



NKANGALA DISTRICT MUNICIPALITY



PROJECT NO: 57532

THEMBISILE HANI LOCAL MUNICIPALITY: CONSTRUCTION OF MOLOTO COMMUNITY HALL, PHASE 2

SCOPE OF WORK

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C3.1 DESCRIPTION OF WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

This contract covers the supply of all material, labour, plant and equipment for the construction of the community hall in Moloto and all associated infrastructure.

The employer's objectives are to deliver public infrastructure using labour-intensive methods and subcontractors where possible. The project will be executed using both conventional construction methods as well as labour based methods. This is as per the program of the National Department of Public Works the Special Public Works Programme (SPWP) as the guidelines of the Expanded Public Works Programme (EPWP).

Labour-intensive works comprise the activities described in SANS 1921-5/Earthworks activities that are to be performed by hand/Labour-Intensive Specification ⁽¹⁾ and its associated specification data. Such works shall be constructed using local workers who are temporarily employed in terms of this scope of work.

Bidders must note that preference will be given to local based companies and that this bid may be awarded to more than one company.

C3.1.1.1 LOCAL SMMEs DEVELOPMENT

The Contractor will be required to employ local SMMEs Sub-Contracting Company to assist with the excavations of trenches and foundations. The SMMEs Company will be responsible for the appointment of local labourers from the Nkangala District community.

Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

The rate of pay set in the SAFCEC tables (South African Federation of Civil Employer's Agenting Contractors). The rate of pay set in the SAFCEC tables (South African Federation of Civil Employer's Agenting Contractors). Sub-contractors must be paid fortnightly and the main contractor must allow for financing such payouts. Sub-contractors must be paid within 7 days from presenting invoice and failure to adhere will be penalised R1 000/day. Failure of sub-contractors for non-payment of his labour will be penalised at 50% of his payment by the main contractor. Contractor must provide enter market-related rates.

The contractor must familiarise him/herself with the abovementioned requirements and price this document accordingly.

C3.1.1.2 KEY PERSONNEL

The Contractor shall maintain the involvement of the key personnel as the exigencies of this contract. Should it become necessary to replace any of the key personnel as detailed at the time of the tender during the course of this contract, they may only replace by individuals with similar or better qualifications and experience and only when a written approval has been obtained from the municipality

Sufficient suitably qualified professional staff must be made available by the contractor and sub-contractor to undertake the full scope of the project. The personnel must be knowledgeable and experienced in their fields of expertise and must be currently actively involved in these fields. The tenderer must include documentary evidence that each proposed key personnel meets these requirements.

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The person nominated to act as project site agent for the project must be a registered with the Engineering Council of South Africa (ECSA) as a Candidate Engineering Technician and be in a possession of a diploma in Civil Engineering and have subsequent there of one-year experience in roads construction.

The person nominated for construction monitoring must have a certificate in Civil Engineering with one-year experience in supervision of roads construction.

C3.1.2 OVERVIEW OF THE WORKS

Construction of the community hall in Moloto Village, Thembisile Hani Local Municipality and shall include:

Village	Moloto
Province	Mpumalanga Province
District	Nkangala District Municipality
Locality	Thembisile Hani Local Municipality
Longitude	28° 38' 25.23" E
Latitude	25° 27' 22.92" S

C3.1.3 EXTENT OF WORKS

The Works to be carried out by the Contractor under this Contract comprise mainly the following:

- Hall structure of approximately 1102m² including ablutions, changerooms, kitchen and scullery, boardroom, offices and storerooms and:
- Guardhouse of approximately 16m²,
- Perimeter fencing of approximately 400m;
- Generator room;
- Refuse room of approximately 39m²
- 110m access road of 60mm paving block
- 60mm paving block parking.
- Water and sewer reticulation;
- 1 conservancy tank
- Housing and equipping of 1 borehole,
- 1 elevated 100kl steel tank storage tanks including support structures;
- Subsoil drainage;
- Water and electrical municipal connections;
- Electrical and mechanical works.

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C3.2 ENGINEERING

C3.2.1 Design services and activity matrix

Description	Responsibility
Design of Works	Engineer
Concept, feasibility and overall process	Client
Basic Engineering and detail layouts to tender stage	Engineer
Application for wayleaves	Engineer / Contractor
Final Design of Works	Engineer
Follow up and maintenance of wayleaves	Contractor
Final Design to approved for construction stage	Client
Preparation of tender documentation & adverts	Engineer / Client
Appointment of soil test / topographical surveyors	Engineer
Appointment of sub-contractors	Contractor
Supervision	Engineer
Preparation of as-built drawings	Contractor / Engineer
Completion certificate	Engineer / Client / Contractor

C3.2.2 Drawings

The drawings contained in the tender document shall be used for tender purposes only. Further drawings are to be provided on an on-going basis by the engineer.

The contractor will be supplied with three (3) sets of construction (working) drawings. These prints are issued free of charge and the contractor shall make any additional prints he may require at his own cost.

Any information in the possession of the contractor, which the resident engineer requires to complete the as-built drawings, shall be supplied to the resident engineer before a certificate of completion will be issued.

Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the engineer. The engineer will supply all figured dimensions omitted from the drawings.

C3.3 PROCUREMENT

The Tenderers notice is drawn to the fact that the awarding of this tender will be in terms of the Supply Chain Management Policy of the Nkangala District Municipality and The conditions of tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement (May 2010) (Available on www.cidb.co.za).

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C3.4 SUB-CONTRACTING

As the Client's policy there will be an appointment of sub-contractors with scope items nominated by the Client for work up to 30% of the project amount. The following scope items are proposed to be allocated to local sub-contractors and should not be less than 30% of the value of works:

- Brickwork – material supply
- Roof timber – supply and installation
- Fencing – supply and installation
- Paving – supply and installation
- Plastering and Screed – supply and installation
- Painting – supply and installation
- Electrical – material supply and labour
- Mechanical – material supply and labour
- Earthworks

No work may be sub-contracted to another party unless approval is given by the Principal Agent in writing. The Contractor is to submit to the Principal Agent in writing a request for appointment of a particular sub-contractor. Accompanying this request is to be the full detail of the sub-contractor, including:

- Previous experience
- Work which will be sub-contracted to him/her
- Approximate value of the work to be sub-contracted

Before the Principal Agent issues any certificate that includes any payment in respect of work done or goods supplied by any sub-contractor, he shall be entitled to call upon the Contractor to furnish reasonable proof that all payments (less retention moneys) included in previous certificates in respect of the work or goods of such sub-contractors have been made or discharged by the Contractor, in default of which, unless the Contractor:

- Informs the Principal Agent in writing that he has reasonable cause for withholding or refusing such payment; and
- Submits to the Principal Agent reasonable proof that he has so informed such sub-contractor in writing.

C3.5 CONSTRUCTION

C3.5.1 Standard Specification

The following specifications shall apply for the construction of the Works.

- (i) The SANS or BS Specifications and Codes of Practice

Wherever any reference is made to the South African National Standards (SANS) and the British Standards Specification (BSS) in either these Bill of Quantities or the Specification of Materials and Methods to be Used (OOG-001E), this reference shall be deemed to read "SANS or equivalent standard" and BS or equivalent standard" respectively.

