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MECHATRONICS

ENGINEERS IN SOCIETY

ALFA BELGORE REHABILITATION PROJECT

OUTLINE

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OBJECTIVE

The university has a requirement to renovate the alfa begore hall(interior/exterior). This project is being tasked to VEREDYNO CONSULTINGS. This project is to be carried out with respect to the specification, scope of work, and contract conditions. The contractor shall be providing all materials, tools and equipment, labors, transportation, and supervision.

The project is also to be carried out taking to mind the health and safety of personnel and without compromising the integrity of the structure.

1.0 SCOPE OF WORKS

The summary of the major activities to be carried out includes;

- Preliminary works- these include removal of all furniture, appliances, fittings and other equipment, etc. from the hall, dismantling of ceilings and the roof, securing the site, etc.
- Structural, mechanical and electrical constructions
- Finishing
- Interior Design and furnishing

A. PRELIMINARY WORKS:

these include removal of all furniture, appliances, fittings and other equipment, etc. from the hall, dismantling of ceilings and the roof, securing the site, etc.

The contractor and his structural engineer are required to investigate each new opening, stairway for the addition of a another floor, support point, and equipment location for adequate structural support and ensure that their proposed work does not compromise the structural integrity of the building. The engineer should sketch or report the methods towards resolution before the work is done.

B. STRUCTURAL WORK:

General

Modifications to either the existing superstructure or the applied loads, the addition of new

structures, and restoration or rehabilitation of site structures shall be evaluated by a Structural

Engineer.

The type of work requiring evaluation includes, but is not limited to:

- Modification of floors, roofs, walls, beams, and other load-bearing elements
- Installation of new equipment (e.g. water tanks, HVAC equipment)
- Installation of stairways
- Any other items which may be of interest to the Structural Engineer

C. MECHANICAL WORKS

• Existing equipment shall be removed to a location designated by the Facility Manager. New equipment, including condenser units, shall be installed at locations to match existing.

- Penetrate wall for new tubing and electric service do not run cable or tubing through windows; seal wall penetrations water-tight.
- Provide and install hangers for stage equipment and others stationary communication equipment.

D. ELECTRICAL WORK

- Provide and install new copper wiring throughout the new floor and other places necessary throughout the building. The wiring to be THHN/THWN insulated. Remove and dispose of all replaced wiring
- Provide and install a new Main Circuit Breaker Panel to accommodate both floors rated 250A, 230/400V (3-Phase 4-wire plus ground) with a main circuit breaker and 24 single pole circuit breaker positions. See the Panel Board Schedule for circuit breaker sizes. Provide and locate the SPD at or inside the panel in accordance with OBO specification 16289 Surge Protection Devices.
- Connect service from university grid to new service panel.
- Provide and install energy-efficient indoor lights where existing lights are presently installed and also install appropriate stage lights.
- Provide and install weatherproof energy-efficient outdoor lights where existing lights are presently installed.
- Remove and dispose of existing lighting fixtures.
- Remove and dispose all unused wires, cables and panels. Repair any damage caused by work performed. Clean all work areas.
- Conduits and Protection: All wiring and cabling shall be installed in metal conduit or Raceway.
- Provide and install an electrical outlet along all Interior walls 3 meters apart in each room.
- Provide and install AC weatherproof outlets on exterior walls near the outdoor condenser units.
- Provide and install new ceiling fans with Rheostat switches near light switch in strategic parts of the hall and other offices
- Provide and install new Fluorescent lighting fixtures (square down light types) with covers on each Interior wall with switches located at the entrances of the hall. Remove and dispose of all Existing lighting fixtures.
- Provide and install electrical outlet in Bathrooms to include one for the newly installed hand driers
- Provide and install energy-efficient outdoor lights at each exterior entrance and balcony with switches on interior side of doorway.
- The contractor will provide a written report/form verifying that every installation has been inspected and passes a Ohmmeter AC ground fault loop impedance test along with a ground connection test.

E. FINISHING

- This involves plastering of walls
- Filling holes dug in the wall
- Tiling of floors
- Smoothening and paint jobs
- Fitting of toiletries

F. INTERIOR DESIGN

Furnishing the hall and offices.

Prior to Final Acceptance the Contractor shall submit to the Contracting Officer Representative marked up drawings (As-Built) reflect the work as constructed. The drawings shall be digitally submitted on a CD-ROM in both AutoCAD and PDF format.

