

**For discussion
on 8 January 2019**

Legislative Council Panel on Security

Flight Simulator Training Centre of the Government Flying Service

PURPOSE

This paper aims to brief Members on –

- (a) the proposal to upgrade the capital works project item 190GK (“the Project”) to Category A, at an estimated cost of \$112.1 million in money-of-the-day prices for the establishment of the Flight Simulator Training Centre (“FSTC”) of the Government Flying Service (“GFS”); and
- (b) the proposal to set up a flight simulator training device in the proposed FSTC of the GFS.

PROJECT SCOPE

2. The GFS plans to establish a FSTC, which covers an area of 630 square metres, in its Headquarters (i.e. part of the existing car park) located at the Hong Kong International Airport at Chek Lap Kok for setting up a helicopter flight simulator training device (“the Simulator”) to provide an environment with high fidelity to real helicopter flying conditions for GFS to conduct pilot training that could meet the international civil aviation standards and its operational needs. The scope of the Project comprises –

- (a) construction of a building to accommodate a simulator hall for installing the Simulator, and general support facilities for operating the Simulator, including a computer server room, a classroom, a Simulator equipment room, a control room, a storage room and other supporting facilities for service operations; and

(b) provision of a temporary car park for use by the GFS during the construction period.

3. A site location plan and an artist's impression of the Project are at **Enclosures 1** and **2** respectively.

PROPOSED SETTING UP OF THE SIMULATOR

4. The proposed setting up of the Simulator includes the procurement of the full flight simulator hardware (consisting of a main module together with the visual system, hydraulic/electric motion system, environmental unit, connecting bridge, computer server, etc.) and all software required for the operation of the Simulator; the installation of the Simulator in the proposed FSTC; the implementation services to customise the software for the operational environment of the GFS; and the training and certification for pilot instructors as well as maintenance / system administration staff.

JUSTIFICATIONS

5. The GFS was established under the Government Flying Service Ordinance (Cap. 322) in 1993 to provide a wide range of flying services, including search and rescue, air ambulance, fire-fighting, aerial survey, support for law enforcement, etc., for various departments of the Government and people in need. The GFS's various major services, including in-shore and mountain search and rescue, air ambulance, fire-fighting, etc., are carried out by its helicopter fleet. The annual flying hours of the GFS helicopter fleet account for approximately 75% of the total flying hours of the department. Given the demand of helicopter services, the number of helicopter pilots of the GFS accounts for the majority of the staff establishment of pilots.

6. Flight safety is always the primary consideration of GFS's operations. All current operations of the department are carried out in strict accordance with the relevant laws, regulations and international standards. As far as training of helicopter pilots is concerned, in addition to using real helicopters to conduct training and assessments, the department is also required, in accordance with the licensing and renewal requirements of the Civil Aviation Department ("CAD"), to regularly arrange for its pilots to undergo various emergency procedures exercises and assessments at training centers installed with simulator of the

relevant helicopter model. As there is no training centre equipped with helicopter simulators in Hong Kong, in order to comply with the CAD's current licensing requirements for pilots operating the GFS's seven Super Puma AS-332 L2 and EC155B1 helicopters, the department needs to send each of its helicopter pilots to undergo simulator training or assessments overseas every 12 to 18 months. Taking into account the travel time of a round-trip, it takes about one week for each pilot's overseas training trip.

7. In 2013, the GFS was approved to create a new commitment of \$2,187.5 million to replace the seven Super Puma AS-332 L2 and EC155B1 helicopters and associated mission equipment. Seven new H175 helicopters are delivered to Hong Kong in batches in 2018-19 and will become fully operational in 2019. In accordance with CAD's licensing and renewal requirements for pilots of new helicopter types (including the H175), after the arrival of the new helicopters in July 2018, each GFS pilot operating the new helicopter is required to undergo flight simulator training and pass the relevant assessments every six months, which is more frequent than the previous requirement of 12 to 18 months. At present, the only H175 helicopter simulator is in France. In order to meet CAD's requirements, the GFS needs to significantly increase the time for arranging helicopter pilots to undergo overseas flight simulator and other training in future. The number of hours available for pilots to stay in Hong Kong to carry out daily emergency missions, undergo real aircraft training and assessments, and perform other regular tasks will be reduced accordingly.

8. On the other hand, in response to the increasing demand for services and to enhance the standards and efficiency of pilot training, the GFS is expanding the establishment of its pilot grade as planned. It is estimated that the number of helicopter pilots of the GFS will increase by 59% to 62 by mid-2021 as compared with mid-2015. Given the increased number of junior pilots, the department's demand for helicopter simulator training and assessments will continue to increase in future.

