BID NUMBER	
CLOSING DATE AND TIME	**FRIDAY THE 29TH AUGUST 2025 @ 12H00**
DESCRIPTION	**BID 9 – 2025: LAINGSBURG: DOORNKLOOF: CONSTRUCTION OF A COLD STORE**
NAME OF TENDERER/BIDDER	
CSD NUMBER	
TOTAL BID PRICE (VAT INCLUDED)	
VALIDITY PERIOD OF BID	**90 days**

SUBMISSION OF DOCUMENTS

Sealed tenders, endorsed as indicated in the bid document, must reach **Casidra** SOC Ltd at their Head Office, 22 Louws Avenue, Southern Paarl, placed in the bid box available at Reception.

FAILURE TO PROVIDE ANY OF THE COMPULSORY DOCUMENTATION AND PARTICULARS MAY RENDER THE BID INVALID.

PLEASE NOTE:
Documents must be bound as **Casidra** will not take responsibility for any information that is lost due to unbound submissions of tenders.

THE FOLLOWING RETURNABLE DOCUMENTS (INCLUDING THE CBD FORMS AS PART OF THE BID) MUST BE VALID FOR A PERIOD OF 90 CALENDER DAYS AFTER CLOSURE OF THE BID AND SUBMITTED AS PART OF THE BID PACKET

Document	Description	Compulsory	Comment
CBD 1	Invitation to bid	✓	
CBD 2	Conditions to submit bid	✓	
CBD 3	Terms of Reference	✓	
CBD 4	Pricing schedule	✓	
CBD 5	Supply Chain – Preferential Procurement Regulations 2022 and Codes of good practice	✓	

Name of bidder	
Postal address	
Street address	
Telephone number (code and number)	
Cellphone number	
Faxcimilie number (code and number)	
E-mail address	
VAT registration number	

SARS TCC attached (Foreign suppliers with no tax obligation in South Africa must complete the SBD1 form that will be submitted to SARS for verification and issuing of a Confirmation of Tax Obligation letter.)		**YES**	☐	**NO**	☐
Originally certified B-BBEE status level certificate/Original Sworn Affidavid (A B-BBEE status level verification certificate must be delivered to **Casidra** SOC Ltd, 22 Louws Avenue, Paarl, in order to qualify for preference points for B-BBEE)		**YES**	☐	**NO**	☐
CIDB Registration number	**Number:**	**YES**	☐	**NO**	☐
Registration for electrical compliance with departement of labour	**Number:**	**YES**	☐	**NO**	☐
COIDA	**Number:**	**YES**	☐	**NO**	☐

I, _____
as the authorised representative of the company / CC / business hereby declare that, to the best of my knowledge the information submitted is true and correct and that I am duly authorized as a signatory of this bid. On behalf of my business, I accept the terms and conditions as set out in this document. I will supply documentary proof of any information supplied herein on request and to the satisfaction of **Casidra**.

In terms of the POPI Act I further give consent that my contact and company details as will be captured on the **Casidra** database may be shared with the role players/funders involved in the project and be used by **Casidra** for the purpose of further procurement.

Signature of bidder		**Date**	
Capacity under which this bid is signed			

For office use only	**Version no: 2**	**Date: AUGUST 2024**
To be initialled by bidder		*Initial here*

1. BID SUBMISSION:

1.1. Bids must be delivered by the stipulated time to the correct address. **Late bids will not be accepted**.
1.2. All bids must be submitted on the official forms provided (not to be re-typed).
1.3. Bidders must be registered on the Central Supplier Database (CSD).
1.4. Original Sworn Affidavit and originally certified B-BBEE certificates must be submitted to bidding institution to qualify for preference points for B-BBEE.
1.5. Bids are subject to the **Casidra** SOC Ltd Financial Regulations, Preferential Procurement Policy Framework Act and the Preferential Procurement Regulations, 2022, the General Conditions of contract (GCC) where applicable, and if applicable other special conditions of contract.

2. TAX COMPLIANCE REQUIREMENTS

2.1. Bidders must ensure compliance with their tax obligations.
2.2. If a discrepancy exists between CSD and SARS, a printed version of the Tax Clearance Certificate (TCC) must be supplied by the supplier and the e-Filing PIN number for verification of authentication by **Casidra** SOC Ltd.
2.3. Foreign suppliers with no tax obligation in South Africa must complete SBD1 that will be submitted to SARS for verification and the issuing of a Confirmation of Tax Obligation letter.
2.4. Consortia/joint ventures/sub-contractors must each submit a separate TCC.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

3.1. Is the bidder a resident of the Republic of South Africa (RSA)	Yes ☐	No ☐
3.2. Does the bidder have a branch in RSA?	Yes ☐	No ☐
3.3. Does the bidder have a permanent establishment in the RSA?	Yes ☐	No ☐
3.4. Does the bidder have any source of income in the RSA?	Yes ☐	No ☐

IF THE ASWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO OBTAIN A TAX COMPLIANCE STATUS/TAX COMPLIANCE SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.

4. TENDER CONDITIONS

CASIDRA reserves the right to:

- disregard any bids where the declaration has not been signed;
- accept parts of the bid items or split bids based upon item prices;
- disclose the results of the points awarded on request;
- evaluate and award points according to the documentation supplied and evaluate functionality at its own discretion;
- award the bid to the qualifying bidder with the highest number of points scored, unless the prices are not market related or on the basis of objective criteria stated in the tender documents, and
- to award the bid to a bidder which does not necessarily have the lowest price.

The bid may be cancelled if:

- all the bid offers received are higher than R50 million;
- circumstances change and there is no longer a requirement for this service;
- funds are no longer available or if there are insufficient funds available in the budget for the work;
- no acceptable bids and/or market related prices are received;
- there is a material irregularity in the tender process (administrative non-compliance of prescribed legislation);
- false information was supplied by the bidder;
- Cancellation of bid will be placed in the same media as initially advertised.

Other notes:

- Final points scored will be rounded off to the nearest 2 decimal places.
- In the event of equal scores, the offer with the highest B-BBEE score will be successful. If scores are still equal, and where functionality is part of the bid, the offer with the highest functionality score will be successful. If the scores are still equal, the drawing of lots will determine the outcome.
- **Casidra** SOC Ltd retains the right to amend financial/accounting calculations and to accept the amended amount as the new bid amount.

FOR OFFICE USE ONLY – TO BE COMPLETED AT BSC MEETING

PLEASE INDICATE TYPE OF WORKS	
Infrastructure/construction (includes animal husbandry, building, greenhouses, sheds and storerooms, civil and building works including stores, engineering and electrical engineering works)	☒
Training	☐
Catering services	☐
Production inputs (includes feed, fertilizers, packing material, seeds and plants, transport, soil preparation)	☐
Professional services (Engineers, consulting engineers, Veterinarians and services, Legal Practitioners, Industrial Consultants or Recruitment Agencies, Training service providers, Subject matter specialists acting as consultants, etc.)	☐
Mechanisation (Vehicles, farming implements/equipment)	☐
Other (please specify)	☐

PROCUREMENT STRATEGY **(Please indicate by choosing either YES or NO and click on the box.)**	Yes	No
1. Advertising on e-tender	☒	☐
2. Advertising on CIDB	☒	☐
3. Advertising on Casidra portal	☒	☐
4. RFQ	☐	☒
5. Open tender process	☒	☐
6. Contract administration sheet completed	☒	☐
7. Procure plan sheet completed	☒	☐

8. Advertise period **(2 weeks)** ***Note if bid document and advertisement period is less than 14 days, attach CEO approval.***	☒	☐

