

ANNEX A – SCOPE OF SERVICES OF THE CONSULTANT (MECHANICAL & ELECTRICAL ENGINEER)

1 GENERALLY

1.1 The Consultant shall further to the services specified below do and perform all acts, and things which are usually done and performed by Mechanical & Electrical Engineers according to the practice of their profession in relation to the services and matters provided in this Agreement, including the giving of advice upon any instances which the Employer may from time to time require in preparing the Project and in carrying out the services relating thereto.

1.2 All personnel assisting the Consultant in performing the Consultant's duties shall be approved by the Employer. Upon commencement of the Services, the Consultant shall submit an organisation chart, together with the qualifications of each person assisting the Consultant, to the Employer for written approval. Any subsequent change in the organisation chart shall be subject to the Employer's written approval.

1.3 Without prejudice to the generality of the above paragraph, the Consultant shall provide the Services and carry out the duties set out below:-

Stage I (as described in Paragraph 2 herein)

a) Investigation, Preliminary design and estimates

Stage II (as described in Paragraph 3 herein)

a) Detailed design

b) Preparation of tender documents

c) Evaluation of tenders

Stage III (as described in Paragraph 4 herein)

a) Supervision and contract administration of the Works

In the event of termination of the Contract for the Contractor's default or otherwise, the Consultant shall facilitate the continued execution of the Works and the Project, including the provision (including re-provision), at no additional cost, of Services in relation to any tender for a replacement Contractor for the Contract. For the avoidance of doubt, the Consultant shall continue to provide the Services and carry out the abovementioned duties until the Project and its related works are completed.

1.4 The Consultant shall assist in the preparation of such documents for the purpose of inviting tenders for services of Accredited Checker (as required under the Building Control Act 1989) and services of Registered Inspectors (as required under the Fire Safety Act 1993), where relevant under the Consultant's professional discipline. The fees of the Accredited Checker and Registered Inspectors shall be borne by the Employer.

1.5 The Consultant shall ensure that its key officers, and shall further ensure that key-officers of its agents and sub-consultants participate in partnering workshops arranged by the Employer and Contractor or as may be required by the Employer.

1.6 The costs incurred for organising the partnering workshops are to be borne equally by the Employer and the Contractor.

1.7 # The Consultant shall be the Superintending Officer, under the prevailing Public Sector Standard Conditions of Contract for Construction Works (“PSSCOC”) issued by the Building & Construction Authority (“BCA”).

Note: This clause should only be included if the Consultant in question is also appointed as the Superintending Officer.

2 STAGE I - SCOPE OF SERVICES (Investigation, Preliminary design and estimates)

- 2.1 Investigate available data and information relating to the Project.
- 2.2 Obtain all existing services drawings directly from the Employer or relevant authorities and be responsible for any site investigation to determine the layout of existing services.
- 2.3 Prepare the preliminary designs and estimates for the Project (including all such drawings, BIM models, calculations and reports as are necessary) for the approval of the Employer. The preliminary designs and estimates shall be endorsed by the Consultant and shall conform to the Employer’s Requirements which shall be provided by the Employer. In this Annex A, “BIM model” means a set of digital representations of the physical buildings/structures to be constructed, created using a Building Information Modelling (“BIM”) authoring software.
- 2.4 Prepare the proposed sketch/scheme designs at appropriate scales, with outline specifications, a cost plan and a breakdown of cost estimates for mechanical and electrical works and where applicable, cash-flow projections.
- 2.5 Consult other consultants appointed by the Employer on the proper planning, co-ordination and implementation of the Project.
- 2.6 Provide such drawings and other information relating to the Project to enable the other consultants to produce their preliminary plans.
- 2.7 Prepare in collaboration with other consultants appointed by the Employer a programme relating to the Consultant's own work to conform to the overall programme.
- 2.8 Make such changes or modifications to the proposals, as may be necessary, arising from consultations the Consultant may have with the Employer and the other consultants appointed in connection with the Project.
- 2.9 Make necessary consultations with the Building and Construction Authority (“BCA”) and other relevant authorities for planning parameters and other technical requirements imposed by BCA and the other statutory authorities.
- 2.10 Make presentations to the Employer on the Consultant’s proposed design. It is envisaged that at least two presentations would be required.

