

ANNEXURE NCB 38/2021 CONSTRUCTION OF BULAWAYO BOUNDARY WALL



CLIENT : ZIMBABWE REVENUE AUTHORITY
PROJECT : PROPOSED BOUNDARY WALL
LOCATION : CORNER ROBERT MUGABE STREET AND 15TH
AVENUE, BULAWAYO
TENDER NUMBER :
NAME OF CONTRACTOR :
TENDER CLOSING DATE :
COMPULSORY SITE VISIT DATE :

BILLS OF QUANTITIES

QUANTITY SURVEYOR



TN ZUNZANYIKA ASSOCIATES
1628 BAUHINIA ROAD
WESTGATE
P.O. BOX A10,
AVONDALE
HARARE

TEL: +263 7 83224482/ +263 774175191
EMAIL: tnza@tnza.co.zw; norman@tnza.co.zw;
Website : www.tnzunzanyika.com

DATE: 23 AUGUST 2021



CLIENT : **ZIMBABWE REVENUE AUTHORITY**
PROJECT : **PROPOSED BOUNDARY WALL**
LOCATION : **BULAWAYO**

TENDER DOCUMENT
Incorporating
BILLS OF QUANTITIES

QUANTITY SURVEYOR



No. 1628
BAUHINIA DRIVE
WESTGATE
P.O. BOX 5774
HARARE
TEL. +263-4- 2931942
E-mail. tnza@mweb.co.zw
www.tnzunzanyikaqs.co.zw

ELECTRICAL, MECHANICAL, CIVIL
AND STRUCTURAL ENGINEER



No.52 Blackburn Road,
Emerald Hill,
Harare
Tel: +263 242 303 179
Cell: +263 772 693 543
Email: themba@designteam.co.zw
Web:www.designteam.co.zw

ARCHITECT



E-mail: louischitolo@gmail.com

CONTENTS PAGE

<u>SECTION NO.</u>		<u>PAGE</u>
1	SPECIAL NOTES TO CONTRACTOR	SN1 - SN6
2	TRADE PREAMBLES AND SPECIFICATIONS	
3	PRELIMINARIES AND GENERAL	3/1/1 - 3/1/15
	MEASURED WORKS	
4	BOUNDARY WALL	4/1/1 - 4/7/1
5	GATEHOUSES	5/1/1 - 5/15/1
6	ELECTRICAL ENGINEERING WORKS	6/1/1 - 6/1/2
7	CIVIL ENGINEERING WORKS	7/1/1 - 7/1/1
	FINAL SUMMARY	FS1
	ANNEXURES	A1 - A6

SECTION NO. 1

-

SPECIAL NOTES TO BIDDERS



SPECIAL NOTES TO BIDDERS

1. PROCURING ENTITY

The procuring entity is **THE ZIMBABWE REVENUE AUTHORITY (ZIMRA)**,
ZB Centre Cnr Nkwame Nkrumah Ave/ First Street, P O Box 4360, Harare.

2. SCOPE OF WORKS

The Works consist of:

The scope of works generally comprises the construction of a Boundary wall and three (3) Gatehouses at Bulawayo. The Boundary wall is approximately 413m long. The gross internal floor area of each Gate house is approximately 11m².

Construction generally includes, *inter alia*, the following: -

2.1 Construction of Boundary wall

- 2.1.1 Foundation
- 2.1.2 Brickwork
- 2.1.3 Waterproofing
- 2.1.4 Construction joints (kaylite, sealant, hoop iron ties, etc.)
- 2.1.5 Pre galvanized palisade fence
- 2.1.6 Precast concrete coping
- 2.1.7 Weep holes
- 2.1.8 Painting (brick dressing, etc.)
- 2.1.9 Pre galvanized mild steel Automated Main gates, Pedestrian gates, Fixed screens etc.

2.2 Construction of Gatehouses (3 no.)

- 2.2.1 Foundation
- 2.2.2 Concrete works
- 2.2.3 Waterproofing
- 2.2.4 Brickwork
- 2.2.5 Roof coverings and carpentry (chromadek roof, roof structure, fascia board, Barge board, etc.)
- 2.2.6 Ironmongery and joinery (timber ceiling, worktops and cabinetry, door panels, locksets, robe hooks, etc.)
- 2.2.7 Metalwork (door frames, pre galvanized screens, etc.)
- 2.2.8 Plastering and wall linings (including wall tiling)
- 2.2.9 Painting (doors, screens, timber ceilings, timber beams, brick dressing, etc.)
- 2.2.10 Pavings and floor coverings (screeds, grey terrazzo, skirting, etc.)



- 2.2.11 Glazing (mirrors)
- 2.2.12 Plumbing and drainage installations (rainwater disposal, sanitary fittings, pipework, etc.)
- 2.2.13 Aluminium works (window frames, duct covers, doors, etc.)
- 2.2.14 Requisite electrical and mechanical engineering services

3. The lowest evaluated tender to specification shall be accepted.

4. The Bid is for a Supply and Fix Contract

Total price with VAT shown separately.

The price shall include; -

- a) Freight charges and duties
- b) Exchange rates applicable, discounts and premiums or any other charges.

5. All entries must be written in ink.

6. Tenders must reflect market prices

7. THE BILLS OF QUANTITIES

These Bills of Quantities contain pages numbered as indexed with annexes by **T.N ZUNZANYIKA ASSOCIATES**.

The Tenderer is required to check the number of pages and should any be found to be missing or in duplicate or the figures and letters indistinct or contain obvious errors, doubtful or ambiguous descriptions, the tenderer must inform the Quantity Surveyor at once and have the same rectified in writing. No liability whatsoever will be admitted in respect of errors in the tender due to the foregoing. ***Please note that the abbreviation R.O. shall mean, "rate only".***

On submission, The Priced Bills of Quantities, shall also incorporate the following pages, duly completed; -

- Labour Rates Applicable to Authorized Dayworks
- Plant and Material Rates Applicable to Authorized Dayworks
- Labour Basic Price List
- Materials Basic Price List



- Schedule of Exchange Rates at The Time of Bid
- Proposed Cash flow Schedule

Non-return of documents completed to the level and format requested herein shall indicate unwillingness on the Tenderer`s part to be considered for adjudication and shall result in the exclusion.

8. PRICING OF BILLS OF QUANTITIES

8.1 CURRENCIES

Bidders shall be required to quote their prices in Zimbabwean Dollars (**ZWL\$**). Bidders should note that the ZIMBABWE REVENUE AUTHORITY (ZIMRA) shall settle obligations arising out of this bid using the RTGS mode of payment (local legal tender).

8.2 RATES

The individual rates in the Bill of Quantities are to be exclusive of Value Added Tax (V.A.T). V.A.T should however be added in the space provided in the final summary page of this document. Prices and quotations obtained from suppliers/subcontractors for tender purposes should however include V.A.T. If the contractor is in any doubt he should consult the Quantity Surveyor.

All items in these Bills of Quantities shall be priced and extended in **black ink**. All pages are to be separately cast and the separate casts carried to the collection page provided at the end of each bill.

Should the Bidder not price any particular item, he is to write hyphens thus --- in the money column opposite such items. Failure by a bidder to price an item will in no way exonerate him from his responsibilities under that item.

No alterations shall be made by the Bidder in the text of the Bills of Quantities. If any alteration or addition is made by him, such an alteration or addition will not be recognized and the text of the Bills of Quantities will be rigidly adhered to.

No representation, explanation or statement which in any way alters the tender or contract documents made prior to the acceptance of the tender or during the progress of the contract shall bind the Employer unless such explanation, statement or alteration be made and confirmed in writing by the Project Manager/Architect.

9. METHOD OF MEASUREMENT

These Bills Of Quantities have been measured in accordance with the general principles laid down in the System Of Measurement of Building Work in Zimbabwe (Third Edition, 1st May 1985) prepared and approved by the Zimbabwe Institute of Quantity Surveyors.



Any deviation from the system is made to suit local conditions and practice. The tenderer, by tendering shall be deemed to have read, understood and accepted this system of measurement for all quantity surveying work under this contract.

All quantities throughout the Bills of Quantities, unless expressly stated otherwise, are measured net as fixed in the building and the Tenderer shall be deemed to have allowed for cutting and waste, labour and material in his rates.

These Bills of Quantities **shall not be used for the ordering** of materials. Rejection of materials ordered contrary to this provision shall be the Contractor's sole liability.

10. ARITHMETIC CHECKS

The Quantity Surveyor will check the Priced Bills of Quantities.

Any arithmetic errors shall be corrected and the corrected price shall be the basis of evaluating the tenders, awarding the procurement contract and performing the contract.

11. EXCHANGE RATE CONTROLS

- a. The tender shall be submitted in accordance with the Exchange Control Regulations ruling at the time. Any qualifications on the exchange rate relying on a rate than the official shall be automatically disqualified.
- b. The provision applies to all matters relating to price, be they basic prices or contract rates.

12. DISCLAIMER

ZIMRA reserves the right to make changes to this RFP at any time prior to the submission deadline, and to accept or reject any proposal, to cancel the bidding process and/or to reject all bids at any time prior to the award of the contract, without incurring any liability to any of the Bidders and without any obligation to inform any of the Bidders of the grounds for such action by ZIMRA.

13. CONFLICT OF INTEREST

Bidders submitting a proposal in response to this tender shall disclose any conflict of interest as part of their proposal. Any bidder found to have a conflict of interest that was not disclosed shall be ineligible for award of a contract. A bidder with a disclosed conflict of interest may be considered for the award of a contract provided that the conflict of interest will not impact performance and the proposal is assessed as the most competitive.



14. DRAWINGS USED IN THE PREPARATION OF THE BILLS OF QUANTITIES

For drawings used to prepare the Bills of Quantities are attached to these Bills of Quantities (See Annexure G)

15. CONFINEMENT OF BUILDING OPERATIONS

The Contractor shall not, in the execution of the Works enter upon or otherwise make use of any lands adjoining the site of the works without the consent of the Project Manager or without the consent of the owner of such adjoining lands having been previously obtained, but shall (except with such consent) confine his operations within the site of the Works. No trespassing beyond the limits as above described will be allowed.

16. Bidders must clearly stamp their documents for ease of identification.

17. The Tenderer, by tendering, shall be deemed to have satisfied himself as to the conditions and circumstances governing the tender, and submission of a tender shall presume complete acceptance of the conditions of tender and the general conditions of building contract. The submission of information after the closing date, except on request, is liable to disqualify tenders.

Failure to submit information called for in this document by the closing date, or upon subsequent requests by the Architect, may lead to disqualification of tenders.

18. MATERIALS, ETC. TO BE FIXED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS

Where materials, fittings, furnishings and the like have been specified in the Bills of Quantities, under a trade name, proprietary brand or catalogue reference, they shall be deemed to be fixed and used with strict accordance with manufacturer's printed instructions and they shall be priced on the cost of such named products.

19. EARLY ORDERING OF MATERIALS

As the time for completion of this contract is of the utmost importance, and also every endeavour is to be made to avoid cost escalation, the contractor may be required to immediately order all possible materials for the contract on the signing and acceptance of the Contract.

When materials are ordered and delivered to site or held in stock sole for this Contract, such materials will be inspected, checked and agreed for inclusion in certificates as materials on site. Responsibility for the storage and safe keeping of the materials shall remain with Contractor.



20. UNAVAILABILITY OF MATERIALS

Should any tenderer be unable to obtain materials and firm quotations for items measured and specified in these Bills of Quantities, he shall report in writing to the Project Manager immediately. In the event of the tenderer failing to comply with this clause, his tender shall be deemed to be firm for the items as described and shall be deemed to be responsible for the supplying and fixing at the same rates tendered in these Bills of Quantities.

21. TENDER DOCUMENT QUERIES & CLARIFICATIONS

Enquires raised by bidders shall be made in writing and addressed to the Quantity Surveyor not later than two weeks from the tender closing date. Responses to queries will be made to all bidders without disclosing the source of the query.

The enquiries must be addressed to: -

THE QUANTITY SURVEYOR



TN ZUNZANYIKA ASSOCIATES
1628 Bauhinia Drive
Westgate
HARARE

TEL: +263 783 224 482
Email : tnza@tnza.co.zw

SECTION NO. 2

-

TRADE PREAMBLES AND SPECIFICATIONS

GENERAL BUILDING WORK TRADE PREAMBLES AND SPECIFICATIONS

CONTENTS

A	-	GENERAL
B	-	EXCAVATION
C	-	CONCRETEFORMWORK AND REINFORCEMENT
D	-	BRICKWORK
E	-	ROOF COVERINGS
F	-	JOINERY ANDIRONMONGERY
G	-	METALWORK
H	-	PLASTERING AND WALL LININGS
J	-	PAVINGS, FLOOR COVERINGS, PLASTIC LININGS, ETC
K	-	SHEET METALWORK, PLUMBING AND ASSOCIATED SERVICES AND DRAINLAYING
L	-	GLAZING
M	-	PAINTING
N	-	WORKS ON SITE, DEMOLITIONS, ETC

TRADE PREAMBLES

NOTE:

1. Where materials are specified to CAS, they are to bear the CAS MARK or the relevant standardization e.g. SAZ.

A1 APPLICATION OF CLAUSES

These Preambles shall be read in conjunction with and shall apply to all items in the bills of quantities. The works 'as described' in the bills of quantities, unless referring to a previous description or heading, shall mean as described in these Preambles.

Where description of supplementary preambles in the bills of quantities differs from clauses contained in these Preambles, the descriptions or supplementary preambles in the bills of quantities shall take precedence.

A2 MATERIALS AND WORKMANSHIP

Materials and workmanship shall be the best of their respective kinds. Only new and undamaged materials shall be used in the works. Materials to be permanently installed into the works shall not be used for any temporary purposes on site. Work shall be to the approval of the Architect and shall be executed in accordance with the relevant manufacturer's written recommendations and instructions.

A3 ASSEMBLING

Description of manufactured items shall be deemed to include assembling complete and handing over in proper working order.

A4 TESTS

Should the Contractor be instructed to carry out tests on materials or workmanship to ascertain compliance with the specification, the Contractor will only be entitled to payment for those tests which meet the specified requirements.

A5 WATER

Water shall be clean and free from injurious amounts of acids, alkalis, organic matter and other substances and shall be suitable for its, intended use.

B – EXCAVATION

A.1. Clearing of Site

Unless otherwise specified the plinth area and a distance of 2.00m beyond the building on all sides shall be cleared of bush, scrub, undergrowth, trees and stumps by mechanical or manual means.

Vegetable soil is not to be removed under this item.

Trees not exceeding 0.50 m girth (measured 1.00 m above ground level) and stumps not exceeding 0.50 m girth (measured at ground level) are included here under. Trees and stumps exceeding 0.50 m girth will be paid for separately.

Trees and stumps growing within 3.00 m of the building are to be removed entirely, including grubbing up of all roots, logging up and depositing on wood pile on site. No trees whatever are to be cut down, other than those specified above, without the permission of the Architect. Holes are to be filled as specified below.

All holes (however caused), which are under or within 2.00 m of the proposed foundation or within the plinth area of the buildings, are to have all loose material removed, the holes filled with approved gravel or laterite properly watered and thoroughly consolidated in 100 mm layers. Holes thus filled, other than holes caused by removal of trees, will be paid for separately.

A.2. Surface Stripping

Where specified after the areas under and around the proposed buildings have been cleared, soil and vegetable matter shall be removed within area of the surface trenches up to a depth of 100 mm, unless a greater depth is specified.

A.3 Excavate Surface Trenches

Excavate surface trenches to the various lengths and width shown on drawings to such depth as specified or instructed by the Supervising Architect. Trim sides of excavations, level, water and lightly compact bottoms before concrete is poured. Step trench excavations as required or directed.

The Contractor is to draw the Architect's attention to any excavations that appear to be sited on made up ground or other bad ground.

Trenches are to be approved by the Architect and the measurements taken before any concrete is cast.

Suitable material from the excavations is to be set aside for filling under solid floors and portion is to be returned, filled in and rammed around foundation walls. Surplus material is to be spread and levelled on site.

A.4 Filling Under Floor Slabs

No Filling shall be done until a period of at least two days has lapsed after completion of foundation walls. Filling under floors shall consist of approved subsoil of low plasticity, laterite or gravel, free from vegetable matter, roots, etc. In areas of Kalahari sand, the sand will be suitable for filling.

The upper layer of the filling to a depth of 100 mm immediately below the underside of the floor slab shall be well compacted hard-core, unless otherwise specified.

Filling shall be well watered, rammed and thoroughly consolidated in layers not exceeding 100 mm deep. No slab shall be cast on fill that has, in the opinion of the Architect become unsatisfactory due to excessive moisture from rain or other causes.

All surplus or unsuitable spoil from surface stripping and excavations shall be spread evenly within 30.00 m of buildings, unless otherwise specified.

A.5 Site To Be Kept Dry

The Contractor shall provide for any necessary pumping, bailing or any temporary drains that may be required to keep the works constantly free of water however caused.

A.6 Site Cleaning

Prior to the handing over of buildings for occupation, the Contractor shall remove all builder's rubble and debris, broken bricks and blocks, off-cuts, bags, remains of sand and stone heaps, droppings from concrete mixers and any other waste material resulting from building operations and shall generally clear up the site, spread up and level excess soil and leave clean and tidy to the satisfaction of the Architect.

A.7 Pickable Material

Pickable material shall mean all types of ground encountered excepting only 'hard pickable material' and 'rock' as hereinafter defined and shall include made up ground, shale, gravel, oudklip, clay, black turf and ground interspersed with boulders not exceeding one quarter of a cubic metre each.

A.8 Rock

Rock shall include undecomposed boulders exceeding a quarter of a cubic metre and solid rock occurring in bulk, the practicable excavation of which would, in the Architect's opinion normally necessitate the use of explosives.

A.9 Hard Pickable Material

Hard pickable material shall mean hard shell, hard oudklip, schist or other material of similar hardness the excavation of which, in the Architect's opinion, would be economically impracticable if executed by pick and shovel, and which warrants the use of pneumatic tools or mechanical breakers.

A.10 Payment For Excavation In Hard Pickable Material Or Rock

Should the Contractor feel that excavations are of such a hardness as to warrant payment on the basis of 'hard pickable material' or 'rock' as defined above, he is to immediately notify the Architect whose decision as to the nature of the excavations will be final and binding.

Should the Contractor fail to notify the Architect, as provided in the above clause, then the excavation shall be assumed as being in 'pickable material and shall be measured and valued accordingly.

B – CONCRETE, FORMWORK AND REINFORCEMENT

Materials And Storage Thereof

B1. Cement

All cement shall be P.C. 15 complying with the requirement of CAS A.46-1972.

Cement that is stored on site shall be kept under cover that provides adequate protection against moisture and other factors which promote deterioration.

When the cement is supplied in 50 kg sacks, the sacks shall be closely and neatly stacked to a height not exceeding 12 sacks and arranged so that they can be used in the order in which they were delivered to site.

Storage of cement in bulk in silos or similar containers shall be permitted provided that the cement drawn for use is measured by mass not by volume.

Cement shall not be kept in storage for longer than 6 weeks without the Architect's approval.

B.2 Concrete Aggregates

Both the coarse aggregates (stones) and the fine aggregates (sand) shall comply with CAS A.34-1969.

Aggregates of different nominal sizes shall be stored separately and in such a way that segregation is avoided.

Crusher sand is to be used in place of river sand for concrete work.

B.3 Admixtures

Admixtures shall not be used in the concrete mix without the approval of the Architect who may require tests to be made before their use.

B.4 Steel Reinforcement

Reinforcing bars shall comply with ZISCO Specification RSK: 2075:Hot Rolled Bars.

Steel mesh reinforcement shall comply with BS. 4483:1969 – Fabric Reinforcement.

All reinforcement shall at the time of placing of the concrete, be free from loose rust, scale, oil and other coating which reduce the bond between the steel and the concrete or initiate corrosion of the reinforcement.

Reinforcement shall be stacked off the ground and, in aggressive environments, protection shall be provided in the form of sheds or tarpaulins.

B.5 Storage Capacity

The storage capacity provided and the amount of materials stored (whether cement, aggregate, steel or water) shall be sufficient to ensure that no interruptions to the progress of the contract are occasioned by lack of materials.

B.6 Deteriorated Material

Material that has deteriorated, or that has been contaminated or otherwise damaged, shall not be used in concrete. Such material shall be removed from the site without delay.

B.7 Water

Water shall be clear and free from injurious amounts of acids, alkalis, sugar and other organic substances. Water suitable for drinking purposes shall be acceptable. If so required by the Architect, the suitability of the water shall be proved by tests carried out by an approved laboratory.

B.8 REINFORCEMENT

B8.1 Bending

Reinforcing bars shall be bent to the dimensions shown on the working drawings and in accordance with SABS. 82.

Except as allowed for below all bars shall be bent cold and bending shall be done slowly, a steady even pressure being applied without a jerk or impact.

If approved hot bending of bars of diameter at least 32 mm shall be permitted, provided that the bars do not depend for their strength on cold working. When hot bending is approved, the bars shall be heated slowly to a cherry red heat (not above 843°C) and after bending shall be allowed to cool slowly in air.

Quenching with water shall not be permitted.

B8.2 Fixing

Reinforcement shall be positioned as shown on the working drawings and maintained within those positions within the tolerances given in Table 1. It shall be secured against displacement by tying at intersections with 1.6 1.25 mm diameter annealed wire or by the use of suitable clips or, if

permitted by the Architect, welding It shall be supported in its correct position by hangers or saddles and aligned by chairs or spacers of approved design and material. Where such hangers, saddles, chairs or spacers are of steel they shall be detailed on the drawings or in bending schedules.

