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## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section No.</th>
<th>Subject</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>The Site</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Traffic and Roads</td>
<td>21</td>
</tr>
<tr>
<td>4</td>
<td>Damage and Interference</td>
<td>26</td>
</tr>
<tr>
<td>5</td>
<td>Temporary Electrical Installations</td>
<td>30</td>
</tr>
<tr>
<td>6</td>
<td>Survey of the Site and Setting-Out</td>
<td>34</td>
</tr>
<tr>
<td>7</td>
<td>Protection of the Environment</td>
<td>35</td>
</tr>
<tr>
<td>8</td>
<td>Safety</td>
<td>40</td>
</tr>
<tr>
<td>9</td>
<td>Superintendence, Labour and Staff</td>
<td>51</td>
</tr>
<tr>
<td>10</td>
<td>Programmes, Progress Reports and Meetings</td>
<td>54</td>
</tr>
<tr>
<td>11</td>
<td>Co-ordination with Others</td>
<td>66</td>
</tr>
<tr>
<td>12</td>
<td>Contractor's Design</td>
<td>69</td>
</tr>
<tr>
<td>13</td>
<td>Goods, Materials and Workmanship</td>
<td>72</td>
</tr>
<tr>
<td>14</td>
<td>Quality System and Quality Plans</td>
<td>79</td>
</tr>
<tr>
<td>15</td>
<td>Inspection, Testing and Commissioning</td>
<td>84</td>
</tr>
<tr>
<td>16</td>
<td>Methods of Construction, Manufacture and Installation</td>
<td>91</td>
</tr>
<tr>
<td>17</td>
<td>Operation and Maintenance Requirements</td>
<td>94</td>
</tr>
<tr>
<td>18</td>
<td>Submissions to the Project Manager</td>
<td>99</td>
</tr>
<tr>
<td>19</td>
<td>Returns, Progress Photographs and As-constructed Drawings</td>
<td>102</td>
</tr>
<tr>
<td>20</td>
<td>Records Office</td>
<td>104</td>
</tr>
</tbody>
</table>

**Appendix No. Subject**

- 1 Guidelines for the Preparation of the Environmental Management Plan
- 2 Interface Activity Schedule (example)
- 3 List of Proforma Documents
[this page not used]
GENERAL SPECIFICATION

SECTION 1

GENERAL

1.1.1 Except where the context requires otherwise:

(a) all references in the Contract to the Specification shall be interpreted to include the General Specification and the Particular Specification;

(b) all references in the Contract to the General Specification shall be interpreted to include the General Materials and Workmanship Specification;

(c) the following words and expressions shall have the meanings hereby assigned to them;

“Airport Operations Manual - Airfield Operations” means the manual setting out procedures and provisions regulating use of, and access to and within the Airport identified as such and made available, either in full or in part as appropriate, by the Employer to the Contractor and Other Contractors engaged at the Airport, as the same may be revised from time to time;

“Airport Authority Ordinance” means the ordinance enabling the Employer to provide, operate, develop and maintain the Hong Kong International Airport;

“Builders Works Drawings” means those drawings produced by the Contractor, that form part of the Contractor’s Drawings and show where building elements are breached, either partially or fully, by items of the Works, including without limitation, vertical and horizontal penetrations, cast-in and grouted in elements, plinths, pads and recesses;

“Combined Services Drawings” means those drawings produced by the Contractor, that form part of the Contractor’s Drawings and that show, both in plan and elevation, where all services provided by the Contractor are located in relation to existing services, plant, equipment and structures, if any, and proposed plant, equipment and structures;

“Construction Safety Manual” means the manual setting out the Employer's requirements and minimum standards for safety identified as such and issued by the Employer to the Contractor and Other Contractors engaged at the Airport, as the same may be revised from time to time;
“Design Programme” means the programme, forming part of the Works Programme, taking account of the activities of relevant Other Contractors, showing the sequence, method and timing of the Contractor's design activities, submitted by the Contractor and reviewed without objection (and subject to any amendment reviewed without objection) from time to time in accordance with Section 10;

“General Materials and Workmanship Specification” means the specification identified as such and issued by the Employer;

"Inspection, Testing and Commissioning Programme" means the programme, forming part of the Works Programme, showing the sequence, method and timing of the Contractor's inspection, testing and commissioning activities, submitted by the Contractor and reviewed without objection (and subject to any amendment reviewed without objection) from time to time in accordance with Section 10;

“Skilled Worker” means a worker who shall be able to apply a range of skills and knowledge relevant to his trade with minimum direction or supervision. He shall hold a trade test certificate or have equivalent qualification and experience such that he shall have adequate technical knowledge which enables him to acquire new skills to cope with the changing technologies;

“Semi-skilled Worker” means a worker who possesses skill level and knowledge in between that of a skilled worker and a general worker. He shall possess an intermediate trade test certificate or have equivalent qualification and experience. Semi-skilled worker is not applicable to some trades, particularly those where existing legislations only allow a fully qualified worker to carry out the work;

“Construction Worker” means a worker who has valid Construction Workers Registration Card issued by the Construction Workers Registration Authority and possesses a valid Construction Industry Safety Training Certificate (Green Card) issued by the Construction Industry Training Authority;

“Technician” means a person who occupies a position between a professional/technologist and a skilled worker. His education, training and practical experience shall enable him to apply proven techniques to solve technical problems. He is expected to carry a measure of technical responsibility, normally under the guidance of a professional/technologist;

“Project Month” means a calendar month to which a number has been assigned in accordance with Section 1.9.3;
“Qualified Skilled Worker” means:

(i) a worker who has obtained the relevant trade test certificate issued either jointly or separately by the Construction Industry Council and the Vocational Training Council; or

(ii) a worker who has obtained the relevant certificate of completion of apprenticeship issued under the Apprenticeship Ordinance (Cap. 47); or

(iii) a worker who has obtained the relevant certificate of completion of apprenticeship issued by the Government of the Hong Kong Special Administrative Region; or

(iv) an electrician or electrical fitter who is a registered electrical worker registered under Section 30 of the Electricity Ordinance (Cap. 406); or

(v) a Competent Person who has obtained the relevant certificate issued by the Relevant Authority to supervise works within different working environment;

“Quality Control Point” means a point in time when a notice or other document is to be submitted to the Project Manager in accordance with the Contract before the Contractor can commence, proceed with or terminate an activity;

“Quality Hold Point” means a point in time when a notice of permission, consent or no objection by the Project Manager is required in accordance with the Contract or an approval or consent by a Relevant Authority or Utility Undertaking is required before the Contractor can commence, proceed with or terminate an activity;

“Restricted Area” means those parts of the Airport including the Airport Restricted Area (ARA) to which access is restricted to authorised persons or vehicles. Restricted Area(s) may be within the Airside Operational Area (AOA) but need not necessarily be;

“Utility Service” means any electric power cable, telephone cable or other cable or apparatus used in any communications, security, lighting, traffic control, traffic aids or other similar system, any pipe used in or for the supply of water, gas, fuel or oil or for drainage, storm water drainage or sewerage together with any duct for such cable or pipe and any apparatus or works ancillary to such cable, apparatus, pipe or duct, whether permanent or temporary and whether provided by the Employer or otherwise;
“Specification for the Preparation of Operation and Maintenance Manuals” means the document setting out the Employer’s requirements for the content, and format of operations and maintenance manuals, identified as such and issued by the Employer to the Contractor and Other Contractors engaged at the Airport, as the same may be revised from time to time;

“Utility Undertaking” means any company, authority or organisation (other than the Employer) which owns or is responsible for the provision and operation and/or maintenance of a permanent Utility Service within the Airport;

(d) where the words “acceptable”, “permission”, “consent” or “reviewed without objection” are used in relation to a document or thing, they shall mean such document or thing in respect of which the Project Manager has issued a notice of no objection in accordance with Section 18;

(e) “road” includes any permanent or temporary road, street, footway, parking area, path or thoroughfare, or any part or portion thereof within the Airport;

(f) references to a “Section” or an “Appendix” shall mean a Section of or an Appendix to this General Specification (and not the General Materials and Workmanship Specification); and

(g) references to the Works Programme shall include any Design Programme, Inspection, Testing and Commissioning Programme or schedule or table extracted from and forming part of the Works Programme upon such document being reviewed without objection.

1.1.2 The following abbreviations are used in the Specification:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS</td>
<td>British Standard</td>
</tr>
<tr>
<td>CADD</td>
<td>Computer Aided Design and Drafting</td>
</tr>
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<td>CLP</td>
<td>China Light &amp; Power Co Ltd</td>
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<td>CPM</td>
<td>Critical Path Method</td>
</tr>
<tr>
<td>GMWS</td>
<td>General Materials and Workmanship Specification</td>
</tr>
<tr>
<td>HOKLAS</td>
<td>Hong Kong Laboratory Accreditation Scheme</td>
</tr>
<tr>
<td>IEE</td>
<td>Institution of Electrical Engineers</td>
</tr>
<tr>
<td>IP</td>
<td>Industrial Protection</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organisation for Standardization</td>
</tr>
</tbody>
</table>

1.1.3 The Contractor shall notify the Project Manager if he finds any ambiguity or discrepancy in or among the documents. In general, the provisions of the Particular Specification shall prevail over the General Specification.
1.2.1 The Contractor shall comply with the procedures and provisions set out in:

(a) Airport Operations Manual - Airfield Operations;
(b) the Airport Security Programme;
(c) Airport Operation/Technical Circulars;
(d) Guideline on the Disposal of Construction Wastes from Hong Kong International Airport;
(e) Construction Safety Manual;
(f) Specification for the Preparation of Operation and Maintenance Manuals (SPOM); and
(g) Airport Authority CADD Standard Specification.

1.3.1 Unless expressly stated elsewhere, all standards and codes of practice shall be to that edition of the relevant document current at the date of the Letter of Acceptance, including all latest amendments thereto.

1.4.1 In the event that a Relevant Authority requires the submission of any design or component for approval, testing, stamping or certification, the Contractor shall deliver the submission to the place required by the Relevant Authority.

1.4.2 After such submission has been satisfactorily approved, tested, stamped or certified the Contractor shall retrieve the submission and return it to Site and provide the Project Manager with a copy of the documentation that confirms such approval, test, stamp or certification.

1.5.1 The Contractor acknowledges that the Works shall be executed in an operating airport environment where the demands of public safety and security are paramount. The Contractor shall, throughout the duration of the Works, take full responsibility for the safety of the public, on and in the vicinity of the Site.

1.5.2 The Contractor shall ensure that no part of his Temporary Works or Contractor’s Equipment infringes any height limitations as defined by ‘Airport Height Restriction Plan – Hong Kong International Airport (Control of Obstructions) (No. 2) Order 1997 or other restrictions applicable to the Site, access roads or common user facilities.

1.6.1 The Contractor shall adopt and use metric units for all purposes connected with the Contract.

1.7.1 The Contractor shall not obtain dimensions by scaling from the Employer’s Drawings. Dimensions which are not shown on the Employer’s Drawings or calculable from dimensions shown on the Employer’s Drawings shall be obtained from the Project Manager.
1.8.1 Unless otherwise permitted by the Project Manager, the Contractor shall carry out all work in dry conditions to the greatest extent practicable in the circumstances, except where the work is required to be carried out in or with water.

1.8.2 The Contractor shall, where necessary, keep the Works, including goods and materials for use in the Works, free of water and protected from damage due to water to the greatest extent practicable in the circumstances. Water on the Site and water entering the Site shall be disposed of by temporary drainage, pumping systems or by other practicable methods, all reviewed without objection by the Project Manager.

1.8.3 No dewatering of the Site shall take place until the likely effect of dewatering on the Works and adjacent works has been determined to the satisfaction of the Project Manager. The Contractor shall monitor the progress of all dewatering works and ensure that there is no detrimental impact upon the Works and / or existing facilities.

1.9.1 The Employer has adopted standard conventions and protocols as set out below for use in all programmes, progress reports and ancillary documents that the Contractor shall follow.

1.9.2 All dates shall adopt the convention dd/mm/yy or dd mmm yy (e.g. 31st August 2016 is 31/08/16 or 31 Aug 16).

1.9.3 Subject to Section 1.9.4, months shall be identified as Project Months. A Project Month is a calendar month defined by the convention yy/mm (e.g. Month 16/08 is August 2016). Project Months are used amongst other things for the definition of Milestones.

1.9.4 Contract months are calendar months defined for the purposes of each Contract in the Pricing Document, and are used in the Interim Payment Schedule for payment purposes.

1.10.1 Where in any programme, schedule or other document:

(a) any availability date or activity start date is described by a calendar date, it shall be deemed to start at 0000 hrs on the date stated; and

(b) the completion or achievement of any event or activity is defined by calendar date, the activity shall be completed or the event achieved by 2400 hrs on the date specified.
SECTION 2

THE SITE

2.1.1 Information regarding the availability of the Site is included in the Particular Specification.

2.1.2 Unless expressly stated otherwise in the Particular Specification, the Contractor will not be entitled to uninterrupted access to or an exclusive right to occupation of the Site or any part thereof. In accordance with the Contract, the Contractor shall allow Other Contractors access to and through the Site to enable them to carry out their work.

2.2.1 The Contractor shall confine his use of the Site to purposes and work necessary for the execution of the Works, unless the prior consent of the Project Manager to other use has been obtained. The Project Manager reserves the right to restrict, extend and amend the uses to which areas of the Site may be put.

2.2.2 The Contractor shall:

(a) provide, install, maintain and remove upon substantial completion of the Works, or earlier if so directed by the Project Manager, fencing/hoarding and lighting around the Site or areas of the Site when and where necessary for the safety, security and convenience of the public or others or to suit his method of working;

(b) not deposit rubbish except in areas identified in the Specification or the Site Management Plan upon its review without objection by the Project Manager;

(c) not enter or disturb any building, structure or private land outside the boundary of the Site, without the prior consent of the Project Manager;

(d) not establish asphalt plant, rock crushing, screening or concrete batching facilities on the Site without consent of the Project Manager;

(e) take precautions not to cause nuisance or permit nuisance to be caused;

(f) take precautions not to obstruct manholes, utility access points and the like; and

(g) not undertake any welding or flame cutting on the Site unless prior consent is obtained from the Project Manager.

2.2.3 The Contractor shall comply with the Employer’s “Work Permit” procedures and the conditions stipulated in the permit.
2.3.1 The Contractor shall manage the Site and shall provide, install, maintain, where appropriate operate, and remove on substantial completion of the Works or any Section (or earlier if required by the Contract or instructed by the Project Manager) the services, amenities and facilities that are specified in this Section 2.3 for his own use and for free-of-charge by the Employer and agents of the Employer.

2.3.2 The services, amenities and facilities shall be available throughout the duration of the Works until the date of substantial completion of the Works, or earlier as instructed by the Project Manager, on a 24 hours per day, 7 days per week basis.

2.3.3 The Contractor on or before the date specified in the Particular Specification, shall submit a Site Management Plan to the Project Manager for approval.

The Site Management Plan shall include but not be limited to the following:

(a) provision and maintenance of fencing/hoarding and lighting around the Site or areas of the Site when and where necessary for the safety, security and convenience of the public or others or to suit his method of working;

(b) access to and from the Site;

(c) site facilities, including without limitation, site offices, toilet and washing facilities, temporary sewerage disposal, rubbish & waste collection, fire fighting facilities, temporary drainage, temporary water, temporary electricity, temporary security passes, watchmen, temporary lighting, temporary ventilation, weatherproofing, temporary openings and first aid facilities;

(d) provisions to locate and protect utilities, manholes and the like;

(e) provisions to protect existing trees, shrubs and structures;

(f) establish wheel washing facilities for vehicles;

(g) access to existing buildings and structures;

(h) proposed locations of temporary buildings and facilities; and

(i) proposed locations of material stockpiles.

2.3.4 The Contractor shall provide and maintain all temporary facilities for the safe movement of the Contractor’s personnel both horizontally and vertically within the Site. Appropriate segregation of passengers and Contractor’s personnel, plant, materials and equipment shall be maintained at all times.
2.3.5 The Contractor shall provide, install, maintain and keep in a clean and sanitary condition to the satisfaction of the Project Manager, and remove from the Airport upon substantial completion of the Works, or earlier if directed by the Project Manager, toilets and washing facilities, sufficient for use by the total number of personnel on the Site at any time.

2.3.6 The Contractor shall provide, install and maintain a temporary sewerage and sewage disposal system to collect all sewage including waste from the toilet and washing facilities within the Site. The Contractor shall dispose of sewage sludge from the Site in accordance with the requirements of the Environmental Protection Department.

2.3.7 The Contractor shall provide on Site a rubbish and waste (including liquid waste) transfer facility and/or a satellite rubbish and waste collection facilities. The Contractor shall ensure the Site is kept clean and free of accumulated rubbish and waste at all times.

2.3.8 The Contractor shall provide:

(a) and maintain fire extinguishers and other appropriate fire fighting equipment at locations throughout the Site;

(b) additional fire fighting facilities of a size and capacity adequate for any emergency that could reasonably be anticipated to arise during the Works; and

(c) fire wardens as necessary to patrol site areas where the fire services system has been deactivated for the Works.

2.3.9 The Contractor shall provide Office of Telecommunications Authority (OFTA) certified communications equipment for use on or in the vicinity of, the Site and shall submit copies of the certification to the Project Manager for review.

2.3.10 The Contractor shall provide temporary drainage for the Works. The Contractor may make provision to discharge clean water into the Employer’s permanent drainage system with the express permission of the Project Manager, provided always that the water discharged is free from silt and other contaminants, as defined by the Environmental Protection Department.

2.3.11 The Contractor shall provide temporary electricity supplies for the Works.

2.3.12 The Contractor shall provide temporary water supplies for the Works.

2.3.13 The Contractor shall arrange, all necessary types of Airport Restriction Area (ARA) Permits required for working within the Airside Operational Area, and shall provide and maintain a security access system for controlling his staff and all of its sub-contractors of any tier to access the Site, prior to their commencing work on Site.
2.3.14 The Contractor shall provide adequate lighting and watchmen for lighting and surveillance of the Works and the Site at all times to safeguard the Works, personnel and the public.

2.3.15 The Contractor shall provide background and task lighting during the construction, installation, testing and commissioning phases of the Works, as necessary.

2.3.16 The Contractor shall provide, install, operate, maintain and remove on completion of the Works, a system for the continuous circulation of fresh air, throughout the works site, as necessary.

2.3.17 Where the Works breach the façade of any existing structure the Contractor shall submit full details of the temporary weatherproofing measures he proposes to adopt, to the Project Manager for review without objection prior to implementation.

2.3.18 The Contractor shall provide temporary protection by way of hoardings, railings, covers or the like, to all temporary openings in any existing or new structure, as required for the execution of the Works.

2.3.19 The Contractor shall provide and maintain first aid facilities at locations throughout the Site that are readily accessible to the Contractor’s personnel and sub-contractors of any tier.

2.4.1 The Contractor shall protect and preserve any trees and shrubs on the Site except those specified for removal. Such protection shall include temporary fencing in accordance with the requirements of the General Materials and Workmanship Specification to the extent of the ground covered by the canopy of the tree or as necessary to prevent the encroachment of equipment or materials, or to protect the surrounding ground from contamination by oil or other deleterious substances.

2.5.1 Vehicular entry to and exit from the Site shall only be available at the locations identified in the Particular Specification or as may otherwise be permitted by the Project Manager.

2.5.2 The Contractor shall ensure that no Contractor's Equipment or other vehicle or plant moves around or leaves the Site with mud, debris or rock on it that may drop or be deposited on any road or right of way. Where points of egress from the Site lead directly on to roads, the Contractor shall use any available washpit or wheel washing facility and, if such facilities are not available, shall provide such washpit or wheel washing facilities as are adequate and appropriate for his method of working. Water in the facilities provided by the Contractor shall be changed at regular intervals and sediments removed regularly.

2.6.1 Roads required by the Contractor within the Site shall be constructed and maintained by him to a standard that is adequate and appropriate for his method of working.
2.6.2 Roads within the Site shall be maintained in a clean and passable condition and shall not be used to store goods or materials or park Contractor's Equipment or other vehicles or plant.

2.7.1 The Contractor shall, in accordance with Government regulations and Section 3 of this General Specification, provide, maintain, alter where necessary, remove and make good on completion of the Works, all temporary signage, lighting, guarding and traffic management necessary in relation to the safe management of traffic on all permanent roads in the vicinity of the Site. All signage shall be subject to review by the Relevant Authority and the Project Manager.

2.8.1 The Contractor's method of working and programming of the Works shall be such that access to buildings and adjacent sites affected by the Works is not unduly restricted. The Contractor shall comply with any minimum access requirements at particular locations as may be detailed in the Employer's Drawings and/or the Particular Specification and shall ensure that such other access restrictions as may be permitted by the Project Manager are kept to a minimum.

2.9.1 The Contractor shall, in accordance with the Employer's Drawings, this General Specification and/or the Particular Specification, erect, maintain, alter where necessary and remove on substantial completion of the Works or any Section (or earlier if required by the Contract or instructed by the Project Manager) temporary hoardings, fences and gates. The Project Manager may instruct the Contractor to take possession of and maintain existing hoardings, fences and gates.

2.9.2 Hoardings, fences and gates on the Site shall be maintained in a clean, tidy, stable and secure condition at all times. If any hoarding is found damaged or scratched for whatever reason, the Contractor shall immediately make good and/or replace the film or painting to the satisfaction of the Project Manager.

2.9.3 Where fences and gates are to be handed over to the Employer on substantial completion of the Works or any Section, they shall be handed over in a clean, stable and secure condition and in good working order.

2.9.4 The Contractor shall ensure that security fences, hoardings and gates are fully effective at all times. Where the Works require a change in location of security fencing, hoardings or gates, they shall be fully maintained in their initial position until the replacement fencing, hoarding or gates have secured the new boundary.

2.9.5 The consent of the Project Manager shall be obtained before hoardings, fences, or gates are removed.

2.10.1 The Contractor shall not display any signboards, illuminated signs or advertising signs on the Site, Temporary Works or Contractor's Equipment, without the permission of the Project Manager.
2.10.2 Any signboards specified in the Contract shall be erected not more than 4 weeks after the date for commencement of the Works or within such other period as may be permitted by the Project Manager.

2.10.3 All permitted signboards, including those specified in the Contract, and advertising shall be maintained, altered where necessary and removed on substantial completion of the Works unless otherwise required by the Contract or permitted by the Project Manager.

2.11.1 The Contractor shall provide, maintain and remove on substantial completion of the Works or any Section, or earlier if required by the Project Manager, all temporary buildings, toilets, washing facilities and sheds required for the execution of the Works. No temporary structures shall be erected or laid out by the Contractor within the Site without the Project Manager's consent. Any such consent shall not relieve the Contractor of the responsibility of siting temporary structures clear of the Works, permanent structures, Utility Services and the like. The Contractor shall obtain all statutory approvals for any temporary structure or shed proposed prior to erection within the Site.

2.11.2 The Contractor shall not, without the consent of the Project Manager, erect any temporary buildings composed of combustible materials in, on, under, over or adjacent to any part of the Works or any other permanent structure on the Site.

