

**THE SALVATION ARMY**  
**CONSULTANCY AGREEMENT**  
**FOR**  
**ARCHITECTURAL AND ASSOCIATED CONSULTANCY SERVICES**  
**BRIEF**

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# THE SALVATION ARMY

## CONSULTANCY AGREEMENT

### FOR

## ARCHITECTURAL AND ASSOCIATED CONSULTANCY SERVICES

### REDEVELOPMENT OF THE SALVATION ARMY

### SHAUKEIWAN DAY ACTIVITY CENTRE

#### 1. Introduction

This Brief is to be read in conjunction with the Memorandum of Agreement, the General Conditions of Employment, Special Conditions of Employment (if any), Schedule of Fees and all other documents comprising the Agreement.

For the avoidance of doubt but without prejudice to Clause 7 of the General Conditions of Employment, the performance of the Services specified herein shall be subject to Clause 22 of the General Conditions of Employment.

#### 2. Description of the Project

- 2.1 (a) The **“Project”** comprises of redeveloping the existing 3-storey Salvation Army Shaukeiwan Day Activity Centre for the expansion and improvement of the provision of rehabilitation facilities and social services for the community, which includes a Day Activity Centre, Hostel for Severely Mentally Handicapped Persons, and Family and Child Development Centre.
- (b) The **“Site”** is located at No. 456 Shau Kei Wan Road (Shaukeiwan Inland Lot No. 755RP) together with the adjacent sitting-out area (GLA-HK673) currently owned by the Leisure and Cultural Services Department (“LCSD”), along with a vacant Government land. The Subject Site is situated between the sloping Chai Wan Road and Shau Kei Wan Road, and adjacent to the Hong Kong Society for the Protection of Children SIA Shaukeiwan Day Creche. Shau Kei Wan Road is located along the northern boundary of the Subject Site, while Chai Wan Road is located along the southern boundary.
- (c) The development will redevelop the existing building within the Site into an enhanced facility, with a publicly accessible sitting-out area at the ground level for passive recreation and landscaping purposes.
- (d) The Project may be procured, as considered appropriate by the Employer, under a number of works contracts including but not limited to: transplanting, demolition and hoarding works, ground investigation, services and utilities diversions and upgrading works, site formation, foundation, excavation & lateral support, superstructure, nominated subcontracts and/or any direct contracts.
- 2.2 The estimated cost of this Project as at September 2023 price level is \$ 131.198M (excluding professional fees and related expenses and Furniture and Equipment (F&E) costs) made up as follows: -

(i)	Tree Survey and Transplanting	\$ 0.022 M
(ii)	Demolition and Hoarding	\$ 1.346 M
(iii)	Ground Investigation	\$ 0.218 M
(iv)	Asbestos Survey	\$ 0.016 M
(v)	Foundation and Substructure	\$ 11.418 M
(vi)	Site Formation	\$ 1.049 M

(vii) Architectural and Structural Works	\$ 58.995 M
(viii) Building Services	\$ 23.789 M
(ix) Additional energy conservation, green and recycled features	\$ 1.231 M
(x) External Work and Landscape	\$ 1.831 M
(xi) Underground Drainage and Sewerage	\$ 3.303 M
(xii) BEAM Plus Assessment	\$ 0.234 M
(xiii) Reinstatement of Footpath	\$ 0.261 M
(xiv) Preliminaries	\$ 15.557 M
(xv) <u>Contingencies</u>	<u>\$ 11.928 M</u>
Total estimated cost	<u>\$131.198M</u>

### 3. Objectives of the Assignment

- 3.1 The objective of this Agreement is for the Consultant to successfully complete the Assignment in an efficient and cost effective manner.
- 3.2 The objectives of this Assignment are to obtain professional services from the Consultant for the successful completion of the Assignment as described in the Brief and in accordance with the General and Special Conditions of Employment, if any. The services provided by the Consultant to complete this Assignment shall meet the following objectives:
- (a) The intended function of the building;
  - (b) Ease of construction and economy;
  - (c) Safety and sustainability;
  - (d) Programme and budget;
  - (e) Ease of Maintenance; and
  - (f) Green building;
  - (g) Innovation and Creativity.

### 4. Description of the Assignment

- 4.1 The Consultant shall be the consultant providing architectural services and shall act as the lead consultant and, at his own expense, enter into separate domestic agreements with a structural engineering Sub-consultant, a building services engineering Sub-consultant and any other Sub-consultants such as BEAM professional, registered energy assessor, civil engineering consultant, geotechnical consultant, acoustic consultant, landscape consultant, interior design consultant (except a quantity surveying consultant) he may deem necessary in order for him to perform his duties as per the Brief.

A quantity surveying consultant shall be appointed separately by the Employer.

#### The Assignment

The Assignment shall include services related to architectural, structural, geotechnical, building services (plumbing/ drainage works inclusive) and landscape architectural aspects , for Work Stages 2 to 6 as detailed under Clause 6 of this Brief:-

- 4.2 The Work stages which the Consultant is to undertake are:

- (a) Not Used.
- (b) Work stage 2: Outline Proposals and Sketch Plan
- (c) Work stage 3: Detail Design
- (d) Work stage 4: Documentation / Tendering
- (e) Work stage 5: Construction Supervision
- (f) Work stage 6: Post Hand Over Services

The Consultant should not commence and would not be paid for the services comprised within a work stage without a written instruction to do so from the Employer's Representative.

4.3 The Consultant shall undertake the appointment and be responsible for all the works described in this Brief. The Consultant shall be fully responsible for coordinating all the works stipulated in this Agreement irrespective of the demarcation of work descriptions for architectural and other Sub-consultants (e.g. structural (including geotechnical), building services, landscape architectural aspects) and specialists (e.g. acoustic, environmental) according to Clause 19.1 and Attachment 1 to Annex 6 in the Brief.

4.4 The Consultant's attention is drawn to the following additional requirements for services;

- (a) Attend all liaison meetings with the Employer, relevant government departments and authorities or interested groups;
- (b) Not used;
- (c) All interior or graphic design works;
- (d) Geotechnical engineering;
- (e) To comply with the target-based green performance framework promulgated by ArchSD OI No. 04/2009 – Green Government Buildings;
- (f) To adopt modular integrated construction (MiC) for new building works as promulgated by DEVB TC(W) No. 4/2024;
- (g) The Consultant is required to explore and widely adopt innovative design ideas to enhance construction productivity/ efficiency and to facilitate smart operation & maintenance, which shall include but not limited to the use of offsite pre-fabrication, multi-trade integrated mechanical, electrical and plumbing (MiMEP) or modular integrated construction (MiC).

4.5 Although the consultancy for Quantity Surveying Services may be appointed separately by the Employer, the Consultant shall fully coordinate and provide necessary information to the Project Quantity Surveyor in fulfilling the Assignment and completion of the works contracts.

4.6 The Consultant shall submit all necessary plans and documents of equivalent standards as required under Buildings Ordinance to the Employer's Representative to demonstrate statutory compliance.

4.7 The Consultant shall provide a written undertaking confirming compliance with all statutory requirements.

4.8 Quality Site Supervision Plan (QSSP)

For the implementation of QSSP at Work stage 3, 4 and 5, the Consultant shall identify critical construction activities /stages of works, built components/modules, structural elements and other items that warrant the formulation of special site supervision requirements during construction. Supervision on the off-site pre-fabrication works, if any, shall comply with the requirements as stipulated in the PNAPs which are in relation to quality supervision of building works, such as APP-143, APP-158 and ADV-36 but not exhaustive, and also be addressed in the QSSP. The Consultant shall formulate a QSSP which provides sufficient details of the site supervision arrangement. All critical construction activities relating to architectural/building, building services, geotechnical, landscaping and structural works etc. shall be addressed in the QSSP. The Consultant shall also identify in the QSSP temporary works that are critical in terms of safety and require to provide independent checking of the temporary works.

4.9 Land (Miscellaneous Provisions) Ordinance [LMPO]

The Consultant shall carry out all the duties of the Employer necessary in processing the Excavation Permit (except signing the application form of Excavation Permit) and the associated monitoring action and supervision during the construction period in accordance with the requirements of the latest LMPO and conditions in the excavation permits.

4.10 Not used.

4.11 The execution of the Assignment shall be in accordance with the adopted items in the Project Environmental Design Checklist where applicable. The Consultant shall give reasons in the Project Environmental Design Checklist against each of the items that he considers not applicable or cannot be adopted. The list of the adopted items shall be agreed by the Employer's Representative.

4.12 The certification fee (including the registration and assessment fees and any adjustment thereof) of BEAM Plus for project assessment is reimbursable to the Consultant and a provision for the reimbursement is included in Clause 4(d) of the Schedule of Fees.

4.13 The Consultant shall adopt Building Information Modeling (BIM) throughout the project life-cycle to enhance and improve the coordination amongst various stakeholders during the design, construction, operation and maintenance of the Project and to facilitate effective decision making at key stages of the Project.

The Consultant shall utilise BIM for avoidance of risks, minimisation of changes, project cost control, programmes monitoring in various stages, enhancement of safety design for construction and operation of the asset and demonstration of the constructability of the design .

The following table listed the BIM uses required in this Project:

	<b>BIM Use</b>	<b>Investigation, Feasibility and Planning</b>	<b>Design</b>	<b>Construction</b>
1	Design Authoring	Yes <sup>1</sup>	Yes	Yes
2	Design Reviews	Yes <sup>1</sup>	Yes	Yes
3	Existing Conditions Modelling	Yes <sup>1</sup>	Yes	Yes
4	Site Analysis	Yes <sup>1</sup>	Yes	--
5	3D Coordination	--	Yes	Yes
6	Cost Estimation	Yes	Yes <sup>1</sup>	Yes <sup>1</sup>
7	Engineering Analysis	--	Yes <sup>1</sup>	Yes <sup>1</sup>
8	Facility Energy Analysis	--	Yes	Yes
9	Sustainability Evaluation	Yes	Yes <sup>1</sup>	Yes <sup>1</sup>
10	Space Programming	Yes	Yes <sup>1</sup>	--
11	Phase Planning (4D Modelling)	--	Yes <sup>1</sup>	Yes
12	Digital Fabrication	--	Yes <sup>1</sup>	Yes <sup>1</sup>
13	Site Utilisation Planning	--	--	Yes <sup>1</sup>
14	3D Control and Planning	--	--	Yes <sup>1</sup>
15	As-Built Modelling	--	--	Yes
16	Project Systems Analysis	--	--	Yes
17	Maintenance Scheduling	--	--	Yes <sup>1</sup>
18	Space Management and Tracking	--	--	Yes
19	Asset Management	--	--	Yes <sup>1</sup>
20	Drawing Generation (Drawing Production)	--	Yes	Yes

Note:

1. Details and extent of mandatory BIM Use shall be referred to the Notes in Attachment 1 to Annex 6

The Consultant shall make reference to the latest version of the following standards in the Assignment unless stated otherwise by the Employer's Representative.

- i. BIM guides issued by the Architectural Services Department
  - BIM Guide for Architectural Design
  - BIM Guide for BS Installations
  - BIM Guide for Cost Estimation
  - BIM Guide for Facilities Upkeep
  - BIM Guide for Structural Engineering
- ii. BIM guide issued by Electrical and Mechanical Services Department
  - Building Information Modelling for Asset Management (BIM-AM) Standards and Guidelines
  - Building Information Modelling for Asset Management (BIM-AM) Guidelines for the Handover of E&M Installation to EMSD
- iii. Latest Technical Circulars
  - DEVB TC(W) No. 2/2021 – Adoption of Building Information Modelling for Capital Works Projects in Hong Kong and its subsequent updates (if any)
  - DEVB TC(W) No. 8/2021 – Building Information Modelling Harmonisation Guidelines for Capital Works Projects in Hong Kong and its subsequent updates (if any)
- iv. BIM Harmonisation Guidelines for Works Departments issued by the Development Bureau
- v. CIC BIM Standards
- vi. Penn State BIM Execution Planning for BIM Uses
- vii. Drafting Specifications for Engineering Survey
- viii. BS EN ISO 19650-1:2018, BS EN ISO 19650-2:2018, BS EN ISO 19650-3:2020, BS EN ISO 19650-5:2020, BS 1192-4:2014

## 5. Deliverables

- 5.1 The Consultant shall provide the Employer's Representative with all drawings, specifications and ancillary documents, as required, during the above mentioned workstages of the Assignment.
- 5.2 Not used.
- 5.3 The Consultant shall collaborate with the Sub-consultants and other consultants in the preparation, coordination, production and delivery to the Employer's Representative of the deliverables as detailed in the Brief for various stages of works and any other deliverables necessary for the completion of the assignment, and circulate to relevant parties in sufficient copies.
- 5.4 The Consultant shall provide all tender drawings in hard copies and AutoCAD version 2008. Apart from tender drawings, the Consultant may provide other drawings in AutoCAD version 2008 to 2000 and to the satisfaction of the Employer's Representative.

The Consultant shall provide the Employer's Representative hard and soft (electronic files) copies of all drawings and documents as required during the work stages of the Assignment. Unless otherwise requested by the Employer's Representative, four copies of each document will be required. Scales for drawings are to be 1 :100 for general layouts and 1 : 20 for details or as otherwise agreed.

- 5.5 Not used.
- 5.6 The Consultant shall submit final version of the following consultant-prepared as-built drawings and documents for Architectural, Landscape, Structural Works, Building Services / Electrical and

Mechanical Installations which are an accurate representation of the project to the Employer within 28 days from the date of issuance of the completion certificate:

#### 5.6.1 Architectural

(a) Requirements of As-built Drawings and Documents

- i. a complete set of general building plans including elevations, sections, schedules and all other construction details. The as-built drawings shall be verified and signed by the Consultant;
- ii. a complete set of approved F.S. installations plans and relevant documents including D.G. Store submission (if any) from Fire Services Department;
- iii. a complete set approved general building plans and relevant documents from Buildings Department or Housing Department (if any) and
- iv. a complete set of approved plans and documents from other statutory authorities, such as: Environment Protection Department, Drainage Services Department, Fire Services Department, etc (if any) or other requested by the Employer's Representative.

(b) Media for As-built Drawings

- i. 1 set of drawings stated in 5.6.1(a)i in AutoCAD format;
- ii. 1 set of drawings stated in 5.6.1(a)i in PDF format (The PDF image file shall be printed out from drawing file by AutoCAD in full size with minimum resolution 600x600 dpi. The line weight and colour setting shall be matched with hardcopy output) and
- iii. 1 set of drawings stated in 5.6.1(a)iii to 5.6.1(a)iv in TIFF or JPEG format (The TIFF image file shall be reproduced from the full size drawing with minimum resolution of 400x400 dpi in compression G4 format. The JPEG image file shall be reproduced from full size drawing with minimum resolution of 400x400 dpi).
- iv. The above drawings shall be in three sets of CD-ROM computer disk.

(c) Project Information

Record number and project completion date shall be inserted in each drawing as stated in 5.6.1(a) and each computer disk shall be labelled.

#### 5.6.2 Structural Engineering

(a) Requirements of As-built Drawings and Documents

- i. a complete set of as-constructed piling layout plans, piling record plans, ELS and site formation drawings in full size, produced by the Structural Sub-consultant or the work contractors. The as-constructed drawings shall be verified and signed by the Registered Structural Engineer of the Structural Sub-consultant.
- ii. a complete set of as-constructed framing plans including elevations, sections, schedules in full size, produced by the Structural Sub-consultant. The as-constructed drawings shall be verified and signed by the Registered Structural Engineer of the Structural Sub-consultant.



- iii. a complete set of as-constructed detail drawings produced by the Structural Sub-consultant. The as-constructed drawings shall be verified and signed by the Registered Structural Engineer of the Structural Sub-consultant.
  - iv. a complete set of approved shop drawing, as-built drawings and documents for structural works as stipulated in the works contracts.
- (b) Media for As-built Drawings
- i. 1 set of drawings stated in 5.6.2(a)i., 5.6.2(a)ii and 5.6.2(a)iii in AutoCAD format;
  - ii. 1 set of drawings stated in 5.6.2(a)i., 5.6.2(a)ii, 5.6.2(a)iii and 5.6.2(a)iv in TIFF format (The TIFF image file shall be reproduced from the full size drawing with minimum resolution of 400 x 400 dpi in compression G4 format. The file shall be reproduced from full size drawing with authorized signature of Registered Structural Engineer.
  - iii. The above drawings shall be in one set of hardcopy and CD-ROM computer disk.
- (c) Project Information

Record number shall be inserted in each drawing as stated in 5.6.2(b) and each computer disk shall be labelled.