TABLE 1: TOLERANCES ON POSITIONS OF REINFORCEMENT

(All dimensions in millimeters)

	1	2
	POSITION OF REINFORCEMENT	Tolerance/mm
1	Main and distribution bars in slabs - spacing between any two adjacent bars	+/-10
2	Main bars in beams or ribs, placed at	
	a) depths up to and including 300mm	+/-5
	b) depths over 300m and up to and including 600mm	+/-10
	c) depths over 600mm	+/-10
3	Stirrups, spacing	+/-10
4	Vertical bars in columns	+/-5
5	Bars in walls	+/-5
6	Bars in footings	+/-25
7	Longitudinal location of bends and ends of bars	+/-25

B.8.3 Cover

The minimum cover of concrete over reinforcement shall be as shown on the working drawings. Where this is not indicated, the minimum thickness of the cover, measured from the outside of a bar of diameter 'd' mm shall be not less than the appropriate value, or the greater of the appropriate values, as relevant, given in Column 2 of Table 2.

TABLE 2: COVER TO REINFORCEMENT

	1	2
	POSITION OF REINFORCEMENT	Tolerance/mm
1	General: over all bars including ties, stirrups and all secondary reinforcement	15 or d
2	Ribbed floors and roofs: ribs &	15 or d
3	Slabs and walls: a) Normal b) Exposed to water pressure c) Slabs laid on ground; external walls	15 or d 25 25
4	Main bars in columns: a) Columns b) Beams; and cover beyond hooks c) Beams; at other surfaces d) Members not elsewhere specified	40 or d 25 or 2d 25 or d 25 or 2d
5	Piles	40
6	All work in sea water or in marine atmospheres	50
7	Surfaces in contact with backfilling; a) Bars of diameter up to and including 16mm b) Bars of diameter over 16mm	50 40 50
8	Surfaces of footings or other members cast in contact with ground or on a blinding layer	75

B.8.4 Splicing

Splicing or joining of reinforcing bars shall be made only as and where shown on the working drawings or as otherwise approved.

The length of the overlap in a splice shall be not less than that shown on the working drawings.

B.8.5 Protection Of Exposed Bars

If left exposed for future bonding of extension to the works, reinforcement shall be protected from corrosion as specified by the Architect.

B.9 FORMWORK

B.9.1 Design

Formwork shall be so designed and constructed that the concrete can be properly placed and compacted and that the required shapes, positions, levels and dimensions shown on the working drawings are maintained, subject to the tolerances given in table 3.

The formwork and joints shall be capable of resisting the dead load, pressure of the wet concrete, wind forces and all other superimposed loads and forces.

NOTE: Wedges and clamps shall be used in preference to nails. Tie rods are preferable wire ties. Special care shall be taken if the concrete is to be compacted by vibration.

TABLE 3: COVER TO REINFORCEMENT

	POSITION OF FORMWORK	Tolerance/mm
1	Depths of slabs and thickness of walls two adjacent bars	+/-5
2	Cross-sectional dimensions of beams, ribs and columns a) Dimensions up to 500mm b) Larger dimensions: for each additional 250mm (or part thereof) add to tolerance	+/-5 3
3	Variation from plumb of columns: a) Height up to 4.50m b) Greater height: for each additional 3m (or part thereof) add to tolerances	+/-5 3
4	Footings: on width and depth	+25 -10

Joints in forms shall be tight enough to prevent leakage of cement paste.

B.9.2 Finish

The quality of the finished surface of the concrete shall be as shown on the working drawings or as otherwise specified and the type of formwork used shall be adequate to provide such finishes.

B.9.3 Ties

The type of ties used and their position shall be such that the finish required is achieved and is not marred by subsequent corrosion.

B.9.4 Preparation Of Formwork

Surfaces that are to be in contact with fresh (wet) concrete shall be so treated (by coating with approved non staining mineral oil or other material or, in the case of timber forms, by thoroughly wetting the surfaces) as to ensure easy release and non-adhesion to formwork during stripping.

If any substance other than what is used, every precaution shall be taken to avoid contamination of the reinforcement.

B.9.5 Re-use Of Formwork

Before re-use all formwork shall be re-conditioned, and all form surfaces that are to be in contact with the concrete shall be thoroughly cleaned without unduly damaging the surfaces of the formwork.

B.9.6 Openings

Where necessary for the proper placing of the concrete, temporary openings for cleaning, inspection, or placing purposes shall be provided.

B.9.7 Removal Of Formwork

Formwork shall not be removed before the concrete has attained sufficient strength to support its own mass and any loads that may be imposed on it. This condition shall be assumed to require the formwork to remain in place, after placing the concrete, for the appropriate minimum period of time given in table 4, unless the Contractor can prove to the satisfaction of the Architect that shorter periods are sufficient to fulfill this condition. In such a case the formwork may be removed after agreed shorter periods of time.

Formwork shall be removed carefully so that shock and damage to the concrete are avoided.

The weather condition that prevail are those where the temperature of the atmosphere adjacent to the concrete surface, measure with a maximum and minimum thermometer, are within the appropriate limits.

TABLE 4: REMOVAL OF FORMWORK : MINIMUM TIMES IN DAYS

1		2	3	4
Type of Structural Member or Formwork		Type of cement used		
		Portland cement		
		Normal Weather Above 18°C	Cool Weather *10 -18°C	Cold Weather *5 - 10°C
1	Beam sides, walls and unloaded columns	3	3	4
2	Slabs with props left under	4	6	7
3	Beam soffits with props left under and ribs of a ribbed floor construction	7	10	12
4	Slab props	10	14	17
5	Beam props	14	21	28

*Shorter periods may be used for sections of thickness at least 300 mm.

B.10 CONCRETE QUALITY

B.10.1 General

The types of aggregates and cement and their sources of supply shall not be altered during the currency of the contract without the prior written agreement of or instruction from the Architect.

The specified characteristics strength of the concrete shall be that value of strength below which not more than ten percent of the results are permitted to fall.

B.10.2 Design Mixes

The Contractor shall obtain from the Portland Cement Institute design mixes for the required classes of concrete and shall provide on site concrete in accordance with these mixes if specified.

The Contractor is to pay all charges in connection therewith and is to submit the mixes to the Architect one week before concreting starts on site.

B.10.3 Concrete

The Contractor shall provide on the site, concrete of the specified materials and in the proportion given in Table 6 if specified.

TABLE 6

1	2	3	4	5	6	7
Concrete Class	Max. size of stone mm	Max. Proportions				Specified Characteristics 28 - day Strength /Mpa
		Cement sk	Sand (dry) m ³	Stone (dry) m ³	Gross Water l	
10	40	1	0.14	0.20	46	10
	20	1	0.14	0.16		
15	40	1	0.11	0.17	38.5	15
	20	1	0.11	0.14		
20	40	1	0.09	0.15	32	20
	20	1	0.09	0.12		
25	20	1	0.07	0.10	27.5	25
30	20	1	0.06	0.09	25	30

Consistency and Workability: The concrete shall be of such workability that it can readily be compacted into corners of the formwork and around reinforcement without segregation of the materials or "excessive" bleeding of free water at the surface.

B.11 MEASURING AND MIXING OF MATERIALS

B.11.1 Measuring Of Materials

B.11.1.1 Cement

Cement supplied in standard sacks shall be assumed to contain 50 kg. All cement taken from bulk storage containers and from partially used sacks shall be batched by mass, the weighing device having accuracy within two percent of the mass of cement required for the batch.

B.11.1.2 Water

Mixing water for each batch shall be measured either by mass or by volume to an accuracy of within three percent.

B.11.1.3 Aggregates

If batching is by mass each size of aggregate shall be weighed. Weighing devices shall be maintained in good order and shall have an accuracy of within three percent. If batching is by volume the fine and the coarse aggregates shall be measured separately in suitable measuring boxes of such capacity that the quantities of aggregates for each batch are gauged into the mixer.

Batching boxes shall be filled without tamping, ramming, or consolidating of any kind (or other than that occurring naturally during the filling process) and shall be screeded off level with their topmost edges. Any adjustment of the volume shall be made by supplementary

containers of suitable size. Adjustment by the incomplete filling of the batching boxes to marks on their inside faces shall not be permitted.

Fine aggregate shall be tested for bulking at the beginning of and halfway through each concreting shift and adjustment shall be made to the batch volume to give the true volume required.

The Architect shall be permitted to arrange for additional tests for batching after rainfall or other causes of variation of moisture content of the aggregate.

B.11.2 Mixing

B.11.2.1 General

Mixing of material for concrete shall be conducted by an experienced operator. Unless otherwise approved, mixing shall be carried out in a mechanical batch mixer of approved type and capable of producing a uniform distribution of ingredients throughout the batch.

B.11.2.2 Charging The Mixer

The sequence of charging shall be approved and, unless otherwise instructed, the same sequence shall be maintained.

The volume of the mixed material per batch shall not exceed manufacturer's rated capacity of the mixer.

B.11.2.3 Mixing And Discharge

The period of mixing shall be measured from the time when all the materials are in the commencement of discharge. This period shall be at least 11½ minutes for each batch of 1.5 m³ or less, and shall be increased by 20 seconds for each additional cubic metre or fraction thereof. During this period the drum shall be rotated at the speed recommended by the manufacturer of the mixer.

Discharge shall be so carried out that there is no segregation of the materials in the mix. The mixer shall be emptied completely before it is recharged.

B.11.2.4 Maintenance And Cleaning Of The Mixer

If the mixer has stopped running for any period in excess of 30 minutes it shall be thoroughly cleaned out, particular attention being paid to the removal of any build-up of materials in the drum, in the loader and around the blades or paddles. Worn or bent blades and paddles shall be replaced.

Before any concrete is mixed, the inner surfaces of the mixer shall be cleaned and all hardened concrete shall be removed.

B12. TRANSPORTING AND PLACING

B.12.1 Transporting

Mixed concrete shall be discharged from the mixer and transported to its final position in such a manner that segregation, loss of ingredients and adulteration are prevented and that the mix is of the required workability at the point and time of placing.

B.12.2 Placing

The Contractor shall give the Architect at least 24 hours notice of his intention to place the concrete. The concrete shall be placed within one hour from the time of discharge from the mixer and retempering by the addition of water or other material shall not be allowed. The forms to be filled shall be clean internally. All excavations and other contact surfaces of an absorbent nature shall be left damp, but no free water shall be permitted to remain on these surfaces.

Wherever possible, the concrete shall be deposited vertically into its final position (so as to avoid segregation or displacement of reinforcement and other imbedded items).

The working of deposited concrete (whether by means of vibrators or otherwise) to cause it to flow laterally shall be prohibited. The concrete shall be brought up in horizontal layers of compacted thickness not exceeding +/- 50 mm and 'heaping' shall be avoided.

Where chutes are used to convey the concrete, their slopes shall be as not to cause segregation and suitable spouts or baffles shall be provided for the discharge of the concrete.

Concrete shall not be allowed to fall freely through a height of more than 1.5 m and it shall not be placed in water (standing or running) unless so approved.

B.12.3 Compaction

The concrete shall be fully compacted by approved means during and immediately after placing. It shall be thoroughly worked against the formwork and around reinforcement and other embedded fittings without displacing them.

The concrete shall be free from honey-combing and planes of weaknesses. Successive layers of the same lift shall be thoroughly worked together.

Compaction shall be carried out by mechanical vibration or (if approved by spading, rodding, or forking. Over-vibration resulting in segregation, surface laitance or leakage (or any combination of these shall not be allowed).

B.12.4 Construction Joints

Concreting shall be carried out continuously up to the construction joints shown on the working drawing or as approved, except that if, because of an emergency (such as a breakdown of the mixing plant or the occurrence of unsuitable weather) concreting has to be interrupted, a construction joint shall be formed at the place of stoppage in the manner which will least impair the durability, appearance and proper functioning of the concrete. The Architect shall approve the method adopted for forming the construction joints, one of the following methods being adopted, as relevant:

- (a) Construction joints when concrete is less than 3 days old. The surface of the concrete shall be brushed with a steel wire brush or sandblasted, swept clean and thoroughly wetted and covered with a 10mm thick layer of mortar composed of cement and sand in the concrete mixture. This mortar shall be freshly mixed and placed immediately before the placing of new concrete.

B.12.5 Curing and Protection

Formwork shall be retained in position for the appropriate period and, as soon as it is practicable in the opinion of the Architect, all concrete shall be protected from contamination and loss of moisture by one or more of the following methods:-

- (a) Ponding the exposed surfaces by means of water, except where atmosphere temperatures are low, i.e. less than 5^oC;
- (b) Covering with sand, sawdust, or mats made of a moisture retaining material and keeping the covering continuously wet;
- (c) Continuous spraying of the exposed surface with water;
- (d) Covering with a waterproof or plastic sheeting firmly anchored at the edges;
- (e) Using an approved curing compound applied in accordance with the manufacturer's instructions.

Whatever method of curing is adopted, its application shall not cause staining, contamination, or marring of the surface of the concrete.

The curing period shall be at least 5 days for concrete made with Portland cement. When atmospheric temperatures are below 5^oC minimum curing period shall be extended by 72 hours.

B.13 ADVERSE WEATHER CONDITIONS

B.13.1 Cold Weather

When the surrounding atmospheric temperature falls below 5^oC, effective measures shall be taken to ensure that the temperature of the concrete from the time of placing until it has hardened to the approval of the Architect is maintained at 10 - 25^oC. All surfaces shall be protected from ice or frost damage.

B.13.2 Hot weather

When the surrounding atmospheric temperature is over 32^oC, the temperature of the concrete when disposed shall not be allowed to exceed this figure. Stock piles of aggregates and all metal contact surfaces shall be shielded from the direct rays of the sun or cooled by spraying with water when the concrete temperature exceeds 24^oC. The concrete temperature shall not be more than 6^oC above the ambient air temperature when this is 21^o

B.14 CONSTRUCTION DETAILS

B.14.1 Holes, Chases and Fixing Blocks

No holes or chases other than those shown on the working drawings or approved by the Architect shall be cut or otherwise formed in the concrete.

No blocks for the attachment of fixtures shall be embedded in the concrete unless approved by the Architect.

B.14.2 Piping and Conduits

No pipes or conduits other than those shown on the working drawings shall be embedded in the concrete without approval. The clear space between any such pipes and the clear distance between such a pipe and any reinforcement shall be at least 40mm or the maximum size of the course aggregate plus 5mm, whichever is greater. The amount of concrete cover over pipes and fittings shall be at least 25mm.

B.14.3 Patching

After removal of the forms, if the concrete shows any serious defect, the Contractor shall, on instruction from the Architect, remove all defective concrete and replace it (at his own cost) to the satisfaction of the Architect. No patching shall be carried out by the Contractor without the prior approval of the Architect.

B.14.4 Sampling

The Architect shall have free access to the work for the selection of samples for carrying out test. The Contractor shall render any assistance necessary for the taking of the samples and for the carrying out of the tests. If so required, the Contractor shall provide storage and protection for such samples on the site.

B.14.5 Tests

Where the Architect requires the concrete to be tested, the Contractor is to provide moulds for and make concrete cubes and have them tested in accordance with B.S. 1881.

The cost of the tests shall be borne as follows:-

- i) By the Client if the results show that the cubes comply with the specification;
- ii) By the Contractor if the results show that the cubes do not comply with the specification. In this case, the contractor will bear the cost of the re-test.

A group of at least three test cubes shall be made from each sample of concrete. Each group of test cubes shall be deemed to represent the whole of the concrete from which the sample was taken and shall be identifiable with the concrete.

The Contractor shall provide at least 3 moulds and, if so required by the Architect, additional moulds shall be provided at agreed rates.

The Contractor shall bear the cost of such tests (including load tests) as may, in the opinion of the Architect, be made necessary by failure on the part of the Contractor to meet the requirements of the specification.

B.14.6 Determination of Consistency

When the slump tests are used to measure the consistency of the concrete mix, they shall be carried out by the method given in SABS 878.

B.15 BULKING OF FINE AGGREGATES

B.15.1 Equipment

A leak-proof container of uniform cross-section, similar to the gauge box used for batching of fine aggregate and having a capacity of at least 15 litres and a height of at least 250mm.

B.15.2 Procedure

Fill the container to overflowing with fine aggregate from the stockpiles. Strike off the contents level with the top of the container. (Any additional handling of the sand during these operations will alter the apparent bulking considerably).

Discharge the fine aggregate into another vessel from which it can be conveniently returned into the container. Half fill the container with water and re-introduce the aggregate, pouring it steadily from a level not more than 75mm above the rim of the container. Allow the fine aggregate to settle for one minute in the water.

Measure, to the nearest 5mm the level of surface of the mixture below the rim of the container at not less than five points and determine the average depth below the rim. Calculate the bulking, as a percentage of the density of the consolidated dry sand, from the following formula and record the bulking to the nearest multiple of 5 percent.

$$\text{Percentage bulking} = \frac{d}{D-d} \times 100$$

where d= average depth of the sand below the rim of the container, mm
D= depth of the container, mm

B.16 ENFORCEMENT OF REQUIREMENTS

B.16.1 Failure

Concrete from which test cubes have been prepared shall be considered as having failed to meet the specification if the average compressive strengths Each calculated from the results of tests on at least three cubes) at the age(s) specified , is less than the appropriate values given in Column 2, Table 7.If in calculating an average strength it is found that the difference between the highest and the lowest individual cube strengths exceeds 20 percent of the average strength of the three cubes , the result shall be discarded.

TABLE 7: COMPRESSIVE STRENGTH

1	2
Number of consecutive tests within 28 days on any one class of concrete	Percentage of specified minimum strength
1	82
2	88
3	95
4	98
5 or more	100

B.16.2 Procedure in the Event of Failure

If the concrete is considered by the Architect to have failed to comply with the specification, the Architect shall have the right to require that any of the following measures be taken by, and at the cost of the Contractor:

- a) The materials or proportions of the mixture shall be changed.
- b) The periods of time given for removal of formwork shall be extended (provided that the extensions shall not exceed the periods given by more than 28 days) until such time as cores, drilled from the portions of the structure containing the concrete that failed and tested in accordance with the method described in the South African Standard Building Regulations.

If the load tests are in the opinion of the Architect impracticable or, if a tested portion of the structure fails to pass the tests, the Contractor shall, on the instructions of the Architect, replace or strengthen by approved means each portion that failed or that contains concrete that failed, as relevant.

B.16.3 Direct Off-Shutter Finishes

Concrete surfaces off rot timber or steel shuttering will receive no further finishes. These surfaces are to be finished smooth and true. Honeycomb surfaces shall be made good immediately upon removal of the shuttering and superficial water and air holes shall be filled in.

The face of exposed concrete placed against shuttering shall, after removal of the shuttering, be rubbed with carborundum stone with cement grout lubricant or similar to remove fins or other irregularities and to remove sharp arisses at door openings, passageways and risers of steps.

B.16.4 Concrete Slabs trowelled up in One Operation

These slabs are to be steel trowelled smooth by manual or mechanical means while green, fines being added as required.

The slabs are to finish perfectly level. If required by the Architect, the level will be tested by flooding the slabs with water. The maximum tolerance allowed for a depression or elevation will be 5mm.

After trowelling is completed, slabs are to be covered up, protected from injury and washed down with clean water on completion of the works.

C - BRICKWORK

C.1 Cement

Cement is to be described under 'Concrete, Formwork'.

C.2 Sands for Reinforced Brickwork Mortars

Where no design mortar mix is specified, the Contractor shall supply fine sand to comply with CAS.34 but the grading shall be within the limits given below.

(Extract from BS. 1209)

Percentage by mass passing

<u>B.S. Sieve</u> <u>(Micro-metres)</u>	<u>Sands for Reinforced</u> <u>Brickwork Mortars</u>
4 750	100
2 360	90 - 100
1 180	70 - 100
600	40 - 80
300	5 - 40
150	0 - 1

C.2.1 Mortar Mix Proportions

The cement mortar unless otherwise described shall be composed of six parts by volume of sand to one part by volume of cement to give a minimum 28 day strength of 5 Mpa.

C.2.2 Mixing Mortar

The mortar is to be hand mixed on a clean, close jointed, non-absorbent and level platform, care being taken that no foreign matter is mixed with it.

Gauge boxes are to be used for measuring all ingredients that are to be strike measured and not tamped down.

Materials are to be first mixed dry until they are properly incorporated and then the water is to be added slowly through a rose spray and not dashed on with a bucket.

Mortars may be mixed in an approved mixing machine provided the length of time for each batch is at least three minutes or such time as directed by the Architect. At the conclusion

of the day's work, all mortar boards and mixing platforms must be cleaned and any mortar left over must be thrown away.

The mortar is to be mixed in small quantities and must be used within one hour of mixing and no mortar that has commenced to set will be allowed to be used. Retempering of mortar will not be allowed.

C.3 Brickwork, including Clay Blockwork

The brickwork, unless otherwise described is to be built in Stretcher Bond. Half brick walls to be built in Stretcher Bond. All bricks are to be wetted and built to gauge rod. No false headers are to be used and none but whole bricks except where legitimately required for bond. The course of bricks last laid is to be well wetted again before bedding another course upon it. All joints both horizontal and vertical are to be flushed up and grouted solid at every course throughout the whole wall width. All angles and perpends must be plumb unless otherwise shown. The joints on faces of all walls to be plastered must be raked out as the work proceeds to form a key.

All walls are to be carried up evenly so that no part be built more than 1,25m higher than the adjoining walls and no wall be carried up more than one scaffold height in one day.

Vertical and horizontal mortar joints are not to exceed 14mm in thickness or be less than 10mm and shall average 12mm.

Where clay blocks are used, walls can be built up independently, except at external corners, where there should be full masonry bond. In such cases, ties must consist of strips of approved expanded metal, or of brick reinforcing mesh made up of wires not less than 4mm in diameter and consisting of at least two longitudinal wires. Such strips should be at least 450mm long and placed in every other course.

