

SHUBTEC GROUP LIMITED

April 20, 2022

Ref: SH/SHUB/2022/011

**MEDICAL OFFICER INCHARGE
REGIONAL REFERRAL HOSPITAL-KITETE
P.O.BOX 22,
TABORA**

REF: ME.007/2021/2022/TRRH/W/34 FOR CONSTRUCTION OF CT SCAN AND X-RAY BUILDING AT TABORA REGIONAL REFERRAL HOSPITAL (KITETE)

SUB: Bid documents submission

Reference is made to the above subject.

With thanks, we acknowledge to have received your invitation information to Bid for the above work.

We hereby submit our Bid documents incorporated with Contractor's Priced Bill of Quantities, Qualification Information and other information deemed to be necessary. The Bid validity period shall be **120 days** from the Tender submission deadline

We offer to execute to completion of the above said works for the Contract Price of **312,077,137 (three hundred twelve million seventy-seven thousand one hundred thirty seven) VAT Inclusive**

If we are awarded this contract, the duration of this construction work will be as per proposed duration stated in the Special Condition of Contract

With regards.

Shubtec Group Limited



Edius Katamugora

Site Agent



Jamhuri ya Muungano wa Tanzania

WIZARA YA AFYA



Hospitali ya Rufaa ya Mkoa
S.L.P. 22
Tabora.

Tafadhali Unapojibu Taja:

Kumb. Na.AB. 17/135/01"A"/53

19 Aprili , 2022

Mkurugenzi Mtendaji
Shubtec Group LTD
S.L.P. 123
DAR ES SALAAM.
0764 800 700

YAH: BARUA YA KUKUBALI ZABUNI:

Hii ni kukutaarifu kuwa Zabuni yako ya tarehe 16 Aprili, 2022 ya kufanya kazi ya kujenga jengo la CT Scan na X ray la idara ya Radiolojia katika Hospitali ya Rufaa ya Mkoa wa Tabora (Kitete) kwa gharama ya **shilingi milioni mia tatu kumi na mbili elfu sabini na saba mia moja thelathini na saba tu (Tsh. 312,077,137/=) sasa imekubaliwa.**

Unatakiwa kuweka sahihi Makubaliano/Mkataba na kuanza kufanya kazi katika chanzo kilichoainishwa kwenye Mkataba kutoka siku Mkataba unapotiwa sahihi.

Baada ya kupokea barua hii unatakiwa kufika katika Ofisi ya Mganga Mfawidhi wa Hospitali ya Rufaa ya Mkoa wa Tabora (Kitete) kwa ajili ya kuweka sahihi Makubaliano/Mkataba ili uanze kutekeleza Mkataba huu.

Naomba kuwasilisha,

Sahihi Idhinishwa:



Jina na Cheo cha Mweka Sahihi: **Dr. Mark Waziri**

Jina la Mteja: **MGANGA MFAWIDHI HOSPITALI YA RUFAA YA MKOA WA TABORA (KITETE)**

SHUBTEC GROUP LIMITED

April 22, 2022

Ref: SH/CEO/0199/2022/010

**MEDICAL OFFICER INCHARGE
REGIONAL REFERRAL HOSPITAL-KITETE
P.O.BOX 22,
TABORA**

REF: ME.007/2021/2022/TRRH/W/34 FOR CONSTRUCTION OF CT SCAN AND X-RAY BUILDING AT TABORA REGIONAL REFERRAL HOSPITAL (KITETE)

Subject: Confirmation to letter of acceptance

The heading above is referred.

Following the letter sent to our company with reference no. AB.17/135/01"A"/53 dated 19th April 2022, we would like to inform your good office that we accept to execute the tender you are have awarded our company with a price of Tshs. 312,077,137 for a period of 50 days and we shall be available on 2ND May 2022 on the signing of the contract.

We Shubtec Group Limited have best intentions to provide construction and maintenance services to your office.

With regards.

Shubtec Group Limited



.....
Eng. Edius Katamugora

Customer Services Director



THE UNITED REPUBLIC OF TANZANIA
1. FORM OF CONTRACT AGREEMENT

CONTRACT No.: **ME007/2021/2022/TRRH/W/34**

FORM OF AGREEMENT

Made on the **02**, day of **May 2022**

BETWEEN

TABORA REGIONAL REFERRAL HOSPITAL, P.O.BOX 22 TABORA (hereinafter referred as 'the Employer' of the one part)

AND
SHUBTEC GROUP LIMITED, P.O.BOX 123 DAR ES SALAAM (hereinafter referred as 'the Contractor' of the other part)

WHEREAS the Employer is desirous of the **PROPOSED CONSTRUCTION OF CT SCAN AND X-RAY BUILDING TO BE BUILT AT TABORA REGIONAL REFERRAL HOSPITAL** (Hereinafter referred as 'the Works')

AND WHEREAS the contractor will supply materials and equipment required to undertake construction of the works in line to this contract specifications and to an acceptable standards.

AND WHEREAS the Contractor will establish the site including construction of the site hoarding, office, store and toilets.

AND WHEREAS the Contractor will undertake all preliminary works including provision of the security, water for the works, power for the works, scaffolding, erect sign boards and other preliminary activities that will enhance execution of the works.

AND WHEREAS the Contractor has supplied the Employer with a fully priced copy of the said schedule of labour (which copy is hereinafter referred to as 'the Contract schedule of labour').

AND WHEREAS the Contractor will provide labour service to the works in line with technical specifications and to an acceptable standards.

AND WHEREAS the Contractor will ensure quality of the works for the whole period of construction.

AND WHEREAS the said Drawings numbered IN SERIES (hereinafter referred to as 'the Contract Drawings') and the Contract schedule of labour have been signed by or on behalf of the parties hereto.

AND WHEREAS the following documents shall be deemed to form and be read and construed as part and parcel of this Form of Agreement (Herein-after referred to as **'The List of Contents'**) namely:-

- (a) Form of Bid;
- (b) Client's notification of award;
- (c) Contractor's letter of acceptance;
- (d) The General Conditions of Contract (GCC);
- (e) The Special Conditions of Contract (SCC);
- (f) Technical Specifications;
- (g) Drawings ;
- (h) Schedule of Labour;
- (i) Security form;
- (j) Special Power of Attorney;


All the aforesaid documents are hereinafter referred to as 'the Contract' and shall be taken as complementary and mutually explanatory of one another but in case of ambiguities or discrepancies shall take precedence in the order set out above.

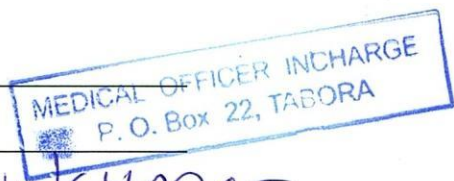
NOW IT IS AGREED AS FOLLOWS:


1. For consideration herein-after mentioned the Contractor will upon and subject to the Condition annexed hereto and also subject to the flow of materials at site as per agreed schedule carry out and complete the works shown in the Contract Drawings and described by or referred to in the Contract Schedule of Labour and in the said conditions within a period of **Fifty (50) days**, from the date of signing the contract.
2. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the works, the sum of **Tanzanian Shillings 312,077,137 (three hundred twelve million seventy-seven thousand one hundred thirty seven) VAT Inclusive** hereinafter referred to as the "Contract Price ", at the times and in the manner prescribed by the Contract.

IN WITNESS, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year first above written.


For and on behalf **TABORA REGIONAL REFERRAL HOSPITAL, P.O.BOX 22 TABORA (CLIENT)**

Name: DR. MARK WAZIRI
Signature: 
Occupation: MEDICAL OFFICER INCHARGE
Date: 02/MAY/2022

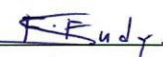


In the Presence of
Name: JAMES B MGIMBUZI
Signature: 
Date: 02/MAY/2022

SHUBTEC GROUP LIMITED, P.O.BOX 123 DAR ES SALAAM.

Name: EDIUS KATAMUBORA
Signature: 
Occupation: Customer Services Director
Date: 2/May/2022



In the Presence of
Name: FEISAL F SUDY
Signature: 
Date: 2/may/2022

Standard Power of Attorney

TO ALL IT MAY CONCERN

THAT BY THIS POWER OF ATTORNEY given on the **29th April, 2022**.

WE the undersigned **SHUBTEC GROUP LIMITED** of **P.O.Box123, DAR ES SALAAM** by virtue of authority conferred to us by the Board Resolution **No. 099** of **28th day of April 2022**, do hereby, ordain nominate and appoint **SHUKRANI BWIRE LUMOGA** of **P.O.Box 123, DAR ES SALAAM** to be our true lawful Attorney and Agent, with full power and authority, for us and in our names, and for our accounts and benefits, to do any, or all of the following acts, in the execution of **CT SCAN AND X-RAY BUILDING** this is to say;

To act for the company and do any other thing or things incidental for **CT SCAN AND X-RAY BUILDING** for the **KITETE REFERRAL REGIONAL HOSPITAL-TABORA**,

AND provided always that this Power of Attorney shall not revoke or in any manner affect any future power of attorney given to any other person or persons for such other power or powers shall remain and be of the same force and affect as if this deed has not been executed.

AND we hereby undertake to ratify everything, which our Attorney or any substitute or substitutes or agent or agents appointed by him under this power on his behalf herein before contained shall do or purpose to do in virtue of this Power of Attorney.

SEALED with the common seal of the said **SHUBTEC GROUP LIMITED** and delivered in the presence of us this **29th day of April, 2022**.

IN WITNESS whereof we have signed this deed on this **29th day of April, 2022** at **DAR ES SALAAM** for and on behalf of **SHUBTEC GROUP LIMITED** of **P.O.BOX 123 DAR ES SALAAM**.

SEALED and DELIVERED by the
Common Seal of **SHUBTEC GROUP LIMITED**
This **29th day of April, 2022**



BEFORE ME




COMMISSIONER FOR OATHS

Acknowledgement

I **SHUKRANI BWIRE LUMOGA** do hereby acknowledge and accept to be Attorney of the said **SHUBTEC GROUP LIMITED** Under the terms and conditions contained in this **POWER OF ATTORNEY** and I promise to perform and discharge my duties as the lawfully appointed Attorney faithfully and honestly.

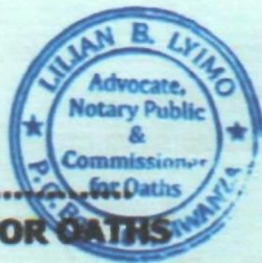
SIGNED and **DELIVERED** by the said
SHUKRANI BWIRE LUMOGA Identified to me
By.....
The latter known to me personally
This 29th day of April, 2022


.....
DONEE

BEFORE ME



.....
COMMISSIONER FOR OATHS



SHUBTEC GROUP LIMITED



MINUTES OF CONTRACT NEGOTIATION

1.0 CONTRACT DETAILS:

Name of Procuring Entity:	KITETE REGIONAL HOSPITAL
Name of Contractor:	M/S SHUBTEC GROUP LIMITED
Project Name:	CONSTRUCTION OF CT SCAN BUILDING
Mode of Procurement:	single source
Negotiation Date and Time:	April 24, 2022, 09:05 HOURS (LOCAL TIME)
Mode of Meeting:	PHYSICAL MEETING
Meeting Place:	KITETE REGIONAL HOSPITAL

2.0 PARTICIPANTS:

Five members from SHUBTEC GROUP LIMITED and 3 representatives of the prospective Client participated in this negotiation. These participants are listed below.

2.1 Participants from the client, KITETE REGIONAL HOSPITAL

- 1) James Ngimbudzi (Chairman)
- 2) Dickson Malulu (Secretary)
- 3) Jostus K. Gabagambi

2.2 Participants from the prospective Contractor

- 1) Eng. Deogratias Musyeto
- 2) Eng. Bwire Shukrani
- 3) Eng. Feisal Sudy
- 4) Eng. Edius Katamugora
- 5) Tech. Frank Mwannyasi

3.0 OPENING OF THE MEETING AND INTRODUCTION

At 09:05 hours local time, The Chairperson, James Ngimbudzi welcomed all the members and declared this negotiation meeting open. He thereafter congratulated the Contractor for being the lowest evaluated bidder and could be the contractor for this project upon successful negotiations and tender award. Then he asked the members to introduce themselves.

4.0 CONTRACTOR'S REPRESENTATIVE WITH THE POWER OF ATTORNEY

As named in the Power of Attorney, SHUKRANI BWIRE is the appointed true and lawful attorney to represent the Contractor in all matters relating to and connected with the contract under negotiation.

5.0 CONTRACT NEGOTIATION PLAN

Pursuant to Regulations 308 (3) (a) to (h) of the Tanzanian Public Procurement Regulations 2013, the Contract Negotiation plan (which includes the Terms of Reference of the assignment) as presented in the table below, was prepared and approved by Tender Board as guidance to the negotiation process.

SNo.	Item Description(s)	Objective(s)	Key Negotiation Parameter(s)
1.0	Priced bill of quantities	To agree on the Contract Price as per the Bill of quantities.	<ul style="list-style-type: none"> The contractor to agree on Priced Bill of Quantities from the read-out one at Bid submission of TZS 337,844,974.00 (VAT Inclusive) to TZS312,077,137.00 (VAT Inclusive) after arithmetic discount. To agree on Discount offered by the Contractor To agree on the proposed contract price (value) of TZS 312,077,137.00 after discount offered by the Bidder is fixed and includes VAT, Contingencies and all other taxes.
2.0	Scope of Works	To agree and confirm on the proposed Scope of Works as per Bill of quantities documents and drawings.	The contractor to confirm that the scope of the works under this contract package is to "To construct Ct scan building. Site clearance, Excavation, Back Filling, Compacting and commissioning" and details as outlined in the schedule of requirements issued to the contractor.
3.0	Payment Modalities	To agree on mode of payments such as Advance Payments within two weeks from the date of signing a contract.	<ul style="list-style-type: none"> Contractor to agree on total advance payments being 50% of the Accepted Contract Amount payable upon submission of the Advance Payments Guarantee acceptable by the Client(Employer), and: Contractor to agree on a 30 days defect liability (notification) period after the expiration of which final payments and certificate are issued and ultimately declaration of contract closed/end will be made.
4.0	Staffing Capacity	To confirm availability of the Proposed Staff as per submitted Priced bill of quantities Documents	<p>The Contractor to confirm utilization of the following workers by the hours and rates submitted by the contractor and agreed by the client:</p> <ul style="list-style-type: none"> Site Engineer, Foreman, Skilled labour, Unskilled,
5.0	Equipment and Plants	To confirm availability of the Proposed equipment and plants as per submitted Documents	<p>The Contractor to confirm availability of the following equipment for the hours and rates submitted by the contractor and agreed by the Client-</p> <ul style="list-style-type: none"> Concrete mixer, Compactor, Poker, and Hoes, Pick axes, Spades, bucket.

(fifteen)
15%
Dkh.
#f#t

6.0	Contractor's Works Methodology and Construction Schedule (plan)	To agree on the Contractor's Works Methodology (Mobilizations schedule and Construction Schedule/plan)	The Contractor should submit Works Program to include mobilization of workers/equipment schedule/plan, and construction works schedule within 2 calendar days after signing of Contract.
7.0	Contract Securities and Insurances	To agree on the submission of the required contract securities and insurances	The Contractor should confirm submission of the following contract securities and insurances in the required formats: (i) Performance Securing Declaration: (ii) Advance Payment Security: 15% of the Accepted Contract Amount and should be in the form of Bank Guarantee. (iii) Insurances: Insurance of Works and Contractor's Equipment & Plants, including Employer's risks; Insurance against Injury to Persons and Damage to Property (Third Party Insurance); and, Insurance for Contractor's Personnel
8.0	Client's Contractual Obligations	To agree and confirm on the Client's Contractual Obligations	Provision of all necessary supports and requirements to enable the Contractor perform contractual obligations as per the conditions of contract.
9.0	Contractor's Contractual Obligations	To agree and confirm on the Contractor's Contractual Obligations	Provide all the required services as per the conditions of contract
10.0	Any other anticipated Contractual Aspects	To identify and agree on any other anticipated contractual aspects from both the Client and Contractor	Any other anticipated contractual aspects to be identified and agreed by both parties (Client and Contractor).
11.0	Contract signing and commencement dates	To agree on the tentative dates for contract signing and commencement.	Dates for Contract signing and commencement of construction works to be agreed by both parties.

7.0 CLOSURE OF THE MEETING

The Chairperson closed the meeting at 09:40 hrs (local time) having thanked all participants for their active participation and contributions during the negotiation process.


8.0 CONFIRMATION OF THE MINUTES/PROCEEDINGS

The Records/minutes/proceedings of the meeting as detailed above is confirmed as correct record of the Contract Negotiation Meeting for Contract No. ME007/2021-2022/TKRH/W/34 and signed by:

1. For Client/Employer

2. For Contractor:

Signature: 



Name: JAMES B NGINGUWOZI

Eng. Deogratias F. Musyeto

Date: 02/05/2022

02/05/2022



TFN 226
(Rev. 2/96)

ID - 889965

JAMHURI YA MUUNGANO WA TANZANIA

LESENI YA BIASHARA

B

3157075



(Imetolewa chini ya Sheria ya Leseni za Biashara No. 25 ya Mwaka 1972, marekebisho ya mwaka 1980 na masharti yaliyo nyuma)

*Futa isiyotakiwa

- Ofisi iliyotolewa MANISPAA YA KENONDONI
- Nambari ya Ushuru wa mapato 140-584-893
- Leseni imetolewa kwa SHUBTEC GROUP LTD
kuendesha biashara ya CIVIL AND BUILDING (LULIPA CREE)
katika Wilaya/Kanda* ya KINONDONI Mtaa MWENGE
- Ni ya Shina/Tawi*
Ada Sh. 425,000/= Nambari ya Stakabadhi 3714382
ya tarehe 20/12/2021
- Mpya inaendeleza* muda wa Leseni Na MPYA
ya tarehe —



(ii) Mada wa Sheria 30-10-2018, 30-12-2018

18/12/2022

Tarehe

GP-05m

J. J. J. J. J.
J. J. J. J. J.

Sahihi na Muhuri wa Mkuaji Leseni

HALMASHAURI YA WILAYA YA MWANGA
(Barua zote zinundikwa kwa Mkurugenzi Mtendaji)

MKOA WA KILIMANJARO

Simu Na.2757652
Fax No. 2756463



Mkurugenzi Mtendaji (W)
S.L.P. 176
MWANGA
12/05/2021

FINAL COMPLETION CERTIFICATE

CONTRACT NAME: CONSTRUCTION OF TWO CLASSROOMS AND SCHOOL LABORATORY AT
DR. ASHA ROSE MIGIRO SECONDARY SCHOOL

NAME OF THE CONTRACTOR: SHUBTEC GROUP LIMITED

CONTRACT PERIOD: FIVE (5) MONTHS

ORIGINAL CONTRACT PRICE: Tshs 265,987,500.00

FINAL CONTRACT PRICE: Tshs 265,987,500.00

SOURCE OF FUNDS: Road fund.

START DATE: 05/01/2021

PLANNED COMPLETION DATE: 05/05/2021


REVISED COMPLETION DATE: NIL

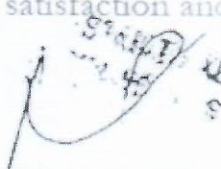
DEFECTS LIABILITY PERIOD: 90 Days

DATE OF FINAL COMPLETION: 05/05/2021

We hereby declare that Shubtec Group Ltd
of P.O.BOX 123 Dar es salaam has successfully executed and
delivered works under this contract to our satisfaction and in accordance
with the contract agreement

Signed by


.....
DISTRICT ENGINEER
MWANGA DISTRICT COUNCIL


.....
DISTRICT EXECUTIVE DIRECTOR
MWANGA DISTRICT COUNCIL

DISTRICT ENGINEER
MWANGA DISTRICT COUNCIL

CERTIFICATE OF PRACTICAL COMPLETION

Contract No.: SMZ/PBZ/CON.M/NCB/2020/MJW/2



M+M ARCHITECTS CO.

ARCHITECTS, INTERIOR
DESIGNERS, LANDSCAPE
DESIGNERS, PLANNERS
AND PROJECT
MANAGERS

P. O BOX 60120
DAR ES SALAAM
TANZANIA

HEAD OFFICE:

Kimara Barak
KM/BRT-196
Plot #. 2005

Tel: +255 7 14 815333
+255 7 12 880755

Email: info@m+architects.co.tz

PROJECT DETAIL

Job Name:	CONSTRUCTION AT PBZ DODOMA BRANCH.
Employer:	THE PEOPLE'S BANK OF ZANZIBAR LIMITED P. O Box 1173 Zanzibar
Contractor:	SHUBTEC GROUP LIMITED P.O.BOX 123 Dar es salaam
Consultant	M+M ARCHITECTS CO. LTD P.O. Box 80126, Dar es salaam

Effective Date of Certificate	11 th April 2022
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DESCRIPTION OF PART OF WORKS TO BE HANDED OVER BY THE CONTRACTOR IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

- Per contract Documents except nominated sub-contractor's work

OUTSTANDING, UNACCEPTABLE AND EXTRA WORK


Attached:

- Addendum A - N/A
- Addendum B lists extra items that are required to be completed by the stated date. If these items are not complete or have not been rectified by the aforementioned date, the effective date of this certificate shall be extended by the amount of additional time taken by the Contractor to complete the work specified.

DIRECTORS:

(Faint text)

Eng. THEODORY A. ZAWI  11/04/2022

Eng. KHAMUS M. MUSSA  11/04/2022

Arch. Fadi O. Mwan  11/04/2022

JANDU PLUMBERS LIMITED

CLASS ONE BUILDING, CIVIL, MECHANICAL, WATER WORKS & WATER TREATMENT CONTRACTORS

TEL: +255 27 250 3468
+255 27 250 3410
+255 27 254 5722

E-MAIL: info@jandutz.com
ram@jandutz.com

P.O.BOX 409,
ARUSHA,
TANZANIA

PLOT # 15-18, 38-41
UNGA LIMITED
INDUSTRIAL AREA

DIRECTORS: AJMER SINGH JANDU (jandu@jandutz.com)
HARBINDER SINGH JANDU (jandu@cybernet.co.tz)

MANMOHAN SINGH JANDU (nitu@jandutz.com)
KAMALPAL SINGH JANDU (ksjandu@jandutz.com)

Two whom it my Concern

RE: RECOMMENDATION OF THE COMPANY NAMED AS SHUBTEC GROUP LIMITED
TO PARTICIPATE IN YOUR PROJECT

The heading above is referred .The company named above worked with us in a water project, that named as

“EXTENTION OF WATER TRANSMISSION PIPELINE FROM THE LAKE VICTORIA WATER SUPPLY SCHEME TO TABORA, NZEGA ANDA IGUNGA TOWNS PACKAGE II”

He worked with us for two years into the execution of the various project activities.

Kindly, we may recommend him to work with/ for you in your targeted project

Your faithfully

Project Coordinator



PVP Raju



SHUBTEC GROUP LTD

**PROPOSED CONSTRUCTION OF CT SCAN
BUILDING FOR REGIONAL REFERRAL
HOSPITALS**

**PRICED BILL
OF
QUANTITIES**

SUBMITTED BY:

**SHUBTEC GROUP LIMITED
P.O. BOX 123
DAR ES SALAAM**



APRIL, 2022



SHUBTEC GROUP LTD

**PROPOSED CONSTRUCTION OF CT SCAN
BUILDING FOR REGIONAL REFERRAL
HOSPITALS**

**PRICED BILL
OF
QUANTITIES**

SUBMITTED BY:

SHUBTEC GROUP LIMITED
P.O. BOX 123
DAR ES SALAAM



APRIL, 2022

Location

A The site of the proposed Works is
KITETE HOSPITAL

General description of the Works

B *The buildings are constructed with a solid concrete blocks, floors and It roof sheets on steel structure (semi dome).*

C *The elevations have solid concrete blockwall infill aluminium glazed windows.*

D *Internal partitions are of solid concrete blockwork*

E *Included in this Contract are internal finishings, joinery work, , railings and other metalwork together with hot and cold water, ventilation, fire fighting, electrical and drainage installations.*

Time for completion

F The Works are to be completed within the times stated in the Form of Tender by the tenderer.

G In this connection the Contractor is to submit with his Tender a work programme for the completion period showing how he proposes to procure materials required and carry out the work including a method statement including details of plant he intends to employ during the execution of the Contract.

Bases for Tendering

H Tenders are to be submitted on the basis that Clause 47 FIXED PRICE of the contract will apply and there will be no price adjustment.

PRELIMINARY PARTICULARS: DESCRIPTION OF THE SITE

Position of the Works and access thereto

- A The site of the works is within
KITETE RRH COMPOUNDS

Character of the operations

- B Before pricing the Bills of Quantities the Contractor must satisfy himself in detail as to the character of the operations and in particular the nature of the rehabilitation works and in respect of the type of structure to be erected, the design of reinforcement, the nature of temporary work required and where necessary the standard of finish required for exposed concrete surfaces
- C Building Engineering Services shall be carried out by a approved domestic specialist sub-contractors. The entire works to be coordinated by the selected Main Contractor. Tenderers should take this into account in pricing this document.

Visiting of the site

- D The Contractor will be deemed to have visited the site and to have satisfied himself as to the nature, extent and character of the Works, and other local conditions, accessibility of the Works, the supply of and conditions affecting labour and materials; availability of water and power and any other matter which may affect his tender. No claim for extra payment will be considered on account of lack of knowledge in this respect.
- E Visits to the site shall be by appointment only and as set out in the invitation to tender.

Possession of the site

E The site for the works will be handed over ^{fifty} days from the Letter of Acceptance.

CONTRACT : CONTRACTOR'S LIABILITY

Risk of injury, injury to persons and property and of damage to the Works

F The Contractor must provide for the efficient protection of the general public and the occupants and users of the surrounding buildings during the progress of the Works included in or to be done in connection with this Contract and the Contractor shall, for this purpose, guard and protect his plant, tools and materials and take all necessary measures in order to prevent mishaps and accidents

Measurement of the works and variations

A

Measurement of variations will be carried out by the Quantity Surveyor who will give to the Contractor an opportunity of being present. Completed measurements will be handed to the Contractor periodically for his check and queries, and sections of priced variations will similarly be handed to him at a later stage. All Architect's Instructions with cost implications must be priced and submitted to the Quantity Surveyor within seven working days of the issue of the Instruction. Approved variations to be included in interim valuations each month for payment.

B

If no queries or confirmation regarding either class of document mentioned above are received within two weeks of the date of receipt by the Contractor, the measurements and/or prices as the case may be will be deemed to be agreed and will be incorporated into the final account

Invoices, receipts and accounts

C

Upon the request of the Quantity Surveyor the Contractor will furnish him with all invoices, receipts, accounts and other vouchers that may be required in connection with the Contract

TO COLLECTION



GENERAL SUMMARY

S/N.	DESCRIPTION OF WORK	PAGE	TOTAL (TSHS.)
A	BILL NR;1 :PRELIMINARIES.	TSHS.	15,200,000.00
B	BILL NR;2 : CT SCAN BLOCK. (BUILDER,S WORKS+ SERV.)	TSHS.	231,919,300.00
C	BILL NR. 3 : PC & PROVISION SUM	TSH	39,190,000.00

SUB TOTAL No. 1

ADD VAT 18%

GRAND TOTAL



TSHS. 286,309,300.00

TSHS. 51,535,674.00

TSHS. 337,844,974.00

Handwritten signature



SHUBTEC GROUP LTD

**PROPOSED CONSTRUCTION OF CT SCAN
BUILDING FOR REGIONAL REFERRAL
HOSPITALS**

**PRICED BILL
OF
QUANTITIES**

SUBMITTED BY:

**SHUBTEC GROUP LIMITED
P.O. BOX 123
DAR ES SALAAM**

APRIL, 2022

**BILL NO. 1 PRELIMINARIES AND GENERAL
CONDITIONS OF CONTRACT**

PRELIMINARIES

TSHS.

QUALIFICATIONS OF THE RULES OF THE SMM

Quantities

A

Notwithstanding the provisions of SMM Clause A.2(a) and (b) fractions of a unit less than half, which would cause an entire item to be eliminated have been regarded as whole units

DEFINITIONS/ABBREVIATIONS

Definitions

B

Words importing the singular only also include the plural and vice versa where the context requires

C

The term "the Works" shall mean the whole of the works envisaged by the Contract, including, unless expressly stated otherwise, the works of nominated sub-contractors, nominated suppliers, local authorities and public undertakings whether or not the works of the latter are represented by prime cost sums.

D

The term "instructions" and words derived therefrom, shall mean written instructions issued by the Architect unless otherwise described

E

The term "manufacturer's recommendations" shall mean all printed or written recommendations or instructions issued by a manufacturer and current at the tender date"

F

The term "or other approved" shall mean the standard required and that materials or goods of equal quality and performance may be substituted with the written approval of the Architect"

TO COLLECTION

A The terms "approval", "approved by", "to approval", "as directed" and the like refer always to approval or directions given by the Architect. Approval will not be valid unless given in writing. When the Contractor seeks approval for work which cannot proceed without the Architect's selection or inspection (e.g. performance tests; work of aesthetic importance) he shall give adequate notice in order that arrangements can be made. Unless otherwise specified in the written approval such approvals will be limited to the visual appearance of the work involved and are not in any case to limit any other requirements of this Contract particularly in relation to the kind and standards of materials, goods and work"

Abbreviations

B The following abbreviations are used:-

C B.S. British Standard current at tender date

D BSCP British Standard Code of Practice current at tender date

SMM Standard Method of Measurement of Building Works for E. Africa First Edition

Abbreviations (contd.)

E m Metre(s)

F mm Millimetre(s)

G m² Square metre(s)

H m³ Cubic metre(s)

I t Tonne(s)

J KG Kilogramme(s)

K N Newton(s)

General attendance

A In addition to the facilities referred to in SMM Clause B19(b) all items of general attendance include arranging with nominated sub-contractors and suppliers (if applicable) as to time for submission of drawings for the Architect's approval, commencement of their work on the site or manufacture and delivery of their goods and materials as appropriate, obtaining from them particulars of holes, mortices, chases, recesses, fixings and the like and supplying them with all dimensions and other information for the proper execution of the Works

B The Contractor shall be responsible for the procurement and/or preparation of all detailed setting out and shop drawings sufficient to achieve proper co-ordination of the Works

C As part of his obligations under this Contract and the various sub-contracts the Contractor will be ultimately responsible for the co-ordination of all nominated sub-contractors' and suppliers' (if applicable) activities and to ensure that they are aware of the requirements of his programme in so far as work on site and the issue of information is concerned

PRELIMINARY PARTICULARS: PROJECT

Name

D The project shall be known as PROPOSED CONSTRUCTION OF CT SCAN BUILDING.

Nature

E The Works comprises of the following:

F (a) the construction to completion of ct Scan Building.

G (b) the construction to completion of related external works

TO COLLECTION

Location

A The site of the proposed Works is
.....

General description of the Works

B *The buildings are constructed with a solid concrete blocks, floors and It roof sheets on steel structure (semi dome).*

C *The elevations have solid concrete blockwall infill aluminium glazed windows.*

D *Internal partitions are of solid concrete blockwork*

E *Included in this Contract are internal finishings, joinery work, , railings and other metalwork together with hot and cold water, ventilation, fire fighting, electrical and drainage installations.*

Time for completion

F The Works are to be completed within the times stated in the Form of Tender by the tenderer.

G In this connection the Contractor is to submit with his Tender a work programme for the completion period showing how he proposes to procure materials required and carry out the work including a method statement including details of plant he intends to employ during the execution of the Contract.

Bases for Tendering

H Tenders are to be submitted on the basis that Clause 47 FIXED PRICE of the contract will apply and there will be no price adjustment.

PRELIMINARY PARTICULARS: PARTIES AND CONSULTANTS

Employer

A

The Employer is MINISTRY OF HEALT COMMUNITY DEVELOPMENT,GENDER, ELDERY AND CHILDREAN, P. O. Box .743. Dodoma.

Architect

B

The Employer is BUILDING AND ENGINEERING

Quantity Surveyor

C

The Employer is MINISTRY OF HEALT COMMUNITY DEVELOPMENT,GENDER, ELDERY AND CHILDREAN, P. O. Box 743. Dodoma.

Structural Engineer

D

The Civil / Structural Engineer is of P. O. Box
.....,

Services Engineers

E

The Services Engineers are of P. O. Box
.....,

PRELIMINARY PARTICULARS: DESCRIPTION OF THE SITE

Position of the Works and access thereto

A The site of the works is within
.....

Character of the operations

B Before pricing the Bills of Quantities the Contractor must satisfy himself in detail as to the character of the operations and in particular the nature of the rehabilitation works and in respect of the type of structure to be erected, the design of reinforcement, the nature of temporary work required and where necessary the standard of finish required for exposed concrete surfaces

C Building Engineering Services shall be carried out by a approved domestic specialist sub-contractors. The entire works to be cordinated by the selected Main Contractor. Tenderers should take this into account in pricing this document.

Visiting of the site

D The Contractor will be deemed to have visited the site and to have satisfied himself as to the nature, extent and character of the Works, and other local conditions, accessibility of the Works, the supply of and conditions affecting labour and materials; availability of water and power and any other matter which may affect his tender. No claim for extra payment will be considered on account of lack of knowledge in this respect.

E Visits to the site shall be by appointment only and as set out in the invitation to tender.

PRELIMINARY PARTICULARS: DRAWINGS AND OTHER DOCUMENTS

Bill preparation drawings

A

The Bill preparation drawings are as listed in Appendix A of the Tender Document. These drawings may be inspected at the office of the **Building and Engineering Section** by prior appointment between 09.00 AM and 15.30 Everning on working days. Please contact Building and Engineering Section (MOH CDGEC) Dodoma.

Tender documents

B

The Contractor is requested to check the documents and the number of each page and if any are missing or duplicated or if any writing or figures are indistinct, to notify at once the Quantity Surveyor. No subsequent claim for loss consequent upon the Contractor's failure to comply with this clause will be entertained

TO COLLECTION

A No alteration, addition or qualifying note is to be made by the Contractor in the text of the Bills of Quantities. Should any alteration, addition or note be made such will not be recognized and the text of the Bills as printed will be strictly adhered to.

B The Contractor should note that qualifications in Tenders will not be accepted. Should any qualifications be attached to Tenders such Tenders may be excluded from consideration when selecting the successful Contractor

C If there is any matter upon which the Contractor requires further information or clarification he is to contact the Architect within one week of issue of the Tender Documents in order that all tenderers may be given such additional information as is available

Pricing of Preliminaries Bill

D The successful Contractor will be required to provide, for purposes of contract administration, a detailed break-down of his pricing of this section of the Bills of Quantities before Contract Documents are completed (Lump Sum costs will not be accepted)

Pricing and correction of Bills of Quantities, etc.

E Costs relating to items which are not priced will be deemed to have been included elsewhere in these Bills of Quantities

CONTRACT: FORM, TYPE AND CONDITIONS

F **See Section IV**

The Contractor's attention is called to the following items which shall be read as incorporated therein and he shall allow any sums which he considers necessary for the carrying out and observance of such Conditions.

TO COLLECTION

A Statutory obligations, notices, fees and charges

B Levels and setting out of the works.

C Materials, goods and workmanship to conform to description, testing and inspection

D Royalties and patent rights

Daywork rates

Any daywork ordered under this contract shall be executed at the following rated:

E Labour : The Prime Cost to whichper centum shall be added.

F Materials : The Prime Cost (delivered to site) to which.....per centum shall be added.

G Plant : The Net Hire charges to whichper centum shall be added.

H The percentage additions shall cover all insurances, use of small tools and non-mechanical plant, sharpening tools, water supervision, watching, lighting, establishment and overhead charges and profit.

I Dayworks will be allowed only where specifically ordered by the Architect in writing.

J
D All Daywork sheets must be signed by the Architect and the Contractor or their authorized representatives.

TO COLLECTION

A **Contract Bills**

Note: The Contract Bills have been prepared in accordance with the standard method of measurement of Building works for East Africa First Edition Metric, 1970 published by the Architectural Association of Kenya, chapter of Quantity Surveyors which is available for inspection at the offices of the Quantity Surveyor by appointment.

Insurances

B In addition to the Conditions of the contract and the requirements contained hereinafter, the contractor shall effect a contractor's all RISK policy issued by the INSURANCE companies to cover the full value of :-

1. The works and temporary works erected in performance of this contract.
2. The materials on site, plant and tools.
3. The cost and expense of removing debris of the property insured which is destroyed or damaged by any peril insured.
4. Professional fees (to be allowed at 12% of the contract sum

C The contractor shall ensure that all sub-contractors effect and maintain Such insurances as are necessary to cover their liabilities in respect of injury to persons and property and workmen's compensation.

Certificate and payments. Notes:

D At the intervals stated. Certificates shall be issued provided the amounts of such certificates are considered reasonable by the Quantity Surveyor in accordance with the value of the contract.

A When applying for a certificate, the contractor shall furnish the Quantity Surveyor with a detailed approximate statement of the value of the work executed and all materials on site in order to expedite the issue of the certificate.

Statutory Obligations, Fees and Charges

B The Contractor shall pay all charges in connection and shall indemnify the Employer against all penalties incurred by reason of non-observance of any such statutory obligations. The Contractor must also make himself fully acquainted with current Ordinances and Government, Police and other regulations regarding the movement of labour, labour camps etc. He must adhere by the same and allow for any expense in this connection. Fees and charges" shall include all rates and fees applicable to temporary buildings and hoarding unless specifically measured herein."

Personnel

C The Contractor shall ensure that his Site Agent and Foremen-in-Charge are able to read, speak and understand the English language.

Variations, provisional and prime cost sums

D No claim in respect of payment for extra work at prices in excess of the unit prices entered in the Bills of Quantities, by reason of varying conditions or dissimilarity, will be recognised unless notice is given in writing to the Architect **seven** days prior to the performance of the work in question that such a claim is to be submitted. No claim will be recognised for any part of the work being omitted unless notice is given in writing to the Architect within seven days of the date of the order to omit such work, that a claim is to be submitted in respect of such additional payment.

Possession of the site

E The site for the works will be handed over days from the Letter of Acceptance.

CONTRACT : CONTRACTOR'S LIABILITY

Risk of injury, injury to persons and property and of damage to the Works

F The Contractor must provide for the efficient protection of the general public and the occupants and users of the surrounding buildings during the progress of the Works included in or to be done in connection with this Contract and the Contractor shall, for this purpose, guard and protect his plant, tools and materials and take all necessary measures in order to prevent mishaps and accidents

CONTRACT : LOCAL AUTHORITIES FEES AND CHARGES AND RATES ON TEMPORARY BUILDINGS

A The Contractor shall give all notices required by any Enactment or Local Authority by laws or any statutory undertaking. The Contractor shall pay all fees and charges required in connection with the above including those in respect of the following items if applicable to the Works: rates on temporary buildings, hoardings, temporary telephones, water for the works, works to be carried out by Local Authorities or Statutory Undertakings and power for the works

CONTRACT : OBLIGATIONS AND RESTRICTIONS IMPOSED BY THE EMPLOYER

Use of site

B The Contractor shall use the site for the execution of the works embraced in the Contract including storage of materials and plant necessary in the carrying out of same. In no way will the Contractor be permitted to use the site for the preparation of and storage of materials for use other than on this Contract

Schedule of Condition

C The Contractor, prior to commencement of work on site, shall in conjunction with the Architect, adjoining owners and relevant authorities prepare and agree a "Schedule of Condition" of external walls, boundary walls, roads, paths, manholes, drains, etc. which are adjacent to the site. At completion of the Works, but prior to formal hand-over, this schedule shall be checked and any work found to be damaged due to the Contractor's building operations shall be made good at the Contractor's expense"

Schedule of Condition

A

The Contractor, prior to commencement of work on site, shall in conjunction with the Architect, adjoining owners and relevant authorities prepare and agree a "Schedule of Condition" of external walls, boundary walls, roads, paths, manholes, drains, etc. which are adjacent to the site. At completion of the Works, but prior to formal hand-over, this schedule shall be checked and any work found to be damaged due to the Contractor's building operations shall be made good at the Contractor's expense"

Schedule of Condition (contd.)

B

The Contractor shall also, prior to commencement of work on site, prepare and verify site levels on Architect's drawings (both existing and proposed; and similarly establish and agree a bench-mark as well as site boundaries. The Contractor shall also at the commencement of the works, and within 1 weeks, set out the whole of the buildings under this Contract.

Setting out of the works

C

The Contractor shall set out the Works in accordance with the dimensions and levels shown on the Drawings and shall be responsible for the correctness of all dimensions and levels so set out by him and will be required to amend all errors arising from inaccurate setting out at his own cost and expense. In the event of any error or discrepancy in the dimensions or levels marked on the Drawings being discovered such errors or discrepancies must be reported by the Contractor to the Architect for his immediate attention.

A No work shall be commenced by the Contractor until he has received written instructions from the Architect to adjust such discrepancies which may be proved. Upon receipt of such instructions the Contractor shall there upon be responsible for the accurate setting out of the works, giving effect to the adjustments necessary to comply with such instructions, and no claim for extra expense or relief from the provision of Clause 5 of the Conditions of Contract based on any discrepancy or error in the dimensions or levels shown on the Drawings may be made thereafter.

Limitations of working space

B The Contractor is to take all reasonable precautions to prevent workmen, including those employed by sub-contractors, from trespassing on adjoining hospital property. They will strictly NOT BE ALLOWED to TRESSPASS.

Overtime, Labour and Fair wages NB: Contractor to insert rates in space provided in Preambles Bill.

D Where and when it is found necessary to work overtime in order to maintain progress or for other reasons the Architect's sanction in writing must first be obtained and any such sanction will only be granted on the understanding that such overtime will not entail the Employer in any payment thereby additional to the Contract Sum unless the Architect shall otherwise direct

C In cases where the Architect shall direct that the Contractor is to be paid the additional cost of overtime working which he may have sanctioned in writing, the additional cost concerned shall be limited to the nett cost of overtime working payable to the operatives involved, plus an addition for overheads but subject to no other addition of any kind. For this purpose:-

TO COLLECTION

A

(1) "Additional cost" shall mean the "non-productive element" of payments made to workpeople in accordance with the Working Rules of the relevant wage-fixing body for overtime working in excess of that allowed for by the Contractor in the calculation of the Contract Sum; and

B

(2) "Overhead" shall mean additional direct costs necessarily incurred by the Contractor as a direct result of such additional overtime e.g. the costs of additional temporary lighting, extended hours for canteen facilities, direct supervision and the like but shall exclude head or regional office costs or charges"

C

In this connection the Contractor will be deemed to have made allowance in his tender for any overtime he considers necessary to complete the Works by the agreed date

D

The Contractor shall provide all labour and shall include for all costs arising from the current Government regulations regarding annual leave and passages, medical facilities, public holidays, overtime, training levy, income tax, housing, travelling allowance, wages and salaries, and any other statutory requirements current at the date of tender.

