

- (a) **the objectives and methodology of compensatory tree and grass planting in the public open space, the Main Stadium and the Public Sports Ground, including the proposed species and the soil specifications to be adopted;**

Response:

The landscape design has taken into consideration of enhancing the urban ecology and bio-diversity prevailing within the Multi-purpose Sports Complex (MPSC).

For the urban ecology, it is necessary to pay particular attention to urban ecology in the opportunity areas afforded by the primary open space along the edges of the MPSC, such as in the Neighbourhood Park, in which a dense and diverse range of planting will enhance the habitat development, and thereby, encourage ecological connectivity with the surrounding environment.

For the bio-diversity, the proposed planting palette has integrated a wide range of native species and non-native species, which are widely represented in Hong Kong and have adapted to the local environment. The selected species are suitable to the local environment to achieve healthy growth of planting clusters. In addition, greening opportunities within the MPSC has been maximised by providing both extensive shrub planting and tree planting with understoreys.

The landscape design strategies have been formulated based on several considerations, including visual amenity, environmental suitability, ecological value and biological diversity. The recommended planting palette for MPSC would be developed with reference to guidelines provide in the Comprehensive Street Tree Management Plan for Hong Kong by the Development Bureau, the Hong Kong Greening Master Plan (HKGMP) for Kowloon City District and Wong Tai Sin District by the Civil Engineering and Development Department (CEDD) and the Final Report on Planning, Landscape and Urban Design for Kai Tak Development

by CEDD. This will ensure that the design compatibility and continuity with planting strategies in the wider district, and optimizing the ecological connectivity beyond the development area.

The most common grass species in Hong Kong for sports are Bermuda and Carpet grass. Given the fact that there are many other kinds of warm season grass species, trials would be conducted to ascertain which grass species would be the most suitable for growing under the semi-enclosed environment in the Main Stadium. To support the turf system in the Main Stadium, it is considered that the same turf species will be used in the Public Sports Ground. On the other hand, the proposed turf species for the Public Open Space should be more wear and tear tolerance in order to be viable as an amenity lawn for the community.

For the soil specification, all the soil use within the development will be fabricated soil imported to the site. Imported fabricated soil will be prepared to meet higher technical and textural standards than those currently utilised by the Architectural Services Departments (ArchSD) General Specification. The benefit of the recommended particular specification for soil is to promote rapid establishment and development, and the longer term growth and health of plant material. The soil requirement in the particular specification will include enhanced textural properties and have a suitable chemical composition, as well as provide an upper limit threshold for certain chemicals which might inhibit the achievement of the planting objectives. In addition, soil tests and inspections will be carried out to ensure the growing medium meets the requirements of the specification.

- (b) the use of pesticides and the proposed Integrated Pest Management to minimize the possible escape of residual pesticides and fertilizers in the surface runoff;**

Response:

The use of pesticides is required to ensure that turf playing surfaces are of a quality which meets international competition standards.

Pest management will be in accordance with best local and international practice. While use and storage of pesticides and fertilizers will be in accordance with the requirement by the Agriculture, Fisheries and Conservation Department (AFCD), surface water run-off from the turf area will be intercepted and re-used and no residual fertilizers or pesticides will be externally discharged.

- (c) **the source of soil to be used and the potential impact on soil moving operations involved in the project;**

Response:

Suitably fabricated soil is readily available from reliable sources close to Hong Kong. This will minimize embedded energy in the transportation of soil. Transportation-related impacts will be addressed through appropriate management and control measures such as dust sheet covering for transportation vehicles.

- (d) **air pollution implications to the venue users and the surrounding sensitive receivers based on the findings of the air ventilation assessment (AVA) carried out for the interior and exterior of the Main Stadium, Sports Complex and open space of the project site, including under both calm and strong wind conditions;**

Response:

The AVA results for winter and summer times are at Appendix 1. According to the AVA result, there is no stagnant wind situation (note: stagnant situation represented by deep blue color in contour) for area immediate to the proposed development under both winter and summer times. The wind speed generally ranges from 1.5m/s to 3m/s.