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C3.5.2 Plant and materials

All materials shall comply with the requirements of the South African National Standards, and shall bear the official standardization mark. Where SANS standard does not exist for a certain material, or a material does not bear the official standardization mark, the Engineers approval of such material must be gained before use thereof.

C3.5.3 Construction Equipment

All equipment on site shall be in a good working order, and is to be in such a condition that it can achieve production rates which are typical of the industry standards.

Should any equipment, in the opinion of the Engineer, be substandard or breaks down frequently to such an extent that it affects the progress on the project, the Engineer may instruct the Contractor to replace such equipment.

C 3.5.4 Existing Services

The Contractor shall so carry out all his operations as not to encroach on, or interfere with, trespass on, or damage adjoining lands, building properties, roads, structures, places and things in the vicinity of the Works, and he shall free and relieve the Employer of any liability that may be incurred in consequence of his failure to do so.

The services existing on the site will be either shown on the drawings or pointed out on site by the Engineer and / or the Municipality. No excavation work will commence unless a representative of the Municipality and/or the Engineer have been requested to point out existing services in the area under construction. Written confirmation of services that have been pointed out by the Municipality is to be obtained by the Contractor.

All existing services on the site may not be shown on the drawings or be visible on the site. The Engineer may order excavation by hand in order to search for and expose services. An item has been included in the Schedule of Quantities to cover the cost of such work if so ordered by the Engineer. Where a service is damaged because of the Contractors negligence he shall be liable for the cost involved in the repair of the services and any other consequent cost that may arise due to the interruption of the damaged services.

The Engineer is to apply for all respective wayleaves from potential existing services owners in the vicinity of the works. The Contractor shall ensure the issue of the applied wayleaves prior to any excavation taking place on site. The Contractor shall furthermore be responsible for the maintenance of all issued wayleaves for the duration of the works and shall ensure compliance to all requirements contained therein. No excavation is to take place until a representative from the Municipality has been contacted and he has pointed out the existing services to the Contractor and confirmed it in writing.

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C3.5.5 Site Establishment

Source of Water Supply

A reticulated potable water supply is available in the vicinity of the development site. Should the Contractor wish to utilise such water supply, he shall himself be responsible for making his own arrangements with the responsible water supply authority for the supply of all water that he may require from such reticulation network for construction purposes as well as for domestic consumption.

If so required by the responsible water supply authority, the Contractor shall further be responsible, at his own cost, for making or otherwise providing metered connections to the available services at the positions specified by the water authority, as well as for the removal of such connections on completion of the Contract.

No warranty is offered or given by the Employer that the existing available reticulated water supply will necessarily be adequate for the Contractor's purposes nor that such supply is in any way guaranteed.

All charges as may be levied by the responsible water supply authority in respect of water consumed by the Contractor shall be for the Contractor's account and payment to the Contractor in respect thereof shall be deemed to be included in the sums bid by the Contractor for the various Preliminary and General items listed in the Schedule of Quantities, as well as in the rates bid by the Contractor for the various other items listed in the Schedule of Quantities which require the consumption of water.

The Contractor shall, when reasonably required by the Engineer, produce documentary proof that all amounts as may have become due and payable by the Contractor to the responsible water authority have been promptly paid in full.

Sources of power supply

A reticulated electrical power supply is available in the vicinity of the Site. Should the Contractor wish to avail himself of such supply, he shall be responsible for making his own arrangements with the responsible electricity supply authority for the supply of all electrical power he may require from such reticulation network for construction purposes as well as for domestic consumption.

If so required by the responsible electricity supply authority, the Contractor shall, at his own cost, be responsible for making metered connections to the available services at the positions specified by the electricity supply authority, as well as for the removal of such connections on completion of the Contract.

No warranty is offered or given by the Employer that the existing available reticulated electrical power supply will necessarily be adequate for the Contractor's purposes nor that its supply is in any way guaranteed.

All charges as may be levied by the responsible electricity supply authority in respect of electrical power consumed by the Contractor shall be for the Contractor's account and payment to the Contractor in respect thereof shall be deemed to be included in the sums bid by the Contractor for the various Preliminary and

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General items listed in the Schedule of Quantities, as well as in the rates bid by the Contractor for the various other items listed in the Schedule of Quantities which require the consumption of electricity.

The Contractor shall, when reasonably required by the Engineer, produce documentary proof that all amounts as may have become due and payable by the Contractor to the responsible electricity supply authority have been promptly paid in full.

Location of camp and depot

A specific area in close proximity to or on the Site of the Works will be made available by the Employer to the Contractor for the Contractor's site establishment. The specific area for the Contractor's site establishment will be identified to the Contractor by the Engineer and the Contractor shall have sole use of such area, free of charge, for the duration of the Contract.

The Contractor shall use this area only for the purposes of erecting his site offices, workshops, stores and other facilities required for the execution of the Contract. The Contractor shall not use the area nor allow it to be used for any purposes not directly associated with the execution of the Contract, and the designated area shall not be used for housing the Contractor's employees.

The Contractor shall be responsible for arranging, at his own cost, for the provision of all services he may require. Electricity, water and sewerage are available in the vicinity of, but not on, the area proposed for the Contractor's site establishment.

Should the Contractor deem the area made available by the Employer to be inadequate or unsuitable for the Contractor's particular needs, then the Contractor shall be at liberty to make his own arrangements with the owners of other sites which he considers are better suited to his needs; provided always that the use by the Contractor of any area other than that made available to him by the Employer shall be subject to the prior written approval of the Engineer, which approval shall not be unreasonably withheld; and provided further that the Contractor shall have no claim against the Employer in respect of any costs incurred by him, either directly or indirectly in consequence of utilising any area other than that made available to him by the Employer, and which costs exceed those costs allowed for by the Contractor in his Bid.

The Contractor shall at all times limit his personnel, plant, equipment and materials to the Site or within the working or travelling areas as may be requested by the Client and approved by the Engineer.

The Contractor shall comply with all regulations and local authority ordinances regarding emissions, noise abatement measures, height restrictions and clearance limits to any obstacles.

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Temporary offices

The Contractor shall provide on the Site, for the duration of the Contract and for the exclusive use by the consulting engineer and the construction monitoring staff (as applicable), the various facilities described hereunder.

All such facilities shall be provided promptly on the commencement of the Contract and failure on the part of the Contractor to provide any facility required in terms of this specification shall constitute grounds for the Employer to withhold payment of the Contractor's bid for Preliminary and General items until the facility has been provided or restored as the case may be.

(i) Office Buildings (In accordance with SANS 1200 AB)

The Contractor shall provide 1 office (28m²) and 1 conference room for the consulting engineer and the construction monitoring staff. The conference room shall be big enough to seat 16 people around a table for meeting purposes.

The office and conference room shall be weatherproof, shall have a concrete floor and shall be provided with a ceiling and a lining to the walls, or equivalent insulation, with an acceptance type of door with a secure lock, and two opening windows of glazed area at least 3m². Each office shall be well ventilated and shall be so insulated as to provide comfortable working conditions.