E

The Contractor shall pay rates of wages and observe hours and conditions of labour not less favourable than the minimum rates of remuneration and minimum conditions of employment applicable to the district in which the work is carried out as laid down by the Regulations of Wages and Conditions of Employment Act, current in Tanzania at the time of this Contract. The relevant notice must be kept posted upon the site where it can be conveniently read by the employees concerned.

Use of materials found on site

A The use of materials found on site shall be prohibited except for those specifically described as to be re-used and excavated material, which where suitable may be used for making up levels, etc. Should the Contractor discover materials on site he feels can be re-used as filling media he must obtain the Architect's written approval to their use prior to proceeding with incorporating them in the Works. The Contractor to allow 7 working days notice for the Architect to decide. The Contractor shall accept the re-use of existing or excavated materials on site without cost.

Disposal of materials found on site

B Unless otherwise described all materials found on site shall be removed from site to a tip provided by the Contractor and approved by CIVIC authorities from whom the Contractor shall ascertain precise location and pay all entailed charges.

1,500,000.00

TO COLLECTION

A	<p><u>Temporary name boards</u></p> <p>The Contractor is to erect a display board indicating the name of the project and the names of the various firms and persons engaged on the Works. The dimensions, design and construction of the same are to be to the satisfaction of the Architect and are 2000mm wide x 900mm high. writing in capital letters, maximum 60mm high. The signboard to include the name and logo of the Client, names of Architect, Structural Engineers, Services Engineers and Quantity Surveyor. Location to be agreed with the Architect.</p>	4,000,000.00
B	<p><u>Advertising rights</u></p> <p>All rights in advertising are strictly reserved to the Employer and the Contractor is expressly forbidden to advertise or to permit to be advertised his connection with the Contract</p>	
C	<p>No information concerning this Contract may be released to the Press or to any other party or person without the prior consent of the Employer to whom the proposed press hand-out or other information shall be submitted in each case for approval</p>	
D	<p><u>Maintenance of existing services</u></p> <p>The Contractor is to take all reasonable measures to ascertain the location of all existing services including liaising with local authorities, public undertakings, the Employer's representative and any other persons having knowledge of the site to avoid damage to any existing services. This applies especially to underground service i.e. waste and soil drainage as well as storm water drainage.</p>	1,000,000.00
E	<p>The Contractor shall be responsible for protecting, upholding and maintaining all existing services during progress of the Works and for giving all necessary notices to the statutory authorities and he is to make good any damage due to any cause within his control at his own expense or pay any costs and charges in connection therewith</p>	500,000.00
TO COLLECTION		

Order of execution and completion of the Works

A

The Contractor, upon acceptance of his offer, shall proceed immediately with the preparation of a programme or statement which shall clearly set forth the sequence of all operations and the time limits within which the Contractor proposes that each operation shall be commenced and completed. The Contractor in the preparation of his programme, shall be held to have co-ordinated the whole of the works embraced in this Contract including the work of nominated sub-contractors, local authorities and public undertakings whether engaged by him or engaged directly by the Employer. Upon the agreement or negotiated amendment of the programme by the Architect, the Contractor shall be responsible for executing the Works in conformity therewith

Order of execution and completion of the Works (contd.)

A Four copies of the agreed programme are to be supplied to the Architect within seven days of agreement being reached. At the same time the Contractor shall issue to the Architect a statement setting out the latest dates by which drawings and other instructions are required by him for the implementation of the agreed programme

B Progress of work executed on site shall be indicated weekly on the Contractor's copy of the chart and this information will be available for transfer by the Architect's representative to other copies of the chart. One copy to be equally updated must be available at the site at all times. The Contractor must also maintain a site diary to draw up a summary of the main operations and events for each week and month of the contract.

C When for any reason the Contract falls substantially behind programme or the sequence of the operations is materially altered the Contractor shall, if so requested by the Architect, prepare a revised programme in the manner described above taking into account the current situation

Temporary accommodation and facilities for use of the Employer - Management Office

D The Contractor shall provide temporary office accommodation and facilities for use by the Consultants' staff to acceptable standards.

Equipment for Site

E The Contractor shall make available to and maintain in good condition for the Architect or Employer's other representative such equipment as may be necessary for checking and measuring the works, which shall include one dumpy or quick set level, metric levelling staff, twelve ranging rods and one 30 metres steel tape.

5,000,000.00

TO COLLECTION

Setting out of works and tolerances

A The Contractor shall survey the reinforced concrete structure floor by floor immediately after the completion of each section of the work. The survey (to be given to the Architect within seven days before superincumbent work is constructed) shall record on a drawing the position, levels, dimensions and alignments of all parts of the structure and shall show clearly any divergence from the specified tolerances

Adjoining owners property and land

B Except as provided in the Contract conditions, the Contractor shall be held responsible for any damage to third party premises resulting from the Works and shall make good such damage at his own expense to the reasonable satisfaction of the Architect and the owners or occupiers thereof or their authorized representatives

Materials and workmanship

- A The whole of the materials and workmanship are to be as described in these Bills of Quantities, the best of their respective kinds and all articles and materials unless otherwise described are to be of a standard or quality not less than those contained in the latest relevant standard published by the British Standards Institution

- B Standards of workmanship are to be not less than those contained in the Codes of Practice where such are applicable to the Works

- C Samples of materials as may be required shall be furnished to the Architect by the Contractor within 7 days of the Architect's request. The samples approved will be retained by the Architect who will be at liberty to reject all materials and workmanship not corresponding with the approved sample. All samples not forming part of the finished works shall be removed on completion of the Works or when no longer required. Samples for Structural Engineering tests will be taken by the Engineer or his representative who will be present at the place and time where tests are being carried out.

- D The Contractor will forthwith remove all materials and workmanship rejected by the Architect in writing within seven days and replace them with others of such better quality as shall be satisfactory to the Architect and shall be approved by him

- E In case the Contractor shall neglect or refuse to comply with the foregoing conditions, the Architect or his representative may on behalf of the Employer or instruct others to remove such materials and workmanship or any part thereof and replace the same with such other materials and workmanship as shall be satisfactory to him

- F The Employer will deduct all expenses thereby incurred or for which the Employer may be liable, from the amount of any money which may be or become due to the Contractor.

Testing materials

A The Architect may, whenever he considers it desirable, test any materials before they leave the maker's premises as well as after delivery on the site, and the Architect shall be at liberty to reject any materials after delivery should he consider them unsatisfactory, notwithstanding the preliminary test and approval of the materials at the maker's premises. The costs of these tests are to be borne by the Contractor. When directed by the Architect, samples of materials (the samples being taken by approved sampling methods) are to be supplied by the Contractor for laboratory tests and shall be delivered by the Contractor at his own cost to the Architect's office or otherwise as directed.

2,000,000.00

TO COLLECTION

2,000,000.00

A	The Contractor shall whenever so instructed by the Architect, cut out sections of work executed or samples of materials incorporated therein and shall deliver them where directed for the purpose of testing.	500,000.00
B	If the results of any tests are unsatisfactory the cost of the testing and any resulting reconstruction which may be ordered by the Architect is to be borne by the Contractor	
<u>Disposal of water for all sections of the works</u>		
C	Allow for keeping the site and buildings free from water arising from whatever cause.	500,000.00
<u>Temporary protection of works</u>		
D	The Contractor shall allow for and provide and/or maintain during the execution of the Works all shoring, strutting, needling and other supports and shall take all other precautions and adopt such expedients as may be necessary to preserve the stability of all buildings, structures, fences, walls and property, roads and footpath, sewers, drains, gullies and other services(including those of adjoining owners) that may in any way be affected by the work to be executed under the Contract immediately he has taken possession of the Site and until completion of the Works. The Contractor shall hold the Employer completely indemnified against all or any claim for damage or losses accruing from any settlement resulting from such shoring and strutting or the lack thereof and the striking and removal of same	800,000.00
E	Any damage and/or settlement that may be caused arising out of or directly or indirectly consequent upon the aforesaid protective measures or the lack thereof or the carrying out of the Works is to be made good by the Contractor at his own expense to the satisfaction of the Architect and all other parties concerned.	
TO COLLECTION		

A The Contractor shall cover up and protect all finished work liable to damage including provision of temporary roofs, gutters, drains etc., until the completion of the Works.

B The entire responsibility in respect of all matters mentioned or referred to in this clause shall rest with the Contractor notwithstanding any approval given by the Architect to, or concurrence in, the action taken or proposed to be taken by the Contractor, in pursuance of his obligations.

Project Review meetings

C The Contractor shall attend project review meetings to be arranged by the Architect at regular intervals. The purpose of these meetings, to be held under the administration of the Architect is to review progress and clarify any matters arising to maintain the regular progress of the Works.

A At each project review meeting the Contractor shall present a written report which clearly notes the progress planned and actually achieved since the last site meeting, outstanding information required, staff resources, equipment and materials on site. Also to be included are safety report and weather reports for the period since the last project review meeting stating the effects, if any, on progress of the Works

Sureties and Bond

B The Contractor will be required to enter into a guarantee with a financial institution acceptable to the Employer for an amount equal to 10% of the Contract Sum, for the due and proper observance of terms and stipulations of the Contract and pay the necessary stamp duties. In the event of the surety approved by the Employer becoming bankrupt or insolvent or compounding with his or their creditors, the Contractor shall and will forthwith upon being required by the Employer to do so, obtain a joint security or securities as the case may be, and obtain a new Bond in a similar sum to that mentioned in the original Bond for the due observance of the terms of the Contract.

Certificates

C Every application for a certificate by the Contractor must be accompanied by a detailed priced statement setting forth the particulars of the Works executed to the date of such claim with a list of materials on site. One copy of each application to QS and one copy to Architect. One copy of QS valuation will be sent to Architect for approval and certificate before other copies are distributed

Measurement of the works and variations

A

Measurement of variations will be carried out by the Quantity Surveyor who will give to the Contractor an opportunity of being present. Completed measurements will be handed to the Contractor periodically for his check and queries, and sections of priced variations will similarly be handed to him at a later stage. All Architect's Instructions with cost implications must be priced and submitted to the Quantity Surveyor within seven working days of the issue of the Instruction. Approved variations to be included in interim valuations each month for payment.

B

If no queries or confirmation regarding either class of document mentioned above are received within two weeks of the date of receipt by the Contractor, the measurements and/or prices as the case may be will be deemed to be agreed and will be incorporated into the final account

Invoices, receipts and accounts

C

Upon the request of the Quantity Surveyor the Contractor will furnish him with all invoices, receipts, accounts and other vouchers that may be required in connection with the Contract

A

Prior to the issue of a certificate the Contractor shall, if requested, produce for the Quantity Surveyor's inspection all receipted accounts relating to prime cost items and provisional sums and receipts for charges paid by the Contractor in accordance with the Conditions of Contract

Wages books

B

The Contractor will keep proper wages books and time sheets showing the wages paid to and time worked by the workpeople in his employ or on or in connection with the execution of the Contract and such wages books and time sheets will be produced whenever required for verification

Labour returns

C

The Contractor shall prepare for the Architect a daily distribution return showing the number and description of workpeople employed on the Works including those employed by nominated sub- contractors. The returns are to be forwarded at the end of each week to the Architect

Dayworks

D

Should it be found that work ordered by the Architect cannot properly be valued at the Bills of Quantities rate, or at rates analogous thereto the Contractor may be allowed daywork rates for such work.

E

Where the Contractor intends to record authorized variation work on daywork vouchers the Architect is to be informed before such work commences. The daywork sheets in connection therewith must be priced and submitted to the Architect or his authorized representative for verification by not later than the end of the week following that in which the work has been executed

A

For this time and materials (except provisional and prime cost sums) the rates will be the rates of labour and the cost of materials, goods and plant as defined in the Preambles Section of these Bills of Quantities with the additions for on-costs as provided therein by the Contractor.

Drawings, etc.

B

The Contractor will be given two sets of all contract documents free of charge. The Contractor is to allow for the cost of any copies of drawings, specifications, etc., which he may require in excess of those provided without charge under the Contract

C

All drawings, tracings, prints and writings, except letters, are to be considered the property of the Architect and they are to be returned to him on completion of the Works

TO COLLECTION

Attendance upon trades

A The Contractor shall provide for attendance on and by all trades as may be required to complete the whole of the Works

Service drawings and testing

B At Practical Completion of the Works the Contractor is to deposit with the Architect two copies each of record drawings showing in detail as actually executed drainage run, electrical conduit run, and all other service installations and mains, together with certificates confirming that the installations including water pressure, earth resistance have been tested and conform to the Specification and requirements of the statutory authorities concerned The Contractor to give the Architect three (3) working days notice before testing is to be carried out.

1,000,000.00

C The Contractor will be responsible for obtaining from his sub-contractors all relevant drawings and certificates and for obtaining any requisite additional supporting certificates from statutory authorities

D The Certificate of Practical Completion of the Works will not be issued until the Contractor has complied with the foregoing requirements

E Note:- The Contractor may obtain copy negatives of the working drawings from the Architect for the purpose of preparing record drawings

Handing over

F Two weeks before any section of the work will be ready for handing over the Contractor shall inform the Architect of the fact in writing

TO COLLECTION

1,000,000.00

WORKS BY PUBLIC BODIES

Statutory undertaking engineers

A The Contractor is to note that in accordance with the provisions of the clause headed "Reservation of rights of use of site by Employer", statutory undertaking engineers will require access to the building during the progress of the Works for the purpose of installing their mains, equipment, etc.

B The Contractor will be responsible for agreeing a programme of work, supervision and administration of the engineers executing this work (whether carried out without charge or not) and for control of their operations and actions. The Contractor is to take all reasonable precautions to prevent damage occurring and is to make good any such damage at his own expense to the satisfaction of the Architect

C The Contractor will be responsible for and make application to the appropriate water and electricity authorities for the permanent main supplies to the building and pay for all charges in connection therewith, including charges for water or power consumed/used, up to the date of Practical Completion of the Works. The Contractor shall also ensure that meter readings are taken on this date and the Employer notified of the readings and arrangements made for payments for all supplies after that date to be transferred from the Contractor to the Employer. The Contractor to give commencement notices and inspection notices to Statutory Authorities for works to be undertaken by them.

Attendance upon statutory undertaking engineers

B The Contractor is to add for profit and general attendance as previously defined under the heading "Attendance upon sub-contractors""

A

Prime cost sums for work to be executed or charges to be made by local and statutory authorities will in all cases be net and all cash discount for the Contractor excluded therefrom

WORKS BY OTHERS DIRECTLY ENGAGED BY THE EMPLOYER

Reservation of rights of use of site by Employer

B

The Architect reserves the right to use the site or the building or any portion thereof for the execution of any work or storage of materials not included in this Contract which he may decide to have carried out by other persons

C

The Contractor is to allow all reasonable access and facilities for the execution of such works but is not required to provide any plant or materials except by special arrangement and will hand over sections of the work as and when reasonable to enable such work to proceed

D

The Contractor is to afford facilities to the Employer, his Architect and/or any other persons authorized by them in or upon the building and site so that this work may proceed simultaneously with the progress of the Contract

E

The provisions of this clause do not relieve the Contractor of any of his obligations under the Contract

Tradesmen, etc., directly engaged by the Employer

F

The Contractor is to allow access for and permit the execution of work not forming part of this Contract to be carried out by contractors, tradesmen or others directly engaged by the Employer. Specific attendance upon, or builder's work in connection with such persons will not be paid for as an addition to the Contract Sum unless specifically authorized by the Architect.

**GENERAL FACILITIES AND OBLIGATIONS:
IMPLICIT IN THE CONTRACT AND AT THE
DISCRETION AND RISK OF THE CONTRACTOR**

Plant, tools and vehicles

A Notwithstanding any specific provisions measured in these Bills of Quantities in accordance with the SMM the Contractor shall provide and maintain during the carrying out of the work and remove on completion all necessary plant, tools, vehicles, etc., for the use of all trades and sub-contractors engaged upon the Works 3,000,000.00

Scaffolding

B The Contractor shall provide, erect, maintain, alter and adapt as necessary and dismantle when no longer required and remove on completion all necessary scaffolding or staging, including boards, for the whole of the Works including works to be carried out by nominated sub-contractors The Contractor must also provide here 25 x 25 square mesh as described earlier for protection of passers-by. 2,000,000.00

C Such scaffolding and staging shall include independent, suspended, putlog or mobile scaffolds, hoist or ladder towers, access platforms, gantries, safety rails and barriers, bricklayers, birdcage, hop-up or other scaffolding, staging or the like or any other temporary means of access either internal or external

D Any special scaffolding required by nominated sub-contractors is described in the relevant other attendance items in the Dayworks and Provisional and Prime Cost Sums" section of these Bills of Quantities"

E If the Contractor uses steel scaffolding, this will be painted or galvanized and kept free from rust. If any marks or damage are caused by rust from the scaffolding, the Contractor will be responsible for executing at his own expense all necessary remedial measures required by the Architect

TO COLLECTION

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Site administration and security

A The Contractor shall provide an agent or foreman and a sufficient number of men for the proper, complete and expeditious execution of the Works and supply any cartage, workmanship and materials which, although not specifically mentioned, may be nevertheless incidentally necessary for the proper completion of the work described herein. The foreman to be well informed, responsible and available on site at all times.

700,000.00

B The Contractor will be responsible for keeping all persons under his control including men employed by sub-contractors and all unauthorized persons within bounds and will be responsible for the safety of all new and existing buildings, materials, plant, etc., and for all damage to premises and property, roads, footways, fences and gates by workmen, lorries or from any other cause whatsoever

TO COLLECTION

700,000.00

A	The Contractor is to give the Architect seven days notice in writing prior to executing any work affecting adjoining properties or utility services	
B	No cutting through walls or floors is to be done other than as indicated by the drawings, without the sanction of the Architect and the Contractor will be held responsible for all damage arising through carelessness in this respect	
C	The Contractor will be held responsible for all damage to the property of the public utility service authorities and for the making good of or paying for all damage thereto	
D	The Contractor shall provide all watching and lighting on the site of the Works necessary for the carrying out of the Works	
<u>Transport for workpeople</u>		
E	The Contractor shall provide all necessary transport for operatives working on the site including those of sub-contractors.	1,500,000.00
<u>Protection of the Works from inclement weather</u>		
F	The Contractor shall protect the Works as necessary against damage or the harmful effects of weather conditions	
G	The Contractor will be expected, on the basis of weather forecasts, to anticipate the arrival of adverse weather in giving effect to the recommended procedures for protecting the works	
TO COLLECTION		1,500,000.00

Water for the Works

A

The Contractor shall provide water for the whole of the Works including that required by sub-contractors together with all necessary temporary connections, plumbing, storage, tools, fittings, etc., give notice to the local water supply authority, pay all charges and clear away all temporary works on completion and make good

1,000,000.00

Lighting and power for the Works

B

The Contractor shall provide all necessary and adequate temporary lighting and power including all necessary leads, lamps and fittings, etc., and pay all charges for electric current or other fuel consumed

Temporary roads, hardstandings and similar items

C

The Contractor shall provide all necessary temporary roads, paths, gangways, hardstandings, crossings, etc., into, on and around the site of the Works for lorries, carts, barrows, etc., including any necessary excavation or making up levels to ramps, etc., both for his own use and for the use of all sub-contractors and for the delivery of materials, etc., and for the proper execution of the Works. Provide 25 x 25 mm square mesh protection at all levels as earlier described.

TO COLLECTION

1,000,000.00

A	<p>The Contractor shall maintain, alter and adapt the foregoing as necessary during the carrying out of the Works and on completion or when no longer required, is to take up and remove them and make good all work disturbed</p>	
B	<p><u>Temporary accommodation for use of the Contractor</u></p>	
	<p>The Contractor shall provide suitable and approved offices for the agent, foreman, etc., and all other necessary temporary office and similar accommodation which he may require for his own and sub-contractors' workmen and proper storage accommodation for his own materials and for those supplied by nominated suppliers and pay all charges connected therewith.</p>	2,000,000.00
C	<p>The Contractor shall provide proper, temporary and approved latrine accommodation connected to main drainage where possible, for all workmen employed on the site and keep same clean and disinfected</p>	
D	<p>The Contractor shall allow for moving all such temporary office, latrine and storage accommodation and materials as necessary to meet the needs of the Works and taking down and clearing away on completion or when no longer required and making good all work disturbed</p>	
E	<p><u>Traffic regulations</u></p>	
	<p>The Contractor shall comply with all police regulations relative to movement of vehicles, standing vehicles, restrictions as to parking and the like</p>	
F	<p><u>Safety, health and welfare of workpeople</u></p>	
	<p>The Contractor shall provide such welfare and safety measures and amenities required by the nature and situation of the Works up to a suitable standard to the satisfaction of the Architect and Local Authorities; both for his workmen and those of sub-contractors</p>	500,000.00
TO COLLECTION		2,500,000.00

A In addition the Contractor shall ascertain and comply with the requirements of all local and statutory authorities in respect of safety and health precautions to be taken during construction having regard to the nature of the building to be erected

Disbursements arising from the employment of workpeople

B The Contractor shall comply with the requirements of any national or local trade agreements operating in the area in which the work is to be carried out

Disbursements arising from the employment of workpeople

(contd.)

C The Contractor, through his labour relations officer, will be expected to take all necessary steps to avoid disputes in collaboration with recognized trades union officials, and in this connection will be expected to provide welfare facilities to standards not less than those prescribed by the statutory regulations

Maintenance of public and private roads

D The Contractor shall clear all deposits of mud or clay from the public and private roads as they arise should such deposits be attributable to the vehicles of the Contractor and any supplier or sub-contractor under the Contract

Removal of rubbish, protective casings and coverings and cleaning the Works on completion

A

The Contractor shall remove all rubbish, debris and surplus material, etc., including that arising from sub-contractors' work, etc., at regular and frequent intervals during the carrying out of the Contract to maintain a clean and safe site and on completion clean all floors and pavings, clean all glass on both sides, remove all paint splashes, clean out all rainwater heads and down-pipes, drains, gullies, manholes, etc., touch up all paintwork and leave the whole of the Works in a clean and perfect condition to the satisfaction of the Architect in readiness for immediate occupation and use

1,000,000.00

Control of noise, pollution and all other statutory obligations

B

The adjoining and surrounding buildings will be in occupation during the course of this Contract and the Contractor is to allow in his prices and programming for carrying out the work so as to cause the minimum disturbance to the occupants and the exercise of all due precautions and for complying with all reasonable instructions from the Architect to achieve this

C

The Contractor shall make every endeavour to reduce construction noise to the minimum. All power tools shall have efficient silencing jackets

D

The Contractor shall take all necessary precautions to prevent nuisance from water, smoke, dust, rubbish and other causes

E

The Contractor must exercise care during demolition works. He must not collapse large sections of walls, roof etc and must provide all the necessary shoring and supports

F

During the demolition and carting/clearing away of subsequent debris, adequate watering is to be carried out to minimize dust.

TO COLLECTION

1,000,000.00

A	The Contractor is to comply with all statutory enactments and obligations not previously defined arising out of or as a direct consequence of the execution of the Works	
B	No claim will be admitted by reason of the Contractor having failed to comply with all or any of the foregoing conditions	
	<u>PROGRESS PHOTOGRAPH</u>	
C	The Contractor shall arrange for a selection of progress photographs to be taken each month throughout the Contract. The photographs will comprise twelve colour prints and twelve black and white prints suitably annotated and taken to show the various elements of the construction, both internally and externally.	6,000,000.00
D	All photographs will be sent to the Architect and will become his property.	
	TO COLLECTION	6,000,000.00
	<u>COLLECTION</u>	
	PRELIMS - PAGE 1	
	PRELIMS - PAGE 2	
	PRELIMS - PAGE 3	
	PRELIMS - PAGE 4	
	PRELIMS - PAGE 5	
	PRELIMS - PAGE 6	
	PRELIMS - PAGE 7	
	PRELIMS - PAGE 8	
	PRELIMS - PAGE 9	
	PRELIMS - PAGE 10	
	PRELIMS - PAGE 11	2,000,000.00
	PRELIMS - PAGE 12	2,000,000.00
	PRELIMS - PAGE 13	-
	PRELIMS - PAGE 14	-
	PRELIMS - PAGE 15	-
	PRELIMS - PAGE 16	1,000,000.00
	PRELIMS - PAGE 17	-
	PRELIMS - PAGE 18	700,000.00
	PRELIMS - PAGE 19	1,500,000.00
	PRELIMS - PAGE 20	1,000,000.00
	PRELIMS - PAGE 21	-
	PRELIMS - PAGE 22	1,000,000.00
	PRELIMS - PAGE 23	6,000,000.00
	TOTAL BILL NO. 1 - PRELIMINARIES & GENERAL CARRIED TO	
	GENERAL SUMMARY	15,200,000.00

ITEM No	DESCRIPTION OF WORK	UNIT	QTY	RATE	AMOUNT (TSHS)
	BILL NR.3 - PRIME COST AND PROVISIONAL SUMS				
	<u>PRIME COST SUMS FOR PUBLIC OR LOCAL AUTHORITY UNDERTAKERS</u>				
	Allow sums for				
A	connection to water main and provision of meter	-	Item	-	300,000.00
B	Add: General attendance	15%	Sum	-	45,000.00
C	connection to electrical supply and provision of meter	-	Item	-	300,000.00
D	Add: General attendance	15%	Sum	-	45,000.00
	<u>PROVISIONAL SUMS FOR WORKS OR COSTS WHICH CANNOT BE ENTIRELY FORESEEN, DEFINED OR DETAILED</u>				
	Allow sums for				
A	Plumbing and Engineering Installation		Sum		5,000,000.00
B	Electrical and Engineering installation		Sum		9,000,000.00
C	Landscaping		Sum	-	5,000,000.00
D	West and stormwater drainage	-	Sum	-	9,500,000.00
E	ICT		Sum		5,000,000.00
F	Contingency	-	Sum	-	5,000,000.00
TOTAL CARRIED TO SUMMARY TSHS.					39,190,000.00

BILL NO. 2: CT SCAN					
ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
<u>ELEMENT No.1: SUBSTRUCTURE</u> (Provisional)					
<u>EXCAVATION AND EARTHWORK</u>					
A	Clear site of bushes, shrubs, undergrowth, cutting small trees and the like including grubbing up their roots and remove from site	234	m ²	800.00	187,200.00
B	Excavate vegetable soil av.150mm depth commencing at ground level including cut away from spoil hips.	234	m ²	2,500.00	585,000.00
C	Excavate foundation trench commencing at formation level and not exceeding 1.50 metres deep	83	m ³	4,500.00	373,500.00
D	Excavate pit for column base commencing at formation level and not exceeding 1.50 metres deep	1	m ³	4,500.00	4,500.00
E	Extra over any kind of excavation for breaking up rocks and the like	31	m ³	20,000.00	620,000.00
F	Earth backfilling, well rammed and consolidated around foundations	26	m ³	4,500.00	117,000.00
G	Load up surplus excavated materials and remove from site	21	m ³	3,500.00	73,500.00
H	Selected excavated material, deposit, well compacted and consolidated to make up levels under floor; 300mm thick	57	m ²	4,500.00	256,500.00
<u>Disposal of water</u>					
I	Allow for keeping excavations free from water (except spring or running water) by pumping, baling or other means necessary		ITEM	500,000.00	500,000.00
<u>Planking and strutting</u>					
J	Allow for the provision and subsequent removal of planking and strutting to uphold and maintain all faces of excavations		ITEM	500,000.00	500,000.00
<u>Hardcore</u>					
K	200mm Bed levelled and blinded to receive polythene membrane (measured separately)	189	m ²	12,500.00	2,362,500.00
CARRIED FORWARD				TSHS.	5,579,700.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	5,579,700.00
	<u>Soil sterilization</u>				
A	Gammaline 20EC Solution or any other equal and approved quality; applied at a rate of 7 litres per square metre to hardcore bed	189	m ²	2,500.00	472,500.00
B	Ditto at rate of 8 litres per linear metre per 300mm depth per 235mm width to backfilling to one side of wall foundations	120	m	1,500.00	180,000.00
	<u>CONCRETE WORK</u>				
	<u>Plain concrete grade "10"</u>				
C	50mm Blinding to foundational columns.	2	m ²	125,000.00	250,000.00
	<u>Reinforced concrete grade "20" including vibrating around reinforcement</u>				
D	To sterter columns and the like.	1	m ³	250,000.00	250,000.00
E	Foundations footing	19	m ³	250,000.00	4,750,000.00
F	Ground beams	6	m ³	250,000.00	1,500,000.00
G	100mm Steps,ramp and the like	16	m ²	25,000.00	400,000.00
H	150mm thick concrete Bed	222	m ²	37,500.00	8,325,000.00
	<u>Reinforcement</u>				
I	Fabric reinforcement to BS 4483 ref. A252 weighing 3.95 kg per square metre laid in bed and ramps (Provisional)	222	m ²	12,000.00	2,664,000.00
	<u>High tensile hot rolled deformed steel bar reinforcement to BS 4449:1997</u>				
J	16mm diameter	40	Kg	3,500.00	140,000.00
M	12mmmm diameter for sterter base	107	Kg	3,500.00	374,500.00
O	8mm diameter	114	Kg	3,500.00	399,000.00
	CARRIED FORWARD			TSHS.	25,284,700.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	25,284,700.00
	<u>Sawn formwork to</u>				
A	Vertical sides of foundations, column bases	9	m	5,000.00	45,000.00
B	Vertical or battering sides of sterter columns	5	m ²	20,000.00	100,000.00
C	Vertical sides of ground beams and the like over 75 but not exceeding 250mm high	60	m	5,000.00	300,000.00
D	Vertical edge of oversite concrete bed	65	m	5,000.00	325,000.00
	<u>WALLING</u>				
	<u>Solid concrete blocks to BS 6073 type "A" bedded and jointed in cement mortar (1:3)</u>				
E	230mm Wall	103	m ²	32,000.00	3,296,000.00
	<u>Damp proof mebrane</u>				
G	500 Gauge polythene damp proof membrane laid over blinded hardcore (measured separately)	222	m ²	5,500.00	1,221,000.00
	<u>Finishes</u>				
H	12mm Cement and sand (1:3) external rendering to concrete blockwall	33	m ²	9,000.00	297,000.00
I	Prepare and apply one undercoat and two finishing coats of matt weather-guard paint to rendered plinth wall	33	m ²	9,000.00	297,000.00
	TOTAL CARRIED TO SUBSTRUCTURE			TSHS.	31,165,700.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
<u>ELEMENT No. 2: SUPERSTRUCTURE</u>					
<u>Blockwork</u>					
<u>Solid concrete blocks to BS 2028 type "A" bedded and jointed in cement mortar (1:4)</u>					
A	Hessian based damp proof course to BS 743 type "5A" 230mm wide laid horizontally on blockwork	109	m	2,500.00	272,500.00
B	230mm Wall	88	m ²	32,000.00	2,816,000.00
C	150mm Wall	331	m ²	28,000.00	9,268,000.00
<u>CONCRETE WORK</u>					
<u>Reinforced concrete grade "25" including vibrating around reinforcement</u>					
D	Ring beam generally and the like.	6	m ³	250,000.00	1,500,000.00
	Ditto but to Columns and the like.	1	m ³	250,000.00	250,000.00
<u>High tensile hot rolled deformed steel bar reinforcement to BS 4449:1997</u>					
	16mm diameter	40	Kg	3,500.00	140,000.00
E	12mm diameter	107	Kg	3,500.00	374,500.00
	8mm diameter	114	Kg	3,500.00	399,000.00
<u>Sawn formwork to</u>					
J	Vertical sides of column and the like.	15	m ²	20,000.00	300,000.00
K	Vertical or battering sides of ring beam.	59	m ²	20,000.00	1,180,000.00
L	Soffits of the ring beams 230mm thick wall	5	m ²	20,000.00	100,000.00
<u>Cills</u>					
N	450 x 75mm Rebated, weathered and throated cills finished fair all round	17	m	12,000.00	204,000.00
TOTAL CARRIED TO SUPERSTRUCTURE				TSHS.	16,804,000.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	ELEMENT NO. 3: ROOFING.				
	28 gauge IT5 resin coat aluminium roofing sheets fixing to timber purlins; fixed with nails with washer and caps; matching in colour as per Engineer's instruction not exceeding 45 degree from horizontal (As per the approved quality)				
	Roof covering; slope not exceeding 45 degrees.	197	m ²	52,000.00	10,244,000.00
	<u>Accessories in Gauge 22 Resin Colour coated Aluminium sheet to match roofing, fixing with drive screws to sheeting;</u>				
	Ridge capping; 550mm girth; three times bent; nailed to battens, twice fixed at 450mm centres	63	m	15,000.00	945,000.00
	Valley gutter; 550mm girth; three times bent; nailed to battens, twice fixed at 450mm centres	42	m	15,000.00	630,000.00
	<u>Sawn softwood pressure impregnated with preservative</u>				
	50 x 150mm Rafter	234	m	8,500.00	1,989,000.00
	50 x 150mm Ceiling joist, king posts, & struts.	112	m	8,500.00	952,000.00
	50 x 75mm Vallet rafter	97	m	3,500.00	339,500.00
	50 x 100mm Wall plates	120	m	7,500.00	900,000.00
	50 x 75mm Purlins	376	m	3,500.00	1,316,000.00
	50 x 100mm Members of roof truss	111	m	7,500.00	832,500.00
	Ditto but 25x225mm wide to fasciarboard, badgeboard and the like	180	m	25,000.00	4,500,000.00
H	Supply and install 16mm diameter heavy duty steel bolt,nut and washer on concrete beam ready for receiving roofing truss.	243	No.	25,000.00	6,075,000.00
	CARRIED FORWARD			TSHS.	28,723,000.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	28,723,000.00
C	3mm thick mildsteell gusset plate to strengthening strutss joint and the like.	162	No.	2,000.00	324,000.00
	TOTAL CARRIED TO ROOF.			TSHS.	29,047,000.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	<u>ELEMENT No. 4: DOORS</u>				
	<u>Joinery</u>				
	<u>Solid Core Flush Door to meet manufacturers' requirements as approved by the Project Manager</u>				
	<u>Flush doors</u>				
	<u>40mm thick Solid Core Flush Door; equally divided, comprising on both sides; 150mm metal kick plate at the bottom; 125mm metal bumper plate at the intermediate;; top panel with slit having 6mm thick clear sheet glass faced both sides; styles and rails with approved hardwood timber quality; 4mm exterior quality plywood; 12mm hardwood lipping glued with approved adhesives, pinned on all edges to Project Manager's instructions</u>				
A	Door D1; size 1000x2100mm;	6	No.	630,000.00	3,780,000.00
B	Ditto; Door D2; size 1500x2100mm; ditto; Double Swing with SLIT 2	2	No.	945,000.00	1,890,000.00
	Steel CT Scan door as manufactured by Tanzania Engineering and manufacturing design organization of P.O.Box 6111 arusha; complete with iron mongery (CT Scanner)	1	No.	1,000,000.00	1,000,000.00
	<u>Frames and finishings</u>				
D	45 x 150mm Frame with one labour fixed to grounds (measured separately)	45	m	15,000.00	675,000.00
E	45 x 150mm Transome with one labour	6	m	15,000.00	90,000.00
F	45 x 150mm Mullions with one labour	12	m	15,000.00	180,000.00
G	15 x 45mm Moulded Architrave	57	m	8,500.00	484,500.00
H	40 x 15mm Sprayed glazing beads	45	m	5,500.00	247,500.00
I	40 x 15mm door stop	57	m	5,500.00	313,500.00
J	50x50mm pressure imprignanted softwood to branering 600mm C/C	390	m	2,500.00	975,000.00
	<u>Sawn hardwood third grade</u>				
K	15 x 100mm Grounds, plugged	57	m		-
	CARRIED FORWARD			TSHS.	9,635,500.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	9,635,500.00
	<u>Glazing</u>				
	<u>6mm Thick polished clear plate glass</u>				
A	Panes over 0.10 but not exceeding 0.50 square metres	6	m ²	120,000.00	720,000.00
	<u>Ironmongery</u>				
	<u>Supply and fix the following Iron mongery as per HAFELE GmbH+Co, Post Fach 1237, D-72192 Ngold Project Services Department; Tel No. + 497452/95-284. E-mail: dialock@hefele.de or any other equal and approved quality fixed with screws to hardwood timber.</u>				
B	Cylinder mortice lockset complete with furniture; set to reference A-LS-C85-306-SNP	7	No.	75,000.00	525,000.00
C	Toilet mortice lockset; indicator bolts or any other equal and approved quality; complete with furniture	1	No.	75,000.00	75,000.00
D	Stainless steel polished flush bolts; 151mm long, Cat. No. 911.62.333 or any other equal and approved quality	4	No.	35,000.00	140,000.00
E	150x75mm Aluminium stainless steel brass butt hinges	17	Prs.	45,000.00	765,000.00
F	38mm diametre, rubber floor mounted door stopper	9	No.	15,000.00	135,000.00
G	Name plates on doors; 'Gibbons' card holder with side entry; sample to be approved (provisional)	10	No.	25,000.00	250,000.00
H	Signage to all potential areas; to be identified by users; (sample to be approved).	10	No.	45,000.00	
I	Stainlessless UNION push plate ; S-PUSH-400-100-SS; size 400x100 SSS	10	No.	45,000.00	450,000.00
J	Stainlessless UNION pull plate; PHP-400-100-SSS; size 400 x 100 SSS	10	No.	45,000.00	450,000.00
K	Stainless steel UNION kick plate; KP-750-200-SSS; size 750 x 200 SSS	10	No.	45,000.00	450,000.00
	<u>TOTAL CARRIED DOORS</u>			TSHS.	12,245,500.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	<u>ELEMENT No. 5: WINDOWS</u>				
	<u>Metalwork</u>				
	<u>Supply and fix Natural Anodised Aluminium framing to pattern; neoprene gasket for bedding nylon brusher at the head; and rails and stainless screws approved by the Project Manager, including mosquito gauze and 6mm thick single glazed glass (either clear or frosted glass as shall be determined by the location usage); bedding in approved compound and fixing to concrete background; including all necessary accessories, ironmongery, cutting and pinning lugs and bedding frame in cement mortar</u>				
	(Note: To be executed by the Proven Specialist Contractor)				
A	Window type W1 size 1800 x 1800mm overall height	9	No.	777,600.00	6,998,400.00
B	Window type W2 size 600 x 900mm overall height	1	No.	129,600.00	129,600.00
C	Allow sum amount for installation of 1Nr. CT SCAN Control window as per the Archtect Instruction (Provisional).		Sum		650,000.00
	<u>Metal grille</u>				
	<u>Supply and fix mild steel grille comprising of Rectangular hollow section 38 x 38mm framing, 5 x 40mm flat bar welded to framing at 148mm centre cross grid to an approved pattern; complete with rust resistant hardware; including fixing to concrete or blockwork;</u>				
D	Window type W1 size 1800 x 1800mm overall height	9	No.	356,400.00	3,207,600.00
E	Window W2 size 600 x 900mm overall height	1	No.	59,400.00	59,400.00
	<u>TOTAL CARRIED TO WINDOWS</u>			TSHS.	11,045,000.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	<u>ELEMENT No. 6 - FINISHINGS</u>				
	<u>External plastering in two coats steel trowelled to a smooth finish</u>				
A	22mm render to walls, externally	191	m ²	12,000.00	2,292,000.00
	<u>Internal plastering in two coats steel trowelled to a smooth finish</u>				
B	15mm to block wall surface and the like.	380	m ²	9,000.00	3,420,000.00
C	15mm to columns surface	10	m ²	9,000.00	90,000.00
D	15mm to rear and front verrandah	24	m ²	9,000.00	216,000.00
E	15mm sides and soffites of beams	9	m ²	9,000.00	81,000.00
	<u>Tiles, slab or block finishings</u>				
	<u>Coloured porcelain non-glazed floor tiles or other equal and approved with cushion edges fixed to screed with adhesive and pointed with coloured grout</u>				
F	600 x 600 x 12mm Tiling to floors	222	m ²	50,000.00	11,100,000.00
G	150mm high skirting with splayed edge	174	m	7,500.00	1,305,000.00
H	150mm high risers to treads;	39	m	7,500.00	292,500.00
I	Ditto; to treads; 300mm wide steps ramp and the like.	11	m ²	15,000.00	165,000.00
	<u>White glazed ceramic wall tiles with cushion edges to BS 1282 fixed to backing with adhesive and pointed with white grout EX R.A.K</u>				
J	300 x 400 x 6mm Tiling to walls	35	m ²	40,000.00	1,400,000.00
	CARRIED FORWARD			TSHS.	20,361,500.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	20,361,500.00
	<u>White glazed ceramic wall tiles with cushion edges to BS 1282 fixed to backing with adhesive and pointed with white grout EX R.A.K</u>				
	<u>Cement and sand (1:4)</u>				
A	40mm Bed to receive floor finish	222	m ²	6,000.00	1,332,000.00
B	20mm Backing to receive wall tiles (measured separately)	35	m ²	2,500.00	87,500.00
	<u>Plain sheet finishing.</u>				
C	9mm thick gypsumboard ceiling fixing with matching screws to 50x50mm softwood brandering;600mm c/c and the like.	222	m ²	25,000.00	5,550,000.00
D	45x75mm cornices	174	m	7,500.00	1,305,000.00
E	600x600x9mm thick access panel and the like	1	No.	65,000.00	65,000.00
	<u>TOTAL CARRIED TO FINISHINGS</u>			TSHS.	28,701,000.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	<u>ELEMENT NO. 8 - DECORATIONS</u>				
	<u>Internal work</u>				
	<u>Prepare silicon based paint and apply one thinned coat of acrylic primer; one coat of STUCCO surfacer and one finishing coat matt finished paint onto:</u>				
A	Plastered walls intenaryly	380	m ²	9,000.00	3,420,000.00
B	To columns surface	10	m ²	9,000.00	90,000.00
C	To front verrandah surafce and the like.	24	m ²	9,000.00	216,000.00
	<u>Prepare and prime only wood surfaces before fixing</u>				
E	Frames and the like over 100 but not exceeding 200mm girth	45	m	1,800.00	81,000.00
	<u>External work</u>				
	<u>Prepare and apply one primer coat and two finishing coats of Galaxy weatherguard paint or other equal and approved</u>				
F	Rendered walls	191	m ²	9,000.00	1,719,000.00
G	Rendered surfaces of concrete cill over 100 but not exceeding 200mm girth	17	m	1,800.00	30,600.00
H	Ceiling	222	m ²	9,000.00	1,998,000.00
	<u>TOTAL CARRIED TO DECORATIONS</u>			TSHS.	7,554,600.00