- (e) **the best practicable means (BMP) including, but not limited to, large scale planting, use of de-NOx paints and devices to actively filter air pollutants, to be pursued for the project with**

**a view to enhancing the best air quality for the venue users, in particular athletes;**

Response:

Best practicable means (BPM) will be pursued for the project with a view to enhancing the best air quality for the venue users, in particular athletes. In particular, the following measures will be adopted to improve outdoor air quality:

- 1) Provide large scale planting
- 2) Use of de-NOx paints at strategic locations
- 3) Use of devices at strategic locations, e.g. near the athlete assembly point of the outdoor PSG, to actively filter air pollutants

A detailed plan on the application and implementation of the BPM will be devised at the detailed design stage.

**(f) the studies conducted that have explored elements of sustainability in the design of the project;**

Response:

A sustainability strategy study has been conducted according to the reference design and, where practical, the Project will embrace a wide range of site-specific sustainability features to minimize energy, water use and carbon/greenhouse emissions, whilst providing adequate environmental quality. The sustainability measures cover site, materials, water, energy, environmental quality and green operation.

Energy efficiency and renewable energy

- 1) High performance building envelope and optimization of building form to harness natural light and natural ventilation
- 2) High-efficiency building services system
- 3) Wide application of solar renewables – PV, BIPV, solar hot water and solar lighting

Enhancement of microclimate and creation of a comfortable outdoor environment

- 1) Shading with covered routes, tree canopies and weatherproof canopies
- 2) Cool materials to reduce heat island effect
- 3) Water features to improve site microclimate
- 4) A large variety of greenery type and adequate area

Water conservation

- 1) Native or adapted species
- 2) Efficient irrigation technologies such as drip feed and intelligent irrigation control
- 3) Low-flow fixtures
- 4) Onsite re-use of recycled rainwater and air conditioning condensate

Indoor environmental quality

- 1) "Excellent Class" indoor air quality
- 2) Good indoor thermal comfort
- 3) Lighting quality meeting internationally recognized standards
- 4) Universal accessibility and barrier free access design

Sustainable material and waste reduction

- 1) Incorporate low-embodied energy materials such as regional materials, recycled material, and sustainable timber
- 2) Construction waste reduction through construction best practices

Green operation

- 1) Implementation of Waste reduction and recycling measures
- 2) Energy and carbon reporting
- 3) Procurement of recycled or other green materials

**(g) the proposed measures to minimize carbon footprint, particularly any strategies/measures that will be adopted for**

**generating renewable energy, recovering and reusing waste heat, reducing peak energy or heat use, decarbonization etc.;**

Response:

The following measures will be adopted to minimize carbon footprint:

- 1) EV charging facilities
- 2) High performance building envelope
- 3) Passive design to utilise natural lighting and ventilation
- 4) High-efficiency building systems - DCS, energy recovery, displacement ventilation, demand-controlled ventilation, free cooling, LED lighting, automatic lighting control, lift regenerative system, etc.
- 5) Application of solar renewables – PV, BIPV, solar hot water and solar lighting
- 6) Low-embodied energy materials – sustainable timber, regional materials and recycled materials

**(h) the proposed measures to minimize visual impact and enhance visual quality of the Multi-purpose Sports Complex given its high visual sensitivity as well as to enhance its iconic feature in the district;**

Response:

In consideration of the visual impact of the venues, we have reviewed the associated planning and design parameters that will drive the design. We have focused on the following key areas to ensure the visual impact is positive, attractive and overall an enhancement to the neighbourhood and environment:

#### Design intent of the Main Stadium

With a capacity of 50,000 spectators the main stadium is the key component in the MPSC and hence a large-scale building. We have carried out studies to determine the appropriate scale, layout and

height for the main stadium, which involved benchmarking against similar international stadia (refer to Appendix 2). We concluded that the design intent of the main stadium is to create a state-of-art landmark venue for international events, to complement the harbour front while conforming to the height limit. The scale, facilities and features of the building need to be commensurate with the above objectives.

#### Design intent of the Indoor Sports Centre Building

The statement of intent for the Indoor Sports Centre Building includes the following:

- 1) An appropriate building mass to minimize the scale while providing the key functionalities;
- 2) Articulation of the facades to respond to orientation and functionality;
- 3) Smooth transition into the environs of the site/ neighborhood;
- 4) Green sustainable roof; and
- 5) Selection of materials to minimize light interference from building structures to the neighborhood.