The Engineer and his Representative shall be allowed free use of all the Contractor's site facilities, such as photocopying and toilet facilities. The toilet and washbasin to be used by the Engineer and/or his staff shall be kept clean at all times and shall be continuously provided with toilet paper, soap and towels.

A fully stocked first aid kit shall be provided for the Engineer, for which no separate payment will be made. The Contractor shall include the cost for this and for ensuring its contents are kept full and up-to-date in his bid rates for providing facilities for the Engineer.

(ii) Carports

The Contractor shall provide on Site two carports for the exclusive use of the consulting engineer and construction monitoring staff, in accordance with the requirements of sub-clause PSAB 3.3 of section C3.4.6 of the scope of Works. The carports shall be constructed that the vehicles parked under them will at all times be shaded from direct sunlight. The carports shall be at least 25m² in area and shall have a hard stand of crushed stone.

Sanitary facilities

The contractor shall be responsible for the provision of fully functioning sanitation facilities. Payment to the Contractor for the provision of sanitary facilities shall be deemed to be included in the sums bid by the Contractor for the various Preliminary and General items listed in the Schedule of Quantities

Name Boards

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The Contractor shall provide, erect and maintain two (2) contract name boards at such positions and locations directed by the Engineer, which name boards shall, unless otherwise specified elsewhere in the Contract, comply with the recommendations for the standard board of the South African Association of Consulting Engineers, with regard to size, painting, decorating and detail, and the requirements described hereunder.

Each name board shall be made of steel/or tempered hardboard (hardboard thickness at least 12mm and braced on the reverse side to prevent warping) and shall be mounted on two or more, as necessary, firmly planted poles. The painting of the boards shall comply with the relevant requirements of CKS 193 and the colours of the paints shall be an acceptable match to the applicable colours given in SANS 1091.

The Contractor shall keep the contract name boards in good state of repair for the duration of the Contract and shall remove them on completion of the Contract.

Survey assistant and equipment

The Contractor shall, provide the following survey equipment for the exclusive use of the consulting engineer and construction monitoring staff:

- 1 upright reading automatic level with tripod
- 1 metric levelling staff with protective cover bag;
- 100-meter Stilon tape measure

The Contractor shall also, in accordance with the requirements of sub-clause 5.5 of SANS 1200 AB, make available to the consulting engineer and construction monitoring staff, two (2) survey assistants when required.

C3.5.6 Site Usage

Ground and access to the works

The Contractor shall where necessary on or adjacent to roads which carry traffic, provide all the necessary barricades and signs in accordance with the stipulations of the South African Road Traffic Signs Manual.

The Contractor shall further ensure that all public roads that are used for access to the site are kept free of debris at all times. The Contractor shall also take adequate measures to ensure that dust is kept to an acceptable level. The term acceptable is to be deemed as acceptable to the Engineer.

Care, damage and protection

The Contractor shall at his own cost make full provision for all watching and lighting necessary for the protection of all persons, animals, vehicles, etc., from injury by reason of the Works. He shall provide ample warning signs, guard rails, etc., around open excavations, stacks of materials, excavated material, debris or the like, and he shall be held liable for all claims made upon himself or upon the Employer by reason of his neglect of all such precautions and provisions.

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During the periods of construction of the Works and the repair of defects, the Contractor shall, at his own cost, to the satisfaction of the Engineer and the relevant Authority, take sufficient and adequate measures to avoid interrupting the use of all roads, footpaths, water courses, drains, pipes, telephones, electric wires and cables, premises, places and works, public or private, which may in any way be interfered with by the operations; and shall also afterwards permanently restore all structures and everything which may have been temporarily displaced or otherwise interfered with, all to the satisfaction of the Engineer and the relevant Authority, without extra charge beyond the Contract price.

Survey beacons

The Contractor shall take care to safeguard any permanent survey beacons such as erf boundary pegs and reference beacons. Should the Contractor disturb any such pegs and beacons, he shall have them replaced at his own cost by a registered Land Surveyor. The Contractor is to provide the Engineer with written confirmation from the Land Surveyor that he has replaced the relevant beacons.

The Contractor's attention is drawn to article 35(i) of the Land Surveying Act No. 9 of 1927 (as amended) in this regard.

Blasting

As the construction takes place in close proximity to a built up area, extreme care is to be taken during any blasting operations. No blasting shall be permitted without prior written consent from the Engineer. Written as well as verbal notice will be given to all house owners in the affected area 24 hours prior to the blast being set off, and the contractor is to do a survey of all the houses (internal and external) in the area prior to blasting.

A full daily report of all blasting operations (in duplicate) is to be completed by the Contractor.

This report shall inter alia contain the following information:

- Date and time of each blast
- Number of holes
- Charge per hole
- Use of relays, etc.

This report is to be submitted to the Engineer on a weekly basis, and is to be countersigned by the Engineer.

The contractor is to be noted that he is not to use or permit any person to use an explosive powered tool, unless—

- (a) it is provided with a protective guard around the muzzle end, which effectively confines any flying fragments or particles; and

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- (b) the firing mechanism is so designed that the explosive powered tool will not function unless—
- (i) it is held against the surface with a force of at least twice its weight; and
- (ii) the angle of inclination of the barrel to the work surface is not more than 15 degrees from a right angle:

Protection of existing vegetation

Before any tree is cut down and removed from the site, the Contractor shall confirm the necessity of such action with the Engineer or his Representative.

Access to individual erven

Access to all public and private property must be maintained at all times. Where trenches cross the access point to any property, the Contractor is to arrange for adequate and safe vehicular and pedestrian crossings over the trenches.

The Engineer must approve the method of providing access before any excavation commences.

Use of construction vehicles and equipment

The contractor shall ensure that all construction vehicles and mobile plants

- are of an acceptable design and construction;
- are maintained in a good working order;
- are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;
- are operated by workers who-
 - (i) have received appropriate training and been certified competent and been authorised to operate such machinery; and
 - (ii) are physically and psychologically fit to operate such construction vehicles and mobile plant by being in possession of a medical certificate of fitness;
- arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operation;
- are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crash barriers;
- where appropriate, are fitted with structures designed to protect the operator from falling material or from being crushed should the vehicle or mobile plant overturn;
- are equipped with an electrically operated acoustic signalling device and a reversing alarm; and

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- (i) are on a daily basis inspected prior to use, by a competent person who has been appointed in writing and the findings of such inspection is recorded in a register.
- no person rides or be required or permitted to ride on any construction vehicle or mobile plant otherwise than in a safe place provided thereon for that purpose;
 - every construction site is organised in such a way that, as far as is reasonably practicable, pedestrians and vehicles can move safely and without risks to health;
 - the traffic routes are suitable for the persons using them, sufficient in number, in suitable positions and of sufficient size;
 - every traffic route is, where necessary indicated by suitable signs for reasons of health or safety;
 - bulldozers, scrapers, loaders, and other similar mobile plant are, when being repaired or when not in use, fully lowered or blocked with controls in a neutral position, motors stopped and brakes set;
 - whenever visibility conditions warrant additional lighting, all mobile plant are equipped with at least two headlights and two taillights when in operation;
 - when workers are working on or adjacent to public roads, reflective indicators are provided and worn by the workers.

