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DEPT: MECHATRONICS

MAT NO: 18/ENG05/029

COURSE: ENGINEERS -IN-SOCIETY

COURSE NO: ENG 284

QUESTION 1

THE SCOPE OF WORK IN DETAIL IN ORDER OF OCCURANCE

Rehabilitation of Alfa Bagore Hall / ABUAD University, Ado-Ekiti, Ekiti state, Nigeria.

Background:

The project aims at responding to issues facing every individual of the school that has not been met concerning the hall.

The project is built around outputs, such as:

1. Provision of a larger spacing for individuals during large gatherings
2. Comfort of individuals
3. For aesthetic purposes

Work description:

As it is just a rehabilitation of a building, it requires only improvement on the already existing building. This means that the already existing building will be undergoing activities such as expansion in both its length and breath as a larger space is what is needed to meet the needs of various people as the use and importance of the building leads to the need for a larger space to be provided and also increase in comfort.

The project will only consist of the renovation of the building. The increasing number of students, parents, lecturers etc is also taken into consideration. Various specialist are involved in this project such as; the consultant, contractor, architects, civil engineers, building engineers, etc.

Due to the fact that the hall is located close to living provisions in the school, precautions must be carried out such as securing the site to protect the passerby from unnecessary injuries and damages that can be easily avoided.

Required works:

Due to the fact that the work is going to commence within the raining period does not mean it will be highly affected as the activities to be carried out are not much.

The required work needed to be done is to mainly increase the width of the building and the height of the building. It will need to be totally painted both internally and externally. The doors may be replaced with larger ones. The toilets may either be updated or the numbers increased.

Most of the lighting fixtures that are missing in addition to electrical panels and switches need to be compensated. Installation of new air conditioning is required so as to meet the needs of the increased number of people in the hall.

Below is the summary of the required rehabilitation works;

1. Demolishing, Dismantling, and Preparation works
2. Concrete, Block and Plastering Works
3. Painting and Coating works
4. Doors, Windows and Metal Works
5. Plumbing and Sanitary Works
6. Electrical Works
7. Air-conditioning Works

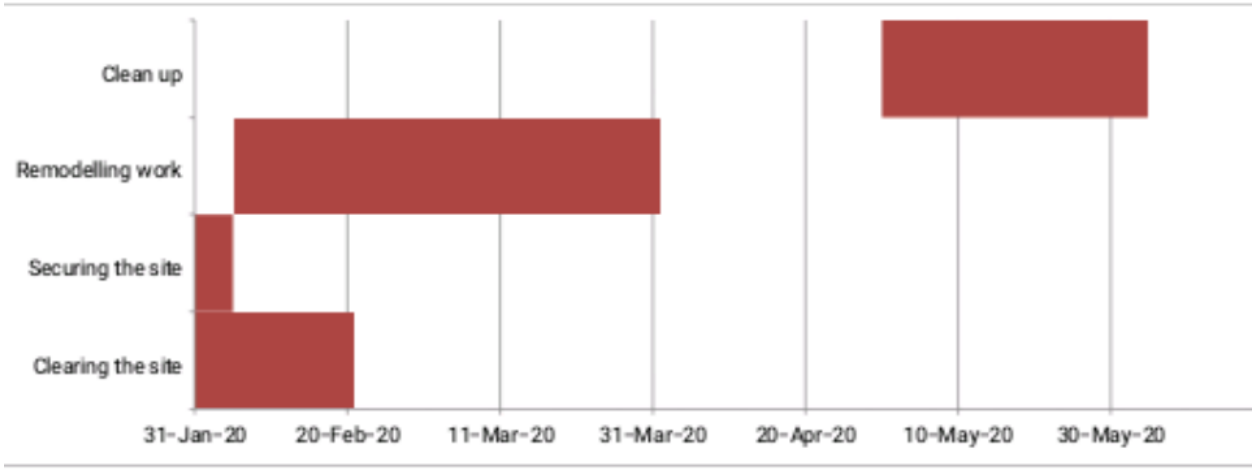
The bidder shall make his own inquires and satisfy himself that the position, size, shape, method of construction, colour and usage of temporary buildings and facilities is compactable with local and national requirements and laws.

All temporary buildings and work areas shall be constructed only in positions approved by the client.

Excluding any approval given by the client to the sitting of a temporary building or facility, responsibility for complying with local and national laws remains with the contractor.

QUESTION 2

GNATT CHART



QUESTION 3

The human resources needed and constitute the project team are both skilled and unskilled.