SUPPORTING DOCUMENTATION		
Project managers to indicate what supporting documentation MUST form part of the tender. If marked YES, then it must be provided to SCM:	Yes	No
Baseline Risk Assessment	☒	☐
Health & Safety plan	☒	☐
Drawings / sketches The below drawings form part of this specification 18002_100-Site Plan(A)_20240902.pdf 18002_101-Floor Plan, Elevations & Section(A)_20240902.pdf 25537_50_Regulated Atmosphere Coldroom_Layout, Sections & Details_Rev A.pdf DRK-JAE-196-ZZ-IN-8201 - INULATED STRUCTURE SECTIONS & PERSPECTIVE.pdf DRK-JAE-207-ZZ-M-8200 - COLD ROOM PANELLING LAYOUT.pdf DRK-JAE-SW-GF-DR-MI-BW0001 - SITE DEVELOPMENT PLAN - LEVEL 0.pdf DRK-JAE-SW-GF-DR-MI-BW0003 - 600 BIN RA STORE.pdf DRK-JAE-SW-GF-DR-MI-RF001 - 600 BIN RA STORE REFRIGERATION EQUIPMENT.pdf DRK-JAE-SW-GF-DR-MI-RF002 - REFRIGERATION PIPE ROUTES LAYOUT.pdf DRK-JAE-SW-GF-ZZ-MI-RF003 - ROOM LAYOUT.pdf	☒	☐
COMPULSORY DOCUMENTATION NEEDED TO BE SUBMITTED AS PART OF THIS BID:		
COIDA – Letter of good standing	☒	☐
COMPANY PROFILE – Detailed company profile including but not withstanding core business activities, background, resources, etc.	☒	☐

CONSTRUCTION MANAGER COMPETENCY - Provide proof of competency of a construction manager in terms of Construction Regulations 2014 Clause 8 in format of CV showing competency in field of construction as well as health & safety	☒	☐
ELECTRICAL – Letter from department of labour for Electrical registration of sub-contractor with expiry date.	☒	☐
SAQCC – Installers of refrigeration equipment to provide valid SAQCC certificate (South African Qualification & Certification Committee)	☒	☐
WARRANTY – Provide written proof for a **12-month** warranty for product / goods offered	☒	☐
CIDB - Provide written proof for a minimum grading of **4GB**	☒	☐
MECHANICAL GUARANTEE – Provide written proof for 18 month guarantee from date of commissioning or 12 month from date of supply	☒	☐
SCHEDULE OF SUBCONTRACTORS – Complete list of all sub-tractors that will be employed in the works.	☒	☐

PROJECT: BID 9 – 2025: LAINGSBURG: DOORNKLOOF: CONSTRUCTION OF A COLD STORE

GENERAL REQUIREMENTS

The works, as described, are situated on Doornkloof farm in the Laingsburg district . The works requires the construction of a cold store with holding capacity of 640 bins and served by an air cooled refrigeration system. The quoted amount will be a lump bid and must include labour, material and machinery. The successful bidder must have the capacity to start the works within 7 (seven) days of appointment.

Conditions that may pose a risk:

Rocky ground conditions can be expected and the construction site is situated on a slope. Security for materials and equipment must be supplied. The Contractor must put all necessary precautions in place to work under these conditions and prepare the site with the correct falls.

CONTRACT PERIOD	The completion period of this service is **(Three) 3 Months** starting from the day of appointment**.**
RETENTION	Retention is **10%** of contract sum. 50% will be realised on practical completion and the other 50% payable upon the completion of the latent defects period. Retention is not bearing interest, with no upper limit.
PENALTY CLAUSE	The penalty **R 550.00** per calendar day will be applied for late completion of works.
COMPULSORY SITE MEETING	A compulsory site meeting will be held at Doornkloof farm. Upon entering Laingsburg coming from cape town via the N1, turn right onto the R323 turnoff. Road is first tarred and then turns to gravel road. Keep on the R323 for approximately 43 kilometers. Upon passing the Bartmansfontein NGK primary school on your right hand side, take the very next turnoff right into Doornkloof farm. See attached, location map and google earth placemark. Date of compulsory site meeting is Friday the 22nd August 2025 at **11h00**.
CIDB GRADING (If marked **YES** under Procurement Strategy above)	**For Construction works above the value of R500 000**: tenderers must have a CIDB contractor grading designation **GRADE 4GB** or higher **GRADE CLASSES** . **Joint ventures** are eligible to submit tenders provided that: 1. Every member of the joint venture is registered with the CIDB; 2. The lead partner has a contractor grading designation in the (above indicated) class of construction work; 3. The combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with Table 9 of the *Construction Industry Development Regulations, 14 November 2008, GG 31603.*

SUB CONTRAC TING Bidder to complete sub-contracting section on CBD 5 if applicable.	Under CIDB Practice note 7 of 2007, one of the following subcontracting will apply: 1. Domestic subcontractor (appointed by the main contractor at his/her discretion); **BIDDER TO COMPLETE THE SCHEDULE OF PROPOSED SUBCONTRACTORS TO BE USED UNDER CDB4.**

FUNCTIONAL REQUIREMENTS

Functional refers to: A service or product that is designed to be practical, useful, working or operating, taking into account factors like quality, reliability, viability, and durability and the technical capacity (time and resources) and ability (knowledge and skills) of the bidder to execute the works.

Bids that fail to meet the minimum score, for individual criteria and total for functional criteria as stipulated in the tender document, will be an unacceptable tender.

This bid is subject to the evaluation of functional requirements.

The following criteria will be used for evaluation:

No	Evaluation criteria	Weight (A)	Score (B)	Minimum score required	Total (A x B)
1	Experience of similar work	40%	For office use	4	For office use
2	References of previous work	40%	For office use	4	For office use
3	Construction equipment available for contract	20%	For office use	3	For office use
TOTAL SCORE - A minimum score of **76%** is required for functional requirements for this bid to be considered for further evaluation				**% = Total / 5**	**For office use**

Functional Item	1 Poor: Non-compliant	2	3	4	5 Excellent: Fully compliant
Experience of construction in **steel portal frame construction**. **Provide written proof of monetary value with completion certificates.**	Has no work experience	Has Limited exposer to work at hand. Has done construction work.	Has experience in construction work project related to building work (Work done to value of R1 000 000.00).	Has experience in installation of construction and related work (work done to value of between R1 000 000.00 and R2mil)	Has vast experience in construction related/similar projects (Work done above value of R 2mil).

One proof is minimum requirement.					
References from clients on similar nature related previous work	No references	Very poor rapport by all three references	Some minor problems experienced by all three references	Recommended by all three references	Highly recommended by all three references
Construction equipment available for contract	Has no plant resources at all	Has insufficient in-house plant available to execute works & has to hire most of the plant externally	Has basic in-house plant available to execute works but also has to hire externally	Has sufficient in-house plant available to execute works	Has more than sufficient in-house plant available to execute works

LABOUR LOG SHEETS

One of Casidra's agreed mandate with the Western Cape Department of Agriculture is to report on jobs created for the individual projects. To assist Casidra with accurate reporting it is a condition of this bid document that the successful bidder will have to submit labour log sheets with all required information properly completed.

Documentation **MUST be submitted with every payment claim** from the Contractor on a monthly basis. Failure to submit this information will result in default by the contractor and may affect payment certificates being issued.

Documentation will consist of excel spreadsheet combined total person days, weekly log timesheet & relevant copies of South African ID Documents of workers claimed for under person days. This documentation will be emailed to the successful bidder. Weekly log sheet MUST be signed by workers on the site. The person days claimed for workers must have South African citizenship.

The Protection of Personal Information Act 4 of 2013 (also known as POPIA), regulates and controls the processing, usage and storage of personal information. In order to be compliant with POPIA, Casidra commits not to share your information with any third party outside Provincial & National Departments of Agriculture, project management agencies, co-workers and associates / partners as per our business approval and evaluation, and reporting processes.

SCOPE OF WORKS

This project consists of the following elements:

Construction of a cold store with holding capacity of 640 bins and served by an air cooled refrigeration system. The bins will be stacked 10 high inside a cold room structure comprising of 150 mm thick insulated wall and 200 mm thick ceiling panels

SITE ACCESS:

The movement of vehicles on the site should be confined to clearly demarcated access routes and existing roads should be used where approved by the Project Manager. Any deviation should first be approved by the Project Manager with consultation with the Landowner.