- 2.11 Submit 3 sets of drawings and documents or a BIM model file for obtaining the formal approval of the Employer.
- 2.12 The Consultant may engage, at the Consultant's own expense, such other consultants whom the Consultant considers necessary to assist in preparing the preliminary design and cost estimates.
- 2.13 As may be necessary, investigate and obtain all information to assess and recommend to the Employer whether the new mechanical and electrical services can be added to the existing mechanical and electrical systems, or the existing systems require upgrading throughout.

3 STAGE II - SCOPE OF SERVICES

3.1 Detailed Design

- (1) Develop the design for mechanical and electrical works in collaboration with the other consultants appointed by the Employer after acceptance of the preliminary design and prepare all the mechanical and electrical drawings pertaining to the Project in appropriate scales.
- (2) Give due consideration to existing services in the design. Existing services shall be reflected clearly on the tender drawings. The existing services shall be clearly differentiated to indicate their status.
- (3) Advise the Employer on the need for any ancillary amenities, equipment, facilities and services for the Project.
- (4) Prepare and submit, at no additional cost, all necessary prints of drawings, BIM models, forms and required documents to the Urban Redevelopment Authority ("URA"), BCA, the Singapore Civil Defence Force, the Ministry of Sustainability and the Environment, and other relevant authorities for approval and amend the same if so required by the relevant authorities in order to obtain all necessary approvals.
- (5) Make any necessary alterations to the specification and/or drawings if so requested by the Employer.
- (6) Prepare and submit, at no additional cost, two (2) sets of design calculations, drawings and BIM models in all respects of the Project at least two (2) weeks prior to calling of tenders. The BIM models, drawings and design calculations shall be endorsed by the Consultant.

3.2 Preparation of Tender Documents

- (1) Prepare such working drawings and specifications as would be necessary for the purpose of inviting tenders. The working drawings and specifications shall be sufficiently detailed to show the purpose of the Works to enable tenderers to

tender for and construct the Works with very minimal changes required during the construction stage. The working drawings and specifications shall comply with all regulations and requirements of the relevant authorities as well as the Employer's tendering procedures. Unless otherwise specified, the contract form to be used for the Works shall be the prevailing Public Sector Standard Conditions of Contract (“PSSCOC”) issued by the BCA. The Consultant shall ensure that it specifies the prevailing version of the Option Module on Collaborative Contracting in the Appendix to the PSSCOC when it calls the tender.

- (2) Attend to the tenderers' queries regarding information contained in the tender documents and issuing corrigendum to the tenderers if so required by the Employer. Tenderers' queries and the Consultant's replies shall be recorded and sent to the Employer.
- (3) The Consultant shall prepare, supply and deliver tender documents in the number of complete sets required by the Employer for the purpose of inviting construction tenders. The Consultant shall be reimbursed for lithography charges at such rate to be agreed in writing between the Employer and the Consultant or, where the Employer and the Consultant are unable to agree, at fair market rates. No further charges shall be payable.
- (4) The Consultant shall provide the Employer, at no additional cost, 3 sets of tender documents and drawings for information and documentation.
- (5) The Consultant shall ensure that the tender process shall be in accordance with the Employer's procedures.

3.3 Evaluation of Tenders

- (1) Render skilled and confidential advice to the Employer in the evaluation of the tenders received. The Consultant shall analyse and compare the tenders received with the approved estimates and prices current in the market and advise the Employer as to the most suitable tender for acceptance. The Employer may consider the advice of the Consultant and award the tender as it deems fit or reject all tenders received and instruct the Consultant to make further amendments to the drawings etc. and invite fresh tenders accordingly.
- (2) Prepare and furnish, at no additional cost, three (3) sets of all necessary contract documents relating to tender acceptance. The Consultant shall, at the Consultant's own expense, prepare additional contract documents for the administration of the contract.
- (3) The Consultant shall ensure that the evaluation process shall be in accordance with the Employer's procedures.