#### 5.6.3 Not Used

#### 5.6.4 Building Services

- (a) Requirements of As-built Drawings and Documents
- i. a complete set of as-built design drawings in full size, shall be produced by the building services/electrical & mechanical Sub-consultant or the building services/electrical & mechanical specialist work contractor(s) for each category of the building services/electrical & mechanical installation, and such as-built drawings shall be verified correct and signed by the Building Services Sub-consultant.
  - ii. a complete set of as-built layout plans drawings including all necessary plans, elevations, sections, schedules in full size, operation and maintenance manuals and test records, shall be produced by the building services/electrical & mechanical specialist work contractor(s) for each category of the building services/electrical & mechanical installation and such drawings and documents shall be verified correct and signed by the Building Services Sub-consultant.
- (b) Media for As-built Drawings
- i. 1 set of drawings stated in 5.6.4(a)i. and 5.6.4(a)ii. in AutoCAD format;
  - ii. 1 set of drawings stated in 5.6.4(a)i. and 5.6.4(a)ii. in TIFF format (The TIFF image file shall be reproduced from the full size drawing with minimum resolution of 400 x 400 dpi in compression G4 format.

- iii. The above drawings shall be in one set of hardcopy and CD-ROM computer disk with proper label(s) and declaration of their content correctness by the Building Services Sub-consultant.

#### 5.6.5 Not Used

#### 5.6.6 Landscape Architectural

##### (a) Requirements of As-built Drawings and Documents

- i. A complete set of Landscape Construction Drawings for all hard and soft landscape works including plans, elevations, sections, schedules and all other construction details. The as-built drawings shall be verified and signed by the Consultant.
- ii. A complete set of approved landscape submission documents including any amendment submission and correspondences.
- iii. A set of Itemized Establishment Programme indicating the scope, extent, timing and frequency of horticultural works/operations; A set of Itemized Long-term Horticultural Maintenance and Management Manual indicating the scope, extent, timing and frequency of horticultural works/operations.
- iv. A complete set of approved tree preservation and removal proposal and relevant documents and plans including any amendment submission and correspondences.
- v. Photo records of before-after implementation of landscape works.
- vi. A complete set of tree monitoring reports on the works of tree preservation and protection, where necessary, including tree risk assessment reports.

##### (b) Media for As-built Drawings

- i. 1 set of item stated in 5.6.6(a)(i) of paper size no larger than A1 with AutoCAD and colored PDF format.
- ii. 1 set of each item 5.6.6(a)(iii), 5.6.6(a)(iv) and 5.6.6(a)(vi) of paper size no larger than A3 with MS WORD and colored PDF format.
- iii. 1 set of documents stated in 5.6.6(a)(ii), and 5.6.6(a)(v) of paper size as appropriate and colored PDF, TIFF or JPEG format.
- iv. The PDF image file shall be printed out from the respective source file in full size with minimum resolution 300 x 300 dpi. The line weight and color setting shall match with the hardcopy output.
- v. The TIFF image file shall be reproduced from the full size drawing with minimum resolution of 300 x 300 dpi in compression G4 format. The JPEG image file shall be reproduced from full size drawing with minimum resolution of 300 x 300 dpi.
- vi. The above drawings and documents shall be stored in the same set of CD-ROM computer disk and 3 copies of the CD are required.

#### 5.6.7 Others

For Contractor-prepared as-built drawings, shop drawings and documents, O&M manuals, etc., the final approved version(s) shall be submitted within 10 days after receipt from the Contractor.

**5.7** The Consultant shall prepare and submit documents/information, and deliverables but not limited to, as required by the adopted items in the Project Environmental Design Checklist, for the tasks as identified below or instructed by the Employer's Representative.

(a) Not Used

(b) Work stage 2 – Outline Proposals & Sketch Plan

- (i) Resources plan
- (ii) Programme
- (iii) Comments on Lease Conditions and Lease Plan
- (iv) Report on utility provisions and information
- (v) Appointment of specialist consultants
- (vi) Preliminary Environmental Review Report
- (vii) Preliminary Report on heritage /traffic/drainage impact issues
- (viii) Contract strategy
- (ix) Project estimates
- (x) Review statutory constraints, i.e. building regulations, lease conditions, OZP, tree protection, slope upgrading, transport requirement, drainage protection, etc.
- (xi) Not used
- (xii) All necessary documents to obtain minimum the 2<sup>nd</sup> highest rating of BEAM Plus
- (xiii) Tree preservation and removal proposal to demonstrate that no tree is unnecessarily removed or pruned and the need for off-site tree transplanting and/or compensation.
- (xiv) Presentation of design proposals and materials for bureaux/departments/future operators or users/District Councils/statutory committees/neighbourhood's organisations/charity groups/public consultations, etc.
- (xv) Systematic Risk Management (SRM)
- (xvi) Report on site surveys including topographic survey, underground utilities survey, tree survey, asbestos survey, condition survey of existing buildings and structures, etc.
- (xvii) BIM models showing design coordination.
- (xviii) BEAM Plus Provisional Assessment
- (xix) Sketch Design Report and Outline Proposals including architectural, structural, building services, landscape architectural and geotechnical engineering works, innovative design for construction productivity enhancement and smart operation/ maintenance, including MiMEP, MiC etc.

(c) Work stage 3 – Detail Design

- (i) Resources plan
- (ii) Comments on Lease Conditions and Lease Plan
- (iii) Design calculations
- (iv) Statutory approval
- (v) Finalised layout plans in BIM model showing detailed design intent and services co-ordination
- (vi) Presentation of proposed building materials, systems and equipment.
- (vii) List of materials and equipment selected having less than 3 probable offers
- (viii) Revised project estimates
- (ix) Confirmation of contract strategy
- (x) Review statutory constraints, i.e. building regulations, lease conditions, OZP, tree Protection, slope upgrading, transport requirement, drainage protection, etc.
- (xi) Draft QSSP
- (xii) Report on heritage/traffic/drainage impact assessment
- (xiii) All necessary documents to obtain minimum the 2<sup>nd</sup> highest rating of BEAM Plus.

- (xiv) Approved tree preservation and removal proposal and landscape submission.
- (xv) Presentation of design proposals and materials for bureaux/departments/future operators or users/District Councils/statutory committees/neighbourhood's organisations/charity groups/public consultations, etc.
- (xvi) Update information for SRM
- (xvii) Update information for BEAM Plus Assessment
- (xviii) List of Contractor's design items
- (xix) Detail Design Report including architectural, structural, building services, landscape architectural and geotechnical engineering works, innovative design for construction productivity enhancement and smart operation/ maintenance, including MiMEP, MiC etc.
- (xx) Energy models to demonstrate the compliance of outperforming BEC requirements as promulgated in the circular on Green Government Buildings (DEVB Technical Circular No. 2/2015 and ENB Circular Memorandum No. 3/2015)

(d) Work stage 4 – Documentation/Tendering

- (i) Confirmation of site availability
- (ii) Documents for drafting the funding papers, Panel paper, Essential Project Information Group form and Fact Sheet for Provision of Energy Efficient Feature & Renewable Technologies, if applicable
- (iii) Design calculations and detail drawings
- (iv) Tender drawings
- (v) Particular Specifications
- (vi) Material and equipment schedules
- (vii) List of materials and equipment selected having less than 3 probable offers
- (viii) List of Prime Cost & Provisional Sums
- (ix) Detailed pre-tender estimates
- (x) Draft Special Conditions of Contract to suit special project requirements
- (xi) Records of tender queries and responses
- (xii) Tender assessment and cost analysis of successful tenders
- (xiii) Tender Report and recommendations
- (xiv) Final QSSP
- (xv) All necessary documents to obtain minimum the 2<sup>nd</sup> highest rating of BEAM Plus.
- (xvi) Drawings and materials for LegCo and DC's meetings or other public consultations
- (xvii) BIM models showing design coordination
- (xviii) Update information for SRM
- (xix) Update information for BEAM Plus Assessment

(e) Work stage 5 – Construction Supervision

- (i) Construction drawings
- (ii) Order to Commence Work
- (iii) Construction programme
- (iv) Site inspection records
- (v) Supervising Officer's Instructions
- (vi) Meeting minutes
- (vii) Records of approval of alternative materials and equipment
- (viii) Financial statements
- (ix) Interim Payment Certificates
- (x) Reports on assessment of contractual claims
- (xi) Revised QSSP
- (xii) Site safety records and accident reports
- (xiii) Records of C&D waste disposal
- (xiv) Suspension Notice, Notice of Re-entry
- (xv) Testing and commissioning schedules and records, including information for witnessing of testing and commissioning of installations
- (xvi) List of defects and outstanding works

- (xvii) Operation and maintenance guides / manuals
- (xviii) Site records
- (xix) All necessary documents to obtain minimum the 2<sup>nd</sup> highest rating of BEAM Plus
- (xx) Completion Certificate
- (xxi) Handover Certificate
- (xxii) As-built drawings
- (xxiii) Tree monitoring report including tree risk assessments and mitigation measures.
- (xxiv) Drawings, works supervision plan and handover plan for improvement works
- (xxv) Presentation of design proposals and materials for bureaux/departments/future operators or users/District Councils/statutory committees/neighbourhood's organisations/charity groups/public consultations, etc.
- (xxvi) Update information for SRM
- (xxvii) Co-ordination and attending of meetings with government departments, utility companies and other interested parties regarding site issues
- (xxviii) BEAM Plus Final Assessment
- (xxix) Review report on the implementation, development and enhancement of the Consultant's proposal of innovative design for construction productivity enhancement and smart operation/ maintenance including MiMEP, MiC etc.

(f) Work stage 6 – Post Hand Over Services

- (i) List of additional / improvement works and all documents for the execution of those works
- (ii) Report on hand over of spare parts / materials, O&M manuals and as-built records
- (iii) Report on rectification of outstanding and defective works
- (iv) Report on assessment of contractual claims
- (v) Maintenance Certificate or Defects Rectification Certificate
- (vi) Project appraisal report
- (vii) All documents after finalisation of the Project
- (viii) Not used
- (ix) Analysis/advice and provide information on the green / energy performance of the Project including preparation of all submission documentations and conduct carbon audit, etc. where applicable.
- (x) Not used
- (xi) All necessary documents to obtain minimum the 2<sup>nd</sup> highest rating of BEAM Plus.
- (xii) Site supervision on completion of outstanding works, defect rectification and other necessary coordination works after RSS services are terminated.
- (xiii) Report on Soft landscape Establishment Works, tree monitoring and tree risk assessments.
- (xiv) Drawings, works supervision plan and handover plan for improvement works
- (xv) Provide necessary co-ordination work, conduct site inspections and supervise the completion of outstanding works, defect rectification and improvement works
- (xvi) BEAM Plus Final Assessment
- (xvii) BIM record of the latest information
- (xviii) Finalisation of Employer's Representative's comments
- (xix) IAQ Certificate

## 5.8 Particular BIM Deliverables

(a) BIM Execution Plan

The Consultant shall submit a project specific BIM Execution Plan 4 weeks upon commencement of the Assignment as per Annex 6 for the Employer's Representative's approval.

(b) Model Federation

- i. The Consultant shall deliver a coordinated project information model containing graphical and nongraphical information through a single point of responsibility.

- ii. The Consultant shall create, maintain and update the BIM models and use BIM models to show the following components to the agreement and satisfaction of the Employer's representatives but not limited to:

*Architectural BIM model*

The minimum requirements of LOD-Graphics (LOD-G) and LOD-Information (LOD-I) for architectural components/objects shall refer to the BIM Guide for Architectural Design issued by the Architectural Services Department and CIC BIM Standards.

*Structural BIM model*

The minimum requirements of LOD-Graphics (LOD-G) and LOD-Information (LOD-I) for structural components/objects shall refer to the BIM Guide for Structural Engineering issued by the Architectural Services Department and CIC BIM Standards.

*Building Services BIM model*

The minimum requirements of LOD-Graphic (LOD-G) and LOD-Information (LOD-I) for building services components/objects shall refer to the BIM Guide for BS Installation issued by the Architectural Services Department and CIC BIM Standards.

- iii. The Consultant shall provide a federated model (a single model that combines all individual discipline models in the project area) for both file management and collaboration activity allowing project team to go through the clash detection and co-ordination process.
- iv. It also gives all parties one clear source of structured information rather than lots of different pieces from many different people. Model federation shall be well-defined in the BIM Execution Plan and used as a discussion media during the regular Progress / Coordination Meetings.
- v. The Consultant shall state the requirements for the information submissions such as modelling details at various Workstages. The proposed Level of Information Need (LOIN) for each Workstage and deliverable shall be included clearly on the BIM Execution Plan. The Consultant shall prepare a Responsibility Matrix [with Category Code (CAT Code)] to indicate and supplement project specific elements. The Consultant may propose changes to the LOIN subject to the Employer's Representative approval.
- vi. For efficient handling of models, the BIM model should be sub-divided into separate zones/ services/ systems as appropriate to maintain reasonable file size of the models. The model sub-division strategy (by zones/ services/ systems) should be stated in the BIM Execution Plan. File sizes of each sub-divided BIM model shall be kept in minimum by purging of unused views, BIM objects and settings before publish or submission. The maximum file size for each sub-divided BIM model should not exceed 500MB unless otherwise approved.
- vii. The design BIM models shall be prepared in accordance with the DEVB BIM Harmonisation Guidelines for Works Departments as promulgated by the DEVB TC(W) No. 8/2021 or its subsequent updates (if any).
- viii. Model in Both Native and Open Formats

The Consultant shall provide native and editable BIM model(s) and maintain an open formats such as Industry Foundation Classes (IFC) to the Employer's Representative. The Consultant shall ensure that data in the file is in order and is in consistence with those in the native file.

File types or formats agreed and approved by the Employer's Representative include:-

- Native format;
- Industry Foundation Classes (.ifc);
- Videos (.mp4 & other formats specified in the latest version of OGCI0 – The HKSARG Interoperability Framework (S18));
- GIS data (.shp); and
- Other formats to be accepted by the Employer's Representative specified in the latest version of OGCI0 – The HKSARG Interoperability Framework (S18).

(c) Hardware and Software Requirements

The Consultant shall submit a proposal with details on specification and quantities of compatible software and hardware to build up a Common Data Environment (CDE) for BIM collaboration process during all Work stages including construction stages. After the Employer's Representative's approval of the proposal, the Consultant shall provide at his own cost, set up, manage and maintain the proposed hardware and software for the CDE. The CDE shall comply with the requirements of BS EN ISO 19650-2:2018 and include a web browser based 3D model viewer accessible to all members of the project team and the Contractor including the Employer's Representative to allow them to regularly review the progress and versions of BIM deliverables.

(d) Drawing Generation (Drawing Production)

- i. The Consultant shall deliver the final 2D drawings which are generated from the BIM models aligned with department's standards. During the Assignment period, the Consultant shall propose drawing formats generated from BIM models approved by the Employer's Representative. As far as practicable, the 2D drawings should be generated from the BIM authoring software directly. Production of 2D drawings by other platforms shall be ceased if those drawings can be generated from the BIM model. 2D drawings which are generated from the BIM model need not follow the CAD Standard for Works Projects (CSWP).
- ii. It is acceptable that certain 2D drawings such as architectural details, building services schematic /control logic diagrams /drawings and reinforcement details cannot be generated from the BIM model directly. Alternative software, i.e. non-BIM authoring software, could be used and these 2D drawings shall be prepared in accordance with the CAD Standard for Works Projects (CSWP). It should be included in the BIM Execution Plan a BIM model and 2D drawing registration list to make clear the 2D drawings that are generated from the BIM models and those that are not.
- iii. At the end of design stage, the Consultant shall deliver the final design models as record documents. The final design model shall be a design-error free model without any design conflict. The final design model shall be delivered in their native format and purged of all unused content including but not limited to line types, line styles, line weights, families, and views. All errors and warnings shall have been resolved or, if agreed to, listed on the approved model exception list. The detailing of 2D drawings shall be not less than current practice and used as tender drawings.
- iv. Drawings for Statutory Submission  
  
BIM shall be used to produce drawings and calculations for statutory submission purposes. The following items can be determined with the aid of BIM:
  - Fundamental checking equivalent to the Standards as per current practice notes;
  - Checking of gross floor area;
  - Checking of means of escape;
  - Checking of sanitary fitment provision; and
  - Checking of fire compartment and fire resisting construction.
- v. The Consultant shall ensure the BIM data comply with the related guidelines and standards in order to minimize manual intervention in the production of 2D drawings.