#### Planning objectives for the MPSC

The planning objectives focus on ensuring that the overall development enhances the waterfront, the neighborhood and the specific setting of the site against Lion Rock and Victoria Harbour:

- 1) Create a new Hong Kong landmark designed for international sports events and at the same time to be widely used as a community sports park;
- 2) Enhance the connectivity of the site, its waterfront and its environs with the neighborhood and communities;
- 3) Integrate the site and the planned facilities with the harbourfront to facilitate improved access to the water;

- 4) Promote the creation of a vibrant neighborhood environment with a real sense of place and a unique character by providing well designed facilities and visual amenities;
- 5) Facilitate a safe and efficient circulation system through an efficient and logically laid-out pedestrian and traffic network;
- 6) Promote a balance between built form and open space to satisfy a wide range of uses;
- 7) Maintain and enhance view corridors to the Lion Rock and Victoria Harbour;
- 8) Provide a unique and significant sense of arrival; and
- 9) Encourage the design to re-captivate the site's past memory as the old Kai Tak Airport while without compromising the focus of the development is a sports park.

The design of the MPSC will enhance the visual quality in the vicinity. For example, the area next to the Main Stadium facing the harbour is designated to be a dining cove. The terraced deck of the dining cove would allow easy access to the water-front. Besides, a large open space is designed along the central passageway connecting to the main plaza to cater for different activities to be held.

The concept of urban ecology has also been applied in the design of the MPSC, e.g. soft-landscaped open spaces are located around the perimeter of the site and provided opportunities for direct ecological connections with adjoining sites, which were largely pedestrian streets and open spaces and parks.

### Summary

The site is a valued piece of Hong Kong's landscape - not specifically because of any landforms or natural features within the site boundary but since it is enhanced by the majesty of the waterfront and Victoria Harbour. The MPSC should improve the visual impact and amenity impact because its design intention is to



enhance and not to interfere with Hong Kong's urban skyline and of the Lion Rocks natural backdrop through a sensitive approach to managing scale, views and by the application of an appropriate architectural character. The planning and design intent of the MPSC will improve the attractiveness of the setting and create a unique sense of place and identity.

- (i) **geotechnical investigation reports to ascertain whether there is marine mud at the subsurface, and the proposed management and disposal arrangement for the marine mud if excavation is required;**

Response:

According to currently available G.I. results, marine mud is found at 6 nos. of isolated boreholes at a depth of around 10m below existing ground level (see G.I. plan at Appendix 3). As there is no bulk deep excavation in current design of the project, excavation/disposal of marine mud is not envisaged. In case the Contractor finds that excavation of marine mud is required, e.g. as revealed in his G.I works or during the excavation works, he should follow the established disposal arrangement for the marine mud, including application of dumping permit from EPD as appropriate.

- (j) **the proposed measures to minimize the construction noise and the amount of construction and demolition materials generated; and**

Response:

The proposed measures to minimize the construction noise include:

- (a) Adopt good site practice, such as throttle down or switch off equipment unused or intermittently used between works.
- (b) Regular maintenance of equipment to prevent noise emission due to impair.
- (c) Position mobile noisy equipment in locations away from Noise Sensitive Receivers (NSRs) and point the noise sources to directions away from NSRs.

- (d) Use silencer or muffler for equipment.
- (e) Make good use structures for noise screening.
- (f) Use Quality Powered Mechanical Equipment (QPME) and quiet equipment which produces lower noise level.
- (g) Erect movable noise barriers of 3m height to shed large plant equipment.
- (h) Carry out regular site inspection to audit the implementation of mitigation measures.
- (i) Carry out noise monitoring and audit throughout the construction period.

In the current reference design, three piling methods, e.g. large diameter bored piles, pre-bored H-piles and percussive piles are proposed according to site constraints. Nevertheless, the percussive piling might not be preferential to the contractor due to the restriction on the permitted hours of operation. The contractor will be required to explore the use of alternative quiet piling methods to percussive piling for the construction of the project as far as practicable. If the contractor plans for any percussive piling works, he is obliged to ensure that the noise impacts arising from the percussive piling will comply with the requirements of the Noise Control Ordinance (NCO) and apply for a construction noise permit particularly for percussive piling works under the NCO.

Adoption of precast / prefabricated elements is the key measure to reduce construction and demolition materials such as wooden formwork, bamboo scaffolding and waste materials induced by rebar fixing and concreting works.