2.11.3 Within 7 days of the submission of the Site Management Plan as specified in Section 2.3.3, the Contractor shall submit to the Project Manager for review, drawings showing the following particulars:

(a) the layout within the Site of the Contractor's temporary buildings, access roads and major facilities;

(b) construction details of temporary buildings;

(c) details of sanitary and waste disposal systems;

(d) details of wheel washing facilities;

(e) fire protection; and

(f) security arrangements.

2.12.1 The Contractor shall not store on any part of the Site any diesel, petrol or other fuel or any other flammable material unless agreed otherwise by the Project Manager.

2.12.2 The Contractor shall not, without the consent of the Project Manager, store any combustible materials in, on, under, over or adjacent to any part of the Works or any other permanent structure on the Airport.
2.12.3 The Contractor shall not, under any circumstances, store dangerous goods in, on, under, over or adjacent to any part of the Site.

2.13.1 The Contractor’s personnel shall not be allowed to live on the Site.

2.14.1 The Contractor shall not erect or operate canteen and kitchen facilities on the Site except with the consent of the Project Manager and, where appropriate, the Relevant Authorities. Any such facilities shall, in particular but without limitation, conform with all regulations and standards to the extent required by the Food and Environmental Hygiene Department and the Fire Services Department.

2.15.1 The Contractor shall be responsible for complying with all regulations of the Utility Undertakings, Relevant Authorities and the Employer.

2.15.2 The Contractor shall remove each of his temporary services installations as soon as it is no longer required for the execution of the Works.

2.16.1 The Contractor shall be responsible for the disposal, in a safe and controlled manner, of all liquid and solid waste, sewage, spoil, debris, surplus materials and construction waste arising from the Works in full compliance with all health, safety, environmental and transport regulations and the requirements of Section 7.

2.16.2 The Contractor shall design, supply, maintain and remove, as soon as they are no longer required for the execution of the Works, all necessary temporary sewage and waste storage and disposal facilities on the Site.

2.16.3 The Contractor shall, prior to commencement of work, submit details of all temporary sewage and waste storage and disposal facilities to the Project Manager for review without objection prior to implementation.

2.17.1 The Contractor shall clean the Site (including all temporary buildings, canteens, toilets, washing facilities and the like, sheds and storage areas) daily and maintain it in a safe, clean, tidy and sanitary condition. The Contractor shall comply with all health, safety, environmental and transport regulations in this regard and the requirements of Section 7.

2.17.2 Any Temporary Works, Contractor's Equipment, goods, materials or other things on Site which for the time being are not required for use in the Works shall be stored in an orderly manner.
2.18.1 The Contractor shall take into account in his method of working the presence of geotechnical instruments and environmental monitoring stations on and in the vicinity of the Site. The provisions of Section 4 shall apply to such instruments and stations as if they were Utility Services.

2.19.1 The Contractor shall submit and implement a plan for prevention of mosquito breeding on the Site. The measures shall include but not be limited to the treatment of standing water and the covering, storing or treating of construction plant or other items that could retain water on a weekly basis.

2.19.2 During the mosquito-breeding season, the Contractor shall spray his works area at least every 7 days.

2.19.3 The plan shall include routine inspections by designated persons to identify and remove stagnant water and receptacles. The inspection exercise shall be conducted at least twice weekly.

2.19.4 Where the Contractor needs to apply pesticide to control the breeding of mosquitoes, the pesticide shall be applied by a specialist contractor or trained persons and warning posters displayed.

2.20.1 The Contractor shall submit and implement a plan for prevention of rats entering onto and breeding on the Site.

2.20.2 Where the Contractor needs to apply poisons to control rodents, the poisons shall be applied by a specialist contractor or trained persons and warning posters displayed.

2.21.1 The Contractor shall take all necessary insect control measures to prevent insect infestation within any area of the Site.

2.21.2 Where the Contractor needs to apply pesticide to control the breeding of insects, the pesticide shall be applied by a specialist contractor or trained persons and warning posters displayed.

2.22.1 The Contractor shall maintain in a safe, sanitary and clean condition, the hygiene and welfare facilities provided on the Site(s) throughout the duration of the Contract and shall remove the facilities and reinstate the areas upon completion of the Works.

2.22.2 The provision and adequacy of the hygiene and welfare facilities will be monitored and inspected regularly, at least weekly, by the Project Manager. Findings shall be discussed during the monthly Site Safety Management Committee meetings.

2.22.3 A location plan shall be displayed at the site entrance to inform the workforce of the location of the hygiene facilities on site.
2.23.1 The Contractor shall provide secure storage compartments for Personal Protective Equipment for use by workers. The storage compartments shall be placed at a location, sheltered from the elements, as close to the site entrance as possible to facilitate workers to store their personal protective equipment such as safety helmet, safety boots, reflective vest, eye protectors, safety harness and the like when they enter/leave the Site.

2.23.2 The Contractor shall determine the dimensions of the storage compartments and shall ensure that there is adequate provision of storage compartments for the workforce.

2.23.3 The Contractor shall also provide personal lockers for the workers at the ratio of one for every worker, or as determined by the Project Manager.

2.23.4 The Contractor shall propose the number, location and layout arrangement for the placement of personal lockers and storage compartments on the Site for review without objection by the Project Manager.

2.24.1 The Contractor shall provide sheltered, free drinking water facilities for workers working on the Site.

2.24.2 The water dispensing points shall be a minimum of a 20 litre carboy, a tap, a distilled water drinking fountain, or any other form of water dispensing facilities that the Contractor considers appropriate and which are reviewed without objection by the Project Manager.

2.24.3 The Contractor shall be responsible for maintaining the drinking water facilities in a clean and hygienic condition and refilling the drinking water facilities when empty.

2.24.4 The Contractor shall provide one water dispensing point per 50 workers, up to the first 150 workers, then one additional dispensing point for each subsequent 20 workers, or as determined by the Project Manager.

2.24.5 The Contractor shall propose the number and location of the drinking water dispensing points provided on the Site for review without objection by the Project Manager.

2.25.1 The Contractor shall provide toilet facilities for workers working on the Site.
2.25.2 The toilet facilities and locations shall be proposed by the Contractor and agreed by the Project Manager.

The toilet facilities shall be either of the following:

(a) wet type with flushing water supply and the toilet waste properly collected and discharged into the sewerage system following treatment proposed by the Contractor and reviewed without objection by the Project Manager; or

(b) chemical type complete with containers for daily cleaning and removal by specialist contractor.

2.25.3 The number of toilet facilities provided on the Site shall be at a ratio of not less than one for every 25 workers, or as determined by the Project Manager.

2.25.4 The Contractor shall propose the toilet type, number and their locations of placement for review without objection by the Project Manager. The plan will be reviewed by the Project Manager every month during the Site Safety Management Committee meetings and the Contractor may be required to relocate the toilet facilities due to the progress of the site activities.

2.25.5 The Contractor shall maintain the toilet facilities in clean and hygienic condition and shall ensure that they are emptied, cleaned and disinfected at least daily and adequate toilet supplies are provided continuously.

2.26.1 The Contractor shall provide hand-wash facilities in the form of water points and sinks for workers working on the Site.

2.26.2 One hand wash facility shall be provided for each set of toilets, in a single location, up to a maximum of five, then one hand wash facility for each additional five toilets thereafter.

2.26.3 The number of hand-wash facilities provided on the Site shall be at a ratio of not less than one for every 25 workers, or as determined by the Project Manager.

2.26.4 The discharge from hand-wash facilities shall be collected to prevent spillage on the floor, and discharged to a water reception tank or flushing water supply tank for recycling/reusing as appropriate.

2.26.5 The Contractor shall propose the number of hand-wash facilities, their locations and the system of how to collect the discharge from the wash-water basin for reuse/recycle on the Site for review without objection by the Project Manager.

2.26.6 The Contractor shall ensure that the handwash facilities are maintained in a hygienic condition and are cleaned daily.
2.27.1 The Contractor shall provide sufficient showering facilities on the Site.

2.27.2 The showering facilities shall be provided indoors or inside containers with appropriate drainage connections.

2.27.3 The number of showering points provided on the Site shall be at a ratio of not less than one for every 20 workers, or as determined by the Project Manager.

2.27.4 The Contractor shall provide showering facilities at separate locations/rooms for use by male or female workers.

2.27.5 Each showering point shall be furnished with hot and cold water supply.

2.27.6 Details of installation of the facilities shall be submitted for review without objection by the Project Manager.

2.27.7 The Contractor shall ensure that the shower facilities are maintained in a safe, hygienic condition and are cleaned at least daily.

2.28.1 The Contractor shall provide sufficient rubbish bins with covers at strategic locations throughout the Site for collection and disposal of non-construction waste generated by the workers.

2.28.2 The rubbish bins shall be provided in pairs, one for aluminium cans and plastic bottles and the other for general waste and shall be placed at convenient locations close to the workers' workplace to facilitate use.

2.28.3 The number of rubbish bin pairs provided on the Site shall be at a ratio of not less than one pair for every 30 workers, or as determined by the Project Manager.

2.28.4 The size of the rubbish bins shall be minimum one metre high and have an opening of at least 0.28m² for collecting waste.

2.28.5 The Contractor shall maintain the cleanliness of the rubbish bins and arrange collection and disposal of the waste on a daily basis or more regularly as required.

2.28.6 The Contractor shall also make arrangement for collecting paper and packaging, aluminium cans, plastic bottles on the Site for recycling purposes, to reduce disposal of waste to landfills.

2.28.7 The Contractor shall propose the number and the location of the rubbish bins provided on the Site, together with the arrangement for on-site sorting of aluminium cans, plastic bottles and papers, for review without objection by the Project Manager.
2.29.1 The Contractor shall provide an area, equipped with tables and chairs for workers to take their lunch or refreshment on site.

2.29.2 The areas shall also be used for conducting tool box talks, safety briefings and other safety related gatherings and shall be equipped with white boards and notice boards for display of safety posters and the like.

2.29.3 The area shall be of sufficient size to seat the workers with at least 1 for 3 seating for each shift. The area shall be protected from the weather, adequately illuminated and provided with sufficient tables, chairs and rubbish bins.

2.29.4 No cooking shall be allowed on Site.

2.29.5 The Contractor shall as far as possible prohibit the bringing of lunch or food in polyfoam or paper boxes to the Site, which when not properly disposed of will pose potential Foreign Object Damage (FOD) to aircraft. In order to prevent FOD and control rodents, the Contractor shall ensure that adequate refuse bins are provided in the rest areas and that the rest areas are kept in a hygienic manner and are cleaned daily.

2.30.1 The Contractor shall ensure all workers tidy up and remove rubbish, scrap material and superfluous material from their working areas after every shift.

2.30.2 The Contractor shall carry out a weekly site housekeeping exercise. During this, all production works other than works relating to housekeeping, shall cease. Such weekly housekeeping exercises shall not be shorter than 30 minutes.

2.30.3 During the weekly housekeeping exercise, workers shall be requested to collect the rubbish, scrap and superfluous material and dispose of it into designated collection points.

2.30.4 The Contractor shall arrange sufficient rubbish bins and skips to collect the rubbish at designated points on the Site. The Contractor shall remove the rubbish from the collection points as soon as the exercise is completed.

2.30.5 For major production works, such as major concreting pours and the like, which cannot be interrupted during the weekly housekeeping exercise, prior approval shall be obtained from the Project Manager to continue such work during the weekly housekeeping exercise. However, the Contractor shall satisfy the Project Manager that adequate housekeeping will be maintained during the break or completion of the major production works.
2.30.6 The Contractor shall provide one dedicated full-time housekeeping staff for daily cleaning of the workers’ facilities when the number of workers reaches 100 and an additional one housekeeping staff for every 100 workers thereafter.

2.31.1 The Contractor shall ensure that suitable protective clothing including safety helmets with chin straps, rubber boots and overalls or coveralls are provided and worn by workers exposed to the adverse weather.

Hygiene and welfare facilities - protection against adverse weather

2.31.2 The Contractor shall make their workers aware of the airport lightning warning system and implement measures including the provision of shelters for protection against lightning strike.

Hygiene and welfare facilities - hot weather provisions

2.32.1 The Contractor shall comply with the Labour Department and Construction Industry Council’s publications relating to the safe working in hot weather.

2.32.2 Where there is a risk of injury by continued exposure to sunlight or high temperatures, the Contractor shall conduct a risk assessment and identify precautionary measures to reduce the risk to an acceptable level. Precautionary measures shall include but not be limited to the following:

(a) provision of information on hot weather warning;
(b) provision of potable drinking water and electrolyte drinks;
(c) provision of safety helmets with ventilation slots to allow heat to escape;
(d) provision of lightweight and light coloured clothing if a working uniform is provided;
(e) provision of effective means of communication or other suitable measures to workers working alone in remote areas for calling for assistance in case of emergency;
(f) arrangement of staggered or /reduced working hours;
(g) compulsory rest breaks; and
(h) provision of air-conditioners in the cabins of tower cranes and other plant where the operator is likely to be exposed to high temperatures.

Hygiene and welfare facilities - cold weather provisions

2.33.1 The Contractor shall comply with the Labour Department and Construction Industry Council’s publications relating to the safe working in cold weather.

2.33.2 Where there is a risk of injury by continued exposure to the cold weather, the Contractor shall conduct a risk assessment and identify precautionary measures to reduce the risk to an acceptable level. Precautionary measures shall include but not be limited to the following:

(a) provision of information on cold weather warning;
(b) provision of hot drinking water or other beverage;
(c) provision of additional warm clothing if a working uniform is provided;
(d) provision of effective means of communication or other suitable measures to workers working alone in remote areas for calling for assistance in case of emergency;
(e) arrangement of staggered or reduced working hours for outdoor work; and
(f) compulsory rest breaks.

2.34.1 The Contractor shall appoint a competent person to carry out a detailed noise assessment of the Site and use sound level meters to measure A-weighted sound levels. Preventive measures including the provision of ear protection shall be taken where a worker is likely to be exposed to a daily personal noise exposure of 85dB(A).

2.34.2 Where the daily personal noise exposure may exceed 90dB(A), the noisy areas shall be identified and demarcated as an Ear Protection Zone. All personnel shall be made aware of the noisy areas by suitable warning signs and the requirement of wearing suitable ear protectors.

2.34.3 The Contractor shall whenever possible reduce noise at source by improved maintenance, replacing noisy machines by quieter ones, screening with noise absorbing material, making changes to the process, controlling machine speeds, using cutting oils and hydraulic breakers.

2.34.4 The Contractor shall provide appropriate ear protectors of the recognized standards to the exposed workers whenever necessary. The Contractor shall ensure that all ear protectors are worn and maintained in accordance with the manufacturers’ instructions.

2.35.1 The Contractor shall whenever possible reduce or control dust emission from their works by having materials precut off-site; by isolating dust work; by removing the dust at source using local exhaust ventilation and/or vacuum cleaners; and by watering.

2.35.2 The Contractor shall clean up mud and slurry spills before they dry up and become airborne.

2.35.3 The Contractor shall properly cover up all excavation surcharge and use water to damp down concrete when drilling for starter bars or scabbling.

2.35.4 The Contractor shall provide appropriate respiratory protective equipment to recognized standards for the exposed workers whenever necessary. The Contractor shall ensure that all protective equipment is worn and maintained in accordance with the manufacturers’ instructions.
SECTION 3

TRAFFIC AND ROADS

3.1.1 The Contractor shall comply with:

(a) any regulations or by-laws for the control and regulation of traffic made by the Employer pursuant to the Airport Authority Ordinance; and

(b) the Road Traffic Ordinance (Cap. 374) and all subsidiary legislation (including without limitation the Road Traffic (Registration and Licensing of Vehicles) Regulations) if and to the extent that such legislation is applicable to any roads on the Airport whether pursuant to the Road Traffic Ordinance or the Airport Authority Ordinance.

3.1.2 The Contractor shall comply with all rules, procedures and standards including but not limited to speed limits set out in the Airport Operations Manual - Airfield Operations and as may otherwise be instructed by the Project Manager from time to time.

3.1.3 The Contractor shall ensure that all lorries, when carrying construction materials or waste materials, are covered and are not loaded in a manner which will result in the depositing of debris on any road or part of the Airport platform.

3.1.4 The Contractor shall ensure that all the public roads leading to/from the works areas are kept clean at all times. The Contractor shall ensure that, within half-an-hour of being notified by the Project Manager and/or the Employer, make good such default. Debris not cleared away within the half an hour period will be removed by the Employer and the costs incurred by the Employer will be deducted from monies due to the Contractor under the Contract and/or recovered from the Contractor as a debt.

3.2.1 The Contractor shall not use tracked vehicles on paved roads, unless adequate protection against damage to the road surface is provided and the Project Manager's consent is obtained.

3.3.1 The Contractor shall be responsible for obtaining any necessary permission from the Relevant Authorities and the Project Manager to move extraordinary loads and traffic over roads providing access to the Airport and roads within the Airport. All such movements shall be with police escorts, on routes and at times as may be determined by the Relevant Authorities and the Project Manager.

3.4.1 The Contractor shall not undertake any work in roads at the Airport without the permission of the Project Manager.
3.4.2 Unless permitted otherwise by the Project Manager, any work in roads shall be carried out by the Contractor in sections such that:

(a) the length of road occupied at any time does not exceed any limit expressly stated elsewhere in the Contract or, in the absence of any express limit, 100 m;

(b) the width of road occupied at any time does not exceed the width of one traffic lane;

(c) work in each section shall be completed and the road shall be fully reinstated and opened to traffic before work commences on the next section; and

(d) work in any section, including loading and unloading, shall be carried out in such manner that traffic and Utility Services in, under or over the adjacent traffic lane, and pedestrian access along the adjacent footway, are adequately maintained.

3.4.3 Before excavations are carried out on roads, except in areas covered with paving blocks or tiles, the limits of the area to be subsequently reinstated shall be bounded by a continuous saw-cut groove. The groove shall be at least 50 mm deep and positioned at least 150 mm outside the planned limits of the excavation. Cutting the groove and breaking out the road shall be carried out in such a manner that ensures that the adjacent road, including edges, is not damaged.

3.4.4 Excavated material shall not be stored adjacent to excavations in roads unless permitted otherwise by the Project Manager.

3.4.5 Vehicular access across excavations in roads shall be provided by the use of steel platforms. Additional steel platforms, sufficient to cover the full width of the carriageway not available for traffic, shall be kept on the Site adjacent to such excavations to permit vehicular access across the excavations in case of emergency. The steel platforms shall be designed to BS 449: Part 2 and shall be capable of withstanding the full load of traffic permitted to use the road. The platforms shall be secured in position and shall have anti-skid coating so that the skid resistance values of the platforms measured in accordance with BS 3262 and shall be not less than 45. When installed, the steel platforms shall be flush with the road surface so as to avoid/minimize any noise nuisance by rocking under the action of traffic.

3.5.1 The Contractor shall obtain any necessary permission from the Relevant Authorities including but not limited to the Director of Transport, Director of Fire Services and Commissioner of Police for carrying out work on any roads, in addition to obtaining the Project Manager’s permission in accordance with Section 3.4.1. The Contractor shall submit to the Project Manager any relevant permit issued by the Relevant Authorities at least 7 days before such work is planned to commence.
3.5.2 The Contractor shall allow sufficient time in his programme for any major traffic diversions, lane closures, amendments to speed limit and roads restrictions that require approval by Transport Department and gazetted.

3.5.3 The Contractor shall maintain access at existing ground level for fire fighting and rescue purposes to existing buildings. The Contractor shall obtain the written agreement of the Director of Fire Services and copy the same to the Project Manager, before undertaking any works that may obstruct any building frontage or that may restrict access for fire fighting vehicles.

3.6.1 Temporary traffic and pedestrian diversions shall be provided where work in roads obstructs existing vehicular or pedestrian access. All temporary traffic arrangements, vehicular or pedestrian, will require the consent of the Project Manager prior to their implementation. The relevant work shall not commence until such temporary traffic arrangements have been implemented including a trial run as necessary to the satisfaction of the Project Manager.

3.6.2 Temporary traffic arrangements for work in roads shall comply with the requirements contained in the current edition of the documents entitled:

(a) "Code of Practice for the Lighting, Signing and Guarding of Road Works";

(b) "Design Standard for Temporary Lighting";

(c) "Type Approval Procedure for Portable Traffic Light Signals"; and

(d) "Specification for Vehicle Actuated/Fixed Time Portable Traffic Signal Equipment";

as issued by the Relevant Authorities from time to time.

3.6.3 Temporary traffic arrangements shall be inspected and maintained regularly, both by day and by night to ensure that traffic lights, lighting and signs are in working order and kept clean and visible at all times. The Contractor shall immediately repair or replace equipment that is damaged, dirty, incorrectly positioned, not in working condition or in unsatisfactory condition. Any unsatisfactory equipment shall be immediately removed from site.
3.6.4 Temporary traffic and road construction shall comply with the following standards unless otherwise agreed with or specified by the Project Manager:

(a) the minimum road width for a single lane and two lanes along a straight sections of a road shall be 4.00 metres and 6.75 metres respectively;

(b) the traffic in opposite directions shall be segregated by a continuous temporary concrete profile barrier of at least 675mm wide;

(c) the headroom for vehicles passing through any above ground object shall not be less than 4.7 metres;

(d) the minimum thickness of temporary flexible pavement shall be 410mm sub-base + 155mm bituminous roadbase + 60mm bituminous base course + 40mm bituminous wearing course;

(e) the minimum thickness of rigid pavement shall be 130mm sub-base + 190mm Grade 40/20 unreinforced concrete with suitable expansion and contraction joints; and

(f) the temporary pedestrian fencing, vehicular parapets and concrete profile barriers shall be of type review without objection by the Project Manager and shall be laid continuously with no gap except at designated road crossings. The temporary barrier shall be designed to prevent individual elements being displaced under vehicle impact load.

3.6.5 Temporary road markings, temporary covering of road markings and temporary traffic signs, including posts, backing plates and faces shall comply with the requirements for traffic signs specified in Section 12 of the GMWS. The thickness of backing plates for temporary signs that will be erected for less than 6 months may be reduced to 1.5mm.

3.6.6 The Contractor shall design the arrangement of information on sign faces for temporary traffic directional signs. The details of the background, borders and legends, including letters, numerals, characters and symbols, shall comply with the requirements of the Transport Department.

3.6.7 The Contractor shall carefully plan the works on roads to minimise the period of temporary excavation. If the Contractor is unable to proceed with the works after any excavation is carried out, he shall immediately backfill or temporarily reinstate the excavation.

3.6.8 The Contractor shall submit for review without objection by the Project Manager, details of his proposals for the temporary traffic arrangement prior to implementation including:

(a) details of traffic diversion and pedestrian routes including any precautionary measures;
(b) details of road geometry, pavement thickness and composition, drainage and lightings, signage, guarding, road marking, traffic aids, street furniture, traffic control arrangement and equipment;

(c) any conditions or restrictions imposed by Relevant Authorities; and

(d) temporary works including protection to or diversion of underground utilities, transplantation of plants and all necessary structural design calculations with certificate issued by an independent checking engineer.