- vi. The Consultant shall refer to the latest documents released from Buildings Department (BD) and Construction Industry Council (CIC) Hong Kong regarding the BIM standards for General Building Plan Submission.

(e) Clash Reports

The Consultant shall provide details in coordination, internal and external clash prevention, detection and resolution processes and overall quality control, and shall address the following:

- i. Software;
- ii. Process overview;
- iii. Responsibilities;
- iv. Outputs;
- v. Technical query workflow;
- vi. Clash resolution process;
- vii. Tolerance levels (mm) for different disciplines;
- viii. Operation clearance;
- ix. Maintenance clearance;
- x. Buildability; and
- xi. Services compatibility.

Clash reports shall identify clashes and missing, conflicting or erroneous information found in the process of developing models and 4D simulation. Clash analysis shall be carried out, recorded and reported in the format of clash reports. The clash reports shall include 3D close-ups of the models, location maps and references to the construction drawings.

(f) BIM Audit

i. Project BIM Audit

The Consultant shall be responsible for ensuring the integrity of their BIM and drawings as well as compliance with the BIM standards.

The Consultant shall formulate BIM audit strategy and establish a BIM audit plan to ensure appropriate checks on accuracy and quality of the information models. The BIM audit plan shall include the strategy and methodology of checking. The BIM audit plan shall be included in the BIM Execution Plan for the Employer's Representative's approval. The Consultant shall submit BIM Audit report to the Employer's Representative at monthly intervals.

ii Quarterly BIM Audit

The Consultant shall be required to provide attendance and any other necessary assistance for the Director's Representative to carry out Quarterly BIM Audit either in his office or on site. The Consultant shall follow up the corrective actions on non-compliance and observations identified in the Quarterly BIM Audit.

(g) Training Proposal and Training Log

The Consultant shall submit a training proposal as detailed in Clause 6.21 (l). After the completion of training sessions, a training report shall be logged and submitted to the Employer's Representative for record. The training report should be reviewed and updated quarterly.

(h) As-built BIM models

The as-built BIM models and 2D as-built record drawings shall comprise customized building attributes and file structure for data submission in format agreed and approved by the Supervising



Officer. The as-built BIM models and building attributes will be used for future development on retrieval of asset and works records by the user.

It is required to work with and provide training sessions as required by the Employer's representative to the user to use the as-built BIM models.

The as-built BIM models shall be able to create sheet records and contain information including photographic record, 3D Digital Point Cloud Scanning and other data to meet the requirements of the user.

The as-built BIM models shall be prepared in accordance with the DEVB BIM Harmonisation Guidelines for Works Departments as promulgated by the DEVB TC(W) No. 8/2021 or its subsequent updates (if any).

(i) BIM Object

The Consultant shall utilize BIM objects shared at CIC BIM Portal as far as practicable. All BIM objects created by the Consultant for the Assignment shall comply with the latest version of the DEVB BIM Harmonisation Guidelines, ArchSD BIM Guides and related guidelines/standards.

The Consultant shall create and submit as assigned by the Employer's Representative project specific design stage BIM object files for modelling the design project information model (dPIM).

Within 1 month from the issuance of the certificate of completion for the main Contract Works, the Consultant shall submit a proposed list of BIM object files to the Employer's Representative for comment and agreement. The Consultant shall submit alternative BIM objects if their proposal was rejected.

Within 2 weeks upon confirmation of the proposed list of BIM object files, the Consultant shall submit BIM object sheets of the proposed BIM object files to the Employer's Representative for comment.

Within 4 months from the issuance of the certificate of completion for the main Contract Works, the Consultant shall submit the project specific BIM object files and BIM object sheets to Employer's Representative according to the agreed list.

(j) Submission of Deliverables

- i. The Consultant shall submit the Deliverables (hardcopies and softcopies with editable and image files in CD-ROMs or other equivalent media) to the Employer's Representative, and other relevant parties as instructed by the Employer's Representative, for comment/agreement.
- ii. Implementation Schedule for the Deliverables.

No.	Milestone/Major Deliverable	Relevant Clause(s) in the Brief	Submission deadline (within the stated number of weeks/months after commencement of the Agreement or as specified otherwise)
Work stage 2: Outline Proposals & Sketch Plan			
1	BIM Execution Plan		4 weeks (draft) 8 weeks (final)
2	Proposal for CDE		4 weeks (draft) 8 weeks (final)

3	Training Plan		4 weeks (draft) 8 weeks (final)
4	BIM Models		8 weeks (draft) 12 weeks (final)
5	BIM Models (GBP Submission)		With submission of GBP (including the subsequent amendment to the plans)
6	2D Drawings		8 weeks (draft) 12 weeks (final)
7	Clash Report		8 weeks (draft) 12 weeks (final)
8	Design Visualisation		8 weeks (draft) 12 weeks (final)
9	BIM Audit Report		Regular submission in monthly intervals

*Work stage 3: Detail Design*

1	BIM Models		Regular update from WS2 BIM model and 12 weeks (final)
2	BIM Models (GBP Submission)		With submission of GBP (including the subsequent amendment to the plans)
3	2D Drawings		Regular update from WS2 BIM drawings and 12 weeks (final)
4	Clash Report		Monthly update from WS2 Clash Report and 12 weeks (final)
5	Design Visualisation		10 weeks (draft) 12 weeks (final)
6	4D simulation		10 weeks (draft) 12 weeks (final)
7	Training Log		Upon completion of training course
8	BIM Audit Report		Regular submission in monthly intervals

*Work stage 4: Documentation/Tendering*

1	BIM Models		8 weeks after WS3 approval (draft) 12 weeks after WS3 approval (final)
2	BIM Models (GBP Submission)		With submission of GBP (including the subsequent amendment to the plans)
3	2D Drawings		8 weeks after WS3 approval (draft) 12 weeks after WS3 approval (final)
4	Draft Particular Specification for BIM		To suit tender programme
5	BIM Audit Report		Regular submission in monthly intervals
6	Design BIM Models for submission to LandsD		1 week after the tender closing date

*Work stage 5: Construction Supervision*

1	BIM Execution Plan		Regular update in the course of project development
2	BIM Models		Monthly update in the course of

			project development
3	BIM Models (GBP Submission)		With submission of GBP (including the subsequent amendment to the plans)
4	2D Drawings		Regular update in the course of project development
5	Clash Report		Monthly submission in the course of project development
6	Design Visualisation		As required by the Employer's Representative
7	4D simulation		As required by the Employer's Representative
8	BIM Audit Report		Regular submission in monthly intervals
Work stage 6: Post Hand Over Services			
1	As-built BIM Models		<p>Draft as-built BIM models shall be submitted within 4 months from the issuance of the certificate of completion for the main Contract Works;</p> <p>Revised as-built models shall be submitted within 1 month from the issuance of comments from the Employer's Representative.</p> <p>The final as-built BIM models shall be submitted within 12 months from the issuance of the certificate of completion for the main Contract Works.</p>
2	As-built 2D Drawings		As-built drawings shall be submitted within 3 months after project completion from the issuance of the certificate of completion for the main Contract Works.
3	BIM Object Files		
	Proposed list of BIM Object Files		Within 1 month from the issuance of the certificate of completion for main Contract Works
	BIM Object Sheets		Within 2 weeks upon confirmation of the proposed list of BIM object files
	BIM Object Files		Within 4 months from the issuance of the certificate of completion for main Contract Works

- iii. Work-in-progress (WIP) file uploads shall not be counted as submission deliverable but shall be a proof of progress and for quality checking purposes for the Employer's Representative. The times and interval for WIP uploads shall be proposed by the Consultant and be agreed by

the Employer's Representative to facilitate decision making and communication with project stakeholders.

- iv. The Consultant shall deliver and submit the final design BIM models and associated data files to the Employer's Representatives. The files shall be stored in a standardized folder structure.
- v. The design BIM models, as described in Clause 5.8(b) of this Brief, and as-built BIM models, as described in Clause 5.8(h) of this Brief, submitted to the Employer's Representatives would be forwarded to the Lands Department (LandsD) to facilitate the development of the BIM Data Repository.
- vi. Not Used

## **6. Services to be provided by the Consultant**

- 6.1 The Consultant's scope of services for this Agreement will be in accordance with Workstage 2 to Workstage 6 as detailed in Clause 5.7 above and as mentioned under Clause 6 of this Brief. Services comprising design, planning, detailing, documentation and periodic supervision of construction shall be inclusive of related building services, building energy efficiency assessment, acoustics, interior design, civil, geotechnical and structural engineering, topographical survey, fire engineering study, heritage impact assessment, traffic impact assessment, environmental, landscaping, water supply, sewage and drainage systems as appropriate to complete the Assignment. Please note however that the above list only serves to highlight the general duties of the Consultant and shall by no means be deemed to be exhaustive.

The Consultant shall review the Brief, Project Definition Statement, Technical Feasibility Study Report, recommend design requirements and standards, recommend design options, prepare tender drawings and documents, advise on selection of materials and equipment, obtain operation and maintenance requirements, recommend selection of contractors, provide periodic site supervisions and statutory site supervisions including the provision of all full time, part time and periodic site safety and quality supervisions and qualified (TCP T3, T5, etc.) site supervisions and inspections as required by the BD/GEO, monitor the progress of works, cost control, monitor contractor performance, arrange for the testing, commissioning and handing over of the works, monitor the completion of making good defects and produce as-built records. The Consultant shall work to achieve the cost, quality and time targets. The Consultant has to present design proposals to the Employer and in the external meetings as necessary. The costs of all statutory duties of Authorized Person, Registered Structural Engineer and Registered Geotechnical Engineer and all statutory site supervisions required by the BD/GEO shall be deemed to be included in the lump sum consultancy fee as shown in the Fee Proposal Form (Appendix 1) and the Fee Breakdown Form (Appendix 2) enclosed with the Consultant's proposal.

Provide input and support including the materials for the following meetings:

- 1. Bureaux/departments/future operators/user meetings, Legislative Council's (LegCo) & District Council's (DC) meetings, statutory committee/neighbourhood's organisations/charity groups/utility companies/interested parties/public consultation meetings, etc.
- 6.2 Consent from the Employer's Representative must be obtained on the design concept and other key design aspects for each Work stage before the next Work stage is proceeded.
- 6.3 The Consultant is responsible to construction safety, and health and environmental protection on site.
- 6.4 The Consultant shall nominate a person for carrying out the duties of the Supervising Officer under the terms of the works contract. Such person shall be a core personnel of the project team holding a partner or directorate post in the firm and have a minimum of ten years' post professional qualification experience in relevant projects.

- 6.5 The Consultant shall deploy the following persons to be responsible for the performance of the relevant part of the Services and the preparation and submission of building proposals and documents as required by relevant government departments for their comment:-
- (a) a person who is in the principal / director level of the architectural consultant and is on the list of architects in the Authorized Persons' Register kept under the Buildings Ordinance, and where applicable,
  - (b) a person who is at the principal / director level of the structural consultant and is included in the Structural Engineers' Register kept under the Buildings Ordinance.
- 6.6 The said Authorised Person and Registered Structural Engineer shall ensure that the design and supervision requirements and the administrative procedures set out under the Buildings Ordinance and the subsidiary legislation made thereunder and any amendments thereto are complied with in the design and construction of the contract works.
- 6.7 The Consultant shall be required to provide attendance and any other necessary assistance for the Employer's Representative to carry out any types of audit and inspection either in his office or on site at any time in accordance with the procedures listed in the Schedule of General Instructions in Annex 1 to this Brief or by the Employer's Representative.
- 6.8 The Consultant shall collaborate with the Sub-consultants and other consultants in the provision of services as detailed in the Brief for various work stages and other deliverables necessary for the completion of the assignment.
- 6.9 The Consultant shall be required to prepare and submit plans, drawings, calculations and other documents etc. as required by the Employer's Representative for approval or checking.
- 6.10 Upon completion of work stage 3, the Consultant is required to prepare a Quality Site Supervision Plan in accordance with clause 6.17(c)(xiv) and their own quality management system. The Consultant shall also review the Quality Site Supervision Plan with the site staff during the construction stage. The coordination, preparation, and provision of all necessary drawings and information for assisting the Employer to process the Excavation Permit according to the requirements of the latest LMPO and conditions in the excavation permits at different works stages shall be included in the Quality Site Supervision Plan.
- 6.11 The Consultant shall undertake checking to confirm full compliance with all applicable Ordinances, Regulations and any other checking as required under the Brief.
- 6.12 The Consultant shall submit to the Employer's Representative a written statement to confirm the full compliance with all applicable Ordinances, Regulations and any other requirements as specified under the Brief. Should there be any non-complying items, the Consultant shall recommend proposals on whether compliance or otherwise of such items for the consideration of the Employer's Representative.
- 6.13 The Consultant should allow adequate time for the checking and acceptance of plans by the Employer's Representative.
- 6.14 The Consultant shall be required to directly approach and coordinate all relevant authorities and government departments, such as BD, FSD, DSD, WSD, EMSD, EPD, PlanD, TD, HyD, DLO, CEDD, etc. in order to obtain their comments, approvals or permits for the building proposals and the related building works.
- 6.15 The Consultant shall directly approach and coordinate all concerned utility companies in order to obtain their consents and requirements on connection / provision of utility services for the building proposed and necessary works for diversion of existing services.
- 6.16 Not used.

6.17 The Consultant is required to provide the following services for the corresponding Works stages.

(a) Not Used

(b) Work stage 2 - Outline Proposals & Sketch Plan

Review the Technical Feasibility Study Report of the Project and the findings, conclusions and recommendations of the final report of the study. The review shall focus on the following aspects.

- (i) Analyse the Employer's requirements. Prepare, describe and illustrate outline proposals, including an approximation of cost.
- (ii) Prepare, describe and illustrate outline proposals and sketch plans as may be required for the purpose of or in connection with the Assignment.
- (iii) Submit and present the Sketch Design Report for Employer's approval.
- (iv) The green building strategies and initiatives will be adopted in the design for meeting the target-based green performance framework as per ArchSD OI No. 04/2009 – Green Government Buildings.
- (v) Assist the Employer on funding applications.
- (vi) Provide input and support on project related tasks including:
  - 1. handling publicity & promotion events, public enquiries & complaints
  - 2. coordinating with future operators/users and neighbouring owners/representatives on project related matters
  - 3. assisting Employer and client bureaux/departments in finalising the Lease Conditions, Schedule of Accommodation (SoA), user layouts, Furniture & Equipment Items (F&E) and project scope
  - 4. complying with government's latest initiatives, standards and requirements and where required to make proposals such as innovative design for enhancing construction productivity and smart asset management/operation/maintenance, Design for Manufacture and Assembly (DfMA) / Modular Integrated Construction (MiC), etc.

The Consultant shall recommend a strategy for site supervision. The Consultant could be instructed to carry out this in conjunction with the recommendation on the construction staging and packaging of works contract, and the tendering strategy for letting out the works contract(s).

(c) Work stage 3 - Detail Design

- (i) Prepare detailed designs, specifications for works, drawings, dimensions, sections, plans with such design data, calculations and other Information as may be required for the purpose of or in connection with the Assignment.
- (ii) Prepare and submit services co-ordination design drawings which shall demonstrate that the designs of the services installations and the building structure are fully co-ordinated and integrated for obtaining the approval by the Employer's Representative.
- (iii) Obtain information from suppliers, if any, and take all necessary steps to obtain from them all details necessary for the timely completion of the Assignment.
- (iv) Prepare and submit list of finishes, materials and equipment selected having less than 3 probable offers.