- (k) **the use of Building Information Modeling (BIM) in the design and construction stages of the project;**

Response:

BIM is used since the reference design stage and will continued to be adopted throughout the subsequent design and construction stages in order to:

- 1) facilitate coordination and visualization;

- 2) encourage pre-cast and pre-fab elements;
- 3) reduce construction and demolition waste.

**(l) the measures to promote the use of electric coaches and buses;  
and**

Response:

If the operator provides transport services for the staff and/or guests, electric saloon cars, coaches, buses, etc. should be used under normal operation. Adequate power supply and provision of space would be allowed for the establishment of electric vehicle charging facilities to facilitate the use of electric vehicles including, but not limited to private cars, coaches and buses.

**(m) clarification on whether the number of parking spaces has been minimized.**

The number of parking spaces has been minimized as far as possible in the Traffic Impact Assessment (TIA). The number of car parking spaces in the TIA report as approved by TD is approximately 1,000 which included about 300 parking spaces for coaches, goods vehicles and working/services/emergency vehicles. View of TD is that insufficient provision of car parking spaces within project site would exacerbate traffic congestion in areas of To Kwa Wan and Kowloon City.

-END-

Response to EPD's Further Information

APPENDIX

Appendix 1 / AVA. Winter time.



Winter weighted average wind velocity contour plot at pedestrian level

Appendix 1 / AVA. Summer time.



<p>Average wind speed at pedestrian level is 0.6 to 3.1 m/s therefore meets the optimal pedestrian comfort on the Beaufort Scale</p>	<p>Average wind speed at pedestrian level is less than 4m/s hence no dangers should be posed by strong wind conditions.</p>
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Summer weighted average wind velocity contour plot at pedestrian level

Appendix 2 / Scale of the Main Stadium



National Stadium, Warsaw, Poland

2011

Capacity: 58,145

Height: 78.00m



Friends Arena, Stockholm, Sweden

2012

Capacity: 50,653

Height: 55.00m



Amsterdam Arena, Netherlands

1996

Capacity: 53,052

Height: 77.00m



Turk Telekom, Istanbul, Turkey

2016

Capacity: 52,647

Height: 51.00m



Veltins Arena, Gelsenkirchen, Germany

2001

Capacity: 53,951

Height: 58.00m



BC Place, Vancouver, Canada

2011

Capacity: 54,320

Height: 62.00m

Appendix 2 / Scale of the Main Stadium

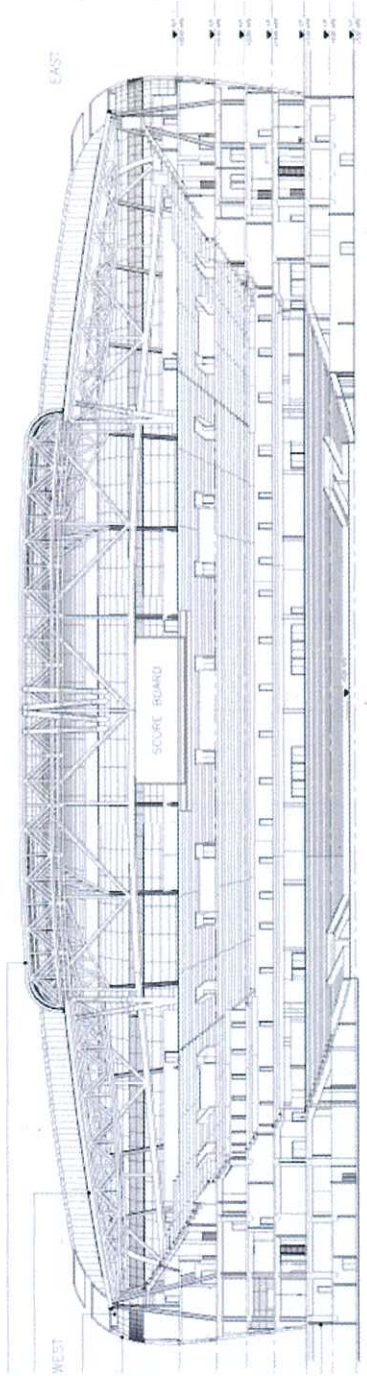


**Kallang National Stadium,**

**Singapore**

**Capacity: 55,000**

**Height: 82.00m**



**Main Stadium,**

**Kai Tak Sports Park, Hong Kong**

**Capacity: 50,000**

**Height: 59.00m**

# Appendix 3 / G.I Location Plan

