TERMS OF REFERENCE (TOR)

ARCHITECTURAL AND ENGINEERING (A/E) SERVICES FOR THE FEASIBILITY STUDY AND DESIGN OF A NEW HOSPITAL ON THE PREMISIS OF THE ACADEMIC HOSPITAL PARAMARIBO IN SURINAME

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COUNTRY MAP

SURINAME

1. BACKGROUND

The Academic Hospital Paramaribo (AZP) in Suriname is operational since September 18th, 1965. The official opening was not until March 10th, 1966, with the name "The Central Hospital". Because of the proclamation of the Faculty in Medical Science the name of the hospital was changed in 1969 to AZP. In March 1973 the Government decided that the Academic Hospital would be under the authority of the Suriname Government, namely the Ministry of Health.

Suriname has a population of around 542.000 inhabitants. AZP, with a bed capacity of ± 590, 30 medical departments and 2 laboratories is the largest and only academic hospital in Suriname. Located in the capital of Suriname, AZP can serve 66% of the population according to the "golden hour principle". With 2100 employees AZP is the largest hospital in the country.

The AZP is a fully government owned hospital in Suriname and has an annual admission of ±23.000 patients and counts over 300.000 treatments per year. The AZP is obliged by law to treat every patient whether they are insured or not. A major part of the patients (±70%) is categorized under the social welfare part of the population and is not able to pay for the provided care.

Imbedded in its Strategic Plan 2020 AZP focuses on high-quality top clinical medical specialist care to the community. In this context it can be mentioned that AZP is the referral center in Suriname for a variety of medical disciplines such as pediatrics, cardiology and ophthalmology. AZP is also the only hospital in Suriname with the following medical disciplines:

- Neurosurgery
- Thoracic surgery
- Maxillofacial surgery
- Kidney shock wave lithotripsy
- Radiotherapy and oncology treatment
- Pathology- lab

The ability to provide this variety of tertiary care has had a great and determinant impact in the past 10 to 15 years on the Surinamese community reducing the amount of patients sent abroad for treatment. It can be stated without a doubt, that the AZP has a very important social responsibility in taking care of the Surinamese population (patients and employees).
AZP will only be able to maintain and increase its value for the Surinamese society if it transforms to an Academic Medical Center (AMC- SU) based on patient care, scientific research and education and paramedical training for the whole Surinamese Community.

2. OBJECTIVE

The objective of this Consultancy is to provide the Ministry of Health (MOH), AZP and IsDB, with a feasibility study and complete Architectural and Engineering (A/E) consultancy services for the design of a new hospital, inclusive of medical equipment and furniture, automated hospital information systems for patient records, laboratory and other departments, training facility, main storage facility, skills lab, an energy and waste treatment plant and a three hundred (300) car garage on the existing AZP premises.
In the design the integration of the new hospital in the current facilities is crucial in order to achieve the right synergy.
The project delivery method is: Design – Bid – Build.
The guiding principles in the design are sustainability, ecofriendly, minimum maintenance and operational costs based on local circumstances.

3. DURATION

The overall duration of this assignment is maximum 54 weeks. The separate tasks are 58 weeks, see table below. The A/E consultant will have to present a timeline showing the tasks that will be carried out simultaneously and also the time proposed for the EA and AZP to review and approve the deliverables in a well arranged Gantt – chart and a separate accompanying table. The Completion report will be submitted after task 7 is finalized.

- Task 1		Feasibility study	8 weeks
- Task 2		Program Development	6 weeks
- Task 3		Schematic Design	6 weeks
- Task 4		Preliminary Design	10 weeks
- Task 5		Final Design	4 weeks
- Task 6		Construction Drawings	16 weeks
- Task 7		Bidding documents	2 weeks
- Task 8		Completion Report	4 weeks
- Task 9		Monthly progress report	

4. GENERAL REQUIREMENTS

The A/E Consultant will report to the Project Coordinator of the Project Monitoring Unit (PMU) of the MOH, the Executing Agent (EA) on this contract, and will be responsible for carrying out the activities outlined in this TOR according to best Architectural/ Engineering practices. The professional services of the Consultant must cover all the technical and associated administrative responsibilities needed in the execution of the different work activities. These responsibilities will be consistent with agreed quality assurance (QA) and quality control (QC) procedures.

It is understood that the A/E Consultant will provide all the necessary technical support to the staff of MOH, the Ministry of Works (MOW) and AZP in order to administer, manage and supervise the Project Design phases. The A/E Consultant may also be requested for additional services which the MOH/MOW/AZP may reasonably require relating to the design of the Project.

To ensure adequate project management and the implementation of agreed QA/QC procedures, the A/E Consultant must include in the technical proposal, a suitable Design Development Program emphasizing project organization and resource management. This will allow the A/E Consultant to meet his budget and scheduled objectives, environmental and engineering value analysis, critical path planning and monitoring, design review procedures, and project reporting systems.

A critical element in the QA/QC system will be the incorporation of the Hospital Safety Index assessment procedure by Pan American Health Organization (PAHO). Information on the Index can be obtained at the following website

http://www.paho.org/disasters/index.php?option=com_content&view=category&layout=blog&id=907&I t emid=884

The hospital is expected to be classified as a Category A facility.

The A/E Consultant will liaise closely with the PMU and AZP in order to ensure that all relevant stakeholders are consulted, informed and forewarned of planned site activities in a timely manner. The stakeholders are to be given opportunities to ask questions and kept informed of the nature, timing/duration, extent of activities and likely short, medium and long-term impacts on them. These consultations should be documented and the minutes prepared by the Consultant, after which the documents are submitted to the EA.

As part of task 1 the A/E Consultant will carry out an Environmental Impact Assessment (EIA) in accordance with the rules and guidelines of the National Institute for Environment and Development in Suriname (NIMOS).

The A/E Consultant will prepare an 'Operations and Maintenance' (O&M) manual. The building design will include the training of the current O&M staff of the AZP including a realistic O&M recurrent budget.

The A/E Consultant will have a local engineering counterpart with a complete back office. The A/E Consultant will be present in Suriname for a minimum of 60% of the assignment. This should be reflected in the proposal in a clear time table based on the deliverables of this assignment for every team member.

5. SCOPE OF SERVICES

The scope of services shall include, but not be limited to, the following main activities:

Provide the Ministry of Health (MOH), AZP and IsDB, with a feasibility study and complete Architectural and Engineering (A/E) consultancy services for the design of a new hospital, inclusive of medical equipment and furniture, automated hospital information systems for patient records, laboratory and other departments, training facility, main storage facility, skills lab, an energy and waste treatment plant and a three hundred (300) car garage on the existing AZP premises.
In the design the integration of the new hospital in the current facilities is crucial in order to achieve the right synergy.

For the new hospital AZP has prepared an initial 'Program of Requirements' (appendix K), which will serve as a guide i.e. starting point for the design. Based on the experience of the A/E consultant, the outcome of the feasibility study and the consultations the program of requirements will be prepared by the A/E consultant for final approval by the AZP/MOH.

General Services
The services shall be carried out in accordance with generally accepted standards of professional practice, guided by recognized Architectural/Engineering and management principles and practices for Contract Services. The A/E scope of work is understood to cover all activities necessary to accomplish the stated objectives of this assignment while adhering to the aforementioned principles and practices, whether or not a specific activity is cited in this TOR.

Freely accessible data and analysis is a core component of this project. Therefore, all data collected and created by project activities must be preserved, consolidated and transferred to the EA and AZP upon project completion or in an earlier phase as requested by the EA, in a well-known or standard electronic format. This format is outlined in Appendix B. The format can be extended if required.

