PROPOSED BOUNDARY WALL AND ANCILLARY BUILDINGS ON PLOT LR. NO 20589, MACHAKOS

FOR

NATIONAL SOCIAL SECURITY FUND (NSSF)

TENDER REF NO: NSSF/ONT/BW/24/2025/26

VOLUME 2 OF 5

BUILDING AND CIVIL WORKS

NATIONAL SOCIAL SECURITY FUND
P.O BOX 30599 -00100,
NAIROBI, KENYA
Tel: +254 709 805 000, +254 709 805 100

Email: info@nssfkenya.co.ke

Website: www.nssf.or.ke

JUNE 2026

PROPOSED BOUNDARY WALL AND ANCILLARY BUILDINGS ON PLOT LR. NO 20589, MACHAKOS

FOR

NATIONAL SOCIAL SECURITY FUND (NSSF)

VOLUME 2 OF 5

BILLS OF QUANTITIES

BUILDING AND CIVIL WORKS

LEAD CONSULTANTS/ARCHITECTS

LEXICON + ION ARCHITECTS
P.O. BOX 2772 - 00200,
NAIROBI.

QUANTITY SURVEYORS

BILLS PARTNERSHIP LTD.
P.O. BOX 27090 - 00100,
NAIROBI.

CIVIL/STRUCTURAL ENGINEERS

WANDUA CONSULTANTS LTD.
P.O. BOX 44736 - 00100,
NAIROBI.

ELECTRICAL & MECHANICAL ENGINEERS

METROCOM CONSULTANTS LTD.
P.O. BOX 27090 - 00100,
NAIROBI.

JUNE 2026

PROPOSED BOUNDARY WALL AND ANCILLARY BUILDINGS ON PLOT LR. NO 20589, MACHAKOS FOR NATIONAL SOCIAL SECURITY FUND

CONTENTS PAGE

Content		Page
Signature Page & Notes		Page 2
Specifications		Page 3 - 96
Section No. 1	Preliminaries	Page 97- 127
Section No. 2	Accommodation Unit	Page 128- 153
Section No. 3	Administration Office	Page 154 - 179
Section No. 4	Gate House	Page 180 - 202
Section No. 5	External Works	Page 203 - 229
Section No. 6	Provisional Sums	Page 230
Final Summary (Volume 2of 5)		Page 231
Grand Summary		Page 232
Annexure		Page A/A

© Bills Partnership Ltd, Quantity Surveyors

SIGNATURE PAGE AND NOTES

BILLS OF QUANTITIES

SUPPLIED AS PART OF THE CONTRACT FOR THE PROPOSED BOUNDARY WALL AND ANCILLARY BUILDINGS ON PLOT LR. NO 20589, MACHAKOS

FOR

NATIONAL SOCIAL SECURITY FUND

THE CONTRACT FOR THE ABOVE MENTIONED WORKS ENTERED INTO ON THE ……DAY OF ……..... 20..... BY THE UNDERSIGNED PARTIES REFER TO THESE BILLS OF QUANTITIES PAGES NUMBERED AS PER THE CONTENTS PAGE; WHICH TOGETHER WITH THE CONDITIONS OF CONTRACT FOR BUILDING AND ASSOCIATED CIVIL WORKS AND CONTRACT DRAWINGS SHALL BE READ AND CONSTRUED AS PART OF THE SAID CONTRACT.

THESE CONTRACT DOCUMENTS SUPERSEDE ALL ENQUIRIES, PROPOSALS, AGREEMENTS, NEGOTIATIONS AND COMMITMENTS WHETHER WRITTEN OR VERBAL, PRIOR TO THE DATE OF THE EXECUTION OF THE CONTRACT.

.....	.....
CONTRACTOR	EMPLOYER
.....	.....
DATE	DATE
.....	.....
WITNESS	WITNESS
.....	.....
DATE	DATE

© Bills Partnership Ltd, Quantity Surveyors

SPECIFICATIONS

PROPOSED BOUNDARY WALL AND ANCILLARY BUILDINGS ON PLOT LR. NO 20589, MACHAKOS FOR NATIONAL SOCIAL SECURITY FUND

SPECIFICATIONS OF MATERIALS AND WORKMANSHIP

GENERAL DESCRIPTION OF MATERIALS AND WORKMANSHIP

The following apply to all sections hereafter

A. ALTERATIONS, ADDITIONS AND EXTENSIONS

In alterations or extensions to existing buildings and/ or external works, new work is to match up in all respects to the existing work unless otherwise specified, shown on the Drawings or approved beforehand by the Engineer.

QUALITY, SAMPLES, TESTING AND APPROVAL

B. MATERIALS

Materials, commodities, components and equipment are to be new and unused unless otherwise specified. Handle, store, fix and protect all commodities with care to ensure that they are in perfect condition when incorporated into the work and handed over on completion.

C. MANUFACTURER'S RECOMMENDATIONS

Handle, store and fix every commodity strictly in accordance with the printed or written recommendations of the manufacturers

D. STANDARDS

Where commodities or workmanship are specified by reference to British Standards (B.S) or Codes of Practice (C.P) or International (I.S.O) or other standards, such standards are deemed to be the latest published at the time of tendering. The Contractor will be deemed to have read and understood the standards specified, and no claim for want of knowledge will be allowed. The substitution of commodities or standards of workmanship complying with other standards may be allowed at the discretion of the Engineer, but application for permission for such substitution must be made in writing in sufficient time to allow adequate investigation. Obtain Certificates of Compliance with standards and supply to the Engineer on request.

E. LOCAL CONDITIONS

All materials, conditions, components and equipment must be suitable for use in tropical climate.

© Bills Partnership Ltd, Quantity Surveyors

F. SAMPLES

Where samples of conditions or specimens of finished work are specified, submit samples or specimens to the Engineer and obtain his approval before confirming orders or carrying out the work. Retain approved samples and specimens on Site for Comparison with the finished work. Finished work must conform in all respects with the samples or specimens approved. Remove samples and specimens no longer required. The cost of supplying samples and specimens must be borne by the Contractor, but specimens may form part of the finished work where approved by the Engineer

DEMOLITIONS AND ALTERATIONS

A. GENERALLY

The Contractor is required to visit the existing buildings and ascertain for himself the nature of the works and no claim arising from lack of knowledge in this respect will be entertained. The dimensions and quantities given in this section are approximate and the Contractor is referred to the site to ascertain the exact nature and extent of the Works.

The items of pulling down and alterations are to include for both labour and materials and for any shoring, needling and strutting and temporary works in connection therewith. The Contractor must allow in his pricing for making good all works disturbed in all trades and for carting away all rubbish.

The Contractor must give all the necessary notices and must exercise due care in the demolitions. He must not collapse large sections of walls, floors e.t.c, and must provide all necessary shoring and supports during the demolitions.

During demolition works, the Contractor shall keep the debris constantly watered to minimize the dust arising. This shall be included in his prices.

All materials arising from demolitions, unless specifically stated otherwise, are to become the property of the Contractor and any credit allowed for the value of such materials shall be shown in the space provided.

All materials, including rubbish, shall be removed from the site as soon as possible.

The Contractor is to erect dust-proof screens to the approval of the Engineer where deemed necessary and to remove them on completion of the Works, all to the Engineer’s satisfaction.

© Bills Partnership Ltd, Quantity Surveyors

B. INTERPRETATIONS OF TERMS

"Demolish" shall be deemed to mean cutting away, breaking up, demolishing, pulling down, taking down, removing, etc., as the context requires and shall include in all cases temporarily strutting and supporting and making good remaining work as necessary, and clearing away and removing from site all debris, etc.

"Remove" shall mean taking down, hacking up, breaking down, removing etc. and clearing away from site and all other expenses thereby entailed.

"Make good" shall be deemed to mean all making good, fitting facing up, plastering, paving, repairing and painting to match and jointing to remaining existing work.

To "match" shall mean to be equal to relevant existing work in design, workmanship and all other respects.

"Re-fix" shall apply to existing materials arising from the Works and shall mean take from store and fix in new position, including making good, repairing and adjusting as necessary.

© Bills Partnership Ltd, Quantity Surveyors

C. UNDERPINNING

1. FOUNDATIONS

The following sequence of construction will be followed for any underpinning work to foundations:

a) Excavate under foundation footing to a length of 1000 mm by 500 mm wide by 500 mm deep, 2000 mm centers.

b) Fill the excavated cavity with concrete mix 1:3:6

c) Allow the concrete to set for two days.

d) Repeat the above operation for the next panels until the whole foundation is underpinned.

e) Break off the projecting foundation and leave flush with mass concrete surface.

2. SUPPORT TO EXISTING SLAB

a) Prop up the first floor slab next to the wall to be demolished until new walling or column is built to carry universal beam.

b) Erect in position universal beam to support existing slab as designed.

c) Remove props seven (7) days after erection of the beam.

EXCAVATIONS

A. EXAMINE THE SITE

The Contractor is assumed to have examined the site carefully and ascertained, for himself its nature and the kind of materials to be excavated.

© Bills Partnership Ltd, Quantity Surveyors

B. EXCAVATIONS

Excavations shall be to the widths and depths indicated on the Drawings or to such lesser or greater depths as the Engineer may deem necessary and so instruct the Contractor in order to obtain satisfactory foundations.

Any difference in the quantity of work actually executed under such instruction and that provided in the Bills of Quantities shall be measured and valued by the Quantity Surveyor as a Variation under the relevant Conditions to Contract.

If, however, the Contractor excavates to any greater depths and widths than are shown on the Drawings or directed, then the Contractor shall, at his own expenses, satisfactorily fill in such extra depth and width with concrete similar to that described for foundations.

C. BOTTOMS OF EXCAVATIONS TO RECEIVE FOUNDATIONS

The Contractor shall report to the Engineer when secure bottoms to the excavations have been obtained. Any concrete or other work executed

D. SIDES OF EXCAVATIONS

Sides of excavations shall be maintained vertical by means approved by the Engineer, and the Contractor shall also allow for keeping same free from fallen materials in his rates for excavations.

The Contractor shall also allow for keeping excavations free from, water and mud by baling, pumping or otherwise, in his rates for excavations.

© Bills Partnership Ltd, Quantity Surveyors

E. ROCK

Excavation in rock shall include all material, which cannot be removed by hand and does not necessarily require the use of compressors or other mechanical equipment although the Contractor may use such equipment to loosen the material for ease of its removal. All topsoils, black cotton and other clay soils, murram and other fill and all similar materials will not be classified as rock.

Rock has been measured hereafter as extra over excavation for excavating in soft or hard rock.

Soft rock shall be deemed to mean any material which cannot reasonably be removed without the use of mechanical plant such as rippers, compressors, excavators, but which does not require drilling, wedging or blasting. Local tuffs, magadi highly consolidated laterite, weathered lavas, boulders or outcrops of harder rock not exceeding one cubic meter in volume, Nairobi building stone and similar material shall be classified as soft rock.

Hard rock shall be classified as material which is massive and geologically homogeneous and which requires the use of drilling, wedging geologically homogeneous or blasting for its removal such as black trap or similar material.

The Engineer's decision shall be final with regard to the classification of excavated materials.

F. STARTING LEVEL

Unless otherwise described the starting level of all excavations has been measured from the level remaining after completion of reduced level excavation. However, the Contractor's prices should include for carrying out the excavation work in any alternative sequence that he may require.

G. BLASTING

No blasting will be permitted without the prior approval of Local Authorities and the Engineer.

H. CART AWAY

All surplus excavated materials where so directed and all rubbish are to be removed from the site and the Contractor is to find his own dump and shall pay all charges.

J. BORROW PITS

No borrow pits will be allowed to be opened on the site.

© Bills Partnership Ltd, Quantity Surveyors

K. FILLING OBTAINED FROM THE EXCAVATIONS

Filling obtained from surplus excavated materials will only be incorporated if suitable material arises and is to be free from all weeds, roots, vegetable soil or other unstable materials and is to be filled in layers each of not more than 250 mm finished thickness. Each layer to be well wetted and consolidated as described hereafter.

L. HARDCORE FILLING

Hardcore for filling under floors, etc., shall be good hard stone ballast or quarry waste to the approval of the Engineer broken to pass not greater than a 150 mm ring or to be 75% of the finished thickness of the layers being compacted, whichever is the lesser. Hardcore shall be free from all weeds, roots, vegetable soil, clay, black cotton soil or other unstable materials.

It shall be well graded with smaller stones and fine materials to give a dense compact mass after consolidation. Sufficient fine material shall be added to each layer to give gradation of material as necessary to obtain a solid compact mass after rolling. Hardcore filling is to be laid in layers each of a consolidated thickness not exceeding 150 mm. Each layer shall be compacted at least 8 passes of a 10 tonne smooth-wheeled roller or a 2 tonne vibrating roller until all movement ceases. Sufficient water is to be added to obtain maximum compaction to the Engineer's approval. To each layer a 25 mm thick layer of sand complying with the specification for fine aggregate for concrete shall be spread over the surface and forced into the hardcore by the use of a vibrating roller weighing not less than 2 tonnes; this operation should be carried out when the materials are dry and repeated whilst the sand is well watered. Should all the sand be absorbed the Engineer may require a further layer to be applied and the process repeated.

The top surface of the hardcore shall be levelled or graded to fall as required, and shall be blinded with a layer of similar material broken to 25 mm gauge and finished with a 10 ton smooth-wheeled roller. The surface so obtained shall be to the Engineer's approval

M. MATERIALS FOUND IN EXCAVATIONS

No sand, aggregate, murram or other material found in the excavations is to be used in the Works without the written permission of the Engineer.

© Bills Partnership Ltd, Quantity Surveyors

N. RATES FOR EXCAVATIONS

The rates for excavation, including excavation in rock, MUST INCLUDE for trimming, levelling and preparing bottoms and all faces to receive concrete, etc., and for any extra excavation required for planking and strutting.

Prices shall, include for excavating in any material encountered unless specifically otherwise described, handling etc., of extra bulk after excavating, or before consolidating, any extra excavation required for formwork or planking and strutting, circular work, grubbing up any old drains, roots, etc., that may be encountered, for trimming sides and levelling and ramming bottoms, forming stepplings and trimming excavation or filling to embankments and batters as required.

In his prices for the item "Allow for keeping the whole of the excavations "free from water" the Contractor shall allow and make provisions for keeping the whole of the Works thoroughly drained and clear of water below the lowest level of any part of them so long as may be required and if considered necessary by the Engineer, continuously day and night by petrol or hand pumps or other mechanical appliances, pipes, chutes, dams, manholes, sumps, diversions or any other means necessary for that purpose. Water pumped from the trenches shall not be allowed to run down the road channels but shall be conveyed to the nearest surface water sewer, ditch or river through troughs, chutes or pipes.

P. RATES FOR DISPOSAL

Rates for disposal of excavated material are to include for the selection of spoil as it arises and for all double handling and re-excavation from spoil heaps not specifically ordered by the Engineer.

Q. DIOTHENE SHEETING

Diothene sheeting shall be 500 gauge or 1000 gauge as shown, and as produced by Plastics Africa Limited, or other equal and approved. Joints in sheeting shall be treble folded with 150 mm fold and taped at 300 mm intervals with 50 mm wide black plastic adhesive tape as manufactured by Cellotape Limited. The sheeting shall not be stretched but shall be laid loose with sufficient wrinkles to permit shrinkage up to 15%.

R. CUTTING DOWN TREES

The Contractor must consult the Engineer before cutting down or pruning any trees or shrubs encountered on the site.

CONCRETE WORK

© Bills Partnership Ltd, Quantity Surveyors

A. ENGINEER

For the purposes of the concrete structure the Structural Engineer, hereafter referred to as "the Engineer" shall be deemed invested with the duties and be the representative of the Engineer.

B. CODE OF PRACTICE

All workmanship, materials, tests and performances in connection with the reinforced concrete work are to be in conformity with the latest edition of the Kenya Standards (K.S) where not inconsistent with the provisions hereof.

C. SUPERVISION

A competent person approved by the Engineer shall be employed by the Contractor whose duty will be to supervise all stages in the preparation and placing of the concrete. All cubes shall be made and site tests carried out under his direct supervision, in consultation with the Engineer.

D. CONTRACTOR'S PLANT, EQUIPMENT AND CONSTRUCTION PROCEDURES

Not less than 30 days prior to the installation of the Contractor's plant and equipment for processing, handling transporting, storing and proportioning ingredients, and for mixing, transporting and placing concrete, the Contractor shall submit drawings for approval by the Engineer, showing proposed general plant arrangements, together with a general description of the equipment he proposes to use.

After completion of installation, the operation of the plant and equipment shall be subject to the approval of the Engineer.

Where these preambles, the Bills of Quantities or the Drawings require specific procedures to be followed, such requirements are not to be construed as prohibiting use by the Contractor of alternative procedures if it can be demonstrated to the satisfaction of the Engineer that equal results will be obtained by the use of such alternatives.

Approval of plant and equipment or their operation, or of any construction procedure, shall not operate to waive or modify any provision or requirements contained in these Preambles governing the quality of the materials or of the finished work.

Where suspended floor slabs are to be constructed without expansion joints, concreting is to be in panels of size and positions to the approval of the Engineer. To permit setting shrinkages to occur, some panels will be left unconcreted until 7 days or more after main areas have been concreted. The contractor must include for this method of construction in his pricing.

© Bills Partnership Ltd, Quantity Surveyors

E. TOLERANCES

On all setting out dimensions of 5 metres and over a maximum non-accumulative tolerance of plus or minus 5 millimeters will be allowed. On all setting out dimensions under 5 meters a maximum non-accumulative tolerance of plus or minus 3 millimeters will be allowed. On the cross-sectional dimensions of structural members, unless otherwise required by the Drawings, a maximum tolerance of plus or minus 3 millimeters will be permitted.

The top surface of concrete floor slabs and beams shall be within 6 millimetres of the normal level and line shown on the Drawings. Columns shall be truly plumb and non accumulative tolerance of 3 millimetres each storey and not more than 15 millimetres out of plumb in their full height will be permitted. The Contractor shall be responsible for the cost of all corrective measures required by the Engineer to rectify work, which is not constructed within the tolerances set out above.

F. MATERIALS GENERALLY

All materials which have been damaged, contaminated or have deteriorated or do not comply in any way with the requirements of these Preambles shall be rejected and shall be removed immediately from the site at the Contractor's expense. No materials shall be stored or stacked on floors without the Engineers' prior approval.

The sources of supply for all materials used for concrete work shall be approved by the Engineer before these materials are delivered to the site. All materials shall comply with the requirements of the latest edition of the British Standard for concrete works (BS EN 1992, BS 8004, B.S 8007) and any other approved Local and International Standard whose approval shall be obtained in writing.

The suppliers of materials shall give the Engineer access to their premises when directed for the purpose of obtaining samples of the materials for testing.

© Bills Partnership Ltd, Quantity Surveyors

G. SAMPLES

Samples of materials shall be submitted as soon as possible after the contract is let. No deliveries in bulk shall be made until the samples are approved by the Engineer. All condemned materials shall be removed from the site within 24 hours.

Every facility shall be provided to enable the Engineer to obtain samples and carry out tests on the materials and construction. If these tests show that any of the materials or construction do not comply with the requirements of this specification, the Contractor will be responsible for the costs of the tests and the replacement of defective materials and/or construction.

Samples of all materials proposed to be used shall be submitted to the Engineer and shall be tested, where required, by the materials branch of the Ministry of Works or other approved testing place, and receive his approval prior to being delivered in bulk upon the Works. The Contractor's attention is drawn to the fact that the testing of samples of aggregate, sand and cement by the materials branch, M.O.W, takes time and it is of utmost importance that the samples should be submitted for testing as soon as possible after the letting of the Contract. The ministry will not accept any responsibility whatsoever for delay in the commencement of the Contract due to delay on the part of the Contractor in submitting samples.

H. CEMENT

Cement, unless otherwise specified, shall be Portland cement of a brand approved by the Engineer and shall comply with the requirements of BS EN 197-5 or KS EAS 18-1:2017 with the expectations that it may contain reactive volcanic ash (of not more than 10% of the total weight) and the quantity of insoluble residue permitted in the standards may be exceeded. A manufacturer's certificate of Test in accordance with the mentioned standards shall be supplied for each consignment delivered to site.

Should the Contractor require to use cement of the rapid hardening variety, he shall obtain the approval.

© Bills Partnership Ltd, Quantity Surveyors

J. AGGREGATES

The aggregates shall conform with the requirements of BS EN 12620 and the sources and types of all aggregates are to be approved in all respects by the Engineer before work commences.

The grading of aggregates shall be one within the limits set out in BS EN 12620 and as later specified and the grading, once approved, shall be adhered to throughout the Works and not varied without the approval of the Engineer. Fine aggregate shall be clean, coarse, siliceous sand of good, sharp, hard quality and shall be free from lumps of stone, earth, loam, dust, salt, organic matter and any other deleterious substances. It shall be graded within the limits of Zone 1 or 2 of Table 2 of BS EN 12620

Course aggregate shall be good, hard, clean approved black trap or similar stone, free from dust, decomposed stone, clay and earthy matter foreign substances or friable thin elongated or laminated pieces. It shall be graded within the limits of Table 1 of BS EN 12620 for its respective nominal size.

If in the opinion of the Engineer the aggregate meets with the above requirements but is dirty or adulterated in any manner it shall be screened and/ or washed with clean water if he so directs at the Contractor's expenses.

Aggregates shall be delivered to the site in their prescribed sizes or grading and shall be stockpiled on paved areas or boarded platforms in separate units to avoid intermixing. On no account shall aggregates be stockpiled on the ground

K. WATER

The water used for mixing concrete shall be from an approved source, clean, fresh and free from harmful matter and comply with the requirements of BS EN 1008:2002

L. READY-MIXED CONCRETE

Ready-mixed concrete may only be used with the prior permission of the Engineer, subject to special additional conditions laid down by the Engineer.

M. CONCRETE MIXES

Concrete mixes have been described either by the volumetric proportions or by the 28-day cube strength.

© Bills Partnership Ltd, Quantity Surveyors

N. CONCRETE STRENGTHS

Concrete mixes shall have the following minimum strengths as given by Works Cube Tests: -

	Minimum Crushing Strength at 28 days N/mm²
Grade A (Class 30)	30
Grade B (Class 25)	25
Grade C (Class 20)	20
Grade D (Class 15)	15

The average strength obtained from cube tests shall be 10% higher than the minimum strengths shown above.

Works Cube Tests will not be required for Grade E blinding concrete which shall comprise 1:4:8 by volume.

Volumetric mixes shall comprise the following: -

	Cement/Kg	Fine Aggregate/CM	Coarse Aggregate/CM
1:1:2	50	0.03	0.07
1:1:5:3	50	0.05	0.10
1:2:4	50	0.07	0.14
1:3:6	50	0.10	0.20
1:4:8	50	0.13	0.26

P. MEASURED PROPORTIONS OF CONCRETE

Cement

The quantity of cement shall be measured by weight. Where delivered in bags, each batch of concrete is to use one or more whole bags of cement.

Aggregates

Concrete aggregates shall be measured by weight in a weigh-batching machine.

Weigh batching machines shall be of an approved type and shall be properly maintained and checked for accuracy at regular intervals

© Bills Partnership Ltd, Quantity Surveyors

Q. CONCRETE GRADES A, B, C & D

The weights of fine and coarse aggregate to be used in concrete Grades A to D shall be limited in accordance with the table under item N. The proportions of fine to course aggregate and cement which the Contractor proposes to use for each of the mixes specified shall first be approved by the Engineer. The Contractor will then be required to prepare Preliminary Test Cubes and have these cubes tested as described for Work Cube Tests. The test results should be submitted to the Engineer in sufficient time for further tests to be carried out should they prove unsatisfactory. Cube strengths in the Preliminary tests must show Crushing Strengths at least 25% higher than the strengths specified for Works Cube Tests. If the Contractor is unable to produce specified cube strengths, he will be required at his own cost to increase the cement content of the mix until satisfactory results are produced.

The Engineer may require at any time during the Contract the proportions of fine to coarse aggregate to be altered in order to produce a mix of greater strength or improved workability and providing that the total proportions of aggregate to cement remain unchanged, no claim for additional cost will be considered.

R. MINIMUM CEMENT CONTENT

Concrete Grade	Minimum Cement Content by weight to combined Total weight of aggregate
Grade A	1 to 4
Grade B	1 to 5.5
Grade C	1 to 7
Grade D	1 to 10

S. WATER PROOF CONCRETE

Where waterproof concrete is specified, “Plastocrete-N” as manufactured by Sika Kenya Ltd, Semco Industrial Park 2nd Floor, Mombasa, P.O. Box 38645 - 00623 Nairobi, Kenya, is to be added to the mixing water strictly in accordance with the Manufacturer’s instructions and at the rate of 400 - 450 millilitres to each 100 kilogrammess of cement are to be used unless otherwise approved by the Engineer.

T. EXPANSION JOINTING

Expansion joint filler shall be “ Flexcell” as manufactured by Expandite Ltd., or “Resilex” as manufactured by Evomastics Ltd., or other equal and approved.

© Bills Partnership Ltd, Quantity Surveyors

U. JOINT SEALER

Sealers shall be either hot or cold applied. Hot applied sealers shall comply with B.S. EN 14188-1. Cold mastics shall be applied by gun and where more than 12 mm deep shall include filling with loose packing yarn to within 2 mm from the outer face. All joint sealers are to be approved by the Engineer prior to their use.

V. WATER BAR

Waterbar shall be PVC water bar as manufactured by Expandite Ltd., or other approved type and shall be provided in the positions indicated on the Drawings.

Joints shall be heat welded in accordance with the manufacturers' instructions and where the waterbar is to be fixed vertically, metal clips as manufactured by the supplier of the waterbar or of other approved design shall be provided to suspend the waterbar from the reinforcement.

Where waterproof concrete is used the Contractor shall adhere strictly to the position and type of construction joints as detailed on the Drawings. Any deviation from this procedure or the provision of additional construction joints will require the prior approval of the Engineer and any additional waterbar so required will be at the Contractor's expense.

Formwork shall be designed with sufficient timber formers and blocking pieces to support the waterbar and to ensure that it is not displayed during concreting. In the case of horizontal joints in vertical walling and similar members the formwork shall be so constructed as to permit the starter or upstand of concrete surrounding the lower half of the waterbar to be poured in the same operation as the slab or other concrete from which it springs. Formwork to walls or similar members where the waterbar is positioned at the base of the lift shall have sufficient openings not less than 300 mm square at approximately 200 mm above the level of the waterbar to permit checking that the waterbar is correctly positioned and not displaced during concreting.

No concreting will be permitted to portions where upstand starters form an integral part until the formwork to the starter has been fixed and approved.

W. TESTING EQUIPMENT

The Contractor shall provide the following equipment for carrying out control tests on site:

(a) Straight edges 3 metres and I metre long for testing the accuracy of the finished concrete;
(b) A glass graduated cylinder for use in the silt test for organic impurities in the sand;
(c) Slump test apparatus;
(d) **Eight** 150 mm steel cube moulds with base plates and tamping rods to B.S. 1881

© Bills Partnership Ltd, Quantity Surveyors

X. WORK CUBES TESTS

Work Cubes are to be made at intervals as required by the Engineer in accordance with EN 12390-3, and the Contractor shall provide a continuous record of the concrete work. The cubes shall be made in approved 150 mm moulds in strict accordance with the Code of Practice.

Three cubes shall be made on each occasion.

Each cube shall be marked with a distinguishing number (numbers) to run consecutively and the date, and a record shall be kept on site giving the following particulars: -

(a) Cube No.
(b) Date made.
(c) Location in Work
(d) 7-day Test;
Date
Strength
(e) 28-day Test
Date
Strength

Cubes shall be forwarded, carriage paid, to an approved Testing Authority, in time to be tested two at 7 days and the remaining one at the discretion of the Engineer. No cube shall be dispatched within 3 days of casting.

Copies of all Works Cube Tests shall be forwarded to the Engineer and one shall be retained on the site.

If the strengths required above are not attained, and maintained throughout the carrying out of the Contract, the Contractor will be required to increase the proportion of cement and /or substitute better aggregates so as to give concrete which does comply with the requirements of the contract. The Contractor may be required to remove and replace at his own cost any concrete which fails to attain the required strength ascertained by Works Cube Tests.

Y. MIXING AND PLACING OF CONCRETE

The concrete shall be mixed only in approval power-driven mixtures of a type and capacity suitable for the work, and in any event not smaller that 0.40/0.28 cu.m. Capacity.

The mixer shall be equipped with an accurate water-measuring device. All materials shall be thoroughly mixed dry before the water is added and the mixing of each batch shall continue for a period of not less than two minutes after the water has been added and until there is a uniform distribution of the materials and the mass in uniform in colour.

The entire contents of the mixed drum shall be discharged before recharging. The volume of mixed materials shall not exceed the rated capacity of the mixer. Whenever the mixer is started, 10% extra cement shall be added to the first batch and no extra payment will be made on this account.

© Bills Partnership Ltd, Quantity Surveyors

As a check on concrete consistency slump tests may be carried out and shall be in accordance with B.S. 1881. The Contractor shall provide the necessary apparatus and carry out such tests as are required. The slump of the concrete made with the specified water content, using dry materials, shall be determined and the water to be added under wet conditions shall be so reduced as to give approximately the same slump.

The concrete shall be mixed as near to the place where it is required as is practicable, and only as much as is required for a specified section of the work shall be mixed one time, such sections being commenced and finished in one operation without delay. All concrete must be efficiently handled and used in the Works within twenty (20) minutes of mixing. It shall be discharged from the mixer direct either into receptacles or barrows and shall be distributed by approved means, which do not cause separation or otherwise impair the quality of the concrete. Approved mechanical means of handling will be encouraged, but the use of chutes for placing concrete is subject to prior approval of the Engineer.

Concrete shall be placed from a height not exceeding 1,500 mm directly into its permanent position and shall not be worked along the shutters to that position. Unless otherwise approved, concrete shall be placed in a single operation to the full thickness of slabs, beams, and similar members, and shall be placed in horizontal layers not exceeding 1,500mm deep in walls and similar members.

Concrete in columns may be placed to a height of 4 metres with careful placing and vibration and satisfactory results. Where the height of the column exceeds 4 metres suitable openings must be left in the shutters so that this maximum lift is not exceeded.

Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter or of a part of approved extent. At the completion of a specified or approved part construction joint of the form and in the positions hereinafter specified shall be made. If stopping of concreting be unavoidable elsewhere, a construction joint shall be made where the work is stopped. A record of all such joints must be made by the Contractor and a copy supplied to the Engineer.

Any accumulation of set concrete on the reinforcement shall be removed by wire brushing before further concrete is placed.

The Contractor shall provide runaways for concreting to the satisfaction of the Engineer. Under no circumstances will the runaways be allowed to rest on the reinforcement.

Care shall be taken that the concrete is not disturbed or subjected to vibrations and shocks during the setting period.

Mixing machines, platforms and barrows shall be clean before commencing mixing and be cleaned on every cessation of work.

Where concrete is laid on hardcore or other absorbent materials, the base shall be suitable and sufficiently wetted before the concrete is deposited.

© Bills Partnership Ltd, Quantity Surveyors

Z. COMPACTION

At all times during which concrete is being placed the Contractor shall provide adequate trained and experienced labour to ensure that the concrete is compacted in the forms to the satisfaction of the Engineer.

Concrete shall not be placed at a rate greater than will permit satisfactory compaction nor to a depth greater than 400 mm before it is compacted.

During and immediately after placing, the concrete shall be thoroughly compacted by means of continuous tamping, spading, slicing and vibration. Vibration is required for all concrete of Classes 40, 35, 25 and 20.

Care shall be taken to fill every part of the forms, to work the concrete under and around the reinforcement without displacing it and to avoid disturbing recently placed concrete, which has began to set.

Any water accumulating on the surface of newly placed concrete shall be removed and no further concrete shall be placed thereon until such water is removed.

Internal vibrators shall be a frequency of not less than 7,000 cycles per minute and shall have a rotating eccentric weight of at least 0.50 kg., with eccentricity of not more than 12 mm. Such vibrators shall visibly affect the concrete within a radius of 250 mm from the vibrator.

Internal vibrators shall not be inserted between layers of reinforcement less than one and one half times the diameter of the vibrators apart. Contact between vibrators and reinforcement and vibrators and formwork shall be avoided.

Internal vibrators shall be inserted vertically into the concrete wherever possible at not more than 500 mm centers and shall constantly be moved from place to place. No internal vibrator shall be permitted to remain in any one position for more than ten seconds and it shall be withdrawn very slowly from the concrete.

In consolidating each layer of concrete the vibrating head shall be allowed to penetrate and re-vibrate the concrete in the upper portion of the underlying layer. In the area where newly placed concrete in each layer joins previously placed concrete more than usual vibration shall be performed, the vibrator penetrating deeply at close intervals along these contacts. Layers of concrete shall not be placed until layers previously placed have been vibrated thoroughly as specified.

Vibrators shall not be used to move concrete from place to place in the formwork.

At least one internal vibrator shall be operated for every 1.5 cubic metres of concrete placed per hour and at least one spare vibrator shall be maintained on site in case of breakdown during concreting operations.

© Bills Partnership Ltd, Quantity Surveyors

External formwork vibrators shall be of the high frequency low amplitude type applied with the principal direction of vibration in the horizontal plane. They shall be attached directly to the forms at not more than 1,200 mm centers.

In addition to internal and external vibration the upper surface of suspended floor slabs shall be levelled by tamping or vibrating to receive finishes. Vibrating elements shall be of the low frequency high amplitude type operating at a speed of not less than 3,000 r.p.m.

AA. CONSTRUCTION JOINTS

Construction joints shall be permitted only at the positions pre-determined on the Drawings or as instructed on the site by the Engineer. In general they shall be perpendicular to the lines of principal stress and shall be located at points of minimum shear, viz., vertically at, or near, mid-spans of slabs, ribs and beams.

Suspended concrete slabs are generally to be cast using alternate bay construction in bays not exceeding 20 metres in length. No two adjacement bays are to be cast within a minimum period of 48 hours of each other. The joints between adjacent bays are to be in positions agreed with the Engineer.

Under no circumstances shall concrete be allowed to tail off, but it shall be deposited against stopping-off boards.

Before placing new concrete against concrete already hardened, the face of the old concrete shall be thoroughly hacked roughened and cleaned, and laitance and loose material removed there from, and immediately before placing the new concrete the surface shall be saturated with water and covered with a coat of mortar at least 25 mm in thickness composed of cement and fine aggregate in the proportions used in the concrete.

© Bills Partnership Ltd, Quantity Surveyors

AB. CURING AND PROTECTION

Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected within two hours of placing from rain, sun and wind by means of Hessian sacking, polythene sheeting, or other approved means. This protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been place. The Contractor will be required to provide complete coverage of all fresh concrete for a period of 7 days. Hessian or polythene sheeting shall be in the maximum widths obtainable and shall be secured against wind. The Contractor will not be permitted and shall be secured against wind. The Contractor will not be permitted to use old cement bags, hessian or other material in small places.

Concrete in foundations and other underground work shall be protected from admixture with falling earth during and after placing.

Traffic or loading must not be allowed on the concrete until the concrete is sufficiently matured, and in no case shall traffic or loading be of such magnitude as to cause deflection or other movement in the formwork or damage to the concrete members. Where directed by the Engineer props may be required to be left in position under slabs and other members for greater periods than those specified hereafter.

AC. FAULTY CONCRETE

Any concrete which fails to comply with these preambles, or which shows signs of setting before it is placed shall be taken out and removed from the site. Where concrete is found to be defective after it has set, the concrete shall be cut out and replaced in accordance with the Engineer's instructions. On no account shall any faulty, honeycombed, or otherwise defective concrete be repaired or patched until the Engineer has made an inspection and issued instructions for the repair. The whole of the cost whatsoever, which may be occasioned by the need to remove faulty concrete, shall be borne by the Contractor.

AD. ROD REINFORCEMENT

The steel reinforcement shall comply with the latest requirements of the following British Standards: -

High yield deformed steel bars
reinforcement of concrete

The Contractor will be required to submit a test certificate of the deforming. Reinforcement shall be stored on racks above ground level. All reinforcement shall be free from loose mill scale or rust, grease, paint or other substances likely to reduce the bond between the steel and concrete.