3.6.9 The Contractor shall constantly monitor the traffic conditions during the implementation and modify its temporary traffic diversion proposal to suit the local traffic and road conditions as necessary and/or as required by the Relevant Authorities and the Project Manager.

3.7.1 Upon completion of the works for which the temporary traffic arrangements have been made, the Contractor shall remove all temporary installations and reinstate all affected roads and other structures or installations to the conditions that existed before the work started or to such other condition as may be imposed by the Relevant Authorities or instructed by the Project Manager.
SECTION 4

DAMAGE AND INTERFERENCE

4.1.1 The Contractor shall, as far as is practicable other than as necessary for the execution of the Works, execute the Works without damage or interference to the following:

(a) utilities;
(b) watercourses, drainage systems and sewerage systems;
(c) structures, roads including street furniture or other property;
(d) public or private vehicular or pedestrian accesses; and
(e) trees and shrubs.

The Contractor shall immediately notify the Project Manager of any item, utility or thing not stated in the Contract as requiring diversion, removal or relocation but which the Contractor considers requires diversion, removal or relocation to execute the Works. No diversion, removal or relocation of any such item, utility or thing shall be undertaken without the Project Manager’s consent.

4.1.2 The Contractor shall re-instate any item damaged or interfered with as a result of diversion, removal or relocation necessary for the execution of the Works, to the same condition as was existing prior to the work being carried out. In the event of emergency the Project Manager may undertake such reinstatement works and back charge all costs to the Contractor.

4.1.3 The Contractor shall excavate by hand where damage may be caused to utilities by the use of mechanical plant.

4.1.4 The Contractor shall obtain the prior approval of the Director of Fire Services prior to any works likely to cause damage or interference to existing fire hydrants.

4.1.5 For the purposes of this Section 4, "divert" and "diversion" means any change in any Utility Service and shall include but not be restricted to change in type, extent, location, line or level, alteration in size, removal and subsequent replacement, interruption and all work in connection therewith.

4.2.1 The Contractor shall take into account in his method of working the presence of Utility Services on and in the vicinity of the Site.

4.3.1 The Contractor shall exercise the greatest care at all times to avoid damage to or interference with Utility Services and shall be responsible for any damage and/or interference caused by him or his agents and sub-contractors of any tier, directly or indirectly arising from anything done or omitted to be done.
4.4.1 The Contractor shall locate or confirm the details and location of all Utility Services on or in the vicinity of the Site. The Contractor shall note any details of Utility Services within the Site shown on the Employer's Drawings, and shall make such further enquiries and investigations necessary to determine the location of all existing Utility Services on or in the vicinity of the Site. The Contractor acknowledges that some existing pipes, ducts, cables and the like may not be shown on either the Employer's as-constructed records or records kept by the Utility Undertaking.

4.4.2 The Contractor shall, prior to any excavation, locate any underground utilities by cable detector first and then by hand dug inspection pits. The Contractor shall determine the number and location of such inspection pits to establish the location of existing utilities and underground features. The Contractor shall undertake excavation by hand where utilities are adjacent to or within the excavation. Each Utility Service thus exposed shall be identified in conjunction with the Project Manager and the appropriate Utility Undertakings.

4.5.1 The Contractor shall notify the Project Manager of, and update any Employer's Drawings, including as-constructed drawings, accurately locating all Utility Services found on Site that are not shown on the Employer's Drawings.

4.6.1 The Contractor shall protect and support or divert all Utility Services exposed during execution of the Works to the satisfaction of the appropriate Utility Undertakings and the Project Manager.

4.6.2 The Contractor shall submit for review by the Project Manager details of his proposals for dealing with such Utility Services that are to be protected or supported during the execution of the Works.

4.7.1 The Contractor shall immediately notify the Project Manager of any damage to Utility Services and shall carry out such repairs or allow others to carry out such repairs as are necessary or appropriate. In the case of Utility Services provided by others, such repairs shall be carried out upon and subject to the Project Manager's instruction.

4.8.1 The Contractor shall execute and take responsibility for all work in connection with the permanent diversion of storm water drains and sewers shown on the Employer's Drawings. For other Utility Services, the Contractor shall execute and take responsibility for all civil engineering work required in connection with permanent diversions shown on the Employer's Drawings to be carried out by the Utility Undertakings, the Employer or Other Contractors necessary for, or occasioned by, the execution of the Works. Civil engineering work shall include supports, temporary decking, excavation, drainage, trench sheeting and support, ducts, anchor blocks, manholes, valve chambers, wash-out pits, draw-in pits, junction boxes, backfilling, safety requirements, reinstatement of existing surfaces and the like.
4.8.2 Where temporary diversions of Utility Services are required as a result of the Contractor's method of construction and/or operation, the Contractor shall:

(a) execute and take responsibility for all work in connection with such diversion of stormwater drains and sewers;
(b) execute and take responsibility for all civil engineering work required in connection with such diversions to be carried out by the Utility Undertakings, the Employer or Other Contractors; and
(c) be responsible for all charges incurred by Utility Undertakings, the Employer or Other Contractors in respect of each such diversion.

4.8.3 The Contractor shall, not less than 28 days prior to commencement of any Utility Service diversion works, submit to the Project Manager for review detailed proposals for the proposed diversion. The Contractor shall not commence any Utility Service diversion work prior to such proposals being reviewed without objection.

4.8.4 Where diversions are necessitated by the Works, no adjacent work other than that required for the diversion shall be commenced until the diversions have been made, unless the prior consent of the Project Manager has been obtained.

4.8.5 In the event that an existing duct crossing under a road is removed, the Contractor shall provide an equivalent duct crossing at or as near as possible to the original location as part of the reinstatement of the road.

4.8.6 During the execution of the Works, the Contractor shall record fully and accurately all permanent diversions and the location and type of all duct crossings under roads. Copies of these records shall be submitted to the Project Manager for review.

4.8.7 Where necessary, the Contractor shall be given access to such additional areas, which shall be deemed to be part of the Site, to enable him to fulfil his obligations regarding the diversions. Access to such additional areas shall be subject to the terms laid down by the Project Manager and shall be granted solely to enable the Contractor to meet such obligations.

4.8.8 The Contractor shall afford and provide access and temporary storage areas and the free use of the Site facilities at all times to representatives of the Utility Undertakings and Other Contractors as may be necessary for the inspection, operation, repair, curtailment, making of additional connections to and maintenance of their installations and Utility Services within the Site which are affected by the Works.

4.9.1 The Contractor shall maintain sewerage and storm water services located within the Site throughout the entire period up to the substantial completion of the whole of the Works.
4.9.2 The Contractor shall maintain drainage of temporary and permanent roads and other areas affected by the Works throughout the entire period up to the substantial completion of the whole of the Works. The Contractor shall take measures to prevent excavated materials, silt or debris from entering drainage systems, sewerage systems or the sea and to avoid obstructing the entry of water to gullies.

4.9.3 Prior to reinstatement of roads, the Contractor shall reinstate temporarily diverted stormwater drains and sewers and connections thereto, and shall reconnect them to reinstated or existing or new drains and sewers as required.

4.10.1 The Contractor shall immediately notify the Project Manager of any damage to structures, roads or other property that is not necessary for the execution of the Works.

4.10.2 The Contractor shall ensure any vibration generated from the execution of the Works shall not cause damage to adjacent structures, finishes, utilities or services. The Contractor shall be responsible for any damage to such structures, finishes, utilities or services and the making good of the same, as may be caused during the execution of the Works. The Contractor shall make good such damage within 24 hours of notification by the Project Manager. For any damage not rectified within 24 hours, the Employer will arrange others to carry out the repair and all cost incurred by the Employer will be recovered from the Contractor.

4.11.1 All abandoned Utility Services shall belong to the Employer unless otherwise specified on the Employer’s Drawings or in the Specification. The Contractor shall safeguard all such services, and shall dispose of them as directed by the Project Manager.

4.11.2 Where abandoned drains, pipes, ducts and the like are to be left in-situ, they shall be sealed to the satisfaction of the Project Manager.

4.12.1 “Railway Protection Plans” for MTR Corporation Limited (MTR) facilities include the “Railway Protection Boundary” and generally covers the areas 30 metres from each side of the MTR network structure or installations. Around MTR stations the area generally enclosed by the “Railway Protection Plans” is more extensive. The Contractor shall determine if his Site or part thereof is within the “Railway Protection Plans” and shall comply with all the Relevant Authorities requirements in this regard.

4.12.2 The Contractor shall not undertake any construction work, including site investigation works within the “Railway Protection Plans” without forwarding his method statement and Contractor’s Drawings to the Railway Protection & Land Survey Section of the MTR for comment and stipulation of any additional measures necessary to protect the MTR.

4.12.3 The Contractor shall, when assessing the effects of civil engineering construction and/or building development on MTR structures and operations, make reference to the relevant Government practice notes.
SECTION 5

TEMPORARY ELECTRICAL INSTALLATIONS

5.1.1 Within 28 days of the date of the Letter of Acceptance, the Contractor shall appoint a representative to be responsible for ensuring the safety, operation and maintenance of all temporary electrical installations and equipment on Site under the Contractor's control and responsibility. The name and qualifications of this representative shall be submitted in writing to the Project Manager for review prior to appointment.

5.1.2 The name and contact telephone number of the Contractor's representative shall be displayed at all consumer substations and distribution boards utilized by the Contractor so he can be contacted in case of emergency.

5.1.3 Schematic diagrams and details of the equipment for all temporary electrical installations shall be submitted by the Contractor to the Project Manager for review.

5.2.1 The Contractor shall ensure that:

(a) temporary electrical installations and distribution systems shall be designed, installed and operated in accordance with:

(i) the Factories and Industrial Undertakings (Electricity) Regulations (Cap. 59); and

(ii) the supply rules issued by the China Light & Power Co. Ltd. (the "CLP Supply Rules") which shall be interpreted, where appropriate, such that "Customer" means the Contractor and "Company" means the Employer.

(b) electrical work, including switching of switchboards (as defined in the IEE Regulations), shall be undertaken by electrical workers registered in accordance with the Electricity Ordinance (Cap. 406) and the Electricity (Registration) Regulations made thereunder.

5.3.1 The Contractor shall provide, operate and maintain the temporary electrical installations from the load side of the supply points, and shall ensure that all necessary precautions are taken with regard to the safety of both personnel and the installation.

5.4.1 All materials, appliances and components used within the temporary electrical distribution system shall comply with the requirements of Section 5.2.1(b) as appropriate to Hong Kong environmental conditions and supply voltage level.
5.5.1 Distribution equipment utilised within the temporary electrical installation system shall have the following features:

(a) flexibility in application for repeated use;
(b) suitability for transport and storage;
(c) robust construction to resist damage;
(d) compliance with rules and regulations in Hong Kong; and
(e) a degree of protection not less than IP 55.

5.5.2 Cabling shall be run in such a manner that it does not present a hazard or an obstruction to persons or equipment and it is not exposed to damage.

5.5.3 The temporary electrical equipment and apparatus shall be designed and installed in a manner that allows unobstructed access by authorized personnel to operate and maintain the equipment or apparatus.

5.6.1 The supply voltage for temporary electrical installations shall be 380/220V AC 50Hz. When used in confined or damp locations or other hazardous places, all electrical equipment or apparatus (including without limitation all hand tools and lighting) shall be connected to an isolating transformer and extra low voltage supply as defined in the IEE Regulations.

5.6.2 Temporary electrical installations in areas to which the public or other users of the airport may have access and small hand tools shall be operated at 110V obtained by the use of a safety isolating transformer having the centre tap of the secondary winding earthed so that the normal voltage of the circuit to earth does not exceed 50V.

5.7.1 Main switches or circuit breakers shall be provided for every temporary installation and shall interrupt all live conductors of the installation under the fault condition. The main switch or circuit breaker shall incorporate:

(a) means of protection against over-current;
(b) means of protection against residual earth leakage current;
(c) means of isolation and switching; and
(d) clearly and permanently indicated ON & OFF positions.

5.7.2 The protective devices shall be capable of tripping faulty circuits in less than 0.5 second or as specified in the IEE Regulations. The shortest time shall be adopted. Discrimination between circuit breakers, switches and fuses shall be in accordance with the relevant clauses of the IEE Regulations.

5.8.1 The Contractor shall provide his own earthing system by which the exposed conductive parts of his installations are connected to earth. Rule 507 of the CLP Supply Rules shall apply to the earthing of temporary electrical installations.
5.9.1 Low voltage plugs, sockets and couplers shall be constructed and colour coded in accordance with the IEE Regulations. Flexible extension leads shall be Class II insulated (IEE Regulations) with protective conductors of the same size as the live conductor and shall not exceed 30 metres in length. Every extension lead with more than one socket shall have residual current devices having a rated residual operating current not exceeding 30mA at the socket end.

5.10.1 Cables shall be appropriate for the conditions to which they will be exposed and the duties for which they are required. LV power supply cables to be laid underground shall be laid in conduit or shall be PVC/SWA/PVC. The cable armouring can be used as the earth return in conditions specified in the IEE Regulations and where cables are not subject to continuous movement after installation.

5.11.1 Lighting circuits shall be run separately from other sub-circuits and shall be in accordance with the IEE Regulations. Luminaries shall have a degree of protection not less than IP 55 if the installations are exposed to excesses of dust and water or outdoor environment.

5.11.2 A minimum lighting level of 350 lux shall be maintained at active working areas and an adequate lighting level of 50 lux in other access areas.

5.11.3 Mechanical protection of luminaries against damage by impact shall be provided by use of wire guards or other such devices whenever risk of damage occurs. Hand lamps shall be made of insulated material with the bulbs protected against breakage.

5.12.1 Portable tools and equipment shall be:

(a) double insulated; or
(b) Class II insulated; or
(c) connected from sources described in Clause 411-02-02 in the IEE Regulations; or
(d) connected to earth and protected by residual current device having a rated residual operating current not exceeding 30 mA; or
(e) supplied from extra low voltage as defined in the IEE Regulations.

5.13.1 Electrical installations on Site shall be inspected and tested in accordance with the requirements of the IEE Regulations.

5.14.1 Identification labels shall be affixed to all electrical switches, circuit breakers and motors installed temporarily to specify their purpose and point of supply. Temporarily connected electrical motors shall comply with the CLP Supply Rules.
5.15.1 Regular inspection, maintenance and insulation tests shall be carried out by a registered electrician to ensure compliance with regulations and rules. The Contractor shall submit details of his maintenance schedule together with schematic diagrams for review by the Project Manager.

5.15.2 Extension leads and portable electric tools used on Site shall have labels affixed indicating the last and due inspection dates.

5.16.1 The connection of stand-by power generators shall comply with the CLP Supply Rules.

5.17.1 Temporary electrical distribution boards, whether for the Contractor's own use or for the use of Other Contractors, shall be provided in accordance with the following requirements:

(a) the distribution board shall be a free standing but mobile unit at which an incoming four-core flexible armoured cable shall be terminated. All supplies from this board shall be via individual outlet sockets;

(b) the distribution board shall be a metal clad enclosure with a degree of protection not less than IP 55 to panel mounted miniature circuit breakers and busbars and shall be constructed so that normal access is restricted to the circuit breaker operating toggles only, via a caught but unlocked hinged panel;

(c) the distribution board assembly shall conform to the requirements of BS 5486, including Parts 12 and 13, and the IEE Regulations;

(d) individual components, circuit breakers, earth leakage circuit breakers, sockets and the like shall comply with the relevant British Standard or equivalent acceptable to the Project Manager;

(e) the distribution board shall be complete with neutral and phase busbars suitably shrouded and insulated for a 380 V phase to phase voltage as specified in the IEE Regulations and an internal earth-bar bonded to the panel metal cladding. The armouring of the incoming cable and earth connection of each outgoing socket shall be effectively bonded to the earth-bar. An external earth connection shall be provided for the purpose of measuring earthing resistance;

(f) the distribution board shall be mounted on an integral frame to ensure that cable entry and outlets are not less than 1 m from the floor and shall be fitted with warning labels and circuit identification;

(g) the incoming and outgoing cables shall enter the distribution board through cable glands; and

(h) a complete set of spare plugs for the outgoing circuits shall be furnished for each distribution board.
SECTION 6

SURVEY OF THE SITE AND SETTING-OUT

6.1.1 The survey projection to be used is the Hong Kong 1980 geodetic datum. This is a Gauss Conformal System (Transverse Mercator) projection with minimal scale factor. All co-ordinates and grids shown on the Employer's Drawings are 1980 Hong Kong metric grid values.

6.2.1 For the purposes of the Contract:

(a) "Principal Datum" means Hong Kong Principal Datum; and

(b) "Chart Datum" means 0.146 m below Principal Datum.

6.2.2 Unless otherwise stated, all levels used on the Works and all primary bench marks established on the Site shall be relative to Principal Datum.

6.3.1 The Project Manager will upon request provide master survey station for the Works. Where master survey stations have been established, the Contractor shall prior to commencing work on Site, confirm the accuracy of their position and/or alignment and shall immediately notify the Project Manager of any discrepancies.

6.4.1 Setting-out of the Works shall be based on information supplied in the Contract. Should any discrepancy be discovered between the principal setting-out points, the Contractor shall notify the Project Manager who will issue instructions which in the Project Manager's opinion will resolve the said discrepancy.

6.4.2 The Contractor shall be responsible for checking that adjacent roads, buildings and structures and any adjacent construction work not associated with the Contract are properly co-ordinated with the principal location or construction of the Works. Should it become apparent that there is a conflict the Contractor shall notify the Project Manager who will issue instructions which in the Project Manager's opinion will resolve the said conflict.

6.4.3 Where the precise information as to line and level of the Works is not indicated on the Employer’s Drawings, the position of the centre line and levels of such work shall be agreed on Site with the Project Manager before such work commences.

6.5.1 Where the execution of the Works is affected by the existence of structures constructed by others or plant and equipment installed by others, the Contractor shall carry out a survey of the existing structure or determine the location of the existing plant and equipment as appropriate. Such survey shall include, but not be limited to, determination of the line, level and condition of the structure, confirmation of the precise location of plant and equipment and the general condition of the plant and equipment, and the condition of surfaces to which architectural finishes are to be applied or fittings fixed by the Contractor.
SECTION 7

PROTECTION OF THE ENVIRONMENT

7.1.1 The Contractor shall comply with all of the laws of Hong Kong and the regulations made thereunder relating to the avoidance of nuisance and pollution including without limitation:

(a) the Oil Pollution (Land Use and Requisition) Ordinance (Cap. 247);

(b) the Air Pollution Control Ordinance (Cap. 311);

(c) the Waste Disposal Ordinance (Cap. 354);

(d) the Water Pollution Control Ordinance (Cap. 358);

(e) the Noise Control Ordinance (Cap. 400);

(f) Factories and Industrial Undertakings Ordinance (Cap. 59);

(g) Buildings Ordinance (Cap. 123);

(h) Public Health and Municipal Services Ordinance (Cap. 132);

(i) Environmental Impact Assessment Ordinance (Cap. 499); and

(j) the Airport Ordinance.

7.1.2 The Contractor shall take all measures and precautions to avoid any nuisance or disturbance arising from the execution of the Works (including the movement of Contractor's Equipment), including but not limited to:

(a) suppress the nuisance at source rather than abate the nuisance once generated;

(b) select and operate all Contractor's Equipment so as to cause minimum nuisance or disturbance;

(c) fit all Contractor's Equipment with a means of suppressing radio and television interference;

(d) design and maintain all relevant items of Contractor's Equipment so as to minimise the risk of silt and other contaminants being released into the sea or any other waters or being deposited other than in designated locations; and

(e) repair promptly all pipe leakages and refrain from using any Contractor's Equipment which leaks or releases contaminants.
7.2.1 The Contractor shall submit a draft Environmental Management Plan (EMP) to the Project Manager for review within 28 days of the date of the Letter of Acceptance. The draft EMP shall detail how the Contractor proposes to deal with potential environmental impacts arising from the execution of the Works in accordance with the laws of Hong Kong, commitments in any Environmental Impact Assessment (EIA) Report and Environmental Permit relating to the Works and shall be prepared in accordance with guidelines specified in Appendix 1.

7.2.2 The Contractor shall submit the final EMP to the Project Manager for review, 28 days prior to the expected date of commencement of construction activities. The Contractor shall submit together with the final EMP copies of all relevant licenses, permits, approvals and the like obtained pursuant to the laws of Hong Kong and the regulations specified in Section 7.1.1.

7.2.3 The Contractor shall, 28 days prior to the expected date of commencement of construction activities, submit to the Project Manager for review a contract specific Environmental Management Strategy as part of the EMP specified in Appendix 1.

7.2.4 The Contractor shall submit to the Project Manager, on a weekly basis, or any agreed interval, during the construction of the Works, output from environmental monitoring activities.

7.2.5 The provisions of this Section 7 shall not be applicable to emergency work necessary for the saving of life or property or the safety of the Works.

7.3.1 The Airport is located within an area declared to be a water control zone under the Water Pollution Control Ordinance. Any discharges or deposits of matter arising from the execution of the Works are subject to the licensing and other requirements of that Ordinance.

7.3.2 The Contractor shall not discharge or deposit any matter arising from the execution of the Works into the sea or any other waters.

7.3.3 The Contractor shall execute the Works in such a manner as to minimize any adverse impact on the quality of the water within and in the vicinity of the Airport and any borrow and dumping areas available for the Works. The Contractor shall devise and arrange methods of working and shall provide suitably trained and experienced personnel to ensure that he achieves this objective and meets the particular requirements set out in this Section 7.

7.3.4 The Contractor shall design, construct, maintain, remove and, where appropriate, reinstate all necessary temporary drainage works and take all other precautions necessary for the avoidance of damage by flooding and silt from the Works. The Contractor shall also take all necessary precautions:

(a) to ensure that no unauthorized spoil or debris of any kind is allowed to fall or be deposited on the land or seabed adjacent to the Airport;
(b) to minimise Site runoff and its associated impacts (including without limitation, the construction and maintenance of sediment traps or other devices in order to reduce water velocities and allow for the sedimentation of particulate matter); and

(c) to prevent waste water associated with construction, vehicle washing areas or other sources from being directly discharged to the sea or any other waters (including, without limitation, the construction of wash areas on hardstandings with drains to settlement tanks to permit sedimentation of particulate matter). If any direct discharge of such water is unavoidable, the Contractor shall obtain the appropriate discharge licences from the Environmental Protection Department pursuant to the Water Pollution Control Ordinance (Cap. 358).

7.3.5 Areas where water is regularly used for dust suppression purposes, (including, without limitation, stockpiles for construction) shall be laid to fall to specially-constructed settlement tanks to permit sedimentation of particulate matter. After settlement, the supernatant water shall be reused for dust suppression and rinsing. Water used for dust suppression purposes shall not be discharged directly to the sea or any other waters.

7.3.6 The Contractor shall submit details of his temporary drainage work system (including all surface channels, sediment traps, washing bases, and discharge points) and maintenance procedures and schedules to the Project Manager for review prior to commencing work on its construction.

7.3.7 If any unauthorized spoil, debris or silt from the Works is deposited on adjacent land or seabed, the Contractor shall immediately remove it and restore the affected land or seabed area to its original state.

