

**NAME:**

SUNDAY WINNER CHIGOZIRIM

**DEPARTMENT:**

MECHATRONICS ENGINEERING

**MATRIC:**

18/ENG05/064.

**COURSE:**

ENG 284 (ENGINEER IN SOCIETY)

## **PROJECT TITLE:**

### **ALFA BELGORE REHABILITATION PROJECT.**

#### **Scope:**

The Management of Afe Babalola University, Ado Ekiti, Ekiti State, Nigeria are interested in the rehabilitation, reconstruction and development of the Alfa Belgore Hall in the University and they have employed an up-and-coming firm in Nigeria; the EIMacro Consulting Firm; to undergo this Project.

The Management and the Consultancy Firm (EIMacro Consulting Ltd.) concluded the focus would be made on the existing Hall and that further investigation was required regarding the improvement of operations in the existing Hall. This investigation would involve the rehabilitation of the Alfa Belgore infrastructure, a greatly increased hall space, and road accessibility to the Belgore hall.

EIMacro Consulting Ltd. has signed an agreement with the School Management for the rehabilitation of the Hall and EIMacro Consulting Ltd.(ELMACRO) has agreed with the Management to implement early construction and procurement activities as a means to expedite completion of the overall project.

This agreement will be an effective instrument to facilitate a flexible funding mechanism that will reduce significantly implementation costs, time for construction and related services in support of the project. Key aspects of this Cooperative Agreement will be initial site investigations and a simplified project design process, followed by the cost efficient delivery of a varied array of activities to be implemented at the request of ELMACRO. A core management team will provided with project specific resources allocated to the activities defined in the Scope of Construction activities of this Cooperative Agreement within the agreement time frame.

The Consultancy Firm(ELMACRO) has prepared a Drawing & Specifications(D&S) which would be specific on the following points;

- Respect of environmental regulatory standards;
- Health and Safety as per ELMACRO requirements and international standards;
- There shall be no sale of salvaged material within the Port's property limits.
- The contractor has to haul out the demolition products and dispose of it in accordance with local regulations.

### **Description of Services**

ELMacro Consulting Limited(ELMACRO) will perform the work set out in this Schedule of Requirement(SOR). We will also assume the duty of site supervision during the build. Accordingly, the Consultant may not be associated in any way, including an overlap of principal subcontractors as determined by ELMACRO, with any entity or team that submits an offer/proposal on the execution of the work. By making and submitting an offer/proposal, we will agree to this separation.

Tasks to be performed or arranged by ELMacro Consulting Limited(ELMACRO) in the below given order, include but are not limited to:

- a) Provide a complete review and assessment of the required elements based on the recent studies;

- b) Execute a detailed topographical survey, compile the data, update the existing topographical plan and calculate the offset from the topographical survey;
- c) Review of relevant available information to characterize the anticipated subsurface conditions;
- d) Provide detailed Drawings & Specifications;
- e) Provide a Bill of Engineering Measurement and Evaluation(BEME).
- f) We are to generate a detailed project schedule in conjunction with the Management that will be incorporated into the SOR. The schedule will include key milestones for the complete project delivery;
- g) Coordination and the cooperation of the Consultant with the School Management will be paramount for the implementation of this project.



**Aerial View of the Alfa Belgore Hall**

**Required works:**

The required works that need to be done is mainly the concrete repair works as some parts of the building slabs and beams have been directly targeted and need to be restored. Some of the building walls have been either destroyed or heavily cracked thus triggering a demolition and re-building works associated with plastering and painting works.

The building needs to be totally painted both internally and externally. Also its wooden doors and windows in addition to the metal protection doors need to be either repaired or replaced. The female and male toilets are in very bad shape so new basins, including water mixers, and toilet seats need to be installed. In addition, the water

network of the building needs to be taken care of by replacement of the existing punctured water lines and water tanks.

Most of the lighting fixtures are missing in addition to electrical panels and switches which need to be compensated. Installation of new air-conditioning is required to replace the stolen and damaged ones.

Below are the important and summary of the required rehabilitation works;

- (I) Demolishing, dismantling and Preparation Works.
- (II) Concrete, Block and Plastering Works.
- (III) Painting and Coating works.
- (IV) Doors, Windows and Metal Works.
- (V) Plumbing and Sanitary Works.
- (VI) Electrical Works.
- (VII) Air Conditioning Works.