© Bills Partnership Ltd, Quantity Surveyors

AE. FABRIC REINFORCEMENT

To be electrically cross-welded steel wire mesh reinforcement to B.S. 4483, 2005 and of the size and weight specified

AF. FIBRE MESH REINFORCEMENT

Where fibre mesh reinforcement is specified it shall be Fibre mesh "FIBERMIX 7025" and Fibermix " HARBOURITE 6927" as manufactured by Fibre mesh Europe Ltd., Smeckley wood close, Sheepbridge Chesterfield, S41 9PZ England and shall comply with British Board of Agreement (BBA) Certificate No. 92/2857 and shall be added the concrete mix in accordance with the manufacturer's instructions

AG. FIXING ROD REINFORCEMENT

Reinforcement shall be accurately placed in position as shown on the Drawings, and before and during concreting, shall be secured against displacement by using No. 18 S.W.G. annealed binding wire or suitable clips at intersections, and shall be supported by concrete or metal supports, spacers or metal hangers to ensure the correct position and cover.

No concreting shall be commenced until the Engineer has inspected the reinforcement in position and until his approval has been obtained and the Contractor shall give two clear days' notice of his intention to concrete.

The Contractor is responsible for maintaining the reinforcement in its correct position, according to the Drawings, before and during concreting. During concreting a competent steel fixer must be in attendance to adjust and correct the position of any reinforcement in its correct position of any reinforcement, which may be displaced. The vibrators are not to come into contact with reinforcement.

AH. POSITION AND CORRECTNESS OF REINFORCEMENT

Irrespective of whether any Inspection and/or approval of the fixing of the reinforcement has been carried out as above, it shall be the Contractor's sole responsibility to ensure that the reinforcement complies with the details on the Drawings or Schedules and is fixed exactly in the positions shown therein and the positions to give the prescribed cover. The Contractor will be held entirely responsible for any failure or defect in any portion of the reinforced concrete structure and including any consequent delay, claims, third party claims, etc., where it is shown that the reinforcement has been incorrectly positioned or is incorrect in size or quantity with respect to the detailed Drawings or Schedules.

© Bills Partnership Ltd, Quantity Surveyors

AJ. SPACER BLOCKS

Spacer blocks of approved size and shape made of concrete similar to that used in the surrounding construction and fixed to the reinforcement or formwork by No. 18 S.W.G. wires set into the spacer blocks or other approved means shall be provided where necessary to ensure that the requisite cover is obtained. Where hollow concrete block construction is used, spacer blocks are to be provided as shown on the Drawings. These will consist of concrete blocks as described above made to fit the width of the rib less 3mm tolerance and with single or double grooves (depending on the number of reinforcement bars used per rib) in the top surface with wire ties at each groove.

AK. CONCRETE COVER TO REINFORCEMENT

Unless otherwise directed the concrete cover to rod reinforcement over main bars in any face shall be: -

Foundations against each face	75 mm
Foundations against blinding	50 mm
Columns	40 mm
Beams	25 mm
Slabs	15 mm

AL. FIXING FABRIC REINFORCEMENT

The fabric shall be free from scale, rust, grease or other substance likely to reduce the bond between the steel and the concrete and shall be laid with minimum 300 mm laps and bound with No. 18 S.W.G. annealed iron wire.

AM. FIXTURES

No openings, chases, holes or other voids shall be formed in the concrete without the prior approval of the Engineer. Details of any fixtures to be permanently built into the concrete including the proposed position of all electrical conduits 25 mm and over in diameter shall be submitted to the Engineer for his approval before being placed.

© Bills Partnership Ltd, Quantity Surveyors

AN. CHASES, HOLES, ETC. IN CONCRETE

The Contractor shall be responsible for the co-ordination with the Electrical and other Sub-Contractors for incorporating electrical conduit, pipes, fixing blocks, chases, holes and the like in concrete members as required and must ensure that adequate notice is given to such sub-contractors informing them when concrete members incorporating the above are to be poured. The Contractor shall submit full details of these items to the Engineer for approval before the work is put in hand. All fixing blocks, chases, holes, etc., to be left in the concrete shall be accurately set out and cast with the concrete

AP. POSITION OF ELECTRICAL CONDUIT

Unless otherwise instructed by the Engineer all electrical conduits to be positioned within the reinforced concrete shall be fixed inside the steel cages of beams and columns and between the top and bottom steel layers in slabs and similar members.

The proposed position is all electrical conduits 25 mm and over in diameter which are to be enclosed in the concrete shall be shown accurately on a plan to be submitted to the Engineer, whose approval shall be obtained before any such conduit is placed.

AQ. FORMWORK

The method and system of formwork, which the Contractor proposes to use, shall be approved by the Engineer before construction commences. Formwork shall be substantially and rigidly constructed of timber or steel or precast concrete or other approved material.

All timber for formwork shall be good, sound, clean, sawn well-seasoned timber, free from warps and loose knots and of scantlings sufficiently strong for their purpose

AR. CONSTRUCTION OF FORMWORK

All formwork shall be of sufficient thickness and with joints close enough to prevent undue leakage of liquid from the concrete and fixed to proper alignment, level and plumb and supported on sufficiently strong bearers, shores, braces, plates, etc., properly held together by bolts or other fastenings to prevent displacement, vibration or movement by the weight of materials, men and plant on same and so wedged and clamped as to permit of easing and removal of the formwork without jarring the concrete. Where formwork is supported on previously constructed portions of the reinforced concrete structural frame, the Contractor shall by consultation with the Engineer ensure that the supporting concrete structure is capable of carrying the load and/or sufficiently propped from lower floors or portions of the frame to permit the load to be temporarily carried during construction.

Soffits shall be erected with an upward camber of 5 mm for each 5 metres of horizontal span or as directed by the Engineer.

Great care shall be taken to make and maintain all joints in the formwork as tight as possible, to

© Bills Partnership Ltd, Quantity Surveyors

prevent the leakage of grout during vibration. All faulty joints shall be caulked to the Engineers' approval before concreting.

The formwork shall be sufficiently rigid to ensure that no distortion or bulging occurs under the effects of vibration. If at any time the formwork is insufficiently rigid or in any way defective the Contractor shall strengthen or improve such formwork as the Engineer may direct.

The Contractors' attention is drawn to the various surface textures and applied finishes required and the faces of formwork next to the concrete must be of such material and construction and be sufficiently true to provide a concrete surface which will in each particular case permit the specified surface treatment or applied finish.

All surfaces which will be in contact with concrete shall be oiled or greased to prevent adhesion of mortar. Oil or grease shall be of a non-staining mineral type applied as a thin film before the reinforcement is placed. Surplus moisture shall be removed from the forms to placing of the concrete.

Temporary openings shall be provided at the bases of columns, wall and beam forms and at any other points where necessary to facilitate cleaning and inspection immediately before the pouring of concrete. Before the concrete is placed the shuttering shall be trued - up and any water accumulated therein shall be removed. All sawdust, chips, nails and other debris shall be washed out or otherwise removed within the formwork. The reinforcement shall then be inspected for accuracy of fixing. Immediately before placing the concrete the formwork shall be well wetted and inspection openings shall be closed. The erection, easing, striking and removing of all formwork must be done under the personal supervision of a competent foreman, and any damage occurring through faulty formwork or its incorrect removal shall be made good by the Contractor at his own expense.

After removal of formwork, all projections, fins, etc., on the concrete surface shall be chipped off, and made good to the requirements of the Engineer. Any or honeycombing shall be treated as described in "Faulty Concrete".

© Bills Partnership Ltd, Quantity Surveyors

AS. STRIPPING FORMWORK

All formwork shall be removed without undue vibration or shock and without damage to the concrete. No formwork shall be removed without the prior consent of the Engineer and the minimum periods that shall elapse between the placing of the concrete and the striking of the formwork will be as follows: -

Beam sides, wall and columns (unloaded)	2 days
Slab soffits (props left under)	3 days
Beam soffits (props left under)	7 days
Removal of props (partly subject to 7 days concrete cube strength being satisfactory) to: -	
Slabs	10 days
Beams	14 days
Cantilevered beams and slabs	28 days

If the contractor wishes to take advantage of the shorter stripping times permitted for beam and slab soffits when props are left in place, he must so design his formwork that sufficient props as agreed with the Engineer can remain in their original positions without being moved in any way until expiry of the minimum time for removal of props. Stripping and re-propping will not be permitted.

The above times may be reduced in certain circumstances, at the discretion of the Engineer, provided an approved method is adopted at the Contractor's expense to ensure that the required concrete strength is attained before the forms are stripped.

Solid strips in composite slabs shall be considered as beams. The tops of retaining walls shall be adequately supported with stout raking props at intervals required by the Engineer. These props are not to be removed until 7 days after casting of the floor slab over.

AT. SUPPORTING PROPS TO WALL AND BEAM SOFFITS

Where directed by the Engineer supporting props to wall and beam soffits are to be left in position until completion of the whole of the reinforced concrete structure.
The props are to be to the approval of the Engineer and the Contractor must submit the suggested method of propping to the Engineer prior to removal of formwork to the relevant surfaces.

EXPOSED CONCRETE FINISHES

© Bills Partnership Ltd, Quantity Surveyors

A. GENERAL

Contractors will be required at an early stage in the Contract, to prepare samples for the approval of the Engineer of the various concrete finishes specified hereafter. Samples are to be prepared using the same materials and the same methods of Construction, compaction, curing, etc., as the Contractor proposes to use for executing the full quantity of the work.

A record of the mix, water content, method of compaction, any additives used, etc., is to be kept for each sample prepared. When the Engineer has approved a sample it will be kept on site in an approved location. The finishes in construction will be expected to be up to a standard equal to the approved sample. The Contractor is to include for all costs in preparing samples in his rates for that respective finish.

Consistency in cement colour and colour, grading and quality of aggregates must be maintained in all finished concrete work.

B. TAMPED FINISH

Areas so specified shall be finished at the time of casting with a tamped finish to Engineer's approval, produced by an edge board. Board marks are to be made to a true pattern and will generally be at right angles to the traffic flow. Haphazard or diagonal tamping will not be accepted

C. CHAMBERS AND REBATES TO EXPOSED CONCRETE

Wherever concrete surfaces are to remain exposed and otherwise where specified or shown on the Drawings, rebates and chamfers are to be provided at junctions, corners, and changes in direction of concrete members.

Rebates and chamfers are to have a fair face finish.

Unless otherwise instructed concrete pours to columns and to other members where applicable are to terminate only at the pre-determined rebate positions.

D. FAIR FACE

Fair face surfaces shall be clean, smooth, even, true to form, line and level, and free from all board marks, joint marks, honeycombing, pitting, and other blemishes. Forms are to be provided with a smooth lining of plywood, steel, or other approved material, which will achieve the required finish without any general rubbing down. Rubbing down will only be permitted to remove any projecting fins at corners or joints

© Bills Partnership Ltd, Quantity Surveyors

E. FINE FACE

Fine face surfaces shall be as above but to a higher standard obtained from forms provided with an impervious sheet lining of metal or plastics faced plywood in large panels arranged in an approved pattern. Rubbing down shall only be permitted after inspection by the Engineer. The finished surface shall be capable of receiving a painted finish

F. BRUSHED CONCRETE FINISH

Brushed concrete finish shall be provided to precast concrete members where specified or shown on the Drawings.

The surface is to be sprayed with water and brushed within 2 hours of casting to expose the aggregate to an extent to be approved by the Engineer.

The brushed face will generally be contained within a surround of fair face concrete and the Contractor is to allow for retaining the fair face forms or otherwise protecting the surround whilst achieving the brushed finish

G. BOARD-MARKED FINISH

The required finish is to be a board-marked pattern and the boards are to be arranged vertically or horizontally to the patterns shown on the Drawings or as otherwise agreed by the Engineer.

Formwork shall be made from timber of sufficiently strong grain to the Engineer's approval in matching widths with straight sawn staggered joints. Short make-up lengths will not be permitted and boards shall generally be in the longest lengths practical. Construction joints shall be at predetermined positions and at recesses where so detailed

© Bills Partnership Ltd, Quantity Surveyors

H. CHISEL-DRESSED FINISH

Chisel-dressed finish is to be carried out on any grade of concrete but not until it is at least 30 days old.

The surfaces are to be fully chisel-dressed to remove a maximum of 12 mm (average 9 mm) of the surface by shearing and exposing the aggregate without excessive cracking of the surrounding matrix.

Arises of columns, beams, etc., are pre-formed fair face with timber fillets (which have been measured separately) set in the formwork and care must be taken in working up these to preserve a clean line.

For vertical surfaces of walls and columns particular care must be taken to remove all sharp projections. For beam soffits this requirement is not necessary.

All surfaces requiring this treatment are to have the margins chisel-dressed by hand for a minimum width of 75 mm commencing from the fillet edge. Thereafter mechanical chisel-dressing may be used but the Contractor must ensure that a uniform texture and even plane surface is achieved.

The use of sharply pointed steel tools for both hand and mechanical chisel-dressing is essential.

Upon completion the surfaces are to be thoroughly wire brushed and washed down.

J. PROTECTION OF FINISHES

Wherever possible, in-situ exposed concrete finishes should be commenced at the highest level and worked progressively down the building.

Precaution shall be taken to avoid staining or discolouration of previously finished concrete faces by leakage of grout from newly place concrete. The Contractor shall during all stages of construction adequately protect all concrete finishes from damage by leaking grout, knocking, paint stains, falling plaster, etc. Incase of balustrade walls to staircases and members where damage is otherwise likely, concrete finishes shall be protected by cladding with timber, celotex, or other approved sheeting. All Sub-contractors shall be informed accordingly on the precautions to be taken

PRECAST CONCRETE

© Bills Partnership Ltd, Quantity Surveyors

A. PRECAST CONCRETE

The maximum size of coarse aggregate in precast concrete shall not exceed 20 mm except for thickness less than 75 mm where it shall not exceed 10 mm.

The compaction of precast concrete shall conform with requirements given elsewhere in these preambles except for thin slabs where use of immersion type vibrators is not practicable. The concrete in these slabs may be consolidated on a vibrating table or by any other methods approved by the Engineer.

Steam curing of precast concrete will be permitted. The procedure for steam curing is used these times may be reduced subject to the approval of the Engineer.

Precast concrete units shall be constructed in individual forms. The method of handling the precast concrete units after casting, during curing and during transport and erection shall be subject to the approval of the Engineer, providing that such approval shall not relieve the Contractor of responsibility for damage to precast concrete units resulting from careless handling.

Repair of damage to the precast concrete units, except for minor abrasions of the edges, which will not impair the installation, and/or appearance of the units will not be permitted and the damage units shall be replaced by the Contractor at his own expense

Except where precast work is described as “fair face” the moulds shall be made of suitably strong sawn timber true in form to the shapes required. Unless otherwise described faces are to be left rough from the sawn moulds.

Where precast work is described as “fair face” the moulds are to be made of metal or are to have metal or plywood linings or are to be other approved moulds which will produce a smooth dense fairface to the finished concrete suitable to receive a painted finish direct and free from all shutter marks, holes, pittances, etc.

The precast units shall be installed to the lines, gradients and dimensions shown on the Drawings or as directed by the Engineer.

© Bills Partnership Ltd, Quantity Surveyors

B. CONCRETE SURFACE BEDS

The Concrete shall be placed as soon as possible after being mixed. In transporting the concrete adequate precautions shall be taken to avoid damage to the prepared base. The concrete shall be spread to such a thickness that when compacted it shall have the finished thickness as specified or shown on the Drawings. A layer of concrete 50 mm less than the finished thickness shall first be spread or struck off at the correct level to receive the top fabric reinforcement. The top layer shall be added. Not more than 30 minutes shall elapse between spreading the bottom layer and the start of the compaction of the top layer. The Contractor shall be responsible for maintaining the reinforcement in its correct position during the placing and compaction of the concrete.

The compacting and finishing of the concrete shall be effected by immersion vibrators and a hand or mechanical tamper weighing not less than 10 kg per linear metre and having a tamping edge shod with a steel strip 75 mm wide fixed to the tamper by countersunk screws. Immersion vibrators with "spade" attachments will be permitted. Compaction shall be continued until a dense, scaled surface finish is achieved. Over-compaction causing an excessive amount of fines to be brought to the surface shall be avoided.

The surfaces of the concrete shall be finished with a wood float finish to the levels, falls and crossfalls, as directed or shown on the Drawings shall be subject to the following tolerances: -

1. The level shall be within + or - 6 mm of the levels directed.
2. The falls shall be within 10% of the falls directed.
3. The smoothness shall be such that departures from a 3 metre straight edge in any direction shall not exceed 3 mm.

Minor irregularities shall be made good by the use of a steel float but in no circumstances shall mortar be used to make good the surface. Before the concrete has finally set and after completion of the floating the concrete shall be brushed with a strong-headed broom to produce a grooved finish in parallel lines to the satisfaction of the Engineer.

As soon as the surface has been finished it shall be protected against too-rapid drying by means of damp Hessian, polythene sheeting or other approved means placed carefully on the surface and kept damp and in position for 7 days and the concrete shall be kept wet for a further 21 days. The most critical period is the first 24 hours after placing and curing during that time shall be very thorough. The Contractor is to obtain the Engineer's approval to the material and method he proposes to use for curing and no concreting will be permitted until sufficient such materials on site.

Forms shall not be removed from freshly placed concrete until it is at least 24 hours old. Care shall be taken that in their removal no damage is done to the concrete, but should any damage occur the Contractor should be responsible for making it good

© Bills Partnership Ltd, Quantity Surveyors

C. HOLLOW CLAY POTS

The hollow clay pots for suspended floor shall be manufactured by messrs. Clay works Ltd., P.O Box 48202, Nairobi and shall be suspended floor units size 350 mm x 300 mm x 230 mm deep. Care shall be taken in unloading, stacking and placing hollow pots in position. Damaged units shall not be incorporated in the works and shall be removed from site.

D. HOLLOW BLOCK SUSPENDED FLOORS

The hollow blocks shall be set out to the dimensions shown on the drawings. Slip tiles will not be required. Care shall be taken when placing and vibrating the concrete to avoid damage to or displacement of the pots

© Bills Partnership Ltd, Quantity Surveyors

E. NOTES CONCERNING PRICING

The Contractor must allow for all costs incurred during the progress of the contract for complying with the provisions concerning the preparation and use of graded mixes.

Prices for plain or reinforced concrete shall include for mixing, hoisting, depositing, compacting, curing and protection at the various levels required throughout the building, and shall also include for forming or hacking a satisfactory key for all faces receiving asphalt and plaster work. Prices for slabs shall include for forming construction joints at bay edges, including all necessary temporary formwork and supplying records of such joints to the Engineer.

Prices for steel rod reinforcement shall include for cutting to lengths and all labour in bending and cranking, forming hooked ends, handling, hoisting and fixing in position and for providing all necessary tying wire, spacer blocks and supports. Prices for fabric reinforcement shall include for all straight cutting and waste, handling, hoisting and fixing in position, providing all necessary tying wire, and supports and all extra material in laps

The prices for formwork shall include for extra material at joints, extra labour and waste for narrow widths, small quantities, overlaps, passings at angles, straight cutting and waste, splayed edges, notchings, etc., and for fixing at the various levels including battens, struts, and supports and for bolting, wedging, easing, striking and removal. Prices for linear items such as boxing shall include for angles and ends.

Prices of all precast concrete shall include for all moulds, finishing as described, handling, reinforcement, hoisting and fixing at the required levels and for casting or cutting to the exact lengths required and any waste resulting from such cutting.

Prices for expansion joints shall include for cutting to size and all temporary supports and prices for expansions joint sealers shall include for all temporary battens or fillets required to form the necessary grooves.

Prices for hollow concrete block suspended construction must be " tall inclusive" to include for concrete hollow tiles, in-situ concrete ribs, concrete topping, concrete filling to open ends of hollow concrete tiles and solid concrete bearings and beams.

The Contractor is to allow in his prices for carrying out all tests as specified in this section apart from work cube tests for which a provisional item is included in the preliminaries section of these Bills of Quantities.

The prices for wrought formwork shall include for fair face finish either by rubbing down or by smooth lining, all as described in these Preambles.

WALLING

© Bills Partnership Ltd, Quantity Surveyors

A. STONE

Stone for walling shall be hard, dense, stone from an approved quarry with accurately dressed faces on all sides.

Stonewalling described as load bearing shall have a minimum crushing strength of 14.00 Newton per square millimeters and shall comply with BS EN 1996-1-1

B. CONCRETE BLOCKS

All hollow or solid concrete blocks for general use shall comply with BS EN 771-3, of minimum crushing strength of 3.5 Newtons per square millimetre, and must be obtained from any approved manufacturer, equal to samples deposited with and approved by the Engineer.

Concrete block walling described, as load bearing shall have a minimum crushing strength of 7.0 Newtons per square millimetre.

All concrete blocks must be cured for a minimum period of four weeks before use and all testing of blocks is to be carried out by the Ministry of Works Materials Testing Laboratory

C. WALL REINFORCEMENT

All walling of thickness 150mm and less shall be reinforced with hoop iron 25mm wide or similar reinforcement centrally in every alternate joint (vertically for the full length of the walls, lapped and crimped 300 mm at running joints and full width of wall at angles and intersections).

D. WALL TIES

20 Gauge hoop iron ties 25 mm wide x 450 mm long to be provided for every alternate course at all connections between block walls and reinforced concrete columns or walls. One end to be cast into concrete and other end bent and built into mortar joint of walling

E. CHASING

Chasing in load-bearing walling of electrical conduit, pipes, etc., is to be kept to a minimum size of cut and positions and runs of chases are to be approved by the Engineer before any cutting is commenced. Horizontal runs will not be permitted.

F. CEMENT

The Cement shall be as described in “Concrete Work”.

G. SAND

The sand for mortars shall be described in “Concrete Work” except that it shall be fine sand.

© Bills Partnership Ltd, Quantity Surveyors

H. LIME

The lime for plastering shall comply with B.S. 890, Class 'A' for non-hydraulic lime and shall be as rich as obtainable and to approval. It must be freshly burnt and shall be slaked at least one month before being used by drenching with water, well broken-up and mixed and the wet mixture shall be passed through a sieve of sixty four meshes to the square inch. Lime putty shall consist of freshly slaked lime as above described, saturated with water until semi-fluid and passed through a fine sieve; it shall then be allowed to stand until superfluous water has evaporated and it has become of the consistency of thick paste, in no case for a shorter period than one month before being used, during which it must be kept damp and clean and no portion of it allowed to become dry.

Alternatively, hydrated lime with 70% average calcium oxide content may be used and it must be protected from damp until required for use. It shall be soaked to putty at least 24 hours before use.

J. MORTARS

Cement mortar shall consist of one part of Portland cement, to three parts of sand by volume.

The cement/lime mortar shall consist of one part of Portland cement, one part of lime and six parts of sand by volume.

The ingredients of mortar shall be measured in proper gauge boxes on a boarded platform, the ingredients being thoroughly mixed dry, and again whilst adding water. In the case of cement/lime mortar the sand and lime shall be mixed first and then the cement added.

All mortar is to be thoroughly mixed to a uniform consistency with only sufficient water to obtain a plastic condition suitable for trowelling. No mortar that has commenced to set is to be used or remixed for use.

K. SETTING OUT

The Contractor shall provide proper setting out rods and set out on the same all work showing openings, heights, sills and lintels and shall build the various walls and piers to the thickness, widths and heights shown upon drawings. No part of the walling shall be carried up more than one metre higher at one time than any other part and in such cases the jointing shall be made in long steps so as to prevent cracks arising and all walls shall be levelled round at floor and wall heads.

© Bills Partnership Ltd, Quantity Surveyors

L. BONDING WALLING

All blocks shall be properly bonded together and in such a manner that no vertical joint in any one course shall be within 100 mm of a similar joint in the courses immediately above and below. Alternative courses of walling at all angles and intersections shall be carried through the full thickness of the ad jointing walls.

All perpends, reveals, quoins and other angles and joints of the walls, etc., shall be built strictly true and square.

M. LAYING AND JOINTING

All bricks and blocks are to be well wetted before laying and tops of walls where left off shall be well wetted before commencing building. All joints are to be 10 mm thick and flush up and grouted in solid as the work proceeds.

All exposed faces of walls for plastering are to be left rough and the joints raked out while mortar is green to form adequate key.

All other faces shall be cleaned down on completion with a wire brush or as necessary and mortar droppings, smear marks, etc., removed and rates must include for this

N. PUTLOG HOLES

All putlog holes shall be carefully, properly and completely filled up on completion of walling and before plastering is commenced

P. FAIR FACE

Walling described as fair-faced shall be built with selected blocks and pointed with neat flush joints. Stone walling shall be fine chisel dressed

Q. BRICKS

All bricks shall be obtained from Clayworks Limited, P.O Box 45154, Nairobi, of all sizes as required and shall be hard, sound, square, well-burnt, uniform in shape and free from cracks, stones and other defects.

Samples of bricks shall be deposited and be approved by the Engineer before being used and all subsequent bricks used in the Works shall be equal to the approved sample

© Bills Partnership Ltd, Quantity Surveyors

R. DAMP-PROOF COURSES

Damp-proof courses shall be bituminous felt to B.S. 8215 weighing 7 lbs. per square yard, free from tears and holes, and be laid with 150 mm minimum laps on and including a levelling screed of cement mortar

S. PRICES TO INCLUDE

The rates for walling shall include for all reinforcement, all straight cutting, bonding, plumbing angles, forming reveals, pinning up to underside of concrete soffits and cutting up to sides of columns and building in ends of lintels and sills

T. BRICK WORK

Brickwork shall be built to a gauge of 4 courses to 340 mm of wall height including 10 mm bed joints.

Facing walls shall be built in stretcher bond and be tied to the block works or concrete-backing walls with 10 gauge galvanized wire wall ties, 500 mm girth, formed to a figure 8 and twisted together at the lap.

Three wall ties per square metre are to be used, wall tiles for concrete backing walls shall be cast into the concrete including all temporary fixing to formwork.

Facing walls shall be pointed as the work proceeds. External walls shall have recessed joints and internal walls shall have flush joints. Facing walls shall be kept perfectly clean and no rubbing down of blockwork will be allowed

U. FAIR FACE

Walling described as fair faced shall be built with selected bricks and pointed with neat recessed joints.

ROOFING

A. PREPARATION OF SURFACES

All surfaces to receive roofing shall be clean, dry, free from fins or projections and loose materials, and with cracks or voids filled with cement mortar.

© Bills Partnership Ltd, Quantity Surveyors

B. LIGHTWEIGHT ROOF SCREEDS

Roof screeds will be executed to the approval of the Specialist Roofing Sub-Contractor and will consist of cement, sand and pumice (1:3:7) finished with 6 mm layer of cement and sand (1:4) topping. Screeds shall not be laid in areas exceeding ten square metres during any period of 24 hours. As bays are formed batten strips must be used to retain the exposed edge of the screed. Screeds shall be finished to falls and currents to receive roofing.

C. ASPHALT ROOFING

Asphalt roofing will be executed by an approved Specialist Roofing sub-contractor. Before any application of roofing, the Contractor is to ensure that all roof surfaces are thoroughly cleaned by sweeping.

Roofing asphalt to be BS 6925 Tropical Mastic asphalt laid in two coats to a total thickness of 20 mm on and including black sheathing felt and finished with two coats aluminum paint to horizontal and vertical surfaces

D. GALVANISED CORRUGATED STEEL SHEETING

The roof sheathing shall be of the gauge specified and comply with B.S. 3083. The roof sheeting shall be laid and fixed with steel work hook bolts and nuts, steel roofing bolts and clips or steel roofing screws to B.S. 1494: Part 1.

E. GALVANISED LT5 LONG TROUGH STEEL SHEETS

Where specified the roof sheeting and fittings shall be 24 gauge LT5 galvanized steel long trough roofing as manufactured by MABATI LTD, P.O Box 46934, NAIROBI or other equal and approved manufacturer. The roof sheeting shall be laid and fixed with approved purpose made hook, bolts, washers, etc., to 'Z' purlins. Where so specified the roofing shall be pre-painted with a RESINCOT FINISH

F. GALVANISED IT4 LONG TROUGH STEEL SHEETS

Where specified, the roof sheeting and fittings shall be 24 gauge IT4 roofing as manufactured by GALSHEET KENYA LTD, P.O Box 78162, NAIROBI OR other equal and approved manufacturer. The roof sheeting shall be laid and fixed with approved purpose made hook bolts, washers, etc. to 'Z' purlins. The ridge flashing sheets shall be IT4 profiled sheeting curved to the radii shown on the drawings. Where so specified the roofing shall be prepainted with a RESINCOT FINISH.

© Bills Partnership Ltd, Quantity Surveyors

G. CORRUGATED CEMENT ROOFING SHEETS

The roof sheeting shall be laid and fixed with approved hook bolts or roofing screws, complete with washers and caps

H. CONCRETE TILE ROOFING

Concrete single lap tiles and fittings shall be to BS EN 490 of the colour, finish, type size and manufacturer approved by the Engineer. A full range of fittings must be available to match the tiles. Tiles shall be 380 x 230 mm nominal unless otherwise specified. Tiles and fittings must be true to shape and of uniform structure. Surface coatings shall be firmly bonded.

J. MANGALORE TILE ROOFING

Mangalore clay tiles shall be "best" or selected quality as manufactured by Kenya Clay Products.

Tiles shall be well wetted before use and all dropped or broken tiles shall be rejected before carrying.

Cutting of tiles, where necessary at hips or valleys, shall be carefully and neatly carried out with properly sharpened tools.

Tilling shall be executed to the Engineers' satisfaction and roofs left watertight.

K. ROOF UNDERLAY

Roof underlay shall achieve thermo-insulation, aesthetic and reflective performance properties including SABS 1381-4: 1985 and SABS 0177-111, as those of Super Sisalation 420 manufactured by Nampak Laminated and Coated Products

L. PROTECTION

All roof surfaces shall be kept clean and protected and handed over watertight at completion.

CARPENTRY, JOINERY AND IRONMONGERY

A. ALL TIMBER

All timber shall be in accordance with the latest approved Grading Rules issued by the Government of Kenya (Legal Notice No. 35B). Timber for carpentry shall be SECOND (OR SELECT) GRADE and timber for Joinery shall be FIRST (OR PRIME) GRADE

© Bills Partnership Ltd, Quantity Surveyors

B. GENERALLY

All timber as it arrives on the site shall be inspected by the Contractor, and any timber brought on the site and not complying with the Specification or not approved, must be removed forthwith from the site and only timber as approved shall be used in the works.

The Contractor shall upon signing the Contract purchase sufficient supplies of specified hardwoods to avoid possible shortages at a later date

C. SPECIES OF TIMBER

The following timber shall be use.

Standard Common Name	**Botanical Name**
Cypress	Cypress spp.
Podocarpus	Podocarpus spp.
E.A. Camphor wood	Ocotea usambarensis
African Mahogany (Munyama)	Khaya anthotheca
Mninga	Pterocarpus Angolensis
Mvule	Chlorophora excelsa
Elgon Olive	Olea welwitshii

© Bills Partnership Ltd, Quantity Surveyors

D. TOLERANCES IN THICKNESS

Shall conform with the following extracts of Government of Kenya Grading Rules: -

(1) Hardwood Grading: (First and Second Grades)

(a) 15 mm oversize on pieces up to 25 mm in thickness.
(b) 3 mm oversize on pieces over 25 mm and up to 50 mm in thickness.
(c) 6 mm oversize on pieces over 50 mm in thickness.

Undersize will not be permitted.

(2) Softwood Grading: Strength Grades (for Carpentry)
First and Second Grades

Undersize not allowed.

Oversize: All timber to be sawn oversize by 1.5 mm for 25 mm thickness and width. Not more than 3 mm in thickness and not more than 6 mm in width.

(3) Soft wood Grading: Appearance Grades (for joinery)

First and Second Grades

All as for strength Grades above.

E. INSECT DAMAGE

All timber shall be free of live borer beetle or other insect attack when brought upon the site. The Contractor shall be responsible up to the end of the maintenance period for executing at his own cost of all work necessary to eradicate insect attack of timber which becomes evident, including the replacement of timber attacked or suspected of being attacked, notwithstanding that the timber concerned may have already been inspected and passed as fit for use.

F. SEASONING OF TIMBER

All timber shall be seasoned to moisture content of not more than 22% for carpentry and 15% for Joinery.

© Bills Partnership Ltd, Quantity Surveyors

G. PRESSURE IMPREGNATION PRESERVATIVE TREATMENT

All carpentry timbers, sawn joinery and timber grounds for fixing joinery shall be treated with pressure impregnated "Celcure" or "Tanalith" solution with a minimum nett retention of 0.35 lbs. of dry salt per cubic foot. If so required "charge sheets" issued after treatment with celcure B" or "Wolmanol" solution brushed on.

The Contractor's prices for such timber hereinafter must allow for the above treatment.

H. INSPECTION AND TESTING

The Engineer shall be given facilities for inspection of all works in progress whether in workshop or on site. The Contractor is to allow for testing of prototypes of special construction units and theEngineer shall be at liberty to select any samples he may require for the purpose of testing, i.e. for moisture content, or identification, species, strength, etc.; such tests will be carried out by the Forestry Department.

J. CLEARING UP

The Contractor is to clear out and destroy or remove all cut ends, shavings and other wood waste from all parts of the buildings and the site generally as the work progresses and at the conclusion of the work.

This is to prevent accidental borer infestation and to discourage termites and decay

K. WORKMANSHIP

All carpenters' work shall be accurately set out in strict accordance with the Drawings and shall be framed together and securely fixed in the best possible manner with properly made joints; all brads, nails and screws, etc., shall be provided as necessary, directed and approved and the Contractors' prices shall allow for all the foregoing.

All workmanship shall be of the best quality.

All Carpenters' work shall be left with sawn surfaces except where particularly specified to be wrought.

K. DIMENSIONS

Dimensions of timber for Carpentry left with sawn faces shall comply with previous Clause specifying tolerances in thickness. Dimensions for wrought members shall be as described in "Joinery".

© Bills Partnership Ltd, Quantity Surveyors

L. JOINTING

All timber shall be as long as possible and practicable to eliminate joints. Where joints are unavoidable surfaces shall be in contact over the whole area of the joint before fastenings are applied.

No nails, screws, or bolts are to be fixed in any split end. If splitting is likely, or is encountered in the course of any work, holes for nails are to be prebored at diameter not exceeding 4/5th of the diameter of nails. Clenched nails must be bent at right angles to the grain.

Lead holes are to be bored for all screws. When the use of bolts is specified the holes are to be bored from both sides of the timber and are to be of the diameter D+ D/16, where D is the Diameter of the bolt. Nuts must be brought up tight but care is to be taken to avoid crushing of the timber under the washers

JOINERY

A. GENERALLY

All Joiner's work shall be accurately set out on boards to full size for the information and guidance of the artisans before commencing the respective works, with all joints, iron work and other works connected therewith fully delineated. Such setting out must be submitted to the Engineer and approved before such respective works are commenced.

All joiners work shall be cut out and framed together as soon after the commencement of the building as is practicable but not to be wedged up or glued until the building is ready for fixing same. Any portions that warp, wind or develop shakes or other defects within six months after completion of all other work which may be affected thereby, all at the Contractors' own expense.

All work shall be properly mortised, tenoned, housed, shouldered, dovetailed, notched, pinned, bradded, etc., as directed and to the satisfaction of the Engineer and all properly glued up with the best quality glue. All horns to be cut off neat and square with back of jambs before incorporating into the walls. The feet of all door jambs are to be cut off square with the floor finish and are to be dowelled to the structure with steel dowels.

Joints in joinery must be specified or detailed, and so designed and secured as to resist or compensate for any stresses to which they may be subjected. All nails, sprigs, etc., are to be punched and puttied. Loose joints are to be made where provision must be made for shrinkage, glued joints where shrinkage need not be considered and where sealed joints are required. Glue for load-bearing joints or where conditions may be damp must be of the resin type. For non-load bearing joints or where dry conditions may be guaranteed case in organic glues may be used.

All exposed surfaces of joinery work shall be wrought and all arises "eased off" by planning and sandpapering to an approved finish suitable to the specified treatment.

© Bills Partnership Ltd, Quantity Surveyors

B. DIMENSIONS

All joinery has been described by nominal sizes and a 3 mm reduction off specified sizes will be allowed for each wrought face except where described as finished sizes in which case joinery shall hold up full dimensions

C. FIXING JOINERY

All beads, fillets and small members shall be fixed with round or oval brads or nails well punched in and stopped. All larger members shall be fixed with screws. Brass screws shall be used for fixing of all hardwoods, the heads let in and pelleted over with wood pellets to match the grain.