9. The GFS currently does not have a dedicated training facility for helicopter pilots. In addition to sending staff overseas for flight simulator training and assessments, arrangements are usually made for pilots of the helicopter fleet to use the seven operational helicopters for actual flying training when there is no emergency mission. The establishment of the FSTC within the GFS headquarters will improve the conditions and efficiency of training helicopter pilots significantly. We expect that the FSTC will bring the following benefits to the training of helicopter pilots –

- (a) ***Enhancement of the safety level of operation and training:*** Through the use of the Simulator, pilots under training will not only be able to perform the general helicopter operations and procedures, they will also have more opportunities to practice repeatedly on the handling of more complicated situations in a realistic and safe manner, including those operational procedures which cannot be conducted in real helicopters for safety or design reasons (e.g. double engine or tail rotor failures, total electric failure, bad weather, etc.), thereby enhancing their competency in handling these situations in real helicopters and ensuring flight safety.
- (b) ***Increased manpower resources for pilot deployment:*** The establishment of the FSTC in the GFS will reduce the need for deploying pilots overseas for the relevant training, and the travelling time saved can be used for performing duties. Conducting simulator training and assessments at the FSTC will be more flexible than sending staff for overseas training. The department can have more flexibility in arranging or changing the time for training and assessments having regard to the overall operational need, thus improving the tight deployment situation of pilots.
- (c) ***Improving training and assessment efficiency:*** Currently, local training and assessments on operational helicopters are easily affected by a number of uncontrollable factors, such as weather conditions, unavailability of training slots due to continuous increase in air traffic at the airport, urgent operational commitment or maintenance, which can cause serious delay in the training schedule of pilots. In future, such training can be conducted in the Simulator and it will minimise the impact of uncontrollable factors such as weather conditions. The overall training time for individual pilots to achieve operational status can be reduced.
- (d) ***Availability of helicopters for operations:*** When the Simulator becomes operational, some training and assessments which are currently conducted on the operational helicopters can be conducted on the Simulator instead. The helicopters can thus be released for operations and the fuel required for conducting the relevant training and assessments can be saved.

10. The Simulator is a highly complex training facility consisting of large-sized and high technology hardware, software, and specialised supporting equipment and components, which must be accommodated in a purpose-built structure. The existing GFS Headquarters building is unable to meet the requirements for accommodating the Simulator. The limited space of the hangar has been fully utilised for parking of the fixed-wing aircraft and helicopter fleets, as well as aircraft inspection and maintenance work. It is also not practicable to modify the existing GFS Headquarters building to accommodate the Simulator, as the hangar is the only possible area inside the GFS Headquarters building for installing the Simulator, but flight operations and safety, as well as the aircraft maintenance work of the GFS will be adversely affected if construction works are to be carried out in the hangar. The stability of the GFS's emergency rescue services will also be seriously undermined. Taking into account the above constraints, the GFS proposes to construct a standalone purpose-built new structure in the car park area of the GFS Headquarters for accommodating the Simulator. This arrangement can facilitate the management and use of the dedicated structure while not affecting the daily operation of the GFS.

11. During the construction period and after completion of the Project, some parking spaces in the car park area of the GFS Headquarters will be affected. The GFS has obtained approval in principle from the Airport Authority Hong Kong to use part of the vacant lawns along the South Perimeter Road outside GFS to set up a temporary open car park for the department during the construction period. After the completion of the project, the temporary open car park will be reinstated to the original lawns.

FINANCIAL IMPLICATION

The Project

12. We estimate that the capital cost of the construction of the proposed FSTC is \$112.1 million in money-of-the-day prices.

Setting up of the Simulator

13. For the setting up of the Simulator, according to the information gathered by the GFS in a market research conducted between August and December 2018, the preliminary estimated cost for the

procurement of the Simulator is around \$400 million. The estimated cost breakdown and the required cashflow requirement are as follows –

Item	Estimated Cost (\$'000)
1. The Simulator (including the hardware and software of the Simulator, design, manufacture, the essential flight data package, delivery, installation, initial certification, validation, associated equipment, and the training for the operation and maintenance of the Simulator.)	345,000
2. Spare parts	15,000
3 Contingency	40,000
Total:	400,000

14. The recurrent cost of the Simulator (including the costs for hardware/software maintenance and data/software upgrading) is estimated to be \$2 million per annum in 2021-22 and 2022-23 and will increase to \$5 million per annum starting from 2023-24. The requirements of recurrent expenditure will be reflected in the Estimates of the relevant years.

PUBLIC CONSULTATION

15. We have introduced the Project to the Islands District Council by circulation of paper. The Islands District Council did not raise any adverse comment about the Project.

ENVIRONMENTAL IMPLICATIONS

16. The Project is not a designated project under the Environmental Impact Assessment Ordinance (Cap 499). It will not cause long-term adverse environmental impact. We have included in the project estimate the cost to implement suitable mitigation measures to control short-term environmental impacts.