SHEDS FOR EMPLOYEES AND MATERIALS:

The Contractor shall provide for the supply, erection and maintenance and removal on completion of the works, of ample temporary sheds for the proper storage of materials and for the use of his employees

TEMPORARY LATRINES:

The contractor shall provide for the supply and erection of proper temporary latrines for the use of his employees. Latrines are to be maintained in a thoroughly clean and orderly condition and adopt such precautions to prevent the soil from being contaminated/polluted and remove such latrines at the completion of the works.

DISCREPANCIES BETWEEN PLAN AND SPECIFICATION:

Any discrepancy between the plan and the specification must be brought to the attention of the technical Project Manager before the tenderer submits his price. This is to eliminate any confusion as to what is required for the contract because the tenderer must take note of the fact ***that no additional costs will be entertained for discrepancies between the plan and the specification after the tender price has been submitted.***

ACCURACY IN BUILDING WORK:

The method of measurement and accuracy of dimensions required for the setting out of structures and for completed building work shall be as described in SABS Code of Practice 0155, unless otherwise specified in this document.

SECURITY:

The successful bidder is responsible for his own security of his/her plant, facilities, resources, etc for the duration of the contract.

CLEARING AWAY OF RUBBISH AND MATERIALS:

All rubbish accumulated during the works (including testing and commissioning) and all superfluous materials not required for completion of the contract shall be removed from site by the Contractor on an on-going basis, and as and when directed by the Engineer or Employer.

FIRE PRECAUTIONS :

All reasonable precautions shall be taken to avoid the outbreak of fire, particularly in work involving the use of naked flames. The Contractor is to allow for full time supervision, and nominate a responsible person to ensure each artisan who is welding, or carrying out any operation that could cause a fire hazard, be equipped with a fire extinguisher. All workmen shall be made aware of the dangers involved in the careless disposal of matches, cigarettes and the like as well as the accumulation of rubbish on site. Hot work permits shall be enforced.

SITE CLEAN UP:

The Contractor shall ensure that all structures, equipment, materials and facilities used or created on site for or during construction activities are removed to the satisfaction of the Project Manager once the project has been completed. All roads to be repaired to at least its original condition. All damage to the sites infrastructure or land production must be repaired or rehabilitated before completion of the project.

NOISE AND NUISANCE CONTROL:

Operations shall be conducted in such a manner that nuisance shall not be caused to the general public, adjoining residents and users of adjacent buildings. If such nuisance is being caused the Contractor shall immediately make such arrangements that will prevent a recurrence of the same and indemnify the Employer against any claims arising therefrom.

RESTRICTIONS ON WORKMEN :

Ensure that workmen confine their activities to the area in which the Contract Works are being carried out. On no account shall workmen enter and use any existing building on site or any completed building without permission. No workmen shall be allowed to use any of the new fittings such as sinks, basins, WC's, cooking equipment, electrical circuits or appliances etc. Smoking will not be allowed on site.

Any transgressions of the above may lead to permanent dismissal from site. All workmen shall be identifiable by suitable ID cards and uniform work clothing.

WORKING AT HIGH LEVELS :

Unless stated otherwise, scaffolding and all equipment and machines necessary to work at high levels in order to complete this contract shall be supplied by the Contractor. All scaffolding, equipment and machinery shall meet the requirements of the AHJ's Occupational Health and Safety Act.

CRANEAGE :

All craneage required for the satisfactory completion of the work is to be allowed for by the Contractor.

CONSTRUCTION OF A STEEL STRUCTURE

This project consists of the following elements:

- Supply and construction of a steel portal framed structures of 9 metres wide by 14 metres long each as indicated on drawing plans including the cat ladder, roof and side cladding.
- Casting of concrete bases and floor slab
- All painting of a steel portal frame building.
- All fixing methods are not to be welded where possible, due to design being such that the steel frame can be moved to another location.
- The price must include all transport of materials to and from site.

PLEASE NOTE – The architectural plans are concept drawings.

Tenderer to work on structural engineer and insulation room drawings for the size & layouts of the store and for measurements.

CLEARING SITE:

Clear site for the whole area of the ground to be built upon up to a distance of at least 1 m beyond the perimeter of the structure of building(s). This operation shall be deemed to include the digging up and removal of rubbish, debris, vegetation, hedges, shrubs and small trees (up to 200mm girth), bush, etc. as well as the digging up of top soil and examining for and removal of all dead roots and other vegetable matter likely to provide food for termites.

LEVELLING – CUT TO FILL

Cut to fill operation must be performed to level the area cleared for the construction of the buildings.

The acceptable exposed earth must be scarified and compacted to a density at least 90% Modified AASHTO. (America Association of State Highway and Transportation Officials).

Filling shall be of approved clean earth in layers not exceeding 150mm in depth, well-watered, rammed and thoroughly consolidated to at least a density of 90% Modified AASHTO.

In this case there is a 1 metre fall of the area from East to West and 1 metre fall from North-east to South-west.

NOTE: The tenderer needs to visit the site to get accurate measurements and levels as well as ground conditions.

PROTECTION AGAINST TERMITES:

The ground under surface beds shall be poisoned with an approved registered soil poisoning material of the chlordane or aldrin type mixed with water, applied at the rate of not less than 5 litres of solution per m². Great care is to be taken to apply the solution evenly over the whole surface. The concentration of the solution shall be in accordance with the Manufacturer's instructions.

STEEL STRUCTURE

SANS REQUIREMENTS

All structural steelwork shall comply with SANS 1200H or 1200HA as applicable. Structural fasteners shall comply with SANS 1700. All weldable structural steel shall comply with SANS 1431. All welds to be 6mm fillet welded. All structural steel must be grade 300WA

Supply and install structural steel portal frame as per the drawing

- 25537 50 Regulated Atmosphere Coldroom Layout Sections & Details Rev A

NOTE:

The structure on the drawing has been designed by a Structural Engineer. If the tenderer wants to change the design, the tenderer must provide a detailed certified engineering plan and the contractor takes full responsibility for structural design work.
Changes to be indicated under CDB 3.1- Changes made by bidder.

CAT LADDER & BALUSTRADING:

Construct a cat ladder as indicated on the Structural Engineering drawing

ROOF COVERING

IBR ROOF COVERING & SIDE CLADDING:

Cover the roof and side cladding with IBR (inverted box rib) roof sheet as per SAFINTRA TUFDEK@ Profile African Charcoal clean colorbond or equal and approved IBR sheeting with ridging and barge boards. The sheets to have a minimum thickness of 0,47mm.

The sheeting shall be Tufdek® IBR type profile as manufactured by Safintra. The profile shall be roll-formed with 5 trapezoidal ribs at 171mm centres with an effective cover width of 686mm. The rib height shall be 36.5mm and shall be fixed in accordance with the manufacturer's recommendations

Sheeting to be pierce fixed to timber or steel supports. This means that fastener screws pass through the sheeting. Always drive the fasteners perpendicular to the sheeting, and in the centre of the rib. Side laps be stitched at 500mm centres. Every rib is fixed at the eaves, ridges and the apex of the roof. Side and end laps are to be sealed (in accordance with SANS10400-L:2020) using a suitable butyl product or neutral cure Silicone.

When using Aluminium material on galvanized steel purlins, the use of an isolation tape or similar to prevent the bridging of the two dissimilar materials must be done. Should the two metals have direct contact it will ultimately result in the manifestation of galvanic corrosion, and the service life of the Aluminium will be compromised.

During installation, clean the roof daily by removing all swarf, pop rivets and unused fasteners or any other debris. All sheets are to be tanked or turned up at the ridge side of the sheet and are to be lipped or turned down at the eave end.

ROOF INSULATION

ALUBUBBLE®, white bubble with foil backing insulation (code: 2906) or equal and approved with thermal insulating, dustproofing and fire-resistant capabilities complying with SANS 1381-4:2009 and tested to SANS 428. quality in accordance with requirements of sans 10400 building regulations, installations are to be to manufactures instructions and specifications.