7.4.1 The Contractor shall consider noise as an environmental constraint in his planning and execution of the Works, and shall comply with the Noise Control Ordinance (Cap. 400).

7.4.2 The Contractor shall take all measures to ensure that noise generated by the Works will not result in the maximum allowable noise levels identified in Section 7.4.1 or any levels as specified in the Contract, being exceeded whether continuously or intermittently. Such measures shall include, without limitation, ensuring that all engine driven equipment is fitted with efficient exhaust silencing and properly maintained.

7.4.3 The Contractor shall obtain construction noise permits as required under the Noise Control Ordinance for works and operations.

7.5.1 The Contractor shall carry out the Works in such a manner as to minimise adverse impact on air quality.
7.5.2 The Contractor shall obtain from the Environmental Protection Department any permits and/or approvals required under the Air Pollution Control Ordinance (Cap. 311) in relation to the execution of the Works.

7.5.3 Effective water sprays shall be used during the delivery and handling of raw material when dust is likely to be created, and to dampen stored materials during dry and windy weather. Stockpiles of friable material shall be covered with clean tarpaulins, with applications of sprayed water during dry and windy weather. Stockpiles of material or debris shall be dampened prior to their movement.

7.5.4 Conveyor systems used for transport of materials shall be fully enclosed and fitted with belt cleaners. Transfer points shall be enclosed and fitted with water suppression sprays to the extent necessary.

7.5.5 All cement and concrete trucks shall be effectively washed down after loading.

7.5.6 The Contractor shall at all times maintain a clean and tidy Site so that there is no loose debris, packaging or other materials capable of being transported by wind.

7.5.7 The Contractor shall take all practical measures to minimise emissions, particularly those which may be visible or cause odour.

7.5.8 The Contractor shall, to the extent possible, limit the surface area of potentially erodible earth material exposed by clearing, grubbing, excavation and fill activities.

7.5.9 The Contractor shall place dust collectors on all drill rigs.

7.5.10 The Contractor shall take all necessary measures to prevent avoidable generation and emission of dust including, without limitation, the use in buildings of suitable screens, dust sheets and, tarpaulins and the use of sheets to cover all open-topped vehicles leaving the Site which may generate dust.

7.6.1 The Contractor shall, where appropriate, notify the Relevant Authorities of and obtain all necessary approvals and consents for activities that involve potentially hazardous materials or chemical wastes.

7.6.2 The Contractor shall ensure that all hazardous materials and chemical wastes are properly and safely handled and controlled at all times from their acquisition or production to their final disposal in a lawful manner. In particular, but without limitation, the Contractor shall:

(a) take all possible measures to prevent the uncontrolled or unauthorised discharge or disposal of hazardous materials and chemical wastes to the air, soil, sea or any other waters;

(b) ensure that hazardous materials, chemical waste and fuel ash are collected and packed or stored in suitable containers or vessels so as to prevent leakage, spillage or escape of the contents under normal conditions of handling, storage and transport.
(c) ensure that hazardous materials and chemical waste are not fed into waste compactors; and

(d) ensure that these tasks are carried out by competent and experienced personnel who are licensed to provide such services.

7.6.3 The Contractor shall develop and, if necessary, implement a plan for the containment and clean up of hazardous materials, chemical wastes or oil, that is acceptable to the Fire Services Department, the Environmental Protection Department and the Marine Department and is consistent with the Water Pollution Control Ordinance (Cap. 358) the Oil Pollution (Land Use and Requisition) Ordinance (Cap. 247), the Waste Disposal Ordinance (Cap. 354), and the Environmental Impact Assessment Ordinance (Cap. 499).

7.7.1 The Contractor shall not burn any material, debris, waste or vegetation within the Airport.

7.7.2 The Contractor shall segregate and remove all construction wastes from the Site to approved disposal sites in accordance with Government regulations, technical circulars and practice notes issued by the Relevant Authorities and the Employer's guidelines as specified in Section 1.2.1 on disposal of construction wastes. The Contractor shall submit waste disposal records to the Project Manager at regular intervals as agreed with the Project Manager in a format as stipulated in the Employer's guidelines.

7.7.3 The Contractor shall submit full waste disposal details for the Project Manager's review without objection as part of the EMP, to identify the location for disposing the construction waste generated from the Works and the ways to control/ minimise/ recycle/ monitor the process such that it complies with the requirements of the Environmental Protection Department and the Employer's guidelines.

7.7.4 The Contractor shall ensure that:

(a) all solid waste shall be placed within appropriate bins or other receptacles which are properly covered, closed or sealed to prevent spillage during storage or transportation;

(b) all putrescible waste shall be disposed of as soon as reasonably practicable and shall not in any event remain within the Site for more than 24 hours;

(c) an appropriate waste collection point within the Site is designated for the collection and short term storage of waste; and

(d) accumulation of waste within the Site shall be minimised so far as is reasonably practicable.

7.8.1 The Contractor shall devise and arrange methods of working and shall provide suitably trained and experienced personnel to ensure that it achieves all these objective and meets the particular requirements set out in this Section 7.
SECTION 8

SAFETY

8.1.1 The Contractor shall be fully responsible for the safety of the Works, his personnel, subcontractors' personnel, the public and all persons directly or indirectly associated with the Works or on or in the vicinity of the Site. The Contractor shall treat safety measures as a priority in all his activities throughout the execution of the Works.

8.1.2 The Contractor shall ensure that alcoholic drinks, drugs and other substances which may impair judgement are not sold, introduced or consumed on the Site. The Contractor shall also ensure that his personnel and those of his subcontractors of any tier are not under the influence of alcohol, drugs or other substance which may impair their judgement whilst on the Site or otherwise engaged in the execution of the Works. The Contractor shall immediately remove or cause to be removed from the Works or the Site any person employed by the Contractor or his subcontractors of any tier who is found to be under the influence of alcohol, drugs or any other substance that may impair judgement. Such person shall not be employed again in connection with the Works or on the Airport without the prior consent of the Project Manager.

8.1.3 The Project Manager will issue to the Contractor the Construction Safety Manual and any revised versions thereof as may from time to time be produced by the Employer. The Contractor shall comply with the requirements of the Construction Safety Manual provided that the standards set out in the Construction Safety Manual shall be regarded as the minimum to be achieved and shall not relieve the Contractor of any of his statutory duties or his responsibilities under the Contract.

8.1.4 The provisions of the Contract regarding safety shall apply to and be binding upon the Contractor for any part of the Works and the persons employed by sub-contractors of any tier. The Contractor shall ensure that the requirements of the Contract in respect of safety are included in all sub-contracts placed by him.

8.2.1 The Contractor shall comply with all legislation relating to occupational safety and health including, but not limited to, the following:

(a) Occupational Safety and Health Ordinance (Cap. 509) and its subsidiary regulations;

(b) Factories and Industrial Undertakings Ordinance (Cap. 59) (Sections 6A & 6B);

(c) Construction Sites (Safety) Regulations (Cap. 59);

(d) Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations (Cap. 59);
8.2.2 The Contractor shall comply with all relevant Codes of Practice issued by the Commissioner for Labour under Section 7A and Section 7A (1) of the Factories and Industrial Undertakings Ordinance including without limitation:

(a) Code of Practice for the Safe Use of Mobile Cranes;
(b) Code of Practice for the Safe Use of Tower Cranes;
(c) Code of Practice for Metal Scaffolding Safety; and
(d) Code of Practice for Safety at Work (Lift and Escalator).

8.3.1 The Contractor shall display at each of his Site offices and at any workshops and canteens at the Airport or elsewhere in Hong Kong a copy of the regulations and documents entitled "A Guide to the Construction Sites (Safety) Regulations" published by the Government. All regulations and documents shall be translated by the Contractor into languages which are understood by operatives engaged by the Contractor or sub-contractors and such translations shall be displayed alongside those in the Chinese and English languages.

8.3.2 The Contractor shall also keep:

(a) at his Site offices, an up-to-date set of the relevant safety and industrial health legislation;
(b) at his Site offices and any works areas, workshops and canteens at the Airport or elsewhere in Hong Kong, an up-to-date set of the relevant codes of practice, guides to safety and health legislation, safety guides and safety pamphlets published by the Government, the Occupational Safety and Health Council and the Construction Industry Council (CIC) for general reference; and
(c) a working stock of all the statutory forms to be used in relation to the compliance of the safety and health legislation, and the Contractor shall comply with all the provisions contained in such documents.

8.4.1 The Contractor shall ensure that safety, rescue and industrial health matters are given a high degree of publicity to all persons regularly or occasionally on Site. The Contractor's safety policy statement, emergency procedures and rescue organization shall be made known to all persons on the Site. Copies of the above information and safety posters, in English, Chinese and other languages understood by the workforce, shall be displayed prominently in relevant areas of the Site. A board shall be erected near the entrance of the Site to display the up-to-date accident statistics.
8.5.1 The Contractor shall, within 28 days of the date of the Letter of Acceptance, prepare and submit to the Project Manager for review his proposed safety plan (the “Safety Plan”) that fully complies with the requirements of the Works, the Construction Safety Manual, and all Enactments, Regulations, Codes of Practice, and Safety Guidelines.

8.5.2 The Safety Plan shall include a policy statement signed by the managing director of the Contractor or other senior officer acceptable to the Project Manager, or the managing directors or other senior officers acceptable to the Project Manager of each company of the consortium, partnership or joint venture comprising the Contractor, declaring that the Contractor shall ensure that occupational safety and health are given the highest practicable priority in all aspects of the Works and by the Contractor in discharging his contractual obligations.

8.5.3 The Contractor shall submit detailed method statements for each construction task to the Project Manager for review without objection in accordance with Section 16.

8.6.1 The Contractor shall carry out and submit to the Project Manager for review without objection a detailed risk assessment of each method statement, covering all the major health and safety aspects of the relevant component of the Works.

8.6.2 The risk assessment documentation shall include a comprehensive schedule of the perceived risks to safety, and proposed resolution and mitigation measures.

8.6.3 The findings of the risk assessment shall be incorporated into the Contractor’s safety plan and method statements.

8.7.1 The Contractor shall ensure that activities on the Site are co-ordinated so that activities of one group or workers do not affect the safety of other workers, other subcontractors or Other Contractors.

8.8.1 The Contractor shall appoint an appropriate number of Safety Officers and Safety Supervisors during the execution of the Works including night shifts, in accordance with statutory requirements, the Construction Safety Manual and the Contractor’s safety plan.

8.8.2 The duties of the Safety Officers for the duration of the Contract shall be entirely connected with the safety and industrial health aspects of the Contractor’s activities on the Site. All Safety Officers appointed shall be safety officers registered under the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations. They shall carry out all duties stipulated in those regulations and shall:

(a) supervise and monitor implementation of the safety plan; and

(b) carry out audits for the safety plan in accordance with a rolling programme to be submitted, from time to time, to the Project Manager for his review.
8.8.3 Safety Officers shall be appointed within 28 days of the date of the Letter of Acceptance and shall be subject to the Project Manager's review. The Contractor shall not undertake any work on Site until the Safety Officers have commenced duties on Site.

8.8.4 The Contractor shall provide the Safety Officers with supporting staff including Safety Supervisors in accordance with the regulations and the staffing levels set out in the safety plan.

8.8.5 Safety Supervisors shall have at least three years of experience on construction work and have attended appropriate safety training courses and shall produce for inspection by the Project Manager when required certificates or similar documents as evidence of their attendance. They shall carry out the duties stipulated in the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations.

8.8.6 The Contractor shall ensure that the Safety Officers maintain safety diaries to record comprehensively all matters concerning safety, including safety inspections and audits, accidents, safety related incidents and the like. The safety diaries shall be available at all times for inspection by the Project Manager. The Contractor shall deliver copies of the safety diaries to the Project Manager daily if so required.

8.8.7 The Contractor shall empower the Safety Officers and other safety staff to instruct employees of the Contractor or of his sub-contractors of any tier to cease operations and take urgent and appropriate action to make safe the Site and prevent unsafe working practices or other infringements of the safety plan or statutory regulations.

8.8.8 The Contractor's staff organisation plan shall show direct lines of communication and reporting between the Safety Officers and the Safety Manager and between the Safety Manager and the Contractor's director responsible for the Contract. The Contractor shall instruct and require the Contractor's representative and the Contractor's director responsible for the Contract to be directly accountable in all matters concerning safety.

8.8.9 The Contractor shall provide his sub-contractors with copies of the safety plan, associated risk assessments and method statements as appropriate to the part of the Works they are sub-contracted to undertake.

8.9.1 A site safety management committee will be established by the Project Manager to monitor the implementation of the Safety Plan and for the purposes set out in the Construction Safety Manual. The Contractor's agent or representative, Safety Manager, Safety Officers and sub-contractors' Safety Supervisors shall attend all meetings called by the Project Manager. The above arrangements are entirely without prejudice to and do not relieve the Contractor from his legal obligations with respect to safety and health.
8.9.2 The Contractor shall establish site safety committees which his Safety Manager, his Safety Officers and Safety Supervisors and the sub-contractors' Safety Supervisors shall attend and in which the workforce, foremen and management of the Contractor and sub-contractors of all tiers are represented. These committees shall hold meetings at least once a month. All such meetings shall be notified in advance to the Project Manager who may attend. A representative from the Labour Department may also attend. Minutes of meetings shall be taken by the Contractor and sent to the Project Manager within 7 days of the meeting.

8.10.1 The Contractor shall notify the Project Manager immediately of any dangerous occurrences or accidents which result in death, serious bodily injury or incapacity for more than three days. Such initial notification may be verbal and shall be followed by a comprehensive written report within 24 hours of the occurrence/accident. The Contractor shall duly complete standard forms on dangerous occurrences and accidents required by the Project Manager to enable the Project Manager and the Government to prepare a database on accident statistics. The Contractor's attention is drawn to the requirements in the Factories and Industrial Undertakings Regulations concerning the reporting of such events. The Contractor shall deliver to the Project Manager two copies of any statutory reports he submits under these regulations to the Relevant Authorities.

8.10.2 The Contractor shall submit safety reports to the Project Manager with his monthly progress reports. Prior to submission, the safety report shall be endorsed by the Contractor's agent, the Safety Manager and the Contractor's director responsible for the Contract. Safety reports shall comprehensively address all relevant aspects of safety and industrial health and, in particular, report on all safety audits undertaken and all dangerous occurrences, accidents (regardless of severity) and any "near misses" which occurred during the period covered by the report.

8.11.1 The Contractor shall recognise that all workers shall complete the Airport Authority’s “Contractor Safety Video” training programme prior to commencing any activities on Site. The Contractor shall keep an updated record of all workers that have attended the course and make it available to the Project Manager when requested to do so.

8.11.2 The Contractor shall ensure that all persons involved in construction activities on the Site have attended the Mandatory Basic Safety Training Course and hold a valid training certificate (commonly known as “Green Card”) issued by the Construction Industry Council Training Academy (CICTA) or other recognised training providers or otherwise qualify for exemption from this requirement.
8.11.3 The Contractor shall ensure that site specific induction training courses shall be provided to all persons before they commence work on the Site and refresher training courses shall be provided every six months. The induction course shall include but not limited to:
(a) contract background;
(b) the Employer’s and Contractor’s safety rules and standards including the requirements for using personal protective equipment (PPE);
(c) emergency procedure and routes;
(d) locations of site clinic and/or first aid facilities;
(e) accident/incident reporting procedure; and
(f) recent accidents and incidents.

8.11.4 Induction and refresher courses shall be conducted by the Contractor’s Safety Officer to a standard not lower than the series of safety training courses developed by The Hong Kong Construction Association (HKCA), the Construction Industry Council Training Academy (CICTA), or the Occupational Health and Safety Council (OSHC). The Contractor shall keep an updated record of all personnel that have attended the course and make it available to the Project Manager when requested to do so.

8.11.5 The Contractor shall issue a site label in a format review without objection by the Project Manager, within 24 hours to the worker who has attended the induction and/or refresher course. The site label shall include the contract number, worker’s name, green card number, contractor or sub-contractor name, date and type of safety course attended and the expiry date of the label (maximum 6 months). The site label shall be displayed on the worker’s safety helmet at all time when on Site.

8.11.6 The Contractor shall ensure that those persons as required by Enactments, have attended and completed a relevant safety training course before allowing to take up the task. These include but not limited to plant operation; working in confined space; flame-cutting and gas-welding; lifting and slinging; scaffolding erection and dismantling and loadlifting machinery operation. The Contractor shall establish competency matrices to ensure all their workers working on Site are fully in compliance with the latest enactments.

8.11.7 All skilled workers involved in construction trades of high risk shall attend the CICTA Safety Training Course for Construction Workers of Specified Trade (Silver Card Course) and shall be holders of valid CICTA Silver Cards applicable to their respective trades before starting work on Site. Examples of construction trades of high risk include Painter and Decorator; Carpenter; Demolition Workers (Building); Plumber; Bar Bender and Fixer; Plaster and Tiler; Metal Scaffolder; Curtain Wall Installer; Lift Mechanic; Tower Crane Worker (Erecting, Dismantling, Telescoping and Climbing) and Construction Materials Rigger.
8.11.8 The Contractor shall inform all site supervisors, foremen and gangers of their safety responsibilities and provide them with necessary leadership knowledge and skills for implementing safe working on Site. Site supervisors and foremen shall attend and pass a Construction Safety Supervisor Course. Gangers or equivalent site staff shall attend and pass the Forman Safety Training Course or Site Forman Safety Training Course run by OSHC or CICTA respectively.

8.11.9 The Contractor shall conduct Health and Safety toolbox training for all workers including sub-contractors, not less than once a week for a minimum of 15 minutes. The topics and contents of the toolbox training shall be proposed by the Contractor’s Safety Officer having regard to the activities of the Site and prevailing safety concern at that time. The Contractor shall keep the record for those attending and the topics given.

8.12.1 Serious or repeated breaches of the Safety Plan or the statutory regulations or any disregard for the safety of any person may be reason for the Project Manager to require the removal of the Safety Manager and/or other safety staff. Such person shall not be again employed in connection with the Works or at the Airport without the prior consent of the Project Manager.

8.12.2 Any employee of the Contractor or of a sub-contractor of any tier who commits a serious breach of safety regulations shall be liable to summary dismissal and shall not be re-employed on the Works or allowed on the Site. Due notice of this sanction shall be prominently displayed.

8.12.3 The Project Manager reserves the right to order the immediate removal and replacement of any item of Contractor’s Equipment or Temporary Works which, in his opinion, is unsatisfactory for its purpose or is in an unsafe condition.

8.13.1 Where construction Works requires lifting, or otherwise working over public facilities, the Contractor shall arrange to conduct the relevant portion of the Works such that no possibility of injury to persons shall occur.

8.14.1 The Contractor shall provide at least 2 guard-rails of adequate strength on working platforms, working places, gangways, openings, edges and other areas from which a person could fall for more than two metres high. The Contractor shall provide the top guardrail at a height between 900mm and 1150mm and the mid-rail at a height between 450 mm and 600 mm, and shall also provide 200 mm high toe boards, securely fastened in position, to these working platforms, working places, gangways, openings and edges.

8.14.2 The Contractor shall not use “bamboo” for scaffolding and staging without the prior consent of the Project Manager.
8.15.1 A suitably equipped and dedicated rescue launch shall be provided and shall be manned and available on Site whenever work is being carried out on, over or adjacent to water.

8.15.2 The Contractor shall provide safety barriers adjacent to edges of areas where work is being carried out on, over or adjacent to water.

8.15.3 The Contractor shall provide adequate numbers of life jackets or other suitable buoyancy aids together with suitable life saving and first-aid equipment for all personnel working on, over or adjacent to water.

8.16.1 Personal protective equipment provided by the Contractor for use in confined spaces and for protection against falling from height shall be full-body type safety harnesses with suitable lanyards. Safety belts shall not be permitted except for use as a means of positioning to restrict horizontal movement. The Contractor shall also provide secure anchorages for the attachment of safety harnesses/safety belts.

8.17.1 The Contractor shall provide and maintain safe mechanical cranes, hoists and conveying facilities for the lifting and transport of materials and shall comply with all relevant requirements of BS 7121: Code of Practice for Safe Use of Cranes. All cranes, hoists and the like shall be fitted with audible overload warning devices. All such equipment shall be regularly maintained in accordance with manufacturers' recommendations and standards having regard to local legislation and recommendations from the appropriate statutory authority.

8.17.2 Prior to use on Site, all lifting appliances and lifting gear shall be tested to an approved safety margin and suitably identified in accordance with the requirements of the current legislation, in particular the current Construction Sites (Safety) Regulations and the Lifting Appliances and Lifting Gears Regulations (Cap. 59). The test certificate shall be submitted to the Project Manager for review prior to the use of such equipment on Site.

8.17.3 The safe working load shall be clearly and indelibly marked on all lifting appliances and lifting gear either by stamping or by the addition of permanently secured tag labels. Stamping shall not be permitted on any stress-bearing part.

8.17.4 The Contractor shall prepare and maintain an up-to-date register containing test certificates of all lifting and hoisting equipment used on the Works. The Contractor shall notify the Project Manager of the person responsible for maintaining this register. The register shall, from the commencement of construction, be available on Site for inspection by the Project Manager and Relevant Authorities.

8.17.5 The Contractor shall implement a system of colour coding to identify the expiry of the certification of lifting appliances and lifting gear, and shall submit details of the system to the Project Manager for review.
8.17.6 The Contractor shall only employ operators for craneage, hoisting or lifting activities who have received training in the general principles of crane operation and specific training in the type of lifting or hoisting equipment they are required to operate. The Contractor shall submit evidence of such training for review by the Project Manager. At least one trained banksman shall be in attendance at each lifting or hoisting installation.

8.18.1 The Contractor shall provide first aid facilities and shall directly employ first aid personnel in accordance with the requirements of the relevant legislation and the Safety Plan.

8.19.1 The Contractor shall thoroughly assess the risk of fire throughout the Site and shall develop a comprehensive fire prevention and control strategy that shall form part of the Contractor’s Safety Plan.

8.19.2 The Contractor shall provide and maintain all necessary temporary fire protection and fire fighting facilities on the Site during the construction of the Works, and shall comply with all requirements of the Airport Operations Manual - Airfield Operations and the Fire Services Department. These facilities may include, without limitation, sprinkler systems and fire hose reels in temporary site buildings, raw water storage tanks and portable fire extinguishers suitable for the conditions on the Site and potential hazards.

8.19.3 The Contractor shall submit details of these facilities to the Project Manager for review prior to commencement of the construction activities on the Site.

8.20.1 Before being brought onto Site the Contractor shall assess all materials for their occupational health and environmental compatibility. For any material that is toxic, flammable, explosive, or may otherwise cause a hazard, the Contractor shall undertake a risk analysis, and produce a method statement specifying the safe method of use and the associated precautions.

8.20.2 The Contractor shall ensure that all gases, fuels and other dangerous goods are stored and handled in a safe manner and in accordance with the statutory regulations and as required by the Project Manager. The Contractor shall obtain the requisite licences and permission to store and handle such substances from the Relevant Authorities.

