



## KENYA INDUSTRIAL RESEARCH AND DEVELOPMENT INSTITUTE

### THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI

#### TENDER FOR PLUMBING, DRAINAGE, EFFLUENT TREATMENT & FIRE FIGHTING

**TENDER REF NO: KIRDI 04/1/2025/2026**

#### (FINANCIAL PROPOSAL)

##### Client

Kenya Industrial Research and Development Institute (KIRDI)  
Popo Road, Off Mombasa Road,  
O. Box 30650-00100, Nairobi, Kenya  
Tel. +254-724 214 092  
Email: [directorgeneral@kirdi.go.ke](mailto:directorgeneral@kirdi.go.ke)  
Website: [www.kirdi.go.ke](http://www.kirdi.go.ke)

##### Architects and Project Managers

Habitech Consultants  
P.O.Box 66495 – 00800  
Nairobi, Kenya

##### Quantity Surveyors

M and M Construction Consultants  
P.O.Box 4677 – 00506  
Nairobi

##### Structural / Civil Engineers

Multiscope Consulting Engineers Ltd  
P.O.Box 12012 – 00100  
Nairobi

##### Mechanical services Engineer

EMS Consultants Ltd  
P.O.Box 11743 – 00100  
Nairobi

##### Electrical Services Engineer

Gedox Associates Ltd  
P.O.Box 64441 – 00620  
Nairobi

##### Environment management & physical planners

Prof. George N. Njuguna & associates  
P.O.Box 26442-00504,  
Nairobi

**SUBMISSION DATE: On or before 6<sup>th</sup> March, 2026 at 11.00 AM  
(East African Time)**

**TENDER DOCUMENTS FOR THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH ‘B’, NAIROBI –**

**PLUMBING, DRAINAGE, EFFLUENT TREATMENT & FIRE FIGHTING**

**1) NAME AND CONTACT ADDRESSES OF PROCURING ENTITY**

Kenya Industrial Research and Development Institute (KIRDI)  
Popo Road, Off Mombasa Road,  
P. O. Box 30650-00100, Nairobi, Kenya  
Tel. +254-724 214 092  
Email: [directorgeneral@kirdi.go.ke](mailto:directorgeneral@kirdi.go.ke)  
Website: [www.kirdi.go.ke](http://www.kirdi.go.ke)

**2) Invitation to Tender (ITT) No: KIRDI 04/1/2025/2026**

**3. Tender Name: THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH ‘B’, NAIROBI  
PLUMBING, DRAINAGE, EFFLUENT TREATMENT & FIRE FIGHTING**

**PROCURING ENTITY: KENYA INDUSTRIAL RESEARCH AND DEVELOPMENT INSTITUTE (KIRDI)**

**CONTRACT NAME AND DESCRIPTION: THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI –**

**PLUMBING, DRAINAGE, EFFLUENT TREATMENT & FIRE FIGHTING**

1. Tendering will be conducted under open competitive method using a standardized tender document. Tendering is open to Contractors Registered in the appropriate Category for Builders Works (**NCA category 2 and above**) .The tender is open to those who meet the requirements of eligibility as contained in this invitation and the tender documents
2. A complete set of tender documents may be obtained, downloaded and viewed by interested tenderers for free from the website [www.kirdi.go.ke/](http://www.kirdi.go.ke/) or Public Procurement Information Portal [www.tenders.go.ke](http://www.tenders.go.ke). Tenderers who download the tender document **MUST** forward their particulars immediately to the [directorgeneral@kirdi.go.ke](mailto:directorgeneral@kirdi.go.ke) to facilitate any further clarifications or addendum that may be issued.

Note that failure to email the contract information will lead to automatic disqualification at the preliminary stage.Further clarifications and Addendum shall be posted at [www.kirdi.go.ke/](http://www.kirdi.go.ke/) and Public Procurement Information Portal[www.tenders.go.ke](http://www.tenders.go.ke).

3. Tenders shall be quoted be in Kenya Shillings and shall include all taxes. Tenders shall remain valid **for 180 days** from the date of opening of tenders.
4. All Tenders must be accompanied by a by a **Tender Security as specified in the Tender Data Sheet Clause ITT 19.1**.
5. The Tenderer **shall** chronologically serialize all pages of the tender documents submitted in the numerical format i.e., 1, 2, 3, 4 ..... including the cover page. Tender Document must be tape bound and not Spiral bound. Spiral bound documents shall be automatically disqualified.
6. Completed tenders must be delivered to the address below on or before **6<sup>th</sup> March, 2026 at 11.00 AM (East African Time)**. Electronic Tenders **will not** be permitted.
7. Tenders will be opened immediately after the deadline date and time specified above or any deadline date and times specified later. Tenders will be publicly opened in the presence of the Tenderers' designated representatives who choose to attend at the address below.
8. Late tenders will be rejected.
9. The addresses referred to above are:
  - A. **Address for obtaining further information**

**Kenya Industrial Research and Development Institute (KIRDI)**  
**Popo Road, Off Mombasa Road,**  
**P. O. Box 30650-00100, Nairobi, Kenya**  
**Tel. +254-724 214 092**  
**Email: [directorgeneral@kirdi.go.ke](mailto:directorgeneral@kirdi.go.ke)**  
**Website: [www.kirdi.go.ke](http://www.kirdi.go.ke)**
  - B. **Address for Submission of Tenders.**

**Kenya Industrial Research and Development Institute (KIRDI)**  
**Popo Road, Off Mombasa Road,**  
**P.O. Box 30650-0100,**  
**Nairobi, Kenya**  
**Tel. +254-724 214 092**  
**Email: [directorgeneral@kirdi.go.ke](mailto:directorgeneral@kirdi.go.ke)**

**C. Address for Opening of Tenders.**

Kenya Industrial Research and Development Institute (KIRDI)  
Popo Road, Off  
Mombasa Road

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**Name: Designation: Director General**

**Signature**

**Date**

## 6. FORM OF TENDER

### INSTRUCTIONS TO TENDERERS

- i) *All italicized text is to help the Tenderer in preparing this form.*
- ii) *The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address. Tenderers are reminded that this is a mandatory requirement.*
- iii) *Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION FORMS OF THE TENDERER as listed under (xxii) below.*

**Date of this Tender submission:**.....[insert date (as day, month and year) of Tender submission] **Tender**

**Name** and **Identification:**.....[insert identification] **Alternative**

**No.:**.....[insert identification No if this is a Tender for an alternative]

To: ..... [Insert complete name of Procuring Entity]

**Date of this Tender submission:** [insert date (as day, month and year) of Tender submission] **Request for Tender No.:** [insert identification] **Name and description of Tender** [Insert as per ITT] **Alternative No.:** [insert identification No if this is a Tender for an alternative]

**To:** [insert complete name of Procuring Entity]

Dear Sirs,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct and complete the Works and remedy any defects therein for the sum<sup>1</sup> of Kenya Shillings [/Amount in figures] \_\_\_\_\_ Kenya Shillings [amount in words] \_\_\_\_\_

The above amount includes foreign currency<sup>2</sup> amount (s) of [state figure or a percentage and currency] [figures] \_\_\_\_\_ [words] \_\_\_\_\_

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2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Architect notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Special Conditions of Contract.
  3. We agree to adhere by this tender until \_\_\_\_\_ [Insert date], and it shall remain binding upon us and may be accepted at any time before that date.
  4. We understand that you are not bound to accept the lowest or any tender you may receive.
  5. We, the undersigned, further declare that:
    - i) No reservations: We have examined and have no reservations to the tender document, including Addenda issued in accordance with ITT 28;
    - ii) Eligibility: We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3 and 4;

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<sup>1</sup> This sum should be carried forward from the Summary of the Bills of Quantities.

<sup>2</sup> The percentage quoted above should not include provisional sums, and not more than two foreign currencies are allowed.

- iii) **Tender - Securing Declaration:** We have not been suspended nor declared ineligible by the Procuring Entity based on execution of a Tender-Securing or Proposal-Securing Declaration in the Procuring Entity's Country in accordance with ITT 19.8;
- iv) **Conformity:** We offer to execute in conformity with the tendering documents and in accordance with the implementation and completion specified in the construction schedule, the following Works: *[insert a brief description of the Works]*;
- v) **Tender Price:** The total price of our Tender, excluding any discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*
- vi) **Option 1**, in case of one lot: Total price is: *[insert the total price of the Tender in words and figures, indicating the various amounts and the respective currencies]*; or  
**Option2**, in case of multiple lots:
  - (a) **Total price of each lot** *[insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]*; and
  - (b) **Total price of all lots** (sum of all lots) *[insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies]*;
- vii) **Discounts:** The discounts offered and the methodology for their application are:
- viii) The discounts offered are: *[Specify in detail each discount offered.]*
- ix) The exact method of calculations to determine the net price after application of discounts is shown below: *[Specify in detail the method that shall be used to apply the discounts]*;
- x) **Tender Validity Period:** Our Tender shall be valid for the period specified in TDS 18.1 (as amended, if applicable) from the date fixed for the Tender submission deadline specified in TDS 22.1 (as amended, if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- xi) **Performance Security:** If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;
- xii) **One Tender Per Tender:** We are not submitting any other Tender(s) as an individual Tender, and we are not participating in any other Tender(s) as a Joint Venture member or as a sub-contractor, and meet the requirements of ITT 3.4, other than alternative Tenders submitted in accordance with ITT 13.3;
- xiii) **Suspension and Debarment:** We, along with any of our subcontractors, suppliers, Engineer, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Public Procurement Regulatory Authority or any other entity of the Government of Kenya, or any international organization.
- xiv) **State-owned enterprise or institution:** *[select the appropriate option and delete the other]* *[We are not a state-owned enterprise or institution]/[We are a state-owned enterprise or institution but meet the requirements of ITT3.8]*;
- xv) **Commissions, gratuities, fees:** We have paid, or will pay the following commissions, gratuities, or fees with respect to the tender process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*.

Name of Recipient	Address	Reason	Amount

*(If none has been paid or is to be paid, indicate "none.")*

- xvi) **Binding Contract:** We understand that this Tender, together with your written acceptance there of included

in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;

- xvii) **Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Tender, the Most Advantageous Tender or any other Tender that you may receive;
- xviii) **Fraud and Corruption:** We here by certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption; and
- xix) **Collusive practices:** We hereby certify and confirm that the tender is genuine, non-collusive and made with the intention of accepting the contract if awarded. To this effect we have signed the “Certificate of Independent Tender Determination” attached below.
- xx) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from \_\_\_\_\_ (*specify website*) during the procurement process and the execution of any resulting contract.
- xxi) **Beneficial Ownership Information:** We commit to provide to the procuring entity the Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form upon receipt of notification of intention to enter into a contract in the event we are the successful tenderer in this subject procurement proceeding.
- xxii) We, the Tenderer, have duly completed, signed and stamped the following Forms as part of our Tender:
  - a) Tenderer's Eligibility; Confidential Business Questionnaire - to establish we are not in any conflict of interest.
  - b) Certificate of Independent Tender Determination - to declare that we completed the tender without colluding with other tenderers.
  - c) Self-Declaration of the Tenderer - to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
  - d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal.

Further, we confirm that we have read and understood the full content and scope of fraud and corruption as informed in “**Appendix 1 - Fraud and Corruption**” attached to the Form of Tender.

**Name of the Tenderer:** \*[*insert complete name of person signing the Tender*]

**Name of the person duly authorized to sign the Tender on behalf of the Tenderer:** \*\*[*insert complete name of person duly authorized to sign the Tender*]

**Title of the person signing the Tender:** [*insert complete title of the person signing the Tender*]

**Signature of the person named above:** [*insert signature of person whose name and capacity are shown above*]

**Date signed** [*insert date of signing*] day of [*insert month*], [*insert year*]

Date signed \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

Notes

\* *In the case of the Tender submitted by joint venture specify the name of the Joint Venture as Tenderer.*

\*\* *Person signing the Tender shall have the power of attorney given by the Tenderer to be attached with the Tender.*

**SECTION F**

**SCHEDULE OF UNIT RATES**

## SCHEDULE OF UNIT RATES

1. The tenderer shall insert unit rates against the items in the following schedules and may add such other items as he considers appropriate.
2. The unit rates shall include for supply, transport, insurance, delivery to site, storage as necessary, assembling, cleaning, installing, connecting, profit and maintenance in defects liability and any other obligation under this contract.
3. The unit rates will be used to assess the value of additions or omissions arising from authorized variations to the contract works.
4. Where trade names or manufacturer's catalogue numbers are mentioned in the specification, the reference is intended as a guide to the type of article or quality of material required. Alternative brands of **equal** and **approved** quality will be accepted.
5. The prices quoted shall be deemed to include for all obligations under the sub-contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (including **16% V.A.T and 3% Withholding tax**).

## **SECTION G**

### **BILL OF QUANTITIES**

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b> <b>BILL OF QUANTITIES FOR PLUMBING DRAINAGE AND FIREFIGHTING</b>					
<b>INSTALLATION AND COMMISSIONING ONLY</b>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
1.00	<b>SUBCONTRACT PRELIMINARIES AND GENERAL CONDITIONS:</b> <b>please specify any extendable preliminaries and pertinent rates</b>				
1.01	Provide bond as stated in the published conditions of subcontract	sum			
1.02	Provide insurance as required in the subcontract conditions	sum			
1.03	Prepare "As-built" drawings and manuals – 2 sets each . Scales to be 1:100 and 1:50 -soft copy to be issued in a flashdisk	sum			
1.04	Printing of copies of item 1.03 above.	sum			
1.05	Any other preliminary not included above	sum			
<b>NOTE:</b> <b>Vendor to visit the site and confirm materials available and condition.</b>					
A1	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				-

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b> <b>BILL OF QUANTITIES FOR PLUMBING DRAINAGE AND WATER RETICULATION-ACCOMODATION</b>					
INSTALLATION & COMMISSIONING ONLY					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
2.00	<b>ACCOMMODATION UNIT -PER FLOOR</b> <u>install ,test and commission the following:</u> <b>SANITARY FITTINGS:</b>				
2.01	Water closet suite as Twyford "AVALON BTW" comprising: AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved	NO	10		
2.02	Concealed cistern for water closet as "GEBERIT" having combifix element with UP182, front actuation": Factory setting-6 and 3 L; Flush range small-3/4 L; Flush range large-6/9L; Interruption flush stop-6/9L; Code No. 110.171.00.1; with dual flush actuator as "DELTA 50 , matt chrome plate code No. 115.135.46.1 or equal and approved	NO	0		
2.02	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal and approved	NO	10		
2.03	Mono Basin mixer with pop-up waste as ""EUROBATH"/"VADO" Model No. AXI-100-C/P rated at 0.2bar, LP Chrome.	NO	10		
2.03 a	15mm diameter chrome plated angle stop valve as "EUROBATH"/ "VADO" or equal and approved.	NO	38		
2.04	Bathtub as Twyford "Luna" of dimensions 1700x724,2 Center tap holes Ref.GA9572 Comprising:Callisto end panel Ref:PP1322,Chain waste,1½" and overflow chrome plated Ref:WF5650CP, Gold plated grips ref:BG1365A or equal and approved	NO	0		
2.04	Deck mounted Bath Shower Mixer with shower kit as "EUROBATH"/"VADO" H2O FR-SHOWER/9-C/P. 0.2 Bar LP Chrome. Model No. AXI-130+K-C/P or equal and approved	NO	0		
2.05	Concealed Shower valve with diverter as "EUROBATH"/"VADO" Model No. AXI-147-C/P, wall mounted with round backplate rated at 1.5bar MP chrome. Or equal and approved- <b>Cover plates on site to be installed</b> Shower spout as " VADO"	NO	0		
2.06	Wall mounted chrome Glass Tumbler and Holder as "EUROBATH"/"VADO" . Model No. SOH-183-C/P or equal and approved	NO	10		
2.06	Wall mounted chrome Glass Soap Dish and Holder as "EUROBATH"/"VADO". Model No. SOH-182-C/P or equal and approved	NO	0		
2.08	Wall Mounted Chrome Covered Paper Holder as "EUROBATH"/"VADO". Model No. SOH-180A-C/P or equal and approved	NO	0		
2.09	Wall Mounted ChromeTowel Ring as "EUROBATH"/"VADO".Model No. SOH-181-C/P or equal and approved	NO	0		
2.10	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH"/"VADO". Model No. SOH-188-C/P or equal and approved	NO	0		
2.11	Chrome Single Function Fixed shower Head and shower arm as "EUROBATH"/"VADO" FR-SHOWER/9-C/P. Model No. WG-SFKIT-C/P , LP chrome, rated at 0.2bar or equal and approved	NO	10		
2.12	Chrome Towel Shelf and Towel Rail as "EUROBATH" / "VADO". Model No. SOH-185A-C/P or equal and approved	NO	0		
2.13	600mm long ,Wall mounted Chrome Towel Rail as "EUROBATH" /"VADO" . Model No. SOH-184-C/P or equal and approved	NO	0		
2.14	Wall mounted 900x600 mm Mirror with sensor operated Light as "EUROBATH" / "VADO". Model No. MIR-DASH-LIT or equal and approved	NO.	0		
<b>M2</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
2.15	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO	0		
2.16	Single bowl, Single drain sink as "Associated Steel Limited" Complete with "P" Trap, waste fitting, plug and chainstay or equal and approved.	NO	0		
2.17	Wall mounted chrome sink mixer with goose neck spout as "EUROBATH" / "VADO" .Model No.WAR-254G-C/P rated at 0.2bar LP or equal and approved.	NO	0		
3.00	<b>DRAINAGE</b> <b>install, test and commission:</b> a) <b>UPVC soil and waste system (above ground) comprising :</b> · UPVC soil and ventilating pipes , fittings and accessories to BS4514 · Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
3.01	<b>PIPING TO BS 4514:</b>				
3.02	100mmØ uPVC Pipe	LM	0		
3.03	50mmØ uPVC Pipe	LM			
3.04	40mmØ uPVC Pipe	LM	0		
3.05	32mmØ uPVC Pipe	LM			
	<b>FITTINGS TO BS 4514:</b>				
3.06	<b>TEES</b>				
3.07	100mmØ uPVC Single branch access tee	No			
3.08	50mmØ uPVC Sweep tee	No	0		
3.09	40mmØ uPVC Sweep tee	No	0		
3.10	<b>PLUGS</b>				
3.11	100mmØ uPVC Plug	No	0		
3.12	50mmØ uPVC Plug	No	0		
3.13	40mmØ uPVC Plug	No	0		
3.14	<b>45° BRANCHES</b>				
3.15	100mmØ	No	0		
3.16	50mmØ	No	0		
3.17	40mmØ	No	0		
3.18	<b>90° BRANCHES</b>				
3.19	100mmØ	No	0		
3.20	50mmØ	No	0		
3.21	40mmØ	No	0		
3.22	<b>90° BENDS</b>				
3.23	100mmØ Inspection Bend	No	0		
3.24	50mmØ Inspection Bend	No	0		
3.25	40mmØ Inspection Bend	No	0		
3.26					
3.27	<b>CONNECTORS</b>				
3.28	100mmØ WC Connector	No			
3.29	100mmØ x 50mmØ Boss Connector	No	0		
3.30	100mmØ x 40mmØ Boss Connector	No	0		
3.31	<b>ACCESSORIES</b>				
3.32	100Ø Vent Cowl	No.	0		
3.33	100Ø Weathering slate	No.			
3.34	100mm Gulley trap complete with grating	No.	0		
<b>M3</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
4.00	<b>INTERNAL PLUMBING:</b>				
4.01	<b>PIPING:</b> install, test and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings: <b>Piping:</b>				
4.02	63mmØ PPRC Piping.	LM	0		
4.03	50mmØ PPRC Piping.	LM	0		
4.04	40 mmØ Ditto.	LM	0		
4.05	32 mmØ Ditto.	LM	0		
4.06	25 mmØ Ditto.	LM	0		
4.07	20 mmØ Ditto.	LM	0		
	<b>Fittings:</b>				
4.08	<b>90 Degree Bends:</b>				
4.09	63 mmØ PPRC 90 Degree Bends:	No.			
4.10	50 mmØ PPRC 90 Degree Bends:	No.			
4.11	40 mmØ Ditto	No.	0		
4.12	32 mmØ Ditto.	No.	0		
4.13	25 mmØ Ditto.	No.	0		
4.14	20 mmØ Ditto.	No.	0		
4.15	<b>Tees:</b>				
4.16	63 x 50 mmØ PPRC tees	No.			
4.17	50 x 40 mmØ PPRC tees	No.			
4.18	32 x 25 mmØ Ditto	No.	0		
4.19	25 x 20 mmØ Ditto	No.	0		
4.20	<b>Sockets:</b>				
4.21	50 mmØ PPRC Sockets	No.			
4.22	40 mmØ Ditto	No.			
4.23	25 mmØ Ditto	No.	0		
4.24	20 mmØ Ditto	No.	0		
4.25	<b>Reducers:</b>				
4.26	50 x 40 mmØ PPRC Reducers	No.			
4.27	40 x 25 mmØ Ditto	No.			
4.28	25 x 20 mmØ Ditto	No.	0		
4.29	<b>Stop Valves:</b>				
4.30	63 mmØ PPRC Reducers	No.			
4.31	50 mmØ Ditto	No.			
4.32	40 mmØ Ditto	No.			
4.33	32 mmØ Ditto	No.			
4.34	<b>Pipe Clips:</b>				
4.35	50 mmØ Pipe Clips	No.			
4.36	40 mmØ Ditto	No.			
4.37	25 mmØ Ditto	No.			
4.38	20 mmØ Ditto	No.			
4.39	<b>End Caps:</b>				
4.40	40 mmØ End caps	No.			
4.41	25 mmØ Ditto	No.	0		
4.42	20 mmØ Ditto	No.	0		
4.43	<b>Male Screwed Adapter:</b>				
4.44	50 mmØ PPRC Male Screwed Adapters	No.			
4.45	40 mmØ Ditto	No.	0		
4.46	25 mmØ Ditto	No.	0		
4.47	20 mmØ Ditto	No.	0		
<b>M4 TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>					

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
4.48	<b>Female Screwed Adapter:</b>				
4.49	50 mmØ Female Screwed Adapters				
4.50	40 mmØ Ditto	No.			
4.51	25 mmØ Ditto	No.			
4.52	20 mmØ Ditto	No.		0	
4.53	<b>COPPER TUBING</b> 15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube. Flexible piping may also be used subject to approval by the engineer	No.	16		
<b>M5</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

COLLECTION PAGE					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
M2	SANITARY FITTINGS (per floor) TOTAL FOR 8 FLOORS	FLOORS	1 8	-	-
M3	DRAINAGE (per floor) TOTAL FOR 8 FLOORS	FLOORS	1 8	-	-
M4	INTERNAL PLUMBING (per floor) TOTAL FOR 8 FLOORS	FLOORS	1 8	-	-
M5	INTERNAL PLUMBING (per floor) TOTAL FOR 8 FLOORS	FLOORS	1 8	-	-
<b>A1</b>	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				-