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
ELEMENT NO. 9 - ELECTRICAL INSTALLATION					
FLOOR PLAN					
Power Distribution.					
A	8 Ways TPN distribution board (DB) with integral 100A/300mA RCD incomer and final circuit MCBs of 10A SP (5No),20A SP(10No), 32A SP(2No) and 45A TP (2No)as ABB TYPE or APROVED EQUIVALENT.	1	nr	800,000	800,000
B	4C x 25mm ² XLPE/SWA/Cu,PVC/ PVC cable from DB to TANESCO connection.	30	m	78,500	2,355,000
C	1C x 16mm ² Cu,PVC Green/Yellow earth cable.	30	m	12,000	360,000
D	100mm diameter heavy gauge PVC Pipe	20	m	3,500	70,000
Small Power Distribution					
E	25mm diameter heavy gauge PVC conduits concealed underwalls and roof floors from distribution Boards to all power outlet points	171	pcs	2,500	427,500
F	Single core 2.5 sqmm PVC copper cables from distribution Boards to all power outlet points	10	roll	110,000	1,100,000
G	Trunking Installations;3-compartment PVC trunking 170 x 50mm to be recessed on walls(flush) and installed at skirting level complete with all necessary fixing accessories as MK	30	m	45,000	1,350,000
H	2 x 13A raw power switched socket outlet complete with back box as Legrand or approved equivalent	15	nr	18,000	270,000
J	Telecommunication point back box	15	nr	6,000	90,000
K	20A DP switch for A/C and H/D as Legrand or approved equivalent	11	nr	28,000	308,000
Page One					
CARRIED FORWARD				TSHS.	7,130,500

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	7,130,500
	Light Fittings				
L	20mm diameter heavy gauge PVC conduits concealed underwalls and roof floors from distribution Boards to all lighting outlet points and fixtures	142	pcs	2,000	284,000
M	Single core 1.5 sqmm PVC copper cables from distribution Boards to all lighting outlet points	13	roll	80,000	1,040,000
N	LIGHTING TYPE A: CEILING SURFACE MOUNTED LINE LIGHT WITH FLOURESCENT 2X16W (LED ECOMAX T8 BATTERN),PRODUCT NO. LED-E-T8-1200MM-16W-3000L-CT BY OPPLER TYPE OR APPROVED EQUIVALENT	18	nr	70,000	1,260,000
O	LIGHTING TYPE C: SURFACE MOUNTED DOWNLIGHT DECORATIVE BULKHEAD FITTING FOR(LED SURFACE/WALL)WITH PRODUCT NO.HC 420 23W 5700K WHITE BY OPPLER TYPE OR APPROVED EQUIVALENT	1	nr	65,000	65,000
P	LIGHT TYPE D: :LEDS DOWNLIGHT RC-ESII R100-12W-6000 WH NV WITH SAP CODE 140053271 AS OPPLER TYPE OR APPROVED EQUIVALENT	2	nr	55,000	110,000
Q	LIGHTING TYPE F: wall light,stainless steel wall light with white polycarbonate diffuser,IP65 rated,recommended for use with max 11W screw GLS BULB,complete with lamp by Tropical OPPLER or approved equivalent.	8	nr	65,000	520,000
R	One way 1 gang light switch as Legrand or equivalent	5	nr	15,000	75,000
S	One way 2 gang light switch as Legrand or equivalent	3	nr	18,000	54,000
	CARRIED FORWARD			TSHS.	10,538,500

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	10,538,500
	MAIN SUPPLY				
T	Earth rods and its complete accessories	1	sum	500,000	500,000
U	45A three phase isolator	1	nr	170,000	170,000
V	32A single phase isolator complete with its cover for water pump	1	nr	85,000	85,000
W	3C x 6mm ² Cu,PVC/ PVC cable for water pump	30	m	13,000	390,000
	ICT INSTALLATIONS				
	STRUCTURED CABLING				
A	Dual RJ 45 wall face plate complete with modules,spring shutter and cabling field for Cat 6 cabling	14	nr	25,000	350,000
B	4-pair unshielded twisted pair cable(UTP),Cat6(305)	2	roll	320,000	640,000
C	48 ports Rj45 data and voice patch panel	1	nr	230,000	230,000
D	48 ports Rj45 Cisco Switch,cat 6	1	nr	6,000,000	6,000,000
E	1m RJ45 patch code	28	nr	8,500	238,000
F	Patch guide (cable organizer)	2	nr	75,000	150,000
G	22U voice and data cabinet with 2 heat extract fans and 6 ways power distribution unit (PDU) and glass door.	1	nr	800,000	800,000
H	Provide adequate earthing to voice cabinet as per IEE Regulations	1	item	450,000	450,000
J	1.5kVA -UPS and Back up batteries	1	Lot	1,500,000	1,500,000
K	3m RJ45 patch code	28	nr	25,000	700,000
	CARRIED FORWARD			TSHS.	22,741,500

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	22,741,500
	WATER SUPPLY				
	Water supply connection				
	Allow for Connection from nearest existing water supply pipe to wet areas including supply pipe, valves and other associated fittings.				
A	Allow for Connection from nearest existing water supply pipe to wet areas including supply pipe, valves and other associated fittings.	1	item	1,000,000	1,000,000
	Duplicate two water booster pumps each with capacity 3m ³ /hr at 15m head, complete with pressure tank, control panel, dry running protection and all necessary accessories, manufactured by Grundfos or similar equal approved. There should be two pumps, one operating and the other standby				
B	Duplicate two water booster pumps each with capacity 3m ³ /hr at 15m head, complete with pressure tank, control panel, dry running protection and all necessary accessories, manufactured by Grundfos or similar equal approved. There should be two pumps, one operating and the other standby	1	set	4,500,000	4,500,000
C	Simtank with a capacity of 3,000Litres	1	nr	850,000	850,000
D	Simtank with a capacity of 5,000Litres	1	nr	1,200,000	1,200,000
	Valves, flanges, pressure ball valve and all necessary fittings for underground water tank				
E	Valves, flanges, pressure ball valve and all necessary fittings for underground water tank	1	Item	250,000	250,000
	Allow for elevated tower 8m height, capacity of 3000litres				
F	Allow for elevated tower 8m height, capacity of 3000litres	1	item	250,000	250,000
	PIPING				
	PPR pipe (Dayan GROUP) and tubing class "6" to BS 4554 or approved equivalent				
	Pipes				
G	20mm diameter	7	pcs	30,000	210,000
	Allow for Pipe fittings i.e. elbow, female elbow, female tee, sockets, reducer, union, threaded plug etc.				
H	Allow for Pipe fittings i.e. elbow, female elbow, female tee, sockets, reducer, union, threaded plug etc.	1	item	250,000	250,000
I	15mm diameter flexible pipe connectors	2	nr	15,000	30,000
J	15mm diameter chrome angle valve	3	nr	15,000	45,000
	Accessories & Equipment's				
K	Allow for Metal pipe clamp, made of rubber/steel	1	item	300,000	300,000
	CARRIED FORWARD			TSHS.	31,626,500

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	31,626,500
L	Allow for Fusing machine (electro fusion machine) made of metal	1	set	500,000	500,000
M	Testing pressure pump (GM0030)	1	nr	600,000	600,000
	FIRE FIGHTINGS				
	PORTABLE FIRE EXTINGUISHER				
N	Fire extinguisher bottles ,by NAFFCO or equal approved of Dry powder (ABC), 5kg mounted on wall	1	nr	320,000	320,000
O	Fire extinguisher bottles, by NAFFCO or equal approved of Carbon dioxide (Co2), 5kg mounted on wall	1	nr	320,000	320,000
P	Mounting brackets	1	nr	50,000	50,000
	WASTE WATER DRAINAGE				
	Drainage and storm water pipes				
Q	Heavy duty cast iron or ductile iron manhole cover & frame of 600mm x 600mm in size.(air tight covers)	4	nr	200,000	800,000
R	Heavy duty cast iron or ductile iron cover & frame of 300mm x 300mm in size.(air tight covers)	1	nr	150,000	150,000
S	Galvanized steel wire balloon set on top of vent pipe and covered with mosquito gauze, 100mm diameter	1	nr	120,000	120,000
	Storm water (pipe work)				
T	100mm diameter uPVC down pipe, complete with fittings and fixtures	7	pcs	40,000	280,000
U	150mm diameter rain water gutter 6m length	13	pcs	55,000	715,000
V	Metal pipe clamp, made of rubber/steel Ø100mm	30	pcs	4,500	135,000
	Union				
	CARRIED FORWARD			TSHS.	35,616,500

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	35,616,500
W	100mm diameter, UPVC Drainage Pipes Class "B" to BS 8301 - 1985 uPVC pipe	10	pcs	40,000	400,000
A	100mm diameter, uPVC pipe	30	pcs	40,000	1,200,000
B	50mm diameter, UPVC pipe	1	pcs	20,000	20,000
C	Allow for pipe fittings ; elbow, tee, reducer etc	1	item	250,000	250,000
	PIPE CLAMPS				
D	allow for pipe supports/ clamps	1	item	150,000	150,000
E	PVC Cement glue 1000g	1	nr	25,000	25,000
F	Supply, install, test and commission Floor drain, 50mm diameter outlet, uPVC	1	nr	15,000	15,000
	SANITARY APPLIANCES				
G	European type WC;as to RAK, Jaguar ARS-WHT-39201P&S; or equal approved Close coupled floor standing with complete combination wash down outlet, dual flush cistern fittings 2.5litres or less for half flush and 3.5litres or less for full flush, seat and cover and all accessories. "P" or "S" trap pans; bedding outlets in mastic; fixing with brass screws to backgrounds requiring plugging.	1	nr	850,000	850,000
H	Hand wash basin as to RAK or equal approved; semi-pedestal type - 500x420x480mm (LxWxH), complete with tap mixer capable to discharge water at a flow rate of 2litres/min. or less. Fixing with screws to backgrounds requiring plugging	1	nr	550,000	550,000
I	Shataff;ABS chrome with supreme Hose and wall holder as to RAK, Jaguar ALD-BLK-583 or equal approved	1	nr	65,000	65,000
	CARRIED FORWARD			TSHS.	39,141,500

ITEM	DESCRIPTION	QTY	UNIT	RATE TSHS.	AMOUNT (TSHS)
	BROUGHT FORWARD				39,141,500
J	Soap dispenser-Push button; Wall mounted Capacity:0.8L materials; Finish: White/Smoke, SDR- WHT as to Jaguar or equal approved	1	nr	45,000	45,000
K	Mirrors; overall size 600 x 450mm high, fixed to wall with CP screw and caps	1	nr	85,000	85,000
L	Toilet paper holder; chrome as to Jaguar ACN-CHR- 1153N(1153S) or equal approved fixing with brass screws to backgrounds plugging	1	nr	45,000	45,000
	AIR CONDITIONING INSTALLATIONS				
	Wall mounted type cooling only Indoor/ Fan Coil Unit:				
	Wall mounted type indoor unit conditioner of LG Brand or Approved Equivalent. Each Set shall be completed with wired controller/ wireless remote controller Type of refrigerant should be R410A/ R407C				
A	Cooling capacity:10.6kW	2	nr	6,500,000	13,000,000
B	Cooling capacity:7.1kW	1	nr	5,600,000	5,600,000
C	Cooling capacity:3.6kW	4	nr	4,100,000	16,400,000
D	AVS , 230V, 50HZ, 15mps to LG brand	7	nr	2,650,000	18,550,000
	Refrigerant Piping:				
	Single copper piping system for liquid and vapor refrigerants, run in vertical/horizontal trunk insulated with "Armaflex" or similar to be approved				
E	6.35mm	1	Roll	150,000	150,000
F	9.52mm	4	Roll	250,000	1,000,000
G	15.88mm	2	Roll	300,000	600,000
	CARRIED FORWARD			TSHS.	94,616,500

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
	BROUGHT FORWARD			TSHS.	94,616,500
H	Mounting brackets	7	Set	45,000	315,000
I	3Cx2.5 mm ² flexible cable for air conditioning	1	Roll	150,000	150,000
	Condensate drainage piping				
	Drainage pipe UPVC complete with all associated fittings. Support inclusive.				
J	25 mm dia with insulation	10	pcs	25,000	250,000
K	PVC Cement glue 1000g	1	nr	25,000	25,000
	TOTAL ELECT. PLUMB, AC AND FIRE			TSHS	95,356,500

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (TSHS)
<u>SUMMARY</u>					
<u>REGIONAL CT SCAN</u>					
A	Element No.1: Substructure:			TSHS.	31,165,700
B	Element No.2: Superstructure:			TSHS.	16,804,000
C	Element No.3: Roofing:			TSHS.	29,047,000
D	Element No.4: Doors:			TSHS.	12,245,500
E	Element No.5: Windows:			TSHS.	11,045,000
F	Element No.7: Finishing:			TSHS.	28,701,000
G	Element No.8: Decoration:			TSHS.	7,554,600
H	Element No.9: Electr. Plumb., AC and Fire:			TSHS.	95,356,500
I					
	TOTAL, CT SCAN BLOCK.				231,919,300

GENERAL SUMMARY

S/N.	DESCRIPTION OF WORK	PAGE	TOTAL (TSHS.)
A	BILL NR;1 :PRELIMINARIES.	TSHS.	15,200,000.00
B	BILL NR;2 : CT SCAN BLOCK. (BUILDER,S WORKS+ SERV.)	TSHS.	231,919,300.00
C	BILL NR. 3 : PC & PROVISION SUM	TSH	39,190,000.00
	SUB TOTAL No. 1	TSHS.	286,309,300.00
	ADD VAT 18%	TSHS.	51,535,674.00
	GRAND TOTAL	TSHS.	337,844,974.00



TANZANIA

C.1



Certificate of Incorporation of a Company

Section 15

No: 148584893

I HEREBY CERTIFY THAT

SHUBTEC GROUP LIMITED

is this day incorporated under the Companies Act, 2002
and that the Company is Limited.

GIVEN under my hand at Dar es Salaam this 30th day of
DECEMBER TWO THOUSAND AND TWENTY.

Certified as a True Copy of the Original
Sign: *[Signature]* Date: 22/12/2022
LILIAN B. LYIMO
Advocate, Notary
Public & Commissioner for Oaths

[Signature]

PRINC ASST. REGISTRAR OF COMPANIES



CTIN

693288



TANZANIA REVENUE AUTHORITY

CERTIFICATE OF REGISTRATION FOR TAXPAYER IDENTIFICATION NUMBER (TIN)

ISSUED UNDER SECTION 27(6) THE TAX ADMINISTRATION ACT 2004

THIS IS TO CERTIFY THAT

SHUBTEC GROUP LIMITED

HAS BEEN REGISTERED WITH THE TANZANIA REVENUE AUTHORITY
AND ASSIGNED THE TAXPAYER IDENTIFICATION NUMBER

148-584-893

WITH EFFECT FROM: **30 December 2020**

TRA LOCATION: **KINONDONI**

TAX OFFICE: **MWENGE**

PHYSICAL LOCATION: **PLOT No. 4 BLOCK No. 45A**

STREET / AREA: **KIJITONYAMA**

Certified as a True Copy of the Original
Sign: *[Signature]* Date: *22/4/2022*
LILIAN B. LYIMO
Advocate, Notary
Public & Commissioner for Oaths

HERBERT M.T. KABYEMELA
COMMISSIONER FOR DOMESTIC REVENUE

OFFICIAL SEAL

WAZO: CHA NA KUMPAWA KUNDER WAKUWA JIJIWA KUPAKA WAZO NA KUMPAWA KUNDER



TANZANIA REVENUE AUTHORITY

Certificate of Registration for Value Added Tax (VAT)

(ISSUED UNDER SECTION 20 OF THE VALUE ADDED TAX ACT NO. 24 OF 1997)

THIS IS TO CERTIFY THAT

SHUBTEC GROUP LIMITED

WHOSE TAXPAYER IDENTIFICATION NUMBER (TIN) IS

148-584-893

**HAS BEEN REGISTERED FOR VALUE ADDED TAX (TAX)
AND ASSIGNED VAT REGISTRATION NUMBER (VRN)**

40-046656-M

FOR BUSINESS LOCATED AT


**KIJITONYAMA 4
Dar es Salaam**


WITH EFFECT FROM

GIVEN UNDER MY HAND 19 April 2022

THIS DAY OF

19th April 2022

Certified as a True Copy of the Original
Sign:  Date: 22/4/2022
LILIAN B. LYIMO
Advocate, Notary
Public & Commissioner for Oaths


COMMISSIONER FOR VAT
HERBERT M.T. KABYEMELA





ISO 9001: 2015 CERTIFIED

TAX CLEARANCE CERTIFICATE

(Issued Under Regulation 103 of Tax Administration (General) Regulations, 2016)

Licencing Authority, TIN : 101-186-555
 HALMASHAURI YA MANISPAA YA KINONDONI
 MAGOMENI MAKUTI
 P. O. Box 31902
 DAR ES SALAAM

Tax Certificate Number:

131-0122-7771

Issuing Office: Kinondoni

Telephone: 022-2771841

Date of issue: 24 March 2022

Expiry Date: 31 December 2022

Taxpayer Name	SHUBTEC GROUP LIMITED		
Trading Name			
Taxpayer Identification Number	148-584-893	Vat Registration Number	
Company Registration Number			

Business Premises located at: Plot Number 4; Block Number 45A; Street KIJITONYAMA

This is to certify that the above registered Taxpayer has complied with tax laws and has been granted Tax Clearance Certificate with respect to the following business(es):

1	Electric power generation, transmission and distribution
2	Steam and air conditioning supply
3	Water collection, treatment and supply
4	Construction of buildings
5	Retail sale of pharmaceutical and medical goods, cosmetic and toilet articles in specialized stores

HERBERT M.T. KABEMELA
 COMMISSIONER FOR DOMESTIC REVENUE

24 March 2022



Certified as a True Copy of the Original

Sign: Date: 23/4/2022

LILIAN B. LYIMO
 Advocate, Notary
 Public & Commissioner for Oaths

Disclaimer :

1. This certificate is issued free of charge

THE UNITED REPUBLIC OF TANZANIA

00003569

OSHA 1B



OCCUPATIONAL SAFETY AND HEALTH AUTHORITY

CERTIFICATE OF REGISTRATION OF A FACTORY/WORKPLACE

I hereby certify that the workplace named below has been dully registered in pursuant of section 17(2) of The occupational Health and Safety Act.5 of 2003. with registration number

207 102 056

Name of the Occupier / Owner

SHUBTEC GROUP LIMITED - HEAD OFFICE

With Effects from **September 16, 2021**

Address and Location: **Plot 4, Block 45 "A", Kumbukumbu. Kinondoni Municipal Dar es Salaam**

Region : **Dar es Salaam** District: **Kinondoni**

Ward : **KINONDONI** Street / Village: **Kumbukumbu**

Nature of Work : **SELLING AND SUPPLIES OF MEDICAL AND LABORATORY EQUIPMENT**

Industrial Classification : **Retail sale of pharmaceutical and medical goods, cosmetic and toilet articles in specialized stores**

SORT CODE



Certified as a True Copy of the Original
Sign: *[Signature]* Date: *22/4/2022*
LILIAN B. LYIMO
Advocate, Notary
Public & Commissioner for Oaths

Khadija H. Mwenda
CHIEF INSPECTOR



No. 7340

CONTRACTORS REGISTRATION BOARD
CERTIFICATE OF REGISTRATION

This is to Certify that

Shubtec Group Limited

is registered as

BUILDING CONTRACTOR

Class Five

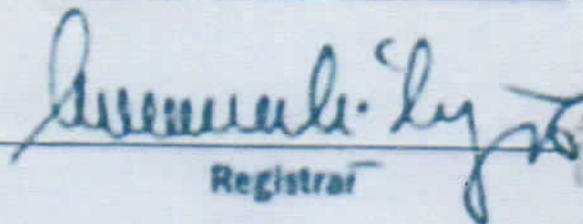
Registration No. B6/1408/01/2021 Category Local

In accordance with the provisions of The Contractors Registration

Act No. 17 of 1997

In witness whereof the common seal has been affixed

hereto on this 19th day of January, 2021


Registrar




Chairman

GENERAL CONDITIONS OF CONTRACT

i) General Provisions	
1.1 Definition	In these Conditions of Contract, (General Conditions and Special Conditions), the following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.
1.1.1 The Contract	<p>“Contract” means the Contract entered between the Employer and the Contractor for design and construction of works.</p> <p>“Letter of Acceptance” means the letter of formal acceptance of the bid, signed by the Employer and communicated to the Contractor.</p> <p>“Form of Bid” means the document entitled Form of Bid, which was completed by the Contractor and includes the signed offer to the Employer for the works.</p> <p>“Employer’s Requirement” means the document entitled Employer’s Requirement, as included in the Contract, and any additions and modifications to the Employer’s Requirement in accordance with the Contract. Such document specifies the Works.</p> <p>“Drawings” means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Employer in accordance with the Contract.</p> <p>“Schedules” means the document(s) entitled schedules, completed by the Contractor and submitted with the Form of Bid, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.</p> <p>“Bid” means the Form of Bid and all other documents which the Contractor submitted with the Form of Bid, as included in the Contract.</p> <p>“Bill of Quantities” and “Day Work Schedule” and “Schedule of Payment Currencies” mean the documents so named (if any) which are comprised in the Schedules.</p>
1.1.2 Parties and Persons	“Party” means the Employer or the Contractor, as the context requires.

	<p>“Employer” means the person named as Employer in the Special Conditions of Contracts (SCC) and the legal successors in title to this person.</p> <p>“Contractor” means the person(s) named as contractor in the Form of Bid accepted by the Employer and the legal successors in title to this person(s).</p> <p>“Project Manager” means the person appointed by the Employer to act as the Project Manager for the purposes of the Contract and named in the SCC, or other person appointed from time to time by the Employer and notified to the Contractor under GCC 3.4 [Replacement of the Project Manager].</p> <p>“Contractor’s Representative” means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under GCC 4.3 [Contractor’s Representative], who acts on behalf of the Contractor.</p> <p>“Employer’s Personnel” means the Project Manager, the assistants referred to in GCC 3.2 [Delegation by the Project Manager] and all other staff, labour and other employees of the Project Manager and of the Employer; and any other personnel notified to the Contractor, by the Employer or the Project Manager, as Employer’s Personnel.</p> <p>“Contractor’s Personnel” means the Contractor’s Representative and all personnel whom the Contractor utilises on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.</p> <p>“Subcontractor” means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.</p> <p>“Dispute Adjudication Panel (DAP)” means the person or three persons appointed under GCC 20.3 [Appointment of the Dispute Board] or GCC 20.3 [Failure to Agree on the Composition of the Dispute Board]</p>
<p>1.1.3 Dates, Tests, Periods and Completion</p>	<p>“Base Date” means the date 28 days prior to the latest date for submission of the Bid.</p>

	<p>“Commencement Date” means the date notified under GCC 8.1 [Commencement of Works].</p> <p>“Time for Completion” means the time for completing the Works or a Section (as the case may be) under GCC 8.2 [Time for Completion], as stated in the SCC (with any extension under GCC 8.4 [Extension of Time for Completion]), calculated from the Commencement Date.</p> <p>“Tests on Completion” means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under GCC 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Employer.</p> <p>“Taking-Over Certificate” means a certificate issued under GCC 10 [Employer’s Taking Over].</p> <p>“Tests after Completion” means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Employer’s Requirement after the Works or a Section (as the case may be) are taken over by the Employer.</p> <p>“Defects Liability Period” means the period for notifying defects in the Works or a Section (as the case may be) under GCC 11.1 [Completion of Outstanding Work and Remedying Defects], which extends over twelve months except if otherwise stated in the SCC (with any extension under GCC 11.3 [Extension of Defects Liability Period]), calculated from the date on which the Works or Section is completed as certified under GCC 10.1 [Taking Over of the Works and Sections].</p> <p>“Performance Certificate” means the certificate issued under GCC 11.9 [Performance Certificate].</p> <p>“day” means a calendar day and “year” means 365 days.</p>
<p>1.1.4 Money and Payments</p>	<p>“Accepted Contract Amount” means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.</p> <p>“Contract Price” means the price defined in GCC 14.1 [The Contract Price], and includes adjustments in accordance with the Contract.</p> <p>“Cost” means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site,</p>

	<p>including overhead and similar charges, but does not include profit.</p> <p>“Final Payment Certificate” means the payment certificate issued under GCC 14.13 [Issue of Final Payment Certificate].</p> <p>“Final Statement” means the statement defined in GCC 14.11 [Application for Final Payment Certificate].</p> <p>“Foreign Currency” means a currency in which part (or all) of the Contract Price is payable, but not the Local Currency.</p> <p>“Interim Payment Certificate” means a payment certificate issued under GCC 14 [Contract Price and Payment], other than the Final Payment Certificate.</p> <p>“Currency” means the currency of the Country.</p> <p>“Payment Certificate” means a payment certificate issued under GCC 14 [Contract Price and Payment].</p> <p>“Provisional Sum” means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under GCC 13.5 [Provisional Sums].</p> <p>“Retention Money” means the accumulated retention moneys which the Employer retains under GCC 14.3 [Application for Interim Payment Certificates] and pays under GCC 14.9 [Payment of Retention Money].</p> <p>“Statement” means a statement submitted by the Contractor as part of an application, under GCC 14 [Contract Price and Payment], for a payment certificate.</p>
<p>1.1.5 Works and Goods</p>	<p>“Contractor’s Equipment” means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor’s Equipment excludes Temporary Works, Employer’s Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.</p> <p>“Goods” means Contractor’s Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.</p> <p>“Materials” means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works,</p>

	<p>including the supply-only materials (if any) to be supplied by the Contractor under the Contract.</p> <p>“Permanent Works” means the permanent works to be executed by the Contractor under the Contract.</p> <p>“Plant” means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Employer and relating to the construction or operation of the Works.</p> <p>“Section” means a part of the Works specified in the SCC as a Section (if any).</p> <p>“Temporary Works” means all temporary works of every kind (other than Contractor’s Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.</p> <p>“Works” mean the Permanent Works and the Temporary Works, or either of them as appropriate.</p>
<p>1.1.6 Other Definitions</p>	<p>“Contractor’s Documents” means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.</p> <p>“Country” means the country in which the Site (or most of it) is located, where the Permanent Works are to be executed.</p> <p>“Employer’s Equipment” means the apparatus, machinery and vehicles (if any) made available by the Employer for the use of the Contractor in the execution of the Works, as stated in the Employer’s Requirement; but does not include Plant which has not been taken over by the Employer.</p> <p>“Force Majeure” is defined in GCC 19 [Force Majeure].</p> <p>“Laws” means all national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority.</p> <p>“Performance Security” means the security (or securities, if any) under GCC 4.2 [Performance Security].</p>

	<p>“Site” means the place stated in the SCC where the Permanent Works are to be executed including storage and working areas and to which Plant and Materials are to be delivered and any other places as may be specified in the SCC as forming part of the Site.</p> <p>“Unforeseeable” means not reasonably foreseeable by an experienced contractor by the Base Date.</p> <p>“Variation” means any change to the Works, which is instructed or approved as a variation under GCC 13 [Variations and Adjustments].</p>
1.2 Interpretation	<p>In the Contract, except where the context requires otherwise:</p> <ol style="list-style-type: none"> 2 words indicating one gender include all genders; 3 words indicating the singular also include the plural and words indicating the plural also include the singular; 4 provisions including the word “agree,” “agreed” or “agreement” require the agreement to be record in writing; 5 “written” or “in writing” means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and 6 the word “tender” is synonymous with “bid”, and “tenderer” with “bidder” and the words “tender documents” with “bidding documents” <p>The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.</p>
1.3 Communications	<p>Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is received by the concerned party. The language for communications shall be English</p>
1.4 Governing Language and Law	<p>The governing language of the Contract shall be English.</p> <p>The Contract shall be governed by the laws of Tanzania</p>

<p>1.5 Priority of Documents</p>	<p>The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:</p> <ul style="list-style-type: none"> • Form of Agreement; • the Letter of Acceptance; • Minutes of negotiations and addenda (if any); • the Form of Bid; • the Special Conditions of Contract; • these General Conditions of Contract; • the Employer’s Requirements and Drawings (if any); • the Schedules; • Contractor’s Proposal; and • any other documents listed in the SCC forming part of the Contract. <p>If an ambiguity or discrepancy is found in the documents, the Project Manager shall issue any necessary clarification or instruction.</p>
<p>1.6 Assignment</p>	<p>The Contractor shall not assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, the contractor:</p> <p>a) may assign the whole or any part with the prior consent in writing of the Employer; and</p> <p>b) may, as security in favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.</p>
<p>1.7 Care and Supply of Documents</p>	<p>Each of the Contractor’s Documents shall be in the custody and care of the Contractor, unless and until taken over by the Employer. Unless otherwise stated in the Contract, the Contractor shall supply to the Project Manager number of copies of Contractor’s Documents stated in the SCC.</p> <p>The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Employer’s Requirements, the Contractor’s Documents including</p>

	<p>Drawings and approved Variations and other communications given under the Contract. Authorized personnel of the Employer shall have the right to access to the aforementioned documents at all reasonable times.</p> <p>If a Party becomes aware of an error or defect of technical nature in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.</p>
<p>1.8 Error in the Employer's Requirements</p>	<p>If the Contractor suffers delay and/or incurs Cost as a result of an error in the Employer requirements, and experienced Contractor exercising due care would not have discovered the error when scrutinizing the employer's requirements under GCC 5.1 (General Design Obligations), the contractor shall give notice to the Project Manager and may be entitled subject to GCC 20.1 (contractor's claims) to an extension of time and associated costs (if any) for such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion].</p> <p>After receiving this further notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine these matters.</p>
<p>1.9 Employer's Use of Contractor's Documents</p>	<p>The Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.</p> <p>The Contractor shall be deemed (by signing the Contract) to give to the Employer a non-terminable transferable non-exclusive royalty-free licence to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This licence shall:</p> <ol style="list-style-type: none"> 11 apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works, 12 entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and

	<p>13 in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.</p> <p>The Contractor's Documents and other design documents made by the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Employer for purposes other than those permitted under this GCC.</p>
<p>1.10 Contractor's Use of Employer's Documents</p>	<p>The Employer shall retain the copyright and other intellectual property rights in the Employer's requirements including Drawings and other documents made by (or on behalf of) the Employer. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Employer's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.</p>
<p>1.11 Confidential Details</p>	<p>The Contractor shall disclose all such confidential and other information as may be reasonably required by the Employer in order to verify the Contractor's compliance with the Contract and allow its proper implementation.</p>
<p>1.12 Compliance with Laws</p>	<p>The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the SCC:</p> <p>11 the Employer shall have obtained (or shall obtain) the planning, zoning, or similar permission for the Permanent Works, and any other permissions described in the Employer's Requirement as having been (or to be) obtained by the Employer; and the Employer shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and</p>

	<p>12 the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licenses and approvals, as required by the Laws in relation to the design, execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Employer harmless against and from the consequences of any failure to do so.</p>
<p>1.13 Taxes and Duties</p>	<p>The Contractor, Sub-contractors and Personnel shall pay such taxes, duties, fees and other impositions as may be levied under the Applicable Law unless otherwise stated in the SCC.</p>
<p>1.14 Joint and Several Liability</p>	<p>If the Contractor constitutes a joint venture, consortium, association of firms or other unincorporated grouping of two or more persons:</p> <p>11 these persons shall be deemed to be jointly and severally liable to the Employer for the performance of the Contract;</p> <p>12 these persons shall notify the Employer of their leader who shall have authority to bind the Contractor and each of these persons; and</p> <p>13 the Contractor shall not alter its composition or legal status without the prior consent of the Employer.</p>
<p>1.15 Instructions, Inspections and Audits</p>	<p>The Employer's personnel shall at all reasonable times during construction of the Work be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of the construction.</p> <p style="text-align: center;">If the Project Manager instructs the contractor to carry out a test not specified in the Employer's Requirement to check whether any work has a defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no defect, the test shall be a Compensation Event.</p> <p>The Contractor shall permit the Funding Source named in the SCC to inspect the Contractor's accounts and records</p>

	relating to the performance of the Contractor and to have them audited by auditors appointed by the Funding Source, if so required by the Funding Source.
ii) The Employer	
2.1 Right of Access to the Site	<p>The Employer shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the SCC. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Employer is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Employer shall do so in the time and manner stated in the Employer's requirements. However, the Employer may withhold any such right or possession until the Performance Security has been received.</p> <p>If no such time is stated in the SCC, the Employer shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under GCC 8.3 [Programme].</p> <p>If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Employer to give any such right or possession within such time, the Contractor shall give notice to the Project Manager and may be entitled subject to GCC 20.1 [Contractor's Claims] to an extension of time and associated costs (if any) for such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion], and</p> <p>After receiving this notice, the Project Manager shall proceed in accordance</p>

	<p>with GCC 3.5 [Determinations] to determine these matters.</p> <p>However, if and to the extent that the Employer's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time and any associated costs.</p>
<p>2.2 Permits, Licences or Approvals</p>	<p>The Employer shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:</p> <ul style="list-style-type: none"> 11 copies of the Laws of the Country which are relevant to the Contract but are not readily available, and 12 any permits, licences or approvals required by the Laws of the Country: <ul style="list-style-type: none"> 12.6 which the Contractor is required to obtain under GCC 1.12 [Compliance with Laws], 12.7 for the delivery of Goods, including clearance through customs, and 12.8 for the export of Contractor's Equipment when it is removed from the Site.
<p>2.3 Employer's Personnel</p>	<p>The Employer shall be responsible for ensuring that the Employer's Personnel and the Employer's other contractors on the Site:</p> <ul style="list-style-type: none"> 11 co-operate with the Contractor's efforts under GCC 4.6 [Co-operation], and 12 take actions similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and

	(c) of GCC 4.8 [Safety Procedures] and under GCC 4.18 [Protection of the Environment].
2.4 Suspension of Financing	<p>If the Government has notified the Employer that the Government has suspended funds, which finances in whole or in part the execution of the Works, the Employer shall give notice of such suspension to the Contractor with detailed particulars, including the date of such notification, with a copy to the Project Manager, within 7 days of the Employer having received the suspension notification from the Government.</p> <p>In the event that the source of financing is suspended to the Employer, from which part of the payments to the Contractor are being made:</p> <p>(a) The Employer shall notify the Contractor of such suspension within Seven (7) days of having received the financing agency's suspension notice.</p> <p>(b) After the Notice has been issued and within fourteen (14) working days, the Parties shall mutually agree on the future events of the Contract</p>
2.5 Employer's Claims	<p>If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Liability Period, the Employer or the Project Manager shall give notice and particulars to the Contractor. However, notice is not required for payments due under GCC 4.19 [Electricity, Water and Gas], under GCC 4.20 [Employer's Equipment and Free-Issue Material], or for other services requested by the Contractor.</p>

	<p>The notice shall be given as soon as practicable and no longer than 28 days after the Employer became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Liability Period shall be given before the expiry of such period.</p> <p>The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Project Manager shall then proceed in accordance with GCC 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Liability Period in accordance with GCC 11.3 [Extension of Defects Liability Period].</p> <p>This amount may be included as a deduction in the Contract Price and Payment Certificates. The Employer shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this GCC.</p>
iii) The Project Manager	
<p>3.1 Project Manager's Appointment, Duties and Authority</p>	<p>The Employer shall appoint the Project Manager who shall carry out the duties assigned to him in the Contract. The Project Manager shall be an independent legal entity or firm duly registered by relevant professional bodies in Tanzania and contracted by the Employer. The Project Manager's staff shall include suitably qualified</p>

	<p>Architects/Engineers and other professionals who are competent to carry out these duties.</p> <p>The Project Manager shall have no authority to amend the Contract without approval of the Employer.</p> <p>The Project Manager may exercise the authority attributable to the Project Manager as specified in or necessarily to be implied from the Contract. Notwithstanding the provisions of this Contract, if the Project Manager is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the SCC. The Employer shall promptly inform the Contractor of any change to the authority attributed to the Project Manager.</p> <p>However, whenever the Project Manager exercises a specified authority for which the Employer's approval is required, then (for the purposes of the Contract) the Project Manager shall seek and obtain a written approval of the Employer.</p> <p>Except as otherwise stated in these Conditions:</p> <ul style="list-style-type: none"> (a) whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Project Manager shall be deemed to act for the Employer; (b) the Project Manager has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract; and <p>13 any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request,</p>
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	<p>test, or similar act by the Project Manager (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances.</p> <p>14 Any act by the Project Manager in response to a Contractor's request, except otherwise expressly specified, shall be notified in writing to the Contractor within the period stated in the SCC. Provided that such time shall not exceed 28 days from receipt of the request.</p> <p>The following provisions shall apply:</p> <p>The Project Manager shall obtain the specific approval of the Employer before taking action under the following GCCs of these Conditions:</p> <p>(a) GCC 4.12 [Unforeseeable Physical Conditions]: Agreeing or determining an extension of time and/or additional cost.</p> <p>(b) GCC 13.1 [Right to Vary]: Instructing a Variation, except;</p> <p>(i) in an emergency situation as determined by the Project Manager, or</p> <p>(ii) if such a Variation would not increase the total Contract Amount</p> <p>(c) GCC 13.3 [Variation Procedure]: Approving a proposal for Variation submitted by the Contractor in accordance with GCC 13.1 or 13.2.</p> <p>(d) GCC 13.4 [Payment in Applicable Currencies]: Specifying the amount</p>
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	<p>payable in each of the applicable currencies.</p> <p>(e) Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Project Manager, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Project Manager, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Project Manager. The Project Manager shall determine an addition to the Contract Price, in respect of such instruction, in accordance with GCC 13 [Variations and Adjustments] and shall notify the Contractor accordingly, with a copy to the Employer.</p>
<p>3.2 Delegation by the Project Manager</p>	<p>The Project Manager may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident Architect/Engineer and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties.</p> <p>However, unless otherwise agreed by both Parties, the Project Manager shall not delegate the authority to determine any matter in accordance with GCC 3.5 [Determinations].</p>

	<p>Assistants shall be suitably qualified persons, who are competent to carry out these duties and exercise this authority, and who are fluent in the language for communications defined in GCC 1.4 [Law and Language].</p> <p>Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorised to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Project Manager. However:</p> <ol style="list-style-type: none"> 11 any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Project Manager to reject the work, Plant or Materials; 12 if the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Project Manager, who shall promptly confirm, reverse or vary the determination or instruction.
<p>3.3 Instructions of the Project Manager</p>	<p>The Project Manager may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the Project Manager, or from an assistant to whom the appropriate authority has been delegated under this Clause. If an instruction constitutes</p>

	<p>a Variation, GCC 13 [Variations and Adjustments] shall apply.</p> <p>The Contractor shall comply with the instructions given by the Project Manager or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Project Manager or a delegated assistant:</p> <ol style="list-style-type: none"> 11 gives an oral instruction, 12 receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and 13 does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation, <p>then the confirmation shall constitute the written instruction of the Project Manager or delegated assistant (as the case may be).</p>
<p>3.4 Replacement of the Project Manager</p>	<p>Notwithstanding GCC 3.1, if the Employer intends to replace the Project Manager, the Employer shall, not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended replacement Project Manager. If the Contractor considers the intended replacement Project Manager to be unsuitable, he has the right to raise reasonable objection against him by notice to the Employer, with supporting particulars, and the Employer shall give consideration to this objection.</p>
<p>3.5 Determinations</p>	<p>Whenever these Conditions provide that the Project Manager shall proceed</p>

	<p>in accordance with this GCC 3.5 to agree or determine any matter, the Project Manager shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the Project Manager shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.</p> <p>The Project Manager shall give notice to both Parties of each agreement or determination, with supporting particulars within 14 working days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under GCC 20 [Claims, Disputes and Arbitration].</p>
iv) The Contractor	
<p>4.1 Contractor's General Obligations</p>	<p>The Contractor shall design, execute and complete the Works in accordance with the Contract and with the Project Manager's instructions, and shall remedy any defects in the Works.</p> <p>The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.</p> <p>The works shall include any work which is necessary to satisfy the Employer's Requirements, contractor's proposal and Schedules, or is implied by the contract, and all works which (although not mentioned in the</p>

	<p>contract) are necessary for stability or for the completion, or safe and proper operation, of the works.</p> <p>The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction.</p> <p>The Contractor shall, whenever required by the Project Manager, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Project Manager.</p>
<p>4.2 Performance Security</p>	<p>The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the form, amount and currencies stated in the SCC.</p> <p>The Contractor shall deliver the Performance Security to the Employer within 14 working days after receiving the Letter of Acceptance, and shall send a copy to the Project Manager. The Performance Security shall be issued by an entity and from within a country (or other jurisdiction) approved by the Employer, and shall be in the form annexed to the SCC or in another form approved by the Employer.</p> <p>The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the</p>

	<p>Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.</p> <p>The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is entitled under the Contract in the event of:</p> <ul style="list-style-type: none"> (iv) failure by the Contractor to extend the validity of the performance security as described in the preceding paragraph, in which event the Employer may claim the full amount of the performance security; (v) failure by the Contractor to pay the Employer an amount due, as either agreed by the Contractor or determined under GCC 2.5 [Employer's Claims] or GCC 20 [Claims, Disputes and Arbitration], within 42 days after this agreement or determination, (vi) failure by the Contractor to remedy a default within 42 days after receiving the Employer's notice requiring the default to be remedied, or (vii) Circumstances which entitle the Employer to termination under GCC 15.2 [Termination by Employer], irrespective of whether notice of
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	<p>termination has been given.</p> <p>The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Employer was not entitled to make the claim.</p> <p>The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.</p>
<p>4.3 Contractor's Representative</p>	<p>The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.</p> <p>Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Project Manager for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.</p> <p>The Contractor shall not, without the prior consent of the Project Manager, revoke the appointment of the Contractor's Representative or appoint a replacement.</p> <p>The whole time of the Contractor's Representative shall be given to directing the Contractor's performance</p>

	<p>of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Project Manager's prior consent, and the Project Manager shall be notified accordingly.</p> <p>The Contractor's Representative shall, on behalf of the Contractor, receive instructions under GCC 3.3 [Instructions of the Project Manager].</p> <p>The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Project Manager has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.</p> <p>The Contractor's Representative shall be fluent in the language for communications defined in GCC 1.4 [Law and Language].</p>
<p>4.4 Subcontractors</p>	<p>The Contractor shall not subcontract the whole of the Works.</p> <p>The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the SCC:</p> <p>11 the Contractor shall not be required to obtain consent to suppliers of Materials, or to a subcontract for which the Subcontractor is named in the Contract;</p>

	<p>12 the prior consent of the Project Manager shall be obtained to other proposed Subcontractors;</p> <p>13 the Contractor shall give the Project Manager not less than 28 days notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and</p>
<p>4.5 Nominated Subcontractors</p>	<p>In this GCC, "nominated Subcontractor" means a Subcontractor whom the Project Manager, under GCC 13 [Variations and Adjustments], instructs the Contractor to employ as a Subcontractor. The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Project Manager as soon as practicable, with supporting particulars.</p>
<p>4.6 Co-operation</p>	<p>The Contractor shall, as specified in the Contract or as instructed by the Project Manager, allow appropriate opportunities for carrying out work to:</p> <ul style="list-style-type: none"> • the Employer's Personnel, • any other contractors employed by the Employer, and • the personnel of any legally constituted public authorities, <p>who may be employed in the execution on or near the Site of any work not included in the Contract.</p> <p>Any such instruction may constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary</p>

