**NAME**: SAMPSON SOPHIA

**MATRIC NO**: 19/ENG08/009

**DEPARTMENT**: BIOMEDICAL ENGINEERING

**COURSE CODE**: ENG 284

**COURSE TITLE**: ENGINEER IN SOCIETY

**ASSIGNMENT**: ENGINEERING CONSULTANCY ASSIGNMENT

**QUESTION**: The Alfa Belgore Rehabilitation project is ongoing. As a designated Student Consulting Engineer you are expected to do following:

1. Outline the scope of the work in detail in order of occurrence.
2. Prepare a project Gant Chart.
3. List all the Human resources needed and constitute the Project Team stating who the Lead Consultant is.
4. Explain why the site was secured.
5. Develop a BEME for the project by lump sum projections including 10% of the total estimated cost (tec) as Miscellaneous, 15% tech as consultancy fee, 5% tec for site preparations and clearing after completion, 12% of tec for transport cost. 20% tec as profit.
6. Prepare a payment schedule as follows:
7. 30% tec for mobilization
8. Next 30% tec at 50% completion
9. Final payment of 40% tec at completion and hand over. Retain 10% tec for a 6 months Defect liability Period.
10. What is BEME, Defect Liability Period, Lead Consultant, Project Life Cycle, Environmental Impact Assessment (EIA).

**1. SCOPE OF A PROJECT/WORK**

Project scope is the part of project planning that involves determining and documenting a list of specific project goals, deliverables, features, functions, tasks, deadlines and ultimately costs. In other words, itis what needs to be achieved and the work that must be done to deliver a project.

The project is built around 2 outputs:

1. Better and larger provision of basic services.
2. Local economic recovery /development, including job creation and livelihoods are supported.

**Work Description**

The Alfa Belgore Hall is a public hall which serves multiple purposes which include;

1. Hall for Congress held by the Founder of the University.
2. Hall for Religious Gatherings (ABUAD Chapel and Catholic Mass).
3. Hall for Social Gatherings and Activities.
4. A part of the building is used as ICT building.

**Required Works**

The required works that need to be done is mainly the concrete repair works as some of 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 which triggers a demolition and re-building works associated with plastering and painting works.

The building needs to be totally painted internally and externally and its wooden doors and windows in addition to the metal protection doors need to either repaired and replaced. The female and male toilets are in very bad shape due to acts that targeted the water mixers and the water boilers so, new basins and toilet seats need to be installed in addition to the water network of the building that needs to be taken care of by the replacement of the existing punctured water lines and water tanks. The floor and wall ceramic are either demolished or cracked and need to be replaced.

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

Below are the important and summary of the required rehabilitation works, the work shall include but not limited to the following:

1. Detailed design (Architectural, Structural).
2. Demolishing, Dismantling and Preparation Works.
3. Concrete, Block and Plastering Works.
4. Roofing and Ceiling Works.
5. Plumbing Works.
6. Electrical Works.
7. Tiling Works.
8. Doors, Windows and Metal Works.
9. Screening and Painting Works.
10. Air-conditioning Works.
11. Fittings and Furnishings.

**2. GANT CHART FOR THE PROJECT**



**3. PROJECT TEAM**

* **Lead Consultant**: The [lead consultant](https://www.designingbuildings.co.uk/wiki/Lead_consultant) is the [consultant](https://www.designingbuildings.co.uk/wiki/Consultants) that directs the [work](https://www.designingbuildings.co.uk/wiki/Works) of the [consultant team](https://www.designingbuildings.co.uk/wiki/Consultant_team) and is the main [point](https://www.designingbuildings.co.uk/wiki/Points) of contact for communication between the [client](https://www.designingbuildings.co.uk/wiki/Clients) and the consultant team, except for on significant [design](https://www.designingbuildings.co.uk/wiki/Design) issues where the [lead designer](https://www.designingbuildings.co.uk/wiki/Lead_designer) may become the main [point](https://www.designingbuildings.co.uk/wiki/Points) of contact (The Engineer).
* Architect.
* Plumber.
* Electrician.
* Tiler.
* Carpenter.
* Painter.
* Bricklayer.
* Interior Decorator.

**4. EXPLAIN WHY THE SITE IS SECURED**

Building and construction sites are often natural targets for thieves as they generally contain a lot of high value plant, materials and equipment. This can be easily accessible for criminals if proper and effective security measures are not put in place.