D. BEDDING FRAMES, ETC.

The Contractor's rates must include for bedding frames, sills, etc., in mortar or dressing surfaces of walls, etc., in lieu

E. PLUGGING CONCRETE AND WALLS

Round wood plugs shall not be used. All work described as plugged shall be fixed with screws to plugs formed by drilling concrete, walls, etc., with a proper tool of suitable size at 750mm spacing and filling the holes completely with "Philplug" rawl plastic or "Rawlplugs" in accordance with the manufacturer's instructions. Alternatively, and where so agreed the Engineer, hardwood dovetailed fixing clips, dipped in "Wolmanol" or "Celcure B" solution cut and pinned or bedded in cement mortar (1:3) may be used.

F. FIBREBOARD

Fibreboard shall consists of "Celotex", or other equal and approved termite-proofed softboard, cut to panels with V-edges; particle boards, medium density fibre boards and high density fibre boards.

Medium density fibreboards shall meet the standards of ANSI A 208.2 - 2002 "American National Standard : Medium Density Fibreboard (MDF) for Interior Applications

Particle and other fibreboards shall also meet the standards of ASTM C208

G. PLYWOOD

Plywood shall be manufactured to comply with BS EN 636. Marine plywood shall comply with B.S. 1088.

© Bills Partnership Ltd, Quantity Surveyors

H. BLOCKBOARD

Blockboard shall be laminated board to approval, and exposed edges shall be lipped with 20 mm hardwood.

J. CHIPBOARD

Chipboard shall be manufactured to comply with BS EN 312

K. PLASTIC SHEETING

Plastic sheeting shall be "Formica" sheeting 1.5 mm thick and securely fixed with approved type waterproof adhesive, and in the colours approved by the Engineer

L. SELECTED FOR CLEAR FINISH

All timber and joinery work described as selected for clear finish shall be executed by a specialized joinery firm. The name of the firm shall be submitted to the Engineer before any works commence

M. PROTECT JOINERY

Any fixed joinery which in the opinion of the Engineer is liable to become bruised or damaged in any way, shall be completely cased and protected by the contractor until the completion of the works. The casing shall "consist of two layers of polythene sheeting or plywood coverings

N. FLUSH DOORS

Semi-solid flush doors shall be manufactured to the thickness specified and consist of 100 mm wide framing all round with minimum 25 mm thick horizontal core battens at not more than 75 mm centres, pressure impregnated as described and bored with 15 mm diameter ventilation holes at 300 mm centres. Doors shall have two lock blocks and be faced both sides with 6 mm plywood and have 25 mm mahogany twice rebated lipping all round and otherwise be equal to the requirements of B.S. 459 Part 2A, and equal to an approved sample.

P. BOTTOM EDGES

Bottom edges of doors shall be painted with one coat of approved primer before fixing.

Q. IRONMONGERY

All locks and ironmongery shall be fixed with screws, etc., to match. Before the woodwork is painted, handles shall be removed, carefully stored and refixed after completion of painting and locks oiled and left in perfect working order. All keys shall be labelled with the door reference marked on labels before handing to the Engineer on completion.

© Bills Partnership Ltd, Quantity Surveyors

R. PRICES TO INCLUDE

Prices of items hereafter shall include for the foregoing labours, etc., and in addition the prices for linear items are to include all internal and external angles, either mitred or tongued, all fair, fitted, stopped, notched or returned ends, all similar incidental labours and all short lengths.

METAL WORK

A. ALL MATERIALS

All materials shall be of the best quality, free from defects. The materials in all stages of transportation, handling and piling shall be kept clean and damage from breaking, bending and distortion prevented

B. STRUCTURAL STEELWORK

Materials and workmanship shall conform with the requirements of BS EN 1993. Steel frames, trusses and purlins shall be carried out by a Nominated Sub-contractor.

C. NAILS, SCREWS AND BOLTS

Nails, screws and bolts shall be of best quality mild steel of lengths and weights approved by the Engineer. Nails shall be to B.S 1202 and bolts to B.S. 4190

Bolts shall project at least two threads through nuts and all bolts passing through timber shall have washers under heads and nuts

D. WORKMANSHIP

All work shall be carried out in the most workmanlike manner and strictly as directed by the Engineer.

Welding shall be neatly cleaned off and units shall be prefabricated in the workshop wherever possible, the minimum of site welding being employed.

All screwed work shall have full internal and external threads and holes shall have been cleaned off. Countersinking must be concentric.

E. RAINWATER GOODS

Prices shall include for building in, casting in or cutting mortices for fastenings, all making good, jointing, short lengths and all extra joints in the case of fittings

© Bills Partnership Ltd, Quantity Surveyors

F. METAL WINDOWS AND DOORS

Metal windows and doors shall be manufactured to B.S. 6510 from hot rolled mild steel sections produced by reputable mills and to be of dimensions and weights laid down in B.S. 6510 Where specified all casements and doors are to be made from heavy sections. Corners of frames are to be mitred and welded, and glazing bars, etc., either tenon riveted or welded into frames. Top-hung casements are to be hung on steel hinges and fitted with Bronze peg stays. Side -hung casements are to be hung on projecting hinges and fitted with bronze single point handle and cabin hook with concealed sliding stays.

F. FIXING METAL WINDOWS, DOORS, ETC.

The Contractor's prices for fixing metal windows, doors, etc., shall include for assembling and fixing, including screwing to wood frames or cutting mortices for lugs in concrete or walling and running with cement mortar (1:4), bedding frames in similar mortar and pointing in mastic, bedding sills, transoms and mullions in mastic, making good plaster around both sides, and fixing, oiling and adjusting all fittings and frames.

H. QUALITY OF MATERIALS AND WORKMANSHIP

The quality and workmanship of materials used in this contract shall conform to the requirements of the following British Standards:-

BS EN 1993	Mild steel for general structural purposes
BS EN 1993	The use of structural steel in building
BS EN 10365	Hot rolled steel sections
BS EN 10162	Cold Rolled Steel Sections
B.S. 938	General requirements for the metal Arc welding of structural Steel tubes to B.S. 1775
BS 8548	General requirements for the metal Arc welding of mild steel.
BS EN ISO 2560	Covered Electrodes for the Metal Arc Welding of Mild steel.

Materials may be required at any time to be tested in accordance with the British Standards listed above.

The cost of successful tests will be borne by the client, but the Sub-Contractor shall supply at his own expense test specimens when required. The cost of tests, which do not comply with the Standard, will be borne by the Sub-contractor.

© Bills Partnership Ltd, Quantity Surveyors

H. STRUCTURAL HOLLOW SECTIONS

All hollow sections are to be connected by electric welding.

For butt welds the fusion surface of each member must be properly aligned and prepared

J. ELECTRIC WELDING

All welding is to be in accordance with the requirements of BS EN 1011-1:2009 and the electrodes shall comply with B.S. 639.

Fusion faces shall be free from irregularities, which could interfere with the welding material. These faces shall also be free from any deleterious material such as rust, grease or paint.

All welds shall be of the specified finished sizes and the sequence of the welding shall be carried out in a manner that will give minimum distortion to the welded parts.

Edges for welding shall be prepared by planning or machine flame cutting.

During welding all parts will be maintained in their correct position.

Welds shall be carried out with each run closely following the one prior with sufficient time between to allow for removal of slag.

Each run of weld is to be inspected and the Sub-contractor shall ensure that unsatisfactory welds are cut out or remade to the required standard.

The minimum size of fillet weld shall be 6 mm.

All completed welds shall have a regular and smooth surface. The weld material shall be solid with complete fusion throughout the weld and to the farecut metals.

Any defects shall be cut out or made good to approval.

External faces of butt welds to be ground smooth.

K. PAINTING

All steel is to be wire brushed and any loose scale, dirt or grease shall be removed before any painting is commenced. One coat of red oxide primer Type A to B.S. 2523 shall be applied at the shop.

Any damage to the priming paint shall be made good to the Engineer's satisfaction

PLASTERWORK AND OTHER FINISHING

© Bills Partnership Ltd, Quantity Surveyors

MATERIALS

A. CEMENT

The cement shall be as previously described in "Concrete Work".

B. SAND

The sand shall be as described for fine aggregate but that for plastering shall be light in colour and well graded to a suitable fineness in accordance with the nature of the work in order to obtain the finish directed

C. LIME

The lime for plastering shall comply with BS EN 459-1:2015 Class "A" for non-hydraulic lime and shall be as rich as obtainable and to approval. It must be freshly burnt and shall be slaked at least one month before being used by drenching with water, well broken up and mixed and the wet mixture shall be passed through a sieve of sixty -four meshes to the square inch. Lime putty shall consist of freshly slaked lime as above described, saturated with water until semi-fluid passed through a fine sieve; it shall then be allowed to stand until superfluous water has evaporated and it has become of the consistency of thick paste, in no case for a shorter period than one month before being used, during which it must be kept damp and clean and no portion of it allowed to become dry.

Alternatively, hydrated lime with 70% average calcium oxide content may be used and it must be protected from damp until required for use. It shall be soaked to a putty at least 24 hours before use.

D. LIME PLASTER

Lime plaster shall consist of a backing coat in cement, lime and sand (1:2:9) and a finishing coat of lime putty skim with 10% cement added

E. POLISHED GRANOLITHIC

Polished granolithic shall consist of one part cement (by volume) coloured light brown with an approved dye, to two parts (by volume) of metamorphic coral chippings graded from 6 mm down to 3 mm with not more than 15% to pass a No. 40 B.S. sieve

© Bills Partnership Ltd, Quantity Surveyors

F. POLISHED TERRAZZO

All terrazzo work shall be carried out by an approved Sub-contractor. Polished terrazzo shall consist of a first coat of cement and sand (1:3) and a 12 finishing coat of "Snowcrete" and marble chippings (1:2), coloured with cement stone No.1" colouring compound six in proportions of 1:10, compound to cement. The overall thickness will be as specified in the measured work.

Where terrazzo paving is specified as incorporating especially selected large aggregate the thickness of the finishing coat shall be increased as required.

G. SEMI-FLEXIBLE/VINYLCOMPOSITION (VCT) POLY (VINYL CHLORIDE) FLOOR TILES.

The Semi-flexible/vinylcomposition (VCT) poly(vinyl chloride) floor tiles shall be 300 x 300 x 2 mm thick and shall comply with BS EN ISO 10595:2012. They shall be of selected pattern and colour from the "Marleyflex" Tile range or equal and approved.

H. GLAZED WALL TILES

White glazed wall tiles shall be size 8 mm thick, manufactured to comply with B.S. 1281.

J. QUARRY TILES

Quarry tiles shall be manufactured to B.S. 1286 type A and shall be chosen from the manufacturer's standard colour range.

K. PRECAST TERRAZZO TILES

Precast terrazzo tiles are to be as manufactured by the Linotic Flooring Company Ltd., P.O Box 42290, Nairobi, or equal and approved.

L. MARBLE GLOMERATE TILES

Marble glomerate tiles shall be as manufactured by the Linotic Flooring Company Ltd, P.O Box 42290, Nairobi. All edges shall be square and faces polished, or equal and approved

M. BEDS AND BACKINGS

Beds and backings shall be composed of cement and sand in the volumetric proportions stated in the measured work. Beds and backing to BS 8204-1:2003+A1:2009

WORKMANSHIP

© Bills Partnership Ltd, Quantity Surveyors

A. GENERALLY

All screeds and pavings shall be finished smooth, even and truly level unless otherwise specified and paving shall be steel trowelled.

Rendering and plastering shall be finished plumb, square, smooth, hard and even, and junctions between surfaces shall be perfectly true, straight and square.

At the junction of all concrete work and block walling a 150 mm wide strip of expanded metal lathing must be included to avoid plaster cracks.

All surfaces to be paved or plastered must be brushed clean and well wetted before each coat is applied. All cement paving and plaster shall be kept continually damp in an interval between application of coats for seven days after the application of the final coat.

Where dubbing out is required, shall be composed of one part cement to six parts of sand.

Partially or wholly set materials will not be allowed to be used or remixed. The plaster, etc., mixes must be used within two hours of being combined with water

B. SAMPLES

The Contractor shall prepare samples minimum one square metre of each of the screeds, pavings and plastering for the approval of the Engineer, after which all work executed shall conform with the approved samples.

C. LIME PLASTERING

Lime plastering shall be carried out in two coats having a total thickness of not less than 15 mm to walls and 10 mm to ceilings.

The first coat shall be trowelled to a perfectly true and even surface and finished with a wood float, the surface being sprinkled with water form a brush during the process and before it has set thoroughly scratched to form a key. The finishing coat shall not be less than 1.5 mm thick, thoroughly worked with a steel trowel, sprinkled with water as before and be brought to a uniform smooth and hard surface.

D. TYROLEAN RENDERING

Tyrolean rendering shall consist of trowelled backing coat in cement and sand mortar (1:4) gauged with 10% lime, to a thickness of 10 mm and a finishing coat of cement sand mortar (1:4) applied with an approved machine to a thickness of between 5 and 10 mm, to provide an even and uniform texture. Coloured cement or pigment is to be used if so directed by the Engineer.

© Bills Partnership Ltd, Quantity Surveyors

E. GRANOLITHIC AND TERRAZZO PAVING

Granolithic and terrazzo paving shall be spread and well compacted and given only sufficient trowelling to produce a perfectly level surface immediately after laying. When the granolithic or terrazzo has stiffened sufficiently so that a hard surface can be obtained without laitance, then the surface shall be machine ground to a perfectly even and smooth surface. On no account will dusting with neat cement to the surface be permitted.

F. POLY VINYL TILING

Poly vinyl floor tiles shall be stored and laid in accordance with the manufacturer's written recommendations using a bitumen-based adhesive. The tiles shall be laid with butt joints straight both ways. Tiling shall start from centre of a room or area

G. QUARRY TILING

Quarry tiles shall be bedded in 10 mm thick cement mortar (1:3) with 10 mm joint laid straight both ways. The joints shall be filled with cement mortar neatly flush pointed. The tiles are to be soaked in water before laying.

H. MARBLE TILES AND TERRAZZO TILES

The tiles are to be bedded in 10 mm thick cement mortar (1:3) with fine butt joints. The surface is to be washed and polished on completion.

J. CERAMIC, PORCELAIN, AND GRANITE TILES

Tiles shall be fixed with a cement-based adhesive such as Sika ceram 80 or other equal and approved with at least 3 mm wide joints straight both ways. When an area of tile is complete the joints should be grouted with approved colour proprietary grout.

K. BEDS AND BACKINGS

Floor screeds shall not be laid in areas exceeding ten square metres during any period of 24 hours. As bays are formed steel edge strips must be used to retain the exposed edge of screed.

The thickness and mixes of the screeds shall be adjusted to suit the various top dressings and the contractor must first ascertain what finish is intended to each specified area before the work of laying screeds is put in hand.

Screeds shall be finished with a wood float for wood blocks and steel trowel for thermoplastic and similar tiles.

© Bills Partnership Ltd, Quantity Surveyors

L. MAKING GOOD

All making good shall be cut out to a rectangular shape, the edges undercut to form a dovetail key and finished flush with the face of surrounding paving or plaster. Cut out and make good all cracks, blisters, and other defects and leave the whole of the work perfect on completion.

M. PRICES GENERALLY

In addition to the foregoing, prices of superficial items are to include for work in narrow widths, all linear labours, angles and arrises, all fair edges, for making good up or stopping to a line at the required level at top of skirting or dadoes where directed and for making good up to windows, door frames and similar.

The prices for all linear items unless otherwise measured are to include for all short lengths, angles and arises, mitres, and ends of every description.

Prices for paving are to include for adequate covering and protection during the progress of the works to ensure that the floors are handed over in perfect condition on completion.

Prices for all pavings and plastering, etc., shall include for hacking concrete surfaces and for raking out joints of walls 12 mm deep for cross-scoring undercoats to form a proper key.

Plastering on walls, generally shall be taken to include flush faces of lintels, beams, etc., in same.

M. PROTECTION

The Contractor's rates for all finishings shall allow for adequate protection against damage by all following trades or any other causes, to the satisfaction of the Engineer

GLAZING

A. GLASS

All glass shall be manufactured complying with BS 952-1:1995, free from flaws, bubbles, specks and other imperfections.

Glass panes shall be cut to sizes to fit the openings with not more than 1.5 mm play all round and where puttied shall be sprigged to wood or clipped to metal frames.

Clear sheet glass shall be ordinary glazing (O.Q) quality. Polished plate glass shall be (G.G.) quality.

Anti-bandit glass shall be 9 mm thick laminated glass of approved type.

© Bills Partnership Ltd, Quantity Surveyors

B. PUTTY

Putty for glazing in wood frames shall be composed of pure linseed oil and powdered whiting free for grittiness in accordance with B.S. 544 Type 1 in putty.

Putty for glazing in metal frames shall be quick hard-setting tropical putty specially manufactured for use with steel windows.

Rebates of metal frames receiving glass shall be prepared and treated with primer for putty prior to glazing and putty shall be primed ten days after glazing

C. BEDDING STRIPS

Bedding strips shall be of plastic or wash leather approved by the Engineer and shall be cut to fit exactly the line of frame and beads

D. ON COMPLETION

Remove all broken, scratched or cracked panes and replace with new to the satisfaction of the Engineer. Clean inside and out with an approved cleaner. On no account shall windows be cleaned by scraping with glass.

PLUMBING

A. EXECUTION OF THE WORKS

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

a) By-laws of the Local Authority
b) British Standard Code of Practice C.P. 301: 1971, Building Drainage
c) British Standard Code of Practice C.P. 310: 1965, Water Supply.
d) British Standard Code of Practice C.P. 304: 1968, Sanitary pipework
e) British Standard Code of Practice C.P. 305:1974, Sanitary
f) British Standard Code of Practice C.P. 342: 1970, Centralised Hot Water Supply.
g) All other relevant British Standard Specifications and Codes of Practice(hereinafter referred to as B.S. and C.P. respectively)
h) The working Drawings.
i) The Engineers' instructions.

© Bills Partnership Ltd, Quantity Surveyors

B. EXTENT OF WORKS

The works include, unless otherwise specified, the supply, installation, testing and commissioning, and delivery up clean and in working order of the installations shown on the drawings and specified in the Specifications, including all details such as:-

Cold and hot water pipes, discharge pipes, (the term discharge pipe is used as a comprehensive all-embracing description in place of the traditional soil and waste terms), drain and ventilating pipes, valves, fire fighting installations and equipment, thermal insulation, etc., and all labour, materials, tools, instruments and scaffolding necessary to execute the work in a first-class manner.

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

C. EXTENT OF THE CONTRACTOR'S DUTIES

At the commencement of the work, the Contractor shall investigate and report to the Engineer the availability of all materials and equipment to be used in the work. If not available, the Contractor shall at this stage place orders for the materials in question and copy the orders to the Engineer. Failure to do so shall in no way relieve the Contractor from supplying the specified materials and equipment in time.

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

D. RECORD DRAWINGS

During the execution of the works on the site the Contractor shall, in a manner approved by the Engineer, record on working drawings and Contract Drawings all information necessary for preparing Record Drawings of the Installed Contract Works. Marked-up Drawings and other documents shall be made available to the Engineer as he may require for inspection and checking.

Record Drawings may, subject to the approval of the Engineer, include approved Working Drawings adjusted as a correct record of the installation of the Contract Works.

Record Drawings shall be prepared on approved computer-aided design (CAD) software such as AutoCAD or other equal and approved and shall be shared with the Engineer in softcopy in both editable file format such as *.dwg* as well as in a portable document format (pdf) format.

© Bills Partnership Ltd, Quantity Surveyors

E. MATERIALS AND WORKMANSHIP GENERALLY

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

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

The Contractor shall, if required by the Engineer, submit samples of materials to the Engineer for his approval before placing an order.

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

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

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

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

© Bills Partnership Ltd, Quantity Surveyors

F. TUBING GENERALLY

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

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

Where insulated, tubing shall be fixed with the insulation at least 25 mm clear of adjacent surfaces and with at least the same clearance between insulated pipes.

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

Mild Steel Tubing

Diameter of Pipe in mm	Maximum Spacing of Fixing in mm	
	Horizontal Runs	Vertical Runs
15	1,800	2,400
20	2,400	3,000
25	2,400	3,000
32	2,700	3,000
40	3,000	3,600
50	3,000	3,600
65	3,600	4,600
80	3,600	4,600
100	4,000	4,600

U**nplasticised P.V.C. Pipes**

Diameter of Pipe in mm	Maximum Spacing of Fixing in mm	
	Horizontal Runs	Vertical Runs
12	300	900
19	400	900
25	400	900
32-152	500	1,200

© Bills Partnership Ltd, Quantity Surveyors

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

Full allowance shall be made for the expansion and contraction of pipework, precautions being taken to ensure that any forces produced by pipe movements are not transmitted to valves, equipment or plant.

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

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

All water systems shall be provided with sufficient drain points to enable them to function correctly. Valves and other user equipment shall be installed with adequate access for operation and maintenance. Where valves and other operational equipment are unavoidably installed beyond normal reach or in such a position as to be difficult to reach from a short stepladder, extension spindles with floor or wall pedestals shall be provided.

Before any joint is made, the pipes shall be hung in their supports and adjusted to ensure that the joining faces are parallel and any falls, which shall be required, are achieved without springing the pipe.

All formed bends shall be made so as to retain the full diameter of the pipe.

Sleeves shall be provided where tubes pass through walls and solid floors to allow movement of the tubes without damage to the structure. The overall length of the sleeve shall be such that it projects at least 2 mm beyond the finished thickness of the wall or partition.

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

© Bills Partnership Ltd, Quantity Surveyors

G. GALVANISED MILD STEEL TUBING

Galvanized mild steel tubing shall be in accordance with BS EN 10255:2004 with screwed and socketed joints; medium-duty for pipes above ground, heavy-duty for pipes underground, cast into concrete or chased into walls.

Fittings for the same shall be galvanized malleable iron to B.S. 1940 : 1965, with threads to BS ISO 965-3:2021

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

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

Where laid underground or cast in concrete, galvanized mild steel tubing shall be protected by "Densotape" or similar, wound on at least two layers thick, or given two coats of approved bitumen. Minimum earth cover to underground tubing shall be 450 mm.

Where chased into walls or cast in concrete, galvanized mild steel tubing carrying hot water shall be wrapped with hair felt secured by copper wire.

The fixing of galvanized mild steel tubing shall use: -

a) Malleable iron "school board" pattern brackets for building in or for screwing to structure, OR.
b) Malleable iron pipe rings, with either back plate, plugs or girder clips; OR
c) Purpose-made straps to the Engineers' approval.

© Bills Partnership Ltd, Quantity Surveyors

H. UNPLASTICISED P.V.C. PIPES

Unplasticised p.v.c. Discharge and ventilating pipes and fittings shall be to B.S. 4514: 1964, Grade 2.

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

Joints of U.P.V.C discharge and ventilating pipes shall be spigot and socket joints which incorporate synthetic rubber rings or they shall be closely fitting spigots and sockets jointed together by means of a solvent solution provided by the pipe maker.

Joints of U.P.V.C. discharge and ventilating pipes to cast iron drain pipes shall be by means of purpose-made cast iron sleeves jointed with tarred yarn and fibrous lead yarn properly caulked into the wetted sockets. Joints to pitch fibre drainpipes shall be made with approved adaptors.

The fixing of U.P.V.C. pipes shall use holderbats of metal, or plastic-coated metal, care being taken that they do not damage the pipe when tightened. Where anchor points are specified to control thermal movement, the holderbats fitted to the pipe barrel shall be such as to allow thermal movement to take place.

At the foot of all U.P.V.C. Ventilating stacks and where shown on the Drawings and in other positions as directed or necessary for cleaning, inspection pipes with door shall be provided, with a bolted oval recess door, shaped internally to bore of pipe.

© Bills Partnership Ltd, Quantity Surveyors

J. VALVES, COCKS, TAPS, ETC.

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

Brass ball valves shall comply with BS 1212-1:1990 and copper floats for ball valves shall comply with B.S. 1968: 1953, and plastic floats for some shall comply with BS 2456:1990

Sluice valves shall comply with BS 5163-1:2004 & BS 5163-2:2004

Gate valves on main supply shall comply with BS EN 1984:20210

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

Drain taps shall comply with B.S. 2879: 1980

Safety valves, stop valves and other safety fittings for air receivers and compressed air installations shall comply with BS EN ISO 4126-1:2013+A2:2019

Safety valves for thermal storage water heaters shall comply with BS ISO 4126-9:2008

© Bills Partnership Ltd, Quantity Surveyors

K. THERMAL INSULATION

Thermal insulating material for hot and cold water supply installation shall conform to BS 5422:2023, unless otherwise specified. The Contractor shall ensure that the thermal insulating materials used conform to the requirements of the Local Fire Authority.

All thermal-insulating materials shall be delivered to the site in a dry condition and housed in a store until drawn upon for use.

All surfaces to be insulated shall be cleaned carefully before fixing the insulating material.

The installation of insulating materials shall be entrusted only to operatives skilled in the work. All insulating material, however fixed, shall be in close contact with the surface to which it is applied and all joints shall be sealed after ensuring that edges or ends of any section are built up close to one another. Edges or ends shall be cut or sharpened on site as necessary. Supporting bands shall be either non-corrodible material or adequately protected against rust.

Each pipe or item shall be insulated separately.

Fixing of insulating material shall suit the progress of other installation works in the building.

Insulation, where pipes are fixed exposed, shall be pre-formed rigid sections with approved finish. Where pipes are fixed in close ducts, above false ceilings, etc., matts cut in suitable sections on the site shall be used, well secured with copper or galvanize wire, finally covered with asphalt roofing paper.

Where subject to outside weather or other potentially damp or wet conditions, the insulation shall be adequately protected against moisture pick-up.

If nothing else is specified, the minimum thickness of insulating material for cold and hot water pipes shall be as specified in BS 5422:2023

© Bills Partnership Ltd, Quantity Surveyors

L. SANITARY APPLIANCES

The installation of sanitary appliances shall be in accordance with C.P. 305: 1952 and BS EN 14056:2003

The appliances shall be fixed in the positions shown on the Drawings or as directed by the Engineer.

For all sanitary appliances, the necessary number of supports, brackets, plugs, screws, washers, jointing materials, etc., shall be provided.

Where supports, brackets etc., are screwed to wall or structures, "Rawlplugs" or similar shall be used.

No traps for any appliance whatsoever shall have a seal less than 75 mm.

Fixing shall, if required by the Engineer, include for temporarily erecting appliances in the required position of service and discharge pipes, taking down, storing and permanently fixing after completion of wall finishing and connecting to service and discharge pipes.

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

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

© Bills Partnership Ltd, Quantity Surveyors

M. FIRE FIGHTING EQUIPMENT

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

Portable fire extinguishers shall comply with the following B.S.:

a) Water type (Soda acid) - BS EN 3-7:2004+A1:2007

b) Foam type (Chemical) - B.S. 740 : Part 1:948

c) Foam type (gas pressure) - B.S. 740: Part 2: 1952

d) Water type (gas pressure) - BS EN 3-7:2004+A1:2007

e) Halogenated hydrocarbon type (Carbon tetrachloride and Chlorobromomethane) - BS EN 3-7:2004+A1:2007

f) Carbon dioxide type -BS EN 3-7:2004+A1:2007

g) Dry powder type - BS EN 3-7:2004+A1:2007

h) Water type (stored pressure) - BS EN 3-7:2004+A1:2007

Fire hose couplings and ancillary equipment shall comply with B.S. 336: 2010

Hose reels : Hoses to be 20 mm reinforced red rubber canvas double braided, to comply with B.S. 3169: 1970. Waterway pressure castings machined throughout. Hose plates 560 mm diameter steel. Inlet valve with inlet screwed ¾" B.S.P. Controllable plastic jet spray pattern and shut-off. Test pressure: 2.5 kg/Square Centimetre. Finish fire red.

The installation of fire extinguishers shall be in accordance with C.P. 402: Part 3 :1964

© Bills Partnership Ltd, Quantity Surveyors

N. TESTING

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

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

All hot and cold water installations shall, if nothing else is specified, be tested to 1.5 times normal working pressure, minimum 4 kg/cm squared, and compressed air systems tested with minimum 10 kg/cm squared.

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

The test pressure shall be maintained by the pump for about one hour and a leak as specified in BS EN 806-5:20125, shall be approved, but any visible individual leak shall be repaired.

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

Testing of discharge pipes shall be carried out in accordance with BS EN 1610:2015

Tests shall, if necessary be done in sections as work proceeds without extra payment.

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

Upon completion of the work, including re-testing if necessary, the installation shall be thoroughly flushed out.

P. STERILISATION OF WATER SUPPLY PIPES

Sterilization shall be carried out strictly in accordance with BS EN 806-5:2012. The sterilization will not be approved unless the final test for residual chlorine mentioned in the above BS proved positive.

© Bills Partnership Ltd, Quantity Surveyors

Q. COMMISSIONING

Before handing over, the Contractor shall confirm the Installation has been examined, tested, is ready for use, that it will operate and can be maintained efficiently.

When handing over, the Contractor shall demonstrate to the Employer the methods of operation, limitations, and the maintenance requirements and safety precautions to be observed; and shall also hand over any tools for operating, cleaning, testing and maintenance of the installation.

R. MEASUREMENT

Prices for tubing shall include for all short lengths and sockets. Connectors, elbows, bends, formed bends, tees, reducing pieces and other fittings are measured separately and are to include for any extra joints and other extra labour required. The prices for the reducing tees shall include for any extra reducing pieces which may be required, if the correct reducing tee is not available.

All pipes have been measured over all bends, tees and other fittings and the Contractor shall include in his prices for all cutting and waste.

DRAINAGE

A. SETTING OUT

Lines of drains shall be accurately set out and trenches excavated and bottoms trimmed to accurate gradients to approval before pipe laying commences.

B. DRAIN TRENCHES

Excavation shall be made to such depths and dimensions as may be required by the Engineer to obtain proper falls and firm foundations. No permanent construction shall be commenced on any bottom until the excavation has been examined and approved by the Engineer. Should the Contractor in error, or without the instructions of the Engineer, make any excavation below the required level of the drain or bed, as the case may be, he will be required to refill such excavation to the correct levels with class 15 concrete at his own expense.

Prices for excavation must include for excavating in all materials met with and for trimming bottoms to the necessary falls and for any extra excavation required for planking and strutting and working space, all as described under “Excavation”. Excavation in hard rock requiring the use of the compressors or wedging is measured separately

© Bills Partnership Ltd, Quantity Surveyors

C. KEEP EXCAVATION DRY

The Contractor shall keep the whole of the trenches or other excavations free from water, and he shall execute such works and install such pumps as may be required to keep the excavations dry at all times. No sub-soil water shall be discharged into the sewers without the written permission of the Engineer.

D. UPVC DRAIN PIPES AND FITTINGS

UPVC drain pipes and fittings shall comply in all respects with BS EN 13598-1:2020, golden brown in colour and with jointing by lip seal socketed fittings. The natural rubber for lip seal joints shall be to BS EN 682:2002

Laying and jointing shall be carried out strictly in accordance with the manufacturer's instructions. Pipe barrels shall be continuous contact with the trench bed when laid.

All materials for bed and side fill to UPVC drain pipes shall be hard granular material passing 20 mm sieve containing not more than 5% fines passing 3 mm sieve, composed of crushed stone, quarry waste, ballast or gravel with a compaction factor of 0.3 or less

E. CAST IRON DRAIN PIPES

Cast iron drainpipes shall be coated cast iron spigot and socket pipes conforming to B.S. 437:2008 in all respects and with fittings to B.S. 437:2008. Pipes shall be jointed with approved yarn and caulked with molten lead or jointed with special jointing compound, all to approval.

F. SPUN CONCRETE CYLINDRICAL DRAIN PIPES AND FITTINGS

Spun concrete drainpipes shall be to B.S. 556, Part 2, of approved manufacture.

Flexibly jointed pipes shall have spigot and socket joints made with rubber joint rings to BS EN 682:2002

Rigidly jointed pipes shall have spigot and socket joints made with proprietary rubber gasket or three turns of tarred gaskin or tallowed yarn caulked to not more than one quarter or the socket joint and cement mortar 1:2 struck off at 45 degrees.

G. UPVC DRAIN PIPES AND FITTINGS

UPVC drain and fittings shall be to BS EN 13598-1:2020 of approved manufacturer, with leap seal socketed joints, laid strictly in accordance with the manufacturer's instructions.

© Bills Partnership Ltd, Quantity Surveyors

H. BACKFILLING

The first backfilling of pipe trenches is to be of soft material free from stones and shall be watered and carefully tamped over and around the pipes in 300 mm layers until they are covered to a depth of 600 mm. Subsequent filling is to be in 150 mm layers, watered and rammed. Only materials approved by the Engineer are to be used as backfilling.

Where hardcore is used for backfilling it is not to exceed 150 mm gauge and all interstices shall be properly filled with small pieces and fine binder. Surplus excavated materials are to be removed from the site.

If, in the opinion of the Engineer, care has not been exercised in refilling trenches, he may order a fresh test to be made on the drain. In the event of the drain failing to pass the test, the Contractor will be required to remedy the fault at his own expense

J. CONCRETE BEDS AND SURROUNDS

Concrete beds and surrounds shall be Class 25 concrete to the thickness and widths specified.

Where pipes are specified to be haunched, the concrete shall be carried up from the outside edge of the bed to meet the pipe barrel tangentially.

Where pipes are specified to be surrounded, the concrete shall be carried up from the bed in a square section with a minimum of 150 mm in thickness over the barrel of the pipe.

Rates for beds and surrounds shall include for forming recesses and filling with concrete, for mortar layer, etc., and for any necessary formwork.

© Bills Partnership Ltd, Quantity Surveyors

K. LAYING PIPES

Each pipe shall be carefully examined on arrival; any defective pipes shall be removed immediately from the site and not used in the works. Minor damage to the protective coating of cast iron pipes shall be made good by painting with hot tar; if major defects in the coating exist, such pipes shall be rejected and removed from site.

Drains shall be laid in straight lines and to even gradients as required and to the satisfaction of the Engineer.

Great care shall be exercised in setting out and determining the levels of the pipes and the Contractor shall provide suitable instruments and set up and maintain all straight rails, boning rods and bench marks, etc.,

All drains shall be kept free from earth, debris, superfluous cement and other obstructions or water during laying until completion of the contract when they shall be handed over in a clean condition.

Pipes shall be laid with sockets leading uphill and shall rest on solid and even foundations for the full length of the barrel. Socket recesses shall be formed in the foundation, as short as practicable but sufficiently deep to allow the pipe jointer room to work right round the pipe. Such recesses shall be filled with cement mortar (1:4) on completion of laying.

L. INSPECTION CHAMBERS

Inspection chambers shall be constructed in the positions indicated on the Drawings or as required by the Engineer. Such chambers shall be to the depths required to obtain even gradients in the drain and of sufficient size to contain the requisite main channel and any branches thereto and all to the entire satisfaction of the Engineer and the Local Authority.

Rendering shall be trowelled smooth, coved at all internal angles and rounded on arrises.

© Bills Partnership Ltd, Quantity Surveyors

M. TESTING

Each length of drain and manhole shall be tested as described hereinafter and approved by the Engineer before any backfilling of the trench takes place.

Testing shall not be carried out until at least 12 hours have elapsed after the jointing of the last pipe.

The test shall be as follows: -

(i) The lower end of the pipe and all junctions shall be securely stoppered and the whole length under test filled with water.

(ii) When full, a further stopper shall be inserted at the top leaving a pipe attached to the drain plug. This pipe shall be bent through 90 degrees and shall terminate in a header tank 225 mm square. The vertical distance between the centre line of the drain plug and the top of the header tank shall be not less than 900 mm.

(iii) Water shall then be poured into the header tank, which shall be kept full for a minimum period of 3 hours to allow absorption to take place. At the expiration of this period the header tank shall be topped up and the testing of the drain commenced. If, after a further period of 30 minutes, the water level in the header tank has not fallen by more than 2 mm the test will be considered satisfactory.

(iv) In the event of a pipe failing to withstand the test, the point of failure shall be completely surrounded, at the Contractors' expense, with Class 25 concrete 19 mm maximum aggregate, so that there is a minimum cover of 150 mm in all directions. The length shall then be re-tested.

(v) Immediately a length of drain has been approved the trench shall be backfilled for a depth of at least 300 mm above the top of the pipes.