	<p>Works or access arrangements which are the responsibility of the Contractor.</p> <p>The Contractor shall be responsible for his construction activities on the Site, and shall co-ordinate his own activities with those of other contractors to the extent (if any) specified in the Employer's Requirements.</p> <p>If, under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Project Manager in the time and manner stated in the Employer's Requirements.</p>
<p>3.2 Delegation by the Project Manager</p>	<p>The Project Manager may from time to time assign duties and delegate authority to assistants, and may also revoke such assignment or delegation. These assistants may include a resident Architect/Engineer and/or independent inspectors appointed to inspect and/or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties.</p> <p>However, unless otherwise agreed by both Parties, the Project Manager shall not delegate the authority to determine any matter in accordance with GCC 3.5 [Determinations].</p> <p>Assistants shall be suitably qualified persons, who are competent to carry out these duties and exercise this authority, and who are fluent in the language for communications defined in GCC 1.4 [Law and Language].</p> <p>Each assistant, to whom duties have been assigned or authority has been</p>

	<p>delegated, shall only be authorised to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Project Manager. However:</p> <p>13 any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Project Manager to reject the work, Plant or Materials;</p> <p>14 if the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Project Manager, who shall promptly confirm, reverse or vary the determination or instruction.</p>
<p>3.3 Instructions of the Project Manager</p>	<p>The Project Manager may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the Project Manager, or from an assistant to whom the appropriate authority has been delegated under this Clause. If an instruction constitutes a Variation, GCC 13 [Variations and Adjustments] shall apply.</p> <p>The Contractor shall comply with the instructions given by the Project Manager or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If</p>

	<p>the Project Manager or a delegated assistant:</p> <p>14 gives an oral instruction,</p> <p>15 receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and</p> <p>16 does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation,</p> <p>then the confirmation shall constitute the written instruction of the Project Manager or delegated assistant (as the case may be).</p>
<p>3.4 Replacement of the Project Manager</p>	<p>Notwithstanding GCC 3.1, if the Employer intends to replace the Project Manager, the Employer shall, not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended replacement Project Manager. If the Contractor considers the intended replacement Project Manager to be unsuitable, he has the right to raise reasonable objection against him by notice to the Employer, with supporting particulars, and the Employer shall give consideration to this objection.</p>
<p>3.5 Determinations</p>	<p>Whenever these Conditions provide that the Project Manager shall proceed in accordance with this GCC 3.5 to agree or determine any matter, the Project Manager shall consult with each Party in an endeavour to reach agreement. If agreement is not achieved, the Project Manager shall make a fair determination in accordance with the Contract, taking</p>

	<p>due regard of all relevant circumstances.</p> <p>The Project Manager shall give notice to both Parties of each agreement or determination, with supporting particulars within 14 working days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under GCC 20 [Claims, Disputes and Arbitration].</p>
<p>v) The Contractor</p>	
<p>4.1 Contractor's General Obligations</p>	<p>The Contractor shall design, execute and complete the Works in accordance with the Contract and with the Project Manager's instructions, and shall remedy any defects in the Works.</p> <p>The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.</p> <p>The works shall include any work which is necessary to satisfy the Employer's Requirements, contractor's proposal and Schedules, or is implied by the contract, and all works which (although not mentioned in the contract) are necessary for stability or for the completion, or safe and proper operation, of the works.</p> <p>The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction.</p>

	<p>The Contractor shall, whenever required by the Project Manager, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Project Manager.</p>
<p>4.2 Performance Security</p>	<p>The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the form, amount and currencies stated in the SCC.</p> <p>The Contractor shall deliver the Performance Security to the Employer within 14 working days after receiving the Letter of Acceptance, and shall send a copy to the Project Manager. The Performance Security shall be issued by an entity and from within a country (or other jurisdiction) approved by the Employer, and shall be in the form annexed to the SCC or in another form approved by the Employer.</p> <p>The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.</p> <p>The Employer shall not make a claim under the Performance Security, except for amounts to which the Employer is</p>

	<p>entitled under the Contract in the event of:</p> <ul style="list-style-type: none"> (viii) failure by the Contractor to extend the validity of the performance security as described in the preceding paragraph, in which event the Employer may claim the full amount of the performance security; (ix) failure by the Contractor to pay the Employer an amount due, as either agreed by the Contractor or determined under GCC 2.5 [Employer's Claims] or GCC 20 [Claims, Disputes and Arbitration], within 42 days after this agreement or determination, (x) failure by the Contractor to remedy a default within 42 days after receiving the Employer's notice requiring the default to be remedied, or (xi) Circumstances which entitle the Employer to termination under GCC 15.2 [Termination by Employer], irrespective of whether notice of termination has been given. <p>The Employer shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent</p>
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	<p>to which the Employer was not entitled to make the claim.</p> <p>The Employer shall return the Performance Security to the Contractor within 21 days after receiving a copy of the Performance Certificate.</p>
<p>4.3 Contractor's Representative</p>	<p>The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.</p> <p>Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Project Manager for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.</p> <p>The Contractor shall not, without the prior consent of the Project Manager, revoke the appointment of the Contractor's Representative or appoint a replacement.</p> <p>The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Project Manager's prior consent, and the Project Manager shall be notified accordingly.</p>

	<p>The Contractor's Representative shall, on behalf of the Contractor, receive instructions under GCC 3.3 [Instructions of the Project Manager].</p> <p>The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Project Manager has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.</p> <p>The Contractor's Representative shall be fluent in the language for communications defined in GCC 1.4 [Law and Language].</p>
<p>4.4 Subcontractors</p>	<p>The Contractor shall not subcontract the whole of the Works.</p> <p>The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the SCC:</p> <p>14 the Contractor shall not be required to obtain consent to suppliers of Materials, or to a subcontract for which the Subcontractor is named in the Contract;</p> <p>15 the prior consent of the Project Manager shall be obtained to other proposed Subcontractors;</p> <p>16 the Contractor shall give the Project Manager not less than 28 days notice of the intended date of the commencement of each Subcontractor's work, and of the</p>

	commencement of such work on the Site; and
4.5 Nominated Subcontractors	In this GCC, "nominated Subcontractor" means a Subcontractor whom the Project Manager , under GCC 13 [Variations and Adjustments], instructs the Contractor to employ as a Subcontractor. The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Project Manager as soon as practicable, with supporting particulars.
4.6 Co-operation	<p>The Contractor shall, as specified in the Contract or as instructed by the Project Manager, allow appropriate opportunities for carrying out work to:</p> <ul style="list-style-type: none"> • the Employer's Personnel, • any other contractors employed by the Employer, and • the personnel of any legally constituted public authorities, <p>who may be employed in the execution on or near the Site of any work not included in the Contract.</p> <p>Any such instruction may constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.</p> <p>The Contractor shall be responsible for his construction activities on the Site, and shall co-ordinate his own activities with those of other contractors to the</p>

	<p>extent (if any) specified in the Employer's Requirements.</p> <p>If, under the Contract, the Employer is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Project Manager in the time and manner stated in the Employer's Requirements.</p>
	<p>The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract or notified by the Project Manager. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.</p> <p>The Employer shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.</p> <p>If the Contractor suffers delay and/or incurs cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or cost, the Contractor shall give notice to the Project Manager and shall be entitled subject to GCC 20.1 [Contractor's Claims] to an extension of time and associated costs (if any) for such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion].</p> <p>After receiving this further notice, the Project Manager shall proceed in accordance with GCC 3.5</p>

	[Determinations] to determine these matters.
4.8 Safety Procedures	<p>The Contractor shall:</p> <ul style="list-style-type: none"> (a) comply with all applicable safety regulations, (b) take care for the safety of all persons entitled to be on the Site, (c) use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons, (d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under GCC 10 [Employer's Taking Over], and (e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.
4.9 Quality Assurance	The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Project Manager shall be entitled to audit any aspect of the system.

	<p>Details of all procedures and compliance documents shall be submitted to the Project Manager for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Project Manager, evidence of the prior approval by the Contractor himself shall be apparent on the document itself.</p> <p>Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.</p>
<p>4.10 Site Data</p>	<p>The Employer shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Employer's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Employer shall similarly make available to the Contractor all such data which come into the Employer's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.</p> <p>To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):</p>

	<ul style="list-style-type: none"> • the form and nature of the Site, including sub-surface conditions, • the hydrological and climatic conditions, • the extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects, • the Laws, procedures and labour practices of the Country, and • the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.
<p>4.11 Sufficiency of the Accepted Contract Amount</p>	<p>The Contractor shall be deemed to:</p> <ul style="list-style-type: none"> • have satisfied himself as to the correctness and sufficiency of the Accepted Contract Amount, and • have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in GCC 4.10 [Site Data] and any further data relevant to the Contractor's design. <p>Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under</p>

	<p>the Contract (including those under Provisional Sums, if any) and all things necessary for the proper design, execution and completion of the Works and the remedying of any defects.</p>
<p>4.12 Unforeseeable Physical Conditions</p>	<p>In this GCC, “physical conditions” means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.</p> <p>If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Project Manager as soon as practicable.</p> <p>This notice shall describe the physical conditions, so that they can be inspected by the Project Manager, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Project Manager may give. If an instruction constitutes a Variation, GCC 13 [Variations and Adjustments] shall apply.</p> <p>If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor may be entitled subject to notice under GCC 20.1 [Contractor’s Claims] to an extension of time and associated costs (if any) for any such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion].</p>

	<p>After receiving this further notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine these matters.</p> <p>However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Project Manager may also review whether other physical conditions in similar parts of the Works (if any) were more favourable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favourable conditions were encountered, the Project Manager may proceed in accordance with GCC 3.5 [Determinations] to agree or determine the reductions in Cost which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the physical conditions encountered in similar parts of the Works, shall not result in a net reduction in the Contract Price.</p> <p>The Project Manager may take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which may be made available by the Contractor, but shall not be bound by any such evidence.</p>
<p>4.13 Rights of Way and Facilities</p>	<p>The Contractor shall bear all costs and charges for special and/or temporary rights-of-way which he</p>

	<p>may require, including those for access to the Site. The Contractor shall also obtain, at his risk and cost, any additional facilities outside the Site which he may require for the purposes of the Works.</p>
<p>4.14 Avoidance of Interference</p>	<p>The Contractor shall not interfere unnecessarily or improperly with:</p> <ul style="list-style-type: none"> • the convenience of the public, or • the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Employer or of others. <p>The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.</p>
<p>4.15 Access Route</p>	<p>The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.</p> <p>Except as otherwise stated in these Conditions:</p>

	<ul style="list-style-type: none"> • the Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes; • the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions; • the Employer shall not be responsible for any claims which may arise from the use or otherwise of any access route; • the Employer does not guarantee the suitability or availability of particular access routes; and • Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.
<p>4.16 Transport of Goods</p>	<p>Unless otherwise stated in the SCC:</p> <p>17 the Contractor shall give the Project Manager not less than 21 days notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;</p> <p>18 the Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and</p> <p>19 the Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting</p>

	<p>from the transport of Goods, and shall negotiate and pay all claims arising from their transport.</p>
4.17 Contractor's Equipment	<p>The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Project Manager. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.</p>
4.18 Protection of the Environment	<p>The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.</p> <p>The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values stated in the Employer's Requirement or prescribed by applicable Laws.</p>
4.19 Electricity, Water and Gas	<p>The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Employer's Requirements, for the tests.</p> <p>The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Employer's Requirement. The Contractor shall, at his risk and cost, provide any</p>

	<p>apparatus necessary for his use of these services and for measuring the quantities consumed.</p> <p>The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Project Manager in accordance with GCC 2.5 [Employer's Claims] and GCC 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.</p>
<p>4.20 Employer's Equipment and Free-Issue Materials</p>	<p>The Employer shall make the Employer's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Schedule of Prices. Unless otherwise stated in the Employer's Requirement:</p> <ol style="list-style-type: none"> 1. the Employer shall be responsible for the Employer's Equipment, except that 2. the Contractor shall be responsible for each item of Employer's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it. <p>The appropriate quantities and the amounts due (at such stated prices) for the use of Employer's Equipment shall be agreed or determined by the Project Manager in accordance with GCC 2.5 [Employer's Claims] and GCC 3.5 [Determinations]. The Contractor shall pay these amounts to the Employer.</p> <p>The Employer shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Employer's Requirement. The Employer shall, at his risk and cost, provide these materials at the time and</p>

	<p>place specified in the Contract. The Contractor shall then visually inspect them, and shall promptly give notice to the Project Manager of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Employer shall immediately rectify the notified shortage, defect or default.</p> <p>After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Employer of liability for any shortage, defect or default not apparent from a visual inspection.</p>
<p>4.21 Progress Reports</p>	<p>Unless otherwise stated in the SCC, monthly progress reports shall be prepared by the Contractor and submitted to the Project Manager in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 working days after the last day of the period to which it relates.</p> <p>Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.</p> <p>Each report shall include:</p> <ul style="list-style-type: none"> • charts and detailed descriptions of progress, including each stage of design (if any), Contractor's Documents, procurement, manufacture, delivery to Site, construction,

	<p>erection and testing; and including these stages for work by each nominated Subcontractor (as defined in GCC 4.5 [Nominated Subcontractors]),</p> <ul style="list-style-type: none"> • photographs showing the status of manufacture and of progress on the Site; • for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of: <ol style="list-style-type: none"> (a) commencement of manufacture, (b) Contractor's inspections, (c) tests, and (d) shipment and arrival at the Site; • the details described in GCC 6.10 [Records of Contractor's Personnel and Equipment]; • copies of quality assurance documents, test results and certificates of Materials; • list of notices given under GCC 2.5 [Employer's Claims] and notices given under GCC 20.1 [Contractor's Claims]; • safety statistics, including details of any hazardous
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	<p>incidents and activities relating to environmental aspects and public relations; and</p> <ul style="list-style-type: none"> • comparisons of actual and planned progress, with details of any events or circumstances which may jeopardise the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.
<p>4.22 Security of the Site</p>	<p>Unless otherwise stated in the SCC:</p> <ol style="list-style-type: none"> 1. The Contractor shall be responsible for security of the site; 2. the Contractor shall be responsible for keeping unauthorised persons off the Site; and 3. authorised persons shall be limited to the Contractor's Personnel and the Employer's Personnel; and to any other personnel notified to the Contractor, by the Employer or the Project Manager, as authorised personnel of the Employer's other contractors on the Site.
<p>4.23 Contractor's Operations on Site</p>	<p>The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Project Manager as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site</p>

	<p>and these additional areas, and to keep them off adjacent land.</p> <p>During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction, and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.</p> <p>Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Liability Period, such Goods as are required for the Contractor to fulfill obligations under the Contract.</p>
<p>4.24 Fossils</p>	<p>All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the Site shall, as between the Employer and the Contractor, be the absolute property of the Employer and the Contractor shall take reasonable precautions to prevent his workers or any other persons from removing or damaging any such article or thing and shall immediately upon discovery thereof and before removal acquaint the Project Manager of such discovery and carry out at the expense of the Employer the instructions of the Project Manager as to the disposal of the same.</p>

	<p>The Contractor shall, upon discovery of any such finding, promptly give notice to the Project Manager, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Project Manager and shall be entitled subject to GCC 20.1 [Contractor's Claims] to an extension of time and any associated costs (if any) for such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion].</p> <p>After receiving this further notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine these matters.</p>
vi) Design	

<p>5.1 General Design Obligations</p>	<p>The Contractor shall carry out, and be responsible for, the design of the Works. Design shall be prepared by qualified designers who are Architects/engineers or other professionals who comply with the criteria (if any) stated in the Employer's Requirements. Unless otherwise stated in the Contract, the Contractor shall submit to the Project Manager for consent the name and particulars of each proposed designer and design Subcontractor.</p> <p>The Contractor warrants that he, his designers and design Subcontractors have the experience and capability necessary for the design. The Contractor undertakes that the designers shall be available to attend discussions with the Project Manager at all reasonable times, until the expiry date of the relevant Defects Liability Period.</p> <p>Upon receiving notice under GCC 8.1 [Commencement of Works], the Contractor shall scrutinise the Employer's Requirements (including design criteria and calculations, if any) and the items of reference mentioned in GCC 4.7 [Setting Out]. Within the period stated in the Appendix to Tender, calculated from the Commencement Date, the Contractor shall give notice to the Project Manager of any error, fault or other defect found in the Employer's Requirements or these items of reference.</p> <p>After receiving this notice, the Project Manager shall determine whether GCC 13 [Variations and Adjustments] shall be applied, and shall give notice to the Contractor accordingly. If and to the extent that (taking account of cost and time) an experienced contractor exercising due care would have</p>
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	discovered the error, fault or other defect when examining the Site and the Employer's Requirements before submitting the Tender, the Time for Completion shall not be extended and the Contract Price shall not be adjusted.
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<p>5.2 Contractor's Documents</p>	<p>The Contractor's Documents shall comprise the technical documents specified in the Employer's Requirements, documents required to satisfy all regulatory approvals, and the documents described in GCC 5.6 [As-Built Documents] and GCC 5.7 [Operation and Maintenance Manuals]. Unless otherwise stated in the Employer's Requirements, the Contractor's Documents shall be written in the language for communications defined in GCC 1.4 [Law and Language].</p> <p>The Contractor shall prepare all Contractors' Documents, and shall also prepare any other documents necessary to instruct the Contractor's Personnel. The Employer's Personnel shall have the right to inspect the preparation of all these documents, wherever they are being prepared.</p> <p>If the Employer's Requirements describe the Contractor's Documents which are to be submitted to the Project Manager for review and/or for approval, they shall be submitted accordingly, together with a notice as described below. In the following provisions of this GCC, (i) "review period" means the period required by the Project Manager for review and (if so specified) for approval, and (ii) "Contractor's Documents" exclude any documents which are not specified as being required to be submitted for review and/or for approval.</p> <p>Unless otherwise stated in the Employer's Requirements, each review period shall not exceed 21 days, calculated from the date on which the Project Manager receives a Contractor's Document and the Contractor's notice. This notice shall state that the</p>
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	<p>Contractor's Document is considered ready, both for review (and approval, if so specified) in accordance with this GCC and for use. The notice shall also state that the Contractor's Document complies with the Contract, or the extent to which it does not comply.</p> <p>The Project Manager may, within the review period, give notice to the Contractor that a Contractor's Document fails (to the extent stated) to comply with the Contract. If a Contractor's Document so fails to comply, it shall be rectified, resubmitted and reviewed (and, if specified, approved) in accordance with this GCC, at the Contractor's cost.</p> <p>For each part of the Works, and except to the extent that the prior approval or consent of the Project Manager shall have been obtained:</p> <ul style="list-style-type: none">(a) in the case of a Contractor's Document which has (as specified) been submitted for the Project Manager's approval:<ul style="list-style-type: none">(i) the Project Manager shall give notice to the Contractor that the Contractor's Document is approved, with or without comments, or that it fails (to the extent stated) to comply with the Contract;(ii) execution of such part of the Works shall not commence until the Project Manager has approved the Contractor's Document; and(iii) the Project Manager shall be deemed to have
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approved the Contractor's Document upon the expiry of the review periods for all the Contractor's Documents which are relevant to the design and execution of such part, unless the Project Manager has previously notified otherwise in accordance with sub-paragraph (i);

- (b) execution of such part of the Works shall not commence prior to the expiry of the review periods for all the Contractor's Documents which are relevant to its design and execution;
- (c) execution of such part of the Works shall be in accordance with these reviewed (and, if specified, approved) Contractor's Documents; and
- (d) if the Contractor wishes to modify any design or document which has previously been submitted for review (and, if specified, approval), the Contractor shall immediately give notice to the Project Manager. Thereafter, the Contractor shall submit revised documents to the Project Manager in accordance with the above procedure.

If the Project Manager instructs that further Contractor's Documents are required, the Contractor shall prepare them promptly.

Any such approval or consent, or any review (under this GCC or otherwise), shall not relieve the Contractor from any obligation or responsibility.

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<p>5.3 Contractor's Undertakings</p>	<p>The Contractor undertakes that the design, the Contractor's Documents, the execution and the completed Works will be in accordance with:</p> <p>(a) the Laws of Tanzania, and</p> <p>(b) the documents forming the Contract, as altered or modified by Variations.</p>
<p>5.4 Technical Standards and Regulations</p>	<p>The design, the Contractor's Documents, the execution and the completed Works shall comply with the Country's technical standards, building, construction and environmental Laws, Laws applicable to the product being produced from the Works, and other standards specified in the Employer's Requirements, applicable to the Works, or defined by the applicable Laws.</p> <p>All these Laws shall, in respect of the Works and each Section, be those prevailing when the Works or Section are taken over by the Employer under GCC 10 [Employer's Taking Over]. References in the Contract to published standards shall be understood to be references to the edition applicable on the Base Date, unless stated otherwise.</p> <p>If changed or new applicable standards come into force in the Country after the Base Date, the Contractor shall give notice to the Project Manager and (if appropriate) submit proposals for compliance. In the event that:</p> <p>(a) the Project Manager determines that compliance is required, and</p> <p>(b) the proposals for compliance constitute a variation, then the Project Manager may initiate a Variation in accordance with GCC 13 [Variations and Adjustments].</p>

5.5 Training	<p>The Contractor shall carry out the training of Employer's Personnel in the operation and maintenance of the Works to the extent specified in the Employer's Requirements. If the Contract specifies training which is to be carried out before taking-over, the Works shall not be considered to be completed for the purposes of taking-over under GCC 10.1 [Taking Over of the Works and Section s] until this training has been completed.</p>
5.6 As-Built Documents	<p>The Contractor shall prepare, and keep up-to-date, a complete set of "as-built" records of the execution of the Works, showing the exact as-built locations, sizes and details of the work as executed. These records shall be kept on the Site and shall be used exclusively for the purposes of this GCC. Two copies shall be supplied to the Project Manager prior to the commencement of the Tests on Completion.</p> <p>In addition, the Contractor shall supply to the Project Manager as-built drawings of the Works, showing all Works as executed, and submit them to the Project Manager for review under GCC 5.2 [Contractor's Documents]. The Contractor shall obtain the consent of the Project Manager as to their size, the referencing system, and other relevant details.</p> <p>Prior to the issue of any Taking-Over Certificate, the Contractor shall supply to the Project Manager the specified numbers and types of copies of the relevant as-built drawings, in accordance with the Employer's Requirements. The Works shall not be considered to be completed for the purposes of taking-over under GCC 10.1 [Taking Over of the Works and Section s] until the Project Manager has received these documents.</p>

<p>5.7 Operation and Maintenance Manuals</p>	<p>Prior to commencement of the Tests on Completion, the Contractor shall supply to the Project Manager provisional operation and maintenance manuals in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair the Plant.</p> <p>The Works shall not be considered to be completed for the purposes of taking-over under GCC 10.1 [Taking Over of the Works and Sections] until the Project Manager has received final operation and maintenance manuals in such detail, and any other manuals specified in the Employer's Requirements for these purposes.</p>
<p>5.8 Design Error</p>	<p>If errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the Contractor's Documents, they and the Works shall be corrected at the Contractor's cost, notwithstanding any consent or approval under this Clause</p>
<p>A. Staff and Labour</p>	
<p>6.1 Engagement of Staff and Labour</p>	<p>Except as otherwise stated in the Employer's Requirement, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing.</p> <p>The Contractor shall be obliged, to the extent practicable and reasonable, to employ staff and labour in compliance with Laws of Tanzania.</p>

<p>6.2 Rates of Wages and Conditions of Labour</p>	<p>The Contractor shall pay rates of wages, and observe conditions of labour, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by Employers whose trade or industry is similar to that of the Contractor.</p>
<p>6.3 Persons in the Service of Employer</p>	<p>The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Employer's Personnel.</p>
<p>6.4 Labour Laws</p>	<p>The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.</p> <p>The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.</p>
<p>6.5 Facilities for Staff and Labour</p>	<p>Except as otherwise stated in the Employer's Requirement, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide facilities for the Employer's Personnel as stated in the Employer's Requirement.</p> <p>The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.</p>
<p>6.6 Health and Safety</p>	<p>The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel and the Public in accordance with the governing occupational health and safety Laws. In collaboration with</p>

	<p>local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.</p> <p>The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.</p> <p>The Contractor shall send, to the Project Manager, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Project Manager may reasonably require.</p> <p>The Contractor shall conduct an HIV-AIDS awareness programme via an approved service provider, and shall undertake such other measures as are specified in this Contract to reduce the risk of the transfer of the HIV between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.</p>
<p>6.7 Contractor's Superintendence</p>	<p>Throughout the execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the work.</p>

	<p>Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in GCC 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.</p>
<p>6.8 Contractor's Personnel</p>	<p>The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Project Manager may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:</p> <ul style="list-style-type: none"> (a) persists in any misconduct or lack of care, (b) carries out duties incompetently or negligently, (c) fails to conform with any provisions of the Contract, or (d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment. <p>If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.</p>
<p>6.9 Records of Contractor's Personnel and Equipment</p>	<p>The Contractor shall submit, to the Project Manager, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Project Manager, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.</p>
<p>6.10 Disorderly Conduct</p>	<p>The Contractor shall at all times take all reasonable precautions to prevent any</p>

	<p>unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.</p>
<p>6.11 Foreign Personnel</p>	<p>The Contractor may bring in to the country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Employer will, if requested by the Contractor, use his best endeavours in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national, or government permission required for bringing in the Contractor's personnel.</p> <p>The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.</p>
<p>6.12 Funeral Arrangements</p>	<p>The Contractor shall be responsible, to the extent required by local regulations, for making any funeral arrangements for any of his local employees who may die while engaged upon the Works.</p>
<p>6.13 Prohibition of Forced or Compulsory Labour</p>	<p>The contractor shall not employ "forced or compulsory labour" in any form. "Forced or compulsory labour" consists of all work or service, not voluntarily performed, that is extracted from an individual under threat of force or penalty.</p>
<p>6.14 Prohibition of Harmful Child Labour</p>	<p>The Contractor shall not employ any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.</p>

6.15 Employment Records of Workers	The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Project Manager, and these records shall be available for inspection by Auditors during normal working hours. These records shall be included in the details to be submitted by the Contractor under GCC 6.10 [Records of Contractor's Personnel and Equipment].
B. Plant, Materials and Workmanship	
7.1 Manner of Execution	The Contractor shall carry out the manufacture of Plant, the production and manufacture of Materials, and all other execution of the Works: <ul style="list-style-type: none"> (a) in the manner (if any) specified in the Contract, (b) in a proper workmanlike and careful manner, in accordance with recognised good practice, and (c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.
7.2 Samples	The Contractor shall submit the following samples of Materials, and relevant information, to the Project Manager for consent prior to using the Materials in or for the Works: <ul style="list-style-type: none"> (a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost, and (b) additional samples instructed by the Project Manager as a Variation.

	Each sample shall be labelled as to origin and intended use in the Works.
7.3 Inspection	<p>The Authorized Employer's Personnel shall at all reasonable times:</p> <ul style="list-style-type: none"> (a) have full access to all parts of the Site and to all places from which natural Materials are being obtained, and (b) during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials. <p>The Contractor shall give the Employer's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.</p> <p>The Contractor shall give notice to the Project Manager whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Project Manager shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Project Manager does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Project Manager, uncover the work and thereafter reinstate and make good, all at the Contractor's cost.</p>
7.4 Testing	This GCC shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).

	<p>Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Project Manager, the time and place for the specified testing of any Plant, Materials and other parts of the Works.</p> <p>The Project Manager may, under GCC 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.</p> <p>The Project Manager shall give the Contractor not less than 24 hours' notice of the Project Manager's intention to attend the tests. If the Project Manager does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Project Manager, and the tests shall then be deemed to have been made in the Project Manager's presence.</p> <p>If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Employer is responsible, the Contractor shall give notice to the Project Manager and shall be entitled subject to GCC 20.1 [Contractor's Claims] to an extension of time and</p>
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	<p>associated costs (if any) for such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion].</p> <p>After receiving this notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine these matters.</p> <p>The Contractor shall promptly forward to the Project Manager duly certified reports of the tests. When the specified tests have been passed, the Project Manager shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Project Manager has not attended the tests, he shall be deemed to have accepted the readings as accurate.</p>
<p>7.5 Rejection</p>	<p>If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Project Manager may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.</p> <p>If the Project Manager requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Employer to incur additional costs, the Contractor shall subject to GCC 2.5 [Employer's Claims] pay these costs to the Employer.</p>

<p>7.6 Remedial Work</p>	<p>Notwithstanding any previous test or certification, the Project Manager may instruct the Contractor to:</p> <ul style="list-style-type: none"> (a) remove from the Site and replace any Plant or Materials which is not in accordance with the Contract, (b) remove and re-execute any other work which is not in accordance with the Contract, and (c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise. <p>The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).</p> <p>If the Contractor fails to comply with the instruction, the Employer shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to GCC 2.5 [Employer's Claims] pay to the Employer all costs arising from this failure.</p>
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<p>7.7 Ownership of Plant and Materials</p>	<p>Except otherwise specified in the Contract, each item of Plant and Materials shall, to the extent consistent with the Laws of the Country, become the property of the Employer at whichever is the earlier of the following times, free from liens and other encumbrances:</p> <ul style="list-style-type: none"> (a) when it is incorporated in the Works; (b) when the Contractor is paid the corresponding value of the Plant and Materials under GCC 8.10 [Payment for Plant and Materials in Event of Suspension].
<p>7.8 Royalties</p>	<p>Unless otherwise stated in the Employer's Requirements, the Contractor shall pay all royalties, rents and other payments for:</p> <ul style="list-style-type: none"> (a) natural Materials obtained from outside the Site, and (b) the disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.
<p>C. Commencement, Delays and Suspension</p>	

<p>8.1 Commencement of Works</p>	<p>Except otherwise specified in the SCC, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Project Manager's instruction recording the agreement of both Parties on such fulfillment and instructing to commence the Works is received by the Contractor:</p> <ul style="list-style-type: none"> (a) Signing of the Contract by both Parties, and if required, approval of the Contract by relevant authorities in the Country; and (b) except if otherwise specified in the SCC, possession of the Site given to the Contractor together with such permission(s) under (a) of GCC 1.13 [Compliance with Laws] as required for the commencement of the Works <p>Where the above conditions have been met and the Project Manager's instruction is received by the Contractor, the Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay.</p> <p>Where the conditions (a) and (b) above have been met and the Project Manager's instruction is not received by the Contractor within 180 days from the date of signing the Contract without any justifiable reasons, the Contractor may terminate the Contract under GCC 16.2 [Termination by Contractor].</p>
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<p>8.2 Time for Completion</p>	<p>The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:</p> <ul style="list-style-type: none">(a) achieving the passing of the Tests on Completion, and(b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under GCC 10.1 [Taking Over of the works and sections]
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<p>8.3 Programme</p>	<p>The Contractor shall submit a detailed time programme to the Project Manager within 14 working days after receiving the notice under GCC 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:</p> <ul style="list-style-type: none"> (a) the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design, Contractor's Documents, procurement, manufacture, inspection, delivery to Site, construction, erection, testing, commissioning and trial operation, (b) the periods for reviews under GCC 5.2 [Contractor's Documents] and for any other submissions, approvals and consents specified in the Employer's Requirements, (c) the sequence and timing of inspections and tests specified in the Contract, and (d) a supporting report which includes: <ul style="list-style-type: none"> (i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and (ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage. <p>Unless the Project Manager, within 14 working days after receiving a programme, gives notice to the Contractor stating the extent to which it</p>
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	<p>does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Employer's Personnel shall be entitled to rely upon the programme when planning their activities.</p> <p>The Contractor shall promptly give notice to the Project Manager of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works. The Project Manager may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under GCC 13.3 [Variation Procedure].</p> <p>If, at any time, the Project Manager gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Project Manager in accordance with this GCC.</p>
<p>8.4 Extension of Time for Completion</p>	<p>The Employer may extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work.</p> <p>The Contractor shall be entitled subject to GCC 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of GCC 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:</p>

(a) a Variation (unless an adjustment to the Time for Completion has been agreed under GCC 13.3 [Variation Procedure]),

(b) a cause of delay giving an entitlement to extension of time under a GCC of these Conditions,

(c) exceptionally adverse climatic conditions,

(d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or

(e) any delay, impediment or prevention caused by or attributable to the Employer, the Employer's Personnel, or the Employer's other contractors on the Site.

If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Project Manager in accordance with GCC 20.1 [Contractor's Claims]. When determining each extension of time under GCC 20.1, the Employer shall review previous determinations and may increase, but shall not decrease, the total extension of time.

The Employer shall, within twenty one (21) days of receipt of application for extension of the Intended Completion Date by the Contractor, decide whether or not to grant the extension. The application by the Contractor shall be granted only when supported by full information of a compensation event(s) or variation.

In the event the Contractor has not issued an early warning notice of a delay or has failed to cooperate in dealing with a

	delay, such a delay or failure may be a ground for not granting the extension of the Intended Completion Date.
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<p>8.5 Rate of Progress</p>	<p>If, at any time:</p> <p>(a) actual progress is too slow to complete within the Time for Completion, and/or</p> <p>(b) progress has fallen (or will fall) behind the current programme under GCC 8.3 [Programme],</p> <p>other than as a result of a cause listed in GCC 8.4 [Extension of Time for Completion], then the Project Manager may, upon written approval of the Employer, instruct the Contractor to submit, under GCC 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.</p> <p>Unless the Project Manager notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Employer to incur additional costs, the Contractor shall subject to GCC 2.5 [Employer's Claims] pay these costs to the Employer, in addition to delay damages (if any) under GCC 8.7 below</p>
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<p>8.6 Liquidated Damages</p>	<p>The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the SCC for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the maximum amount of performance security stated in the SCC. The Employer may deduct liquidated damages from payments due to the Contractor.</p> <p>Where the Project Manager, after assessment of work progress, upon satisfaction that the Contractor will not complete the works within the contract period, may issue a notice to the Contractor requiring the payment of liquidated damages pursuant to GCC 51.1</p> <p>If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in GCC 45.1</p>
<p>8.7 Suspension of Work</p>	<p>The Project Manager may at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.</p> <p>The Project Manager may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following GCCs 8.8, 8.9 and 8.10 shall not apply.</p>

<p>8.8 Consequences of Suspension</p>	<p>If the Contractor suffers delay and/or incurs Cost from complying with the Project Manager's instructions under GCC 8.7 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Project Manager and shall be entitled subject to GCC 20.1 [Contractor's Claims] to an extension of time and associated costs (if any) for such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion], and</p> <p>After receiving this notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine these matters.</p> <p>The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with GCC 8.7 [Suspension of Work].</p>
<p>8.9 Payment for Plant and Materials in Event of Suspension</p>	<p>The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/or Materials which have not been delivered to Site if:</p> <ul style="list-style-type: none"> (a) the work on Plant or delivery of Plant and/or Materials has been suspended for more than 28 days, and (b) the Contractor has marked the Plant and/or Materials as the Employer's property in accordance with the Project Manager's instructions.

8.10 Prolonged Suspension	<p>If the suspension under GCC 8.7 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Project Manager's permission to proceed.</p> <p>If the Project Manager does not give permission within 28 days after being requested to do so, the Contractor may, by giving notice to the Project Manager, treat the suspension as an omission under GCC 13 [Variations and Adjustments] of the affected part of the Works.</p> <p>If the suspension affects the whole of the Works, the Contractor may give notice of termination under GCC 16.2 [Termination by Contractor].</p>
8.11 Resumption of Work	<p>After the permission or instruction to proceed is given, the Contractor and the Project Manager shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension.</p>
D. Tests on Completion	
9.1 Contractor's Obligations	<p>The Contractor shall carry out the Tests on Completion in accordance with this Clause and GCC 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of GCC 4.1 [Contractor's General Obligations].</p> <p>The Contractor shall give to the Project Manager not less than 21 days notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 working days</p>

after this date, on such day or days as the Project Manager may instruct.

Unless otherwise stated **in the SCC**, the Tests on Completion shall be carried out in the following sequence:

- (a) pre-commissioning tests, which shall include the appropriate inspections and ("dry" or "cold") functional tests to demonstrate that each item of Plant can safely undertake the next stage;
- (b) commissioning tests, which shall include the specified operational tests to demonstrate that the Works or Section can be operated safely and as specified, under all available operating conditions; and
- (c) trial operation, which shall demonstrate that the Works or Section perform reliably and in accordance with the Contract.

During trial operation, when the Works are operating under stable conditions, the Contractor shall give notice to the Project Manager that the Works are ready for any other Tests on Completion, including performance tests to demonstrate whether the Works conform with criteria specified in the Employer's Requirements and with the Schedule of Guarantees.

Trial operation shall not constitute a taking-over under GCC 10 [Employer's Taking Over]. Any product produced by the Works during trial operation shall be the property of the Employer.