17. During construction, we will control noise, dust and site run-off nuisances to within established standards and guidelines through making terms in the relevant contract and requesting the contractor to

implement mitigation measures including the use of silencers, mufflers, acoustic lining or shields and the building of barrier walls for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities to prevent dust nuisance.

HERITAGE IMPLICATION

18. This Project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded heritage site or buildings, sites of archeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

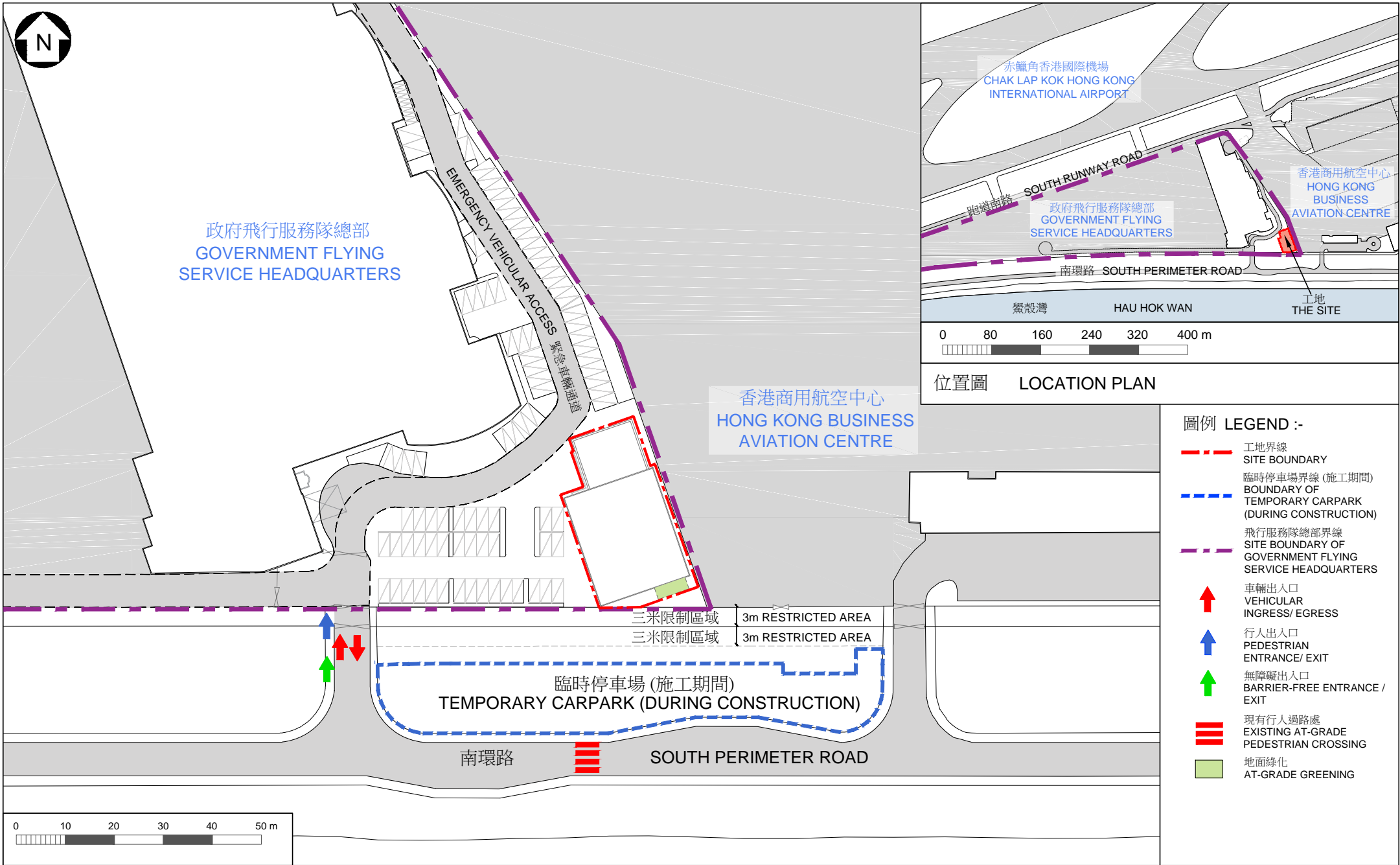
19. The Project does not require any land acquisition.

WAY FORWARD

20. After consulting the Members, we will seek funding from the Legislative Council for the above proposals in accordance with the established procedures, which include submitting the Project to the Public Works Subcommittee for consideration in the first or second quarter of 2019 and seeking approval from the Finance Committee for upgrading the Project to Category A in the second quarter of 2019. Subject to funding approval, we plan to commence the construction works of the Project in the first quarter of 2020 for completion in the fourth quarter of 2021. The GFS plans to complete the procurement work of the Simulator in the fourth quarter of 2021 to tie in with the scheduled completion date of the construction works of the FSTC. Members of the Panel on Security are invited to provide comments.