8.20.3 The use of radioactive substances and radiating apparatus shall comply with the requirements of the Radiation Ordinance (Cap. 303) including the subsidiary legislation, namely the Radiation (Control of Radioactive Substances) Regulations and Radiation (Control of Irradiating Apparatus) Regulations.

8.20.4 No operation involving ionizing or electromagnetic radiation or X-rays shall be carried out without the prior consent of the Project Manager. The Contractor shall ensure that all personnel and members of the public are protected from the effects of any such radiation. Each radiation area shall have conspicuous signs and barriers.
8.20.5 The Contractor shall submit for review by the Project Manager details of the training given to nominated employees on the safe use, handling, transport and storage of dangerous goods, radioactive substances, radiation and X-ray equipment prior to their introduction on Site. Such training shall include the necessary measures to be taken in case of emergencies.

8.21.1 Explosives shall not be used without prior written consent of the Project Manager. Explosives

8.22.1 The Contractor shall provide adequate stand-by equipment to ensure the safety of personnel, the Works and the public. These measures shall include as a minimum the following:

(a) stand-by pumping and generating equipment for the control of water; and

(b) stand-by equipment and spares for illumination of the Works.

8.23.1 The Contractor shall develop and implement a Safe Working Cycle to improve and promote the safety and health of workers on Site throughout the duration of the Works. The Contractor shall propose the appropriate Safe Working Cycle for the Works for the Project Manager’s review without objection before implementation.

8.24.1 The Contractor shall ensure all site vehicles and mobile plant shall be inspected and serviced regularly and kept in a safe working condition under a comprehensive inspection and maintenance programme covering all critical parts of the vehicles and plant. The Contractor shall comply with the Construction Industry Council’s Guidelines on Safety of Site Vehicles and Mobile Plant including without limitation the provision of Reversing Video Devices.

8.25.1 The Contractor shall provide and maintain in an acceptable condition at all times on the Site adequate personal protective equipment (PPE) and other safety equipment including, but not limited to: safety helmets, safety boots, safety shoes, eye protection, ear protection, safety harnesses, fall arrestors, independent lifeline, respiratory protection, safety equipment for working in sewers, drains and enclosed spaces, equipment for rescue for emergency cases in confined spaces, fire extinguishers, first aid equipment and any other necessary safety equipment.

8.25.2 Except in the site office and site office compounds, where appropriate footwear should be worn, the Contractor shall provide and ensure that safety footwear is worn at all times by persons working on the Site.

8.25.3 The Contractor shall provide and ensure that high visibility vests that meet the requirements for working near public roads are worn at all times by persons working on the Site.
8.25.4 The Contractor shall ensure that safety harnesses, lanyards and fall arrestors are inspected at least monthly by a competent person and prior to use by the wearer. The Contractor shall maintain a register of inspection which shall be readily made available for inspection by the Project Manager upon request.
SECTION 9

SUPERINTENDENCE, LABOUR AND STAFF

9.1.1 Within 14 days of the date of the Letter of Acceptance, the Contractor shall submit to the Project Manager for his review a staff and labour organisation plan showing the staff and labour necessary for the execution of the Works based on the outline plan submitted with his Tender.

9.1.2 The organisation plan shall:

(a) cover all aspects of the Contract;

(b) define the function, responsibility, authority and interrelationship of each person or position represented in the plan; and

(c) identify the names, qualifications and experience of all key personnel.

9.1.3 The Contractor shall update the organisation plan as necessary during the course of the Works. All material changes to the organisation plan, and all changes in the identity of key personnel, shall be submitted to the Project Manager for his review.

9.2.1 The Contractor shall appoint a competent English speaking agent or representative who:

(a) has been previously reviewed without objection by the Project Manager;

(b) shall give his whole time to the superintendence of the Works and be full-time on Site; and

(c) shall be in full charge of the Works, and shall be empowered to receive and shall receive on behalf of the Contractor instructions from the Project Manager.

9.2.2 The Contractor shall in addition appoint competent sub-agents or sub-representatives as necessary who:

(a) have been previously reviewed without objection by the Project Manager;

(b) shall give their whole time to superintendence; and

(c) shall be empowered to receive instructions from the Project Manager on behalf of the Contractor's agent or representative.

9.2.3 The Contractor shall appoint a sufficient number of competent English-speaking persons, the standard of English of such persons being such as to permit them to discuss fluently in English the technical aspects of the Works. At least one such person shall be present on Site wherever work is in progress.
9.3.1 The Contractor shall appoint a surveyor responsible for all survey and setting-out matters associated with the Works. The surveyor shall have qualification in surveying and shall:

(a) have been previously reviewed without objection by the Project Manager; and

(b) be in full charge of the survey and setting-out of the Works, and shall be empowered to receive and shall receive on behalf of the Contractor survey data from the Project Manager.

9.4.1 Within 14 days of the date of the Letter of Acceptance, the Contractor shall appoint a suitably qualified and experienced person (the “Safety Manager”) who shall:

(a) have been previously reviewed without objection by the Project Manager;

(b) not otherwise be involved in the Works;

(c) be in full charge of the implementation of the Safety Plan for the Works, and shall be empowered to receive and shall receive on behalf of the Contractor instructions from the Project Manager regarding safety;

(d) maintain the daily Site safety diary and shall comprehensively record all matters relating to Site safety including but not limited to the following:

   (i) safety inspection records;
   (ii) audit reports;
   (iii) accident and injury records;
   (iv) dangerous occurrences; and
   (v) any other safety related information; and

(e) make the daily Site safety diary available for inspection by the Project Manager at all times.

9.4.2 The Contractor shall, in accordance with Enactments, appoint sufficient safety staff for the duration of the Contract who shall:

(a) have been previously reviewed without objection by the Project Manager;

(b) give their whole time to supervision and monitoring of the implementation of the Contractor’s Safety Plan for the Works; and

(c) carry out audits against the Contractor’s Safety Plan on a regular basis.
9.5.1 Within 21 days of the date of the Letter of Acceptance the Contractor shall appoint a suitably qualified and experienced person (the “Quality Manager”) who shall:

(a) have been previously reviewed without objection by the Project Manager;

(b) give his whole time to the task of ensuring that the requirements of the quality system are implemented and maintained and be full-time on Site; and

(c) be directly responsible to a senior level of management and is able to discharge his duties without hindrance or constraint.

9.6.1 Within 14 days of the date of the Letter of Acceptance or as specified in the Particular Specification, the Contractor shall appoint a suitably qualified and experienced person (the “Co-ordination Manager”) who shall:

(a) have been previously reviewed without objection by the Project Manager;

(b) give his whole time to the co-ordination of the Works and matters arising therefrom and be full-time on Site from the commencement of the Works until substantial completion of the Works. He shall be supported by a team of suitably qualified and experienced staff;

(c) co-ordinate the Works during design, construction, testing and commissioning and shall be empowered to receive and shall receive on behalf of the Contractor instructions from the Project Manager regarding co-ordination matters; and

(d) integrate the Works with adjacent occupants, tenants, Relevant Authorities and the works of Other Contractors.

9.7.1 The Contractor shall employ at least the minimum number of Qualified Skilled-Workers and Semi-skilled Workers as defined in Works Bureau Technical Circular 13/2002 and any subsequent revisions or amendments issued thereto.

9.8.1 The Contractor shall provide a qualified technician to be trained to become a “Competent Person” in accordance with the Authority’s procedure for supervising works within electrical switch rooms and substations.

9.8.2 The Contractor shall provide a qualified technician to be trained to become a “Competent Person of Gas Protected Area” in accordance with the Authority’s procedure for supervising works within the communication rooms.
SECTION 10

PROGRAMMES, PROGRESS REPORTS AND MEETINGS

10.1.1 Subject to any Clause to the contrary in the Particular Specification the Contractor shall prepare and submit to the Project Manager programmes showing the sequence, method and timing that he proposes for the execution of the Works and against which actual and forecast progress of the Works can be monitored and assessed. Such programmes shall include:

(a) the Works Programme (and the more detailed programmes to be extracted therefrom);

(b) Price-Time Curves; and

(c) all other programmes as are identified in this Section 10 or as may be identified in the Particular Specification or instructed by the Project Manager.

10.1.2 The Contractor shall, in accordance with the provisions of this Section 10, prepare and submit separately to the Project Manager the following programmes as extracts from the Works Programme:

(a) the Design Programme;

(b) the Inspection, Testing and Commissioning Programme; and

(c) the three-month programmes.

10.1.3 The Contractor shall prepare and submit to the Project Manager written monthly reports, incorporating an assessment of progress made in comparison with the Works Programme, in accordance with Section 10.13.

10.1.4 The Contractor will be required to attend meetings to report on and review progress and to address programming issues. The requirements relating to the monthly meetings are set out in Section 10.14.1.

10.2.1 On or before the date specified in the Particular Specification, the Contractor shall submit for review by the Project Manager the proposed initial version of the Works Programme which shall provide full programme details for the first six months of the Contract and shall provide outline details for the remaining period of the Contract, if applicable.
10.2.2 On or before the date stated in the Particular Specification, the Contractor shall, if he is required to carry out the design of the Permanent Works or Plant (or any part thereof), prepare and submit for review by the Project Manager his proposed Design Programme as a sub-network of the Works Programme. The requirements for the Design Programme are set out in Section 10.8.

10.2.3 On or before the date stated in the Particular Specification, the Contractor shall submit for review by the Project Manager the completed Works Programme. The Works Programme shall provide full programme details for the entire period of Contract.

10.2.4 On or before the date stated in the Particular Specification, the Contractor shall submit for review by the Project Manager his proposed Inspection, Testing and Commissioning Programme. The requirements for the Inspection, Testing and Commissioning Programme are set out in Section 10.9.

10.2.5 The Contractor shall submit to the Project Manager for his information a three-month programme with each monthly report.

10.3.1 All programmes, unless otherwise stated in the Contract, shall be prepared as computerised critical path method networks using precedence diagram method.

10.3.2 Critical path method networks shall be developed in a logical format such that they comprise a series of sub-networks, each of which may stand alone but, when integrated with the others, form the whole programme. Each sub-network shall be such that it can be reviewed, revised, expanded or otherwise manipulated in isolation from the main programme and then incorporated in the main programme upon being reviewed without objection by the Project Manager.

10.3.3 All programmes shall be plotted in bar chart format of a weekly or monthly time scale. Bar charts shall be presented on A3 or A4 size sheets and printed in colour. The bar charts shall indicate durations, early and late start and finish dates and total float, and shall highlight critical activities.

10.3.4 The programmes generated by computer-based critical path software shall be accompanied by an analysis report in accordance with Section 10.16.1.

10.3.5 The Contractor shall code and/or organise his programme as directed by the Project Manager and shall develop and agree with the Project Manager a coding dictionary for use in the preparation of the programmes under the Contract.

10.3.6 Subject to Section 10.3.7, all programmes submitted for review (including revisions to such programmes) shall be accompanied by:

(a) a method statement in accordance with Section 16;
(b) a programme narrative in accordance with Section 10.17;

(c) a resource level in accordance with Section 10.10 in tabular and/or histogram format depicting planned level of labour, goods, material and equipment by month over the duration of the Works; and

(d) an analysis report in accordance with Section 10.16.

10.3.7 If a previously submitted method statement is not significantly affected by a revision to a programme, and provided that a statement to such effect is clearly made when submitting the revised programme, the Contractor may simply make reference to such previous submissions and highlight any relevant changes.

10.3.8 The Contractor shall make adequate provision in all programmes in respect of his obligations towards shared access, shared areas and other restrictions placed upon his working by the public or otherwise nature of the Site.

10.3.9 The Contractor shall programme his work based on all access and availability dates listed in the Particular Specification.

10.3.10 The Contractor shall provide all such information as the Project Manager may reasonably require (including resource data where resources might include plant, materials and labour) to permit the preparation of other programmes by the Project Manager and/or Other Contractors.

10.4.1 The Project Manager shall, as soon as reasonably practicable and in any event within 28 days of receipt of a programme submitted for review, notify the Contractor of his decision in accordance with Section 18.3.

10.4.2 If the Project Manager notifies objections to a programme, the Contractor shall revise the programme accordingly and re-submit it within 14 days of the date of such notice.

10.4.3 In the case of re-submittal consequent upon a notice of objections, the maximum response time by the Project Manager shall be 14 days.

10.5.1 The Works Programme shall show the Contractor's plan for organising and executing the Works and achieving Key Dates. The Works Programme shall identify sub-contractors' activities. It shall be divided into sufficient activities to cover the whole of the Works in a comprehensive manner such that each item of work is provided for. Each activity shall be unique. However, the number of activities shall not be so large that logic relationships become confused or artificial to the detriment of the programme.

10.5.2 The Works Programme shall identify the following dates, events and activities:

(a) access and availability dates;
(b) Key Dates; and
(c) Milestones and Milestone dates.

10.5.3 The Works Programme shall identify and incorporate activities for the preparation, submission and review of the following:
(a) any quality plans (as identified in Section 14);
(b) safety plans;
(c) programmes and method statements;
(d) bonds;
(e) insurance policies and related details;
(f) any design documents (as identified in Section 12.1.1); and
(g) any other deliverables required by the Contract.

10.5.4 The Works Programme shall identify all off-Site and on-Site activities for the Works, including but not limited to:
(a) design;
(b) procurement of all major items of goods and materials;
(c) production and/or prefabrication of major items of goods and materials;
(d) shipment and delivery of all major items of goods and materials;
(e) permanent and temporary construction and installation activities;
(f) factory and site inspection and tests, including, where appropriate, by Relevant Authorities, Utility Undertakings or other third parties;
(g) external interfaces including any works related to adjoining facilities, utility services, and works by Other Contractors;
(h) Quality Hold Points and Quality Control Points;
(i) systems integration; and
(j) all necessary statutory approvals and consents.

10.5.5 The Works Programme shall identify:
(a) planned dates for submission of drawings, documents, samples, prototypes, benchmarks and other things to the Project Manager;
(b) planned dates for issue to the Project Manager of notices requesting drawings, other documents or information;
(c) requested dates for issue of drawings, other documents or information by the Project Manager; and
(e) requested dates for instructions, decisions, notices and consents by the Project Manager.

10.5.6 If the number of any activities of a repetitive or multiple nature is such that there is a risk of confusing the Works Programme, the Contractor may present details of such activities in a tabular format subject to having obtained the prior consent of the Project Manager. The format must in any event provide cross-references to the Works Programme by way of activity identification numbers to enable date reconciliation with the remainder of the Works Programme. Upon being reviewed without objection, any such details shall form part of the Works Programme.

10.5.7 The Works Programme shall allow sufficient time for the process of review, revision and further review of all drawings, documents and other things to be submitted to the Project Manager so that such process may be completed without delaying the placing of orders and the execution of the Works.

10.5.8 The Works Programme shall be organised in a logical work-breakdown structure, including work phases, and shall clearly indicate the critical path or paths. Each activity in the Works Programme shall be coded to indicate:

(a) the relevant Cost Centre;
(b) the phases of the Works;
(c) the relevant area, facility or location; and
(d) the work group responsible for the activity, including identification of any sub-contractor.

10.5.9 Unless specified elsewhere to the contrary, any activity that exceeds 4 weeks in duration shall be divided into sub-activities the duration of which shall not exceed 4 weeks.

10.6.1 The Contractor shall immediately notify the Project Manager if he considers it necessary or appropriate that the Works Programme be revised for any reason including without limitation:

(a) if there is or is likely to be any significant deviation between the actual or anticipated progress of the Works and the Works Programme; or
(b) if it is anticipated that substantial completion of the Works or any Section or achievement of any Stage is unlikely to take place by the relevant Key Date or is likely to take place significantly in advance of the relevant Key Date.
10.6.2 Should it appear to the Project Manager at any time that:

(a) there is or is likely to be any significant deviation between the actual or anticipated progress of the Works and the Works Programme; or

(b) substantial completion of the Works or any Section or achievement of any Stage is unlikely to take place by the relevant Key Date or is likely to take place significantly in advance of the relevant Key Date;

the Project Manager may instruct the Contractor to produce and submit a programme under Section 10.6.3.

10.6.3 Within 14 days of a notice under Section 10.6.1 or an instruction under Section 10.6.2, the Contractor shall prepare and submit to the Project Manager for review a programme showing the modifications that are necessary:

(a) if the Works are late, to be consistent with substantial completion of the Works and any Section and the achievement of any Stage by the Key Dates; or

(b) if the Works are early, to be consistent with the anticipated progress of the Works.

10.6.4 The requirements relating to the Works Programme shall apply to any programme submitted under Section 10.6.3. Any special measures required to recover delays shall be highlighted. Upon being reviewed without objection, a programme submitted under Section 10.6.3 shall become or, as the case may be, form part of the Works Programme.

10.6.5 The Contractor shall review and revise the Works Programme in the event that:

(a) a Key Date or a Milestone date is adjusted in accordance with the Contract; or

(b) he intends to change his proposed method of construction and/or manufacture and installation;

and shall within 14 days of such event submit to the Project Manager for his review a revised programme reflecting such matters and showing the impact of the change and the measures to be taken by the Contractor in accordance with his obligations under the Contract.

10.7.1 A revised version of the Works Programme shall, upon being reviewed without objection, supersede all previous versions for the purposes of monitoring the progress of the Works.
10.7.2 Any review without objection by the Project Manager of the Works Programme shall not be construed as any form of endorsement of the logic demonstrated by the programme or of the adequacy of the resources identified therein.

10.8.1 The Design Programme shall be a sub-network of the Works Programme and shall:

(a) identify all design and related activities;

(b) identify the sequence, breakdown and timing of submission of all design documents;

(c) take account of the activities of the Other Contractors and any other activities which may affect progress so far as such activities can reasonably be identified by the Contractor;

(d) identify all design submissions to and approvals required from Relevant Authorities;

(e) incorporate a design programme analysis report and narrative statement which shall highlight any matters which might affect progress of the design of the Works and which cannot be resolved by the Contractor alone; and

(f) identify the dates and incorporate the items and activities referred to in Section 10.5 to the extent relevant to the Contractor’s design activities.

10.8.2 The Design Programme shall include a comprehensive schedule of proposed design submission packages which shall identify in respect of each of the packages not less than the following:

(a) extent of package;

(b) category of check, if relevant;

(c) statutory approvals or consents required; and

(d) any other contracts affected.

10.8.3 Upon being reviewed without objection, the Design Programme shall form part of the Works Programme.

10.9.1 The Inspection, Testing and Commissioning Programme shall be a sub-network of the Works Programme and shall identify:

(a) the planned dates for issue to the Project Manager of documentation related to inspections, testing and commissioning;

(b) the preparation and review of all construction quality plans for the control of inspection, testing and commissioning;

(c) factory tests;
(d) Site tests;
(e) commissioning;
(f) reliability tests;
(g) plant integration tests;
(h) any Tests on Completion;
(i) any Performance Tests; and
(j) confidence trials, including deferred seasonal tests.

10.9.2 Upon being reviewed without objection, the Inspection, Testing and Commissioning Programme shall form part of the Works Programme.

10.10.1 The Works Programme shall be resource loaded with key items of:

(a) Contractor’s Equipment;
(b) goods, materials and plant; and
(c) labour resources;

to a sufficient level of detail to demonstrate a reasonable and adequate allocation of resources to complete the Works in accordance with the Contract. The level of resources shall be substantiated by the production rates and manpower details described in the programme narrative and by the sequencing and deployment plan described in the method statement.

10.11.1 Each three-month programme shall indicate the Contractor’s planned activities and progress over the three months following the date of its submission to the Project Manager.

10.11.2 Each three-month programme shall consist of a three-month time window extracted from the Works Programme. All Works Programme activities which were planned to start or finish within the period of the three-month programme shall be shown, together with all activities in progress.

10.12.1 The Contractor shall monitor his progress against the Works Programme and shall maintain full and comprehensive progress records. Such documents shall be filed and stored at the Site records office in accordance with Section 20.
10.12.2 The Contractor shall monitor the progress against the Works Programme and shall submit a weekly progress record or interval as agreed with the Project Manager for each major element of the Works including the associated labour and plant resource deployed for that element of the Works. The progress record shall be submitted in a tabular form with an associated cumulative production curve against the planned production curves generated from the approved Works Programme.

10.12.3 The Contractor shall identify if the actual progress record of the site production is significantly deviated from the planned figure and shall highlight the problem area encountered, action taken or planned to improve the production back on track. The weekly progress record will be discussed in the regular progress meeting.

10.13.1 The Contractor shall prepare monthly reports covering the execution of the Works. The reports which shall be in writing and shall be delivered to the Project Manager for review within 7 days of the month following the month of the report. The monthly report shall take account of work performed up to and including the last day of the month to which the report relates.

10.13.2 The monthly reports shall include an executive summary and contain clear and concise statements in respect of every significant aspect of the Works including without limitation:

(a) programme and progress;
(b) issue of drawings;
(c) design progress (where applicable);
(d) the Contractor's submissions and site queries;
(e) financial and contractual matters;
(f) quality;
(g) safety;
(h) progress photographs; and
(i) returns.

10.13.3 The monthly reports shall be accompanied by:

(a) the Works Programme, showing progress to date;
(b) control schedules for document submissions and issues of a repetitive or multiple nature;
(c) where appropriate, exception reports to highlight any problem areas including any submissions and design information which are overdue; and
(d) the Key Date and Milestone status report, in accordance with Section 10.18.
10.13.4 The report shall identify and discuss significant accomplishments, problem areas encountered, action taken or planned to resolve actual or potential problems and conflicts, and other comments or proposals on matters (including the interfacing works) affecting or likely to affect the Works.

10.13.5 The report shall contain an action items list that identifies outstanding problems associated with the timely completion of the Works including anticipated actions for their resolution.

10.13.6 Programmes submitted with reports shall provide a comparison between the Works Programme and reported progress.

10.13.7 Actual progress shall be reported for each activity in the Works Programme in the following terms:

(a) the percentage of the work which is complete;
(b) the remaining duration of the work;
(c) the actual start date; and
(d) the actual completion date.

Actual progress shall reflect the physical scope of the work that has been completed and shall not be calculated based on elapsed time or days worked. Any automatic statusing in the Contractor's software based on this principle shall be disabled.

10.13.8 Each monthly report shall include an analysis report. All activities that have negative float shall be analysed by the Contractor to identify the impact on the achievement of Key Dates.

10.13.9 The Contractor shall submit six hard copies of all monthly reports and of the accompanying documents plus one copy in electronic format of the statused versions of the Works Programme.

10.13.10 The statement on quality in the monthly report shall include the report on the quality system referred to in Section 14.7.1. The statement on safety shall include the safety report referred to in Section 8.10.2.

10.14.1 The Contractor shall attend progress meetings at monthly intervals that will be convened and chaired by the Project Manager. Progress meetings shall include a review of the Contractor's monthly report.

10.14.2 The Project Manager may convene at his discretion but on providing reasonable notice to the Contractor, any meeting, either on or off the Airport, to discuss and address any aspect of the Works or the Contract. The Contractor shall attend any such meetings convened by the Project Manager.
10.15.1 The Contractor shall implement, and use throughout the duration of the Contract, a computerised project management system for the purposes of planning, executing, managing and maintaining the Works, including without limitation the management of sub-contracts.