C.4 Clay Bricks and Blocks

Clay bricks and blocks shall comply with CAS A.35.1968 except where amended here under.

Blocks shall be Type W1 but of facing grade with an average percentage water absorption by weight after 24 hours immersion in cold water not exceeding 11.

Bricks and blocks shall be obtained from approved manufacturers. or a Client Contract.

C.4.1 Samples of Clay Bricks and Blocks

From the first load of each kind of brick or block delivered at the site two bricks or blocks are to be taken as a sample and submitted to and approved by the Architect, before any bricks or blocks are laid. The bricks and blocks in any and all subsequent deliveries must be similar to and conform to the approved samples in every respect. Any bricks or blocks not conforming to the approved samples are to be rejected and removed from the site.

C.4.2 Test on Clay Bricks or Blocks Before the Start of the Contract

The Contractor is to submit 10 clay blocks or 20 clay bricks for compressive strength and water absorption tests in accordance with CAS A.35:1968 to the Portland Cement Institute, pay all charges in connection therewith and notify the Architect of the results.

C.4.3 Tests on Clay Bricks or Blocks During the Course of the Contract

Where the Architect requires tests to be done, the Contractor is to supply free of charge the required bricks or blocks in accordance with CAS A.35: 1968.

The costs of the tests shall be borne as follows:-

- (i) By the Client if the results show that the bricks or blocks comply with the Specification.
- (ii) By the Contractor, if the results show that the bricks or blocks do not comply with the Specification. In this case, the Contractor will also bear the cost of re-test.

C.5 Finish to Brickwork, Including Clay Blockwork

Special care is to be taken to avoid soiling the face brickwork or blockwork by mortar droppings and all face brickwork or blockwork is to be kept clean as it is produced with. Any mortar droppings falling on faces are to be immediately wiped off and the surfaces cleaned with water.

The brickwork or blockwork where described as pointed is to be finished with horizontal and vertical hollow struck joints using a 9mm diameter rod and cleaned down on completion with a solution of spirits of salts and water and firmly washed down in clean water. Damp-proofing materials shall comply with CAS A.25:1972 as amended.

D – ROOF COVERINGS

D.1 Roof Coverings

All coverings are to be laid or fixed in accordance with the manufacturer's recommended fixing instructions and details to the satisfaction of the Architect, whether these instructions, etc. are supplied with the articles or not. Rates are to include for all recommended mitres, laps, etc. as necessary and recommended nails, screws, bolts, washers, etc.

E - JOINERY AND IRONMONGERY

E.1 Timber

All timber is to be of the best quality procurable, well-seasoned, free from sap, large loose or dead knots, shakes, waney edges or other defects.

Timber is to be sawn die square and is to hold the full size specified when sawn.

All timber for carpentry work is to be in as long lengths as possible and all laps and joints are to be placed over points of support.

All timber is measured nett as fixed in the building and prices are to include for all cutting and waste, laps halving, scarving, etc. and for fixing nails and spikes. All nails and spikes are to be well clinched.

Softwood for carpentry work is to be laminated Zimbabwe Pine. Moisture content 12% maximum.

Softwood for joinery work, unless otherwise specified, is to be Zimbabwean Pine to CAS. 03: 1972 but merchantable Grade of density 450kg/m³. Moisture content 12% maximum.

Timber is to be purchased and all joinery work is to be put in hand as soon as possible after signing the contract and framed up and allowed to stand as long as possible before gluing up. Tongues and grooves and other joinery faces that are fitted but not glued together shall be coated with primer on softwoods and varnish or sealer on hardboards before assembly.

No joinery is to be primed before inspection by the Architect.

E.2 Wrot Face and Angles

Exposed woodwork, unless otherwise specified, is to be wrot to a smooth surface free from machine or other tool marks.

For each wrot 1,5mm will be allowed off specified sizes.

The term "angle-rounded" denotes anything from 3mm to 9mm radius and includes for mitres, stops, etc.

The term "arris-rounded" denotes that the sharp angles are to be slightly rounded only and that no mitring is required.

Building Boards shall comply as follows: -

(a) Plywood and composite board: CAS 130: 1975

(b) Chipboard: CAS 013: 1969

Doors shall comply as follows: -

Wooden doors: CAS 184: 1976

E.3 Ironmongery

All ironmongery is to be approved and samples submitted to the Architect.

The rates for ironmongery are to include for fixing, with screws to match, to hardwood or softwood and for oiling and easing at completion as recommended by the manufacturers.

The Contractor shall, at an early stage, arrange for approval of all ironmongery to be fitted to steel door frames, etc. so that provision may be made by the manufacturers for the correct fitting of lock striking plates, hinges, bolt keeps, cleat hooks, etc.

F – METALWORK

- F.1 Rates for steel & Ironwork are to include for additional mass due to irregularity of the rolling margin.
- F.2 Welding shall comply with BS.938 (1956) and amendments and rates shall include for having welds ground or filed off smooth and even without blemishes and for welding on site.
- F.3 Pressed Steel Door Frames shall comply with CAS A.36: 1969 as amended, unless otherwise specified.
- Each frame is to have eight lugs per frame welded on, the bottom lug one course of brick or blockwork above floor level.
- F.4 Steel Windows shall comply with BS. 900 and amendments complete with zinc alloy, handles and peg stays and narrow flange outer frames.

G – PLASTERING AND WALL LININGS

G.1 Plastering Generally

The preparation for materials and plastering generally shall follow the recommendations of CAS CA.3: 1963 and CA.5: 1964 and amendments and may be adapted and varied as necessary with the Architect's approval to suit local conditions and local materials.

- G.1.1 External Cement Plaster shall be composed of six parts by volume of sand and one part by volume of cement gauged with 10% putty plaster and finely wood-floated smooth.

The cement plaster is to be mixed in small quantities and must be used within one hour of mixing, as no rendering that has commenced to set will be allowed to be used.

Re-tempering will not be allowed.

G.1.2 Internal Cement Plaster

The plaster shall be as described for external cement plaster.

- G.1.3 Gauge Boxes are to be used for measuring all materials, which are to be strike measured and not tamped down.

G.1.4 Thickness

The plaster on walls is not to be less than 13mm or more than 20mm in thickness and the plaster on concrete soffits and beams is not to be less than 9mm or more than 15mm in thickness, unless otherwise described.

G.1.5 Wetting

All brickwork and concrete surfaces are to be well soaked with water before plastering. All cement plaster shall be kept wet for at least seven days after being executed.

G.1.6 Prices

Prices for plaster are to include for raking out joints of brickwork or hacking face of concrete to form key and for pencil coves at junction of all wall and soffits, etc. planes.

G.2 Glazed Wall Tiling

Wall tiles shall comply with CAS.103:1974. Tiles to be bedded solidly without voids on and including a cement and sand (1:3) screed not less than 15mm thick, laid to a true and even surface, set out with straight and continuous horizontal and vertical joints not less than 2mm wide and pointed with approved white cement all in accordance with the manufacturer's instructions.

H – PAVING, ETC

H.1 Topping is to consist of three parts of approved river sand and to one part of cement.

Where granolithic is specified as tinted, best quality pigment is to be added at the floating up stage as necessary to the finishing coat, thoroughly mixed in dry with the cement to ensure even distribution of the colour.

All topping is to be adequately cured and covered up and protected from injury and discolouration during the progress of the works.

H.2 Precast Concrete Paving Slabs shall comply with CAS. 104: 1974.

The top surface of the concrete surface beds where shown are to be steel trowelled smooth whilst the concrete is still green, including the addition of fines as necessary, covering up and protecting from injury and washing down with clean water on completion.

J – PLUMBING AND DRAINLAYING

J.1 By-Laws. All work is to conform to the relevant By-Laws, for Drainage and Sewerage ruling at the time of carrying out the works.

All drainlaying is to be supervised by a licensed drainlayer. All plumbing work is to be done by licensed plumbers. Copies of licences to be provided to Architects.

J.2 Cast Iron Pipes

Cast iron pipes and fittings are to conform to BS.416:1967 or SABS equivalents.

J.3 Stoneware Pipes and Fittings

These are to comply with the requirements of CAS a.16:1973

J.4 Galvanised Steel Pipes and Fittings

Galvanised steel pipes and fittings are to be medium quality and to conform to CAS 102: 1974.

J.5 Concrete Pipes (Non-pressure) shall comply with CAS A. 17: 1973

J.5.1 Concrete Pipe Fittings Including Manholes and Inspection Covers:

Shall comply with CAS. A.29: 1968

J.6 Rubber Joint Rings For Drainage Purposes:

Shall comply with CAS A.38: 1969

J.7 Asbestos Cement Drainage Pipes:

Shall comply with CAS. 113:1974.

J.8 Cast Iron Fittings for Asbestos Cement Pressure Pipes:

Shall comply with CAS. 141:1975

J.9 Cast Iron Gate Valves:

Shall comply with CAS. 149:1975.

J.10 Ceramic Wash Down W.C. Pans:

Shall comply with BS. 1213:1945

J.11 Cisterns and Flush Pipes

Cisterns shall be low-level type of 14 litre capacity, the body of pressed steel, or other approved material with approved flushing mechanism, fitted with inlet and overflow connections and brackets for fixing to wall.

P.V.C. flush pipes are to be securely fixed to wall with one holderbat or saddle to each type.

J.12 Samples of sanitary fittings the contractor intends to install must be submitted for approval before the order is placed.

J.13 Size of Pipes

The internal diameter of all pipes traps, etc. is to be taken as the size of the pipe, trap, etc.

J.14 Tapes and Stop Valves

These are to conform to BS. 1010 or equivalent specification.

J.15 Trenches

The bottom of the trenches shall be excavated to even falls and the barrels of the pipes shall rest on solid ground (except where encased in concrete) and manholes shall be cut around joints of sufficient size to enable the jointing and filleting to be properly performed. Any excavation taken out too deep shall be made up with cement concrete class 10 at the contractor's expense. Carefully fill and pack with soft loose soil around and 610mm above pipes. The trenches are to be filled in layers not exceeding 300mm thick and no ramming is to be done until pipes have been covered to a depth of 610mm. Fill in and consolidate the trenches to ground level.

No drains, joints or connections are to be covered in or encased in concrete until they have been approved. The trenches for water supply pipes shall be excavated to even falls to a depth providing for not less than 460mm cover to pipes.

J.16 Pumping

The Contractor shall provide all necessary pumps and tackle and do all necessary pumping and baling to keep the trenches dry and free from water or other liquid.

J.17 Clearing away

All rubbish arising from the drainage works and all surplus material from the excavations except such as is required for filling is to be cleared away.

J.18 Pipelaying etc.

All stone ware pipes and fittings are to be accurately laid closely fitted together and joined with gaskin and cement mortar composed of one part cement and one part of fine washed sand well rammed in and finished with smooth well trowelled fillets. All joints are to be wiped clean inside.

After the drains are laid, an interval of four days or other period as may be ordered shall elapse before testing, so as to allow sufficient time for the joints to set.

Pipes jointed with rubber rings will be accepted, provided no extra cost is involved.

Where the cover to pipes is less than 380mm, the trench is to be excavated to give a depth equal to the diameter of the pipe below the pipe. The trench is to be backfilled with 15mm crushed stone to a level equal to the pipe diameter above the pipe.

The trench above the crushed stone is to be widened out 115mm on both sides and a 50mm thick Class15 concrete slab laid across the trench.

K – GLAZING

K.1 Clear Glass

Unless otherwise specified to be "O.Q." quality, of the various weights and/or thickness mentioned, free from bubbles, waviness, scratches and other imperfections and to be cut in panes to suit all glazed openings required, with sufficient clearance all round to prevent cracking by expansion or contraction, vibration etc.

K.2 Obscure glass

To be "Common Obscured" glass unless otherwise specified, free from scratches or other imperfections.

K.3 All Glass Broken before handing over the premises for occupation is to be replaced and surfaces made good by the contractor.

K.4 Putty

All glass, unless otherwise specified is to be properly bedded, puttied and back puttied in glaziers' putty to CAS A.24:1967.

Putty used in metal opening is to be Metal Window Glazing Compound.

Putty is to be neatly finished and show 3mm back putty with straight edges, smooth surfaces, sharp mitres etc. All soft or oily putty is to be replaced.

L - PAINTING

L.1 Materials

All paints, distempers, oil stains, varnish, linseed oil, knotting driers etc. are to be of best quality, are to comply with current C.A. Standards and be to the approval of the Architect.

The materials must be brought into the site in unopened tins or drums bearing the name or mark of the manufacturer and must be used strictly in accordance with the directions and recommendations of the manufacturer.

No paints are to be thinned or otherwise adulterated and no mixing of paints to obtain special tints may be done, unless otherwise specifically directed or sanctioned by the Architect.

The priming coats and/or successive coats of paint must all be of the same brand and no paints of different manufacture may be used together.

All materials and workmanship will be subject to inspection and or analysis by the manufacturer's Representative or any other person appointed by the Architect.

L.2 Colours

All colours and tints used throughout the work are to be selected and/or approved by the Architect before painting of description is commenced. Each coat is to be of a distinctive colour.

L.3 Coats of Paint

Every coat must be a good covering coat, applied by brush and, if the work is not sufficiently covered with the number of coats specified, the contractor will be required to apply further coats at his own expense. Unless otherwise specified, the last coat of paint or finishing is to be done when all other work in the contract is entirely completed and the premises free from dirt and rubbish.

L.4 PREPARATORY WORK

L.4.1 Generally

All plaster, metal, wood and other surfaces which are to receive finishes of paint, lacquer, stain, oil distemper, whitewash or paintwork of any description are to be carefully inspected by the Painter Sub-Contractor or his principal, who must satisfy himself that such surfaces

are in a fit state to take the paintwork, specified, before he allows any of his painters to commence work. The Contractor through the painting sub-contractor, will be held solely responsible for all defective work condemned as a result of the painter's failure strictly to insist on receiving from the other trades surfaces in proper condition to allow for first class finishes of the various kinds specified being applied to them.

Previous to commencing paintwork of any description and before each coat is applied; surfaces are to be rubbed down. All coats must be applied by brush.

L.4.2 On plaster

All plasterwork to be painted must be washed down twice at intervals with clean water to remove all traces of efflorescence. This washing down is to be done before floor finishes are laid, unless otherwise specified.

Before commencing paintwork, ensure that plastered surfaces are perfectly dry and free from alkalinity.

L.4.3 On Iron

All metal to be painted shall be scraped and cleaned of all dust, rust and other surface encrustations and left smooth.

Where zinc chromate primer is specified, the primer is to be thoroughly brushed out (NOT THINNED OUT).

L.4.4 On Wood

All wood surfaces to be painted shall be properly knotted with best quality knotting, stopped after priming and rubbed down with glass paper.

Where necessary, wood surfaces are to be knife filled.

All wood surfaces to be stained or oiled only, must have all plaster stains, pencil marks and other surface discolourations and blemishes removed, must be stopped with tinted stopping to match final stain colour and be rubbed down to a smooth and perfectly clean surface with glass paper.

Dressed timber is to contain not more than 12% moisture.

Doors furniture is to be removed before painting. Top and bottom edges of doors are to be painted with one coat primer and one coat chlorinated rubber paint after final fitting.

L.4.5 Generally

No oil painting is to be done externally under cold misty conditions when there is a superfluity of moisture in the air or under windy and dusty conditions.

Finished surfaces are to be reasonably free from brush marks to the satisfaction of the Architect.

Clean all glass, remove all paint spots on the floors and other surfaces and leave all paintwork perfect on completion.

Clean away dirt, rubbish and superfluous material as it accumulates and keep floors swept clean when painting is done.

The rates for paintwork are to include for providing sample panels, for working to a colour scheme and for different colours, shades, etc. in different rooms and/or in the same room for the application of the darker shades as well as pastel shades and for all cutting in, except to different colours, shades etc on the same plane surface where "cutting in" will be measured.

M. - WORKS ON SITE, DEMOLITIONS, ETC

M.1 DESCRIPTION AND PREAMBLES

Reference shall be made to other trade and preambles for preambles and full descriptions of items not fully described in this section that shall apply equally to the work in this section, unless otherwise described. Rates will be deemed to include the following provisions unless otherwise described.

M.2 MATERIALS FROM THE WORKS

Materials arising from the demolitions or alterations (except where described as to be handed to the Employer or to be re-used in the case of alterations) will become the property of the Contractor, who may allow credit in respect thereof where provided for in the bills of quantities.

Materials described as "handed to the Employer" shall be carefully dismantled where necessary, neatly stored under cover on site where directed and protected from damage, until required.

M.3 DISPOSAL OF DEBRIS, ETC.

The Contractor shall be responsible for the removal from the site of all materials, debris and rubbish resulting from the demolitions or alterations.

M.4 DUST

The Contractor shall take all precautions necessary to prevent any nuisance from dust whilst carrying out the work.

M.5 DEMOLITIONS

M.5.1 General

Prior to any demolition work commencing the contractor shall obtain all necessary permits, examine all available plans of the buildings or structures to be demolished, and carry out a thorough survey and examination and report any bench marks or other survey information found, which should not be destroyed unless instructed; locate and mark the position of services affected by demolition work and arrange with the appropriate authority for the documentation of services and removal of their fittings and equipment.

No claim based on want of the knowledge of the existing building or structure to be demolished will be entertained.

M.5.2 Scope of Demolitions

Unless otherwise specified demolition of a building or structure shall be deemed to include breaking up and removal of the lowest floor slab (including basement floor slabs) and grubbing up and removal of all foundations.

M.5.3 Fumigation

If required by the Local Authority the existing buildings to be demolished are to be fumigated.

M.5.4 Precautionary Measures

Adequate support and protection must be provided to properties abutting demolitions at all stages and foundations of such properties must not be disturbed. The Architect shall be given notice to inspect precautionary measures at all stages.

During demolitions care shall be taken to prevent accumulated debris from overloading any part of the structure. Dangerous openings shall be illuminated and protected and access by unauthorized person shall be prevented.

Dust shall be controlled to satisfaction of the Architect by spraying with water during demolition works.

When tanks and pipes which may have contained flammable liquids or gases from part of the demolition works then the Contractor shall inform the relevant Local Authority and comply with their requirements in addition to displaying "danger" and 'smoking and naked lights prohibited' notices; using non-ferrous tools and equipment and having available an ample supply of water to reduce risk of sparking; emptying and disposing of all liquids and gases remaining in a safe and controlled manner ensuring that none enters any drainage system or water course; clearing tanks and pipes and rendering inert and taking all necessary precautions to prevent fire or explosion caused by gas or vapour.

M.6 ALTERATIONS

M.6.1 General

In taking down and removing existing work the utmost care shall be observed to prevent any structural or other damage to remaining portions of the building, and the Contractor shall provide all shoring, needling, strutting, etc. to ensure the stability of all structures during alteration work.

Special care shall be exercised during the progress of the work to ensure that any electrical installations, water supply pipes, telephone and other services which may be encountered

are not interfered with and notice shall be given to the Architect if any disconnections or alterations become necessary.

M.6.2 Materials from the Alterations

Materials recovered from the alterations shall not be re-used in new work written permission from the Architect.

Materials described as “removed” shall be removed from the site immediately.

Materials described as “set aside for re-use” shall be carefully dismantled where necessary, cleaned, neatly stored under cover and protected from damage until required for re-use. Any damage caused to such materials during removal, storage or refixing shall be made good at the Contractor’s expense.

M.6.3 Making Good Damage Work

The Contractor shall make good in all trades to existing work where damage or disturbed through the alterations with all necessary new materials to match the existing.

M.6.4 Forming New Openings or Altering Openings in Existing Walls

Descriptions of forming new openings or altering openings in existing walls shall be deemed to include breaking out for and forming new brick, in-situ concrete or prestressed concrete lintels including all reinforcement, formwork turning pieces, etc. building up jambs or portions of openings as described with brickwork or blockwork properly toothed and bonded to existing, building cavities of hollow walls solid where necessary and making good finishes all round on both sides and into reveals as described.

M.6.5 Building up Openings

Descriptions of building up existing openings where given in number shall be deemed to include preparing existing surfaces all round, brickwork or blockwork properly toothed and bonded to existing, wedging up and making good finishes on both sides as described.

SECTION NO. 3

-

PRELIMINARIES AND GENERAL

SECTION NO. 3

BILL NO. 1

PRELIMINARIES AND GENERAL

NAME OF PARTIES

Quantity Surveyor

TN Zunzanyika Associates
1628 Bauhinia Drive
Wesgate Harare
Tel: +263 783 224 482
Cell: +263 774 175 191
Email: tnza@tnza.co.zw/norman@tnza.co.zw
Website: www.tnzunzanyika.com

Architect

Apex Design
Email: louischitolo@gmail.com

Structural, Civil Engineer, Electrical and Mechanical Engineer

The Design Team Consulting Engineers
No.52 Blackburn Road
Emerald Hill
Harare
Tel: +263 242 303 179
Cell: +263 772 693 543
Email: themba@designteam.co.zw
Web:www.designteam.co.zw

CARRIED TO COLLECTION

PRELIMINARIES AND GENERAL

The contract shall be the "Government of Zimbabwe General Conditions Of Contract" and the Special Conditions of Contract appended on the Standard Bidding Document

The contractor is referred to the printed document for the full intent and meaning of each clause and he must allow opposite each clause whatever costs he may consider necessary for the carrying out and observance of same. These clauses shall be construed as amended by the special requirements of these Bills of Quantities.

NOTE: The tenderer MUST price ALL items contained herein. Should there be an item the tenderer perceives as being of no cost consequence, then 'NIL' should be inserted in the pricing column against such item.