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b> <b>BILL OF QUANTITIES FOR PLUMBING DRAINAGE AND WATER RETICULATION FOR COMMON WASHROOMS</b>					
INSTALLATION & COMMISSIONING ONLY					
ITEM NO	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
A	<b>GROUND FLOOR &amp; SUBFLOOR</b> <b>PLUMBING &amp; DRAINAGE</b> <b>install ,test and commission the following:</b> <b>SANITARY FITTINGS:</b>				
2.00					
2.01	Water closet suite as Twyford "AVALON BTW" comprising: V1158 WC Pan , HO (Horizontal outlet) white in color. 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved.	AD AV	NO	26	
2.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve,push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector.Model No:KF3.402 or equal and approved.		NO	0	
2.03	<b>Cover plates on site to be fixer</b> Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal and approved.		NO	22	
2.04	Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved .		NO	22	
2.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A. or equal and approved.		NO	2	
2.06	Wall Mounted Chrome Covered Paper Holder as "EUROBATH" / "VADO". Model No. SOH-180A-C/P or equal and approved.		NO	2	
2.07	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH" / "VADO". Model No. SOH-188-C/P or equal and approved.		NO	2	
2.08	700mm x700mm Square wall mounted mirror as "EUROBATH" / "VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.		NO	0	
2.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX  1 – ½ inch plastic grating with white plastic dome ref: WF9370XX 1 – ½ inch plastic bottle P Trap ref: WF8461CP		NO	7	
2.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.		No.	8	
2.11	3/4 inch infra-red operated Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approved		No	0	
2.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved		No	12	
M2	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>PLUMBING &amp; DRAINAGE</b>				
	<u>install ,test and commission the following:</u>				
3.00	<b>DRAINAGE</b> install, test and commission: a) <b>UPVC soil and waste system (above ground) comprising:</b> · UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
3.10	<b>PIPING TO BS 4514:</b>				
3.11	100mmØ uPVC Pipe	LM	0		
3.12	50mmØ uPVC Pipe	LM	0		
3.13	40mmØ uPVC Pipe	LM	0		
3.14	32mmØ uPVC Pipe	LM	0		
3.20	<b>FITTINGS TO BS 4514:</b>				
	<b>TEES</b>				
3.21	100mmØ uPVC Single branch access tee	NO.	0		
3.22	50mmØ uPVC Sweep tee	NO.	0		
3.23	40mmØ uPVC Sweep tee	NO.	0		
3.30	<b>PLUGS</b>				
3.31	100mmØ uPVC Plug	NO.	0		
3.32	50mmØ uPVC Plug	NO.	0		
3.33	40mmØ uPVC Plug	NO.	0		
3.40	<b>90° BENDS</b>				
3.41	100mmØ Inspection Bend	NO.	0		
3.42	50mmØ Inspection Bend	NO.	0		
3.43	40mmØ Inspection Bend	NO.	0		
3.50	<b>CONNECTORS</b>				
3.51	100mmØ WC Connector	NO.	0		
3.52	100mmØ x 50mmØ Boss Connector	NO.	0		
3.53	100mmØ x 40mmØ Boss Connector	NO.	0		
3.60	<b>ACCESSORIES</b>				
3.61	100Ø Vent Cowl	NO.	0		
3.62	100Ø Weathering slate	NO.	0		
3.63	100mm Gully trap complete with grating	NO.	0		
	<b>b) u.P.V.C Underground Drainage System</b>				
	These shall be as "Buried drain system" or equal and approved				
	The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality				
	Colour shall be golden brown and all pipe work and fittings to be as "KEY TERRAIN				
3.70	<b>PIPING TO BS 4660:</b>				
3.71	150mmØ uPVC Pipe	LM	0		
3.72	100mmØ uPVC Pipe	LM	0		
M3	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
3.80	<b>FITTINGS TO BS 4660:</b>				
	<b>TEES</b>				
3.81	150mmØ uPVC Sweep tee	NO	0		
3.82	100mmØ uPVC Sweep tee	NO	0		
	<b>PLUGS</b>				
3.83	150mmØ uPVC Plug	NO	0		
3.84	100mmØ uPVC Plug	NO	0		
	<b>BENDS</b>				
3.85	150mmØ Inspection Bend	NO	0		
3.86	100mmØ Inspection Bend	NO	0		
4.00	<b>INTERNAL PLUMBING:</b>				
4.01	<b>PIPING:</b> install, test and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
	<b>Piping:</b>				
4.02	63mmØ PPRC Piping.	LM	0		
4.03	50mmØ PPRC Piping.	LM	0		
4.04	40 mmØ Ditto.	LM	0		
4.05	32 mmØ Ditto.	LM	0		
4.06	25 mmØ Ditto.	LM	0		
4.07	20 mmØ Ditto.	LM	0		
	<b>Fittings:</b>				
4.10	<b>90 Degree Bends:</b>				
4.11	63 mmØ PPRC 90 Degree Bends:	No.	0		
4.12	50 mmØ PPRC 90 Degree Bends:	No.	0		
4.13	40 mmØ Ditto	No.	0		
4.14	32 mmØ Ditto.	No.	0		
4.14	25 mmØ Ditto.	No.	0		
4.14	20 mmØ Ditto.	No.	0		
4.20	<b>Tees:</b>				
4.21	63 x 50 mmØ PPRC tees	No.	0		
4.22	50 x 40 mmØ PPRC tees	No.	0		
4.23	32 x 25 mmØ Ditto	No.	0		
4.23	25 x 20 mmØ Ditto	No.	0		
4.30	<b>Sockets:</b>				
4.31	50 mmØ PPRC Sockets	No.	0		
4.32	40 mmØ Ditto	No.	0		
4.33	25 mmØ Ditto	No.	0		
4.40	<b>Reducers:</b>				
4.41	50 x 40 mmØ PPRC Reducers	No.	0		
4.42	40 x 25 mmØ Ditto	No.	0		
4.43	25 x 20 mmØ Ditto	No.	0		
4.50	<b>Stop Valves:</b>				
4.51	63 mmØ Gate valve	No.	0		
4.52	50 mmØ Ditto	No.	0		
4.53	40 mmØ Ditto	No.	0		
4.54	32 mmØ Ditto	No.	0		
M4	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
4.60	<b>Pipe Clips:</b>				
4.61	50 mmØ Pipe Clips	No.	0		
4.62	40 mmØ Ditto	No.	0		
4.63	25 mmØ Ditto	No.	0		
4.70	<b>End Caps:</b>				
4.71	40 mmØ End caps	No.	0		
4.72	25 mmØ Ditto	No.	0		
4.80	<b>Male Screwed Adapter:</b>				
4.81	50 mmØ PPRC Male Screwed Adapters	No.	0		
4.82	40 mmØ Ditto	No.	0		
4.83	25 mmØ Ditto	No.	0		
4.84	20 mmØ Ditto	No.	0		
4.90	<b>Female Screwed Adapter:</b>				
4.91	50 mmØ Female Screwed Adapters	No.	0		
4.92	40 mmØ Ditto	No.	0		
	<b>COPPER TUBING.</b>				
4.95	15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube. Flexible piping may also be used subject to approval by the engineer	No.	30		
B	<b>MEZZANINE FLOOR</b>				
	<b>PLUMBING &amp; DRAINAGE</b>				
	<b>INSTALLATION &amp; COMMISSIONING ONLY</b>				
5.00	<b>SANITARY FITTINGS:</b>				
5.01	Water closet suite as Twyford "AVALON BTW" comprising: AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved.	NO	7		
5.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve, push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector. Model No:KF3.402 or equal and approved.	NO	0		
5.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal and approved.	NO	10		
5.04	Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved.	NO	10		
5.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO			
5.06	Wall Mounted Chrome Covered Paper Holder as "EUROBATH"/"VADO". Model No. SOH-180A-C/P or equal and approved.	NO			
5.07	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH"/"VADO". Model No. SOH-188-C/P or equal and approved.	NO			
5.08	Square wall mounted mirror as "EUROBATH"/"VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.	NO			
5.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers ref: SR5307XX 1 - 1/2 inch plastic grating with white plastic dome ref: WF9370XX 1 - 1/2 inch plastic bottle P Trap ref: WF8461CP	NO	4		
M5	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
5.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	No.	4		
5.11	3/4 inch Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approvec	No			
5.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	No	6		
	<b>PLUMBING &amp; DRAINAGE</b>				
	<b>INSTALLATION &amp; COMMISSIONING ONLY</b>				
6.00	<b>DRAINAGE</b> install, test and commission: a) <b>UPVC soil and waste system (above ground) comprising:</b> · UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
6.10	<b>PIPING TO BS 4514:</b>				
6.11	100mmØ uPVC Pipe	LM	0		
6.12	50mmØ uPVC Pipe	LM	0		
6.13	40mmØ uPVC Pipe	LM	0		
3.14	32mmØ uPVC Pipe	LM	0		
6.20	<b>FITTINGS TO BS 4514:</b>				
	<b>TEES</b>				
6.21	100mmØ uPVC Single branch access tee	NO.	0		
6.22	50mmØ uPVC Sweep tee	NO.	0		
6.23	40mmØ uPVC Sweep tee	NO.	0		
	<b>PLUGS</b>				
6.31	100mmØ uPVC Plug	NO.	0		
6.32	50mmØ uPVC Plug	NO.	0		
6.33	40mmØ uPVC Plug	NO.	0		
6.40	<b>90° BENDS</b>				
6.41	100mmØ Inspection Bend	NO.	0		
6.42	50mmØ Inspection Bend	NO.	0		
6.43	40mmØ Inspection Bend	NO.	0		
6.50	<b>CONNECTORS</b>				
6.51	100mmØ WC Connector	NO.	0		
6.52	100mmØ x 50mmØ Boss Connector	NO.	0		
6.53	100mmØ x 40mmØ Boss Connector	NO.	0		
6.60	<b>ACCESSORIES</b>				
6.61	100Ø Vent Cowl	NO.	0		
6.62	100Ø Weathering slate	NO.	0		
6.63	100mm Gully trap complete with grating	NO.	0		
	<b>b) u.P.V.C Underground Drainage System</b>				
	These shall be as "Buried drain system" or equal and approved				
	The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality				
	Colour shall be golden brown and all pipe work and fittings to be as "KEY TERRAIN				
6.70	<b>PIPING TO BS 4660:</b>				
6.71	150mmØ uPVC Pipe	LM	0		
6.72	100mmØ uPVC Pipe	LM	0		
6.80	<b>FITTINGS TO BS 4660:</b>				
	<b>TEES</b>				
6.81	150mmØ uPVC Sweep tee	NO	0		
6.82	100mmØ uPVC Sweep tee	NO	0		
M6	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
6.90	<b>PLUGS</b>				
6.91	150mmØ uPVC Plug	NO	0		
6.92	100mmØ uPVC Plug	NO	0		
6.93	<b>BENDS</b>				
6.94	150mmØ Inspection Bend	NO	0		
6.95	100mmØ Inspection Bend	NO	0		
7.00	<b>INTERNAL PLUMBING:</b>				
7.01	<b>PIPING:</b> install, test and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings: <b>Piping:</b>				
	63mmØ PPRC Piping.	LM	0		
	50mmØ PPRC Piping.	LM	0		
	40 mmØ Ditto.	LM	0		
	32 mmØ Ditto.	LM	0		
	25 mmØ Ditto.	LM	0		
	20 mmØ Ditto.	LM	0		
	<b>Fittings:</b>				
7.10	<b>90 Degree Bends:</b>				
7.11	63 mmØ PPRC 90 Degree Bends:	No.	0		
7.12	50 mmØ PPRC 90 Degree Bends:	No.	0		
7.13	40 mmØ Ditto	No.	0		
7.14	32 mmØ Ditto.	No.	0		
7.15	25 mmØ Ditto.	No.	0		
7.16	20 mmØ Ditto.	No.	0		
7.20	<b>Tees:</b>				
7.21	63 x 50 mmØ PPRC tees	No.	0		
7.22	50 x 40 mmØ PPRC tees	No.	0		
7.23	32 x 25 mmØ Ditto	No.	0		
7.24	25 x 20 mmØ Ditto	No.	0		
7.30	<b>Sockets:</b>				
7.31	50 mmØ PPRC Sockets	No.	0		
7.32	40 mmØ Ditto	No.	0		
7.40	<b>Reducers:</b>				
7.41	50 x 40 mmØ PPRC Reducers	No.	0		
7.42	40 x 25 mmØ Ditto	No.	0		
7.43	25 x 20 mmØ Ditto	No.	0		
7.50	<b>Stop Valves:</b>				
7.51	63 mmØ Gate valve	No.	0		
7.52	50 mmØ Ditto	No.	0		
7.53	40 mmØ Ditto	No.	0		
7.54	32 mmØ Ditto	No.	0		
7.60	<b>Pipe Clips:</b>				
7.61	50 mmØ Pipe Clips	No.	0		
7.62	40 mmØ Ditto	No.	0		
7.63	25 mmØ Ditto	No.	0		
7.70	<b>End Caps:</b>				
7.71	40 mmØ End caps	No.	0		
7.72	25 mmØ Ditto	No.	0		
7.73	20 mmØ Ditto	No.	0		
M7	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
7.80	<b>Male Screwed Adapter:</b>				
7.81	50 mmØ PPRC Male Screwed Adapters	No.	0		
7.82	40 mmØ Ditto	No.	0		
7.83	25 mmØ Ditto	No.	0		
7.84	20 mmØ Ditto	No.	0		
7.90	<b>Female Screwed Adapter:</b>				
7.91	50 mmØ Female Screwed Adapters	No.	0		
7.92	40 mmØ Ditto	No.	0		
7.95	<b>COPPER TUBING</b> 15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube. Flexible piping may also be used subject to approval by the engineer	No.	20		
<b>C FIRST FLOOR AND SUBFLOOR PLUMBING &amp; DRAINAGE</b>					
<b>INSTALLATION &amp; COMMISSIONING ONLY</b>					
8.00	<b>SANITARY FITTINGS:</b>				
8.01	Water closet suite as Twyford "AVALON BTW" comprising:AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved.	NO	11		
8.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve,push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector.Model No:KF3.402 or equal and approved.	NO			
8.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal	NO	23		
8.04	Electronic basin mixer as "Hansgrohe" Battery .Operated Ref # 31172 or equal and approved .	NO	23		
8.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved or equal and approved.	NO			
8.07	Wall Mounted Chrome Covered Paper Holder as "EUROBATH"/"VADO". Model No. SOH-180A-C/P or equal and approved.	NO			
8.08	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH"/"VADO". Model No. SOH-188-C/P or equal and approved.	NO			
8.09	Square wall mounted mirror as "EUROBATH"/"VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved	NO			
<b>M8</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
5.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX  1 – ½ inch plastic grating with white plastic dome ref: WF9370XX 1 – ½ inch plastic bottle P Trap ref: WF8461CP	NO	8		
5.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	No.	8		
5.11	3/4 inch inra-red Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approvec	No			
5.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	No	13		
8.11	Double bowl, double drain sink as "Associated Steel Limited" Complete with "P" Trap, waste fitting, plug and chainstay.	NO	2		
8.12	1/2 inch sink mixer, as " COBRA" number 266/041/10, CP, wall type with concealed connections adjustable from 128mm to 178mm or equal and approved.	NO	2		
8.13	Bath Shower Mixer deck mounted with shower kit as "EUROBATH"/"VADO" H2O FR-SHOWER/9-C/P. 0.2 Bar LP Chrome. Model No. AXI-130+K-C/P or equal and approved.	NO	0		
8.14	Concealed Shower valve with diverter as as "EUROBATH"/"VADO" wall mounted with round backplate, 1.5bar MP chrome. Model No. AXI-147-C/P or equal and approved.	NO	0		
8.15	Chrome Single Function Fixed Head and shower arm ,0.2 Bar LP as as "EUROBATH"/"VADO" FR-SHOWER/9-C/P. Model No. WG-SFKIT-C/P or equal and approved.	NO	4		
8.16	Wall Mounted Chrome Glass Soap Dish and Holder as as "EUROBATH"/"VADO". Model No. SOH-182-C/P or equal and approved.	NO	0		
<b>PLUMBING &amp; DRAINAGE</b>					
<b>INSTALLATION &amp; COMMISSIONING ONLY</b>					
9.00	<b>DRAINAGE</b> install, test and commission: a) UPVC soil and waste system (above ground) comprising: · UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
9.10	<b>PIPING TO BS 4514:</b>				
9.11	100mmØ uPVC Pipe	LM	0		
9.12	50mmØ uPVC Pipe	LM	0		
9.13	40mmØ uPVC Pipe	LM	0		
	32mmØ uPVC Pipe	LM	0		
9.20	<b>FITTINGS TO BS 4514:</b>				
9.21	<b>TEES</b>				
9.22	100mmØ uPVC Single branch access tee	LM	0		
9.23	50mmØ uPVC Sweep tee	LM	0		
9.30	40mmØ uPVC Sweep tee	LM	0		
9.31	<b>PLUGS</b>				
9.32	100mmØ uPVC Plug	NO.	0		
9.33	50mmØ uPVC Plug	NO.	0		
9.40	40mmØ uPVC Plug	NO.	0		
9.41	<b>90° BENDS</b>				
9.42	100mmØ Inspection Bend	NO.	0		
9.43	50mmØ Inspection Bend	NO.	0		
	40mmØ Inspection Bend	NO.	0		
9.51	<b>CONNECTORS</b>				
9.52	100mmØ WC Connector	NO.	0		
9.53	100mmØ x 50mmØ Boss Connector	NO.	0		
	100mmØ x 40mmØ Boss Connector	NO.	0		
9.61	<b>ACCESSORIES</b>				
9.62	100Ø Vent Cowl	NO.	0		
9.63	100Ø Weathering slate	NO.	0		
	100mm Gully trap complete with grating	NO.	0		
M9	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>b) u.P.V.C Underground Drainage System</b> These shall be as "Buried drain system" or equal and approved The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality Colour shall be golden brown and all pipe work and fittings to be as "KEY TERRAIN				
	<b>PIPING TO BS 4660:</b> 150mmØ uPVC Pipe 100mmØ uPVC Pipe	LM	0		
	<b>FITTINGS TO BS 4660:</b>	LM	0		
	<b>TEES</b> 150mmØ uPVC Sweep tee 100mmØ uPVC Sweep tee	NO	0		
	<b>PLUGS</b> 150mmØ uPVC Plug 100mmØ uPVC Plug	NO	0		
	<b>BENDS</b> 150mmØ Inspection Bend 100mmØ Inspection Bend	NO	0		
10.00	<b>INTERNAL PLUMBING:</b>	NO	0		
10.01	<b>PIPING:</b> install, test and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
	<b>Piping:</b>				
10.02	63mmØ PPRC Piping.	LM	0		
10.03	50mmØ PPRC Piping.	LM	0		
10.04	40 mmØ Ditto.	LM	0		
10.05	32 mmØ Ditto.	LM	0		
10.06	25 mmØ Ditto.	LM	0		
10.07	20 mmØ Ditto.	LM	0		
	<b>Fittings:</b>				
10.10	<b>90 Degree Bends:</b>				
10.11	63 mmØ PPRC 90 Degree Bends:	No.	0		
10.12	50 mmØ PPRC 90 Degree Bends:	No.	0		
10.13	40 mmØ Ditto	No.	0		
10.14	32 mmØ Ditto.	No.	0		
10.15	25 mmØ Ditto.	No.	0		
	20 mmØ Ditto.	No.	0		
10.20	<b>Tees:</b>				
10.21	63 x 50 mmØ PPRC tees	No.	0		
10.22	50 x 40 mmØ PPRC tees	No.	0		
10.23	32 x 25 mmØ Ditto	No.	0		
10.24	25 x 20 mmØ Ditto	No.	0		
10.30	<b>Sockets:</b>				
10.31	50 mmØ PPRC Sockets	No.	0		
10.32	40 mmØ Ditto	No.	0		
10.33	25 mmØ Ditto	No.	0		
10.40	<b>Reducers:</b>				
10.41	50 x 40 mmØ PPRC Reducers	No.	0		
10.42	40 x 25 mmØ Ditto	No.	0		
10.43	25 x 20 mmØ Ditto	No.	0		
10.50	<b>Stop Valves:</b>				
10.51	63 mmØ Gate valve	No.	0		
10.52	50 mmØ Ditto	No.	0		
10.53	40 mmØ Ditto	No.	0		
10.54	32 mmØ Ditto	No.	0		
10.60	<b>Pipe Clips:</b>				
10.61	50 mmØ Pipe Clips	No.	0		
10.62	40 mmØ Ditto	No.	0		
10.70	<b>End Caps:</b>				
10.71	40 mmØ End caps	No.	0		
10.72	25 mmØ Ditto	No.	0		
10.73	20 mmØ Ditto	No.	0		
<b>M10</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
10.80	<b>Male Screwed Adapter:</b>				
10.81	50 mmØ PPRC Male Screwed Adapters	No.	0		
10.82	40 mmØ Ditto	No.	0		
10.83	25 mmØ Ditto	No.	0		
10.90	<b>Female Screwed Adapter:</b>				
10.91	50 mmØ Female Screwed Adapters	No.	0		
10.92	40 mmØ Ditto	No.	0		
10.93	25 mmØ Ditto	No.	0		
10.94	20 mmØ Ditto	No.	0		
10.95	15mm diameter tubing about 300mm long bent as required and including brass backnuts and jointing to GMS tube. Flexible piping may also be used subject to approval by the engineer	No.	0		
<b>D SECOND FLOOR -PLUMBING &amp; DRAINAGE</b>					
<b>INSTALLATION &amp; COMMISSIONING ONLY</b>					
11.00	<b>SANITARY FITTINGS:</b>				
11.01	Water closet suite as Twyford "AVALON BTW" comprising:AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved.	NO	22		
11.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve,push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector.Model No:KF3.402 or equal .	NO	0		
11.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal	NO	18		
11.04	Electronic Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved.	NO	18		
11.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO	0		
11.06	Wall Mounted Chrome Covered Paper Holder as "EUROBATH" / "VADO". Model No. SOH-180A-C/P or equal and approved.	NO	0		
11.07	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH" / "VADO". Model No. SOH-188-C/P or equal and approved.	NO	0		
11.08	Square wall mounted mirror as "EUROBATH" / "VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.	NO	0		
5.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX  1 - 1/2 inch plastic grating with white plastic dome ref: WF9370XX 1 - 1/2 inch plastic bottle P Trap ref: WF8461CP	NO	12		
5.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	No.	8		
5.11	3/4 inch infra-red Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approvec	No	0		
5.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	No	12		
11.11	Bath Shower Mixer deck mounted with shower kit as "EUROBATH" / "VADO" H2O FR-SHOWER/9-C/P. 0.2 Bar LP Chrome. Model No. AXI-130+K-C/P or equal and approved.	NO	0		
11.12	Concealed Shower valve with diverter as "EUROBATH" / "VADO" wall mounted with round backplate, 1.5bar MP chrome. Model No. AXI-147-C/P or equal and approved.	NO	0		
11.13	Chrome Single Function Fixed Head and shower arm ,0.2 Bar LP as "EUROBATH" / "VADO" FR-SHOWER/9-C/P. Model No. WG-SFKIT-C/P or equal and approved.	NO	12		
11.14	Wall Mounted Chrome Glass Soap Dish and Holder as "EUROBATH" / "VADO". Model No. SOH-182-C/P or equal and approved.	NO	0		
11.15	Chrome Towel Shelf and Towel Rail as "EUROBATH" / "VADO". Model No. SOH-185A-C/P or equal and approved.	NO	0		
11.16	Wall mounted Chrome 600mm Towel Rail as "EUROBATH" / "VADO". Model No. SOH-184-C/P or equal and approved.	NO	0		
<b>M11</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>PLUMBING &amp; DRAINAGE</b>				
	<b>INSTALLATION &amp; COMMISSIONING ONLY</b>				
12.00	<b>DRAINAGE</b> install, test and commission: a) <b>UPVC soil and waste system (above ground) comprising:</b> · UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
12.10	<b>PIPING TO BS 4514:</b>				
12.11	100mmØ uPVC Pipe	LM	0		
12.12	50mmØ uPVC Pipe	LM	0		
12.13	40mmØ uPVC Pipe	LM	0		
	32mmØ uPVC Pipe	LM	0		
12.20	<b>FITTINGS TO BS 4514:</b>				
12.21	<b>TEES</b>				
12.22	100mmØ uPVC Single branch access tee	LM	0		
12.23	50mmØ uPVC Sweep tee	LM	0		
12.30	40mmØ uPVC Sweep tee	LM	0		
12.31	<b>PLUGS</b>				
12.32	100mmØ uPVC Plug	NO.	0		
12.33	50mmØ uPVC Plug	NO.	0		
12.40	40mmØ uPVC Plug	NO.	0		
12.41	<b>90° BENDS</b>				
12.42	100mmØ Inspection Bend	NO.	0		
12.43	50mmØ Inspection Bend	NO.	0		
	40mmØ Inspection Bend	NO.	0		
12.51	<b>CONNECTORS</b>				
12.52	100mmØ WC Connector	NO.	0		
12.53	100mmØ x 50mmØ Boss Connector	NO.	0		
	100mmØ x 40mmØ Boss Connector	NO.	0		
12.61	<b>ACCESSORIES</b>				
12.62	100Ø Vent Cowl	NO.	0		
12.63	100Ø Weathering slate	NO.	0		
	100mm Gully trap complete with grating	NO.	0		
b) <b>u.P.V.C Underground Drainage System</b>					
	These shall be as "Buried drain system" or equal and approved				
	The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality.				
	Colour shall be golden brown and all pipe work and fittings to be as				
	"KEY TERRAIN				
	<b>PIPING TO BS 4660:</b>				
	150mmØ uPVC Pipe	LM	0		
	100mmØ uPVC Pipe	LM	0		
	<b>FITTINGS TO BS 4660:</b>				
	<b>TEES</b>				
	150mmØ uPVC Sweep tee	NO	0		
	100mmØ uPVC Sweep tee	NO	0		
	<b>PLUGS</b>				
	150mmØ uPVC Plug	NO	0		
	100mmØ uPVC Plug	NO	0		
	<b>BENDS</b>				
	150mmØ Inspection Bend	NO	0		
	100mmØ Inspection Bend	NO	0		
M12	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
13.00	<b>INTERNAL PLUMBING:</b>				
13.01	<b>PIPING:</b> install, test and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
	<b>Piping:</b>				
3.02	63mmØ PPRC Piping.	LM	0		
3.03	50mmØ PPRC Piping.	LM	0		
3.04	40 mmØ Ditto.	LM	0		
3.05	32 mmØ Ditto.	LM	0		
3.06	25 mmØ Ditto.	LM	0		
3.07	20 mmØ Ditto.	LM	0		
	<b>Fittings:</b>				
13.10	<b>90 Degree Bends:</b>				
13.11	63 mmØ PPRC 90 Degree Bends:	No.	0		
13.12	50 mmØ PPRC 90 Degree Bends:	No.	0		
13.13	40 mmØ Ditto	No.	0		
13.14	32 mmØ Ditto.	No.	0		
13.15	25 mmØ Ditto.	No.	0		
13.20	20 mmØ Ditto.	No.	0		
13.21	<b>Tees:</b>				
13.22	63 x 50 mmØ PPRC tees	No.	0		
	50 x 40 mmØ PPRC tees	No.	0		
13.30	32 x 25 mmØ Ditto	No.	0		
13.31	25 x 20 mmØ Ditto	No.	0		
13.32	<b>Sockets:</b>				
13.33	50 mmØ PPRC Sockets	No.	0		
13.34	40 mmØ Ditto	No.	0		
	25 mmØ Ditto	No.	0		
13.10	20 mmØ Ditto	No.	0		
13.13	<b>Reducers:</b>				
13.13	50 x 40 mmØ PPRC Reducers	No.	0		
13.13	40 x 25 mmØ Ditto	No.	0		
13.50	25 x 20 mmØ Ditto	No.	0		
13.51	<b>Stop Valves:</b>				
13.52	63 mmØ Gate valve	No.	0		
13.53	50 mmØ Ditto	No.	0		
13.54	40 mmØ Ditto	No.	0		
13.60	32 mmØ Ditto	No.	0		
13.61	<b>Pipe Clips:</b>				
13.62	50 mmØ Pipe Clips	No.	0		
13.63	40 mmØ Ditto	No.	0		
13.71	<b>End Caps:</b>				
13.72	40 mmØ End caps	No.	0		
13.73	25 mmØ Ditto	No.	0		
13.80	20 mmØ Ditto	No.	0		
13.81	<b>Male Screwed Adapter:</b>				
13.82	50 mmØ PPRC Male Screwed Adapters	No.	0		
13.83	40 mmØ Ditto	No.	0		
13.90	20 mmØ Ditto	No.	0		
13.91	<b>Female Screwed Adapter:</b>				
13.92	50 mmØ Female Screwed Adapters	No.	0		
13.93	40 mmØ Ditto	No.	0		
13.94	25 mmØ Ditto	No.	0		
13.95	15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube.	No.	0		
	Flexible piping may also be used subject to approval by the engineer				
M13	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
<b>E</b>	<b>THIRD &amp; TYPICAL FLOOR</b>				
	<b>PLUMBING &amp; DRAINAGE</b>				
	<b>INSTALLATION &amp; COMMISSIONING ONLY</b>				
14.00	<b>SANITARY FITTINGS:</b>				
14.01	Water closet suite as Twyford "AVALON BTW" comprising: AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved.	NO	12		
14.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve,push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector.Model No:KF3.402 or equal and approved.	NO	0		
14.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal and approved.	NO	10		
14.04	Electronic Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved.	NO	10		
14.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO	0		
14.06	Wall Mounted Chrome Covered Paper Holder as "EUROBATH" / "VADO". Model No. SOH-180A-C/P or equal and approved	NO	0		
14.07	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH" / "VADO". Model No. SOH-188-C/P or equal and approved.	NO	0		
14.08	Square wall mounted mirror as "EUROBATH" / "VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.	NO	0		
5.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX  1 – ½ inch plastic grating with white plastic dome ref: WF9370XX 1 – ½ inch plastic bottle P Trap ref: WF8461CP	NO	5		
5.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	No.	4		
5.11	3/4 inch infra-red Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approvec	No	0		
5.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	No	6		
<b>M14</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE (per floor)</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
15.00	<b>PLUMBING &amp; DRAINAGE</b> <u>install ,test and commission the following:</u> <b>DRAINAGE</b> install, test and commission: a) <b>UPVC soil and waste system (above ground) comprising:</b> · UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255				
15.10	The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
15.11					
15.15					
15.20	<b>PIPING TO BS 4514:</b>				
15.21	100mmØ uPVC Pipe	LM	0		
15.22	50mmØ uPVC Pipe	LM	0		
15.23	40mmØ uPVC Pipe	LM	0		
15.30	32mmØ uPVC Pipe	LM	0		
15.31	<b>FITTINGS TO BS 4514:</b>				
15.32	<b>TEES</b>				
15.33	100mmØ uPVC Single branch access tee	LM	0		
15.40	50mmØ uPVC Sweep tee	LM	0		
15.41	40mmØ uPVC Sweep tee	LM	0		
15.42	<b>PLUGS</b>				
15.43	100mmØ uPVC Plug	NO.	0		
15.44	50mmØ uPVC Plug	NO.	0		
15.50	40mmØ uPVC Plug	NO.	0		
15.51	<b>90° BENDS</b>				
15.52	100mmØ Inspection Bend	NO.	0		
15.53	50mmØ Inspection Bend	NO.	0		
	40mmØ Inspection Bend	NO.	0		
15.61	<b>CONNECTORS</b>				
15.62	100mmØ WC Connector	NO.	0		
15.63	100mmØ x 50mmØ Boss Connector	NO.	0		
15.64	100mmØ x 40mmØ Boss Connector	NO.	0		
	<b>ACCESSORIES</b>				
	100Ø Vent Cowl	NO.	0		
	100Ø Weathering slate	NO.	0		
	100mm Gully trap complete with grating	NO.	0		
	<b>b) u.P.V.C Underground Drainage System</b>				
	These shall be as "Buried drain system" or equal and approved				
	The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality				
	Colour shall be golden brown and all pipe work and fittings to be as "KEY TERRAIN				
15.70	<b>PIPING TO BS 4660:</b>				
15.71	150mmØ uPVC Pipe	LM	0		
15.72	100mmØ uPVC Pipe	LM	0		
	<b>FITTINGS TO BS 4660:</b>				
15.80	<b>TEES</b>				
15.81	150mmØ uPVC Sweep tee	NO	0		
15.82	100mmØ uPVC Sweep tee	NO	0		
15.83	<b>PLUGS</b>				
15.84	150mmØ uPVC Plug	NO	0		
15.85	100mmØ uPVC Plug	NO	0		
15.86	<b>BENDS</b>				
15.87	150mmØ Inspection Bend	NO	0		
15.88	100mmØ Inspection Bend	NO	0		
<b>M15</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
16.00	<b>INTERNAL PLUMBING:</b>				
16.01	<b>PIPING:</b> install, test and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings: <b>Piping:</b> 63mmØ PPRC Piping. 50mmØ PPRC Piping. 40 mmØ Ditto. 32 mmØ Ditto. 25 mmØ Ditto. 20 mmØ Ditto. <b>Fittings:</b> <b>90 Degree Bends:</b> 63 mmØ PPRC 90 Degree Bends: 50 mmØ PPRC 90 Degree Bends: 40 mmØ Ditto 32 mmØ Ditto. 25 mmØ Ditto. 20 mmØ Ditto. <b>Tees:</b> 63 x 50 mmØ PPRC tees 50 x 40 mmØ PPRC tees 32 x 25 mmØ Ditto 25 x 20 mmØ Ditto <b>Sockets:</b> 50 mmØ PPRC Sockets 40 mmØ Ditto 25 mmØ Ditto 20 mmØ Ditto <b>Reducers:</b> 50 x 40 mmØ PPRC Reducers 40 x 25 mmØ Ditto 25 x 20 mmØ Ditto <b>Stop Valves:</b> 63 mmØ Gate valve 50 mmØ Ditto 40 mmØ Ditto 32 mmØ Ditto <b>Pipe Clips:</b> 50 mmØ Pipe Clips 40 mmØ Ditto <b>End Caps:</b> 40 mmØ End caps 25 mmØ Ditto 20 mmØ Ditto <b>Male Screwed Adapter:</b> 50 mmØ PPRC Male Screwed Adapters 40 mmØ Ditto <b>Female Screwed Adapter:</b> 32 mmØ Female Screwed Adapters 25 mmØ Ditto <b>COPPER TUBING</b> 15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube. Flexible piping may also be used subject to approval by the engineer	LM	0		
M16	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>BASEMENT - 4 -PLUMBING &amp; DRAINAGE</b>				
	<b>INSTALLATION &amp; COMMISSIONING ONLY</b>				
17.00	<b>SANITARY FITTINGS:</b>				
17.01	Water closet suite as Twyford "AVALON BTW" comprising: AD V1158 WC Pan , HO (Horizontal outlet) white in color.AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal	NO	0		
17.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve,push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector.Model No:KF3.402 or equal .	NO	0		
17.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal	NO	0		
17.04	Electronic Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved.	NO	0		
17.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO	0		
17.06	Wall Mounted Chrome Covered Paper Holder as "EUROBATH" / "VADO". Model No. SOH-180A-C/P or equal and approved	NO	0		
17.07	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH" / "VADO". Model No. SOH-188-C/P or equal	NO	0		
17.08	Square wall mounted mirror as "EUROBATH" / "VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.	NO	0		
17.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX	NO	0		
	1 – ½ inch plastic grating with white plastic dome ref: WF9370XX				
	1 – ½ inch plastic bottle P Trap ref: WF8461CP				
17.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	No.	0		
17.11	3/4 inch infrared Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approved	No	0		
17.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	No	0		
17.13	Bath Shower Mixer deck mounted with shower kit as "EUROBATH"/"VADO" H2O FR-SHOWER/9-C/P. 0.2 Bar LP Chrome. Model No. AXI-130+K-C/P or equal and approved	NO	0		
17.14	Concealed Shower valve with diverter as "EUROBATH"/"VADO" wall mounted with round backplate, 1.5bar MP chrome. Model No. AXI-147-C/P or equal and approved.	NO	0		
17.15	Chrome Single Function Fixed Head and shower arm ,0.2 Bar LP as "EUROBATH" / "VADO" FR-SHOWER/9-C/P. Model No. WG-SFKIT-C/P or equal and approved.	NO	0		
17.16	Wall Mounted Chrome Glass Soap Dish and Holder as "EUROBATH"under "VADO". Model No. SOH-182-C/P or equal .	NO	0		
17.17	Chrome Towel Shelf and Towel Rail as "EUROBATH" / "VADO". Model No. SOH-185A-C/P or equal and approved.	NO	0		
17.18	600 mmWall mounted Chrome 600mm Towel Rail as "EUROBATH" / "VADO". Model No. SOH-184-C/P or equal and approved	NO	0		
17.19	Double bowl, double drain sink as "Associated Steel Limited" Complete with "P" Trap, waste fitting, plug and chainstay.	NO	0		
17.20	1/2 inch sink mixer, as " COBRA" number 266/041/10, CP, wall type with concealed connections adjustable from 128mm to 178mm or equal and approved.	NO	0		
<b>M17</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>PLUMBING &amp; DRAINAGE</b>				
	<b>INSTALLATION &amp; COMMISSIONING ONLY</b>				
18.00	<b>DRAINAGE</b> install, test and commission: a) <b>UPVC soil and waste system (above ground) comprising:</b> · UPVC soil and ventilating pipes, fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
18.10	<b>PIPING TO BS 4514:</b>				
18.11	150mmØ uPVC Pipe	LM	20		
18.11	100mmØ uPVC Pipe	LM	20		
18.12	50mmØ uPVC Pipe	LM	10		
18.12	40mmØ uPVC Pipe	LM	10		
18.20	<b>FITTINGS TO BS 4514:</b>				
18.21	100mmØ uPVC Single branch access tee	LM	1		
18.22	50mmØ uPVC Sweep tee	LM	1		
18.23	40mmØ uPVC Sweep tee	LM	1		
18.30	<b>PLUGS</b>				
18.31	100mmØ uPVC Plug	NO.	2		
18.32	50mmØ uPVC Plug	NO.	0		
18.33	40mmØ uPVC Plug	NO.	0		
18.40	<b>90° BENDS</b>				
18.41	100mmØ Inspection Bend	NO.	1		
18.42	50mmØ Inspection Bend	NO.	2		
18.43	40mmØ Inspection Bend	NO.	0		
18.50	<b>CONNECTORS</b>				
18.51	100mmØ WC Connector	NO.	2		
18.52	100mmØ x 50mmØ Boss Connector	NO.	3		
18.53	100mmØ x 40mmØ Boss Connector	NO.	1		
18.60	<b>ACCESSORIES</b>				
18.61	100Ø Vent Cowl	NO.	0		
18.62	100Ø Weathering slate	NO.	0		
18.63	100mm Gully trap complete with grating	NO.	0		
	<b>b) u.P.V.C Underground Drainage System</b>				
	These shall be as "Buried drain system" or equal and approved				
	The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality				
	Colour shall be golden brown and all pipe work and fittings to be as "KEY TERRAIN				
18.70	<b>PIPING TO BS 4660:</b>				
18.71	150mmØ uPVC Pipe	LM	0		
18.72	100mmØ uPVC Pipe	LM	6		
18.80	<b>FITTINGS TO BS 4660:</b>				
18.81	<b>TEES</b>				
18.81	150mmØ uPVC Sweep tee	NO	4		
18.82	100mmØ uPVC Sweep tee	NO	6		
18.82	<b>PLUGS</b>				
18.82	150mmØ uPVC Plug	NO	0		
18.84	100mmØ uPVC Plug	NO	2		
18.85	<b>BENDS</b>				
18.85	150mmØ Inspection Bend	NO	0		
18.86	100mmØ Inspection Bend	NO	1		
M18	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
19.00	<b>INTERNAL PLUMBING:</b>				
19.01	<b>PIPING:</b> install, test and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings: <b>Piping:</b> 63mmØ PPRC Piping. 50mmØ PPRC Piping. 40 mmØ Ditto. 32 mmØ Ditto. 25 mmØ Ditto. 20 mmØ Ditto.			LM	4
				LM	8
				LM	4
				LM	8
				LM	0
				LM	0
	<b>Fittings:</b>				
19.10	<b>90 Degree Bends:</b>				
19.11	63 mmØ PPRC 90 Degree Bends:		No.		
19.12	50 mmØ PPRC 90 Degree Bends:		No.	0	
19.13	40 mmØ Ditto		No.	0	
19.14	32 mmØ Ditto.		No.	0	
19.15	25 mmØ Ditto.		No.	0	
19.16	20 mmØ Ditto.		No.		
19.20	<b>Tees:</b>				
19.22	63 x 50 mmØ PPRC tees		No.		
19.23	50 x 40 mmØ PPRC tees		No.	0	
19.24	32 x 25 mmØ Ditto		No.	0	
19.25	25 x 20 mmØ Ditto		No.	0	
19.30	<b>Sockets:</b>				
19.31	50 mmØ PPRC Sockets		No.	0	
19.32	40 mmØ Ditto		No.	0	
19.33	25 mmØ Ditto		No.	0	
19.40	<b>Reducers:</b>				
19.41	50 x 40 mmØ PPRC Reducers		No.	0	
19.42	40 x 25 mmØ Ditto		No.	0	
19.43	25 x 20 mmØ Ditto		No.	0	
19.50	<b>Stop Valves:</b>				
19.51	63 mmØ PPRC Reducers		No.		
19.52	50 mmØ Ditto		No.	0	
19.53	40 mmØ Ditto		No.	0	
19.54	32 mmØ Ditto		No.	0	
19.60	<b>Pipe Clips:</b>				
19.61	50 mmØ Pipe Clips		No.	0	
19.62	40 mmØ Ditto		No.	0	
19.63	25 mmØ Ditto		No.	0	
19.70	<b>End Caps:</b>				
19.71	40 mmØ End caps		No.	0	
19.72	25 mmØ Ditto		No.	0	
19.73	20 mmØ Ditto		No.	0	
19.80	<b>Male Screwed Adapter:</b>				
19.81	50 mmØ PPRC Male Screwed Adapters		No.	0	
19.83	25 mmØ Ditto		No.	0	
19.84	20 mmØ Ditto		No.	0	
19.90	<b>Female Screwed Adapter:</b>				
19.91	50 mmØ Female Screwed Adapters		No.	0	
19.92	40 mmØ Ditto		No.	0	
19.94	<b>COPPER TUBING</b>				
	15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube. Flexible piping may also be used subject to approval by the engineer		No.	0	
<b>M19</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
20.00	<b>TYPICAL BASEMENT-3</b> <b>DRAINAGE</b> <b>INSTALLATION &amp; COMMISSIONING ONLY</b> a) UPVC soil and waste system (above ground) comprising: · UPVC soil and ventilating pipes , fittings and accessories to BS4514 · Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
20.10	<b>PIPING TO BS 4514:</b>				
20.11	200mmØ uPVC Pipe	LM	0		
20.11	150mmØ uPVC Pipe	LM			
20.12	100mmØ uPVC Pipe	LM	0		
20.13	40mmØ uPVC Pipe	LM			
	<b>FITTINGS TO BS 4514:</b>				
20.20	<b>TEES</b>				
20.21	200mmØ uPVC Single branch access tee	LM	0		
20.22	150mmØ uPVC Sweep tee	LM			
20.23	50mmØ uPVC Sweep tee	LM			
20.30	<b>PLUGS</b>				
20.31	100mmØ uPVC Plug	NO.	0		
20.32	50mmØ uPVC Plug	NO.	0		
20.33	40mmØ uPVC Plug	NO.			
20.40	<b>90° BENDS</b>				
20.41	100mmØ Inspection Bend	NO.	0		
20.42	50mmØ Inspection Bend	NO.	0		
20.43	40mmØ Inspection Bend	NO.			
20.50	<b>CONNECTORS</b>				
20.52	200mmØ x 50mmØ Boss Connector	NO.	0		
20.53	100mmØ x 40mmØ Boss Connector	NO.			
20.60	<b>ACCESSORIES</b>				
20.61	100Ø Vent Cowl	NO.	0		
20.62	100Ø Weathering slate	NO.			
20.63	100Ø x50Ø Floorrap complete with grating	NO.	0		
<b>M20</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
21.00	<b>TYPICAL BASEMENT-1&amp;2 DRAINAGE</b> <b>INSTALLATION &amp; COMMISSIONING ONLY</b> a) UPVC soil and waste system (above ground) comprising: · UPVC soil and ventilating pipes , fittings and accessories to BS4514 · Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
21.10	<b>PIPING TO BS 4514:</b>				
21.11	200mmØ uPVC Pipe	LM	0		
21.12	150mmØ uPVC Pipe	LM	78		
21.13	100mmØ uPVC Pipe	LM	12		
21.14	50mmØ uPVC Pipe	LM	80		
21.14	40mmØ uPVC Pipe	LM	48		
21.14	32mmØ uPVC Pipe	LM	0		
21.20	<b>FITTINGS TO BS 4514:</b>				
21.21	<b>TEES</b> 200mmØ uPVC Single branch access tee	LM	0		
21.22	150mmØ uPVC Sweep tee	LM			
21.23	50mmØ uPVC Sweep tee	LM			
21.30	<b>PLUGS</b>				
21.31	100mmØ uPVC Plug	NO.	0		
21.32	50mmØ uPVC Plug	NO.	0		
21.33	40mmØ uPVC Plug	NO.			
21.40	<b>90° BENDS</b>				
21.41	100mmØ Inspection Bend	NO.	0		
21.42	50mmØ Inspection Bend	NO.	0		
21.43	40mmØ Inspection Bend	NO.			
21.50	<b>CONNECTORS</b>				
21.52	200mmØ x 50mmØ Boss Connector	NO.	0		
21.53	100mmØ x 40mmØ Boss Connector	NO.			
21.60	<b>ACCESSORIES</b>				
21.61	100Ø Vent Cowl	NO.	0		
21.62	100Ø Weathering slate	NO.			
21.63	100Ø x50Ø Floorrap complete with grating	NO.	0		
<b>M21</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE (per floor)</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
22.00	<b><u>WATER RETICULATION</u></b>				
22.01	<b>Water Tanks:</b>				
22.02	install and commission hot pressed steel sectional storage tank to BS 1564 and BS 5950 with a capacity of 55400 Liters as "Braithwaite - 4.88mx 4.88m x2.44m" or equal	No	0		
	Tank to have: 32mm diameter inlet connection 100mm outlet connection, 32mm overflow to the rain water gutter, 50mm wash out to the rain water gutter with a gate valve. Cover lid, 25mm diameter high pressure float valve.				
22.02a	<b>Allow for commissioning of the 55.000Litre capacity water tank</b>	No.	2		
22.02	<b>PIPING:</b>				
22.03	install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
22.05	<b>Piping:</b>				
22.06	75mmØ PPRC Piping.	LM	0		
22.07	63 mmØ Ditto.	LM	12		
22.08	40 mmØ Ditto.	LM	28		
22.09	32mmØ Ditto.	LM	8		
22.10	25mmØ Ditto.	LM	0		
22.11	<b>Fittings:</b>				
22.12	<b>90 Degree Bends:</b>	No.	0		
22.13	75 mmØ PPRC 90 Degree Bends:	No.	0		
22.14	63 mmØ Ditto	No.	0		
22.15	40 mmØ Ditto		21		
22.16	32 mmØ Ditto	No.	41		
22.17	25 mmØ Ditto	No.	53		
22.18	<b>Tees:</b>				
22.19	75 x 63 mmØ PPRC Tees	No.			
22.20	50 x 32 mmØ Ditto	No.	60		
22.21	40 x 32 mmØ Ditto	No.	185		
22.21	40 x 25 mmØ Ditto	No.	29		
22.22	40 x 40 mmØ Ditto	No.	84		
22.19	32 x 32 mmØ PPRC Tees	No.	41		
22.20	32 x 25 mmØ Ditto	No.	148		
22.22	25 x 25 mmØ Ditto	No.	41		
22.23	<b>Sockets:</b>				
22.24	75 mmØ PPRC Sockets	No.	0		
22.25	63 mmØ Ditto	No.	0		
22.26	40 mmØ Ditto	No.	0		
22.27	32 mmØ Ditto	No.	0		
22.28	25 mmØ Ditto	No.	0		
22.29	<b>Reducers:</b>				
22.30	75 x 63 mmØ PPRC Reducers	No.	0		
22.31	63 x 40 mmØ Ditto	No.	0		
22.32	40 x 32 mmØ Ditto	No.	0		
22.33	40 x 25 mmØ Ditto	No.	0		
22.34	<b>Stop Valves:</b>				
22.35	75 mmØ PPRC Stop Valves	No.	0		
22.36	40 mmØ Ditto	No.	0		
22.37	32 mmØ Ditto	No.	0		
22.38	25 mmØ Ditto	No.	0		
22.40	<b>Pipe Clips:</b>				
22.41	75 mmØ PPRC Pipe Clips	No.	0		
22.42	63 mmØ Ditto	No.	0		
22.43	40 mmØ Ditto	No.	0		
22.44	32 mmØ Ditto	No.	0		
22.46	<b>End Caps:</b>				
22.47	40 mmØ Ditto	No.	0		
22.48	32 mmØ Ditto	No.	0		
<b>M22</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE (per floor)</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>WATER RETICULATION</b>				
	<b>Install and commission GI piping class B to BS 1387:1985/EN 10255:2004 complete with fittings:</b>				
23.00	<b>Piping:</b>				
23.01	50mmØ GI Piping.	LM	0		
23.02	40 mmØ Ditto.	LM	0		
23.03	32mmØ Ditto.	LM	0		
23.04	25mmØ Ditto.	LM	157		
23.05	20mmØ Ditto.	LM	60		
23.06	15mmØ Ditto.	LM	46		
23.07	<b>Fittings:</b>				
23.08	<b>50mm dia GI bend/elbow:</b>				
23.09	40 mmØ ditto:	No.	57		
23.10	32 mmØ Ditto	No.	64		
23.11	25 mmØ Ditto	No.	77		
23.12	20 mmØ Ditto	No.	64		
23.13	15 mmØ Ditto	No.	77		
23.14	<b>Tees:</b>				
23.15	50mm dia GI equal tee	No.	38		
23.16	40 mm ditto	No.	21		
23.17	32 mm ditto	No.	30		
23.18	25 mm ditto	No.	265		
23.19	20 mmØ Ditto	No.	92		
23.20	15 mmØ Ditto	No.	28		
23.21	<b>Unequal tee</b>				
23.22	50 x 40 mmdia GI unequal tee	No.	32		
23.23	50 x 32mm dia ditto	No.	33		
23.24	40 x 32mm ditto	No.	1		
23.25	32 x 25mm dia ditto	No.	244		
23.26	<b>Reducers:</b>				
23.27	50 x 40 mmØ GI Reducer	No.	46		
23.28	40 x 32 mmØ Ditto	No.	113		
23.29	32 x 25 mmØ Ditto	No.	118		
23.30	20 mmØ Ditto	No.	95		
23.31	15 mmØ Ditto	No.	1		
23.32	<b>50mm dia GI Union:</b>				
23.33	40 mmØ ditto:	No.	0		
23.34	32 mmØ Ditto	No.	0		
23.35	25 mmØ Ditto	No.	21		
23.36	20 mmØ Ditto	No.	10		
23.37	15 mmØ Ditto	No.	0		
23.38	<b>50mm dia Nipples:</b>				
23.39	40 mmØ ditto:	No.	5		
23.40	32 mmØ Ditto	No.	0		
23.41	25 mmØ Ditto	No.	74		
23.42	20 mmØ Ditto	No.	29		
23.43	15 mmØ Ditto	No.	0		
23.44	<b>Isolation Valve:</b>				
23.46	<b>100mm dia brass Stop valve</b>				
23.47	50 mmØ ditto	No.	0		
23.48	40 mmØ Ditto	No.	0		
23.49	32 mmØ Ditto	No.	0		
23.50	25 mmØ Ditto	No.	0		
<b>M23</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>WATER PUMPS:</b> <b>INSTALLATION &amp; COMMISSIONING ONLY</b>				
24.00	<b>Domestic:</b>				
24.01	10m <sup>3</sup> /hr. at 7bar as Grundfos CR 15-5 Power requirement, 4.kW each or equal and approved complete with electrical panel, pressure and level controls.	NO	0		
24.02	<b>Basement drainage</b>				
24.03	Submersible drainage pump as Grundfos model DW 65.27.3 with a capacity of 60 m <sup>3</sup> /hr at 12 m water gauge or equal and approved. Power requirement, 2.7 Kw each complete with electrical panel , pressure and level controls.	NO	0		
24.04	<b>Underground water drainage</b>				
24.05	Submersible drainage pump as Grundfos model DW 65.27.3 with a capacity of 60 m <sup>3</sup> /hr at 12 m water gauge. Power requirement, 2.7 Kw each or equal and approved complete with electrical panel , pressure and level controls.	NO	0		
M24	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