- (v) Liaise with relevant bodies and assist with negotiations for any reprovisioning works that may be required.
- (vi) Identify all adjoining users, facilities and installations affected by the Assignment.
- (vii) Determine the extent of further ground investigations and surveys and further studies required to carry out the detailed design of the Assignment.
- (viii) Prepare all necessary documentation and reports on ground investigation and survey data together with interpretation of results.
- (ix) Prepare detailed designs for environmental mitigation measures.
- (x) Prepare detailed proposals as required by the Heritage Impact Assessment (HIA).
- (xi) Prepare estimates of the cost of the Assignment.
- (xii) Prepare papers and briefing notes which will be required for consultation or communication with community groups e.g. District Council, Rural Committees and other public organisations.
- (xiii) Submit and present the Detail Design Report and set out the standards governing the design of the works for obtaining the approval by the Employer.
- (xiv) Submit a Quality Site Supervision Plan in line with the strategy of site supervision recommended in work stage 2, which shall include, but not limited to, the following details :-
  - i. A detailed site supervision arrangement covering supervision of construction works within and outside the normal working hours of the RSS, as well as in the site(s) and other working area(s) outside the Site;
  - ii. A list of critical construction activities, stages of works, built components/modules, structural elements, etc. that require special attention together with the associated supervision requirements for such items;
  - iii. If necessary, the Consultant shall also specify for any critical construction activities, stages of works, built components/modules, structural elements and particular aspects or details;
  - iv. A guideline on the details of inspection to be recorded for specialist works or critical elements;
  - v. Methods of site supervision including application of advanced technologies, contractors' self-certification mechanism, and/or other suitable means with a view to (i) achieving effectiveness and efficiency of site supervision and (ii) enhancing site safety. Where advanced technologies are suggested, details of proposed systems/devices, workflow/procedures, operational principles, application areas, procurement methods, etc. shall be provided. For contractors' self-certification mechanism, the proposal shall include application areas, workflow/procedures, certified personnel and documentation requirements, site audit/spot checks by RSS (if required), etc.
  - vi. Staff deployment strategy including evaluation of suitable RSS ranks to be deployed, efficiency of composition and post setting of site supervision team, applicability of shared use of RSS for multi-sites or multi-contracts cases, engagement of specialist sub-consultants for undertaking suitable site duties, and/or other suitable means with a view

to attaining a reasonable size of site supervision team taking into account the current manpower situation in the market;

- vii. A list of temporary works that the contractor shall be required to provide for independent checking of the temporary works.
- viii. In case it is envisaged that construction or fabrication works will be carried out outside Hong Kong, the Consultant shall formulate supervision requirements and inspection arrangement for such works.
- (xv) Provide the necessary information and additional cost on the environmental friendly and energy conservation measures of the project in funding papers. Such information should also include coloured block plan, artist impressions, cash flow forecasts, etc.
- (xvi) Assist the Employer on funding applications.
- (xvii) Co-ordinate and prepare detailed landscape design and obtain necessary approval for tree preservation and removal proposal and landscape submission.
- (xviii) Provide input and support on project related tasks including:
  - 1. handling publicity & promotion events, public enquiries & complaints
  - 2. coordinating with future operators/users and neighbouring owners/representatives on project related matters
  - 3. assisting Employer and client bureaux/departments in finalising the Lease Conditions, Schedule of Accommodation (SoA), user layouts, Furniture & Equipment Items (F&E) and project scope
  - 4. complying with government's latest initiatives, standards and requirements and where required to make proposals such as innovative design for enhancing construction productivity and smart asset management/operation/maintenance, Design for Manufacture and Assembly (DfMA) / Modular Integrated Construction (MiC), etc.
- (xix) The use of energy modelling in assessing energy performance to compliance of outperforming BEC requirements as promulgated in the Joint Circular and the ArchSD Environment Objectives and Targets

(d) Work stage 4 - Documentation/Tendering

- (i) Complete the detailed design, drawings and all relevant schedules and Specifications in accordance with the standards stated in Section 10 of the Brief and other standards adopted by the Employer.
- (ii) Prepare and submit list of materials and equipment selected having less than 3 probable offers. Obtain estimates and other information from contractors and suppliers.
- (iii) Provide information necessary for the preparation of estimates, bills of quantities and other tender documents by the Quantity Surveyor and carry out cost checks in conjunction with the Quantity Surveyor and amend design to suit budget as necessary as or requested by the Employment's Representative.
- (iv) Recommend suitable tenderers based on contractors and suppliers approved to carry out public works.
- (v) Coordinate with the Quantity Surveyor to check and assess the tenders and make tender recommendation. Provide project cost reconciliation and ensure the anticipated project



expenditure is within the budget. Inform the Employer's Representative of any extra funds required to complete the Project.

- (vi) On receipt of the Employer's instructions regarding the acceptance of tenders, coordinate the preparation of the necessary contract documents.
- (vii) Ensure that consent to commence work is obtained from Government departments, public corporations and utility companies.
- (viii) Not used.
- (ix) Coordinate, prepare, and provide all necessary drawings and information to assist the Employer to process the Excavation Permit according to the requirements of the latest LMPO and conditions in the excavation permits and all relevant ETWBTC(W)s.
- (x) Coordinate, prepare, and provide all necessary drawings and information to assist the Employer to complete the tender invitation process including the issue of tender addendum and answering tender queries.
- (xi) Where advanced technologies are adopted for site supervision and/or site safety management, the Consultant shall prepare the relevant contract provisions for incorporation in the tender documents to enable such applications to be implemented during the construction stage. The Consultant is reminded to include the relevant items in the pricing documents for payment of such applications separately.
- (xii) Where contractors' self-certification mechanism is applied to site supervision, the Consultant shall prepare the relevant contract provisions for incorporation in the tender documents, including certified personnel and documentation requirements.

(e) Work stage 5 - Construction Supervision

- (i) Prepare and provide contract documents for signature and record purposes.
- (ii) Carry out the duties of the Supervising Officer under the terms of the works contracts for the construction, completion, maintenance and supply of the contract works which shall be deemed to include the coordinating of works carried out by public utility companies and other government departments, bodies or persons for or in connection with or necessitated by the Assignment.
- (iii) Conduct briefing sessions to the Contractor and sub-contractors at the commencement of the Works.
- (iv) At the commencement of works, review the Quality Site Supervision Plan (QSSP) (against the activities described by the Contractor in his Quality Plan prior to the execution of works if the contractor is required to submit it under the contract), and conduct regular reviews of the QSSP with site staff subsequently, including the application of advanced technologies and contractor's self-certification mechanism, and as the need arises, and make necessary updating and modification in order to suit the actual circumstances and the Consultant shall report in the monthly progress report the status of implementing the QSSP and any major modifications to it as a result of a review. The Consultant shall submit a revised QSSP to the Employer's Representative if there is a major revision and as requested by the Employer's Representative.
- (v) Excavation Permits

- i. The Consultant shall nominate a professional acceptable to the Employer to be named as the contact person of the Employer in applications for excavation permits and, where applicable, emergency excavation permits pursuant to the requirements of the Land (Miscellaneous Provisions) Ordinance, Cap 28.
- ii. (1) The Consultant shall carry out all duties imposed upon the Employer under the Land (Miscellaneous Provisions) Ordinance, Cap 28 or under the conditions of the excavation permits and, where applicable, emergency excavation permits in so far as such duties have not been imposed only on the Contractor under the Ordinance or under the Contract.
- (2) Notwithstanding Sub-clause (1) above, the Consultant shall not be liable to the Employer in respect of obligations stipulated under the following conditions of the excavation permits and, where applicable, emergency excavation permits:
  - a. the condition stipulated in the excavation permits and, where applicable, the emergency excavation permits relating to the obligation and liability of the Permittee to indemnify the Employer against all losses and claims for injury or damage to any person or property, nuisance, disruption or interference whatsoever which may arise out of or in consequence of the work of the Permittee, and against all claims, demands, proceedings, damages, costs, charges or expenses whatsoever in respect thereof or in relation thereto, and
  - b. the condition stipulated in the excavation permits and, where applicable, emergency excavation permits relating to the obligation and liability of the Permittee to make good or pay for any works as a result of or in consequence of the work of the Permittee.
- (3) Sub-clause (2) above is without prejudice to Clause 22 of the General Conditions of Employment.
- iii. (1) The Consultant shall ensure that the Contractor complies with the permit conditions imposed by the Authority under the Land (Miscellaneous Provisions) Ordinance, Cap 28, including those conditions stipulated in the excavation permits and, where applicable, emergency excavation permits to be observed by the Nominated Permittee or by both the Permittee and the Nominated Permittee and those stipulated in the excavation permits and, where applicable, emergency excavation permits to be observed by the Permittee but which the Contractor is required to comply with under the Contract.
- (2) In respect of permit conditions which are stipulated in the excavation permits and, where applicable, emergency excavation permits to be complied with by the Permittee but which are required to be complied with by the Contractor under the Contract, if notwithstanding (1) above the Contractor has failed to comply with these conditions, the Consultant shall take such actions so as to ensure that these conditions are complied with by the Employer in his capacity as the Permittee irrespective of whether these actions are required to be carried out by the Contractor under the Contract.
- iv. Clause 6.17(e)(v)i to clause 6.17(e)(v)iii above shall apply only with respect to excavation in streets maintained by the Highways Department that requires excavation permits and, where applicable, emergency excavation permits under the Ordinance for execution of the Works.
- v. The Consultant shall coordinate, prepare and submit all necessary drawings and information for the Employer to apply for the Excavation Permit. The Consultant shall administer the Excavation Permit by carrying out all the associated monitoring and

supervision as required of the Permittee under [http://asdiis/consultant\\_web/excavation\\_permit/excavation%20in%20streets.htm](http://asdiis/consultant_web/excavation_permit/excavation%20in%20streets.htm), the latest LMPO and conditions of the Excavation Permits and all relevant DEVBTC(W)s. In this respect, the Consultant shall:

- (1) engage a competent person to supervise the excavation works on behalf of the Employer, maintain a documented system for supervising the excavation works and maintain a documented system to ensure that the Contractor complies with his duties in relation to excavation works. The attention of the Consultant is drawn to section 10T(5) and (6) of the Land (Miscellaneous Provisions) Ordinance, Cap 28.;
  - (2) notify the Employer's Representative **on time** for application / extension / reinstatement of Excavation Permit according to the project programme ;
  - (3) coordinate information from the contractor and other utility undertakings for the application / extension / reinstatement using the Excavation Permit Management System (XPMS), operate the XPMS and other issues.
- (vi) Supervise and direct the execution of the contract works rendered under the works contracts including the appointment and control of Supervising Officer's Representative and resident site staff as may be approved by the Employer's Representative.
- (vii) Make such periodic visits to the site as the Consultant considers necessary to ensure the progress and quality of the contract works and to determine if the works are proceeding in accordance with the works contract.
- (viii) Where the design requires the supervision and/or testing of the contract works off-site, the Consultant's service is deemed to be included in the Lump Sum fees.
- (ix) Not used.
- (x) If the Contract Works involves curtain wall system, the Structural Sub-consultant shall ensure that the design, fabrication and installation of the curtain wall system by the Contractor including any cast-in anchorage, e.g. anchor plates, cast-in embeds and through bolts, etc. can achieve the required safety standard and comply with the requirements in the Contract.

The Structural Sub-consultant shall carry out site supervision of the construction of curtain wall system, including the installation of all cast-in anchorage in the parent structure to ensure the works are constructed to the approved design, required standards and quality. The Structural Sub-consultant shall also comply with the site supervision requirements for Registered Structural Engineer as stipulated in PNAP APP-16, APP-37, Code of Practice for Site Supervision 2009 and Technical Memorandum for Supervision Plans 2009 issued by Buildings Department.

Where tempered glass is used, the Structural Sub-consultant shall, as stipulated in PNAP APP-37, assign a quality control supervisor to supervise a certain number of tempered glass panes undergoing the heat soak process in the factory off-site. The Structural Sub-consultant should determine the necessary frequency of supervision, which should cover at least 30% of the tempered glass panes used in the project. The minimum qualifications and experience of the quality control supervisor are to be the same as grade T3 technically competent person (TCP) under the RSE's stream, as stipulated in the Code of Practice for Site Supervision 2009.

The Structural Sub-consultant shall check and endorse all off-site supervision/inspection reports prepared by their quality control supervisor before submission to the Employer's Representative.

- (xi) Prepare all further designs, drawings, schedules, estimates and related things necessary for the completion of the contract works.
- (xii) Prepare monthly progress reports and estimates of expenditure for the Works Contracts during the progress of the contract works..
- (xiii) Identify and immediately report to the Employer's Representative for any discrepancies in the contract documents such as Drawings, Bills of Quantities, and Specifications that will give rise to additional costs during the progress of the works contract.
- (xiv) Ensure that all relevant requirements as contained in the Schedule of General Instructions in Annex 1 to this Brief are complied with.
- (xv) Give adequate notice or as long a notice as possible up to three months to the Employer's Representative of the intention to recommend issue to a contractor, a completion or taking-over certificate for the whole or part of the contract works under any works contract and upon issue of such certificate deliver to the Employer's Representative such drawings, calculations and instructions as are necessary for the operation of the contract works.
- (xvi) If so required by the Employer's Representative, report on difficulties experienced during construction and the suitability of the type of construction for similar works elsewhere in Hong Kong. (Such reports shall be paid for as additional Services.)
- (xvii) After completion of the contract works under any of the works contracts and within a period to be agreed by the Employer's Representative, prepare and deliver to the Employer's Representative drawings showing in full detail the contract works and utilities works as actually carried out together with calculations and information necessary for the maintenance of the contract works and submit all records and accounts relating to the contract works.
- (xviii) Provide guidance on operation and maintenance of the works contract.
- (xix) Provide and update the list of outstanding and defective works.
- (xx) Monitor progress of defects rectification and completion of outstanding/additional works, including testing and commissioning works.
- (xxi) Arrange and attend the pre-hand over and hand over inspections/audits with relevant bodies, including inspection/audits by BD, FSD, users, maintenance agents, etc.
- (xxii) Apply for increase in contract sum.
- (xxiii) Prepare documents for application to increase the approved budget.
- (xxiv) Obtain the approval of the Employer for acceptance of alternative materials and equipment from the Tender Equipment Schedule or the change in Specifications.
- (xxv) Check the works and mitigation measures carried out for heritage conservation, if any, comply with the requirements stipulated in the Heritage Impact Assessment.
- (xxvi) Not used.

- (xxvii) Ensure the proposed green building features as stated in funding papers where appropriate are properly installed and implemented in their projects.
- (xxviii) Provide monthly variation reports as Annex 4 to this Brief stating justifications for the issuance of each variation and the estimates of the subvented and the non-subvented items in the variations.
- (xxix) Where an instruction is issued for variations of the contract works, the instruction should be stated in precise and specific terms. A description like “changes as attached drawings” shall be avoided.
- (xxx) Monitor and conduct regular inspections and tree risk assessment to ensure safety and proper implementation of tree transplanting and protection works during construction period.
- (xxxi) Report to relevant governmental authority or apply self-certification by RLA of compliance of landscape and tree works completion.
- (xxxii) Control and monitor project finance including cashflow of each financial year.
- (xxxiii) Coordinate with client bureaux/departments and/or future operators/users for site visits and/or on-site installation works by their contractors.

(f) Work stage 6 - Post Hand Over Services

- (i) Carry out the duties of the Supervising Officer under the terms of the works contract.
- (ii) Provide information necessary for the preparation of final account and the substantiation necessary for subvention as required by the Employer’s Representative. The information necessary for the substantiation is listed in Annex 5 to this Brief and should be submitted to the Employer’s Representative upon the settlement of the final account.
- (iii) Provide and update the list of outstanding and defective works and arrange inspections.
- (iv) Monitor progress of defects rectification and completion of outstanding/additional works.
- (v) Arrange final inspections with relevant bodies.
- (vi) Give adequate notice or as long a notice as possible up to three months to the Employer’s Representative of the intention to recommend issue to a Contractor a Defects Rectification Certificate or a Maintenance Certificate for the whole of the contract works under any works contract.
- (vii) Arrange handover of spare parts / materials and as-built records including drawings, manuals, warranties and certificates to the maintenance agent.
- (viii) Not used.
- (ix) Provide a suggested list of post contract improvement and additional works.
- (x) Not used.
- (xi) Provide analysis of the green performance of the projects so as to ascertain whether the green performance framework as set out is met, and if required, carry out necessary improvement works to ensure that the original target is met.