10.15.2 The Contractor shall utilise CPM programming software that permits 100% electronic data transfer compatibility with the project management software package adopted by the Employer.

10.16.1 The analysis report shall identify all activities and events that are critical, or have negative float (or have only nominal positive float), and shall assess the risk of any impact on the programme and on achievement of Key Dates. The Contractor shall identify any measures being taken to minimise such risk.

10.17.1 The programme narrative shall explain how the programme has been developed, with reference to the method statement, and shall include an explanation of:

(a) cycle times and work sequences;
(b) the deployment of Contractor's Equipment and labour;
(c) the production rates used in determining durations;
(d) the shifts assumed in determining durations;
(e) the breakdown of labour requirements by trades; and
(f) the schedules of quantities used in developing the programme;

to the extent that such information is not provided in the method statement.

10.17.2 The programme narrative shall be in sufficient detail to enable the durations, leads and lags in the logic diagram and levels of labour (by trade) and staff and flows of goods, materials and equipment to be reconciled and substantiated.

10.18.1 The Key Date and Milestone status report shall identify:

(a) all Key Dates and Milestones that should have been achieved in the reporting period or earlier but have not been achieved;
(b) all Key Dates and Milestones that have been achieved in the reporting period;
(c) all Key Dates and Milestones that are planned to be achieved in the next reporting period; and
(d) any future Key Dates and Milestones that appear unlikely to be achieved on time.
10.18.2 The Key Date and Milestone status report shall identify, for all relevant Key Dates and Milestones, the planned dates, the anticipated dates and the actual dates achieved. Planned dates are the dates identified in the Particular Specification and Pricing Document, as the same may be revised from time to time in accordance with the Contract.

10.18.3 The report shall also provide an explanation for any deviation from the planned dates.

10.19.1 The Price-Time Curves shall be derived from the Pricing Document and the Works Programme and shall show, in graphic and tabular form, the anticipated cumulative price of work done over time as a percentage of each Cost Centre Value. The Price-Time Curves shall not show any significant deviation from the sequence, method and timing of carrying out the Works indicated by the initial version of the Works Programme.

10.19.2 All activities shall be assigned a monetary value such that:

(a) the sum of all values assigned to a series of related activities equates to the price of the corresponding item in the Pricing Document; and

(b) the sum of all activity values related to any one Cost Centre equates to the Cost Centre Values.

10.19.3 The cash-flow relationship between cumulative price and cumulative payment established by the Price-Time Curves and the Interim Payment Schedule as at the date of Letter of Acceptance will be taken into consideration by the Project Manager in any subsequent adjustment of the Interim Payment Schedule.
SECTION 11

CO-ORDINATION WITH OTHERS

11.1.1 The Contractor shall, make all necessary arrangements and obtain all necessary approvals from all Relevant Authorities and Utility Undertakings.

11.1.2 The Contractor shall maintain close liaison with, and co-ordinate the execution of the Works with the works of Other Contractors, Relevant Authorities and Utility Undertakings, and shall be deemed to have made adequate allowance in the Works Programme in respect of this obligation.

11.2.1 Other Contractors are identified in the Specification. The Employer will inform the Contractor of further Other Contractors whose activities may affect or be affected by the Works. The Contractor shall make all reasonable steps to keep himself informed of the activities of these Other Contractors and to identify actual and potential interfaces.

11.3.1 In executing the design and construction of the Works the Contractor shall:

(a) ensure that the Works are compatible with and match the technical requirements of, and where appropriate the visual appearance of, existing systems and facilities;

(b) ensure that the various components of the Works and the relevant existing systems and facilities operate in a seamless manner as a single integrated system; and

(c) ensure that the various components of the Works are tested as far as possible in isolation from existing systems and facilities, to ensure that the testing has the least possible adverse effect on the operation of the existing systems and facilities.

11.4.1 The Contractor shall submit for review an “Interface Management Plan” for each existing system or item of Plant and for each Relevant Authority, Utility Undertaking and Other Contractor notified by the Project Manager. The Interface Management Plan shall:

(a) describe each interface activity between the Contractor and the party concerned;

(b) define the identity and responsibility of each party’s staff involved in the interface management;

(c) identify the information to be exchanged for each phase of the Works;
(d) define common technical specifications and protocols and outline procedures to ensure compatibility; and

(e) address the design, installation, testing and commissioning programme of each interface activity (where applicable) and highlight any critical dates and programme risks.

11.4.2 The Contractor shall prepare Interface Activity Schedules (“IAS”) to document agreed interfaces between the various systems to be provided by the Contractor and the other systems including the existing systems and systems to be provided by Other Contractors. A separate IAS shall be developed by the Contractor for each interface. The IAS shall be provided in consultation with Other Contractors and thereafter submitted to the Project Manager for review without objection.

11.4.3 The Contractor shall submit all draft IAS for review without objection by the Project Manager. The draft IAS shall include the final function description and the draft of the other interfacing information. The final function description shall be developed in consultation with the Project Manager and Other Contractors.

11.4.4 The IAS shall include, but not be limited to, details of electronic interfaces at all pertinent levels of the Open System Interconnection protocol (“OSI”) hierarchy and shall be in the format shown in Appendix 2.

11.5.1 The Contractor shall submit to the Project Manager for review, Combined Services Drawings that show:

(a) the services provided by him in one area on one drawing, drawn to scale;

(b) all building elements and equipment;

(c) the services fully co-ordinated, amongst themselves both in plan and elevation, and with the services provided by Other Contractors; and

(d) requirements for structural and non-structural openings in building elements.

11.5.2 The Contractor shall co-ordinate his Combined Services Drawings with his Builder’s Works Drawings. Where the Works are contained fully or partially within an existing structure or structures, the Contractor shall prepare the Combined Services Drawings based on As-constructed drawings available from the Employer and measurements taken on site. Where As-constructed drawings are not available, the Contractor shall take measurements by carefully opening up, investigating and where necessary make good to establish the existing details on Site.
11.6.1 The Contractor shall submit to the Project Manager for review Builders Work Drawings that show:

(a) fully dimensioned structural and non-structural openings in building elements including temporary openings to facilitate for equipment delivery and installation; and

(b) plinths, recesses and the like required for equipment.

11.6.2 The Contractor shall co-ordinate his Builders Works Drawings with the builder’s works drawings of Other Contractors. Where the Works are contained fully or partially within an existing structure or structures, the Contractor shall prepare the Builders Works Drawings based on As-constructed Drawings available from the Employer and measurements taken on site. Where As-constructed drawings are not available the Contractor shall take measurements by carefully opening up, investigating and where necessary making good to establish the existing details on Site.
SECTION 12
CONTRACTOR'S DESIGN

12.1.1 Where the Contractor is required to carry out the design of Permanent Works or Plant or Temporary Works, all documents relating to such designs, including but not limited to general arrangements, layout and detail drawings, installation drawings, erection drawings, shop drawings, manufacturers' shop drawings, fabrication drawings, product data, calculations, schedules, method statement for the construction of Temporary Works, specifications, certificates and all other relevant drawings, documents, samples and information (referred to in this Section 12 as "design documents") shall be submitted to the Project Manager for his review.

12.1.2 The design documents shall cover all elements and details necessary to provide complete and functional components and operating systems, irrespective of whether or not such elements and details are shown on the Employer's Drawings or are referred to in the Specification. The Contractor's design shall address all interfacing elements including interfaces with the designs of Other Contractors and the existing facilities, structures, finishes, services and systems. The Contractor shall be responsible for any changes to existing and interfacing elements if required to accommodate the Contractor's Design.

12.2.1 The Contractor shall prepare and submit at an early stage of his design development process, preliminary layout drawings that shall show the proposed layout of the Works after construction and/or installation.

12.3.1 All design documents shall be in accordance with standards and formats as defined in this General Specification.

12.3.2 All documents shall be of standard size in compliance with the International Series, A sizes.

12.3.3 Unless otherwise specified or permitted by the Project Manager, all electronic copies of design documents submitted to the Project Manager shall be compatible with the Employer's currently used software systems. The Contractor shall also submit an additional electronic copy of the design documents in pdf format.
12.3.4 All submissions shall be fully comprehensive and competent and contain all information necessary for the Project Manager to review the submission. The Contractor shall ensure that all necessary checks for compliance with the requirements of the Contract, statutory requirements and compatibility with previous submissions and, where relevant, the interfacing works have been carried out before any submission is made. Where required, check certificates shall form part of the submission.

12.3.5 The Contractor shall consider and advise the Project Manager in relation to the foreseeable effect of the proposals contained in each submission of design documents upon the cost and ease of maintenance and operation of the Permanent Works or Plant and any stock of spare parts, special tools or any other thing to be supplied by the Contractor or to be maintained by the Employer.

12.3.6 The Contractor shall clearly identify any item that does not comply with Contractor's Drawings previously submitted and provide justification for the non-compliance.

12.3.7 If the Contractor proposes to alter any detail of a Contractor's Drawing, he shall promptly revise such document, clearly identify what has been altered, provide adequate justification for the alteration, and submit it for review.

12.3.8 Submissions shall be made in an ordered and logical sequence. General arrangement drawings and schematic diagrams shall be submitted and reviewed without objection before submission of the relevant detailed drawings.

12.3.9 Revisions made to any document following comment or objection by the Project Manager shall be clearly identified on the revised document.

12.3.10 To the extent that the Contractor is obliged to prepare installation, erection or shop drawings, he shall submit them to the Project Manager for review once all actual or potential conflicts with the designs of Other Contractors’ works which are known to the Contractor have been resolved in accordance with the Contract.

12.3.11 Where the Contractor is required to match new works to, or integrate new works to existing items he shall make a record of the existing components in the form of photographs, written descriptions, specifications, surveys, reference drawings and any other relevant information deemed necessary to achieve the required match, compatibility or integration.
12.3.12 The Contractor’s design for items requiring approval from the Buildings Department (“BD”) shall be carried out to a standard suitable for submission to BD. The Contractor shall submit the drawings and calculations, including ICE checks, to the Registered Structural Engineer (RSE) and Authorised Person (AP) for compliance checking and onward submission to BD. Checking by the RSE or AP shall not relieve the Contractor of its design responsibility under the Contract.

12.3.13 The Contractor shall have all BD submissions certified by an Independent Checking Engineer (“ICE”) to ensure that the BD submissions fully comply with the appropriate standards, Codes of Practice acceptable to BD, Hong Kong’s Building Regulations, latest PNAP’s and all other relevant statutory regulations.

12.3.14 The Contractor shall be responsible for the preparation and submission of all necessary Temporary Works, designs and details as may be required by the Relevant Authorities.

12.4.1 Contractor’s Drawings, including without limitation general arrangements, layout and detail drawings, shop drawings, manufacture’s drawings and fabrication drawings, installation drawings and erection drawings shall be:

(a) drawn to a scale of 1:50 or 1:20 unless otherwise agreed by the Project Manager. Positions of all control equipment including sensors, indicators, instrumentation and the like shall be shown on the appropriate drawing;

(b) identified for each item by name and number as shown on the Employer’s Drawings or in the Particular Technical Specification; and

(c) signed by the person(s) responsible for the production and formal submission of such drawings respectively.
SECTION 13
GOODS, MATERIALS AND WORKMANSHIP

13.1.1 Goods and materials employed throughout the Works shall be in accordance with the requirements of the Contract including without limitation the General Materials and Workmanship Specification.

13.1.2 Unless expressly stated to the contrary, all goods (including equipment and machinery) and materials shall be provided by the Contractor.

13.2.1 The Contractor shall not use any of the following materials:

(a) tropical hardwood in any Temporary Works, Site hoardings, formwork, falsework or shoring for trenches, pits, foundations or other excavations;
(b) asbestos products generally;
(c) lead where the metal or its corrosion products may be directly ingested, inhaled or absorbed, or any lead-based paints and primers;
(d) urea formaldehyde foam or materials which may release formaldehyde in quantities which may be a hazard or an irritant;
(e) materials which are generally composed of mineral fibres, either man-made or naturally occurring, which have a diameter of 3 microns or less and a length of 200 microns or less which contain any fibres not sealed or otherwise stabilised to ensure that fibre migration is prevented;
(f) materials in which chlorofluorocarbons, hydrochlorofluorocarbons, or hexafluoroacetones have been used as a blowing agent;
(g) wood wool slabs in permanent formwork to concrete or in structural elements;
(h) chlorofluorocarbons or any goods and/or materials containing the same;
(i) polychlorinated biphenyls or any goods and/or materials containing the same;
(j) calcium silicate bricks or tiles;
(k) high alumina cement in structural elements;
(l) calcium chloride in admixtures for use in reinforced concrete;
(m) aggregates for use in reinforced concrete which do not comply with BS 882:1983 and aggregates for use in concrete which do not comply with BS 8110:1985; and
(n) other substances generally known to be deleterious to health or safety or which would adversely affect the functioning or life of the Works at the time of use.
13.3.1 The Contractor shall select goods and materials, plant and equipment capable of withstanding the following airport atmospheric conditions:

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Period</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen Dioxide</td>
<td>Yearly average</td>
<td>60 g/m³</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Hourly average</td>
<td>460</td>
</tr>
<tr>
<td>Sulphur Dioxide</td>
<td>Yearly average</td>
<td>70</td>
</tr>
<tr>
<td>Sulphur Dioxide</td>
<td>Hourly average</td>
<td>950</td>
</tr>
<tr>
<td>Respirable Suspended Particulate</td>
<td>Yearly average</td>
<td>60</td>
</tr>
<tr>
<td>Respirable Suspended Particulate</td>
<td>24 hour average</td>
<td>70</td>
</tr>
<tr>
<td>Total Suspended Particulate</td>
<td>Yearly average</td>
<td>105</td>
</tr>
<tr>
<td>Total Suspended Particulate</td>
<td>24 hour average</td>
<td>260</td>
</tr>
<tr>
<td>Carbon Monoxide</td>
<td>Hourly average</td>
<td>6000</td>
</tr>
<tr>
<td>Volatile Organic Carbon</td>
<td>Yearly average</td>
<td>15</td>
</tr>
<tr>
<td>Ozone</td>
<td>24 hour average</td>
<td>240</td>
</tr>
</tbody>
</table>

13.3.2 The Contractor shall select goods and materials, plant and equipment capable of withstanding the following ambient operating conditions without distress or progressive deformation:

(a) maximum ambient temperature:
   - average over 24 hours 40°C;
   - peak 45°C;
(b) minimum ambient temperature 0°C;
(c) average yearly temperature 30°C;
(d) relative humidity Up to 100%;
(e) average yearly rainfall 2000 mm; and
(f) maximum altitude above sea level 1000 m.

In the event of an air-conditioning failure the inside maximum ambient temperature may increase to 54°C.

13.3.3 The Contractor shall select goods and materials, plant and equipment capable of withstanding the environmental category “Exterior exposed, Polluted coastal” in accordance with BS 5493 Table 1.
13.3.4 The Contractor shall select goods and materials, plant and equipment capable of withstanding the conditions that may be encountered during installation, including:

<table>
<thead>
<tr>
<th>Maximum</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>+40°C dry bulb temperature</td>
<td>0°C dry bulb temperature</td>
<td>100% relative humidity</td>
<td>40% relative humidity</td>
</tr>
</tbody>
</table>

13.3.5 Unless otherwise specified in the Particular Technical Specification all types of testing shall be conducted under the environmental conditions specified in this Section 13.3.

13.3.6 Plant and equipment provided by the Contractor shall be designed to function in the tropical conditions found in Hong Kong.

13.3.7 The Contractor shall select plant and equipment capable of withstanding the effects of solar radiation, including the effects of UV radiation and the resultant increase in temperature.

13.3.8 The Contractor shall select and/or treat all goods, materials, plant and equipment to ensure no damage, including discolouration or cracking, occurs due to any possible combinations of the following:

(a) atmospheric deterioration;
(b) corrosion;
(c) wet rot;
(d) dry rot;
(e) fungi;
(f) mould;
(g) atmospheric pollution;
(h) saline atmosphere; and/or
(i) pH of the atmosphere.

13.4.1 Goods and materials provided by the Contractor shall be compatible with each other. The Contractor shall select goods and materials that have no chemical or electrolytic reaction amongst themselves and their environment.

13.5.1 In the event the Contractor proposes installation of proprietary items, and provided always the Project Manager issues a notice of no objection to the design submission, the Contractor shall:

(a) submit a method statement based on the manufacturers’ recommendations; and
(b) install or construct the item in strict accordance with the manufacturers’ recommendations.
13.6.1 The Contractor shall select goods, plant and equipment that is able to withstand a voltage reduction of 50% of the nominal supply voltage for a duration of 120 ms.

13.7.1 The Contractor shall package, store and protect all goods and materials to safeguard them against loss or damage and from repeated handling, climatic influences and all other hazards arising during shipment or storage on or off the Site.

13.7.2 Secure and covered storage shall be provided by the Contractor for all goods and materials except those items suitable for open storage to the extent permitted by the Project Manager.

13.8.1 The Contractor shall include, as part of his method statement, all information regarding Site cutting of components. No cutting of components on Site shall commence prior to receipt of a notice of no objection from the Project Manager.

13.8.2 The Contractor shall, within the given tolerances, cut metal products straight and free from burrs. The Contractor shall ensure that all joints are flush and without gaps or imperfections. Unless otherwise specified, all metal surfaces exposed by cutting shall be finished and protected to the same standard as those applicable to the adjacent surfaces of the metal.

13.8.3 The Contractor shall, prior to the treatment of any surface, remove any superficial dust or friable material from the surface and shall provide adequate protection during the treatment process to prevent contamination.

13.8.4 The Contractor shall, where adhesives and/or sealants are to be used, carefully prepare the surface to which the products are to be applied and apply de-greasing solvents and bonding agents before applying the adhesives and/or sealants in strict accordance with the manufacturer’s recommendations.

13.9.1 All equipment, machinery and fittings to be assembled at Site shall have suitable distinguishing marks stamped on them to the satisfaction of the Project Manager. Care shall be taken to differentiate between matchmarks for the component parts of identical assemblies. Stamping shall not be permitted on any stress bearing part.

13.9.2 Matchmarks and any other identification marks to assist in erection and future maintenance shall be legibly applied in two places and shall be of a durable nature.

13.9.3 Galvanized, powder coated, anodised or plated parts shall be stamped or otherwise marked prior to treatment. Care shall be taken to ensure that markings are not obliterated by painting and do not deface finished surfaces.

13.9.4 Principal assembly and erection drawings shall, whenever practicable, indicate the nature and positions of reference markings.
13.10.1 Workmanship shall at all times be in accordance with the requirements of the Contract including, without limitation, the General Materials and Workmanship Specification.

13.10.2 Workmanship shall comply with the best trade practice and with the relevant British Standard or any other standard specified in the Contract or agreed by the Project Manager.

13.11.1 Unless otherwise stated in the Contract, tolerances stipulated in the Contract shall be measured perpendicular to the specified lines.

13.11.2 If adjacent parts of the Works are subject to different dimensional tolerances then the most critical tolerance shall apply to all such works that are related to each other in respect of dimension, line or level.

13.11.3 The Contractor shall design the tolerances of the Works to allow for design, manufacturing, construction, erection and installation, including the following:

(a) movement arising from differential loads;
(b) dead loads;
(c) self weight;
(d) the presence or absence of water;
(e) variations in moisture conditions;
(f) thermal expansion and contraction;
(g) deflection from external forces and torsional loads;
(h) traffic vibration settlement;
(i) deflection, including from temporary loads during construction;
(j) stacking of materials;
(k) positive and negative wind loads;
(l) positive and negative water loads;
(m) ground settlement; and
(n) all other relevant forces.
13.11.4 Where components of the Works are required to match or adjoin existing facilities, the installed tolerances of the existing facilities shall be measured, recorded and agreed with the Project Manager.

13.11.5 Where design tolerances differ from the tolerances of the existing facilities, the Contractor shall submit a method statement to the Project Manager for review that details the Contractor’s methodology to achieve the least, possible overall tolerances, including an estimate of the final tolerances anticipated to be achieved.

13.12.1 Where the Contract requires the submission to the Project Manager for review of either particulars or particulars and samples of goods or materials, the Contractor shall submit such particulars (and, where appropriate, samples, prototypes and benchmarks) as soon as reasonably practicable and in any event no later than the date for submission of the quality plan covering the relevant work.

13.12.2 Without prejudice to any other provisions in the Contract, the Contractor shall, upon request, submit as soon as reasonably practicable to the Project Manager for his review particulars (including, where requested, samples, prototypes and benchmarks) of all goods or materials which are proposed for the Works.

13.12.3 No goods or materials of which particulars (including, as the case may be, samples, prototypes and benchmarks) have been submitted shall be used in the Works unless and until such particulars shall have been reviewed without objection by the Project Manager.

13.13.1 Any particulars and samples of goods or materials which have been reviewed without objection shall be retained by the Project Manager as representative goods or materials.

13.13.2 The Project Manager may reject any goods or materials that are shown by inspection and/or test to be inferior to the representative goods or materials and the Contractor shall promptly remove such goods or materials from Site.

13.14.1 For each batch of manufactured goods or materials delivered to Site, the Contractor shall:

(a) obtain from the manufacturer a certificate showing that the batch of manufactured goods or materials complies with the requirements of the Contract; and

(b) after delivery of each batch of manufactured goods or materials to Site, sample and test each batch in accordance with the Specification.
13.14.2 The Contractor shall not, without the consent of the Project Manager, depart from the specified requirements for the amount of inspection and testing of manufactured goods and materials before delivery to Site necessary to provide the required levels of certification or for the amount of inspection and testing required after delivery to Site. Any application for such consent shall identify the proposed levels of testing and inspection and provide a full technical justification including, without limitation:

(a) evidence that the manufacturer has implemented and is maintaining a quality system that complies with either ISO 9001 or ISO 9002 and evidence that the quality system is either certificated or in the process of being certificated by an accredited organisation;

(b) evidence that the type and frequency of the final inspection and testing undertaken by the manufacturer, in accordance with the ISO standards, is able to ensure a level of quality equivalent to that which would be obtained by applying the specified requirements of inspection and testing for goods delivered to Site; and

(c) evidence that the final inspection and testing undertaken by the manufacturer is fully representative of, and directly traceable to, each batch of manufactured goods delivered to Site.
SECTION 14
QUALITY SYSTEM AND QUALITY PLANS

14.1.1 The Contractor shall establish, implement and maintain at all times during the execution of the Works a documented quality system which complies with the requirements of ISO 9001 and with such quality system documents and quality plans as have been reviewed without objection.

14.1.2 The quality system documents and quality plans shall embrace all activities of the Contractor and his sub-contractors of any tier, including his suppliers and any design consultants.

14.2.1 Within 7 days of the date of the Letter of Acceptance or such other period as the Project Manager may permit, the Contractor shall submit to the Project Manager for review:

(a) a quality manual; and

(b) the quality system procedures and any associated system instructions and/or forms which he proposes to use for the Contract.

14.2.2 The Contractor shall prepare and submit to the Project Manager for review:

(a) all quality plans required in accordance with the Contract; and

(b) any amendments to the quality system documents and quality plans which have already been reviewed without objection, as the same may be proposed by the Contractor or requested by the Project Manager.