COLLECTION PAGE					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
M2	GROUND FLOOR SANITARY FITTINGS	FLOORS	1		
M3	GROUND FLOOR DRAINAGE	FLOORS	1		
M4	GROUND FLOOR INTERNAL PLUMBING	FLOORS	1		
M5	MEZZANINE FLOOR SANITARY FITTINGS	FLOORS	1		
M6	MEZZANINE FLOOR DRAINAGE	FLOORS	1		
M7	MEZZANINE FLOOR INTERNAL PLUMBING	FLOORS	1		
M8	FIRST FLOOR SANITARY FITTINGS	FLOORS	1		
M9	FIRST FLOOR DRAINAGE	FLOORS	1		
M10	FIRST FLOOR INTERNAL PLUMBING	FLOORS	1		
M11	SECOND FLOORS SANITARY FITTINGS	FLOORS	1		-
M12	SECOND FLOORS DRAINAGE	FLOORS	1		-
M13	SECOND FLOORS INTERNAL PLUMBING	FLOORS	1		-
M14	THIRD&TYPICAL FLOORS SANITARY FITTINGS (per floor)	FLOORS	1	-	
	TOTAL FOR 8 FLOORS	FLOORS	8		-
M15.	THIRD&TYPICAL FLOORS DRAINAGE (per floor)	FLOORS	1	-	-
	TOTAL FOR 8 FLOORS	FLOORS	8		-
M16	THIRD&TYPICAL FLOORS INTERNAL PLUMBING	FLOORS	1	-	
	TOTAL FOR 8 FLOORS	FLOORS	8		-
M17	BASEMENT 4 - SANITARY FITTINGS	FLOORS	1		-
M18	BASEMENT 4 - DRAINAGE	FLOORS	1		-
M19	BASEMENT 4 -INTERNAL PLUMBING	FLOORS	1		-
M20	BASEMENT DRAINAGE -3	FLOORS	1		-
M21	TYPICAL BASEMENT DRAINAGE -1,2 (per basement)	FLOORS	1	-	
	TOTAL BASEMENT 1& 2		2		-
M22	WATER RETICULATION & TANKS	ITEM	1		-
M23	WATER RETICULATION & TANKS	ITEM	1		-
M24	DOMESTIC WATER PUMPS	ITEM	1		-
A2	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b> <b>BILLS OF QUANTITIES FOR FIREFIGHTING</b>					
INSTALLATION & COMMISSIONING ONLY			UNIT	QTY	Rate (Kshs)      Amount (Kshs)
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)      Amount (Kshs)	
A	<b>GROUND FLOOR</b>  <u>install ,test and commission the following:</u>  <b>FIRE PROTECTION SERVICES</b> <b>HOSE REEL SYSTEM</b> install, test & commission galvanised mild steel tubing to BS 1387 Class C socket joints to BS 143 and galvanised malleable iron fittings including fixing and joints. Tenderers must allow in their pipe work prices for all the couplings, connectors, joints etc. required in the running length of pipe work and also where necessary, for pipe fixing clips, holderbats, plugs and screws, brackets and pipe sleeves through Structural members.				
2.00	<b>2.10</b> <b>Pipe work.</b> 2.11 65mm Diameter GI pipe 2.12 50 mm ditto 2.13 40 mm diameter ditto 2.14 32 mm diameter ditto 2.15 25 mm diameter ditto 2.20 <b>Bends/elbows</b> 2.21 50 mm diameter GI bend /elbow 2.22 25 mm diameter GI bend /elbow 2.23 20mm diameter GI ditto 2.30 <b>Tees</b> 2.31 50 x 25 mm diameter of GI tee 2.32 25 x 20 mm diameter GI Tee 2.40 <b>Reducers</b> 2.41 50 x 25 mm diameter GI reducers 2.42 25 x 20 mm diameter GI reducers 2.50 <b>Unions</b> 2.51 50 mm GI union 2.52 25 mm diameter ditto 2.53 20 mm diameter ditto 2.60 <b>Brass work</b> 2.61 25 mm diameter sluice valve as 'pegler' or equal and approved 2.62 Automatic non recessed swinging type hose real as EVERSAFE BL5274 or equal and approved with 30 meter long, 20 mm diameter reinforced rubber hose with an adjustable nozzle The hose real shall be complete with fixing brackets and nozzle cradle 2.70 <b>Portable Fire Extinguishers Generator &amp; Switch rooms</b> 2.71 4.5 KG Co2 gas fire Extinguisher to BS 5423 including the appropriate initial charge and mounting brackets 2.72 9Kg drypowder fire extinguishers to BS5423 including the appropriate initial charge and mounting brackets 2.80 <b>Testing &amp; Commissioning</b> 2.81 Allow for testing and commissioning of the whole Fire fighting system to the satisfaction of the Engineer.	LM NO. NO. NO. NO. NO. NO. NO. NO. NO. NO. NO. NO. NO. NO. NO. Item	0 12 0 6 0 13 40 NO. 0 6 0 22 0 40 15 3 2 0 0 1		
M2	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
B	<b>MEZZANINE/FIRST/SECOND FLOOR</b>  <u>install ,test and commission the following:</u>				
3.00	<b>FIRE PROTECTION SERVICES</b> <b>HOSE REEL SYSTEM</b> install & commission galvanised mild steel tubing to BS 1387 Class C socket joints to BS 143 and galvanised malleable iron fittings including fixing and joints. Tenderers must allow in their pipe work prices for all the coupling, connectors, joints etc. required in the running length of pipe work and also where necessary, for pipe fixing clips, holder bats plugs and screws, brackets and pipe sleeves through Structural members.				
3.10	<b>Pipe work.</b>				
3.11	50mm Diameter GI pipe	LM	0		
3.12	25 mm ditto	LM	25		
3.13	20 mm diameter ditto	LM	0		
3.20	<b>Bends/elbows</b>				
3.21	50 mm diameter GI bend /elbow	NO.	0		
3.22	25 mm diameter GI bend /elbow	NO.	20		
3.23	20mm diameter GI ditto	NO.	0		
3.30	<b>Tees</b>				
3.31	50 x 25 mm diameter of GI tee	NO.	5		
3.32	25 x 20 mm diameter GI Tee	NO.	0		
3.40	<b>Reducers</b>				
3.41	50 x 25 mm diameter GI reducers	NO.	15		
3.42	25 x 20 mm diameter GI reducers	NO.	0		
3.50	<b>Unions</b>				
3.51	50 mm GI union	NO.	0		
3.52	25 mm diameter ditto	NO.	10		
3.53	20 mm diameter ditto	NO.	0		
3.60	<b>Brass work</b>				
3.61	25 mm diameter sluice valve as 'pegler' or equal and approved	NO.	4		
3.62	Automatic non recessed swinging type hose real as EVERSAFE BL5274 or equal and approved with 30 meter long, 20 mm diameter reinforced rubber hose with an adjustable nozzle The hose real shall be complete with fixing brackets and nozzle cradle	NO.	4		
3.70	<b>Portable Fire Extinguishers Generator &amp; Switch rooms</b>				
3.71	4.5 KG Co2 gas fire Extinguisher to BS 5423 including the appropriate initial charge and mounting brackets	NO.	4		
3.73	9Kg drypowder fire extinguishers to BS5423 including the appropriate initial charge and mounting brackets	NO.	4		
3.80	<b>Testing &amp; Commissioning</b>				
3.81	Allow for testing and commissioning of the whole Fire fighting system to the satisfaction of the Engineer.	Item	1		
<b>M3</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
C	<b><u>3RD AND TYPICAL FLOOR</u></b>  <b><u>install ,test and commission the following:</u></b>  <b><u>FIRE PROTECTION SERVICES</u></b> <b><u>HOSE REEL SYSTEM</u></b> install & commission galvanised mild steel tubing to BS 1387 Class C socket joints to BS 143 and galvanised malleable iron fittings including fixing and joints. Tenderers must allow in their pipe work prices for all the coupling, connectors, joints etc. required in the running length of pipe work and also where necessary, for pipe fixing clips, holder bats plugs and screws, brackets and pipe sleeves through Structural members.				
4.00	<b><u>4.10 Pipe work.</u></b> 4.11 50mm Diameter GI pipe 4.12 25 mm ditto 4.14 20 mm diameter ditto <b><u>4.20 Bends/elbows</u></b> 4.21 50 mm diameter GI bend /elbow 4.22 25 mm diameter GI bend /elbow 4.23 20mm diameter GI ditto <b><u>4.30 Tees</u></b> 4.31 50 x 25 mm diameter of GI tee 4.32 25 x 20 mm diameter GI Tee <b><u>4.40 Reducers</u></b> 4.41 50 x 25 mm diameter GI reducers 4.42 25 x 20 mm diameter GI reducers <b><u>4.50 Unions</u></b> 4.51 50 mm GI union 4.52 25 mm diameter ditto 4.53 20 mm diameter ditto  <b><u>4.60 Brass work</u></b> 4.61 25 mm diameter sluice valve as 'pegler' or equal and approved  4.62 Automatic non recessed swinging type hose real as EVERSAFE BL5274 or equal and approved with 30 meter long, 20 mm diameter reinforced rubber hose with an adjustable nozzle The hose real shall be complete with fixing brackets and nozzle cradle  <b><u>4.70 Portable Fire Extinguishers Generator &amp; Switch rooms</u></b> 4.71 4.5 KG Co2 gas fire Extinguisher to BS 5423 including the appropriate initial charge and mounting brackets 4.72 9Kg drypowder fire extinguishers to BS5423 including the appropriate initial charge and mounting brackets 4.73 1/2 inch NPT automatic air vent as "SPIRAX SARCO Model AE 30" with maximum operating pressure of 10 bars or equal and approved.  <b><u>4.80 Testing &amp; Commissioning</u></b> 4.81 Allow for testing and commissioning of the whole Fire fighting system to the satisfaction of the Engineer.	LM NO. NO. NO. NO. NO. NO. NO. NO. NO. NO. No Item	0 0 10 0 0 0 0 0 0 0 0 0 0 0		
<b>M4</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
5.00	<b>DRY RISER</b> install, test and commission a dry riser as shown on the drawings. All pipe work in the installation to be galvanized mild steel heavy grade "C" to BS 1387 and fittings to BS 143. <b>Pipe work</b> 5.01 150 mm diameter class "C" galvanized mild steel 5.02 65 mm Ditto <b>Fittings:</b> <b>90 Deg GI . Bends</b> 5.03 150 mm diameter bend 5.04 65 mm Ditto <b>Barrel Nipples</b> 5.05 65 mm diameter GI nipples <b>Steel threaded flanges:</b> 5.06 65mmmm threaded steel flanges <b>Tees</b> 5.07 150 x 150 mm tee 5.08 150 x 65 mm tee 5.09 65 x 65 mm tee <b>Unions/Flanges</b> 5.10 150 mm union 5.11 65 mm ditto <b>Sockets</b> 5.12 150 mm Socket 5.13 65 mm ditto <b>Reducers</b> 5.14 150 x 65 Reducers <b>Landing Valves</b> 5.15 65 mm bore Flanged Bib nose model LV-05 landing valve as "EVERSAFE" or equal and approved <b>Dry riser equipment</b> 5.16 4-way breeching inlet, model14 as " EVERSAFE" or equal and Approved Particular specification: Body material--copper/iron Outlet---flanged 150 mm diameter Inlet--4 x 65 mm diameter male inst. non return valves Caps--plastic; Finishing---red 5.17 <b>Hose cradle</b> as "EVERSAFE " model HC-1 with the following specifications: Body material : Aluminium alloy Hose size : 30m x 64mm diameter flat hose Movement: (180 deg (left to right) Finishing : red. 5.18 <b>Dry riser Nozzle:</b> Jet Nozzle complete with Branch pipe as "EVERSAFE" with the following specifications: Material: Aluminium alloy to BS 1490 Code No: JSN - 001-AL; Finishing: Natural Inlet Size: Male Instantaneous BS 336 Flow Rate at 65 PSI: 210L/ Min (12 mm dia.) 510 L/Min (19 mm dia) Throw Range at 65 PSI: 16 m (12 mm dia) 22 mm (19 mm dia.) 5.19 <b>Air Release Valve</b> 50mm diameter Air Release valve (8 to 15 bar) as "TYCO" or equal and approved 5.19 <b>Testing and Commissioning:</b> Allow for testing and commissioning of the system	LM	18		
	<b>M5</b> <b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>			Sum.	1

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
8.00	<b>SPRINKLER SYSTEM:</b> <b>TYPICAL BASEMENT-1,2,3</b> install & commission black mild steel piping to BS 1387 Class C socket joints to BS 143 and black malleable iron fittings including fixing and joints. Tenderers must allow in their pipe work prices for all the couplings, connectors, joints etc. required in the running length of pipe work and also where necessary, for pipe fixing clips, holder bats plugs and screws, brackets and pipe sleeves through Structural members.				
6.01	<b>Black steel piping:</b> 150 mm diameter tubing	LM.	0		
6.02	100 mm diameter tubing	LM.	36		
6.03	80 mm diameter tubing	LM.	6		
6.04	65 mm diameter tubing	LM.	0		
6.05	50 mm diameter tubing	LM.	0		
6.06	40 mm diameter tubing	LM.	0		
6.07	32 mm diameter tubing	LM.	0		
6.08	25 mm diameter tubing	LM.	0		
6.09	<b>BENDS (Malleable iron):</b> 150 mm diameter bend	No.	0		
6.10	100 mm diameter bend	No.	0		
6.11	80 mm diameter bend	No.	0		
6.12	65 mm diameter bend	No.	0		
6.13	50 mm diameter bend	No.	0		
6.14	40 mm diameter bend	No.	0		
6.15	32 mm diameter bend	No.	0		
6.16	25 mm diameter bend	No.	0		
6.17	<b>TEES (Malleable iron):</b> 150 x 150 x 150 mm equal tee	No.	2		
6.18	150 x 100 x 80 mm unequal tee	No.	0		
6.19	150 x 150 x 80 mm unequal tee	No.	0		
6.20	150 x 150 x 40 mm unequal tee	No.	0		
6.21	100 x 100 x 80 mm unequal tee	No.	0		
6.22	80 x 80 x 32 x 32 mm unequal tee	No.	0		
6.23	80 x 65 x 32 x 32 mm unequal tee	No.	0		
6.24	80 x 65 x 65 mm unequal tee	No.	0		
6.25	65 x 40 x 32 mm unequal tee	No.	0		
6.26	65 x 65 x 32 x 32 mm unequal tee	No.	1		
6.27	65 x 40 x 32 x 32 mm unequal tee	No.	0		
6.28	40 x 40 x 32 x 32 mm unequal tee	No.	1		
6.29	40 x 32 x 32 mm unequal tee	No.	0		
6.30	40 x 40 x 32 mm unequal tee	No.	0		
6.31	32 x 25 x 25 mm unequal tee	No.	0		
6.10	<b>Reducers:</b> 100 mm x 65 mm diameter Reducer	No.	4		
6.12	65 mm diameter bend	No.	1		
6.14	40 mm diameter bend	No.	1		
6.15	32 mm diameter bend	No.	1		
6.09	<b>Steel Flanges:</b> 150 mm diameter bend	No.	1		
6.10	100 mm diameter bend	No.	2		
<b>M6</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
7.00	<b>Valves</b>				
7.01	<b>Installation control valve:</b> UL Listed and FM approved Sprinkler system installation control valve (alarm check valve complete with pressure gauges and an arrangement for gong) as "TYCO" or equal and approved	No.	0		
7.02	<b>Gate valves(UL Listed and FM approved):</b> 150 mm Ø , Cast Iron Gate Valve as "TYCO" or equal and approved	No.	1		
7.03	100 mm Ø, Ditto	No.	0		
7.04	80 mm Ø, Ditto	No.	0		
7.05	65 mm Ø, Ditto	No.	0		
7.06	<b>Sprinkler Head:</b> 15 mm diameter automatic sprinkler head: Pendant conventional pattern with a universal deflector and Red bulb for 68 degrees operating temperature. Manufactured by Fire kit international or equal and approved spare sprinkler heads as above Allow for connection to the existing system	No.	0		
<b>M7</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
8.00	<b>FIRE PROTECTION PUMPS</b>				
8.01	<b>Main sprinkler pumps</b> install and commission a fire pumpset to EN12845 as "DAYLIFF Model FLA 100M" consisting of one electric pump model DE50-20 rated at 50m <sup>3</sup> /h at 5bar and one diesel driven pump with a "Kholer" Engine model KD625-2 (17.1KW) with a single duty of 50m <sup>3</sup> /h at 5bar complete with an electrical control panel. The control panel to be equipped with interfaces for a building management system (BMS). The diesel engine shall be used as a back-up .	Set	0		
8.02	<b>Jockey pumps</b> install and commission a fire pump capable of delivering 8m <sup>3</sup> /h at 6 bar as GRUNDFOS Model CR15-5 rated at 4kW. or equal and approved complete with Pressure tanks, switches and electrical panel. The control panel to be equipped with interfaces for a building management system (BMS).	No	0		
8.03	<b>Hose reel pumps - At roof level</b>				
8.04	install and commission a pump as "GRUNDFOSS Model CR 10-4" with a capacity of 8.5 m <sup>3</sup> /h at 35 m water head complete with pressure and electrical controls conforming to EN 12845. The control panel to be equipped with interfaces for a building management system (BMS). or equal and approved	No	0		
8.05	A 24 litre pressure vessel to operate with the above pumps	No	0		
8.06	<b>Testing and Commissioning:</b>				
8.07	Allow for testing and commissioning of the whole fire Sprinkler system to the satisfaction of the Mechanical Engineer.	item	0		
<b>M8</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
7.00	<b>BASEMENT 4</b> <b>FIRE SUPPRESSION SYSTEM</b>  <b>INSTALL AND COMMISSION</b> <b>INERGEN FIRE SUPPRESSION SYSTEM AS BELOW</b> <b>(All in compliance with ISO 14520, UNE 23575, NFPA 2001 and CEA 4008)</b>  <b>SUPPRESSION</b> 1.00 80 LITRE CAPACITY CYLINDER 2.00 PRESSURE REDUCER 2.00 INERGEN GAS  <b>NOZZLES</b> 3.00 20mm, 30deg. NOZZLE C/W DIAPHRAGM  <b>PIPING</b> 4.00 20mm SCHEDULE 40 STEEL PIPING 5.00 ALLOW FOR ALL NECESSARY FITTINGS & ANCHORAGE 6.00 VENTING  <b>CONTROL SYSTEM</b> 7.00 RELEASE PANEL 8.00 IONIZATION DETECTOR 9.00 OPTICAL DETECTOR 10.00 SURFACE CALL POINT 11.00 COMBINED SOUNDER/ BEACON, SHALLOW BASE 12.00 FIRE RESISTANT CABLING 13.00 MAINTENANCE SWITCH 14.00 AIRCON POWER SHUT DOWN 15.00 ALLOW FOR ALL NECESSARY FITTINGS AND ANCHORAGE 16.00 ALLOW FOR INSTALLATION TESTING AND COMMISSIONING				
<b>M9</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

COLLECTION PAGE					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
M2	GROUND FLOOR HOSE REEL SYSTEM	FLOORS	1	-	-
M3	MEZZANINE/FIRST/SECOND FLOOR HOSE REEL SYSTEM TOTAL FOR 3 FLOORS	FLOORS	1 3	-	-
M4	THIRD/TYPICAL FLOORS HOSE REEL SYSTEM TOTAL FOR 8 FLOORS	FLOORS	1 8	-	-
M5	DRY RISERS	ITEM	1	-	-
M6	TYPICAL BASEMENT SPRINKLER SYSTEM TOTAL FOR 3 BASEMENTS	FLOORS	1 3	-	-
M7	SPRINKLER SYSTEM VALVES	FLOORS	1	-	-
M8	FIRE PROTECTION PUMPS	ITEMS	1	-	-
M9	BASEMENT 4 FIRE SUPPRESSION	ITEMS	1	-	-
<b>A3</b>	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				-

**THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI**

**BILLS OF QUANTITIES FOR WASTEWATER TREATMENT.**

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs) Amount (Kshs)	
	<b><u>Grey Water treatment plant</u></b>				
1.00	Install, test and commission a Grey water treatment plant including all pumps,electrical items and accessories suitable for a population of 2800 persons.  The system should consists of: <b>Pre-filter</b> 150mm diameter leaf filter for horizontal mounting.The filter casing should be of HPDE and a stainless steel wire mesh.  <b>Multi-Media Skid</b> Complete with skid and pump sets  <b>Chlorine Dosing System</b> Includes electromagnetic dosing pumps set to dose at a manual pre-set level of 2ppm which equates to a dosing rate of 0.0186ml/litre.  <b>Control Unit</b> Should consist of electronic control system,internal break tank with air gap and variable speed dual duty/assist self priming booster centrifugal pumps.	Item	0		
1.10	<b>Grey Water circulation pumps</b> Pump capable of delivering 5m <sup>3</sup> /hr at a head of 7 bar as Grundfos CR 15-5 or equal and approved. Power requirement is 4 Kw	NO	0		
1.20	50mm diameter , 0-10 m <sup>3</sup> /h Grey water meter as kent or equal and approved	NO	0		
<b>A4</b>	<b>TOTAL FORWARD CARRIED TO SUMMARY PAGE</b>				-

THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI					
BILLS OF QUANTITIES FOR EFFLUENT TREATMENT					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	install, test and commission the following Leather effluent treatment appliances complete with all the accessories including all connections to incoming drainage pipes, waste, jointing, supports and all plugging and screwing to walls and floors. Working drawings to be approved before commencement of the works. <b>(A brief proposal is given in drawing No. EMS148/08/25 to assist in tender evaluation)</b> .				
1.00	fix, test and commission the leather effluent treatment plant including all pumps, piping, electrical items and accessories. The required plant capacity is about 5,000 litres per day. The influent produced should conform to NEMA certification before it is allowed into the Local council sewer.	Item	0		
1.01	Allow for detailed design of the packaged treatment plant and working drawings.	Sum	0		
1.02	Allow for getting approvals from NEMA, Water Authorities and Local Council Authority for the plant.	Sum	0		
1.03	Allow for the construction of the steel structure which will form the base for the effluent plant. The structure to be complete with a roof.	Item	0		
1.04	Allow for all the associated civil and builders works	Item	0		
1.05	Allow for electrical wiring and control cabling for all the pumps and the treatment plant.	Item	0		
M1	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
2.00	Allow for carrying out monthly effluent quality monitoring and maintenance of the plant for twelve months commencing from the date of practical completion.	Item	0		
2.01	Allow for preparation of the "As installed drawings", operation and maintenance manual of the plant after practical completion.	Item	0		
2.02	Allow for testing and commissioning of the effluent treatment plant installation to the satisfaction of the Engineer.	Item	0		
2.03	Any other item necessary for proper functioning of the system(List them below)	Item	0		
<b>M2</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				-