C3.5.6 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

- (a) Extension of time in respect of delays resulting from adverse weather conditions on the Site will only be considered in respect of abnormally wet climatic conditions and shall be determined for each calendar month or part thereof, in accordance with the formula given below:

$$V = (Nw - Nn) + (Rw - Rn)/X$$

in which formula the symbols shall have the following meanings:

V = Potential extension of time in calendar days for the calendar month under consideration:
If V is negative and its absolute value exceeds Nn, then V shall be taken as equal to minus Nn.
When the value of V for any month exceeds the number of days in the particular month, V will be the number of days in the month.

Nw = Actual number of days in the calendar month under consideration on which a rainfall of Y mm or more was recorded on the Site

Nn = Average number of days, derived from existing records of rainfall in the region of the Site, on which a rainfall of Y mm or more was recorded for the calendar month

Rw = Actual rainfall in mm recorded on the Site in an approved rain gauge for the calendar month under consideration

Rn = Average rainfall in mm for the calendar month, derived from existing records of rainfall in the region of the Site

The factor (Nw - Nn) shall be deemed to be a fair allowance for variations from the average number of days during which the rainfall exceeds Y mm.

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The factor $(R_w - R_n)/X$ shall be deemed to be a fair allowance for variations from the average number of days during which the rainfall did not exceed Y mm but wet conditions prevented or disrupted work. The values of X and Y shall be 20 and 10 respectively

(b) The number of rain-related delays is the average number of days on which (10mm) of rain or more has been measured by the weather station closer to site over the last (10) years. The rainfall records were obtained from station number **0514408AX – Bronkhorspruit** are reproduced in the table below, and the monthly averages (Rn) for this period shall, for the purposes of this Contract be taken as normal and as the values to be substituted for Rn in the formula above.

Actual extensions of time due to inclement weather shall be agreed between the engineer's and contractor's representatives on the site. The agreed whole days or parts thereof shall be recorded at the monthly site meetings. Adjustment to the contract period shall only be made at the end of the contract when the contractor may submit its claim for the agreed extension due as well as any additional payment resulting from the delay. Extension caused by inclement weather delays will only accrue once the agreed cumulative delays exceed the values of V were obtained by applying the rainfall formula and using the actual rainfall figures and the calculated values of Rn indicated in the table and Nn that is still to be provided.

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Table C3.5.6: AVERAGE DELAYS DUE TO ADVERSE WEATHER CONDITIONS

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
No. of days with rainfall >10mm	2.0	1.3	3.0	1.0	0.6	0.1	0	0.1	0.8	2.8	3.1	3.2	18
Rounded number of days	2	1	3	1	1	0	0	0	1	3	3	3	18

(c) The Contractor shall, at his own cost, provide and erect on the Site at a location approved by the Employer's Agent, an approved rain gauge, which shall be fenced off in a manner which will prevent any undue interference by workmen and others. The Contractor shall, at his own cost, arrange for the reading of the rain gauge on a daily basis for the duration of the Contract. The gauge readings, as well as the date and time at which the reading was taken shall be recorded in a separate record book provided by the Contractor for this purpose. All entries in the rainfall record books shall be signed by the person taking the reading and the gauge shall be properly emptied immediately after each reading has been taken. If required by the Employer's Agent, the Employer's Agent shall be entitled to witness the reading of the gauge.

(d) The Contractor's claims in terms of Subclause 23.1.1 Conditions of Contract for extension of time in respect of delays resulting from wet climatic conditions on the Site during, shall be submitted in writing to the Employer's Agent monthly; provided always that

(i) the period allowed to the Contractor in terms of Clause 23 of Conditions of the Contract in which to submit his claim is within twenty (20) working days of becoming aware, or ought reasonably to have become aware of such delay

(ii) The employer's agent in terms of Subclause 23.7 shall, within twenty (20) working days of receipt of the claim, grant in full, reduce or refuse the working days claimed.

(e) The extent of any extension of time which may be granted to the Contractor in respect of wet climatic conditions (whether normal or abnormal) shall be determined as the algebraic sum of the "V" values for each month between the Commencement Date and the Due Practical Completion Date of the Contract. provided always that

(i) rainfall occurring within the period of the Contractor's Christmas shut-down period shall not be taken into account in the calculation of the monthly "V" values;

(ii) rainfall occurring during any period during which the Contractor was delayed due to reasons other than wet climatic conditions on the Site, and for which delay an extension of time is granted by the Employer's Agent, shall not be taken into account in the calculation of the monthly "V" values;

(iii) if the algebraic sum of the "V" values for each month is negative, the time for completion will not be reduced on account of subnormal rainfall, and

(iv) where rainfall is recorded only for part of a month, the "V" value shall be calculated for that part of the month using pro rata values for N_n and R_n .

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(f) The Employer's Agent shall, simultaneous with granting any extension of time in terms of this clause, revise the Due Completion Date of the Contract to reflect an extension of time having been granted in respect of wet climatic conditions, to the extent of the algebraic sum of all the "V" values for all the preceding months of the Contract, less the aggregate of the "Nn" values for the remaining (unexpired) months of the Contract (viz less aggregate of the potential maximum negative "V" values for the remaining Contract Period). Thus, provided that where such period is negative, the Due Completion Date shall not be revised.

(g) Any extension of time in respect of wet climatic conditions granted in terms of this clause shall not be deemed to take into account delays experienced by the Contractor in repairing or reinstating damage to or physical loss of the Works arising from the occurrence of abnormal climatic conditions. Extension of time in respect of any such repairs or reinstatement regarding damage shall be the subject of a separate application for extension of time in accordance with the provisions of Clause 23 of the Conditions of Contract.

LEGEND

"AVE" represents the average rainfall for the month

"N DAY RAIN" represents the average number of rain days per month (this data will be made available)

C3.6 MANAGEMENT

C3.6.1 Management of the Works

Planning and programme

The Contractor shall deliver to the Engineer within **14 days**, calculated from the commencement date, a realistic programme showing the order of procedure, the duration of activities making up the programme and method which he proposes to use in carrying out the Works in order to meet the due completion date for this project.

The tenderer is to note that the penalty for failing to complete the works is **TBA** per day.

Setting out of the works

Generally, the positions of the works have been fixed on the plans according to the existing stand boundaries. The Engineer is to approve all setting out prior to commencement of excavation.

Excavation of works & safety

The contractor shall ensure that all excavation work is carried out under the supervision of a competent person who is been appointed in writing. The Contractor will evaluate, as far as is reasonably practicable, the stability of the ground before excavation works begin and he/she shall not permit any person to work in an excavation which has not been adequately shored or braced.

The Contractor will cause convenient and safe means of access to every excavation area in which person are required to work and such access shall not be further than 6m from the point where any worker within the excavation is working.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



The Contractor must ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and shall before the commencement of excavation work that may affect any such service, take the steps that may be necessary to render the circumstances safe for all persons involved;

The Principal Contractor shall cause every excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, to be:

- (i) adequately protected by a barrier or fence of at least one metre in height and as close to the excavation as is practicable; and
- (ii) provided with warning illuminants or any other clearly visible boundary indicators at night or when visibility is poor;

The Principal Contractor shall cause warning signs to be positioned next to an excavation within which persons are working or carrying out inspections or tests.