Specific Services

The specific requirements for this consultancy, consist of the following tasks:

- Task 1		Feasibility study	8 weeks
- Task 2		Program Development	6 weeks
- Task 3		Schematic Design	6 weeks
- Task 4		Preliminary Design	10 weeks
- Task 5		Final Design	4 weeks
- Task 6		Construction Drawings	16 weeks
- Task 7		Bidding documents	2 weeks
- Task 8		Completion Report	4 weeks
- Task 9		Monthly progress report	

Task 1: Feasibility Study (8 weeks)

The A/E Consultant shall upon signing of the contract commence with a feasibility study.

The A/E Consultant will study:

- General population statistics of Suriname
- WHO health indicators of Suriname
- MoH health care prognosis
- AZP statistics

The study will comprise, but not be limited to, the following items.

- **Financial Feasibility**
- **Operational Feasibility –** The study involves recognizing and streamlining the operations in order to make them function seamlessly. This plan includes identifying and finding solutions for the bottlenecks, loopholes, functional gaps and, internal and external communication challenges.
  The Consultant will also make the plan for the re – organization of the existing departments of the Hospital that will be affected by the construction of the new hospital; in order to achieve efficient and effective work – and patient flows.
- **Technical Feasibility –** Focusing on the development of the technical aspects is imperative for healthcare success. The Consultant will assist the management in determining whether the technical resources are on par with the industry and the skill-set of employees is capable enough to make full use of the technical support. This also involves evaluating the healthcare equipment that includes medical equipment, hardware, software and all other electronic communication mechanism and listing the requirements from the perspective of healthcare success.
- **Legal Feasibility**
- **Detailed site analysis** Investigations will involve field, laboratory and desktop activities. A thorough investigation of existing information, records and maps shall be carried out. Information shall be obtained from both, local and regional sources. The A/E Consultant will identify the relevant sources and provide the MOH/AZP with the list. The Consultant is expected to provide a Site Analysis Report in accordance with, but not limited to, Appendix C.
- **Conceptual Master plan Design** - Based on the findings the Consultant will propose a conceptual master plan, covering the development of the complete hospital premises, existing as well as new structures. This concept will also include the development of the main utility services.

The feasibility study will be submitted as a comprehensive report, including an executive summary and a conclusion regarding the overall feasibility of the project.

Task 2: **Program development (6 weeks)**

AZP has prepared a preliminary 'Program of Requirements' (PoR) (Appendix K). The A/E Consultant shall, based on his experience, guide AZP and be responsible for further development and finalization of the PoR for the project.

The A/E consultant will specify the hospital design standards that will be used and the added value of these standards for the project.
The program development will also include:

- Room comfort requirements (temperature, humidity, lux level, noise level, privacy, color, integration with nature, e.g. planting)
- For all major rooms: alternative room lay-outs sc. 1:50:20 including furniture and medical equipment; include supporting images i.e. loaded drawings.
- Total net and gross floor areas, including circulation space, technical rooms, balconies, etc.
- The Program and the Room Data Sheets (RDS) must be approved in writing by the AZP/EA. The A/E Consultant can begin the next task only after such approval. For the RDS the A/E Consultant will propose a template to be approved by the AZP/EA, prior to the commencement of the works.

The development of the program will also be based on the results of the feasibility study. This activity would necessarily include interactive stakeholder participation i.e. Hospital Management, MOH and MOW. In preparing the Program, the A/E Consultant will be required to provide advice on the engineering/architectural/costing implications for each decision. Such advice will include suggested alternative solutions. **The guiding principles in the design is sustainability, ecofriendly, minimum maintenance and operational costs based on local circumstances.**

Task 3: Schematic Design (6 weeks)

Following Tasks 1 and 2 and with the receipt of specific written instructions to proceed from the EA and AZP, the A/E Consultant shall commence the preliminary design work with the Schematic design. The A/E consultant will also make use of, but not limited to, AutoCAD, REVIT, Bim software and SketchUp.

The Schematic design(s) (number of concepts at the A/E Consultants discretion, Minimum 2) shall provide the EA and AZP with a clear visual impression of the site layout, road access, building floor plans building exterior elevations and zoning plan.

The A/E Consultant shall prepare Schematic Design studies illustrating the scale and relationship of project components for approval by the EA and AZP. All such studies shall indicate site conditions, plan arrangement and the general scope and character of the Project. The number of Schematic Design studies actually presented by the A/E Consultant will vary with the complexity of the project and the experience level of the A/E Consultant with respect to the specific facility being designed. Generally, the minimum number of fully developed studies will be two with the average being four. The A/E Consultant is expected to continue generating studies until the requirements of the Project are met and a Schematic Design is approved by the EA and AZP. The A/E Consultant shall not proceed to the Preliminary Design Phase until written approval has been received from the EA. Sustainability must be considered throughout the design process.

The complete Schematic Design Report is to be provided in hardcopy format as well as on USB to the PMU. The hardcopy of the report is to be in A4 format with folded A3 drawings. The complete report is to also be provided on USB as a single Adobe Acrobat (.pdf) file. The USB is also to contain: • All drawings included in the report as separate, indexed Adobe Acrobat (.pdf) files. • Drawings included in the report and identified in Appendix J as separate, indexed CAD compatible drawing (.dwg) files.

As part of the approval process the A/E Consultant is required to give a minimum of 2 (two) power point presentations of the schematic design to the stakeholders.

Task 4: Preliminary Design (10 weeks)

Following the selection of the approved Schematic Design by the EA and AZP, the A/E Consultant shall commence the preliminary design work.

This preliminary design will be guided inter-alia by the approved concept design, Design Brief (Appendix D), site assessment report, Tasks 2&3 and such other design inputs required by the EA and AZP.

The preliminary design will also include, but not be limited to:

(i) Updated and new Operational Policies – AZP has developed various policies and protocols which are in written form. The A/E Consultant is expected to interview the hospital management staff where information is required.

(ii) The A/E Consultant will be required to develop the space program following consultations with and advice from AZP. This will also include the re – organization plan of the existing departments.

(iii) Medical Equipment and furniture – The Consultant will be required to develop the list of medical equipment and furniture in consultation with the AZP department responsible for medical equipment and furniture. This will include the transfer of existing equipment and furniture to the new facility, as well as all the new equipment and furniture that has to be purchased. The A/E Consultant will liaise with the department of the AZP to receive approval for this component.
The building will be completely fitted out before handover to AZP. The Consultant will provide in his design documents, a comprehensive schedule and specifications of all such furniture and equipment necessary for the proper functioning of the facility.

(iv) Include the automation requirements for Electronic Healthcare Records (EHR's) and all other required information systems such as a laboratory information system (LIS) and other departments by consultation with and advice from AZP. The requirements have to include all necessary hardware, software, network / internet connections in order to achieve a user friendly well-integrated automation system of all the separate software programs. The A/E Consultant will liaise with the ICT department of the AZP to receive approval for this component.

(v) Design Standards – The Consultant will be required to identify the applicable PAHO/World Health Organization (WHO) standards for design of the hospital e.g. the USA FGI 2014 Hospital guidelines.
Also specific standards for ensuring that the building is accessible by people with disabilities e.g. wheelchair users, the blind etc.

(vi) Legislative Issues – The Consultant should take into account the interfaces with the local existing legislation e.g. building permit requirements.

(vii) Renewable Energy and Sustainable Resources – The Consultant will be required to provide the EA/AZP the anticipated electrical operational costs of the preliminary design. The design brief covers this topic in more detail.

(viii) Environmental Impact –The EIA will form part of the site analysis for which certain assumptions will have to be made e.g. story height, building footprint, energy plant, car park area etc. Where there is a significant departure from the original assumptions (which should be apparent at the preliminary design stage), the Consultant will need to design interventions to mitigate the effects and update his site analysis report.