PRELIMINARIES

A Allow for complying with conditions of Building-Contract and Preliminaries. Item

B Allow for complying with any items in connection with the work described in the document not specifically mentioned in Item No's A above or general clauses below. Should the tenderer not enter any amount under this heading, it will be understood that he is satisfied that all the items requiring to be priced have been described in the document. No additional claims will be accepted or considered at a later date. Item

GENERAL

C These Bills of Quantities are to be read in conjunction with the Trade Preambles and Specifications for the Works. Item

D This contract is a fixed price i.e. rates are NOT subject to escalation. Item

E These bills of quantities should not be used for ordering materials. Should the contractor use the bills of quantities for ordering the materials this shall be to the sole responsibility of the contractor Item

F Contractor to provide everything necessary for the proper execution and completion of the Works according to the true intend and meaning of the contract documents taken together whther the same may or may not be particularly shown or described provided that the same is reasonably to be inferred therefrom. Item

G The contractor shall be the main contractor overally responsible for 'all the works on site and therefore the programme of works. They will be 'responsible for daily "tool box" coordination meetings for the various subcontractors 'on site. The main contractor will answer to the same program for all contractors 'at official site meetings with the Supervising Officer Item

Carried to Collection

FOREMAN

The contract shall during working hours keep upon the works a competent Foreman and any instruction given to him by the Supervising Officer shall be deemed to be given to the contractor.

The term "Foreman" shall mean an **English speaking** site manager or agent with overall project responsibilities on behalf of the contractor. The foreman shall be appointed on the Supervising Officer's approval, for the entire contract duration.

The Foreman's roles shall include, but not limited to, the following:-

- a. Co-ordination of everybody on site workers, contractors, etc
- b. Recording and maintaining a daily diary of all activities on site which include and are not limited to work done, workers on site, materials on site, plant on site, etc
- c. Ensuring adherence with health and safety regulations
- d. Sign visitors in and out
- e. Manage day-to-day running of site.
- f. Ensure that all materials and workmanship are in accordance with the contract and specifications
- g. Any other duties which the Supervising Officer might assign from time to time.

Should this foreman leave the employ of the Contractor or for any reason be unable to complete the contract, a new **English speaking** foreman, also to the Supervising Officer's approval, shall be appointed and shall be available until this contract is complete.

A Fixed Charge

Item

B Time Related Charge

Item

INSURANCES

C Insurance.

The Contractor shall provide, in the joint names of the Employer and the Contractor, and shall cause any Subcontractors to take out and maintain, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the SCC for the following events which are due to the Contractor's risks:

- (a) loss of or damage to the Works, Plant, and Materials;
- (b) loss of or damage to Equipment;
- (c) loss of or damage to Equipment) in connection with the Contract; and
- (d) personal injury or death.

Policies and certificates for insurance shall be delivered by the Contractor to the Supervising Officer for the Supervising Officer's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

If the Contractor does not provide any of the policies and certificates required, the Employer may affect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

Alterations to the terms of an insurance shall not be made without the approval of the Supervising Officer's.

Both parties shall comply with any conditions of the insurance policies.

Item

Carried to Collection

A	<p><u>Uncorrected Defects</u></p> <p>If the Contractor has not corrected a Defect within the time specified in the Supervising Officer's notice, the Supervising Officer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.</p>	Item		
B	<p><u>Extension of the Intended Completion Date</u></p> <p>The Supervising Officer shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.</p> <p>The Supervising Officer shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Supervising Officer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.</p>	Item		
C	<p><u>Temporary Screens</u></p> <p>The Contractor must make adequate provision by spraying erecting screens or other suitable methods against any nuisance or damage by dust to all work under this contract or to persons or property in the vicinity and he will be held solely responsible for any complaints, damage or claims in this connection</p>	Item		
	Fixed Charge	Item		
D	Time Related Charge	Item		
E	<p><u>PROGRAMMING OF WORK</u></p> <p>Within the time stated in the SCC, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works.</p> <p>An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.</p> <p>The Contractor shall submit to the Supervising Officer for approval an updated Program at intervals no longer than the period stated in the SCC. If the Contractor does not submit an updated Program within this period, the Supervising Officer may withhold the amount stated in the SCC from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted.</p> <p>The Supervising Officer's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Supervising Officer again at any time. A revised Program shall show the effect of Variations and Compensation Events.</p>	Item		
Carried to Collection				

<p>A</p> <p><u>Progress Meetings</u></p> <p>Meetings related to the progress of the works will be held at regular intervals and at such other times as may be necessary, as determined by the Supervising Officer, and attended by the following:-</p> <ol style="list-style-type: none"> 1. the Supervising Officer 2. the Contractor's representative who shall be familiar with the progress of the works and have the authority to make decisions and commitments on behalf of the contractor; 3. the Employer's representative where applicable; 4. Consultants as may be required. <p>At each meeting the contractor will provide the Supervising Officer with a progress report monitored against the programme for the contract.</p> <p>The Supervising Officer's shall record the minutes of the meetings and distribute them to all concerned</p>		Item		
<p>B</p> <p><u>Site Records</u></p> <p>The contractor is to keep a triplicate record book on the site in which to record all site visits and instructions and keep a daily record of work done. Copies of these records to be for the Supervising Officer's, Architect, Engineer, Quantity Surveyor and Contractor.</p>		Item		
<p>C</p> <p><u>Management of Works</u></p> <p>The Contractor shall be responsible for the management of the sequence of the carrying out of the works The Contractor shall obtain all necessary particulars of Sub-contractors' work timeously so that provision for recesses, chases, holes, etc, may be made.</p> <p><u>Scaffolding</u></p> <p>The Contractor shall provide all scaffolding, and everything of every sort and kind necessary for the several works and requisite for their due and proper execution.</p>				
<p>D</p> <p>Fixed Charge</p>		Item		
<p>E</p> <p>Time Related Charge</p>		Item		
<p>F</p> <p><u>Ordering of Materials</u></p> <p>Bills of Quantities should not be used for ordering materials. Should these Bills of Quantities be used for ordering materials, it shall be entirely at the Contractor's Risk.</p>		Item		
Carried to Collection				

	<u>Site Enclosure</u>		
	The Contractor shall provide , erect, alter as necessary,maintain and remove and make good at completion suitable hoardings, screens, etc all as necessary for the enclosure of the works and the protection of the general public and others.		
A	Fixed Charge	Item	
B	Time Related Charge	Item	
	<u>Watching & Lighting</u>		
	The Contractor must provide all necessary watching and lighting and any temporary lighting / artificial lighting required for the execution of the works.		
C	Fixed Charge	Item	
D	Time Related Charge	Item	
	<u>Site Meeting Office/Facilities</u>		
	The Contractor shall provide, maintain and remove on completion office accommodation/facilities for meetings held on site. This shall be provided with tables and chairs sufficient for the maximum number of persons attending meetings and shall be kept clean.		
	The said office shall have the following: 1) A drawing suspending structure 2) A pinboard for displaying works programme and job schedules		
E	Fixed Charge	Item	
F	Time Related Charge	Item	
	<u>Potable Water and Toilets</u>		
	The Contractor must make his own arrangements and provide adequate potable water and latrine accommodation for the use of workmen to the satisfaction of the Supervising Officer and Local Authorities. The Contractor must maintain the same in a thoroughly clean and orderly condition, including making good any damages at his own expense, and remove such latrines and disinfect and make good all conditions in respect thereof at the completion of the works.		
G	Fixed Charge	Item	
H	Time Related Charge	Item	
	<u>Water</u>		
	The Contractor shall provide all water for the works, including all necessary temporary plumbing, maintain and remove same and make good on completion.		
J	Fixed Charge	Item	
K	Time Related Charge	Item	
	Carried to Collection		

Electricity for the works

The Contractor shall provide all necessary electricity for the works including all necessary temporary installation work, removing same and making good on completion.

If the Contractor makes an application to the Zimbabwe Electricity Supply Authority (Z.E.S.A.) for any temporary electrical connections that he may require, he shall pay all charges in connection therewith and for power used during construction.

- | | | |
|---|---------------------|------|
| A | Fixed Charge | Item |
| B | Time Related Charge | Item |

Protection of Other Properties

The Contractor will be responsible for keeping all persons under his control, including men employed by sub-contractors and all unauthorised persons within bounds and will be liable for any damage to adjoining property and premises, grass and other vegetation and to hedges, fences and gates by workmen, lorries or from any other cause whatsoever.

Should any loss, damage or injury occur to surrounding properties from the carrying out of the works, the Contractor shall make good the same at his own cost; in the case of errors and mistakes to amend and alter the same to the entire satisfaction of the Supervising Officer and other interested persons.

- | | | |
|---|---------------------|------|
| C | Fixed Charge | Item |
| D | Time Related Charge | Item |

Materials and Workmanship

- | | | |
|---|--|------|
| E | The whole of the works are to be executed with the best materials and workmanship of their respective kinds and nothing is to be omitted which is necessary for their completion in every respect. | Item |
|---|--|------|

Samples of Materials

- | | | |
|---|---|------|
| F | The Contractor must furnish without delay such samples as may be called for by the Supervising Officer who may reject any materials or workmanship not corresponding with approved samples. | Item |
|---|---|------|

Testing Of Materials

- | | | |
|---|--|------|
| G | Should there be any doubt as to the quality, specification or strength of any material used in the works then the Supervising Officer may instruct the contractor to take samples of the material in question and have the samples tested by a laboratory or by other means deemed adequate and necessary to determine the properties of the material. In the event of these tests proving that the material in question is defective the cost in carrying out such tests incurred and any remedial works necessary shall be borne by the contractor | Item |
|---|--|------|

Carried to Collection

A	<p><u>Specification</u></p> <p>The materials to be used are as specified on the relevant 'construction drawings and written instructions and no other materials or methods of construction will be considered.</p>	Item		
B	<p><u>Quality Control</u></p> <p>The contractor shall ensure materials and workmanship are to the acceptable quality standards as specified in the documents</p>	Item		
C	<p><u>Access</u></p> <p>The Supervising Officer reserves the right to open for inspection any concealed work which has not been passed by him and the cost of such opening for inspection purposes will be borne by the Contractor.</p>	Item		
D	Fixed Charge	Item		
D	Time Related Charge	Item		
E	<p><u>Site Maintenance</u></p> <p>The Contractor must clear and cart away all superfluous materials and rubbish that may collect from time to time. Twice scrub all floors and pavings with soap or other cleaning materials, care 'being taken not to use anything that may damage the surfaces. Clean all windows inside and outside and leave the premises and site clean and fit for occupation.</p>	Item		
F	Fixed Charge	Item		
F	Time Related Charge	Item		
G	<p><u>Safety</u></p> <p>The Contractor must take the utmost care in the execution of this contract and must employ only such methods which measure up to recognised safety standards in accordance with the laws of the land and good practice.</p>	Item		
H	Fixed Charge	Item		
H	Time Related Charge	Item		
J	<p><u>Contractor's Performance Guarantee</u></p> <p>Prior to signing the contract, the Contractor will be required to furnish satisfactory security for the due performance and fulfilment of this Contract and should allow for all costs in connection with the same. This shall be in the form of a cash deposit of 10% of the contract sum or guarantee from an approved bank for 10% of the contract sum.</p>	Item		
	Carried to Collection			

Sub-letting and Assignment

A This contract is personal to the Contractor and he shall not sub-let, assign or make over the contract or any part thereof, or any share or interest therein, to any other person without the written consent of the Employer and on such conditions as he may approve.

Item

FINANCIAL ASPECTS

Value Added Tax (V.A.T)

B The tenderer shall ensure that the amount of his tender incorporates all taxes and their elements and that nothing remains to be added thereto. This shall apply to all Basic Price Lists submitted.

Item

Prices

C All prices or rates inserted in the Bills of Quantities shall, unless otherwise stated include for materials, duty, taxes (including value added tax), making conveyance and delivery, unloading, storing, unpacking, hoisting, labour, setting out, fitting and fixing in position, cutting and waste, patterns, models and templates, plant, temporary works, return of packings, establishment charges, profit and all other obligations arising from the Conditions of Contract and shall be quoted in the Local Zimbabwean Dollar (ZWL\$).

Item

Foreign Exchange

D The Contractor must make his own arrangements to obtain foreign currency and import licences that may be required for the execution of the Works. The tenderer should allow in his rates and prices for the cost of purchasing any foreign currency or obtaining any import licence.

Item

Wages

E The Contractor shall pay his workmen all wages, cost of living, holiday, transport or other allowance at rates not less than those laid down by Act of Parliament or Industrial Agreement.

The Contractor shall be deemed to have full knowledge of any statutory or other conditions relating to rates of pay and allowances, hours of work, piecework, skilled labour, etc.

Item

Overtime

F The Contractor is to assume when pricing (unless specifically stated) that the whole of the work will be carried out during normal working hours. Only work that has been specifically authorised by the Supervising Officer to be executed outside ordinary hours will be paid for in accordance with the terms of the Industrial Agreement in force during the period of the contract. The Contractor will be allowed the nett extra paid by way of overtime.

Overtime shall apply to work located on the actual building site and only on the written instruction of the Supervising Officer. The Employer has the right to inspect the Contractor's records before making payments. Should the working of overtime be necessary in order to complete Works by the agreed date, the Contractor may, with prior written consent of the Project Manager, work such overtime, but no extra will be allowed for same.

Item

Carried to Collection

	<p><u>FLUCTUATIONS</u></p> <p>A Fluctuations in cost of plant or equipment will not be permissible.</p> <p><u>Payment of Preliminaries</u></p> <p>B The amount to be included in each monthly certificate in respect of preliminaries costs shall be calculated from the priced items within the preliminaries section of the bill of quantities.</p> <p>Prior to the signing of contract the tenderer and the quantity surveyor shall agree a division of the priced preliminaries items into:</p> <ol style="list-style-type: none"> 1. An initial or establishment charge, payment of which shall be made to the contractor on proof that the relevant expenditures have been made 2. A monthly charge, and 3. A final or disestablishment charge <p>In arriving at such division cognisance shall be taken of such factors as:-</p> <ol style="list-style-type: none"> 1. Premiums for polices of insurance and performance guarantees being renewable annually, 2. Plant scaffolding and the like remaining the property of the contractor or the hiring company and the capital costs thereof not being treated as part of the initial charge <p>In the event of an extension of time for the completion of the works the monthly charge shall be recalculated on the same basis as originally but taking into account the revised contract period and the amounts already paid to the contractor.</p> <p>Should the successful tenderer and the quantity surveyor be unable to agree such division and contract is nevertheless signed then the quantity surveyor shall make a fair and reasonable division of the preliminaries to be incorporated in the valuations for each monthly certificate</p> <p><u>Certificate Payment Projection</u></p> <p>C The contractor shall provide all reasonable assistance to the quantity surveyor in the preparation of cash flow statements of certificate payments required by the employer.</p> <p>Such statement shall be based on the programme referred to in this document for the extension of the works and shall be updated at such intervals as the programme of work progress is required to be updated. The co-operation of the contractor under this item shall in no way prejudice his right to receive payment terms of the contract.</p> <p><u>Law To Apply</u></p> <p>D The contract shall in all respects be construed in accordance with the Law of Zimbabwe and any difference that may arise between the Contractor and the Employer in regard to the contract shall be settled in Zimbabwe.</p> <p><u>Contract to be in Conformity with Laws and By-Laws</u></p> <p>E The contract shall be carried out subject to and in conformity with any law, by-law or regulation which is of application thereto and shall be conditional upon any necessary consents required by law being obtained.</p> <p style="text-align: right;">Carried to Collection</p>	<p>Item</p> <p>Item</p> <p>Item</p> <p>Item</p> <p>Item</p>		
--	--	---	--	--

A	<p><u>Ascertainment of Prices for Variations</u></p> <p>Prices for variations submitted by the Contractor and/or Nominated Sub-contractors during progress of the contract shall not be regarded as final until the issue of the final certificate or written acceptance by the Project Manager and/or Quantity Surveyor.</p> <p><u>Special Attendance</u></p> <p>The contractor shall provide all <u>Special Attendance</u> to Nominated Sub-Contractors. This shall include scaffolding, access roads, hardstandings, positioning, storage, power, temperature and humidity etc. Scaffolding herein shall mean additional scaffolding to the contractor's standing scaffolding or standing scaffolding required to be altered or retained. Positioning includes unloading, distributing, hoisting and placing in position giving in the case of significant items the weight and/or size and position relative to the ground level or other datum.</p> <p>This is over and above General Attendance for which the contractor is paid under the Prime Cost & Provisional Sums Bill.</p>	Item		
B	Fixed Charge	Item		
C	Time Related Charge	Item		
D	<p><u>Unknown Services</u></p> <p>Should the contractor encounter any unknown services such as underground cables, pipes or sewers during the excavation of the works he shall notify the architect immediately and suspend all works affected in the immediate vicinity until written instruction to proceed has been given by the architect.</p> <p><u>Plant and Equipment</u></p> <p>The Contractor shall provide all plant, suitable tools, tackle, staging, cartage, materials, goods, labour and everything of every sort and kind necessary for the several works and requisite for their due and proper execution.</p> <p>[The Contractor shall provide an exhaustive schedule of plant (hoists, personnel transport, transport, piling plant, earthmoving plant etc) to be used under this heading as well as the respective hire rates which shall be attached to the Annexures.]</p>	Item		
E	Fixed Charge	Item		
F	Time Related Charge	Item		
G	<p><u>Setting out of works</u></p> <p>The Architect shall furnish to the contractor either by way of carefully dimensioned drawings or by personal supervision at the time of setting out of the works, such information as shall enable the contractor to set out the enclosing walls of the building at ground level after which the contractor shall be responsible and shall at his own cost amend any errors arising from his own inaccurate setting out.</p> <p>Contractor shall be responsible for identifying all the pegs marking the site boundaries shall make sure that these pegs have agreed and signed off with the local authority.</p>			

Carried to Collection

Main Noticeboard

The Contractor must supply, erect in a prominent position, maintain throughout the period of the contract and remove on completion one (1) properly signwritten Notice Board to the Architect's detail.

- | | | |
|---|---------------------|------|
| A | Fixed Charge | Item |
| B | Time Related Charge | Item |

Site Maintenance

The Contractor must clear and cart away all superfluous earth and rubbish that may collect from time to time. Twice scrub all floors and pavings with soap or other cleaning materials, care being taken not to use anything that may damage the surfaces. Clean all windows inside and outside and leave the premises and site clean and fit for occupation.

- | | | |
|---|---------------------|------|
| C | Fixed Charge | Item |
| D | Time Related Charge | Item |

Safety

The Contractor must take the utmost care in the execution of this contract and must employ only such methods which measure up to recognised safety standards in accordance with the laws of the land and good practice.

- | | | |
|---|---------------------|------|
| E | Fixed Charge | Item |
| F | Time Related Charge | Item |

Latent or Other Defects

- | | | |
|---|---|--|
| G | <p>The architect's periodical visits to the works, and the working and detailed drawings, have reference only to the architectural and structural accuracy and the literal fulfilment of the leading articles of the contract documents as affecting the structure generally, and the architect is not employed as operative builder or clerk of works, nor is the architect liable for latent defects in the materials or workmanship or for the breach of any Local or other Bye-Laws, or work done contrary to good building practice.</p> | |
|---|---|--|

Hence no final or other certificate shall in any circumstances relieve the contractor from his liability in connection with the foregoing.

Item

Carried to Collection

COVID 19 CONTROL AND PREVENTION PROTOCOLS

During construction, the contractor must adhere to all the COVID-19 Control and Prevention protocols and guidelines as issued by the World Health Organisation and The Government of Zimbabwe.

These include, but are not limited to the following;-

Testing: All employees on site will be required to be tested using the rapid test method as set out in the SI 99 of 2020, certificates will be required to be produced to the Supervising Officer.

Temperature Testing: All employees, management and visitors will be temperature tested before they enter site, contractor to provide for an infrared thermometer on site at all times and a first Aid person to record the results.

Face Masks: Contractor to provide face masks to all employees, management and visitors on site.

Sanitizers: Contractor to provide individual sanitizers to all employees and management. All visitors will be sanitised when entering the site.

Identification: Contractor to provide individual identification letters/ID to enable smooth travel for the employees whenever required / necessary.

Contractor to adhere to stipulated working hours as scheduled by the government at any given time.

A Fixed Charge

Item

B Time Related Charge

Item

Carried to Collection

<u>SECTION NO. 3</u>			
<u>BILL NO. 1</u>			
<u>PRELIMINARIES AND GENERAL</u>			
TOTAL BROUGHT FORWARD FROM:			
PAGE 3/1/1			
PAGE 3/1/2			
PAGE 3/1/3			
PAGE 3/1/4			
PAGE 3/1/5			
PAGE 3/1/6			
PAGE 3/1/7			
PAGE 3/1/8			
PAGE 3/1/9			
PAGE 3/1/10			
PAGE 3/1/11			
PAGE 3/1/12			
PAGE 3/1/13			
TOTAL CARRIED TO FINAL SUMMARY			

SPLIT OF THE PRELIMINARIES AND GENERAL

ITEM	DESCRIPTION	AMOUNT (ZWL\$)
1.0	Site Establishment Costs	
2.0	Running Costs <i>(to be paid in equal payments over the Contract Duration)</i>	
3.0	De-establishment Costs	
	TOTAL	

APPENDIX TO THE CONDITIONS OF CONTRACT

CONTRACT REFERENCE	ITEM DESCRIPTION	DETAILS
Clause 56	Period of Final Measurement	"60 days"
Clause 33 & 34	Defects Liability period	..........
Clause 21	Date of Possession	.....
Clause 17.1	Date of Completion	.....
Clause 46	Liquidated and Ascertained Damages	To Be Ascertained
Clause 39	Period of Interim Certificates	One month
Clause 40	Period of honouring certificates	.....
Clause 45	Percentage of Certified Value Retained	10%
Clause 45	Limit of Retention Fund	No limit
Clause 45	Name of Branch of Bank or Building Society	..........