**THREATS TO CONSTRUCTION SITES**

* Threats to properties and assets
* Threats to operations
* Threats to life

To deter such theft and vandalism, lower risk and keep projects on time and within budget, clients can take these seven risk mitigation measures:

1. **Use appropriate lighting.**

Well-lit construction sites will help to discourage criminal activity by eliminating hiding places and raising the risk of discovery. Motion-activated lighting can be a very effective deterrent.

2. **Install fencing.**

Perimeter fencing should enclose the job site, including storage areas and trailers. Fencing has two jobs: first, to prevent unauthorized access to the site and second, should someone gain unauthorized access, limit their ability to remove property from the site. To that end, barbed wire or fencing that triggers an alarm will add a layer of protection to site security.

3. **Secure equipment**.

Clients should plan ahead for the placement and nature of equipment and material storage during off-hours at the job site. Lock machinery and secure keys. Contractors or mobile equipment owners may also want to install tracking devices on machinery to facilitate location and recovery of any stolen equipment.

4. **Purchase adequate insurance coverage.**

 Builders risk and contractor’s equipment insurance can provide coverage for theft or vandalism of construction site materials, equipment and tools, and are an important risk-mitigation tools for any individual or entity with an insurable interest in a construction project. Builders risk and contractor’s equipment insurance coverage are not a substitute for the other measures on this list, but can be an important safety net if, in spite of taking appropriate security measures, a loss occurs.

**5. BEME FOR THE PROJECT**



**6. PAYMENT SCHEDULE**



**7. DEFINITIONS**

1. **BEME**

BEME being defined as Bill of Engineering Measurement and Evaluation, 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. This includes the cost of materials, labor, equipment and all/any other resource(s) required for the success of any construction endeavor based on a pre-determined scope and specification. The objectives of a BEME are:

* To provide sufficient information during construction planning, for tendering and contracting purposes or for the purpose of knowing the estimated cost of the proposed project (If the estimated cost is greater than the available funds to execute the project, then attempts are made to reduce the estimated cost by reviewing the scope and/or specification).
* To facilitate the comparison of rates and prices between bidders.
* To provide priced Bill of quantities for use in the periodic evaluation of Works executed; for the purpose of payments and project control, during and on-completion of a project for disputes and compensation or to determine if the project was completed on-budget or otherwise.
* To provide rates and prices which can be used in the variation of additional works instructed by the Clients.

2**. DEFECT LIABILITY PERIOD**

**The defect 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. The Defect Liability Period may usually last up to 12 months.**

During the defect liability period, typically:

* the Contractor has the right to return to the site to rectify defects or complete unfinished work;
* the Principal is entitled to continue holding security, to secure the contractor’s obligations in respect of incomplete or defective work; and
* the Superintendent continues to remain involved in the project.

Under some contracts, if the contractor rectifies a defect during the defect liability period, there will be a new defects liability period in respect of that rectification work.

**3. 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.

The Lead consultant's role might include:

* Co-ordinating, monitoring and reviewing the work of the consultant team (and others, such as specialist designers and specialist contractors).
* Arranging consultant team meetings and planning work stages.
* Preparing programs and progress reports.
* Seeking instructions from the client.
* Advising the client on the choice of procurement route.

**4. PROJECT LIFE CYCLE**

A project life cycle is the 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. The phases have a definite start, end, and control point and are constrained by time. The project lifecycle can be defined and modified as per the needs and aspects of the organization. Even though every project has a definite start and end, the particular objectives, deliverables, and activities vary widely. The lifecycle provides the basic foundation of the actions that has to be performed in the project, irrespective of the specific work involved.

**Characteristics of the Project Life Cycle**

Although projects are unique and highly unpredictable, their standard framework consists of same generic lifecycle structure, consisting of following phases:

* **The Initiation Phase**: Starting of the project
* **The Planning Phase**: Organizing and Preparing
* **The Execution Phase**: Carrying out the project
* **The Termination Phase**: Closing the project

**5. ENVIRONMENTAL IMPACT ASSESSMENT (EIA)**

Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse. 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. In this context, the term "**environmental impact assessment**" (**EIA**) is usually used when applied to actual projects by individuals or companies and the term "[strategic environmental assessment](https://en.wikipedia.org/wiki/Strategic_environmental_assessment)" (SEA) applies to policies, plans and programs most often proposed by organs of state. It is a tool of environmental management forming a part of project approval and decision-making.[[3]](https://en.wikipedia.org/wiki/Environmental_impact_assessment#cite_note-3) Environmental assessments may be governed by rules of [administrative procedure](https://en.wikipedia.org/wiki/Administrative_law) regarding public participation and documentation of decision making, and may be subject to judicial review.

The purpose of the assessment is to ensure that decision makers consider the environmental impacts when deciding whether or not to proceed with a project.