(ix) Room Data Sheets (Room by Room for every floor).

(x) Loaded Drawings.

The A/E Consultant is expected to provide preliminary design drawings for the review of the EA and the AZP. The minimum drawing content is listed in Appendix E. The A/E Consultant is expected to exceed this drawing list based on his experience.
The A/E Consultant is also expected to provide a preliminary design report. The report requirements are contained in Appendix F.

The A/E Consultant will also be required to make power point presentations of the preliminary designs to identified stakeholders e.g. EA/AZP, doctors, nurses and maintenance staff etc. The presentations will focus on the relevant interests of the stakeholders and be structured in a manner that represents anticipated operational scenarios. The 3D/BIM design will be adjusted accordingly and also be part of the presentations.

Task 5: Final Design (4 weeks)

Following the written approval of the Preliminary Design by the EA/AZP, the A/E Consultant will commence with the finalization of the design.

The final design will include:

1. All required design drawings and models, including construction design and installations design. Guidance on the minimum requirements for these documents is listed in Appendix G
2. A room list and m2 analysis, demonstrating compliance with the Program
3. A detailed list of medical equipment.
4. A comprehensive project cost analysis and engineer's estimate.
5. The final Room Data Sheets including medical equipment.
6. The final loaded drawings including medical equipment.
7. 2 (two) scale models.

The design will be presented in hard copy, digital format and power point. The 3D/BIM design will be adjusted accordingly and also be part of the presentations. In this phase the Consultant will also present two (2) scale models. One of the design in relationship to the other buildings on the premises of AZP and the second will be a scale model of the new Hospital, with the possibility to detach every floor separately. The scale models will have a detachable protective see through covering of durable material.

Task 6: Construction Drawings (16 weeks)

The A/E Consultant will produce full construction documentation, necessary for bidding and obtaining a construction permit. This documentation consists of, but is not limited to:
1 – Drawings

- All architectural drawings and architectural detail drawings

- All construction drawings and construction detail drawings
- All construction calculations
- All installation drawings and installations detail drawings
- All installations calculations
- All terrain drawings and terrain detail drawings
- All interior drawings
- All equipment drawings

2 – Specifications (or: specific requirements)
- Technical specifications of :
    - Building and construction
    - Installations
    - Terrain
    - Interior
    - Equipment

3 – Project estimate
- Detailed bill of quantities of :
    - Building and construction
    - Installations
    - Terrain
    - Interior
    - Equipment
- Detailed estimate of :
    - Building and construction
    - Installations
    - Terrain
    - Interior
    - Equipment

- The A/E Consultant will submit the drawings and calculations to the Ministry of Public Works to obtain a construction permit. The A/E Consultant will carry out all revisions requested by the ministry, until approval.

- The construction documentation must be approved in writing by the EA/AZP.

Task 7: Bidding Documents (2 weeks)

The A/E Consultant will produce all required bid documentation including the bidding document for the medical equipment and furniture and the automated hospital management system. This in order to make sure that this project will be a turnkey project comprised of all required components for a fully operational Hospital. The final bidding documents will be prepared based on the rules and guidelines of the Financing Agency.

This documentation consists of, but not limited to:
- Instruction to bidders
- General requirements of the financing agency
- Specific requirements (= technical documentation, see task 5)
- Standard forms to be completed by bidders

Bid documentation must be approved by the EA as well as the Financing Agency.

Task 8: Completion Report (4 weeks)

At this stage, the A/E Consultant shall submit the project completion report according to appendix H.

Task 9: Monthly progress report

The A/E Consultant shall prepare monthly reports during the design process (commencing in the preliminary design phase) indicating progress in the various project components. A template is provided in Appendix I.

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6. INPUTS

The EA and AZP will make available to the A/E Consultant, all plans, pictures and reports relevant to the proposed works that are in his possession and that might be necessary and applicable in the execution of the work required under this TOR.
The Consultant will provide the equipment and software required to carry out the assignment and be responsible for obtaining all additional information for the execution of the services necessary for the assignment.

Local content:
The A/E Consultant will present in its proposal how the local content will be incorporated and implemented for this assignment.

7. REPORTING REQUIREMENTS AND DELIVERABLES

The deliverables for this consultancy, consist of the following:

- Task 1		Feasibility study
- Task 2		Program Development
- Task 3		Schematic Design
- Task 4		Preliminary Design
- Task 5		Final Design
- Task 6		Construction Drawings / Building permit
- Task 7		Bidding documents
- Task 8		Completion Report
- Task 9		Monthly progress report

All deliverables have to be submitted to the PMU in the format described in the TOR.

As part of the approval process the A/E Consultant is also required to present several power point presentations, which have to be submitted to the PMU, 1 (one) week prior to the presentation date.

8. MANPOWER SCHEDULING AND COSTS

In estimating man – month requirements and cost of the services, the Consultant should ensure that the proposal takes full account of all of the costs to adequately complete the above requirements, including but not limited to the following items. The Consultant should include the local content experts in his proposal as part of the work team, based on a side by side position and justified on the basis of project efficiency and knowledge transfer.

- Consultant remuneration
- Consultant out of pocket expenses
- Local, regional and international travel
- Support staff services
- Equipment and vehicle hire
- Communication costs
- Report, documentation and drawing reproduction costs
- Survey costs (topographic and traffic)
- Local accommodation
- Testing

Consultants Team Minimum Requirements

General requirements:

- Specific experience with Hospitals and Medical Centers (Health Care projects) is mandatory for the International experts;
- For the local experts it is preferable;
- Proof of Professional registration and applicable licenses.

CONSULTANTS TEAM MINIMUM REQUIREMENTS				
Position	**Qualifications**	**International**	**Local**	**Specific Experience**
Senior Project Architect (Team Leader) (International)	Bachelor of Architecture with a minimum of 20 years relevant experience.	**X**		This individual will lead the design team. The Senior Project Architect will be viewed as a technical expert with extensive experience and recognized authority in health care planning, design and architecture, hospital building codes and construction as it relates to design services and will have

				20+ years of experience providing these services. The Senior Project Architect will take the lead to resolve problems of major scope and complexity. Proven good team leadership skills and good with clients, contractors and staff is required. Any architectural awards received will also be mentioned.
Architect (Local)	Bachelor degree with minimum 20 years relevant experience.		**X**	Extensive experience with design and architecture. Extensive local experience in order to assure that the design takes sufficient account of the local circumstances. Proven experience with health care design is preferable.
Interior Designer (International)	Bachelor degree with minimum 15 years relevant experience. LEED certified.	**X**		Extensive experience with interior architecture and design. Extensive experience with LEED design. Any awards received will also be mentioned.
IT & S Project Manager (International)	Bachelor degree with minimum 10 years relevant experience.	**X**		Extensive experience with the design and implementation of Engineered Communications and Information Technology Systems for Hospitals. These systems include voice and data infrastructure, outside plant, network design, RF distribution, telephony, paging/intercom, and wireless as well as life safety systems such as access control, closed circuit television, and security.
Mechanical Design Engineer (International)	Bachelor of Science in Mechanical Engineering minimum 15 years' relevant experience.	**X**		Extensive experience with project management and mechanical design engineering of new and existing heating, ventilating and air conditioning systems for commercial, educational, medical and institutional facilities. His/her experience includes design and project management of numerous such facilities including facility master plans, central powerhouses, energy management, and construction management experience.