SECTION NO. 4

-

BOUNDARY WALL

GENERAL BUILDING WORKS

SECTION NO. 4 - BOUNDARY WALL

BILL NO. 1

FOUNDATIONS (PROVISIONAL)

For Preambles see General Specification

NOTE: The foundations have been measured to the underside of damp proof course level. Foundation depths as be confirmed on site, approved and recorded by the Engineer

EARTHWORKS

Excavations

Excavate in all materials and use for embarkment, or backfill or dispose off as required.

A	Clear site of all vegetation, removal and disposal of bushes, scrub, undergrowth, hedges and trees and stumps including grubbing up roots and filling in holes.	m2	302		
B	Excavate over site to remove vegetable soil average 150mm deep and deposit on site not exceeding 100 metres	m2	302		
	<u>Excavate in pickable material for:</u>				
C	Surface trenches not exceeding 2 metres deep	m3	116		
D	Excavation for pier bases not exceeding 2 metres deep	m3	51		
E	Cart away surplus excavated material to dump site to be found by Contractor (<u>Contractor to allow for Bulking</u>)	m3	112		
F	Extra over all excavations for excavating in hard pickable material	m3	17		
G	Extra over all excavations for excavating in hard rock	m3	8		
	<u>Sundries</u>				
H	Allow for keeping the excavations free from storm and surface water for the duration of the Contract by hand or machinery, including digging any necessary trenches and banks to keep water away from the basement	Item			

Carried to Collection

A	Termite treatment with approved fumigant to SAZS 314 (1973), sprayed over filling and tops of foundations walls (Contractor to provide a written ten year guarantee as to the contents, quality and effectiveness of termite treatment)	m2	302		
B	Scarify bottoms of excavations to trenches and bases for a minimum of 150mm, water and mechanically compact to 98% H.C.E density.	m2	302		
C	Allow for the risk of collapse to sides of excavations <u>Filling etc</u>	m2	551		
D	Backfilling to trenches, holes, etc with approved excavated material, levelled, well watered and compacted in layers not exceeding 150mm thick to 95% H.C.E density <u>CONCRETE</u> <u>Unreinforced concrete (15 MPa)</u>	m3	100		
E	50mm thick concrete blinding under strip footings	m2	210		
F	50mm thick concrete blinding under bases <u>Unreinforced concrete (30 MPa)</u>	m2	92		
G	In strip footings	m3	48		
H	In bases <u>REINFORCEMENT</u> <u>Fabric reinforcement,</u>	m3	21		
J	"Cotts Ref. S 245" mild steel mesh fabric reinforcement weighting 2.45 kilograms per square metre, lapped 300mm (measured net) to footings etc. <u>BRICKWORK</u> For Preambles see General Specification <u>Approved structural solid bricks (minimum compressive strength 15 Mpa) in 1:3 cement mortar laid in english bond</u>	m2	302		
K	One brick walls	m2	94		
L	460 x 460 mm brick pier	m3	5		
M	"Cotts ref C2" brick reinforcement built into one brick walls after every two courses, lapped at angles and passings (measured net)	m	805		
Carried to Collection					

<u>SUNDRIES</u>				
N	10mm "Kaylite" or equal approved joint filler between and set vertically between piers and walls.	m2	18	
N	Rake out 10mm "Kaylite and seal with "Theoflex 600" or equal approved sealant vertically for a depth of 200mm	m	184	
P	Mild steel hoop iron ties at 500mm centre to centre, fixed between one brickwall and brick piers (elsewhere measured)	No.	184	
Carried to Collection				

SECTION NO.4 - BOUNDARY WALL

BILL NO. 1

FOUNDATIONS (PROVISIONAL)

Total BROUGHT FORWARD from Page Number

4/1/1

4/1/2

4/1/3

Carried FORWARD to Summary of Section No.4

SECTION NO. 4 - BOUNDARY WALL

BILL NO. 2

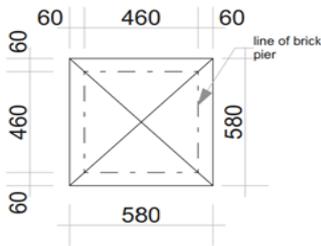
CONCRETE, FORMWORK & REINFORCEMENT

For Preambles see General Specification

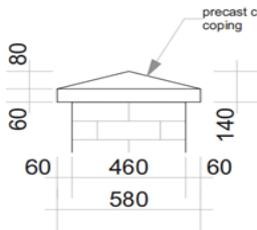
PRECAST CONCRETE (20 Mpa)

"Fort Concrete" or equal approved precast concrete coping with weathered top and 10mm half round water drip along both edges set horizontally in 1:3 cement mortar on upstand beams (elsewhere measured) and finished smooth on all exposed faces with angles rounded and including flush pointing

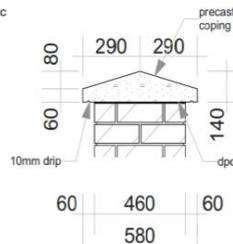
- | | | | |
|---|---|-----|-----|
| A | Precast concrete coping size 500mm long x 300mm wide x 65mm deep (extreme at centres) x 50mm deep outer edges | No. | 700 |
| B | Precast concrete coping size 580 x 580mm to Brick piers
<i>(Layout for coping to brick piers as per the BOQ Diagram below and Architect's drawing A/200)</i> | No. | 98 |



PLAN



ELEVATION



SECTION B-B

Carried FORWARD to Summary of Section No.4

<u>SECTION NO. 4 - BOUNDARY WALL</u>			
<u>BILL NO. 3</u>			
<u>BRICKWORK</u>			
<u>For Preambles see General Specification</u>			
<u>"Beta Bricks" light brundle face bricks (15Mpa) or similar approved 15Mpa "light brundle" face bricks laid in 1:3 cement mortar laid in English bond including pointing to brickwork both sides to Architect's approval</u>			
A	One brick wall	m2	368
B	Dwarf one brick wall	m2	74
C	460 x 460 mm brick pier	m3	36
D	"Cotts ref C2" brick reinforcement built into one brick walls after every four courses, lapped at angles and passings (measured net)	m	1,300
E	"Cotts ref C2" brick reinforcement built into brick piers after every four courses, lapped at angles and passings (measured net)	m	463
<u>SUNDRIES</u>			
F	10mm "Kaylite" or equal approved joint filler between and set vertically between piers and walls.	m2	53
G	Rake out 10mm "Kaylite and seal with "Theoflex 600" or equal approved sealant vertically for a depth of 200mm	m	230
H	Extra over one brick wall for creating 50mm x 50mm weep hole at the bottom after every 30m	No.	14
J	Mild steel hoop iron ties at 500mm centre to centre, fixed between one brickwall and brick piers (elsewhere measured)	No.	408
K	Mild steel hoop iron ties at 500mm centre to centre, fixed between "dwarf" one brickwall and brick piers (elsewhere measured)	No.	82
Carried FORWARD to Summary of Section No.4			

SECTION NO. 4 - BOUNDARY WALL

BILL NO. 4

WATERPROOFING

For Preambles see General Specification

DAMP PROOFING WALLS

One layer "Ruberoïd" bitumen damp proof course bedded
in 1:3 cement mortar, including laps at angles and passings
(measured net)

A	On walls	m2	80
B	On brick piers	m2	19
C	Under Concrete Copings	m2	99

Carried FORWARD to Summary of Section No.4

SECTION NO. 4 - BOUNDARY WALL

BILL NO. 5

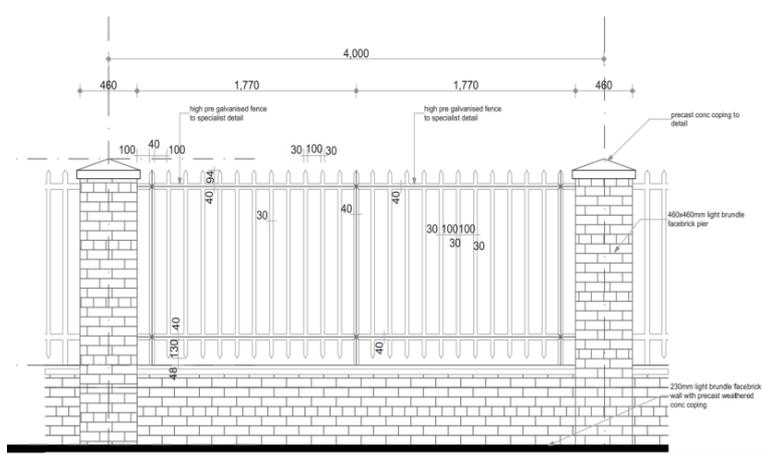
METALWORK

For Preambles see General Specification

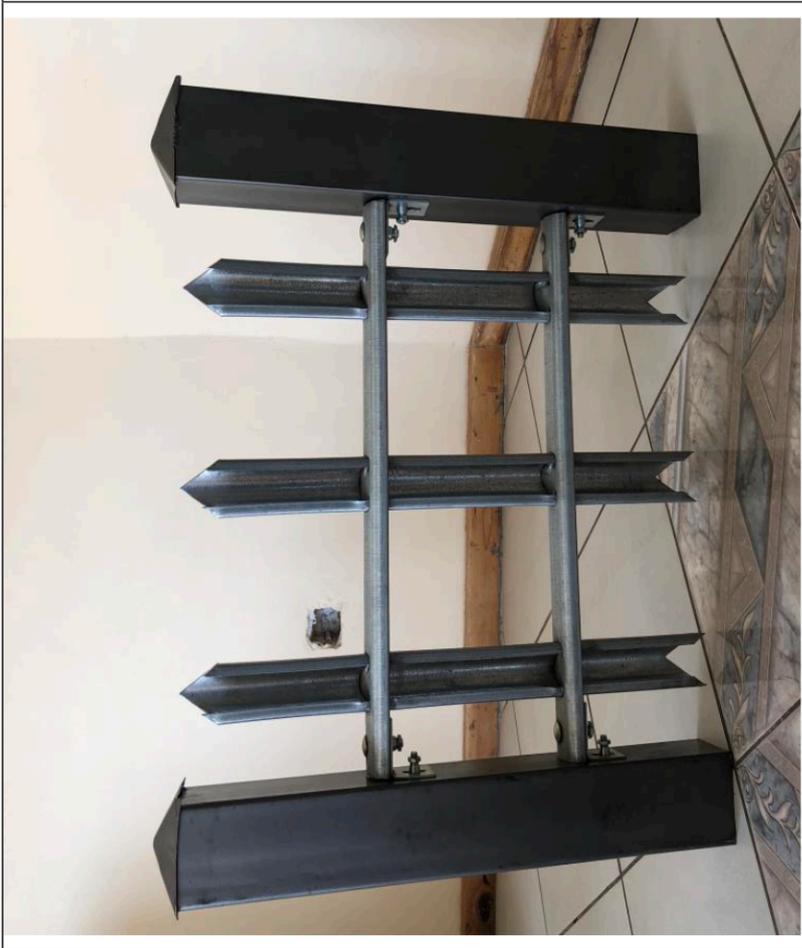
PRE-GALVANISED MILD STEEL PALISADE FENCING PANELS

- A Supply and Install "high pre-galvanised" palisade fencing panels (colour to Architect's approval) overall size approximately 3540mm x 1320mm high comprising of "high pre-galvanised" vertical mild steel members tapered at the top, spaced at approximately 220mm centre to centre between vertical the vertical members and pre-perforated horizontal members (perforated sections to fit in vertical members) spaced at approximately 220mm centre to centre including setting up in position, bolting to brick piers and/ concrete coping including all requisite welding, riveting, etc. and making good around the joints to Architect's approval. **(Refer to BoQ Drawing below, Photos on page 4/5/1A and Drawing A/200)**

No. 42



Carried to Collection



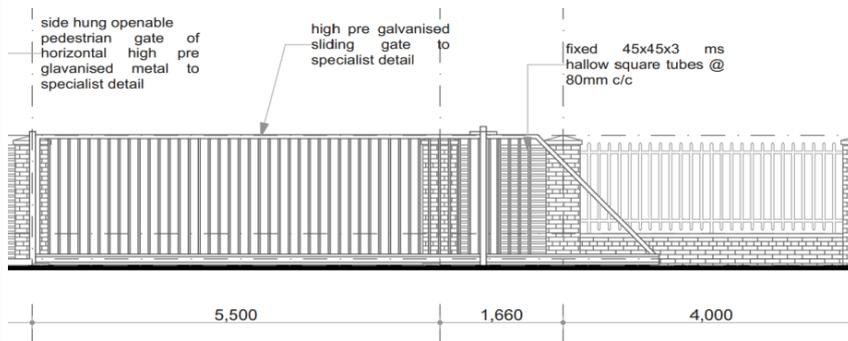
A Supply and Install "high pre-galvanised" palisade fencing panels (colour to Architect's approval) overall size approximately 1400mm x 1320mm high comprising of "high pre-galvanised" vertical mild steel members tapered at the top, spaced at approximately 220mm centre to centre between vertical the vertical members and pre-perforated horizontal members (perforated sections to fit in vertical members) spaced at approximately 220mm centre to centre including setting up in position, bolting to brick piers and/ concrete coping including all requisite welding, riveting, etc. and making good around the joints to Architect's approval. **(Refer to BoQ Drawing A/200 for layout and BoQ Photos on page 4/5/1A)**

No. 3

MAIN ENTRANCE GATES

B Supply and install "high pre-galvanised" Automatic sliding palisade gate trapezium shape (colour to Architect's approval) (gate automation elsewhere measured) overall size approximately 8500mm wide x 2000mm high comprising of "high pre-galvanised" members 25mm x 25mm x 3mm vertical hollow mild steel square tubes at 80mm centre to centre in between the mild steel frame made up of 45mm x 45mm x 3mm hollow square tubes complete with gate rails, gate wheels, gate stops, posts etc including all requisite accessories such as locking mecahnisms etc. including all requisite accessories to Architect's and Engineer's approval. **(Refer to BoQ Diagram below and Architect's drawing number A/200)**

No. 3



C Extra over automation of Gate with D10 gate motor or equal and approved complete including all requisite accessories to Engineer's approval.

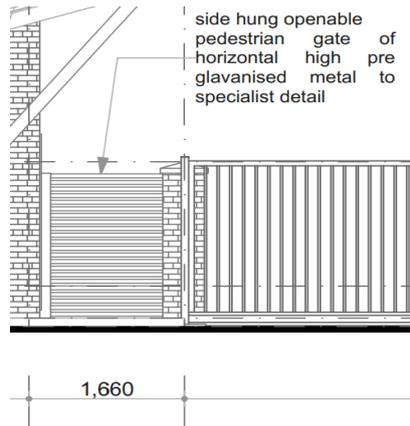
No. 3

Carried to Collection

PEDESTRIAN GATES

- A Supply and install "high pre-galvanised" side hung pedestrian palisade gate (colour to Architect's approval) overall size 1200mm wide x 2000mm high made up of 50mm x 50mm x 3mm horizontal hollow mild steel tubes at 80mm centre to centre in between the frame made up of 50mm x 50mm x 3mm including all requisite accessories such as locking mechanisms, and bolting to brick piers, reverting, welding etc., to Architect's approval. **(Refer to BoQ Diagram below and Architect's drawing number A/200)**

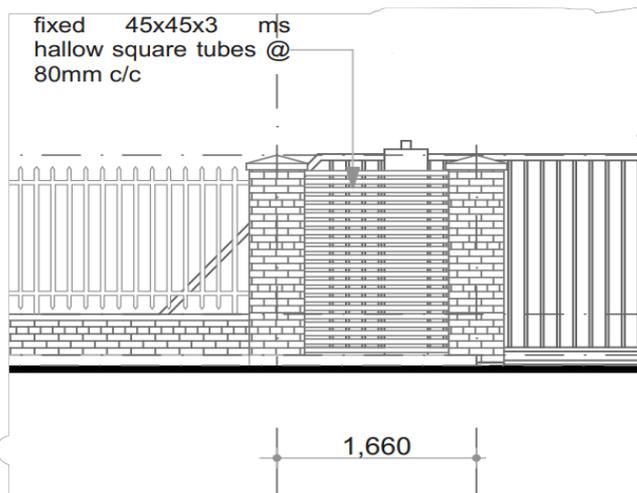
No. 3



SCREENS

- B Supply and install "high pre-galvanised" fixed horizontal metal screen (colour to Architect's approval) overall size 1200mm x 2000mm high comprising of horizontal 45mm x 45mm x 3mm Mild steels hallow square tubes at 80mm centre to centre including setting up in position, bolting to brick piers and all requisite welding, riverting, etc. and making good around the joints to Architect's approval. **(Refer to BoQ Diagram below and Architect's drawing number A/200)**

No. 3



Carried to Collection

SECTION NO.4 - BOUNDARY WALL

BILL NO. 5

METALWORK

Total BROUGHT FORWARD from Page Number

4/5/1

4/5/2

4/5/3

Carried FORWARD to Summary of Section No.4

SECTION NO. 4 - BOUNDARY WALL

BILL NO.6 PAINTING

For Preambles see General Specification

BRICK DRESSING ON FACE BRICKS

Prepare, stop and apply three (3) coats dressing with
brick dressing oil on the following surfaces

A	On light brundle facebrick (both sides)	m2	884
B	On brick piers (both sides)	m2	262
<u>TOUCH UP</u>			
C	Touch up and clean paint work requiring it, scrub pavings clean down stonework and leave premises and site clean and whole site ready for occupation	Item	

Carried FORWARD to Summary of Section No.4

SECTION NO.4 - BOUNDARY WALL

SUMMARY

1	Foundations	4/1/3
2	Concrete, Formwork and Reinforcement	4/2/1
3	Brickwork	4/3/1
4	Waterproofing & Insulation	4/4/1
5	Metalwork	4/5/4
6	Painting	4/6/1

Carried FORWARD to FINAL SUMMARY

ZWL\$

SECTION NO. 5

-

GATE HOUSES

SECTION NO. 5 - GATEHOUSE

BILL NO. 1

EARTHWORKS (Provisional)

EXCAVATIONS

FOUNDATIONS

For preambles see general Specification

NOTE: The foundations have been measured to the top of the surface bed. Foundation depths shall be confirmed on site. All excavations shall not be covered prior to the approval and recording of the depths by the Engineer

SITE CLEARANCE

A	Clear site of all vegetation, including removal and disposal of bushes, shrubs, undergrowths, hedges, trees and stumps and grubbing up roots and filling in holes	m2	22
B	Excavate over site to remove vegetable soil average soil average 150mm deep and deposit on site not exceeding 100 metres	m2	22
C	Excavate over site to reduce levels average 150mm deep and deposit on site not exceeding 100 metres	m3	3

EARTHWORKS

Excavate in pickable material for:

D	Surface trenches not exceeding 2 metres deep	m3	6
E	Cart away surplus excavated material to dump site to be found by Contractor (Contractor to allow for Bulking)	m3	4
F	Extra over all excavations for excavating in soft rock	m3	1
G	Extra over all excavations for excavating in hard rock	m3	1

Sundries

H	Scarify bottoms of strip footings, ground beams etc. for a minimum of 150mm, water and mechanically compact to 96% H.C.E density.	m2	12
J	Scarify bottoms of surface slab for a minimum of 150mm water and mechanically compact to 96% MOD AASHTO	m2	15
K	Allow for the risk of collapse to sides of excavations	m2	16

Carried to Collection

A	Allow for keeping the excavations free from storm and surface water for the duration of the Contract by hand or machinery, including digging any necessary trenches and banks to keep water away from the foundations	Item		
B	Termite treatment with approved fumigant to SAZS 314 (1973), sprayed over filling and tops of foundations walls (Contractor to provide a written ten year guarantee as to the contents, quality and effectiveness of termite treatment)	m2	22	
	<u>Filling etc.</u>			
C	Backfilling to trenches, holes, etc. with approved excavated material, levelled, well watered and compacted in layers not exceeding 150mm thick to 93% H.C.E density	m3	2	
D	Approved non-expansive earth filling under solid floors with approved local material infill, supplied and carted on by Contractor, compacted in layers not exceeding 150mm to 93%MOD. AASHTO density	m3	2	
E	Approved non-expansive earth filling under solid floors with approved local material infill, supplied and carted on by Contractor, compacted in layers not exceeding 150mm to 96%MOD. AASHTO density	m3	2	
	<u>CONCRETE</u>			
	<u>Unreinforced concrete (15 MPa)</u>			
F	In 50mm thick concrete blinding under strip footing	m2	6	
G	In 50mm thick concrete blinding under slab thickening	m2	2	
	<u>Reinforced concrete (25 MPa)</u>			
H	In 125mm thick concrete surface bed	m3	2	
	<u>Reinforced concrete (30 MPa)</u>			
J	In slab thickening	m3	1	
K	In strip footing	m3	1	
	<u>REINFORCEMENT</u>			
	<u>Fabric reinforcement.</u>			
L	"Cotts Ref. S 193" mild steel mesh fabric reinforcement weighting 1.93 kilograms per square metre, lapped 300mm (measured net) to surface beds, etc.	m2	17	
M	"Cotts Ref. S 245" mild steel mesh fabric reinforcement weighting 2.45 kilograms per square metre, lapped 300mm (measured net) to slab thickening, footings etc.	m2	8	
	Carried to Collection			

FORMWORK

Rough Formwork (Class F1)

A	To edges of slab thickening in narrow widths not exceeding 300mm	m2	1
---	--	----	---

Sundries

B	Strike off and cure top surfaces of concrete slabs	m2	17
---	--	----	----

BRICKWORK

For Preambles see General Specification

Approved structural solid bricks (minimum compressive strength 15 Mpa) in 1:3 cement mortar in English bond