- (xii) Provide advice about the energy performance of the building and information of the relevant benchmark in achieving the greenhouse gas reduction targets.
- (xiii) Not used.
- (xiv) Not used.
- (xv) Not used.
- (xvi) Upon the expiry of the RSS engagement, the Consultant is deemed to include in his fee submission the provision of his own site duties as the RSS when necessary during this Work Stage.
- (xvii) Monitor and conduct regular inspections and tree risk assessment to ensure safety and the maintenance schedule during Establishment Period of the landscape softworks to be properly implemented by the contractor(s) for healthy and vigorous growth of the plant materials.
- (xviii) Monitor and conduct inspections to ensure completion of landscape defects rectification and outstanding works during maintenance period.
- (xix) Coordinate with client bureaux/departments on improvement works and provide all drawings and documents and works supervision for handover to client.
- (xx) Control and monitor project finance including cashflow of each financial year.

6.18 The Consultant shall undertake the assignment to develop an environmentally friendly design and facilitate green procurement practices, making reference to the Project Environmental Design Checklist where applicable.

6.19 The Consultant shall in the process of delivering the services practise green procurement including but not limited to subscribing to Electronic Document Management System (EDMS) for document exchange to reduce the use of paper; using softcopy for submissions instead of hardcopy as far as possible; using recycled paper, if hard copy must be used; and setting up effective communication protocol at the beginning of the project to reduce the number of c.c. copies required.

The EDMS shall be a single collaborative platform used by the Employer, Project stakeholders, Project Consultants and Contractors for efficient, effective and secure capture, management and work flow control of the Project documentation and correspondence relating to project documentation, for the duration of the Project.

Documents to be managed using the EDMS includes, but not limited to drawings, specifications, BIM Models, works contracts documentation, shop drawings, material data, reports, schedules, bid/tenders, certificates and warranties, O&M Manuals, programmes, photograph and audio/video files.

The Consultant shall ensure that the EDMS provides the appropriate amount of data capacity and user access in order to complete the Project.

The Consultant shall also ensure that the EDMS provided is compatible with other digital platforms used in all workstages of the project, including but not limited to the CDE and Digital Works Supervision System as promulgated in DEVB's Technical Circular (Works) No. 3/2020.

Green Procurement should be considered alongside quality, fitness for purpose and cost at all stages of a project from sketch design, selection of building materials, construction, packaging and delivery of plants and materials, operation and maintenance of the project to decommissioning and demolition.

6.20 Not used

## 6.21 Particular Services on Adoption of BIM Technology

### (a) BIM Execution Plan (BEP)

The Consultant shall develop the Design Stage BIM Execution Plan and review the BIM Execution Plan regularly when there is any change to the BIM approach, technology, software upgrade and organization chart.

The Consultant shall clearly set out the Responsibility Matrix in the BIM Execution Plan. These are key tools for the Employer's Representative to understand what information is to be produced, when and by whom.

The Consultant shall clearly set out the responsibility and liability for the production of information and models for each defined project stage, and to what LOIN.

The Consultant shall update the Responsibility Matrix regularly.

### (b) BIM Collaboration Methodology and Workflow

The Consultant shall establish a collaboration and information sharing environment. The Consultant shall devise the collaboration methodology and workflows including change tracking, communication protocols upon uploading, security and upload protocols (e.g. frequency and any deviations). Details of the workflow shall be stated in the BIM Execution Plan and included but not limited to the following:

- i. Inter-project disciplinary interfacing process and workflow;
- ii. External interfacing process and workflow if any;
- iii. Details of BIM review workshops and other collaborative working practices;
- iv. A monthly collaboration and information exchange process;
- v. The Consultant should utilise BIM tools to enrich the model(s). The enriched model(s) shall be sufficient to produce accurate 2D drawings. To facilitate the understanding of the connection between models and drawings, the Consultant shall maintain a drawing / information register to record the information to be incorporated in the model(s);
- vi. Form of sharing including the information exchange format;
- vii. The Consultant shall establish an access control matrix that clearly specify user access right of the folders and files; and
- viii. The Consultant shall formulate the process of revision control for the models and all deliverable to be shared, published and archived.

The Consultant shall effectively manage the shared information which can be received, read and effectively used within the project team. The workflow shall be devised to allow interoperability of data exchange between applications (BIM authoring tools), standardisation of workflows and simplification of automation. The Consultant shall configure its attribute data in its BIM models to align with the data exchange formats.

### (c) Common Data Environment (CDE)

The Consultant shall provide a dedicated CDE for storage, viewing and sharing of BIM models, drawings, animation, rendering, documents and other related files of the Works with the following properties:

- i. it shall have a clear folder structure, being part of the CDE to store documents and files of the Works;
- ii. it shall contain a common data collaboration platform for BIM (BIM CDCP) to store BIM models;

- iii. it shall contain encryption function for data security and be of sufficient capacity to store all files during the whole project life cycle; and
- iv. it shall be installed with anti-virus software and maintained with updated security patches for all software.

The Consultant shall propose data segregation and CDE management structures, processes and procedures to ensure proper information exchange between the Consultant and the Employer's Representative. The Consultant is required to provide CDE technical support when needed.

CDE data shall be archived and transferred to the Employer's Representative's preferable media or server periodically. The Consultant shall handover the CDE's files in an approved folder structure format to the Employer's Representative upon issue of the letter of completion of this Agreement by the Employer.

(d) 3D Coordination

The Consultant shall setup a workflow of model information sharing to facilitate design coordination works. The Consultant is responsible for managing the models in the collaboration platform and keeping the federated models up to date for monthly model compliance checking.

The Consultant shall use BIM models to demonstrate their design intent. The Consultant shall produce fully rendered still shots, animated model renditions, fly through and walk through visualisation.

The Consultant is required to resolve any inter-disciplinary conflicts during the design stage and to ensure that the inter-disciplinary models are design coordinated.

(e) Phase Planning (4D modelling)

The Consultant shall develop 4D simulation, construction simulation with timeline, for visually demonstrating and communicating project construction sequence based on proposed design and requirements on the Assignment. The model shall include all major systems and shall contain sufficient data to show sequential construction in animation. Any assumptions (e.g. construction programme, phasing, temporary structures if any) shall be communicated, and commented/agreed by the Employer's Representative. The 4D simulation shall be demonstrated in monthly intervals linking all activities in the project programme and it shall be automatically matched with the activities as shown in the project programme with appropriate file format. The 4D simulation may evolve with project progression. Time and other 4D-related information within WIP model shall be concurrent with simulation outputs.

(f) Virtual Reality (VR) application

The Consultant shall make use of the BIM models to convert to Virtual Reality (VR) model for producing a VR space. To allow the Employer's Representative to explore the VR model, the Consultant shall propose necessary VR hardware or software tools for the Employer's Representative's approval.

(g) Cave Automatic Virtual Environment (CAVE) application

The Consultant shall prepare BIM and related deliverables for display in CAVE for design collaboration, progress meeting and presentation as requested by the Employer's Representative.

(h) Proposed of *COBie/Asset* Information Requirements

The Consultants shall consolidate the *COBie/asset* information requirements and other O&M information requirements from the Employer and prepare a proposal of *COBie/asset* information requirements for acceptance by the Employer's Representative.



(i) Ownership and Design Liability of Design Models

The BIM model ownership shall always be the Employer's asset and the Consultant is only granted the edit rights during the project life cycle. All project related staffing are not allowed to use any form of the project contents in his/her own intention or for any interest without written approval from the Employer.

All data contained in BIM model(s) and other deliverables created, developed and provided by the Employer, the Employer's Representative and the Consultant shall become the property of the Employer.

The Consultant shall specify that each discipline takes ownership of their own WIP information and model(s). Each discipline shall be responsible to check and review these with their respective manager before issuing the information and model(s) to the "shared" part of the CDE.

All intermediate working files and final BIM models, videos, federated models and non-graphical information developed for the Assignment shall become the property of the Employer and transferred to the Employer on completion of the Assignment. The Consultant shall submit in DVD-ROMs or other equivalent media together with the hardcopy. The Consultant shall provide the necessary hardware and software to extract the information if it is transferred in compressed format. If the information is available in the CDE, the Consultant shall provide guidelines for transferring information from the CDE to the Employer's preferable media or server. The Consultant shall also produce full details of BIM and linked non-graphical information (e.g. 2D drawings, asset information, data source files, reference scripts) to enable the Employer to understand, handle, operate, update and maintain the data of the BIM models.

(i) Services in Tendering and Construction Stages

The Consultant shall be responsible in drafting provisions in relation to BIM in the tender documents of the main Contract. The Consultant shall include the design information models in native and open format as part of tender information on request by the Employer's Representatives.

The Consultant shall involve in post-detailed-design and preconstruction model coordination. The Consultant shall transfer the latest design BIM models accurately to the Contractor for his reference upon commencement of the main Contract Works.

The Consultant shall be responsible for reviewing the BIM deliverables prepared and updated by the Contractor periodically. The Consultant shall be responsible for reviewing and verifying the as-built BIM models and as-built drawings before handed over to the Employer's Representative. In addition, the Consultant shall also review all submissions relating to BIM and AM prepared by the Contractor or its BIM team, and liaise with the Employer's Representative and stakeholders relating to BIM and AM during construction stage.

(j) BIM Audit

The Consultant shall ensure the quality and consistency of BIM model according to the approved BIM audit plan.

The Consultant shall be responsible for the accuracy of the model including its dimension, level and all graphical/ non-graphical information included in the model.

The Consultant shall include the BIM audit plan in the BIM Execution Plan outlining the quality assurance and quality control for their BIM process, model compliance and attributes for asset entries tracking.

i. Quality Assurance/Control Requirements

The Consultant will be responsible for ensuring the integrity of their models and drawings as well as compliance with BIM standards. The final design model shall be fully coordinated and without any design conflict.

The quality assurance and control shall include but not limited to the following contents:

- Model compliance with the modelling methodology which is stated in the BIM Execution Plan;
- Model quality (LOD-G) and design;
- Model data integrity check and validation (LOD-I);
- Interference check and Clash analysis checking; and
- Document deliverable check.

ii. Model Compliance Check

Model compliance check shall include but not limited to the following:

- Format, such as software version and extension;
- Naming, such as naming of the files and their corresponding folders;
- General settings, such as grid, survey point, project base point, shared coordinate and coordinate system, shared parameters, attributes;
- LOD-G of geometry;
- Modelling errors;
- Unintended model components;
- Consistency of 2D information generated from model;
- Attributes for asset entries tracking, if any;
- Model cleanness including flag links, unpurged elements and unused views in final model submission; and
- Compliance with the design.

iii. Documentation Compliance Check

Document compliance check shall be carried out to the BIM Execution Plans, federation maps, lists of self-check items, clash reports and model register list.

(k) Cost Estimation (Financial Model)

The Consultant shall collaborate with the Project Quantity Surveyor to provide a financial model for the Project, and to facilitate Project Quantity Surveyor for quantity take-off for preparing tender document as far as practicable.

(l) BIM Training

- i. The Consultant shall attend suitable BIM skill Training under the pre-approved list of the Construction Innovation and Technology Fund (CITF) managed by CIC.

The Consultant is required to nominate suitable staff or sub-consultant's staff as approved by the Employer's Representative to attend, within [6] months from the commencement of the Agreement, suitable BIM skill training courses under the pre-approved list of the CITF managed by the CIC.

The nominated staff of the Consultant or his sub-consultant should attend the assigned BIM skill training course, including signing the attendance record, completing all course assignments and undertaking any necessary assessment.

After completion of the training courses, the Consultant shall submit a training log to the Employer's Representative for record. The training log should list out the course information including but not limited to, description of the training course, date, duration, venue and attendee's details. The content of the training log shall be commented and agreed by the Employer's Representative. The training log should be reviewed and updated regularly.

In case the nominated staff of the Consultant or his sub-consultants fail to complete the course, the Consultant/sub-consultants shall arrange additional BIM training courses to the nominated staff to fulfil the contract requirements at his/their own cost.

- 6.22 The Consultants shall carry out the transport study for MiC delivery (the study shall include proposed delivery route, consideration of maximum allowable width/weight of the modules, etc). The transport study shall be agreed with the Transport Department, Hong Kong Police Force and other relevant authorities and government departments, prior to inclusion in the tender.

## 7. Programme of Implementation

7.1 The due date for commencement of the Agreement is the date of written acceptance of the Consultant's proposal.

7.2 The required key dates for this Assignment are indicated as follows:

- (a) Commencement of design : date of letter of acceptance of the Consultant's proposal
- (b) Commencement of tender documentation for works contracts: a subsequent date when a formal instruction is issued by the Employer's Representative (refer to as workstage 4 in Clause 4.2 above)
- (c) Submission of documentation for tendering the preparatory works/studies contract : March 2025
- (d) Return of tenders for the preparatory works/studies contract : June 2025
- (e) Submission of documentation for tendering the demolition and hoarding contract : July 2025
- (f) Commencement of preparatory works/studies contract : August 2025
- (g) Return of tenders for the demolition and hoarding contract : October 2025
- (h) Submission of documentation for tendering the foundation contract : October 2025
- (i) Completion and hand-over of preparatory works/studies contract : October 2025
- (j) Commencement of the demolition and hoarding contract : December 2025
- (k) Return of tenders for the foundation contract : February 2026
- (l) Submission of documentation for tendering the main contract : March 2026
- (m) Completion and hand-over of the demolition and hoarding contract : April 2026
- (n) Commencement of the foundation contract : April 2026
- (o) Return of tenders for the main contract : August 2026
- (p) Completion and hand-over of the foundation contract : November 2026
- (q) Commencement of the main contract : November 2026
- (r) Completion and hand-over of the main contract : December 2028
- (s) Finalisation of accounts for the main contract : 12 months after substantial completion of main contract.

The Consultant is required to verify the accuracy of all the key dates in the Brief and Agreement, report and seek Employer's Representative in case of discrepancy in the key dates within 4 weeks of the due date for commencement of the Agreement.

7.3 Not used.

7.4 Pursuant to Clause 26(2) of the General Conditions of Employment, the Consultant shall submit the draft programme and revised draft programme and the Employer's Representative shall agree, or instruct, within the following periods:

- (a) Submission of the draft programme: Within 4 weeks of the due date for commencement of the Agreement
- (b) Agreement of the draft programme: Within 4 weeks from receipt of or instruction for submission of the revised draft programme
- (c) Submission of revised draft programme: Within 2 weeks from the instruction of the Employer's Representative

7.5 The draft programme and revised draft programme shall detail the activities to be carried out, target dates for particular tasks and any decision dates that may be required for the uninterrupted progress of the Assignment. The Consultant shall discuss with the Employer's Representative during the above periods to agree the timing of submission of reports, other documents and plans for each of the main elements of the Assignment, for inclusion in the draft programme and revised draft programme.

7.6 The key dates referred to in Section 7 of this Brief shall include but not be limited to:

- (a) The date of submission and approval of the Sketch Design Report and Outline Proposals, and reports, under Section 5 of this Brief;
- (b) The dates of submission and approval of plans, drawings, calculations and other documents to the Employer's Representative as required under Section 6 of this Brief;
- (c) The dates of submission of the contract documents sufficient for tendering of the works contracts;
- (d) The dates of return of tenders for the works contracts;
- (e) The dates of commencement of the works contracts;
- (f) The dates of substantial completion of the works contracts;
- (g) The dates for the finalisation of the accounts of the works contracts.

7.7 Not used.

## 8. Progress Reports

The Consultant shall submit to the Employer's Representative progress reports at monthly intervals on all aspects of the Services relating it to the Programme referred to in Section 7 of this Brief. The reports shall include a list of those parts of the Services the execution of which are behind the Programme together with proposals to expedite progress, so as to complete the Services on time.

## 9. Not used

## 10. Standards and Specifications

10.1 The Consultant shall adopt the technical and design standards and specifications, manuals, procedures and circulars as shown in the Schedule of General Instructions in Annex 1 to this Brief, as are in current use by the Architectural Services Department, Geotechnical Engineering Office, Civil Engineering Office,

Highways Department and Electrical and Mechanical Services Department. If such technical and design standards, specifications, manuals, procedures and circulars are not applicable, international standards, codes of practice and specifications may be used.

- 10.2 Should instances arise for which suitable standards or specifications do not exist or for which the current standards or specifications appear to require modifications or if by the adoption of current standards the Consultant would incur additional expense not within reasonable contemplation, the Consultant shall submit recommendations on appropriate alternatives to the Employer's Representative for agreement.