Electrical Engineer (International)	Bachelor of Science in Electrical Engineering, minimum 15 years relevant experience.	**X**		Extensive experience with the electrical design of all types of lighting and power systems, building electrical systems, electrical power distribution, control systems, communications and alarm systems, and emergency power systems for hospital/medical, governmental, educational, financial and commercial facilities. He also has extensive work experience in low voltage and communications design.
Electrical Engineer (Local)	Bachelor degree or equivalent, minimum 15 years experience.		**X**	Extensive (local) experience with the electrical design of all types of lighting and power systems, building electrical systems, electrical power distribution, control systems, communications and alarm systems, and emergency power systems for hospital/medical, governmental, educational, financial and commercial facilities. He also has extensive work experience in low voltage and communications design. Experience with the applicable rules and regulations of the Energy Company of Suriname (EBS).
Structural Engineer (International)	Bachelor of Science Architectural Engineering with 15 years relevant experience	**X**		Extensive experience of structural designing components and complete structural systems for new structures and rehabilitation of existing structures. Experience with structural systems that include, but are not limited to: concrete, steel, timber and masonry.
Medical Equipment Planner (International)	Bachelor degree with 15 years relevant experience	**X**		Extensive experience with medical equipment planning and installation for Hospitals. Commissioning experience is preferable.
Healthcare Information and technology consultant (International)	Bachelor degree with 15 years relevant experience	**X**		Extensive experience with (vendor) selection / designing and implementing of EHR's and other relevant healthcare systems. Extensive experience with the

				procurement and implementation of automated hospital management systems.
Quantity Surveyor (International)	Bachelor degree with 10 years relevant experience	**X**		Experience with preparation and development of the preliminary cost plan, advise on cost of design team's proposals. Moreover, monitor cost implications during the detailed design stage, maintain and develop cost plan.
Land Surveyor (Local)	Bachelor degree with 10 years relevant experience		**X**	Experience with the making of exact measurements and determine property boundaries. Provide data relevant to the shape, contour, gravitation, location, elevation, or dimension of land or land features on or near the earth's surface for engineering, mapmaking, mining, land evaluation, construction, and other purposes.
Geo Technical expert / Company (Local)	Bachelor degree with 10 years relevant experience		**X**	Authorized company to carry out geotechnical surveys.
Construction Cost Estimator (Local)	Bachelor degree with 10 years relevant experience		**X**	Expertise for providing actual local market information concerning pricing of materials and other costs related to construction of the design.

The team composition should also reflect the international and local office and back up facilities.

9. PAYMENT SCHEDULE

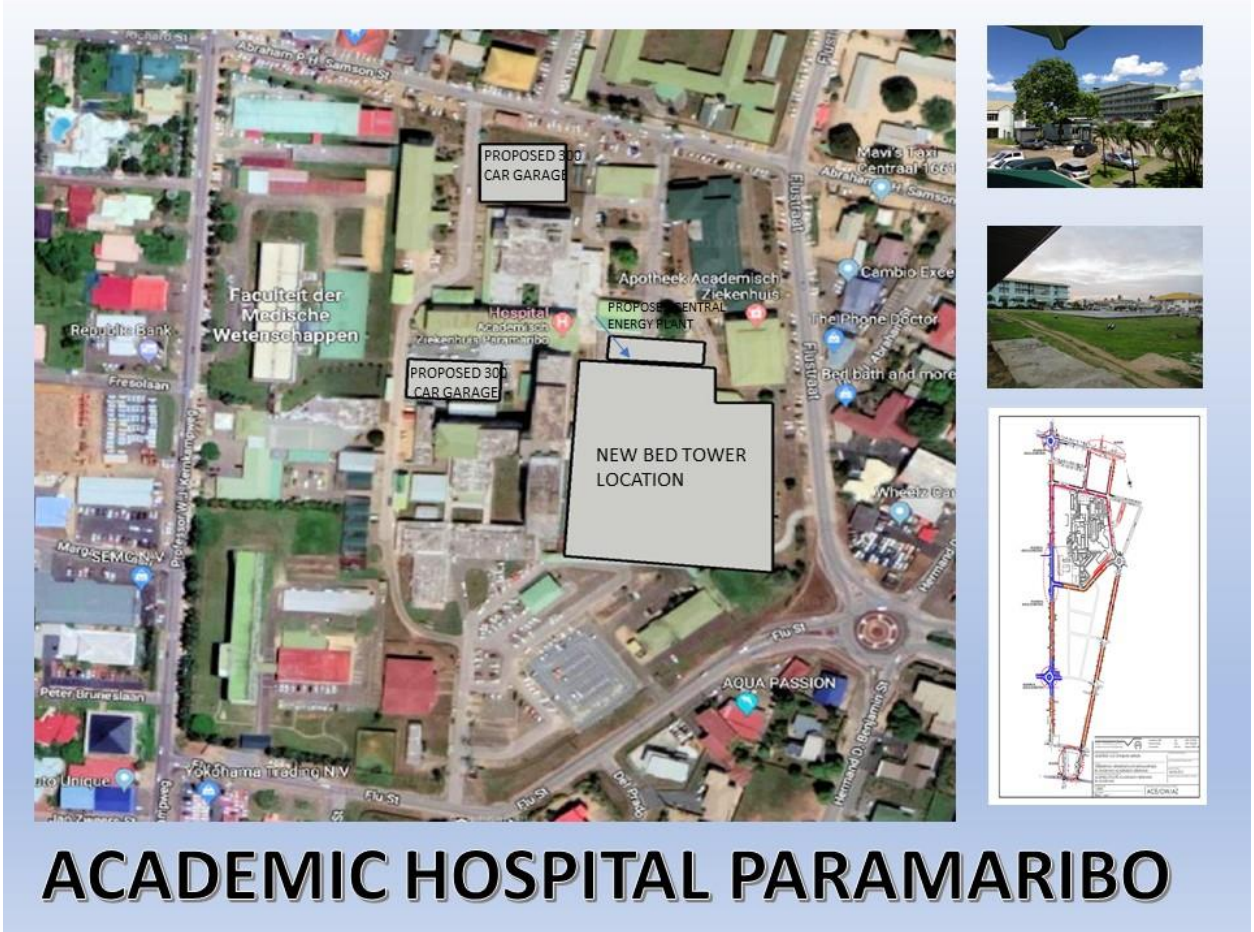
	Task Name	***Payment***
Nr	**New Design AZP Hospital**	
1	Feasibility Study	20%
2	Program Development	10%
3	Schematic Design	10%
4	Preliminary Design report	15%
5	Final Design	15%
6	Construction drawings / Building Permit	20%
7	Bidding Documents	10%
	Total	100%

The payments will always be supported by an approved deliverable and will also be depending on the timely submission of the relevant and complete monthly report.

10. COMMENTS BY THE CONSULTANT

The Consultant is invited to make any comments on, and suggestions for, improvements to this ToR. The financial implications, if any, of the said suggestions/recommendations should be clearly indicated in the Financial Proposal.

APPENDIX A: PROPOSED PROJECT LOCATION



APPENDIX B: TERMS OF GEO – SPATIAL DATE DELIVERY AND SHARING

Freely accessible data and analysis is a core component of this project. Therefore, all geospatial data collected and created by project activities must be preserved, consolidated and transferred to the EA/AZP upon project completion, in a well-known or standard electronic format. Specifically the following terms apply:

Licensing: All data procured and developed for this project is done on behalf of the EA/AZP and therefore all licensing agreements must be made similarly.

Vector data: Geospatial vector data must be converted into a standard OGC format or well-known format. This list includes, but is not limited to, shape file format. Additional formats may be delivered with prior approval. All files must include projection parameters. Vector data must adhere to topological standards.

Raster data: Geospatial raster data must be converted into a standard OGC or well-known format. This list includes, but is not limited to, GeoTiff format. Additional formats may be delivered with prior approval. All files must include projection parameters.

Tabular data: Tabular data must be converted into a readily accessible or well-known format. This list includes, but is not limited to, CSV, tab delimited text file, or spreadsheet. Additional formats may be delivered with approval.