C	One and half brick walls	m2	6
---	--------------------------	----	---

D	One brick walls	m2	1
---	-----------------	----	---

Sundries

E	"Cotts ref C1" brick reinforcement built into brick walls after every two courses, lapped at angles and passings (measured net)	m	35
---	---	---	----

F	"Cotts ref C2" brick reinforcement built into brick walls after every two courses, lapped at angles and passings (measured net)	m	43
---	---	---	----

G	10mm "Kaylite" or equal approved joint filler between and set vertically between piers and walls.	m2	2
---	---	----	---

H	Rake out 10mm "Kaylite and seal with "Theoflex 600" or equal approved sealant vertically for a depth of 200mm	m	13
---	---	---	----

Carried to Collection

SECTION NO 5 - GATEHOUSE

BILL NO. 1

FOUNDATIONS (Provisional)

Total BROUGHT FORWARD from Page Number

5/1/1

5/1/2

5/1/3

Carried FORWARD to Summary of Section No. 5

<u>SECTION NO. 5 - GATEHOUSE</u>		
<u>BILL NO. 2</u>		
<u>CONCRETE, FORMWORK & REINFORCEMENT</u>		
For Preambles see General Specification		
<u>"Fort Concrete" or equal approved precast concrete lintol (20 MPA) jointed in 1:3 cement mortar in 115mm walls</u>		
A	Size 1270mm x 115mm x 230 mm	No. 1
<u>"Fort concrete" or equal approved precast concrete dripstone (20 Mpa) finished smooth on all exposed surfaces and placed in position including all necessary shallow excavations; etc.</u>		
B	200mm x 120 mm thick drip stone 500mm long with stopped segmental channel top	No. 2
<u>IN-SITU CONCRETE</u>		
<u>Reinforced Concrete (Grade 30Mpa)</u>		
C	In ring beams	m3 1
<u>FORMWORK</u>		
NOTE: Unless otherwise described, formwork to soffits is to include for propping up exceeding 3,5 metres but not 6.0 metres high above bearing level ; formwork to sides up not exceeding 5,0 metres high above bearing level.		
<u>Smooth Formwork (Class F2)</u>		
D	To sides of beams	m2 8
E	To soffits of beams	m2 2
<u>REINFORCEMENT (PROVISIONAL)</u>		
<u>High yield deformed steel reinforcement bars with characteristic strength 460n/mm2 and complying with BS4449 in concrete as described including all bending, hooked ends, binding wire and temporary supports</u>		
F	High yield deformed bar reinforcement (All sizes)	kg 120
G	1.6mm Tying wire	kg 4
<u>Cover blocks and spacers</u>		
H	Allow for cover blocks and spacers	Item
Carried FORWARD to Summary of Section No. 5		

SECTION NO. 5 - GATEHOUSE

BILL NO. 3

BRICKWORK

For Preambles see General Specification

Approved structural solid bricks (minimum compressive strength
15 Mpa) in 1:3 cement mortar in English bond

A	Half brick wall	m2	9
B	One brick wall	m2	5
C	One and half brick wall	m2	25
D	Half brick wall in beam filling	m2	1
	<u>Sundries</u>		
E	Extra over commons for facing to light brundle face bricks	m2	40
F	"Cotts ref C1" brick reinforcement built into brick walls after every four courses, lapped at angles and passings (measured net)	m	100
G	"Cotts ref C2" brick reinforcement built into brick walls after every four courses, lapped at angles and passings (measured net)	m	90
H	<u>Set up in position and build into brickwork, including building in cramps, grouting in solid behind frames and pointing both sides all round in 1:3 cement mortar</u>		
J	Pressed metal door frames not exceeding 5m2	No.	1
	<u>Leave or form opening through brick walls including temporary centering to flat soffits of brickwork complete with all strutting, shoring not exceeding 5 metres high, bolting, wedging easing, striking and removing</u>		
K	Opening for purpose made aluminium windows not exceeding 5 square metres in area	No.	4
L	Opening for purpose made aluminium doors not exceeding 5 square metres in area	No.	2
M	"Secomastic"or equally approved pointing to window openings	m	20
N	"Secomastic"or equally approved pointing to door openings	m	11
	<u>VENTILATION</u>		
P	230 x 150 mm precast concrete louvered air bricks with gauze at back and building into brickwork including forming opening	No.	4
	<u>Labours</u>		
Q	Rough splay cutting and waste	m2	1
R	Rough raking cutting and waste	m2	3

Carried FORWARD to Summary of Section No. 5

SECTION NO. 5 - GATEHOUSE

BILL NO. 4

WATERPROOFING

For Preambles see General Specification

DAMP PROOFING FLOORS

One layer "Ruberoïd" bitumen damp proof course bedded in 1:3 cement mortar, including laps at angles and passings (measured net).

A	On half brick walls	m2	1
B	On one brick walls	m2	1
C	On one and half brick walls	m2	4
<u>One layer 250 microns "Tarcon" polythene damp proof membrane with 150mm wide side and end laps stapled at joints, laid on and including 50mm sand bed</u>			
D	Under concrete surface beds	m2	17

Carried FORWARD to Summary of Section No. 5

SECTION NO. 5

BILL NO. 5

ROOF COVERINGS AND CARPENTRY

ROOF COVERINGS

For Preambles see General Specification

0.58mm galvanised cold rolled "Charcoal Grey Corrugated Chromadeck" roofing sheets fixed in accordance with the manufacturer's written instructions (measured nett) no allowance made for laps

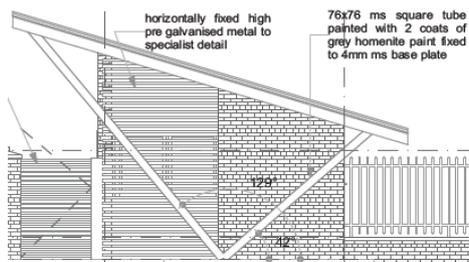
A	Roofing sheets in long lengths with side and end laps in accordance with the manufacturer's instructions fixed to timber trusses (timber trusses elsewhere measured) with and including capped roof nails, the side laps sealed with mastic sealing compounds and fastened with self tapping screws at 600mm centres or as required between purlins complete with ridges, valley flashings, louvres, etc.	m2	33
B	Alucushion" insulation laid with 75mm lap joints between roofing sheets and timber purlins (elsewhere measured) on strained galvanised wires at 500mm centres in both directions,(elsewhere measured) all in accordance with manufacturer's instructions including all cutting and waste.	m2	33
C	"Nutec" or equal approved 225mm x 4mm fibre cement barge boards, countersunk, drilled and screwed to timber purlins (elsewhere measured), with screws including joint seals, mitres, etc.	m	14
D	"Nutec" or equal approved 225mm x 4mm fibre cement fascia boards, countersunk, drilled and screwed to timber rafters (elsewhere measured), with screws including joint seals, mitres, etc.	m	9

SAWN TIMBER

E	38mm x 114mm wall plate	m	6
---	-------------------------	---	---

ROOF STRUCTURE

F	Supply and fix timber roof structure comprising of timber purlins to receive IBR roof coverings (Chromadeck roof coverings elsewhere measured) and including all nails, fastening bolts, nuts and all other requisite accessories complete to the approval of the supervising Structural Engineer. The structure is to be supported both sides by 76mm x 76mm x 4mm hollow square mild steel slanted columns on either sides painted with one undercoat and two coats of high "dove grey homenite" paint fixed to 4mm mild steel base plate including all requisite welding, riveting, bolting, etc. to Architect's and Engineer's approval . (Refer to BOQ Diagram below and Architect's drawing A/200)	Item	
---	---	------	--



Carried FORWARD to Summary of Section No. 5

SECTION NO. 5 - GATEHOUSE

BILL NO. 6

JOINERY & IRONMONGERY

For Preambles see General Specification

DOORS

44 mm internal quality Semi-solid flush panel door with sapele veneer facing both sides prepared for varnish and hung to pressed steel frames (elsewhere measured)

A	Door size 813mm x 2032 mm high	No.	1
---	--------------------------------	-----	---

IRONMONGERY

The following ironmongery to be fixed to timber doors, metal doors, pressed metal frames and aluminium doors

B	'SS6E00-06SS" Eagle level handles on rose or equal and approved door handles	No.	2
---	--	-----	---

C	'SS5305-05SS" Profile escutcheon X2 or equal and approved profile escutcheon	No.	2
---	--	-----	---

D	'2209-78SS" Profile lock case or equal and approved profile lock case	No.	2
---	---	-----	---

E	'2X19SC" Profile nob cylinder equal and approved profile nob cylinder	No.	2
---	---	-----	---

F	"Union AL8722AS" or equal and approved aluminium anodised hat and coat hook complete with rubber buffer	No.	1
---	---	-----	---

G	"Union CZ8731SC" or equal and approved door stop	No.	2
---	--	-----	---

H	Robe hook double - polished finish; Code: 10BB46011P; Grade 304 Stainless Steel or equal and approved robe hook	No.	1
---	---	-----	---

TIMBER STRIPS CEILING

J	150mm wide x 12mm timber strips between timber joists, prepared for painting (painting elsewhere measured), fixed to Architect's Approval.	m2	33
---	--	----	----

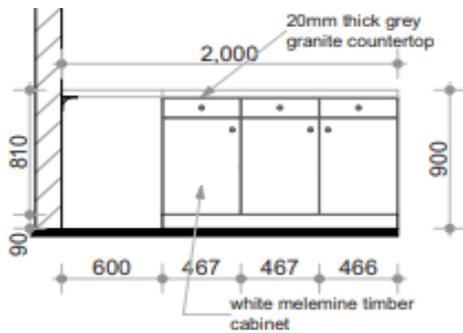
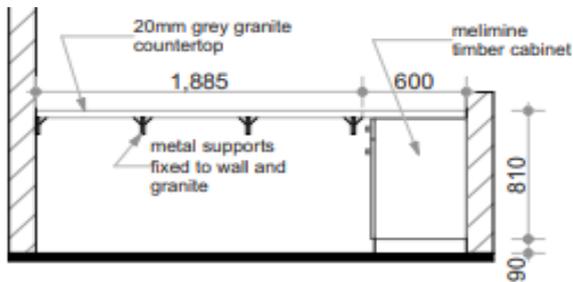
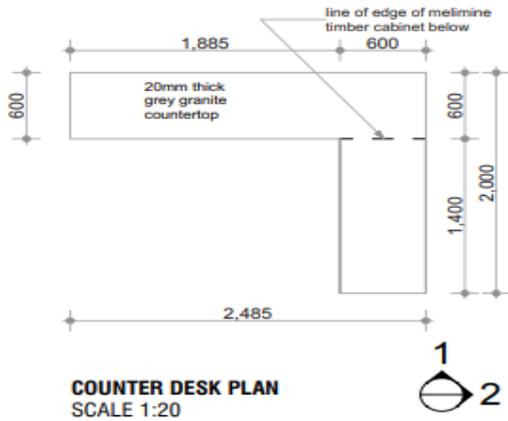
Carried to Collection

OFFICE WORKTOPS AND CABINETS

White Melamine faced cupboards with 192mm x 20mm stainless steel handles and including 20mm grey granite counter top supported with mild steel brackets fixed to the walls

- A L-shape 'White Melamine cupboards size overall length 3885mm long x 600mm deep x 900mm high including 20mm grey granite counter top supported with mild steel brackets fixed to the walls to Architect's approval. **(Refer to BOQ Diagrams below and Architect's drawing A/204)**

No. 1



Carried to Collection

SECTION NO 5 - GATEHOUSE

BILL NO. 6

JOINERY AND IRONMONGERY

Total BROUGHT FORWARD from Page Number

5/6/1

5/6/2

Carried FORWARD to Summary of Section No. 5

SECTION NO. 5 - GATEHOUSE

BILL NO. 7

METALWORK

For Preambles see General Specification

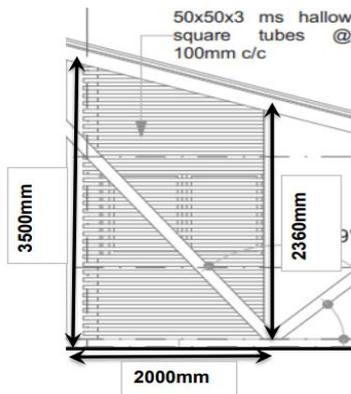
PRIMED PRESSED METAL DOOR FRAMES

Standard pressed metal door frame and linings for 44mm thick doors complete with cramps for building in and steel butts

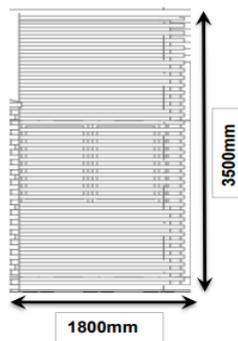
- | | | | |
|---|--|-----|---|
| A | Frame to suit half brick wall plastered both sides, overall size 813 x 2100mm high with a gauge of 1.2mm | No. | 1 |
|---|--|-----|---|

MILD STEEL SCREENS

- | | | | |
|---|---|-----|---|
| B | Supply and Install trapezium "high pre galvanised" (colour to Architect's approval) mild steel screen made up of horizontal mild steel 50mm x 50mm x 3mm hollow square tubes at 100mm centre to centre, including all requisite welding, riveting, bolting, etc, fixed to Architect's approval. (Refer to BOQ Diagram below and Architect's drawing A/200) | No. | 2 |
|---|---|-----|---|



- | | | | |
|---|---|-----|---|
| C | Supply and Install rectangular "high pre galvanised" (colour to Architect's approval) mild steel screen overall size 1800mm x 3500mm high made up of horizontal mild steel 50mm x 50mm x 3mm hollow square tubes at 100mm centre to centre, including all requisite welding, riveting, bolting, etc, fixed to Architect's approval. (Refer to BOQ Diagram below and Architect's drawing A/200) | No. | 1 |
|---|---|-----|---|



Carried FORWARD to Summary of Section No. 5

SECTION NO. 5 - GATEHOUSE

BILL NO. 8

PLASTERING & WALL LININGS

For Preambles see General Specification

INTERNALLY

12mm One coat cement/sand plaster with woodfloat plaster finish on to the following surfaces

A	On walls	m2	49
B	Ditto in narrow widths not exceeding 300mm	m2	2

Render and set in one coat Rhinoset plaster, with steel trowel finish on to the following surfaces

C	On walls	m2	33
D	Ditto in narrow widths not exceeding 300mm	m2	2

CERAMIC WALL TILES

200 x 400mm "Off White Ceramic" wall tiles or equal and approved ceramic wall tiles with 3mm grout joints, to ceiling height above finished floor level, on adhesive to manufacturers recommendations including cleaning down on completion

E	To walls	m2	15
F	Ditto in narrow widths not exceeding 300mm	m2	1

Carried FORWARD to Summary of Section No. 5

SECTION NO. 5 - GATEHOUSE

BILL NO. 9

PAVINGS AND FLOOR COVERINGS

For Preambles see General Specification

SCREEDS

1:4 Cement / Sand Screeds

A	30mm Screed on floors, steel trowelled to receive terrazzo floor finish (terrazzo floor finish elsewhere measured).	m2	17
---	---	----	----

TERRAZZO PAVING

B	40mm "Polished Grey in-situ Terrazzo" with approved coloured marble chips, laid on concrete floors by specialists, including 30mm sand cement screed and 25mm x 3mm aluminium dividing strips, (aluminium dividing strips elsewhere measured)	m2	16
---	---	----	----

SKIRTING

C	75mm high "Polished Grey in-situ Terrazzo" skirting with approved coloured marble chips to match floor finish; laid to walls by specialists.	m	13
---	--	---	----

ALUMINIUM DIVIDING STRIPS

D	25mm x 3mm aluminium dividing strips	m	5
---	--------------------------------------	---	---

Carried FORWARD to Summary of Section No. 5

SECTION NO. 5 - GATEHOUSE

BILL NO. 10

PLUMBING AND DRAINAGE INSTALLATIONS, ETC
(PROVISIONAL)

For Preambles see General Specification

RAINWATER DISPOSAL

0.58mm Chromadeck Sheet Metalwork

A	110mm x 100mm eaves gutter, including fixing to roof members	m	5
B	100mm x 100mm rainwater downpipe fixed to walls, including mild steel holder bats at 1000mm centre to centre.	m	5
C	Extra for swan neck bend	No.	2
D	Extra for shoe bend	No.	2
E	Extra for stop end	No.	2

Testing

F	Allow for testing the rain water disposal installation including flushing out gutters, pipes, etc.	Item	
---	--	------	--

SANITARY FITTINGS

G	"Charisma close couple toilet, code: 19VS023 vitreous China" with concealed cistern brick wall mount or equal and approved water closet complete, complete with "P trap, lid, flap seat and fittings and bedding pan level in cement mortar on floor including jointing to waste pipes and water supply	No.	1
H	"Trevi vanity top code: 19NWTREVI size: 575mm x 465mm x 90mm white acrylic with overflow or equally approved glazed vitreous China wash hand basin, complete with over flow tube, 32 pvc bottle traps, plugs, chromium plated stays and chains complete with "Cobra Stellabright (Code 3294SB)" or equal approved chromium plated basin mixer; fixed to walls) and jointing to waste pipes and water supply	No.	1
J	'Stainless steel' tissue 2roll holder" or equal and approved toilet roll holder	No.	1
K	'SE 2 dolphin' liquid soap dispenser" or equally approved soap dispenser above wash hand basin.	No.	1
L	'HTZ 30 Auto hand dryer" or equal and approved hand dryer to Architect's approval	No.	1

Carried to Collection

<u>SANITARY PLUMBING</u>				
<u>uPVC Waste pipes</u>				
A	110mm waste pipe fixed to walls, soffits of slabs etc.	m	3	
B	50mm waste pipe fixed to walls, soffits of slabs etc.	m	1	
C	110mm Vent stack	m	3	
D	110mm Diameter gulley and grating UGA40 and 110mm gulley p-trap UGB40 and joint to 110mm uPVC pipe including encasing in concrete (Grade 15-20mm stone) carried up as kerb 75mm high above ground level and dished to grating including necessary formwork and finish smooth on all exposed faces.	No.	1	
<u>Extra over uPVC pipes for fittings</u>				
E	110mm plain bend	No.	1	
F	50mm bend with inspection eye	No.	1	
G	110mm Tee with inspection eye	No.	1	
H	110mm straight pan connector	No.	1	
J	110mm rodding eye	No.	1	
K	110mm Y Junction	No.	2	
L	135mm deg x 110mm bend	No.	1	
M	110mm one way vent valve	No.	1	
<u>Sundries</u>				
N	50 mm "P" or "S" rubber flexitrap joined to waste fitting and waste pipe	No.	1	
<u>Testing</u>				
P	Allow for testing of sanitary installations including flushing out pipes, cleaning out traps etc.	Item		
Carried to Collection				

HOT AND COLD WATER INSTALLATION

In order to prevent air from lodging in the pipes a proper inclination is to be maintained in fixing same

If applicable, labour bends are to be used at angles instead of elbows.

If the reduction in the size of the pipe takes place at an angle, the bend or elbow is to be the size of the larger pipe

Provision is to be made in long lengths for expansion and back nut connectors, which are to be inserted at convenient points for alterations and repairs.

All stop cocks are to be accessible.

Copper Pipes to BS 1971

A	15mm service pipe fixed to walls, soffits of slabs etc.	m	2
---	---	---	---

B	22mm service pipe fixed to walls, soffits of slabs etc.	m	3
---	---	---	---

Extra over copper pipes for fittings

C	15mm tee	No.	1
---	----------	-----	---

D	15mm elbow	No.	3
---	------------	-----	---

E	22mm elbow	No.	2
---	------------	-----	---

F	22mm x 15mm reducer	No.	1
---	---------------------	-----	---

G	50mm x 22mm reducer	No.	1
---	---------------------	-----	---

Supply and fix the following taps, cocks, etc.