14.2.3 Subject to any specific time constraints identified in the Particular Specification or the Letter of Acceptance, the Contractor shall submit for review by the Project Manager each proposed quality plan as soon as reasonably practicable and in any event not less than 56 days before commencement of the construction activities covered by that plan.

14.3.1 The Contractor shall promptly supply the Project Manager with 2 controlled copies of his quality system documents and each quality plan upon such documents being reviewed without objection. The Contractor shall maintain such controlled documents throughout the duration of the Contract.

14.3.2 For the purposes of Section 14.3.1, a "controlled copy" means a document prepared and issued in accordance with the provisions regarding document control contained in the relevant ISO standard.
14.4.1 The quality plans to be submitted by the Contractor shall comprise:

(a) a management quality plan for the control of all management related activities;

(b) design quality plans for the control of all design related activities for the Permanent Works or Plant and/or Temporary Works; and

(c) construction quality plans for the control of activities within each category of work or discrete element of construction, manufacture, installation, commissioning, maintenance or servicing of the Permanent Works or Plant and/or Temporary Works or for the control of outstanding work during the Defects Liability Period, as the same may be required by the Particular Specification and/or identified in the outline quality plan submitted with the Tender or as may be directed by the Project Manager.

14.5.1 The quality plans shall be based on the outline quality plan submitted with the Tender and shall define all measures necessary to meet the objectives and requirements of the Contract at all appropriate phases of the Works.

14.5.2 The quality plans shall have a standardised format and show clearly on each page:

(a) the quality plan number or, in the case of attached documents, a reference to the quality plan number;

(b) whether the document is a draft or is approved by the authorised representative of the Contractor; and

(c) the date of such approval.

14.5.3 The management quality plan shall define the Contractor's management policy for the execution of the Works and for the control of the quality of the Works and shall, without limitation, define:

(a) the organisation of the Contractor's managerial staff with particular reference to any joint venture partners and sub-contractors;

(b) the specific allocations of responsibility and authority given to identified managerial staff with particular reference to the supervision of the Works;

(c) the appointment of a Quality Manager in accordance with Section 14.6.1;

(d) the quality system procedures and any specific procedures to be applied to manage the quality of the Works, with particular reference to the procedure to be used for the regular review by the Contractor of the performance of each type of quality plan; and

(e) the audit procedure and plan for each type of quality plan.
14.5.4 The design quality plans shall define the Contractor's policy for the design of the Permanent Works or Plant and/or Temporary Works and shall, without limitation, define:

(a) the organisation of the Contractor's design staff;

(b) the specific allocations of responsibility and authority given to identified design staff with particular reference to the review and verification of design drawings and calculations by the Contractor;

(c) the specific methods of design to be followed (in accordance with Section 16.1.2);

(d) the interfacing and/or co-ordination required with the Contractor's other related quality plans; and

(e) the procedures to be applied to manage and control the quality of the design work, with particular reference to the procedure to be used for design verification.

14.5.5 Each construction quality plan shall identify the scope of work to be controlled. In relation to such scope of work, it shall, without limitation, define (using, where appropriate, flow charts):

(a) the organisation of the Contractor's staff directly responsible for the day to day management of the work on or off the Site;

(b) the specific allocations of responsibility and authority given to identified personnel for the day to day management of the work with particular reference to the supervision, inspection and testing of the work;

(c) the interfacing and/or co-ordination required with the Contractor's other related quality plans;

(d) the specific methods of construction and/or manufacture and installation to be followed (by reference to method statements submitted in accordance with Section 16);

(e) the procedures, work instructions and forms to be applied to manage and control the quality of the work;

(f) the inspection and test plans to manage and control any test and inspection activities (in accordance with Section 15);

(g) all Quality Hold Points;

(h) all Quality Control Points;

(i) all particulars of materials submitted for review by the Project Manager (in accordance with Section 13); and

(j) where required by the Particular Specification, the quality control criteria for major components in accordance with Section 14.8.1.
14.6.1 The Contractor shall appoint a suitably qualified and experienced person (the "Quality Manager") in accordance with Section 9.5.1.

14.7.1 The Contractor shall continuously monitor the performance of the quality plans and shall include in each monthly progress report an appraisal of such performance and identify in particular any non-conformities or other shortcomings in the quality system, the actions being taken to dispose of these non-conformities and any necessary corrective action taken or proposed to prevent the reoccurrence of these non-conformities or shortcomings. If any amendment to a quality plan is considered necessary or appropriate, the Contractor shall as soon as reasonably practicable prepare and submit the proposed amendment to the Project Manager for review.

14.7.2 The Contractor shall ensure that audits of all the activities in each quality plan are carried out at quarterly intervals, or at such other intervals as the Project Manager may require, to ensure the continuing suitability and effectiveness of the quality system. Reports of each such audit shall be submitted promptly to the Project Manager for his information.

14.7.3 The Contractor shall ensure that the requirements for supervision and verification of work by the Contractor and/or his subcontractors of any tier are identified in the quality plans and that adequate resources and trained personnel are provided for these activities.

14.7.4 The Contractor shall submit for review by the Project Manager details of the authority, qualifications and experience of personnel assigned to design verification and to audit activities.

14.7.5 The Project Manager may, by notice to the Contractor, require external audits of the Contractor's quality system to be carried out either by the Employer's staff or by a third party agency. If so, the Contractor shall afford to such auditors all necessary facilities and access to such staff and records to permit this function to be performed.

14.8.1 The Contractor shall, in accordance with any specific requirements of the Particular Specification, prepare and maintain quality item lists which establish the criteria for control of each major component or activity during design, construction and/or manufacture and installation, commissioning and servicing in accordance with the need to ensure the required safety and reliability of the Works.

14.9.1 If, prior to issue of the Completion Certificate for the Works or the relevant Section, the Contractor has used or proposes to use or repair any item of the Works which does not conform to the requirements of the Contract, he shall immediately notify the Project Manager of such proposal and request a concession, supplying full particulars of the non-conformity and, if appropriate, of the proposed means of repair.
14.9.2 Upon receipt of any notice pursuant to Section 14.9.1, the Project Manager may:

(a) by notice in writing to the Contractor make the concession requested, in which case such concession shall not be construed as a variation or waiver of contractual rights and shall be without prejudice to the Project Manager's powers under the Contract; or

(b) deal with the non-conformity by instructing a variation provided that any consequential revisions to the term of payment shall have been agreed with the Contractor; or

(c) decline to allow the concession.

14.9.3 If the Project Manager notifies the Contractor of any item of the Works which he considers to constitute a non-conformity and which has not been reported in accordance with Section 14.9.1, the Contractor shall promptly investigate the matter and either request a concession or inform the Project Manager of the measures (if any) which he will take and stating the reasons for his actions.
SECTION 15

INSPECTION, TESTING AND COMMISSIONING

15.1.1 The Contractor shall plan, perform and record all quality control activities to ensure that all work is performed in accordance with the requirements of the Contract and of quality plans which have been reviewed without objection. Such activities shall include, without limitation, the inspection, testing and/or commissioning expressly or impliedly required by the Specification.

15.1.2 Wherever the words “inspection”, “testing” or “commissioning” occur they shall mean “inspection, testing and commissioning” except where the context in which it appears otherwise requires.

15.2.1 Without prejudice to such requirements, the Project Manager may from time to time instruct the Contractor in relation to such further or other inspections, tests and/or performance of commissioning as are in his opinion appropriate.

15.3.1 For the purposes of Section 14.5.5, the Contractor shall prepare inspection and test (including commissioning) plans for the management and control of the inspection, testing, and/or commissioning by the Contractor of the work identified in each construction quality plan.

15.3.2 Each inspection, testing and commissioning plan shall identify the quality objectives and include, without limitation:

(a) the personnel responsible for undertaking and certifying the inspection, testing and/or commissioning;
(b) the procedure or instructions for the inspection, testing and/or commissioning;
(c) the test method or a reference to the relevant standard of testing;
(d) the inspection, testing and/or commissioning required prior to commencement of an activity;
(e) the inspection, testing and/or commissioning during an activity and its frequency;
(f) the inspection, testing and/or commissioning required to complete an activity;
(g) any notices or other documents to be given to the Project Manager in relation to Quality Control Points and Quality Hold Points;
(h) the compliance criteria;
(i) the method of analysis of test data;
(j) the procedure for correction or disposal of any work which fails the compliance criteria;

(k) examples of the documentation to be used for reporting the results of inspections, tests and/or commissioning and the analysis of test data;

(l) examples of the documentation to be used for recording the status of inspections, tests and/or commissioning in accordance with Section 15.10.1; and

(m) the procedure for the distribution, filing and storage of inspection reports, test reports and reports on analysis of test data.

15.4.1 The Contractor shall notify the Project Manager of the places of manufacture and/or the source of supply of all goods and materials to be incorporated into the Works and shall give reasonable notice (which shall not in any event be less than 28 days) to the Project Manager before the start of each separate manufacturing process and/or the supply of goods and materials.

15.5.1 In relation to all Quality Control Points and Quality Hold Points involving inspection and/or testing by the Contractor, the Contractor shall give the Project Manager notice stating when the relevant work will be inspected and/or tested. The period of notice shall be as stated in the Particular Specification or a reasonable period of notice shall be given by the Contractor provided that:

(a) in the case of on-Site work, such notice shall be given not less than 8 hours of normal working time before the work is to be inspected and/or tested;

(b) in the case of work carried out off-Site in Hong Kong, such notice shall be given not less than 3 days before the work is to be inspected and/or tested; and

(c) in the case of work carried out outside Hong Kong, such notice shall be given not less than 28 days before the work is to be inspected and/or tested.

15.6.1 In relation to all Quality Control Points involving inspection, testing and/or commissioning by the Contractor, the Project Manager may elect to witness such inspections, tests and/or commissioning but, on expiry of the period of notice required by Section 15.5.1, the Contractor may proceed with the inspections and/or tests notwithstanding the absence of the Project Manager or of any response to the said notice.

15.7.1 The Contractor shall obtain certificates for each batch of manufactured goods or materials incorporated in the Works. Each certificate shall certify that the goods or materials comply with the requirements of the Contract and shall include all reports of inspections and/or tests carried out at the place of manufacture.
15.8.1 The Contractor shall obtain reports of each inspection and/or test. Such reports shall show the results of all the inspections and/or tests carried out and shall certify that the work has been inspected and/or tested in accordance with the requirements of the Contract and that the work complies with the requirements of the Contract. Any analysis of the results required to confirm that the work complies with the requirements of the Contract shall be compiled in accordance with Section 15.10.1 and reported to the Project Manager in accordance with Section 15.11.1.

15.8.2 Each report of inspection, testing and/or commissioning shall be signed by a representative of the Contractor who has been allocated the requisite authority under the relevant construction quality plan.

15.8.3 Each report of inspection and/or test shall include the appropriate details of:

(a) the description of the material or location of the work;
(b) the location of the batch from which the samples were taken for test;
(c) the sample number in accordance with Section 15.14.1;
(d) the place of testing;
(e) the date and time of tests;
(f) the weather conditions in the case of in-situ tests;
(g) the technical personnel supervising or carrying out the test;
(h) the size and description of samples and specimens;
(i) the method of sampling;
(j) the properties tested;
(k) the method of testing;
(l) all relevant checklists and work sheets used during the inspection and/or test, including the readings and measurements taken during the tests; and
(m) the test results, including any calculations and graphs.

15.9.1 The Contractor shall ensure that a signed copy of each report of inspection is filed in his Records Office within three working days of the date of inspection and that a signed copy of each report of test is filed in his Records Office within seven working days of the date of completion of the test process.
15.10.1 The Contractor shall provide and maintain at all stages of the work a quality control register or registers to identify the status of inspections, sampling and testing of the work and all certificates. Each register shall:

(a) list the certificates received for each batch of manufactured goods or materials incorporated in the Works and compare this against the certification required by the Contract and the Contractor’s quality plans;

(b) list the inspection, sampling and testing activities undertaken by the Contractor on each element of the Works and compare these activities against the amount of inspection, sampling and testing required by the Contract and the Contractor’s quality plans;

(c) show the results of each report of inspection, testing and/or commissioning and any required analysis of these results and compare these results against the acceptance criteria; and

(d) reference any actions proposed by the Contractor to overcome any non-conformities identified pursuant to Section 15.10.1(a), (b) or (c), and any notices or instructions by the Project Manager pursuant to Section 14.9.2.

15.11.1 The Contractor shall submit to the Project Manager for his information summaries based on each quality control register showing the type and amount of certification received and the sampling, inspection, testing and/or commissioning undertaken on each element of the Works during the previous week. The summaries shall identify and demonstrate the compliance of such certification, sampling, inspection, testing and/or commissioning with the requirements of the Contract and shall identify any item which does not conform to the requirements of the Contract.

15.12.1 Unless otherwise permitted by the Project Manager, all sampling and tests shall be performed at independent laboratories which are accredited by HOKLAS for the relevant tests. Similar accredited laboratories may be acceptable to the Project Manager if a HOKLAS accredited laboratory cannot perform the required tests.

15.12.2 The Contractor shall ensure that all inspection, test and/or commissioning equipment is calibrated in accordance with the specified standards or, if such standards are not applicable to certain test, inspection and/or commissioning equipment, with systems and programmes of calibration which have been reviewed without objection by the Project Manager. The Contractor shall ensure that documented evidence of such calibration is maintained.
15.13.1 The Contractor shall provide such samples of materials as the Project Manager may require from time to time for the purpose of testing by the Project Manager. The Contractor shall ensure that:

(a) each sample is identified in accordance with Section 15.14.1;

(b) all samples are protected, temporarily stored, handled and transported to the laboratory under the direct supervision of a suitably qualified representative of the laboratory;

(c) no samples are mislaid, damaged, or contaminated; and

(d) the properties of the sampled material are at no time adversely affected.

15.13.2 All samples for testing shall be fully prepared for transportation and testing by the Contractor and shall be delivered by the Contractor to the place of testing.

15.14.1 The Contractor shall ensure that all samples are identified by a unique number which shall consist of at least three fields. The first three fields of the sample number shall be of the form "Pnnn / LLNN / xxxx" where:

(a) "Pnnn" is the alpha-numeric Contract number;

(b) "LLNN" is an alpha-numeric test identification code agreed with or assigned by the Project Manager; and

(c) "xxxx" is a sequential number of the sample under the particular test identification code.

15.14.2 Additional fields may be added by the Contractor with the consent of the Project Manager for the control of the laboratory activities and analysis of test results.

15.15.1 The Contractor shall provide additional samples for testing if in the opinion of the Project Manager:

(a) the material previously tested no longer complies with the specified requirements; or

(b) the material has been handled or stored in such a manner that it is no longer represented by the previously tested samples.

15.16.1 Trials shall be carried out as stated in the Contract to demonstrate that the proposed materials, equipment or methods of construction comply with the Contract.

15.16.2 Trials shall be carried out before commencement of construction or manufacture of the relevant work in order to ensure that proposed methods and materials comply with the specified requirements.
15.16.3 Trials shall be carried out using types of materials and methods of manufacture, construction and/or installation that have been reviewed without objection.

15.16.4 Unless permitted by the Project Manager, the materials and methods of manufacture, construction and/or installation used in the trial to produce work complying with the requirements of the Contract shall not be changed unless further trials have been carried out to demonstrate that the proposed changes are satisfactory.

15.16.5 All references to “tests” and “testing” in the Contract shall, where the context so permits, include trials and commissioning.

15.17.1 In relation to all Quality Hold Points involving inspection and/or testing by the Project Manager, the Contractor shall give notice to the Project Manager of when the relevant work will be ready for inspection and/or testing. The period of such notice shall be in accordance with Section 15.5.1.

15.17.2 If the Contractor is in any doubt whether inspection and/or testing by the Project Manager is required as a Quality Hold Point, the Contractor shall request that the Project Manager clarifies his requirements prior to submitting the relevant inspection and test plan for review, and in any event not later than the expiry of the time limit for giving notice of such inspection and/or testing in accordance with Section 15.5.1.

15.18.1 The Contractor shall allow the Project Manager a reasonable time to carry out any inspection and/or testing and to assess the result of any inspection and/or test before proceeding with the Works.

15.18.2 Unless the Project Manager’s prior consent has been obtained, all inspections and/or tests to be carried out or witnessed by the Project Manager shall be carried out between 0800 and 1800 hours.

15.19.1 The Contractor shall clean the Works to the satisfaction of the Project Manager prior to all inspections.

15.19.2 The Contractor shall engage a professional cleaning company to conduct deep cleaning of the completed Works to the satisfaction of the Project Manager prior to handover of a facility or an area to the Employer.

15.20.1 The Contractor shall submit a handover plan to the Project Manager prior to the handover inspections to the Employer/Tenants of the facilities. The format of the plan shall be agreed with the Project Manager and shall identify completion of T&C, all necessary preparations/submissions including training, test records, O&M Manuals and As-constructed Drawings.
15.20.2 The Contractor shall submit the following documents as relevant at least one week prior to the handover of any facilities/systems to the Employer:

(a) statutory documents such as BA14, fire certificate, Forms WR1/WR1A, FS314/FS314A, FS251, FS172, WW046, Forms 5, Form 6 and the likes;

(b) testing and commissioning records;

(c) As-constructed Drawings; and

(d) O&M Manuals.

15.20.3 The Contractor shall conduct his own pre-inspection and compile a Defects and Outstanding Works List (DOWL), include relevant photographs and submit to the Project Manager for review without objection, one week prior to handover of any facility to the Employer. A joint inspection shall then be arranged with the Project Manager and following the inspection the Contractor shall update the DOWL to incorporate all items raised by the Project Manager prior to the inspection with the Employer.

15.20.4 Following the inspection with the Employer, the Contractor shall update the DOWL to include all items raised during the Employer’s inspection and shall submit the finalised DOWL to the Project Manager for record purposes.
SECTION 16
METHODS OF CONSTRUCTION, MANUFACTURE AND INSTALLATION

16.1.1 The Contractor shall prepare and submit method statements to the Project Manager for review without objection.

The methods statements to be submitted by the Contractor shall:

(a) identify any relevant method statements previously submitted or submitted with the Tender;

(b) be logical, chronologically ordered schedules of activities in sufficient detail to be used by the Contractor’s supervisory staff directly responsible for day-to-day operations on the Site or at off-Site places of manufacture or supply;

(c) describe the methods of design, construction and/or manufacture and installation proposed for all normal activities associated with the relevant part or phase of the Works;

(d) detail any special activities or processes required or proposed for the relevant part or phase of the Works;

(e) identify the amount and nature of the Contractor's Equipment and Temporary Works which the Contractor proposes to use;

(f) describe the supervision policy which the Contractor proposes to follow, particularly with regard to the work of his sub-contractors of any tier;

(g) contain sufficient information to enable the Project Manager to understand and appraise the Contractor's plan for the execution of the Works and for the control of the quality of the Works;

(h) describe measures to be taken to avoid disruption to the operation of the Airport;

(i) be suitably structured to facilitate the development of the detailed and specific procedures and work instructions forming part of the relevant design or construction quality plan;

(j) contain sufficient information to enable the Project Manager to understand and appraise the Contractor’s risk assessment prepared and submitted in accordance with Section 8.6.1; and

(k) be submitted to the Project Manager by the Contractor at least 28 days prior to the commencement of construction activities on the task described.
16.1.2 For the purposes of Sections 14.5.4 and 14.5.5, the Contractor shall in each design quality plan and each construction quality plan:

(a) identify any relevant method statements previously submitted;

(b) amplify and develop those method statements, where appropriate, to a degree of detail sufficient to permit the Project Manager to understand how the relevant quality plan is to be implemented and, in the case of construction quality plans, sufficient to be used for that purpose by the Contractor’s staff directly responsible for day-to-day operations on the Site or at off-Site places of manufacture or supply; and

(c) suitably structure such method statements for the development of the detailed and specific procedures and work instructions envisaged by that plan.

16.2.1 Where the Works include the installation of major items of plant or equipment, the Contractor shall, within 90 days of the date of the Letter of Acceptance or such other date as may be permitted by the Project Manager, submit for review by the Project Manager a delivery statement which shall include without limitation the following information in respect of all items which require special provisions and precautions to facilitate their delivery and installation:

(a) size, weight and packing of each item;

(b) method of delivery and lifting (including delivery routes);

(c) any special provisions required in the structure or structures to facilitate delivery such as temporary openings, temporary lifting points, etc;

(d) any special storage requirements;

(e) any interfaces with existing equipment, systems and/or Plant, Other Contractors, Relevant Authorities or Utility Undertakings; and

(f) any environmental requirements at installation.

16.2.2 The Contractor shall, where appropriate, design his Works and carry out the construction delivery and installation in accordance with the method statements submitted in accordance with this Section and reviewed without objection by the Project Manager.

16.2.3 If at any time the Contractor becomes aware of any incompatibility between his design and/or his intended method of delivery, construction and installation and the provisions of method and delivery statements provided, he shall immediately notify the Project Manager of the incompatibility and his proposed solution.
16.2.4 The Contractor shall have regard to the likelihood that the Project Manager will issue instructions to Other Contractors based on the delivery and method statements.

16.2.5 If the Contractor requires changes to the method and/or delivery statements, he shall be liable for the costs of changing any work which has already been carried out by the Other Contractors based on the previously issued statements and for any consequential loss and expense incurred by the Employer.

16.3.1 The Contractor shall, as soon as reasonably practicable, provide the Project Manager with such further particulars of his methods of design, construction and/or manufacture and installation, Temporary Works, Contractor's Equipment and supervision policy as the Project Manager may request from time to time. *Submission of further particulars*

16.4.1 The Contractor shall not display any manufacturer's name or trade name on any item of plant, materials or goods, without obtaining prior written consent from the Project Manager. *Manufacturer's and Trade Name*

16.4.2 The Project Manager's consent to the display of manufacturer's name or trade name on any item of plant, materials or goods (save in so far as required by Enactments) may be given in consideration of a payment amount to be determined by the Employer.
SECTION 17

OPERATION AND MAINTENANCE REQUIREMENTS

17.1.1 If the Contractor is required to provide as a permanent part of the Works any electrical and/or mechanical plant, machinery, instrumentation, apparatus or systems (referred to in this Section 17 as "equipment") and unless otherwise stated in the Contract, the Contractor shall prepare and submit to the Project Manager for his review manuals in respect of the operation and maintenance of the relevant equipment as follows:

(a) 4 copies of the first draft of the manuals shall be submitted not later than 3 months prior to the Key Date for substantial completion of the relevant Section or, if there is no such Key Date, 3 months prior to the commissioning of the relevant component of the Works;

(b) 4 copies of the final draft of such manuals shall be submitted not later than one month prior to the commissioning of the relevant component of the Works;

(c) following review without objection of such final draft and prior to applying for a Completion Certificate, the Contractor shall supply the Project Manager with 4 copies of the Operation and Maintenance Manuals together with one electronic copy thereof in a format acceptable to the Project Manager; and

(d) for any proprietary item, the Contractor shall provide to the Project Manager at the time of handover 4 original complete copies of the manufacturer's literature, installation, operating and maintenance instructions, which form part of the Operation and Maintenance Manuals.