4 STAGE III - SCOPE OF SERVICES (Supervision and Contract Administration of the Works)

- 4.1 Supervise the execution of the Works and ensure that the Works are carried out by the Contractor in accordance with the specifications / Bills of Quantities, drawings and all other contract documents and shall exercise all necessary supervision to ensure that the Employer's interests are protected. In connection herewith, the Consultant shall engage the approved number of full-time site supervisors to carry out the supervision of the execution of the mechanical and electrical works during the period of the Contract, including any extension of time. They shall be directly responsible to the Consultant.
- 4.2 Arrange and supervise acceptance tests on the site as may be necessary, including such inspection and testing during the manufacture of such materials and plant as are usual in the Singapore context. To approve samples submitted by the Contractor.
- 4.3 All plans and shop drawings shall be vetted and endorsed by the Consultant, who shall take into consideration proper co-ordination, design and others.
- 4.4 Initiate, co-ordinate and complete all necessary arrangements with the relevant authorities for connection of services, etc.
- 4.5 Monitor the Contractor's progress and performance and maintain site records of the Works which should include all circumstances and events occurring during the construction stage. The Consultant is also required to assess the Contractor's achievement of Key Performance Incentives (where applicable), prepare cash-flow projections, monthly work progress reports, quarterly performance reports and other reports or information relevant to the Works as may be required by the Employer.
- 4.6 Value the works carried out each month and recommend to the other relevant consultants the appropriate progress payments for the Contractor and where applicable, the Contractor's sub-contractors.
- 4.7 The Consultant shall not make any deviation, alteration, additions to or omission from the approved design without the prior knowledge and written consent of the Employer. All instructions on variations must have the prior written approval of the Employer before issuance. Where applicable, the Consultant shall inform the principal consultant on all important matters and shall issue instructions through the principal consultant. The Consultant shall inform the Employer of the extent of the cost and time implication before issuing any instructions on variations.
- 4.8 Prepare further sketches, designs, drawings, BIM models and specification, prior to the construction of the Works by the Contractor. Any drawings required under this clause shall be issued at no additional cost to the Contractor and the Contractor's sub-contractors and the Employer.
- 4.9 The Consultant has the authority to give orders on behalf of the Employer if such are necessitated by constructional requirements which affect the safety of the Works and site operations, provided the Employer shall be immediately notified thereof.
- 4.10 Co-ordinate the services in all aspects of the Project in accordance with advice given by the other consultants of the Project.

- 4.11 Check the Contractor's and where applicable, sub-contractors' claims and advise the Employer on appropriate actions to be taken.
- 4.12 Witnessing, testing and commissioning of all mechanical and electrical systems. The Consultant shall endorse all testing and commissioning reports.
- 4.13 The Consultant shall issue and endorse certificates of supervision for all the mechanical and electrical systems.
- 4.14 Arrange for all necessary inspection required by any of the relevant authorities.
- 4.15 The Consultant shall, subject to the approval of the Employer:
 - (1) Settle the final accounts with the Contractor and where applicable, the sub-contractors within the time frame in accordance with the construction contract between the Employer and the Contractor. The Consultant shall produce a copy of the final accounts to the Employer.
 - (2) Recommend and certify the final payment to the Contractor and where applicable, the sub-contractors.
- 4.16 Arrange for all necessary inspections and prepare all documents required to facilitate the handing over of the completed Project to the Employer's maintenance agency.
- 4.17 All "as-built" drawings and design calculations shall be checked and endorsed by the Consultant.
- 4.18 Inspect and list the defects required to be rectified during the Defects Liability Period of the Works. Provide additional drawings where necessary and supervise any remedial works as requested by the Employer during the Defects Liability Period.
- 4.19 The Consultant shall furnish or direct the Contractor to furnish, at no additional cost to the Employer:
 - (1) One complete set of as-built drawings in printed form and in computer-drawing file format or one complete set of BIM models in a file format approved by the Employer.
 - (2) One set of tender documents relating to the Project.
 - (3) One set of final design calculations.
 - (4) One set of such other documents as are necessary for maintenance purpose including operation manuals etc.
 - (5) Guarantees, Warranties, etc.
 - (6) Any other document in connection with the Project as required by the Employer's maintenance agency.
- 5 The Consultant shall provide the Employer and the other consultants, at no additional cost, all necessary prints or softcopies required for information and approval during the development of the drawings for the Project. This includes the latest authority-approved plans and documents.