NOTE:

The Contractor is to submit a certificate, signed by the Merchant, stating that the roof covering and side cladding supplied complies with the required thickness specified.

PLUMBING

GUTTERS AND DOWNPIPES:

Supply and install commercial and industrial square profile aluminium seamless gutter, 0,9mm thick coated internally and externally with colourtech g4 or equal and approved in colour marble white including cut and mitred angles covered with a mitre strip externally, stop ends riveted and all sealed on the inside with dow corning 813 silicone sealer, secured to fibre cement fascia with 20 x 3mm dual-purpose brackets at 600mm centres using aluminium peeled rivets, including a 50 x 20mm high overflow spiggot, with 78 x 78 x 2mm thick aluminium downpipes in colour marble white fixed to wall with straps at 1500mm centres Using nail plugs, with downpipes riveted and silicone sealed to gutter outlets, including all necessary bends, elbows, shoes etc.

BUILDING WORK

CONCRETE

CONCRETE BASES TO MILD STEEL COLUMNS:

Form the bases to the mild steel stanchions with 30MpA to the forms and sizes shown on the drawings and carried up to ground level, where applicable, in properly constructed temporary formwork. The 4 x 16mm diameter hook bolts are to be embedded in each of the concrete bases as the work proceeds.

CONCRETE FLOORS & RAMPS:

Excavate, fill, level and grade as required, the areas inside/outside the store. Lay new damp proof course (Poly-ethylene sheeting complying with SABS Specification 952 Type B, 380 microns thick)

Prepare for and form concrete floor of 35 Mpa Concrete, reinforced with mesh reinforcement as ref. 395 and 611. Allow for 150mm thick for AC Condensor housing unit and 200mm thick for main shed floor. Concrete floors to be finished off with power float finish.

CURING OF CONCRETE:

After the concrete has been placed, all exposed surfaces shall be kept continuously damp for at least 10 days by methods such as covering with approved building paper, or by means of wet canvas, wet sacks, wet sand, by continuous hosing or ponding with water.

CONCRETE TEST CUBES:

Contractor to make allowance for 2 test cubes of 150 x 150 x 150mm for each individual pour undertaken for concrete. The testing of all concrete cubes will be done by an accredited laboratory approved. The Contractor is responsible for the provision of the cube moulds and for timeous delivery of the cubes to the laboratory.

Payment will only be affected after 7-day test results are received and within tolerance.

Allow for 7 day & 28 day tests.

BRICKWORK

BUILDING ON CONCRETE FOOTINGS:

No brickwork, stone walling or other structure shall be built on concrete footings until at least three days after placement of the concrete in the case of mass concrete footings and after seven days in the case of reinforced concrete.

CEMENT BLOCK WALLS:

Block brick walls, 190mm thick to the sizes as shown on drawing, are to be built in Stretcher Bond. The walls are to be built in 3:1 cement mortar. The 190mm Blocks must conform to the standards for concrete masonry units which is SANS1215.

Brickwork shall be built level and plumb with mortar as specified. The bricks shall be laid on a solid bed of mortar and all joints thoroughly grouted up solid throughout the whole width of each course.

NB; Cement or concrete bricks shall not be wetted.
All rough and fair cutting, cutting of splays, skewbacks, chamfers, etc. shall be properly performed. Form or leave all necessary openings for pipes etc. and make good after pipes etc. are fixed in position. The blocks must get 1,6mm thick galvanised brick force every course.

All Blocks to be filled with a cement / sand mixture as the work proceeds and bagged inside and outside.

PLASTERING

THICKNESS OF PLASTER:
Plaster on walls shall be not less than 12mm or more than 20mm.

APPLICATION OF PLASTER:
Walls shall be well wetted before plastering is commenced. The surfaces of plastered walls internally shall be stee trowelled to a smooth, even and true finish. All external plaster shall be finished to a true and even surface with a wood float. All plaster surfaces shall be free from blemish.

Plaster shall be returned into reveals and soffits of openings and all angles shall be true and straight with salient angles slightly rounded.

The rendering coat of plaster in two coat work shall be approved by the Project Manager
before the setting coat is applied and notice shall be given to the Project Manager when the plaster is ready fo inspection. All cracks, blisters and other defects shall be cut out, made good and the whole left perfect a completion.

EXTERNAL PLASTER TO ALL NEW BRICKWORK:
Render all newly built external walls from natural ground level with 5:1 cement plaster as shown on plan.

INTERNAL PLASTER TO ALL NEW BRICKWORK:
Render all internal walls from finish floor level with 4:1 cement plaster. Plaster to have steel trowel finish.

V-JOINT PLASTER:
Run sunk V-joint to cement plaster between new blockwork and old blockwork.

SCREEDING TO FLOORS:
Concrete floors shall be screeded with 3:1 cement plaster of thickness required, but in no case less than 12 mm, all steel trowelled to true and smooth surfaces. The sand used in the plaster shall be of such fineness as will allow for the screed being trowelled to a surface suitable to receive the finishes.

Screeds have to be laid to a 1:100 fall to new floor drains as specified elsewhere.

The screeding shall be laid before the concrete sub-floors have matured, otherwise the exposed surfaces of the concrete shall be thoroughly cleaned with a wire brush and a coat of neat cement grout applied immediately before the screeding is laid.

The screeding shall be laid in good time, but no finishes are to be laid if the screed exceeds 70% moisture content when measured with a hygrometer. No traffic shall pass over nor shall any building operations take place on the screeding unless a proper protective covering is first provided.

PAINTING

PAINT NEW STEELWORK:

All steelwork must be wire brushed down and free from all surface rust. Allow for One coat "Carboline Carboguard 880" (epoxy polyamide) 80 microns dry film primer and one coat "Carboline Carboguard 137HS (anti-corrosive aliphatic acrylic polyurethane) 40 microns dry film.. All paint is to be SABS approved and details submitted to the Project Co-ordinator for approval.

The frames are to be primed before the structure is transported to site.

Before any cladding has been commenced, all paint coatings must have been completed. This must be inspected by the Project Manager and approved before the final fixing of any cladding and roof sheets can commence.

Touching up on site must be done thoroughly, especially on all the bolts & nuts. It should be done as soon as possible after erection to prevent the corrosion of fasteners and steel surfaces.

PAINT ON FLOATED PLASTER:

Prepare and repair as specified, brush to remove all loose contaminants, rinse and apply suitable bonding liquid one coat approved alkali resistant primer to bare substrate areas and two coats approved pure acrylic paint on existing water-based painted surfaces

Apart from above specification, the below documents also form part of this specification:-

- DOORNKLOOF - INSULATION STRUCTURE INSTALLATION SPECIFICATIONS
- DOORNKLOOF - REFRIDGERATION SPECIFICATIONS

NOTE - Cold rooms to operate between -0.5°C to 25°C for cool down and holding

END OF WORK TO BE DONE

TIMELINE

ACTION	START DATE	END DATE	DURATION (WEEKS)
Administrative and tender preparation	2025/08/04	2025/08/13	9
Tender runtime/sourcing of quotes	2025/08/15	2025/08/29	14
Adjudication and award of bid	2025/09/01	2025/09/03	2
Time to activate delivery	2025/09/12	2025/09/19	7
Construction time/delivery completed	2025/09/22	2025/12/22	91
		Total duration	123

BID CONDITIONS

Lump Sum Bid

These documents are for a lump sum bid for all labour and material as set out in the Scope of Works. For the purposes of variation orders, the hourly or unit rates rate of the services should also be given if requested on the form **CBD 4.**

No unit rate price adjustment of whatever nature, except for decreases or increases in the Value-Added Tax (VAT) and / or Variation Orders, will be applicable in this contract. The bidder shall make provision in his bid price for possible fluctuations in costs.

Premises in Occupation

The premises for the works **will** be in occupation during the contract period. Approval to access the premises must be obtained from the land owner.

