BIM SCOPE OF WORKS MATRIX

Stage	Submit format and content	Information required	Submission purpose	Services
1	Early Planning stage			
1.1	Topography	Contour and coordinates for project area	For sunshade study, landscape study, excavation and back fill, even sub-structure analysis	
1.2	Utilities analysis	Existing drainage and sewage system, electricity, gas and telecom system	Preparation for design of underground services	
1.3	Traffic analysis	Road map	To locate the main and secondary entrance of the building	
1.4	Build mass model to generate the preliminary area schedule	Master plan and floor plans	Preliminary area schedule could be use as early financial analysis	
2	Design stage			
2.1	Sunshade, wind, energy consumption analysis for project	Site contour, existing landscape analysis, includes tree location, species and ages	For design reference, building location and building design checking	
2.2	Excavation analysis	Site topography, master plan and building plans, levels	Excavation analysis could be used as design checking, which could help to revise the design to make sure the excavation keeps at minimum level	
2.3	Landscape model, includes trees within project boundary	Site topography, site landscape report and arborist report	Could be used for landscape design, to relocate the purposed tree on the landscape model, and for visual checking	
2.4	Tree crown, roots and growth analysis	Tree species, age; dimension of tree crown and roots	Tree crown analysis for landscape design visual analysis; Tree root analysis for utilities design	
2.5	Clash detection between building and tree crown	Masterplan, building design; tree species, age and dimension of crown and roots	The clash detection will be used for landscape design	
2.6	Design options	Masterplan, preliminary architectural and landscape design	Analyze design options to achieve quality design for architecture, master planning and landscape	
2.7	Architectural BIM model: room names, function, numbers and area	Masterplan and general arrangement plan, elevations and roof design	For drawing production, material schedule and area schedule	
2.8	Architectural drawings: Masterplan, general arrangement plans,	Masterplan and floor plans, elevations and roof design	For tender drawings and construction drawings	

	elevations and sections (up to 1:100)			
2.9	Area schedule	Masterplan, floor plan and levels	Area schedule from BIM model could provide accurate area instantly, not over or a lot less than the limitation	
2.10	Schedule of quantities	Architectural design and materials	Schedule of windows, doors or louvres, help QS to start with preliminary quantity take-off	
2.11	Structural BIM model: piling, pile cap, substructure and superstructure	Structural design for piling, pile cap, ELS, demolition plan, substructure and superstructure	For structural drawing production, export model for structural calculation	
2.12	Hoarding design	Hoarding location and height	Commercial ads on hoarding	
2.13	Export structural model	Structural design for piling, pile cap, substructure and superstructure	For structural calculation	
2.14	MEP BIM model: MVAC, P&D, FS and electrical design	MEP design for MVAC, P&D, FS and Electrical, dimension and level of ducting and pipework	All MEP elements were model to make sure the design feasibility	
3	Detail design			
3.1	Drawing production for architecture, structure and MEP	Architectural, structural and MEP design	For government submission (GBP)	
3.2	Clash detection	Architectural, structural and MEP design	Design coordination	
3.3	Spatial validation checks for headroom and working space	Architectural, structural and MEP design (all levels shall be clearly mentioned)	For building and services design, building operations and maintenance activities checking	
3.4	Drawing revision	Architectural, structural and MEP design revisions	Make sure all 2D and 3D information update and consistent	
3.5	Schedule revision	Architectural, structural and MEP design revisions	Schedule updated as per design updates will avoid the time gap between design consultant and QS	
3.6	Animation	Architectural, structural, MEP and landscape design	To visualize the design in virtual reality for design checking	
3.7	Update design analysis: sunshade, landscape etc	Architectural, structural, MEP and landscape design	To design improvement	
4	Tender / Construction			
4.1	Clash detection revision	Architectural, structural and MEP design revisions	Constantly clash checking to avoid design fault to minimize unnecessary construction cost	
4.2	Drawing production	Architectural, structural and MEP design revisions	Construction drawings	
4.3	Schedule revision	Architectural, structural and MEP design revisions, material revisions	For quantity take off	
4.4	4D animation for construction sequence	Architectural, structural and MEP design revisions; construction programme and method statement	Construction sequence checking, clash between trades could be detected before commencement.	