COLLECTION PAGE FOR LEATHER EFFLUEN TREATMENT PLANT

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
1	TOTAL BROUGHT FORWARD FROM: 1 FROM M1				-
2	FROM M2				-
<b>A5</b>	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				-

LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI					
BILLS OF QUANTITIES FOR RAINWATER GOODS.					
INSTALLATION & COMMISSIONING ONLY					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
22.01	<b>RAINWATER DRAINAGE</b> install and commission a rain water drainage system to BS EN 12056-3-2000 using UPVC pipes and fittings to BS EN 1329 as "TERRAIN" or equal				
22.02	110Ø Upvc Downpipe	LM	126		
22.03	110Ø half round Gutter as "Polypipe"	No	0		
22.04	110Ø 90°Upvc bend	No.	36		
22.05	180Ø Plain Gutter as "Polypipe"	LM	0		
22.06	180Ø Gutter Support Bracket as "polypipe"	No.	0		
22.07	180Ø Click-fit Gutter Corners as "polypipe"	No.	0		
22.08	180Ø Click-fit Running Outlet as "polypipe"	No.	0		
22.09	180Ø Click-fit stop end "polypipe"	No.	0		
22.10	180Ø Click-fit stop end with running outlet "polypipe"	No.	0		
22.11	110Ø Down Pipe Clips as "polypipe"	No.	49		
22.12	Adjustable Rafters as "polypipe"	No.	0		
22.13	82Ø Doomed grid as "TERRAIN" ref: 9980	No.	12		
22.14	82Ø Flat grid as "TERRAIN" ref: 9981	No.	12		
22.15	82Ø Body grid as "TERRAIN" ref: 9982	No.	12		
	<b>RAINWATER HARVESTING TANKS</b>				
21.01	<b>Water Tanks:</b>				
21.02	install and commission hot pressed steel sectional storage tank to BS 5950 or BS 449 with capacity of 75 m³ Tank to have: 32mm diameter inlet connection 50mm outlet connection, 25mm overflow to the rain water gutter, 25mm wash out to the rain water gutter with a gate valve. Cover lid, 25mm diameter high pressure float valve.	No.	0		
	<b>WATER PUMPS:</b>				
23.00	<b>Domestic:</b>				
23.01	10m³ /hr. at 7bar as Grundfos CR 15-5 Power requirement, 4.kW each complete with electrical panel, pressure and level controls.	NO	0		
1.08	<b>Rainwater harvesting filter as" 3P TECHNIK" or equal</b> <b>Filter to be according to DIN 1989-2 Type C with connection</b> inlet : 2 x DN 100 (110MM OD). Outlet into tank: DN 100 (110mm OD) Outlet into sewer: DN 125. Housing material : polythene Filter cartridge: Stainless steel 1.4301 , mesh: 0.65mm Height difference between filter inlet and outlet: 300mm	No.	0		
1.06	100mm Diameter UPVC Fulbora as "TERRAIN" or equal	NO	0		
A6	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

**THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROB**

<u>BILLS OF QUANTITIES SOLAR WATER HEATING.</u>					
<b>INSTALLATION &amp; COMMISSIONING ONLY</b>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
2.00	<p><b>Solar collector/ Hot water storage cylinder</b>            Superline L MODEL SWD 23/220 with the following specifications or equal:            Collector area (m<sup>2</sup>) : 2.3, weight: 41kg, fluid capacity (liters): 2.8, Maximum heat output / day (kwh):12.5, minimum heat output/day (kwh): 8.4 , Tank capacity (liters): 220, electric booster heater: 3kw, tank weight (kgs): 81.</p> <p><b>Collector general specifications</b>  <u>Tubing grid general specification:</u>            20mm Copper waterways silver-blazed to conduction.            copper riser pipes and manifolds with an optimal ratio between diameters.  <u>Absorber Plate general specifications:</u>            black coated copper absorber ultrasonically welded to the risers  <u>Working Pressure:</u> 3.5 bars  <u>Test pressure:</u> 14 Bar            dimensions: 1890mm long x 1200mm wide  <u>Hot Water Storage Cylinder general specifications:</u>  <u>Material:</u>            st-37 with 3mm thick steel (Stainless steel/mild steel hot dipped galvanized)  <u>Insulation:</u>            50 mm. High density Polyurethane foam sprayed  <u>cylinder Casing:</u>            24 g Mild Steel Galvanized / Sprayed painted  <u>Working Pressure:</u> 3.5 bars  <u>Test pressure:</u> 5 Bar            Overall dimensions (collector and tank): (2680mm long x 1480mm wide)            Maximum flow rate (m<sup>3</sup>/h ) : 2            Inlet :(3/4 inch BSP), outlet : (3/4 inch BSP)</p>	NO	40		
3.00	<b>Pipework Installaton:</b> <b>PIPING - PPR PN 25</b>	LM	50		
3.10	25mm diameter PPR PN 25 pipes(Hot water supply)				
	<b>FITTINGS -PN 25</b>				
3.11	Tees 25mm 25mm x 25mm diameter pprc equal tees	NO	0		
	<b>90 / 45 Degree Bends</b>				
3.13	25mm Diameter bend	NO	0		
	<b>25 mm diameter pressure relief valves</b>				
3.15	Hot water Circulating pump as "Grundfos model UPS 65-120" rated at 10m <sup>3</sup> /h at 10m.w.g	NO	4		
3.16	Thermal fluid (glycol) cicleation pump as "Grundfos Alpha model PP3 rated at 2m <sup>3</sup> /h at 3 m.w.g.	NO	4		
3.17	2000 Liter capacity Central stainless steel hot water storage tank	No	4		
3.18	Booster pump from cold tank	No.	0		
2.44	Allow for labour in compliance with Energy (solar water heating) regulations 2025.	Item	1		
A7	<b>TOTAL PRICE ( CARRIED FORWARD TO FORM OF TENDER'</b>				

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b>					
<b>BILL OF QUANTITIES FOR LABORATORY SERVICES</b>					
<b>INSTALLATION &amp; COMMISSIONING ONLY</b>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>install and commission the following drainage &amp; plumbing fittings:</b>				
	<b>ALL FLOORS</b>				
	<b>DRAINAGE SYSTEM AS VULCATHENE OR EQUAL AND APPROVED</b>				
1.10	<b>Sink</b> Bench sink as "vulcathene" Cat No. 601 with a self draining base. the recessed outlet will accept the flange of the 1½" BSP 504 non-overflow threaded outlet.	No.	50		
1.20	<b>Drip cup</b> 501 small circular Drip Cup as "vulcathene" with an integral grating and a wall thickness of 3mm	No.	0		
1.30	<b>Dilution Recovery Trap</b> Dilution Recovery Trap - 2.3 litres capacity as "Vulcathene" W612 of Diameter 230mm.	No.	24		
1.40	<b>Waste outlet</b> Unslotted Waste outlet as "vulcathene" Cat. No. 504. 2"BSP threaded waste	No.	50		
1.50	<b>Standing Waste Tube</b> Standing Waste Tube as "vulcathene" in relation with 2" BSP threaded	No.	0		
1.60	<b>Pipe coupler</b> W15 F.I pipe coupler as "vulcathene" 38mm W15 F.I pipe coupler as "vulcathene" 100mm	No. No.	0 8		
2.00	<b>pipe</b> W001 pipes as "vulcathene" to be supplied in standard 4m length	No.			
2.10	Ø152mm	No.	0		
2.20	Ø102mm(SVP)	No.	24		
2.30	Ø76mm	No.	0		
2.40	Ø51mm	No.	0		
2.50	Ø38mm	No.	0		
3.00	<b>Single Wye</b> W37 45° Single Wye as "vulcathene" with standard nuts and olive connections:	No.			
3.10	W374 102mm	No.			
3.20	W373 76mm	No.	12		
3.30	W372 51mm	No.	0		
3.40	W371 38mm	No.	20		
4.00	<b>Sweep bend (90° &amp; 45°)</b> W29 92½° Loose Nut Sweep Bend as "vulcathene" one end with a standard nut and olive connection whilst the other has a captive nut for connection to threaded units:	No.			
4.10	W294 Ø102mm	No.	0		
4.20	W293 Ø76mm	No.	10		
4.30	W292 Ø51mm	No.	25		
4.40	W291 Ø38mm	No.	0		
4.50	<b>U' bend</b> U' bend as vulcathene W70 76mm AND 51mm	No.	0		
<b>M1</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
5.00	<b>Reducers-Couplers</b> W39 Reducing Coupler as "vulcathene" with nut and olive connections on the small diameter end while the spigot end is grooved: 5.10 W3921 Ø51x38 5.20 W3931 Ø76x38 5.30 W3932 Ø76x51 5.40 W3941 Ø102x38 5.50 W3942 Ø102x51 5.60 W3943 Ø102x76		No.	25	
6.00	<b>Reducers-Sweeps</b> W39 Reducing Coupler as "vulcathene" with nut and olive connections on the small diameter end while the spigot end is grooved: 6.10 W3921 Ø51x51x38 6.11 W3931 Ø76x76x38 6.12 W3932 Ø76x76x51 6.13 W3941 Ø102x102x51		No.	5	
6.14	<b>Sweep Tees</b> W3921 Ø51x38 W3931 Ø76x38 W3932 Ø76x51 W3942 Ø102x51 W3943 Ø102x76		No.	0	
6.15	<b>Hex Nipples</b> Ø102mm(SVP) Ø76mm Ø51mm Ø38mm		No.	4	
M2	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				

ITEM NO	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
7.00	<b>Cold water supply</b> install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
7.01	<b>Piping:</b>				
7.02	40 mmØ PPRC Piping.	LM	10		
7.03	32mmØ Ditto.	LM	8		
7.04	25mmØ Ditto.	LM	9		
7.05					
7.06	<b>Fittings:</b>				
7.07	<b>90 Degree Bends:</b>				
7.08	40 mmØ PPRC 90 Degree Bends:	No.	5		
7.09	32 mmØ Ditto	No.	5		
7.10	25 mmØ Ditto	No.	9		
7.11	<b>Tees:</b>				
7.12	40 x 40 mmØ PPRC Tees	No.	10		
7.13	40 x 32 mmØ Ditto	No.	15		
7.14	40 x 25 mmØ Ditto	No.	10		
7.15	32 x 32 mmØ Ditto	No.	6		
7.16	25 x 25 mmØ Ditto	No.	7		
7.17	<b>Sockets:</b>				
7.18	40 mmØ PPRC Sockets	No.	8		
7.19	32 mmØ Ditto	No.	10		
7.20	25 mmØ Ditto	No.	7		
7.21					
7.22	<b>Reducers:</b>				
7.23	40 x 32 mmØ PPRC Reducers	No.	6		
7.24	32 x 25 mmØ Ditto	No.	5		
7.25					
7.26	<b>Stop Valves:</b>				
7.27	40 mmØ PPRC Stop Valves	No.	10		
7.28	32 mmØ Ditto	No.	5		
7.29	25 mmØ Ditto	No.	5		
7.30	20 mmØ Ditto	No.	5		
7.31					
7.32	<b>Pipe Clips:</b>				
7.33	40 mmØ PPRC Pipe Clips	No.	8		
7.34	32 mmØ Ditto	No.	10		
7.35	25 mmØ Ditto	No.	5		
7.36					
7.37	<b>End Caps:</b>				
7.38	40 mmØ Ditto	No.	6		
7.39	32 mmØ Ditto	No.	2		
7.40	25 mmØ Ditto	No.	11		
7.41					
7.42	<b>Tap</b>				
7.43	VG800110 Mixer tap as 'vulcathene'	No.	30		
7.44	with Swivel swanneck and aerator				
7.45	<b>Cold Water GI Piping</b>				
7.46	50mm Diameter GI pipe	LM	6		
7.47	25 mm ditto	LM	18		
7.48	20 mm diameter ditto	LM	10		
7.49	<b>Bends/elbows</b>				
7.50	50 mm diameter GI bend /elbow	NO.	8		
7.51	25 mm diameter GI bend /elbow	NO.	6		
7.52	20mm diameter GI ditto	NO.	5		
7.53	<b>Tees</b>				
7.54	50 x 25 mm diameter of GI tee	NO.	5		
7.55	25 x 20 mm diameter GI Tee	NO.	8		
7.56	<b>Reducers</b>				
7.57	50 x 25 mm diameter GI reducers	NO.	7		
7.58	25 x 20 mm diameter GI reducers	NO.	9		
7.59	<b>Unions</b>				
7.60	50 mm GI union	NO.	3		
7.61	25 mm diameter ditto	NO.	6		
7.62	20 mm diameter ditto	NO.	7		
7.63					
7.64	<b>Brass work</b>				
7.65	25 mm diameter sluice valve as 'pegler' or equal and approved	NO.	4		
<b>M3</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				-

ITEM NO.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
8.00	<b>hot water supply</b>				
8.01	<b>Piping:</b>				
8.02	40 mmØ PPRC Piping.	LM	22		
8.03	32mmØ Ditto.	LM	50		
8.04	25mmØ Ditto.	LM	100		
8.05					
8.06	<b>Fittings:</b>				
8.07	<b>90 Degree Bends:</b>				
8.08	40 mmØ PPRC 90 Degree Bends:	No.	6		
8.09	32 mmØ Ditto	No.	8		
8.10	25 mmØ Ditto	No.	8		
8.11	<b>Tees:</b>				
8.12	40 x 40 mmØ PPRC Tees	No.	6		
8.13	40 x 32 mmØ Ditto	No.	4		
8.14	40 x 25 mmØ Ditto	No.	10		
8.15	32 x 32 mmØ Ditto	No.	6		
8.16	25 x 25 mmØ Ditto	No.	8		
8.17	<b>Sockets:</b>				
8.18	40 mmØ PPRC Sockets	No.			
8.19	32 mmØ Ditto	No.	8		
8.20	25 mmØ Ditto	No.	20		
8.21					
8.22	<b>Reducers:</b>				
8.23	40 x 32 mmØ PPRC Reducers	No.	14		
8.24	32 x 25 mmØ Ditto	No.	8		
8.25					
8.26	<b>Stop Valves:</b>				
8.27	40 mmØ PPRC Stop Valves	No.	4		
8.28	32 mmØ Ditto	No.			
8.29	25 mmØ Ditto	No.			
8.30	20 mmØ Ditto	No.			
8.31					
8.32	<b>Pipe Clips:</b>				
8.33	40 mmØ PPRC Pipe Clips	No.	8		
8.34	32 mmØ Ditto	No.	6		
8.35	25 mmØ Ditto	No.	11		
8.36	<b>End Caps:</b>				
8.37	40 mmØ Ditto	No.	11		
8.38	32 mmØ Ditto	No.	10		
8.39	25 mmØ Ditto	No.			
8.40					
8.41	<b>Hot Water GI Piping</b>				
8.42	50mm Diameter GI pipe	LM	5		
8.43	25 mm ditto	LM	12		
8.44	20 mm diameter ditto	LM	10		
8.45	<b>Bends/elbows</b>				
8.46	50 mm diameter GI bend /elbow	NO.	7		
8.47	25 mm diameter GI bend /elbow	NO.	8		
8.48	20mm diameter GI ditto	NO.	5		
8.49	<b>Tees</b>				
8.50	50 x 25 mm diameter of GI tee	NO.	3		
8.51	25 x 20 mm diameter GI Tee	NO.	4		
8.52	<b>Reducers</b>				
8.53	50 x 25 mm diameter GI reducers	NO.	4		
8.54	25 x 20 mm diameter GI reducers	NO.	7		
8.55	<b>Unions</b>				
8.56	50 mm GI union	NO.	3		
8.57	25 mm diameter ditto	NO.	5		
8.58	20 mm diameter ditto	NO.	2		
8.59					
8.60	<b>Brass work</b>				
8.61	25 mm diameter sluice valve as 'pegler' or equal and approved	NO.	4		
8.62					
8.63	Allow for all the brackets and hangers to support the pipes	Item			
8.64	Allow a sum for testing and commissioning of the drainage	Item			
8.65	system to approval of the Engineer				
8.66					
8.67	Allow for "Air" and "Water" test for entire installation to the approval of the Engineer	Item	0		
<b>M4</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
No.					
9.00	<b><u>LABORATORY FUME HOODS</u></b>				
	<b>DUCTED</b>				
9.01	install and commission a Fume hood of exterior dimensions of 1800x873x1500mm and internal work area dimensions 1720x682x1435mm Maximum sash opening of 580mm,Exhaust outlet diameter 250mm and will require an extract fan rated at 1663 cu.m per hr @ 88pa ,outlet diameter 305mm.  <u>Material</u> Main body - Phenolic resin laminates Support frame - Alumunium extrusions with an oven-baked epoxy-plyester powder coated finish Interior baffle system - Esco resinate phenolic resin laminates Airfoil - Stainless steel grade 304  Power consumption- 25W(Fluourescent lighting )  The fume hood to be as "ESCO Frontier Mono" model EFH -6A ducted fume hood or equal and approved.	No	0		
9.02	<b>DUCTLESS</b> install and commission a Fume Hood of exterior dimensions of 1645x736x1485mm and internal work area dimensions 1575x596x765mm Inflow air velocity of 0.5m/s,Air flow rate 567m <sup>3</sup> /h  <u>Material</u> Main body - 1.2mm 18 gauge electrogalvanized steel with white oven baked epoxy polyester powder coated finish Front window - 6mm Acrylic Side walls - 9.5mm Acrylic Back walls - 1.2mm 18 gauge electrogalvanized steel Cabinate normal power- 315W The fume hood to be as "ESCO Frontier Mono" model EFH -6A ducted or equal and approved.	No	0		
9.03	<b><u>Fume Cupboard Extract Fan- For ducted fume hood</u></b> install and commission a Fume hood extract fan  capable of 0.46 m3/s (1663 m3/h )against a system pressure drop of 88 pa. Casing of the fan to be in rigid PVC, impellers moulded in phenolic resin and motor protected by sealing coat of polyurethane compound. Fan to be complete with motor starter, Electrical control panel fixed near the Fume cupboard with ON/OFF and trip and a manual override in the plant room, flexible connections anti-vibration mountings, supports. Fan to be as "WOODS" fume cupboard fan size 12" running at 1400 RPM or equal and approved equivalent.	No	0		
9.04	Distilled water generator as " Stuart model D4000" with a capacity of 4 liter/h single distillate or equal and approved.	No	0		
9.05	Class II Biosafety cabinet to EN 12469 as "TELSTAR" or equal and approved	No	0		
9.06	Epoxy resin Laboratory worktop measuring 1590mm x 2490mm x 19mm thick as " DURCON" or equal and to the approval of the Mechanical Engineer & Architect	No	0		
M5	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
No.					
	<b>COLLECTION PAGE</b>				
	<b>TOTAL BROUGHT FORWARD FROM:</b>				
M1	LAB DRAINAGE SYSTEM (Fittings for all floors)	ITEM	1	-	-
M2	LAB DRAINAGE SYSTEM (Fittings for all floors)	ITEM	1	-	-
M3	COLD WATER SUPPLY (per floor) TOTAL FOR 8 FLOORS	FLOOR	1 8	-	-
M4	HOT WATER SUPPLY (per floor) TOTAL FOR 8 FLOORS	ITEM	1 8	-	-
M5	FUME CUPBOARDS/EXTRACT FANS	ITEM	1	-	-
<b>A8</b>	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				-

**THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION  
LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B',  
NAIROBI**

**BILL OF QUANTITIES FOR SWIMMING POOL / SAUNA / STEAMBATH & GYM EQUIPMENTS**

<b>INSTALLATION &amp; COMMISSIONING ONLY</b>		<b>UNIT</b>	<b>QTY</b>	<b>Rate (Kshs)</b>	<b>Amount (Kshs)</b>
<b>ITEM</b>	<b>DESCRIPTION</b>				
<b>No.</b>					
	<b>SWIMMING POOL / SAUNA / STEAMBATH</b>				
1.01	<b>install and commission pool &amp; Filtration Equipment</b>				
1.02	Sand filter as "Dayliff DX 750", c/w media and MPV or equal and approved.	No.	0		
1.03	Pool pump as "DAVEY QP8" or equal and approved.	No.	0		
1.04	Automatic voltage switcher (AVS 15) or equal and approved.	No.	0		
1.05	Deck level grilles as "Dayliff" 250mm or equal and approved.	No.	0		
1.06	Certikin stainless steel 3 step ladder - for shallow end	No.	0		
1.07	Certikin stainless steel 4 step ladder - for deep end	No.	0		
1.08	Certikin eyeball inlets c/w water bar	No.	0		
1.09	Certikin vac points c/w water bar	No.	0		
1.10	Pool cleaning kit c/w floor brush, net, test kit, vac head, handle	No.	0		
1.11	300w Double transformer	No.	0		
1.12	300w Niche light c/w conduit	No.	0		
1.13	3" Suction pipes c/w water bars	No.	0		
1.14	300 x 300mm Suction gratings as "Dayliff" or equal	No.	0		
1.15	<b>STEAM BATH</b>				
1.16	<b>Steam generator Handling , Installation and commissioning</b>				
1.17	Install and commission 12.0 KW steam generator	No.	0		
1.18	<b>Deliver, install and commision the following items</b>				
1.19	<b>Recommended accessories</b>				
1.20	Lombardo steam bath lights	No.	0		
1.21	Local transformer 100VA, double wound	No.	0		
1.22	Thermometer	No.	0		
1.23	Helo sand filter timer	No.	0		
1.24	Eucalyptus oil	No.	0		
1.25	Helo standard kit No. 3	No.	0		
1.26	Steam generator auto clean valve	No.	0		
1.27	<b>Electricals</b>				
1.28	Distribution board to suit	No.	0		
1.29	Local electrical panel with under/over voltage protection	No.	0		
1.30	Supply and install accessories as necessary	No.	0		
1.31	<b>Water Supply</b>				
1.32	15mm Lime master gold	No.	0		
1.33	25mm Lime master gold	No.	0		
1.34	Jupiter AT 15-1 Water softener	No.	0		
1.35	Hardness test kit	No.	0		
<b>M1</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)      Amount (Kshs)	
1.36	<b><u>SAUNA</u></b>				
1.37	<b><u>Essential equipment:</u></b>				
1.38	12.0KW heaters	No.	0		
1.39	rock pieces to suit the installation	No.	0		
1.40	<b><u>Recommended accessories</u></b>		0		
1.41	Sauna lights	No.	0		
1.42	Helo thermometer	No.	0		
1.43	Helo hygrometer	No.	0		
1.44	Helo copper bucket	No.	0		
1.45	Helo sand timer	No.	0		
1.46	Camswitch	No.	0		
1.47	Local electronic panel with Under/Over voltage protection	No.	0		
1.48	install accessories as necessary	No.	0		
1.49	<b><u>Local interior</u></b>				
1.50	installation and commissioning of Materials for room interior	Item	0		
<b>M2</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
1.60	<b>GYM EQUIPMENT</b> Allow for supply and installation of the following gym equipment				
1.61	<b>Exercise Bike:</b>  <b>Specification/details:</b> Exercise Cycle / Braking System: Magnetic Resistance System / Adjustable Resistance: 12 Levels / Number of Training Programmes: 9 / Velocity Meter / Calorie Display / Timer / Height Adjustable Saddle / Ergometer / Pulse Measurement / Pulse Monitor: Chest Strap / Series: Technogym Forma / Maximum User Weight: 130 kg / Dimensions (LxWxH): 100 x 52 x 150 cm / Max. Performance: 450 watt / Weight: 67 kg	NO	0		
1.62	<b>TreadMill: TechnoGym Run Now 700 Visioweb</b>  <b>Specification/details:</b> Running Machine / Maximum Running Speed: 20 km/h / Power: 8 HP / Incline (max.): 18 % / Number of programmes: 11 / LCD Display / Pulse Measurement / Pulse Monitors: Chest Strap, Hand Grips / Maximum User Weight: 220 kg / Running Surface Length: 152 cm / Running Surface Width: 52 cm / Dimensions (LxWxH): 219 x 96 x 155 cm	NO	0		
1.63	<b>Treadmill: TechnoGym New Spazio Forma</b>  <b>Specification/details:</b> Running Machine / Operation: Motor / Folding / Maximum Running Speed: 16 km/h / Power: 2.75 HP / Incline (max.): 12 % / LCD Display / Pulse Measurement / Pulse Monitor: Chest Strap / Emergency Stop Function / LCD Display / Training Computer: Exercise Duration, Distance, Calorie Consumption / Maximum User Weight: 130 kg / Wheeled / Running Surface Length: 141 cm / Running Surface Width: 48 cm / Dimensions (folded): 165-84-79 cm	NO	0		
1.64	<b>Exercise Bikes: TechnoGym Recline Personal</b>  <b>Specification/details:</b> Recumbent Bike / Braking System: Magnetic Resistance System / Adjustable Resistance: 25 Levels / Number of Training Programmes: 23 / Velocity Meter / Calorie Display / Timer / Pulse Measurement / Pulse Monitors: Chest Strap, Hand Grips / Maximum User Weight: 180 kg / Dimensions (LxWxH): 140 x 62 x 137 cm / Weight: 85 kg	NO	0		
1.65	<b>Exercise Bikes: TechnoGym Bike Excite 700 SP</b>  <b>Specification/details:</b> Exercise Cycle / Adjustable Resistance: 25 Levels / Number of Training Programmes: 23 / LCD Display / Height Adjustable Saddle / Pulse Measurement / Pulse Monitors: Chest Strap, Hand Grips / Series: Technogym Excite / Maximum User Weight: 180 kg / Dimensions (LxWxH): 118.5 x 60 x 133.8 cm / Max. Performance: 500 watt / Weight: 61 kg	NO	0		
1.66	<b>Cross Trainer: TechnoGym Vario Excite 700</b>  <b>Specification/details:</b> Elliptical Cross Trainer / Number of Training Programmes: 21 / LCD Display / Calorie Display / Timer / Pulse Measurement / Pulse Monitor: Chest Belt / Series: TechnoGym Vario Excite / Maximum User Weight: 160 kg / Dimensions (LxWxH): 194 x 73 x 170 cm / Weight: 200 kg	NO	0		
<b>M3</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
1.67	<b><u>Cross Trainer: TechnoGym Synchro Excite 500</u></b>  <b>Specification/details:</b> Elliptical Cross Trainer / Number of Training Programmes: 11 / Adjustable Resistance: 25 Levels / LCD Display / Calorie Display / Pulse Measurement / Pulse Monitors: Chest Belt, Hand Grips / Series: Technogym Excite Synchro / Maximum User Weight: 180 kg / Dimensions (LxWxH): 204 x 70 x 160 cm / Max. Performance: 500 watt / Weight: 150 kg		NO	0	
1.68	<b><u>Strength training: TechnoGym Vertical Bench Element</u></b>  <b>Specification/details:</b> Shoulder Press / Exercise Bench / Weight Bench / Area of Use: Fitness Studio / Dimensions (LxWxH): 119.7 x 160.6 x 177.6 cm / Muscle Group: Shoulders / Exercise: Shoulder Shrugs		NO	0	
1.69	<b><u>Weights: Reebok Handweight 5kg</u></b>  <b>Specification/details:</b> Fitness Dumbbell / Hand Dumbbell / Area of Use: Home / Exercises: Bicep Curls, Triceps Kickbacks / Weight: 5 kg / Weights: 1 x 5,0 kg / Neoprene iron-coated weight / Colour: black		NO	0	
1.70	<b><u>Adidas Skipping Rope :(AD-11011)</u></b>  <b>Specification/details:</b> Skipping Rope / Weight: 0.35 kg / Length: 275 cm / Material: Leather / Non Slip		NO	0	
1.71	<b><u>Adidas Gym Ball AD-12240</u></b> <b>Specification/details:</b> Gym Ball / Weight: 1.5 kg / Diameter: 65 cm		NO	0	
1.72	<b><u>Adidas Olympic Bench</u></b>  <b>Specification/details:</b> Weight Bench / Area of Use: Home / Dimensions (LxWxH): 218 x 150 x 200 cm / Muscle Group: Chest / Exercise: Incline Bench Press		NO	0	
1.73	<b><u>Adidas Flat training Bench</u></b> <b>Specification/details:</b> Weight Bench / Area of Use: Home / Muscle Group: Chest / Exercise: Bench Presses		NO	0	
1.74	<b><u>Addidas Home Gym</u></b>  <b>Specification/details:</b> Multi Gym / Area of Use: Home / Maximum User Weight: 135 kg / Dimensions (LxWxH): 183 x 105 x 212 cm / Muscle Group: Total Body Trainer / Exercises: Back Training, Bench Presses, Chest Press, Lat Pulldowns, Leg Stretches, Butterfly / With 100kg weight stack		NO	0	
<b>M4</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				-

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b><u>COLLECTION PAGE:</u></b>				
1.00	<b>FROM M1</b>		1		
2.00	<b>FROM M2</b>		1		
3.00	<b>FROM M3</b>		1		
4.00	<b>FROM M4</b>		1		
A9	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				-

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b>					
<b>BILL OF QUANTITIES FOR WASTE COMPACTOR</b>					
<b>INSTALLATION &amp; COMMISSIONING ONLY</b>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
1.00	<p><b>Waste Compactor:</b></p> <p>install and commission the following complete with electrical controls and accessories</p> <p>1.00 install and commission a waste compactor capable of compacting bale sizes upto 100kg as "Orwak" Model No:3210 or equal with the following specifications:</p> <p>Dimensions:2170mmx100mmx833mm</p> <p>Weight:630KG</p> <p>Bale Size:50-80kg (800x600x700mm)</p> <p>Working pressure:235Bars</p> <p>Pressure Force:12t</p>	Lot	0		
1.01	<p><b>Testing &amp; Commissioning</b></p> <p>Allow for testing and commissioning of the waste compactor to the satisfaction approval of the engineer.</p>	Item	0		
A10	<b>TOTAL ESTIMATES TO SUMMARY PAGE</b>				-

**THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND  
INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811,  
DUNGA ROAD, SOUTH 'B', NAIROBI**

<b>INSTALL &amp; COMMISSION ONLY</b>			
ITEM No.	DESCRIPTION	UNIT	Amount (Kshs)
A0	SUBCONTRACT PRELIMINARIES	ITEM	
A1	ACCOMODATION PLUMBING AND DRAINAGE	ITEM	
A2	COMMON WASHROOMS PLUMBING AND DRAINAGE	ITEM	
A3	FIRE FIGHTING(BASEMENT SPRINKLERS,DRY RISER,HOSE REEL SYSTEM)	ITEM	
A4	GREY WASTE WATER TREATMENT	ITEM	
A5	TANNERY EFFLUENT TREATMENT PLANT	ITEM	
A6	RAINWATER DRAINAGE & HARVESTING	ITEM	
A7	SOLAR WATER HEATING	ITEM	
A8	SPECIAL LABORATORY FITTINGS ,DRAINAGE, PLUMBING & EQUIPMENTS	ITEM	
A8-1	NANOTECH LAB EQUIPMENT	ITEM	
A9	SWIMMING POOL & SAUNA	ITEM	
A10	WASTE COMPACTOR	ITEM	
	<b>SUBTOTAL</b>		
	ADD CONTIGENCY COSTS 10%	<b>10%</b>	
	<b>TOTAL CARRIED TO FORM OF TENDER</b>		

Total in words: .....
Name of Contractor: .....
Address: .....
Telephone: .....
Pin No. .... Vat Reg. No. ....
Signature: .....
Official Stamp/Date: .....