Media/method of transfer: All data sets must be transferred on permanent media such as a CD/DVD disk. Very large data sets, too large for CDs and DVDs, may be provided on a hard drive or solid-state drive, as agreed by the EA/AZP.

Metadata: Detailed documentation needs to be provided for each data set. This metadata must include description, source, and contact, spatial and attribute keywords, date, accuracy, restrictions. A description of attributes should to be provided for vector and tabular data sets. Spatial data must include details of projection.

Derived data: All derived data generated for this project belongs to the EA and must be transferred under these terms.

Periodic updates: Ongoing updates of this data made by the selected must be provided as they are created.

Disposal of data: The selected firm is free to maintain copies of data collected and developed through this project, without conflicting the terms of any license agreements. Ownership remains with, and must be stated as, the EA. Further data sharing is permissible under these terms only if the data is made freely available without cost.

APPENDIX C: MINIMUM REQUIREMENTS FOR DETAILED SITE ANALYSIS

SCOPE OF SERVICES

The scope of services shall include the activities outlined below, which will be collated into a Site Analysis Report. The Report shall include an executive summary and shall provide a conclusion regarding the suitability of the site in the context of the parameters under investigation viz topography, geotechnical conditions, flood risk, traffic impact assessment, engineering, environmental and social impact assessments. The Consultant shall provide in the report, any interventions which in his opinion would be required to make the site suitable for construction of this facility.

General Services
The services shall be carried out in accordance with generally accepted standards of professional practice, following recognized engineering and management principles and practices for site investigation services.

The Consultant's scope of work is understood to cover all activities necessary to accomplish the stated objectives of these services while adhering to the aforementioned principles and practices, whether or not a specific activity is cited in the requirements.

The services will include Preliminary Engineering Investigations, a Topographic Survey, a Flood Risk Assessment Review, a Traffic Impact Assessment, Geotechnical Investigations and a limited Environmental Impact and Social Assessment.

The associated tasks will involve field observations, drilling, surveying, review of hazard maps and hazard reports, review of existing hydraulic studies, anecdotal information from area residents, desktop reviews, lab analysis, and any other necessary research and analysis that the Consultant feels necessary to satisfy the requirements.

Topographic Survey
Produce a comprehensive surveyor map by undertaking a digital site topographical survey to determine the commercial viability of construction of a hospital complex at the location, considering the erection of safe buildings and adequate car parks and ancillary facilities. The map will also provide the following information:

- All physical features both man-made and topographic within the survey area – AZP premises (all buildings on site, terrain borders, adjacent streets and all buildings on adjacent sites -
- Evidence of made up ground, dumping, subsidence or past demolition
- All adjacent roadways, ramps, bridges, tunnels, footpaths, tracks, with spot levels to curbs, channels and crowns including all material finishes clearly marked
- All permanent street furniture – lamp standards, bollards, traffic lights, signs, seats, etc., to be Located
- All services related features such as sub-stations, pump houses, telecommunications boxes, manholes, inspection covers, gullies, overhead cables and other obstructions to be clearly located
- Accurate details of all site boundary walls, fences, hedges, gates, retaining walls, footpaths and the like.
- Levels within the survey area in grid formation at a maximum of 5 metre centres, including 300mm topographic contour lines. All changes of line, level and surface material to be recorded and sufficient levels to be taken to denote all changes in ground profile

- Details of levels, locations and profiles of any ponds, ditches, drains, swales, streams and rivers (including water level and direction of flow).
- Ground and/or slab levels immediately outside the site boundary particularly where a difference in surface material or ground level across the boundary exists
- Detailed survey and levels of the existing highways abutting the site, including lamp posts, manholes, access chambers, street furniture. Cross section spot levels at 10 meter intervals to be taken on the existing roads and footpaths at back of path, top of curb, bottom of curb, center line, recording any changes in surface material or condition
- Outline of any properties adjacent to the site including slab levels, drainage runs, building overhangs, overhead cables within close proximity of site boundary
- Any electricity substation, gas governors and valves, telephone junction boxes, water stop cocks within the site or adjacent areas shall be shown and identified on the survey
- General details of trees and vegetation indicating the locations and height of canopy
- Buildings and paved areas and the like within the site boundary shall be shown in full outline, details to include construction, slab/floor levels and outline of basements or underground structures
- Overhead lines and wires are to be shown with line and height where they cross or are in close proximity to the site
- Any evidence of flooding or ponding or saturated ground conditions at the time of the survey are to be shown
- Position, size and nature of all utility services (gas, water, electricity, telephone, etc.) entries into the site and to any existing buildings

Geotechnical Investigations

The Consultant shall undertake sufficient borehole drilling and sampling to provide a good overview of the geotechnical characteristics across the site in order to inform the subsequent positioning of buildings and foundation design. In addition, the Consultant shall assess, but not be limited to, the following geotechnical issues which shall be collated and formalized as an independent geotechnical report:

- Depth to appropriate soil bearing capacity
- Borehole logs
- Test results for relevant soil engineering characteristics
- Soil percolation potential
- Water table depth
- Identification of historical land uses of the site
- General suitability of soils/geology of land for building upon
- Identification of unsuitable soils
- Presence of water bearing aquifers and at what depth
- Vulnerability to liquefaction
- Chemical analysis on soils to identify any hazardous materials, e.g. fertilizers
- Suggested foundation design type.

Engineering Investigations

The Consultant shall investigate and assess the following general engineering issues:

- Walk over visual inspection of the site and walk-through inspection to identify any potential demolition considerations
- Cadastral survey to verify site boundaries
- Constraints to phased expansion
- The existing capacity and expansion potential of the road access to the site as well as alternative routes

- Identification of any potential hazards on approach routes from population centres that would jeopardize access to or from the site, e.g. flood prone zones
- Existing infrastructure capacity constraints with respect to utility access (water, electricity, cell phone coverage, broad band service)
- Identifying whether there are existing important buried utilities, and if so, mapping their locations
- The site's wind exposure
- A wind drift assessment in order to inform the appropriate siting of an incinerator and building ventilation design
- Site drainage
- Potential effect of explosions from nearby gas or fuel related installations or pipelines
- Proximity to airport
- Proximity to fire station
- Analyses of excisting waste management

Flood Risk Assessment
The Consultant shall undertake a Flood Risk Assessment that includes:

- Review of any historic incidences of flooding at the site or the main access road to the site, identifying the specific causes of such flooding, if applicable.
- Review of current hydrologic and hydraulic reports of the catchment basin and adjacent rivers and streams. The Consultant is required to carry out a separate hydrologic/hydraulic survey.
- Where part of the proposed development site is below these flood levels, identification of any localized flood alleviation options (such as embankment construction or channel maintenance)
- Reporting on the tidal reach in relation to the site and predicted tide surge levels based on current hazard maps.

Traffic Impact Assessment
The Consultant shall undertake a Traffic Impact Assessment ("TIA") that includes, at a minimum, the following tasks. The final scope of TIA to be confirmed with appropriate authorities within the Government of Suriname:

- Perform a site visit
- Review existing baseline conditions and relevant planning policies (e.g. any stipulations regarding the number of access routes, etc) to determine potential impacts on the project
- Confirm any other committed developments in the area which might be impacted by or might impact the project in terms of traffic.
- Produce junction design(s) based on findings from site visit and/or guidance from local authorities
- Undertake an assessment of likely hospital traffic volume, pedestrians, private cars, buses, delivery vehicles, emergency vehicles etc. based on an appropriate traffic survey analysis at the existing AZP facility.
- Undertake an appropriate traffic survey analysis of existing traffic conditions adjacent to the site, to establish the optimal junction model.