Fixed Price Bids

No contract price adjustment of whatever nature, except for decreases or increases in the Value-added Tax (VAT) and / or Variation Orders, shall be applicable in this contract. The Contractor will make provision in his bid for possible fluctuations in costs.

If the instruction / appointment for the construction of certain phases is done after the validity of the bid has expired, prices may, on request, be updated or re-negotiated within the reasonable norms of escalation.

Expenses in Preparation of Bid

The Client will not be responsible for, subject to the Preferential procurement regulations, nor pay any expenses for losses which the bidder may incur in preparation of this bid.

Inspection of Site

Bidders must familiarise themselves with the local conditions, the accessibility of the site, the full extent and nature of the work to be done and the conditions affecting the execution and pricing of the bid. Claims on the grounds of lack of knowledge in such respects or otherwise will not be entertained.

If a site meeting is held, notice of attendance must be forwarded to the contact person.

Only information given in writing to the Contractor by the Engineer during the tender period will be regarded as binding on the Contract. Verbal information, given during the site inspection or at any other time prior to the award of the Contract, will not be regarded as binding on the Contract.

Site

The site to be occupied will be clearly pointed out to the Contractor at the site handover. The Contractor will not be allowed to extend his operations beyond the boundaries of the site.

Water for the Works

The Contractor may use if available. He will obtain permission from the Land Owner before any connection to or extension of the existing supply is made, which will be executed, removed and made good on completion of the works at the Contractor's own expense.

Electricity & Lighting for the Works

The Contractor may use the existing power if available. He will obtain permission from the Land Owner before any connection to or extension of the existing supply is made, which shall be executed, removed and made good on completion of the works at the Contractor's own expense.

The Contractor will allow for the risk of failure in the electrical supply or in case of an insufficient supply, in which case he will make his own arrangements and all costs that may arise shall be for his own account.

Scaffolding & Hoisting Equipment

The Contractor will provide for the supply, erection and removal of scaffolding and / or hoisting equipment as required.

Tools, Equipment & Machinery

The Contractor will provide all his own tools and equipment as well as facilities and transport for this project. Machinery should be sufficient to complete the works in the allocated time.

Existing Services

If the Contractor encounters any existing services such as cables, pipes or sewers during the execution of the works, he must immediately notify the Client, halting all work in the vicinity thereof, until instructions to proceed have been given by the Project Manager.

Electric wires, telephone wires, pipes, etc. will not be interfered with during the course of the contract but if it should be necessary to disconnect or cut any such wires or pipes, the Client will be advised thereof and his instruction awaited.

Defects and Maintenance

The maintenance period, in terms of this contract and which is applicable to all equipment called for in terms thereof, is **12-months.**

In principle, the period of maintenance in respect of all equipment which has been accepted by the engineer will commence on the date of acceptance, as signified by the engineer.

When in the opinion of the Client Representative, any part of the work done or any material used or intended for use is not in accordance with the requirements of the contract, whether or not payment for such work or material has been made, he may order the Contractor in writing to remove any objectionable part of the material

immediately and to replace it with acceptable material and to rectify or reconstruct the works in whole or part, without cost to the Client.

To the intent that the works shall at or as soon as practicable after the expiry of the period of maintenance be delivered up to the Client, in as good and perfect condition (fair wear and tear excepted) to the satisfaction of the Client Representative as that in which they were at the commencement of the period of maintenance, the contractor shall execute all such work or repair, amendment, reconstruction, rectification and making good defects, imperfections, shrinkages or other faults as may be required of the contractor in writing by the engineer during the period of maintenance or any extension thereof in terms of any rejection of work as a result of any inspection made by or on behalf of the engineer prior to its expiry.

In the event of the contractor being required to rectify or being engaged in rectifying defects in the works prior to or at the date when the period of maintenance is due to expire, the Client Representative shall have the right to extend the period of maintenance in respect of the portion of the works being or to be rectified until the work of rectification is complete, and the expression "period of maintenance" shall be held to include any such extension.

If the contractor fails to commence to do any such work as aforesaid required by the engineer, within a period of 10 days, the Client shall be entitled to carry out such work by his own workmen or by other contractors, and if such work is work which the contractor should have carried out at the contractors own cost, the Client shall be entitled to recover from the contractor the cost thereof or may deduct the same from any monies due that become due to the contractor. Nothing contained in this clause shall be construed as absolving the contractor from fulfilling the general obligations imposed on him in terms of this contract.

"AS-BUILT" Drawings

The contractor shall provide the engineer with a complete and signed set of "as-built" drawings as a prerequisite to final payment. The engineer shall then turn the set over to the owner after having established their correctness. The "as-built" set shall include layouts and sections of all the insulation and electrical work, as well as wiring diagrams.

"As-Built" drawings shall be maintained on a current basis as work progresses.

Copies of drawings depicting schematic representations of fluid and air flows are to be included in the Operation and Maintenance Instruction Manuals, and a copy of each is to be framed, laminated and hung in a location to be agreed on site. Drawings are to be colour coded, complete with serial numbers and valve reference numbers.

Wiring Diagrams

The contractor shall submit comprehensive wiring diagrams for control boards and single line diagrams for distribution boards for approval prior to manufacture.

The contractor is to provide the following for Practical Completion:

- A copy of each "As-Built" wiring diagram in a protective cover on the inside of the relevant
- control board, panel or DB
- Copies of Electrical COC's are to be included in the Data Book
- Copies of the wiring diagrams installations supplied by the tenderer, will comply with the requirements of the technical specifications. Moreover the system will ensure that a high and consistent standard of quality is maintained.

Component quality plans

Component Quality Plans shall be prepared by the contractor for each component or group of components, item of equipment or service in accordance with an approved delivery schedule of plant and equipment and services which is to be provided under the contract according to the designated category.

Component Quality Plans shall be submitted to the engineer for approval and shall include:

- Equipment submissions
- Procedures and method statements (e.g. painting, corrosion protection, laying of
- buried pipes etc.)
- Component inspection details, persons involved, corrective actions, acceptance
- Test check lists, data, acceptance (e.g. pressure and flushing tests)
- Commissioning check lists, data etc.
- Details of Certification and Submittals to Council, third parties etc.

Component Quality plans shall be drawn up for the following categories of equipment:
1. Critical equipment
2. Major equipment
3. Minor equipment

Accounts and Payments

Payment of accounts received by the Client in terms of the works completed, shall be affected within 30 days after receipt of a correctly completed and approved invoice for the work module. The Client does not accept responsibility for delays in payment due to faulty accounts or paperwork.

Payments will be done maximum on a monthly basis and will only be made for work done/completed. Payment will be based upon a completed payment schedule which will be completed by bidder on award of tender. Payments will only be made upon physical inspection and sign off of completed work. Please allow timeous notice for inspections so that the necessary travel arrangements can be made.

Wage rates

Be responsible for all the sub-Contractors appointed by him to complete the works. A minimum **of 75%** of local labour must be incorporated in the project and all workers must be SA citizens.

The area for which local labour is to be sourced is in a 50km radius from site.

The following guidelines should be considered when setting rates of pay for workers:

- The rate set should take into account wages paid for comparable unskilled work in the local area per sector, if necessary.
- The rate should be an appropriate wage to offer an incentive for work, to reward effort provided and to ensure a reasonable quality of work.
- It should not be more than the average local rate to ensure people are not recruited away from other employment and jobs with longer-term prospects.
- Men, women, disabled persons and the aged must receive the same pay for work of equal value.
- Provision should be made in the tender for value for payment of UIF and COIDA statutory levies.

Construction Insurance

Proof of construction insurance for planned work must be submitted by the successful contractor within 14 calender days upon receipt of letter of award. If you do not have insurance, for smaller (less than R100 000) projects, Casidra can put it under its insurance portfolio for your own costs (0.5% of the contract value). We must be given enough prior notice regarding this.

Performance Guarantee

Tenderer shall give performance guarantee of all the equipment for proper and satisfactory operation & as per performance criterion given in specification.

Inspections, tests and analysis

All pre-bidding testing will be for the account of the contractor.