11. **Not used.**

12. **Variations and Other Commitments**

- 12.1 The value of a variation to the Contract Works or other expenditure commitment for the purpose of Clause 24(1) of the General Conditions of Employment is HK\$1,400,000.00.

13. **Resident Site Staff**

13.1 Direct Employment of Resident Site Staff [RSS]

The establishment, duties, appointment, deployment, remuneration, condition of employment and administration of Resident Site Staff shall be in accordance with the Special Conditions of Employment relating to Resident Site Staff and the Resident Site Staff Schedule Standards and Duties shown in Annex 2 to this Brief.

The number of Resident Site Staff to be employed by the Consultant for the works contract shall be as follows:

<u>Type</u>	<u>Rank</u>	<u>No.</u>	<u>Total notional man-month</u>
(i) R4	RCOW	1	48
(ii) R4	RBSI	1	37
(iii) R5	RWSI (building)	1	25
(iv) R5	RWSI (BS)	1	25
(iv) R5	RACO(LR)	1	42

Number and composition of Resident Site Staff may be revised on need basis, subject to the instruction of and/or agreement with the Employer Representative.

13.2 Administration and Supervision of Resident Site Staff

- (a) The Consultant shall be responsible for the administration and supervision of the RSS and shall ensure that the RSS shall properly discharge their duties under the Consultancy Agreement.
- (b) The RSS shall be required to keep time-log sheets for the verification of the Consultant and to submit these for checking upon request by the Employer's Representative. In addition, the Consultant shall maintain proper daily attendance records of RSS on site, preferably using electronic devices.
- (c) Not used.

13.3 Prevention of Bribery

The following probity clause shall be included in the individual Resident Site Staff employment contract:-

“The Resident Site Staff is prohibited from soliciting or accepting any advantage as defined in the Prevention of Bribery Ordinance, and soliciting or accepting any excessive hospitality, entertainment or inducements which could impair his impartiality in relation to the Project.”

- 13.4 The Consultant shall submit to the Employer’s Representative for approval the proposed establishment of Resident Site Staff prior to the commencement of the recruitment process.
- 13.5 The Consultant shall recruit Resident Site Staff in an open and fair manner as far as practicable. Normally, recruitment notices for RSS vacancies shall be posted in at least one local newspaper in each language (English and Chinese) or equivalent online recruitment platform (in both English and Chinese), or dedicated webpage on construction jobs of the Interactive Employment Service (iES) of the Labour Department. For open invitation of applications, the brief details of the project such as project/contract numbers, project/contract titles, locations of projects/contracts, etc. should be provided in the recruitment advertisement for RSS. For RSS services of a temporary nature with a short duration or for urgent and exceptional circumstances which may render open recruitment impracticable, the Consultant shall provide full justifications and seek prior written acceptance by the Employer’s Representative for exemption of open recruitment procedures.
- 13.6 For all recruitment exercises for Resident Site Staff, the Consultant shall submit to the Employer’s Representative four (4) copies of a CD diskette containing records of the entire recruitment process. The records should include, but not limited to, the recruitment information, qualification and experience required for the vacancy, selection criteria for recruitment interview and/or job offers, criteria for setting a waiting list with a validity period, interview records and assessment leading to the job offers. It should also include records of declarations of conflict of interest by all the Consultant’s staff participating in the recruitment exercise, and any mitigation measures implemented in the case of conflict.
- 13.7 The RSS may be appointed to take up statutory site supervision duties required under Building Ordinance. However, the Consultant shall take full responsibility to provide statutory site supervisions including the provision of all full time, part time and periodic site safety and quality supervisions, qualified (TCP T3, T5, etc.) site supervisions and inspections as required by the BD/GEO
- 13.8 For works contracts with estimated contract sums of over \$500 million, at least one safety personnel with academic qualification and duties detailed in Annex 2 to this Brief shall be included in the RSS establishment to act as safety advisor to the Architect.

#### **14. Employer’s Representative**

- 14.1 The Employer’ Representative as defined in the General Conditions of Employment shall be such person as may be authorised by the Employer in writing and notified to the Consultant. The Employer may delegate any of the powers and functions vested in him to the Employer’ Representative. If the Consultant is dissatisfied with a decision or instruction of the Employer’s Representative pertaining to the Assignment the matter shall be referred to the Employer for a ruling.
- 14.2 During the course of the Agreement the Consultant shall report directly to the Employer’s Representative.

#### **15. Not used.**

#### **16. Information and Facilities Provided by the Employer**

- 16.1 All available information relevant to the Assignment will be provided to the Consultant. Relevant documents, reports, drawings and other background materials are listed in Annex 1 to this Brief. Documents indicated as needed can be inspected by arrangement with the Employer and on request from

the Consultant except those currently available from the Sales Section of the Information Services Department.

- 16.2 An electronic version of some of the documents listed in Annex 1 to this Brief related to the Assignment may be accessed at ArchSD website “ArchSD Consultancy Information Centre” ([www.archsd.gov.hk](http://www.archsd.gov.hk)).
- 16.3 The Consultant and Sub-consultants shall check and confirm with the project team on the relevance and the latest version of those documents that are copied to them previously before making reference or incorporating them in the works contracts.

**17. Consultant's Office and Staffing**

- 17.1 The Consultant shall maintain for the duration of the Agreement an office in Hong Kong under the control of a principal of the Consultant who shall be responsible for the Assignment. The principal shall have adequate authority and sufficient professional, technical and administrative support in all relevant disciplines to ensure progress to the satisfaction of the Employer's Representative.
- 17.2 Not used.
- 17.3 Not used.
- 17.4 Other requirements for BIM

The Consultant shall maintain a BIM team led by a BIM team leader from the commencement to the completion of the Assignment and to provide, a minimum of, disciplinary BIM coordinators and modellers in architectural, structural and building services disciplines as detailed in the below table. Qualifications of the BIM Team are specified in Annex 7 of this Brief. The BIM team shall include sufficient and technically competent resources in order to complete all BIM tasks and deliverables specified in the Assignment.

	Disciplinary BIM Coordinator (No.)	Modeller (No.)
Architectural	1	3
Structural	1	3
Building Services	1	3

The BIM Team Leader shall be responsible for the overall BIM management and process control. The BIM Team Leader shall supervise the BIM team to handle BIM tasks such as BIM modelling, collaborating information exchange amongst related stakeholders and maintain a drawing / information register to record the information to be incorporated in the model(s). The BIM Team Leader shall conduct and/or attend regular BIM collaboration meetings among project team members so as to ensure any changes/ updates in the design and construction stages are to be timely and properly made to the BIM models.

For any proposed staff movement or change in the BIM team, the Consultant shall notify the Employer's Representative as soon as possible and provide a CV of the replacement personnel together with evidence of equivalent BIM competency to the Employer's Representative within [7] calendar days of the notification for approval.

**18. Adherence of the Consultant and Sub-consultant staffing proposal**

- 18.1 Upon appointment and for the duration of this Assignment, the Consultant and Sub-consultant shall provide the staff and manpower input in accordance with the Technical Proposal which was submitted with the bid for this Assignment.



18.2 For the purpose of verifying that the Consultant and the Sub-consultant have adhered to their staffing proposal as stated in the Technical Proposal, the Consultant and the Sub-consultant are required to keep monthly time-log records of their core personnel involved in this Assignment and submit these for checking upon request by the Employer's Representative.

18.3 Not used.

18.4 If the Consultant or Sub-consultant is unlikely to provide or maintain any core personnel as proposed in the Technical Proposal because of reason(s) beyond their control, the Consultant or Sub-consultant shall report to the Employer as soon as practicable and propose, for the Employer's approval, substitute staff having qualifications and experience comparable with the staff who are leaving or have left the project team either permanently or temporarily.

## **19. Specialist and Sub-consultant Services**

19.1 The Consultant shall provide all specialist and sub-consultant services as stated in this Brief (except those stated in sub-clause 19.2) that are required for the satisfactory completion of the Assignment. No additional fees or expenses for provision of such services rendered locally or overseas shall be payable by the Employer except as otherwise provided for in the Schedule of Fees.

19.2 The specialist services listed below in this sub-clause 19.2 are to be deployed only upon written instruction by the Employer. Upon deployment, the Consultant shall assume full responsibility for the tendering and selection of the specialists and their proper performance. The expenses associated with the procurement and management of the specialist services, together with any financing charges, are deemed to have been included in the lump sum fee. The cost of procuring the specialist services will be reimbursed to the Consultant under Clause 4 of the Schedule of Fees:

- (a) Tree Survey;
- (b) Environmental Consultancy Services (excluding Environmental Impact Assessment); and
- (c) Asbestos Survey.

The Consultant should conduct the tendering in accordance with the relevant procedures set out in the Stores and Procurement Regulations.

19.3 Under Clause 38 of the General Conditions of Employment, the Consultant shall obtain the prior approval of the Employer in writing to:

- (a) the appointment of sub-consultants to undertake any part of the Services, and
- (b) the replacement of any sub-consultants appointed under sub-clause (a) of this Clause.

19.4 The Consultant shall select building services engineering and structural engineering Sub-consultants from the lists of Approved Sub-consultants (Annex 3) for the respective disciplines kept by the Architectural Services Department or other consultants subject to provision of justification and the Employer's consent.

19.5 Subject to Clause 19.4 above, if Sub-consultants are provided, consent from the Employer shall be obtained and the Sub-consultants shall have relevant qualifications/experience and local office or representatives in Hong Kong. If no Sub-consultant is employed by the Consultant, he shall prove that he has the required qualified staff within his office for handling the specialist services and the relevant qualifications/experience of the staff shall be submitted to Employer for consent.

20. **Not used.**

## **21. Professional Indemnity Cover**

The amount of Professional Indemnity Insurance cover to be maintained in accordance with sub-clause (1) of Clause 47 of the General Conditions of Employment shall be HONG KONG DOLLARS \$13,120,000.

22. **Not used.**

23. **Not used.**

**SCHEDULE OF GENERAL INSTRUCTIONS  
FOR  
ARCHITECTURAL AND ASSOCIATED CONSULTANCY AGREEMENTS**

**(Note: All the services to be provided by the Consultant under the Assignment shall comply with the current edition of the following documents which are not exhaustive. The Consultant shall check with the project team on the relevance and the latest version of these documents before making reference or incorporating them in the works contracts.)**

**A. General and Architectural**

1. Agreement and Schedule of Conditions of Building Contract for use in Hong Kong issued jointly by the Hong Kong Institute of Architects, the Hong Kong Institute of Construction Managers and the Hong Kong Institute of Surveyors or General Conditions of Contract for Building Works issued by the Government of the Hong Kong Special Administrative Region as directed by the Employer's Representative.
2. Model Arbitration Rules
3. General Specification for Building issued by Architectural Services Department
4. Hong Kong Standard Method of Measurement of Building Works
5. Standard Drawings issued by Architectural Services Department
6. Practice Note for Authorized Persons, Surveyors and Registered Structural Engineers (APSRSE Practice Notes) issued by the following Departments –
  - (i) Lands Department
  - (ii) Buildings Department
  - (iii) Planning Department
  - (iv) Environmental Protection Department
7. Outline Zoning Plans / Development Permission Area Plans
8. Design Manual – Barrier Free Access
9. Transport Planning and Design Manual
10. Code of Practice for Overall Thermal Value in Buildings published by Buildings Department.
11. Hong Kong Planning Standards and Guidelines issued by Planning Department
12. All relevant technical circulars, circular memorandum, circular letters, code of practices, design manuals, guidelines and guidance notes issued by the Government of HKSAR.
13. HK Beam Plus or other locally or internationally recognized building environmental assessment system

**B. Building Services**

14. General Specification for Building Services Installation in Government Buildings of the Hong Kong Special Administrative Region 2022 Edition issued by Architectural Services Department

15. Testing and Commission (T&C) Procedures for:

- (i) Air-conditioning, Refrigeration and Mechanical Ventilation Installation
- (ii) Electrical Installation
- (iii) Fire Services Installation
- (iv) Lift, Escalator and Passenger Conveyor Installation
- (v) Catering Equipment Installation
- (vi) Liquefied Petroleum Gas Installation
- (vii) Broadcast Reception Installation
- (viii) Swimming Pool Water Treatment Installation
- (ix) Emergency Generator Installation
- (x) Plumbing Installation
- (xi) Drainage Installation
- (xii) Burglar Alarm and Security Installation
- (xiii) Steam Boiler and Calorifier Installation

issued by Architectural Services Department.

16. General Specification, General Technical Specification or General Requirements for:

- (i) Electronic Contract
- (ii) Electronic Purchase
- (iii) Public Address Systems
- (iv) Closed Circuit Television Systems
- (v) Uninterruptible Power Supply
- (vi) Private Automatic Branch Exchange System

issued by Electrical and Mechanical Services Department.

17. Public Lighting Design Manual issued by Highways Department

18. Building Services Testing and Commissioning Procedures issued by Architectural Services Department

19. Code of Practice for Energy Efficiency of Building Services Installation issued by Electrical and Mechanical Services Department

20. All other Proforma Specification and Technical Specification issued by Architectural Services Department and Electrical and Mechanical Services Department as advised by Employer's Representative.

**C. Structural, Civil and Geotechnical Engineering**

20. Architectural Services Department Structural Engineering Branch Drafting Manual for RC Structures

21. Code of Practice for Structural Use of Concrete issued by Buildings Department

22. BS8004 : Foundations

23. BS8007 : Design of Concrete Structures for Retaining Aqueous Liquids
24. Code of Practice for Structural Use of Steel issued by Buildings Department
25. Hong Kong Buildings Ordinance
26. Code of Practice on Wind Effects in Hong Kong
27. Building (Construction) Regulations on Loading and Fire Resisting Construction
28. Building (Demolition Works) Regulations
29. Transport Planning & Design Manual
30. Structures Design Manual for Highways and Railways
31. Geotechnical Manual for Slopes
32. Geoguide 1 - Guide to Retaining Wall Design
33. Geoguide 2 - Guide to Site Investigation
34. Geoguide 3 - Guide to Rock and Soil Descriptions
35. Geoguide 5 – Guide to Slope Maintenance
36. Geospec 3 – Model Specification for Soil Testing
37. GCO Publication No. 1/90 - Review of Design Methods for Excavations
38. Geo Publication No. 1/2011 – Technical Guidelines on Landscape Treatment for Slopes

**D. Non-existent British Standards and British Standard Codes of Practice**

39. Should instances arise for which suitable standards or specifications do not exist, the Consultant shall refer to, in the preferential order, International Standards such as ISO, IEC, etc; or BSEN; or the British Standards and British Standard Codes of Practice; or submit recommendations on appropriate alternatives to the Employer's Representative for agreement.

**Schedule of Resident Site Staff Schedule Standards and Duties**

1. General Requirement

<b><u>Abbreviation</u></b>	<b><u>Post title</u></b>
2. RCOW	Resident Clerk of Works
3. RWSI (Building)	Resident Works Supervisor Class I (Building)
4. RBSI	Resident Building Services Inspector
5. RWSI (BS)	Resident Works Supervisor Class I (Building Services)
6. RACO(LR)	Resident Assistant Clerical Officer (Labour Relations)

## 1. **General Requirement**

The Consultant shall deploy suitably qualified Resident Site Staff (RSS) to satisfy the supervision requirements for the Authorized Person, Registered Structural Engineer and/ or Registered Geotechnical Engineer, when necessary, as required by the Technical Memorandum for Supervision Plans and Code of Practice for Site Supervision 2009 promulgated by the Buildings Department. The RSS team shall also satisfy the supervision requirements of the approved QSSP.

For supervision of structural works and/ or foundation works, the RCOW/ RACOW/ RWSI(Building)/ RWSII(Building) appointed as Technically Competent Persons (TCPs) in compliance with the requirements of the Technical Memorandum for Supervision Plans and Code of Practice for Site Supervision 2009 shall possess the following qualifications:

- Higher certificate or higher diploma in civil/ structural/ geotechnical engineering and 5 years relevant experience; or
- Degree in civil/ structural/ geotechnical engineering and 2 years relevant experience; or
- Equivalent as accepted in the Code of Practice for Site Supervision 2009.

