proposed development under the Baseline and the Proposed Scheme.

10.1.2. Under the Proposed Scheme, the southeastern portion of the Proposed Development is optimized to facilitate the flow of southwestern wind by providing a maximum of 20m setback from the southeastern site boundary. It poses less obstruction by allowing more incoming annual and summer wind to penetrate through the Subject Site at pedestrian level, thus alleviate potential air ventilation impact along the road and local areas at the northeast and southwest of the Subject Site.

10.1.3. In addition, a stepped building height profile is provided for Proposed Development to the surrounding structures under the Proposed Scheme. The incoming annual wind flows from Disciplined Services Sports and Recreation Club and collide at the Proposed Development, while summer wind flows from Sport Complex, South China Athletic Association Bowling Centre and Sport Centre, and collide at the Proposed Development. It creates a downwash effect at pedestrian level, which alleviate the potential air ventilation impact to the pedestrian level at surrounding area.

10.1.4. With the good design features to alleviate potential air ventilation impact, including building setback, and stepped building height to the surrounding structures, it is anticipated that there shall be insignificant impact to the wind environment in the surrounding area associated with the Subject Site.

***Appendix 4.1***

---

*Site Layout Plan*

N

LEGEND
- LOT BOUNDARY
- APPLICATION SITE BOUNDARY
- LANDSCAPED AREA
- CARPARK
- LIFT LOBBY/ STAIRCASE
- E&M
- SPORTS FACILITIES
- MUTI-FUNCTION AREA
- ROOF

COTTON PATH

DISCIPLINED SERVICES SPORTS & RECREATION CLUB

DISCIPLINED SERVICES SPORTS & RECREATION CLUB FOOTBALL PITCH

CAROLINE HILL ROAD

+6.93
+7.46
+7.55
+8.36
+9.46
+10.80
+10.65
+12.23
+14.13
+15.83

STAIRCASE
STAIRCASE
STAIRCASE
LIFT LOBBY +6.93
LIFT LOBBY
L/UL
LAY-BY AREA
SCAA TRAINING POOL
E&M
E&M
CARPARK +7.46
UNEXCAVATED AREA

Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong
G/F Plan ○ 1 : 500 (A3) ○ 09 Jan 2026

Design 2 (HK) Limited

N

LEGEND
- LOT BOUNDARY
- APPLICATION SITE BOUNDARY
- LANDSCAPED AREA
- CARPARK
- LIFT LOBBY/ STAIRCASE
- E&M
- SPORTS FACILITIES
- MUTI-FUNCTION AREA
- ROOF

COTTON PATH

DISCIPLINED SERVICES SPORTS & RECREATION CLUB

DISCIPLINED SERVICES SPORTS & RECREATION CLUB FOOTBALL PITCH

CAROLINE HILL ROAD

OFFICE

STAIRCASE

STAIRCASE

STAIRCASE

LIFT LOBBY

LIFT LOBBY

SCAA TRAINING POOL

MULTI-FUNCTION ROOMS

+14.04

BALLCOURT (TENNIS)

+11.06

LANDSCAPE AREA

+11.57

+10.45

+11.06

+10.65

+12.23

+16.69

TOILETS/ CHANGING ROOMS/ E/M

TOILETS/ CHANGING ROOMS/ E/M

UNEXCAVATED AREA

Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

1/F Plan ◦ 1 : 500 (A3) ◦ 09 Jan 2026

Design 2 (HK) Limited

N

LEGEND
- LOT BOUNDARY
- APPLICATION SITE BOUNDARY
- LANDSCAPED AREA
- CARPARK
- LIFT LOBBY/ STAIRCASE
- E&M
- SPORTS FACILITIES
- MUTI-FUNCTION AREA
- ROOF