Environmental and Social Impact Assessment
The Consultant shall carry out an Environmental and Social Impact assessment exercise. The EIA and SIA will be guided by the NIMOS. Given the scope and nature of the proposed development, typical issues to be addressed are listed below:

- Identification of threats to any significant cultural, tourist, historical or archaeological sites of importance
- Impacts on natural habitat and biological resources

- Potential for the project to pollute watercourses
- Potential impact on the social fabric of the surrounding communities
- Vulnerability to wind borne pollutants, including noise and odors from surrounding areas.
- The Consultant shall indicate whether mitigation or elimination of any red flag issues is possible and a qualitative description of the proposed methods.

APPENDIX D: DESIGN BRIEF

TABLE OF CONTENTS – Not limited to – The A/E consultant is allowed to propose a better option.

5 GUIDELINES FOR GREEN BUILDING DESIGN

5.1 GENERAL

5.2 LOCATION, ORIENTATION, SITING AND STRUCTURE

5.3 ENERGY EFFICIENCY AND CONSERVATION

5.4 WATER CONSERVATION AND EFFICIENCY

5.5 MATERIALS EFFICIENCY

5.6 ENVIRONMENTAL QUALITY ENHANCEMENT

5.7 WASTE REDUCTION AND RECYCLING

5.8 OPERATIONS AND MAINTENANCE (O&M) OPTIMIZATION

APPENDIX E: MINIMUM PRELIMINARY DESIGN DRAWING SUBMITTAL REQUIREMENTS

Preliminary Design Drawing Submittal Requirements as shown below, will be the **minimum** required from the Consultant. The drawings titles indicated will require in many cases, several drawings to complete the title scope. The scales of the documents to be provided will comply with the applicable standard scales. If the EA/AZP requires a different scale this will be provided by the Consultant.

(1) Preliminary Construction Site Plan showing, but not limited to:

(A) Proposed Hoarding and fencing;
(B) Temporary fire exits, including protection of required egress routes from the Replacement Hospital;
(C) Demolition;
(D) Applicable phasing;
(E) Construction traffic routes to and from the site, site access points
(F) Proposed construction equipment and materials staging areas; and
(G) Designated Construction Parking Area.

(2) Site plan showing, but not limited to:

(A) Full ground floor plan
(B) Full hard/soft landscape plan showing integration of landscaping features/areas with floor plan elements and entrances;
(C) Treatment of main approach to public entrance;
(D) Treatment of local transit stop area;
(E) Vehicular drop-off and main road right-of-way improvements;
(F) Site furnishings;
(G) Additional Site features, including natural features, storm water management structures and design of outdoor spaces for patient care;
(H) Vehicle access/egress driveways to and from Site, including parking, entrance ramp, service vehicle route and emergency vehicle route.

(3) Site servicing plan showing, but not limited to:

(A) Storm water management/storm sewer;
(B) Sanitary sewer system;
(C) Water mains - domestic use;
(D) Water mains - fire fighting;
(E) Electrical utilities;
(F) Gas utilities; Bulk gas storage;
(G) Telecommunication lines;
(H) Water storage supply system;
(I) Television lines.

(4) Architectural floor plans of every room & level, including roof(s), showing, but not limited to:

(A) All walls and partitions in actual thicknesses;
(B) All clinical and non-clinical rooms/areas (colour-coded if necessary) and numbered using the alphanumeric Room Codes used in Room Data Sheets.
(C) List of additional rooms not previously identified with additional sequential room codes as required;
(D) Door and window schedule;
(E) All millwork/systems furniture and workstation layouts (including filing storage units, shelving)
(G) Integration of structural, mechanical, electrical and IT/TEL systems in terms of columns, service shafts, risers, etc., in sufficient detail to demonstrate that functional and net area requirements are compliant;
(H) Food service equipment identification and layout

(5) Enlarged Architectural plan details including all floor plan information described previously, for each of the key clinical departments.

(6) Structural plans of room &every level, including roof(s), showing, but not limited to:

(A) Foundation plan and sections showing preliminary type, locations and elevations of footings;
(B) General arrangement drawings (dimensions, no reinforcement) showing structural system, framing plan, stairs, ramps and details provided for any significant **Architectural** features.
(C) Building cross sections at key structural and **Architectural** locations
(D) Provisions for seismic and wind forces
(E) Provisions for any significant equipment requirements (eg roof top generator)

(7) Mechanical floor plans of every room & level, including roof(s), showing, but not limited to:

(A) Location and basic layout of major equipment;
(B) Routing of main feeds and associated shafts and risers;
(C) Isometric single line drawings for all services (water, waste water, gas, a/c etc);
(D) Preliminary sizing of equipment;
(E) Provisions for adaptability, flexibility, expandability, removal and replacement of medical systems and equipment;
(F) Waste Disposal system
(G) Preliminary drawings and load estimates for storm and sanitary sewers, potable water supply, heating and cooling plants;
(H) Preliminary drawings and flow estimates for heating and cooling systems, air supply, return and exhaust systems;
(I) Preliminary plumbing fixture schedules; and
(J) Preliminary estimate of annual energy use.
(K) Firefighting provisions viz. hose cabinet and fire extinguisher locations, dry risers, sprinklers, fire hydrants, smoke detectors, pressure pumps etc.
(L) Water storage tank(s) supply system
(M) Medical equipment planning with room by room floor plan / loaded drawings / room data sheet

(8) Electrical floor plans of every room & level, including roof(s), showing, but not limited to:

(A) Location and basic layout of major Equipment;
(B) Routing of main feeds and associated shafts and risers;
(C) Schematic single-line drawings for all services (lights, power outlets, equipment supply etc);
(D) Legends
(E) Preliminary sizing of Equipment;
(F) Provisions for adaptability, flexibility and expandability, removal and replacement of building and medical systems and Equipment;
(G) Preliminary lighting loads for typical rooms and the clinical areas
(H) Preliminary load estimates for normal power distribution centers, vital power distribution centers, and heating and cooling plants
(I) Renewable energy supply system (if proposed)
(J) Standby power generation location

(9) Food services floor plans showing, but not limited to:

(A) Proposed equipment and furnishing layout

(10) Typical building sections showing, but not limited to:

(A) Relative thickness of floors/walls;
(B) Major floor elevations, including any below grade;

(C) Relationship to Site contours and other important site elements as shown in building elevation drawings; and
(D) Major room names.

(11) Stair and ramp plans, sections and details.

(**12) Exterior elevations showing, but not limited to:**

(A) Indication of surface materials for all areas;
(B) Different vertical planes differentiated with line weights or shadows;
(C) Finish grades;
(D) Major floor elevations, including those below grade;
(E) Sections when elevation is shown by taking vertical cut-through another space; and
(F) Significant plantings/Site elements when important in defining space and volume, such as bodies of water, hills, earth berms.

(13) Interior elevations for public entrances and all other major public spaces.

(14) Preliminary door and ironmongery schedules and hardware cut sheets.

(15) Preliminary lighting design submittals, including fixture cut sheets and

illumination level analysis.

(16) Preliminary security systems floor plan layouts, locations of all security systems equipment, connection points and control points.

(17) Preliminary plans for the automated hospital management system.

(18) Preliminary drawings of all millwork/systems furniture elements identified in the Room Data Sheets.

(19) Single line audio/visual distribution diagrams showing cable management and Equipment rooms.

(20) Single line information technology distribution diagrams showing cable management and equipment rooms,

(21) Laundry and Waste Management services design.

(22) Fire protection rating of closures in fire separations (in table format);

(23) Barrier free accessibility provisions for :

(A) Entrances;
(B) Parking;
(C) Doorways;
(D) Washrooms;
(E) All floors.