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b> <b>BILL OF QUANTITIES FOR PLUMBING DRAINAGE AND FIREFIGHTING</b>					
<b>SUPPLY, INSTALLATION &amp; COMMISSIONING</b>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
1.00	<b>SUBCONTRACT PRELIMINARIES AND GENERAL CONDITIONS:</b> <b>please specify any extendable preliminaries and pertinent rates</b>				
1.01	Provide bond as stated in the published conditions of subcontract	sum	1		
1.02	Provide insurance as required in the subcontract conditions	sum	1		
1.03	Prepare "As-built" drawings and manuals - 2 sets each . Scales to be 1:100 and 1:50 -soft copy to be issued in a flashdisk	sum	1		
1.04	Printing of copies of item 1.03 above.	sum	1		
1.05	Any other preliminary not included above	sum	1		
<b>NOTE:</b> <b>Vendor to visit the site and confirm materials available and condition.</b>					
<b>A0</b>	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				

<u>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</u>					
<u>BILL OF QUANTITIES FOR PLUMBING DRAINAGE AND WATER RETICULATION-ACCOMODATION</u>					
<u>SUPPLY , INSTALLATION &amp; COMMISSIONING</u>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
2.00	<b>ACCOMMODATION UNIT -PER FLOOR</b> <u>Supply, install ,test and commission the following:</u> <b>SANITARY FITTINGS:</b>				
2.01	Water closet suite as Twyford "AVALON BTW" comprising: AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved	NO	0		
2.02	Concealed cistern for water closet as "GEBERIT" having combifix element with UP182, front actuation": Factory setting-6 and 3 L; Flush range small-3/4 L; Flush range large-6/9L; Interruptible flush stop-6/9L; Code No. 110.171.00.1; with dual flush actuator as "DELTA 50 , matt chrome plate code No. 115.135.46.1 or equal and approved	NO	0		
2.02	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751, 1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal and approved	NO	0		
2.03	Mono Basin mixer with pop-up waste as ""EUROBATH"/"VADO" Model No. AXI-100-C/P rated at 0.2bar, LP Chrome.	NO	0		
2.03 a	15mm diameter chrome plated angle stop valve as "EUROBATH"/ "VADO" or equal and approved.	NO	0		
2.04	Bathtub as Twyford "Luna" of dimensions 1700x724,2 Center tap holes Ref.GA9572 Comprising:Callisto end panel Ref:PP1322,Chain waste,1½" and overflow chrome plated Ref:WF5650CP, Gold plated grips ref:BG1365A or equal and approved	NO	0		
2.04	Deck mounted Bath Shower Mixer with shower kit as "EUROBATH"/"VADO" H2O FR-SHOWER/9-C/P. 0.2 Bar LP Chrome. Model No. AXI-130+K-C/P or equal and approved	NO	0		
2.05	Concealed Shower valve with diverter as "EUROBATH"/"VADO" Model No. AXI-147-C/P, wall mounted with round backplate rated at 1.5bar MP chrome. Or equal and approved- <b>Cover plates on site to be installed</b>	NO	0		
2.06	Shower spout as " VADO"	NO.	0		
2.06	Wall mounted chrome Glass Tumbler and Holder as "EUROBATH"/"VADO" . Model No. SOH-183-C/P or equal and approved	NO	0		
2.06	Wall Mounted Chrome Glass Soap Dish and Holder as "EUROBATH"/"VADO". Model No. SOH-182-C/P or equal and approved	NO	11		
2.08	Wall Mounted Chrome Covered Paper Holder as "EUROBATH"/"VADO". Model No. SOH-180A-C/P or equal and approved	NO	11		
2.09	Wall Mounted ChromeTowel Ring as "EUROBATH"/"VADO".Model No. SOH-181-C/P or equal and approved	NO	11		
2.10	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH"/"VADO". Model No. SOH-188-C/P or equal and approved	NO	0		
2.11	Chrome Single Function Fixed shower Head and shower arm as "EUROBATH" "/VADO" FR-SHOWER/9-C/P. Model No. WG-SFKIT-C/P , LP chrome, rated at 0.2bar or equal and approved	NO	0		
2.12	Chrome Towel Shelf and Towel Rail as "EUROBATH" / "VADO". Model No. SOH-185A-C/P or equal and approved	NO	11		
2.13	600mm long ,Wall mounted Chrome Towel Rail as "EUROBATH" "/VADO". Model No. SOH-184-C/P or equal and approved	NO	11		
2.14	Wall mounted 900x600 mm Mirror with sensor operated Light as "EUROBATH" / "VADO". Model No. MIR-DASH-LIT or equal and approved	NO.	11		
M2	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
2.15	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO	11		
2.16	Single bowl, Single drain sink as "Associated Steel Limited" Complete with "P" Trap, waste fitting, plug and chainstay or equal and approved.	NO	2		
2.17	Wall mounted chrome sink mixer with goose neck spout as "EUROBATH" / "VADO" .Model No.WAR-254G-C/P rated at 0.2bar LP or equal and approved.	NO	2		
3.00	<b>DRAINAGE</b> <b>Supply install, test and commission:</b> <b>a) UPVC soil and waste system (above ground) comprising :</b> - UPVC soil and ventilating pipes , fittings and accessories to BS4514 - Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
3.01	<b>PIPING TO BS 4514:</b>				
3.02	100mmØ uPVC Pipe	LM	0		
3.03	50mmØ uPVC Pipe	LM	0		
3.04	40mmØ uPVC Pipe	LM	0		
3.05	32mmØ uPVC Pipe	LM	0		
3.06	<b>FITTINGS TO BS 4514:</b> <b>TEES</b>				
3.07	100mmØ uPVC Single branch access tee	No	0		
3.08	50mmØ uPVC Sweep tee	No	0		
3.09	40mmØ uPVC Sweep tee	No	0		
3.10	<b>PLUGS</b>				
3.11	100mmØ uPVC Plug	No	0		
3.12	50mmØ uPVC Plug	No	0		
3.13	40mmØ uPVC Plug	No	0		
3.14	<b>45° BRANCHES</b>				
3.15	100mmØ	No	0		
3.16	50mmØ	No	0		
3.17	40mmØ	No	0		
3.18	<b>90° BRANCHES</b>				
3.19	100mmØ	No	0		
3.20	50mmØ	No	0		
3.21	40mmØ	No	0		
3.22	<b>90° BENDS</b>				
3.23	100mmØ Inspection Bend	No	0		
3.24	50mmØ Inspection Bend	No	0		
3.25	40mmØ Inspection Bend	No	0		
3.26					
3.27	<b>CONNECTORS</b>				
3.28	100mmØ WC Connector	No	0		
3.29	100mmØ x 50mmØ Boss Connector	No	0		
3.30	100mmØ x 40mmØ Boss Connector	No	0		
3.31	<b>ACCESSORIES</b>				
3.32	100Ø Vent Cowl	No.	0		
3.33	100Ø Weathering slate	No.	0		
3.34	100mm x 50mm Floor trap complete with grating	No.	0		
3.35	Supply and install stainless steel grade 304 floor trap cover as "Dallmer series 15"or equal and approved.	No.	88		
M3	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
4.00	<b>INTERNAL PLUMBING:</b>				
4.01	<b>PIPING:</b> Supply , install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
	<b>Piping:</b>				
4.02	63mmØ PPRC Piping.	LM	0		
4.03	50mmØ PPRC Piping.	LM	0		
4.04	40 mmØ Ditto.	LM	0		
4.05	32 mmØ Ditto.	LM	0		
4.06	25 mmØ Ditto.	LM	0		
4.07	20 mmØ Ditto.	LM	0		
	<b>Fittings:</b>				
4.08	<b>90 Degree Bends:</b>				
4.09	63 mmØ PPRC 90 Degree Bends:	No.	0		
4.10	50 mmØ PPRC 90 Degree Bends:	No.	0		
4.11	40 mmØ Ditto	No.	0		
4.12	32 mmØ Ditto.	No.	0		
4.13	25 mmØ Ditto.	No.	0		
4.14	20 mmØ Ditto.	No.	0		
4.15	<b>Tees:</b>				
4.16	63 x 50 mmØ PPRC tees	No.	0		
4.17	50 x 40 mmØ PPRC tees	No.	0		
4.18	32 x 25 mmØ Ditto	No.	0		
4.19	25 x 20 mmØ Ditto	No.	0		
4.20	<b>Sockets:</b>				
4.21	50 mmØ PPRC Sockets	No.	0		
4.22	40 mmØ Ditto	No.	0		
4.23	25 mmØ Ditto	No.	0		
4.24	20 mmØ Ditto	No.	0		
4.25	<b>Reducers:</b>				
4.26	50 x 40 mmØ PPRC Reducers	No.	0		
4.27	40 x 25 mmØ Ditto	No.	0		
4.28	25 x 20 mmØ Ditto	No.	0		
4.29	<b>Stop Valves:</b>				
4.30	63 mmØ PPRC Reducers	No.	0		
4.31	50 mmØ Ditto	No.	0		
4.32	40 mmØ Ditto	No.	0		
4.33	32 mmØ Ditto	No.	0		
4.34	<b>Pipe Clips:</b>				
4.35	50 mmØ Pipe Clips	No.	0		
4.36	40 mmØ Ditto	No.	0		
4.37	25 mmØ Ditto	No.	0		
4.38	20 mmØ Ditto	No.	0		
4.39	<b>End Caps:</b>				
4.40	40 mmØ End caps	No.	0		
4.41	25 mmØ Ditto	No.	0		
4.42	20 mmØ Ditto	No.	0		
4.43	<b>Male Screwed Adapter:</b>				
4.44	50 mmØ PPRC Male Screwed Adapters	No.	0		
4.45	40 mmØ Ditto	No.	0		
4.46	25 mmØ Ditto	No.	0		
4.47	20 mmØ Ditto	No.	0		
<b>M4 TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>					

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
4.48	<b>Female Screwed Adapter:</b>				
4.49	50 mmØ Female Screwed Adapters	No.	0		
4.50	40 mmØ Ditto	No.	0		
4.51	25 mmØ Ditto	No.	0		
4.52	20 mmØ Ditto	No.	0		
4.53	<b>COPPER TUBING</b> 15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube. Flexible piping may also be used subject to approval by the engineer	No.	0		
<b>M5</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

COLLECTION PAGE					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
M2	SANITARY FITTINGS (per floor) TOTAL FOR 8 FLOORS	FLOORS	1 8	-	-
M3	DRAINAGE (per floor) TOTAL FOR 8 FLOORS	FLOORS	1 8		
M4	INTERNAL PLUMBING (per floor) TOTAL FOR 8 FLOORS	FLOORS	1 8		
M5	INTERNAL PLUMBING (per floor) TOTAL FOR 8 FLOORS	FLOORS	1 8		
<b>A1</b>	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b>					
<b>BILL OF QUANTITIES FOR PLUMBING DRAINAGE AND WATER RETICULATION FOR COMMON WASHROOMS</b>					
<b>SUPPLY, INSTALLATION &amp; COMMISSIONING</b>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
A	<b>GROUND FLOOR &amp; SUBFLOOR</b> <b>PLUMBING &amp; DRAINAGE</b> <b>Supply, install ,test and commission the following:</b> <b>SANITARY FITTINGS:</b>				
2.00		NO	0		
2.01	Water closet suite as Twyford "AVALON BTW" comprising: AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved.	NO	0		
2.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve, push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector. Model No:KF3.402 or equal and approved. <b>Cover plates on site to be fixed</b>	NO	0		
2.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal and approved.	NO	0		
2.04	Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved .	NO	0		
2.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO	14		
2.06	Wall Mounted Chrome Covered Paper Holder as "EUROBATH" / "VADO". Model No. SOH-180A-C/P or equal and approved.	NO	24		
2.07	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH" / "VADO". Model No. SOH-188-C/P or equal and approved.	NO	20		
2.08	700mm x700mm Square wall mounted mirror as "EUROBATH" / "VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.	NO	22		
2.09	Urinal bowl as "TWYFORD CLIFTON" ref. VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX  1 – ½ inch plastic grating with white plastic dome ref: WF9370XX 1 – ½ inch plastic bottle P Trap ref: WF8461CP	NO	5		
2.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	No.	0		
2.11	3/4 inch infra-red operated Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approved	No	0		
2.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	No	0		
M2	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
3.00	<b>PLUMBING &amp; DRAINAGE</b> <u>Supply, install ,test and commission the following:</u> <b>DRAINAGE</b> <u>Supply install, test and commission:</u> <b>a) UPVC soil and waste system (above ground) comprising :</b> UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color. <b>3.10 PIPING TO BS 4514:</b> 3.11 100mmØ uPVC Pipe 3.12 50mmØ uPVC Pipe 3.13 40mmØ uPVC Pipe 3.14 32mmØ uPVC Pipe <b>FITTINGS TO BS 4514:</b> <b>3.20 TEES</b> 3.21 100mmØ uPVC Single branch access tee 3.22 50mmØ uPVC Sweep tee 3.23 40mmØ uPVC Sweep tee <b>3.30 PLUGS</b> 3.31 100mmØ uPVC Plug 3.32 50mmØ uPVC Plug 3.33 40mmØ uPVC Plug <b>3.40 90° BENDS</b> 3.41 100mmØ Inspection Bend 3.42 50mmØ Inspection Bend 3.43 40mmØ Inspection Bend <b>3.50 CONNECTORS</b> 3.51 100mmØ WC Connector 3.52 100mmØ x 50mmØ Boss Connector 3.53 100mmØ x 40mmØ Boss Connector <b>3.60 ACCESSORIES</b> 3.61 100Ø Vent Cowl 3.62 100Ø Weathering slate 3.63 100mm Gully trap complete with grating <b>3.64 Supply and install stainless steel grade 304 floor trap cover as "Dallmer series 15" or equal and approved.</b> <b>b) u.P.V.C Underground Drainage System</b> These shall be as "Buried drain system" or equal and approved The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality. Colour shall be golden brown and all pipe work and fittings to be as "KEY TERRAIN" <b>3.70 PIPING TO BS 4660:</b> 3.71 150mmØ uPVC Pipe 3.72 100mmØ uPVC Pipe <b>3.80 FITTINGS TO BS 4660:</b> <b>TEES</b> 3.81 150mmØ uPVC Sweep tee 3.82 100mmØ uPVC Sweep tee <b>PLUGS</b> 3.83 150mmØ uPVC Plug 3.84 100mmØ uPVC Plug <b>BENDS</b> 3.85 150mmØ Inspection Bend 3.86 100mmØ Inspection Bend	LM	0		
M3	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
4.00	<b>INTERNAL PLUMBING:</b>				
4.01	<b>PIPING:</b> Supply, install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
	<b>Piping:</b>				
4.02	63mmØ PPRC Piping.	LM	0		
4.03	50mmØ PPRC Piping.	LM	0		
4.04	40 mmØ Ditto.	LM	0		
4.05	32 mmØ Ditto.	LM	0		
4.06	25 mmØ Ditto.	LM	0		
4.07	20 mmØ Ditto.	LM	0		
	<b>Fittings:</b>				
4.10	<b>90 Degree Bends:</b>				
4.11	63 mmØ PPRC 90 Degree Bends:	No.	0		
4.12	50 mmØ PPRC 90 Degree Bends:	No.	0		
4.13	40 mmØ Ditto	No.	0		
4.14	32 mmØ Ditto.	No.	0		
4.14	25 mmØ Ditto.	No.	0		
4.14	20 mmØ Ditto.	No.	0		
4.20	<b>Tees:</b>				
4.21	63 x 50 mmØ PPRC tees	No.	0		
4.22	50 x 40 mmØ PPRC tees	No.	0		
4.23	32 x 25 mmØ Ditto	No.	0		
4.23	25 x 20 mmØ Ditto	No.	0		
4.30	<b>Sockets:</b>			0	
4.31	50 mmØ PPRC Sockets	No.	0		
4.32	40 mmØ Ditto	No.	0		
4.33	25 mmØ Ditto	No.	0		
4.40	<b>Reducers:</b>			0	
4.41	50 x 40 mmØ PPRC Reducers	No.	0		
4.42	40 x 25 mmØ Ditto	No.	0		
4.43	25 x 20 mmØ Ditto	No.	0		
4.50	<b>Stop Valves:</b>				
4.51	63 mmØ Gate valve	No.	0		
4.52	50 mmØ Ditto	No.	0		
4.53	40 mmØ Ditto	No.	0		
4.54	32 mmØ Ditto	No.	0		
4.60	<b>Pipe Clips:</b>				
4.61	50 mmØ Pipe Clips	No.	0		
4.62	40 mmØ Ditto	No.	0		
4.63	25 mmØ Ditto	No.	0		
4.70	<b>End Caps:</b>				
4.71	40 mmØ End caps	No.	0		
4.72	25 mmØ Ditto	No.	0		
4.80	<b>Male Screwed Adapter:</b>				
4.81	50 mmØ PPRC Male Screwed Adapters	No.	0		
4.82	40 mmØ Ditto	No.	0		
4.83	25 mmØ Ditto	No.	0		
4.84	20 mmØ Ditto	No.	0		
4.90	<b>Female Screwed Adapter:</b>				
4.91	50 mmØ Female Screwed Adapters	No.	0		
4.92	40 mmØ Ditto	No.	0		
	<b>COPPER TUBING</b>				
4.95	15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube. Flexible piping may also be used subject to approval by the engineer	No.	0		
M4	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
B	<b>MEZZANINE FLOOR</b>  <b>PLUMBING &amp; DRAINAGE</b> <b>Supply, install ,test and commission the following:</b>				
5.00	<b>SANITARY FITTINGS:</b>				
5.01	Water closet suite as Twyford "AVALON BTW" comprising: AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved.	NO	5		
5.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve,push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector.Model No:KF3.402 or equal and approved.	NO	0		
5.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal and approved.	NO	0		
5.04	Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved.	NO	0		
5.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO	6		
5.06	Wall Mounted Chrome Covered Paper Holder as "EUROBATH"/"VADO". Model No. SOH-180A-C/P or equal and approved.	NO	12		
5.07	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH"/"VADO". Model No. SOH-188-C/P or equal and approved.	NO	12		
5.08	Square wall mounted mirror as "EUROBATH"/"VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.	NO	20		
5.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX  1 – ½ inch plastic grating with white plastic dome ref: WF9370XX 1 – ½ inch plastic bottle P Trap ref: WF8461CP	NO	2		
5.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	NO	0		
5.11	3/4 inch Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approved	NO	0		
5.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	NO	0		
M5	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
6.00	<b>PLUMBING &amp; DRAINAGE</b> <u>Supply, install ,test and commission the following:</u> <b>DRAINAGE</b> <u>Supply install, test and commission:</u> <b>a) UPVC soil and waste system (above ground) comprising :</b> UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color. <b>6.10 PIPING TO BS 4514:</b> 6.11 100mmØ uPVC Pipe 6.12 50mmØ uPVC Pipe 6.13 40mmØ uPVC Pipe 3.14 32mmØ uPVC Pipe <b>6.20 FITTINGS TO BS 4514:</b> <b>TEES</b> 6.21 100mmØ uPVC Single branch access tee 6.22 50mmØ uPVC Sweep tee 6.23 40mmØ uPVC Sweep tee <b>6.30 PLUGS</b> 6.31 100mmØ uPVC Plug 6.32 50mmØ uPVC Plug 6.33 40mmØ uPVC Plug <b>6.40 90° BENDS</b> 6.41 100mmØ Inspection Bend 6.42 50mmØ Inspection Bend 6.43 40mmØ Inspection Bend <b>6.50 CONNECTORS</b> 6.51 100mmØ WC Connector 6.52 100mmØ x 50mmØ Boss Connector 6.53 100mmØ x 40mmØ Boss Connector <b>6.60 ACCESSORIES</b> 6.61 100Ø Vent Cowl 6.62 100Ø Weathering slate 6.63 100mm Gully trap complete with grating <b>b) u.P.V.C Underground Drainage System</b> These shall be as "Buried drain system" or equal and approved The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality. Colour shall be golden brown and all pipe work and fittings to be as "KEY TERRAIN" <b>6.70 PIPING TO BS 4660:</b> 6.71 150mmØ uPVC Pipe 6.72 100mmØ uPVC Pipe <b>6.80 FITTINGS TO BS 4660:</b> <b>TEES</b> 6.81 150mmØ uPVC Sweep tee 6.82 100mmØ uPVC Sweep tee <b>6.90 PLUGS</b> 6.91 150mmØ uPVC Plug 6.92 100mmØ uPVC Plug <b>6.93 BENDS</b> 6.94 150mmØ Inspection Bend 6.95 100mmØ Inspection Bend	LM	0		
M6	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
7.00	<b>INTERNAL PLUMBING:</b>				
7.01	<b>PIPING:</b> Supply, install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings: <b>Piping:</b> 63mmØ PPRC Piping. 50mmØ PPRC Piping. 40 mmØ Ditto. 32 mmØ Ditto. 25 mmØ Ditto. 20 mmØ Ditto. <b>Fittings:</b> <b>90 Degree Bends:</b> 7.11 63 mmØ PPRC 90 Degree Bends: 7.12 50 mmØ PPRC 90 Degree Bends: 7.13 40 mmØ Ditto 7.14 32 mmØ Ditto. 7.15 25 mmØ Ditto. 7.16 20 mmØ Ditto. <b>Tees:</b> 7.21 63 x 50 mmØ PPRC tees 7.22 50 x 40 mmØ PPRC tees 7.23 32 x 25 mmØ Ditto 7.24 25 x 20 mmØ Ditto <b>Sockets:</b> 7.31 50 mmØ PPRC Sockets 7.32 40 mmØ Ditto <b>Reducers:</b> 7.41 50 x 40 mmØ PPRC Reducers 7.42 40 x 25 mmØ Ditto 7.43 25 x 20 mmØ Ditto <b>Stop Valves:</b> 7.51 63 mmØ Gate valve 7.52 50 mmØ Ditto 7.53 40 mmØ Ditto 7.54 32 mmØ Ditto <b>Pipe Clips:</b> 7.61 50 mmØ Pipe Clips 7.62 40 mmØ Ditto 7.63 25 mmØ Ditto <b>End Caps:</b> 7.71 40 mmØ End caps 7.72 25 mmØ Ditto 7.73 20 mmØ Ditto <b>Male Screwed Adapter:</b> 7.81 50 mmØ PPRC Male Screwed Adapters 7.82 40 mmØ Ditto 7.83 25 mmØ Ditto 7.84 20 mmØ Ditto <b>Female Screwed Adapter:</b> 7.91 50 mmØ Female Screwed Adapters 7.92 40 mmØ Ditto <b>COPPER TUBING</b> 15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube. Flexible piping may also be used subject to approval by the engineer	LM	0		
M7	TOTAL CARRIED FORWARD TO COLLECTION PAGE				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
C	<b>FIRST FLOOR AND SUBFLOOR</b> <b>PLUMBING &amp; DRAINAGE</b> <b>Supply, install ,test and commission the following:</b> <b>SANITARY FITTINGS:</b>				
8.00	<b>Supply, install ,test and commission the following:</b> <b>SANITARY FITTINGS:</b>				
8.01	Water closet suite as Twyford "AVALON BTW" comprising:AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved.	NO	15		
8.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve, push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector. Model No:KF3.402 or equal and approved.	NO	0		
8.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal	NO	0		
8.04	Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved .	NO	0		
8.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved or equal and approved.	NO	14		
8.07	Wall Mounted Chrome Covered Paper Holder as "EUROBATH"/"VADO". Model No. SOH-180A-C/P or equal and approved.	NO	26		
8.08	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH"/"VADO". Model No. SOH-188-C/P or equal and approved.	NO	23		
8.09	Square wall mounted mirror as "EUROBATH"/"VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.	NO	23		
5.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX  1 – 1/2 inch plastic grating with white plastic dome ref: WF9370XX 1 – 1/2 inch plastic bottle P Trap ref: WF8461CP	NO	5		
5.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	No.	0		
5.11	3/4 inch inra-red Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approved	No	0		
5.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	No	0		
8.11	Double bowl, double drain sink as "Associated Steel Limited" Complete with "P" Trap, waste fitting, plug and chainstay.	NO	1		
8.12	1/2 inch sink mixer, as " COBRA" number 266/041/10, CP, wall type with concealed connections adjustable from 128mm to 178mm or equal and approved.	NO	1		
8.13	Bath Shower Mixer deck mounted with shower kit as "EUROBATH"/"VADO" H2O FR-SHOWER/9-C/P. 0.2 Bar LP Chrome. Model No. AXI-130+K-C/P or equal and approved.	NO	0		
8.14	Concealed Shower valve with diverter as as "EUROBATH"/"VADO" wall mounted with round backplate, 1.5bar MP chrome. Model No. AXI-147-C/P or equal and approved.	NO	0		
8.15	Chrome Single Function Fixed Head and shower arm ,0.2 Bar LP as as "EUROBATH"/"VADO" FR-SHOWER/9-C/P. Model No. WG-SFKIT-C/P or equal and approved.	NO	0		
8.16	Wall Mounted Chrome Glass Soap Dish and Holder as as "EUROBATH"/"VADO". Model No. SOH-182-C/P or equal and	NO	4		
M8	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
9.00	<b>PLUMBING &amp; DRAINAGE</b> <u>Supply, install ,test and commission the following:</u> <b>DRAINAGE</b> <u>Supply install, test and commission:</u> <b>a) UPVC soil and waste system (above ground) comprising :</b> UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color. <b>PIPING TO BS 4514:</b> 9.11 100mmØ uPVC Pipe 9.12 50mmØ uPVC Pipe 9.13 40mmØ uPVC Pipe 32mmØ uPVC Pipe <b>FITTINGS TO BS 4514:</b> <b>TEES</b> 9.22 100mmØ uPVC Single branch access tee 9.23 50mmØ uPVC Sweep tee 9.30 40mmØ uPVC Sweep tee <b>PLUGS</b> 9.32 100mmØ uPVC Plug 9.33 50mmØ uPVC Plug 9.40 40mmØ uPVC Plug <b>90° BENDS</b> 9.42 100mmØ Inspection Bend 9.43 50mmØ Inspection Bend 40mmØ Inspection Bend <b>CONNECTORS</b> 9.52 100mmØ WC Connector 9.53 100mmØ x 50mmØ Boss Connector 100mmØ x 40mmØ Boss Connector <b>ACCESSORIES</b> 9.62 100Ø Vent Cowl 9.63 100Ø Weathering slate 100mm Gully trap complete with grating <b>b) u.P.V.C Underground Drainage System</b> These shall be as "Buried drain system" or equal and approved The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality. Colour shall be golden brown and all pipe work and fittings to be as "KEY TERRAIN" <b>PIPING TO BS 4660:</b> 150mmØ uPVC Pipe 100mmØ uPVC Pipe <b>FITTINGS TO BS 4660:</b> <b>TEES</b> 150mmØ uPVC Sweep tee 100mmØ uPVC Sweep tee <b>PLUGS</b> 150mmØ uPVC Plug 100mmØ uPVC Plug <b>BENDS</b> 150mmØ Inspection Bend 100mmØ Inspection Bend				
M9	TOTAL CARRIED FORWARD TO COLLECTION PAGE				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
10.00	<b>INTERNAL PLUMBING:</b>				
10.01	<b>PIPING:</b> Supply, install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
	<b>Piping:</b>				
10.02	63mmØ PPRC Piping.	LM	0		
10.03	50mmØ PPRC Piping.	LM	0		
10.04	40 mmØ Ditto.	LM	0		
10.05	32 mmØ Ditto.	LM	0		
10.06	25 mmØ Ditto.	LM	0		
10.07	20 mmØ Ditto.	LM	0		
	<b>Fittings:</b>				
10.10	<b>90 Degree Bends:</b>				
10.11	63 mmØ PPRC 90 Degree Bends:	No.	0		
10.12	50 mmØ PPRC 90 Degree Bends:	No.	0		
10.13	40 mmØ Ditto	No.	0		
10.14	32 mmØ Ditto.	No.	0		
10.15	25 mmØ Ditto.	No.	0		
	20 mmØ Ditto.	No.	0		
10.20	<b>Tees:</b>				
10.21	63 x 50 mmØ PPRC tees	No.	0		
10.22	50 x 40 mmØ PPRC tees	No.	0		
10.23	32 x 25 mmØ Ditto	No.	0		
10.24	25 x 20 mmØ Ditto	No.	0		
10.30	<b>Sockets:</b>				
10.31	50 mmØ PPRC Sockets	No.	0		
10.32	40 mmØ Ditto	No.	0		
10.33	25 mmØ Ditto	No.	0		
10.40	<b>Reducers:</b>				
10.41	50 x 40 mmØ PPRC Reducers	No.	0		
10.42	40 x 25 mmØ Ditto	No.	0		
10.43	25 x 20 mmØ Ditto	No.	0		
10.50	<b>Stop Valves:</b>				
10.51	63 mmØ Gate valve	No.	0		
10.52	50 mmØ Ditto	No.	0		
10.53	40 mmØ Ditto	No.	0		
10.54	32 mmØ Ditto	No.	0		
10.60	<b>Pipe Clips:</b>				
10.61	50 mmØ Pipe Clips	No.	0		
10.62	40 mmØ Ditto	No.	0		
10.70	<b>End Caps:</b>				
10.71	40 mmØ End caps	No.	0		
10.72	25 mmØ Ditto	No.	0		
10.73	20 mmØ Ditto	No.	0		
10.80	<b>Male Screwed Adapter:</b>				
10.81	50 mmØ PPRC Male Screwed Adapters	No.	0		
10.82	40 mmØ Ditto	No.	0		
10.83	25 mmØ Ditto	No.	0		
10.90	<b>Female Screwed Adapter:</b>				
10.91	50 mmØ Female Screwed Adapters	No.	0		
10.92	40 mmØ Ditto	No.	0		
10.93	25 mmØ Ditto	No.	0		
10.94	20 mmØ Ditto	No.	0		
10.95	15mm diameter tubing about 300mm long bent as required and including brass backnuts and jointing to GMS tube. Flexible piping may also be used subject to approval by the engineer	No.	0		
<b>M10</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
<b>D</b>	<b>SECOND FLOOR</b> <b>PLUMBING &amp; DRAINAGE</b> <b>Supply, install ,test and commission the following:</b> <b>SANITARY FITTINGS:</b>				
11.00	<b>Supply, install ,test and commission the following:</b> <b>SANITARY FITTINGS:</b>				
11.01	Water closet suite as Twyford "AVALON BTW" comprising:AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved.	NO	0		
11.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve,push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector.Model No:KF3.402 or equal .	NO	0		
11.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal	NO	0		
11.04	Electronic Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved.	NO	0		
11.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO	16		
11.06	Wall Mounted Chrome Covered Paper Holder as "EUROBATH" / "VADO". Model No. SOH-180A-C/P or equal and approved.	NO	22		
11.07	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH" / "VADO". Model No. SOH-188-C/P or equal and approved.	NO	18		
11.08	Square wall mounted mirror as "EUROBATH" / "VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.	NO	18		
5.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX  1 – ½ inch plastic grating with white plastic dome ref: WF9370XX 1 – ½ inch plastic bottle P Trap ref: WF8461CP	NO	4		
5.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	NO	0		
5.11	3/4 inch infra-red Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approved	NO	0		
5.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	NO	0		
11.11	Bath Shower Mixer deck mounted with shower kit as "EUROBATH" / "VADO" H2O FR-SHOWER/9-C/P. 0.2 Bar LP Chrome. Model No. AXI-130+K-C/P or equal and approved.	NO	0		
11.12	Concealed Shower valve with diverter as "EUROBATH" / "VADO" wall mounted with round backplate, 1.5bar MP chrome. Model No. AXI-147-C/P or equal and approved.	NO	0		
11.13	Chrome Single Function Fixed Head and shower arm ,0.2 Bar LP as "EUROBATH" / "VADO" FR-SHOWER/9-C/P. Model No. WG-SFKIT-C/P or equal and approved.	NO	0		
11.14	Wall Mounted Chrome Glass Soap Dish and Holder as "EUROBATH" / "VADO". Model No. SOH-182-C/P or equal and approved.	NO	12		
11.15	Chrome Towel Shelf and Towel Rail as "EUROBATH" / "VADO". Model No. SOH-185A-C/P or equal and approved.	NO	12		
11.16	Wall mounted Chrome 600mm Towel Rail as "EUROBATH" / "VADO". Model No. SOH-184-C/P or equal and approved.	NO	12		
<b>M11</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
12.00	<b>PLUMBING &amp; DRAINAGE</b> <u>Supply, install ,test and commission the following:</u> <b>DRAINAGE</b> <u>Supply install, test and commission:</u> <b>a) UPVC soil and waste system (above ground) comprising :</b> UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color. <b>PIPING TO BS 4514:</b> 12.11 100mmØ uPVC Pipe 12.12 50mmØ uPVC Pipe 12.13 40mmØ uPVC Pipe 32mmØ uPVC Pipe <b>FITTINGS TO BS 4514:</b> <b>TEES</b> 12.22 100mmØ uPVC Single branch access tee 12.23 50mmØ uPVC Sweep tee 12.30 40mmØ uPVC Sweep tee <b>PLUGS</b> 12.32 100mmØ uPVC Plug 12.33 50mmØ uPVC Plug 12.40 40mmØ uPVC Plug <b>90° BENDS</b> 12.42 100mmØ Inspection Bend 12.43 50mmØ Inspection Bend 40mmØ Inspection Bend <b>CONNECTORS</b> 12.52 100mmØ WC Connector 12.53 100mmØ x 50mmØ Boss Connector 100mmØ x 40mmØ Boss Connector <b>ACCESSORIES</b> 12.62 100Ø Vent Cowl 12.63 100Ø Weathering slate 100mm Gully trap complete with grating <b>b) u.P.V.C Underground Drainage System</b> These shall be as "Buried drain system" or equal and approved The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality. Colour shall be golden brown and all pipe work and fittings to be as "KEY TERRAIN" <b>PIPING TO BS 4660:</b> 150mmØ uPVC Pipe 100mmØ uPVC Pipe <b>FITTINGS TO BS 4660:</b> <b>TEES</b> 150mmØ uPVC Sweep tee 100mmØ uPVC Sweep tee <b>PLUGS</b> 150mmØ uPVC Plug 100mmØ uPVC Plug <b>BENDS</b> 150mmØ Inspection Bend 100mmØ Inspection Bend				
M12	TOTAL CARRIED FORWARD TO COLLECTION PAGE				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
13.00	<b>INTERNAL PLUMBING:</b>				
13.01	<b>PIPING:</b> Supply, install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
	<b>Piping:</b>				
3.02	63mmØ PPRC Piping.	LM	0		
3.03	50mmØ PPRC Piping.	LM	0		
3.04	40 mmØ Ditto.	LM	0		
3.05	32 mmØ Ditto.	LM	0		
3.06	25 mmØ Ditto.	LM	0		
3.07	20 mmØ Ditto.	LM	0		
	<b>Fittings:</b>				
13.10	<b>90 Degree Bends:</b>				
13.11	63 mmØ PPRC 90 Degree Bends:	No.	0		
13.12	50 mmØ PPRC 90 Degree Bends:	No.	0		
13.13	40 mmØ Ditto	No.	0		
13.14	32 mmØ Ditto.	No.	0		
13.15	25 mmØ Ditto.	No.	0		
13.20	20 mmØ Ditto.	No.	0		
13.21	<b>Tees:</b>				
13.22	63 x 50 mmØ PPRC tees	No.	0		
	50 x 40 mmØ PPRC tees	No.	0		
13.30	32 x 25 mmØ Ditto	No.	0		
13.31	25 x 20 mmØ Ditto	No.	0		
13.32	<b>Sockets:</b>				
13.33	50 mmØ PPRC Sockets	No.	0		
13.34	40 mmØ Ditto	No.	0		
	25 mmØ Ditto	No.	0		
13.10	20 mmØ Ditto	No.	0		
13.13	<b>Reducers:</b>				
13.13	50 x 40 mmØ PPRC Reducers	No.	0		
13.13	40 x 25 mmØ Ditto	No.	0		
13.50	25 x 20 mmØ Ditto	No.	0		
13.51	<b>Stop Valves:</b>				
13.52	63 mmØ Gate valve	No.			
13.53	50 mmØ Ditto	No.			
13.54	40 mmØ Ditto	No.			
13.60	32 mmØ Ditto	No.	0		
13.61	<b>Pipe Clips:</b>				
13.62	50 mmØ Pipe Clips	No.	0		
13.63	40 mmØ Ditto	No.	0		
13.71	<b>End Caps:</b>				
13.72	40 mmØ End caps	No.	0		
13.73	25 mmØ Ditto	No.	0		
13.80	20 mmØ Ditto	No.	0		
13.81	<b>Male Screwed Adapter:</b>				
13.82	50 mmØ PPRC Male Screwed Adapters	No.	0		
13.83	40 mmØ Ditto	No.	0		
13.90	20 mmØ Ditto	No.	0		
13.91	<b>Female Screwed Adapter:</b>				
13.92	50 mmØ Female Screwed Adapters	No.	0		
13.93	40 mmØ Ditto	No.	0		
13.94	25 mmØ Ditto	No.	0		
13.95	15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube. Flexible piping may also be used subject to approval by the engineer	No.	0		
M13	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
<b>E</b>	<b>THIRD &amp; TYPICAL FLOOR</b>				
<b>PLUMBING &amp; DRAINAGE</b>					
<b>Supply, install ,test and commission the following:</b>					
14.00	<b>SANITARY FITTINGS:</b>				
14.01	Water closet suite as Twyford "AVALON BTW" comprising: AD V1158 WC Pan , HO (Horizontal outlet) white in color. AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal and approved.	NO	0		
14.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve, push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector.Model No:KF3.402 or equal and approved.	NO	0		
14.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal and approved.	NO	0		
14.04	Electronic Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved.	NO	0		
14.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO	5		
14.06	Wall Mounted Chrome Covered Paper Holder as "EUROBATH" / "VADO". Model No. SOH-180A-C/P or equal and approved.	NO	12		
14.07	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH" / "VADO". Model No. SOH-188-C/P or equal and approved.	NO	5		
14.08	Square wall mounted mirror as "EUROBATH" / "VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.	NO	10		
5.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX  1 - 1/2 inch plastic grating with white plastic dome ref: WF9370XX 1 - 1/2 inch plastic bottle P Trap ref: WF8461CP	NO	1		
5.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	No.	0		
5.11	3/4 inch infra-red Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approved	No	0		
5.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	No	0		
<b>M14</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE (per floor)</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
15.00	<b>PLUMBING &amp; DRAINAGE</b> <u>Supply, install ,test and commission the following:</u> <b>DRAINAGE</b> Supply install, test and commission: a) <b>UPVC soil and waste system (above ground) comprising :</b> · UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255				
15.10	The pipe and fittings shall be colour grey, to British Standard				
15.11	5252:1976, 10.A.07 with the exception of water closet connections,				
15.15	which may be white in color.				
15.20	<b>PIPING TO BS 4514:</b>				
15.21	100mmØ uPVC Pipe	LM	50		
15.22	50mmØ uPVC Pipe	LM	0		
15.23	40mmØ uPVC Pipe	LM	0		
15.30	32mmØ uPVC Pipe	LM	0		
15.31	<b>FITTINGS TO BS 4514:</b>				
15.32	<b>TEES</b>				
15.33	100mmØ uPVC Single branch access tee	LM	9		
15.40	50mmØ uPVC Sweep tee	LM	0		
15.41	40mmØ uPVC Sweep tee	LM	0		
15.42	<b>PLUGS</b>				
15.43	100mmØ uPVC Plug	NO.	9		
15.44	50mmØ uPVC Plug	NO.	0		
15.50	40mmØ uPVC Plug	NO.	0		
15.51	<b>90° BENDS</b>				
15.52	100mmØ Inspection Bend	NO.	0		
15.53	50mmØ Inspection Bend	NO.	0		
	40mmØ Inspection Bend	NO.	0		
15.61	<b>CONNECTORS</b>				
15.62	100mmØ WC Connector	NO.	0		
15.63	100mmØ x 50mmØ Boss Connector	NO.	0		
15.64	100mmØ x 40mmØ Boss Connector	NO.	0		
	<b>ACCESSORIES</b>				
	100Ø Vent Cowl	NO.	0		
	100Ø Weathering slate	NO.	0		
	100mm Gully trap complete with grating	NO.	0		
b) <b>u.P.V.C Underground Drainage System</b>					
	These shall be as "Buried drain system" or equal and approved				
	The pipes and fittings shall comply in all respects to British Standard				
	4660:1973 and shall bear the British Standard Kite Mark and/or Kenya				
	Bureau of standards mark of quality.				
	Colour shall be golden brown and all pipe work and fittings to be as				
	"KEY TERRAIN				
15.70	<b>PIPING TO BS 4660:</b>				
15.71	150mmØ uPVC Pipe	LM	0		
15.72	100mmØ uPVC Pipe	LM	0		
	<b>FITTINGS TO BS 4660:</b>				
15.80	<b>TEES</b>				
15.81	150mmØ uPVC Sweep tee	NO.	0		
15.82	100mmØ uPVC Sweep tee	NO.	0		
15.83	<b>PLUGS</b>				
15.84	150mmØ uPVC Plug	NO.	0		
15.85	100mmØ uPVC Plug	NO.	0		
15.86	<b>BENDS</b>				
15.87	150mmØ Inspection Bend	NO.	0		
15.88	100mmØ Inspection Bend	NO.	0		
M15	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	
16.00	<b><u>INTERNAL PLUMBING:</u></b>			
16.01	<b>PIPING:</b> Supply , install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings: <b>Piping:</b> 63mmØ PPRC Piping. 50mmØ PPRC Piping. 40 mmØ Ditto. 32 mmØ Ditto. 25 mmØ Ditto. 20 mmØ Ditto. <b>Fittings:</b> <b>90 Degree Bends:</b> 63 mmØ PPRC 90 Degree Bends: 50 mmØ PPRC 90 Degree Bends: 40 mmØ Ditto 32 mmØ Ditto. 25 mmØ Ditto. 20 mmØ Ditto. <b>Tees:</b> 63 x 50 mmØ PPRC tees 40 x 25 mmØ PPRC tees 32 x 25 mmØ Ditto 25 x 20 mmØ Ditto <b>Sockets:</b> 50 mmØ PPRC Sockets 40 mmØ Ditto 25 mmØ Ditto 20 mmØ Ditto <b>Reducers:</b> 50 x 40 mmØ PPRC Reducers 40 x 25 mmØ Ditto 32 x 20 mmØ Ditto <b>Stop Valves:</b> 63 mmØ Gate valve 50 mmØ Ditto 40 mmØ Ditto 25 mmØ Ditto <b>Pipe Clips:</b> 50 mmØ Pipe Clips 40 mmØ Ditto <b>End Caps / plugs:</b> 40 mmØ End caps 25 mmØ Ditto 20 mmØ Ditto <b>Male Screwed Adapter:</b> 50 mmØ PPRC Male Screwed Adapters 40 mmØ Ditto <b>Female Screwed Adapter:</b> 32 mmØ Female Screwed Adapters 25 mmØ Ditto			
16.95	<b>COPPER TUBING</b> 15mm diameter tubing about 300mm long bent as required and including brass backnuts and joining to GMS tube. Flexible piping may also be used subject to approval by the engineer			
<b>M16</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>			