If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the contractor shall be open, at all reasonable hours, for inspection by a representative of the Client or an organization acting on behalf of the Client.

If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the Client shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.

If the inspections, tests and analyses show the supplies to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the Client.

Where the supplies or services do not comply with the contract requirements, irrespective of whether such supplies or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the contractor.

Supplies and services which do not comply with the contract requirements may be rejected.

Any contract supplies may on or after delivery be inspected, tested or analysed and may be rejected if found not to comply with the requirements of the contract. Such rejected supplies shall be held at the cost and risk of the contractor who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with supplies which do comply with the requirements of the contract. Failing such removal, the rejected supplies shall be returned at the contractors cost and risk. Should the contractor fail to provide the substitute supplies forthwith, the Client may, without giving the supplier further opportunity to substitute the rejected supplies, purchase such supplies as may be necessary at the expense of the contractor.

The provisions of above clauses regarding inspection & testing shall not prejudice the right of the Client to cancel the contract on account of a breach of the conditions thereof, or to act in terms of the conditions of contract.

Operation and Maintenance manuals

General requirements

The final draft of the Operation and Maintenance Manual shall be submitted in due time, and in any case not less than two weeks prior to Practical Completion, so that at least one copy of the complete final version is in the possession of the Employer at Practical Completion in order to comply with recommendations relating to Health and Safety at Work.

Two weeks prior to Works Completion inspection, three (3) copies of the final up-dated operation and maintenance manual shall be delivered to the Engineer for distribution.

O&M Manuals must be submitted and approved as a condition of final acceptance of the works.

General format of manuals

Manuals shall be furnished in loose-leaf binders. The manual for each system shall contain the following minimum information and shall be comprehensively indexed as follows:

- INDEX

- CONTACT DETAILS:
  - Company contact details and emergency number

 ACCEPTANCE CERTIFICATES
- Contractor's Completion Certificate
- Engineer's Final Completion Certificate
- Employer's Acceptance Certificate

 CONTRACT INFORMATION:
- Start and end date of maintenance period
- Guarantee expiry dates

 DESCRIPTION OF SYSTEMS:
- General description of system and all system components, accompanied by an electrical
- circuit diagram (where applicable).
- Applicable design standards for the system
- System design parameters
- Description of the automatic control system and accompanying control schematics (where
- applicable)

 SYSTEM OPERATION
- Description of system operation including starting up, shutting down the plant, and emergency procedures
- Notes on possible failures, their causes, and methods of repair
- Details of interfaces with other systems

 ITM REQUIREMENTS
- Summary in tabular format indicating daily, weekly, monthly, quarterly, half yearly, yearly (etc.) inspection, testing and maintenance requirements.
- The above summary is to include details about each ITM activity and the responsible party.
- Detail system shut-down and planned impairment procedures.

 MAINTENANCE CHECK LIST AND TEST SHEETS
- Maintenance instructions.
- Separate check lists are to be developed for each of the daily, weekly, monthly, quarterly, half yearly, yearly (etc.) ITM requirements. Check lists are to include all activities which must be performed and place to record the relevant data as required.
- A log book shall also be provided where all maintenance and changes to the system are to be recorded.

 EQUIPMENT DATA
- List of all components, manufacturers, models, and supplier information for the system.
- Data sheets of all components listed above, including manufacturer's operation and
- maintenance requirements.
- For all pressure vessels include the pressure vessel data book, certification, verification by AIA (where required) and record of pressure tests.

 SPARE PARTS
- Number and location of spares provided as part of the contract.
- Recommendation of critical spares, other spares, test equipment etc. to be kept, and
- lead times.
- List of agents / suppliers (including contact details) for all pieces of equipment installed and lead times of that equipment.

 SYSTEM COMMISSIONING MANUAL
- Include a system commissioning manual.
- Record of training provided to staff at the facility.

- Include the installation's necessary Certificates of Compliance.
- Include all test certificates (factory and site).

 AS-BUILT DRAWINGS
- Layout drawings per area and in sequence in plastic envelopes.
- System P & ID's in plastic envelopes.

 ELECTRICAL WIRING DIAGRAMS
- Wiring diagrams of all boards and panels in sequence in plastic envelopes.

 DIGITAL STORAGE DEVICE
- A portable storage device (USB Stick) must be provided with each manual.
- The USB shall contain the entire O&M Manual in *.pdf format, with each section (as defined above) saved as a separate file.
- As-built drawings shall be included in *.pdf, *.dwg and *.dxf format, whilst the electrical wiring diagrams shall be provided in *.pdf format. For *.dwg and
- *.dxf files, include the reference to the correct software version and provide an appropriate drawing file viewer programme.
- The O&M Manual shall also include a service log book which shall provide space to record any trouble calls, including the date and time of such calls, examinations done, the condition of the system, and name of technician responding to such calls. Storage space for the log book must be allowed for in the plant room area.

Owner instructions

The contractor shall, in addition to the operation and maintenance manuals, give detailed explanations of, and instructions to the owner on the operation of the complete installation, as finally commissioned and handed over.

The contractor shall operate the whole plant for a period of fifteen consecutive days after the plant is handed over. During this period the contractor shall provide the owner with operation instruction.

Failure to produce manuals

If the Contractor fails to produce and submit a satisfactory Operation and Maintenance Manual by the due dates, then the Engineer may instruct a third party to provide any or all of these documents and the total cost of preparing such documents shall be borne by the Contractor.

Equipment submissions format

As part of the quality control procedure and to ensure compliance with the specification, all equipment proposed in the tender shall be submitted to the Engineer for review before procurement. A full submission shall be made in a lever arch binder or similar with the various sections placed in clear plastic envelopes inside the file. The submission shall be due within 30 days after official appointment.

The front page shall indicate:
- Contractor's name
- Project title
- Contract name
- Submission title
- Date
- Signature of the Contractor's authorised representative
- Thereafter the enclosed information shall follow the format described below.
- Index page
- Deviations list
- Specification extracts

- Catalogue extracts
- Approval certificates
- Calculations
- Operating conditions
- Safety devices
- Control and electrical diagrams
- Schedule of settings
- Miscellaneous

Deviations list

This shall comprise a summary listing of the proposed deviations to the contract specification.

Specification extracts

Legible copies of the relevant specification pages shall be included in the submission.
Each clause shall be initialled by the Contractor's authorised representative to certify that the proposed submission complies with or deviates from the specification.
Deviations shall be clearly highlighted in the specification extract and summarised on the 'Deviation Page'.

Catalogue extracts

Legible copies of relevant pages only shall be submitted marked to indicate the selected equipment, additional options and all associated information. Separate pages shall be included as necessary to indicate other criteria (ambient conditions, altitude etc.) affecting selection. Dimensioned manufacturer's drawings and, where relevant, annotated sketches indicating plant access routes into the building, for installation and maintenance shall be included.

Approval certificates

Certificates from relevant Approving Authorities (ASIB, FM, UL etc.) shall be included where required.

Calculations

Detailed calculations shall be included in the submission to substantiate the equipment selection. Calculations shall be logically set out for technical review and be accompanied by a schematic of the system / sub-system taken from the installation drawings.

Operating conditions

This shall comprise of a block diagram representative of the equipment showing the input/output variables and the associated maximum / minimum conditions for the equipment to demonstrate the limits of operation.

Safety devices

Details of safety devices shall be highlighted in the manufacturer's details.

Control and electrical diagrams

Details of the control systems and equipment shall be submitted in the form of schematic diagrams. Power wiring diagrams shall also be included as appropriate.

Schedule of settings

A schedule of settings (set points of pressure switches, PRV's, thermostats etc.) shall be included for the particular installation and conditions.

Miscellaneous

Any additional information that the Contractor deems necessary to include, or that the Engineer might require.

Quality of equipment and materials

All equipment and materials installed as part of this project shall be new, of best quality and free from defects and shall, where necessary, be certified by an approved inspection authority (SANS, BS, DIN, NEMA, UL etc.) Any materials and / or apparatus used for similar purpose are to be of the same manufacture.