Inspection by engineer

No stage of construction shall be proceeded with until the Engineer or his representative has examined and approved the previous stage. If any work is covered or hidden from view before the Engineer has inspected same, the Contractor shall at his own cost open the covered work for inspection. The Contractor shall also be responsible for making good any work damaged by such uncovering.

Employment of local labour

It is a specific criterion of this project that should as far as possible adhere to RDP principles, and to meet these principles the following procedures will be followed:

All labour is to be sourced from the Local Municipal; area of jurisdiction and the Contractor may only bring in key personnel from outside this area. The fixed rate for the appointment of local labour at task grade 2 will be **TBA**. This will be payable by the Contractor on **monthly** basis. The Contractor's attention is drawn to the standard rates **specification ("Annexure A" – Civil Engineering Industry Minimum Wage rates per hour;)** found on the SAFSEC website at www.safcec.org.za. These standard rates should be implemented for payment of all employees of the Contractor.

Exemption of the above is made for the employment of labour on the structural component of the works. All other aspects of the works (roads, stormwater, earthworks) is subject to the above local labour clause.

Key personnel would typically include the Contracts Manager, Site Agent, and Supervisor for each discipline, and operators of plant where the operator must be seated.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



A Monthly labour report on all local labour i.e. payments and labour days should be submitted to the Engineer at the end of each month in order for the Engineer to submit a report to the Employer.

None of the Works shall be executed except between sunrise and sunset on Monday to Saturday, inclusive, of any week, and none of the Works shall be executed on any special non-working days stated in the Contract Data, unless:

- The Engineer's permission in writing is obtained, subject to such conditions as may be laid down by the Engineer; or
- Provision is specifically made for it in the Contract; or
- Work is unavoidable or necessary for the saving of life or property or for the safety of the Works.

Site Meetings

Regular meetings will be held between all relevant parties to establish the progress and / or delays and problems that might occur on site. Any problems of delays will be address accordingly and the Contractor will receive proper instructions with reference to this matter.

Communication

The Engineer on this project will be: **Mr Osvaldo Simba**

Contact No: **(011) 312 4070**

The contact person for the Employer is: **Me Mokgadi Mokgolomotho**

Contact No: **(013) 249 2145**

Daily Records

Daily records of resources (equipment and people employed) must be kept and must be available on site at all times. These records will include i.e. site instruction book, site diary, site visit register, contractual documentation and minutes of all project meetings. Labour information should be kept updated at all times.

Compliance with applicable laws

The Contractor shall, in performance of the Contract, comply with all applicable laws, regulations and statutory provisions and agreements, and shall in particular, on the request of the Engineer, provide proof that he has complied therewith with regard to amongst others:

- Wages and conditions of work; and
- Safety

Payment Certificates

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



As consideration for the construction, completion and defects correction of the Works, the Employer shall pay the Contractor in terms of the provisions of the Contract.

Clearance of site

On completion of the Works, the Contractor shall clear away and remove from the site all Construction Equipment, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and the works clean and in a safe condition. All streams and watercourses (where applicable) shall be cleaned and restored to the condition as at the commencement of the Works. If the Contractor does not, within a reasonable time, comply with this requirement, the Employer may have the site cleared and recover the cost thereof from the Contractor.

Termination of Contract

If application is made for the sequestration of the Contractor's estate, or if the Contractor publishes a notice of surrender of his estate or presents a petition for the acceptance of the surrender of his estate as insolvent, or makes a compromise with his creditors, or assigns in favour of his creditors, or agrees to carry out the Contract under the supervision of a committee representing his creditors, or (being a company) goes into liquidation, whether provisionally or finally (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or if the contractor assigns the contract without having first obtained the Employer's consent in writing, or if execution is levied on his goods or if the Engineer certifies reference to this Clause, that in his opinion the Contractor:

- Has abandoned the contract; or
- Without reasonable excuse has failed to commence the Works in terms of Clause 5.3 of the General Conditions of Contract for Construction Works (2015), or has suspended the progress of the Works for fourteen (14) days after receiving from the Engineer written notice to proceed or
- Has failed to proceed with the Works with due diligence; or
- Has failed to remove materials from the site or to pull down and replace work within fourteen (14) days after receiving from the Engineer written notice that the said materials or work have been condemned and rejected by the Engineer in terms of these conditions; or
- Is not executing the Works in accordance with the Contract, or is neglecting to carry out his obligations under the Contract; or
- Has, to the detriment of good workmanship or in defiance of the Engineer's instruction to the contrary, sublet any part of the Contract; or
- Has assigned the Contract or any part thereof without the Employer's consent in writing; or
- The contractor or anyone on his behalf or in his employ would pay, offered or offer as payment to any person in the employ of the Employer a gratuity or reward or commission; or

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Witness 2

Employer

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- The contractor furnished inaccurate information in the Schedules forming part of this Contract.

Then the Employer may, after giving fourteen (14) days' notice in writing to the Contractor, terminate the Contract and order the Contractor to vacate the Site and to hand it over to the Employer, and the Employer may then enter upon the site and the Works and expel the Contractor there from without thereby affecting the rights and powers conferred on the Employer of the Engineer by the Contract, and the Employer may himself complete the Works or may employ another contractor to complete the Works.

The Employer or such other contractor may use for such completion so much of the construction equipment, temporary works and materials bought onto the site by the Contractor as the Employer may think proper, and the Employer may at any time sell any of the said construction equipment, temporary works and unused materials and apply the proceeds of sale toward payment of any sums that may be due or become due to the Employer by the Contractor under the Contract.

In such circumstances the Contractor shall forthwith vacate the site and shall not be entitled to remain on the site on the grounds that he is entitled to do so on a right of retention until amounts due to him have been paid, neither will the contractor be entitled to any further payments of this Contract.

C3.7 HEALTH AND SAFETY

Health & Safety Issues

All work is to be carried out in accordance with the Occupational Health and Safety Act and Regulations (Act 85 of 1993) (a copy of which must be kept on site), the Explosive Material Act of (Act 26 of 1956), the Minerals Act of 1991, and the Factories Machinery and Building Work Act (No 22 of 1941).

The Contractor's notice is drawn to the stipulations of the Construction Regulations 2003, a regulation of the Health and Safety Act 1993 (Gov Notice No R1010 of 18 July 2003). The construction regulation will be applied vigorously on the project.

The Contractor to be appointed must have made provision for the cost of health and safety measures during the construction process. The contractor must have the necessary skills, competencies and resources to carry out the work safely. A proper Safety Plan is to be submitted by the Contractor and a copy thereof is to be made available to all applicable appointed labourers and permanent workers on this project.

The Contractor is to ensure that the legal compliance for the Health and Safety issues are in place. Audits will be carried out to ensure that the Contractor is registered and in good standing with the Workmen's Compensation fund and that the Contractor has affected insurance indemnifying the Employer against penalties levied upon the Employer due to the acts of omissions of the Contractor in failing to comply with the provisions of the OHS regulations 2003. A compliance audit will also be carried out to ensure that the Contractor has appointed a full-

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time competent person in writing to deal with the issues of the OHS and that a risk assessment has been conducted and a copy of the Safety plan is on site before any work commences.