In considering the results of the Tests on Completion, the Project Manager

	<p>shall make allowances for the effect of any use of the Works by the Employer on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Project Manager.</p>
<p>9.2 Delayed Tests</p>	<p>If the Tests on Completion are being unduly delayed by the Employer, GCC 7.4 [Testing] (fifth paragraph) and/or GCC 10.3 [Interference with Tests on Completion] shall be applicable.</p> <p>If the Tests on Completion are being unduly delayed by the Contractor, the Project Manager may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Project Manager.</p> <p>If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Employer's Personnel may proceed with the Tests at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.</p>
<p>9.3 Retesting</p>	<p>If the Works, or a Section, fail to pass the Tests on Completion, GCC 7.5 [Rejection] shall apply, and the Project Manager or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.</p>

<p>9.4 Failure to Pass Tests on Completion</p>	<p>If the Works, or a Section, fail to pass the Tests on Completion repeated under GCC 9.3 [Retesting], the Project Manager may:</p> <ul style="list-style-type: none"> (a) order further repetition of Tests on Completion under GCC 9.3; (b) if the failure deprives the Employer of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Employer shall have the same remedies as are provided in sub-paragraph (c) of GCC 11.4 [Failure to Remedy Defects]; or (c) issue a Taking-Over Certificate, if the Employer so requests. <p>In the event of sub-paragraph (c), the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Employer as a result of this failure.</p> <p>Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Employer may require the reduction to be:</p> <ul style="list-style-type: none"> (a) agreed by both Parties (in full satisfaction of this failure only) and paid before this Taking-Over Certificate is issued, or (ii) determined and paid under GCC 2.5 [Employer’s Claims] and GCC 3.5 [Determinations].
<p>E. Employer’s Taking Over</p>	
<p>10.1 Taking Over of the Works and Sections</p>	<p>Except as stated in GCC 9.4 [Failure to Pass Tests on Completion], the Works</p>

	<p>shall be taken over by the Employer when (i) the Works have been completed in accordance with the Contract, including the matters described in GCC 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and</p> <p>(ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this GCC.</p> <p>The Contractor may apply by notice to the Project Manager for a Taking-Over Certificate not earlier than 14 working days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.</p> <p>The Project Manager shall, within 28 days after receiving the Contractor's application:</p> <p>(a) issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or</p> <p>(b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this GCC.</p>
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	<p>If the Project Manager fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.</p>
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<p>10.2 Taking Over of Parts of the Works</p>	<p>The Project Manager may, at the sole discretion and written approval of the Employer, issue a Taking-Over Certificate for any part of the Permanent Works.</p> <p>The Employer shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Project Manager has issued a Taking-Over Certificate for this part. However, unless otherwise agreed by the Parties, if the Employer does use any part of the Works before the Taking-Over Certificate is issued:</p> <ul style="list-style-type: none"> (a) the part which is used shall be deemed to have been taken over as from the date on which it is used, (b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Employer, and (c) if requested by the Contractor, the Project Manager shall issue a Taking-Over Certificate for this part. <p>After the Project Manager has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Liability Period.</p> <p>If the Contractor incurs cost as a result of the Employer taking over and/or using a part of the Works, other than such use as is specified in the Contract</p>
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	<p>or agreed by the Contractor, the Contractor shall</p> <ul style="list-style-type: none">(a) give notice to the Project Manager and(b) be entitled subject to GCC 20.1 [Contractor's Claims] to payment of any such Cost plus profit, which shall be included in the Contract Price. After receiving this notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine the matter. <p>If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the Liquidated damages thereafter for completion of the remainder of the Works shall be reduced. Similarly, the Liquidated damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the value of the Works or Section (as the case may be) as a whole. The Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of Liquidated damages under GCC 8.7 [Liquidated Damages], and shall not affect the maximum amount of these damages.</p>
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<p>10.3 Delay of Tests on Completion</p>	<p>If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Employer is responsible and the suffers a delay, the Contractor shall give notice to the Project Manager and may be entitled subject to GCC 20.1 [Contractor's Claims], to an extension of time and any associated costs (if any) for such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion], and</p> <p>After receiving this notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine these matters.</p>
<p>10.4 Surfaces Requiring Reinstatement</p>	<p>Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.</p>
<p>F. Defects Liability</p>	
<p>11.1 Completion of Outstanding Work and Remedying Defects</p>	<p>In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Liability Period or as soon as practicable thereafter, the Contractor shall:</p> <ul style="list-style-type: none"> (a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Project Manager, and (b) execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the

	<p>Employer on or before the expiry date of the Defects Liability Period for the Works or Section (as the case may be).</p> <p>If a defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Employer.</p>
<p>11.2 Cost of Remedying Defects</p>	<p>All work referred to in sub-paragraph (b) of GCC 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:</p> <ul style="list-style-type: none"> (a) any design for which the Contractor is responsible, (b) Plant, Materials or workmanship not being in accordance with the Contract, or (c) failure by the Contractor to comply with any other obligation. <p>If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Employer and GCC 13.3 [Variation Procedure] shall apply.</p>
<p>11.3 Extension of Defects Liability Period</p>	<p>The Employer shall be entitled subject to GCC 2.5 [Employer's Claims] to an extension of the Defects Liability Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or by reason of a damage attributable to the</p>

	<p>Contractor. However, that extension shall not exceed two years.</p> <p>If delivery and/or erection of Plant and/or Materials was suspended under GCC 8.8 [Suspension of Work] or GCC 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Liability Period for the Plant and/or Materials would otherwise have expired.</p>
<p>11.4 Failure to Remedy Defects</p>	<p>If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by (or on behalf of) the Employer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.</p> <p>If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under GCC 11.2 [Cost of Remedying Defects], the Employer may (at his option):</p> <ul style="list-style-type: none"> (a) carry out the work himself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to GCC 2.5 [Employer's Claims] pay to the Employer the costs reasonably incurred by the Employer in remedying the defect or damage; (b) require the Project Manager to determine a reasonable reduction in the Contract Price in accordance with GCC 3.5 [Determinations]; or

	<p>(c) if the defect or damage deprives the Employer of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, the Employer shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.</p>
<p>11.5 Removal of Defective Work</p>	<p>If the defect or damage cannot be remedied expeditiously on the Site and the Employer gives written consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.</p>
<p>11.6 Further Tests</p>	<p>If the work of remedying of any defect or damage may affect the performance of the Works, the Project Manager may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 14 working days after the defect or damage is remedied.</p> <p>These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under GCC 11.2 [Cost of Remedying Defects], for the cost of the remedial work.</p>

11.7 Right of Access	Until the Performance Certificate has been issued, the Contractor shall have the right of access to all parts of the Works and to records of the operation and performance of the Works, except as may be inconsistent with the Employer's security restrictions.
11.8 Contractor to Search	The Contractor shall, if required by the Project Manager, search for the cause of any defect, under the direction of the Project Manager. Unless the defect is to be remedied at the cost of the Contractor under GCC 11.2 [Cost of Remedying Defects], the Cost of the search plus profit shall be agreed or determined by the Project Manager in accordance with GCC 3.5 [Determinations] and shall be included in the Contract Price.
11.9 Performance Certificate	<p>Performance of the Contractor's obligations shall not be considered to have been completed until the Project Manager has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.</p> <p>The Project Manager shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Liability Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. A copy of the Performance Certificate shall be issued to the Employer.</p> <p>Only the Performance Certificate shall be deemed to constitute acceptance of the Works.</p>
11.10 Unfulfilled Obligations	After the Performance Certificate has been issued, each Party shall remain

	<p>liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.</p>
<p>11.11 Clearance of Site</p>	<p>Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.</p> <p>If all these items have not been removed within 28 days after receipt by the Contractor of the Performance Certificate, the Employer may sell or otherwise dispose of any remaining items. The Employer shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.</p> <p>Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Employer's costs, the Contractor shall pay the outstanding balance to the Employer.</p>
<p>G. Tests after Completion</p>	
<p>12.1 Procedure for Tests after Completion</p>	<p>If Tests after Completion are specified in the SCC, this Clause shall apply. Unless otherwise stated in the SCC, the Employer shall:</p> <ul style="list-style-type: none"> (a) provide all electricity, equipment, fuel, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the Tests after Completion efficiently, and (b) carry out the Tests after Completion in accordance with

	<p>the manuals supplied by the Contractor under GCC 5.7 [Operation and Maintenance Manuals] and such guidance as the Contractor may be required to give during the course of these Tests; and in the presence of such Contractor's Personnel as either Party may reasonably request.</p> <p>The Tests after Completion shall be carried out as soon as is reasonably practicable after the Works or Section have been taken over by the Employer. The Employer shall give to the Contractor 21 days' notice of the date after which the Tests after Completion will be carried out. Unless otherwise agreed, these Tests shall be carried out within 14 working days after this date, on the day or days determined by the Employer.</p> <p>If the Contractor does not attend at the time and place agreed, the Employer may proceed with the Tests after Completion, which shall be deemed to have been made in the Contractor's presence, and the Contractor shall accept the readings as accurate.</p> <p>The results of the Tests after Completion shall be compiled and evaluated by both Parties. Appropriate account shall be taken of the effect of the Employer's prior use of the Works.</p>
<p>12.2 Delayed Test</p>	<p>If the Contractor incurs Cost as a result of any unreasonable delay by the Employer to the Tests after Completion, the Contractor shall</p> <ul style="list-style-type: none"> (a) give notice to the Project Manager; and (b) be entitled subject to GCC 20.1 [Contractor's Claims] to payment of any such Cost plus reasonable

	<p>profit, which shall be included in the Contract Price.</p> <p>After receiving this notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine this Cost and profit.</p> <p>If, for reasons not attributable to the Contractor, a Tests after Completion on the Works or any Section cannot be completed during the Defects Liability Period (or any other period agreed upon by both Parties), then the Parties to agree on the final date of completing the test.</p>
<p>12.3 Retesting</p>	<p>If the Works, or a Section, fail to pass the Tests after Completion:</p> <ul style="list-style-type: none"> (a) sub-paragraph (b) of GCC 11.1 [Completion of Outstanding Work and Remedying Defects] shall apply; and (b) either Party may then require the failed Tests, and the Tests after Completion on any related work, to be repeated under the same terms and conditions. <p>If and to the extent that this failure and retesting are attributable to any of the matters listed in sub-paragraphs (a) to (d) of GCC 11.2 [Cost of Remedying Defects] and cause the Employer to incur additional costs, the Contractor shall subject to GCC 2.5 [Employer's Claims] pay these costs to the Employer.</p>
<p>12.4 Failure to Pass Tests after Completion</p>	<p>If the following conditions apply, namely:</p> <ul style="list-style-type: none"> (a) the Works, or a Section, fail to pass any or all of the Tests after Completion,

	<p>(b) the relevant sum payable as non-performance damages for this failure is stated (or its method of calculation is defined) in the Contract, and</p> <p>(c) the Contractor pays this relevant sum to the Employer during the Defects Liability Period, then the Works or Section shall be deemed to have passed these Tests after Completion.</p> <p>If the Works, or a Section, fail to pass a Test after Completion and the Contractor proposes to make adjustments or modifications to the Works or such Section, the Contractor may be instructed by (or on behalf of) the Employer that right of access to the Works or Section cannot be given until a time that is convenient to the Employer. The Contractor shall then remain liable to carry out the adjustments or modifications and to satisfy this Test, within a reasonable period of receiving notice by (or on behalf of) the Employer of the time that is convenient to the Employer. However, if the Contractor does not receive this notice during the relevant Defects Liability Period, the Contractor shall be relieved of this obligation.</p> <p>If the Contractor incurs additional Cost as a result of any unreasonable delay by the Employer in permitting access to the Works or Plant by the Contractor, either to investigate the causes of a failure to pass a Tests after Completion or to carry out any adjustments or modifications, the Contractor may:</p> <p>(a) give notice to the Project Manager; and</p> <p>(b) be entitled subject to GCC 20.1 [Contractor's Claims] to payment</p>
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	<p>of any such Cost plus reasonable profit, which shall be included in the Contract Price.</p> <p>After receiving this notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine the matter.</p>
<p>H. Variations and Adjustments</p>	
<p>13.1 Right to Vary</p>	<p>Variations may be initiated by the Project Manager at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal.</p> <p>The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Project Manager stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Project Manager shall cancel, confirm or vary the instruction.</p> <p>Variation may be in the form of:</p> <ul style="list-style-type: none"> (a) changes to the quantities of any item of work included in the Contract; (a) changes to the quality and other characteristics of any item of work; (b) changes to the levels, positions and/or dimensions of any part of the Works; (a) omission of any Work unless it is to be carried out by others;

	<p>(b) any additional Work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work; or</p> <p>(c) changes to the sequence or timing of the execution of the Works.</p> <p>The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Project Manager, with prior written approval of the Employer, instructs a Variation.</p>
<p>13.2 Value Engineering</p>	<p>The Contractor may, at any time, submit to the Project Manager a written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Employer of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Employer of the completed Works, or (iv) otherwise be of benefit to the Employer.</p> <p>The proposal shall be prepared at the cost of the Contractor and shall include the items listed in GCC 13.3 [Variation Procedure].</p> <p>If a proposal, which is approved by the Project Manager, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:</p> <p>(a) the Contractor shall design this part,</p> <p>(b) sub-paragraphs (a) to (d) of GCC 4.1 [Contractor's General Obligations] shall apply, and</p> <p>(c) if this change results in a reduction in the contract value of this part, the Project Manager shall upon</p>

	<p>Employer's approval proceed in accordance with GCC 3.5 [Determinations] to determine a fee, which shall be included in the Contract Price. This fee shall be half (50%) of the difference between the following amounts:</p> <ul style="list-style-type: none"> (i) such reduction in contract value, resulting from the change, excluding adjustments under GCC 13.7 [Adjustments for Changes in Legislation] and GCC 13.8 [Adjustments for Changes in Cost],and (ii) the reduction (if any) in the value to the Employer of the varied works, taking account of any reductions in quality, anticipated life or operational efficiencies. <p>However, if amount (i) is less than amount (ii), there shall not be a fee.</p>
<p>13.3 Variation Procedure</p>	<p>If the Project Manager requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:</p> <ul style="list-style-type: none"> (a) a description of the proposed work to be performed and a programme for its execution, (b) the Contractor's proposal for any necessary modifications to the programme according to GCC 8.3 [Programme] and to the Time for Completion, and (c) the Contractor's proposal for evaluation of the Variation.

	<p>The Project Manager shall, as soon as practicable after receiving such proposal (under GCC 13.2 [Value Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.</p> <p>Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Project Manager to the Contractor, who shall acknowledge receipt.</p> <p>Upon instructing or approving a Variation, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to agree or determine adjustments to the Contract Price and the Schedule of Payments. These adjustments shall include reasonable profit, and shall take account of the Contractor's submissions under GCC 13.2 [Value Engineering] if applicable.</p>
<p>13.4 Payment in Applicable Currencies</p>	<p>If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.</p>
<p>13.5 Provisional Sums</p>	<p>Each Provisional Sum shall only be used, in whole or in part, in accordance with the Project Manager's instructions and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or</p>

	<p>services to which the Provisional Sum relates, as the Project Manager shall have instructed. For each Provisional Sum, the Project Manager may instruct:</p> <ul style="list-style-type: none"> (a) work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under GCC 13.3 [Variation Procedure]; and/or (b) Plant, Materials or services to be purchased by the Contractor, for which there shall be included in the Contract Price: <ul style="list-style-type: none"> (i) the actual amounts paid (or due to be paid) by the Contractor, and (ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentage rate stated in the Appendix to Tender shall be applied. <p>The Contractor shall, when required by the Project Manager, produce quotations, invoices, vouchers and accounts or receipts in substantiation.</p>
<p>13.6 Daywork</p>	<p>For work of a minor or incidental nature, the Project Manager may instruct that such work be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this GCC shall not apply.</p>

	<p>Before ordering Goods for the work, the Contractor shall submit quotations to the Project Manager. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.</p> <p>Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Project Manager accurate statements in duplicate which shall include the following details of the resources used in executing the previous day's work:</p> <ul style="list-style-type: none"> (a) the names, occupations and time of Contractor's Personnel, (b) the identification, type and time of Contractor's Equipment and Temporary Works, and (c) the quantities and types of Plant and Materials used. <p>One copy of each statement will, if correct, or when agreed, be signed by the Project Manager and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Project Manager, prior to their inclusion in the next Statement under GCC 14.3 [Application for Interim Payment Certificates].</p>
<p>13.7 Adjustments for Changes in Legislation</p>	<p>The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of Tanzania (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.</p>

	<p>If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Project Manager and shall be entitled subject to GCC 20.1 [Contractor's Claims] to an extension of time and associated costs (if any) for such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion], and</p> <p>After receiving this notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine these matters.</p> <p>Notwithstanding the foregoing, the Contractor shall not be entitled to such an extension of time if the same shall already have been taken into account in determining an extension and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of GCC 13.8.</p>
<p>13.8 Adjustments for Changes in Cost</p>	<p>In this GCC, "table of adjustment data" means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this GCC shall not apply.</p> <p>If this GCC applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labour, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this GCC. To the extent that full compensation for any rise or fall in Costs is not covered</p>

by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

$$P_n = a + b \frac{L_n}{L_o} + c \frac{E_n}{E_o} + d \frac{M_n}{M_o} + \dots \text{ where:}$$

"P_n" is the adjustment multiplier to be applied to the estimated contract value in the relevant currency of the work carried out in period "n", this period being a month unless otherwise stated **in the SCC** ;

"a" is a fixed coefficient, stated in the relevant table of adjustment data, representing the non-adjustable portion in contractual payments;

"b", "c", "d", ... are coefficients representing the estimated proportion of each cost element related to the execution of the Works, as stated in the relevant table of adjustment data; such tabulated cost elements may be indicative of resources such as labour, equipment and materials;

"L_n", "E_n", "M_n", ... are the current cost indices or reference prices for period "n", expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated

	<p>cost element on the date 49 days prior to the last day of the period (to which the particular Payment Certificate relates); and</p> <p>“Lo”, “Eo”, “Mo”, ... are the base cost indices or reference prices, expressed in the relevant currency of payment, each of which is applicable to the relevant tabulated cost element on the Base Date.</p> <p>The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Project Manager. For this purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table) for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.</p> <p>In cases where the “currency of index” (stated in the table) is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the central bank of the Country, of this relevant currency on the above date for which the index is required to be applicable.</p> <p>Until such time as each current cost index is available, the Project Manager shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.</p> <p>If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days</p>
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	<p>prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price: whichever is more favourable to the Employer.</p> <p>The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations.</p>
<p>I. Contract Price and Payment</p>	
<p>14.1 The Contract Price</p>	<p>Unless otherwise stated in the SCC:</p> <ul style="list-style-type: none"> (a) the Contract Price shall be the lumpsum contract amount agreed or determined under GCC 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract; (b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in GCC 13.7 [Adjustments for Changes in Legislation]; (c) any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities: <ul style="list-style-type: none"> (i) of the Works which the Contractor is required to execute, or (ii) for the purposes of GCC 12 [Measurement and Evaluation]; and

	<p>the Contractor shall submit to the Project Manager, within 28 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Project Manager may take account of the breakdown when preparing Payment Certificates, but shall not be bound by it.</p>
<p>14.2 Advance Payment</p>	<p>If stated in the SCC the Employer shall make advance payment to the Contractor of the amounts stated in the SCC by the manner stated in the SCC, against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to the advance payment. The Guarantee shall remain effective until the advance payment has been repaid, but the amount of the Guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest will not be charged on the advance payment.</p> <p>The Contractor shall use the advance payment to pay for mobilization and design expenses required specifically for design and execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.</p> <p>Unless and until the Employer receives this guarantee, or if the total advance payment is not stated in the SCC, this GCC shall not apply.</p> <p>The Project Manager shall deliver to the Employer and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under GCC 14.3 [Application for Interim Payment Certificates]) and after the Employer receives</p>

	<p>(a) the Performance Security in accordance with GCC 4.2 [Performance Security]; and</p> <p>(b) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by an entity and from within a country (or other jurisdiction) approved by the Employer, and shall be in the form annexed to the SCC or in another form approved by the Employer.</p> <p>The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 28 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.</p> <p>Unless otherwise stated in the SCC, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Project Manager in accordance with GCC 14.6 [Issue of Interim Payment Certificates], as follows:</p> <p>(a) deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent of the Accepted Contract Amount less Provisional Sums; and</p> <p>(b) deductions shall be made at the amortisation rate stated in the SCC</p>
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	<p>of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when eighty per cent (80%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.</p> <p>If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under GCC 15 [Termination by Employer], GCC 16 [Suspension and Termination by Contractor] or GCC 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under GCC 15 [Termination by Employer] and GCC 19.6 [Optional Termination, Payment and Release], payable by the Contractor to the Employer.</p>
<p>14.3 Application for Interim Payment Certificates</p>	<p>The Contractor shall submit a Statement in six copies to the Project Manager after the end of each month, in a form approved by the Project Manager, showing in detail the amounts to which the Contractor considers himself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with GCC 4.21 [Progress Reports].</p> <p>The Statement shall include the following items, as applicable, which</p>

	<p>shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:</p> <ul style="list-style-type: none"> (a) the estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described in subparagraphs (b) to (g) below); (b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with GCC 13.7 [Adjustments for Changes in Legislation] and GCC 13.8 [Adjustments for Changes in Cost]; (c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in the SCC to the total of the above amounts, until the amount so retained by the Employer reaches the limit of Retention Money (if any) stated in the SCC; (d) any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with GCC 14.2 [Advance Payment]; (e) any amounts to be added and deducted for Plant and Materials in accordance with GCC 14.5 [Plant and Materials intended for the Works]; (f) any other additions or deductions which may have become due under the Contract or otherwise, including those under GCC 20
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	<p>[Claims, Disputes and Arbitration]; and</p> <p>(g) the deduction of amounts certified in all previous Payment Certificates.</p>
<p>14.4 Schedule of Payments</p>	<p>If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:</p> <p>(a) the instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of GCC 14.3 [Application for Interim Payment Certificates];</p> <p>(b) GCC 14.5 [Plant and Materials intended for the Works] shall not apply; and</p> <p>(c) if these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Project Manager may proceed in accordance with GCC 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less than that on which the instalments were previously based.</p> <p>If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at</p>

	<p>quarterly intervals, until the Taking-Over Certificate has been issued for the Works.</p>
<p>14.5 Plant and Materials intended for the Works</p>	<p>If this GCC applies, Interim Payment Certificates shall include, under sub-paragraph (e) of GCC 14.3,</p> <ul style="list-style-type: none"> (a) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (b) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of GCC 14.3 [Application for Interim Payment Certificates]. <p>If the lists referred to in sub-paragraphs (b)(i) or (c)(i) below are not included in the SCC, this GCC shall not apply.</p> <p>The Project Manager shall determine and certify each addition if the following conditions are satisfied:</p> <ul style="list-style-type: none"> (a) the Contractor has: <ul style="list-style-type: none"> (i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and (ii) submitted a statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence; <p>and either:</p> <ul style="list-style-type: none"> (b) the relevant Plant and Materials:

	<ul style="list-style-type: none"> (i) are those listed in the Schedules for payment when shipped, (ii) have been shipped to the Country, en route to the Site, in accordance with the Contract; and (iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Project Manager together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Employer in amounts and currencies equal to the amount due under this GCC: this guarantee may be in a similar form to the form referred to in GCC 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration; <p>or</p> <ul style="list-style-type: none"> (c) the relevant Plant and Materials: <ul style="list-style-type: none"> (i) are those listed in the Schedules for payment when delivered to the Site, and (ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract.
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	<p>The additional amount to be certified shall be the equivalent of eighty percent of the Project Manager's determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this GCC and of the contract value of the Plant and Materials.</p> <p>The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of GCC 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.</p>
<p>14.6 Issue of Interim Payment Certificates</p>	<p>No amount will be certified or paid until the Employer has received and approved the Performance Security. Thereafter, the Project Manager shall, within 28 days after receiving a Statement and supporting documents, deliver to the Employer and to the Contractor an Interim Payment Certificate which shall state the amount which the Project Manager fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Project Manager on the Statement.</p> <p>However, prior to issuing the Taking-Over Certificate for the Works, the Project Manager shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) pursuant to GCC 14.2. In this event, the Project</p>

	<p>Manager shall give notice to the Contractor accordingly.</p> <p>An Interim Payment Certificate shall not be withheld for any other reason, although:</p> <ul style="list-style-type: none"> (a) if any thing supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or (b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Project Manager, the value of this work or obligation may be withheld until the work or obligation has been performed. <p>The Project Manager may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Project Manager's acceptance, approval, consent or satisfaction.</p>
<p>14.7 Payment and Currency</p>	<p>The Employer shall pay to the Contractor:</p> <ul style="list-style-type: none"> (a) the amount certified in each Interim Payment Certificate within 56 days after the Project Manager receives the Statement and supporting documents or, at a time when the funds or credit (from which part of the payments to the Contractor is being made) is suspended, the amount shown on any statement submitted by the Contractor, within 14 days after

	<p>such statement is submitted. Any discrepancy shall be rectified in the next payment to the Contractor; and</p> <p>(b) the amount certified in the Final Payment Certificate within 56 days after the Employer receives this Payment Certificate or, at a time when the Government's fund (from which part of the payments to the Contractor is being made) is suspended, the undisputed amount shown in the Final Statement, within 56 days after the date of notification of the suspension in accordance with GCC 16.2.</p> <p>Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (for this currency) specified in the Contract.</p> <p>The currency of payment shall be stated in the SCC. Where payments are to be made in currencies other than the Tanzania Shillings, the exchange rates to be used for calculating such amounts shall be the Bank of Tanzania exchange rate prevailing on the date of signing the Contract .</p>
<p>14.8 Delayed Payment</p>	<p>If the Employer makes a late payment the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest issued by the Bank of Tanzania on the date of signing the Contract for each of the currencies in which payments are made.</p>

<p>14.9 Payment of Retention Money</p>	<p>When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Project Manager for payment to the Contractor.</p> <p>If a Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.</p> <p>Promptly after the latest of the expiry dates of the Defects Liability Periods, the outstanding balance of the Retention Money shall be certified by the Project Manager for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a proportion of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Liability Period for the Section. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section by the estimated final Contract Price.</p> <p>However, if any work remains to be executed under GCC 11 [Defects Liability], the Project Manager shall be entitled to withhold certification of the estimated cost of this work until it has been executed.</p> <p>When calculating these proportions, no account shall be taken of any adjustments under GCC 13.7 [Adjustments for Changes in Legislation] and GCC 13.8 [Adjustments for Changes in Cost].</p>
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<p>14.10 Statement at Completion</p>	<p>Within 84 days after receiving the Taking-Over Certificate for the Works, unless otherwise stated in the SCC, the Contractor shall submit to the Project Manager six copies of a Statement at completion with supporting documents, in accordance with GCC 14.3 [Application for Interim Payment Certificates], showing:</p> <ul style="list-style-type: none"> (a) the value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works, (b) any further sums which the Contractor considers to be due, and (c) an estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion. <p>The Project Manager shall then certify in accordance with GCC 14.6 [Issue of Interim Payment Certificates].</p>
<p>14.11 Application for Final Payment Certificate</p>	<p>Within 56 days after receiving the Performance Certificate, unless otherwise stated in the SCC, the Contractor shall submit to the Project Manager, six copies of a final statement with supporting documents showing in detail in a form approved by the Project Manager:</p> <ul style="list-style-type: none"> (a) the value of all work done in accordance with the Contract, and (b) any further sums which the Contractor considers to be due to him under the Contract or otherwise. <p>If the Project Manager disagrees with or cannot verify any part of the final</p>

	<p>statement, the Contractor shall submit such further information as the Project Manager may reasonably require within 28 days from receipt of the said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Project Manager the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".</p> <p>However if, following discussions between the Project Manager and the Contractor and any changes to the final statement which are agreed, it becomes evident that a dispute exists, the Project Manager shall deliver to the Employer (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under GCC 20.4 [Obtaining Dispute Board's Decision] or GCC 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Employer (with a copy to the Project Manager) a Final Statement.</p>
<p>14.12 Discharge</p>	<p>When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.</p>
<p>14.13 Issue of Final Payment Certificate</p>	<p>Within 28 days after receiving the Final Statement and a written discharge in accordance with GCC 14.11</p>

	<p>[Application for Final Payment Certificate] and GCC 14.12 [Discharge], the Project Manager shall deliver to the Employer and to the Contractor, the Final Payment Certificate which shall state:</p> <ul style="list-style-type: none"> (a) the amount which he fairly determines is finally due, and (b) after giving credit to the Employer for all amounts previously paid by the Employer and for all sums to which the Employer is entitled, the balance (if any) due from the Employer to the Contractor or from the Contractor to the Employer, as the case may be. <p>If the Contractor has not applied for a Final Payment Certificate in accordance with GCC 14.11 [Application for Final Payment Certificate] and GCC 14.12 [Discharge], the Project Manager shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 28 days, the Project Manager shall issue the Final Payment Certificate for such amount based on his determination of final Statement submitted by the Contractor.</p>
<p>14.14 Cessation of Employer's Liability</p>	<p>The Employer shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:</p> <ul style="list-style-type: none"> (a) in the Final Statement and also (b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at

	<p>completion described in GCC 14.10 [Statement at Completion].</p> <p>However, this GCC shall not limit the Employer's liability under his indemnification obligations, or the Employer's liability in any case of fraud, deliberate default or reckless misconduct by the Employer.</p>
<p>J. Termination by Employer</p>	
<p>15.1 Notice to Correct</p>	<p>If the Contractor fails to carry out any obligation under the Contract, the Project Manager may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.</p>
<p>15.2 Termination by Employer</p>	<p>The Employer may terminate the Contract if the Contractor:</p> <ul style="list-style-type: none"> (a) fails to comply with GCC 4.2 [Performance Security] or with a notice under GCC 15.1 [Notice to Correct], (b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract, (c) without reasonable excuse fails: <ul style="list-style-type: none"> (i) to proceed with the Works in accordance with GCC 8 [Commencement, Delays and Suspension], or (ii) to comply with a notice issued under GCC 7.5 [Rejection] or GCC 7.6 [Remedial Work], within 28 days after receiving it,

	<p>(d) subcontracts the whole of the Works or assigns the Contract without the required agreement,</p> <p>(e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events, or</p> <p>(f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an inducement or reward:</p> <p style="padding-left: 40px;">(i) for doing or forbearing to do any action in relation to the Contract, or</p> <p style="padding-left: 40px;">(ii) for showing or for bearing to show favour or disfavour to any person in relation to the Contract,</p> <p>or if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such inducement or reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination.</p> <p>In any of these events or circumstances, the Employer may, upon giving 14 working days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f), the</p>
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	<p>Employer may by notice terminate the Contract immediately.</p> <p>The Employer's choice to terminate the Contract shall not prejudice any other rights of the Employer, under the Contract or otherwise.</p> <p>The Contractor shall then leave the Site and deliver any required Goods, all Contractors' Documents, and other design documents made by or for him, to the Project Manager. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice</p> <ul style="list-style-type: none">i) for the assignment of any subcontract, andii) for the protection of life or property or for the safety of the Works. <p>After termination, the Employer may complete the Works and/or arrange for any other entities to do so. The Employer and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.</p> <p>The Employer shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Employer, these items may be sold by the Employer in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.</p>
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<p>15.3 Valuation at Date of Termination</p>	<p>As soon as practicable after a notice of termination under GCC 15.2 [Termination by Employer] has taken effect, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.</p>
<p>15.4 Payment after Termination</p>	<p>After a notice of termination under GCC 15.2 [Termination by Employer] has taken effect, the Employer may:</p> <ul style="list-style-type: none"> (a) proceed in accordance with GCC 2.5 [Employer's Claims], (b) withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Employer, have been established, and/or (c) recover from the Contractor any losses and damages incurred by the Employer and any extra costs of completing the Works, after allowing for any sum due to the Contractor under GCC 15.3 [Valuation at Date of Termination]. After recovering any such losses, damages and extra costs, the Employer shall pay any balance to the Contractor.
<p>15.5 Employer's Entitlement to Termination for Convenience</p>	<p>The Employer shall be entitled to terminate the Contract, at any time for the Employer's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 28 days after the later of the dates on which the Contractor receives this notice or the Employer returns the</p>

	<p>Performance Security. The Employer shall not terminate the Contract under this GCC in order to execute the Works himself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under GCC 16.4 [Payment on Termination].</p> <p>After this termination, the Contractor shall proceed in accordance with GCC 16.3 [Cessation of Work and Removal of Contractor's Equipment] and shall be paid in accordance with GCC 19.6 [Optional Termination, Payment and Release].</p>
<p>15.6 Corrupt or Fraudulent Practices</p>	<p>If the Contractor is determined by Competent Authority that he has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contractor's employment under the Contract and expel him from the Site, and the provisions of GCC 15 shall apply as if such expulsion had been made under GCC 15.2 [Contractor's Personnel].</p> <p>For the purposes of this GCC:</p> <ul style="list-style-type: none"> (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution; (ii) "fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract; (iii) "collusive practices" means a scheme or arrangement between two or more bidders, with or

	<p>without the knowledge of the Borrower, designed to establish bid prices at artificial, non-competitive levels;</p> <p>(iv) “coercive practices” means harming or threatening to harm, directly or indirectly, persons, or their property to influence their participation in a procurement process, or affect the execution of a contract.</p>
<p>K. Suspension and Termination by the Contractor</p>	
<p>16.1 Contractor’s Entitlement to Suspend Work</p>	<p>If the Project Manager fails to certify in accordance with GCC 14.6 [Issue of Interim Payment Certificates] or the Employer fails to comply with GCC 2.4 [Employer’s Financial Arrangements] or GCC 14.7 [Payment], the Contractor may, after giving not less than 28 days’ notice to the Employer, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described in the notice.</p> <p>Notwithstanding the above, if the Government has suspended disbursements, which finances in whole or in part the execution of the Works, and no agreement has been reached by the parties pursuant to GCC 2.8, the Contractor may by notice suspend work or reduce the rate of work at any time, but not less than 14 working days after the Employer having received the suspension notification from the Government.</p> <p>The Contractor’s action shall not prejudice his entitlements to interest</p>

	<p>under GCC 14.8 [Delayed Payment] and to termination under GCC 16.2 [Termination by Contractor].</p> <p>If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant GCC and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.</p> <p>If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this GCC, the Contractor shall give notice to the Project Manager and shall be entitled subject to GCC 20.1 [Contractor's Claims] to an extension of time and associated costs (if any) for such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion], and</p> <p>After receiving this notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine these matters.</p>
<p>16.2 Termination by Contractor</p>	<p>The Contractor may terminate the Contract if:</p> <ul style="list-style-type: none"> (a) the Contractor does not receive the reasonable evidence within 42 days after giving notice under GCC 16.1 [Contractor's Entitlement to Suspend Work] in respect of a failure to comply with GCC 2.4 [failure to reach agreement upon Government suspension of financing] (b) the Employer substantially fails to perform his obligations under the Contract in such manner as to

	<p>materially and adversely affect the execution of the Contract;</p> <p>(c) the Employer fails to comply with GCC 1.6 [Contract];</p> <p>(d) a prolonged suspension affects the whole of the Works as described in GCC 8.11 [Prolonged Suspension], or</p> <p>(e) the Employer becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.</p> <p>(f) In the event the Government suspends the funds from which part of the payments to the Contractor are being made and the time agreed for future event pursuant to GCC 2.4 has expired.</p> <p>(g) the Contractor does not receive the Project Manager's instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under GCC 8.1 [Commencement of Works].</p> <p>In any of these events or circumstances, the Contractor may, upon giving 14 working days notice to the Employer, terminate the Contract. However, in the case of sub-paragraph (g), the</p>
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	<p>Contractor may by notice terminate the Contract immediately.</p> <p>The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract or otherwise.</p>
<p>16.3 Cessation of Work and Removal of Contractor's Equipment</p>	<p>After a notice of termination under GCC 15.5 [Employer's Entitlement to Termination for Convenience], GCC 16.2 [Termination by Contractor] or GCC 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:</p> <ul style="list-style-type: none"> (a) cease all further work, except for such work as may have been instructed by the Project Manager for the protection of life or property or for the safety of the Works, (b) hand over Contractor's Documents, Plant, Materials and other work; and (c) remove all other Goods which are property of the Contractor from the Site, except as necessary for safety, and leave the Site.
<p>16.4 Payment on Termination</p>	<p>After a notice of termination under GCC 16.2 [Termination by Contractor] has taken effect, the Employer shall promptly:</p> <ul style="list-style-type: none"> (a) pay the Contractor in accordance with GCC 19.6 [Optional Termination, Payment and Release], and (b) return the Performance Security to the Contractor provided that all performance obligation of the Contractor have been fulfilled.
<p>L. Risk and Responsibility</p>	

<p>17.1 Indemnities</p>	<p>The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:</p> <ul style="list-style-type: none"> (a) bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, wilful act or breach of the Contract by the Employer, the Employer's Personnel, or any of their respective agents, and (b) damage to or loss of any property, real or personal (including works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design, the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage or loss is attributable to any negligence, Fraud, wilful act or omissions by the Employer, the Employer's Personnel, their respective agents. (c) The Employer shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, fraud, wilful act or omission by
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	<p>the Employer, the Employer's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of GCC 18.3 [Insurance Against Injury to Persons and Damage to Property].</p>
<p>17.2 Contractor's Care of the Works</p>	<p>Notwithstanding GCC 11 [Defects Liability], the Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under GCC 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Employer. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Employer.</p> <p>After responsibility has accordingly passed to the Employer, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.</p> <p>If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in GCC 17.3 [Employer's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.</p>

	<p>The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.</p>
<p>17.3 Employer's Risks</p>	<p>The risks referred to in GCC 17.4 below, insofar as they directly affect the execution of the Works in the Country, are:</p> <ul style="list-style-type: none"> (a) use or occupation by the Employer of any part of the Permanent Works, except as may be specified and agreed under the Contract, (b) design of any part of the Works by the Employer's Personnel or by others for whom the Employer is responsible, and
<p>17.4 Consequences of Employer's Risks</p>	<p>If and to the extent that any of the risks listed in GCC 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Project Manager and shall rectify this loss or damage to the extent required by the Project Manager.</p> <p>If the Contractor suffers delay and/or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Project Manager and shall be entitled subject to GCC 20.1 [Contractor's Claims] to an extension of time and any associated costs (if any) for such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion]</p>

	<p>In the case of sub-paragraphs (a) and (b) of GCC 17.3 [Employer 's Risks], Cost plus profit shall be payable.</p> <p>After receiving this further notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine these matters.</p>
<p>17.5 Intellectual and Industrial Property Rights</p>	<p>In this GCC, “infringement” means an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and “claim” means a claim (or proceedings pursuing a claim) alleging an infringement.</p> <p>Whenever a Party does not give notice to the other Party of any claim within 90 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this GCC.</p> <p>The Employer shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:</p> <ul style="list-style-type: none"> (a) an unavoidable result of the Contractor’s compliance with the Contract, or (b) a result of any Works being used by the Employer: <ul style="list-style-type: none"> (i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or (ii) in conjunction with anything not supplied by the Contractor, unless such use was disclosed to the

	<p>Contractor prior to the Base Date or is stated in the Contract.</p> <p>The Contractor shall indemnify and hold the Employer harmless against and from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.</p> <p>If a Party is entitled to be indemnified under this GCC, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim.</p>
<p>17.6 Limitation of Liability</p>	<p>Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contract or for any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in GCC 8.7 [Liquidated Damages]; GCC 11.2 [Cost of Remedying Defects]; GCC 15.4 [Payment after Termination]; GCC 16.4 [Payment on Termination]; GCC 17.1 [Indemnities]; GCC 17.4 (b) [Consequences of Employer’s Risks] and GCC 17.5 [Intellectual and Industrial Property Rights].</p> <p>The total liability of the Contractor to the Employer, under or in connection with the Contract other than under GCC 4.19 [Electricity, Water and Gas], GCC 4.20 [Employer’s Equipment and Free-Issue Material], GCC 17.1 [Indemnities] and GCC 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a</p>

	<p>multiplier (greater than one) to the Contract Sum, as stated in the SCC, or (if such multiplier or other sum is not so stated), the Contract Sum.</p> <p>This Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.</p>
<p>17.7 Use of Employer’s Accomodation/Facilities</p>	<p>The Contractor shall take full responsibility for the care of the Employer provided accommodation and facilities, if any, as detailed in the Employer’s Requirement, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).</p> <p>If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Employer is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Employer.</p>
<p>M. Insurance</p>	
<p>18.1 General Requirements for Insurances</p>	<p>In this Clause, “insuring Party” means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant GCC.</p> <p>Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Employer. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take</p>

	<p>precedence over the provisions of this Clause.</p> <p>Wherever the Employer is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms provided in the tendering documents except as otherwise agreed by both Parties as stipulated in the SCC. This agreement of terms shall take precedence over the provisions of this Clause.</p> <p>If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured.</p> <p>Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.</p> <p>The relevant insuring Party shall, within the respective periods stated in the SCC (calculated from the Commencement Date), submit to the other Party:</p> <ul style="list-style-type: none">(a) evidence that the insurances described in this Clause have been effected, and(b) copies of the policies for the insurances described in GCC 18.2 [Insurance for Works and Contractor's Equipment] and GCC 18.3 [Insurance against Injury to Persons and Damage to Property]. <p>When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the</p>
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	<p>insuring Party shall also give notice to the Project Manager.</p> <p>Each Party shall comply with the conditions stipulated in its respective insurance policy. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.</p> <p>Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party.</p> <p>If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this GCC, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.</p> <p>Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Employer, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Employer in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract,</p>
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	<p>and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.</p> <p>Payments by one Party to the other Party shall be subject to GCC 2.5 [Employer's Claims] or GCC 20.1 [Contractor's Claims], as applicable.</p> <p>The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to GCC 18) with insurers from any eligible source country specified in the SCC.</p>
<p>18.2 Insurance for Works and Contractor's Equipment</p>	<p>The Contractor shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Commencement Date to the end of the Defects Liability Period.</p> <p>The Contractor shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under GCC 11 [Defects Liability]).</p> <p>The Contractor shall insure the Contractor's Equipment for not less than the full replacement value,</p>

	<p>including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.</p> <p>Unless otherwise stated in the SCC, insurances under this GCC:</p> <ul style="list-style-type: none"> (a) shall be effected and maintained by the Contractor as insuring Party, (b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the costs of rectifying the loss or damage; (c) shall cover all loss and damage from any cause not specifically stated under the contract to be Employer's Risks; (d) shall also cover, to the extent specifically specified in the SCC, loss or damage to a part of the Works which is attributable to the use or occupation by the Employer of another part of the Works, and loss or damage from the risks listed in GCC 19 [Force Majeure], excluding (in each case) risks which are not insurable at commercially reasonable terms; and (e) may however exclude loss of, damage to, and reinstatement of: <ul style="list-style-type: none"> (i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any
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	<p>other parts which are lost or damaged as a direct result of this defective condition and not as described in subparagraph (ii) below),</p> <p>(ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship</p>
<p>18.3 Insurance against Injury to Persons and Damage to Property</p>	<p>The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under GCC 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under GCC 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.</p> <p>Unless otherwise stated in the SCC, the insurances specified in this GCC:</p> <p>(a) shall be effected and maintained by the Contractor as insuring Party,</p> <p>(b) shall be in the joint names of the Parties,</p> <p>(c) shall be extended to cover liability for all loss and damage to the Employer's property (except things insured under GCC 18.2) arising out of the Contractor's performance of the Contract, and</p> <p>(d) may however exclude liability to the extent that it arises from:</p>

	<ul style="list-style-type: none"> (i) the Employer's right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works, (ii) damage which is an unavoidable result of the Contractor's obligations to execute the Works and remedy any defects, and (iii) a cause listed in GCC 19 [Force Majeure], except to the extent that cover is available at commercially reasonable terms.
<p>18.4 Insurance for Contractor's Personnel</p>	<p>The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.</p> <p>The insurance shall cover the Employer and the Project Manager against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from wilful acts and omissions, neglect of the Employer or of the Employer's Personnel.</p> <p>The insurance shall be maintained and be in effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the</p>

	Subcontractor, but the Contractor shall be responsible for compliance with this Clause.
N. Force Majeure	
19.1 Definition of Force Majeure	<p>In this Clause, "Force Majeure" means an exceptional event or circumstance:</p> <ul style="list-style-type: none"> (a) which is beyond a Party's control; (b) which such Party could not reasonably have provided against before entering into the Contract; (c) which, having arisen, such Party could not reasonably have avoided or overcome, and (d) which is not substantially attributable to the other Party. <p>Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:</p> <ul style="list-style-type: none"> (i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies, (ii) rebellion, by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war, (iii) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel, (iv) munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives,

	<p>radiation or radio-activity, and</p> <p>(v) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.</p>
19.2 Notice of Force Majeure	<p>If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 working days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.</p> <p>The Party shall, having given notice, be excused from performance of its obligations for so long as such Force Majeure prevents it from performing them.</p> <p>Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.</p>
19.3 Duty to Minimize Delay	<p>Each Party shall at all times use all reasonable endeavours to minimise any delay in the performance of the Contract as a result of Force Majeure.</p> <p>A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.</p>
19.4 Consequences of Force Majeure	<p>If the Contractor is prevented from performing its substantial obligations under the Contract by Force Majeure of which notice has been given under GCC 19.2 [Notice of Force Majeure], and suffers delay and/or incurs Cost</p>

	<p>by reason of such Force Majeure, the Contractor may be entitled subject to GCC 20.1 [Contractor's Claims] to:</p> <ul style="list-style-type: none"> (a) an extension of time for any such delay, if completion is or will be delayed, under GCC 8.4 [Extension of Time for Completion], and (b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of GCC 19.1 [Definition of Force Majeure] and, in the case of sub-paragraphs (ii) to (iv), occurs in the Country, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in GCC 18.2 [Insurance for Works and Contractor's Equipment]. <p>After receiving this notice, the Project Manager shall proceed in accordance with GCC 3.5 [Determinations] to determine these matters.</p>
<p>19.5 Force Majeure Affecting Subcontractor</p>	<p>If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.</p>
<p>19.6 Optional Termination, Payment and Release</p>	<p>If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under GCC 19.2 [Notice of</p>

	<p>Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 14 working days after the notice is given, and the Contractor shall proceed in accordance with GCC 16.3 [Cessation of Work and Removal of Contractor's Equipment].</p> <p>Upon such termination, the Project Manager upon written approval of the Employer shall, determine the value of the work done and issue a Payment Certificate which shall include:</p> <ul style="list-style-type: none"> (a) the amounts payable for any work carried out for which a price is stated in the Contract; (b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Contractor shall place the same at the Employer's disposal; (c) other Costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works; (d) the Cost of removal of Temporary Works; and
19.7 Release from Performance	Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties

	<p>(including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:</p> <p>(a) the Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and</p> <p>(b) the sum payable by the Employer to the Contractor shall be the same as would have been payable under GCC 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under GCC 19.6.</p>
<p>O. Claims, Disputes and Arbitration</p>	
<p>20.1 Contractor's Claims</p>	<p>If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Project Manager, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.</p> <p>If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all</p>

	<p>liability in connection with the claim. Otherwise, the following provisions of this GCC shall apply.</p> <p>The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.</p> <p>The Contractor shall keep such records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Project Manager. Without admitting the Employer's liability, the Project Manager may, after receiving any notice under this Clause, monitor the record-keeping and/or instruct the Contractor to keep further records. The Contractor shall permit the Project Manager to inspect all these records, and shall submit copies to the Project Manager.</p> <p>Within 14 days after the Contractor submission of Notice, or within such other period as may be approved by the Project Manager, the Contractor shall send to the Project Manager a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed.</p> <p>Within 28 days after receiving a claim or any further particulars supporting a claim, the Project Manager shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within the above defined time period.</p> <p>Within the above defined period of 28 days, the Project Manager upon written approval of the Employer shall proceed in accordance with GCC 3.5</p>
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	<p>[Determinations] to determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with GCC 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.</p> <p>If the Project Manager does not respond within the timeframe defined in this Clause, either Party may consider that the claim is rejected by the Project Manager and any of the Parties may refer it to the other Party for Amicable settlement in accordance with GCC 20.2</p> <p>The requirements of this Clause are in addition to those of any other Clause which may apply to a claim. If the Contractor fails to comply with this or another Clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Clause.</p>
20.2 Amicable Settlement	<p>In the event of any dispute arising out of this contract, either party shall issue a notice of dispute to settle the dispute amicably. The parties hereto shall, within twenty eight (28) days from the notice date, use their best efforts to settle the dispute amicably through mutual consultations and negotiation. Any unsolved dispute may be referred to a Dispute Adjudication Panel (DAP) nominated by the appointing Authority specified in the SCC.</p>
20.3 Appointment of the Dispute Adjudication Panel	<p>Disputes shall be referred to a Dispute Adjudication Panel (DAP) for decision in</p>

	<p>accordance with GCC 20.4 [Obtaining Dispute Adjudication Panel’s Decision].</p> <p>The Appointing Authority of the DAP shall appoint the DAP members when the Dispute arises. The DAP shall comprise, as stated in the SCC, either one or three suitably qualified persons (“the members”), each of whom shall be fluent in the language for communication defined in the Contract and shall be a professional experienced in the type of construction involved in the Works and with the interpretation of contractual documents. If the number is not so stated in the SCC, the DAP shall comprise three persons, one of whom shall serve as chairman.</p> <p>The terms of the remuneration of either the sole member or each of the three members, including the remuneration of any expert where Parties mutually approve, whom the DAP consults, shall be in accordance with the rules of the Appointing Authority. Each Party shall be responsible for paying one-half of this remuneration.</p> <p>If a member declines to act or is unable to act as a result of death, disability, resignation or termination of appointment, a replacement shall be appointed in the same manner as the replaced person was required to have been Appointed, as described in this Sub-Clause.</p> <p>Unless otherwise agreed by both Parties, the appointment of the DAP (including each member) shall expire when the DAP issues a decision.</p>
<p>20.4 Obtaining Dispute Board’s Decision</p>	<p>If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract or the execution of the Works, including</p>

any dispute as to any certificate, determination, instruction, opinion or valuation of the Project Manager, and the Parties have failed to resolve through amicable settlement, either Party may notify in writing the other Party and the Appointing Authority for appointment of the DAP.