2.0 GANT CHART



TASKS	START DATE	END DATE	DURATION
PRELIMINARY WORKS	1-May 15 May		15 days
STRUCTURAL WORKS	16 May 30 June		46 days
MECHANICAL WORKS	1 July	1 July 15 July	
ELECTRICAL WORKS	16 July	5 August	21 days
FINISHING	6 August	20 August	15 days
INTERIOR DESIGN	21 August 5 September		16 days
PROJECT SUBMISSION	6 September	6 September	1 day

3.0 PROJECT TEAM

The lead consultant for the rehabilitation project is the CEO of Veredyno Limited, Engineer Victor C. Izuchukwu.

Human Resources Required

- i. Architect
- ii. The Structural Engineer who must:
- iii. Electrician

The above stated must

- Be a licensed professional
- Be a Professional Engineer with specialty in their various discipline
- Have prior experience in their fields and materials used in the building being evaluated.
- Have the capacity to prepare or deliver documentation in the English language.

iv. Laborer

Where indigenous expertise is employed in execution of the work, the indigenous personnel shall:

- Have prior experience with the types of buildings, local construction practices, and local materials.
- Have the capacity to prepare or deliver documents in the English language.
- Be under the direct supervision of the Structural Engineer

4.0 SITE SECURITY

THE SITE IS TO BE SECURE TO ENSURE

- The equipment are well secured
- To keep it restricted from unauthorized personnel
- To ensure the project is contained and prevent accidents of non personnel.

ACCORDING TO SAFETY REGULATIONS,

1. The Contractor shall provide and maintain work environments and procedures which

will:

• Safeguard the public and personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities.

2. For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall-

- Provide appropriate safety barricades, signs, and signal lights
- Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.

3. Contractor shall comply with Engineers Safety and Health Requirements

4. Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or personnel, the Contracting Officer shall notify the Contractor orally, with written confirmation, and request immediate initiation of corrective action.

5.0 BILL OF ENGINEERING MEASUREMENTS AND EVALUATION (B.E.M.E)

Total Estimated Cost (T.E.C)= ₩20,000,000

S/N					₩ Amount
-	TASKS	%T.E.C	Quantity	Rate 🔒	
1	Site Preparation and Clearing after				1,000,000
	completion	5			
2	Sand		270 tons	3500	945,000
3	Granites		242 tons	4000	970,000
4	Bags of Cement		367 bags	3000	1,100,000
5	247 nos length 1" x 12" x 3.6m (Plank)			1,500	975,000
6	Steel rods				1,200,000
7	Machinery				2,410,000
8	Transport Cost	12			2,400,000
9	Consultancy Fee	15			3,000,000
10	Profit	20			4,000,000
11	Miscellaneous	10			2,000,000
				TOTAL	20,000,000

6.0 PAYMENT SCHEDULE

TASKS	DATE	%T.E.C	₩ Amount
Mobilization	1-May	30	6,000,000
50% Completion	16 July	30	6,000,000
Final Payment	6 September	40	8,000,000
Defect Liability Period		10	1,000,000

7.0 DEFINITION OF TERMS

- **B.E.M.E** Bill of Engineering Measurement and Evaluation (BEME) also referred to as 'Bill'; is a tool used before, during and post-construction to assess and value the cost of construction works.
- **DEFECT LIABILITY PERIOD** The defects liability period (or 'DLP') is a fixed period of time, starting from the date of practical completion, during which the contractor has an express contractual right to return to the site to rectify defects.
- LEAD CONSULTANT- The lead consultant is the consultant that directs the work of the consultant team and is the main point of contact for communication between the client and the consultant team, except for on significant design issues where the lead designer may become the main point of contact.
- **PROJECT LIFE CYCLE** The Project Life Cycle refers to the process that is followed by good project managers when moving through stages of project completion.

It is a sequence of phases that a project goes through from its initiation to its closure. The number and sequence of the cycle are determined by the management and various other factors like needs of the organization involved in the project, the nature of the project, and its area of application.

ENVIRONMENTAL IMPACT ASSESSMENT(E.I.A)- Environmental impact assessment (EIA) can be defined as "the systematic examination of unintended consequences of a development project or program, with the view to reduce or mitigate negative impacts and maximize on positive ones" (According to El Haggar and El-Azizy 2003). It is the assessment of the environmental consequences (positive negative) of a plan, policy, program, or actual projects prior to the decision to move forward with the proposed action.