N. GULLEYS

Gulleys shall be approved 100 mm salt glazed stoneware or cast iron trapped gulleys with 150 x 150 mm cast iron gratings to receive the wastes from waste fittings. Bed the gulleys on and surround with Class 25 concrete 100 mm thickness, carried up to form a 75 x 75 mm kerb with all exposed surfaces finished in cement and sand (1:2) trowelled hard and smooth and all angles rounded. Make good cement joint to drain pipe and run drain to adjacent manhole.

P. MEASUREMENT

Drain pipes have been measured over all bends, junctions and other fittings, and the Contractor shall include in his prices for all joints, short lengths, cutting and waste. Prices for bends, junctions, etc., shall include for the extra joints, cutting and waste and any extra labour required.

© Bills Partnership Ltd, Quantity Surveyors

PAINTING AND DECORATING

A. APPROVED SPECIALIST

An approved Specialist must execute all work under this trade.

B. GENERALLY

The Contractor shall so arrange his programme of work that all other trades are completed and away from the area to be painted, when painting begins. Before painting the Contractor must remove all concrete and mortar droppings and the like from all work to be decorated and remove all stains from and obtain uniform colour to work to be oiled and polished.

All plaster, metal, wood or other surfaces that are to receive finishes of paint, stain, polish, distemper or paintwork of any description are to be carefully inspected by the Contractor before he allows any of his painters to commence work. The Contractor will be held solely responsible for all defective work condemned as a result of his Painters' failure to insist on receiving from the other trades surfaces in the proper condition to allow first-class finishes of the various kinds specified being applied to them.

© Bills Partnership Ltd, Quantity Surveyors

C. PAINTING GENERALLY

All materials are to be of the best quality and shall be of an approved proprietary brand selected from the latest Schedule of Approved Paints issued by the Ministry of Works.

All materials to be applied externally shall be of exterior quality and/or recommended by the manufacturers for external use.

All materials shall be delivered on Site intact in the original sealed drums or tins and shall be mixed and applied strictly in accordance with the manufacturers' instructions and to the approval of the Engineer.

Unless specially instructed or approved by the Engineer, no paints, distemper, etc., are to be thinned, or otherwise adulterated, but are to be used as supplied by the manufacturers and direct from the tins.

If required by the Engineer the Contractor is to provide at his own expense samples of paints, etc., with containers and cases to be forwarded carriage paid by the Contractor for analysis to a laboratory.

The priming, undercoats and finishing coats shall each be of differing tints and the priming and undercoat shall be the correct brands and tints to suit the respective finishing coats, in accordance with the manufacturer's instructions. All finishing coats shall be of colours and tints selected by the Engineer. Each coat must be approved by the Engineer before the next coat is applied.

Each coat shall be properly dry and in the case of oil or enamel paints shall be well rubbed down with fine glass paper before the next coat is applied. The paintwork shall be finished smooth and free from brush marks.

Colour cards of all paints, etc., shall be submitted to, and samples prepared for approval of the Engineer before laying on, and such samples, when approved, shall become the standard for work.

All paints, emulsion paints, and distempers shall be applied by means of a brush or spray gun or rollers of an approved type, where so agreed by the Engineer.

No painting is to be done in wet weather or on surfaces, which are not thoroughly dry.

Prices of paint, distemper, etc., shall include for preparation of surfaces, rubbing down between each coat, stopping, knotting, etc., and all other work in connection and as described and as necessary to obtain a first-class and proper finish to approval.

Emulsion paint on ceilings and all undercoats of emulsion paint and complete oil painting on walls shall be completed before thermoplastic flooring laid. Final coats of emulsion paints on walls shall be applied after such flooring has been laid complete.

© Bills Partnership Ltd, Quantity Surveyors

D. SAMPLES

The Contractor shall furnish at the earliest possible opportunity before work commences and at his own cost, samples of painting for the Engineers' approval and any further samples in case of rejection until such samples are approved by the Engineer and such samples, when approved, shall be the minimum standard for the work to which they apply.

The Engineer may reject any materials or workmanship not in his opinion up to the approved sample, and these must be removed from the site without delay.

E. WOOD PRESERVATIVE

All woodwork in contact with waling of plaster shall be treated after cutting and preparation but before assembly or fixing with one coat of "TIMICIDE" wood preservative manufactured by Timsales Ltd., P.O Box 18080, Nairobi. The solution is to be brushed on all faces of all timbers, unless exposed to view and painted.

The Contractor shall note that this solution is POISONOUS and shall take all necessary precautions and instruct his workmen accordingly

F. WAX POLISH

Wax polish shall be furniture polish of an approved brand and wood surfaces shall be clean, smooth, and free from oil or grease or any other blemishes. A minimum of two coats shall be applied to approval.

G. PREPARATION AND PRIMING OF PLASTER, ETC., SURFACES

Plaster surfaces shall be perfectly smooth, free from defects and ready for decoration. All such surfaces shall be allowed to dry for a minimum period of six weeks, stopped with approved plaster compound stopping and rubbed down flush, as necessary, and then be thoroughly brushed down and left free from all efflorescence, dirt and dust immediately prior to decorating.

Plaster surfaces which are to be finished with emulsion, oil or enamel paint, shall be primed with an alkali resisting primer complying with the particular paint manufacturer's specification and applied in accordance with their instructions.

Fibreboard or similar surfaces shall be lightly brushed down to remove all dirt, dust and loose particles and have all nail holes or other defects stopped with an approved plaster compound stopping rubbed down flush and left with a texture to match surrounding material and shall receive on coat petrifying liquid as last.

© Bills Partnership Ltd, Quantity Surveyors

H. PREPARATION AND PRIMING OF METAL, ETC

All surfaces shall be thoroughly brushed down with wire brushes and scrapped where necessary to remove all scale, rust, etc., immediately prior decorating. Where severe rust exists and if approved by the Engineer a proprietary de-rusting solution may be used in accordance with the manufacturer's instructions.

Shop-primed and unprimed surfaces shall be given one coat of metal chromate primer.

Galvanized surfaces already treated with bituminous solution shall be scraped to remove soft parts and then receive two isolating coats of aluminum primer or other approved anti-tar primer.

J. PREPARATION AND PRIMING OF WOODWORK

All woodwork shall be rubbed down, all knots covered with a thick coat of good shellac or aluminum knotting; primed with one coat of approved ready-mixed proprietary wood primer and all cracks, nail holes, defects and uneven surfaces, etc., stopped and faced with hard stopping rubbed down flush

K. PREPARATION OF PREVIOUSLY PAINTED METAL SURFACES

Thoroughly wash down with water containing an approved cleansing agent and rinse with clean water. Wire brush to remove all rust and loose paint and touch up bare patches with Zinc-rich primer

L. PREPARATION OF PREVIOUSLY PAINTED WOODWORK

Thoroughly wash down with water containing an approved cleansing agent and rinse with clean water. Lightly rub down with glass paper and prime and bring forward all bare patches for decoration

M. PREPARATION OF PREVIOUSLY PAINTED PLASTER, ETC., SURFACES

Thoroughly wash down with water containing an approved cleansing agent and rinse with clean water. Cut out small cracks and other blemishes and fill with an approved plaster compound stopping rubbed down flush. Bring forward all bare patches for decoration

N. EMULSION PAINT

After preparation as specified above a minimum of THREE coats, unless otherwise specified, shall be applied using a thinning medium of water only if and as recommended by the manufacturer.

An approved plaster primer tinted to match may be substituted for the first coat in three-coat work.

© Bills Partnership Ltd, Quantity Surveyors

P. ENAMEL PAINT

Apply two undercoats and one finishing coat, after preparation and priming as specified above

Q. CLEAR POLYURETHANE VARNISH

Surfaces are to be treated with "Ronseal" or other equal and approved, in three coats. The first coat is to be applied with a linen pad and well rubbed in and second and successive coats are to be applied by brush. The first and second coats are to be lightly rubbed with Grade 'O' and Grade 'OO' wire wool respectively.

R. POLYURETHANE CLEAR LACQUER

To be applied strictly as per the manufacturer's instructions.

S. IRONMONGERY

All ironmongery shall be removed from joinery, steel windows and louvres before painting is commenced, and shall be cleaned and renovated if necessary and refixed after completion of painting

T. PAINTING ITEMS

Painting items, as billed hereafter shall include for preparing all priming surfaces as above described.

U. COVER UP

Cover up all floors, fittings, etc., with dust sheets when executing all painting and decorating work

V. CLEAN AND TOUCH UP

Paint splashes; spots and stains shall be removed from floors, woodwork, etc., any damaged surfaces touched up and the whole of the work left clean and perfect upon completion.

EXTERNAL WORKS

DRIVEWAY AND PARKING AREAS

A. EXCAVATIONS

Excavations to areas to receive bitumen macadam or other road or paved finish shall be carried out in a manner ensuring that excavation plant and vehicles do not cause shear failure more than 250 mm in the sub-grade. Wheel loads are tyre pressures shall be limited and work shall be interrupted to let the sub-grade dry out as necessary to avoid such sub-grade failure.

© Bills Partnership Ltd, Quantity Surveyors

B. COMPACTION

The Sub-grade shall be compacted by a smooth-wheeled roller of 8 to 10 tons weight or vibrating roller of minimum 1,300 kg., or other approved plant. The number of coverages shall be at least 10 and there shall be a 50% overlap of successive coverage's. If so instructed by the Engineer, water shall be added during compaction to obtain optimum water content. Filling shall be compacted as above but in maximum 200 mm deep layers.

C. SUB-GRADE SURFACE FINISH

The surfaces of the sub-grade shall be finished to the levels, falls and cross falls shown on the Drawings within the following tolerances: -

(i) The level shall not be above and not more than 50 mm below the level shown on the drawings.

(ii) The falls shall be within 10% of the falls shown on the Drawings.

(iii) The smoothness shall be such that departures from a 3 metre straight edge laid in any direction shall not exceed 50 mm and there shall be no ponding of water.

D. COARSE AGGREGATE

Coarse aggregate for the base shall be crushed stone or rock conforming to the following requirements: -

(i) It shall be from sound, hard, igneous rock, limestone, quartzite or hard coral, and shall be free from weathered or disintegrated stone, clay, organic or other foreign matter.

(ii) The shape shall be roughly cubical and the grading shall conform to: -

Passing 75 mm standard sieve:	100%
Passing 38 mm standard sieve:	20-80%
Passing 19 mm standard sieve:	0-20%

© Bills Partnership Ltd, Quantity Surveyors

E. CRUSHER DUST

Crusher dust shall mean material in accordance with the table for 5 mm nominal maximum size below.

B.S. Sieve Size	Percentage Passing
5 mm	**100**
No. 7	**80 - 100**
No. 14	**50 - 80**
No. 25	**30 - 60**
No. 52	**20 - 45**
No. 200	**10 - 25**

Notes: -

(i) Not less than 10% shall be retained between each pair of successive sieves specified for use, excepting the larger pair.

(ii) The material passing the No. 36 sieve shall have the following characteristics (B.S. 1377):-

Liquid limit not exceeding 25%

Plasticity index not exceeding 8%

F. CRUSHER FINES

All materials in crusher fines shall pass the 13 mm B.S. sieve and be retained on the No. 25 B.S. sieve, evenly graded with no excess of any size.

G. SUB-BASE

The material for use in the sub-base shall consist of crusher dust as described, or other approved material. It shall be placed in one layer of such thickness that when compacted it shall attain the finished thickness shown on the Drawings. The material shall be watered as necessary and compacted as described. The sub-base material shall have a CBR value (unsoaked) of not less than 25.

© Bills Partnership Ltd, Quantity Surveyors

H. BASE

The materials for use in the base course shall consist of one layer of coarse aggregate as described of which the interstices are filled with fine material consisting either of crusher dust or a mixture of crusher fines. The proportions of crusher dust and crusher fines in the fine material shall be such as to obtain the maximum density of base course when compacted.

The procedure for construction shall be as follows: The coarse aggregate shall be placed in a layer of such thickness so as to obtain the required thickness after compaction. It shall then be compacted lightly until the Engineer is satisfied that a layer true to shape and level has been obtained. The fine material shall then be spread over the layer by hand or by mechanical means. The application of fine materials shall be made gradually in successive layers not exceeding 25 mm in thickness and each layer shall be worked into the voids in the coarse aggregate before the application of the succeeding layer. The fine material shall be laid as described and brushed into the coarse aggregate and rolled and consolidated by an approved vibrating roller to feed fines to the bottom of the layer.

Additional blinding material shall be applied as above until the surface will accept no more. In no case shall the blinding material be applied so thickly that it cakes or bridges on the surface in such a manner as to prevent the direct bearing of the roller or other compacting plant on the stones.

Final compaction shall be an 8 - 10 tonnes smooth wheeled roller until there is no visible movement under the action of the roller and until the required tolerances are achieved. Water may be applied during final compaction subject to the Engineer's approval.

Compaction shall in any case achieve 100% maximum dry density in accordance with B.S. 1377.

J. QUARRY WASTE

Quarry waste shall mean material to the same specification as crusher dust, except as follows: -

(i) The plasticity index taken on material passing the No. 36 sieve shall not exceed 16%.
(ii) The material may have up to 35% of stones not larger than 38 mm, provided that the material passing the 5 mm sieve is within the limits specified.

Quarry waste shall be clean and completely free from earth, organic or other foreign matter.

K. BASE COURSE FINISH

The surface of the base course shall be finished to the levels, falls and crossfalls shown on the Drawings subject to the following tolerances: -

(i) The level shall be within + 0r - 12 mm of the levels shown on the Drawings.
(ii) The falls shall be within 10% of the falls shown on the Drawings.
(iii) The smoothness shall be such that departures from a 3 metre straight edge laid in any direction shall not exceed 12 mm.

The surface of the base course shall be inspected and approved by the Engineer before bitumen paving is commenced.

© Bills Partnership Ltd, Quantity Surveyors

L. BITUMEN PRIMING COAT

Immediately before applying the priming coat, the surface of the base course shall be brushed free from dust and loose stones. The material for the priming coat shall be cutback bitumen of M.C.O. grade or other approved.

Approximately 30 minutes before applying the priming coat the surface of the base course should be made slightly damp by use of a water spray. The priming coat shall be applied at a temperature of 100 - 150 degrees Fahrenheit and at a rate of 0.60 litres per square metre.

After application of the primer, a period of at least two days shall elapse before the road surfacing is applied. During this period all traffic shall be kept off the treated surface.

© Bills Partnership Ltd, Quantity Surveyors

M. BITUMEN MACADAM SURFACING

A single course open graded premix of 30 mm to 40 mm compacted thickness shall be used with a seal coat.

Course aggregate shall be crushed blacktrap with particles having a cubicle shape to the Engineer's approval and shall be washed free from dust.

The course aggregate grading shall be: -

Sieve Size	Percentage Passing
19 mm	**100**
13mm	**60 - 100**
10 mm	**45 - 70**
6 mm	**30 - 50**
4 mesh	**25 - 40**
8 mesh	**15 - 25**
200 mesh	**2 - 5**

The binder shall be shellmac MC/RC2 or other approved. The percentage by weight of binder shall be 4.5%. Mixing shall be in an approved mixer and mixing shall proceed until the stone is evenly coated with binder. The temperature (at mixing) shall be within the following range: -

	Aggregate	Binder
Mixing Temperature	50o - 95 Fo	125 o - 150 Fo

The laying temperature shall be not less than 20 F below the mixing temperature.

The mix shall be spread evenly over the primed surface and shall be thoroughly compacted by rolling with a minimum of 6 passes. A smooth wheeled roller of not less than 5 tonnes weight and with rear wheel loading of 0.25 Kg. Per square millimetre width shall be used.

N. ROLLING

Any longitudinal joints shall be rolled first, after which rolling shall start longitudinally at the side and proceed towards the centre of the carpet. Each pass of the roller shall overlap the preceding one by at least one half width of the rear wheel. Alternate passes of the roller shall be of varying length. Immediately following initial compaction, the surface shall be checked with a straight edge to ensure that it meets the surface finish requirements. Minor variations shall be corrected by rolling, but major imperfections shall be compacted by adding or taking away mix while it is still workable.

© Bills Partnership Ltd, Quantity Surveyors

P. SURFACE FINISH

The surface of the bitumen macadam shall be finished to the levels, contours and slopes shown on the Drawings with the following tolerances:-

(i) The level shall be within + or - 6 mm of the level shown on the Drawings.
(ii) The gradient shall be within 10% of the gradient shown on the Drawings.
(iii) The smoothness shall be such that departures from a 3 metre straight edge laid in any direction shall not exceed 6mm.

Q. SEAL COAT

The seal coat shall consist of precoated fines consisting of crushed blackstrap stone graded from 3 mm to dust, or coarse sand. The binder shall consist of 4.5% by weight of MC/RC2. The seal coat shall be spread and brushed into the macadam surface at the rate of 180 square metres per tonne and compacted by rolling as for the macadam.

FENCING

A. CONCRETE POSTS AND STRUTS, GENERALLY

Concrete posts and struts shall be manufactured to B.S. 1722: Part 1, Appendix A by an approved manufacturer, using concrete Class 20 (10 mm) and reinforced in accordance with the following table: -

Intermediate post not exceeding 2450 mm long	4 No. 6mm bars
Intermediate posts exceeding 2450 mm long	4 No. 8mm bars
Straining posts not exceeding 2450 mm long	4 No. 8mm bars
Straining posts exceeding 2450 mm long	4 No. 10mm bars
Struts not exceeding 2450 mm long	4 No. 6mm bars
Struts exceeding 2450 mm long	4 No. 8mm bars

Bars shall be made up into cages with 12 swg stirrups at centres not exceeding 380mm. Bars shall extend to 25 mm from the end of the post or strut and have minimum cover of 16 mm.

B. CONCRETE POSTS AND STRUTS FOR CHAINLINK FENCES

Concrete posts and struts for chainlink fences shall be to B.S. 1722: Part 1, Table 3

C. CONCRETE POSTS AND STRUTS FOR STRAINED WIRE FENCES

Concrete posts and struts for strained wire fences shall be to B.S. 1722: Part 1, Table 2.

© Bills Partnership Ltd, Quantity Surveyors

D. STEEL, ANGLE POSTS AND STRUTS GENERALLY

Steel angle posts and struts shall be to B.S. 1722: Part 1 & 3. Angles shall be to B.S. 4 : Part 1 and B.S. 4360 with ends ragged for casting in and supplied primed with one coat of red oxide to B.S. 2524.

E. STEEL HOLLOW SECTION POSTS AND STRUTS

Steel hollow section posts and struts shall be to B.S. 1722: Part 1 & 3. Sections shall be to B.S. 4: Part 2 and BS EN 10210-1:2006 & BS EN 10029:2010 with ragged ends for casting in and supplied primed with one coat of red oxide to B.S. 2524.

F. STEEL TUBE POSTS AND STRUTS

Steel tubes for posts and struts shall be to BS EN 10305:2016, with ragged ends for casting in and supplied primed with one coat of red oxide to BS EN 10305:2016

G. STEEL ANGLE, HOLLOW SECTION AND TUBE POSTS AND STRUTS FOR CHAINLINK FENCING

Steel angle, hollow section and tube posts and struts for chainlink fencing shall be to B.S. 1722: Part 1, Tables 4A and 4B.

H. TIMBER POSTS AND STRUTS FOR STRAINED WIRE FENCING

Timber posts and struts for strained wire fencing shall be cedar of diameters specified, reasonably straight and free from bark and excessive sapwood with tops cut at a slight angle to shed water. Straining posts shall be notched for struts

J. GALVANIZED LINE WIRE

Galvanized line wire for chainlink fencing shall be to B.S. 4102 of the following diameters:-

Medium Pattern chain link	3 mm
Heavy pattern chain link	3.55 mm
Extra heavy pattern chain link	4 mm

Galvanized line wire for strained wire fencing shall be to B.S. 4102 and 4 mm diameter

K. GALVANIZED TYING WIRE

Galvanized tying shall be to B.S. 4102 and 2 mm diameter.

© Bills Partnership Ltd, Quantity Surveyors

L. GALVANIZED BARBED WIRE

Galvanized barbed wire shall be to B.S. 4102 of two strands of 2.5 mm line wire with barbs of 2 mm point wire at centres not exceeding 90 mm

M. GALVANISED CHAINLINK

Galvanized chainlink shall be to B.S. 4102: Table 6 of the pattern specified, of 50 mm mesh and of the following wire diameters: -

Medium pattern chain link	2.5 mm
Heavy pattern chain link	3 mm
Extra heavy pattern chain link	3 mm

N. EXTENSION ARMS

Extension arms for barbed wire shall be of mild steel to B.S. 1722: Part 1, cranked at 45 degrees and slotted for three strands of barbed wire at centres not exceeding 150 mm.

Arms for concrete steel and, steel and timber intermediate posts shall be of 35 x 6 mm mild steel flat. Arms for concrete and timber straining posts shall be of 50 x 50 x 6 mm mild steel angle. Arms for steel straining posts shall be of similar section to the post.

P. SUNDRIES

Galvanised steel eyebolt strainers and winding brackets shall be to B.S. 1722.

Bolts, nuts and washers shall be ISO metric to B.S. 4190:2014

Galvanised wire staples shall be to B.S. 1494: Part 2: - 9 s.w.g. x 32 mm.

Black bitumen coating solution shall be to B.S. 3416: Type 1.

Q. PREPARING POSTS

Timber posts shall be drilled for line wire at the height specified, notched for struts in the top third of the exposed pole, and coated at the bottom end with bitumen to a height 300 mm above ground level.

Steel posts and struts shall be drilled for connection by two 10 mm diameter bolts at a point in the top third of the exposed post.

© Bills Partnership Ltd, Quantity Surveyors

R. FIXING POSTS

Straining posts shall be provided at all ends and changes of direction or level and in straight runs at intervals not exceeding 50 metres.

Struts shall be fitted to straining post in the direction of each line of fencing.
Intermediate posts shall be provided at intervals not exceeding 3 metres.

Post and strut holes shall be excavated not less than 450 x 450 mm on plan: 600 mm deep for fences not exceeding 1400 mm high and 750 mm deep for fences exceeding 1400 mm high.

Concrete bases shall be as specified and not less than half the depth of the postholes.

Wires and fencing shall not exert strain until at least seven days after posts are fixed in bases.

S. FIXING LINE WIRES

Lines wires shall be threaded through posts, connected to eyebolt strainers at ends and angles and strained taut to approval

T. FIXING BARBED WIRE

Barbed wire shall be slotted into steel extension arms, stapled to timber posts or wired firmly to concrete posts as specified and strained taut to approval

U. FIXING CHAIN LINK

Chain link fencing shall be wired firmly to each line wire at horizontal centres not exceeding 600 mm

© Bills Partnership Ltd, Quantity Surveyors

LANDSCAPING

A. SCOPE OF WORK:

The contractor shall from the date of commencement of contract, furnish all materials, labor, and related items necessary to complete the work indicated and specified herein.
The scope of work for the above mentioned work shall include following and shall be carried out as per BOQ, Specification & Landscaping Layout drawings:

a. Supply and installation of Trees
b. Supply and installation of Shrubs
c. Supply and installation of Ground covers
d. Supply and installation of Lawn as specified
e. Supply and application of Manure
f. Ground preparation works
g. Supply and installation of Hard Landscape elements
h. Maintenance

The contractor will be generally responsible for the site but in particular to works listed above. Along with site management, the responsibilities will include soft landscaping works and maintaining the same. The contractor should have or shall set up their office where indicated by consultant for effective dealing with client and the consultant.

B. QUALITY ASSURANCE

Qualifications of workmen

Provide at least one person who shall be present at all times during execution of the work, who shall be thoroughly familiar with the type of materials being installed and they must be conversant with the proper methods of their installation, and who shall direct all work performed on site under this section.

Quality of Plants

All plants delivered to site shall be true to name. In all cases, botanical names shall take precedence over common names except where botanical names are not used.

Quantities of materials & Labourers

All the materials which are required for the progress of the Landscaping works shall be supplied by the contractor. The required numbers of Labourers are to be provided by the contractor.

© Bills Partnership Ltd, Quantity Surveyors

C. PRODUCTION HANDLING

Delivery

All plant items delivered to the job site should be in their original containers and should be intact at the time of inspection by the Landscape Engineer prior to the sub-contractors use.

Immediately after inspection remove from site all plants which are not true to name, and all materials which do not comply with the specific requirements. Use all means necessary to protect plant materials before, during, and after installation.

Storage shed

Location of the storage area will be indicated at site by the Landscape Engineer with Client's approval. Security of materials at site will be the responsibility of the contractor. Any temporary sheds or structures may be built as working space at the area shown at site and on the approval of the Landscape Engineer.

© Bills Partnership Ltd, Quantity Surveyors

D. APPLICABLE STANDARDS

The Contractor will provide materials and workmanship, which must meet or exceed the specified quality and standard. Proof of such quality and standard will be in the form of certified copies of reports on tests conducted by testing agency approved for that purpose by the Landscape Engineer before use.

The Landscape Engineer reserves the right to reject items incorporated into the work that fail to meet the specified minimum requirements. The Landscape Engineer further reserves the right without prejudice to other recourse to accept non-complying items subject to an adjustment in the contract amount as approved by the Landscape Engineer and the owner. The Contractor will provide specified standards associated with known agencies and organizations.

Replacement

In the event of damage to any part of the works or existing fixture on site, immediately make all repairs and replacements necessary to the approval of the Landscape Engineer and at no additional cost to the client.

Those plants that are not up to the standards, and do not meet specifications shall be replaced by the contractor at no extra cost to the Client. When the plants are to be replaced either for filling gaps or poor quality, then the Contractor shall replace with plants of equal height, size and age of the plants in that area. For this purpose, extra numbers of plants of those used in the project will have to be maintained in the Nursery.

The contractor shall be responsible for any thefts of plants already planted. While the Employer will provide security at entry and exit points, plants removed by theft shall be the responsibility of the Contractor.

Watering

Water will be made available at various points on site. If the water on site is insufficient or saline or unacceptable, then the contractor shall inform the Landscape Engineer and client and be responsible for importing water in water tankers for the general upkeep of the plants prior to the water situation being rectified / addressed. No plants shall be allowed to wither or die due to lack of proper watering. The Contractor shall be compensated for the water imported at an approved rate prior to importation.

© Bills Partnership Ltd, Quantity Surveyors

E. SOFT LANDSCAPE MATERIALS

Manure and/ compost

Should the contractor be required to use manure and /or compost, it shall be well rotted, matured with no domestic refuse or waste foods, and be approved by the Landscape Engineer.

Tree stakes

Provide rough-sawn tree stakes, 50mm x 50mm. The height of the stake should be no less than 600mm higher than the plant/tree and should go into the ground at least 600mm deep. All trees to have two number ties each fixed to approved methods and standards.

Grass seedlings/ cuttings

All grass seedlings or cuttings should be free from any weeds.

Plant materials

Provide all plant materials as indicated on the drawings and in the plant quantity section.
Plants and shrubs shall be sourced by the contractor from available nurseries, unless otherwise specified.
No plant material shall be changed without the consent of the Consultant.

Plant condition and size

Plants shall conform to normal habit of the particular species, and the Landscape Engineer shall approve their variety and plant size. Plants shall conform to measurements and requirements specified here and or in the plant list.

1. Trees indicated in the drawings shall be at a minimum of 1200mm in height at time of planting.

2. Sizes of shrubs and herbaceous plants will be approved individually but all tall growing shrubs shall be at a minimum height of 300mm at planting time.

The documents submitted by the contractor shall mention all plants not available and the sizes, species or quantity available as scheduled at the time of tendering.

Other plant materials

The Contractor, subject to the approval of the Landscape Engineer, shall select all plant materials, not specifically described but required for a complete installation.

© Bills Partnership Ltd, Quantity Surveyors

F. SPREADING OF TOP SOIL

Finishing grading

The Contractor shall grade the topsoil to the approved standard. All subsoil will be broken up as described and the contractor must remove from site all stones timber and any other foreign objects larger than 100mm in any dimension which are uncovered. The Contractor is to check that the reduced levels in all planting areas are satisfactory prior to commencing any landscape works.

All raised planters shall be back filled with specified topsoil and manure mix to within 50mm of the planter top. The back fill must be free of any materials, roots, cement, stones and or any other foreign objects larger than 100mm in any dimension.

The Contractor shall ensure that the sub-soil shall be broken up to a depth of 300mm by hard fork or agricultural sub-soiler. Under no circumstances must the Contractor carry out these works when the soil is in a saturated or unworkable condition. Any sub-soils arising from the landscape operation, such as tree pit excavations, etc. must be deposited where directed by the Landscape Engineer.

Fine grading

Upon completion of rough grading, perform all fine grading required, and as described in planting areas. The Contractor must ensure that all-natural slopes of the land avoid any dishing or other depressions where water may collect.

© Bills Partnership Ltd, Quantity Surveyors

G. PLANTING TREES AND SHRUBS

General

Immediately upon delivery of plant nursery stock to the site and its approval by the Landscape Engineer heel-in all bare roots and balled material with damp soil to protect from sun and wind effect. Regularly water all nursery stock in containers and place them in a cool area protected from sun and dry winds.

Excavation

Provide planting holes of the following dimensions:

i) For shrubs provide planting holes 600mm diameter by 600mm deep.

ii) For trees and large shrubs provide holes 1200mm in diameter by 1200mm deep.

The contractor shall generally ensure that this work will not interfere with or damage the existing cables, pipes or other services above or below ground levels. Any damage to the existing services caused by the contractor shall be rectified at his expense. Set out dimensions should be followed wherever possible.

Planting

No pits shall be dug until a final tree position has been pegged out for approval. The base of all the pit trenches must be loosened to 150mm depth to allow penetration of moisture. Fill holes with backfill mixture in the ratios prescribed by the Landscape Engineer. Fill to proper height to receive plant, and thoroughly tamp before setting the plant.

Set plant in upright position in the centre of the hole and compact the backfill mixture around the ball or roots.

Thoroughly water each plant when the hole is 2/3 full. After watering, tamp the soil in place until the surface of the backfill is level with the surrounding areas. Build up a temporary-watering basin around the base of each tree and shrub, except no basins in turf area or in raised planter areas.

© Bills Partnership Ltd, Quantity Surveyors

H. PLANTING GROUND COVERS

Preparation

Rake soils smooth and free from all soil lumps, rocks, sticks and other deleterious materials.

Planting

Space the ground cover evenly at 100mm centre to centre as indicated on the drawings. Plant only in soil that is moist but friable, never on wet or soggy soil. In case of planting in the open on hot days, shorten the time between planting and watering.

Mulching

All planted areas including around trees which have open soil that is exposed will have to be mulched with straw or hay. Rates indicated in the Bill of Quantities shall include such mulching costs. No separate compensation will be paid for mulching.

J. PLANTING GRASS

Remove all soil lumps, rocks, sticks and other deleterious material.

Water the ground thoroughly and allow the soil to settle for three days. Plant the seedlings and/or cuttings 100mm deep and 100mm apart using DAP fertilizer to manufacturer's specifications. After the Landscape Engineer has approved the grass has established and taken root it will be maintained at a maximum height of 50mm for the duration of the maintenance period.

K. MAINTENANCE

Maintain all planting, starting with the planting operations and continuing through to the maintenance period after all planting is complete and approved by the Landscape Engineer. The maintenance period shall be twelve (12) months from the date of practical completion.

General obligations

a) The Contractor shall maintain the works for the maintenance period. The Client reserves the right to terminate the maintenance period at any time, whereby no additional charges are to be made by the Contractor to the Employer.

b) The extent of the landscape to be maintained by the Contractor shall be deemed to cover and include all softscape landscape areas within the overall project boundaries as shown on the drawings through the end of the Contract period as well as all the landscape works covered in the Contract scope of works. No additional charges will be allowed unless specifically agreed to by the Landscape Engineer in writing.

c) All watering, weeding, cultivating, spraying and pruning necessary to keep the plant materials in a

© Bills Partnership Ltd, Quantity Surveyors

healthy growing condition and to keep planted areas neat, attractive and free of weeds during the maintenance period.

d) Provide all equipment and means for carrying out this part of the work including proper application of water to those areas not equipped with any watering systems.

e) Protect all planted areas against damage, including erosion and trespassing, by providing and maintaining proper safeguards.

f) The Contractor's Horticulturist shall inspect the site weekly/biweekly and shall submit report to the client/Landscape Engineer on their actions and closure of the pending works. Also, the Contractor's Horticulturist shall prepare a brief schedule of operations planned for the week with target dates.

g) The weekly/biweekly report and the weekly schedule shall be running record of proposed operations which would be checked at the maintenance inspections every month. If in the opinion of the Landscape Engineer/Site-In-Charge, the maintenance works have not been satisfactorily carried out according to site conditions and the specifications, the payment will be withheld until the works have been satisfactorily carried out.

h) The Contractor shall take all necessary measures to ensure that all pot plants, trees and shrubs and other plants shall thrive and become established within this period. All landscape areas will be inspected, and list of remedial works issued after each inspection. All items on the remedial lists are to be carried out by the time of the next inspection.

i) The Contractor shall keep the landscape areas clean and tidy at all times and dispose of all waste materials arising from the cleaning.

Maintenance of planted areas: trees, shrubs, climbers and ground covers

a) The Contractor shall water all trees, palms, shrubs, ground cover and other planting areas as often as necessary to keep the ground moist all around and to the full depth of the roots.

b) Only fresh water shall be used for the Works. The Client shall provide water requirement of the planting materials, but watering shall be all time (Work presence of the Contractor on site) responsibility of the Contractor. The Landscape Contractor shall supply his own hoses and sprinklers to distribute the water.

c) Water shall be applied using an approved rose or sprinkler so as not to cause compaction or wash-outs of the soil or loosening of plants. The Landscape Contractor shall immediately make good any such damage.

d) All planting beds are to be kept in a weed free condition with a weeding operation as per maintenance schedule or more regularly as required. All weeds, stones and rubbish collected from this operation shall be removed from the site by the Contractor.

e) Firming up and adjusting of stakes/ties shall be carried out monthly to ensure that the trees and shrubs are firmly held in ground. If required, guy ropes or tree ties shall be adjusted, tightened or

© Bills Partnership Ltd, Quantity Surveyors

loosened. If tree ties or ropes are rubbing the bark of the trees, the ties are to be taken off and retied. Any damaged branches are to be carefully pruned and the wounds sealed.

f) All protective fencing is to be maintained and kept in good condition as long as required on site.

g) All shrubs and ground covers are to be reviewed monthly and pruned as per maintenance schedule or as and when required during the Maintenance Period to promote bushy growth and good flowering characteristics. The shrubs shall be checked and all dead wood, broken, damaged or crossed branches shall be cut back, depending on species.

h) Pruning for all plants shall be carried out as follows:
- Pruning is to be done with the cut just above and sloping away from an outward facing healthy bud.
- Removal of branches is to be done by cutting flush with the adjoining stem and in such a way that no part of the stem is damaged or torn.
- Ragged edges of bark are to be trimmed with a sharp knife.
- Any cuts or wounds over 25mm diameter are to be painted with an approved sealant after trimming.
- All pruning are to be cleared up and removed from operation site after pruning.

i) All hedges, mat forming herbaceous plants and ground cover plants shall be clipped with shears as often as necessary (at least monthly) to maintain a tidy appearance.

j) Selective pruning of flowering plants shall be done where special flowering characteristics are required such as for Hibiscus, Bougainvillea etc.

k) The Contractor shall on continual basis supervise and attend to fertilizer needs/disease control/termite or fungus control as maintenance operations during the entire period of contract. An approved fertilizer/insecticides/pesticide shall be applied to each plant at the rate provided in the maintenance schedule or as suggested by the Horticulture Advisor. The Contractor shall apply the fertilizer evenly spread over the entire area and lightly forked into the soils. All areas shall be well watered immediately after application of fertilizer.

l) The horticultural requirements of different plants or areas may involve variations to those techniques (such as the use of organic liquid fertilizers for sensitive plants) and variations in method will be authorized as required.

m) Mulching. An additional 25m deep mulching layer is to be spread over all planted areas (except ground cover and turf), once every 6 months or as specified in Maintenance Schedule.

n) The Contractor shall make regular weekly checks to ensure that the plant material is insect and pest free.