Operational audits will be carried out on the following important issues:

- That the Safety Plan is on site at all times
- That the Contractor's Safety file is on site at all times
- That the Safety Officer is on site at all times
- That Safety meetings are conducted as per the Safety Plan
- That employees are working under safe conditions
- That the public is not placed in danger
- That there is no harm to the environment

Accommodation of traffic

It is expected of the Contractor to ensure that the free flow of traffic is possible throughout the construction period.

The Contractor is to provide all necessary barricades, signs and lighting in accordance with the stipulations of the South African Road Signs Traffic Manual, and the Protective Services of the Local Municipality. All work is to be to the satisfaction of the Engineer.

Reporting of accidents

In addition to any statutory regulations, the Contractor shall, as soon as practicable, report to the Engineer every occurrence on the Works or the site causing damage to property of injury of death of persons. If required by the Engineer, the Contractor will submit a report in writing to the Engineer within 48 hours of such requirement setting out full details of the occurrence. The Engineer shall have the right to make any enquiries either on the site or elsewhere as to the cause and results any such occurrence and the Contractor shall make available to the Engineer the necessary facilities for carrying out such enquiries.

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VARIATIONS AND ADDITIONS TO STANDARDIZED/PARTICULAR SPECIFICATIONS

The following Standard AATS Amendments to the Standardized Specifications are available in electronic format:

Standard AATS Amendments to Standardized Specifications			Dated
SANS 1200A	-	General	October 1998
SANS 1200G	-	Concrete (Structural)	October 1998

AMENDMENTS TO STANDARDIZED SPECIFICATIONS

GENERAL

1. These amendments shall be read in conjunction with the applicable sections of SANS 1200 STANDARDIZED SPECIFICATIONS.
2. Item Numbers

In the following amendments, each item number refers to the applicable clause or sub-clause number in SANS 1200 STANDARDIZED SPECIFICATION.
3. Non-Amended Clauses

Only clauses amended are referred to. Non-amended clauses remain applicable as stated in SANS 1200 STANDARDIZED SPECIFICATIONS.
4. Reference to Clauses

Any reference to any Clause or Sub-Clause in SANS 1200 STANDARDIZED SPECIFICATIONS and as amended herein shall also refer to any amendment to such clauses or sub-clauses as applicable.

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EMPLOYER'S REQUIREMENTS - VARIATIONS TO REQUIREMENTS OF SPECIFICATIONS LISTED IN PS 24

PSA GENERAL

PSA 4.2 Contractor's Camp

Housing for the Contractor's employees are limited to 2 persons on the proposed work site. The Contractor shall make his own arrangements to house the remainder of his employees off the Employer's property and transport all his employees to and from the site.

PSA 5 Construction

PSA 5.2 Accommodation of Traffic

Clause 5.2 shall be amended to include that accommodation of traffic for work in private or public roads shall be dealt with in this section and that the provisions of Clauses 5.1.6 SANS 1200 D as amended shall apply.

PSA 5.9 Method of Construction

Except where acceptance of the Contractor's proposed method of construction is stated in the letter accepting a tender, acceptance of the tender does not signify acceptance of such methods of construction and it does not in any way relieve the Contractor of any of his responsibilities for the Works, and it shall not be used as a basis for claiming compensation where the proposed methods of construction do not comply with the requirements of the specifications and are not approved of subsequent to the award of the contract.

PSA 8 Measurement and Payment

PSA 8.1.1.1 Method of Measurement of Work covered by Particular Specifications

Except where otherwise specified in Portion 2 of the Employer's Requirements or in the preamble to any schedule the method and units of measurement, notwithstanding any standard system, general or local custom, shall be those reflected in the Schedules of Quantities and are measured nett as fixed.

PSA 8.1.4 Withholding of Payment of Time-related P&G

This clause is amended to include that if the contractual monthly rate of advance is not met the payment of the monthly Time-related P&G will be adjusted by the factor of the actual advance achieved divided by the contractual rate of advance for that month.

In subsequent months the deficit may be caught up if the Contractor exceeds the planned monthly target until such time as the advance is back on programme.

Additional payment will not be made if the Contractor exceeds his programmed target.

PSG CONCRETE (STRUCTURAL)

PSG 3 Materials

PSG 3.2 Cement

Tenderer

Witness 1

Witness 2

Employer

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PSG 3.2.2 Air Entraining Agents

The use of air entraining agents will not be permitted by the Engineer.

PSG CONCRETE (STRUCTURAL) (CONTINUED)

PSG 8 Measurement and Payment

This Clause shall be deemed to be deleted, all measurement and payment shall be in accordance with the Standard System of Measuring Building Work, Latest Edition.

Tenderer

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Employer

Witness 1

Witness 2



VARIATIONS AND ADDITIONS TO STANDARDIZED/PARTICULAR SPECIFICATIONS

SUPPLEMENTARY PREAMBLES

PS A GENERAL

(a) Meaning of Term "Best"

The word "best" shall be taken in its ordinary English sense despite any trade custom to the contrary.

(b) Trade Names

WHERE TRADE NAMES AND CATALOGUE REFERENCE NUMBERS HAVE BEEN USED IN THE BILL OF QUANTITIES TO SPECIFY A PRODUCT, TENDERERS MUST TENDER ON THE PARTICULAR PRODUCT SPECIFIED.

The Tenderer may also offer alternative materials etc. on Appendix C.3 to the Form of Tender showing the specification of the Alternative offered and the cost effect.

The successful Tenderer (i.e. Contractor) may, after obtaining written authority from the Engineer, use an alternative product. Where such written authority is given by the Engineer at the request of the Contractor, for the Contractor's convenience all additional costs involved will be for the Contractor's account. In the event of a cheaper product being used, a variation order reflecting the saving in cost will be issued.

(c) P.C. Rates Included In The Bill Items

Where P.C. Rates for materials are included in the Bill items, this rate shall be adjusted by the nett difference between the cost of the material as purchased and the P.C. rate stated. The nett cost as purchased shall include the supply of the material and delivery to site and shall be nett after deduction of any discount. Costs shall exclude Value Added Tax which is added on the Summary.

The quantity to be adjusted will be the nett quantity as measured. A nett adjustment on the difference of 5% only unless otherwise stated will be made to allow for waste etc.

The accepted quotation for P.C. materials will be adjusted back to the escalation base date and the adjusted rate will be subject to variations in price as the Haylett Formula calculation.

PS C EARTHWORKS

Classification of Materials:

The following is the classification of the materials to be excavated:

Materials Class "C"

Shall mean granite, quartzitic sandstone or other rock of similar hardness and isolated boulders over 0,3 cubic metres in volume, the practicable excavation of all of which, in the opinion of the Engineer, would normally necessitate the use of explosives, and this specification shall apply whether or not blasting is

Tenderer

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authorised.

Materials Class "B"

Shall mean hard shale, compact oudklip and all rock other than that included in Class "C" above of such hardness as can only be efficiently removed, in the opinion of the Engineer, by the use of pneumatic picks or similar mechanical means.