Upon Appointment of the DAP by the Appointing Authority, the notifying Party may refer the dispute in writing to the DAP for its decision, with copies to the other Party and the Project Manager. Such reference shall state that it is given under this Sub-Clause.

For a DAP of three persons, the DAP shall be deemed to have received such reference on the date when it is received by the chairman of the DAP.

Both Parties shall promptly make available to the DAP all such additional information, further access to the Site, and appropriate facilities, as the DAP may require for the purposes of making a decision on such dispute. The DAP shall be deemed to be not acting as arbitrator(s).

Within 60 days after receiving such reference, or within such other period as may be proposed by the DAP and approved by both Parties, the DAP shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. The decision shall be binding on both Parties, who shall promptly give effect to it unless and until it shall be revised in an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

	<p>If either Party is dissatisfied with the DAP's decision, then the dissatisfied Party may, within 14 working days after receiving the decision, give notice to the other Party of its dissatisfaction and intention to commence arbitration.</p> <p>If the DAP fails to give its decision within the period of 60 days (or as otherwise approved) after receiving such reference, then either Party may, within 14 working days after this period has expired, give notice to the other Party of its dissatisfaction and intention to commence arbitration.</p> <p>In either event, this notice of dissatisfaction shall state that it is given under this Sub-Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in GCC 20.7 [Failure to Comply with Dispute Adjudication Panel's Decision], neither Party shall commence arbitration of a dispute unless a notice of dissatisfaction to the other Party has been given in accordance with this Sub-Clause.</p> <p>If the DAP has given its decision as to a matter in dispute to both Parties, and no notice of dissatisfaction has been given by either Party within 14 working days after it received the DAP's decision, then the decision shall become final and binding upon both Parties.</p>
<p>20.5 Arbitration</p>	<p>Any dispute not settled amicably and in respect of which the DAP's decision (if any) has not become final and binding shall be finally settled by arbitration. Unless otherwise agreed by both Parties:</p> <ul style="list-style-type: none"> (a) For contracts with foreign contractors: <ul style="list-style-type: none"> (i) international arbitration with proceedings

administered by the international arbitration institution stated **in the SCC**, in accordance with the rules of arbitration of the appointed institution;

Provided that Parties may agree **in the SCC** to resolve their dispute in accordance with provisions of paragraph (b) of this GCC.

(ii) the place of arbitration shall be stated **in the SCC** or such other place selected in accordance with the applicable arbitration rules; and

(iii) the arbitration shall be conducted in the language for communications defined in GCC 5.3; and

(b) For contracts with domestic contractors, arbitration with proceedings conducted in accordance with the laws of Tanzania.

The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Project Manager, and any decision of the DAP, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Project Manager from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.

Neither Party shall be limited in the proceedings before the arbitrators to the evidence or arguments previously put before the DAP to obtain its decision, or to the reasons for dissatisfaction given in

	<p>its notice of dissatisfaction. Any decision of the DAP shall be admissible in evidence in the arbitration.</p> <p>Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Project Manager and the DAP shall not be altered by reason of any arbitration being conducted during the progress of the Works.</p>
<p>20.6 Failure to Comply with Dispute Board's Decision</p>	<p>In the event that a Party fails to comply with a DAP decision which has become final and binding, then the other Party may, without prejudice to any other rights it may have, refer the failure itself to arbitration</p>

6. SPECIAL CONDITIONS OF CONTRACT (SCC)

The following Special Conditions Contract (SCC) shall supplement the GCC. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

Special Conditions of Contract

SCC Clause	GCC Clause	Conditions	Description
1.	1.1.2 & 1.3	Employer's name and address	The Employer is TABORA REGIONAL REFERRAL HOSPITAL, P.O.BOX 22 TABORA
2.	1.1.2 & 1.3	Project Manager's name and address	The Project Manager is EDIUS KATAMUGORA
3.	1.1.3	Time for Completion	Time for completion is 50 days
4.	1.1.3	Defects Liability Period	The defects liability period is one month
5.	1.1.5	Section	If Sections are to be used, insert N/A
6	1.1.6	Site	The site of the works is TABORA REFERRAL HOSPITAL

SCC Clause	GCC Clause	Conditions	Description
7	1.5 (j)	Other documents forming part of the Contract	Other documents forming part of the Contract are: N/A
8	1.7	Supply of Documents	Number of Documents to be supplied by Contractor to the Project Manager shall be: N/A
9	1.12	Compliance with the Law	Exceptions to compliance with the applicable Law: N/A
10	1.13	Taxes and Duties	Exceptions to compliance with the applicable tax laws: N/A Note: Applicable only where the relevant exemptions or relief has been granted in writing.
11	1.15	Inspections and Audits	The Funding source is GOVERNMENT OF TANZANIA
12	2.1	Right of Access and Possession of the Site	Time for right of access and possession of the site is TWO WEEKS AFTER SIGNING THE CONTRACT
13	3.1	Employer's approval	Other requirements for Employer's approval of specified authority of the Project Manager: N/A
14	3.1 (d)	Response by the Project Manager	Time for a written response by the Project Manager is: N/A Note: Number of days should not exceed 28.
15	4.2 & 8.6	Performance Security	The performance security shall be in the form of a N/A in the amount(s) of <i>[insert related figure(s)]</i> percent of the Contract Sum and in the same currency (ies) of the Contract Sum. Note: the security should not be less than 10% of the Contract Sum.
16	4.4	Sub-contractors	Exceptions or other requirements of sub-contracting: N/A
17	4.16	Transport of Goods	Exceptions or other requirements: N/A
18	4.21	Progress Reports	Exceptions or other requirements for monthly progress reports: N/A
19	4.22	Security of the Site	Exceptions or other requirements for security of the site: TO BE PROVIDED BY THE EMPLOYER

SCC Clause	GCC Clause	Conditions	Description
20	5.1	General design obligations	Period for notifying unforeseeable errors, faults and defects in the Employer's Requirements: 28 DAYS Note: should not exceed 28 days
20	8.1	Commencement of the works	Exceptions or other precedent conditions for commencement of the works: N/A
20.	8.6 & 14.15(b)	Liquidated damages for delay of the Works	Liquidated damages for delay of the works is [0.01 %] of the Contract Sum per day. <i>Note: If Sections are to be used, refer to Table: Summary of Sections below</i>
21.	8.6	Liquidated Damage	Liquidated damage for delay shall be charged at the rate of: 0.01% PER DAY The maximum amount of liquidated damages for delay is: 5% of the Contract Sum. Note: maximum amount of liquidated damage should not exceed the maximum amount of performance security.
22.	9.1	Tests on Completion	Exceptions or other requirements for sequencing the tests on completion are: N/A
23	12.1	Tests after Completion	Tests after completion shall be PLUMBING INSTALLATION, ELECTRICAL INSTALLATION, HVAC, ICT INSTALLATIONS Exceptions or other requirements on obligation of the Employer for tests after completion are: N/A
	13.5	Provisional Sums	Percentage for adjustment of Provisional Sums N/A
24.	13.8	Adjustments for Changes in Cost	Period "n" applicable to the adjustment multiplier "Pn": ONE MONTH
25	14.1	The Contract Price	Exceptions or other requirements on the contract price are: N/A
26	14.2	Advance payment	Total advance payment is 15% of the contract sum payable in the currencies and proportions in which the Contract sum is payable. Number and timing of payment of the advance payment is <i>AFTER SIGNING CONTRACT</i>

SCC Clause	GCC Clause	Conditions	Description
27	14.2	Repayment of advance payment	Exceptions or other requirement for advance payment deductions from the interim payments are: N/A
28	14.2(b)	Repayment amortization rate of advance payment	Amortization rate of the amount of Interim Payment Certificate 15%
29.	14.3	Percentage of Retention Money	Percentage of retention 10% of the The Value of Works Done
30	14.3	Limit of Retention Money	Limit of retention 5% of the Contract Sum.
31	14.5(b)(i)	Plant and Materials	If Sub-Clause 14.5 applies: Plant and Materials for payment when shipped en route to the Site N/A
	14.5(c)(i)		Plant and Materials for payment when delivered to the Site: N/A
32	14.7	Payment and Currency	The currency of payment shall be TZS
33	14.10	Submission of Statement of Completion	Exceptions or other requirement for number of copies to be submitted by the Contractor are: N/A
34	14.11	Final Statement	Exceptions or other requirement for number of copies of Final Statement to be submitted by the Contractor are: N/A
35	17.6	Maximum total liability of the Contractor to the Employer	Maximum total Liability of the Contractor to the Employer will be N/A of the Contract Sum. Note: The multiplier must exceed one <i>or</i> <i>[insert amount of the maximum total liability if such multiplier not stated]</i>
36	18.1	Terms of Insurance by the Employer	Exceptions or other requirement for terms of insurance stipulated in the bidding document where the insuring party is the Employer are: N/A
		Periods for submission of insurance:	Periods for submission of insurance is 28 DAYS <i>Note: Period may be from 14 days to 28 days.]</i>

SCC Clause	GCC Clause	Conditions	Description
		Eligible Countries for Insurance	Eligible Countries are: <i>TANZANIA</i>
37	18.2	Insurance for Works and Equipments by the Contractor	Exceptions or other requirement for terms of insurance where the insuring party is the contractor are: N/A
38	18.2(d)	Maximum amount to be covered by insurance of the Employer's risks	Maximum amount to be covered for insurance of the Employer's risks is: N/A
39	18.3	Insurance against Injury to Persons and Damage to Property by the Contractor	Exceptions or other requirement for terms of insurance against Injury to Persons and Damage to Property by the Contractor where the insuring party is the contractor are: N/A
40.	20.2	Appointing Authority of DAP	Name of the appointing Authority of the DAP is: NATIONAL CONSTRUCTION COUNCIL (NCC)
41.	20.3	Composition of DAP	The DAP shall be composed of: ONE MEMBER
42.	20.5(a) (i)	International Institution and Rules of arbitration	Institution and Rules of arbitration N/A
43	20.5(a) (ii)	Place of Arbitration	Place of arbitration is TO BE APPOINTED
44	20.5(a)	Disputes with Foreign Contractors Resolved through Local Arbitration	Arbitration will be conducted in accordance with the Laws of Tanzania: N/A Note: This is an option where the foreign contractor agrees to resolve dispute through arbitration under the Laws of Tanzania.

7. TECHNICAL SPECIFICATIONS

EXCAVATION AND EARTHWORK

1.1 Nature of excavation

The contractor must ascertain for him the nature of the material to be excavated and price work accordingly as no allowance will be made beyond the contract sum of any alleged ignorance in this respect.

1.2 Excavations generally

Excavations have been measured from the drawings including the Engineer's sit plan showing existing contours. It is the responsibility of the contractor to check the commencing levels prior to commencing the work as no extra payment will be made in respect of any alleged excavations carried out due to the commencing levels being above that shown upon the drawings without the prior written agreement of the Structural Engineer prior to commencement of excavation.

1.3 Site clearance

The contractor shall clear the construction areas within the site of all bushes, roots, boulders, natural obstructions, rubbish and any other natural or artificial obstructions, which would interfere with construction of buildings, roads, paths and drains.

1.4 Over-site excavation

Excavated material suitable for back-filling around foundations and for making up levels under roads, floors etc., is to be kept separate from soil spoil heaps and to be re-used as directed or spread and levelled on the site at the end of excavation operations when found to be surplus. The amount of any such disposal will be measured on site by the Quantity Surveyor. Vegetable soil is not to be used for back filling around foundations.

1.5 Excavation below required depths

Should any excavation be made below the levels or lines shown on the drawings or otherwise required by the Structural Engineer, the contractor must fill up the resultant over-excavation to the proper levels or lines with concrete nominal mix (1:4:8) at his own expense (see "concrete work").

1.6 Filling

The fill shall be clean, selected coarse sand or gravel. It should be taken from borrow pits if the soil on the site is found to contain too much fines and to have too low plasticity limit to be used as fill.

The fill shall be deposited in horizontal layers of max. 200mm Thickness. As soon as possible after the fill is laid out, it should be compacted in min. three passes of a vibratory-roller and/or vibrating- plate compactor. The equipment to be used must be approved by the Engineer.

At each area (control area) of 500m²-compacted fill, three field density tests (e.g. by the sand-replacement method) should be taken randomly.

The Control area to be accepted if all three test results are above 97% of the max. density as determined at a homogenous mixing of all three samples by the Standard Proctor Method. Otherwise, repeat the test, each time with three new samples until the above requirement is met or re-compact and test again.

1.7 Return, fill in and ram

Return, fill in and ram suitable filling material as described above around foundations and other concrete structure in layers not exceeding 150mm thick and carefully ram and consolidate with power rammer. No filling in shall be executed until concrete foundations etc., have been inspected and approved by the Structural Engineer.

Regardless of the means of back filling and compaction adopted, the contractor is responsible not only for the standard of the work but also for any possible damage of the permanent work or adjacent structure.

1.8 Levelling

No item is measured for levelling and consolidating ground and rates for excavation must include for levelling and preparing the ground for concrete or other works including ramming or rolling.

1.9 Soil sterilisation

Anti-termite treatment is to be carried out by an approved specialist firm who will be required, upon completion of the soil sterilisation, to furnish a written guarantee qualifying the following: -

- That the chemicals applied comply with the requirements specified herein for chemical concentration and rates of application.
- That the treatment will remain effective against termite infestation for a period of five years.
- The free re-treatment by the firm of any areas showing signs of infestation before the expiry of the five year period.

The chemicals used shall be one of the following: -

- i) Aldrin 0.5% applied in oil solution or water emulsion.
- ii) Benzene hexachloride, 0.8% of gamma isomer applied in oil solution or water emulsion.
- iii) Chlordane 1.0% applied in solution or water emulsion.

- iv) Dieldrin 0.5% applied in oil solution or water emulsion.
- v) Lindane; 0.8% in oil solution or water emulsion
- vi) Pentachlorophenol; 5% in oil solution.
- vii) Trichlorobenzene; 1 part to 3 parts oil.

Some of the chemicals listed above are toxic to animal and plant life and must therefore, be applied only with caution by an experienced person. Where individual water supply systems are proposed precautions must be taken to prevent in filtering and endangering the water supply. Treatment shall not be made when soils of fill are excessively wet or immediately after heavy rain.

Precautions must also be taken to prevent disturbance of the treatment by animals or human contact with the treated soil. The treated area is to be covered as quickly as possible after treatment.

The rate of application is to be 5 litres per square metre and the areas measured include those under floor and round wall and column foundations.

The contractor shall notify the structural engineer in sufficient time before the filling of foundation trenches and laying of concrete floor bed in order that the Architect may nominate a specialist firm to execute the soil sterilisation.

Any additional costs caused by the contractor not rendering sufficient prior notice to the Architect will be borne entirely by the Contractor.

1.10 Disposal of surplus excavated material

Surplus excavated material will be carted away from the vicinity of the walls and deposited, spread and levelled on areas to be allocated by the Structural Engineer, reasonably adjacent to the site.

1.11 Disposal of water

The contractor shall keep the excavations free from standing water and silt (or excavated material softened by water) and he shall include for the cost of pumping, construction of temporary drains; soak-way pits, etc., as deemed necessary to achieve this. An item has been included for this in the Bills in each relevant section. The cost of pumping to dispose of any spring or running water has been covered by a Provisional Sum. If spring or running water is encountered the cost of any pumping ordered by the Structural Engineer will be paid for in accordance with the Dayworks schedule.

1.12 Planking and strutting

Sides of all excavations must be supported in order to prevent falls from or collapse of the earth face. The "Planking and Strutting" is deemed to include any method or methods, which the contractor elects to adopt to uphold, protect and maintain the sides of excavations. The contractor will be responsible for any consequences of his failure in this respect including clearing away fallen materials and any extra concrete or other works including formwork ordered by the Structural Engineer due to such failure. An item has been included in these Bills in each relevant section.

1.13 Hardcore

Hardcore shall be hard crushed stone to pass a 100mm ring in all directions. No sand, quarry dust or fine material will be permitted. All hardcore beds shall be topped with a layer of fine stone or aggregates minimum size 12mm to fill the voids on the surface to receive concrete beds. Rates for hardcore shall include for levelling or finishing or laying to falls and consolidating by rolling as described for "Filling" above.

1.14: Earth filling to make up levels

The site requires mass earth filling to reach the formation level. All excavations for trenches and column bases shall be executed before filling the site to required levels. No extra payment shall be made for extra quantities if the Contractor decides to fill the site before excavation of foundation trenches and column bases.

2.0 CONCRETE WORK

2.1 Materials and workmanship generally

The recommendations of the recent British Standard Codes of Practice BS 8110 for the Structural use of reinforced concrete in buildings shall be deemed to be incorporated in these preamble clauses unless otherwise specifically stated.

2.2. Materials generally

All materials to be used in the works shall conform as to quality and description as specified hereunder and shall be equal to approved samples. In particular no materials shall be used until approved samples shall be supplied to the Consulting Engineer for approval at least one week before ordering in bulk and delivery to the site. Any material delivered to the site, which, has not been previously approved by the Structural Engineer shall be the Contractor's liability. All materials shall be transported, handled and stored on site so as to preclude damage deterioration or contamination. All condemned materials are to be removed from the site within 24 hours.

2.3 Cement

The cement, unless otherwise specified on the drawings shall be Ordinary Portland Cement of approved manufacture, delivered in the manufacturer's bags and shall comply in all respects with the requirements of the latest British Standard 12. The consignments of cement shall be delivered in sealed bags and shall be stored on the site so as to be

used in the order in which they are delivered. The structural engineer shall have the right to take samples for testing in accordance with BS. 12 and the contractor are to obtain current certificates of test from the manufacturer prior to bulk deliveries. Under no circumstances is High Alumina Cement to be used.

Rapid hardening cement may be used in lieu of ordinary Portland cement only with the prior approval of the Architect or Engineer, provided that all conditions applying to its use are strictly observed. Any additional expenses in connection with the use of such cement shall be borne by the Contractor.

2.4 Aggregate generally

All aggregate shall be from approved reputable sources and shall be strong, hard, durable or limited porosity, free from dust, soft materials, earth or other extraneous matter, and washed and / or screened by the Contractor if so required by the Structural Engineer. Samples shall be provided as often as called upon by the Structural Engineer for testing in accordance with BS. 882. Normal aggregates will have particle densities of greater than 2000 Kg / m³ but not exceeding 3,000 Kg/ m³. Only approved materials shall be used.

Graded samples of all types of aggregate shall, after approval, be kept on site behind glass for visual checking of subsequent deliveries for grading, shape and where applicable, colour. Aggregate shall be stored on site on paved areas with divisions between each type of aggregate, and shall be used in the order in which they are received on site. No aggregate shall be stored directly on the ground.

2.5 Fine Aggregate

The Contractor shall ensure that the grading of fine aggregate shall be such that not more than 10% by weight shall exceed 5mm in size and not more than 10% by weight shall pass a sieve BS. No. 100. Between these limits the grading shall conform to the grading for either zone 1, 2 or 3 (BS.882).

2.6 Coarse aggregate

Coarse aggregate shall be clean, well-graded crushed granite stone or other equal and approved stone from an approved quarry and washed if required by the Structural Engineer. The pieces shall be angular or rounded in shape and shall have granular or crystalline or smooth (but not glassy) non-powdery surface. Flakey and laminated pieces, mica and shale shall only be present in such quantities as not to affect adversely the strength and durability of the concrete.

The four nominal aggregate sizes shall be 40mm (1½"); 20mm (¾"); 10mm (⅜"); 6mm (¼"); and the grading when analysed as described in BS. 812 shall be within the limits given in BS. 882. Structural Engineer will specify sizes of aggregates to be used in specific areas. For most work 20 mm maximum size aggregates will be used. The nominal maximum size of coarse aggregates should be not greater than ¼ of the minimum thickness of concrete section or element.

2.7 Water

Water used for mixing of concrete, washing out of shuttering and similar purpose shall be clean, fresh and free from organic impurities in amounts likely to impair the quality of the concrete and should comply to requirements of BS 5328 and BS 3148:1980 "Methods of test for water for making concrete".

6.8 Admixtures

Structural Engineer will approve all concrete admixtures after submission of specifications or proprietary brands and relevant trial mix verification at site by Contractor. Admixtures to comply with BS 5075: Concrete Admixtures.

2.9 Steel reinforcement

Steel for reinforced concrete shall comply with the following specification:-

- i) Mild steel rod reinforcement shall comply with BS. 4449.
- ii) High tensile steel reinforcement shall be either cold worked deformed steel bars of circular octagonal section complying with BS. 4461 or hot rolled deformed high tensile bars having a guaranteed minimum yield stress of 460 N/mm² and other physical qualities in accordance with BS. 4449
- iii) Welded steel fabric reinforcement shall comply with BS. 4483
- iv) BS. 8110, the structural use of reinforced concrete in buildings.

All steel reinforcement shall be supplied by an approved manufacturer; and the contractor may be required to obtain a manufacturer's test certificate in respect of steel reinforcement supplied. In the absence of such a test certificate, the contractor may be required to submit samples to be tested at the contractor's expense in such manner as to comply with BS 8110 requirements.

The steel shall be stored so that it is kept clean and reasonably free from rust.

The placing of all reinforcement shall be checked by the Engineer and in no circumstances is concrete to be deposited around any steel that has not been passed.

At least twenty-four hours notice shall be given to the Engineer that reinforcement will be ready for inspection.

2.10 Bending and fixing of reinforcement

All bending, cutting and fixing to be in compliance with the British Standard code of Practice, BS 8110 and BS 4466 Bending schedules are incorporated in the contract drawings.

The number, size, form and position of all reinforcement shall unless otherwise directed or permitted by the Architect, be strictly in accordance with the drawings. Bars shall be of the required lengths, and lapping, except where indicated on the drawings, is not permitted unless approved by the Engineer.

Overall dimensions shall not be exceeded and shall not be less than 6mm below the required dimensions. The sizes of links and the like shall be within tolerance of 3mm under or over the specified dimensions. Any tolerance in the top length of the bar as cut shall be taken up in the end hooks or other approved portions of the bar. The internal radius of the bends at corners of links and the like shall equal half the diameter of the bar embraced by the link.

Laps in bars of random lengths shall be staggered in such a way that no more than 1/3 of bars having same number are to be lapped in the same section.

The steel reinforcement shall be assembled and fixed in the form of a rigid cage. To prevent displacement before or during concreting the bars shall be secured to each other with approved wire. Concrete distance blocks shall, unless otherwise directed, be used between the reinforcement and the bottom and sides of the forms to ensure correct concrete cover to the bars, as specified on the drawings. The specified cover shall be provided and maintained within the specified tolerance.

The minimum clear distance between adjacent bars shall be 25mm horizontally and 25mm vertically. Spacer bars shall be inserted at such intervals that the bars do not perceptibly sag.

Great care must be taken to ensure the correct positioning of beam and column starter bars and to secure projecting bars against displacement both during and after concreting.

At the time of fixing and when concrete is being placed, all reinforcement shall be free from oil, paint, grease excessive dust and scale or any other coating, which would destroy its bond with the concrete.

2.11 Formwork to produce a fair face board finish (wrought formwork)

Formwork described as wrought shall be constructed of or lined with 100mm wide planed boards well cramped together or plywood to leave a fair smooth finish in the exposed concrete face when the shuttering is removed.

2.12 Construction and Movement joints

The positioning, type and frequency of construction joints are to conform to requirement of BS 8110 and be approved by Engineer. Methods of forming movement joints to follow drawings and the requirements of BS 8110.

2.13 Concrete grades

Only designed concrete mixes complying with BS 5328 shall be used. Concrete must comply with the requirements set out in the following table according to the grade (This is for guidance only)

GRADE	NOMINAL MIX	MAX.SIZE OF COARSE AGGREGATE	MAX WATER CEMENT RATIO BY WEIGHT	MINIMUM CRUSHING STRENGTH OF WORKS TEST CUBES (N/mm ²)	
				7 DAYS	28 DAYS
30	1:1:2	20mm	0.50	20	30
25	1:1½:3	20mm	0.55	17	25
20	1:2:4	20mm	0.60	14	20
15	1:3:6	25mm	0.60	8	14
10	1:4:8	40mm	0.60	-	10

2.14 Concrete Production, Supervision and Tests

Concrete should be produced in accordance with BS 5328 which requires tests to be made on constituent materials in accordance with relevant British Standards and control tests be made on concrete to ensure compliance with specified requirement. Engineer will in addition approve procedures for placing, compacting, curing and working in hot weather.

Concrete should meet appropriate requirements specified in BS 5328 for

- c) Characteristic compressive strength
- d) Specified mix proportions
- e) Maximum and minimum cement content
- f) Maximum free water/cement ratio
- g) Workability
- h) Air content of concrete
- i) Temperature of fresh concrete
- j) Density of fully compacted concrete.

2.15 Preliminary cube tests

The contractor shall specify the sources from which the aggregate will be obtained and shall deliver at his own cost sufficient materials enable preliminary cube tests to be carried out and approved by the Engineer. The Contractor will be responsible for submitting his proposals for the concrete mix proportions together with aggregate grading curves to the Architect for approval and for the payment of the fees of an approved Testing Authority in carrying out the crushing tests. The strength of the preliminary cubes must be a minimum of 33% above those in the above table, which is the minimum works strength.

The approval of any mix by the Engineer will not relieve the contractor of the responsibility for ensuring that all concrete used in the works obtain the minimum works strength shown above.

In proportioning the concrete the quantity of cement shall be determined by weight and the quantities of fine and coarse aggregate by either volume or weight, due allowance being made for the moisture content of the aggregate.

Only sufficient water shall be added to the cement and aggregate during mixing to produce a concrete having sufficient workability to enable it to be well consolidated, to be worked into the corners of the shuttering and around the reinforcement, to give the specified surface finish and to have the specified strength. When a suitable amount of water has been determined the resulting consistency shall be maintained throughout the corresponding parts of the work and the slump test or compaction factor test shall be carried out from time to time to ensure the maintenance of this consistency. In no case should the slump be more than 65mm as determined by the standard slump test nor should the compaction factor be more than 0.87 as determined by the standard compaction factor test as described in BS. 1881.

Should the Contractor wish to use patent, plasticising compounds or other admixes, those shall be approved by the Engineer and be used in accordance with the manufacturer's publications.

2.16 Work cube tests

Work cube tests shall be made throughout the contract. Each cube shall be inscribed with the date of manufacture and identification mark. A record shall be kept for each batch of cubes showing the position in the works which the concrete represents, the date of manufacture, the mixture and slump of the concrete, particulars of the cement and aggregate used, a statement of whether or not the cubes were vibrated and other information relating to the subsequent history of the cubes.

The cube shall be made, cured and tested in accordance with the requirements of BS. 1881 when directed by the Engineer and in his presence or that of the Approved Testing Authority. A sample of concrete shall be taken at random on eight separate occasions during each of the first 5 days of using that mix.

Thereafter at least one sample shall be taken on each day any concrete of that particular mix is used. From each sample four cubes shall be made two for testing at 7 days and two for testing at 28 days. The works cube results shall be examined both individually and in consecutive (but not overlapping) sets of four, for which the average and the range of each set are calculated.

The mix proportions shall be modified to increase the strength if, in the first and consecutive (but not overlapping) sets, any of the following conditions are not satisfied:-

- i) Not more than 2 individual results of the 40-cube test should fall below the specified work cube strength.
- ii) No value of the range in any set should exceed 4 times the designed standard deviation.

- iii) Not more than one set should have an average, which is less than the specified strength plus 1.1/3 times the designed standard deviations.
- iv) No value of the average for any set should be less than the specified strength plus the designed standard deviation.

After 10 consecutive sets of results have been obtained the overall average and the standard deviation of the 40 results shall be calculated and any appropriate modifications made. Subsequently, if any of the foregoing conditions are not satisfied, the overall average and the standard deviation of the previous consecutive 40 results, including the non-complying sets, should be calculated and the appropriate steps taken if the overall average strength twice the standard deviation is less than the specified work cube strength.

2.17 Quality control requirements

2.17.1 Supervision

A competent person shall be employed whose duty shall be to supervise all stages in the preparation and placing of the concrete. He shall supervise all tests on the materials and cubes and the maintenance and calibration of mixing and measuring plant. This person shall also be responsible for keeping an accurate record of the dates on which concrete is poured and where. Where the Engineer is not satisfied with the performance of concrete supervisor he shall recommend to the Architect for removal from site.

2.17.2 Batching and mixing plant

The quantities of cement and of fine and coarse aggregate shall be determined by weight. The amount of water added shall be measured, allowance being made for the water content of the aggregate. The accuracy of weighing and measuring equipment shall be 2.1/2%. Measuring equipment for water shall be maintained in a clean serviceable condition.

2.18 Workmanship

2.18.1 Placing of reinforcement

Reinforcement shall be accurately placed and maintained in the position described on the drawings or elsewhere to the entire satisfaction of the Engineer. Bars intended to be in contact at passing points shall be securely wired together with 16 gauge annealed soft iron tying wire.

Binders and the like shall tightly embrace the bars and any slackness or misplacement of bars shall be rectified before the Engineer is called for inspection. Spacers of approved design shall be used for ensuring the correct positioning of the bars and diagonal wiring shall be provided to ensure rigidity of all assembled units of reinforcement. The vertical distance required between successive layers of bars in beams or similar members shall be maintained by the provision of mild steel spacer bars inserted at such intervals that the

main bars do not perceptibly sag between spacers. The rates for reinforcement must include for all requisite wiring, spacers and precast concrete blocks to maintain the required spacing and cover. All bars are to be bent in accordance with BS 4466: 1969.

Cover of concrete to the reinforcement shall be, unless shown otherwise:-

Columns	-	30mm minimum to main bars
Base	-	50mm minimum to main bars
Beams	-	25mm minimum to main bars
Slab	-	20mm minimum to main bars
Wall	-	25mm minimum to main bars
Raft slab		100mm minimum to main bars

Splices to future work shall be covered in a manner approved by the Engineer to prevent rusting and deterioration. Before any concreting is carried out the approval of the Engineer as to the correctness of the fixed reinforcement shall be obtained but such approval shall not remove the responsibility for the correctness of the placing from the contractor. During concreting a competent steel fixer shall be in attendance on the concrete gang to make minor adjustments to the position of bars should they become displaced.

2.18.2 Formwork generally

Formwork design and construction should take into account of safety and surface finish required and to conform to requirements of BS 8110 and BS 5975. Dimensional deviations of insitu concrete shall be to limitations set in BS 5606

All formwork and moulds shall be rigidly constructed to accurate shape and dimensions as described on the drawings and to requirement of BS 5975. Timber shall be well seasoned, free from loose knots and be of a kind and thickness that will avoid deflection and warping, remaining true to line and level. Faces in contact with the concrete shall be free from adhering grout, projecting nails, splits or other defects and shall be coated with an approved mould oil so as to prevent grout adhering to them, care being taken to prevent such coatings from any contact with the reinforcement.

Formwork shall be braced and strutted to prevent deformation under the weight and pressure of the wet concrete, construction loads, winds and other forces. The bottoms of beam boxes shall be erected with an upward camber so as to prevent downward deflection. Maximum tolerances, which will be permitted in the finished concrete work, are to BS 5606 as follows:-

Dimensions less than 3m	$\pm 3\text{mm}$
Dimensions between 3m & 15m	$\pm 6\text{mm}$
Dimensions over 15m	$\pm 10\text{mm}$

Joints in the moulds of formwork shall be carefully made so as to prevent leakage of cement grout and particular care shall be exercised to this respect for moulds in which it

is intended to place vibrated concrete. Openings in the formwork for inspection of the inside and for the escape of water used for washing out accumulated debris shall be formed in such a manner that they can effectively be closed before placing the concrete.

Formwork connections and joints shall be constructed so as to permit easy removal of the formwork, but shall be so secured as to retain correct shape under pressure exerted by the wet concrete during placing, vibration, setting and hardening. If any wire ties passing through the concrete or bolts are used, measures shall be taken to prevent rust, stains on the finished work and any holes left by the removal of such ties shall be made good. Formwork shall be provided for top faces of sloping work and anchored to prevent floatation, but this shall apply only where the slope exceeds 15 degrees. The formwork for beams and slabs shall be erected so that the sides of the beams and soffits of the slabs can be removed without disturbing the beam bottoms. Props for an upper storey shall be placed directly over these in the storey immediately below and the lowest prop shall bear upon work sufficiently strong to carry this load.

If formwork of columns; walls and other deep sections is erected to the full heights, one side shall be left open and shall be built up in sections as placing of the concrete proceeds. Before concreting, bolts and fixings shall be in position. Cores and other devices used for the forming of openings, holes, pockets, chases, recesses and other cavities shall be fixed to the formwork and no subsequent holes shall be cut in any concrete without the Architect's approval

2.18.3 Mixing of Concrete

All concrete shall be mixed in batch mixing machines. Hand mixing shall not be permitted. All mixing machines shall be of the fixed drum types and not smaller in size than 0.40/0.28 CM drum mixers will not be permitted. The mixer shall be of the type equipped with an accurate measuring device designed so that no unauthorised person can tamper with the valve or vary the quantity of water delivered once this has been approved and set. The mixing procedure to be adopted by the Contractor shall be approved by the Architect.

Mixing of each batch shall be approved by the Architect. Mixing of each batch shall continue until the concrete is uniform in colour and, in any case, for not less than two minutes after all the materials and the water is used in the drum. The entire contents of the drum shall be discharged before the materials for the succeeding batch are fed into the drum. Upon completion of the day's mixing, the drum shall be thoroughly cleaned free of adhering concrete.

2.18.4 Distribution of Concrete

The concrete shall be distributed from the mixer to the position required by approved means, which do not cause separations or otherwise impair the quality of the concrete. All equipment shall be cleaned before commencing mixing and distribution and be kept free from set concrete. All concrete must be in position and consolidated before the initial set is commenced and the contractor shall ascertain the initial setting time for the brand of cement being used and ensure that his means of distribution are such that it is impossible for concrete to have set prior to placing.

Distribution by means of mortar pane generally will be permitted, but for important large structures such as slabs, large beds and elsewhere instructed by the Engineer the minimum requirements shall be wheelbarrows, ramps and runways over the reinforcement.

2.18.5 Placing of Concrete

Before placing of concrete commences, the formwork shall be examined and any accumulated water and rubbish lying therein shall be removed. The concrete shall be placed as near to its permanent position as is practicable and shall not be worked along the formwork to that position. It shall not be dropped from a height not handled in a manner likely to cause separation of the aggregate or loss of the cement matrix. In columns and other similar members the bottom shall be first filled to a depth of between 150mm and 200mm with a cement mortar consisting of sand, cement and water with the sand and cement in the same proportion as that specified for the general mix in that member. The mortar shall have a consistency such that it will work up the formwork and fill in spaces, which may occur due to close spacing of reinforcement in the splice. This mortar must be placed immediately in advance of the concrete and shall not be allowed to attain its initial set before placing the main concrete for the member. Each layer of concrete, while being placed, shall be consolidated by the approved methods of ramming/ tamping or mechanical vibration so as to form a dense homogeneous material free from honeycombing water and air holes or other blemishes. Concrete shall be placed continuously until completion of the part of the work between the specified construction joints. Approved working joints shall be made whenever stopping of concrete placing occurs. In general, concrete shall be placed in a single operation to the full thickness and depth of slabs, beams and similar members and, in any case, shall be placed in horizontal layers not exceeding 750mm deep in walls, columns and other similar members:-

2.18.6 Vibration

Mechanical vibrators or hand tamping must be used in placing all reinforced concrete work unless the Engineer has approved specially designed mixes and preliminary work cube test results have been obtained without their use. Rates for all reinforced concrete work include for this. Where mechanical vibration is required the contractor shall allow for using two vibrators at any one time.

2.18.7 Working joints

Working joints shall be of an approved shape and placed at right angles to the axis of the member. The contractor shall submit his proposals for the design and position of all joints on a drawing to the Architect for his approval well before construction is commenced. The position of day to day working joints may be determined so as to meet the requirements of the contractor's concreting programme.

Wherever new concrete is to be placed against concrete that has hardened, the face of the old concrete shall be cut back not less than 20mm and all-loose particles removed. The face shall then be wire brushed and thoroughly cleaned with water and then coated

with a neat cement grout immediately before placing the concrete shall be well rammed and compacted against the prepared face before the neat cement grout sets.

2.18.8 Protection of Concrete

Newly placed concrete shall be protected by approved means from rains, sun and dry winds, and exposed faces shall be kept moist with polythene sheets or hessian coverings or other approved means for at least 7 days. Under no circumstances shall concrete be worked upon until it has reached a cube strength of 140kg per square centimetre. Immature concrete shall be protected from damage by falling debris excessive loading vibrations, running or standing water, abrasives or other influences likely to impair the quality or strength of the finished work

2.18.9 Concrete in Excavation.

The length and widths of the excavation shall be as necessary for the proper construction of work below ground and in accordance with the Preambles contained in the section 'Excavation and Earthwork'. Blinding concrete has been measured for the net width required for concrete structure and foundations below ground level. Blinding has not been measured to the extra width, if any required for working space. The depths shall be decided by the Architect where these are not given on the drawings. Any obstructions or unusual solids encountered during the excavation shall be reported to the Architect and dealt with as then instructed.

2.18.10 Removal of formwork.

The period elapsing between placing the concrete and removing the formwork shall be sufficient to allow the concrete to mature to the extent of being able to maintain its own weight and any constructional and structural loads imposed without damage. The Architect's approval for the removal of the formwork shall be as tabulated below:

Position of Formwork	Minimum striking Time
Vertical sides of wall, columns, beams, etc	2 days
Soffits of beams & slabs (props left)	7 days
Slab and props	14days
Bottom boards of piles (intermediate support left in	12 days
Soffits of beams under 6m span	16 days
<u>Additional:</u> Period for each 0.6m span in excess of 6m span with a maximum of 28 days	1 day

The formwork shall be removed in all cases by gradual easing without jarring and the process shall be such that the sharp edges of the concrete are not chipped and spilled away. If the imposition of a load is anticipated, props shall be provided in an approved manner after removal of the formwork and before the imposition of the loads.

2.18.11 Surface finishes

Upon removal of the formwork any honeycombing or damaged surfaces or other imperfections shall be reported to the Architect. No surfaces shall be repaired or otherwise treated until an inspection has been carried out by the Architect and his instructions or approval to remedial work (if any) have been given or obtained.

Concrete surfaces, which are to be plastered or rendered, are to be hacked or roughened by an approved means to form a key.

Sawn formwork is measured for all surfaces requiring support and subsequently concealed or plastered.

2.19. Precast Concrete

Where precast concrete members are specified, these shall be constructed in moulds of approved design and samples from the moulds shall be approved before quality production of the member is commenced to requirement of BS 8110. Large precast

members shall be lifted only at points, which will not damage the member, and if necessary temporary bracing of timber shall be used to case the member until it is in position. Small lintels and other small members may be cast in-situ at no extra cost at the contractor's option. Allowance must in all cases be made for any extra reinforcement to counteract temporary stresses whilst handling, transporting and hoisting precast concrete members. Moulds for precast units described as finished fair on exposed surfaces shall be lined with plywood or hardboard to leave a fair finish on the exposed concrete face when the mould is removed.

The concrete shall be of the grade specified on the drawings but with maximum aggregate size 12mm and shall be thoroughly vibrated in the moulds and shall not be removed until seven days after placing the concrete.

Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected from the rain, sun and wind by means of 'Sisalkraft' paper, well-wetted sacking, wet sand or other approved means. This protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been placed.

Prices for precast concrete shall include for all moulds, reinforcement as specified, hoisting and fixing in the position required. bedding and pointing as described and temporary props and other necessary supports.

2.20 Sub-contractors work Incorporated in the Structure

It shall be the contractor's responsibility to co-ordinate sub-contractor's and others for incorporating any electrical conduit, plumbing fixtures and pipes, bolt holes, etc., in the concrete members as required and shown on the drawings. The contractor shall submit details of cable and pipe runs to the Architect before the work is put in hand and shall have the Architect's approval of the layout. No holes or chases shall be cut on concrete without the approval of the Architect.

2.21 General

No holes or chases are to be cut in any part of the reinforced concrete construction without first consulting the Architect. No part of the reinforcement shall be used for conduiting electrical current. Notice must be taken of any appearing on the drawing and not mentioned in these preambles.

2.22 Movements and Separation Joints

Movement joints shall comprise of Bitumen impregnated softboard or similar approved.

Joints topping are to be 'Plastic' or similar approved hot poured rubber bitumen compound.

Pointing to vertical joints is to be 'Plastic joint' or similar approved bituminous putty applied with a gun. Joints are to be at least 12mm deep and the gap is to be formed either by raking cut (in the case of expanded polystyrene) or by temporary wooden battens of the required width and 12mm deep.

Rates for the expansion or separation joint shall include all necessary labour and the materials described above, temporary supports and cutting where required to line with concrete surfaces finished to falls. Formwork has been measured as a separate item to one side only of expansion joints.

2.23 Mortise and Pockets

Mortise or pockets for holding down bolts or dowels shall be formed in concrete to the size and shapes shown on the drawings. Mortises shall be formed by the use of expanded polystyrene blocks of the required shapes and sizes carefully and accurately placed and maintained in position whilst the concrete is poured.