**Schedule:**

	Project allocation to ELMACRO.	January 28, 2020.
1.	Project Start	March 1-6
2.	On site Visit and Document Review	March 7-21
3.	Submission of Draft D&S (50%)	March 22-28.
4.	Submission of Draft D&S (90%)	March 29 - May 5
5.	Submission of D&S Final	April 6-15

**GANTT CHART FOR THE REHABILITATION PROJECT.**

Works	March 1-6	March 7-21	March 22-28	March 29- 5	April 6-15
Project Start.					

On site Visit and Document Review.					
Submission of Draft D&S(50%).					
Submission of Draft D&S(90%).					
Submission of D&S Final.					

The lead consultant for this Project would be Engr. Frederick Douglas. The Human Resources provided by our agency that are involved and the professionals that constitute the Project team are;

- (I) **Structural Engineers**: They will design, assess and inspect the structures to ensure that that are efficient and stable.
- (II) **Building Services Engineer**: They will plan, design, monitor and inspect the systems to make buildings comfortable, functional, efficient and safe.
- (III) **Consultant team**: They will provide tasks such as;
  - Providing advice on setting up and defining the project.
  - Developing and coordinating the design.
  - Preparing production Information and Tender Documentation.
  - Inspecting the work of contractors.
  - They provide Contract Administration.

The members of the consultant team include:

- **Architect**
- **Cost Consultant**
- **Services Engineer**

#### (IV) **Sub-Contractors(Labourers)**

(V) **Civil Engineer**: Perform engineering duties in planning, designing, and overseeing construction and maintenance of building structures and facilities. Under the civil Engineer we have;

- Water Engineer.
- Transport Engineer.
- Sanitary engineer.
- Geotechnical Engineer.

(VI) **Electrical Engineer**: They will design, develop, and test electrical devices and equipment and deal with the complete wiring of the building.

- ❖ The Site was secured because it helps prevent vandalism along with the theft of tools, copper, building materials and machines. Construction site theft costs the industry perhaps billions of dollars each year that is why we can protect the site by the use of intruder detection, lighting, CCTV, Fences, gates, barriers and bollards.

### **Bill of Engineering Measurement and Evaluation(BEME); Case Study of Alfa Belgore Rehabilitation.**

**Total Estimated Cost(TEC) = ₦150,000,000**

Item	Item Description	Quantity m <sup>3</sup>	Rate ₦	Amount ₦
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1.	Site preparation and Clearing.(5%)			7,500,000
2.	Consultancy fee(15%)			22,500,000
3.	Transportation(12%)			18,000,000
4.	Provision of Roofing sheets and Roofing Equipment.	1000	15,000	15,000,000
5.	Provision of Blocks and Paving stones(Damp-proofing and Grouting Inclusive)	1000	25,000	17,500,000
6.	Provision of Cranes, Trucks and Construction machines.			17,000,000
7.	Profit (20%)			30,000,000
8.	Miscellaneous(10%)			15,000,000
	Sum of Works(Item 1-8)			142,000,000
	Provide 5% VAT			7,500,000
	<b>TOTAL</b>			<b>150,000,000</b>

### Payment Schedule for the Alfa Belgore Rehabilitation Project.

	Estimated Completion Date.	Construction Breakdown.	Draw(%TEC)
1.	6 <sup>th</sup> March	Mobilisation.	30%
2.	28 <sup>th</sup> March	50% Completion	30%
3.	15 <sup>th</sup> April	Completion	40%
4.	15 <sup>th</sup> August	Deficit liability Period.	10%

- ❖ **Bill of Engineering Measurement and Evaluation(BEME)**: is a tool used before, during and post-construction to assess and value the cost of construction works.

- ❖ **Deficit Liability Period**: is a period of time following practical completion during which a contractor remains liable under the building contract for dealing with any defects which become apparent.
  
- ❖ **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.
  
- ❖ **Project Life Cycle**: is the sequence of phases that a project goes through from its initiation to its closure.
  
- ❖ **Environmental Impact Assessment(EIA)**: is the assessment of the environmental consequences of a plan, policy, program, or actual projects prior to the decision to move forward with the proposed action.