H	22mm gate valve and jointing to pipes	No.	1
---	---------------------------------------	-----	---

J	15 mm stop cock and jointing to pipes	No.	2
---	---------------------------------------	-----	---

K	15mm diameter brass tap	No.	1
---	-------------------------	-----	---

Testing

L	Allow for testing all water services to the satisfaction of the Architect and Municipal Authorities and re-testing after making good all defects	Item	
---	--	------	--

Carried to Collection

BUILDERS' WORK IN CONNECTION WITH PLUMBING AND
ASSOCIATED SERVICES

HOLES

Leave or form hole for pipe not exceeding 50mm internal diameter
through

A	115mm thick brick walls	No.	1
---	-------------------------	-----	---

Leave or form hole for pipe not exceeding 50mm internal diameter
through

B	115mm thick brick walls	No.	1
---	-------------------------	-----	---

Leave or form hole for pipe not exceeding 50mm internal diameter
through

C	230mm thick brick walls	No.	3
---	-------------------------	-----	---

CHASES, ETC

D	Leave or form chase for pipe not exceeding 50mm internal diameter in brick walls, etc.	m	2
---	---	---	---

Carried to Collection

SECTION NO 5 - GATEHOUSE

BILL NO. 10

SHEET METALWORK, RAINWATER DISPOSAL, PLUMBING
AND DRAINAGE

Total BROUGHT FORWARD from Page Number

5/10/1

5/10/2

5/10/3

5/10/4

Carried FORWARD to Summary of Section No. 5

SECTION NO. 5 - GATEHOUSE

BILL NO. 11

For Preambles see General Specification

GLAZING

A 4mm Polished sheet glass silvered back mirror, size 1000mm x 600mm high, with bevelled edges sprayed on back with lacquer before fixing on plywood backing and polished edges, holed for and including four dome capped chromium plated mirror screws with felt washers and fixed in position to wall	No. 1
---	-------

Carried FORWARD to Summary of Section No. 5

<u>SECTION NO. 5 - GATEHOUSE</u>				
<u>BILL NO. 12</u>				
<u>PAINTING</u>				
For Preambles see General Specification				
<u>Prepare, stop and apply one undercoat and two finishing coats internal quality dove grey PVA paint on the following steel trowelled surfaces</u>				
A	On walls	m2	33	
B	Ditto to narrow widths not exceeding 300mm	m2	2	
<u>ON WOOD</u>				
<u>Prepare, stop and apply one undercoat, two finishing coats white enamel paint (colour to Architect's approval) on the following surfaces</u>				
C	On general surfaces of timber doors	m2	4	
<u>Prepare, stop and apply one undercoat and 2 coats of internal pva paint (colour to Architect's approval) on the following surfaces</u>				
D	On 150mm x 12mm thick timber strips in between timber joists	m2	33	
E	On 225mm x 38mm exposed timber joists	m2	10	
<u>ON METAL</u>				
<u>Prepare, stop and apply one undercoat, two finishing coats white enamel paint (colour to Architect's approval) on the following surfaces</u>				
F	On door frames and linings	m2	1	
<u>BRICK DRESSING ON FACE BRICKS</u>				
<u>Prepare, clean and apply 3 coats brick dressing on the following surfaces</u>				
G	On light brundle face brick	m2	40	
<u>TOUCH UP</u>				
H	Touch up and clean paint work requiring it, scrub floors and pavings, clean down glass and leave premises and site clean and whole site ready for occupation	Item		
Carried FORWARD to Summary of Section No.5				

SECTION NO. 5 - GATEHOUSE

BILL NO. 13

For Preambles see General Specification

ALUMINIUM WORKS

NATURAL ANODIZED ALUMINIUM (COLOUR TO ARCHITECT'S APPROVAL) WINDOWS ERECTED ADJUSTED AND FIXED IN POSITION INCLUDING GLAZING AND IRONMONGERY

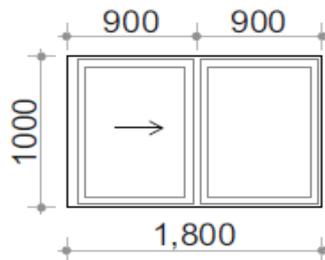
All prices are deemed to include for the complete supply and installation

ALUMINIUM WINDOW UNITS

"Wispeco 340 system" or other approved Bronze anodised aluminium windows, with panes factory-glazed with glass as specified, complete with aluminium square glazing beads draft seals, rubber buffers, including setting up and fixing in position and unless otherwise described, plugging and screwing to brickwork or concrete unless otherwise described, including sealing all round on both sides with approved silicone sealant

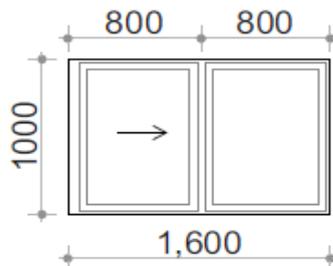
- A Bronze anodized aluminium sliding purpose made window overall size 1800mm x 1000mm high all glazed with 4mm clear glazing, clip on aluminium beads and neoprene wedge gaskets and "Union Assa Abloy 2xAL 5512BB " aluminium handles with back to back fixing supplied with frame installed complete, fixed to Architect's approval. **(Refer to BOQ Diagram below and Architect's drawing A/201 - WT01; WT03)**

No. 2



- B Bronze anodized aluminium sliding purpose made window overall size 1600mm x 1000mm high all glazed with 4mm clear glazing, clip on aluminium beads and neoprene wedge gaskets and "Union Assa Abloy 2xAL 5512BB " aluminium handles with back to back fixing supplied with frame installed complete, fixed to Architect's approval. **(Refer to BOQ Diagram below and Architect's drawing A/201 - WT02)**

No. 1



Carried to Collection

SECTION NO 5 - GATEHOUSE

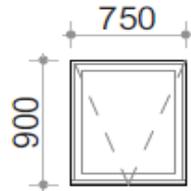
Bill No. 13

ALUMINIUM WORKS

ZIMRA A/200

T N ZUNZANYIKA ASSOCIATES

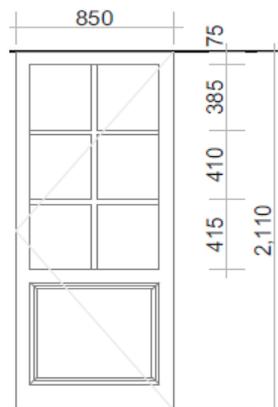
- A Bronze anodized aluminium top hung purpose made window overall size 750mm x 900mm high all glazed with 4mm clear glazing, clip on aluminium beads and neoprene wedge gaskets and "Union Assa Abloy 2xAL 5512BB " aluminium handles with back to back fixing supplied with frame installed complete, fixed to Architect's approval. **(Refer to BOQ Diagram below and Architect's drawing A/201 - WT05)**



No. 1

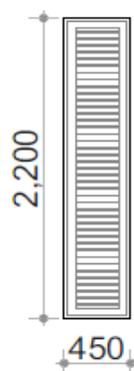
ALUMINIUM DOORS

- B Natural anodized aluminium door overall size 850mm x 2110mm with 6 panels and solid fielded panel both sides below. Glass- 8.76mm HPR laminated clear glass, glazing beads to be silicone. 3mm solid steel plate to be fixed panels for security purposes. The glazing beads are to be silicone fixed to the cottage pane for further security, fixed to Architect's approval. **(Refer to BOQ Diagram below and Architect's drawing A/201 - D01)**



No. 1

- C Bronze anodized aluminium side hung louvered purpose made door overall size 450mm x 2200mm high, with aluminium handles with fixing supplied with frame installed complete, fixed to Architect's approval. **(Refer to BOQ Diagram below and Architect's drawing A/201 - WT04)**



No. 1

Carried to Collection

SECTION NO 5 - GATEHOUSE

BILL NO. 13

ALUMINIUM WORKS

Total BROUGHT FORWARD from Page Number

5/13/1

5/13/2

Carried FORWARD to Summary of Section No. 5

SECTION NO. 5 - GATEHOUSE

SUMMARY

1	Foundations	5/1/4	
2	Concrete	5/2/1	
3	Brickwork	5/3/1	
4	Waterproofing & Insulation	5/4/1	
5	Roof Covering & Carpentry	5/5/1	
6	Joinery and Ironmongery	5/6/1	
7	Metalwork	5/7/1	
8	Plastering and Wall Linings	5/8/1	
9	Pavings and Floor Coverings	5/9/1	
10	Sheet Metalwork, Plumbing and Associated Services	5/10/5	
11	Glazing	5/11/1	
12	Painting	5/12/1	
13	Aluminium Works	5/13/3	
	Sub-Total 1no. UNIT	ZWL\$	
			x 3no. UNITS
	Total for 3no. UNITS Carried Forward to FINAL SUMMARY	ZWL\$	

SECTION NO. 6

-

ELECTRICAL ENGINEERING WORKS

THE DESIGN TEAM CONSULTING ENGINEERS
ZIMRA PERIMETER WALL
ELECTRICAL WORKS

Item	Description	Unit	Qty	Unit Cost(ZWLS)	Total Cost (ZWL)
A SECURITY AND PERIMETER LIGHTING					
A.1	LED SHINE Modern LED post top IP 65 40W or equally approved	No	40		
A.2	Type A - LEDDISK-MIDI Decorative suspended LED downlight luminaire IP 54 16W or equally approved	No	9		
A.3	Type B - 80mm Cool White Downlight c/w 9W LED lamp or equally approved	No	3		
A.4	SOLARPOLE Integrated LED solar lighting solution IP 66 Max.70W c/w Lithium battery or equally approved	No	10		
A.5	13A Double Socket Outlet	No	6		
A.6	15A Socket Outlet	No	3		
A.7	3 Gang 2 Way Switch	No	8		
A.8	2 Gang 2 Way Switch	No	6		
A.9	6mm ² 4 Core PVC SWA PVC	m	300		
A.10	1.5mm Single Core Black	m	340		
A.11	1.5mm Single Core Red	m	340		
A.12	2.5mm Single Core Black	m	100		
A.13	2.5mm Single Core Red	m	100		
A.14	Water tight termination Block	No	40		
A.15	Any other to complete installation	lot	1		
A.16	Trenching & Backfill	m	300		
	Sub Total				
B 2KVA Solar System					
B.1	Jinko Solar 330W Monocrystalline Solar Panels or equally approved	No	24		
B.2	2KVA 48V Hybrid Inverter 3 Phase Victron or equally approved	no	3		
B.3	Lithium Ion Battery 48V 100Ah	no	6		
B.4	6mm DC Cable	no	120		
B.5	Any other items required to complete Solar Installation	lot	1		
	Sub Total				
C Feeder Pillar to SDB - 1					
C.1	Feeder Pillar complete with Metering	No	1		
C.2	Sub Distribution Board - 1	No	1		
C.3	16mm 4 core PVC SWA PVC	m	50		
C.4	16mm BCEW	m	50		
C.5	Size 2 Gland & Shroud	No	2		
C.6	16mm x 12mm lugs	No	8		
C.7	50mm Duct	m	10		
C.8	Trenching & Backfill	m	40		
C.9	Sub Total				

6/1/1

D	Feeder Pillar to SDB - 2				
D.1	Sub Distribution Board	No	1		
D.2	16mm 4 core PVC SWA PVC	m	55		
D.3	16mm BCEW	m	55		
D.4	Size 2 Gland & Shroud	No	2		
D.5	16mm x 12mm lugs	No	8		
D.6	50mm Duct	m	10		
D.7	Trenching & Backfill	m	40		
	Sub Total				
E	Feeder Pillar to SDB - 3				
E.1	Sub Distribution Board - 3	No	1		
E.2	25mm 4 core PVC SWA PVC	m	95		
E.3	25mm BCEW	m	95		
E.4	Size 3 Gland & Shroud	No	2		
E.5	16mm x 12mm lugs	No	8		
E.6	50mm Duct	m	25		
E.7	Trenching & Backfill	m	80		
E.8	Zesa Liason fee	lot	1		
	Sub Total				
	Sub Total (Items A+ B+C+D+E)				
	Add				
	Labour				
	Sub Total carried forward to FINAL SUMMARY				

SECTION NO. 7

-

CIVIL ENGINEERING WORKS

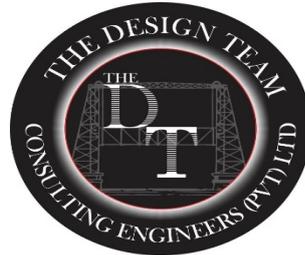
BILLS OF QUANTITIES

SEWER AND WATER RETICULATION

FOR BOUNDARY WALL

FOR

ZIMRA BULAWAYO STAND 17009



BILL NO.1:SEWER RETICULATION

Item	Description	Unit	Qty	Rate	Amount
	BILL 01:SEWER RETICULATION				
	Site Clearance				
1.1	Clear and grub the line to a minimum of 2m including removal of trees with girth not exceeding 0.5m measured 1m above the ground.	m	130		
b	Remove trees over 1m girth measured 1m above the ground	no	R/O		
1.2	Excavation and backfilling Excavate in all materials, pipe trenches OD+500 wide backfill to to 91% Mod A ASHTO to 300mm above pipe crown, compact and dispose of surplus material within freehaul distance of 1.5km depth measured from ground level to pipe invert level. rates to include dewatering				
1.2.1	For 110mm uPVC pipes for depths:				
1.2.1.1	Depth not exceeding 1.5m				
1.2.1.2	i) 110mm dia	m	130		
1.2.1.3	Allowance for pipe connections, fittings etc				
	Fittings				
	i)110mm x 45 pvc plain bends	No	15		
	ii)110mm x 87.5 underground bends	No	3		
	iii)110mm pvc straight pan connectors	No	4		
	iv) 110mm pvc surface inspection eye pipe	No	10		
1.3	Excavate for manholes,bases and other structures measured in excess of trench depth				
1.3.1	Depth not exceeding 1.5m				
	i)1000mm dia	m3	169		
1.4	Manholes Construct manholes including complete with manhole covers and locking bars and padlock. Rates to include testing				
	i)1000mm dia	No	2		
	CARRIED FORWARD				

BILL NO.3:SEWER RETICULATION

Item	Description	Unit	Qty	Rate	Amount
	CONNECTION AND LIASON WITH MUNICIPALITY				
1.5	Allowance for Municipal Liaison and Connection fee	Lot	1		
	TOTAL CARRIED TO SUMMARY				

BILL NO.2: WATER RETICULATION

Item	Description	Unit	Qty	Rate	Amount
2.1	SITE CLEARANCE				
2.1.1	Clear and grub the line to a minimum width of 2m including removal of trees with girth not exceeding 0.5	m	400		
2.2	EXCAVATION AND BACKFILLING				
2.2.1	Excavate in all materials, pipe trenches OD+500 wide backfill to 91% Mod AASHTO and 150mm above pipe crown, dispose of surplus material within freehaul distance of 1.5km. i) for 50mm HDPE diameter pvc pipes	cum m	400		
2.2.2	Excavate valve chamber bases and other structures measured in excess of trench excavation and depth	cum	2		
2.2.3	Extra over item 2.2.1 for excavation in hard material or rock irrespective of depth, backfill, compaction to 91% Mod AASHTO to 100mm underside of pipe in i) Hard material (Prov) ii)Rock (Prov)	cum cum	R/O 5		
2.2.4	Anthill excavation to spoil within 500m including treatment of affected areas	cum	10		
TOTAL CARRIED FORWARD					

BILL NO.2: WATER RETICULATION

Item	Description	Unit	Qty	Rate	Amount
TOTAL BROUGHT FORWARD					
2.3	PIPELAYING AND PIPE FITTINGS Supply, inspect, take delivery, transport to site,load,unload handle, lay,joint and test to a head as specified the following HDPE Class 10 pipes, specials and valves.				
	HDPE PIPES CLASS 10				
2.3.1	In 6m lengths with one rubber ring joint per length i)50mm	m	400		
	Extra over for 2.3.1 for connection and supply meter i)50mm Water Supply Meter	No.	1.00		
2.3.2	VALVES Plain ended valves as specified with 2CISC joints each				
	i)50mm gate valve	No.	1		
	ii)50mm Non return valve	No.	1		
2.3.3	Fittings for HDPE PVC piping (including all necessary joints)				
	a) bends and transmission pieces				
	i) 50mm equal bends	No.	3		
	ii) 50mm transission piece	No.	3		
	b) Tees				
	ii) 50mm equal Tee	No.	3		
	CONNECTION AND LIASON WITH MUNICIPALITY				
	Allowance for Municipal Liason and Connection fee	Lot	1		
TOTAL CARRIED FORWARD					
TOTAL BROUGHT TO SUMMARY					

THE DESIGN TEAMCONSULTING ENGINEERS

WATER AND SEWER RETICULATION BOQ SUMMARY

Item	Description	Amount ZWL\$
1	WATER RETICULATION	
2	INTERNAL SEWER RETICULATION	
	TOTAL CARRIED FORWARD TO FINAL SUMMARY	

FINAL SUMMARY

FINAL SUMMARY

<u>SECTION</u>	Page		
1 SECTION NO.1 : SPECIAL NOTES TO CONTRACTOR	1-6		
2 SECTION NO.2 : TRADE PREAMBLES AND SPECIFICATIONS	1- 31		
3 SECTION NO.3 : PRELIMINARIES AND GENERALS	3/1/15		
4 SECTION NO.4 : MEASURED WORKS - BOUNDARY WALL	4/7/1		
5 SECTION NO.5 : MEASURED WORKS - GATE HOUSE (3no. UNITS)	5/1/14		
6 SECTION NO.6 : MEASURED WORKS - ELECTRICAL ENGINEERING WORKS	6/1/2		
7 SECTION NO.7 : MEASURED WORKS - CIVIL ENGINEERING WORKS	7/1/1		
SUB TOTAL 1		ZWL\$	
ADD: CONTINGENCY @ 10%		ZWL\$	
SUB TOTAL 2		ZWL\$	
ADD: VALUE ADDED TAX @ 14.5%		ZWL\$	
FINAL TOTAL CARRIED FORWARD TO BID SUBMISSION SHEET		ZWL\$	

ANNEXURES

ANNEXURE A

LABOUR RATES APPLICABLE TO AUTHORISED DAYWORKS

The Tenderer shall indicate below, all categories of labour he proposes to use in the execution of the Contract and their respective rates. The rates inserted shall be the total cost to the Employer in respect of daywork carried out by the Contractor and shall include for all the contractor's profits, variable and continuing costs, overheads, supervision, wages, accommodation, travelling subsistence and other costs relative to the employment by the Contractor of the personnel detailed and for hand and portable tools to the trade of the respective personnel.

The application and use of these rates pursuant upon Clause 50 of the Government of Zimbabwe General Conditions of Contract shall be at the sole discretion and subject to the prior approval of the Project Manager.

Costs for personnel above the position of CHARGEHAND shall be an overhead.

Item No.	labour Category	Normal time per Hour	Overtime per Hour	Sunday & Public Holiday
----------	-----------------	----------------------	-------------------	-------------------------

The Tenderer's normal working week comprises hours being from am to pm, Monday to Friday and am to pm on Saturdays after which overtime rates become applicable.

WITNESSES

1
SIGNATURE OF TENDERER

2
DATE

A 1

ANNEXURE B

PLANT AND MATERIAL RATES APPLICABLE TO AUTHORISED DAYWORKS

CONSTRUCTION PLANT

The Tenderer shall indicate below all categories of construction equipment proposed for use in execution of the Contract together with their hire rates

Rates contained herein are deemed inclusive of driver/operator/banks man where necessary and all fuels and other costs relative to the operation of the construction equipment detailed.

The application and use of these rates shall be at the sole discretion and subject to the prior approval of the Project Manager.

Item	Description	Rates per hour	Rates per Week	Standing per Hour
-------------	--------------------	-----------------------	-----------------------	--------------------------

MATERIALS

The Tenderer shall indicate hereunder the percentage mark-up required on the net cost of material delivered on site % (Insert percentage mark –up).

WITNESSES

1
SIGNATURE OF TENDERER

2
DATE



ANNEXURE C

LABOUR BASIC PRICE LIST

The Tenderer shall enter below the details of all categories of labour, which he envisages to employ on this Contract and on which fluctuations of wages, etc. will be claimed. In the event of any item being omitted, the Contract will be regarded as fixed in respect of that item. Furthermore, if the present ruling rates are incorrectly stated in the schedules, the tendered price will nevertheless be deemed to have been based on the correct ruling rates.

Labour Category	Unit	Rate	Comments
-----------------	------	------	----------

WITNESSES

1	.....	..... SIGNATURE OF TENDERER
2	.....	..... DATE

A 3

ANNEXURE D

MATERIALS BASIC PRICE LIST

The Tenderer shall enter below the details of all items of materials on which fluctuations of price will be claimed. Actual materials and prices should be listed. Reference to Manufacturer's Price Lists will not be accepted. In the event of any item being omitted, the Contract will be regarded as fixed in respect of that item. Furthermore, if present ruling rates are incorrectly stated in the schedules, the tendered price will be nevertheless be deemed to have been based on the correct ruling rates.

In the event of the Contractor obtaining materials from Suppliers other than those listed below, he shall seek the Project Manager's written permission prior to doing so

Description of Materials	Unit	Price	Comments
--------------------------	------	-------	----------

WITNESSES

1	.....	..... SIGNATURE OF TENDERER
2	.....	..... DATE

A 4

ANNEXURE E

SCHEDULE OF EXCHANGE RATES AT TIME OF TENDER

The Contractor is required to fill the schedule below detailing the exchange rates of the Zimbabwean Dollar (ZWL\$) to major world currencies:

Currency Unit		Zimbabwean Dollar (ZWL\$)
1. 1 United States Dollar	=	
2. 1 British Pound Sterling	=	
3. 1 Euro	=	
4. 1 Japanese Yen	=	
5. 1 South African Rand	=	

WITNESSES

1

.....
SIGNATURE OF TENDERER

2

.....
DATE

A 5

ANNEXURE F

PROPOSED CASH FLOW SCHEDULE

The Tenderer is to submit a detailed monthly representation of the tenderer's anticipated cash flow based on the proposed price and programme of works. The Contractor will be required to update this information as and when required by the Project Manager.