Rates for mortises shall include for all necessary templates and raking out and the complete removal of the polystyrene when the concrete has set. No deduction from concrete quantities has been made for any mortise, pocket or any other void in the concrete of 0.05 cubic metres or less and the Contractor may take this into account when pricing. Grouting up has been measured separately.

3.0 WALLING

3.1 Water

Water shall be as previously specified in 'concrete work.'

3.2 Cement

Cement shall be as previously specified in 'concrete work'.

3.3. Fine Aggregate

Fine aggregate shall be as previously specified in 'concrete work.'

3.4 Coarse Aggregate

Coarse aggregate shall be as previously specified in 'concrete work' and shall comprise aggregate of 6, 10 and 20mm gradings in equal proportions.

3.5 Lime

Hydrate limes for cement/lime mortars shall comply with B.S.890 semi-hydraulic class 'B' calcium limes

3.6 Bricks and Clay blocks

Clay bricks and blocks, solid and hollow, shall comply with B.S.3921:1974. The manufacturer and/or supplier of clay bricks and clay blocks shall be approved by the Architect

The vertical joints of one course should not be less than a quarter-brick from the vertical joints of the courses above and below.

Where strength is critical, bricks with one frog only should be laid with the frog upwards so that it is automatically flushed with mortar.

3.7 Joints

The joints of brickwork may be finished by one of the following methods.

- i) With a flush joint as the work proceeds this joint being formed of the actual mortar used in bedding the bricks.
- ii) Struck or recessed joint formed in the mortar as the work proceeds when it has gone some way towards setting. Recessed pointing must be even and not vary in depth where not recommended otherwise the recess shall be 6mm deep.
- iii) Joints raked out while mortar is soft and cleaned down and pointed at completion. When the joints are raked out and pointed later the pointing mortar should be of a composition similar to that of the bedding mortar.
- iv) Joints raked out and left as key for plaster or roughcast.

3.8 Concrete Blocks

Solid and hollow concrete blocks for walls comply with BS. 2028 type 'A' except that the recommended mix shall be 1:3:6 cement; fine and coarse aggregate respectively by volume and are to have sharp arises. Blocks are to be manufactured on site in approved block making machines and shall be solid or two cavity hollow types as specified on the drawings. No damaged blocks shall be used in walling and half or other part blocks required to maintain bond shall be cut true and even.

The concrete is to be placed into the moulds in thin layers and shall be properly tamped or vibrated to secure complete consolidation without voids or flaws produce smooth surfaces and sharp straight corners.

Blocks shall be cast on loose pellets and after removal from the moulds shall be carefully stored under for at least 24 hours before the pellets are removed. The blocks shall thereafter be stored under cover for a further seven days protected from the sun and drying of the blocks may commence on the ninth day after manufacture and no blocks may be used within 14 days of their production.

The compressive strength of the type 'A' concrete blocks shall be not less than:-

- Average of 13 blocks 50 kg. per square centimetre (700 lbs. per square inch)
- Lowest individual blocks 40kg. per square centimetre (580 IBS per square inch)

Concrete louvre blocks shall be of an approved type and manufacture. They shall be with inclined faces and of overall size 450 x 150 x 150mm (excluding lip protruding outside the bedding face).

3.9 Fair face work

Walls described as finished with a fair face shall be constructed with blocks selected for their uniformity of size and with a smooth exposed face with no chips, blemished, pinholes or cracks. Walling shall be pointed with a neat flush joint as work proceeds and on completion shall be brushed down and left thoroughly clean.

3.10 Mortar

The mortar used for walling shall be composed of one part of cement to two parts of hydrated lime to nine parts of sand (1:2:9) measured in gauge boxes and thoroughly mixed dry and preferably with an approved mixing platform with water added afterwards until all parts are completely incorporated and brought to a proper consistency and used within the hour. No partially or wholly set mortar will be allowed to be re-used or re-mixed.

3.11 Workmanship

All blocks and stone to be wetted before laying out the top of walling where left off, shall be well wetted before recommencing building, walls to be kept wet three days after building.

All walling to be built true, plumb and level with all perpendics vertical and in line and work shall not rise more than 900mm above the adjoining work and all such risings are to be properly raked back.

3.12 Damp proof course

Damp proof course between foundations walls and the oversite concrete slab shall be hessian based bitumen strip to BS. 743 type 5A the same width as the block walls. The damp proof course shall be bedded in cement mortar (1:4) with 150mm-end laps and full width at passings and angles. Damp proof courses are required on all external and internal foundation walls.

4.0 ASPHALT WORK

4.1 Generally

The asphalt work shall be executed complete by an approved specialist sub-contractor.

4.2 Asphalt for tanking

Asphalt for tanking and damp proofing shall be mastic asphalt and shall comply in all respects with BS. 1097 and shall be applied in three coats with 150mm laps on horizontal work and 75mm laps on vertical with a two-coat asphalt fillet at all internal angles.

In laying asphalt in basements the contractor must take the following precautions and his prices must include for these:-

- i) Immediately upon completion the horizontal asphalt must be protected by covering it with a fine concrete screed of not less than 50mm thickness, in order to avoid damage by dumping of steel reinforcement rods, spillage of oil etc.
- ii) The vertical asphalt, the angle fillets and the offsets (if any) must be protected as quickly as possible by the erection of the skin walls or of main structural walls as the case may be.
- iii) In particular piercing the asphalt membrane by driving nails, puncturing the asphalt membrane by reinforcement rods or other materials, using asphalt membrane as a base for strutting and dropping petrol, oil or other solvents particularly from the contractor's plants, upon the asphalt or upon the surrounding area, must be avoided. It is essential that pumping operations be maintained on wet site until protective loading coats and protective walls are complete and fully set.

4.3 Asphalt for paving

Asphalt for paving, roads and footways shall be mastic asphalt and shall comply in all respects with BS 1446 (natural rock aggregate) and BS. 1447 (limestone aggregate) shall be applied in strict accordance with the Architect's (or his representative) specifications and instructions.

4.4. Asphalt for roofing

Asphalt for roofing shall be mastic asphalt and shall comply in all respects with BS. 988 (mastic asphalt for roofing-limestone aggregate) or BS. 1162 (mastic asphalt for roofing-natural rock asphalt aggregate) and shall be applied in two coats, to a final thickness of 20mm. The composition of asphalt shall be in accordance with BS.988 Table III columns. Where roofing is to be used by vehicular traffic for example, car park etc the asphalt to be used will be as for paving. The laying of the roofing shall be in conformity in with C.P.144 (roof coverings part 2, mastic asphalt) and the covering shall be laid on an insulating membrane of black sheathing to BS. 747 type 4A.

The rates inserted in the bills of quantities for roofing must allow for the cost of the sheathing felt, as it is not measured separately.

4.5 Preparation of surfaces

All surfaces to receive asphalt are to be dry and rough, groove or otherwise prepared and finished to the requirements and to the entire satisfaction of the asphalt sub-contractor and the Architect.

4.6 Melting asphalt on site

Asphalt blocks shall be broken into pieces of convenient size and carefully melted in cauldron or mechanically agitated mixers, on the site at a temperature not exceeding 215 C or the Molten material may be delivered to the site in mechanically agitated mixers.

4.7 Dusting of buckets

Buckets used for carrying molten asphalt shall be dusted with a fine inert dust. On no account shall ashes or oil be used for this purpose

4.8 Laying of asphalt

Asphalt shall be laid in bays generally not exceeding 2 metres wide and succeeding coats shall be laid breaking joint. Junctions between bays and fillets shall be properly married, the laid asphalt being heated by the application of the hot material, the whole being worked so that the joints are neatly made.

Air pockets and stains on the asphalt will not be permitted and the finished asphalt work shall be not ring hollow over any parts of its surfaces.

Joints in all asphalt work shall be made and complete fusion obtained to make them watertight. Fillets shall be run at all internal angles and at least in two operations

5.0 ROOFING

5.1 Vermiculite lightweight screed

Vermiculite lightweight screed shall be mixed in the proportions of 6 parts by volume of vermiculite Grade 5 to 1 part of Ordinary Portland Cement with approximately 2 parts of clean potable water to give a density of 700 kg per m³.

Vermiculite screed is to be finished to receive a topping coat of water proofed cement and sand (1:4).

5.2 Roof waterproofing

The waterproofing shall be carried out with cement and sand (1:4) waterproofed with 'Puddle' or other equal and approved waterproofing compound in strict accordance with the manufacturer's printed instructions.

5.3 Bitumen felt roofing

5.3.1 Generally

Bitumen felt roofing shall be executed by a specialist subcontractor to be approved by the Architect.

5.3.2 Materials

Bitumen felt roofing (or built up roofing) shall be in accordance with BS 747 (roofing felts). The roofing shall be composed of three layers of single roofing felt of specified quality; weight and make.

5.3.3. Fixing

Bitumen felt roofing shall be carried in accordance with the requirements of CP 144 part 1:1968, (built up bitumen felt). The roof screed must be laid to falls of not less than 1 degree from horizontal and the screed must be thoroughly dried before laying of bituminous is commenced.

The first layer shall be partially bonded to the roof deck with bitumen to allow sufficient easing of vapour pressure. The second layer shall be fully bonded to the first layer with minimum 150mm laps at ends and edges in bitumen. The top layer shall be similarly bonded to the second layer.

5.4. Aluminium roofing

5.4.1 Materials

Aluminium roofing shall be corrugated aluminium roof sheeting manufactured by ALUCO, and shall conform to the requirements of BS 2855 or 3455. The gauge and the surface finish of the sheets shall be as recommended by the manufacturer, in writing, and approved by the Architect. All accessories shall be of aluminium alloy.

Whenever trough sheets and heavy trough sheets are used they shall comply with the requirements of BS 3428 type 'A' for trough sheets and type 'B' for heavy trough sheets.

5.4.2 Fixing

The sheets shall be fixed to steel angle or timber purlins with aluminium alloy bolts and nuts. The bolts shall be at least 50mm longer in the shank than the purlin to which they are fixed. All bolts shall have approved washers.

Fixing of the sheet must conform strictly to the printed instructions or otherwise to the requirements of CP 143 part 1 BS 2855.

5.5 Galvanised sheet roofing

5.5.1 Materials

Galvanised sheet roofing shall be corrugated iron as manufactured by GALCO and shall comply with BS. 3083:1959: Hot dipped galvanised corrugated steel sheets for general purposes. In addition to the manufacturer's recommendation, the gauge and the surface finish of the sheets shall be specified and approved by the Architect.

Accessories shall comply with BS. 1091: 1963 "Pressed steel gutters, rainwater pipes, fittings and accessories".

5.5.2 Fixing

The sheets shall be fixed to steel angle or timber purlins with roofing nails, bolts and nuts or any other accessory to be approved by the Architect.

Fixing of the sheet must conform strictly to the printed instructions or otherwise to the requirements of CP 143 part 2 BS 2855:1962.

NOTE: ASPHALT FOR ROOFING SEE UNDER TRADE "ASPHALT WORK"

6.0 CARPENTRY

6.1 Timber generally

The timber used for carpentry shall be sound, well conditioned, properly seasoned to suit the particular use and free from defects or combination of defects rendering it unsuitable for the purpose intended.

All timber used structurally shall comply with the relevant requirements of and graded in accordance with the Export of Timber Ordinance (cap. 288); The export and Grading of Timber Rules 1969.

All timber is to be ordered as soon as the Contract is signed and is to be delivered to the site for open stacking for as long as possible before use. All timber will be inspected by the Architect upon arrival at the site and if not approved by him shall be removed from the site forthwith. Notwithstanding the Architect's approval, any timber incorporated in the Works found to be in any way defective before the expiry of the Defects liability Period shall be removed and replaced at the sole expense of the Contractor.

Timber shall be free from live borer beetle or other insect attack when brought to the site. The Contractor shall be responsible to the end of the Defects Liability Period for executing any work necessary to eradicate insect attack at his own expense including the replacement of timber attacked or suspected of being attacked notwithstanding that the timber may have been inspected already and passed fit for use

6.2 Moisture content

All timber shall be seasoned to moisture content; if not otherwise specified of not more than 15% The Contractor must allow for the costs of any kiln drying which may be necessary to obtain this figure.

6.3 Samples and testing

The Architect shall be entitled to select any samples he may reasonably require of materials or prototype of special construction elements for the purpose of testing (e.g. for moisture content; identification of species, strength etc)

6.4 Protection

All timber delivered to the site shall be stored under cover clear of the ground and protected from sun and dampness and shall be stored in a satisfactory manner to prevent attack of termite, insects or fungi.

6.5 Softwood

Timber for structural use, including rafters, purlins etc. shall be of Grade II strength and Grade 1 appearance. The softwood shall be a seasoned cypress, cedar pine or podocarpus, which shall be pressure impregnated with the full cell process as described below, but the contractor's attention is drawn to the Dayworks Schedule where the basic price of various timber requires pricing, in the event of one of these timbers being selected as an alternative then these basic rates will be used in calculating new rates for the item of carpentry concerned.

6.6. Pressure impregnation

The softwood described as pressure impregnated shall be treated with the "Celcure A" or "Tanolith C" full cell process. Timber must be seasoned to a moisture content not exceeding 25% before being treated. The treatment shall be to the minimum standard of:-

Solution concentration - 2 %

Absorption of preservative - 520 litres per cubic metre

Net dry salt retention -10.4 kg. per cubic metre

After treatment the timber shall be seasoned to the specified moisture content.

Cut ends and faces of timber sawn, drilled and cut after treatment are to be swabbed liberally with approved preservative until saturated, allowed to dry and then treated with a second coat and rates for timber must include for this. Approved preservatives are:-

Atlas A. Brunophen Nr. 2, Cuprinol Clear or Water Repellent Clear Enscle Woodtreat 55.

Hardwood for structural and roof timbers shall be third grade scantlings, strength group E or other suitable and approved durable hardwood.

6.8 Preservative treatment

On delivery to the site all structural hardwood is to be treated with two coats of an approved timber preservative. After fixing, the hardwood is to be touched up as required with approved timber preservative.

The timber preservative shall be coal tar creosote to BS. 144 or other equal and approved applied either by brush or by spraying in accordance with the manufacturer's instructions.

Cut ends and faces of timber sawn, drilled and cut after treatment are to be swabbed liberally with approved preservatives until saturated, allowed to dry and then treated with a second coat and rates for timber must include for this.

6.9 Nails

Nails shall be galvanised and comply with B.S.1202 and screws with BS. 1210. Screws shall be brass unless otherwise described. Bolts , nuts and washers shall comply with BS. 916 and rag-bolts, coach screws and other accessories shall comply with BS. 1494. Washers shall be square minimum 3mm thick and 38mm sides.

6.10 Workmanship

"Unwrot" or sawn timber shall be as left from the saw and shall be the full dimensions stated.

All carpentry shall be executed with workmanship of the best quality. Scantlings and boarding shall be accurately sawn and shall be of uniform width and thickness throughout. All carpentry work shall be left with sawn faces except where particularly specified to be wrot.

All carpentry shall be accurately set out in strict accordance with the drawings

All structural timbers shall be framed or jointed together with as is most appropriate in the circumstances in accordance with the rules of good practice. Joints must be executed in strict conformity with the drawings.

All joints shall be secured with a sufficient number of nails disposed as shown on the drawings and rates must include for the jointing of timbers. Surfaces must be in good contact over the whole area of the joint before securing. Holes for nails must be pre-drilled undersize, holes for bolts must be bored slightly oversize from both sides of the timber and washers must be used under the nut which must be tightened sufficiently to permanently secure the joint but not to crush the timber.

7.0 JOINERY

7.1 General

The provisions contained in the carpentry section shall apply also in the joinery section where applicable.

7.2 Hardwood

Joinery is to be executed in approved prime, select and locally available hardwood. Hardwood generally will be Mninga (*Pterocarpus angolensis*) but hardwood for fittings and built in furniture may be Mkangazi (African Mahogany-Khaya *nyasica*) unless specifically described otherwise.

7.3 Workmanship

All timber shall be wrot by machine dressing on exposed faces, with all machine marks sanded out, unless otherwise specified.

The dimensions and thickness given in these Bills of Quantities are finished (unless otherwise stated). In the event of nominal sizes being stated, an allowance of 3mm should be allowed for each wrought face.

The joinery shall be worked strictly in accordance with the details drawings and is to be framed up and put together as soon as possible, and is to be stored for as long as possible before being wedged up . All joints and angles are to be glued and where necessary cross-tongued with hardwood tongues, and surfaces finished clean and smooth with machine marks sand papered out before fixing.

Should any of the joinery work shrink, wind or fly unduly before the end of the maintenance period of the contract, the work is to be taken down, and new work fixed in its place, together with any other works, which may thereby be affected at the Contractor's sole expense.

Where joinery is described as screwed, this is deemed to include sinking the head of the screws and pelleting with similar timber and grain in with finished joinery. Screws unless otherwise specified, shall be brass.

In pricing the items, the contractor will allow for nails and screws and fixing, all labours, cuttings, notching, havling, mortising, tenoning and welding except where otherwise provided. Rates are also to include for one coat approved priming paint on all concealed surfaces.

Allow in the rates for easing and adjusting all doors, and leave in perfect working order.

7.4 Flush doors

Flush doors shall consist of hardwood core or framing covered with 6mm plywood both sides and complying where applicable with the requirements of BS 459,Part 2 and 2A. Doors described, as skeleton framed shall consist of framing 75mm wide to all stiles, top and bottom rails, with suitable blocks to receive mortise locks on each long edge. Doors described, as solid core shall comprise a solid core of vertical laminations. All flush doors shall be edged all round with 25mm thick hardwood lipping tongued and glued in. Doors described as external shall be covered both sides with 6mm'exterior' quality plywood as described below. All flush doors shall be perfectly plain on both faces and free from all waves, ripples or distortions of any kind. Any door, which,

after the application of paint or polish shows any defects of this nature, shall be removed and replaced at the Contractor's expense. Samples of flush doors, which the contractor intends to use, must be first submitted to the Architect for his approval.

7.5 Plywood

Plywood shall be manufactured from tropical hardwoods of the first grade with BS 145, and unless otherwise stated shall be 'interior' quality. Where stated to be of ' exterior' quality, the plywood shall be W.B.P. bonded weatherproof grade. Where veneered plywood is specified, samples must be submitted to the Architect for his prior approval.

7.6 Blockboard

Blockboard shall be of Tanzania manufacture and comply with BS. 3444 and shall be of moisture resistant quality.

7.7. Chipboard

Chipboard shall comply with BS. 2604 resin-bonded wood chipboard.

7.8 Plugging

All work described as plugged shall be fixed with brass screws to plugs formed by drilling concrete, wall, etc. with a screw of suitable "philplug", "Rawplastic", or other approved plugging compound in accordance with the manufacturer's instructions.

7.9 Protection

Any fixed joinery which, in the opinion of the Architect is liable to become damaged in any way shall be cased and protected by the Contractor until the completion of the works and the contractor must allow for this in his rates as no separate item for protection has been measured.

7.10 Ironmongery

All ironmongery will be fixed with matching screws to be supplied by the contractor and the contractor must allow for adjusting locks and striking plates and handing over all keys on completion of the contract with identifying tags attached.

The contractor must also allow for oiling locks and hinges and leaving them in perfect working order

All ironmongery shall be manufactured by Union, Yale, Dryad and Newman-Tonks Ltd. or other equal and approved by the Architect. The following standard abbreviations have been used to describe the finish to ironmongery:-

S.C.P. - Satin Chrome Plate

C.P.	-	Chrome Plate (polished)
S.A.A.	-	Silver Anodised Aluminium

8.0 STRUCTURAL STEEL WORKS

8.1 Generally

Steel angles, tees, channels and plates are to be weldable mild steel grade 434 in accordance with B.S.4360.

8.2 Welding

Electrodes for welding are to be in accordance with current British Standard in application

All welds are to be fillet welds of 5mm by size unless otherwise indicated.

8.3 Bolts

Bolts are to be black bolts in accordance with BS 4190 and all nuts, bolts and washers are to be hot dip galvanised. Boltholes shall have a diameter of the bolt.

8.4 Painting

All steelwork is to be thoroughly cleaned, wire brushed and painted with two coats of red lead primer at the workshop and one finishing coat for aluminium paint. After erection any damage to the paint is to be made good and a further finishing coat applied.

9.0 METALWORK

9.1 Mild steel

Mild steel shall comply with B.S.15, Grade 1, and the sizes of all small section shall be in accordance with B.S.4 and 4A.

9.2 Galvanised work

Iron and steel, where galvanised shall comply with B.S.729, Part 1, entirely coated with zinc after fabrication by complete immersion in a zinc bath in one operation and all excess carefully removed. The finished surface shall be clean and uniform.

9.3 Aluminium

Aluminium shall be of the alloys described in and shall comply with B.S.1470. Aluminium sheet for flashings shall be soft temper, super purity S1 or S1A) and not less than 18 SWG (1.2mm) in thickness.

9.4 Smithing, welding and cutting

All smithing, welding; cutting and bending shall be soundly and neatly executed, care being taken not to overheat. All flame cut edged and welds shall be neatly ground off on completion. All welds shall be 8mm fillet welds to comply with Code of Practice 1856 unless shown otherwise.

9.5 Bolts

Mild steel bolts, nuts and washers shall comply with B.S.916 for black bolts with hexagonal heads and nuts, High Tensile Steel Bolts and nuts shall be in accordance with B.S.3139

9.6 Anchor bolts

Anchor bolts in concrete for steelwork, etc., are to be self drilling anchor bolts of one of the following types:-

Phillips redhead concrete anchors,
Rawplug super drill anchors,
Split self drilling anchors,

Rates are to include for fixing complete with washer.

9.7 Louvre windows

Louvre windows frames are to be aluminium with a clear anodised finish as manufactured by NACO and obtainable from Casements Africa Ltd., or other equal and approved by the Architect.

9.8 Metal doors

Steel for metal doors shall conform to the requirements of BS 1245:1975.

9.9 Burglar bars

Burglar bars shall be as specified by the Architect. The bars shall be cleaned and painted as described on trade of painting on metalwork.

9.10 Structural hollow sections

All hollow sections are to be connected by electric welding. For butt welds the fusion surfaces of each member must be aligned and prepared.

9.11 Mild steel tubing

Mild steel tubing shall be in accordance with BS 1387:1975 with screwed sockets and joints.

9.12 Shop inspection

The Architect shall granted full facilities and any necessary assistance for inspection of materials and assembled parts in the contractor's (or his Sub-Contractor) workshops. At least two weeks notice shall be given to the Architect in writing prior to the dispatch of finished components to the site to enable the Architect to inspect and approve the materials and workmanship at the workshops. Approval of work at the workshop does not relieve the Contractor of his obligations to carry out the work complete at the site to the Architect's satisfaction in accordance with the contract.

9.13 Marking

All components delivered to the site are to be marked in paint with the Mark number in accordance with any shop and erection drawings.

9.14 Storage

All components are to be stored at site in proper racks provided for the purpose, which provide full support to each member, and to avoid any deflection and distortion. Steelwork is to be stored at least 250mm clear of the ground and temporary protection is to be provided for protection against water and damage from any other source.

9.15 Erection

Rates for all metalwork are to include for the complete erection including any temporary supports required and any necessary templates and wedges.

10.0 PLUMBING AND ENGINEERING INSTALLATION

10.1 Execution of the work

The work shall be carried out strictly in accordance with:-

- i) "General specification for the Execution of Plumbing Installation" edition February, 1972.
- ii) 'British Standard Code of Practice ' C.P. 310:1965 water supply
- iii) 'British Standard Code of Practice 'C.P. 304 1968: Sanitary Pipework above ground
- iv) All other relevant British Standard Specifications and codes of Practice.
- v) By-laws of the Local Authority
- vi) The working drawings.

The plumbing work shall be carried out by a specialist and if the contractor is not a firm approved by the Architect for the type and/or value of plumbing installations contained in this Contract, he must sublet this work to a specialist Sub-Contractor who is so approved.

10.2 Extent of work

The work includes, unless otherwise specified, supply; installation testing and commissioning and delivering up clean and in working order the installations shown in the drawings and specified in these Preambles including all details such as:-

Water supply system from water main at boundary of site, main pipe around the works with fire hydrants and branches of the works storage tank (if any) with float valve, cold and hot water pipes and associated thermal insulation, discharge (the term discharge pipe is in this specifications used as a comprehensive all embracing description in place of the traditional soil and waste terms), drain and ventilating pipes, water meter, water heaters, valves , sanitary appliances including all necessary taps, overflows and discharge fittings, compressed air installations, fire fighting installations and equipment, and all labour, materials, tools, instruments and scaffolding necessary to execute the work in a first class manner, even such labour or materials which are not specifically mentioned in the project but are necessary for a satisfactory completion of the work.

The contractor shall be responsible for ensuring that runs for floors or wall chases, holes to cut or left will be marked out at the appropriate stage of the structural work.

The contractor shall undertake all modifications demanded by the Authorities in order to comply with current regulations, and produce all certificates, if any, from the Authorities without extra charge

10.3 Extent of Contractor's duties

At commencement of the work, the contractor shall investigate and report to the Architect if all materials and equipment to be used in the work, and not specified as supplied by others are available locally. If not available, the Contractor shall at this stage place orders for the materials in question and copy the orders to the Architect. Failure to do so shall in no way relieve the contractor from supplying the specified materials and equipment in time.

Materials supplied by others for installation and /or connection by the contractor shall be carefully examined before installation and connection. Any defects noted shall immediately be reported to the Architect.

The contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken on the site.

After the completion of the work the contractor shall, on a set of drawings, indicate all alterations and/or modifications carried out during the constructions period.

10.4 Quality of materials and workmanship

10.4.1 Materials and workmanship generally

All materials, equipment and accessories are to be new and in accordance with the requirements of the current rules and regulations where such exist, or in their absence with the relevant British Standard.

Uniformity of type and manufacture of equipment or accessories is to be preserved as far as practicable throughout the whole work.

The contractor shall, if required by the Architect, submit samples of materials to the Architect for his approval before placing on order.

If in this preambles, the practice is adopted of specifying a particular item as 'similar' to that of a particular firm's product, it is to be clearly understood that this is to indicate the type and quality of the equipment required. No attempt is being made to give preference to the equipment supplied by the firm whose name or products are quoted.

Where particular manufacturers are specified herein, no alternative makes will be considered, and the Architect shall be allowed to reject any other makes.

The contractor will be entirely responsible for all materials, apparatus, equipment, etc furnished by him in connection with his work and shall take all special care to protect all parts of finished work from damage until handed over.

The work shall be carried out by competent workmen under skilled supervision. The Architect shall have the authority to have any of the work taken down or changed, which is executed in an unsatisfactory manner.

10.4.2 Tubing Generally

All tubing exposed on faces of walls, unless otherwise specified, be fixed at least 25mm clear of adjacent surfaces with approved holder-bats built into walls; cut and pinned to walls in cement mortar; where fixed to woodwork, suitable clips shall be used.

All tubing specified as fixed to ceilings, roofs or roof structures shall be fixed with approved mild steel hangers cut and pinned to ceilings, roofs or roof structures. Where three or more tubes are fixed to ceilings, roofs or roof structure close to each other, they shall be fixed in position, which leaves the lower surfaces at the same horizontal level, unless otherwise specified.

Tubes shall be fixed to true lines, parallel to adjacent lines of the building unless otherwise specified.

Where insulated, tubing shall be fixed with the insulation at least 25mm clear or adjacent surfaces

Tube fixings and supports shall, if nothing else be specified be arranged at intervals not greater than given in the following table:-

10.4.3 Mild Steel Tubing:

Diameter of pipe in mm	Maximum spacing of	
	Horizontal runs	Vertical runs
12	1800	2400
19	2400	3000
25	2400	3000
32	2700	3000
38	3000	3600
50	3000	3600
63	3600	4600
75	3600	4600
100	3600	4600

Cast Iron pipes:

Diameter of pipe in mm	Maximum spacing of fixing in mm	
	Horizontal runs	Vertical runs
All sizes	1800	3800

Each support shall take its due proportion of the weight of the tube or pipe and shall allow free movement for expansion and contraction.

All tubing specified as chased into walls shall have the wall face neatly cut and chased, the tubing wedged and fixed and plastered over.

Where tubing is laid in trenches care shall be taken to ensure that fittings are not strained.

All formed bends shall be made so as to retain the full diameter of the pipe. Sleeves shall be provided where tubes pass through walls and solid floors to allow movement of the tubes without damage to the structure. The overall length of the sleeves shall be such that it projects at least 2mm beyond the finished thickness of the wall or partition.

Tubing shall be cut by hacksaw or other method, which does not reduce the diameter of the tube or form a bead or feather, which might restrict the flow.

10.4.4. Galvanised mild steel rainwater pipe

Galvanised mild steel rainwater pipes shall be in accordance with BS. 3868:1973 with spigot and socket joints.

Joints shall be made with best quality tarred yarn firmly caulked to not more than one-third the depth of the socket and the joint finished with molten lead properly caulked.

10.4.5 Galvanised mild steel tubing

Galvanised mild steel tubing shall be in accordance with BS 1387:1967 with screwed and socketed joints

Fittings for it shall be galvanised malleable iron to BS. 1356:1952 with threads to BS. 21:1957.

Joints shall be made with fine hemp and an approved jointing compound or tape. Compound containing red lead must not be used.

Long screw connectors and flat-faced unions shall not be used; unless otherwise specified.

Where laid underground; galvanised mild steel tubing shall be protected with two coats 'Flinkote' or two coats of approved bitumen. Minimum earth cover to underground tubing shall be 600mm.

The fixing of galvanised mild steel tubing shall be done by using:-

- a) Malleable iron 'school-board' pattern brackets for building in or for screwing to structure or
 - b) Malleable iron pipe rings, with either back plate, plugs or girder clips ,or
 - c) Purpose made strap to the Engineer's approval, or
- a) Other approved purpose made holder-bats.

10.5.0 Cast Iron Pipes

Cast iron pipes and fittings for discharge and ventilating pipes shall be sand cast and spun iron spigot and socket pipes to BS. 416:1957; medium grade. and thoroughly coated inside and outside. Pipes and fittings shall be obtained from a licensed manufacturer and be embossed with the certification mark of approved standard institution.

Joints shall be made with best quality yarn, firmly caulked the joints finished with molten lead properly caulked.

Joints of cast iron discharge or ventilating pipes to stoneware drain pipes shall be made with tarred yarn and cement and sand mortar (1:3); joints to cast iron drain pipes shall be with tarred yarn and molten lead properly caulked; and joints to pitch fibre pipes shall be made with approved adopters.

The fixing of cast iron pipes and fittings shall be done by using:-

Vertical runs

- a) Ears on the pipe sockets plugged and screwed or nailed to the wall by means of approved screws or nails or
- b) Cast iron malleable iron or steel hinged holder-bats for building in or nailing or screwing to the wall.

Horizontal runs

- a) Malleable iron or steel flat bats formed to two parts holder-bats having the ring bolted together with 10mm bolts and with 10mm diameter mild steel rod welded one end to the ring and threaded the other end for and including nut and washer for bolting to short lengths of mild steel channel or angle not less than 50 x 50mm built into the structure or bolted thereto with self drilling anchor bolts, or
- b) Purpose made straps to the Architect's approval

Where cast iron ventilating pipes passing through roofs shall terminate at least 300mm above the roof level and shall be protected against insect penetration by a copper wire mosquito-proof balloon grating securely bound on the top of the pipe with stout copper wire.

At the foot of all cast iron discharge and ventilating stacks and where shown on the drawings and on other position as directed or necessary, inspection pipes with door shall be provided. On cast iron junctions inspection pipes shall be with standard bolted oval recess door, shaped internally to bore of pipe, on pipes inspection pipes shall be with large rectangular bolted door similar to 'BURNBROS' NR 639.

10.6 Valves, cocks , taps, etc.

Draw-off taps and stop valves shall comply with BS.1010: 1959.

Copper alloy gate valves shall comply with BS.1952:1964

Copper-alloy check valves shall comply with BS.1953:1964

Brass ball valves shall comply with BS. 1212:1953 copper floats for ball valves shall comply with BS. 1968:1953 and plastic floats for it shall comply with B.S.2455:1973.

Sluice valves shall comply with BS. 1218:1946.

Manually operated mixing valves for ablutionary and domestic purposes shall comply with BS. 1415:1955

Draining taps shall comply with BS 2879:1957.

Copper-alloy screws down stop valves shall comply with BS 2060:1964.
All valves and cocks shall have the same flow areas as the corresponding pipes and shall be accessible for operation and maintenance and suitably labelled by an approved method.

Stop valves shall be fixed in positions shown on the drawings to form branch services for group control; or where else specified.

All valves, cocks and taps shall be of the correct pressure rating according to the recommendations of the relevant BS or the local authority. At commencement of the contract, the contractor shall, if necessary, ask the Architect for guidance on this point .

10.7 Sanitary and other appliances

The appliances shall be fixed in the positions shown on the drawings or as directed by the Architect.

The contractor shall include in his rates for providing all necessary screws, bolts, etc together with all jointing material required and also for temporarily erecting and securing fittings in the required position of service and discharge pipes, taking down, storing and fixing after completion of wall finishings permanently fixing and connecting to service and discharge.

Care shall be taken at all times and particularly after fixing to protect appliances from damage.

Upon completion of the work all appliances shall be cleaned for plaster, paint, etc. and carefully examined for defects.

10.8 Steel water storage tanks

Where specified as galvanised mild steel, water storage tanks shall comply with BS 417:1964. Galvanising shall take place after manufacture.

Pressed steel sectional water storage tank shall comply with BS 1564:1975 and shall be similar to manufacture 'BRALTHWAITE'

Where positioned on roof or storey partition slabs, tanks shall be placed on minimum 150mm high supports to the Architect's approval.

Water storage tanks shall be mosquito proofed by means of a well fitting bolted over bedded on a thick gasket of felt or bitumen

Overflow pipes from tanks shall discharge into open air or into floor gullies where nearby positioned, with splay cut ends mosquito proofed by means of wire gauze tightly bound on with stout galvanised wire.

10.9 Water meters

Water meters shall be installed by the contractor in the position shown on the drawings or where else instructed by the Architect.

10.10 Fire Fighting Equipment

The specified fire fighting equipment shall be supplied and installed by the Contractor in the position shown on the drawings.

Portable fire extinguishers shall comply with the following British Standards

- | | | |
|----|--|-----------------------|
| a) | Water type (soda acid) | BS. 138:1948 |
| b) | Foam type (chemicals) | BS. 740: Part 1: 1948 |
| c) | Foam type (gas pressure) | BS. 740: Part 2:1952 |
| d) | Water type (gas pressure) | BS. 1382:1948 |
| e) | Carbon tetrachloride and chlorobromethane: | B:S. 1721;1960 |
| f) | Carbon dioxide type | BS. 3326:1960 |
| g) | Dry powder type | BS. 3465 : 1962 |
| h) | Water type (stored pressure) | BS. 3709: 1964 |

Fire hose coupling and ancillary equipment shall comply with BS. 336:1965, rubber real hose shall comply with BS 3169:1959.

Underground fire hydrants and surface box openings for some shall comply with BS 750:1964.

The installation of hydrants and fire extinguishers shall be in accordance with C.P. 402: 101:1952 and C.P. 40w; Part.3:1964 respectively.

If nothing else is specified, fire extinguishers and hose reels shall be supplied in the colour " Fire Red" and be similar to manufacture "ANGUS".

In general, supply, installation and maintenance of fire fighting equipment shall be in accordance with the following British Standards:

BS. 5306 Fire extinguishing installations and equipment on premises

PART O: Guide for the selection of installed systems and other fire equipment

PART 1: Hydrant systems, hose reels and form inlets

PART 2: Specification for sprinkler system

PART 3: Code of practice for selection, installation and maintenance of portable fire extinguishers

PART 4: Specification for carbon dioxide systems

PART 6: Foam systems

PART 7: Specification for powder systems

BS. 5499 Fire safety signs, notices and graphic symbols

PART 1: Specification for fire safety signs

BS. 5588 Fire precautions in the design, construction and use of buildings

PART 10: Code of practice for enclosed shopping complexes

BS. 5839: Fire detection and alarm systems for buildings

PART 1: Code of practice for system design, installation and servicing

BS. 6700 Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their cartilages.

13.6 Testing

The whole of the water and discharge installation shall be tested to the satisfaction of the Architect and the Local Authority. The contractor shall provide all necessary testing apparatus and facilities for testing the installation and any defective work shall be replaced immediately and shall be subject of re-testing until found satisfactory.

Where pipes are to be chased into walls or otherwise concealed, the work shall be tested prior to lagging, making good chases etc.

All galvanised mild steel cold water pipes shall be tested to a coldwater pressure of 8.0 kg/cm². If nothing else is specified.

The testing pressure shall be applied by means of a manually operated test pump or, in the case of long mains of large diameter by a power-driven test pump. Pressure gauges shall be re-calibrated before the test.

The test pressure shall be maintained by the pump for about one hour and a leakage as specified in C.P.310, Section 502J, shall be approved but any visible individual leak shall be repaired.

Valves, cocks and taps shall absolutely tight under the test pressure for correspondence pipes as well as under a small pressure.

All discharge pipes shall be tested with air or smoke to a pressure equal to 40mm water gauge and the pressure remains constant for a period not less than 3 minutes. The water seals of all sanitary appliances, which are installed, shall be fully charged and test plugs inserted into the open ends of the pipe-work to be tested. With the pressure applied, every trap shall retain not less than 25mm of seal. All tests shall be repeated three times, the traps being recharged before each test and the maximum loss of seal in any one test, measured by a dipstick, should be taken as the significant result.

All tests shall be carried out in the presence of a representative of the Local Authority and /or the Architect or his representative.

Upon completion of the work, including re-testing if necessary, the installations shall be thoroughly flushed out and water pipe refilled with clean water ready for use.

13.6 FLOOR, WALL AND CEILING FINISHINGS

12.6 Sand

Sand for backings, floor and wall finishes is to comply with B.S.1199, Table 1.

12.9 Aggregate

Coarse aggregate is to be as described for 'concrete work'.

14.6 Cement

Cement is to be as described for 'Concrete Work'.

14.6 Lime

Lime is to be non-hydraulic hydrated lime to B.S.890 Class 'A' obtained from an approved source and run into putty at least 24 hours before use.

16.6 Workmanship

All concrete beds or slabs shall be thoroughly brushed if necessary and well wetted and flushed over with a cement and sand (1:1) grout immediately before screeds or pavings are laid

Screeds and cement pavings shall be laid in accordance with the relevant BS Code of practice. Working joints between bays of the floor finish should be placed in accordance

with the Architect's instructions and will be plain butt joints placed over joints in the concrete bed under. Pavings shall be damp cured with sand or sawdust and kept damp for at least 7 days after laying.

All surfaces to be plastered or rendered must be brushed clean and well wetted before plaster is applied. Joints of walling shall be raked out and concrete hacked to form a key. Care shall be taken to see that paving and plastering do not dry out prematurely

Adequate time intervals must be left between successive coats in two coat work in order that the drying shrinkage of the undercoat may be substantially complete. All internal and external angles shall be pencil rounded.

16.6 In situ pavings generally

Before laying in-situ floor finishes, the concrete beds are to be thoroughly hacked for key, cleaned off, thoroughly wetted with clean water and coated with a stiff cement slurry and rates for screed granolithic and terrazzo paving are to include for this. They are also to include for all necessary curing and protecting until the building is handed over to the Employer.

11.6.1 Cement and sand paving

The cement and sand paving shall be in the proportions of 1:4 by volume and incorporating or treated with an approved hardener. A mix referred to as 1:4 shall mean 1440kgs (1m³) of cement and 4m³ of sand. All other mixes shall be construed in a like manner.

11.6.2 Concrete paving

The concrete paving shall be in the proportions of 1:2:4 by volume, the coarse aggregate used shall not exceed 10mm nominal size. It shall be trowelled smooth with a steel float. If the contractor wishes to use a power float he is to seek the approval of the Architect who may require him to complete a sample area before granting permission.

11.6.3 Terrazzo paving

The in-situ terrazzo shall consist of white or coloured cement and marble aggregate; the colours of the cement and aggregate shall be selected by the Architect. The mix shall comprise three parts of 6mm nominal aggregate to one part coloured cement by volume. The aggregate shall be clean and granular and shall not contain flakey particles or duct. The underbed shall be cement and sand 1:4 by volume.

The terrazzo topping shall laid to a minimum of 12mm thickness in a plastic condition while the underbed is still green and this should be watered to minimise absorption from

the topping. The terrazzo must be well taped into position and rolled with a suitable hand roller. The topping should be allowed to take an initial set and then any surface voids must be grouted up with neat cement of the same colour used in the mix. The surface should be cured by keeping moist by covering with damp sacking for at least 72 hours. When dry and hard, the surface shall be machine polished by grinding with carborundum or other stone discs of suitable grade and with rotary polishing pads.

11.6.4 Tyrolean rendering

Tyrolean rendering is to be applied in four coats to obtain a total thickness of 22mm and adequate time intervals must be allowed between successive coats in order that the drying shrinkage at each undercoat may be completed. The first coat shall consist of cement, lime putty and sand mixed at a minimum thickness of 10mm and finished with a wood float finish. The second, third and fourth coats shall consists of one part of natural cement to four parts of fine white chippings including colour pigment to approval applied with an approved " flicking machine" so that the first coat is completely covered and a thickness of 12mm is obtained.

11.6.5 Internal plaster

Internal plaster shall be applied in two coats and adequate time intervals must be allowed between successive coats in order that the drying shrinkage of the undercoat may be substantially complete. The first coat must be well scratched keyed and wetted to receive the finishing coat. The finishing coat shall be finished smooth with a steel float but care must be taken not to overwork the surface in order to minimise the incidence of shrinkage cracks. All internal and external angles shall be pencil rounded.

Internal plaster, unless otherwise described, shall be lime plaster of 15mm minimum overall finished thickness applied in two coats. the first coat consisting of cement, lime putty and sand mixed in the proportions of (1:2:9). The finishing coat shall be a skin coat comprising cement and lime putty in the proportion of (1:10).

Cement plaster is to be employed where specified on the drawings and is to be applied in two coats of approximately equal thickness to a total of 15mm minimum overall finished thickness. The composition of both coats shall be the same and shall comprise cement and sand (1:4) but a small percentage addition (not more than 10%) lime putty may be permitted if the Architect considers that this will reduce the incidence of shrinkage cracks.

The contractor shall cut out and make good all cracks, blisters and other defects and leave the whole of the plastering and rendering perfect at completion. When making good defects the plaster shall be cut out to a rectangular shape with edges undercut to form dovetailed key, and all finished flush with the face of surrounding plaster.

11.6.6 "Sandtex" finish

'Sandtex' finish shall consist of one part white cement to four parts sand by volume applied in two coats in the manner as described for internal plastering to a total thickness of 15mm and the final coat wet brushed to expose the sand to a texture to be approved by the Architect.