## 2. **Resident Clerk of Works (RCOW)**

### 2.1 Qualifications:

The minimum qualifications required for the post of Resident Clerk of Works shall be as follows:

- (a) Diploma or Higher Certificate in Building Studies from the Construction Industry Council in Hong Kong / Hong Kong Institute of Construction / Hong Kong Polytechnic / Hong Kong Polytechnic University / Hong Kong Technical College/ Hong Kong Technical Institute / Hong Kong Institute of Vocational Education, or equivalent / Engineering qualification (Clause 1.) of this Annex refers.
- (b) 8 years' relevant post-qualification experience / 5 years' relevant experience as RACOW or equivalent in public works projects or those listed in Section 4.5.2 of the RSS Management Handbook.
- (c) Met the language proficiency requirements of Level 2\* or above in English Language and Chinese Language in Hong Kong Certificate of Education Examination (HKCEE) /Hong Kong Diploma of Secondary Education Examination (HKDSEE), or equivalent.

[Note \* Grade E in Chinese Language and English Language (Syllabus B) in previous HKCEE are accepted administratively as comparable to Level 2 in Chinese Language and English Language in the 2007 HKCEE and henceforth.]

- (d) Degree, certificate, Dip or higher Dip in occupational safety and health or in construction safety^,

*[Note ^ For any works contracts with a pre-tender estimated higher than \$500 million, at least one of the RCOW or RACOW shall possess the academic qualification in addition to other academic/professional qualification required for the post, to act as safety advisor to the Supervising Officer.]*

### 2.2 Duties and Responsibilities:

The duties of the Resident Clerk of Works shall include, but not be limited to, the following:

- (a) Responsible to the Consultant (the Supervising Officer) for the supervision of project(s) assigned to him and carry out duties of a Clerk of Works under the direction of the Consultant (the Supervising Officer).
- (b) Monitor the standard of workmanship against the contract documents and good building practice in Hong Kong conforming to the relevant BS or Code of Practice as specified by the Consultant (the Supervising Officer).
- (c) Check samples and related documents against contract requirements and make observations and recommendations to the project team.
- (d) Check contractor's setting out of all elements.
- (e) Monitor the progress of work on site against the approved programme.
- (f) Carry out routine inspections of the building works and check for conformity with the drawings, specification and contract requirements, and report to the project team all unsatisfactory work.
- (g) Attend all site inspections performed by others.
- (h) Manage the supervisory staff assigned to him, allocate appropriate duties to them, and check the attendance of his staff.
- (i) Liaise with the project team on all site matters.
- (j) Liaise and co-ordinate with the other government departments and utilities companies for the work on site.
- (k) Maintain a site record of the daily activities on site and submit monthly returns to relevant parties as required.
- (l) Monitor all environmental, health and safety aspects of the contractors work. Report all non-compliance of safety procedures immediately to the contractor's representative and the project team, and record this in the site record book.
- (m) Submit progress, technical, accident and special reports to the project team as required.
- (n) Attend client and contractors progress meetings as required.
- (o) Witness on-site and off-site tests as required by the contract and record the results in the site record book.
- (p) Carry out inspection of defects and outstanding work at the completion of the contract.
- (q) Advise the Supervising Officer concerning the rectification of defects by the contractor during the Defect Liability Period.
- (r) Attend site audits and follow up the corrective actions on non-compliance.
- (s) Carry out such other duties as directed by the Supervising Officer's representatives.
- ^(t) Supervise and monitor the implementation of the Safety Plan/Contractor's site safety obligations set out in the contract;



- ^(u) Oversee the Contractor for implementing an effective safety management system and ensuring all persons working on the Site are aware of and comply with the safety requirements stipulated in the Contractor's Safety Plan and obligations set out in the contract;
- ^(v) Maintain a safety diary;
- ^(w) Carry out weekly site inspections with the Safety Officer(s) and complete inspection checklists;
- ^(x) Prepare independent detailed reports on dangerous occurrences and serious incidents/accidents and provide advice to the Supervising Officer;
- ^(y) Co-ordinate amongst the RSS team and the Contractor's site team(s) with a view to ensuring that the safety matters are in full compliance with the contract requirements;
- ^(z) Comment on the Contractor's method statements and risk assessments which are job/task-specific for the activities on the Site and ensure all potential and foreseeable hazards are effectively prevented/mitigated with proper site administrative and engineering control measures in place;
- ^(za) Prepare independent monthly reports for discussion at the meetings of the Site Safety Management Committee;
- ^(zb) Attend meetings of the Site Safety Committee and the Site Safety Management Committee and provide site safety advice for enhancing the site safety performance and safety of the workforce; and
- ^(zc) Upon notice of imminent danger, advise the Supervising Officer to suspend the Contractor's works.

*[Guidance Note: ^ For works contracts with estimated contract sums of over \$500 million, and if applicable, Clauses (t) to (zc) should apply.*

### **3. Resident Works Supervisor Class I (Building) (RWSI (Building))**

#### **3.1 Qualifications:**

The minimum qualifications required for the post of Resident Works Supervisor Class I (Building) shall be as follows:

- (a) Ordinary Certificate in Building Studies from the Construction Industry Council in Hong Kong / Hong Kong Institute of Construction / Hong Kong Polytechnic / Hong Kong Polytechnic University / Hong Kong Technical College / Hong Kong Technical Institute / Hong Kong Institute of Vocational Education, or equivalent / Engineering qualification (Clause 1.) of this Annex refers; or.

Successfully completed a recognized Technician Apprenticeship in an appropriate discipline;  
or

Successfully completed a recognised Craft Apprenticeship with two years' experience as a skilled worker in appropriate discipline; or

5 years' experience as a skilled worker in appropriate discipline.

- (b) Met the language proficiency requirements of Level 2\* or above in English Language and Chinese Language in Hong Kong Certificate of Education Examination (HKCEE) /Hong Kong Diploma of Secondary Education Examination (HKDSEE), or equivalent.

[Note \* Grade E in Chinese Language and English Language (Syllabus B) in previous HKCEE are accepted administratively as comparable to Level 2 in Chinese Language and English Language in the 2007 HKCEE and henceforth.]

- (c) 3 years' relevant post-qualification experience / 3 years' relevant experience as RWSII or equivalent in public works projects or those listed in Section 4.5.2 of the RSS Management Handbook.

### 3.2 Duties and Responsibilities:

The duties of the Resident Works Supervisor Class I (Building) shall include, but not be limited to, the following:

- (a) Responsible on site to and under close supervision of the Clerk of Works who shall assign his duties on a day-to-day basis.
- (b) Assist in the supervision of contract works including checking of setting out, leveling, cuttings, footings and excavations by contractors.
- (c) Assist in the supervision of mixing, placing and curing of concrete.
- (d) Assist in the supervision of the making of concrete cubes and the cutting of steel bars by the contractors for subsequent testing.
- (e) Assist in the recording of labour, materials and plant delivered to site for compilation of site records by the Clerk of Works.
- (f) Escort the delivery of concrete cubes and other building materials to laboratories for testing as instructed.
- (g) Keep approval samples in lockable storage and check against the materials delivered to site.
- (h) Witness all site tests.
- (i) Attend site audits as required.
- (j) Carry out all such other duties as directed by supervising officers.

#### **4. Resident Building Services Inspector (RBSI)**

##### **4.1 Qualifications:**

The minimum qualifications required for the post of Resident Building Services Inspector shall be as follows:

- (a) A Diploma or Higher Certificate in Building Services Engineering or Electrical Engineering or Mechanical Engineering from the Construction Industry Council in Hong Kong / Hong Kong Institute of Construction / Hong Kong Polytechnic / Hong Kong Polytechnic University / Hong Kong Technical College / Hong Kong Technical Institute / Hong Kong Institute of Vocational Education, or equivalent.
- (b) Met the language proficiency requirements of Level 2\* or above in English Language and Chinese Language in Hong Kong Certificate of Education Examination (HKCEE) /Hong Kong Diploma of Secondary Education Examination (HKDSEE), or equivalent.

[Note \* Grade E in Chinese Language and English Language (Syllabus B) in previous HKCEE are accepted administratively as comparable to Level 2 in Chinese Language and English Language in the 2007 HKCEE and henceforth.]

- (c) 8 years' relevant experience including 4 years' working experience in the capacity of Assistant Building Services Inspector, or equivalent.

##### **4.2 Duties and Responsibilities:**

The Resident Building Services Inspector shall assist the Project Building Services Engineer in technical and site matters and the duties shall include, but not be limited to, the following:

- (a) Assist the Project Building Services Engineer in all aspects of supervision of building services work on site within the contracts and the maintenance of site records.
- (b) Assist in the administration and control of Assistant Building Services Inspector and Works Supervisory grade staff.
- (c) Monitor labour resources, progress, materials and equipment used on site.
- (d) Responsible for the upkeep of site records including site record books and submission of all monthly returns.
- (e) Liaise and co-ordinate with other contractors, utility companies, client and government departments on site matters.
- (f) Solve minor disputes/conflicts between various contractors, utility companies, client and government departments on site.
- (g) Ensure the correct materials and equipment are delivered to site by contractors and that only those approved materials and equipment are installed.
- (h) Assist in the checking of any site measurements of building services works and payments claimed by contractors.
- (i) Assist in the site survey of existing building services installations during the construction stage, including submission of proposals for additional, alteration or repair works.
- (j) Inspect and witness the testing and commissioning of building services installations.
- (k) Monitor the progress of building services outstanding works and defects rectification works.
- (l) Assist the Project Building Services Engineer in the checking of building services operation and maintenance manuals and as-fitted drawings submitted by various contractors.
- (m) Carry out all such other duties as directed by the Project Building Services Engineer.

## **5. Resident Works Supervisor Class I (Building Services) (RWSI(BS))**

### **5.1 Qualifications:**

The minimum qualifications required for the post of Resident Works Supervisor Class I (Building Services) shall be as follows:

- (a) A Certificate in Building Services Engineering or Electrical Engineering or Mechanical Engineering from Construction Industry Council in Hong Kong / Hong Kong Institute of Construction / Hong Kong Polytechnic / Hong Kong Polytechnic University / Hong Kong Technical College / Hong Kong Technical Institute / Hong Kong Institute of Vocational Education, or equivalent; or

5 years' experience as a skilled worker in the field of Building Services Engineering or Electrical Engineering or Mechanical Engineering; or

Successfully completed a recognized Technician Apprenticeship in Building Services Engineering or Electrical Engineering or Mechanical Engineering; or

Successfully completed a recognised Craft Apprenticeship with two years' experience as a skilled worker in Building Services Engineering or Electrical Engineering or Mechanical Engineering.

- (b) 3 years' relevant post-qualification experience of site supervision of building services and E&M installations / 3 years' relevant experience of site supervision of building services and E&M installations as RWSII or equivalent in public works projects.
- (c) A knowledge of English and Chinese equivalent to Form 3 (before 2012) / Secondary 3 standard.

### **5.2 Duties and Responsibilities:**

The Resident Works Supervisor Class I (Building Services) is responsible to the Building Services Inspector in technical and site matters and the duties shall include, but not be limited to, the following:

- (a) Assist the Building Services Inspector on all aspects of supervision of building services work on site within the contracts and the maintenance of site records.
- (b) Assist in the monitoring of labour resources, progress, materials and equipment used on site.
- (c) Assist in the checking of site measurements of building services works and payments claimed by contractors.
- (d) Assist in the site survey of existing building services installations during the construction stage, including submission of proposals for additional, alteration or repair works.
- (e) Assist in the inspection of testing and commissioning of building services installations.
- (f) Assist in the checking of building services operation and maintenance manuals and as-fitted drawings submitted by various contractors.
- (g) Carry out all such other duties as directed by the Building Services Inspector.

## 6. Resident Assistant Clerical Officer (Labour Relations)

### 6.1 Qualifications:

The minimum qualifications required for the post of Resident Assistant Clerical Officer (Labour Relations) shall be as follows:

- (a) Attaining five subjects at grade 'E' or above in the Hong Kong Certificate of Education Examination (HKCEE) (including Chinese, English (Syllabus B) and Mathematics) or equivalent.

*[Notes :*

*(1) Grade E in Chinese Language and English Language (Syllabus B) in previous HKCEE are accepted administratively as comparable to Level 2 in Chinese Language and English Language in the 2007 HKCEE and henceforth.*

*(2) a combination of **FIVE** – Level 2 in New Senior Secondary subjects / "Attained" in a maximum of two Applied Learning Subjects / Grade E in Other Language subjects including Chinese Language and English Language at Level 2 and Mathematics at Level 2 in Compulsory or Extended Parts or above in the Hong Kong Diploma of Secondary Education Examination (HKDSEE) are accepted administratively as comparable to the qualifications as required in Section 24.1(a) .]*

- (b) Full-time working experience on personnel management or human resources related duties and preferably with post-secondary certificate on personnel management or human resources; or

For recruitment exercises encountered with recruitment difficulty subject to substantiation by the Consultants and acceptance by the Employer, post-secondary certificate on personnel management or human resources may be considered.

- (c) Good command of both oral and written English and Chinese.
- (d) Knowledge in application of common business software (e.g. Microsoft Word and Excel).

### 6.2 Duties and Responsibilities:

The duties of the Resident Assistant Clerical Officer (Labour Relations) shall include, but not be limited to, the following:

- (a) Act as a one-point contact for the Site Workers on Site on any enquiries in relation to employment matters.
- (b) Conduct briefing sessions to inform and to educate the Site Workers the benefits of the wage payment control measures being implemented under the Contract, in particular the workers' obligations to report wage arrears.
- (c) Conduct regular site visits to promote the monitoring system and to establish contacts with Site Workers to obtain feedback.
- (d) Monitor payment of wages to assess whether they are made timely by the Contractors and all subcontractors.
- (e) Oversee the setting up and maintenance of a record system on employment contracts, workers attendance, re-deployment, and wage payments.
- (f) Undertake regular physical checks to verify the accuracy and reliability of the records and to identify irregularities, if any, for early intervention.

- (g) Establish a simple and user-friendly complaint system, including the operation of a telephone hotline to receive enquiries from Site Workers on employment matters and to receive reports on wage defaults.
- (h) Alert the Supervising Officer's Representative of anomalies and to refer the same to the Contractor for investigation and appropriate follow-up actions.
- (i) Report to the Supervising Officer's Representative and the Labour Department complaints on wage arrears as soon as they are received and to provide necessary assistance to Labour Department to facilitate investigation and/or dispute resolution where appropriate.
- (j) Carry out random attendance checks, and to record and report the findings to the Supervising Officer's Representative.
- (k) Check the proper operation of the card reading devices of the Construction Workers Registration System, the records of the system and the records of instructions of payment of the wages.
- (l) Prepare the monthly report on payment of the wages and the attendance records to the Supervising Officer based on the daily records and instruction records submitted by the Contractor.
- (m) Attend interviews with the local labour unions and contractors associations, who may visit the Site from time to time to promote the wage payment and monitoring process, to ascertain whether there are any difficulties with the monitoring process and offer assistance where necessary.
- (n) Deal with any duties as may be assigned from time to time by his superior.

The optional duties of RACO(LR) shall include but not be limited to the following:

- (a) Undertake clerical work, including typing, word processing, photocopying, scanning, and printing.
- (b) (Not used.)
- (c) Assist site supervisory staff in checking Contractor's daily records of registered skilled workers for verifying the Contractor's compliance of employment of registered skilled workers.
- (d) Assist site supervisory staff in taking record photos for verifying the Contractor's performance on cleanliness and tidiness of the Site.
- (e) Check regularly on the information of workers' employers recorded in the attendance recording system against the latest Sub-contractor Management Plan (SMP), and properly document such checks, and alert the Supervising Officer's Representative if the sub-contractor's name is not contained in the SMP.