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
	<b>BASEMENT - 4 -PLUMBING &amp; DRAINAGE</b> <b>Supply, install ,test and commission the following:</b> <b>SANITARY FITTINGS:</b>				
17.00					
17.01	Water closet suite as Twyford "AVALON BTW" comprising: AD V1158 WC Pan , HO (Horizontal outlet) white in color.AV 7840 Seat and cover with chrome plated hinges complete with inlet connection hose, 1/2" angle stop valve and outlet drainage connection or equal .	NO	3		
17.02	Toilet flush valve as "ECONOFLUSH" concealed type with internal vacuum breaker,non-hold open feature and shut off valve,with pushfork and chrome plated push-button assembly comprising rough brass flushvalve,push-button assembly,elbow,straight flushpipes(rough brass) and rubber pipe connector.Model No:KF3.402 or equal .	NO	3		
17.03	Countertop Washhand basin as Twyford "Rhapsody 585" of nominal size 585 x 420 comprising of 1 center tap hole plate No. WB1751 ,1 1/4 inch P outlet plastic bottle trap ref. WF8482XX or equal	NO	2		
17.04	Electronic Electronic basin mixer as "Hansgrohe" Battery ,Operated Ref # 31172 or equal and approved.	NO	2		
17.05	White Melamine Automatic Hand Dryer as "MEDICLINICS". Model No. M96A or equal and approved.	NO	2		
17.06	Wall Mounted Chrome Covered Paper Holder as "EUROBATH" / "VADO". Model No. SOH-180A-C/P or equal and approved.	NO	3		
17.07	Wall Mounted Chrome Toilet Brush with Glass Holder as "EUROBATH" / "VADO". Model No. SOH-188-C/P or equal	NO	2		
17.08	Square wall mounted mirror as "EUROBATH" / "VADO" complete with mounting accessories model No.ELE-187/SQ or equal and approved.	NO	2		
5.09	Urinal bowl as "TWYFORD CLIFTON" ref: VC 7002 WH measuring 450x300x375mm with exposed flush pipes Or equal and approved comprising: Pair bowl supports wall hangers) ref: SR5307XX 1 - 1/2 inch plastic grating with white plastic dome ref: WF9370XX 1 - 1/2 inch plastic bottle P Trap ref: WF8461CP	NO	1		
5.10	Urinal Division as "TWYFORD" ref. VC 8051 WH complete with Hangers with screws ref.SR 5706 XX or equal and approved.	No.	0		
5.11	3/4 inch infrared Urinal flush valve,CP, exposed with integral shut-off and wall plate as "COBRA Model FJ6.000" or equal and approved	No	1		
5.12	Connector and spray rose,CP front entry urinal which completes FJ6.000 or equal and approved	No	1		
17.10	Bath Shower Mixer deck mounted with shower kit as "EUROBATH"/"VADO" H2O FR-SHOWER/9-C/P. 0.2 Bar LP Chrome. Model No. AXI-130+K-C/P or equal and approved.	NO	2		
17.11	Concealed Shower valve with diverter as "EUROBATH"/"VADO" wall mounted with round backplate, 1.5bar MP chrome. Model No. AXI-147-C/P or equal and approved.	NO	2		
17.12	Chrome Single Function Fixed Head and shower arm ,0.2 Bar LP as "EUROBATH" / "VADO" FR-SHOWER/9-C/P. Model No. WG-SFKIT-C/P or equal and approved.	NO	2		
17.13	Wall Mounted Chrome Glass Soap Dish and Holder as "EUROBATH"under "VADO". Model No. SOH-182-C/P or equal .				
17.14	Chrome Towel Shelf and Towel Rail as "EUROBATH" / "VADO". Model No. SOH-185A-C/P or equal and approved.	NO	2		
17.15	600 mmWall mounted Chrome 600mm Towel Rail as "EUROBATH" / "VADO". Model No. SOH-184-C/P or equal and approved.				
17.16	Double bowl, double drain sink as "Associated Steel Limited" Complete with "P" Trap, waste fitting, plug and chainstay.	NO	1		
17.17	1/2 inch sink mixer, as " COBRA" number 266/041/10, CP, wall type with concealed connections adjustable from 128mm to 178mm or equal and approved.	NO	1		
<b>M17</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
18.00	<b>PLUMBING &amp; DRAINAGE</b> <u>Supply, install ,test and commission the following:</u> <b>DRAINAGE</b> <u>Supply install, test and commission:</u> <b>a) UPVC soil and waste system (above ground) comprising :</b> UPVC soil and ventilating pipes , fittings and accessories to BS4514; Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color. <b>PIPING TO BS 4514:</b> 18.11 150mmØ uPVC Pipe 18.11 100mmØ uPVC Pipe 18.12 50mmØ uPVC Pipe 18.12 40mmØ uPVC Pipe <b>FITTINGS TO BS 4514:</b> <b>TEES</b> 18.21 100mmØ uPVC Single branch access tee 18.22 50mmØ uPVC Sweep tee 18.23 40mmØ uPVC Sweep tee <b>PLUGS</b> 18.31 100mmØ uPVC Plug 18.32 50mmØ uPVC Plug 18.33 40mmØ uPVC Plug <b>90° BENDS</b> 18.41 100mmØ Inspection Bend 18.42 50mmØ Inspection Bend 18.43 40mmØ Inspection Bend <b>CONNECTORS</b> 18.51 100mmØ WC Connector 18.52 100mmØ x 50mmØ Boss Connector 18.53 100mmØ x 40mmØ Boss Connector <b>ACCESSORIES</b> 18.61 100Ø Vent Cowl 18.62 100Ø Weathering slate 18.63 100mm Gully trap complete with grating <b>b) u.P.V.C Underground Drainage System</b> These shall be as "Buried drain system" or equal and approved The pipes and fittings shall comply in all respects to British Standard 4660:1973 and shall bear the British Standard Kite Mark and/or Kenya Bureau of standards mark of quality. Colour shall be golden brown and all pipe work and fittings to be as "KEY TERRAIN" <b>PIPING TO BS 4660:</b> 18.71 150mmØ uPVC Pipe 18.72 100mmØ uPVC Pipe <b>FITTINGS TO BS 4660:</b> <b>TEES</b> 18.81 150mmØ uPVC Sweep tee 18.82 100mmØ uPVC Sweep tee <b>PLUGS</b> 18.82 150mmØ uPVC Plug 18.84 100mmØ uPVC Plug <b>BENDS</b> 18.85 150mmØ Inspection Bend 18.86 100mmØ Inspection Bend	LM	20		
M18	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
19.00	<b><u>INTERNAL PLUMBING:</u></b>				
19.01	<b>PIPING:</b> Supply , install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings: <b>Piping:</b> 63mmØ PPRC Piping. 50mmØ PPRC Piping. 40 mmØ Ditto. 32 mmØ Ditto. 25 mmØ Ditto. 20 mmØ Ditto. <b>Fittings:</b> <b>90 Degree Bends:</b> 63 mmØ PPRC 90 Degree Bends: 50 mmØ PPRC 90 Degree Bends: 40 mmØ Ditto 32 mmØ Ditto. 25 mmØ Ditto. 20 mmØ Ditto. <b>Tees:</b> 63 x 50 mmØ PPRC tees 50 x 40 mmØ PPRC tees 32 x 25 mmØ Ditto 25 x 20 mmØ Ditto <b>Sockets:</b> 50 mmØ PPRC Sockets 40 mmØ Ditto 25 mmØ Ditto <b>Reducers:</b> 50 x 40 mmØ PPRC Reducers 40 x 25 mmØ Ditto 25 x 20 mmØ Ditto <b>Stop Valves:</b> 63 mmØ PPRC Reducers 50 mmØ Ditto 40 mmØ Ditto 32 mmØ Ditto <b>Pipe Clips:</b> 50 mmØ Pipe Clips 40 mmØ Ditto 25 mmØ Ditto <b>End Caps:</b> 40 mmØ End caps 25 mmØ Ditto 20 mmØ Ditto <b>Male Screwed Adapter:</b> 50 mmØ PPRC Male Screwed Adapters 25 mmØ Ditto 20 mmØ Ditto <b>Female Screwed Adapter:</b> 50 mmØ Female Screwed Adapters 40 mmØ Ditto <b>COPPER TUBING</b> 15mm diameter angle valve complete with flexible pipe for sanitary fittings	LM	10		
		LM	10		
		LM	10		
		LM	10		
		LM	10		
		LM	10		
		No.	0		
		No.	10		
		No.	10		
		No.	10		
		No.	10		
		No.	0		
		No.	0		
		No.	10		
		No.	10		
		No.	10		
		No.	10		
		No.	10		
		No.	10		
		No.	0		
		No.	0		
		No.	3		
		No.	3		
		No.	3		
		No.	10		
		No.	10		
		No.	10		
		No.	3		
		No.	3		
		No.	2		
		No.	5		
		No.	5		
		No.	3		
		No.	5		
		No.	5		
		No.	4		
<b>M19</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
20.00	<b>TYPICAL BASEMENT-3</b> <b>DRAINAGE</b> Supply install, test and commission: a) UPVC soil and waste system (above ground) comprising : - UPVC soil and ventilating pipes , fittings and accessories to BS4514 - Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
20.10	<b>PIPING TO BS 4514:</b>				
20.11	200mmØ uPVC Pipe	LM	0		
20.11	150mmØ uPVC Pipe	LM	0		
20.12	100mmØ uPVC Pipe	LM	0		
20.13	40mmØ uPVC Pipe	LM	0		
20.20	<b>FITTINGS TO BS 4514:</b>				
20.21	200mmØ uPVC Single branch access tee	LM	0		
20.22	150mmØ uPVC Sweep tee	LM	0		
20.23	50mmØ uPVC Sweep tee	LM	0		
20.30	<b>PLUGS</b>				
20.31	100mmØ uPVC Plug	NO.	0		
20.32	50mmØ uPVC Plug	NO.	0		
20.33	40mmØ uPVC Plug	NO.	0		
20.40	<b>90° BENDS</b>				
20.41	100mmØ Inspection Bend	NO.	0		
20.42	50mmØ Inspection Bend	NO.	0		
20.43	40mmØ Inspection Bend	NO.	0		
20.50	<b>CONNECTORS</b>				
20.52	200mmØ x 50mmØ Boss Connector	NO.	0		
20.53	100mmØ x 40mmØ Boss Connector	NO.	0		
20.60	<b>ACCESSORIES</b>				
20.61	100Ø Vent Cowl	NO.	0		
20.62	100Ø Weathering slate	NO.	0		
20.63	100Ø x50Ø Floor trap complete with grating	NO.	0		
M20	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
21.00	<b>TYPICAL BASEMENT-1&amp;2</b> <b>DRAINAGE</b> Supply install, test and commission: a) UPVC soil and waste system (above ground) comprising : - UPVC soil and ventilating pipes , fittings and accessories to BS4514 - Plastic waste pipe and fittings to BS 5255 The pipe and fittings shall be colour grey, to British Standard 5252:1976, 10.A.07 with the exception of water closet connections, which may be white in color.				
21.10	<b>PIPING TO BS 4514:</b>				
21.11	200mmØ uPVC Pipe	LM	0		
21.12	150mmØ uPVC Pipe	LM	0		
21.13	100mmØ uPVC Pipe	LM	0		
21.14	50mmØ uPVC Pipe	LM	0		
21.14	40mmØ uPVC Pipe	LM	0		
21.14	32mmØ uPVC Pipe	LM	0		
21.20	<b>FITTINGS TO BS 4514:</b>				
21.21	200mmØ uPVC Single branch access tee	LM	0		
21.22	150mmØ uPVC Sweep tee	LM	0		
21.23	50mmØ uPVC Sweep tee	LM	0		
21.30	<b>PLUGS</b>				
21.31	100mmØ uPVC Plug	NO.	0		
21.32	50mmØ uPVC Plug	NO.	0		
21.33	40mmØ uPVC Plug	NO.	0		
21.40	<b>90° BENDS</b>				
21.41	100mmØ Inspection Bend	NO.	0		
21.42	50mmØ Inspection Bend	NO.	0		
21.43	40mmØ Inspection Bend	NO.	0		
21.50	<b>CONNECTORS</b>				
21.52	200mmØ x 50mmØ Boss Connector	NO.	0		
21.53	100mmØ x 40mmØ Boss Connector	NO.	0		
21.60	<b>ACCESSORIES</b>				
21.61	100Ø Vent Cowl	NO.	0		
21.62	100Ø Weathering slate	NO.	0		
21.63	100Ø x50Ø Floor trap complete with grating	NO.	0		
M21	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE (per floor)</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
				-	
22.00	<b>WATER RETICULATION</b>				
22.01	<b>Water Tanks:</b>				
22.02	Supply, install and commission hot pressed steel sectional storage tank to BS 1564 and BS 5950 with a capacity of 55400 Liters as "Braithwaite - 4.88mx 4.88m x2.44m" or equal  Tank to have: 32mm diameter inlet connection 100mm outlet connection, 32mm overflow to the rain water gutter, 50mm wash out to the rain water gutter with a gate valve. Cover lid, 25mm diameter high pressure float valve.	No	0		
22.02	<b>PIPING:</b>				
22.03	Supply, install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
22.05	<b>Piping:</b>				
22.06	75mmØ PPRC Piping.	LM	0		
22.07	63 mmØ Ditto.	LM	10		
22.08	40 mmØ Ditto.	LM	10		
22.09	32mmØ Ditto.	LM	10		
22.10	25mmØ Ditto.	LM	10		
22.11	<b>Fittings:</b>				
22.12	<b>90 Degree Bends:</b>				
22.13	75 mmØ PPRC 90 Degree Bends:	No.	5		
22.14	63 mmØ Ditto	No.	5		
22.15	40 mmØ Ditto	No.	5		
22.16	32 mmØ Ditto	No.	5		
22.17	25 mmØ Ditto	No.	5		
22.18	<b>Tees:</b>				
22.19	75 x 63 mmØ PPRC Tees	No.	5		
22.20	50 x 32 mmØ Ditto	No.	5		
22.21	40 x 32 mmØ Ditto	No.	5		
22.21	40 x 25 mmØ Ditto	No.	5		
22.22	40 x 40 mmØ Ditto	No.	5		
22.19	32 x 32 mmØ PPRC Tees	No.	5		
22.20	32 x 25 mmØ Ditto	No.	5		
22.22	25 x 25 mmØ Ditto	No.	5		
22.23	<b>Sockets:</b>				
22.24	75 mmØ PPRC Sockets	No.	5		
22.25	63 mmØ Ditto	No.	5		
22.26	40 mmØ Ditto	No.	5		
22.27	32 mmØ Ditto	No.	5		
22.28	25 mmØ Ditto	No.	5		
22.29	<b>Reducers:</b>				
22.30	75 x 63 mmØ PPRC Reducers	No.	5		
22.31	63 x 40 mmØ Ditto	No.	5		
22.32	40 x 32 mmØ Ditto	No.	5		
22.33	40 x 25 mmØ Ditto	No.	5		
22.34	<b>Stop Valves:</b>				
22.35	75 mmØ PPRC Stop Valves	No.	5		
22.36	40 mmØ Ditto	No.	5		
22.37	32 mmØ Ditto	No.	5		
22.38	25 mmØ Ditto	No.	5		
22.40	<b>Pipe Clips:</b>				
22.41	75 mmØ PPRC Pipe Clips	No.	10		
22.42	63 mmØ Ditto	No.	10		
22.43	40 mmØ Ditto	No.	10		
22.44	32 mmØ Ditto	No.	10		
22.46	<b>End Caps:</b>				
22.47	40 mmØ Ditto	No.	10		
22.48	32 mmØ Ditto	No.	10		
<b>M22</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE (per floor)</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Amount (Kshs)	
	<b>Supply , install and commission GI piping class B to BS 1387:1985/EN 10255:2004 complete with fittings:</b>				
22.49	<b>Piping:</b>				
22.50	50mmØ GI Piping.	LM	20		
22.52	40 mmØ Ditto.	LM	20		
22.53	32mmØ Ditto.	LM	20		
22.54	25mmØ Ditto.	LM	20		
22.53	20mmØ Ditto.	LM	20		
22.54	15mmØ Ditto.	LM	20		
	<b>Fittings:</b>				
22.55	<b>50mm dia GI bend/elbow:</b>				
22.56	40 mmØ ditto:	No.	10		
22.57	32 mmØ Ditto	No.	10		
22.58	25 mmØ Ditto	No.	10		
22.57	20 mmØ Ditto	No.	10		
22.58	15 mmØ Ditto	No.	10		
	<b>Tees:</b>				
22.59	50mm dia GI equal tee	No.	8		
22.60	40 mm ditto	No.	5		
22.61	32 mm ditto	No.	5		
22.62	25 mm ditto	No.	5		
22.57	20 mmØ Ditto	No.	5		
22.58	15 mmØ Ditto	No.	5		
	<b>Unequal tee</b>				
22.63	50 x 40 mmdia GI unequal tee	No.	7		
22.64	50 x 32mm dia ditto	No.	5		
22.65	40 x 32mm ditto	No.	5		
22.66	32 x 25mm dia ditto	No.	5		
	<b>Reducers:</b>				
22.67	50 x 40 mmØ GI Reducer	No.	6		
22.68	40 x 32 mmØ Ditto	No.	5		
22.69	32 x 25 mmØ Ditto	No.	4		
22.57	20 mmØ Ditto	No.	5		
22.58	15 mmØ Ditto	No.	5		
22.55	<b>50mm dia GI Union:</b>				
22.56	40 mmØ ditto:	No.	5		
22.57	32 mmØ Ditto	No.	3		
22.58	25 mmØ Ditto	No.	5		
22.57	20 mmØ Ditto	No.	5		
22.58	15 mmØ Ditto	No.	5		
22.55	<b>50mm dia Nipples:</b>				
22.56	40 mmØ ditto:	No.	6		
22.57	32 mmØ Ditto	No.	5		
22.58	25 mmØ Ditto	No.	3		
22.57	20 mmØ Ditto	No.	5		
22.58	15 mmØ Ditto	No.	4		
	<b>Isolation Valve:</b>				
22.70	<b>100mm dia brass Stop valve</b>				
22.71	50 mmØ ditto	No.	5		
22.72	40 mmØ Ditto	No.	4		
22.73	32 mmØ Ditto	No.	4		
22.74	25 mmØ Ditto	No.	5		
<b>M23</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>			-	-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
				-	
	<b><u>WATER PUMPS:</u></b>				
23.00	<b>Domestic:</b>				
23.01	12m <sup>3</sup> /hr. at 85m w.g as Grundfos CR 15-7 Power requirement, 4.2 kW each or equal and approved complete with electrical panel, pressure and level controls.	NO	2		
23.10	<b>Basement drainage</b>				
23.11	A Submersible drainage pump as "GRUNDFOS Model DWK80.37" rated at 30m <sup>3</sup> /h at 22m water gauge. Driven by a 3.7kw, IE1, 3 phase AC Motor	NO	4		
23.10	<b>Underground water drainage</b>				
23.11	A Submersible drainage pump as "GRUNDFOS Model DWK80.37" rated at 30m <sup>3</sup> /h at 22m water gauge. Driven by a 3.7kw, IE1, 3 phase AC Motor	NO	4		
23.12	<b>Lift Pumps</b>				
23.13	Supply of lift drainage pump capable of delivering 15m <sup>3</sup> /h against a head of 20m w.g as "DAB model DRENAG FX : 15M-A" or equal and approved with dry contacts to connect to a building management system (BMS).	NO	4		
23.14	<b>Pressure booster pumpset for 10th floor &amp; penthouse</b>				
23.15	supply and install a pump as "Grundfos model No. CM3-4A rated at 2.5m <sup>3</sup> /h at 3 bar ; 0.5kW complete with automatic controls	NO	2		
M24	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