11.7. Wall tiling

Glazed wall tiles shall be from an approved manufacturer and shall conform with the requirements of BS. 1281. Tiles shall be with slightly rounded or 'cushion' 'edges' and unless otherwise described shall be 150 x 150 x 6mm thick. Tiles shall be laid with continuous straight joints and internal angles shall be butt jointed.

Rounded on edge tiles shall be used on all external angles and edges of panels. Tiles shall be bedded in approved tile adhesive and pointed in white cement.

Backings to tiles are to be cement and sand in the proportion of 1:4 rendering in one coat to a minimum thickness of 12mm trowelled smooth.

11.8 Wood block flooring

Parquet tile flooring shall be as manufactured by Italwood Ltd. Dar Es Salaam Tanzania or other equal and approved by the Architect. It shall be laid on a smooth screed and fixed with approved adhesive. It shall be finally sanded and finished with two coats of Ronseal Hardglaze.

11.9. PVC Flooring

PVC. tile flooring shall be used according to specified standards with an approved base. The selected colours to be used shall be approved by the Architect.

12.0 GLAZING

12.1 General

Glass generally shall comply with the requirements of B.S.952 and shall be free from bubbles, specks waves, flows or any other defects.

Clear sheet glass shall be 24 or 32 oz. (3 or 4mm nominal thickness) flat drawn sheet of ordinary glazing quality.

Glass for louvre blades shall be clear sheet flat drawn or roughcast obscured rolled glass to the thickness shown on the drawings with all exposed edges ground and polished.

12.2 Putty

The putty shall be hard setting tropical putty to B.S.544

12.3 Workmanship

All glass is to be accurately cut to fit easily into rebates with a tolerance of 2mm all round. It is to be well puttied at the back and to the sprigged with non-ferrous pins. The putty is to be mostly trimmed and cleaned off and care must be taken that it does not show beyond the slight lines of the sashes. All rebates must be treated with one coat of lacquer (as described under 'Painting' hereafter) prior to glazing.

12.4 Cleaning and protection

The contractor must allow in his rates for the protection of all work in this section and for replacing any cracked, scratched, broken or defective glass prior to handing over to the Employer. He must also allow for cleaning all the windows inside and out and other glass on completion with an approved window cleaner and washleather and for removal of all paint splashes.

13.0 PAINTING

13.1 Colour range

All painting shall be carried out in colours selected by the Architect.

13.2 Materials

Paints generally shall be ready mixed and supplied by one of the manufacturers listed below and delivered to the site in sealed containers clearly labelled with the manufacturer's name, type of paint and colour. Oil based priming paint shall comply with B.S.2521-2524 inclusive.

Caparol
Leyland Paints (T) Ltd
Robbialac Paints (T) Ltd
Sadolins Paints (T) Ltd
Goldstar Paints Tanzania Ltd

Paints are to be used strictly in accordance with the manufacturer's instructions and no contamination by mixing with other brands or materials will be permitted. Thinning is only permitted in so far as it is in accordance with the manufacturer's printed instructions.

13.3 Preparation

All surfaces to receive treatment are to be clean and dry before paint application and surface irregularities are to be removed by filling or the use of suitable abrasives.

13.4 Plastered surfaces

Internal plastered wall surfaces generally are to be treated with plastic emulsion paint. Surfaces are to be allowed to dry out thoroughly prior to paint application. All crack and surfaces imperfection are to be cut back and filled with a patent filler in accordance with the manufacturer's instructions and rubbed down to a true and even surface.

Apply one primer coat thinned with water and two subsequent coats of Leyland's Leymure Co-polymer' or other approved plastic emulsion paint in accordance with the manufacturer's instructions. Where specified internal plastered wall surfaces are to be painted gloss. In addition to the preparation described above, apply one coat of Leyland's P 20 or other approved alkali, resistant primer and flat down with 320 grade 'wet or dry' abrasive paper. Apply two coats Leyland's Leylac Polymeric gloss finish or other equal and approved gloss paint lightly rubbed down coats in accordance with the manufacturer's instructions.

13.5 Woodwork preparations

Large knots in woodwork are to be cut back and replaced with sound wood or scorched back and after priming the surface made good with stopping. All knots are to be treated with two thin coats and patent knotting free from resin.

After priming all nail holes and other imperfections shall be filled with stopping and the whole surface rubbed down to a smooth even finish. The stopping must be 'Scadofil' or other approved make.

13.6 Metalwork

All rust and loose scale on steel and ironwork must be removed by wire brushing and rubbing with emery paper. Where patches of ingrained rust cannot be removed they are to be thoroughly rubbed down and treated with one coat of 'Galvafroid' or other zinc paint in accordance with manufacturer's instructions. One coat of zinc chromate primer will then be applied followed by two undercoats and one finishing coat of gloss paint as described for woodwork above. The contractor is to note that where mild steel burglar bars are housed into wood frames the full length of the bar is to be treated before fixing.

Galvanised metalwork is to receive one coat of white spirit or mordant de-greasing solution washed off prior to the application of calcium plumbate primer followed by two undercoats and one finishing coat of gloss as previously described.

Galvanised metalwork is to be painted only where instructions are given by the Architect as in some cases galvanised metalwork is to be left untreated.

14.0 DRAINAGE

14.1 Generally

The preambles for the previous trade sections are applicable to this section together with the following preambles. The drainage is to be carried out in accordance with the

directions of the Architect and the requirements of the Byelaws. No length of drain is to be covered until it has been tested and passed.

14.2 PVC drain pipes

PVC Drain pipes comply with ISO R161 (4kg/cm²) 'Pipes of plastic materials for the transport of fluids.

The drainpipes shall be spigot and socket glued joints.

14.3 Cast iron drain pipes

Shall be centrifugal cast (spun) iron drainpipes with spigot and socket to BS.437 thoroughly coated inside and outside, alternatively similar pipes but class 'B' in accordance with BS. 1211 may be used according to availability. Fittings shall be in accordance with BS.1130.

Pipes shall be jointed with asbestos yarn and caulked with molten lead or jointed with special jointing compound all to approval.

14.5 Concrete drain pipes

Precast concrete pipes shall be in general conformity with BS. 556. Concrete cylindrical pipes and fittings . The concrete mix used for the manufacture of ordinary pipes shall not be weaker than grade '30'.

For foul water drainage sulphate resisting concrete pipes shall always be used. The manufacturer of sulphate resisting pipes shall be in general conformity with BS. 556. The concrete mix not weaker than grade '30'. Pipes up to and including 45cm diameter shall be un-reinforced and shall incorporate spigot and socket type joints. Pipes above 45cm diameter shall be reinforced with not less than steel fabric required by British Standard BS 8110 or the equivalent in mild steel and shall have spigot and socket joints or if the Architect so approved shall have open type joints. The main reinforcement to be in circumferential direction. Pipes reinforcement shall be placed midway between the inner and outer surfaces of the concrete. In socketed pipes the reinforcement shall be extended continuously from the pipe barrel into the socket, the longitudinal bars cranked as necessary.

No wall thickness of the pipe barrels is specified but the reinforcement (if any) and the wall thickness must be so balanced that the pipes are in conformity with B.S.556 and the test specified therein.

14.6 Pitch impregnated fibre drainpipes

Pitch impregnated fibre pipes, couplings and fittings shall comply with BS 2760 Part 1 and 2.

14.7 Manholes

Manholes shall be constructed on drain lines in the positions indicated or wherever ordered by the Architect.

Manholes on pipe drains be constructed with an-in-situ base in concrete grade "20" which shall be raised to form the benching and invert of the manhole. The benching and channels shall be carefully formed to shape according to the number, diameter and positions of the incoming and outgoing pipes. The channels in the manholes base shall have circular inverts. The benchings shall be sloped towards the channels at a gradient of 1 in 6 or as otherwise detailed on the drawings.

Benching shall be carried out in concrete grade "20" and rendered with 15mm 1:3 cement mortar. Rendering to be carried out in sulphate resisting cement for foul water drainage. The ends of all entering the manholes are to be carefully cut to shape to suit the internal dimensions of the manholes and are to be as short as possible and are to be surrounded with 150mm concrete up to the first pipe joint.

The manhole shall be constructed in accordance with the drawings for typical and special manholes.

Manholes cast iron steps for manholes shall comply with BS. 1247. All steps be hot dip galvanised after manufacture.

Manhole covers and frames shall be in accordance with the requirements of BS. 497 and as specified on the drawings.

14.8 Concrete beds etc

Concrete beds shall be grade "15" laid to correct falls, 300mm wider than the external diameter of the pipe. Rates are to include for laying in two parts, the first part being laid on the trench bottom 75mm thick and allowed to set before pipe laying is commenced. Individual pipes shall be firmly supported on precast concrete blocks placed immediately behind the socket and in such a manner that each pipe is accurately position in both line and level and the underside of the barrel is at least 75mm above the top of the concrete.

After the joints have been made and the pipelines satisfactorily tested, the first layer of the concrete bed shall be thoroughly washed down and cleaned and the remainder of the bedding concrete (and the launching or surrounding concrete where required) shall be placed and consolidated under and around the pipe in such manner as not to cause any damage or disturbance to the pipe or joints.

The contractor is to ensure that his, method of placing this second layer of concrete is such that the full length of each pipe is fully supported. The overall depth of beds is to be in accordance with the table given on the drawings. Where pipes are specified to be haunched, the bed shall be brought up with the second layer of concrete to a minimum overall depth of 150mm to the underside of the barrel of the pipes plus half the diameter of the pipe and then sloped up to the top of the barrel of the drain pipes. Where pipes are specified to be surrounded, the bed shall be brought up with the second layer of

concrete to a minimum overall depth of 150mm to the underside of the barrel of the pipe and then completely surrounded with concrete with 150mm minimum cover all round. Rates for this item are to include for any formwork required.

14.9 Trenches and manhole excavation and back filling

The bottoms of drain trenches are to be trimmed and consolidated to correct levels and gradients. If any trenches are over- excavated the contractor to fill up to the proper depth at his own expense with concrete grade "10" where required. Rates for drain trenches are to include for grading bottoms, any necessary planking and strutting and keeping the excavations free from water, returning, filling in and ramming ground over and disposing of surplus material to spoil heaps on site. They shall also include for sieving and hand filling trenches where required for the first 300mm over the drainpipes.

Back filling shall be executed with selected material in 150mm layers (300mm layers if a mechanical rammer is used) each layer being well rammed and watered to obtain the maximum compaction. Care should be taken to ensure that no stone or other work is placed within 300mm of such work.

Rates for manhole excavation shall include for levelling the bottoms. All surface material including topsoil, which differs in any nature whatsoever from the substrata, shall in every case be carefully set aside and stored separately from other excavated materials. No claim for extras will be allowed for setting aside topsoil for later use.

14.10 Pipe laying and jointing generally

All laying and jointing of pipes shall conform generally with C.P. 301. Each cast iron, or concrete pipe shall be tested for soundness before laying by striking with a hammer and any pipe or joint which does not ring true or which shows in any other way any sign of being defective shall be regretted.

Each pipe shall be laid accurately to line and gradient so that the finished pipeline shall be in a straight line both in horizontal and vertical planes. The contractor shall fix properly painted and securely positioned sight rail, the levels and positioning of which shall be checked by the Architect's representatives before the rails are used and as often thereafter as may be necessary. There shall be at no time less than three sight rails in position on each length of pipeline under construction to any one gradient and the sight rails shall be situated vertically above the line of pipes or immediately adjacent thereto.

14.10.1 Jointing PVC Drain pipes

The type of joint used for drain PVC pipe is cemented spigot and socket. The jointing procedure is as follows:-

- i) The spigot end shall be chamfered
- ii) Clean spigot and socket with wet cloth and let dry

- iii) Un-grease spigot and socket with acetone
- iv) Mark length of joint and spigot
- v) Apply first a relatively thick layer of cement onto spigot and then a thin layer into socket
- vi) Flush home the joint to the mark quickly and give at once a 90 twist.
- vii) Remove pressed out cement
- viii) Do not disturb the joint for five minutes whilst cement is hardening

The cement used shall be supplied by the factory, which is supplying the pipe.

14.10.2: Jointing precast concrete pipes

The contractor shall adopt such measures as may be approved by the Architect to ensure that every laid down pipe is concentric with previously laid pipes with which it joints. Unless otherwise approved pipes shall be laid in an up-gradient direction and the spigot shall be laid in the direction of the flow. Before commencing the laying operation, the contractor shall ensure that the portions of pipe, which come into contact with jointing materials, are perfectly clean.

Cement mortar joints for concrete pipes with spigot and socket joints shall be made as follows:-

- i) Before commencing the jointing operation the socket of the previously placed pipe and the spigot of the new pipe shall be cleaned and thoroughly soaked with water.
- ii) The spigot shall be wrapped one complete lap with tarred hemp spun yarn and the new pipe shall be carefully drawn towards the previously laid pipe so that the spigot enters the full depth into the socket of the previously laid pipe . The new pipe shall then be adjusted and fixed in its correct position in line, level and gradient and the yarn shall be caulked tightly home into the socket. On completion of this operation the yarn shall not fill more than one quarter of the total depth of the socket.
- iii) The remainder of the socket shall be completely filled with cement mortar consisting of one part of cement (sulphate resisting cement for foul water drainage) to three parts of sand. The mortar filling shall terminate flush with the socket and shall be neatly trowelled to a smooth finish completely around the pipe.
- iv) To assist the curing of the mortar the contractor shall cover the joints immediately after they are made with a layer of hessian which shall be kept continuously wet

during daylight hours and he shall further adopt such other measures as the Architect may direct all at the Contractor's expense.

14.11 Position of floor gullies etc.

The contractor shall before positioning floor gullies duck-foot bends for ventilating stacks, etc should consult the Architect in order to ensure the correct position of these. Failure to do so, shall in no way relieve the contractor from positioning floor gullies, duck-foot bends for ventilating stacks etc in positions, the Architect later may direct.

14.12 Testing

After the drains are laid and jointed and before the trenches are filled in, they are to be tested in the presence of the Architect's representatives. The drains shall be tested in lengths between manholes or such shorter lengths as the representative or the Architect may approve.

Water shall be passed into the length under test until such time as all the air has been expelled and the line is full of water and subjected to a head of 1500mm at the upstream end. The test shall be considered to be satisfactory if there is no visible leakage, see page or weeping from any of the pipes or joints and if the head of water in a 76mm diameter upstand tube fitted at the upstream does not fall at a rate faster than 12mm per minute per 30 metres length. The contractor shall make such time allowance as may be necessary for the pipe to absorb water being subjected to test.

Manholes are to be tested for water- tightness in the same way as for drains by filling with water but not exceeding 1500mm head.

The contractor is to supply all testing apparatus and materials necessary for these tests and provide all labour and assistance required. Any failure whatsoever in the drainage system to withstand the specified tests and any defects appearing are to be made good and the drains re-tested to the satisfaction of the Architect.

16.0 ELECTRICAL INSTALLATION

16.1.0 PART 1: GENERAL SPECIFICATION

16.1.1 Workmanship and Samples

The Contractor shall provide the Engineer with a programme indicating when each type of installation, conduit, trunking, is to commence and when representative samples of such installations will be ready for inspection. The Engineer's approval of the sample must be obtained before further work commences. The works shall be executed with the highest level of workmanship, using the specified materials or approved equal.

16.1.2 Regulations and Codes of Practice

Unless otherwise stated in this Specification, the installations shall conform to current requirements of the following and all other relevant documents at the time the Works are installed:

- (a) Latest relevant BSI Standard and Codes of practice
- (b) Health and Safety at Work Act
- (c) Building Regulations
- (d) Local Authority Regulations and By-laws
- (e) Electricity Supply Regulations
- (f) Statutory Authorities Rules and Regulations
- (g) IEE Regulations 16th Edition including all the latest amendments

The Contractor is required to obtain an understanding of the above and ensure that the installations comply in all respects.

Where compliance with the design or Specification may lead to non-compliance with any Regulations or Codes of Practice when systems are installed or in operation, the Engineer shall be informed promptly.

16.1.3 Local Authorities and Public Utilities

The Contractor shall carry out all liaisons and produce all information to ensure that the requirements of the Local Authority, Local Fire Officer, the Water and Electricity Utility are met. All approvals necessary from Statutory Authorities for the Works shall be the responsibility of the Contractor. The Engineer shall assist wherever possible on request.

16.1.4 Long Delivery Equipment

The project is a fast track and has a very short duration. The Contractor shall identify any items that are subject to long delivery and state the action necessary such that the Works can be completed on programme.

16.1.5 Tender Drawings

The Tender Drawings, and other drawings issued by the Engineer, show generally the arrangement of the Works as a guide to the Contractor. They do not cover all details of the Works involved and are diagrammatic in certain particulars. The Contractor shall provide details of alternatives, which may improve the design or reduce the costs with his tender. Alternatives shall however be evaluated following selection of the main offer. The Contractor shall consider fully the Tender Drawings and Specification and clearly qualify,

in his tender, any items which may require such qualification in order to submit a fully priced tender.

Make an allowance within the tender sum to cover any variations in the routing of pipes, ducts, trunking, conduit, etc.

16.1.6 Planning

Immediately following appointment, provide to the Engineer a detailed programme. Include submission dates for drawings, schedules plus the required approval dates. Provide commencement and completion dates of the equipment to be installed. Identify items, which are on the critical path and give the dates by which they need to be ordered. Ensure that the programme is co-ordinated with all programmes for items of work which form part of the project but which are not part of the Works.

The Contractor shall attend monitoring meetings at the request of the Engineer; make available all information required for the Engineer to accurately assess progress, and progress negotiations with Statutory Authorities to ensure that all their obligations falling under the Works are completed in accordance with the overall programme.

16.1.7 Installation Drawings

The Contractor shall work from these drawings but will be responsible for developing of the following: -

- (e) The precise routing of all distribution systems
- (b) Fixing and bracketing details for all plant equipment and distribution systems.

Structural approval must be granted by the Engineer for all plant and builder's work requirements but this approval will not relieve the Contractor of his responsibility for complying with the Specification.

16.1.8 Setting Out and Builder's Work

Before commencing installation of any ductwork, trunking, piping etc. check that the shop drawings co-ordinate with all other drawings and ascertain the physical dimensions on Site. Set out all holes and chases required for the installation of plant and equipment. Supply all foundation bolts, nuts, washers packing pieces, brackets, supports, etc. Supply details of all fixing arrangements to the Engineer for approval. Drill all holes necessary for fixing the Works. Should holes need to be cut through walls, these must be no larger than necessary to allow the pipes or cables etc. to pass through with the appropriate sleeve. Builder's work will include all work necessary by the builder to enable installation of all systems by the Contractor, e.g. bases, pits, etc.

16.1.9 Maintenance and Defects Liability

The Defects Liability for the Works will be for a period indicated in the appendix to the contract. Maintain the Works, at no cost to the Employer, to the Engineer's satisfaction, during the progress of the Works and until the Architect has issued a Practical Completion Certificate for the Works.

16.1.10 "As Installed" Drawings

Throughout the execution of the Contract Works, the Contractor shall keep on the Site a complete set of up-to-date prints marked up with "As Installed" details, and make these prints available at any time to the Engineer or his representatives. At the completion of the works the Contractor shall produce "As Installed" Drawings approved by the Engineer, such that they are legible when reduced to A3 size

Included on the "As Installed" drawings and diagrams will be the following, in as far as they are the subject of the Contract Works: -

- (a) The location, including level if buried, of Public Authority Supplies provided within this contract whether carried out by the Contractor or by the appropriate Authority, together with the points of origin and termination, size, type of cable and protective devices and/or other relevant information.
- (b) The layout, location and extent of all piped services showing pipe sizes throughout together with number and size of conductors. Drawn inside.
- (c) Single line and schematic wiring diagrams for the whole of the Contract Works showing all terminal references and cable sizes.
- (d) The layout, location and extent of all electrical plant, cable, cable trunking, conduit, distribution boards, switches, outlets and lighting which form part of the Works including dimensioned layouts of all concealed work.
- (e) The layout, location and extent of all plant, cable, cable trays, trunking, conduit, switches, outlets, terminals and indicators and alarms or all ancillary communication and control installations that form part of the Contract Works, including dimensioned layouts of all concealed work.
- (f) The location and identity of each room or space housing plant, machinery or apparatus.

16.1.11 Operating and Maintenance Manuals

Unless otherwise agreed, the whole or any part of the Contract Works will only be included in a Certificate of Practical Completion when two copies of all manuals and operating and maintenance instructions in stiff back ring binders have been issued to the Engineer.

Before the above mentioned final issue, send two proofed copies of the manuals to the Engineer for approval of format and general content. Allow 14 days for approving.

Prepare manuals in accordance with the general requirements and include the following information: -

- (f) Contents list
- (g) General description of the installation, equipment used and method of operation of the installation.
- (c) Handbooks, maintenance instructions, drawings and spare parts list for all components, plant and equipment used in the Contract Works.
- (d) Line diagrams indicating the main features of the plant, drawing attention to the method of setting the control dampers, switchgear, safety precautions etc.
- (e) Schedule of routine maintenance complete with oil and grease points and recommended lubricants.
- (f) Schedule of periodic and preventive maintenance for specialised equipment.
- (g) Schedules of methods of adjustments and typical fault finding routines.
- (h) Wiring diagrams of plant.
- (i) Service manuals for all specialised plant giving all details, as listed above.
- (j) Schedules of equipment and motors, related to the "As Installed" drawings, giving names of manufacturer, serial number of plant and electrical details.
- (k) Description of emergency action, which should be taken in the event of breakdown of equipment. Include telephone numbers and operating and maintenance procedures.
- (l) List of recommended spares and tools.

In addition, and separate from the Operating Manuals, the Contractor shall supply two sets of manufacturers catalogues relating to specialised plant and equipment.

16.1.13 Inspection, Testing and Commissioning

Carry out all inspections, test and commissioning in accordance with the requirements of the appropriate TANESCO'S commissioning codes, IEE Regulations, Fire Officers and any other certifying bodies.

Demonstrate to the Engineer that all instruments used for testing and commissioning are of the correct type and appropriately calibrated.

Inspect, test and commission all systems and satisfy yourself that such systems function in accordance with the design intent and Specification. Subsequently inform the Engineer that all services are operating correctly and ready to be demonstrated.

Demonstrate to the Engineer that the services are in accordance with the design intent and Specification.

Demonstrate to the Engineer that the systems as installed can achieve their full rated loads and the required range of loads. Produce proposals for submission to the Engineer on the method to be adopted for proving the systems.

Provide fully completed test certificates including manufacturers test certificates. Obtain the Engineer's prior approval to the format of all site test certificates and commissioning record documents.

Provide all access equipment necessary for the Engineer to inspect the Works at any time throughout the duration of the Works and the Defects Liability Period.

Demonstrate to the Employer/building occupier's representative the operating and maintenance procedures for the Works.

16.1.14 Redundant Materials and Safety

Collect regularly, centrally store and subsequently remove from the Site all surplus materials before the completion of the Works. Keep the Site safe and tidy at all times in accordance with the Health and Safety at Work Act and observe all other safety requirements relevant to the Site and works. Ensure adequate fire precautions are taken throughout the contract period.

16.1.15 Fault Work or Materials.

The Engineer shall have the right to reject any materials or workmanship, which in his opinion is unsatisfactory. Replace such material or rectify such bad workmanship forthwith at no cost to the Employer. The Engineer will employ others to rectify all defects should these not be corrected forthwith. The cost of such remedial work will be borne by the Contractor.

16.1.16 Compliance with Specification

Install the Works such that they comply with this Specification and conform to the best principals of modern practice. The works are to be carried out by fully competent tradesmen of the appropriate grades. Notwithstanding any inspection carried out by, or acceptance given by the Engineer, the Contractor is responsible to ensure that the Works are installed in accordance with the design and Specification.

16.1.17 Materials

Comply with the class and type of materials indicated in this Specification and on the Tender Drawings. Where any doubt occurs, seek approval from the Engineer prior to placing orders.

16.1.18 Protection

Protect all items from weather or physical damage upon arrival on Site.

Provide and maintain all necessary protection to the building (wall fabrics, floors, doors etc.) during the execution of the Works.

Provide the Works with protection to avoid damage from other trades.

16.1.19 Labels and Identification

All distribution boards and switchgear shall have identification in the form of black lettering on white ivory labels, fixed with screws to the outside cases of all equipment, isolators and switchgear.

All electric items shall be labelled with a clear indication of phase connection, and the Contractor shall provide and install a typewritten list of circuits in a transparent envelope mounted within or adjacent to each distribution board.

16.2.0 PART 2 PARTICULAR SPECIFICATIONS

16.2.1 Introduction

16.2.1.1 General

This section details the scope of works for the electrical; fire protection, voice and data services installation for the proposed Education resource centre for the Tanzania Institute of Education at Kijitonyama Dar es salaam. The detailed works are as indicated on the tender drawings and as described later in this specification, but as a guide the main elements will include but not necessarily be limited to the following: -

- (i) Installation of LV switchgear
- (ii) Installation of lighting system
- (iii) Small Power installations and cable management system.
- (xii) Installation of voice, data outlets and equipment.
- (v) Installation of Fire alarm and Detection System

16.2.1.2 Workmanship

The electrical installation will be of a high specification. All electrical switchgear and accessories shall be carefully aligned on walls and trunking, and integrated with the other services throughout. Only workmanship of the highest order will be acceptable.

16.2.1.3 Setting Out

It shall be the Contractor's responsibility to ensure that all equipment and setting out dimensions are co-ordinated with other services. Position of equipment, fittings, accessories etc indicated in this specification is provisional only and all lengths must be checked on site before any cables are cut.

16.2.1.4 Preferred Equipment

The tender shall be priced based on equipment scheduled in this specification. Where brand names are included this is for guidance of the requirements only, the Contractor shall provide equivalent materials and equipment that meets the specifications, however detailed specification, including brochures shall be submitted with the tender.

Alternatives may be permissible subject to approval by the Engineer and must be separately identified on submission of tenders. Full details of such equipment must be provided to the Engineer, including any additional information that may be requested prior to the approval of alternatives.

16.2.2 Incoming Service and Sub Main Distribution

16.2.2.1 Power Supply

There is an existing panel located in one of the existing building. The contractor shall study the existing set up and carry out all the necessary modifications to enable tying in of the services to the proposed building.

The contractor shall lay a PVC/SWA/PVC cable from the existing line to the main switchboard as indicated on the drawings. The Contractor shall also arrange for the necessary alterations of tariff meter to suit the proposed loads as necessary.

16.2.2.2 Main LV Switchboard

Provide a Moulded Case Circuit breaker (MCCB) Switchboard in the electrical closet as shown on the drawings. The LV panel board is to be as manufactured by 'Merlin Gerin' or approved equal.

The panel board shall be manufactured and tested to comply with BS EN 60947.

The bus bars shall be rated at 250A at 415V, 50Hz, with a short stand withstand of 36kA for 1 second.

16.2.2.3 MCB Distribution Boards

The Contractor shall be responsible for supplying distribution boards as indicated on the layout drawings and connection diagrams. All distribution boards and consumer units shall be as manufactured by 'Merlin Gerin'. All boards to be fitted with incoming Residual Current Devices suitably rated.

MCB's must be capable of safely clearing the prospective short circuit fault current at the distribution board and provide satisfactory discrimination with upstream and downstream circuit protective devices.

All distribution boards shall be labelled using white ivorine labels with red lettering and typed circuit charts shall be provided for each distribution board.

16.2.3 Lighting Installation

The work to be carried out under this section shall include the supply, installation, connection, lamping, testing and commissioning of the complete lighting system as specified and as detailed in the tender drawings.

Install the recessed luminaires directly into the suspended ceiling. Install the surface mounted luminaires on the suspended ceiling or structural soffit. Final connection to recessed luminaires to be carried out using plug-in ceiling roses and 3 core 1.5sq. mm butyl flexible cable as appropriate.

Install other lights directly on wall surfaces (above mirrors in wash-rooms) as noted on tender drawings.

Wire all luminaires from their respective distribution boards using single-core PVC insulated cables. The wiring shall be drawn through heavy gauge PVC conduits installed on surface within ceiling voids and or concealed in walls and partitions as noted.

16.2.4 Emergency Lighting

Supply and install emergency lighting of the type indicated in the schedules and tender drawings. Selected luminaires and exist signs shall be provided with emergency lighting inverted battery packs. The battery packs shall have sufficient capacity to provide full illumination for a period of 3 hours upon mains/generator failure.

The delivery shall include a clearly visible charge operation/failure indicator fixed to the body of each emergency luminaire.

For such fittings, provide a wall mounted key operated isolating switch marked 'Emergency Lighting Test' independently or as a switch gang on the general lighting grid switch plate for test purposes.

Legend panels for the EXIT and EMERGENCY EXIT signs as called for in tender drawings shall be provided with the approved picturesque.

The tender shall include for the complete emergency lighting system testing upon completion, in the presence of the Engineer.

16.2.5 Small Power

The tender includes the supply and installation of power outlets of the types shown in bills of quantities.

Install socket outlets on dado trunking or recessed in walls as shown on the drawings.

The trunking shall be complete with factory made tees, junctions, end caps, crossovers, joints and lids.

Trunking shall be Premier range assembly 150x50mm from MK Caradon complete with 25mm deep outlet mounting boxes for socket outlets and DP switches and 35mm deep for data outlets.

16.2.6 Supplies to VAC Equipment

The Contractor shall supply and install main cables from the VAC equipment Distribution board to the respective equipment isolators installed at the positions noted on the drawings. Cables shall be of the sizes indicated on the drawings.

Include for final connection to the outdoor equipment using flexible conduit to IP54 and stranded single core cables.

16.2.7 Fire Alarm System

The Contractor shall supply and install a complete functioning fire alarm system complying with BS5839 consisting of components, which comply with BS5364, 5445 and 5446.

Mounting of detectors and alarm sounders as detailed below: -

- Call points mounted at a height of 1400 mm above finished floor level to centre
- Alarm sounders 2500mm above finished floor level to centre.
- Smoke and Heat detectors shall be mounted on ceiling.

All fire alarm system call and sounder points shall be connected using 1.5mm² FP 200 cable with red PVC over-sheath. Surface mounted accessories shall be supplied with the necessary bases.

Cables shall be drawn in conduits concealed in walls or surface run within ceiling voids.

A surface mounted alarm panel shall be installed with alarm circuits and sounder circuits as indicated in the bills of quantities or drawings. All sounders shall ring on the operation of one or more of the manual call points.

Provide a 240V AC supply to the alarm panel from a separate appropriately indicated lockable switch on the main switch-panel. A label at the fire panel shall be provided noting clearly the location of the controlling switch and procedures to isolate all supplies from the panel.

Included in the supply are sealed lead acid batteries and charger to support operation for 24 hours after the loss of mains supply and a further 30 minutes in alarm mode.

16.2.8 Voice and Data Installation

The scope of work includes the supply, installation, testing and commissioning of voice and data outlets and cabling to category 5E standards and equipment defined in this specification and the associated drawings.

Attachment cables for linking outlets to workstations, telephone system/handsets and installation of PBX are excluded from this contract.

Data outlets shall comprise of single or dual shielded RJ 45 shuttered outlets as RW data. The Contractor shall provide suitable mounting boxes either in wall or trunking as the case may be.

A 4 pair UTP cable shall be run from the data cabinet in the server room to each outlet.

Cables shall be installed flat, parallel and without kinks or twists. Care must be taken to ensure that the bending radius at a turn is not less than that recommended.

Include for all supporting ties for fixing cables in cable trunking.

The protective sheath, screen and insulation of all the installed cables shall be intact at all points along each cable. Any cable found to be damaged during or after installation should be replaced in its entirety.

The contractor shall also supply and install a complete administration sub-system comprising of a floor standing data cabinet with toughened, smoked, lockable glass door, 20U high and 19-inch rack mounting complete with fans.

RJ 45 Patch panels, voice patch panels, cable tidying panels and all patching cords for use in the data cabinet shall be supplied and installed by the contractor. Ample space for installation of computer active equipment such as Hubs, Switches etc shall be provided for in the data cabinet.

Upon completion of the installations the contractor shall label the entire structured cabling at each end and all data and voice outlets using Brother 'P-Touch' system or an equivalent approved system. Black characters on yellow background shall be used.

Before hand-over the Contractor shall carry out appropriate tests and submit test sheets to the Engineer.

16.2.9 Earthing

Effectively earth each and every structure; item of plant and equipment in accordance with the IEE Regulations for Electrical Installations 16th Edition and Codes of Practice for Earthing. The system shall include copper earthing rods, earthing leads, conductors, and earthing chambers. Testing facilities shall be provided

Size earthing conductors, circuit protective conductors and bonding conductors in accordance with IEE regulations

17.0: MECHANICAL INSTALLATION

17.1.0: PART 1: GENERAL SPECIFICATION FOR VENTILATION AND AIR CONDITIONING INSTALLATIONS

17.1.1 Scope of work

This specification contains general requirements for ventilation and air conditioning system. The specification of equipment shall be made in such a manner that quality and capacity can be easily controlled. Materials and equipment required to complete this installation should be from a manufacturer that can easily supply spare parts.

17.1.2 Working Drawings

Contract drawings have been prepared with Bills of Quantities by the engineer and listed as annexes to the specification.

17.1.3 Record drawings

During the execution of the works on site, the contractor shall in a manner approved by the engineer record on working drawing variations or modifications on the mechanical installations. These drawings shall not be used for any other purpose and shall be available at any time for inspection by the engineer.

17.1.4 Working drawings for specialized services

Working drawings for specialized services shall be prepared by the subcontractor and should be submitted to the engineer together with particular specification for approval. Within the time given in the Contract or in the programme such drawings, samples, models or information as may be called for therein and in the numbers therein required and during the progress of the works, such drawing of the general arrangement and details of the works as specified in the contract or as the Engineer may require.

No work shall be executed until the Engineer has approved the relevant drawings. The Engineer shall signify his approval or disapproval thereof.

17.1.5 As Built Drawings

On completion of the contract and before final payment certificate is issued, the contractor must provide a complete set of "as built" record drawings of the entire installation. Drawings shall be in a scale and size approved by the engineer and submitted in hardbound volumes.

17.1.6 Shop- drawings

Shop drawings (also spare part list, operating instructions etc) of equipment installed are required to be submitted together with the as-built drawings.

17.1.7 Builders Work

The contractor shall execute builder's work in connection to mechanical installation.

The builder's works in this connection include:

- Cutting away and making good after plumbing installations including cutting and pinning ends of supports for pipes fittings and other appliances.

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- Foundations and plant support.

Works are to be executed in compliance with the existing standard and/or codes of practice adopted.

17.1.8 Testing and Inspection of Contractor's Work

The Engineer or his representative shall at all reasonable time have access to such parts of the contractor's work as may be necessary for the purpose of inspecting and testing the materials, workmanship and performance of the equipment or plant.

On completion of any section of the installation and before they are concealed or insulated, they shall be tested according to the procedure adopted commonly by the plumbing and ventilation trades. Any defect revealed by the test must be rectified and the tests repeated free of charge.

In the event of any portion of the work or materials failing to pass the test specified herein, or set forth in the manufacturer's lists for that particular item, the Engineer may, at his discretion, reject that portion of the work or material entirely.

17.1.9 Provisional Site Acceptance and Commissioning

All controls and safety devices must be tested to ensure that they function according to their design.

During commissioning, the contractor shall advise the client's Engineer on how to operate and maintain the installation.

17.1.10 Materials

Where materials of a particular manufacture are called for in the Specification, the Engineer shall have the authority to reject any materials that are not of the make specified. Where the words "or other approved or equal" are used, it is understood that this means make of equal quality but the written approval of the Engineer for the use of any such alternative shall be obtained prior to their use in the installation. In the absence of any such request the engineer is entitled to suppose that the material as specified will be used.

17.1.11 Workmanship

The whole work shall be carried out in a straightforward manner by competent workmen under skilled supervision as stipulated in conditions of contract. The Engineer shall have authority to have portion of the work taken down, removed or undone, which is executed in a poor workmanship like manner or with improper materials. Where required, the contractor shall submit to the Engineer samples of materials that he proposes to install for tests and approval for installation.

In the event of the portion of the work or materials failing to pass the specified test, or approval of the engineer, the sub-engineer will be required at his own expense to put right such defects.

17.1.12 Standards

Unless mention is made to the contrary in this specification the mechanical services will comply with the following standards and regulations:

- British Standards BS 5720:1979 (Code of Practice for Mechanical Ventilation and Air Conditioning in Buildings) and Codes of Practice
- Local bylaws and regulations.

The contractor shall demonstrate knowledge of these standards and be able produce copies of any if required.

17.1.13 Operation and Maintenance Manual

17.1.13.1 General

All systems and associated equipment as specified in this volume shall be required to have an operation and maintenance manual to be approved by the Engineer. The manual shall contain a brief description of the system as a whole and the functional units

The function and working principals of all units, circuits and components shall be explained, in case of breakdown.

The physical location of each individual identifiable unit and component shall be explained. For each system and for each composed unit a checking procedure shall be explained, in case of breakdown.

The physical location of each individual identifiable unit and component shall be clearly shown in the illustrations.

Adjustment and control procedures shall be fully described, along with necessary calibrations, charts etc.

The complete set of manuals with descriptions and 'as built' drawings shall be bound in a uniform manner in volumes of reasonable size.

17.1.13.2 Spare Parts List

Spare parts lists comprising all parts, mechanical and electrical, shall be in separate volumes or in each unit volume and contain at least the following information:

- In which unit component is used
- Component reference number according to drawing or circuit diagram
- Value and rating or other identifying characteristics
- Manufacturer's name and reference or catalogue number
- Cross reference to contractual spare parts stock

All parts not being of the original manufacture shall be identified sufficiently with the original manufacturer's name and unit number, so that they can be procured commercially regardless of source.

17.1.13.3 Delivery Schedule

Three copies of operation and maintenance manual shall be submitted when or before testing of the system. Two of these copies shall be available to the engineer on site. One copy is to be submitted to client's head office.

17.1.14 Spare Parts

17.1.14.1 Spare Parts Included in the Tender

A stock of spare parts for all major equipment included in this specification; estimated by the contractor to be sufficient for one-year operation, shall be included in the equipment delivery on the site. A complete, itemized price list of these parts shall be submitted. At the time of final acceptance, the spare parts available on the site shall be counted and re-evaluated. The contractor shall ensure that the full set of parts according to the list mentioned above is available and that all are in good condition.

17.1.14.2 Adjustment of Stock

If any parts have been consumed during the provisional operational period at a higher rate than estimated as basis for the one year parts list, the quantity in this one-years' stock shall be increased proportionally, at no cost to the engineer.

Any design change or addition to the equipment supplied under the Contract shall be reflected in the set of spares available on the site at final acceptance, at no cost to the Client. The contractor shall remove no parts from the site unless authorized by the Engineer.

17.1.14.3 Guarantee

The contractor shall submit manufacturer's warranty.

17.1.15 Safety

Safety precautions throughout the execution of the Works shall comply with the Safety Acts as enacted and operating in the Republic of Tanzania.

17.2.0: PARTICULAR SPECIFICATIONS FOR AIR CONDITIONING AND VENTILATION

17.2.1 Split Air conditioning System

The split air conditioning system shall be of Carrier make or approved equivalent. The split air conditioning system shall consist of wall mounted indoor units and vertical standing

out door units. The units shall comply with low voltage EEC/73/23 and electromagnetic compatibility EEC/89/336 directive.

A qualified installer shall carry out installation and shall ensure a properly sized and connected ground wire is in place.

The mains supply must be connected to the outdoor unit. The indoor and outdoor units shall be connected with insulated field supplied copper pipes by means of flare connections. Copper pipes shall be according to ISO 1337 they shall be degreased and deoxidised and suitable for operating pressures of at least 3000 kPa. Under no circumstances must sanitary type copper pipes be used. Manufacturer installation recommendation shall be followed.

17.2.2 Modular Multi-split Air conditioning system

The modular multi-split shall be of Toshiba make or approved equivalent. The system shall consist of ceiling mounted 4 way air discharge indoor units and 50.4kw equivalent combining cooling load. The indoor and outdoor units shall be connected as recommended and specified by a manufacturer.

The maximum different height when the outdoor is higher than indoor unit shall be 50 m and 30m vice versa. The system shall be installed together with discharge temperature sensor, suction temperature sensor, internal overload relay, compressor over current sensor, high & low-pressure sure sensor and over current Sensor.

17.2.2.1 Condensate drainpipes

Drainpipe shall be of 16mm PVC pipe and the drainage must be through external located flowerbeds or drainage points.

17.2.3 Exhaust Ventilator

Fan shall be spun aluminium, wall mounted, centrifugal exhaust ventilator.

17.2.3.1 Certification

Fan shall be manufactured at an ISO 9001 certified facility. Fan shall bear certified ratings seal for sound and air performance.

17.2.3.2 Construction

Fan shall be a bolted and welded construction utilizing corrosion resistant fastener.

17.2.3.3 Motor

Motor shall be heavy-duty type with permanently lubricated sealed ball bearings and furnished at the specified voltage, phase and enclosure.

17.2.4 Electronic Room Thermostat.

There shall be installed electronic room thermostat with digital display. The thermostat shall have a range of 5°C to 30°C and an on/off switch. Contractor is to submit brochure and performance data to engineer for approval.

17.2.5 Extract Air Grilles

Extract air grilles shall be made of aluminium.

17.2.6 Air Transfer Grilles

The transfer grilles in walls, doors etc. shall be approved by the engineer.

17.2.7 Louvres

External inlet and discharge air louvres are to be constructed of aluminium suitable for removal in sections. Removable internal insect screens must be fitted on the inside of the air louvres.

19.2.8 Extract Ducting

Extract ducts for extract fans shall be of PVC pipe or approved equivalent

19.2.9 Provisional Site Acceptance and Commissioning

The object of the Provisional Site Acceptance is to ensure that the installation operates in conformity with the requirements of the design specification. It involves both the "starting up" and the "regulation" of the installation including the performance testing.

The complete ventilation and air conditioning system must be tested in accordance with accepted testing procedures and must include:

- Check rotation and alignment of fans including alignment of belt drives, coupling, etc.
- Check speed of rotation equipment against the drawings or certified performance curves.
- Adjust air system to deliver specified quantity of air at each outlet to +/- 5%
- Check cooling capacities on split type units.
- Check adjustment and operation of temperature control equipment
- Eliminate vibrations.
- Check and record the motor loads and nameplate ratings.

- Adjust interior pressure to the required minimum.
- Check sound level in each room with special requirements.

After the main ventilation and air conditioning system has been run for three days, remove any air filters and replace them with new ones.

Mount in glass frame a fade-proof copy of operating instructions and temperature control diagram. Furnish the engineer's representative with two copies of the above.

19.2.10 Test Records

Test records shall include rate of test, cooling rates, air quantities, sound levels etc. and approved signatures of the person in charge of the testing.