Maintenance of lawn areas

a) The Contractor shall mow all lawn areas using approved cutting equipment to maintain a close

© Bills Partnership Ltd, Quantity Surveyors

sward to a height of not less than 20mm and not more than 50mm for all grass types. Mowing shall be carried out weekly, except in dry weather and grass shall not be allowed to flower between cuts. In dry season mow to 50 mm in heights and in the wet season mow to 25mm in height. All clippings to be gathered up and removed.

b) All grass areas are to be watered during dry weather as often as is required to keep the grass green and the soil moist. The Contractor shall make weekly inspections are to be made to determine the need for water.

c) Fertilizer of NPK value 10-15-15 or similar approved be spread at a rate of 40gm/m2 over all grass areas at 6 months intervals using approved spreading equipment to give an overall even spread. Every three months between the NPK application the grass areas will receive and application of 46-0-0 at 1kg/100m2.Grass areas that have been fertilizer shall be watered immediately. If the tops of the lawn turn red a light application of lime using magnesium, limestone or agricultural lime in powder form is to be applied in dry weather at a rate of 50g/m2. After application this is to be well watered into the soil.

d) The Contractor shall apply top dressing of not more than 15mm depth of fine sand and granulated compost raked and spread evenly over the lawn areas to fill in the low spots and level the grass areas. The next top dressing shall be applied only after the grass has grown to a mow able height.

Top Dressing - Apply in April after the first rains.
Apply a top dressing of 4-part red topsoil and half-clean sand (well mixed together) to the lawn to a depth of half inch. Rake top dressing over lawn and use it to fill any uneven patches. If there is no rain, water heavily after the application. Repeat top dressing application in October after the start of the rains.

e) There shall be at least two applications of top dressing during the maintenance period. If depressions or bumps over 25mm deep or high occur in turf areas during the maintenance period these are to be levelled out by lifting the turf and raising the soil level with sand/compost mix or trimming soil to level grades, followed by returfing.

f) Grass areas are to be kept free from weeds, annual grasses, fungus and insect attack, and stones or other debris throughout the maintenance period as often as is required.

Assessment of these operations is to be prepared on the basis of the bi-weekly maintenance inspection chart.

g) If compaction or consolidation takes place or hard panning or baking of the soil occurs, the soil areas are to be well watered first and lightly loosened by mechanical means such as spiking, slitting or hollow tinning using equipment approved by the Landscape Engineer.

Extension of maintenance period

The contractor will be expected to continue with the maintenance at no additional cost to the employer until all previously noted deficiencies have been rectified, at which time the final inspection will be carried out.

© Bills Partnership Ltd, Quantity Surveyors

L. INSPECTION

The contractor is requested to examine all areas and conditions under which work of this section will be performed, correct conditions detrimental to the works and not to proceed until unsatisfactory conditions have been corrected.

In addition to the normal progress inspections schedule the contractor shall conduct the following formal inspections with the Landscape Engineer.

i) Inspection of all plants in container prior to planting.

ii) Inspection of plant locations, to clarify compliance with the drawings.

iii) Final inspection after completion of planting. This inspection may be conducted within 24 hours after completion of planting.

iv) Final inspection at the end of the maintenance period provided all previous deficiencies have been rectified.

M. WEEKLY/BIWEEKLY REPORTS

The contractor shall also maintain a work report for work completed each week. The same report in English will be sent to the Landscape Engineer/ Site supervisor/ COW who shall verify completed work as per the report. Contractor will be responsible for meeting deadlines for the completion of the job.

N. RESPONSIBILITY

a) The Contractor's work shall not hinder other work, either underground or over ground, such as electrical, phone lines, water or sewage lines, etc. In areas of overlap, the contractor shall work in coordination with other related contractors. Any damage by the landscape contractor's team to such utilities will be penalized and contractor shall be responsible for cost for such damages.

b) The Contractor shall abide by the Security rules / procedures of the Client, and shall obtain gate pass, issue I.D. badges to all their employees on site, etc. as prescribed by the Client.

© Bills Partnership Ltd, Quantity Surveyors

SECTION NO. 1

PRELIMINARIES

Item No		*Amount Kshs*

SECTION NO. 1
PRELIMINARIES

BILL NO. 1
PARTICULAR MATTERS

A **SCOPE OF CONTRACT**

The description hereunder is a general guide only and Tenderers are referred to the Engineer's and Engineer's drawings for tender purposes.

The works generally consist of the erection of a boundary wall complete with ancillary buildings (i.e. Gate House, Accommodation Unit, and Administration Office), including all associated external works, electrical installationsand mechanical installations

The works generally consist of excavations, casting of: pad foundations, suspended ground slabs, ground beams, columns, beams and roof slabs . Walling will be in reinforced masonry both machine cut and bush hammered. Windows will be in aluminium sections while doors will be in steel, aluminium and wood. Finishes include ceramic/porcelain tiles to floors and wet area walls; plaster, render and paint to masonry walls and concrete surfaces.

Electrical works include general conduiting and wiring, fittings installations, CCTV installations, structured cabling installations, etc.

Mechanical installations include general plumbing and drainage, fire fighting installations.

External works include landscaping, sewer reticulation, parkings and driveways.

Approximate total gross built-up areas for the Ancillary Buildings-**385sm**

Approximate total length for the boundary wall -**3,150m**

B **MEASUREMENTS**

In the event of any discrepancies arising between the Bills of Quantities and the actual works, the site measurements shall generally take precedence. However, such discrepancies between any contract document shall immediately be referred to the Engineer.

Carried Forward KSH

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
C	**LOCATION OF SITE** The site for the Works is in Machakos on Plot Land Reference No. 20589; the plot is along Machakos- Kitui Road adjacent to Kenya Medical Training College, Manza Campus, Machakos. The Contractor shall be deemed to have familiarized themselves with the conditions on the site prior to tendering and no claim arising from failure to have taken cognisance of the site conditions shall be allowed.	
D	**CONTRACT COMPLETION PERIOD** The Contract completion period as stated in the Form of Tender must be strictly adhered to. The "Engineer" shall strictly monitor the Contractor's progress in relation to the progress chart and should it be found necessary, the "Engineer" shall inform the Contractor in writing that his actual performance on site is not satisfactory. In all such cases, the Contractor shall accelerate his rate of performance, production and progress by all means such as additional labour, plant e.t.c, and working overtime all at his cost. The Tenderer is required to bid for the completion period and should enter the completion period on the Form of Tender and on all other requisite forms. Any Bidder who does not indicate his intended completion Period may be disqualified.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
E	**SIGN BOARD** The Contractor shall provide, erect and maintain a signboard as specified by the Engineer. Upon Completion, he shall clear the signboard when instructed by the Engineer. The height of the lowest board on the signboard not to be lower than 1.20m above the surrounding ground levels. The signboard will comprise of a strong well braced frame set in foundations with a "Title" board and separate boards for all Consultants and the Contractor. The whole of the supports and boards must be well painted and the lettering (50mm high) on the consultants boards, motifs etc. must be carried out by an experienced sign writer to the approval of the Engineer. Advertising on the signboard will not be permitted except with the written authority from the Engineer. The Contractor shall be responsible for paying any charges, fees or taxes demanded by the relevant authorities in respect of the signboard installations during the contract period. The signboard shall be erected within four (4) weeks from the date of site possession. A non-refundable penalty of KShs. 20,000.00 per day for non-availability of the signboard or delay in erecting the same shall be charged.	
F	**LABOUR CAMPS** The Contractor shall not be allowed to house labour on site. Allow for transporting workers to and from the site during the tenure of the Contract.	
G	**LABOUR** Unless the Engineer otherwise instructs, the Contractor is to recruit locally all his unskilled labour and as much as possible his skilled labour.	
H	**MATERIALS FROM DEMOLITIONS** Any materials arising from demolitions and not re-used shall become the property of the Employer. The Contractor shall allow in his rates the cost of transporting the demolished materials as per the Engineer directions. However, all debris to be removed and be disposed by the Contractor at his own cost.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
J	**PRICING RATES** The tenderer shall include for all costs in executing the whole of the Works, including transport, replacing damaged items, fixing all to comply with the said Conditions of Contract.	
K	**ANTI-CORRUPTION SIGNBOARD** Provide a Provisional Sum of Kenya Shillings One Hundred Thousand (KSH100,000.00) for the Contractor to provide, erect and maintain throughout the contract period, an anti-corruption signboard in accordance with anti-corruption drawings and afterwards clear away the signboard on completion of the project.	
L	**GEOTECHNICAL INVESTIGATIONS** Provide a Provisional Sum of Kenya Shillings Two Hundred Thousand (KSH200,000.00) only for additional geotechnical survey of the ground conditions on site before commencement of works (if instructed by the Engineer).	
M	**PARTICULAR INSERTIONS TO BE MADE IN APPENDIX TO CONTRACT AGREEMENT**	
	Name of Engineer — Lexicon Plus Ion Limited	
	Amount of Surety — 10% of Contract Sum	
	Amount to be withheld for late submission of work programme or an updated programme — 30% of each subsequent Payment Certificate	
	Minimum Insurance covers -Loss or Damages to the works — 1.15 x Contract Sum	
	Insurance to cover other property — As per applicable laws but not less than Kshs. 15,000,000.00	
	Insurance to cover other personal injury and death (Public Liability) — As per applicable laws but not less than Kshs. 20,000,000.00	
	Insurance to cover Contractor's employees — As per applicable laws including Work Injury	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	

Benefits Act

Period for submission of programme	Within 14 days of receipt of Letter of Acceptance and prior to Commencement date
Period between programme updates	30 days
Date for possession of site	To be stated in the letter of acceptance
Start date	To be stated in the letter of acceptance
Contract Period	To be inserted in the Form of Tender
Date for Practical Completion	To be stated in the letter of acceptance
Intervals for payments	1 Month
Minimum amount of value of work done and materials on site to justify a Payment Certificate	2% of the accepted Contract Sum
Percentage of certified value retained	10%
Limit of retention fund	5%
Period for release of interest on retention money to the Contractor	Not Applicable, No interest chargeable
Defects Liability Period	12 months
Damages for delay in completion	At the rate of KShs. (0.1% of Accepted Contract Sum) per day

....

EMPLOYER **CONTRACTOR**

DATE : ..... **DATE**: .....

Carried Forward to Summary of Section No. 1 KSH

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*

SECTION NO. 1
PRELIMINARIES

BILL NO. 2
GENERAL MATTERS

A **PRICING OF ITEMS OF PRELIMINARIES AND PREAMBLES**

Prices will be inserted against items of Preliminaries in the Contractor's priced Bills of Quantities and Specification.

The Contractor shall be deemed to have included in his prices or rates for the various items in the Bills of Quantities or Specification for all costs involved in complying with all the requirements for the proper execution of the whole of the works in the Contract.

B **SUFFICIENCY OF TENDER**

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his Tender for the Works and of the rates and prices stated in the priced Bills of Quantities, which rates and prices shall cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the Works.

C **DEFINITION OF TERMS**

In this Contract (as herein defined) the following words and expressions shall hereby assigned to them except where the context otherwise requires:

Contractor : The term "Contractor" shall mean the person or persons, firm or company whose tender has been accepted by the Employer and includes the Contractor's legal personal representative and permitted assigns.

Approved or Approval : Means approved or approval in writing by the Engineer, unless otherwise specified.

Engineer's Instructions : means drawings, detail instructions, directions, explanations or order issued in writing by the Engineer or by the Engineer's representative(s)

Works : The term "Works" wherever used hereinafter and in all contract documents shall mean all or any portion of the works, materials and articles wherever the same are being manufactured or prepared which are to be used in the execution of this Contract and whether the same be on site or not.

It shall also be deemed to include of all Sub-Contractors and all variations.

Carried Forward KSH

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	

"Ditto" : shall mean the whole of the preceding description except as qualified in the section in which it occurs. Where it is in brackets, it shall mean the whole of the preceding description which is contained within the appropriate brackets.

Direct or Directions : Means directed or directions by the Engineer.

Contract Drawings : the term "the contract drawings" wherever used hereinafter and all contract documents shall be deemed to imply the drawings referred to in this document.

Provisional : Means that the quantity, description or value of work so described may be varied or executed in whole or in part or omitted entirely from the Contract as directed and shall be measured and valued in accordance with the Contract

Site : The term "the Site" shall mean the lands and other places, on, under, in or through which the works are to be executed or carried out and any other lands or places provided by the Employer for the purpose of this contract.

Throughout these Bills, units of measurement and terms are abbreviated and shall be interpreted as follows:-

C.M. or M3	Shall mean cubic metre
S.M. or M2	Shall mean square metre
L.M. or M	Shall mean linear metre
MM	Shall mean Millimetre
Kg.	Shall mean Kilogramme
No.	Shall mean Number
Prs.	Shall mean Pairs
B.S.	Shall mean the British Standard Specification Published by the British Standards Institution, 2 Park Street, London W.I England.
m.s.	Shall mean measured separately.
a.b.d	Shall mean as before described.

	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
D	**METHOD OF MEASUREMENT** The Works contained in these Bills of Quantities are generally measured on the basis of the current Standard Method of Measurement of Building Works, published by the Engineerural Association of Kenya, Second Edition of June 2008. All work in this Contract that is liable to adjustment measured as "provisional" in these Bills of Quantities, and no excavation, foundation work so described shall be filled in or covered up until all measurements needed for adjustment of variations have been made by the Quantity Surveyor. The rates set down by the Contractor against each item in these Bills of Quantities shall, unless otherwise expressly provided to the contrary, or unless there is a separate item for extra labour, cutting or waste, shall be deemed to include for waste on materials, carriage and cartage, carrying in and return of empties, hoisting, setting, fitting and fixing in position, making and all other labour and everything else necessary for the proper completion of each item of cutting, it shall include for consequent wastage.	
E	**FIGURED DIMENSIONS** Figured dimensions are to be followed in preference to dimensions scaled from the Drawings, but whenever possible dimensions are to be taken on the Site or from the Building. Before any work is commenced by Sub-Contractors or Specialist Firms, dimensions must be checked on the Site and/or buildings and agreed with the Contractor, irrespective of the comparable dimensions shown on the Drawings. The Contractor shall be responsible for the accuracy of such dimensions.	
F	**BILLS OF QUANTITIES** All quantities contained in these Bills of Quantities are indicative of the volume and type of work to be executed. Where items of work are to be built in or covered up, these shall be left uncovered for a reasonable time to allow all measurements to be taken by the Quantity Surveyor. Immediately the work is ready for measurement, the Contractor shall give notice to the Quantity Surveyor. If the Contractor makes default in these respects he shall, if the Engineer so directs, uncover the work at this own expense to enable the measurements to be taken.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
G	**EXCEPTION TO THE STANDARD METHOD OF MEASUREMENT**	
	Attendance; Clause B20 (b) of the Standard Method of Measurement is deleted and the following clause is substituted:- Attendance on nominated Sub-Contractors shall be given as an item in each case shall be deemed to include: allowing use of standing scaffolding, mess rooms, sanitary accommodation and welfare facilities; provision of special scaffolding where necessary; providing space for office accommodation and for storage of plant and materials; providing light and water for their work: clearing away rubbish; unloading, checking and hoisting: providing electric power and removing and replacing duct covers, pipe casings and the like necessary for the execution and testing of Sub-Contractors' work and being responsible for the accuracy of the same.	
	Fix Only:- "Fix Only" shall mean take delivery at nearest railway station or manufacturer's/supplier's premises within Nairobi (Unless otherwise stated), pay all damage charges, load and transport to site where necessary, unload, store, unpack, assemble as necessary, distribute to position, hoist and fix only.	
H	**PERFORMANCE BOND OR PERFORMANCE SECURITY**	
	The Contractor will be required to furnish a Performance Bond/Security from an approved and well reputed Bank in a Sum equal to 10% of the Contract Sum, using the applicable standard form of bond or the standard form of bank guarantee provided.	
	Alternatively, the Engineer may at the Employer's discretion, accept a Security Deposit as the Performance Security/Bond. The deposit is to be of the same amount as the Performance Bond/Security.	
	No payment on account for the work executed will be made to the Contractor until he has submitted the Performance Bond/Security to the Engineer, duly signed, sealed and stamped from an approved and well reputed Bank.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
J	**INSURANCE** The Contractor shall insure as required in clause 30 of the Conditions of Contract. No payment on account of the work executed will be made to the Contractor until he has satisfied the Engineer either by production of an Insurance Policy or and Insurance Certificate that the provision of the foregoing Insurance Clauses have been complied with in all respects. Thereafter the Engineer shall from time to time ascertain that premiums are duly paid up by the Contractor who shall if called upon to do so, produce the receipted premium renewals for the Engineer's inspection.	
K	**SCAFFOLDING, PLANT, TOOLS AND VEHICLES** Allow for providing all scaffolding, plant, tools and vehicles required for the Works except in so far as may be stated otherwise herein and except for such items specifically and only required for the use of nominated Sub-Contractors as described herein. No timber used for scaffolding, formwork or temporary works of any kind shall be used afterwards in the permanent Works.	
L	**TRANSPORT.** Allow for transport of workmen, materials, etc., to and from the site at such hours and by such routes as may be permitted by the competent authorities.	
M	**PHOTOGRAPHIC RECORD** A fortnightly photographic record is to be provided by the Contractor, recording the state of progress of the Works. Two copies of each photograph, suitably mounted and annotated with the location and date, are to be made available to the Employer via the Engineer.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
N	**MATERIALS AND WORKMANSHIP.** All materials and workmanship used in the execution of the Works shall be of the best quality and description unless otherwise stated. Samples of all materials proposed to be permanently incorporated in the Works must be submitted to the Engineer for his approval before the bulk of the materials are delivered to site. Unless otherwise provided for in the Contract or directed by the Engineer, samples shall be provided for approval at least 60 days before they are required for use on the Works. The Contractor shall be responsible for ordering all materials as early as necessary to ensure that such materials are on the site as and when required.	
P	**REJECTED WORKMANSHIP OR MATERIALS** Any workmanship or materials not complying with the specific requirements or approved samples or which have been damaged, contaminated or have deteriorated, must immediately be removed from the Site and replaced at the Contractor's expense, as required.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
Q	**ORDERING OF MATERIALS**	
	These Bills of Quantities are not intended for and shall not be used for ordering purposes.	
	The Contractor shall order all materials to be obtained from foreign sources immediately upon the award of the Tender and shall also order materials to be procured from local sources as early as necessary to ensure that such materials are on site when they are required for use in the works.	
	Should it become apparent prior to and during the construction period, that the procurement of certain material may cause a delay, the Contractor shall immediately inform the Architect of such possible delay who shall then instruct the Contractor upon the action to be taken. Unless the Architect has failed to specify materials timeously in terms of the accepted contract programme or agreed revision thereto, the delay in the delivery of materials shall not justify any extension of the Construction Period.	
	The Contractor shall obtain all necessary permits and licenses.	
	The Contractor shall be responsible for and shall replace or make good at his own expense any materials lost or damaged.	
	Should the Tenderer consider that he will be unable to obtain materials for any item on the drawings or items described in the Bills of Quantities or to obtain such materials timeously in the specified sizes, he is to report this in writing to the Architect before the closing date for the tenders and obtain the Architect's written directives in connection therewith.	
	If the Tenderer fails to do this, this tender will be taken as firm of all items described in the Bills of Quantities and he will be responsible for supplying such materials timeously to meet the programme for the Works".	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
R	**STORAGE OF MATERIALS** The Contractor shall provide at his own risk and cost where directed on the site weather proof lock-up sheds for the safe storage and custody of materials for the works including Sub-Contractors' materials and for the use of workmen engaged thereon and shall remove such sheds and make good damaged or disturbed surfaces upon completion to the satisfaction of the Engineer. No material shall be stored or stocked on suspended slabs without the prior approval of the Engineer. Materials stored off the site shall not be paid for unless the Engineer has given written approval for the storage away from site.	
S	**TESTING** The Contractor shall arrange at the request of the Engineer for testing of materials and portions of work at his own expense. If the tests fail, the affected materials or work shall be removed and replaced at the Contractor's cost. The tests will be performed in an approved manner and by an approved testing authority.	
T	**NOTICES** For notices to be served under the Conditions of Contract : The Contractor shall notify the Engineer an address where notice may be served upon him or in event of his failing to do so, the notice shall be deemed served upon the Contractor if sent by registered post to the Contractor's usual place of business.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
U	**FAIR WAGES AND GOVERNMENT ACTS REGARDING WORK PEOPLE ETC.**	
	The Contractor shall comply with the regulations of wages (Building and Construction Industry) order and shall be responsible for compliance by the Sub-Contractors employed in the execution of the Contract. If required he shall notify the Engineer of the names and address of all such Sub-Contractors.	
	Should a claim be made to the Employer alleging the Contractor's default in payment of fair wages to any workman employed on contract and if proof thereof satisfactory to the Engineer is furnished by the labour department, the Employer may, failing payment by the Contractor, pay the claim out of any monies due or which may become due to the Contractor under this Contract.	
	The Contractor shall furnish the Engineer if called upon to do such particulars of the rates of wages, hours and conditions of labour referred to above as the Engineer shall direct.	
	The Contractor shall also be required to comply with all other Government Acts, regulations and orders in connection with employment of labour.	
V	**SECURITY OF WORKS ETC.**	
	The Contractor shall be entirely responsible for the security of all the Works, stores materials, plant, personnel, etc., both his own and Sub-Contractors' and must provide all necessary watching, lighting and other precautions as necessary to ensure security against theft, loss or damage and the protection of the public.	
W	**PUBLIC AND PRIVATE ROADS**.	
	The Contractor shall maintain as required throughout the execution of the Works and make good any damage to public or private roads arising from or consequent upon the execution of the Works to the satisfaction of the local and other competent authority and the Engineer.	
X	**EXISTING PROPERTY.**	
	The Contractor shall take every precaution to avoid damage to all existing property including roads, cables, drains and other services and he will be held responsible for and shall make good all such damage arising from the execution of this Contract at his own expense to the satisfaction of the Engineer.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
Y	**EXISTING SERVICES** Prior to commencement of any work the Contractor is to ascertain from the relevant authorities the exact position, depth and level of all existing electric cables, water pipes or other services in the area and he shall make whatever provisions may be required by the authorities concerned for the support and protection of such services. Any damage or disturbance caused to any service shall be reported immediately to the Engineer and the relevant authority and shall be made good to their satisfaction at the Contractor's expense.	
Z	**PROGRESS MEETING** Meetings related to the progress of the Works will be held at regular intervals and at such other times as may be necessary, attended by the following: 1. the Architect 2. the Contractor's representative 3. the Employer's representative where applicable 4. the Quantity surveyor 5. the Civil Structural and Services Engineers and; 6. the representatives of nominated sub-contractors other agents The Engineer shall record the minutes of the meeting and distribute them to all affected parties.	
AA	**TECHNICAL MEETINGS** Separate meetings to deal with technical and Sub-Contractor's co-ordination matters shall be held at the instance of the Engineer or the Contractor.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
AB	**VISIT SITE AND EXAMINE DRAWINGS.** The Contractor is recommended to examine the drawings and visit the site, the location of which is described in the Particular Preliminaries hereof. He shall be deemed to have acquainted himself therewith as to its nature, position, means of access or any other matter which, may affect his tender. No claim arising from his failure to comply with this recommendation shall be considered.	
AC	**AREA TO BE OCCUPIED BY THE CONTRACTOR** The area of the site which may be occupied by the Contractor for use of storage and for the purpose of erecting workshops, etc., shall be defined on site by the Engineer and the Contractor must confine his activities to the areas so marked and must ensure his own and Sub-Contractors' workmen do not trespass onto the adjoining property or cause inconvenience to the occupiers.	
AD	**WORK TO BE OPENED UP AT THE REQUEST OF THE ENGINEER** The Contractor shall, at the request of the Engineer within such time as the Engineer shall direct, open for inspection any work covered up and should the Contractor refuse or neglect to comply with such request, the Engineer may employ workmen other than those employed by the Contractor to open up the same. If the said work has been covered up in contravention of the Engineer's instructions, or if, on being opened up, it be found not in accordance with the drawings or Bills of Quantities or the instructions of the Engineer, the expenses of opening and covering it up again, whether done by the Contractor or the Engineer, shall be borne by and be recoverable from the Contractor or may be deducted from any monies due to the Contractor. If the work has not been covered up in contravention of such instructions and be found in accordance with the said drawings and Bills of Quantities, then the expenses aforesaid shall be borne by the Employer and be added to the Contract Sum, provided always that, in the case of foundations or any other urgent work so opened up, and requiring immediate attention, the Engineer shall within a reasonable time after the work has been opened, make or cause to be made the inspection thereof and the expiration of such time, if such inspection shall not have been made the Contractor may cover up the same and shall not be required to open it up again for inspection except at the expense of the Employer.	
AE	**OFFICES AND SERVICES FOR THE ENGINEER** The Contractor shall provide, erect and maintain where directed on the site, an approved weather-proof lock-up office for the sole use of the Engineer and his representatives with a total floor area of not less than 110 square metres, to be divided into two separate interconnected spaces, with the site meeting room having a floor area of not less than 60 square metres and the office floor area of not less than 40 square metres. This shall be constructed	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	

with concrete or wooden floor and the walls and ceilings internally lined with fiberboard. Glazed windows of not less than 12 square metres for each space and stout doors with locks and fastenings shall be provided.

The Contractor shall furnish the site meeting room with;

i) Meeting table for at least 15 people
ii) 20 No. chairs
iii) 1 No. desk
iv) Drawing table along the full length of one side complete with drawers of sufficient size to carry the drawings laid flat

v) Pin board of not less than 8 square metres

The Contractor shall maintain 1no lockable offices each of not less than 7 square metres, each with a glazed window of not less than 2 square metres for the Clerks of Works within the site office . The office to be complete with 1 No office desk, 1 No. office chair, Water Dispenser as Ramtons RM/761 or other equal and approved, 1 No. waste paper basket and 1 No. laptop computer with the following minimum specifications:

-Processor - Intel(R) Ultra 9
-Installed RAM - 16.0 GB
-System type64-bit operating system, x64-based processor
-Minimum display – 16-inch screen

The laptop shall be supplied complete with the following software applications, each fully licensed, running the most current version, and matching the latest release year.

-Microsoft Office Professional
-Autocad
-Archicad
-AVG or Bitdefender antivirus

The Contractor shall also provide, erect and maintain a lock up European type latrine of not less than 3 square metres for the sole use of the Engineer and his representatives and to the satisfaction of the Local Authorities and shall provide the services of a sweeper, pay all charges and keep both office and latrine in a clean and sanitary condition during the whole period of the Works.

The Contractor shall keep on site and maintain functional and in good condition throughout the Contract Period, the following for the use of the Engineer and his representatives;

i) Accurate level together with levelling staff and ranging rods.
ii) A Total Station complete with requisite accessories.
iii) An optical plummet.
iv) Two 10m steel tapes.

	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
	v) Two 100m steel tapes.	
	vi) Laser multifunction color printer/scanner/copier with bluetooth & Wi-Fi connections complete with stationery and consumables.	
	vii) Broadband internet connection.	
	This structure shall be completed and ready for use within six (6) weeks from the date of site possession failure to which liquidated damages/penalty of Kshs. 30,000.00 per day will apply for non-completion.	
	The Contractor shall pay for all charges for electricity, internet connection, mobile telephone and water bills during the construction and maintenance period.	
	This structure shall be removed on completion.	
AF	**RECORDS**	
	The Contractor shall allow for keeping all records relevant to the Works and shall keep on site a diary recording weather conditions, temperature, rainfall, visitors, plant, workforce to the site, etc.	
AG	**RAIN & DELAYS**	
	Contractors Method Statement and Programme should reflect how the two - three wet seasons per annum envisaged during the contract period and any adverse weather that is reasonably forecasted by the Kenya Metereological department at the time of tender, with commensurate delays, will be accommodated within the contract period.	
	The Contractor shall allow in their programme and prices for the adequate execution of Works to the satisfaction of the Engineer and no claims for Extension of Time and/or extra costs shall be entertained for delays or otherwise arising out of the Contractor's lack of planning through reasonably forecasted wet seasons	
	In addition, it is noted that exceptionally adverse weather is weather that is exceptionally adverse for that time and location, that is weather over a calendar month that has occured on average less frequently than once in 10 years and consideration must be made for in the Contractor's price and programme	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
AH	**FLOOD TEST TO WATERPROOFED ROOF SLAB** The Contractor shall be required to carry out flood testing of the waterproofed terraces to test the water-tightness of waterproofing installations applied to horizontal surfaces as shall be required during the contract and as directed by the civil and structural engineer. Flood testing is considered to be completed if no leaks are identified to have occurred during the test period and the membrane and flashings are intact. Such tests shall be documented and copies submitted to the engineer.	
AJ	**WATER AND ELECTRICITY SUPPLY FOR THE WORKS** The Contractor shall provide at his own risk and cost all necessary water, electric light and power required for use in the Works. The Contractor must make his own arrangements for connection to the nearest suitable water mains and for metering the water used. He must also provide temporary tanks and meters as required at his own cost and clear away when no longer required and make good on completion to the entire satisfaction of the Engineer. The Contractor shall pay all charges in connection herewith. No guarantee is given or implied that sufficient water will be available from mains and the Contractor must make his own arrangements for augmenting this supply at his own cost. Nominated Sub-Contractors are to be made liable for the cost of any water or electric current used and for any installation provided especially for their own use.	
AK	**ACCESS TO THE SITE AND TEMPORARY ROADS** Means of access to the site shall be agreed with the Engineer prior to the commencement of the works and the Contractor must allow for building any temporary access roads, culverts, bridges, roadside rainwater drains for the transport of materials, plant and workmen including the provision of any other means of gaining access to the site. Upon completion of the works the Contractor shall remove sides, temporary culverts, etc and make good and reinstate all works and services disturbed to the satisfaction of the Engineer and Local Authority .	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
AL	**SETTING OUT** The Contractor shall set out the works in accordance with the dimensions and levels on the drawings and shall be responsible for the correctness of all dimensions and levels so set out by him and will be required to amend all errors arising from inaccurate setting out or discrepancies in the dimensions or levels marked on the drawings, such errors or discrepancies must be reported by the Contractor to the Engineer for his immediate attention. No work shall be commenced by the Contractor until he has received written instructions from the Engineer to adjust such discrepancies which may have been proved. Upon receipt of such instructions the Contractor shall thereupon be responsible for accurate setting out of the work giving effect to the adjustment necessary to comply with such instructions, no claim for extra expense or relief may be made thereafter.	
AM	**CONTRACTORS REPORT** The Contractor shall provide periodic progress reports at intervals which shall be agreed with the Engineer. The report shall incorporate site personnel, equipment, materials, progress photos, early warning, risks and safety amongst other relevant information as might be required from time to time.	
AN	**HOISTING** Throughout these Bills of Quantities generally no mention is made of heights for hoisting. All prices must include for hoisting and fixing at any level within the limit shown on the drawings or included in the general description of the works. Where a particular level is specified the Contractor shall price accordingly.	
AP	**LOCAL AUTHORITY BY-LAWS AND CHARGES** The Contractor shall comply with all the Local Authorities by-laws and pay for all charges in connection therewith. The Contractor should therefore allow in his tender for such expenses.	
AQ	**WHITE ANTS AND TERMITES** Allow for destroying any white ants and termites nests found in the vicinity of the buildings, destroying Queen ants, depositing cyanide lumps in holes and tunnels and filling with hard-core and murram well rammed and scaled.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
AR	**SANITATION OF THE WORKS** The sanitation of the works shall be arranged and maintained by the Contractor to the satisfaction of the Government and/or Local Authorities, Labour Department and the Engineer. The latrines or toilets shall be built of plastered masonry walls (sides and partitions) and corrugated iron sheet roof with at least one translucent roofing sheet per cubicle and one window per cubicle. The Contractor shall also provide at least one wash hand basin per toilet cubicle. The site of the latrine shall be agreed with the Engineer and the works shall not be commenced before the sanitary accommodation has been approved by the Engineer and the Local Authority. The Contractor will be required to pay all conservancy charges and employ adequate sweepers on the site to ensure clean maintenance and daily disinfecting of the latrines upon completion. The latrines and any temporary drain shall be removed and all works and surfaces disturbed made good and whole area disinfected and left clean and free from pollution ,all to the satisfaction of the Engineer and Local Authorities.	
AS	**WORKING HOURS** The working hours shall be those generally worked by good employers in the Building and Civil Engineering Trade in Kenya. No work shall be carried out at night or on gazetted holidays unless with the approval of the Engineer. No work shall be covered up or shall any correcting be carried out without prior approval of the Engineer.	
AT	**PROVISIONAL SUMS.** The term "Provisional Sum" wherever used in these Bills of Quantities shall have the meaning stated in Section A item A7(i) of the Standard Method of Measurement .Such sums are net and no addition shall be made to them for profit.	
AU	**PRIME COST (OR P.C.) SUMS.** The term "Prime Cost Sum" or "P.C. Sum" wherever used in these Bills of Quantities shall have the meaning stated in Section A item A7 (ia) of the Standard Method of Measurement Persons or firms nominated by the Engineer to execute work or to provide and fix materials or goods are described herein as Nominated Sub-Contractors. Persons or firms so nominated to supply goods or materials are described herein as Nominated Suppliers.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
AV	**WORK PROGRAMME.**	

The Contractor shall submit a program for the Works and **cash flow forecast within 14 days of receipt of the Letter of Acceptance and prior to the Commencement Date**.
The works programme is to be agreed with the Engineer within a maximum of two (2) weeks from the date of possession of site and two weeks for an updated programme. No deviation from the order set out in the programme will be permitted without the written consent of the Engineer. The main contractor will be responsible for arranging for the above programme with all the Sub-Contractors including nominated Sub-Contractors and Suppliers.

The Programme shall include

a) The order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,
b) each of these stages for work by each nominated Subcontractor
c) the sequence and timing of inspections and tests specified in the Contract, and
d) a supporting report which includes:
   i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and
   ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage

Payment as stated in the appendix in the Conditions of Contract will be held unless the progress schedule is approved and agreed upon within the stipulated time indicated above. proceeds.