Temporary use of equipment

No equipment intended for permanent installation shall be operated for temporary purposes without the written permission of, and in complete agreement with stipulations as set forth by, the Project Manager and/or Engineer.

Protection of equipment

The contractor will, at his own expense, protect all installed equipment and materials against possible damage which may be caused during the construction period.

Technical review of the contractor's submissions

The Engineer will examine the Contractor's submissions for compliance with the Contract Documents. This technical review will exclude detailed checking of drawings for co-ordination erection or installation fit.

The submission will be returned to the Contractor clearly marked to indicate:

- if it fully complies or;
- it partially complies or;
- it does not comply.

Comments will also be marked and returned on a single copy of the original submission. The technical review shall not relieve the Contractor of his responsibility for the execution of the works in full compliance with the Contract Documents.

It will be necessary to obtain approval of all authorities, as required, for materials, equipment and installation which deviates from the tender specification.

Inspection, Testing and Commissioning

Programme

As part of the general project programme, the Contractor shall include items for which inspections and tests shall be carried out. These elements shall include in particular those which will be covered up during construction, pressure tests etc.

Within one month of appointment, unless stated otherwise, a preliminary commissioning programme shall be submitted to the Engineer. The programme shall be of the itemised bar chart format and shall clearly indicate the proposed approach and all key activities. Prior to actual commissioning the Contractor shall produce a detailed and final commissioning programme. This document shall amplify and expand upon the preliminary commissioning programme and include all necessary detailed method statements and procedures.

The programme shall be fully integrated with all other site activities envisaged to be occurring during the period of commissioning and shall also indicate all necessary witnessing and acceptance dates.

Inspections

The Contractor must allow for reasonable assistance to the Engineer during inspections.

The installation will be inspected by the Engineer on a regular basis during the course of the contract to ensure compliance with this specification. The Contractor shall progressively submit, giving a minimum of 7 calendar days' notice, elements of the works for inspection and witness testing. The Contractor shall be responsible for scheduling of all tests.

A written record shall be kept of all inspections and testing performed to substantiate conformity with the Contract documents including those carried out by the Contractor and / or third party testing agencies, together with manufacturers' or suppliers' certificates of test.

Any record which indicates that any part of the Contract Works inspected or tested does not comply with the Contract Documents shall be submitted without delay in order that the Contractor's proposals for rectification may be assessed.

The Contractor shall provide a competent person to accompany the Engineer or his representative during inspections. This person shall know the installation, shall be in a position to accept and carry out instructions and shall take notes during the inspections so that the remedial work can commence immediately and is not held up while waiting for the inspection certificate.

As completion of the Contract Works proceeds, inspections will be carried out by the Engineer. Any deviation from specification or below standard workmanship is to be rectified to the satisfaction of the Engineer by the Contractor, prior to requesting a Certificate of Practical Completion.

The Contractor must replace any portion of the installation that does not meet with the requirements of this Specification as may be imposed thereon by test or inspection. Such replacements shall be done at his own cost.

A Certificate of Practical Completion will be issued when the Contract Works are to all intents and purposes complete, commissioned and available for beneficial use by the Owner. The issue date of this Certificate will determine the commencement of the guarantee period.

A Certificate of Final Completion will only be issued when all defects listed at the time of Practical Completion have been complied with. The issue of this Certificate will coincide with certification of payment of the full Contract sum (excluding retention).

The Contractor must ensure that the installation is correct, complete and to specification before calling for acceptance inspections. The cost of any abortive inspections, where the Engineer is called to site, but finds the Contractor ill-prepared for it, may be deducted from the Contract Price by Variation
Order.

Records signed by the Contractor's Site Supervisor of their own inspections and tests must be submitted to the Engineer before applying for acceptance inspections. The Engineer can request that any part of the installation or the complete installation be re-tested, recorded and measured as part of the acceptance inspections if there is any reasonable doubt about the accuracy of the test.

Performance and Capacity Checks

Where the Client Representative is to witness tests, the Contractor shall ensure that the Client Representative receives reasonable notice that such tests will take place. Tests required to demonstrate

specified capacity and general operating characteristics of all systems and equipment, shall be undertaken by the Contractor under the direction of the Client Representative at time of final inspection.

Where required by the Client Representative, test instruments shall be tested for accuracy by an approved laboratory or by the manufacturer and certificates showing degree of accuracy shall be made available.

Noise Testing

Should the installation, in the opinion of the Client Representative, be excessively noisy, (i.e. exceed the specified noise levels) acoustic tests shall be carried out by a nominated Acoustic Consultant.

Should the results of the initial acoustic test prove to be unsatisfactory, the Contractor shall carry out modification to the equipment so that further tests can be made until the plant complies with the Specification. The cost of all such further tests and the necessary modifications to the plant shall be met by the Contractor.

Pressure testing of refrigeration piping

All testing must be undertaken prior to the lagging of any part of the piping reticulation. The vacuum test shall follow the pressure test. Charging of the equipment with refrigerant shall follow the vacuum test. After charging and prior to capacity tests, joints in refrigerant piping and apparatus shall be checked with a leak detector. If leaks are found, the system shall be pumped down and the leaks corrected. The test must be witnessed by the engineer.

Mechanical Guarantee

Mechanical guarantee shall be for proper design, workmanship and material of construction for all manufactured as well as bought-out items.

Tenderer shall give mechanical guarantee against defective materials and workmanship for the complete scope of supply for a period of 12 months from the date of supply or 18 months from the date of commissioning. Any parts found defective during guarantee period shall be repaired / replaced by tenderer free of cost.

The Contractor will be required to pay a service and maintenance visit once every 3 months during the 12 month guarantee period, i.e. 4 visits in all, to ensure that the plant is operating satisfactorily, and at these visits he is to instruct the owner's operating staff in the operation of the plant if they so require. A detailed record of the plant operation and any work carried out is to be recorded in the log book and are to be submitted to the engineer immediately after each visit.

Performance Guarantee

Tenderer shall give performance guarantee of all the equipment for proper and satisfactory operation & as per performance criterion given in specification.

Warranty

The contractor warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The contractor further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the Client's specifications) or from any act or omission of the contractor, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

This warranty shall remain valid for **twelve (12) months** after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after

the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise.

The Client shall promptly notify the contractor in writing of any claims arising under this warranty. Upon receipt of such notice, the contractor shall, within the period specified and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the Client.

If the contractor, having been notified, fails to remedy the defect(s) within the period specified, the Client may proceed to take such remedial action as may be necessary, at the contractor's risk and expense and without prejudice to any other rights which the Client may have against the contractor under the contract.

DOORNKLOOF

REFRIDGERATION SPECIFICATION

GENERAL REQUIREMENTS

Project Information

General

Client	:	Doornkloof (Pty) Ltd
Engineer	:	JAE Cooling Solutions (Pty) Ltd.
Tenderer	:	The Prospective Tenderer
Plant	:	Doornkloof Boerdery,
Location	:	Laingsburg

Site Conditions and Climatological Data

Site Access	:	Road
Ambient Conditions	:	
Description		DB (°C) WB (°C) RH (%)
Temperature	:	38.3°CDB 18.1°CWB
Altitude	:	656 amsl

Utilities

Electricity:

Power : 415V+-10%, 50Hz 85%, 3 Phase, 4 wire combined voltage and frequency variation +-10%

Control voltage : 230 V AC, 50Hz, 1Ph. To be derived by tenderer from 415V, either by providing suitable control Transformer or direct tapping from phase & neutral.

Instrument Air : N.A.

Plant Compressed Air : N.A.

Nitrogen : N.A.