6 The Consultant shall work with and consult the other consultants and such other consultants as may be appointed by the Employer from time to time, in the course of discharging the Consultant's duties for the Project.

7 The Consultant shall attend and administer[^] the Dispute Board (DB) meetings and site visits, as may be required by the DB. He shall render the necessary assistance to the DB in settling any disputes or differences of whatsoever kind which may arise between the Employer and the Contractor and which is referred to the DB in accordance with Clause E4.0 of Option Module E on Collaborative Contracting under the PSSCOC.

[^] Note: Only the Superintending Officer shall administer the DB meetings. To delete the words "and administer" accordingly if this is not applicable.

8 (*) The Consultant is hereby designated as the principal consultant and shall be wholly responsible for the planning, co-ordination, reporting and implementation of the Project, and shall be responsible for preparing, monitoring and carrying out the Project according to the approved contract programme. The Consultant shall observe the standard finishings, amenities and floor areas laid down by the Employer and advise the Employer of any contrary proposals for the betterment of the Project.

9 (*) The Consultant shall work with and be responsible for the co-ordination of the services to be provided by (**) the Project Manager / the other consultants / the Accredited Checker, the Registered Inspectors and such other consultants as may be appointed by the Employer from time to time, in the course of discharging the Consultant's duties for the Project. The design details, notes, specifications and annotations pertaining to the Project and provided by the Consultant shall give effect to the requirements of the services of such consultants and shall facilitate the discharge of the services to be provided by such consultants to the Employer.

10 (*) The Consultant shall be familiar with the provisions of the Contract relating to termination and shall, with the Employer's approval, initiate timely and necessary actions for the eventual termination of the Contract with the Contractor in the event of a default by the Contractor that gives rise to the Employer's right to terminate the Contract, or in any other event where a termination right of the Employer as stipulated in the Contract is exercisable and the Employer wishes to terminate the Contract. Upon the issuance of a notice of termination of the Contract, the Consultant shall manage the security and maintenance of the Project site until the date of resumption of works for the Project by a newly appointed contractor. The Consultant shall plan and coordinate the activities to engage a new Contractor to take over and resume work on the Project with minimal delay.

11 The mechanical and electrical works shall be the works listed in Appendix I and any other work incidental thereto.

12 OTHER SERVICES WITHIN THE SCOPE OF SERVICES

12.1 [Agencies to stipulate any other services required from the Consultant that would fall within the scope of services.]

* Applicable only if the Consultant is designated as the principal consultant. Delete if not applicable.

** Delete as appropriate.

**ANNEX A – APPENDIX I
LIST OF MECHANICAL AND ELECTRICAL WORKS
TO BE COVERED UNDER THIS AGREEMENT**

A MECHANICAL WORKS

1. Cold and Hot Water Service
2. Town Gas Service
3. In-house sanitary plumbing
4. Drainage Pumping System
5. Fire Protection Systems such as fire hydrant, dry and wet risers, hose reels, automatic sprinkler systems.
6. Air-conditioning and Mechanical Ventilation System
7. Lift, Escalators and Dumbwaiter Installations
8. Smoke Control System

Note: Add / Delete where applicable.

B ELECTRICAL WORKS

1. Electrical Installation & Lightning Protection
2. UPS/Power Conditioning System
3. Standby Generator with sound proofing works
4. Fire Alarm System/Voice Communications
5. Security System
6. Sound Reinforcement System
7. Public Address System
8. PABX System
9. Electronic Queuing & Display system
10. Stage Lighting and Audiovisual System
11. Intercom System
12. Building Energy Management System
13. Master Antenna & TV System

Note: Add / Delete where applicable.