COTTON PATH

DISCIPLINED SERVICES SPORTS & RECREATION CLUB

DISCIPLINED SERVICES SPORTS & RECREATION CLUB FOOTBALL PITCH

CAROLINE HILL ROAD

STAIRCASE

STAIRCASE

STAIRCASE

LIFT LOBBY

LIFT LOBBY

+22.68

SCAA TRAINING POOL

TOILETS/ CHANGING ROOMS/ E/M

BALL COURT (5-A-SIDE SOCCER) & ANCILLARY FACILITIES

+21.60

TOILETS/ CHANGING ROOMS

E&M

SCAA GOLF DRIVING RANGE

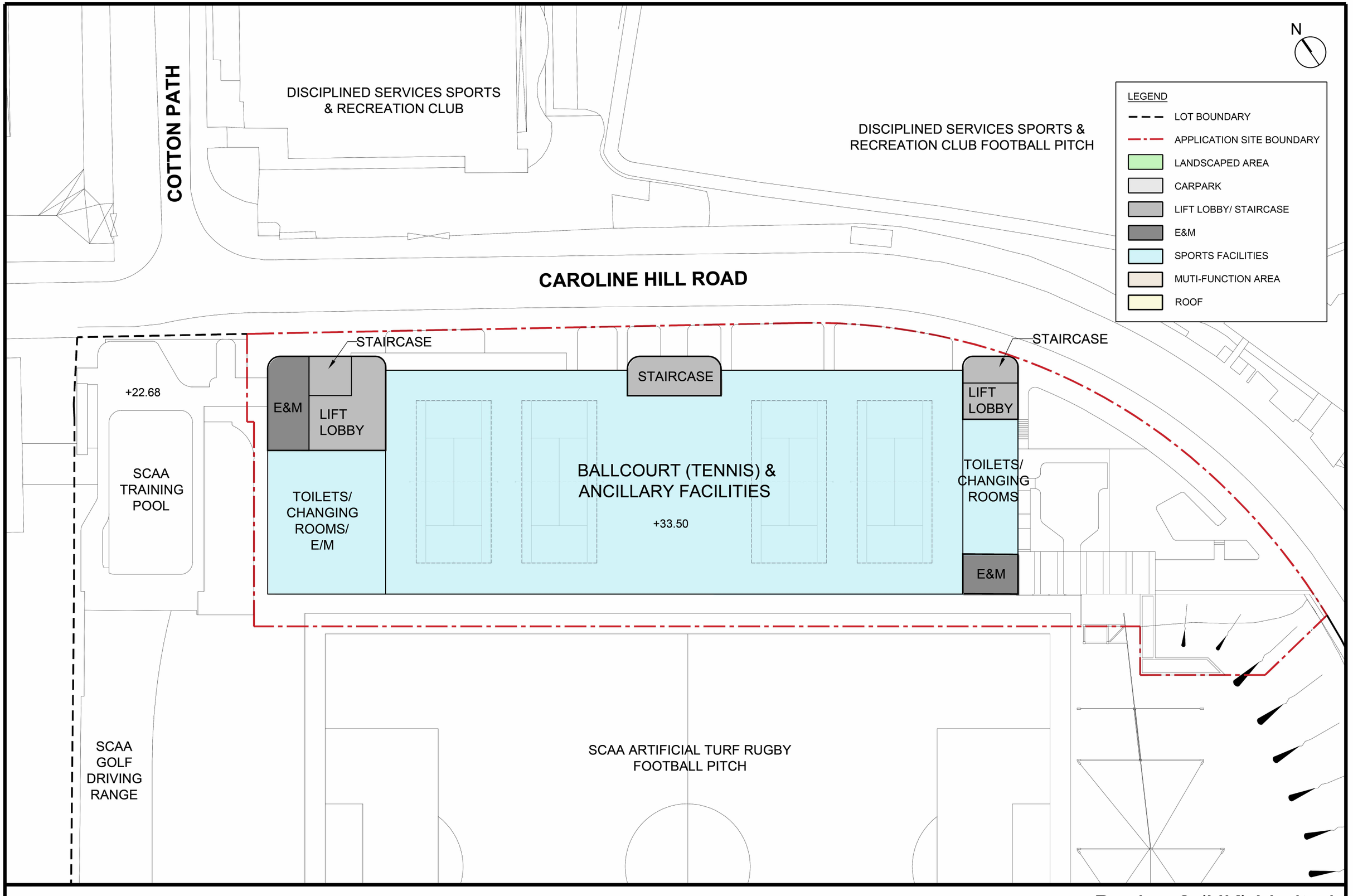
SCAA ARTIFICIAL TURF RUGBY FOOTBALL PITCH

+21.60

Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

2/F Plan ○ 1 : 500 (A3) ○ 09 Jan 2026

Design 2 (HK) Limited




Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

3/F Plan ◦ 1 : 500 (A3) ◦ 09 Jan 2026

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N

LEGEND