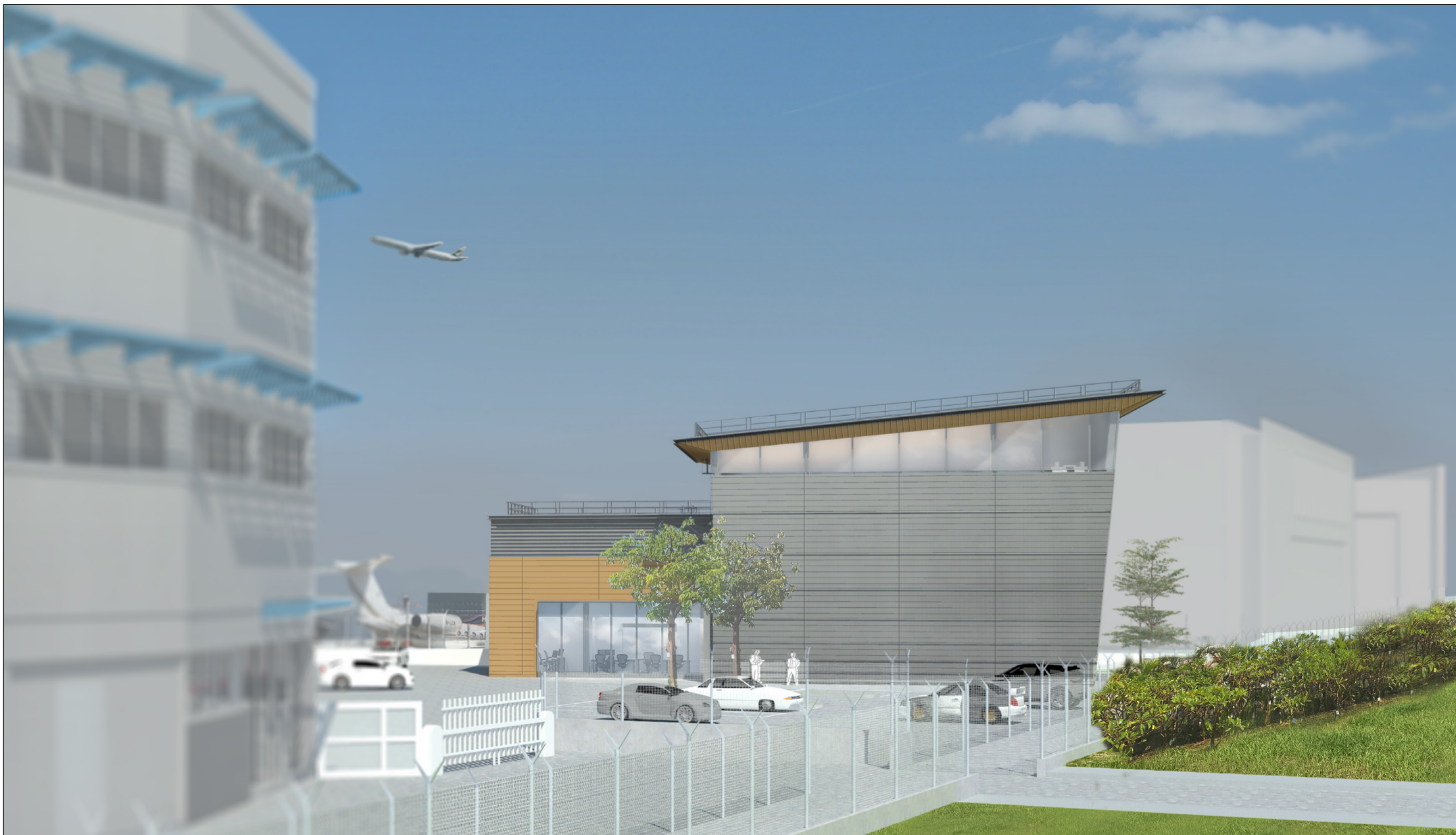
**Security Bureau
Government Flying Service
Architectural Services Department**

January 2019



工地平面圖
SITE PLAN

190GK
政府飛行服務隊模擬飛行訓練中心
FLIGHT SIMULATOR TRAINING CENTRE OF THE GOVERNMENT FLYING SERVICE



從西面望向模擬飛行訓練中心的構思透視圖
PERSPECTIVE VIEW OF THE FLIGHT SIMULATOR TRAINING CENTRE FROM WEST DIRECTION

構思圖
ARTIST'S IMPRESSION

190GK
政府飛行服務隊模擬飛行訓練中心
FLIGHT SIMULATOR TRAINING CENTRE OF THE GOVERNMENT FLYING SERVICE



ARCHITECTURAL
SERVICES
DEPARTMENT 建築署