*Note: The assignment of optional duties to the RACO(LR) shall depend on the actual workload of the RACO(LR) and should not jeopardize the discharge of the mandatory duties to monitor the wage payments. Item (e) relates to a recommendation from ICAC on checking of hidden sub-contractors from corruption prevention angle and project officers are recommended to assign this duty to the RACO(LR).*

**List of Approved Sub-consultants**

**a) Building Services Engineering**

1. AECOM Asia Company Limited
2. Atkins China Limited
3. Aurecon Hong Kong Limited
4. Egis M&E Limited
5. Electrical and Mechanical Services Trading Fund
6. J. Roger Preston Limited
7. Meinhardt (M&E) Limited
8. Mott MacDonald Hong Kong Limited
9. NV5 Limited
10. Ove Arup & Partners Hong Kong Ltd
11. P&T (M&E) Ltd
12. Wong & Ouyang (Building Services) Limited
13. WSP (Asia) Limited
14. Buro Happold International (Hong Kong) Limited
15. China State Construction International Medical Industry Development Co., Ltd.
16. David S. K. Au and Associates Limited
17. DSCO Group Limited
18. Far East Consulting Engineers Limited
19. Ferrier Chan & Partners Limited
20. ISPL Consulting Limited
21. Leading Consulting Engineers Limited
22. M & P Consulting Engineers (HK) Limited
23. PineBridge Consulting Limited
24. SUB Service Company Limited
25. Talent Mechanical & Electrical Engineers Limited
26. Telexmax Environmental and Energy Management Limited
27. Thomas Anderson & Partners (HK) Ltd
28. Wah Hoi Engineers Limited
29. Wellhope Design Consulting Limited

**b) Structural Engineering**

1. AECOM Asia Company Limited
2. Asia Infrastructure Solutions Limited
3. Atkins China Limited
4. Aurecon Hong Kong Limited
5. Ben Tse & Associates Limited
6. C M Wong & Associates Limited
7. David S.K. Au and Associates Ltd
8. Greg Wong & Associates Ltd
9. Jacobs China Limited
10. JMK Consulting Engineers Limited
11. Mannings (Asia) Consultants Limited
12. Meinhardt (C&S) Limited
13. Mott MacDonald Hong Kong Limited
14. Ove Arup & Partners Hong Kong Ltd
15. P&T Engineers Limited
16. SYW & Associates Limited
17. Wong & Cheng Consulting Engineers Limited
18. Wong & Ouyang (Civil-Structural Engineering) Limited
19. Wong Pak Lam & Associates Consulting Engineers & Architects Limited
20. WSP Hong Kong Limited
21. APT Engineering Consultant Limited
22. Arthur Yung and Associates Company Limited
23. Canwest Consultants Limited
24. Chung & Ng Consulting Engineers Ltd

25. Civic Consultancy Limited
26. Fugro (Hong Kong) Limited
27. Ho Tin & Associates Consulting Engineers Limited
28. Kewisk Engineering & Consulting Co. Limited
29. Keystone Design Consultants Limited
30. Paul Wong Consulting Engineers Limited



## Consultant letter head

**Application Form for Approval of Variation Order**

Contract No.:

Contract Title:

Proposed Variation Order (VO) Ref. \_\_\_\_\_  
 (Note: all VOs should be issued within the contract period.)

Drawing No.: \_\_\_\_\_  
 \_\_\_\_\_

Scope of Works: Subvented / Non-subvented / Both subvented and non-subvented\*

Type of Works: Architectural / Structural / Building Services / Geotechnical\*

**Description of Works:** (Note: the description should be precise and specific, e.g. Change plaster and emulsion paint to screed and wall tiles in Room 123.)

**Reasons/Justifications for Variation:****Additional information:**

Is this VO initiated by the Employer (NGO)? \*Yes / No.

Is this VO absolutely necessary for the completion of the Works? \*Yes / No.

What are the consequences if this VO is not  
 issued: \_\_\_\_\_

Unforeseen ground conditions are involved in this VO: \*Yes/No.

\*No abortive work is involved in this VO / Some abortive works are involved in this VO,  
 they are: \_\_\_\_\_

\*Additional works (outside the original scope of works) are involved in this VO,  
 they are: \_\_\_\_\_

\*Works above normal design standard for this type of building are involved in this VO,  
 they are: \_\_\_\_\_

This VO may cause \_\_\_\_\_ days of extension of contract period.

This VO may cause contractual claim of the magnitude of \$ \_\_\_\_\_ .

Cost Implication	This VO			Contract Value	
	Est. Omission	Est. Addition	Est. Net Value	Last Est. Final Value	Revised Est. Final Value
Subvented Works	\$	\$	\$	\$	\$
Non-subvented Works	\$	\$	\$	\$	\$
Total	\$	\$	\$	\$	\$

Original Contract Sum: \_\_\_\_\_ Est. Final Contract Sum: \_\_\_\_\_

	Signed	Name	Post	Date
Applied by Consultant				
Endorsed by Employer				
Approved by Subventing Bureau/Department #				

\*Delete if inappropriate

#Obtain approval signature when necessary according to the criteria set by Subventing Bureau/Department

**Final Account Submission Checklist****Subvented Organization:** \_\_\_\_\_**Project Name:** \_\_\_\_\_**Date of Project Completion:** \_\_\_\_\_**Documents to be submitted with final account**

	Yes	N.A.
1. Certified true copies of contract documents including nominated subcontracts, if applicable.	<input type="checkbox"/>	<input type="checkbox"/>
2. Contract drawings.	<input type="checkbox"/>	<input type="checkbox"/>
3. Statement of final accounts prepared and certified by the Supervising Officer concerned.	<input type="checkbox"/>	<input type="checkbox"/>
4. Indication that the final account has been signed or at least agreed in principle by the Contractor and the Subvented Organization.	<input type="checkbox"/>	<input type="checkbox"/>
5. Summary of variation accounts with description and value.	<input type="checkbox"/>	<input type="checkbox"/>
6. Account of subvented costs and non-subvented costs (for the original contract sum and/or variation accounts).	<input type="checkbox"/>	<input type="checkbox"/>
7. Statement of any items added/changed between final checking of tender documents by ArchSD and the documents sent out for tendering.	<input type="checkbox"/>	<input type="checkbox"/>
8. Copy of a letter / document stating the date of contract commencement.	<input type="checkbox"/>	<input type="checkbox"/>
9. Copy of the Certificate of Practical / Substantial Completion.	<input type="checkbox"/>	<input type="checkbox"/>
10. Summary of extensions of time with contract grounds including copy of letters for the extensions.	<input type="checkbox"/>	<input type="checkbox"/>
11. Account of delay in contract period and adjustment for Liquidated Damages.	<input type="checkbox"/>	<input type="checkbox"/>
12. Account of financial claim (prolongation claim, disruption claim, etc.) and any financial adjustment embedded in variation accounts. ----- ---	<input type="checkbox"/>	<input type="checkbox"/>
13. Copies of the Supervising Officer's variation orders with associated sketches and drawings and monthly variation reports (ready for inspection and submission on request).		

Note **No piecemeal submission will be accepted.** Checking of final account would commence only when full set of required documents is available.

\_\_\_\_\_(Signature)  
Name :

Director of \_\_\_\_\_(the Consultant)

Date :

\_\_\_\_\_(Signature)  
Name :

Director of \_\_\_\_\_(Subvented Organization)

Date :

**BIM Execution Plan**

The BIM Execution Plan shall include but not limited to the following sections:

1. BIM Execution Plan Overview
2. Project Information
3. BIM Requirements
  - 3.1. BIM Goals
  - 3.2. BIM Uses
  - 3.3. BIM Data
  - 3.4. LOIN Responsibility Matrix
  - 3.5. Meeting Schedule
4. BIM Management
  - 4.1. Roles, responsibilities and authority
  - 4.2. BIM Team Resources, Competency & Training
  - 4.3. BIM Deliverable Schedule (Programme)
5. BIM Process
  - 5.1. Information Management Workflow Diagram
  - 5.2. Common Data Environment (CDE)
  - 5.3. Individual Discipline Modelling
  - 5.4. BIM Coordination and Clash Detection
  - 5.5. Drawing Production
  - 5.6. Model Archive
  - 5.7. BIM Audit Plan
6. BIM Procedures
  - 6.1. BIM Origin Point & Orientation
  - 6.2. Modelling Methodology
  - 6.3. Federation Strategy
  - 6.4. Model Units
  - 6.5. Naming Convention
  - 6.6. Drawing Sheet Templates
  - 6.7. Annotation, dimensions, abbreviation and symbols
  - 6.8. Colour Scheme
7. IT Hardware & Software Solutions
  - 7.1. Software Versions
  - 7.2. Exchange Formats
  - 7.3. Data Security & Back-up
  - 7.4. Hardware Specifications
  - 7.5. IT Upgrades
8. Asset Management
  - 8.1. Requirements and Data Structure of As-built BIM Models
  - 8.2. Data Conversion for Integration with the Employer's Systems
  - 8.3. Deliverables and Training
  - 8.4. Handover of As-built BIM Models

## Demarcation of Works on BIM Adoption

DEVB TC No. 2/2021		Consultancy Agreement [Guidance Note: See Guidance Notes 1 to 3 below]				Notes	
		Lead Consultancy Arrangement		Direct Consultancy Arrangement			
	BIM Use	Lead Consultant	Sub- consultant	Architectural Consultant	Other Consultants	Design Stage	Construction Stage
1	Design Authoring	- Carry out design using BIM  - Take lead to coordinate federated BIM design model	- Carry out design using BIM  - Participate the BIM design model coordination process	- Carry out design using BIM  - Take lead to coordinate federated BIM design model	- Carry out design using BIM  - Participate the BIM design model coordination process	-	-
2	Design Reviews	- Take lead to review federated BIM design model	- Participate the BIM design review process	- Take lead to review federated BIM design model	- Participate the BIM design review process	-	-
3	Existing Conditions Modelling	- Take lead to incorporate existing site conditions in BIM model	- Supply relevant information of existing site conditions for incorporation in BIM model	- Take lead to incorporate existing site conditions in BIM model	- Supply relevant information of existing site conditions for incorporation in BIM model	-	-
4	Site Analysis	- Take lead to conduct site analysis with BIM	N/A	- Take lead to conduct site analysis with BIM	N/A	-	-
5	3D Coordination	- Carry out clash analysis and resolve conflict with other disciplines  - Take lead to resolve conflict between disciplines	- Carry out clash analysis and resolve conflict with other disciplines  - Participate the 3D coordination process and contribute the resolve of conflict	- Carry out clash analysis and resolve conflict with other disciplines  - Take lead to resolve conflict between disciplines	- Carry out clash analysis and resolve conflict with other disciplines  - Participate the 3D coordination process and contribute the resolve of conflict	-	-
6	Cost Estimation	- Take lead to facilitate the financial model production	- Participate to facilitate the financial model production	- Take lead to facilitate the financial model production	- Participate to facilitate the financial model production	See Note a below	See Note b below
7	Engineering Analysis	- Take lead to conduct engineering analysis with BIM	- N/A	- Take lead to conduct engineering analysis with BIM	- N/A	See Note l below	See Note l below

DEVB TC No. 2/2021		Consultancy Agreement [Guidance Note: See Guidance Notes 1 to 3 below]				Notes	
		Lead Consultancy Arrangement		Direct Consultancy Arrangement			
	BIM Use	Lead Consultant	Sub- consultant	Architectural Consultant	Other Consultants	Design Stage	Construction Stage
8	Facility Energy Analysis	-	-	-	-	-	-
9	Sustainability Evaluation	Take lead to coordinate the use of BIM to meet certification requirement	Participate to coordinate the use of BIM to meet certification requirement	Take lead to coordinate the use of BIM to meet certification requirement	Participate to coordinate the use of BIM to meet certification requirement	See Note j below	See Note j below
10	Space Programming	Take lead to review the model to meet spatial requirement	Participate to review the model to meet spatial requirement	Take lead to review the model to meet spatial requirement	Participate to review the model to meet spatial requirement	See Note c below	-
11	Phase Planning (4D Modelling)	Take lead to review federated BIM 4D model across disciplines	Participate to review federated BIM 4D model with other disciplines	Take lead to review federated BIM 4D model across disciplines	Participate to review federated BIM 4D model with other disciplines	See Note d below	-
12	Digital Fabrication	Take lead to review the details of modular construction unit	Participate to review the details of modular construction unit	Take lead to review the details of modular construction unit	Participate to review the details of modular construction unit	See Note k below	See Note e below
13	Site Utilization Planning	N/A	N/A	N/A	N/A	-	See Note f below
14	3D Control and Planning	N/A	N/A	N/A	N/A	-	See Note m below
15	As-Built Modelling	- Verify on site the accuracy of as-built BIM models prepared by contractor	- Verify on site the accuracy of as-built BIM models prepared by contractor	- Verify on site the accuracy of as-built BIM models prepared by contractor	- Verify on site the accuracy of as-built BIM models prepared by contractor	-	-
16	Project System Analysis	N/A	N/A	N/A	N/A	-	-
17	Maintenance Scheduling	N/A	N/A	N/A	N/A	-	See Note g below
18	Space Management and Tracking	N/A	N/A	N/A	N/A	-	-
19	Asset Management	N/A	N/A	N/A	N/A	-	See Note n below
20	Drawing Generation (Drawing Production)	- Produce drawing deliverable s from BIM model	- Produce drawing deliverables from BIM model	- Produce drawing deliverables from BIM model	- Produce drawing deliverables from BIM model	-	-

*[Guidance Notes:*

1. *Follow ArchSD O.I. No. 02/2019 to confirm BIM uses for the project, and obtain necessary approval for omission of mandatory BIM uses and adoption of optional BIM uses under the current DEVB TC(W).*
2. *Delete rows for BIM uses not applicable for the project.*
3. *Delete the inapplicable consultancy arrangement below.*

*Legend:*

*\* Delete if inappropriate*

*Notes:*

- a. *Mandatory for project cost budgeting, project cost control and cost evaluation on design options, etc. at design stage as far as practicable.*
- b. *Mandatory for project cost control, cost evaluation on variation of works, cash flow/spending analysis, etc. at construction stage as far as practicable.*
- c. *Mandatory for checking client spatial requirements such as compliance with the approved schedule of accommodations, reference plot ratio for building projects and site coverage of greenery for building projects, or other spatial requirements relevant to building/civil projects as considered appropriate.*
- d. *Mandatory for the construction activities with very high to extreme risk level identified from the Systematic Risk Management (SRM) according to ETWB TC(W) No. 6/2005 and its subsequent updates (if any) or other identified activities of significant added values at design stage.*
- e. *Mandatory for digitalizing the construction details in the BIM model for mass customized components such as metal cladding, acoustic panels, building façade panels, ceiling panels, acoustic barriers, metal structural members, etc. which are of large quantities and variety in dimensions, shapes, geometries, etc. and modular construction units.*
- f. *Mandatory for the construction activities with very high to extreme risk level identified from the Systematic Risk Management (SRM) according to ETWB TC(W) No. 6/2005 and its subsequent updates (if any) or other identified activities of significant added values at construction stage.*
- g. *Mandatory for providing maintenance attributes for facility structures, fabrics and equipment in the as-built models as considered appropriate.*
- h. *Mandatory for developing/reviewing digital 3D design scheme for a new construction project after TFS has been approved by the Works Branch of DEVB.*
- i. *Mandatory for collecting sufficient and necessary existing site conditions as far as practicable to develop the design scheme and conduct the site analysis for new construction projects.*
- j. *Mandatory for building projects which aim to obtain the Gold or above rating of “BEAM Plus NB V2.0” certification with credit(s) for “BIM Integration”.*
- k. *Mandatory for modular construction units including those for MiC, DfMA, MiMEP as appropriate.*
- l. *Mandatory for conducting at least one engineering analysis which may be related to structural, lighting, solar and shading, airflow, energy, acoustic, thermal, mechanical, people movement, hydraulic, etc. as appropriate in building projects.*
- m. *Mandatory for a large-scale project requiring Digital Works Supervision System that digital setting-out, construction checking, etc. as appropriate by means of 3D laser scanners, robotic total stations, etc. shall be adopted as far as practicable.*
- n. *Mandatory for identifying the required data sets and data formats which can be extracted from as-built BIM models for the maintenance agencies’ use. Besides, underground utilities (UU) surveys by means of photogrammetry, 3D laser scanning, etc. for all opened-up areas are required so that a project UU BIM model can be provided to the maintenance agencies and LandsD for information sharing.*

*End of Guidance Note]*



**Qualifications of the BIM Team**

<b>Position</b>	<b>Qualification</b>
BIM Team Leader	1. CIC – Certified BIM Manager (CCBM)
Disciplinary BIM Coordinators : Architectural / Structural/ Building Services	<u>EITHER</u> 1. CIC-Certified BIM Coordinator (CCBC)  OR 2. CIC-Certified BIM Coordinator (Associate) and at least half of the BIM Coordinators attaining the qualification of CCBC in the BIM Team
Modeller	1. Diploma holder in construction related discipline; and  2. Minimum 1 year practical experience in BIM projects