APPENDIX F: PRELIMINARY DESIGN REPORT CONTENT

The Consultant is free to use his own Design Report Template, but the report will have the minimum content indicated below:

- Executive Summary
- Table of Contents
- List of Tables and Figures
- Introduction
- Design Philosophies (**Architectural** and all engineering disciplines regarding performance in hazardous and non-hazardous environmental conditions)
- List of Design Codes
- Building Functional Requirements
- Estimated loads and required capacities (patients, visitors, staff, power, dead and live loads, wind and seismic forces, vehicles etc)
- Design assumptions
- Design Solutions (A/E Consultantural, Engineering)
- Drawings (See Appendix)
- Preliminary construction cost estimates (mobilization, substructure, superstructure, cladding, finishes, doors and windows, electrical, standby power generation, air conditioning, ventilation, IT, automated hospital management system, medical equipment and medical furniture, internal communications, security, fire suppression, plumbing, waste disposal, external civil and drainage works, landscaping, water storage, etc).
- Preliminary monthly power consumption rates for various types of installations eg lighting, air conditioning, ventilation, medical equipment office equipment, etc. The Consultant is expected to consider the current usage of medical equipment when estimating the power usage.

APPENDIX G: MINIMUM REQUIREMENTS FOR CONSTRUCTION DRAWINGS

The Consultant shall provide the following **Minimum** Submittal Requirements for the Construction Drawings to the EA/AZP for review and comment. The following drawings/submittals are not meant to be complete and is expected to be exceeded. The drawings submitted in the preliminary phase, are all expected to be updated, but with some specific additional requirements where noted below. It is understood that detailed specifications (materials, workmanship, and performance) for all works and equipment will be provided, whether or not included below. The scales of the documents to be provided will comply with the applicable standard scales. If the EA/AZP requires a different scale this will be provided by the Consultant.

(1) Finalized Preliminary Construction Site Plan showing all previously listed requirements.
(2) Updated Site plan showing all previously listed requirements including planting schedule, vertical and horizontal traffic signage, barriers, handrails.
(3) Updated Site expansion plan showing all previously listed requirements.
(4) Updated Site servicing plan showing all previously listed requirements.
(5) Updated and augmented Site and landscape details.

(6) Architectural floor plans of every level showing, but not limited to:
(A) Full dimensions;
(B) Layout of all spaces;
(C) Fire and Life safety plans;
(D) Material symbols;
(E) Door symbols;
(F) Glazed light symbols;
(G) Window types and numbers;
(H) Floor finishes;
(I) Pits, trenches, etc.;
(J) Furring notes;
(K) Hatch walls and partitions;
(L) Depressed floor for terrazzo, tile, etc.;
(M) Lead shielding indications;
(N) Curbs for mechanical room penetrations;
(O) Sump pits, gratings;
(P) Recessed mats;
(Q) Expansion joints;
(R) Pipe trench;
(S) Convectors;
(T) Low partitions; and
(U) Folding partitions.

(7) Updated reflected ceiling plans for all areas, showing, but not limited to:
(A) Light fixtures and schedule;
(B) Grilles;
(C) Diffusers;
(D) Heat detectors;
(E) Smoke detectors;

(F) Soffits;
(G) Folding partitions;
(H) Cubicle tracks;
(I) Drapery tracks;
(J) Skylights;
(K) Access panels;
(L) Hatches;
(M) Major structural members (if sight exposed);
(N) Surgical lights
(O) Hoods;
(P) Gas columns;
(Q) Exit signs; and
(R) Room numbers.

(8) Updated building sections showing, but not limited to:
(A) Completed ceiling space coordination diagrams;
(B) Vertical dimensions;
(C) Floor elevations;
(D) Column and beam grid lines and
(G) Wall sections

(9) Updated and augmented exterior wall sections and cladding details

(10) Updated and augmented stair and ramp plans, sections and details

(11) Updated exterior elevations showing, but not limited to:
(A) Windows;
(C) Doors;
(D) Wall material indication;
(E) Coping materials;
(F) Overhead fascia materials;
(G) Floor lines;
(H) Vertical dimensions;
(I) Signage;
(J) Section lines;
(K) Grid Lines;
(L) Louvers;
(M) Stairs and ramps;
(N) Stacks;
(O) Light fixtures; and
(P) Other mechanical or electrical Equipment.

(12) Updated interior elevations previously listed areas and showing, but not limited to:
(A) Casework ;
(B) Millwork details ;
(C) Shelving;
(D) Tack board;
(E) Chalkboard;
(F) Interior glazed panels

(G) Skirting boards, ceiling moldings, architraves
(H) Mechanical grilles, thermostats, gas outlets, convectors etc.;
(I) Wall handrails;
(J) Graphics;
(K) Equipment;
(L) Interior finishes
(M) Electrical receptacles speakers, clocks, light fixtures, etc.);
(N) Plumbing fixtures; and
(O) Lockers
(P) Signage

(13) Miscellaneous Interior details showing, but not limited to:
(A) Skirtings and mouldings ;
(B) Soffits;
(C) Curbs for mechanical penetrations;
(E) Hollow metal glazed panels;
(F) Expansion joints;
(H) Low walls;
(I) Folding partitions
(J) Rolling doors;
(K) Dressing compartments;
(L) Pass-windows;
(M) Supports - surgical lights, gas column;
(O) Hanger details for suspended Equipment and ceilings;
(P) Movement joint details;
(Q) Typical partition construction;
(R) Exhaust hoods
(S) Corner guard details.
(T) Washroom fixtures (soap dispensers, hand drying equipment, baggage rack, mirrors etc)

(14) Updated room finish schedule.

(15) Updated door, window and ironmongery schedules with cut sheets.

(16) Updated lighting design submittals, including fixture cut sheets and illumination level analysis.

(17) Updated structural plans of every level, showing, but not limited to:
(A) Foundation, beam, column, floor reinforcement details
(B) Partition wall, shear wall, ramp, shaft and stair reinforcement details
(C) Sections/elevations showing all structural elements;
(D) Bar bending schedules
(E) External works structural details (kerbs, drainage, walls, culverts etc)
(F) Reinforcement details to other major and minor Architectural features
(G) Movement joint details

(18) Updated mechanical floor plans of every level, showing, but not limited to:
(A) Interior building section details coordinating and confirming finalized fit of structural/electrical/mechanical
(B) All legends and schedules;
(C) HVAC;

(D) Equipment room plans;
(E) Mechanical room plans;
(F) Control schematics;
(G) Supply and waste isometrics and plans;
(H) Equipment specifications;
(I) Pipe colour coding;
(J) Medical equipment.

(19) Updated electrical floor plans of every level, showing, but not limited to:
(A) Interior building section details confirming finalized fit of structural/electrical/mechanical elements;
(B) All legends and schedules;
(C) Grounding details;
(D) Fire alarm riser diagram;
(E) Nurse call riser diagram;
(F) Telephone riser diagram;
(G) Paging riser diagram;
(H) Television riser diagram;
(I) Control schematics where necessary;
(J) CCTV
(K) Necessary equipment specifications for all the above

(20) Updated and augmented security systems floor plans and Equipment specifications, locations of all security systems equipment, connection points and control points.

(21) Drawings of all furniture elements including all dimensions, key elevations, and all fixed and moving elements and details.

(22) Updated and augmented audio/visual drawings and equipment specifications.

(23) Updated and augmented information technology drawings and equipment specifications.

(24) Updated vertical transportation analysis, if there are any changes to previous version, including a statement of how the proposed matter has changed from the previous matter reviewed by the EA/AZP.

(25) Updated Schedule of Accommodations, including all previously listed requirements.

(26) Signage schedule.

(27) The detailed Bill of Quantities (BOQ) and engineers estimate.