17.1.2 The Operation and Maintenance Manuals shall be prepared in accordance with the Authority's Specification for the Preparation of Operation and Maintenance Manuals, and shall be separated into volumes such that each volume or set of volumes is dedicated to only one major item of equipment. They shall provide sufficient detail to enable the Employer's staff to operate and maintain the equipment efficiently and shall contain but not be limited to the following:

(a) a title page that identifies latest Hong Kong International Airport logo, the name and number of the Contract, system abbreviation, system description, the volume number, issue number, effective date and prepared by;

(b) a fly sheet that identifies the names, addresses, telephone numbers and facsimile numbers of the Contractor and relevant sub-contractors, vendors, designers and service or maintenance agents, and all documents with which the volume should be read in conjunction with; and

(c) a detailed index of contents that identifies all sections and sub-sections and the page numbers thereof.
17.1.3 If the equipment uses software, the Operation and Maintenance Manuals shall include a dedicated volume for each software programme that provides:

(a) a printout of the listing;
(b) flow charts, data flow diagrams and programme description;
(c) instructions on the use of diagnostic software;
(d) a programming and system user manual; and
(e) the identity of application source software, special tools and utility software to enable the Employer to modify or develop the programme.

17.1.4 The appearance, arrangement and format of the Operation and Maintenance Manuals shall be uniform and shall comply with such standard requirements as may be notified to the Contractor by the Project Manager. They shall be written in English and prepared in accordance with:

(a) BS48S4: Technical Manuals:
   Part 1: Specification for presentation of essential information;
   Part 2: Guide to content; and
   Part 3: Guide to presentation;
(b) Section 17.1.2 above;
(c) the Contractor’s quality plans submitted in accordance with Section 14; and
(d) any other related requirements as specified in the Contract.

17.1.5 Each volume shall:

(a) contain all material in A4 size pages, drawings and schedule shall be reduced to A3 size page but folded to A4 size in a manner that shows the subject title on the right hand size;
(b) be printed on both sides of 80g/m² white stock paper;
(c) incorporate stiff dividers with durable plasticized tabs between each section;
(d) be bound, with all perforations reinforced, in a white four ring binders of sufficient size to prevent "cramping" and to allow the volume to lay flat when opened; and
(e) be with PVC covers which are rigid and durable, with the name and logo of the Employer applied in in-laid lettering on both the front and the spine.
17.2.1 The special tools, jigs, fixtures, gauges and test equipment (together with calibration certificates) required to carry out all the functions described in the maintenance instructions or as required by the Contract shall be suitably packed and identified, consigned to the Employer by the Contractor and delivered to the Airport in accordance with the Project Manager's instructions at the same time as the Plant for which it is required. The extent of supply shall include protective carrying cases for the storage and use of each item.

17.3.1 Not later than 12 months after the date for commencement of the Works or 2 months before the commencement of manufacture, whichever is the earlier, the Contractor shall submit to the Project Manager for his review a list of spare parts, including sub-assemblies broken down into individual parts or sealed units, special tools, jigs, fixtures and gauges and test equipment to be supplied under the Contract. This list shall confirm and, where appropriate, amplify any schedules of spare parts to be supplied by the Contractor as may be included elsewhere in the Contract. The Contractor shall advise the Project Manager as to the adequacy and suitability of this list, having particular regard to any changes during the design development process.

17.3.2 The information supplied in respect of each spare part, special tool or other item shall be in accordance with the example given in the Authority’s “Specification for the Preparation of Operation & Maintenance Manuals” or as instructed by the Project Manager.

17.4.1 The spare parts identified in the list referred to in Section 17.3.1 and, so far as practicable, any spare parts ordered under the Contract, shall be manufactured at the same time as the systems or equipment to which they relate. All spare parts shall be manufactured, works tested, inspected, suitably packed and labelled in accordance with the Specification and delivered by the Contractor to the Site or such other location within the Airport as the Project Manager may direct. The spare parts shall be consigned to the Employer and delivered in accordance with a programme which shall ensure that sufficient spares are delivered to facilitate normal routine maintenance of the systems or equipment at all times subsequent to issue of the relevant Completion Certificate. All spare parts shall be supplied not later than the date set for trial running of the systems or equipment.
17.5.1 Spare parts shall be tropicalised in their packing for prolonged storage in accordance with BS 1133 or equivalent and shall be suitably labelled to indicate:

(a) the shelf life;
(b) the date of supply;
(c) the type of storage required (e.g. under cover, weather-proof or air-conditioned);
(d) a description of the part and the relevant part number;
(e) the serial number;
(f) the inspection certificate number and batch number;
(g) the Contract number;
(h) any equipment identification number notified to the Contractor by the Employer; and
(i) the name of the manufacturer and date of manufacture.

17.5.2 The Contractor shall take particular care to prevent damage to or corrosion of shafts and journals where they rest on timber or other supports which may contain moisture. The Contractor shall, in all such cases, use wrappings impregnated with anti-rusting compounds of sufficient strength to resist chafing under the pressures and movements likely to occur in transit.

17.5.3 Spare ball bearings and roller bearings and similarly protected items shall not be removed from the manufacturer's wrappings or packings.

17.5.4 The requirements of Section 13.7 regarding packaging and protecting materials shall apply to spare parts.

17.6.1 Where the Contractor is required by the Contract to train the Employer's staff (including the Employer's own instructors), the Contractor shall at the times stated in the Specification or at such other times as the Project Manager may direct, submit for the Project Manager's review the range of staff for which training is recommended together with a training programme and full details of each training course to be provided (including, without limitation, the precise location, programme and content (on a daily basis) for each course). The objective shall be that the trained staff will be able to operate and maintain the relevant systems and equipment in the most efficient, economical and reliable manner and to meet the operational requirements of the airport.
17.6.2 Any training courses to be provided by the Contractor shall relate specifically to the systems and equipment installed at the Airport and shall be suitable for the staff who will be operating and maintaining such systems and equipment.

17.6.3 Where practicable, any training of the Employer’s staff shall be carried out in Hong Kong. The Contractor may carry out training outside Hong Kong only in circumstances where knowledge of the equipment is required prior to installation or appropriate facilities cannot be made available in Hong Kong.

17.6.4 The Employer’s training department will monitor all training to ensure that satisfactory standards are met.

17.6.5 The Contractor shall be responsible for providing classroom facilities where such are required.

17.6.6 The Contractor shall supply competent engineers and instructors to carry out formal classroom and/or on-the-job training to a high degree of proficiency.

17.7.1 The Contractor may, with the consent of the Project Manager, use systems and equipment being erected, tested or commissioned for the training of the Employer’s staff. The Contractor shall not use the Employer’s spare parts for this purpose.

17.7.2 The Contractor shall provide written or printed matter, functional equipment, samples, models, cut-away equipment, slides, films and other instructional materials necessary for training. Such equipment and material shall become and remain the property of the Employer and shall be sufficient both for the persons trained by the Contractor and for those to be subsequently trained by the Employer.
SECTION 18

SUBMISSIONS TO THE PROJECT MANAGER

18.1.1 The Contractor shall ensure that each submission to the Project Manager of drawings, other documents or things shall be clearly identified as:

(a) for review; or

(b) for permission or consent; or

(c) for information only; or

(d) for record purposes only.

18.1.2 Each submission shall be made under cover of a standard form of submission document prepared by the Contractor in the forms listed in Appendix 3.

18.2.1 Each submission shall be identified by a unique submission number consisting of five fields in the form “XXX/Pnnn/Y/9999/Z” where:

(a) “XXX” is the originator code – which shall be a three alpha originator designation assigned by the Project Manager;

(b) “Pnnn” is the alpha-numeric Contract number assigned by the Employer;

(c) “Y” is the discipline - which shall be a single alpha designator assigned by the Contractor utilizing one of the following seven categories:

- D - Permanent Works or Plant Design;
- T - Temporary Works Design;
- Q - Quality Control/Quality Assurance;
- P - Progress and Programmes;
- S - Survey and Setting-Out;
- M- Materials;
- Z- General Construction; or
- O- Other;

(d) “9999” is the submission number which shall be a 4 digit number assigned by the Contractor; and

(e) “Z” is the revision indicator which shall be a single alpha designator assigned by the Contractor in alphabetical order of submission sequence.
18.2.2 Unless otherwise specified or permitted by the Project Manager, each submission shall comprise:

(a) the original, three copies and one electronic data copy. For Combined Services Drawing, the original shall be in colour print; and

(b) one additional A3 print for any drawings with the submission.

18.3.1 The Contractor shall provide with each submission for review, or upon request by the Project Manager, such particulars or further particulars of the subject matter of the submission as are appropriate to enable the Project Manager properly to review it and appreciate its implications.

18.3.2 Following receipt and consideration of any submission for review, the Project Manager shall in accordance with the following provisions of this Section 18.3 notify the Contractor either:

(a) “A – Notice of No-Objection” that he has no objection; or

(b) “B – Notice of No-Objection subject to comments” that he has objections, which shall be identified in reasonable detail; or

(c) “C – Notice of Objection, please resubmit” that he has objections, which shall be resubmitted.

18.3.3 If the Project Manager issues a notice of no objection, the Contractor may, subject to Section 18.3.4 and to any requirements to make further submissions or any restrictions stated in the notice, proceed with the Works in accordance with the Contract.

18.3.4 If the Project Manager considers that revisions to the submission are appropriate but that such revisions are of minor significance, he may issue a notice of no objection subject to an appended schedule of comments. The Contractor shall cause the submitted documents or things to be revised in accordance with such comments but, unless the Project Manager otherwise requires, shall not be obliged to re-submit those documents or things solely on account of such revisions.

18.3.5 If the Project Manager issues a notice of objection, the Contractor shall revise the submitted documents or things so as to take account of the stated objections and, as soon as reasonably practicable, shall re-submit such revised documents or things to the Project Manager for his further review.

18.3.6 The issue of a notice of no objection shall not limit or bind the Project Manager in any manner whatsoever in relation to his review of any subsequent submission.

18.4.1 The Contractor shall submit with each application for permission or consent, or upon request by the Project Manager, such particulars or further particulars of the subject matter of the application (including, without limitation, details of any potential cost savings to the Contractor and the Employer) as are appropriate to enable the Project Manager properly to assess it and appreciate the implications of giving his permission or consent.
18.4.2 Following receipt and consideration of any submission for permission or consent, the Project Manager shall notify the Contractor either;

(a) “D – Notification of Permission or Consent” that he has permission or consent; or

(b) “E – Notification of Permission or Consent subject to compliance with conditions, please confirm acceptance of conditions” of his permission or, as the case may be, his consent and identifying any relevant conditions; or

(c) “F – Permission or Consent withheld” that his permission or consent is withheld, in which case the grounds of such decision may be identified.

18.4.3 Unless otherwise stated, the Project Manager shall have an absolute discretion to withhold his permission or consent in relation to any matter or thing and to make his permission or consent subject to compliance with such conditions as may be identified in his notice. Where the Project Manager is expressly obliged not to withhold unreasonably his permission or consent, he may make his permission or consent subject to compliance with such reasonable conditions as may be identified in his notice.

18.4.4 If the Project Manager returns the submission with a notice that his permission or consent is granted subject to compliance with stated conditions, the Contractor shall as soon as reasonably practicable notify the Project Manager either;

(a) that he accepts the conditions and will comply with them; or

(b) that the application for permission or consent is withdrawn.
SECTION 19

RETURNS, PROGRESS PHOTOGRAPHS AND AS-CONSTRUCTED DRAWINGS

19.1.1 The Contractor shall submit to the Project Manager for his information at weekly or such other intervals as may be permitted by the Project Manager:

(a) returns of supervisory staff, labour and Contractor's Equipment on the Airport; and

(b) production reports for items manufactured off the Airport in connection with the Works.

19.1.2 Each of the documents referred to in Section 19.1.1 shall be in the form and detail required by the Project Manager.

19.2.1 The Contractor shall arrange for a photographic record of the execution of the Works, whether on-Site or off-Site, by the taking of colour photographs at monthly intervals, or at such other times as the Project Manager may require, and at such locations and from such points as the Project Manager may specify from time to time. The Contractor shall produce and bind such progress photographs and submit them promptly to the Project Manager for his information.

19.2.2 The size, number and format of progress photographs shall be in accordance with the requirements of the Particular Specification.

19.2.3 The Employer may arrange for additional photographic and/or video records of the execution of the Works and/or the works of Other Contractors. The Contractor shall allow persons taking such photographs and/or videos access to such locations and at such times as the Project Manager may require.

19.3.1 In relation to Permanent Works or Plant designed by or on behalf of the Employer:

(a) the Contractor shall maintain a record set of all Employer's Drawings used in the construction of the Works and shall mark-up copies thereof with any changes thereto, whether due to the Project Manager's instructions, the Contractor's methods of construction, site conditions or any other reason;

(b) the Contractor shall provide two sets of preliminary As-constructed Drawings complete with all design details seven days prior to commencement of any testing and commissioning procedures on any systems of the Works;

(c) the Contractor shall incorporate any amendments noted on the preliminary As-constructed Drawings during the testing and commissioning stage on the As-constructed Drawings for submission to the Project Manager;
(d) one complete set of the marked-up Employer's Drawings, in a form acceptable to the Project Manager and labelled "As-constructed Drawings", shall be signed by the Contractor's duly authorized representative as being a true record of the Works as constructed. These drawings shall be submitted to the Project Manager and reviewed without objection prior to applying for a Completion Certificate for the relevant Section or for the whole of the Works;

(e) for any underground utility services drawings, the Contractor in addition to the requirements specified in item 19.3.1(d), shall submit two complete set of “As-surveyed Drawings” including the as-constructed coordinates, cover levels, invert levels and the like, in a form acceptable to the Project Manager; and

(f) For the purposes of Sections 19.3.1(d) and (e), one complete set shall comprise the following:

(i) original size, paper prints – 2 copies;

(ii) scan image of original size in pdf format (file name as CADD file) at 300 dpi resolution – 1 copy;

(iii) A2 size paper print reproduced from (i) – 2 copies;

(iv) A3 size paper print – 2 copies;

(v) CADD data files – 2 copies (CD/DVD, properly labelled); and

(vi) drawing list in dbf format (e.g. Excel) – 1 copy.
SECTION 20

RECORDS OFFICE

20.1.1 The Contractor shall establish and maintain:

(a) at each place of manufacture of major components of the Works which is remote from the Airport, a records office which contains those documents identified in Section 20.2.1 relevant to such components, pending their transfer to the Site records office in accordance with Section 20.4.1;

(b) at the Site or elsewhere in Hong Kong, a records office which contains all other documents which the Contractor is required to maintain in accordance with the Contract;

(c) progress records or progress reports not previously submitted to the Project Manager;

(d) any other data from which the as-constructed drawings are or will be produced; and

(e) drawings approved by Relevant Authorities.

20.2.1 The Contractor shall file and store in the Site records office all documents which relate to the quality and as-constructed condition of the Works including, without limitation:

(a) controlled copies of quality documentation (for example quality plans, method statements and work procedures);

(b) progress records or progress reports not previously submitted to the Project Manager;

(c) certificates for manufactured goods and materials;

(d) records of sampling, inspections and tests;

(e) records of inspections by Relevant Authorities;

(f) reports of non-conformities and their disposition;

(g) reports and data relating to concessions;

(h) records of surveys of the Permanent Works or Plant; and

(i) any construction or manufacturing drawings containing marked up details of as-built dimensions or properties.

20.2.2 The documents stored at Site, or at any off-Site place of manufacture, shall be the original versions and not photocopies unless the original versions have been despatched to the Project Manager or third parties and are no longer in the Contractor's possession.
20.3.1 All documents shall be filed, indexed and suitably stored to permit easy identification and access on a frequent basis.

20.3.2 Each records office shall be suitably sized, have a fire rating of at least 2 hours and shall be maintained at a temperature of between 20°C and 25°C and at a relative humidity not exceeding 55%.

20.3.3 The Contractor shall ensure that each records office is provided with adequate photocopying facilities and shall provide the Project Manager with such photocopies of the stored documents as he may request.

20.4.1 If the Contractor establishes a records office at an off-Site place of manufacture, the documents relating to each discrete component or batch of components shall be transferred to the Site records office within 28 days of the components being delivered to the Site.

20.4.2 The temporary removal of any documents from a records office or the transfer of documents from one records office to another shall be controlled and documented.

20.5.1 The Site records office shall be maintained until either:

(a) all of the documents identified in Section 20.2.1 have been taken over by the Employer in accordance with Section 20.6.2; or

(b) if no notice is given by the Project Manager pursuant to Section 20.6.2, until substantial completion of the whole of the Works.

20.6.1 The Contractor shall ensure that the documents identified in Section 20.2.1 are properly filed and indexed and in a fit condition to be taken over by the Employer at the time that the Contractor applies for a Completion Certificate for the Section to which they relate or, as the case may be, for the whole of the Works. The Contractor shall, not later than 28 days before the anticipated date of applying for a Completion Certificate, notify the Project Manager that such documents will be available for collection.

20.6.2 Within 14 days of receipt of a notice from the Contractor pursuant to Section 20.6.1 or, in the absence of any such notice, within 14 days of receipt of an application for a Completion Certificate, or upon termination of the Contractor's employment under the Contract, the Project Manager may notify the Contractor that the Employer intends to take over the documents identified in Section 20.2.1 in which case the Contractor shall allow the Project Manager immediate access to such documents and shall do all other things necessary for the purpose of transferring them to the custody of the Employer.
20.6.3 Upon notice being given by the Contractor pursuant to Section 20.6.2, property in the documents identified in Section 20.2.1 shall vest in the Employer.

20.7.1 The Employer shall establish and maintain premises in Hong Kong in which he shall store any documents of the Contractor taken over in accordance with Section 20.6.2 for a period of not less than 12 years from the date of issue of the Defects Liability Certificate.

20.7.2 The Employer may store such documents on microfilm or on computer or in any other electronic form but shall not, without the consent of the Contractor, otherwise destroy or part with possession of any such documents prior to expiry of the period referred to in Section 20.7.1.

20.7.3 The Employer shall, upon reasonable notice, allow the Contractor access to all documents taken over in accordance with Section 20.6.2 and shall provide copies of any such documents as the Contractor might reasonably request.

20.8.1 The Contractor shall maintain in Hong Kong his archive of all documents in connection with and arising out of the Contract, excluding any documents taken over in accordance with Section 20.6.2, until 28 days after the issue of the final certificate or, if later, until final settlement of all Disputes.
APPENDIX 1

GUIDELINES FOR THE PREPARATION OF
THE ENVIRONMENTAL MANAGEMENT PLAN
(Refers Section 7.2.1)

The Environmental Management Plan (EMP) shall summarise the scope of construction works, identify all works locations, describe expected environmental impacts from the works as well as how these are to be managed and how compliance with statutory and Airport Authority requirements is to be achieved.

1. Construction Company Details

1.1 The company details shall consist of:

(a) contractor name and details (including sub-contractors);
(b) overall description of the company;
(c) organisation chart (to identify senior manager responsible for environmental management);
(d) environmental lines of communications (client/contractor/sub-contractors/Relevant Authorities/public) and means by which reporting can be confirmed; and
(e) drawing(s) showing locations of site/works/facilities.

2. Environmental Impacts Expected from Construction Activities

2.1 A brief description of the nature, scope and scale of expected and potential environmental impacts from the construction activities including but without limitation:

(a) air quality;
(b) noise;
(c) water quality;
(d) waste management (including chemical waste);
(e) dangerous goods;
(f) pest control; and
(g) others, where and if applicable.
3. Environmental Licensing Issues

3.1 A summary of all relevant Hong Kong regulations, related license requirements and pollution minimisation measures required or proposed for the works activities related to all environmental issues relevant to the construction activities and the status of relevant license/permit applications. The summary shall include but not be limited to:

(a) air quality (e.g. requirements of Air Pollution Control Ordinance);
(b) noise (e.g. requirements of Noise Control Ordinance);
(c) water quality (e.g. requirements of Water Pollution Control Ordinance – nature and type of water discharges, license requirements, etc);
(d) waste and chemical wastes (e.g. requirements of Waste Disposal Ordinance);
(e) environmental impact assessment (e.g. requirements of EIA Ordinance if applicable);
(f) dangerous goods (e.g. compliance with the Dangerous Goods Ordinance); and
(g) others (e.g. include detail on any other environmental licensing issues or guidance and controls omitted above, but of relevance to your works).

4. Construction Site Layout Plans

4.1 A layout plan(s) of site office and works areas including but not limited to the following:

(a) foul/storm sewer discharge and license/sampling points (e.g. wheel wash treatment systems; toilet facilities; etc.);
(b) sources of emissions;
(c) fuel storage areas;
(d) waste storage and handling areas (e.g. chemical waste stores); and
(e) workers canteen facilities.

5. Environmental Management Strategy

5.1 The Contractor shall provide detail on the environmental management strategy of the works and site areas including proposed approach and methodologies related to:

(a) compliance with the New Airport Master Plan EIA (and its Update) requirements (if applicable), EIA Ordinance statutory requirements (if applicable), or other applicable commitments from the Environmental Review of the facility scheme design, not limited to an implementation schedule for mitigation measures and details of environmental monitoring and audit if so required;
(b) management and operation practices to conserve natural resources and reduce materials and energy use;
(c) management and control of air emissions from works areas;
(d) management and control of noise emissions from works areas including detail on the use of quiet equipment;
(e) management and control of surface water runoff and wastewater discharges from site areas;
(f) waste management including detail on minimisation, collection, storage, separation, recycling and disposal of wastes and management and control of food wastes;
(g) storage, handling and transportation of chemical and hazardous wastes, including spill response contingencies;
(h) environmental considerations in supply chain management including considerations taken in selecting, purchasing and using materials, products or services with lower environmental impact than alternatives;
(i) storage and handling of dangerous goods;
(j) rodent, vermin and pest control;
(k) staff training; and
(l) provision of environmental records/data to AAHK.

6. Environmental Management System

6.1 A brief detail on any formal Environmental Management System covering the construction activities, for example:

   (a) a committed systematic environmental management system such as ISO 14001; and
   (b) a senior management supported Environmental Policy Statement.

7. Self Audit

7.1 Details of any internal environmental audit programme and scope.
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APPENDIX 2

INTERFACE ACTIVITY SCHEDULE
(Refers Section 11.4.4)
## INTERFACE ACTIVITY SCHEDULE

**NUMBER** [Contract Number XXXX]/[Contract Number YYYY]/IAS/[No.]

**TITLE** [ ] – INTERFACE

**ISSUE** 1

**DATE**

---

### EXAMPLE ONLY

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[XXXX] Signature Name Date

[YYYYY] Signature Name Date

### For Project Manager's Use

**Status**

Reviewed by Name Date
APPENDIX 3

LIST OF PROFORMA DOCUMENTS
(Refers Section 18.1.2)

Proforma documents to be used by the Contractor and the Authority are as follows:

1. Contractor’s Submission
2. Project Manager’s Representative Reply to Contractor’s Submission
3. Site Notice to Contractor
4. Drawing Amendment Notification
5. Project Manager’s Notice of Non-Conformity
6. Notification of Quality Assurance Activity