Carried Forward KSH

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
AW	**ADJUSTMENT OF P.C. SUMS.** In the final account all P.C. Sums shall be deducted and the amount properly expended upon the Engineer'S order in respect of each of them added to the Contract sum. The Contractor shall produce to the Engineer such quotations, invoices or bills, properly receipted, as may be necessary to show the actual details of the sums paid by the Contractor. Items of profit upon P.C. Sums shall be adjusted in the final account pro-rata to the amount paid. Items of "attendance" (as previously described) following P.C. Sums shall be adjusted pro-rata to the physical extent of the work executed (not pro-rata to the amount paid) and this shall apply even though the Contractor's priced Bill shows a percentage in the rate column in respect of them. Should the Contractor be permitted to tender and his tender be accepted of any work for which a P.C. Sum is included in these Bill of Quantities profit and attendance will be allowed at the same rate as it would be if the work were executed by a Nominated Sub-Contractor.	
AX	**ADJUSTMENT OF PROVISIONAL SUMS.** In the Final Account all Provisional Sums shall be deducted and the value of the work properly executed in respect of them upon the Engineer's order added to the Contract Sum. Such work shall be valued as described for Variations in Clause 22 of the Conditions of Contract, but should any part of the work be executed by a Nominated Sub-Contractor, the value of such work or articles for the work to be supplied by a Nominated Supplier, the value of such work or articles shall be treated as a P.C. Sum and profit and attendance comparable to that contained in the priced Bills of Quantities for similar items added.	
AY	**NOMINATED SUB-CONTRACTORS** When any work is ordered by the Engineer to be executed by nominated Sub-Contractors, the Contractor shall enter into Sub-Contracts as described in the Conditions of Contract and shall thereafter be responsible for such sub-contractors in every respect. Unless otherwise described the Contractor is to provide for such Sub-Contractors any or all of the facilities described in these Preliminaries. The Contractor will be required to obtain approval of the Engineer in writing before employing any of his own (i.e domestic) Sub-Contractor for any portion of the Works.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
AZ	**ATTENDANCE UPON OTHER TRADESMEN, ETC.** The Contractor shall allow for the attendance of trade upon trade and shall afford any tradesmen or other persons employed for the execution of any work not included in this Contract every facility for carrying out their work and also for use of his ordinary scaffolding. The Contractor, however, shall not be required to erect any special scaffolding for them. The Contractor shall perform such cutting away for and making good after the work of such tradesmen or persons as may be ordered by the Engineer and the work will be measured and paid for to the extent executed at rates provided in these Bills.	
BA	**PROVISIONAL WORK** All work described as "Provisional" in these Bills of Quantities is subject to remeasurement in order to ascertain the actual quantity executed for which payment will be made. All "Provisional" and other work liable to adjustment under this Contract shall be left uncovered for a reasonable time to allow all measurements needed for such adjustment to be taken by the Engineer. Immediately the work is ready for measuring, the Contractor shall give notice to the Engineer. If the Contractor makes default in these respects, he shall if the Engineer so directs uncover the work to enable all measurements to be taken and afterwards reinstate at his own expense.	
BB	**ALTERATIONS TO BILLS, PRICING, ETC.** Any unauthorized alteration or qualification made to the text of the Bills of Quantities may cause the Tender to be disqualified and will in any case be ignored. The Contractor shall be deemed to have made allowance in his prices generally to cover any items against which no price has been inserted in the priced Bills of Quantities. All items of measured work shall be priced in detail and the Tenders containing Lump Sums to cover trades or groups of work must be broken down to show the price of each item before they will be accepted. Lump sums to cover any items of Preliminaries shall be likewise broken down if so required.	
BC	**BLASTING OPERATIONS** Blasting will only be allowed with the express permission of the Engineer in writing. All blasting operations shall be carried out at the Contractor's sole risk and cost in accordance with any Government regulations in force for the time being, and any special regulations laid down by the Engineer governing the use and storage of explosives.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
BD	**MATERIALS ARISING FROM EXCAVATIONS** Materials of any kind obtained from the excavations shall be the property of the Employer. Unless the Engineer directs otherwise such materials shall be dealt with as provided in the Contract. Such materials shall only be used in the works, in substitution of materials which the Contractor would otherwise have had to supply with the written permission of the Engineer. Should such permission be given, the Contractor shall make due allowance for the value of the materials so used at a price to be agreed.	
BE	**PROTECTION OF THE WORKS.** Provide protection of the whole of the Works contained in the Bills of Quantities, including casing, casing up, covering or such other means as may be necessary to avoid damage to the satisfaction of the Engineer and remove such protection when no longer required and make good any damage which may nevertheless have been done at completion free of cost to the Government.	
BF	**REMOVAL OF RUBBISH ETC.** The Contractor is to remove all rubbish from the site from time to time and as instructed by the Engineer and leave the site clean and tidy on completion. Heaped soils, materials etc shall on completion of works be spread and levelled properly to the satisfaction of the Engineer.	
BG	**WORKS TO BE DELIVERED UP CLEAN** Clean and flush all gutters, rainwater and waste pipes, manholes and drains, wash (except where such treatment might cause damage) and clean all floors, sanitary fittings, glass inside and outside and any other parts of the Works and remove all marks, blemishes, stains and defects from joinery, fittings and decorated surfaces generally, polish door furniture and bright parts of metalwork and leave the whole of the buildings watertight, clean, perfect and fit for occupation to the approval of the Engineer.	
BH	**FIXED UNIT- PRICE CONTRACT** This is a fixed unit price Contract deemed to include all duties ,tariffs and taxes imposed by the Government and Statutory/Local Authorities. Fluctuations for labour (Price Adjustment) is not applicable.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
BJ	**PUBLIC PROCUREMENT CAPACITY BUILDING LEVY** The Contractor's attention is drawn to the Public Procurement Capacity Building Levy Order (2023) issued vide Legal Notice No. 206 of 6th November, 2023. The Contractor is required to pay a levy on the procurement contract signed between the Contractor and the Procuring Entity at the rate of zero point zero three per centum (0.03%). The Contractor must allow for this when tendering.	
BK	**GENERAL** The Contractor is referred to the General Specifications for Building Works 1976 Edition Pages B1 - B2 inclusive and must allow for all costs in complying with these clauses.	
BL	**CONTRACTOR'S SUPERINTENDENCE/SITE AGENT** The Contractor shall constantly keep on the works a literate English speaking Agent or Representative, competent and experienced in the kind of work involved who shall give his whole experience in the kind of work involved and shall give his whole time to the superintendence of the works. Such Agent or Representative shall receive on behalf of the Contractor all directions and instructions from the Engineer and such directions shall be deemed to have been given to the Contractor in accordance with the Conditions of Contract.	
BM	**OBTAINING "OCCUPATION CERTIFICATES"** The Contractor shall obtain requisite occupation certificates for all the Works upon completion of the works from the relevant authorities and submit to the Employer. Release of First Moiety upon completion of Works will be subject to submission of the occupation certificates to the Employer.	
BN	**INSPECTION BY STATUTORY BODIES /LOCAL AUTHORITIES** The Contractor shall allow for periodic inspections by local authorities/County building inspectors during the currency of the Contract.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
BP	**SHOP DRAWINGS** The Contractor shall prepare for scrutiny and issue to the Engineer, copies of detailed shop drawings of all specialist works. Following the Engineer's checking of these shop drawings the Contractor shall immediately amend them as necessary and when approved, promptly issue to the Engineer four copies for general use. The scrutiny of shop drawings by the Engineer shall be for general conformity, including conformity with the work of others and to co-ordinate the contract work in space. Such approval shall not imply any further indication of correctness. The period for issuance of any shop drawings especially for basement area shall be two weeks from award of contract unless otherwise stated.	
BQ	**AS BUILT DRAWINGS** The Contractor including all the sub-contractors, domestic or nominated shall prepare for scrutiny and issue to the Engineer, "As Built Drawings" in CAD format or other approved format and printed, coloured A1/A0 copies before practical completion of the Works. The contractor and subcontractors shall allow for the maintenance of As Built Drawings as the Works progress to ensure that the Works are accurately captured.	
BR	**PUBLIC HEALTH** The Contractor shall allow for compliance with all statutory, public health and other recommended good practices in maintaining hygiene in all of his operations on the site including all places outside of the site where fabrication or storage of materials in connection of the works is undertaken under his control and all activities (including transportation of labour) involving human beings (regardless of designation) on the locations referred to above.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
BS	**SAFETY** The Contractor shall comply at all times with the requirements of the Occupational Safety and Health Act Act, Building Construction Rules No. 15 of 2007 and ensure that the safety of his work people and authorized visitors to the Site is protected at all times. In particular, there shall be proper provision of planked footways and guard rails to scaffolding, etc., protection against falling materials and tools and the Site shall be kept tidy and clear of dangerous rubbish. The Contractor shall appoint a Safety Officer as required by the Occupational Safety and Health Act and notify the Inspector of his name. The Safety Officer shall be on site at all times and all directions given by the Engineer to the Safety Officer shall be deemed to be Architect's Instructions and shall be complied with promptly without additional cost to the Contract. The Engineer shall be empowered to suspend work on the Site should he consider these conditions are not being observed, and no claim arising from such a suspension will be allowed. The contractor shall be responsible for such time lost as a result of such stoppage and shall develop an accelerated programme to recover such lost time at his own cost.	
BT	**PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT** The Contractor shall provide all protective or any other special clothing or equipment for his employees that may be necessary. **This shall include, inter alia, safety helmets, gloves, goggles, earmuffs, safety shoes, overalls, etc. according to the type of work. The Contractor shall ensure that** Personal Protective Clothing and Equipment **are worn by all staff on site at all times.** **The contractor shall provide special personalised and dedicated protective equipment for the engineer, consultants and employer including lockable storage for the above in the engineers office.**	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
BU	**TRAINING LEVY** The Contractor's attention is drawn to the Industrial Training (Amendment) Act No. 34 of 2011 which requires payment of the Contractor of a Training Levy on all Contracts of more than Kshs. 50,000.00 in value and his tender must include for all costs arising or resulting there from. Immediately after the Contractor is given possession of site, the Contractor shall be required to produce receipts as proof that he has complied with this legal notice. Reimbursement shall be upon fulfilment of this requirement. In the event of the Contractor defaulting by not remitting the monies to the directorate of Industrial Training, State Department of Labour, the Employer shall reserve the right to deduct an equivalent amount from monies to become due in payment certificates and remit the said amount to the relevant authority without reference to the contractor.	
BV	**STANDARD LEVY** The Contractor's attention is drawn to the standard levy order (1990) which was amended on 26th November 1999 vide legal notice No. 183 of 1999. The Contractor is required to pay a monthly levy of 0.2 % of his ex-factory price of construction works and must allow for this when tendering .	
BW	**VALUE ADDED TAX (VAT)** The Contractor's attention is drawn to the Legal Notice in the Finance Act Part 3 Section 21(b) operative from 1st september 1993 which require payment of VAT on all contracts. The Contractor should therefore include an allowance in his rates and prices for VAT and any other government taxes and levies currently in force. Where the Employer is a withholding VAT agent, withholding VAT will be levied against the total VAT in the Contract Sum by the Employer and remitted to Commissioner of VAT through all interim and final certificates. It should however be noted that this is not an additional tax, but it is an advance payment of value added tax on the Contractor's behalf which credit the Contractor is entitled to claim against his VAT remittance obligations to the Kenya Revenue Authority.	
	Carried Forward KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Amount Kshs*
	Brought Forward KSH	
BX	**WITHHOLDING TAX**	
	The tenderer is advised that in accordance with the Government regulations withholding tax will be levied against the total Contract Sum by the Employer and remitted to Kenya Revenue Authority through all interim and final certificates. It should however be noted that this is not an additional tax, but it is an advance payment of income tax on the Contractor's behalf which credit the Contractor is entitled to claim against his income tax obligations to the Kenya Revenue Authority.	
BY	**COPYRIGHT**	
	The copyright of these documents is vested in the Quantity Surveyor and they may not be reproduced in whole or in part without the Quantity Surveyor's written permission.	
	Carried Forward to Summary of Section No. 1 KSH	

© Bills Partnership Ltd, Quantity Surveyors

SECTION SUMMARY - PRELIMINARIES

Bill No		*Page No*	*Amount Kshs*
1	PARTICULAR MATTERS	101	
2	GENERAL MATTERS	126	

Carried to Final Summary

KSH

© Bills Partnership Ltd, Quantity Surveyors

SECTION NO. 2

ACCOMODATION UNIT

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 1				
	SUBSTRUCTURES (ALL PROVISIONAL)				
	Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material; Tenderers to allow for watering of the works with jet spray sufficient to prevent any nuisance and dust during excavations within their rates.				
A	Excavate average 300 mm deep to remove top vegetable soil and cart away from site	**m2**	160		
B	Bulk excavation commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	80		
C	Excavate for ground beams commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	7		
D	Excavate for pad foundations commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	83		
E	Ditto but 1.50 to 3.00m deep	**m3**	28		
F	Extra over for excavating in soft rock	**m3**	11		
	Backfilling and Disposal				
G	Approved imported fill material around foundations: watered, spread, laid and compacted in layers not exceeding 150mm	**m3**	93		
H	Load and cart away surplus spoil from site	**m3**	105		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Imported filling				
J	Approved imported fill material to make up levels: watered, spread, laid and compacted in layers not exceeding 150mm	**m3**	80		
	Anti- termite treatment				
K	Chemical anti-termite treatment as "Termidor" or other equal and approved; executed complete by an approved specialist under a ten (10) year guarantee	**m2**	160		
	Damp proof membrane				
L	1000 Gauge polythene or other equal and approved damp proof membrane laid under surface bed with 300 mm side and end laps (measured nett- no allowance made for laps)	**m2**	160		
	Plain concrete class 15				
M	50mm thick blinding under pad foundations	**m2**	55		
N	50mm thick blinding under ground beams	**m2**	14		
	Vibrated reinforced concrete class 25 (20mm diameter aggregate-minimum) in;				
P	Pad foundations	**m3**	13		
Q	Columns	**m3**	4		
R	Ground Beams	**m3**	4		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Vibrated reinforced concrete class 25 (20 mm diameter aggregate-minimum); including plastocrete-N as manufactured by Sika or other equal and approved waterproofing concrete admixture, applied to manufacturer's printed instructions with a minimum 10 years' manufacturer's performance guarantee; all to Engineer's approval				
S	150mm thick suspended floor bed	**m2**	22		
T	200mm thick suspended floor bed	**m2**	138		
	Reinforcement (Provisional)				
	High yield deformed steel bar reinforcement to BS 4449:2005; allow for cutting, bending, hoisting, fixing, binding wire, spacer blocks, templates and spacer stools and any other accessories as necessary				
U	8 mm diameter bars	**kg**	611		
V	10 mm diameter bars	**kg**	452		
W	12 mm diameter bars	**kg**	1,982		
X	16 mm diameter bars	**kg**	1,871		
Y	20 mm diameter bars	**kg**	581		
Z	25 mm diameter bars	**kg**	499		
	Sawn formwork to;				
AA	Sides of pad foundations	**m2**	27		
AB	Sides of columns	**m2**	27		
AC	Sides of ground beams	**m2**	36		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
AD	Edges of beds, etc over 75mm high but not exceeding 150mm high	**m**	46		
AE	Edges of beds, etc over 150mm high but not exceeding 225mm high	**m**	42		
	Cement and sand (1:4) beds and backing				
AF	Backing to wall surfaces etc thickness - 15mm	**m2**	42		
	Prepare and apply two coats of black bituminous paint to:				
AG	Rendered plinths	**m2**	42		
	Carried Forward to Summary of Section No. 2			KSH	

Bill No. 1

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 2				
	FRAME				
	Pricing Note: Cement Requirements as follows:				
	Cement Class C20 and above shall, as a minimum, meet the requirements of CEMI-42.5, CEMII-42.5.5 or CEMIV-42.5 for Grade of Concrete				
	Cement Class 15 and below shall, as a minimum, meet the requirements of CEMI-32.5, CEMII-32.5 or CEMIV-32.5 for Grade of Concrete upto and including grade C15				
	Tenderer shall allow for sealing of all construction joints with an approved sealant within the rate of concrete works				
	All rates for concrete to columns shall have 20 gauge x 25mm x 300mm long hoop iron at 400mm centers; one end of tie cast into concrete and the other end built into walling in every alternate course.				
	Vibrated reinforced concrete class 25 (20mm diameter aggregate-minimum) in;				
A	Columns	**m3**	8		
	Vibrated reinforced concrete class 25 (20 mm diameter aggregate-minimum); including plastocrete-N as manufactured by Sika or other equal and approved waterproofing concrete admixture, applied to manufacturer's printed instructions with a minimum 10 years' manufacturer's performance guarantee; all to Engineer's approval				
B	Roof Beams	**m3**	21		
C	150mm Thick suspended roof slab	**m2**	80		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Hollow block suspended floors				
D	Slabs consisting of 380 x 200 x 150mm high concrete hollow pot blocks at 530mm centres; 150mm wide ribs and 150mm thick topping in class 30 concrete with and including plastocrete-N as manufactured by Sika or other equal and approved waterproofing concrete admixture, applied to manufacturer's printed instructions with a minimum 10 years' manufacturer's performance guarantee; all to Engineer's approval; **Overall thickness- 300 mm**	**m2**	77		
	Reinforcement (Provisional)				
	High yield deformed steel bar reinforcement to BS 4449:2005; allow for cutting, bending, hoisting, fixing, binding wire, spacer blocks, templates and spacer stools and any other accessories as necessary				
E	8 mm diameter bars	**kg**	546		
F	10 mm diameter bar	**kg**	565		
G	12 mm diameter bars	**kg**	377		
H	16 mm diameter bars	**kg**	923		
J	20 mm diameter bars	**kg**	1,670		
K	25 mm diameter bars	**kg**	332		
	Steel mesh fabric reinforcement to BS 4483				
L	Mesh fabric reinforcement laid in slab or bed (measured nett - no allowance made for laps) - Ref A142 weighing 2.22 Kgs per square metre	**m2**	77		
	Fair faced formwork to;				
M	Sides and soffits of beams	**m2**	162		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
N	Sides of columns	**m2**	105		
P	Soffits of suspended slabs	**m2**	157		
Q	Edges of slabs; etc over 75mm high but not exceeding 150mm high	**m**	68		
	Carried Forward to Summary of Section No. 2			KSH	

Bill No. 2

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 3				
	EXTERNAL WALLING				
	Insitu concrete class 20 (12mm, aggregate), including formwork, finishing fair face on all exposed surfaces, and hoisting and placing in position, bedding and jointing in cement and sand (1:3) mortar				
A	200 x 300 mm lintel, reinforced with and including four 12 mm diameter ribbed steel bars and 8 mm stirrups at 200 mm centres	**m**	9		
	Machine cut natural stone walling (7.0 N/sq. mm minimum crushing strength) jointed and bedded in cement and sand mortar (1:3) and reinforced with and including 20 gauge x 25mm wide hoop iron in every alternate course				
B	Walling reinforced as described, 200mm thick	**m2**	165		
C	Labour and material in raking cutting 200 mm thick wall	**m**	5		
	Supply and fix mahogany timber screen wall; comprising 100 x 75mm vertical timber slats in varying heights of 3150mm and 1950mm spaced at alternating 175mm centers; complete with and including drilling timber and providing 2 No. 20mm Diameter round painted tie bars passing through the slats, primed and painted with two coats of gloss paint before assembly; all fixed to wall, ceiling and floor with and including approved connections; Sand, prime, stain, prepare and apply two coats of exterior wood oil as "WOCA Exterior Wood Oil" or other equal and approved to all timber surfaces; All to Architect's design and specification				
D	100mm Thick Timber Screen	**m2**	19		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Precast concrete trimmings finished fair on all exposed faces				
E	Coping with four labours size 300mm wide x 75mm thick; complete with and including 16mm x 5mm throating.	**m**	80		
	Bituminous felt damp proof courses laid on and including levelling screed of cement and sand (1:3) mortar				
F	In walling 200mm wide	**m**	66		
	Carried Forward to Summary of Section No. 2			KSH	

Bill No. 3

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 4				
	INTERNAL WALLING AND PARTITIONS				
	Insitu concrete class 20 (12mm, aggregate), including formwork, finishing fair face on all exposed surfaces, and hoisting and placing in position, bedding and jointing in cement and sand (1:3) mortar				
A	200 x 300 mm lintel, reinforced with and including four 12 mm diameter ribbed steel bars and 8 mm stirrups at 200 mm centres	**m**	4		
	Machine cut natural stone walling (7.0 N/sq. mm minimum crushing strength) jointed and bedded in cement and sand mortar (1:3) and reinforced with and including 20 gauge x 25mm wide hoop iron in every alternate course				
B	Walling reinforced as described, 200 mm thick	**m2**	126		
	Bituminous felt damp proof courses laid on and including levelling screed of cement and sand (1:3) mortar				
C	In walling 200mm wide	**m**	50		
	Carried Forward to Summary of Section No. 2			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 5				
	ROOF FINISHES				
	Cement and sand (1:4) beds and backings				
A	75mm (Average) Roof slab screed : to falls and crossfalls : to receive waterproofing	**m2**	141		
B	25mm thick protective screed finished to receive precast concrete tiles or loose ballast elsewhere measured	**m2**	141		
C	15mm Render over upstand beam or parapet wall to receive waterproofing	**m2**	20		
D	Triangular fillet, size 25 x 25 mm	**m**	80		
	Waterproofing application as 'Mapelastic smart (two coats) and Mapenet 150 (One Layer) supplied by Mapei or approved equivalent; applied strictly in accordance with the manufacturers printed instructions and to specifications; Minimum 10 years guarantee.				
E	Horizontal surfaces of roofs	**m2**	141		
F	Vertical surfaces of upstand beam or parapet walls: including turning into groove in wall: allow for cutting 30mm groove in stone wall and making good	**m2**	20		
G	Dressing roofing around 100 mm diameter fulbora outlets	**No**	6		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and fix concrete 20mm Thick interlocking tiles from approved sources; laid with and including bitumen: including all cutting around rain water out lets				
H	Supply and fix concrete 20mm thick interlocking tiles from approved sources; laid with and including bitumen; laid to falls and cross falls not exceeding 15 degrees from horizontal: including all cutting around rain water out lets;all to Engineer's approval	**m2**	141		
J	Ditto skirting 200 mm high	**m**	80		
	Sundries (Provisional)				
K	Cut and fit around rain water outlet grating	**No**	6		
	600mm high mild steel railing consisting of 60mm diameter x 3mm thick circular hollow section handrail, 60mm x circular hollow section top rail, 7No. 25mm diameter round bars, 60mm diameter x 3 mm thick circular hollow section balusters overall height 600mm at approved centers welded to handrail including building balusters into mortice in concrete; including all bends and wreaths; all welded together, ground smooth, primed and sprayed with 3 coats high gloss automotive paint; to Architect's approval				
L	Horizontal balustrading	**m**	4		
	Carried Forward to Summary of Section No. 2			KSH	

Bill No. 5

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 6				
	EXTERNAL WALL FINISHES				
	Cement and sand (1: 4) rendering				
A	Rendering to concrete or block wall surfaces finished with a steel trowel, thickness 15 mm	**m2**	388		
	Prepare and apply one undercoat and two finishing coats of premium quality external emulsion paint as 'Crown Ultraguard Silicone Extreme' or other equal and approved external paint; on				
B	Rendered concrete or block wall surfaces	**m2**	361		
	Natural grey stone cladding				
C	Supply and fix 20mm thick approved stone cladding (in irregular pattern) built against and tied to backing with galvanised wire including bedding in approved adhesive; prepare and apply water repellent seal as ' Plascon Brick Seal' or other equal and approved	**m2**	27		
	Carried Forward to Summary of Section No. 2			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 7				
	INTERNAL WALL FINISHES				
	12mm thick (minimum) two-coat lime plaster, with steel trowelled finish, as described.				
A	Plaster to concrete or block wall surfaces	**m2**	337		
	Coloured glazed ceramic wall tiles and fittings				
B	Supply and fix 8mm thick coloured glazed ceramic wall tiles and fittings with and including an approved adhesive and pointing with coloured anti-fungal grout ***(*Allow tile prime cost rate of KSh. 1500 per m2 nett area)**	**m2**	90		
	Cement and sand (1:4) beds and backing				
C	Backing to receive tiles and paint ;etc thickness - 15 mm	**m2**	90		
	Skim surfaces, prepare and apply one coat of undercoat and apply two coats first quality silk vinyl paint to;				
D	Plastered concrete or block wall surfaces	**m2**	337		
	Carried Forward to Summary of Section No. 2			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 8				
	FLOOR FINISHES				
	Coloured non-slip ceramic floor tiles and fittings, European or equivalent standards; all to Engineer's Approval				
A	Supply and fix 10mm thick; with and including bedding in approved adhesive and pointing with an approved coloured anti-fungal grout **(Allow Tile Prime cost rate KSh. 1500 per m2 nett area)**	**m2**	114		
B	Ditto 150mm high skirting	**m**	107		
	Cement and sand (1:4) beds and backing				
C	Beds to receive flooring, etc, finished with a steel trowel , thickness - 30mm thick	**m2**	114		
	L-shaped aluminium transition strip: 5mm thick; fixed with and including approved grouting and adhesive				
D	Transition strip between different floor finishes	**m**	1		
	Worked finishes on concrete				
E	Power floating to concrete floors with and including integral hardener and all necessary surface preparation to surface beds; all to Engineer's approval	**m2**	21		
	Carried Forward to Summary of Section No. 2			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 9				
	CEILING FINISHES				
	12mm thick (minimum) two-coat lime plaster, with steel trowelled finish, as described to.				
A	Plaster to soffits of suspended slabs	**m2**	113		
	Skim surfaces, prepare and apply three coats first quality 'Crown Solo' or equal and approved Hi Matt Vinyl emulsion paint to Engineer's colour scheme.				
B	Plastered soffits of suspended slabs	**m2**	113		
	Carried Forward to Summary of Section No. 2			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 10				
	WINDOWS				
	Precast concrete trimmings finished fair on all exposed faces				
A	150 mm x 50 mm concrete window cill	**m**	17		
	Supply and fix the following purpose made casement windows with 40x 40 x 3 mm mild steel square hollow section and standard 25mm "Z" section framing including all coupling mullions etc; and complete with heavy duty brass handles, peg stays and all other necessary ironmongery; factory primed with red oxide primer, including cutting and pinning fixing lugs to concrete or masonry work jambs; bedding in cement and sand (1:3) mortar mix, pointing all round frames in mastic, easing, oiling and adjusting opening lights on completion including integral burglar proofing bars; paint to Architect's approval				
B	Window overall size 1800 x 1500mm high; W4	**No**	4		
C	Window overall size 900 x 900mm high; W5	**No**	4		
D	Window overall size 1200 x 1500mm high; W6	**No**	4		
	Clear sheet glass				
E	6 mm glass and glazing to metal with putty in panes over 0.10 square metres but not exceeding 0.50 square metres	**m2**	11		
	Approved obscured glass				
F	6 mm glass and glazing to metal with putty in panes over 0.10 square metres but not exceeding 0.50 square metres	**m2**	10		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and fix 20mm diameter wrought iron curtain rods complete with decoration ends; with and including double holding brackets screwed to wall; all to Architect's approval				
G	Curtain rods	**m**	8		
	Prepare, prime, prepare and apply two undercoats and one finishing coat gloss paint to metal work				
H	General surfaces of steel windows (both sides measured overall)	**m2**	42		
	Carried Forward to Summary of Section No. 2			KSH	

Bill No. 10

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 11				
	DOORS				
	Mild steel doors				
	Steel doors faced with 16 gauge mild steel panels on both sides; comprising 100 x 50 mm Rectangular Hollow Section shutter frame, 50 x 25mm RHS surround sub-frame, 50 x 6mm Rectangular Hollow Section reinforcement, heavy duty hinges, 3 lever mortice lock and high quality lever furniture, 200mm long tower bolts, rubber door stop on stainless steel mounting (all ironmongery as per Union catalogue or equal and approved) including cutting and pinning fixing lugs to concrete or masonry work jambs and concrete head and cill; to Architect's detail and Approval				
A	Door overall size 900 x 2400mm high, Ref: D04	**No**	1		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and fix purpose made casement door with 100 x 50 x 3mm thick frame fixed to wall. Door leafs comprising 50 x 50 x 3mm thick top rails, 100 x 50 x 3mm thick stiles, middle and bottom rails, 25 mm Tee sections at 300mm vertical and horizontal centers; 1200mm high bottom section faced both sides with 3mm Thick mild steel plate and top section glazed with 6mm thick clear sheet glass bedded in mastic and secured with matching mild steel glazing beads; complete with and including heavy duty steel hinges, 3 lever mortice lock and high quality lever furniture, 200mm long tower bolts, rubber door stops on stainless steel mounting (all ironmongery as per Union catalogue or equal and approved) including cutting and pinning fish-tailed fixing lugs to concrete or masonry work jambs and concrete head and cill; one shop-coat of red oxide primer before delivery; All to Architect's detail and Approval				
B	Door overall size 900 x 2400mm high in 2No. panels; comprising 900mm x 900mm high glazed top section and 900 x 1500mm high single leaf doors; D01	**No**	4		
	Timber Doors				
	Wrot mahogany, plugged				
C	200 x 50 mm Frame with two labours	**m**	20		
D	50 x 25 mm moulded architrave	**m**	40		
	Flush doors to B.S. 459 (Part 2)				
E	50mm solid core flush doors; faced both sides with 6mm waterproofed mahogany veneer and hardwood lipped all round; complete with decorative mouldings to Architect's details; overall size 800 x 2100mm high; D03	**No**	4		
	Ironmongery				
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and fix the following ironmongery with screws to match (Ref. is to Union Catalogue or other equal and approved)				
F	Bathroom lockset with Handle, Product Ref: 2L-35141-94-AC	**No**	4		
G	Pairs Stainless steel double washered hinges, Product Ref: HN-BB- 403030SS	**No**	8		
H	Cylinder satin steel Floor mounted Door Stop, Product Ref; DS-005-SS	**No**	4		
	Prepare and apply one coat wood preservative to woodwork before fixing				
J	Frames, skirtings, etc over 100mm but not exceeding 200mm girth	**m**	40		
K	Ditto over 200mm but not exceeding 300mm girth	**m**	20		
	Prepare and apply three coats of polyurethane varnish to timber surfaces				
L	Surfaces over 100mm but not exceeding 200 mm girth	**m**	40		
M	Surfaces over 200mm but not exceeding 300 mm girth	**m**	20		
N	General surfaces	**m2**	13		
	Prepare, prime, prepare and apply two undercoats and one finishing coat gloss paint to metal work				
P	General surfaces of steel doors (both sides measured overall)	**m2**	22		
	Carried Forward to Summary of Section No. 2			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2				
	ACCOMODATION UNIT				
	BILL NO. 12				
	JOINERY FITTINGS (ALL PROVISIONAL)				
	The following in low level and high level kitchen cabinets				
	Plain concrete class 15				
A	Plinths, thickness - 100mm	**m2**	4		
	Fair faced formwork to;				
B	Sides of plinths; over 75mm high but not exceeding 150mm high	**m**	16		
	Cement and sand (1:4) paving				
C	Paving steel trowelled smooth - 20mm	**m2**	4		
	Supply and fix low level and high level kitchen storage cabinet units in laminated particle board : bearer battens plugged and screwed: comprising 20mm thick particle board doors, shelves, divisions, sides and tops; approved locks to doors, handles, malpa hinges, magnetic ball catches, soft close elescopic drawer runners and all other necessary iron mongery; all boards and ironmongery as per PG Bison catalogue or equal and approved: prime back of frame before fixings: all to Engineer's approval and drawings				
D	Low level kitchen cabinet unit overall size 1500mm long x 600mm wide x 800mm High; Kitchen	**No**	4		
E	High level kitchen cupboard unit overall size : 1500mm long x 300mm wide x 1000mm High	**No**	4		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Kitchen Counter top: comprising of 20mm thick granite worktop complete with 150mm high backsplash to approved colour: allow for rounded edge to exposed edges: fixed with and including approved adhesive on and including wooden or mild steel bearers: all to Engineer's				
F	Low level kitchen cabinet granite counter top with all exposed edges bull-nosed to approval; allow for forming 1No opening for Kitchen sink; **Allow Tile Prime cost rate KSh. 15,000 per m2 nett area)**	**m2**	4		
G	150mm High Backsplash; **Allow Tile Prime cost rate KSh. 2,250 per m nett length)**	**m**	16		
	The following in wardrobes				
	Built in full height wardrobe units in laminated particle board : bearer battens plugged and screwed :comprising 20 mm thick doors, shelves, divisions, sides, drawers and tops; 25mm stainless steel hanging rail with supports to hafele standards or equal and approved; wardrobe lock handles, mepla hinges, soft closing eloscopic drawer runners, magnetic ball catches and all other necessary iron mongery; All boards and iron mongery as per PG Bison catalogue or equal and approved: prime back of frame before fixings				
H	Wardrobe Unit overall size 1200 x 600 x 2850mm high	**No**	4		
	5mm thick dressing mirror fixed to wall with and including approved adhesive and backing; all to Architect's approval				
J	450 wide x 1800mm high dressing mirror with bevelled edges	**No**	4		
	Benches				
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Benches with painted steel legs fixed to floor with appropriate bolts including 4no. 70mm x 30mm hardwood timber battens to form seat; sand, prime, stain, prepare and apply two coats of exterior wood oil as "WOCA Exterior Wood Oil" or other equal and approved to all timber surfaces to Architect's approval				
K	650mm wide x 400mm high x 1500mm overall length	**No**	2		
	Carried Forward to Summary of Section No. 2			KSH	

Bill No. 12

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 2			
	ACCOMODATION UNIT			
	BILL NO. 13			
	BUILDER'S WORK TO SERVICES (ALL PROVISIONAL)			
	Inspect all drawings and Electrical Bills of Quantities and allow for all builders work associated with;			
	Builders work in connection with to include for all cutting, and chasing and core drilling for electrical points, fittings and equipment : make good after the electrician.			
A	All Builders Work in connection with Electrical Installations	Item		
B	All other electrical installation works not specifically identified above but shown upon the Engineer's drawings and identified in the Electrical installations Bills of Quantities	Item		
	Inspect all drawings and Bills of Quantities for Plumbing, Drainage and Mechanical Installations and allow for all builders work associated with the following:			
	Builders work in connection with to include for all cutting, creating holes, chasing and core drilling for plumbing works, fittings and equipment : make good after the plumber.			
C	All Builders Work in connection with Plumbing Drainage (including all sanitary fittings) installations	Item		
D	All other plumbing and drainage works not specifically identified above including water tanks, pumps and heaters, control panels, mains water supply and pipe work system, foul drainage etc	Item		
	Carried Forward to Summary of Section No. 2		KSH	

© Bills Partnership Ltd, Quantity Surveyors

SECTION SUMMARY - ACCOMODATION UNIT

Bill No		*Page No*	*Amount Kshs*
1	SUBSTRUCTURES (ALL PROVISIONAL)	131	
2	FRAME	134	
3	EXTERNAL WALLING	136	
4	INTERNAL WALLING AND PARTITIONS	137	
5	ROOF FINISHES	139	
6	EXTERNAL WALL FINISHES	140	
7	INTERNAL WALL FINISHES	141	
8	FLOOR FINISHES	142	
9	CEILING FINISHES	143	
10	WINDOWS	145	
11	DOORS	148	
12	JOINERY FITTINGS (ALL PROVISIONAL)	151	
13	BUILDER'S WORK TO SERVICES (ALL PROVISIONAL)	152	

Carried to Final Summary KSH

© Bills Partnership Ltd, Quantity Surveyors

SECTION NO. 3

ADMINISTRATION OFFICE

Item No			*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 1				
	SUBSTRUCTURES (ALL PROVISIONAL)				
	Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material				
A	Excavate average 300 mm deep to remove top vegetable soil and cart away from site	**m2**	311		
B	Bulk excavation commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	156		
C	Excavate for ground beams commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	14		
D	Excavate for pad foundations commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	126		
E	Ditto but 1.50 to 3.00m deep	**m3**	42		
F	Extra over for excavating in soft rock	**m3**	17		
	Backfilling and Disposal				
G	Approved imported fill material around foundations: watered, spread, laid and compacted in layers not exceeding 150mm	**m3**	138		
H	Load and cart away surplus spoil	**m3**	200		
	Imported filling				
J	Approved imported fill material to make up levels: watered, spread, laid and compacted in layers not exceeding 150mm	**m3**	156		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No			*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Anti- termite treatment				
K	Chemical anti-termite treatment as "Termidor" or other equal and approved; executed complete by an approved specialist under a ten (10) year guarantee	**m2**	311		
	Damp proof membrane				
L	1000 Gauge polythene or other equal and approved damp proof membrane laid under surface bed with 300 mm side and end laps (measured nett- no allowance made for laps)	**m2**	311		
	Plain concrete class 15 in;				
M	50mm thick blinding under pad foundations	**m2**	84		
N	50mm thick blinding under ground beams	**m2**	29		
	Vibrated reinforced concrete class 25 (20 mm diameter aggregate - minimum) in;				
P	Columns	**m3**	6		
Q	Pad foundations	**m3**	21		
R	Ground Beams	**m3**	13		
	Vibrated reinforced concrete class 25 (20 mm diameter aggregate-minimum); including plastocrete-N as manufactured by Sika or other equal and approved waterproofing concrete admixture, applied to manufacturer's printed instructions with a minimum 10 years' manufacturer's performance guarantee; all to Engineer's approval				
S	175mm thick suspended floor bed	**m2**	311		
	Reinforcement (Provisional)				
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No			*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	High yield deformed steel bar reinforcement to BS 4449:2005; allow for cutting, bending, hoisting, fixing, binding wire, spacer blocks, templates and spacer stools and any other accessories as necessary				
T	8 mm diameter bars	**kg**	1,046		
U	10 mm diameter bars	**kg**	1,091		
V	12 mm diameter bars	**kg**	3,030		
W	16 mm diameter bars	**kg**	3,198		
X	20 mm diameter bars	**kg**	1,375		
Y	25 mm diameter bars	**kg**	332		
	Sawn formwork to;				
Z	Sides of pad foundations	**m2**	47		
AA	Sides of columns	**m2**	72		
AB	Sides of ground beams	**m2**	126		
AC	Edges of beds, etc over 75mm high but not exceeding 150mm high	**m**	13		
AD	Edges of beds, etc over 150mm high but not exceeding 225mm high	**m**	89		
	Cement and sand (1:4) beds and backing				
AE	Backing to wall surfaces etc thickness - 15mm	**m2**	75		
	Prepare and apply two coats of black bituminous paint to:				
AF	Rendered plinths	**m2**	75		
	Carried Forward to Summary of Section No. 3			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 2				
	FRAME				
	Pricing Note: Cement Requirements as follows:				
	Cement Class C20 and above shall, as a minimum, meet the requirements of CEMI-42.5, CEMII-42.5.5 or CEMIV-42.5 for Grade of Concrete				
	Cement Class 15 and below shall, as a minimum, meet the requirements of CEMI-32.5, CEMII-32.5 or CEMIV-32.5 for Grade of Concrete upto and including grade C15				
	Tenderer shall allow for sealing of all construction joints with an approved sealant within the rate of concrete works				
	All rates for concrete to columns shall have 20 gauge x 25mm x 300mm long hoop iron at 400mm centers; one end of tie cast into concrete and the other end built into walling in every alternate course.				
	Vibrated reinforced concrete class 25 (20 mm diameter aggregate - minimum) in;				
A	Columns	**m3**	11		
	Vibrated reinforced concrete class 25 (20 mm diameter aggregate - minimum); including plastocrete-N as manufactured by Sika or other equal and approved waterproofing concrete admixture, applied to manufacturer's printed instructions and Structural Engineer's approval				
B	Roof Slab Beams	**m3**	20		
C	150mm thick suspended roof slab	**m2**	242		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Hollow block suspended floors				
D	Slabs consisting of 380 x 200 x 150mm high concrete hollow pot blocks at 530mm centres; 150mm wide ribs and 150mm thick topping in class 30 concrete with and including plastocrete-N as manufactured by Sika or other equal and approved waterproofing concrete admixture, applied to manufacturer's printed instructions with a minimum 10 years' manufacturer's performance guarantee; all to Engineer's approval; **Overall thickness- 300 mm**	**m2**	54	
	Reinforcement (Provisional)				
	High yield deformed steel bar reinforcement to BS 4449:2005; allow for cutting, bending, hoisting, fixing, binding wire, spacer blocks, templates and spacer stools and any other accessories as necessary				
E	8 mm diameter bars	**kg**	863		
F	10 mm diameter bars	**kg**	1,109		
G	12 mm diameter bars	**kg**	1,890		
H	16 mm diameter bars	**kg**	760		
J	20 mm diameter bars	**kg**	3,062		
K	25 mm diameter bars	**kg**	110		
	Steel mesh fabric reinforcement to BS 4483				
L	Mesh fabric reinforcement laid in slab or bed (measured nett - no allowance made for laps) - Ref A142 weighing 2.22 Kgs per square metre	**m2**	54		
	Fair faced formwork to;				
M	Sides and soffits of beams	**m2**	143		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
N	Sides of columns	**m2**	154		
P	Soffits of suspended slabs	**m2**	296		
Q	Edges of slabs; etc over 75mm high but not exceeding 150mm high	**m**	107		
	Carried Forward to Summary of Section No. 3			KSH	