4.5	Shop drawing	Shop drawing and method statement	Shop drawing produced from BIM model to ensure the drawing and model are consistent	
4.6	CSD	Architectural, structural, MEP drawings from contractor	test the feasibility of MEP ductwork / pipework, clash detection between MEP and Architecture / Structure	
4.7	Procurement, cash flow and payment	Contractor's design for architecture, structure and MEP, material and equipment to be used	Procurement, lead time and payment will affect the construction programme	
4.8	Construction safety check	Construction equipment	4D Construction simulation to highlight the construction sequence, while at the same time to visualize the temporary works during construction to ensure the site safety, delivery route, protective measures etc.	
4.9	Site management	Procurement schedule, lead time and site logistic planning, installation detail	To utilize the 4D Construction Simulation techniques facilitate the site planning - material storage, delivery path, hoist management and installation logistics.	
4.10	Virtual Mockup	Construction Details, Shop drawings, Construction sequence	Before Site mock up of particular sections, different mockups at various locations assembled in BIM to determine workability and appearance to save mock up constructions	
5	Construction completed			
5.1	As-built model	Contractor's architecture, structure, MEP and landscape design, and MEP equipment	Related information to be stored in the model, extra information to future facility management purpose will be added	
5.2	COBie	Material, O&M manual, warranty and maintenance information	The information will be export and re-store into model in EcoDomus for facility management purpose	
6	Facility management			
6.1	Model and COBie information re-combine in EcoDomus for facility management	Model: contractor's design for architecture, structure, MEP and related equipment, landscape design Information: information that facility management required, e.g. material, O&M manual and warranty	Extra time and human resource required for facility management because of the insufficient information, massive information could be centralized and accessible when BIM technology introduced into facility management	
6.2	Virtual T&C	Model: contractor's design for architecture, structure, MEP and related equipment, landscape design Information: Operation procedures of particular system	Different situations induce different scenarios for BIM models to perform virtual testing and control – e.g. a leakage in a pipe system lead to closure of several locations and determine extent of effects. Emergency and maintenance strategies to be determined.	
7	Marketing purpose			

7.1	Perspective	Architectural, structural, MEP and landscape design, material, color selection and tree information	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	
7.2	3D printing	Architectural, structural, MEP and landscape design, material, color selection and tree information	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	
7.3	Animation for interior and exterior	Architectural, structural, MEP and landscape design, material, color selection and tree information	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	
7.4	Color plan or isometric perspective	General arrangement plan, interior design including furniture, material and color selection	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	
7.5	Sales brochure	Leasable area and material selection	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	
7.6	Area schedule and unit price	Architectural design and unit price	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	
7.7	Facility	Architectural, structural, MEP and landscape design	Generated directly from BIM model, which is tally with the construction model, minimize the possibility of argument since the inconsistency of market drawing and actual built area	
8	Sustainability			
8.1	Design – Sun and Shading Analysis	Locational and Geographical Information, Material Definitions, Concept Design	BIM Building Mass helps to determine the effect of the surrounding mass onto the Design, and the effect of design mass onto the surroundings. Help to determine juxtaposition of design configurations	
8.2	Design – Thermal Mass Analysis	Locational and Geographical Information, Material Definitions, Concept Design	Quantify the building envelop receiving amount of thermal energy to determine sustainable building material and air conditioning for thermal control	
8.3	Design – Lighting Analysis	Locational and Geographical Information, Concept Design	Quantify lux level due to daylighting and minimize artificial lighting for cost saving	
8.4	Design – Wind Analysis	Climatic Data, Concept Design	Visual wind patterns and magnitude to identify wind spots and design strategies to reduce wind effects	

8.5	Operation – Energy and resources consumption and Conservation Strategy	BMS data including daily usage and s, BIM locational models	Integrate energy consumption data with locational database to yield conservation strategies with different scenarios.	