1. Architect
2. Contractor
3. Consultants
4. Civil engineers
5. Carpenter
6. Electrical engineers
7. Other engineers
8. Painters
9. Accountants etc

For unskilled we have various examples such as:

1. Labourers
2. Plumbers etc

The lead consultant is usually a designated consultant chosen by the client.

In relation to this project, the lead consultant is the Architect.

QUESTION 4

The clear separation of a site from the roadway is used to prevent and reduce the possibility of accidental collisions. It helps to reduce the possibility of accidents. It also serves as a barrier to keep what is in, in and what is out, out.

It also helps to prevent individuals that are capable of stealing materials from site for their personal benefit also known as theft.

It also prevents deliberate damage of property which is also known as vandalism.

QUESTION 5

BILL OF ENGINEERING MEASUREMENT AND EVALUATION

ITEM NO	DISCRIPTION	QUANTITY	UNIT COST (₦)	TOTAL COST (₦)
1	Roofing sheet	100	1,400.00	140,000.00
2	Cement bags	700	180,000.00	108,000,000.00
3	Trucks of gravel	12	35,000.00	420,000.00
4	Truck of sand	15	45,000.00	675,000.00
5	Glass which will be brought as 12x12	10	50,000.00	500,000.00
6	Light bulbs fittings	40	8,000.00	320,000.00
7	Light bulbs	40	2,500.00	100,000.00
8	Copper wires	60	2,000.00	120,000.00
9	Projector	2	150,000.00	300,000.00
10	T.V	46	100,000.00	400,000.00
11	Pipes of different sizes	10	80,000.00	3,680,000.00
12	Windows	12	450,000.00	4,500,000.00
13	CCTV cameras for security	1	25,000.00	300,000.00
14	CCTV system	-	50,000.00	50,000.00
15	Total estimated cost	-		119,505,000.00
16	Miscellaneous (10%)	-		11,950,500.00
17	Consultancy fee (15%)	-		17,925,750.00
18	Site preparations and clearing after completion (5%)	-		5,975,250.00

19	Transportation (12%)	-		14,340,600.00
20	Profit (20%)	-		23,901,1000.00

QUESTION 6

PAYMENT SCHEDULE

1. 30% of Total Estimated Cost for Mobilisation
2. 30% of Total Estimated Cost
3. 50% of Total Estimated Cost for completion
4. Finally payment of 40% of Total Estimated Cost at completion and hand over
5. Retain 10% of Total Estimated Cost for a 6 months defect liability period.

QUESTION 7

BEME:

This stands for Bill of Engineering Measurement and Evaluation. It is required to know beforehand the probable cost of construction known as the estimated cost. It is a tool used before, during and post-construction to access and value the cost of construction works. This includes the cost of materials, labour, equipment and all/ any other resource required for the success of any construction endeavour based on a pre-determined scope and specification.

The objectives of BEME:

1. To provide sufficient information during construction planning and for the purpose of knowing the estimated cost of the proposed project.
2. To facilitate the comparison of rates and prices between bidders.
3. To provide priced Bill quantities for use in the periodic evolution of Works executed for the purpose of payment and payment control, during and on completion of a project. For disputes and compensation or to determine if the project was completed on-budget or otherwise.
4. To provide rates and prices which can be used in the variation of additional works instructed by the clients
5. To enable the clients to assemble actual tender rates and prices to prepare for future estimating and budgeting.

Defect Liability Period:

This 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. Depending on the form of contract you are reading, it may be also be referred to as a rectification period or defects correction period.

A defect liability period is usually a period of around six or twelve months but it can vary depending on the contract used. Any defects or faults during this period must be put right by the contractor at its own expense.

Lead Consultant:

The role as lead consultant involves additional roles and services beyond those that might be expected from a consultant that is not appointed as a lead consultant. It is important that it is discussed with consultants before they are appointed and their scope of services and fee are agreed. The client cannot assume that these services will be carried out within the agreed fee unless the role of the lead consultant has been allocated.

The lead consultant will often be an architect, however it is not necessarily the case and appointment documents for other consultants will generally offer provision for them to be nominated lead consultant.

Project Life Cycle:

This is the standard process by which teams achieve project success. This provides a framework for managing any type of project within a business. Leaders in project management have conducted research to determine the best process by which to run projects. It has been found that following a project life cycle is critical for any service organisation. The professional life cycle exist because the standard project cycle does not fit everyone's needs.

Environmental Impact Assessment (EIA):

This is the assessment of the environmental consequences (positive or negative) of a plan, policy, program or actual projects prior to the decision to move forward with the proposed action.

It is usually applied to projects by companies or individuals. The purpose of assessment is to ensure that decision makers consider the environmental impacts when deciding whether or not to proceed with a project.