(28) Any other submittals that the EA/AZP reasonably requires to understand the Design and be able to go to tender.

APPENDIX H: FINAL COMPLETION REPORT TEMPLATE

The Consultant is free to format the Final Completion Report to his normal presentation, but the report shall contain the following minimum content

A typical Contents page is as shown below:

- Title Page
- Table of Contents
- Acknowledgements
- Executive Summary
- Background
- Aims and Objectives
- Methodology (including codes and standards used)
- Implementation
- Outputs and Results (including designs, design calculations, geotechnical investigation, site analysis, geospatial data etc)
- Outcomes
- Engineers estimate based on the complete bill of quantities
- Conclusions
- Recommendations
- References
- Appendices

APPENDIX I: MONTHLY PROGRESS REPORT CONTENT

The Consultant is free to format the Monthly Design Progress Report to his normal presentation, but the report shall contain the **minimum** content shown below.
This report shall provide a brief end-of-month design progress assessment (% completion) in all the various project disciplines and in accordance with the agreed design program.

A/E

- Building interior and exterior elevations
- Room Data Sheets
- Interior Design
- Landscape Design
- Drawings as per Appendices

Structural

- General framing
- Reinforcement details
- Bar Bending Schedules
- Drawings as per Appendices

Electrical

- Schematics and Power Diagrams
- Communications systems
- Lighting Schedules
- CCTV
- IT / Hospital Automation System
- Drawings as per Appendices

Mechanical

- Isometrics
- Fixture schedules
- Wastewater treatment system
- Fire Suppression system
- Drawings as per Appendice

Financial

Monthly updated quantity and cost calculation for the design.

APPENDIX J: MINIMUM REQUIREMENTS FOR SCHEMATIC DESIGN

The Schematic Design Phase (approximately 20% of design) should clearly indicate the improvements and construction anticipated for the project or provide sufficient information and alternatives so that a clear direction for subsequent phases can be determined. The Schematic Design should incorporate all items outlined in the Scope of Work.
The Schematic Design should be presented with sufficient information to allow the EA and AZP to fully understand the main design concepts and orientation. All consultants are to produce their schematic plans following the same format, scale and drawing positioning as the A/E drawings. The Consultant shall insure all sub-consultant work is coordinated.

Objective: To define the general scope, scale, functional relationship, traffic flow and cost of the Project components. The conceptual design is documented in sufficient detail to convey a clear and comprehensive image of the designer's solution. The documents will identify area allocations, conceptual organization of exterior and interior spaces, conceptual image and building massing, usage of feature interior and exterior materials, selection of structural, mechanical, plumbing and electrical system concepts. Upon acceptance of the Schematic Design Package, the EA and AZP will approve the conceptual direction for further development in subsequent phases.

SCHEMATIC DESIGN DRAWINGS
A. Civil Site Plan
1. Site plan of the project showing location of all buildings, roads, parking and landscape elements.
2. Clear delineation of the project limit lines
3. Preliminary spot elevations
4. Existing utilities
5. Proposed utilities
6. Site drainage, storm water removal or detention
7. Identify number of parking spaces and code/zoning requirements
8. Provisions for trash disposal and removal by truck dock, compactor etc.
9. Conformance to zoning restrictions for easements and setbacks, etc.
10. Results of preliminary soils and boring surveys.
11. Environmental impact study
12. Required permits

B. Conceptual Building Floor Plans
1. Plans of all floors showing structural grid, vertical circulation elements, core elements, vertical shafts, interior partitions, door and window locations, floor elevations
2. Key dimensions, bay sizes and overall dimensions
3. Plan indicating major extent of materials and any special conditions or equipment
4. Room names
5. Preliminary finish schedule for typical areas
6. Area summary
7. Accessibility routes
8. Solar orientation diagrams
9. Sketches of alternative approaches considered.
10. Owner occupant report explaining design rational and assumptions regarding operational and functional issues
11. Preliminary Furniture, Fitout & Equipment Schedule

C. Roof Plan
1. Structural grid
2. Roof material
3. Preliminary drains and slope

D. Conceptual Building Sections
1. Major sections through building to show relevant conditions
2. Structural grid
3. Building to grade relationship
4. Floor to floor and floor to ceiling height
5. Material designations

E. Conceptual Building Elevations
1. Major elevations with extent of glazing and mullion spacing indicated
2. Major materials identified
3. Floor lines, roof line and top of parapets indicated with dimensions
4. Finished grades clearly shown
F. Conceptual Details
1. Typical wall sections

G. Structural
1. Design criteria narrative
2. Structural system description including alternates considered
3. Single line floor and roof framing plans
4. Typical bay and member sizes
5. Description of foundation system, compare with geotechnical report

H. MEP
1. Preliminary HVAC system description to include central plant, duct chases, single lines showing major duct runs
2. Design criteria for HVAC narrative including ("U" factors, temperature range, air changes, humidity controls, etc.)
3. Energy sources identified, entrances noted on A/E drawings
4. Mechanical rooms sized and located on A/E drawings
5. Vertical shafts and risers spaces sized and indicated on A/E drawings
6. Special features noted (UPS room, etc)
7. Plumbing fixture count complies with code/program (Drinking fountains, lavatories, urinals, water closets, etc)
8. Location of cooling tower, mechanical rooms, electrical equipment shown on elevations, roof and/or site plans.
9. Fire protection codes and standards narrative
10. General description of fire suppression
11. Power requirements stated
12. Substation and switch gear room sized and located on plans
13. Gas, water, sewer, etc., service points
14. Telephone and electrical room requirements shown on plans
15. Lighting outlined in plan
16. Design criteria for electrical services, including voltage, number of feeders and whether feeders are

overhead or underground. Provide a specific description of items to be served by emergency power and describe consideration for special areas.
17. Hospital automation system

I. Specialty Consultants
1. Design criteria defined
2. One line plans as appropriate (kitchens, labs, etc)

J. Code Analysis
1. Land use restrictions
2. Code footprint (Will be on cover sheet of plans, example attached)
a. Identify building area limitations, construction classification, occupancy use, including multiple and special usage's, occupancy load and egress capacity
b. Means of egress
c. Site accessibility
3. Identify seismic requirements for project location.

K. Outline Specification
1. Identify specification sections and major building material systems and finishes

L. Estimates
1. Major component cost estimate, verify inclusion of elements by crosschecking against outline specification for omissions and compare with budget.
2. Identify escalation factors to mid-point of construction
3. Estimate construction period, identify any phased work and any long lead time for special item.
4. Sole source items identified and justified
5. Provide life cycle cost analysis of proposed roofing system
6. Area tabulation gross SF to net SF.

M. Energy Report
1. Life cycle cost analysis of energy conservations measures
2. Annual energy consumption/SF of building space
3. Energy report – Furnish an energy consumption report consisting of calculations (including any computer printouts) and a written summary of the results (clearly indicate assumptions made and used). a. Identification of analysis methods. Including loads and building systems analysis. 1) Building energy consumption 2) Energy budget determination
b. Methodology of life cycle costing analysis.
c. Description of the major energy conservation features selected, such as building envelope U-values (or R-values), type of fenestration and percent of gross wall area, type of air handling system, reheat systems, automatic system control features, lighting levels and controls, etc.
d. Estimates of building energy consumption is subdivided as follows:
1) Energy consumption per month by energy type. Including maximum demand per month.
2) Total monthly and annual energy consumption (BTUs).
3) Annual energy consumption (BTUs) per building system, i.e., lighting, HVAC, hot water, equipment, etc.
4) Annual energy consumption per square foot of building space (BTU/GSF/year)

APPENDIX K: PRELIMINARY PROGRAM OF REQUIREMENTS