COLLECTION PAGE					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
M2	GROUND FLOOR SANITARY FITTINGS	FLOORS	1		
M3	GROUND FLOOR DRAINAGE	FLOORS	1		
M4	GROUND FLOOR INTERNAL PLUMBING	FLOORS	1		
M5	MEZZANINE FLOOR SANITARY FITTINGS	FLOORS	1		
M6	MEZZANINE FLOOR DRAINAGE	FLOORS	1		
M7	MEZZANINE FLOOR INTERNAL PLUMBING	FLOORS	1		
M8	FIRST FLOOR SANITARY FITTINGS	FLOORS	1		
M9	FIRST FLOOR DRAINAGE	FLOORS	1		
M10	FIRST FLOOR INTERNAL PLUMBING	FLOORS	1		
M11	SECOND FLOORS SANITARY FITTINGS	FLOORS	1		
M12	SECOND FLOORS DRAINAGE	FLOORS	1		
M13	SECOND FLOORS INTERNAL PLUMBING	FLOORS	1		
M14	THIRD&TYPICAL FLOORS SANITARY FITTINGS (per floor)	FLOORS	1		
	TOTAL FOR 8 FLOORS	FLOORS	8		
M15.	THIRD&TYPICAL FLOORS DRAINAGE (per floor)	FLOORS	1		
	TOTAL FOR 8 FLOORS	FLOORS	8		
M16	THIRD&TYPICAL FLOORS INTERNAL PLUMBING	FLOORS	1		
	TOTAL FOR 8 FLOORS	FLOORS	8		
M17	BASEMENT 4 - SANITARY FITTINGS	FLOORS	1		
M18	BASEMENT 4 - DRAINAGE	FLOORS	1		
M19	BASEMENT 4 -INTERNAL PLUMBING	FLOORS	1		
M20	BASEMENT DRAINAGE -3	FLOORS	1		
M21	TYPICAL BASEMENT DRAINAGE -1,2 (per basement)	FLOORS	1		
	TOTAL BASEMENT 1& 2		2		
M22	WATER RETICULATION & TANKS	ITEM	1		
M23	WATER RETICULATION	ITEM	1		
M24	WATER PUMPS	ITEM	1		
A2	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b>					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
A	<b>GROUND FLOOR</b>  <b>Supply, install ,test and commission the following:</b>  <b>FIRE PROTECTION SERVICES</b> <b>HOSE REEL SYSTEM</b> Supply, deliver and install galvanised mild steel tubing to BS 1387:1985/ EN 10255:2004 Class C. socket joints to BS 143 and galvanised malleable iron fittings including fixing and joints. Tenderers must allow in their pipe work prices for all the couplings, connectors, joints etc. required in the running length of pipe work and also where necessary, for pipe fixing Structural members.				
2.00					
2.10	<b>Pipe work.</b>				
2.11	65mm Diameter GI pipe	LM	10		
2.12	50 mm ditto	LM	10		
2.13	40 mm diameter ditto	LM	10		
2.14	32 mm diameter ditto	LM	10		
2.15	25 mm diameter ditto	LM	10		
2.20	<b>Bends/elbows</b>				
2.21	50 mm diameter GI bend /elbow	NO.	5		
2.22	25 mm diameter GI bend /elbow	NO.	5		
2.23	20mm diameter GI ditto	NO.	5		
2.30	<b>Tees</b>				
2.31	50 x 25 mm diameter of GI tee	NO.	4		
2.32	25 x 20 mm diameter GI Tee	NO.	4		
2.40	<b>Reducers</b>				
2.41	50 x 25 mm diameter GI reducers	NO.	4		
2.42	25 x 20 mm diameter GI reducers	NO.	5		
2.50	<b>Unions</b>				
2.51	50 mm GI union	NO.	5		
2.52	25 mm diameter ditto	NO.	4		
2.53	20 mm diameter ditto	NO.	4		
2.60	<b>Brass work</b>				
2.61	25 mm diameter sluice valve as 'pegler' or equal and approved	NO.	1		
2.62	Automatic non recessed swinging type hose real as EVERSAFE BL5274 or equal and approved with 30 meter long, 20 mm diameter reinforced rubber hose with an adjustable nozzle The hose real shall be complete with fixing brackets and nozzle cradle	NO.	2		
2.70	<b>Portable Fire Extinguishers Generator &amp; Switch rooms</b>				
2.71	4.5 KG Co2 gas fire Extinguisher to BS 5423 including the appropriate initial charge and mounting brackets	NO.	3		
2.72	9Kg drypowder fire extinguishers to BS5423 including the appropriate initial charge and mounting brackets	NO.	3		
2.80	<b>Testing &amp; Commissioning</b>				
2.81	Allow for testing and commissioning of the whole Fire fighting system to the satisfaction of the Engineer.	Item	1		
<b>M2</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
				0	
B	<b>MEZZANINE/FIRST/SECOND FLOOR</b>  <u>Supply, install ,test and commission the following:</u>  <b>FIRE PROTECTION SERVICES</b> <b>HOSE REEL SYSTEM</b>				
3.00					
3.10	<b>Pipe work.</b>				
3.11	50mm Diameter GI pipe	LM	10		
3.12	25 mm ditto	LM	10		
3.13	20 mm diameter ditto	LM	10		
3.20	<b>Bends/elbows</b>				
3.21	50 mm diameter GI bend /elbow	NO.	5		
3.22	25 mm diameter GI bend /elbow	NO.	4		
3.23	20mm diameter GI ditto	NO.	4		
3.30	<b>Tees</b>				
3.31	50 x 25 mm diameter of GI tee	NO.	5		
3.32	25 x 20 mm diameter GI Tee	NO.	5		
3.40	<b>Reducers</b>				
3.41	50 x 25 mm diameter GI reducers	NO.	4		
3.42	25 x 20 mm diameter GI reducers	NO.	4		
3.50	<b>Unions</b>				
3.51	50 mm GI union	NO.	5		
3.52	25 mm diameter ditto	NO.	4		
3.53	20 mm diameter ditto	NO.	5		
3.60	<b>Brass work</b>				
3.61	25 mm diameter sluice valve as 'pegler' or equal and approved	NO.	4		
3.62	Automatic non recessed swinging type hose reel as EVERSAFE BL5274 or equal and approved with 30 meter long, 20 mm diameter reinforced rubber hose with an adjustable nozzle The hose reel shall be complete with fixing brackets and nozzle cradle	NO.	4		
3.70	<b>Portable Fire Extinguishers Generator &amp; Switch rooms</b>				
3.71	4.5 KG Co2 gas fire Extinguisher to BS 5423 including the appropriate initial charge and mounting brackets	NO.	4		
3.73	9Kg drypowder fire extinguishers to BS5423 including the appropriate initial charge and mounting brackets	NO.	4		
3.80	<b>Testing &amp; Commissioning</b>				
3.81	Allow for testing and commissioning of the whole Fire fighting system to the satisfaction of the Engineer.	Item	2		
<b>M3</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
C	<b><u>3RD AND TYPICAL FLOOR</u></b>				
	<b><u>Supply, install ,test and commission the following:</u></b>				
	<b><u>FIRE PROTECTION SERVICES</u></b>				
4.00	<b><u>HOSE REEL SYSTEM</u></b> Supply, deliver and install galvanised mild steel tubing to BS 1387:1985/ EN 10255:2004 Class C. socket joints to BS 143 and galvanised malleable iron fittings including fixing and joints. Tenderers must allow in their pipe work prices for all the couplings, connectors, joints etc. required in the running length of pipe work and also where necessary, for pipe fixing Structural members.				
4.10	<b><u>Pipe work.</u></b>				
4.11	50mm Diameter GI pipe	LM	10		
4.12	25 mm ditto	LM	10		
4.14	20 mm diameter ditto	LM	10		
4.20	<b><u>Bends/elbows</u></b>				
4.21	50 mm diameter GI bend /elbow	NO.	5		
4.22	25 mm diameter GI bend /elbow	NO.	5		
4.23	20mm diameter GI ditto	NO.	5		
4.30	<b><u>Tees</u></b>				
4.31	50 x 25 mm diameter of GI tee	NO.	5		
4.32	25 x 20 mm diameter GI Tee	NO.	5		
4.40	<b><u>Reducers</u></b>				
4.41	50 x 25 mm diameter GI reducers	NO.	4		
4.42	25 x 20 mm diameter GI reducers	NO.	4		
4.50	<b><u>Unions</u></b>				
4.51	50 mm GI union	NO.	4		
4.52	25 mm diameter ditto	NO.	4		
4.53	20 mm diameter ditto	NO.	4		
4.60	<b><u>Brass work</u></b>				
4.61	25 mm diameter sluice valve as 'pegler' or equal and approved	NO.	4		
4.62	Automatic non recessed swinging type hose real as EVERSAFE BL5274 or equal and approved with 30 meter long, 20 mm diameter reinforced rubber hose with an adjustable nozzle The hose real shall be complete with fixing brackets and nozzle cradle	NO.	4		
4.70	<b><u>Portable Fire Extinguishers Generator &amp; Switch rooms</u></b>				
4.71	4.5 KG Co2 gas fire Extinguisher to BS 5423 including the appropriate initial charge and mounting brackets	NO.	3		
4.72	9Kg drypowder fire extinguishers to BS5423 including the appropriate initial charge and mounting brackets	NO.	3		
4.73	1/2 inch NPT automatic air vent as "SPIRAX SARCO Model AE 30" with maximum operating pressure of 10 bars or equal and approved.	No	2		
4.80	<b><u>Testing &amp; Commissioning</u></b>				
4.81	Allow for testing and commissioning of the whole Fire fighting system to the satisfaction of the Engineer.	Item	1		
<b>M4</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
5.00	<b>DRY RISER</b> Supply, deliver and install galvanised mild steel tubing to BS 1387:1985/ EN 10255:2004 Class C. socket joints to BS 143 and galvanised malleable iron fittings including fixing and joints. Tenderers must allow in their pipe work prices for all the couplings, connectors, joints etc. required in the running length of pipe work and also where necessary, for pipe fixing Structural members. <b>Pipe work</b> 5.01 150 mm diameter class "C" galvanized mild steel 5.02 65 mm Ditto <b>Fittings:</b> <b>90 Deg GI . Bends</b> 5.03 150 mm diameter bend 5.04 65 mm Ditto <b>Barrel Nipples</b> 5.05 65 mm diameter GI nipples <b>Steel threaded flanges:</b> 5.06 65mmmm threaded steel flanges <b>Tees</b> 5.07 150 x 150 mm tee 5.08 150 x 65 mm tee 5.09 65 x 65 mm tee <b>Unions/Flanges</b> 5.10 150 mm union 5.11 65 mm ditto <b>Sockets</b> 5.12 150 mm Socket 5.13 65 mm ditto <b>Reducers</b> 5.14 150 x 65 Reducers <b>Landing Valves</b> 5.15 65 mm bore Flanged Bib nose model LV-05 landing valve as "EVERSAFE" or equal and approved <b>Dry riser equipment</b> 5.16 4-way breeching inlet, model14 as " EVERSAFE" or equal and Approved Particular specification: Body material--copper/iron Outlet--flanged 150 mm diameter Inlet--4 x 65 mm diameter male inst. non return valves Caps--plastic; Finishing---red 5.17 <b>Hose cradle</b> as "EVERSAFE " model HC-1 with the following specifications: Body material : Aluminium alloy Hose size : 30m x 64mm diameter flat hose Movement: (180 deg (left to right) Finishing : red. 5.17a 65mm Nominal diameter x 30m long "UL" Listed Fire hose as "EVERSAFE" model T316-65 type 3 made of red rubber material to BS 6391 or equal and approved. 5.18 <b>Dry riser Nozzle:</b> Jet Nozzle complete with Branch pipe as "EVERSAFE" with the following specifications: Material: Aluminium alloy to BS 1490 Code No: JSN - 001-AL; Finishing: Natural Inlet Size: Male Instantaneous BS 336 Flow Rate at 65 PSI: 210L/ Min (12 mm dia.) 510 L/Min (19 mm dia) Throw Range at 65 PSI: 16 m (12 mm dia) 22 mm (19 mm dia.) 5.19 <b>Air Release Valve</b> 50mm diameter Air Release valve (8 to 15 bar) as "TYCO" or equal and approved 5.19 <b>Testing and Commissioning:</b> Allow for testing and commissioning of the system	LM LM No. No. No. No. No. No. No. No. No. No. No. No. No. No. No. No. Sum.	50 20 5 5 10 5 5 6 6 0 5 4 59 2 60 60 60 5 1		
<b>M5</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)
8.00	<b>SPRINKLER SYSTEM: TYPICAL BASEMENT-1,2,3</b>  Supply, deliver and install black mild steel tubing to BS 1387:1985/ EN 10255:2004 Class C. socket joints to BS 143 and galvanised malleable iron fittings including fixing and joints. Tenderers must allow in their pipe work prices for all the couplings, connectors, joints etc. required in the running length of pipe work and also where necessary, for pipe fixing Structural members.  <b>Black steel piping:</b>			
6.01	150 mm diameter tubing	LM.	20	
6.02	100 mm diameter tubing	LM.	20	
6.03	80 mm diameter tubing	LM.	20	
6.04	65 mm diameter tubing	LM.	20	
6.05	50 mm diameter tubing	LM.	20	
6.06	40 mm diameter tubing	LM.	20	
6.07	32 mm diameter tubing	LM.	20	
6.08	25 mm diameter tubing	LM.	20	
	<b>BENDS (Malleable iron):</b>			
6.09	150 mm diameter bend	No.	4	
6.10	100 mm diameter bend	No.	4	
6.11	80 mm diameter bend	No.	5	
6.12	65 mm diameter bend	No.	5	
6.13	50 mm diameter bend	No.	4	
6.14	40 mm diameter bend	No.	4	
6.15	32 mm diameter bend	No.	4	
6.16	25 mm diameter bend	No.	4	
	<b>TEES (Malleable iron):</b>			
6.17	150 x 150 x 150 mm equal tee	No.	5	
6.18	150 x 100 x 80 mm unequal tee	No.	5	
6.19	150 x 150 x 80 mm unequal tee	No.	5	
6.20	150 x 150 x 40 mm unequal tee	No.	5	
6.21	100 x 100 x 80 mm unequal tee	No.	2	
6.22	80 x 80 x 32 x 32 mm unequal tee	No.	2	
6.23	80 x 65 x 32 x 32 mm unequal tee	No.	2	
6.24	80 x 65 x 65 mm unequal tee	No.	2	
6.25	65 x 40 x 32 mm unequal tee	No.	2	
6.26	65 x 65 x 32 x 32 mm unequal tee	No.	2	
6.27	65 x 40 x 32 x 32 mm unequal tee	No.	2	
6.28	40 x 40 x 32 x 32 mm unequal tee	No.	2	
6.29	40 x 32 x 32 mm unequal tee	No.	2	
6.30	40 x 40 x 32 mm unequal tee	No.	2	
6.31	32 x 25 x 25 mm unequal tee	No.	2	
	<b>Reducers:</b>			
6.10	100 mm x 65mm diameter Reducer	No.	5	
6.12	65 mm diameter bend	No.	4	
6.14	40 mm diameter bend	No.	4	
6.15	32 mm diameter bend	No.	4	
	<b>Steel Flanges:</b>			
6.09	150 mm diameter bend	No.	3	
6.10	100 mm diameter bend	No.	3	
<b>M6</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>			-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
				0	
7.00	<b>Valves</b>				
7.01	<b>Installation control valve:</b> UL Listed and FM approved Sprinkler system installation control valve (alarm check valve complete with pressure gauges and an arrangement for gong) as " TYCO" or equal and approved	No.	1		
7.02	<b>Gate valves(UL Listed and FM approved):</b> 150 mm Ø , Cast Iron Gate Valve as "TYCO" or equal and approved	No.	0		
7.03	100 mm Ø, Ditto	No.	0		
7.04	80 mm Ø, Ditto	No.	0		
7.05	65 mm Ø, Ditto	No.	0		
7.06	<b>Sprinkler Head:</b> 15 mm diameter automatic sprinkler head: Pendant conventional pattern with a universal deflector and Red bulb for 68 degrees operating temperature. Manufactured by Fire kit international or equal and approved spare sprinkler heads as above Allow for connection to the existing system	No.	350		
<b>M7</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
8.00	<b>FIRE PROTECTION PUMPS</b>				
8.01	<b>Main sprinkler pumps</b> Supply, install and commission a fire pumpset to EN12845 as "DAYLIFF Model FLA 100M" consisting of one electric pump model DE50-20 rated at 50m <sup>3</sup> /h at 5bar and one diesel driven pump with a "Kholer" Engine model KD625-2 (17.1KW) with a single duty of 50m <sup>3</sup> /h at 5bar complete with an electrical control panel. The control panel to be equipped with interfaces for a building management system (BMS).The diesel engine shall be used as a back-up .	Set	1		
8.02	<b>Jockey pumps</b> Supply, install and commission a fire pump capable of delivering 8m <sup>3</sup> /h at 6 bar as GRUNDFOS Model CR15-5 rated at 4kW. or equal and approved complete with Pressure tanks, switches and electrical panel. The control panel to be equipped with interfaces for a building management system (BMS).	No	2		
8.03	<b>Hose reel pumps - At roof level</b>				
8.04	Supply, install and commission a pump as "GRUNDFOSS Model CR 10-4" with a capacity of 8.5 m <sup>3</sup> /h at 35 m water head complete with pressure and electrical controls conforming to EN 12845.The control panel to be equipped with interfaces for a building management system (BMS). or equal and approved	No	2		
8.05	A 24 litre pressure vessel to operate with the above pumps	No	2		
8.06	<b>Testing and Commissioning:</b>				
8.07	Allow for testing and commissioning of the whole fire Sprinkler system to the satisfaction of the Mechanical Engineer.	item	1		
<b>M8</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
				0	
9.00	<b>BASEMENT 4</b> <b>FIRE SUPPRESSION SYSTEM</b>  <b>SUPPLY INSTALL AND COMMISSION</b> <b>INERGEN FIRE SUPPRESSION SYSTEM AS BELOW</b> <b>(All in compliance with NFPA 2001 and CEA 4008) OR equal and approved</b> Inergen agent is a mixture of three inert gases-52% nitrogen; 40% argon and 8% carbon dioxide. <b>SUPPRESSION SYSTEM COMPONENTS</b> 9.01 Inergen cylinder , factory filled at 200bar/ 15°C; with a capacity of 20.7 kg, gas and 50Litre water; diameter -229 mm and height -1520mm. Cylinder material shall be alloy steel 34CrMo4 (EN 10083). 9.02 Cylinder assembly components including forged brass valve ; pressure gauge and a safety pressure relief device 9.03 Electric actuator to be interfaced through an autopulse control system 9.04 Manual actuator for lever actuation of the cylinder valve. <b>PRESSURE REDUCER</b> 9.06 A 2inch pressure reducer to restrict the flow of inergen agent thus reducing the pressure downstream of the reducer <b>NOZZLES</b> 9.07 1-1/2 inch, Acoustic Nozzle part No. 445710 as "ANSUL" 9.08 1-1/2 inch NPT Orifice pipe assembly part No. 445715 as "ANSUL" <b>PIPE MANIFOLD AND FITTINGS</b> 9.09 System Manifold constructed out of schedule 80 black steel piping to ASTM 53 seamless. 9.10 Allow for fittings which shall be malleable iron class 3000 Rated at 3000 psi. to ANSI / ASME B16.11 <b>DISTRIBUTION PIPING AND FITTINGS</b> 9.11 32mm schedule 40 black seamless steel piping 9.12 Allow for fittings which shall be malleable iron class 3000 Rated at 3000 psi.to ANSI / ASME B16.11 9.13 Allow for all accessories and anchorage 9.14 Allow for venting of the system  <b>CONTROL SYSTEM</b> 9.15 System control panel as "ANSUL" 9.16 Ionization detector 9.17 Optical detector 9.18 Remote manual pull station complete with corner pulley,bell and alarm. 9.19 Combined sounder/ beacon , shallow base 9.20 Fire resistant cabling 9.21 Isolating switch 9.22 Air conditioning and mechanical ventilation power shutdown system 9.23 Allow for all accessories and anchorage  9.24 Allow for installation testing and commissioning.				
<b>M9</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				-

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
10.00	<b>KITCHEN</b>				
10.01	<b>FIRE SUPPRESSION SYSTEM</b>				
	<b>SUPPLY INSTALL AND COMMISSION</b>				
	A wet chemical fire suppression system with extinguishing system as per NFPA 17A and NFPA 96; Detection and alarm control units as per NFPA 72; Electrical connections as per NFPA 70 as "KIDDE" or equal and approved.				
	<b>FIRE SUPPRESSION SYSTEM COMPONENTS AS " KIDDE" OR EQUAL:</b>				
10.02	34.9 kg capacity cylinder, Model No. WHDR-400M, part No. 87-120006-001. The cylinders shall be factory filled with "KIDDE" Fire systems APC wet chemical agent and pressurised with Nitrogen at 175 psi (at 70°F).	NO	1		
10.03	WHDR-400M Cylinder and valve assembly (12 Flow) part No. 87-120006-001	NO	1		
10.04	Discharge adaptor kit (one required for each cylinder) part No. 83-844908-000	NO	2		
10.05	Vent plug (one required for each set of piping) part No. 60-9196984-000	NO	2		
10.06	Pressure gauge shield part No. 83-131024-001	NO	2		
10.07	WHDR -400M wall mount bracket part No. 60-9197414-000	NO	2		
10.08	WHDR -400M shelf bracket (wall or floor mount ) part No. 87-100013-001	NO	2		
10.09	Floor mount kit for use with shelf bracket (on WHDR -400M)	NO	2		
10.10	System Valve actuator (one required per cylinder, one ships with each control head)	NO	2		
	<b>PIPING</b>				
10.11	20mm Schedule 40 Steel piping	LM	40		
10.12	Allow for all necessary fittings and Anchorage	LOT	1		
	<b>NOZZLES</b>				
10.13	3/8 NPT Nozzle type "F" Part No. 188350 as "KIDDE"	NO	6		
10.14					
10.15	<b>CONTROL SYSTEM</b>				
10.16	XV Control system (part No. 87-120099-001) enclosure as "KIDDE"	NO	1		
10.17	XV Control system components as "KIDDE" which shall include 1 No. 188110 pneumatic actuator; 1 No. 188900 nitrogen cartridge; 1 No. 188910 nitrogen test cartridge; 1 No. 188475 EMT connector kit and 2 No. 188920 microswitch.	Item	1		
10.18	Detector housing kit installation part No. 804548 as " KIDDE"	Item	1		
10.19	Ionization detector	NO	3		
10.20	Optical detector	NO	3		
10.21	Remote manual pull station complete with corner pulley, bell and alarm.	NO	1		
10.22	Combined sounder/ beacon, shallow base.	NO	2		
10.23	Fire resistant cabling	LM	50		
10.24	Main isolating switch	NO	1		
10.25	Ventilation / Air conditioning system shutdown system	NO	1		
10.26	Allow for all necessary accessories for a functional system	LOT	1		
10.27	Allow for installation and commissioning .	LOT	1		
<b>M10</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
				0	
11.00	<b>LPG STORAGE TANKS DELUGE FIRE PROTECTION SYSTEM</b> Supply, install and commission a deluge fire protection system including the following items:  Supply, deliver and install black mild steel tubing to BS 1387:1985/ EN 10255:2004 Class C. socket joints to BS 143 and galvanised malleable iron fittings including fixing and joints. Tenderers must allow in their pipe work prices for all the couplings, connectors, joints etc. required in the running length of pipe work and also where necessary, for pipe fixing Structural members.				
11.01	<b>PIPING:</b> <b>50 mm diameter tubing</b>	LM.	<b>20</b>		
11.02	<b>40 mm diameter tubing</b>	LM.	<b>40</b>		
11.03	<b>BENDS (Malleable iron):</b> <b>50 mm diameter bend</b>	No.	<b>6</b>		
11.04	<b>40 mm diameter bend</b>	No.	<b>10</b>		
11.05	<b>TEES (Malleable iron):</b> <b>50 x 50 x 50 mm equal tee</b>	No.	<b>2</b>		
11.06	<b>40 x 40 x 25 mm equal tee</b>	No.	<b>10</b>		
11.07	<b>REDUCERS</b> <b>50 mm x 40mm diameter Reducer</b>	No.	<b>2</b>		
11.08	<b>STEEL FLANGES</b> <b>50 mm diameter Flange</b>	No.	<b>2</b>		
11.09	<b>40 mm diameter Flange</b>	No.	<b>2</b>		
11.10	<b>5 litre capacity stainless steel (Grade 304) pressure accumulator (6 bar operating pressure- 10 bar test pressure)</b>	No.	<b>1</b>		
11.12	2 inch (50mm) diameter <b>Deluge valve</b> as "FLOW- AGE FT 100 D-A" to ANSI B16.5 Class 150 (20 barg) complete with pneumatic controls. Rated at continuous flow rate of 208 gpm (787 l/min) or equal and approved.	No.	<b>1</b>		
11.13	1 inch (25mm) <b>Open spray Nozzle</b> as "TYCO" Model HV-26 " with K= 40.3 (2.6) Equivalent to 80.5 l/min at 4 bar.	No.	<b>10</b>		
11.14	15mm compressed air filter/regulator with automatic drain, 15mm pressure gauge suitable for operating pressure gauge 0.5 - 10 bar. As "Spirax Monnier" model IP2A or approved equivalent.	NO	2		
11.15	Allow for all other accessories to make the system functional	Item	1		
11.16	Allow for testing and commissioning.	Item	1		
<b>M11</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				-

COLLECTION PAGE					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
M2	GROUND FLOOR HOSE REEL SYSTEM	FLOORS	1		
M3	MEZZANINE/FIRST/SECOND FLOOR HOSE REEL SYSTEM TOTAL FOR 3 FLOORS	FLOORS	1 3		
M4	THIRD/TYPICAL FLOORS HOSE REEL SYSTEM TOTAL FOR 8 FLOORS	FLOORS	1 8		
M5	DRY RISERS	ITEM	1		
M6	TYPICAL BASEMENT SPRINKLER SYSTEM TOTAL FOR 3 BASEMENTS	FLOORS	1 3		
M7	SPRINKLER SYSTEM VALVES	FLOORS	1		
M8	FIRE PROTECTION PUMPS	ITEMS	1		
M9	BASEMENT 4 FIRE SUPPRESSION	ITEMS	1		
M10	KITCHEN FIRE SUPPRESSION	ITEMS	1		
M11	LPG TANK DELUGE FIRE PROTECTION SYSTEM	ITEMS	1		
<b>A3</b>	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				

THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES  
AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI

<b><u>SUPPLY , INSTALLATION &amp; COMMISSIONING</u></b>					
ITEM No.	DESCRIPTION	UNIT	QTY	<b>Rate (Kshs)</b>	<b>Amount (Kshs)</b>
1.00	<p><b><u>Grey Water treatment plant</u></b></p> <p>Supply to site, fix, test and commission a Grey water treatment plant including all pumps,electrical items and accessories suitable for a population of 2800 persons.</p> <p>The system should consists of:</p> <p><b>Pre-filter</b> 150mm diameter leaf filter for horizontal mounting.The filter casing should be of HPDE and a stainless steel wire mesh.</p> <p><b>Multi-Media Skid</b> Complete with skid and pump sets</p> <p><b>Chlorine Dosing System</b> Includes electromagnetic dosing pumps set to dose at a manual pre-set level of 2ppm which equates to a dosing rate of 0.0186ml/litre.</p> <p><b>Control Unit</b> Should consist of electronic control system,internal break tank with air gap and variable speed dual duty/assist self priming booster centrifugal pumps.</p>	Item	1		
1.10	<p><b>Grey Water circulation pumps</b> Pump capable of delivering 5m<sup>3</sup>/hr at a head of 7 bar as Grundfos CR 15-5 or equal and approved. Power requirement is 4 Kw</p>	NO	2		
1.20	50mm diameter , 0-10 m <sup>3</sup> /h Grey water meter as kent or equal and approved	NO	2		
<b>A4</b>	<b>TOTAL FORWARD CARRIED TO SUMMARY PAGE</b>				-

THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI				
BOQ FOR TANNERY EFFLUENT TREATMENT PLANT				
SUPPLY, INSTALLATION & COMMISSIONING				
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs) Amount (Kshs)
1.00	Supply, deliver, install, test and commission the following Leather effluent treatment appliances complete with all the accessories including all connections to incoming drainage pipes, waste, jointing, supports and all plugging and screwing to walls and floors. Working drawings to be approved before commencement of the works.(A brief proposal is given in drawing No. EMS148/08/25 to assist in tender evaluation).	Item	1	
1.01	Allow for detailed design of the packaged treatment plant and working drawings.	Sum	1	
1.02	Allow for getting approvals from NEMA, Water Authorities and Local Council Authority for the plant.	Sum	1	
1.03	Allow for the construction of the steel structure which will form the base for the effluent plant.The structure to be complete with a roof.	Item	1	
1.04	Allow for all the associated civil and builders works	Item	1	
1.05	Allow for electrical wiring and control cabling for all the pumps and the treatment plant.	Item	1	
M1	TOTAL CARRIED FORWARD TO COLLECTION PAGE			

ITEM	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
No.					
2.00	Allow for carrying out monthly effluent quality monitoring and maintenance of the plant for twelve months commencing from the date of practical completion.	Item	1		
2.01	Allow for preparation of the "As installed drawings", operation and maintenance manual of the plant after practical completion.	Item	1		
2.02	Allow for testing and commissioning of the effluent treatment plant installation to the satisfaction of the Engineer.	Item	1		
2.03	Any other item necessary for proper functioning of the system(List them below)	Item	1		
<b>M2</b>	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				

COLLECTION PAGE FOR LEATHER EFFLUEN TREATMENT PLANT

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	TOTAL BROUGHT FORWARD FROM:				
1	FROM M1				-
2	FROM M2				-
A5	TOTAL CARRIED FORWARD TO SUMMARY PAGE				-

THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI				
BOQ FOR RAINWATER GOODS				
SUPPLY, INSTALLATION & COMMISSIONING				
ITEM NO.	DESCRIPTION	UNIT	QTY	Rate (Ksh) Amount (Kshs)
<b>RAINWATER DRAINAGE</b>				
22.01	install and commision a rain water drainage system to BS EN 12056-3-2000 using UPVC pipes and fittings to BS EN 1329 as "TERRAIN" or equal			
22.02	110Ø Upvc Downpipe	LM	126	
22.03	110Ø half round Gutter as "Polypipe"	No	0	
22.04	110Ø 90°Upvc bend	No.	36	
22.05	180Ø Plain Gutter as "Polypipe"	LM	0	
22.06	180Ø Gutter Support Bracket as "polypipe"	No.	0	
22.07	180Ø Click-fit Gutter Corners as "polypipe"	No.	0	
22.08	180Ø Click-fit Running Outlet as "polypipe"	No.	0	
22.09	180Ø Click-fit stop end "polypipe"	No.	0	
22.10	180Ø Click-fit stop end with running outlet "polypipe"	No.	0	
22.11	110Ø Down Pipe Clips as "polypipe"	No.	49	
22.12	Adjustable Rafters as "polypipe"	No.	0	
22.13	82Ø Doomed grid as "TERRAIN" ref: 9980	No.	12	
22.14	82Ø Flat grid as "TERRAIN" ref: 9981	No.	12	
22.15	82Ø Body grid as "TERRAIN" ref: 9982	No.	12	
<b>RAINWATER HARVESTING TANKS</b>				
21.01	<b>Water Tanks:</b>	No	0	
21.02	Supply, install and commission hot pressed steel sectional storage tank to BS 5950 or BS 449 with capacity of 75 m³ Tank to have: 32mm diameter inlet connection 50mm outlet connection, 25mm overflow to the rain water gutter, 25mm wash out to the rain water gutter with a gate valve. Cover lid, 25mm diameter high pressure float valve.			
<b>WATER PUMPS:</b>				
23.00	<b>Domestic:</b>			
23.01	10m³ /hr. at 7bar as Grundfos CR 15-5 Power requirement, 4.kW each complete with electrical panel, pressure and level controls.	NO	2	
23.02	<b>Rainwater harvesting filter as" 3P TECHNIK" or equal</b> <b>Filter to be according to DIN 1989-2 Type C with connection</b> inlet : 2 x DN 100 (110MM OD). Outlet into tank: DN 100 (110mm OD) Outlet into sewer: DN 125. Housing material : polythene Filter cartridge: Stainless steel 1.4301 , mesh: 0.65mm Height difference between filter inlet and outlet: 300mm	No.	2	
23.03	100mm Diameter UPVC Fulbora as "TERRAIN" or equal	NO	0	
A6	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>			

**THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION**  
**LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B'.**  
**NAIROBI**  
**BILLS OF QUANTITIES FOR SOLAR WATER HEATING**

<b>SUPPLY , INSTALLATION &amp; COMMISSIONING</b>				
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs) Amount (Kshs)
1.00	<p><b>Solar collector/ Hot water storage cylinder:</b>            Superline L MODEL SWD 23/220 with the following specifications or equal:            Collector area (m<sup>2</sup>) : 2.3, weight: 41kg, fluid capacity (liters): 2.8, Maximum heat output / day (kwh):12.5, minimum heat output/day (kwh): 8.4 , Tank capacity (liters): 220, electric booster heater: 3kw, tank weight (kgs): 81.</p> <p><b>Collector general specifications:</b>  <u>Tubing grid general specification:</u>            20mm Copper waterways silver-blazed to conduction.            copper riser pipes and manifolds with an optimal ratio between diameters.  <u>Absorber Plate general specifications:</u>            black coated copper absorber ultrasonically welded to the risers  <u>Working Pressure:</u> 3.5 bars  <u>Test pressure:</u> 14 Bar            dimensions: 1890mm long x 1200mm wide  <u>Hot Water Storage Cylinder general specifications</u>  <u>Material:</u>            st-37 with 3mm thick steel (Stainless steel/mild steel hot dipped galvanized)  <u>Insulation:</u>            50 mm. High density Polyurethane foam sprayed  <u>cylinder Casing:</u>            24 g Mild Steel Galvanized / Sprayed painted  <u>Working Pressure:</u> 3.5 bars  <u>Test pressure:</u> 5 Bar            Overall dimensions (collector and tank): (2680mm long x 1480mm wide)            Maximum flow rate (m<sup>3</sup>/h ) : 2            Inlet :(3/4 inch BSP), outlet : (3/4 inch BSP)</p>	NO	0	
1.02	2000 Liter capacity Central stainless steel hot water storage tank with heat exchanger for thermal fluid	No	0	
1.03	Hot water Circulating pump as "Grundfos model UPS 65-120" rated at 10m <sup>3</sup> /h at 10m.w.g	NO	0	
1.04	Thermal fluid (glycol) circulation pump as "Grundfos Alpha model PP3 rated at 2m <sup>3</sup> /h at 3 m.w.g.	NO	0	
1.05	Temperature and pressure relief valve for solar systems to EN 1490: 7-10 BAR. Set temperature: 90°C, Pressure setting: 6,7 and 10 bar	NO	5	
1.06	Chrome plated automatic air vent for solar thermal systems. Maximum working pressure: 10 bar, maximum discharge pressure: 5 bar, temperature range -30 to 200°C	NO	5	
1.07	25mm diameter chrome plated shut-off cock complete with seal as "CLIMACENTO" or equal ; maximum working pressure: 10 bar and temperature range -30 to 200°C	No	10	
M2	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>			