- LOT BOUNDARIES
- APPLICATION SITE BOUNDIES
- GREEN ROOF
- LIFT LOBBY/ STAIRCASE
- E&M
- ROOF

COTTON PATH

DISCIPLINED SERVICES SPORTS & RECREATION CLUB

DISCIPLINED SERVICES SPORTS & RECREATION CLUB FOOTBALL PITCH

CAROLINE HILL ROAD

STAIRCASE

LIFT LOBBY

E&M

STAIRCASE

LIFT LOBBY

E&M

ROOF

+45.40

GOLF FENCE

GREEN ROOF

SCAA TRAINING POOL

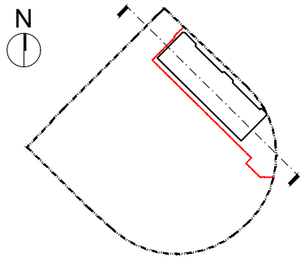
SCAA GOLF DRIVING RANGE

SCAA ARTIFICIAL TURF RUGBY FOOTBALL PITCH

Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

R/F Plan ○ 1 : 500 (A3) ○ 09 Jan 2026

Design 2 (HK) Limited




Key Plan

LEGEND

- LOT BOUNDARY
- APPLICATION SITE BOUNDARY
- LANDSCAPE AREA
- CARPARK
- LIFT LOBBY
- E/M
- SPORT FACILITIES
- MULTI-FUNCTION AREAS
- ROOF