Materials Class "A"

Shall mean earth and all materials to be excavated other than those included in Classes "B" and "C" above and that, in the opinion of the Engineer, can reasonably be removed by manual picking or similar manual means and shall include made up ground, rubbish, soft shale, black turf, gravel, loose oudklip, clay and any isolated boulders less than 0,3 cubic metres in volume.

If the Contractor considers that any of the excavation encountered is in Classes "B" or "C" material he shall immediately notify the Engineer in writing for their ruling, failing such notification the excavations shall be deemed to be in Class "A" material and shall be measured and valued accordingly.

The decision of the Engineer as to the classification of the material shall be final and binding and any objections as to the classification must be made in writing before the excavations have been backfilled.

Blasting

The Contractor must provide for whatever method of removal may be adopted and there is no guarantee given or implied that blasting shall be adopted.

If the Contractor is permitted by the Engineer to execute any blasting, such work must be carried out in strict conformity with the latest Mine and Government regulations and the Contractor must take all responsibility during blasting operations for damage or annoyance caused by reason of blasting. He shall be deemed to be fully aware of all Laws and Regulations governing the import, transport, storage and use of explosives for blasting.

Prices

Quantities are for nett voids to be formed in accordance with the drawings and prices are to include for bulking and forming to falls, slopes, curves, trimming sides, levelling and ramming bottoms, stepping bottoms of trenches, staging, getting out, setting aside for use as filling or wheeling and depositing on site and spreading and levelling where directed.

Special Note: The whole of the excavations are measured as in Class "A" material (as defined in the Preambles) and shall be understood to include boulders removable without blasting or special machinery.

All foundations must be compacted.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



PS D CONCRETE, FORMWORK AND REINFORCEMENT

All work shall be in accordance with SANS 1200G with the following amendments which shall take precedence over the Model Preambles.

The measurement and payment clauses shall be deemed to be deleted, all measurement shall be in accordance with the latest amendments of The Standard System of Measuring Builders Work, Latest Edition.

Testing

Note: The Contractor is to provide six steel or cast iron "test cube" moulds size 150 x 150 x 150mm internally with the inner faces accurately machined in order that opposite sides of the specimen shall be plane and parallel.

Each mould is to have a base plate with a plane surface and of such dimensions as to support the mould during filling without leakage.

Concrete for test cubes is to be taken from the point at which the concrete is being deposited and the position clearly recorded for later reference.

Formwork

(a) Prices:

Prices for all formwork shall be deemed to include for propping to not exceeding 3,5m unless otherwise stated and for all square, raking and splay cutting and waste

(b) Rough Formwork

Note: The term "Rough Formwork" shall mean formwork, the inner faces of which shall be such as will impart to the resultant concrete face a finish that would be obtained from the use of sawn timber or ordinary used steel plates.

(c) Smooth Formwork

Note: The term "Smooth Formwork" shall mean formwork, the inner faces of which shall be such as will impart to the resultant concrete face a finish that would be obtained from the use of plywood faced shuttering boards or steel forms which are new when concreting commences and are thoroughly cleaned after each use. Concrete cast against "Smooth Formwork" will not be plastered and the resultant concrete face must be suitable for painting.

(d) Smooth and Fair Formwork

Note: The term "Smooth and Fair Formwork" shall mean formwork, the inner faces of which shall be such as will impart to the resultant concrete face a finish that would be obtained from the use of plywood faced shuttering boards or steel forms which are new when concreting commences and are thoroughly cleaned after each use. Concrete cast against "Smooth and Fair Formwork" must be free of projections, indentations, blow holes and must be of uniform even colour throughout to the satisfaction of the Engineer. Such concrete will not be plastered and the resultant concrete face will be exposed and no patching will be permitted.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



PS F **MASONRY**

Prices:

The prices of brickwork are to include for all square, rough or fair cutting and waste, plumbing angles, forming reveals, wedging and pinning against columns, beams and slabs etc., building around electrical conduit or other piping and building or casting in wall ties.

All brickwork is to be built in stretcher bond unless otherwise stated with wire ties where exceeding half brick thick.

Facing Bricks

Prices of facing bricks are to include for all square cutting, pointing in (1:6) cement mortar as the work proceeds, protecting from damage and cleaning down on completion.

Note: Facing bricks shall be sorted to ensure that proper mixing of the bricks within the colour range is obtained, as sudden changes in general colour of facework will not be accepted. All facing bricks with defective arises, chipped corners and damaged surfaces are to be discarded and not built-in.

Fibre Cement Cills

As far as possible all cills must be in single lengths; continuous cills which cannot be obtained in single lengths must be neatly butt jointed and the joint filled in flush with fine cement mortar and must be so arranged that the joint falls symmetrically on the middle line of the window.

Prices are to include for square sawn edges with angles slightly rounded, fixing lugs and screws and fixing complete including cutting mortises for lugs or setting lugs in cement mortar and bedding and jointing in (1-3) cement mortar, pointing in (1-1) cement mortar and cleaning down on completion to receive paint.

PS I **CARPENTRY AND JOINERY**

Timber Treatment:

Prices for all timbers which are to be fixed or left in the building are to include for effective pre-treatment against borer or other pests including site or factory treatment of any cut surfaces.

Fixing:

Prices of all items shall include for planting on unless otherwise stated. Prices for items described as "plugged" shall include for hardwood or other approved plugs or "Nailit" bricks and screws. No screws, bolts etc. shall be exposed and prices shall include for concealing heads by countersinking and pelleting.

Mitres:

The prices of all skirtings, cornices, architraves, fillets, mouldings and other similar unframed joinery shall include for short lengths, mitres, stops, cut and fitted ends, mitred returned ends etc.

Cutting and Waste:

The prices of all ceiling boarding, hardboard, chipboard, fibre cement sheets, timber boarding etc.

Tenderer

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Witness 2

Employer

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Witness 2



for ceilings, joinery and fittings shall include for all square cutting and waste.

Note: All sizes are finished sizes.

Specification for the Design, Manufacture and Erection of Timber Roof Trusses Design

- (a) The entire timber roof structure (trusses, bracing, and all structural details) shall be designed and detailed by Mitek South Africa (Pty) Ltd.
- (b) The design and drawings shall incorporate all the details and requirements of this drawing.
- (c) All design work shall be carried out by a Registered Professional Engineer in accordance with the following Codes of Practice, SANS 0163 - The Design of Timber Structures, The Structural use of Timber and SANS 0160 - The General Procedures and Loadings to be adopted in the Design of Buildings.
- (d) The wind loads calculated in accordance with SANS 0160 shall be based on the following:
 - i) Basic wind speed: 40m/s.
 - ii) Mean return period: 50yrs.
 - iii) Terrain category: 1.
 - iv) Height: 5m.
- (e) The design stresses in the truss metal connector plates shall not exceed the values established by the CSIR through joint tests on the connectors.

Construction Drawings

- (a) Working drawings shall be prepared for each roof by Mitek South Africa (Pty) Ltd.
- (b) The drawings shall be signed by the Registered Professional Engineer responsible for the Design of the Roof.
- (c) The following minimum information shall be shown on the drawings:
 - i) A layout of the whole roof system with the positions of all trusses, bracings, etc., clearly indicated.
 - ii) All truss details, including connector plate sizes and any bolted joint details.
 - iii) All bracing details.
 - iv) All timber sizes and grades.
 - v) All connection details/specifications.
 - vi) Details of the loads for which the roof has been designed.
- (d) The working drawings are to be issued to the Engineer for comment before the delivery to site of roof trusses.