Bill No. 2

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 3				
	EXTERNAL WALLING				
	Machine cut natural stone walling (7.0 N/sq. mm minimum crushing strength) jointed and bedded in cement and sand mortar (1:3) and reinforced with and including 20swg x 25mm wide hoop iron in every alternate course				
A	Walling reinforced as described, 200 mm thick	**m2**	278		
B	200mm Thick walling built against and tied to masonry backing with and including approved galvanised wall ties	**m2**	5		
C	Labour and material in raking cutting 200 mm thick wall	**m**	5		
	Supply and fix mahogany timber screen wall; comprising 100 x 75mm vertical timber slats in varying heights spaced at 175mm centers; complete with and including 2 No. 20mm Diameter round painted tie bars to timber slats; all fixed to wall, ceiling and floor with and including approved connections; Sand, prime, stain, prepare and apply two coats of exterior wood oil as "WOCA Exterior Wood Oil" or other equal and approved to all timber surfaces; All to Architect's design and specification				
D	100mm Thick Timber Screen	**m2**	14		
	Precast concrete trimmings finished fair on all exposed faces				
E	Coping with four labours size 300mm wide x 75mm thick; complete with and including 16mm x 5mm throating.	**m**	59		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Bituminous felt damp proof courses laid on and including levelling cement and sand (1:3) screed				
F	In walling 200 mm wide	**m**	120		
	Carried Forward to Summary of Section No. 3			KSH	

Bill No. 3

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 4				
	INTERNAL WALLING AND PARTITIONS				
	INTERNAL WALLING				
	Insitu concrete class 20 (12mm, aggregate), including formwork, finishing fair face on all exposed surfaces, and hoisting and placing in position, bedding and jointing in cement and sand (1:3) mortar				
A	200 x 300 mm lintel, reinforced with and including four 12 mm diameter ribbed steel bars and 8 mm stirrups at 200 mm centres	**m**	6		
B	150 x 300 mm lintel, reinforced with and including four 12 mm diameter ribbed steel bars and 8 mm stirrups at 200 mm centres	**m**	14		
	Machine cut natural stone walling (7.0 N/sq. mm minimum crushing strength) jointed and bedded in cement and sand mortar (1:3) and reinforced with and including 20swg x 25mm wide hoop iron in every alternate course				
C	Walling reinforced as described, 200mm thick	**m2**	81		
D	Walling reinforced as described, 150mm thick	**m2**	16		
	Bituminous felt damp proof courses laid on and including levelling cement and sand (1:3) screed				
E	In walling 200 mm wide	**m**	35		
F	In walling 150 mm wide	**m**	18		
	PARTITIONS				
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and fix powder coated aluminium partitions comprising of 50 x 50 x 2mm framing, 50 x 25 x 2mm intermediate frames and sub-frames, glazed with 6mm laminated clear glass using pressure plate glass fixing system or other equal and approved system with and including aluminium beads, rubber beadings, supports, air seal features, permanent vents with mosquito gauze infill etc; built into walling including bedding frames in cement mortar and pointing in mastic sealant; all to architect's design detail and intent with all materials, framing, fixing systems and approval				
G	Office partition	**m2**	26		
	Carried Forward to Summary of Section No. 3			KSH	

Bill No. 4

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 5				
	ROOF FINISHES				
	Flat roof finishes				
	Cement and sand (1:4) beds and backings				
A	75mm (Average) Roof slab screed : to falls and crossfalls : to receive waterproofing	**m2**	284		
B	25mm thick protective screed finished to receive precast concrete tiles or loose ballast elsewhere measured	**m2**	284		
C	15mm Render over upstand beam or parapet wall to receive waterproofing	**m2**	15		
D	Triangular fillet, size 25 x 25 mm	**m**	59		
	Waterproofing application as 'Mapelastic smart (two coats) and Mapenet 150 (One Layer) supplied by Mapei or approved equivalent; applied strictly in accordance with the manufacturers printed instructions and to specifications; Minimum 10 years guarantee.				
E	Horizontal surfaces of roofs	**m2**	284		
F	Vertical surfaces of upstand beam or parapet walls: including turning into groove in wall: allow for cutting 30mm groove in stone wall and making good	**m2**	15		
G	Dressing roofing around 100 mm diameter fulbora outlets	**No**	6		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and fix concrete 20mm Thick interlocking tiles from approved sources; laid with and including bitumen: including all cutting around rain water out lets				
H	Supply and fix concrete 20mm thick interlocking tiles from approved sources; laid with and including bitumen; laid to falls and cross falls not exceeding 15 degrees from horizontal: including all cutting around rain water out lets;all to Engineer's approval	**m2**	284		
J	Ditto skirting 200 mm high	**m**	59		
	Sundries (Provisional)				
K	Cut and fit around rain water outlet grating	**No**	6		
	600mm high mild steel railing consisting of 60mm diameter x 3mm thick circular hollow section handrail, 60mm x circular hollow section top rail, 7No. 25mm diameter round bars, 60mm diameter x 3 mm thick circular hollow section balusters overall height 600mm at approved centers welded to handrail including building balusters into mortice in concrete; including all bends and wreaths; all welded together, ground smooth, primed and sprayed with 3 coats high gloss automotive paint; to Architect's approval				
L	Horizontal balustrading	**m**	3		
	Carried Forward to Summary of Section No. 3			KSH	

Bill No. 5

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 6				
	EXTERNAL WALL FINISHES				
	Cement and sand (1:4) rendering				
A	Rendering to concrete or block wall surfaces finished with a steel trowel, thickness 15 mm	**m2**	433		
	Prepare and apply one undercoat and two finishing coats of premium quality external emulsion paint as 'Crown Ultraguard Silicone Extreme' or other equal and approved external paint; on				
B	Rendered concrete or block wall surfaces	**m2**	290		
	Natural grey stone cladding				
C	Supply and fix 20mm thick approved stone cladding (in irregular pattern) built against and tied to backing with galvanised wire including bedding in approved adhesive; prepare and apply water repellent seal as ' Plascon Brick Seal' or other equal and approved	**m2**	144		
	Carried Forward to Summary of Section No. 3			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 7				
	INTERNAL WALL FINISHES				
	12mm thick (minimum) two-coat lime plaster, with steel trowelled finish, as described to:-				
A	Plaster to walls and beams	**m2**	391		
	Coloured glazed ceramic wall tiles and fittings				
B	Supply and fix 8mm thick coloured glazed ceramic wall tiles and fittings with an approved adhesive and pointed in tinted cement **(Allow Tile Prime cost rate KSh. 1,500 per m2 nett area)**	**m2**	72		
	Cement and sand (1:4) beds and backing				
C	Backing to tiles etc thickness - 15 mm	**m2**	72		
	Skim surfaces, prepare and apply one coat of undercoat and apply two coats first quality silk vinyl paint to;				
D	Plastered concrete or block wall surfaces	**m2**	391		
	Carried Forward to Summary of Section No. 3			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 8				
	FLOOR FINISHES				
	Coloured non-slip ceramic floor tiles and fittings, European or equivalent standards; all to Engineer's Approval				
A	Supply and fix 10 mm thick tiles; with and including bedding in an approved adhesive and pointing with an approved coloured anti-fungal grout **(Allow Tile Prime cost rate KSh. 1,500 per m2 nett area)**	**m2**	57		
B	Ditto 150mm high skirting	**m**	38		
	Coloured non-slip porcelain floor tiles and fittings, European or equivalent standards; all to Engineer's Approval				
C	Supply and fix 10 mm thick tiles; with and including bedding in an approved adhesive and pointing with an approved coloured anti-fungal grout **(Allow Tile Prime cost rate KSh. 2,500 per m2 nett area)**	**m2**	173		
D	Ditto 150mm high skirting	**m**	112		
	Cement and sand (1:4) beds and backing				
E	Beds to receive flooring, etc, finished with a steel trowel , thickness - 40 mm thick	**m2**	230		
	Worked finishes on concrete				
F	Power floating to concrete floors with and including integral hardener and all necessary surface preparation to surface beds; all to Engineer's approval	**m2**	27		
	Carried Forward to Summary of Section No. 3			I H	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 9				
	CEILING FINISHES				
	12mm thick (minimum) two-coat lime plaster, with steel trowelled finish, as described to:-				
A	Plaster to soffits of suspended slabs	**m2**	234		
	Skim surfaces, prepare and apply three coats first quality 'Crown Solo' or equal and approved Hi Matt Vinyl emulsion paint to Engineer's colour scheme.				
B	Plastered soffits of suspended slabs	**m2**	234		
	Carried Forward to Summary of Section No. 3			KSH	

Proposed Boundary Wall and Ancillary Buildings for NSSF
© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 10				
	WINDOWS				
	Precast concrete trimmings finished fair on all exposed faces				
A	150 mm x 50 mm concrete window cill complete with and including 10mm x 5mm throating	**m**	26		
	Supply and fix mild steel burglar proofing comprising of 50 x 50 x 3mm SHS framing infilled with 30 x 30 x 3mm thick SHS subframes; pattern to match aluminium windows (measured separately); complete with fixing to masonry jambs; powdercoated both sides; all to Engineer's details and approval				
B	Burglar proofing to window Size 2100 x 2700mm high; W6	**No**	5		
C	Burglar proofing to window Size 1200 x 3250mm high; W8	**No**	5		
D	Burglar proofing to window Size 1200 x 1200mm high; W9	**No**	2		
E	Burglar proofing in different sizes	**m2**	27		
	Supply and fix the following purpose made casement windows with 40x 40 x 3 mm mild steel square hollow section and standard 25mm "Z" section framing including all coupling mullions etc; and complete with heavy duty brass handles, peg stays and all other necessary ironmongery; factory primed with red oxide primer, including cutting and pinning fixing lugs to concrete or masonry work jambs; bedding in cement and sand (1:3) mortar mix, pointing all round frames in mastic, easing, oiling and adjusting opening lights on completion including integral burglar proofing bars; paint to Architect's approval				
F	Window overall size 1000 x 600mm high; W3	**No**	2		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and fix powder coated aluminium windows comprising of 50 x 50 x 2mm framing, 50 x 50 x 2mm intermediate frames and sub-frames, glazed with 6mm thick laminated clear glass using the pressure plate glass fixing system or other equal and approved system with and including aluminium beads, rubber beadings, supports, air seal features, permanent vents with mosquito gauze infill, lugs, stays, bars, fasteners, handles, aluminium latch locks and other necessary approved ironmongery, etc; built into walling including bedding frames in cement mortar and pointing in mastic sealant; all to architect's design detail and intent with all materials, framing, fixing systems and approval				
G	Window overall size 2100 x 2700mm high; W6	**No**	5		
H	Window overall size 1200 x 3250mm high; W8	**No**	5		
J	Window overall size 1200 x 1200mm high; W9	**No**	2		
K	Windows in different sizes	**m2**	14		
	Approved obscured glass				
L	6 mm glass and glazing to metal with putty in panes over 0.10 square metres but not exceeding 0.50 square metres	**m2**	1		
	Prepare, prime, prepare and apply two undercoats and one finishing coat gloss paint to metal work				
M	General surfaces of burglar proofing grilles (both sides measured overall)	**m2**	129		
N	General surfaces of steel windows (both sides measured overall)	**m2**	2		
	Carried Forward to Summary of Section No. 3			KSH	

Bill No. 10

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 11				
	DOORS				
	Powdercoated aluminium framed doors; comprising of 100 x 50 x 2mm framing, glazed with 6mm thick laminated clear glass using the pressure plate glass fixing system or other equal and approved system with and including aluminium beads, rubber beadings, supports, air seal features, permanent vents with mosquito gauze infill, stainless steel door stile locks, stainless steel door stops, locks and other necessary ironmongery, etc; built into walling including bedding frames in cement mortar and pointing in mastic sealant; all to architect's design detail and intent with all materials, framing, fixing systems and approval				
A	Door size 900 x 2400mmhigh, Ref: D07	**No**	5		
	Powdercoated aluminium framed sliding doors: comprising 100 x 50 x 3mm framing complete with glazing beads and neoprane gasket strips; infilled with 6mm thick laminated glazing in a weather tight system to approved sample; glass to be silicon sealed and rounded at the edges; supply and fix approved necessary ironmongery, including overhead track and floor guide as 'herderson' or equal and approved, recessed handle, sliding door locks; all to Architect's detail and Engineer's approval				
B	Sliding door size 2400 x 2700mm high; D06	**No**	1		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply assemble and fix by the following purpose made standard mild steel grille doors with all ironmongery and accessories				
C	Mild steel double leaf grille in 75 x 75 x 3mm thick main frame all round; each leaf in 50x 50 x 3mm thick rectangular hollow section vertical (100mm centres and horizontal sub-frames (500mm centres); 50 x 2 mm mild steel flat beading, 3 No. steel heavy duty parliament hinges and be complete with 2no tower bolts, 5 lever mortice lock and brass lever furniture (all as Union or equal and approved); including fixing to masonry jambs and concrete head and cill; all to Engineer's detail and approval; overall size 2400 x 2700mm high	**No**	1		
	Wrot mahogany, plugged				
D	200 x 50 mm Frame with two labours	**m**	27		
E	150 x 50 mm Frame with two labours	**m**	16		
F	50 x 25 mm moulded architrave	**m**	85		
	Timber Doors				
	Flush doors to B.S. 459 (Part 2)				
G	50mm Thick solid core flush doors; faced both sides with 6mm mahogany veneer and hardwood lipped all round; size 900 x 2400mm high; D08	**No**	3		
H	50mm Thick solid core flush doors; faced both sides with 6mm waterproofed mahogany veneer and hardwood lipped all round; Overall size 800 x 2100mm high; D03	**No**	4		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Louvred Timber doors				
J	50mm thick Timber louvred double door; each leaf comprising 100mm x 50mm thick main frame, infilled with and including 50mm wide x 25mm thick timber louvres spaced at 50mm centers; in approved pattern; fixed to door frame (measured separately) to Architect's detail and approval; Overall size 1000 x 2400mm high; D05	**No**	1		
	Ironmongery				
	Supply and fix the following ironmongery with screws to match (Ref. is to Union Catalogue or other equal and approved)				
K	Euro cylinder lockcase with handle, Product Ref: LS-Z306-60-48-PB	**No**	3		
L	Bathroom lockset with Handle, Product Ref: 2L-35141-94-AC	**No**	4		
M	Rebated lock, Product Ref:2L-2242-SC	**No**	1		
N	Pairs Stainless steel double washered hinges, Product Ref: HN-BB- 403030SS	**No**	18		
P	Cylinder satin steel Floor mounted Door Stop, Product Ref; DS-005-SS	**No**	9		
Q	Pressed steel flush bolt, Product Ref: DB-02-150-PL	**No**	2		
R	Stainless steel pull handles, Product Ref; PHD-CF-150-19-SSS	**No**	1		
S	Stainless Steel Male Sign, Product Ref: S-SM-76D	**No**	1		
T	Stainless Steel Female Sign, Product Ref: S-SF-76D	**No**	1		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Prepare and apply one coat wood preservative to woodwork before fixing				
U	Frames, skirtings, etc over 100mm but not exceeding 200mm girth	**m**	101		
V	Ditto over 200mm but not exceeding 300mm girth	**m**	27		
	Prepare and apply three coats of polyurethane varnish to timber surfaces				
W	Surfaces over 100mm but not exceeding 200 mm girth	**m**	85		
X	Surfaces over 200mm but not exceeding 300 mm girth	**m**	43		
Y	General surfaces	**m2**	30		
	Prepare, prime, prepare and apply two undercoats and one finishing coat gloss paint to metal work				
Z	General surfaces of steel doors (both sides measured overall)	**m2**	13		
	Carried Forward to Summary of Section No. 3			KSH	

Bill No. 11

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 12				
	JOINERY FITTINGS (ALL PROVISIONAL)				
	The Following in Kitchenette and Washrooms				
	Plain concrete class 15 in;				
A	Plinths, thickness - 100 mm	**m2**	4		
	Vibrated reinforced concrete class 20				
B	Worktop, thickness - 75 mm thick	**m2**	4		
	Steel mesh fabric reinforcement to B.S. 4483				
C	Layer of mesh fabric reinforcement laid in slab or bed (measured nett - no allowance made for laps) - Ref A98 weighing 1.54 kg per square meter	**m2**	4		
	Fair faced formwork to;				
D	Edges of plinths; over 75mm high but not exceeding 150mm high	**m**	6		
E	Edges of slabs; over 75mm high but not exceeding 150mm high	**m**	6		
F	Soffits of suspended slab including boxing to form 2 No. holes for wash hand basins (curved on plan)	**m2**	4		
	12 mm thick (minimum) two-coat lime plaster, with steel trowelled finish, as described to:-				
G	Plaster to soffits of suspended slab	**m2**	4		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Prepare and apply three coats first quality silk vinyl paint to;				
H	Plastered soffits of suspended slab	**m2**	4		
	Counter top: comprising of 20mm thick granite worktop complete with 150mm high backsplash to approved colour complete: allow for rounded edge to exposed edges: fixed with and including approved adhesive on and including wooden or mild steel bearers: all to Engineer's				
J	Granite counter top with all exposed edges bull-nosed to approval; allow for forming 1No opening for Kitchen sink; **Allow Tile Prime cost rate KSh. 15,000 per m2 nett area)**	**m2**	4		
K	Fascia fixed to worktops - 10mm thick x 100 mm high	**m**	6		
	Supply and fix low level and high level kitchen storage cabinet units in laminated particle board : bearer battens plugged and screwed: comprising 20mm thick particle board doors, shelves, divisions, sides and tops; approved locks to doors, handles, malpa hinges, magnetic ball catches, soft close elescopic drawer runners and all other necessary iron mongery; all boards and ironmongery as per PG Bison catalogue or equal and approved: prime back of frame before fixings: all to Engineer's approval and drawings				
L	Low level kitchen cabinet unit overall size 4000mm long x 600mm wide x 800mm High; Kitchen	**No**	1		
M	High level kitchen cupboard unit overall size : 3000mm long x 300mm wide x 1000mm High	**No**	1		
	Carried Forward to Summary of Section No. 3			KSH	

Bill No. 12

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 3				
	ADMINISTRATION OFFICE				
	BILL NO. 13				
	BUILDER'S WORK TO SERVICES (ALL PROVISIONAL)				
	Inspect all drawings and Electrical Bills of Quantities and allow for all builders work associated with;				
	Builders work in connection with to include for all cutting, chasing and core drilling for electrical points, fittings and equipment : make good after the electrician.				
A	All Builders Work in connection with Electrical Installations		Item		
B	All other electrical installation works not specifically identified above but shown upon the Engineer's drawings and identified in the Electrical installations Bills of Quantities		Item		
	Inspect all drawings and Bills of Quantities for Plumbing, Drainage and Mechanical Installations and allow for all builders work associated with the following:				
	Builders work in connection with to include for all cutting, creating holes, chasing and core drilling for plumbing works, fittings and equipment : make good after the plumber.				
C	All Builders Work in connection with Plumbing Drainage (including all sanitary fittings) and Fire Fighting installations		Item		
D	All other plumbing and drainage works not specifically identified above including water tanks, pumps, control panels, mains water supply and pipe work system, foul drainage etc		Item		
	Carried Forward to Summary of Section No. 3			KSH	

© Bills Partnership Ltd, Quantity Surveyors

SECTION SUMMARY - ADMINISTRATION OFFICE

Bill No		*Page No*		*Amount Kshs*
1	SUBSTRUCTURES (ALL PROVISIONAL)	156		
2	FRAME	159		
3	EXTERNAL WALLING	161		
4	INTERNAL WALLING AND PARTITIONS	163		
5	ROOF FINISHES	165		
6	EXTERNAL WALL FINISHES	166		
7	INTERNAL WALL FINISHES	167		
8	FLOOR FINISHES	168		
9	CEILING FINISHES	169		
10	WINDOWS	171		
11	DOORS	175		
12	JOINERY FITTINGS (ALL PROVISIONAL)	177		
13	BUILDER'S WORK TO SERVICES (ALL PROVISIONAL)	178		

Carried to Final Summary KSH

© Bills Partnership Ltd, Quantity Surveyors

SECTION NO. 4

GATE HOUSE

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 1				
	SUBSTRUCTURES (ALL PROVISIONAL)				
	Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material; Tenderers to allow for watering of the works with jet spray sufficient to prevent any nuisance and dust during excavations within their rates.				
A	Excavate average 300 mm deep to remove top vegetable soil and cart away from site	**m2**	45		
B	Bulk excavation commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	23		
C	Excavate for ground beams commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	1		
D	Excavate for pad foundations commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	17		
E	Ditto but 1.50 to 3.00m deep	**m3**	6		
	Backfilling and Disposal				
F	Approved imported fill material around foundations: watered, spread, laid and compacted in layers not exceeding 150mm	**m3**	18		
G	Load and cart away surplus spoil from site	**m3**	29		
	Imported filling				
H	Approved imported fill material to make up levels: watered, spread, laid and compacted in layers not exceeding 150mm	**m3**	23		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Anti- termite treatment				
J	Chemical anti-termite treatment as "Termidor" or other equal and approved; executed complete by an approved specialist under a ten (10) year guarantee	**m2**	45		
	Damp proof membrane				
K	1000 Gauge polythene or other equal and approved damp proof membrane laid under surface bed with 300 mm side and end laps (measured nett- no allowance made for laps)	**m2**	45		
	Plain concrete class 15				
L	50mm thick blinding under pad foundations	**m2**	12		
M	50mm thick blinding under ground beams	**m2**	4		
	Vibrated reinforced concrete class 25 (20mm diameter aggregate-minimum) in; Concrete work shall be fair face finished any making good of concrete surfaces, side, edges or soffits shall be at the cost of the Contractor				
N	Pad foundations	**m3**	2		
P	Columns	**m3**	2		
Q	Ground beams	**m3**	1		
	Vibrated reinforced concrete class 25 (20 mm diameter aggregate-minimum); including plastocrete-N as manufactured by Sika or other equal and approved waterproofing concrete admixture, applied to manufacturer's printed instructions with a minimum 10 years' manufacturer's performance guarantee; all to Engineer's approval				
R	150mm thick suspended floor bed	**m2**	45		
	Reinforcement (Provisional)				
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	High yield deformed steel bar reinforcement to BS 4449:2005; allow for cutting, bending, hoisting, fixing, binding wire, spacer blocks, templates and spacer stools and any other accessories as necessary				
S	8 mm diameter bars	**kg**	188		
T	12 mm diameter bars	**kg**	653		
U	16 mm diameter bars	**kg**	61		
	Sawn formwork to;				
V	Sides of pad foundations	**m2**	8		
W	Sides of columns	**m2**	27		
X	Sides of ground beams	**m2**	12		
Y	Edges of beds, etc over 75mm high but not exceeding 150mm high	**m**	41		
	Cement and sand (1:4) beds and backing				
Z	Backing to wall surfaces etc thickness - 15mm	**m2**	18		
	Prepare and apply two coats of black bituminous paint to:				
AA	Rendered plinths	**m2**	18		
	Carried Forward to Summary of Section No. 4			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 2				
	FRAME				
	Pricing Note: Cement Requirements as follows:				
	Cement Class C20 and above shall, as a minimum, meet the requirements of CEMI-42.5, CEMII-42.5.5 or CEMIV-42.5 for Grade of Concrete				
	Cement Class 15 and below shall, as a minimum, meet the requirements of CEMI-32.5, CEMII-32.5 or CEMIV-32.5 for Grade of Concrete upto and including grade C15				
	Tenderer shall allow for sealing of all construction joints with an approved sealant within the rate of concrete works				
	All rates for concrete to columns shall have 20 gauge x 25mm x 300mm long hoop iron at 400mm centers; one end of tie cast into concrete and the other end built into walling in every alternate course.				
	Vibrated reinforced concrete class 25 (20mm diameter aggregate-minimum) in;				
A	Beams	**m3**	4		
B	Columns	**m3**	6		
C	150mm Thick suspended slab - Provisional	**m2**	35		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Vibrated reinforced concrete class 25 (20 mm diameter aggregate-minimum); including plastocrete-N as manufactured by Sika or other equal and approved waterproofing concrete admixture, applied to manufacturer's printed instructions with a minimum 10 years' manufacturer's performance guarantee; all to Engineer's approval				
D	Roof Beams	**m3**	3		
E	150mm Thick suspended roof slab	**m2**	35		
	Reinforcement (Provisional)				
	High yield deformed steel bar reinforcement to BS 4449:2005; allow for cutting, bending, hoisting, fixing, binding wire, spacer blocks, templates and spacer stools and any other accessories as necessary				
F	8 mm diameter bars	**kg**	205		
G	10 mm diameter bar	**kg**	221		
H	12 mm diameter bars	**kg**	242		
J	16 mm diameter bars	**kg**	342		
K	20 mm diameter bars	**kg**	163		
	Fair faced formwork to;				
L	Sides and soffits of beams	**m2**	68		
M	Sides of columns	**m2**	81		
N	Soffits of suspended slabs- Provisional	**m2**	35		
P	Soffits of suspended requiring strutting 4.5meters to 6.0 metres from floor level	**m2**	35		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
Q	Edges of slabs; etc over 75mm high but not exceeding 150mm high	**m**	25		
	Carried Forward to Summary of Section No. 4			KSH	

Bill No. 2

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 3				
	EXTERNAL WALLING				
	Insitu concrete class 20 (12mm, aggregate), including formwork, finishing fair face on all exposed surfaces, and hoisting and placing in position, bedding and jointing in cement and sand (1:3) mortar				
A	200 x 300 mm lintel, reinforced with and including four 12 mm diameter ribbed steel bars and 8 mm stirrups at 200 mm centres	**m**	3		
	Machine cut natural stone walling (7.0 N/sq. mm minimum crushing strength) jointed and bedded in cement and sand mortar (1:3) and reinforced with and including 20 gauge x 25mm wide hoop iron in every alternate course				
B	Walling reinforced as described, 200mm thick	**m2**	125		
	Precast concrete trimmings finished fair on all exposed faces				
C	Coping with four labours size 300mm wide x 75mm thick; complete with and including 16mm x 5mm throating.	**m**	24		
	Bituminous felt damp proof courses laid on and including levelling screed of cement and sand (1:3) mortar				
D	In walling 200mm wide	**m**	20		
	Carried Forward to Summary of Section No. 4			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 4				
	INTERNAL WALLING				
	Insitu concrete class 20 (12mm, aggregate), including formwork, finishing fair face on all exposed surfaces, and hoisting and placing in position, bedding and jointing in cement and sand (1:3) mortar				
A	200 x 300 mm lintel, reinforced with and including four 12 mm diameter ribbed steel bars and 8 mm stirrups at 200 mm centres	**m**	1		
	Machine cut natural stone walling (7.0 N/sq. mm minimum crushing strength) jointed and bedded in cement and sand mortar (1:3) and reinforced with and including 20 gauge x 25mm wide hoop iron in every alternate course				
B	Walling reinforced as described, 200 mm thick	**m2**	8		
	Carried Forward to Summary of Section No. 4			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 5				
	ROOF FINISHES				
	Cement and sand (1:4) beds and backings				
A	75mm (Average) Roof slab screed : to falls and crossfalls : to receive waterproofing	**m2**	30		
B	25mm thick protective screed finished to receive precast concrete tiles or loose ballast elsewhere measured	**m2**	30		
C	15mm Render over upstand beam or parapet wall to receive waterproofing	**m2**	5		
D	Triangular fillet, size 25 x 25 mm	**m**	24		
	Waterproofing application as 'Mapelastic smart (two coats) and Mapenet 150 (One Layer) supplied by Mapei or approved equivalent; applied strictly in accordance with the manufacturers printed instructions and to specifications; Minimum 10 years guarantee.				
E	Horizontal surfaces of roofs	**m2**	30		
F	Vertical surfaces of upstand beam or parapet walls: including turning into groove in wall: allow for cutting 30mm groove in stone wall and making good	**m2**	5		
G	Dressing roofing around 100 mm diameter fulbora outlets	**No**	2		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and fix concrete 20mm Thick interlocking tiles from approved sources; laid with and including bitumen: including all cutting around rain water out lets				
H	Supply and fix concrete 20mm thick interlocking tiles from approved sources; laid with and including bitumen; laid to falls and cross falls not exceeding 15 degrees from horizontal: including all cutting around rain water out lets;all to Engineer's approval	**m2**	30		
J	Ditto skirting 200 mm high	**m**	24		
	Sundries (Provisional)				
K	Cut and fit around rain water outlet grating	**No**	2		
	Carried Forward to Summary of Section No. 4			KSH	

Bill No. 5

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 6				
	EXTERNAL WALL FINISHES				
	Cement and sand (1: 4) rendering				
A	Rendering to concrete or block wall surfaces surfaces finished with a steel trowel, thickness 15 mm	**m2**	200		
	Prepare and apply one undercoat and two finishing coats of premium quality external emulsion paint as 'Crown Ultraguard Silicone Extreme' or other equal and approved external paint; on				
B	Rendered concrete or block wall surfaces	**m2**	200		
	Carried Forward to Summary of Section No. 4			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 7				
	INTERNAL WALL FINISHES				
	12mm thick (minimum) two-coat lime plaster, with steel trowelled finish, as described.				
A	Plaster to concrete or block wall surfaces	**m2**	138		
	Skim surfaces, prepare and apply one coat of undercoat and apply two coats first quality silk vinyl paint to;				
B	Plastered concrete or block wall surfaces	**m2**	138		
	Carried Forward to Summary of Section No. 4			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 8				
	FLOOR FINISHES				
	Coloured non-slip ceramic floor tiles and fittings, European or equivalent standards; all to Engineer's Approval				
A	Supply and fix 10mm thick; with and including bedding in approved adhesive and pointing with an approved coloured anti-fungal grout **(Allow Tile Prime cost rate KSh. 1500 per m2 nett area)**	**m2**	40		
B	Ditto 150mm high skirting	**m**	41		
	Cement and sand (1:4) beds and backing				
C	Beds to receive flooring, etc, finished with a steel trowel , thickness - 30mm thick	**m2**	40		
	Carried Forward to Summary of Section No. 4			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 9				
	CEILING FINISHES				
	12mm thick (minimum) two-coat lime plaster, with steel trowelled finish, as described to.				
A	Plaster to soffits of suspended slabs	**m2**	40		
	Skim surfaces, prepare and apply three coats first quality 'Crown Solo' or equal and approved Hi Matt Vinyl emulsion paint to Engineer's colour scheme.				
B	Plastered soffits of suspended slabs	**m2**	40		
	Carried Forward to Summary of Section No. 4			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 10				
	WINDOWS				
	Precast concrete trimmings finished fair on all exposed faces				
A	150 mm x 50 mm concrete window cill	**m**	7		
	Supply and fix mild steel burglar proofing comprising of 50 x 50 x 3mm SHS framing infilled with 30 x 30 x 3mm thick SHS subframes; pattern to match aluminium windows (measured separately); complete with fixing to masonry jambs; powdercoated both sides; all to Engineer's details and approval				
B	Burglar proofing to window Size 650 x 5350mm high; W1	**No**	2		
C	Burglar proofing to window Size 1800 x 1600mm high; W2	**No**	3		
	Supply and fix powder coated aluminium windows comprising of 50 x 50 x 2mm framing, 50 x 50 x 2mm intermediate frames and sub-frames, glazed with 6mm thick laminated clear glass using the pressure plate glass fixing system or other equal and approved system with and including aluminium beads, rubber beadings, supports, air seal features, permanent vents with mosquito gauze infill, lugs, stays, bars, fasteners, handles, aluminium latch locks and other necessary approved ironmongery, etc; built into walling including bedding frames in cement mortar and pointing in mastic sealant; all to architect's design detail and intent with all materials, framing, fixing systems and approval				
D	Window overall size 650 x 5350 mm high; W1	**No**	2		
E	Window overall size 1800 x 1600mm high; W2	**No**	3		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Prepare, prime, prepare and apply two undercoats and one finishing coat gloss paint to metal work				
F	General surfaces of burglar proofing grilles (both sides measured overall)	**m2**	30		
	Carried Forward to Summary of Section No. 4			KSH	

Bill No. 10

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 11				
	DOORS				
	Timber Doors				
	Wrot mahogany, plugged				
A	200 x 50 mm Frame with two labours	**m**	17		
B	50 x 25 mm moulded architrave	**m**	34		
	Flush doors to B.S. 459 (Part 2)				
C	50mm solid core flush doors; faced both sides with 6mm mahogany veneer and hardwood lipped all round to Architect's details; size 900 x 2400mm high; D01	**No**	3		
	Ironmongery				
	Supply and fix the following ironmongery with screws to match (Ref. is to Union Catalogue or other equal and approved)				
D	Euro cylinder lockcase with handle, Product Ref: LS-Z306-60-48-PB	**No**	3		
E	Pairs Stainless steel double washered hinges, Product Ref: HN-BB- 403030SS	**No**	6		
F	Cylinder satin steel Floor mounted Door Stop, Product Ref; DS-005-SS	**No**	3		
	Prepare and apply one coat wood preservative to woodwork before fixing				
G	Frames, skirtings, etc over 100mm but not exceeding 200mm girth	**m**	34		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
H	Ditto over 200mm but not exceeding 300mm girth	**m**	17		
	Prepare and apply three coats of polyurethane varnish to timber surfaces				
J	Surfaces over 100mm but not exceeding 200 mm girth	**m**	34		
K	Surfaces over 200mm but not exceeding 300 mm girth	**m**	17		
L	General surfaces	**m2**	13		
	Carried Forward to Summary of Section No. 4			KSH	