Contract Month	Amount (ZWL\$)
-----------------------	-----------------------

WITNESSES

1

.....
SIGNATURE OF TENDERER

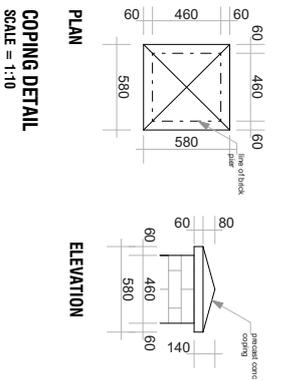
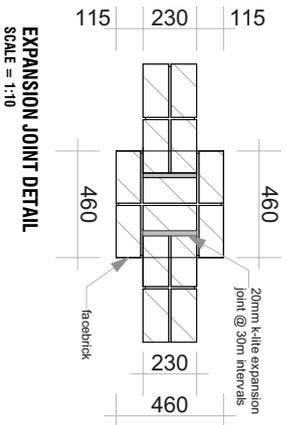
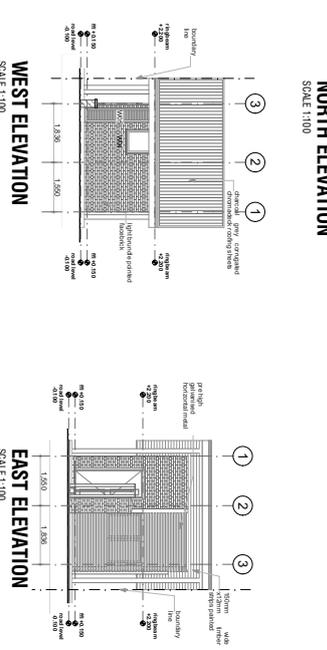
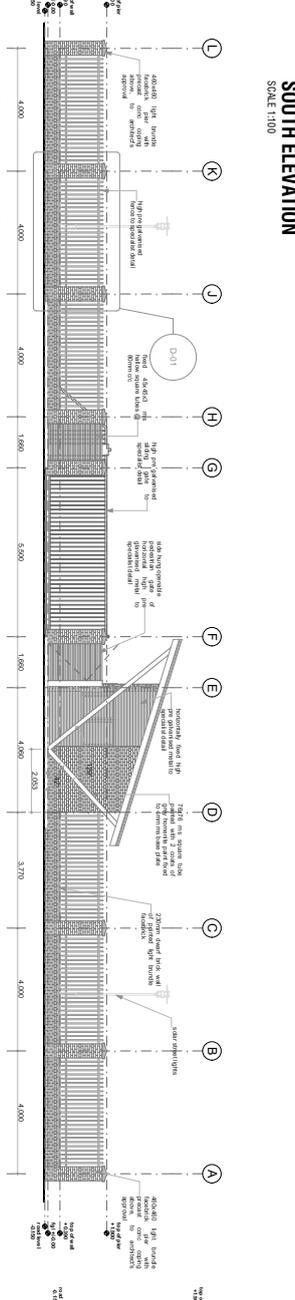
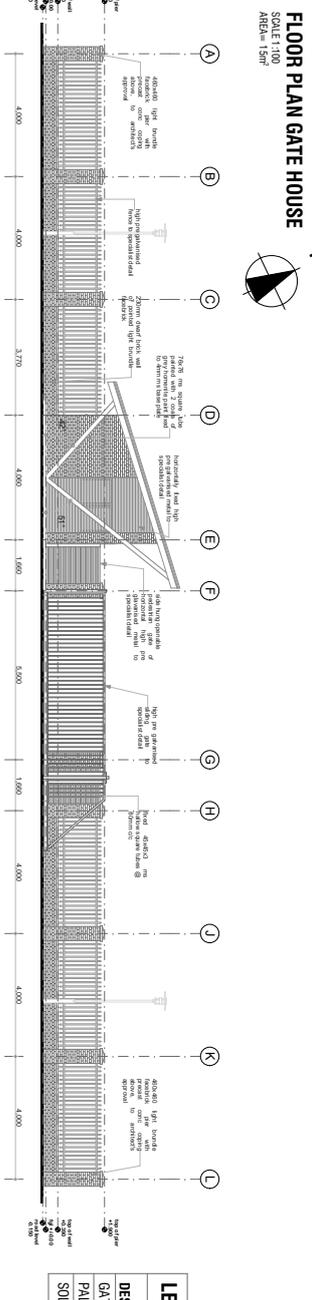
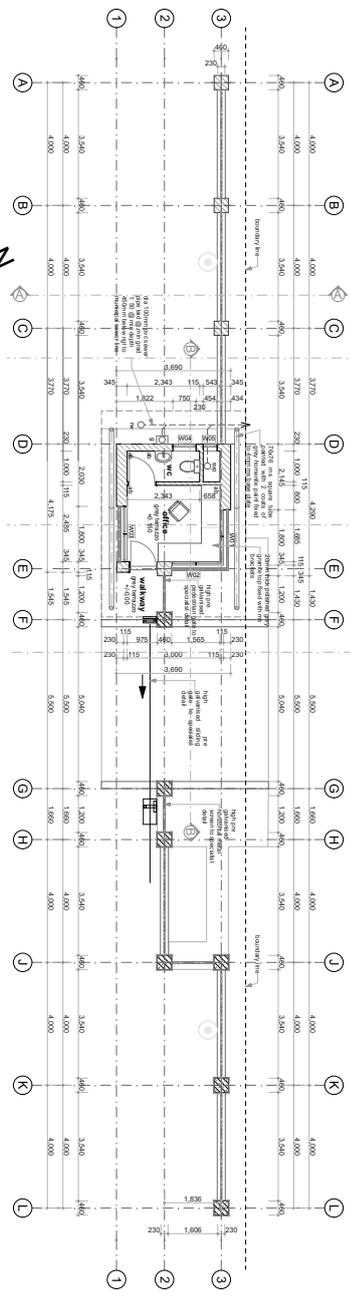
2

.....
DATE

ANNEXURE G

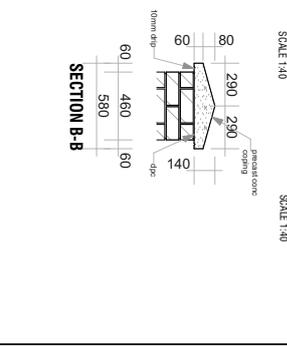
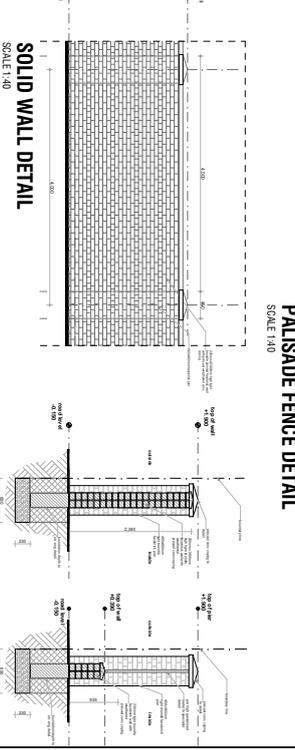
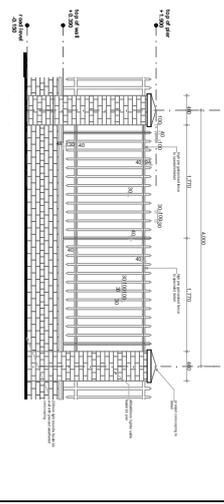
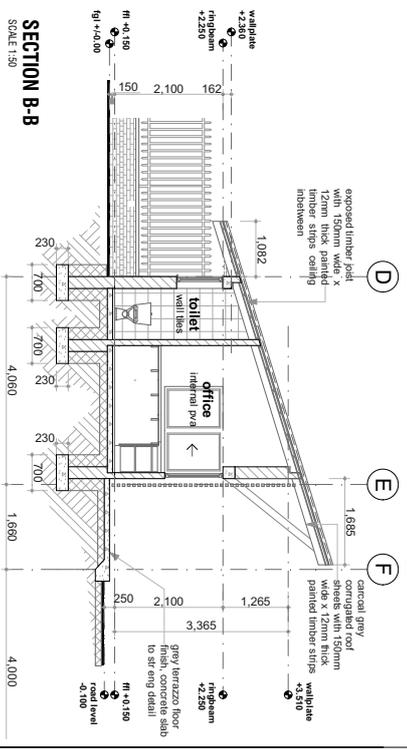
-

DRAWINGS USED IN PREPARATION OF THE BILLS OF QUANTITIES



LEGEND

DESCRIPTION	QUANTITY
GATE HOUSES	X3 UNITS
PALISADE FENCE	192m
SOLID FENCE	221m



- GENERAL NOTES**
- Drawings are in metric units. All dimensions are to be indicated on the drawings unless otherwise stated.
 - Work to be done in accordance with the relevant standards and specifications of the relevant authorities and industry practice.
 - This drawing is the property of the client. It is to be used for the project only and is not to be reproduced or used for any other purpose without the written consent of the architect.
 - Drawings are to be read in conjunction with the specifications and bills of materials.

REVISION	DATE	BY	DESCRIPTION

NOTES

FOR TENDER

CLIENT

ZIMBABWE REVENUE AUTHORITY (ZIMRA)

SCALE	AS SHOWN
DATE	19.08.2021
DESIGNED	APX/DESIGN
DRAWN	T.MUNYWA
CHECKED	L.C.
APPROVED	

APEX DESIGN Architect

PROJECT

PROPOSED ZIMRA REGIONAL HEAD OFFICE STAND 1709 FIFTEENTH AVE BULAWAYO

DRAWING

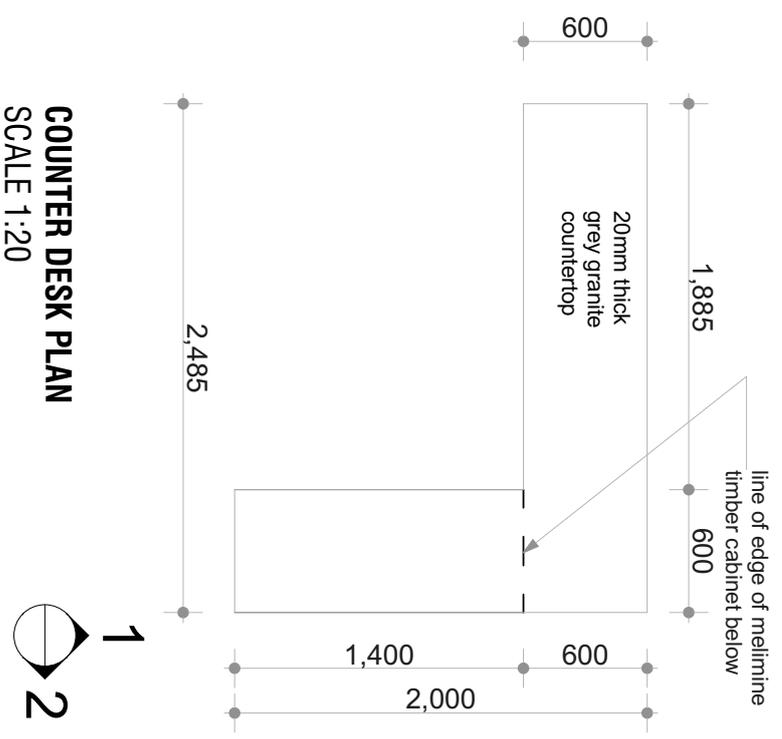
GATE HOUSE

DRAWING NO.

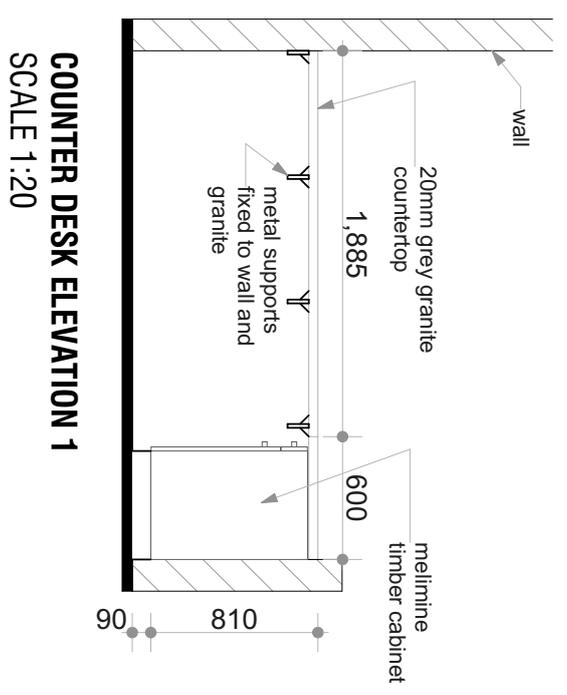
A/200

DATE

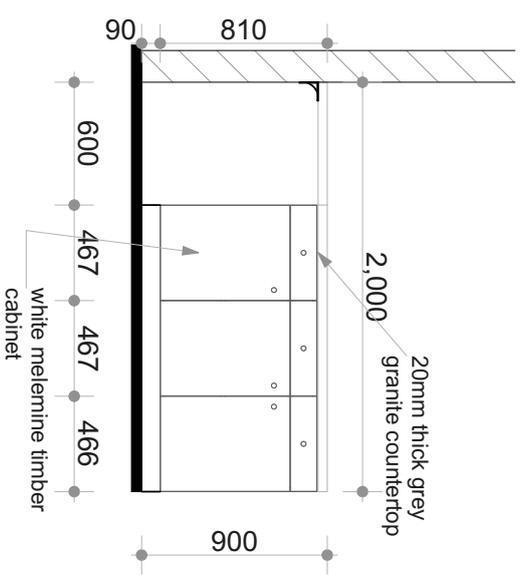
19.08.2021



COUNTER DESK PLAN
SCALE 1:20



COUNTER DESK ELEVATION 1
SCALE 1:20



COUNTER DESK ELEVATION 2
SCALE 1:20

- GENERAL NOTES**
1. Show each dimension, all dimensions shall be indicated in millimetres.
 2. Refer to the notes on the drawings for any specific details.
 3. All dimensions are to the face unless otherwise stated.
 4. Materials and finishes shall be as specified in the bill of materials.
 5. All dimensions are to the face unless otherwise stated.
 6. All dimensions are to the face unless otherwise stated.

REV	DATE	DESCRIPTION

NOTES

FOR TENDER

CLIENT

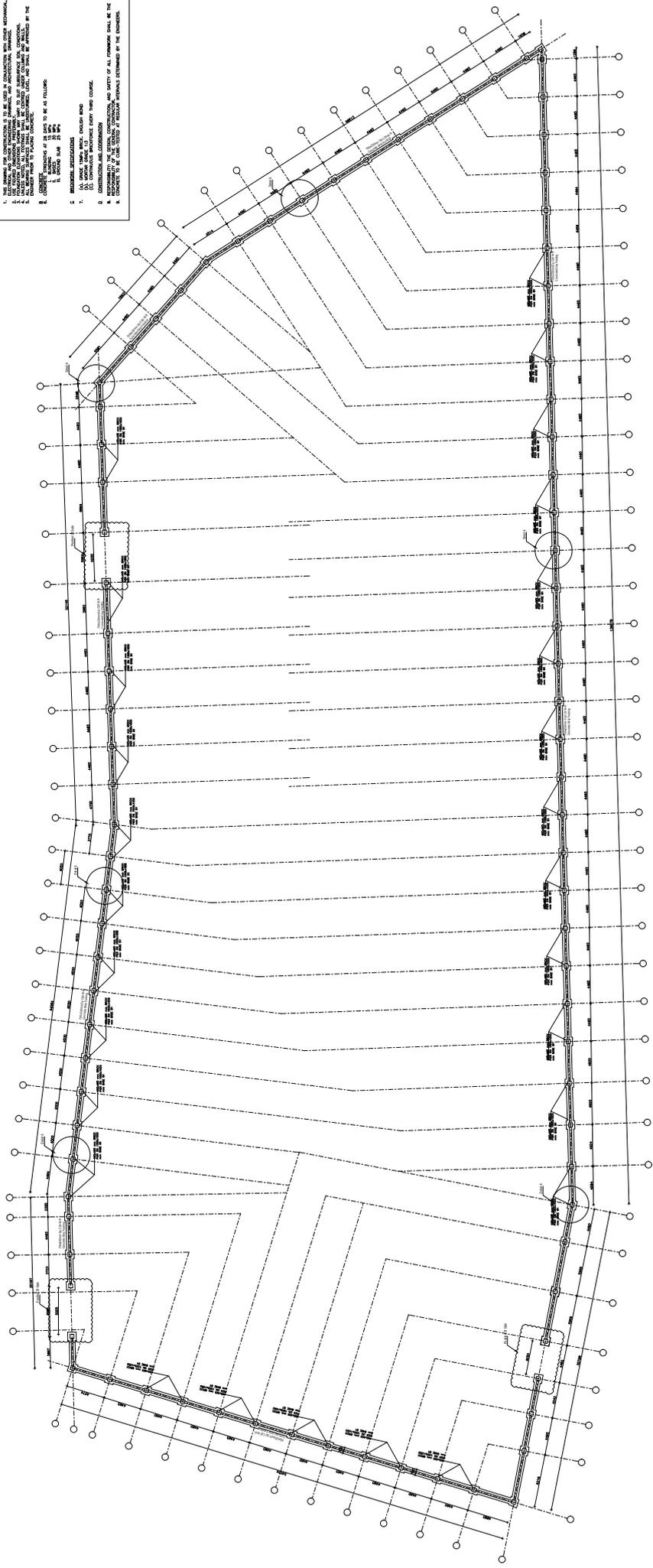
ZIMBABWE REVENUE AUTHORITY (ZIMRA)

SCALE	AS SHOWN
DATE	18/08/2021
DESIGNED	PEREGRINUS
DRAWN	T. CHIMWANDA
CHECKED	L.C.
APPROVED	

APEX DESIGN
Architect

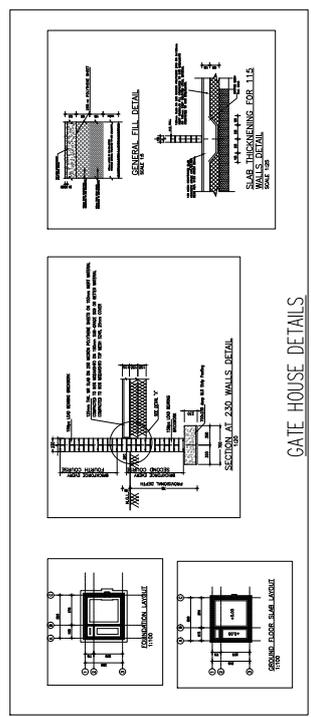
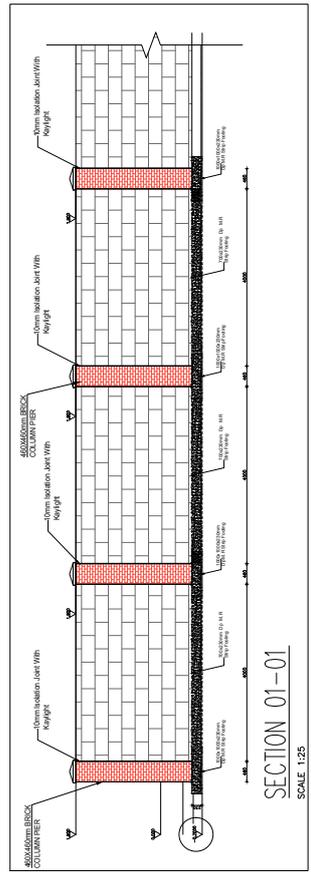
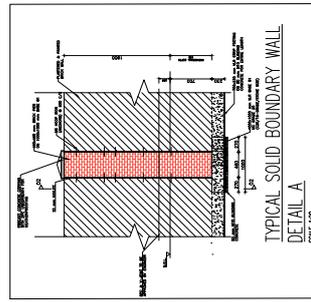
PROJECT	DRAWING NO.
PROPOSED ZIMRA REGIONAL HEAD OFFICE STAND 17/08 FIFTEENTH AVE BULAWAYO	A/204
COUNTER DESK DETAIL	

- GENERAL NOTES**
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE ZIMBABWE NATIONAL BUILDING REGULATIONS AND THE ZIMBABWE NATIONAL BUILDING CODE.
 2. ALL WORK SHALL BE IN ACCORDANCE WITH THE ZIMBABWE NATIONAL BUILDING REGULATIONS AND THE ZIMBABWE NATIONAL BUILDING CODE.
 3. ALL WORK SHALL BE IN ACCORDANCE WITH THE ZIMBABWE NATIONAL BUILDING REGULATIONS AND THE ZIMBABWE NATIONAL BUILDING CODE.
 4. ALL WORK SHALL BE IN ACCORDANCE WITH THE ZIMBABWE NATIONAL BUILDING REGULATIONS AND THE ZIMBABWE NATIONAL BUILDING CODE.
 5. ALL WORK SHALL BE IN ACCORDANCE WITH THE ZIMBABWE NATIONAL BUILDING REGULATIONS AND THE ZIMBABWE NATIONAL BUILDING CODE.
 6. ALL WORK SHALL BE IN ACCORDANCE WITH THE ZIMBABWE NATIONAL BUILDING REGULATIONS AND THE ZIMBABWE NATIONAL BUILDING CODE.
 7. ALL WORK SHALL BE IN ACCORDANCE WITH THE ZIMBABWE NATIONAL BUILDING REGULATIONS AND THE ZIMBABWE NATIONAL BUILDING CODE.
 8. ALL WORK SHALL BE IN ACCORDANCE WITH THE ZIMBABWE NATIONAL BUILDING REGULATIONS AND THE ZIMBABWE NATIONAL BUILDING CODE.
 9. ALL WORK SHALL BE IN ACCORDANCE WITH THE ZIMBABWE NATIONAL BUILDING REGULATIONS AND THE ZIMBABWE NATIONAL BUILDING CODE.
 10. ALL WORK SHALL BE IN ACCORDANCE WITH THE ZIMBABWE NATIONAL BUILDING REGULATIONS AND THE ZIMBABWE NATIONAL BUILDING CODE.



FOUNDATION LAYOUT

SCALE 1:100



THE DESIGN TEAM CONSULTING ENGINEERS
 No. 52 BLACKBURN ROAD
 EMERALD HILL
 HARARE
 TELEPHONE 04 303719, 06644089400
 CELL: 263 772 693 543
 EMAIL: designteamconsult@yahoo.com

ZIMBABWE ASSOCIATION OF ENGINEERS CONSULTANTS

REV	DESCRIPTION	DATE	BY	ARCHITECT

OFFICE	HARARE	PROJECT	PROPOSED ZIMBA BOUNDARY WALL
DESIGNED	T.D.T	SCALE	AS SHOWN
DRAWN	T.D.T	DATE	AUG 2021
Checked	T.D.T	REV	TDT/S/106/20-11/02
TITLE			BOUNDARY WALL FOUNDATION LAYOUT, DETAILS & SECTIONS, GATE HOUSE DETAILS
DRAWING No.			TDT/S/106/20-11/02
REV			00