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
2.00	<b>Distribution Piping &amp; fittings:</b> Supply , install and commission CAGTHERM PPRC Piping to PN 20 DIN 8077-78 PPRC 3 TM 95 complete with fittings: <b>Piping:</b> 2.01 50mmØ PPRC Piping. 2.02 40 mmØ Ditto. 2.03 32 mmØ Ditto. 2.04 25 mmØ Ditto. <b>Fittings:</b> 2.06 90 Degree Bends: 2.07 50 mmØ PPRC 90 Degree Bends: 2.08 40 mmØ Ditto 2.09 32 mmØ Ditto. 2.10 25 mmØ Ditto. <b>Tees:</b> 2.12 50 x 50 mmØ PPRC tees 2.13 40 x 32 mmØ PPRC tees 2.14 32 x 25 mmØ Ditto <b>Sockets:</b> 2.16 50 mmØ PPRC Sockets 2.17 40 mmØ Ditto 2.18 25 mmØ Ditto <b>Reducers:</b> 2.20 50 x 40 mmØ PPRC Reducers 2.21 40 x 25 mmØ Ditto 2.22 25 x 20 mmØ Ditto <b>Stop Valves:</b> 2.24 50 mmØ Ditto 2.25 40 mmØ Ditto 2.26 25 mmØ Ditto <b>Pipe Clips:</b> 2.28 <b>Pipe clips:</b> 2.29 50 mmØ Pipe Clips 2.30 40 mmØ Ditto 2.31 25 mmØ Ditto <b>End Caps:</b> 2.33 40 mmØ End caps 2.34 25 mmØ Ditto <b>Male Screwed Adapter:</b> 2.36 50 mmØ PPRC Male Screwed Adapters 2.37 40 mmØ Ditto 2.38 25 mmØ Ditto <b>Female Screwed Adapter:</b> 2.40 50 mmØ Female Screwed Adapters 2.41 40 mmØ Ditto 2.42 25 mmØ Ditto 2.43 Allow for testing and commissioning of the solar water heating system <b>2.44 Allow for labour in compliance with Energy (solar water heating) regulations 2025.</b>	LM	200		
		LM	200		
		LM	100		
		LM	300		
		No.	100		
		No.	100		
		No.	100		
		No.	100		
		No.	150		
		No.	150		
		No.	150		
		No.	10		
		No.	20		
		No.	40		
		No.	10		
		No.	20		
		No.	18		
		No.	4		
		No.	4		
		No.	20		
		No.	10		
		No.	20		
		No.	50		
		No.	5		
		No.	5		
		No.	20		
		No.	20		
		No.	20		
		No.	15		
		No.	10		
		No.	15		
		Item	1		
		Item	1		
M2	<b>TOTAL CARRIED FORWARD TO COLLECTION PAGE</b>				-

COLLECTION PAGE					
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
M1	Solar collectors	ITEM	1		
M2	PPR Piping & fittings	ITEM	1		
A2	TOTAL CARRIED FORWARD TO SUMMARY PAGE				

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b>				
<b>BILL OF QUANTITIES FOR LABORATORIES SERVICES</b>				
<b>SUPPLY, INSTALLATION &amp; COMMISSIONING</b>				
ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs) Amount (Kshs)
1.10	Supply, install and commission the following drainage & plumbing fittings: <b>ALL FLOORS</b> <b>DRAINAGE SYSTEM AS VULCATHENE OR EQUAL AND APPROVED</b>			
1.11	Sink Bench sink as "vulcathene" Cat No. 601 with a self draining base. the recessed outlet will accept the flange of the 1½" BSP 504 non-overflow threaded outlet.	No.	5	
1.20	<b>Drip cup</b> 501 small circular Drip Cup as "vulcathene" with an integral grating and a wall thickness of 3mm	No.	2	
1.30	<b>Dilution Recovery Trap</b> Dilution Recovery Trap - 2.3 litres capacity as "Vulcathene" W612 of Diameter 230mm.	No.	5	
1.40	<b>Waste outlet</b> Unslotted Waste outlet as "vulcathene" Cat. No. 504. 2"BSP threaded waste	No.	5	
1.50	<b>Standing Waste Tube</b> Standing Waste Tube as "vulcathene" in relation with 2" BSP threaded	No.	3	
1.60	<b>Pipe coupler</b> W15 F.I pipe coupler as "vulcathene" 38mm W15 F.I pipe coupler as "vulcathene" 51mm	No. No.	10 10	
2.00	<b>pipe</b> W001 pipes as "vulcathene" to be supplied in standard 4m length			
2.10	Ø152mm	No.	0	
2.20	Ø102mm(SVP)	No.	5	
2.30	Ø76mm	No.	5	
2.40	Ø51mm	No.	20	
2.50	Ø38mm	No.	20	
3.00	<b>Single Wye</b> W37 45° Single Wye as "vulcathene" with standard nuts and olive connections:			
3.10	W374 102mm	No.	2	
3.20	W373 76mm	No.	2	
3.30	W372 51mm	No.	5	
3.40	W371 38mm	No.	5	
4.00	<b>Sweep bend (90° &amp; 45°)</b> W29 92½°Loose Nut Sweep Bend as "vulcathene" one end with a standard nut and olive connection whilst the other has a captive nut for connection to threaded units:			
4.10	W294 Ø102mm	No.	0	
4.20	W293 Ø76mm	No.	3	
4.30	W292 Ø51mm	No.	5	
4.40	W291 Ø38mm	No.	5	
4.50	<b>U' bend</b> U' bend as vulcathene W70 76mm AND 51mm	No.	10	
<b>M1</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>			

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
5.00	<b>Reducers-Couplers</b> W39 Reducing Coupler as "vulcathene" with nut and olive connections on the small diameter end while the spigot end is grooved:				
5.01	W3921 Ø51x38	No.	10		
5.02	W3931 Ø76x38	No.	5		
5.03	W3932 Ø76x51	No.	5		
5.04	W3941 Ø102x38	No.	5		
5.05	W3942 Ø102x51	No.	5		
5.06	W3943 Ø102x76	No.	2		
5.07					
5.08	<b>Reducers-Sweeps</b>				
5.09	W39 Reducing Coupler as "vulcathene" with nut and olive connections				
5.10	W3921 Ø51x51x38	No.	10		
5.11	W3931 Ø76x76x38	No.	5		
5.12	W3932 Ø76x76x51	No.	5		
5.13	W3941 Ø102x102x51	No.	5		
5.14					
5.15	<b>Sweep Tees</b>				
5.16	W3921 Ø51x38	No.	10		
5.17	W3931 Ø76x38	No.	5		
5.18	W3932 Ø76x51	No.	5		
5.19	W3942 Ø102x51	No.	5		
5.20	W3943 Ø102x76	No.	5		
5.21					
5.22	<b>Hex Nipples</b>				
5.23	Ø102mm(SVP)	No.	2		
5.24	Ø76mm	No.	2		
5.25	Ø51mm	No.	2		
5.26	Ø38mm	No.	2		
<b>M2</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
6.00	<b>Cold water supply</b> Supply , install and commission CAGTHERM PPRC Piping to PN DIN 8077-78 PPRC 3 TM 95 complete with fittings:				
6.01	<b>Piping:</b> 40 mmØ PPRC Piping.	LM	6		
6.02	32mmØ Ditto.	LM	6		
6.03	25mmØ Ditto.	LM	6		
6.05	<b>Fittings:</b>				
6.06	<b>90 Degree Bends:</b> 40 mmØ PPRC 90 Degree Bends:	No.	5		
6.07	32 mmØ Ditto	No.	4		
6.08	25 mmØ Ditto	No.	4		
6.10	<b>Tees:</b> 40 x 40 mmØ PPRC Tees	No.	5		
6.11	40 x 32 mmØ Ditto	No.	5		
6.12	40 x 25 mmØ Ditto	No.	5		
6.13	32 x 32 mmØ Ditto	No.	5		
6.14	32 x 25 mmØ Ditto	No.	5		
6.15	25 x 25 mmØ Ditto	No.	4		
6.16					
6.17	<b>Sockets:</b> 40 mmØ PPRC Sockets	No.	5		
6.18	32 mmØ Ditto	No.	5		
6.19	25 mmØ Ditto	No.	5		
6.21					
6.22	<b>Reducers:</b> 40 x 32 mmØ PPRC Reducers	No.	4		
6.23	32 x 25 mmØ Ditto	No.	4		
6.25	<b>Stop Valves:</b> 40 mmØ PPRC Stop Valves	No.	1		
6.26	32 mmØ Ditto	No.	1		
6.27	25 mmØ Ditto	No.	1		
6.29	20 mmØ Ditto	No.	1		
6.30					
6.31	<b>Pipe Clips:</b> 40 mmØ PPRC Pipe Clips	No.	5		
6.32	32 mmØ Ditto	No.	5		
6.33	25 mmØ Ditto	No.	5		
6.35					
6.36	<b>End Caps:</b> 40 mmØ Ditto	No.	4		
6.37	32 mmØ Ditto	No.	4		
6.38	25 mmØ Ditto	No.	4		
6.40					
6.41	<b>Tap</b> VG800110 Mixer tap as "vulcathene" with Swivel swanneck and aerator	No.	0		
6.43					
6.44					
6.45	<b>Cold Water GI Piping</b>				
6.46	50mm Diameter GI pipe	LM	0		
6.47	25 mm ditto	LM	0		
6.48	20 mm diameter ditto	LM	0		
6.49	<b>Bends/elbows</b>				
6.50	50 mm diameter GI bend /elbow	NO.	0		
6.51	25 mm diameter GI bend /elbow	NO.	0		
6.52	20mm diameter GI ditto	NO.	0		
6.53	<b>Tees</b>				
6.54	50 x 25 mm diameter of GI tee	NO.	0		
6.55	25 x 20 mm diameter GI Tee	NO.	0		
6.56	<b>Reducers</b>				
6.57	50 x 25 mm diameter GI reducers	NO.	0		
6.58	25 x 20 mm diameter GI reducers	NO.	0		
6.59	<b>Unions</b>				
6.60	50 mm GI union	NO.	0		
6.61	25 mm diameter ditto	NO.	0		
6.62	20 mm diameter ditto	NO.	0		
6.63					
6.64	<b>Brass work</b>				
6.65	25 mm diameter sluice valve as 'pegler' or equal and approved	NO.	0		
<b>M3 TOTAL CARRIED TO COLLECTION PAGE</b>					

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b><u>hot water supply</u></b>				
7.00	<b>Piping:</b>				
7.01	40 mmØ PPRC Piping.	LM	6		
7.02	32mmØ Ditto.	LM	6		
7.03	25mmØ Ditto.	LM	6		
7.04	<b>Fittings:</b>				
7.05	<b>90 Degree Bends:</b>				
7.06	40 mmØ PPRC 90 Degree Bends:	No.	4		
7.07	32 mmØ Ditto	No.	4		
7.08	25 mmØ Ditto	No.	4		
7.09	<b>Tees:</b>				
7.10	40 x 40 mmØ PPRC Tees	No.	5		
7.11	40 x 32 mmØ Ditto	No.	5		
7.12	40 x 25 mmØ Ditto	No.	5		
7.13	32 x 32 mmØ Ditto	No.	5		
7.14	25 x 25 mmØ Ditto	No.	5		
7.15	<b>Sockets:</b>				
7.16	40 mmØ PPRC Sockets	No.	0		
7.17	32 mmØ Ditto	No.	4		
7.18	25 mmØ Ditto	No.	4		
7.19	<b>Reducers:</b>				
7.20	40 x 32 mmØ PPRC Reducers	No.	4		
7.21	32 x 25 mmØ Ditto	No.	5		
7.22	<b>Stop Valves:</b>				
7.23	40 mmØ PPRC Stop Valves	No.	2		
7.24	32 mmØ Ditto	No.	0		
7.25	25 mmØ Ditto	No.	0		
7.26	20 mmØ Ditto	No.	0		
7.27	<b>Pipe Clips:</b>				
7.28	40 mmØ PPRC Pipe Clips	No.	4		
7.29	32 mmØ Ditto	No.	4		
7.30	25 mmØ Ditto	No.	4		
7.31					
7.32	<b>End Caps:</b>				
7.33	40 mmØ Ditto	No.	3		
7.34	32 mmØ Ditto	No.	3		
7.35	25 mmØ Ditto	No.	3		
7.36					
7.37	<b>Hot Water GI Piping</b>				
7.38	50mm Diameter GI pipe	LM	6		
7.39	25 mm ditto	LM	6		
7.40	20 mm diameter ditto	LM	6		
7.41	<b>Bends/elbows</b>				
7.42	50 mm diameter GI bend /elbow	NO.	2		
7.43	25 mm diameter GI bend /elbow	NO.	2		
7.44	20mm diameter GI ditto	NO.	2		
7.45	<b>Tees</b>				
7.46	50 x 25 mm diameter of GI tee	NO.	2		
7.47	25 x 20 mm diameter GI Tee	NO.	3		
7.48	<b>Reducers</b>				
7.49	50 x 25 mm diameter GI reducers	NO.	2		
7.50	25 x 20 mm diameter GI reducers	NO.	2		
7.51	<b>Unions</b>				
7.52	50 mm GI union	NO.	2		
7.53	25 mm diameter ditto	NO.	2		
7.54	20 mm diameter ditto	NO.	2		
7.55					
7.56	<b>Brass work</b>				
7.57	25 mm diameter sluice valve as 'pegler' or equal and approved	NO.	0		
7.58	Allow for all the brackets and hangers to support the pipes	Item	1		
7.60					
7.61					
7.62	Allow a sum for testing and commissioning of the drainage system to approval of the Engineer	Item	1		
7.64					
7.65	Allow for "Air" and "Water" test for entire installation to the approval of the Engineer	Item	1		
7.66					
<b>M4</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	
8.00	<b>LABORATORY FUME HOODS</b> Supply, install and commission the following laboratory equipment: <b>DUCTED</b>				
8.01	Supply, deliver and install a Fume hood of exterior dimensions of 1800x873x1500mm and internal work area dimensions 1720x682x1435mm Maximum sash opening of 580mm, Exhaust outlet diameter 250mm and will require an extract fan rated at 1663 cu.m per hr @ 88pa ,outlet diameter 305mm.	No	13		
8.02					
8.03	<b>Material</b>				
8.04	Main body - Phenolic resin laminates Support frame - Alumunium extrusions with an oven-baked epoxy-plyester powder coated finish Interior baffle system - Esco resinate phenolic resin laminates Airfoil - Stainless steel grade 304. Power consumption- 25W(Fluorescent lighting )	No	13		
8.05					
8.06	<b>DUCTLESS</b>				
8.07	Supply, deliver and install a Fume Hood of exterior dimensions of 1645x736x1485mm and internal work area dimensions 1575x596x765mm Inflow air velocity of 0.5m/s,Air flow rate 567m <sup>3</sup> /h				
8.08					
8.09	<b>Material</b>				
8.10	Main body - 1.2mm 18 gauge electrogalvanized steel with white oven baked epoxy polyester powder coated finish; Front window - 6mm Acrylic; Side walls - 9.5mm Acrylic; Back walls - 1.2mm 18 gauge electrogalvanized steel; Cabinet normal power- 315W; The fume hood to be as "ESCO Frontier Mono" model EFH -6A ducted or equal and approved.	No	12		
8.11					
8.12	<b>Fume Cupboard Extract Fan- For ducted fume hood</b>				
8.13	Supply, deliver and install a Fume hood extract fan capable of 0.46 m <sup>3</sup> /s (1663 m <sup>3</sup> /h) against a system pressure drop of 88 pa. Casing of the fan to be in rigid PVC, impellers moulded in phenolic resin and motor protected by sealing coat of polyurethane compound. Fan to be complete with motor starter, Electrical control panel fixed near the Fume cupboard with ON/OFF and trip and a manual override in the plant room, flexible connections anti-vibration mountings, supports. running at 1400 RPM or equal and approved equivalent.	No	7		
8.14					
8.15	Distilled water generator as " Stuart model D4000" with a capacity of 4 liter/h single distillate or equal and approved.	No	5		
8.16	Class II Biosafety cabinet to EN 12469 as "TELSTAR" or equal and approved	No	21		
	Epoxy resin Laboratory worktop measuring 1590mm X 2490mm x 19mm thick as " DURCON" or equal and to the approval of the Mechanical Engineer & Architect				
<b>M5</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>MISCELLANEOUS LABORATORY EQUIPMENT</b>				
	<b>Supply, install and commission the following laboratory equipment:</b>				
9.10	<b>Integrated cooker hood for kitchen facility 3rd floor Lab tower</b>				
9.11	Supply and install integrated cooker hood as "FABER PB BK A60 Strip chimney BI Hood , 60CM BLACK" containing the following: 2 x 28 w lamps, Dishwasher safe cassettes, 3 speeds, 380m <sup>3</sup> /h, 60cm black hood complete with filters or equal and approved.	No	1		
9.12	<b>stainless steel floor trap covers</b>				
9.13	supply and install stainless steel grade 304 floor trap covers as "Dallmer series 15" or equal and approved	No	100		
9.14	<b>stainless steel sink &amp; fittings for kitchen facility 3rd , 5th&amp; 8th floor floor lab tower .</b>				
9.15	Double bowl, Double drain sink as "Associated Steel Limited" Complete with "P" Trap, waste fitting, plug and chainstay or equal and approved.	NO	2		
9.16	Single bowl, Single drain sink as "Associated Steel Limited" Complete with "P" Trap, waste fitting, plug and chainstay or equal and approved.	NO	3		
9.17	Wall mounted chrome sink mixer with goose neck spout as "EUROBATH" / "VADO" .Model No.WAR-254G-C/P rated at 0.2bar LP or equal and approved.	NO	5		
9.18	<b>Hot and cold water showers in the locker rooms (3rd to 10th floor lab tower)</b>				
9.19	Concealed Shower valve with diverter as as "EUROBATH"/"VADO" wall mounted with round backplate, 1.5bar MP chrome. Model No. AXI-147-C/P or equal and approved.	NO	16		
9.20	Chrome Single Function Fixed Head and shower arm ,0.2 Bar LP as as "EUROBATH"/"VADO" FR-SHOWER/9-C/P. Model No. WG-SFKIT-C/P or equal and approved.	NO	16		
9.21					
9.22	<b>Autoclaves (cleaning rooms 4th &amp; 5th floor lab tower )</b>				
9.23	50 L vertical autoclave as "Labtron" or equal and approved.	NO	1		
9.24	150 L Horizontal autoclave as "Labtron" or equal and approved	NO	1		
9.25					
9.26	<b>Fume hoods, laminar flow cabinets &amp; Biosafety cabinets:</b>				
9.27	Alterations to Laboratory fume hoods, Laminar flow cabinets and biosafety cabinets to include fixtures for inert gases (Helium, Argon and Nitrogen)	Item	1		
9.28	<b>Laminar flow cabinets</b>				
9.29	Supply and install Class 100 (ISO 5) Horizontal Laminar flow cabinets (Clean benches) as "ESCO Model LHS-4A-F" or the equivalent	NO	1		
9.30	Supply and install Class 100 (ISO 5) Vertical Laminar flow cabinets (Clean benches) as "ESCO Model LVG-4A-S" or the equivalent	NO	1		
9.31					
9.32	<b>Class II Biosafety cabinet:</b>				
9.33	Class II Biosafety cabinet to EN 12469 as "TELSTAR" or equal and approved	NO	3		
9.34	Combined Emergency shower / eyewash as "VULTEX LABLINE Model VL4220"	NO	18		
<b>M6</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>COLLECTION PAGE</b>				
	<b>TOTAL BROUGHT FORWARD FROM:</b>				
M1	LAB DRAINAGE SYSTEM (Per floor) TOTAL FOR 8 FLOORS	FLOOR	1 8		
M2	LAB DRAINAGE SYSTEM (per floor) TOTAL FOR 8 FLOORS	FLOOR	1 8		
M3	COLD WATER SUPPLY (per floor) TOTAL FOR 8 FLOORS	FLOOR	1 8		
M4	HOT WATER SUPPLY (per floor) TOTAL FOR 8 FLOORS	ITEM	1 8		
M5	FUME CUPBOARDS/EXTRACT FANS	ITEM	1		
M6	FUME CUPBOARDS/EXTRACT FANS	ITEM	1		
<b>A8</b>	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				-

**THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND  
INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO.  
209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI**

**BILL OF QUANTITIES FOR SWIMMING POOL / SAUNA / STEAMBATH & GYM EQUIPMENTS**

ITEM No.	DESCRIPTION	UNIT	AS TENDERED		
			QTY	Rate (Kshs)	Amount (Kshs)
	<b>SWIMMING POOL / SAUNA / STEAMBATH</b>				
1.01	<b>Supply of pool &amp; Filtration Equipment</b>				
1.02	Sand filter as "Dayliff DX 750", c/w media and MPV or equal and approved.	No.	2		
1.03	Pool pump as "DAVEY QP8" or equal and approved.	No.	2		
1.04	Automatic voltage switcher (AVS 15) or equal and approved.	No.	2		
1.05	Deck level grilles as "Dayliff" 250mm or equal and approved.	No.	35		
1.06	Certikin stainless steel 3 step ladder - for shallow end	No.	1		
1.07	Certikin stainless steel 4 step ladder - for deep end	No.	1		
1.08	Certikin eyeball inlets c/w water bar	No.	0		
1.09	Certikin vac points c/w water bar	No.	1		
1.10	Pool cleaning kit c/w floor brush, net, test kit, vac head, handle	No.	1		
1.11	300w Double transformer	No.	2		
1.12	300w Niche light c/w conduit	No.	0		
1.13	3" Suction pipes c/w water bars	No.	0		
1.14	300 x 300mm Suction gratings as "Dayliff" or equal	No.	0		
<b>M1</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				<b>-</b>

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
3.00	<b>STEAM BATH</b>				-
3.01	<b><u>Steam generator Handling , Installation and commissioning</u></b>				
3.02	Supply of 12.0 KW steam generator	No.	0		
3.03	<b>Deliver, install and commision the following items</b>				
3.04	<b><u>Recommended accessories</u></b>				
3.05	Lombardo steam bath lights	No.	0		
3.06	Local transformer 100VA, double wound	No.	0		
3.07	Thermometer	No.	0		
3.08	HeLo sand filter timer	No.	0		
3.09	Eucalyptus oil	No.	0		
3.10	HeLo standard kit No. 3	No.	0		
3.11	Steam generator auto clean valve	No.	0		
3.12	<b><u>Electricals</u></b>				
3.13	Distribution board to suit	No.	0		
3.14	Local electrical panel with under/over voltage protection	No.	0		
3.15	Supply and install accessories as necessary	No.	0		
3.16	<b><u>Water Supply</u></b>				
3.17	15mm Lime master gold	No.	0		
3.18	25mm Lime master gold	No.	0		
3.19	Jupiter AT 15-1 Water softener	No.	0		
3.20	Hardness test kit	No.	0		
3.21					
3.22	<b><u>SAUNA</u></b>				
3.23	<b><u>Essential equipment:</u></b>				
3.24	12.0KW heaters	No.	0		
3.25	rock pieces to suit the installation	No.	0		
3.26	<b><u>Recommended accessories</u></b>				
3.27	Sauna lights	No.	0		
3.28	HeLo thermometer	No.	0		
3.29	HeLo hygrometer	No.	0		
3.30	HeLo copper bucket	No.	0		
3.31	HeLo sand timer	No.	0		
3.32	Camswitch	No.	0		
3.33	Local electronic panel with Under/Over voltage protection	No.	0		
3.34	supply and install accessories as necessary	No.	0		
3.35	<b><u>Local interior</u></b>				
3.36	Allow for Supply and installation of Materials for room interior	Item	0		
<b>M2</b>	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				-

Item No.	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
1.60	<b>GYM EQUIPMENT</b> Allow for supply and installation of the following gym equipment <u>Exercise Bike:</u>  <b>Specification/details:</b> Exercise Cycle / Braking System: Magnetic Resistance System / Adjustable Resistance: 12 Levels / Number of Training Programmes: 9 / Velocity Meter / Calorie Display / Timer / Height Adjustable Saddle / Ergometer / Pulse Measurement / Pulse Monitor: Chest Strap / Series: Technogym Forma / Maximum User Weight: 130 kg / Dimensions (LxWxH): 100 x 52 x 150 cm / Max. Performance: 450 watt / Weight: 67 kg				
1.61		NO	0		
1.62	<b>TreadMill: TechnoGym Run Now 700 Visioweb</b> <b>Specification/details:</b> Running Machine / Maximum Running Speed: 20 km/h / Power: 8 HP / Incline (max.): 18 % / Number of programmes: 11 / LCD Display / Pulse Measurement / Pulse Monitors: Chest Strap, Hand Grips / Maximum User Weight: 220 kg / Running Surface Length: 152 cm / Running Surface Width: 52 cm / Dimensions (LxWxH): 219 x 96 x 155 cm	NO	0		
1.63	<b>Treadmill: TechnoGym New Spazio Forma</b>  <b>Specification/details:</b> Running Machine / Operation: Motor / Folding / Maximum Running Speed: 16 km/h / Power: 2.75 HP / Incline (max.): 12 % / LCD Display / Pulse Measurement / Pulse Monitor: Chest Strap / Emergency Stop Function / LCD Display / Training Computer: Exercise Duration, Distance, Calorie Consumption / Maximum User Weight: 130 kg / Wheeled / Running Surface Length: 141 cm / Running Surface Width: 48 cm / Dimensions (folded): 165-84-79 cm	NO	0		
1.64	<b>Exercise Bikes: TechnoGym Recline Personal</b>  <b>Specification/details:</b> Recumbent Bike / Braking System: Magnetic Resistance System / Adjustable Resistance: 25 Levels / Number of Training Programmes: 23 / Velocity Meter / Calorie Display / Timer / Pulse Measurement / Pulse Monitors: Chest Strap, Hand Grips / Maximum User Weight: 180 kg / Dimensions (LxWxH): 140 x 62 x 137 cm / Weight: 85 kg	NO	0		
1.65	<b>Exercise Bikes: TechnoGym Bike Excite 700 SP</b> <b>Specification/details:</b> Exercise Cycle / Adjustable Resistance: 25 Levels / Number of Training Programmes: 23 / LCD Display / Height Adjustable Saddle / Pulse Measurement / Pulse Monitors: Chest Strap, Hand Grips / Series: Technogym Excite / Maximum User Weight: 180 kg / Dimensions (LxWxH): 118.5 x 60 x 133.8 cm / Max. Performance: 500 watt / Weight: 61 kg	NO	0		
1.66	<b>Cross Trainer: TechnoGym Vario Excite 700</b>  <b>Specification/details:</b> Elliptical Cross Trainer / Number of Training Programmes: 21 / LCD Display / Calorie Display / Timer / Pulse Measurement / Pulse Monitor: Chest Belt / Series: TechnoGym Vario Excite / Maximum User Weight: 160 kg / Dimensions (LxWxH): 194 x 73 x 170 cm / Weight: 200 kg	NO	0		
M3	<b>TOTAL CARRIED TO COLLECTION PAGE</b>				-

Item No.	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
1.67	<b><u>Cross Trainer: TechnoGym Synchro Excite 500</u></b>  <b>Specification/details:</b> Elliptical Cross Trainer / Number of Training Programmes: 11 / Adjustable Resistance: 25 Levels / LCD Display / Calorie Display / Pulse Measurement / Pulse Monitors: Chest Belt, Hand Grips / Series: Technogym Excite Synchro / Maximum User Weight: 180 kg / Dimensions (LxWxH): 204 x 70 x 160 cm / Max. Performance: 500 watt / Weight: 150 kg	NO	0		- - -
1.68	<b><u>Strength training: TechnoGym Vertical Bench Element</u></b>  <b>Specification/details:</b> Shoulder Press / Exercise Bench / Weight Bench / Area of Use: Fitness Studio / Dimensions (LxWxH): 119.7 x 160.6 x 177.6 cm / Muscle Group: Shoulders / Exercise: Shoulder Shrugs	NO	0		
1.69	<b><u>Weights: Reebok Handweight 5kg</u></b>  <b>Specification/details:</b> Fitness Dumbbell / Hand Dumbbell / Area of Use: Home / Exercises: Bicep Curls, Triceps Kickbacks / Weight: 5 kg / Weights: 1 x 5,0 kg / Neoprene iron-coated weight / Colour: black	NO	0		
1.70	<b><u>Adidas Skipping Rope : (AD-11011)</u></b>  <b>Specification/details:</b> Skipping Rope / Weight: 0.35 kg / Length: 275 cm / Material: Leather / Non Slip	NO	0		
1.71	<b><u>Adidas Gym Ball AD-12240</u></b> <b>Specification/details:</b> Gym Ball / Weight: 1.5 kg / Diameter: 65 cm	NO	0		
1.72	<b><u>Adidas Olympic Bench</u></b>  <b>Specification/details:</b> Weight Bench / Area of Use: Home / Dimensions (LxWxH): 218 x 150 x 200 cm / Muscle Group: Chest / Exercise: Incline Bench Press	NO	0		
1.73	<b><u>Adidas Flat training Bench</u></b> <b>Specification/details:</b> Weight Bench / Area of Use: Home / Muscle Group: Chest / Exercise: Bench Presses	NO	0		
1.74	<b><u>Addidas Home Gym</u></b>  <b>Specification/details:</b> Multi Gym / Area of Use: Home / Maximum User Weight: 135 kg / Dimensions (LxWxH): 183 x 105 x 212 cm / Muscle Group: Total Body Trainer / Exercises: Back Training, Bench Presses, Chest Press, Lat Pulldowns, Leg Stretches, Butterfly / With 100kg weight stack	NO	0		
<b>M4 TOTAL CARRIED TO COLLECTION PAGE</b>					

ITEM No.	DESCRIPTION	UNIT	QTY	Rate (Kshs)	Amount (Kshs)
	<b>COLLECTION PAGE</b>				
1.00	<b>FROM M1</b>	Item	1		
2.00	<b>FROM M2</b>	Item	1		
3.00	<b>FROM M3</b>	Item	1		
4.00	<b>FROM M4</b>	Item	1		
<b>A9</b>	<b>TOTAL CARRIED FORWARD TO SUMMARY PAGE</b>				

<b>THE PROPOSED PHASE 2 WORKS FOR THE PROPOSED RESEARCH, TECHNOLOGY AND INNOVATION LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B', NAIROBI</b>					
<b>BILL OF QUANTITIES FOR WASTE COMPACTOR</b>					
<b>SUPPLY, INSTALLATION &amp; COMMISSIONING</b>		<b>UNIT</b>	<b>QTY</b>	<b>Rate (Kshs)</b>	<b>Amount (Kshs)</b>
<b>ITEM</b>	<b>DESCRIPTION</b>				
<b>No.</b>					
	<b>Waste Compactor:</b>  <b>Supply, install and commission the following complete with electrical controls and accessories</b>				
1.00	Supply and install a waste compactor capable of compacting bale sizes upto 100kg as "Orwak" Model No:3210 or equal with the following specifications: Dimensions:2170mmx100mmx833mm Weight:630KG Bale Size:50-80kg (800x600x700mm) Working pressure:235Bars Pressure Force:12t	Lot	2		
1.01	<b>Testing &amp; Commissioning</b> Allow for testing and commissioning of the waste compactor to the satisfaction approval of the engineer.	Item	1		
<b>A10</b>	<b>TOTAL ESTIMATES TO SUMMARY PAGE</b>				-

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LABORATORIES AND RELATED INFRASTRUCTURE ON PLOT L.R. NO. 209/5811, DUNGA ROAD, SOUTH 'B',  
NAIROBI**

<b><u>SUPPLY, INSTALLATION &amp; COMMISSIONING</u></b>		<b>UNIT</b>	<b>Amount (Kshs)</b>
<b>ITEM No.</b>	<b>DESCRIPTION</b>		
<b>A0</b>	SUBCONTRACT PRELIMINARIES	ITEM	
A1	ACCOMODATION PLUMBING AND DRAINAGE	ITEM	
A2	COMMON WASHROOMS PLUMBING AND DRAINAGE	ITEM	
A3	FIRE FIGHTING(BASEMENT SPRINKLERS,DRY RISER,HOSE REEL SYSTEM)	ITEM	
A4	GREY WASTE WATER TREATMENT	ITEM	
A5	TANNERY EFFLUENT TREATMENT PLANT	ITEM	
A6	RAINWATER DRAINAGE & HARVESTING	ITEM	
A7	SOLAR WATER HEATING	ITEM	
A8	SPECIAL LABORATORY FITTINGS ,DRAINAGE, PLUMBING & EQUIPMENTS	ITEM	
A9	SWIMMING POOL & SAUNA	ITEM	
A10	WASTE COMPACTOR	ITEM	
A11	HIGH RISE BUILDINGS CLEANING SYSTEM	ITEM	5,000,000
A12	BOREHOLE DRILLING, CASING & EQUIPPING	ITEM	10,000,000
<b>SUBTOTAL</b>			
ADD CONTINGENCY COSTS 10%		10%	
<b>TOTAL CARRIED TO FORM OF TENDER</b>			
Total in words: .... Name of Contractor: .... Address: .... Telephone: .... Pin No. .... Vat Reg. No. .... Signature: .... Official Stamp/Date: ....			