Bill No. 11

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4				
	GATE HOUSE				
	BILL NO. 12				
	ENTRANCE CANOPY				
	Manufacture, supply and install steel structure to Engineer's approval. All sections manufactured in accordance to technical specification issued by the Engineers. Supply, off loading, deliver, transport to site and site storage. Fabrication to including cutting, making of holes or cut-outs, notching, stiffeners, assembling and connection by bolts or welding (including preparation of edges) done in the workshop. Bending, pre cambering, machining or other fabrication processes to be included.				
	Supply and fix structural mild steel grade 43C : allow for Spot Friction continuous smooth welding; blanked open ends; one workshop coat Plascon Chromate Free H.B Epoxy Primer; allow for shop drawings to approval; fix to position; prepare touch up primer and spray paint with three coats 'Plascon Plascryl' or other equal and approved' after installation (Colour to Architect's Approval); all to Structural Engineer's approval;				
A	50 x 50 x 4mm Mild Steel Square Hollow Sections; weight: 5.78kgs/m	**kg**	23		
B	100 x 50 x 4mm Mild Steel Rectangular Hollow Sections; weight: 8.92kgs/m	**kg**	36		
C	200 x 100 x 6mm Mild Steel Rectangular Hollow Sections; weight: 27.40kgs/m	**kg**	4,302		
D	75 x 50 x 4mm Mild Steel Rectangular Hollow Sections; weight: 7.35kgs/m	**kg**	1,183		
E	Zed S4 Purlins; weight: 4.65kgs/m	**kg**	1,319		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and install 24 Gauge IT5 zinc coated pre-painted roofing sheets; fixed with and including specialist clips supplied or recommended by the roofing sheet manufacturers all in accordance with manufacturer's recommendations and architects approval. (The tenderer shall allow in his rate ridge cappings, flashings, gutter fascia, any other necessary accessories required to make the works complete)				
F	Roof covering	**m2**	409		
	Supply and install aluminium composite sheet cladding with a minimum 0.5mm thick skin on both sides and a non-combustible mineral-filled core; mechanically fixed onto and including approved aluminium suspension system; Finished with polyvinylidene flouride (PVDF) coating in approved colour; Tenderer to allow for all necessary silicone sealants, anti-galvanic isolation tape, brackets, anchors, flashing, mild steel stiffeners and joint profiling; All to Architect's approval				
G	Soffits and sides of roof structure	**m2**	524		
	Supply and fix mild steel Square Hollow Section (SHS) downpipes with 6 mm fillet welded joints				
H	100 x 100 x 4mm thick down pipes complete with and including swan neck and shoe	**m**	23		
	14 gauge galvanised mild steel sheet gutters complete with connection spouts, blocked ends, and mitre connections ; fixing brackets and accessories; laid to approved level; all connections welded; all to Structural Engineer's details				
J	600 mm Overall Girth; 5 times bent ; complete with outlets and collection boxes	**m**	85		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Prepare, prime and apply two undercoats and one finishing coat bituminous paint on metal work on the internal surfaces of metal surfaces of gutters				
K	Internal surfaces of gutters	**m2**	51		
	Prepare, prime and apply two undercoats and one finishing coat gloss paint on metal work on the external surfaces of metal surfaces				
L	General surfaces of rain water down pipes (both internal and external)	**m2**	28		
M	Ditto but to exposed surfaces of gutters	**m2**	51		
	Carried Forward to Summary of Section No. 4			KSH	

Bill No. 12

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 4			
	GATE HOUSE			
	BILL NO. 13			
	BUILDER'S WORK TO SERVICES (ALL PROVISIONAL)			
	Inspect all drawings and Electrical Bills of Quantities and allow for all builders work associated with;			
	Builders work in connection with to include for all cutting, and chasing and core drilling for electrical points, fittings and equipment : make good after the electrician.			
A	All Builders Work in connection with Electrical Installations	Item		
B	All other electrical installation works not specifically identified above but shown upon the Engineer's drawings and identified in the Electrical installations Bills of Quantities	Item		
	Carried Forward to Summary of Section No. 4		KSH	

© Bills Partnership Ltd, Quantity Surveyors

SECTION SUMMARY - GATE HOUSE

Bill No		*Page No*		*Amount Kshs*
1	SUBSTRUCTURES (ALL PROVISIONAL)	182		
2	FRAME	185		
3	EXTERNAL WALLING	186		
4	INTERNAL WALLING	187		
5	ROOF FINISHES	189		
6	EXTERNAL WALL FINISHES	190		
7	INTERNAL WALL FINISHES	191		
8	FLOOR FINISHES	192		
9	CEILING FINISHES	193		
10	WINDOWS	195		
11	DOORS	197		
12	ENTRANCE CANOPY	200		
13	BUILDER'S WORK TO SERVICES (ALL PROVISIONAL)	201		
	Carried to Final Summary		KSH	

© Bills Partnership Ltd, Quantity Surveyors

SECTION NO. 5

EXTERNAL WORKS

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 5				
	EXTERNAL WORKS (ALL PROVISIONAL)				
	BILL NO. 1				
	PREPARATORY WORKS (ALL PROVISIONAL)				
	Demolitions				
	Chain link fence demolition				
A	**Take down existing chain-link fence concrete posts; including grubbing up foundations, disconnecting services and carting away all debris from site.**	**No**	461		
	Take down existing buildings consisting of concrete floor beds, beam, masonry walls, mild steel windows and doors, screed on floors; iron sheet roofs on timber structures ; including grubbing up foundations, disconnecting services and carting away all debris from site.				
B	Single storey building with an approximate plinth area of 24sm	**No**	1		
	Credit for materials arising from demolitions				
	The Employer reserves the right to retain any material arising from the demolition and alterations works not specifically stated as to be set aside for his use. Contractors are therefore to list below Credits allowed for materials to be removed as these credit rates will be used to reimburse the Contractor for any such material retained by the Employer. If no credit is indicated below, the Employer will be entitled to retain the materials free of charge.				
C	Allow for credit should the Employer allow the Contractor to cart away for the Contractor's own use of all materials set aside for handing over to the Employer (Provisional)		Item		
	Carried Forward to Summary of Section No. 5			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 5				
	EXTERNAL WORKS (ALL PROVISIONAL)				
	BILL NO. 2				
	BOUNDARY WALL AND GATES (ALL PROVISIONAL)				
	Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material				
A	Excavate for pad foundations commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	1,773		
B	Ditto but 1.50 to 3.00m deep	**m3**	591		
C	Extra over for excavating in soft rock	**m3**	591		
	Backfilling and Disposal				
D	Approved imported fill material around foundations: watered, spread, laid and compacted in layers not exceeding 150mm	**m3**	1,920		
E	Load and cart away surplus spoil from site	**m3**	443		
	Plain concrete class 15				
F	50mm blinding under ground beams	**m2**	630		
G	50mm thick blinding under pad foundations	**m2**	1,182		
	Vibrated reinforced concrete class 25 (20mm diameter aggregate-minimum) in;				
H	Pad foundations	**m3**	236		
J	Columns	**m3**	351		
K	Ground beams	**m3**	451		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
L	Vertical fins	**m3**	15		
	Reinforcement (Provisional)				
	High yield deformed steel bar reinforcement to BS 4449:2005; allow for cutting, bending, hoisting, fixing, binding wire, spacer blocks, templates and spacer stools and any other accessories as necessary				
M	8 mm diameter bars	**kg**	9,977		
N	10 mm diameter bars	**kg**	18,137		
P	12 mm diameter bars	**kg**	26,520		
Q	16 mm diameter bars	**kg**	80,173		
R	20 mm diameter bars	**kg**	2,024		
S	25 mm diameter bars	**kg**	5,437		
	Sawn formwork to;				
T	Sides of pad foundations	**m2**	758		
	Fair faced formwork to:-				
U	Sides of ground beams	**m2**	4,190		
V	Sides of fins	**m2**	356		
W	Sides of columns	**m2**	5,214		
	Expansion joints				
X	30mm thick flexcell joint filler between vertical surfaces	**m2**	427		
Y	Cut back edge of 30 mm filler for a depth of 25 mm and point with poly sulphide sealer	**m**	2,133		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Bush Hammered natural stone walling (7.0 N/sq. mm minimum crushing strength) jointed and bedded in cement sand (1:3) mortar and reinforced with and including 20swg x 25mm wide hoop iron in every alternate course				
Z	Walling reinforced as described; 200 mm thick	**m2**	1,102		
	Machine cut natural stone walling (7.0 N/sq. mm minimum crushing strength) jointed and bedded in cement and sand mortar (1:3) and reinforced with and including 20swg x 25mm wide hoop iron in every alternate course				
AA	Walling reinforced as described; 200 mm thick	**m2**	6,458		
AB	200mm Thick walling built against and tied to masonry backing with and including approved galvanised wall ties	**m2**	317		
AC	Labour and material in raking cutting 200 mm thick wall	**m**	261		
	Keying and Pointing				
AD	Keying or pointing with recessed horizontal and flush vertical joints in cement sand mortar(1:3); All to Architect's approval	**m2**	14,018		
	Cement and sand (1:4) rendering				
AE	Rendering to walls and beams finished with a steel trowel, thickness 15 mm	**m2**	3,571		
	Prepare and apply one undercoat and two finishing coats of premium quality external emulsion paint as 'Crown Ultraguard Silicone Extreme' or other equal and approved external paint; on				
AF	Rendered walls and fair finished concrete surfaces	**m2**	2,263		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Natural bush hammered grey stone facing in cement sand (1:3) mortar				
AG	Supply and fix 20mm thick approved stone cladding (in irregular pattern) built against and tied to backing with galvanised wire including bedding in approved adhesive; prepare and apply water repellent seal as ' Plascon Brick Seal' or other equal and approved	**m2**	1,308		
	Precast concrete trimmings finished fair on all exposed faces				
AH	Coping with four labours; size 300mm wide x 75mm thick; complete with and including 16mm x 5mm throating.	**m**	3,150		
AJ	Column-caps with four labours; size 600 x 300 x 150 mm thick	**No**	976		
	Precast concrete class 20 finished fair on all exposed surfaces, bedded, jointed and pointed in cement and sand (1:3) mortar				
AK	125 x 250 mm kerb rounded on one corner laid on and including concrete 1:3:6 base size 400 x 100mm haunched up behind; including all necessary excavations and formwork	**m**	275		
	Fence around accommodation unit				
	Supply and install anti-climb fence as 'Clear Vu-Polymetic 6000 coated, manufactured by Cochrane Global' or other equal and approved anticlimb fence; all to Engineer's approval				
AL	2600mm high anticlimb fence	**m**	22		
AM	1200 x 2600mm high pedestrian double leaf gate	**No**	1		
	Gates				
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Pedestrian access gates				
AN	Purpose made mild steel double swing pedestrian access gate; each leaf 900mm long x 3150mm high hinged with 3 No. steel heavy duty weld-on hinges to 100 x 100 x 3mm SHS post fixed to concrete columns with built-in mortices; each leaf in 60 x 60 x 3mm thick Square Hollow Section framing all round, 4 No. SHS horizontal rails size 25 x 25 x 3mm and 25 x 25 x 3mm thick SHS vertical rails at 100mm centres; The gate to have purpose made hasps and an approved mortice lock to specifications; with and including priming and three coats of sprayed automotive paint; overall size 1800 x 3150mm high (All to Engineer's details and approval)	**No**	2		
	Supply and fix mahogany timber screen wall; comprising 100 x 75mm vertical timber slats in varying heights of 3150mm and 1950mm spaced at alternating 175mm centers; complete with and including drilling timber and providing 2 No. 20mm Diameter round painted tie bars passing through the slats, primed and painted with two coats of gloss paint before assembly; all fixed to wall, ceiling and floor with and including approved connections; Sand, prime, stain, prepare and apply two coats of exterior wood oil as "WOCA Exterior Wood Oil" or other equal and approved to all timber surfaces; All to Architect's design and specification				
AP	100mm Thick Timber Screen	**m2**	10		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Swing gates				
AQ	Purpose made double leaf mild steel gate; each leaf 3200mm long x 2500mm high hinged with 3 No. steel heavy duty weld-on hinges to 100 x 100 x 3mm SHS post fixed to concrete columns with built-in mortices; each leaf in 60 x 60 x 3mm thick Square Hollow Section framing all round, 4 No. SHS horizontal rails size 25 x 25 x 3mm and 25 x 25 x 3mm thick SHS vertical rails at 100mm centres; The gate to have purpose made hasps and an approved mortice lock to specifications; with and including priming and three coats of sprayed automotive paint; overall size 6400 x 2400mm high (All to Engineer's details and approval)	**No**	2		
	Carried Forward to Summary of Section No. 5			KSH	

Bill No. 2

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 5				
	EXTERNAL WORKS (ALL PROVISIONAL)				
	BILL NO. 3				
	DRIVEWAYS AND FOOTPATHS (ALL PROVISIONAL)				
	Excavations including maintaining and supporting sides and keeping free from surface water, mud and fallen material				
A	Excavate to reduced level commencing not exceeding 1.50 metres deep	**m3**	2,812		
	Disposal				
B	Load and cart away surplus spoil	**m3**	2,812		
	Surface treatment				
C	Grade and compact subgrade to 95% MDD (AASHTO T99) to receive roads	**m2**	2,059		
	Filling				
D	Approved imported graded crushed stone (0/40) base filling in compacted layers as specified by the Engineer	**m3**	206		
E	Murram sub - base in layers compacted to 95 % MDD BS Heavy	**m3**	2,009		
F	Hand packed stone base in layers, blinded with fine material and compacted to 95 % MDD (AASHTO T99), thickness - 300mm	**m3**	206		
G	Approved total persistent herbicide applied to sub-base; to be executed by an approved specialist	**m2**	2,059		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Concrete block paving				
H	60mm thick heavy duty concrete paving blocks (minimum strength 45N per square mm) as per Bamburi Blox or other equal and approved catalogue; laid to falls on and including 50 mm screeded fine ballast or sand bed and compacted by surface vibration to Engineer's approval.	**m2**	1,371		
	Precast concrete class 20 finished fair on all exposed surfaces, bedded, jointed and pointed in cement and sand (1:3) mortar				
J	125 x 250 mm kerb rounded on one corner and 125 x 100 mm channel; laid on and including concrete 1:3:6 base size 525 x 200mm haunched up behind; including all necessary excavations and formwork	**m**	388		
K	100 x 125 mm thick channel block laid on and including concrete 1:3:6 base 225 x 100 mm (overall), haunched up both sides;	**m**	91		
L	125 x 250 mm kerb rounded on one corner laid on and including concrete 1:3:6 base size 400 x 100mm haunched up behind; including all necessary excavations and formwork	**m**	277		
	Footpath surfacing				
M	60mm thick medium duty concrete paving blocks (minimum strength 35N per square mm) as per Bamburi Blox or other equal and approved catalogue; laid to falls on and including 50 mm screeded fine ballast or sand bed and compacted by surface vibration to Engineer's approval.	**m2**	688		
	Road marking paint				
N	Prepare and apply two coats of thermoplastic paint on surfaces not exceeding 100mm girth; paint colour to Architect's approval	**m**	205		
	Carried Forward to Summary of Section No. 5			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 5				
	EXTERNAL WORKS (ALL PROVISIONAL)				
	BILL NO. 5				
	SEWER RETICULATION				
	All works to be carried out to the satisfaction and approval of the Civil Engineer				
	All pipe diameters unless otherwise stated refer to pipe internal diameter				
	Excavations of drain trenches including maintaining and supporting sides and keeping bottoms free from water, mud and fallen material, grading bottoms, backfilling in approved selected material and loading and carting away surplus excavated materials				
A	For 100mm diameter drain pipe depth not exceeding 1500 mm	**m**	86		
	UPVC Drain pipes and fittings				
B	100mm diameter pipes uPVC golden brown pipes with lip seal joints; laid in trenches with and including all jointing, clippings, and holding e.t.c necessary for proper functioning of the installation.	**m**	86		
C	Mass concrete class 15 in bed and surround to 200mm diameter pipe (m/s); including necessary formwork	**m3**	13		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Manholes				
D	450 mm x 600mm x 750 mm average depth (internal dimensions) sewer manhole all in concrete class 20; comprising 200 mm thick concrete bed, 400 mm thick benching & haunching with 20 mm thick cement: sand (1:3) screed finish; including 10 mm diameter high tensile steel reinforcement bars at 200 mm vertical and horizontal centres; 150 mm thick standard reinforced precast cover slab; Grade "A" heavy duty single concrete filled 600 x 450mm GRP manhole cover & frame laid on and including concrete surround and adjustment slab reinforced with 12 mm diameter high tensile steel bars; complete with 500mm long 20mm diameter MS step irons to B.S. 1247 pattern at 300 mm staggered vertical centres; including necessary formwork, removal of debris and labour & material in 2 No. 300 mm diameter pipe connection	**m**	10		
	Testing of the foul drainage installations				
E	Allow for flushing and testing of the foul drainage installations during construction and on completion as specified or directed by the Engineer including providing all necessary labour, equipment and materials		Item		
	Carried Forward to Summary of Section No. 5			KSH	

Bill No. 4

© Bills Partnership Ltd, Quantity Surveyors

Item No			*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 5				
	EXTERNAL WORKS (ALL PROVISIONAL)				
	BILL NO. 5				
	SEPTIC TANK (ALL PROVISIONAL)				
	Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material				
A	Excavate average 300 mm deep to remove top vegetable soil and cart away from site	**m2**	12		
B	Bulk excavation commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	18		
C	Ditto but 1.50 to 3.00m deep	**m3**	12		
D	Extra over excavation for excavating in soft rock	**m3**	6		
	Backfilling and Disposal				
E	Approved imported fill material around foundations: watered, spread, laid and compacted in layers not exceeding 150mm	**m3**	7		
F	Load and cart away surplus spoil where directed from the site	**m3**	23		
	Anti- termite treatment				
G	Chemical anti-termite treatment as "Termidor" or other equal and approved; executed complete by an approved specialist under a ten (10) year guarantee	**m2**	12		
	Plain concrete class 15 in;				
H	50mm blinding under surface bed	**m2**	12		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No			*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Vibrated reinforced concrete class 25 (20mm diameter aggregate-minimum) in; Concrete work shall be fair face finished any making good of concrete surfaces, side, edges or soffits shall be at the cost of the Contractor				
J	50 mm thick baffle wall	**m2**	1		
K	200 mm thick baffle wall	**m2**	3		
	Vibrated reinforced concrete class 25 (20 mm diameter aggregate-minimum); including plastocrete-N as manufactured by Sika or other equal and approved waterproofing concrete admixture, applied to manufacturer's printed instructions and Structural Engineer's approval				
L	Beams	**m3**	1		
M	200 mm thick wall	**m2**	24		
N	200 mm thick surface bed	**m2**	12		
P	250 mm thick cover slab	**m2**	9		
Q	Thicknessing to walls	**m3**	1		
R	Triangular fillet, size 270 x 270 mm	**m**	13		
	Reinforcement (Provisional)				
	High yield deformed steel bar reinforcement to BS 4449:2005; allow for cutting, bending, hoisting, fixing, binding wire, spacer blocks, templates and spacer stools and any other accessories as necessary				
S	8 mm diameter bars	**kg**	234		
T	10 mm diameter bars	**kg**	52		
U	12 mm diameter bars	**kg**	500		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No			*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
V	16 mm diameter bars	**kg**	493		
W	20 mm diameter bars	**kg**	68		
	Fair faced formwork to;				
X	Sides and soffits of beams	**m2**	2		
Y	Sides and soffits of baffle walls	**m2**	8		
Z	Sides of walls	**m2**	50		
AA	Soffits of slabs	**m2**	9		
AB	Edges of cover slab, etc over 75mm high but not exceeding 150mm high	**m**	14		
AC	Edges of beds, etc over 150mm high but not exceeding 225mm high	**m**	15		
	Natural stone walling (7.0 N/sq. mm minimum crushing strength) jointed and bedded in cement and sand mortar (1:3)				
AD	200mm Thick walling	**m2**	1		
	Cement and sand (1: 4) rendering				
AE	Rendering to block wall surfaces surfaces finished with a steel trowel, thickness 15 mm	**m2**	25		
AF	Rendering to walls finished with a steel trowel, thickness 15 mm	**m2**	24		
	Cement and sand (1:4) beds and backings				
AG	Screed to surface bed finished with a steel trowel, thickness 25 mm	**m2**	12		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No			*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Waterproofed cement and sand (1: 4) rendering				
AH	Rendering to soffits of suspended slabs	**m2**	9		
	Waterproofing application as 'Mapelastic smart (two coats) and Mapenet 150 (One Layer) supplied by Mapei or approved equivalent; applied strictly in accordance with the manufacturers printed instructions and to specifications; Minimum 10 years guarantee.				
AJ	To floor surfaces, laid to falls and cross falls not exceeding 15 degrees from horizontal	**m2**	12		
AK	Ditto to wall surfaces	**m2**	24		
	Water bar				
AL	200mm wide approved quality PVC water bar with centre bulb : set vertically in concrete to manufacturer's instructions and Structural Engineer's approval	**m**	13		
	Inlet and outlet Manholes				
AM	Construct 750 mm x 600mm x 300 mm deep (internal dimensions) manhole, comprising 150 mm thick concrete class 20 bed, 200 mm thick natural stone walling in cement and sand (1:3) mortar, 150 mm thick concrete class 20 cover slab with requisite reinforcement, 1200mm x 900mm heavy duty cast iron cover and frame bedded in cement and sand (1:3) mortar; internally plastered & screeded in 15 mm thick lime plaster; 225 mm thick concrete class 20 benching; complete with necessary excavation, formwork and 3 No. connections to pipes not exceeding 200 mm diameter (pipe m/s)	**No**	2		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No			*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Heavy duty cast iron manhole cover and frame to B.S 497 and 556 from East Africa Foundry Works or approved equivalent with double seal for airtightness : set in cement and sand 1:3 mortar haunching : including greasing to covers				
AN	600 x 450 mm wide double seal recessed type inspection cover and frame : cover set in grease : with two coats of bituminous paint before setting in position	**No**	2		
	Galvanised mild steel pipes and fittings to B.S. 1387 table 2 and B.S. 1256.Tenderers must allow in their pipework prices for all the couplings, connectors, unions, expansion loops, jointing materials etc. as required in the running lengths of pipework and also where necessary.The entire plumbing installation should with stand one and a half times operating pressure.				
AP	100mm diameter GCI Pipes complete with puddle flange, bends and tee in accordance with the Structural drawings; 900mm high above concrete cover slab	**No**	1		
	Soak Pit				
	Excavation including maintaining and supporting sides and keeping free from water, mud and fallen materials				
AQ	Excavate average 300 mm deep to remove top vegetable soil and stock pile on site for later re-use	**m2**	3		
AR	Excavate for soak pit not exceeding 1.50 metre deep from reduced level, curved to radius on plan.	**m3**	5		
AS	Ditto 1.50 to 3.00 metres	**m3**	5		
AT	Ditto 3.00 to 4.50 metres	**m3**	2		
AU	Excavate for foundations, not exceeding 1.50 metres deep from reduced level.	**m3**	1		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No			*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
AV	Extra over excavation for excavating in soft rock	**m3**	5		
	Disposal				
AW	Load and cart away surplus spoil	**m3**	12		
	Imported filling				
AX	Approved hardcore filling	**m3**	9		
	Plain concrete class 15				
AY	50 mm blinding under ground beam	**m2**	1		
	Vibrated reinforced concrete class 25 in;				
AZ	Ground beam	**m3**	1		
BA	150mm Thick Cover slab; Trowelled smooth	**m2**	3		
	Reinforcement				
	Ribbed steel bar reinforcement to KS ISO 6935-2:2007				
BB	8 mm Diameter bars	**kg**	53		
	Formwork to;				
BC	Sides and soffits of ground beam	**m2**	8		
BD	Soffits of cover slab	**m2**	3		
BE	Edges of beds, etc over 75mm high but not exceeding 150mm high	**m**	6		
	Fine grade top soil to approved standards, remove all foreign objects/debris and cart away				
BF	Soil	**m3**	2		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No			*Quantity*	*Rate Kshs* KSH	*Amount Kshs*
	Brought Forward				
	Heavy duty cast iron manhole cover and frame to B.S 497 and 556 from East Africa Foundry Works or approved equivalent with double seal for airtightness : set in cement and sand 1:3 mortar haunching : including greasing to covers				
BG	600 x 450 mm wide double seal recessed type inspection cover and frame : cover set in grease : with two coats of bituminous paint before setting in position	**No**	1		
	Carried Forward to Summary of Section No. 5			KSH	

Bill No. 5

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 5				
	EXTERNAL WORKS (ALL PROVISIONAL)				
	BILL NO. 6				
	ELEVATED TANK MILD STEEL TOWER (ALL PROVISIONAL)				
	Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material; Tenderers to allow for watering of the works with jet spray sufficient to prevent any nuisance and dust during excavations within their rates.				
A	Excavate average 300 mm deep to remove top vegetable soil and cart away from site	**m2**	9		
B	Excavate for water tower base commencing from reduced levels and not exceeding 1.50 metres deep	**m3**	14		
C	Ditto but 1.50 to 3.00m deep	**m3**	2		
	Disposal				
D	Load and cart away surplus spoil from site	**m3**	16		
	Imported filling				
E	Imported good quality backfill material: spread and laid in layers not exceeding 150mm to make up levels	**m3**	7		
	Plain concrete class 15				
F	50mm thick blinding under water tower base	**m2**	9		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Vibrated reinforced concrete class 25 (20mm diameter aggregate-minimum) in; Concrete work shall be fair face finished any making good of concrete surfaces, side, edges or soffits shall be at the cost of the Contractor				
G	Water tower base	**m3**	11		
	Reinforcement (Provisional)				
	High yield deformed steel bar reinforcement to BS 4449:2005; allow for cutting, bending, hoisting, fixing, binding wire, spacer blocks, templates and spacer stools and any other accessories as necessary				
H	12 mm diameter bars	**kg**	129		
	Sawn formwork to;				
J	Sides of water tower base	**m2**	7		
	STEEL TOWER				
	Manufacture, supply and install steel structure to Engineer's approval. All sections manufactured in accordance to technical specification issued by the Engineers. Supply, off loading, deliver, transport to site and site storage. Fabrication to including cutting, making of holes or cut-outs, notching, stiffeners, assembling and connection by bolts or welding (including preparation of edges) done in the workshop. Bending, pre cambering, machining or other fabrication processes to be included.				
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and fix structural mild steel grade 43C : allow for Spot Friction continuous smooth welding; blanked open ends; one workshop coat Plascon Chromate Free H.B Epoxy Primer; allow for shop drawings to approval; fix to position; prepare touch up primer and spray paint with three coats 'Plascon Plascryl' or other equal and approved' after installation (Colour to Architect's Approval); all to Structural Engineer's approval;				
K	100 x 100 x 4mm Mild Steel Square Hollow Sections; weight: 12.21kgs/m; Columns	**kg**	293		
L	50 x 50 x 3mm Mild steel angle bracing; weight: 2.2kgs/m	**kg**	156		
M	50 x 50 x 4mm Mild steel angle bracing; weight: 2.89kgs/m	**kg**	15		
N	100 x 50 x 4mm Mild steel rectangular hollow section; weight: 8.92kgs/m	**kg**	193		
P	150 x 75 x 4mm Mild steel rectangular hollow section; weight: 13.6kgs/m	**kg**	65		
	Steel Decking				
Q	12 mm Chequer plate fixed to structural steel framing (elsewhere measured)	**m2**	6		
	Miscellaneous Items; Prepare touch up primer and spray paint with three coats 'Plascon Plascryl' or other equal and approved' after installation (Colour to Architect's Approval);all to Structural Engineer's approval;				
R	200 x 200 x 10mm Thick Plate	**kg**	4		
S	M20 Grade 8.8 bolts casted in concrete; complete with and including nuts and washers; 300mm long	**No**	16		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	1100mm high mild steel railing consisting of 60mm diameter x 3mm thick circular hollow section handrail, 60mm x circular hollow section top rail, 7No. 25mm diameter round bars, 60mm diameter x 3 mm thick circular hollow section balusters overall height 600mm at approved centers welded to handrail including welding balusters to mild steel platform (measured sperately) ; including all bends and wreaths; all welded together, ground smooth, primed and sprayed with 3 coats high gloss automotive paint; to Architect's approval				
T	Horizontal balustrading	**m**	10		
	Cat Ladder to water tank				
U	Supply and install 600mm wide x 6000mm high cat ladder; comprising 50mm x 10mm thick galvanised mild steel side rails infilled with 25 with 25mm diameter solid mild steel bars spaced at 300mm centres; all fixed to masonry or concrete with 25mm diameter mild steel rods; complete with safety cage comprising 5mm thick galvanised mild steel hoops, spaced at 1000mm intervals, and 50mm x 5mm mild steel flat bars as vertical stays and 1200mm high guard rail at the top platform, made of 32mm diameter mild steel tubes, and a hinged access gate with a locking mechanism; The safety cage shall extend from 2,000mm above ground level to the top of the ladder; all to Engineer's approval	**No**	1		
	Carried Forward to Summary of Section No. 5			KSH	

Bill No. 6

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	SECTION NO. 5				
	EXTERNAL WORKS (ALL PROVISIONAL)				
	BILL NO. 7				
	LANDSCAPING (ALL PROVISIONAL)				
	A. SOFT LANDSCAPING				
	Site Clearance and Preparation				
A	Fine grade top soil to approved standards, remove all foreign objects/debris and cart away	**m2**	73		
	Planting Media				
	Supply treated and pest free media, store in approved condition, spread amended topsoil (ratio 1:3 cow manure and red soil) for open ground planting				
B	Soil	**m3**	40		
C	Cow Manure	**m3**	13		
	Trees				
	Supply, store in approved condition, plant and maintain the following trees (at least 2 meters in stem height and well established in containers; The Landscape Architect retains right to adjust specific species and plant sizes if plants are not available or of poor quality) including forming pit size 600 x 600 x 600 deep removing all excavated materials and backfilling with cow manure and top soil (1:2) compacted in 300mm layers and providing 3 No. 50mm diameter x 1.5m approved support poles with 2 No. rubber tie bands. Exposed soil to be mulched using straw or hay.				
D	Ashok (Polyalthia longifolia)	**No**	5		
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
E	Cypress (Cupressus sempervirens)	**No**	5		
F	Golden Palm (Dypsis lutescens)	**No**	10		
	Big Shrubs				
	Supply, store in approved condition, plant and maintain the following shrubs (with 350mm stem lengths and well established in containers) including forming pit size 500 x 500 x 500 deep removing all excavated materials and back-filling with cow manure and top red soil (1:2) compacted in 300mm layers otherwise as before and mulching with straw or hay.				
G	Newzealand flax (Phormium tenax-green)	**No**	12		
H	Newzealand flax (Phormium tenax-bronze)	**No**	12		
J	Frangipani (Plumeria rubra)	**No**	3		
	Medium Shrubs				
	Supply, store in approved condition, plant and maintain the following shrubs (with 350mm stem lengths and well established in containers) including forming pit size 500 x 500 x 500 deep removing all excavated materials and back-filling with cow manure and top red soil (1:2) compacted in 300mm layers otherwise as before and mulching with straw or hay.				
K	Foxtail (Agave attenuatta)	**No**	12		
L	Bougainvillea (Bougainvillea ssp.)	**No**	16		
M	Garden Croton (Codiaeum variegatum)	**No**	22		
	Small Shrubs				
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply, store in approved condition, plant and maintain the following shrubs (with 350mm stem lengths and well established in containers) including forming pit size 500 x 500 x 500 deep removing all excavated materials and back-filling with cow manure and top red soil (1:2) compacted in 300mm layers otherwise as before and mulching with straw or hay.				
N	Crown of Thorns (Euphorbia milii)	**No**	20		
P	Snake plant (Sanseviera trifaciata)	**No**	32		
	Groundcovers and Bedding Plants				
	Supply, store in approved condition plant and maintain the following ground covers including forming pit size 300 x 300 x 500 deep, removing all roots and weeds and backfilling with cow manure / redsoil mix(1:3) and raking to a fine tilth				
Q	Ice Plant (Aptenia cordifolia)	**No**	40		
R	Trailling lantana (Lantana montevidensis)	**No**	50		
S	Spider Plant (Chrolophytum comossum)	**No**	38		
T	Joseph's Coat (Alternanthera ficoidea 'red')	**No**	56		
U	Joseph's Coat (Alternanthera ficoidea 'yellow')	**No**	56		
V	Zebra Plant (Tradescantia zebrina)	**No**	42		
	Lawn				
	Carried Forward			KSH	

© Bills Partnership Ltd, Quantity Surveyors

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*
	Brought Forward			KSH	
	Supply and store in approved condition, plant and maintain grass at 100mm centres both ways including digging the soil to a depth of 300mm, removing all roots and weeds and backfilling with a 100mm layer of cow manure and red soil (1:2), raking to a fine tilth, fertilising and all necessary preparation.				
W	Fountain grass (Pennisetum set. Green)	**No**	19		
X	Fountain grass (Pennisetum set. Bronze)	**No**	11		
Y	Mondo Grass (Ophiopogon japonica)	**No**	60		
	Maintenance				
Z	Carry out all landscaping maintenance for a period of six (6) months. This shall include 1. Watering twice everyday (Early morning and late evening) for 4 months and once (Late evening) for the rest of maintenance period 2. Mowing and pruning 3. Manure and approve fertilizer top dressing 4. Pest control	**No**	6		
	Carried Forward to Summary of Section No. 5			KSH	

© Bills Partnership Ltd, Quantity Surveyors

SECTION SUMMARY - EXTERNAL WORKS (ALL PROVISIONAL)

Bill No		*Page No*	*Amount Kshs*
1	PREPARATORY WORKS (ALL PROVISIONAL)	203	
2	BOUNDARY WALL AND GATES (ALL PROVISIONAL)	209	
3	DRIVEWAYS AND FOOTPATHS (ALL PROVISIONAL)	211	
4	SEWER RETICULATION (ALL PROVISIONAL)	213	
5	SEPTIC TANK (ALL PROVISIONAL)	220	
6	ELEVATED TANK MILD STEEL TOWER (ALL PROVISIONAL)	224	
7	LANDSCAPING (ALL PROVISIONAL)	228	

Carried to Final Summary KSH

© Bills Partnership Ltd, Quantity Surveyors

SECTION NO. 6

PROVISIONAL SUMS

Item No		*Unit*	*Quantity*	*Rate Kshs*	*Amount Kshs*	
	SECTION NO. 6					
	PROVISIONAL SUMS					
	BILL NO. 1					
	PROVISIONAL SUMS					
	Signage					
A	Provide a Prime Cost Sum of Kenya Shillings Seven Hundred and Fifty Thousand (KSH750,000.00) only for Signage		Item		750,000	0
	Contingency Sum					
B	Provide a Provisional Sum of Kenya Shillings Ten Million (KSH10,000,000.00) for Contingencies to be omitted or expended in whole or in part at the discretion of the Engineer.		Item		10,000,000	0
	Carried to Final Summary			KSH		

© Bills Partnership Ltd, Quantity Surveyors

SECTION NO. 7

FINAL SUMMARY

Volume 2 of 5

FINAL SUMMARY

Section No		*Page No*		*Amount Kshs*	
1	PRELIMINARIES	127			
2	ACCOMODATION UNIT	153			
3	ADMINISTRATION OFFICE	179			
4	GATE HOUSE	202			
5	EXTERNAL WORKS (ALL PROVISIONAL)	229			
6	PROVISIONAL SUMS	230			
	SUB-TOTAL		KSH		
	DEDUCT: PROVISIONAL SUMS	Item		-11,050,000	0
	SUB-TOTAL		KSH		
	Add Value Added Tax (16%)		KSH		
	SUB-TOTAL		KSH		
	ADD: PROVISIONAL SUMS	Item		11,050,000	0
	TOTAL FOR VOLUME 2 of 5 CARRIED TO GRAND SUMMARY		KSH		

© Bills Partnership Ltd, Quantity Surveyors

SECTION NO. 8

GRAND SUMMARY

GRAND SUMMARY

Volume No.		*Amount Kshs*
1	TOTAL FOR VOLUME 1 of 5-TECHNICAL PROPOSAL	
2	TOTAL FOR VOLUME 2 of 5-BUILDING AND CIVIL WORKS	
3	TOTAL FOR VOLUME 3 of 5-ELECTRICAL INSTALLATIONS	
4	TOTAL FOR VOLUME 4 of 5-MECHANICAL INSTALLATIONS	
5	TOTAL FOR VOLUME 5 of 5-DRAWINGS	
	TOTAL INCLUDING 16% VAT CARRIED TO FORM OF TENDER	**KSHS**

© Bills Partnership Ltd, Consulting Quantity Surveyors

SECTION NO. 9

ANNEXURE A

ANNEXURE 'A'

LIST OF PRIME COST AND PROVISIONAL SUMS

B.Q. Ref.	Item	Kshs. Cts	Multiplier	Amount	
	PROVISIONAL SUMS				
100 K	Anti-corruption signboard	100,000.00	1	100,000.00	
100 L	Geotechnical Investigations	200,000.00	1	200,000.00	
230 A	Signage	750,000.00	1	750,000.00	
230 B	Contingency Sum	10,000,000.00	1	10,000,000.00	**11,050,000.00**
	TOTAL				**11,050,000.00**

© Bills Partnership Ltd, Consulting Quantity Surveyors