SCAA Sports Link

SCAA Training Pool

Adjoining Commercial Development

Boundary Line

Application Boundary

Boundary Line

Golf Fence +61.60

Golf Fence +61.60

Golf Fence +61.60

16200

11900

11900

10540

3600

37940

R/F +45.40

3/F +33.50

2/F +21.60

1/F +11.06

G/F +7.46

+48.90

Entrance Lobby / E&M

Roof

+45.40

+48.90

Entrance Lobby / E&M

Ball Court (Tennis Court) +33.50

Ball Court (Tennis Court) +33.50

Ball Court (5-A-Side Soccer) +21.60

Ball Court (5-A-Side Soccer) +21.60

Ball Court (Tennis Court) +11.06

Multi-Function Room(s) / Office / E&M +14.04

Carpark +7.46

Entrance Lobby +6.93

E&M

E&M

Carpark

Linkage with Training Pool

Linkage with Adjoining Development

Training Pool +22.68

+18.60

16200

11900

11900

37940

7560

6580

R/F +45.40

3/F +33.50

2/F +21.60

1/F +14.04

G/F +7.46

Caroline Hill Road

Approx. +10.65

Existing Slope

Landscape Garden

+10.65

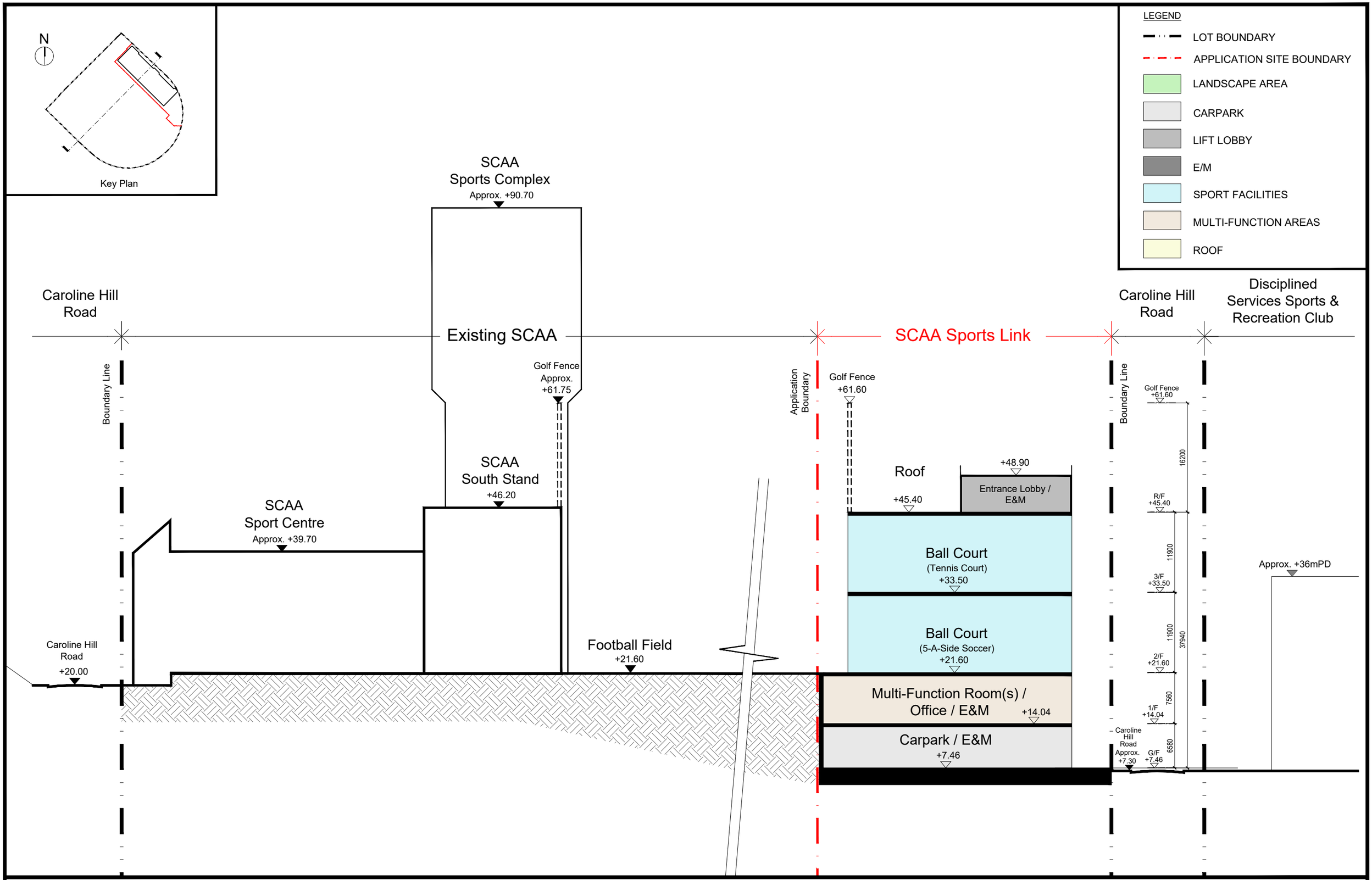
+8.811

Mean Street Level of North Site

# Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

Section A-A ○ 1 : 500 (A3) ○ 09 Jan 2026

Design 2 (HK) Limited




Proposed SCAA Sports Link at South China Athletic Association, 88 Caroline Hill Road, Hong Kong

Section B-B ○ 1 : 500 (A3) ○ 09 Jan 2026

Design 2 (HK) Limited