Tenderer



Witness 1



Witness 2



Employer



Witness 1



Witness 2



Roof Trusses

- (a) All trusses shall be prefabricated monoplanar, nail plated, timber trusses.
- (b) The fabricator shall be in possession of a current "Certificate of Competence" issued by the Institute for Timber Construction.
- (c) All joints shall be close fitting butt joints made by precision pressing of "Mitek" metal connector plates into each side of the joint.
- (d) All hangers, cleats and brackets for connection of the roof components shall be as supplied by Mitek SA (Pty) Ltd.

General

- (a) All timber shall be structural graded South African Pine. It shall be graded in accordance with SANS - 563 or 1245 and be at least Grade 4.
- (b) All bolts shall be Grade 4.6 in accordance with SANS - 135.
- (c) All bolts shall be provided with square or round mild steel washers of the following minimum dimensions (mm),
 - Up to M8 :25 x 2,2
 - Up to M12:36 x 4,0
 - Up to M20: 60 x 5,0
- (d) All nails shall be in accordance with SANS - 820.
- (e) All metal components (connector plates, truss hangers, bolts, washers, nails, "hurricane" clips, etc.) shall be galvanised with a minimum mass of zinc per unit surface area of 275g/sq.m (total both sides). All heavy-duty connector brackets, cleats, bolts, nuts and washers may be electroplated to SANS 728 minimum coats of zinc of 135g/m² or alternatively hot dip galvanised to SANS 934.
- (f) All timber members are to be pre-treated in accordance with SANS-05 (1980).

Holding Down Requirements

The Roof structure shall be held down to the walls using 38 x 1,2mm galvanised hoop iron straps built at least 7 courses into the brickwork or 200mm into reinforced concrete ringbeams. The protruding end of the strap is to be bent firmly over the roof truss rafter (i.e. through 180o) and secured using 4 No. 40 x 2,8mm diameter galvanised clout nails.

The positions of the straps are to coincide with the designed positions of the roof trusses and no deviations will be permitted.

Erection

The delivery, storage on site, erection and bracing of the timber roof structure shall be in accordance with SANS 0243- 1992.

No ceiling shall be fixed until the erected timber roof structure has been inspected and approved in writing by the Registered Professional Engineer responsible for the Roof Structure Design. The

Tenderer

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Employer

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written approval is to be issued by the Principal

PS J **CEILINGS**

H-Profile Steel Jointing Cover Strips

Shall be formed from 0,60mm steel sheeting pressed to profile for thickness of ceiling board and fixed to all junctions of same in accordance with the ceiling board manufacturer's instructions, and unless otherwise stated shall be used in conjunction with Fibre Cement Board ceilings and Gypsum plasterboards. Galvanised H-profile strips are to be degreased and primed to paint Manufacturer's specifications before erection.

Trap Doors in Ceilings

Shall be formed in accordance with standard detail No. 236A with 75mm x 38mm timber framing around each opening, spiked together and to bottom edge of supporting timber. Size of opening, unless otherwise specified, to be 800mm x 800mm. The trap door shall be formed with skeleton frame of 50mm x 38mm brandering, covered on underside as for ceiling and hung on one pair 75mm steel butts. Soffit of trap door shall be flush with the soffit of the ceiling when closed and shall flap back when open. When trap door is closed, it shall rest on 50mm x 19mm meranti fillets fixed on soffit of ceiling all round opening. Fillets shall project 12mm into opening to carry trap door. Trap doors shall be positioned between trusses. The trap door may be an approved metal type.

PS K **FLOOR COVERINGS**

Prices:

The prices of all floor coverings are to include for all square cutting and waste, covering up, protecting from injury and cleaning on completion.

PS L **IRONMONGERY**

Fixing:

Prices are to include for fixing to softwood, hardwood or pressed steel door frames unless otherwise stated.

PS M **STRUCTURAL STEELWORK**

As per AAC Specifications which is available upon request.

AAC - Spec-114-001 Design of Steel Structures. Issue 10

AAC - Spec-114-002 Construction of Structural Steelwork. Issue 14 AAC - Spec-164-050 Corrosion Protection of Steelwork with Coatings. Issue 7

PS N **METALWORK**

The mass of all steel has been calculated in accordance with the mass list issued by the South African Iron and Steel Industrial Corporation Limited and no allowance has been made for rolling margins, binding wire or waste.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



Any variation in the mass of the steel actually used from the above mass list is for the Contractor's account and the listed masses will be adhered to in all calculations affecting the mass of steel on this Contract.

Prices:

Prices to include for cutting to lengths, welding, fixing and erection complete unless otherwise stated, cleaning off and filing welds smooth on completion.

All fabricated steelwork is to be factory primed and prices shall include for this.

PS O **PLASTERING**

Screeds:

Note: All screeds must have a compressive strength of 20MPa, be finished smooth and executed under supervision; and to the requirements of any specialist concerned.

PS Q **PLUMBING**

Sizes:

Unless otherwise stated all pipes are round. The sizes shown are the Inside Diameter (I.D.), except in the case of copper tubes and plastic pipes where the sizes shown are the Outside Diameter (O.D.).

Testing:

Provide all necessary apparatus, water, etc. and allow for testing to the whole of the plumbing and drainage work etc. in parts and sections as completed and/or handed over to the satisfaction of the Principal Agent. All defective work is to be taken out and replaced at the Contractor's expense and the whole re-tested until found perfect.

Chases:

Note: No chasing of the brickwork for any services will be allowed, all piping etc. must be built into the brickwork as the building of the brickwork proceeds or chases cut using an approved saw chasing machine. Cutting of holes for connections must be done using a power drill and the diameter of the holes cut must not exceed the pipe by more than 6mm.

Sanitary Fittings

Note: All sanitary fittings are to be first grade.

All valves etc. are to be stamped. Prices are to include jointing to pipes.

PS V **ELECTRICAL WORK**

Provide and install the Electrical Installation complete in accordance with the General Technical Specification: - Architectural buildings, Domestic buildings with amendments as shown in the Bills of Quantities and all as shown on the drawings and supply and fix and connect up all light fittings, hot water heaters, and all appliances shown on the drawings including all bonding to water pipes

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



and gutter all building in, cutting chases and holes with power tools and making good in all trades. No hand chasing of brickwork for any services will be allowed and cutting of holes must be done using a power drill and the diameter of the hole must not exceed the pipe size by more than 6mm and shall not be made from both sides of walls.

PS R **GLAZING**

Note:

Prices are to include for glazing with special metallic non-hardening putty and for cleaning glass on completion.

PS T **PAINTING**

Multi Colours:

Prices must include for painting in multi-colours and all cutting in at change of colour

Surface Preparation:

Prices are to include for all necessary preparation and rubbing down.

Note:

Plascon Paints to be used throughout unless otherwise stated. All painting to be in accordance with Manufacturer's specifications and undercoats to be tinted to colour of final coat.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2