Water: : Bore hole and council

Codes & Regulations

Besides regulatory requirements as per guidelines of ASHRAE, ARI, NFPA, FM global etc, the equipment supplied by tenderer shall conform to the latest standards and regulations but not limited to, the listed below:

- British Standards (BS)
- American Society for Testing and Materials (ASTM) International Mechanical Code, 1996

- National Electrical Code (NEC) National Electrical Safety Code
- Occupational Safety and Health Administration (OSHA), DOSH, JKKP, DOE, SIRIM American National Standards Institute (ANSI)
- Underwriters Laboratory (UL)
- National Electrical Manufacturers Association (NEMA) American Society of Mechanical Engineers (ASME) Air Movement and Control Association, Inc. (AMCA)
- National Institute of Standards and Technology (NIST) National fire protection Association (NFPA)
- BS:2831-1971-Code for testing of filters
- ASHRAE-5276-Air cleaning device issued in general ventilation for removing particle matter.
- IS:325-1996 Three phase induction motors
- IS:4691-1985 (Reaffirmed 1991) Degrees of protection provided by enclosures for rotating electrical machinery
- IS:3854-1997 Switches
- IS:3043-1987 Code of practice for earthing

Basis of Design

The Refrigeration plant have been designed based on the client requirement to load 40 to 50 bulk bins of fruit per day, entering at field temperature into a coldroom with the capacity to cool this volume of fruit down to -0.5 °C in 24 hours. The room will have a holding capacity of 640 bins when fully loaded.

HEAT LOAD BREAKDOWN	Load (W)	% of Total
TRANSMISSION LOAD	8 470	9%
INFILTRATION LOAD	1 061	1%
FRESH AIR LOAD	0	0%
INTERNAL LOAD	5 300	6%
PRODUCT LOAD	38 282	40%
RESPIRATION LOAD	30 600	32%
FAN LOAD	4 400	5%
DEFROST LOAD	8 010	8%
TOTAL REFRIGERATION LOAD	**96 123**	**100%**

Outside Design conditions

Outside Design Conditions is described in Table below:

Sr. No.	Description	DB (°C)	WB (°C)	RH (%)
1.	Summer	38.3	18.1	N/A
2.	Winter	-8.1	18	N/A

Inside Design Conditions

As per Cold Storage room design data sheets (-0.5°C)

Design Parameters

Refer Cold Storage design parameters– Annexure – I

Lighting

4 Ceiling mounted vapour proof fluorescent lights and one LED spot light against each external wall at 3 m affl. Internal and external light circuits on separate switches.

Electrical

The required main electrical supply shall be provided at the electrical motor control Circuit Panel (MCC) and terminated by the site electrician onto suitably sized isolators provided under this contract. Cabling and wire ways for equipment in the plant area, evaporators, fans and controls will be distributed from the MCC Panel under this contract.

Power supply from the nearest transformer will be by the client's electrician.

GENERAL SPECIFICATIONS

Purpose (Introduction)

Doornkloof Boerdery (Edms) Bpk (The Client) is planning to build a new Cold Storage facility for the storage of grape and peaches in bulk bins.

The facility is designed to include an insulated room with finishing details as described in this document.

The areas in the new facility, which require new insulated paneling & doors are confirmed as follows:

INSULATED ROOM SCHEDULE				
NUMBER	ROOM NAME	AREA (m^2)	VOLUME (m^3)	(°C)
1	REGULATED ATMOSPHERE ROOM	110 m^2	902 m^3	-0,5°C

Scope of Work

The scope covers the supply of detailed shop drawings, manufacturing, material inspection, transportation, unloading/handling, installation of mechanical equipment, associated electrical installation and controls, testing, commissioning and demonstrating the operation of the plant inside the design parameters as per specifications given here under.

Items included but not limited to includes:

- The refrigeration plant area for the new cold room will be located inside of the building on the southern wall and the condenser plant will be housed on a raised platform outside the building provided by the main contractor.

- Refrigeration systems specified herein are of the multiplex type as detailed on the refrigeration drawings and schedule attached to this document.
- The design is based on Bitzer compressors in multiplex pack configuration and HC Heat - Exchangers condensers, and HC – Heat Exchangers' blower coils.
- Alternative offers may be submitted for the following approved suppliers:
    - Compressors (semi-hermetic): Copeland, Bock
    - Condensers: Colcoil, Recam
    - Blower coils: Colcoil, Recam

Note: Any further alternative offers for condensers must be separate to the main option with a separate price, technical specification (model numbers etc) and cover page.

- Lighting and power distribution in the warehouse will form part of this supply.
- The layout and drawings are considered to be sufficient for tendering purposes but the onus is on the Contractor to make all checks necessary before he installs equipment and unless there are radical changes in layout or equipment, no extras will be allowed for small variations that may exist between the proposed layout and the final installation.
- Over and above items specified in detail the Contractor is to supply a complete installation including such items as fixings, sealant, flashings and trims.

- All pipe, ducting and cable penetrations through insulated panelling will be vapour sealed after installation by the Insulation Contractor.
- All scaffolding, craneage, forklifts, lifting and rigging gear required to complete the installation must be provided by the Refrigeration Contractor. It must be noted that provision must be made for generators to provide power suitable for construction purposes.

Work by Others

The following work will be done by others:

- The main incoming electrical supply to the plant areas, to be done by the client.
- The cold room insulated structures, to be done by the insulation contractor.
- Floor gulleys or drain connections to the main sewer line for condensate water draining from blower coils.
- Main steel (Primary) support for cooler installation provided by steel contractor.

- The Tenderer has to submit the technical data sheets and provide documentation requirements as stipulated in 'Administrative Requirements'.

The work under this contract shall consist of supply and installation of equipment as per drawings and specifications including but not limited to the following:

- Transportation to site.
- Unloading at site.
- All electrical and plumbing coordination with services contractors.
- All pipe and cable penetrations through insulated panelling must be clearly marked in order for the insulation contractor to create openings and vapour seal after completion of installation.
- Testing, commissioning at site and handing over.
- Maintenance during warranty period.
- Provide labour, materials, tools, equipment, scaffolding, supervision and incidentals required to complete the installation.
- Provide components and devices required for proper installation and operation of the cold rooms as intended, whether or not such components or devices are specifically identified herein. It is not the intent of this document to completely specify all details of design and construction for the refrigeration system under consideration. The equipment and workmanship at site must conform to high standards of design, engineering and skill. All items of work, which are required to make the system complete, shall be deemed to have been included in the tender submission whether specifically indicated or not. Final responsibility of system performance shall be solely tenderer's responsibility.

Programme

The Contractor shall comply with the clients' completion date and requirement to make use of the building in time for the first fruit to be cooled.

The key programme dates are as follows:

Construction start date: 18/08/25 TBC

Cold Room BO date: 25/11/25 TBC

Refrigeration:

Start date: 18/08/25 TBC

Finish date: 16/12/25

Penalty for late completion: R5000/day

Design Details

The proposed refrigeration system shall be designed, constructed and certified to ensure compliance with the following (but not limited to) codes:

Refrigeration system safety code	:	SANS 10147:2014 Edition 5
Pressure vessels	:	PD 5500 and ASME VIII (No PWHT on compressor sets)
Piping	:	ASME/ANSI B31.5-2013
NDT interpretation	:	PD 5500 on vessels
MCC Panels	:	SANS 1973-1:2007, in combination with SANS 61439-1 and SANS 1973-3:2008
Site / Field Cabling	:	SANS 10142 part 1
Compressor set Ratings	:	EN 12900

BASIC DESIGN DATA

Location	:	Laingsburg, South Africa.
Design dry bulb temperature	:	38.3°CDB
Design wet bulb temperature	:	18.1°CWB
Refrigerant	:	R507A
Refrigeration system	:	DX
Evaporation temperatures	:	-6 °C
High stage design pressure	:	2000 kPa (g)
Condensation	:	Air Cooled Condenser
Condensing temperature	:	+45 °C
Compressor type	:	Reciprocating
Power supply	:	400 V, 3 ph, 50 Hz
Control voltage	:	240 V, 1 ph, 50 Hz

Template: Typical Room Data Sheet

Reception		Storage Temp	°C		Store Capacity		ton	
Maximum loading into store per day (5 days/week)					**Max discharge per day**			
Tonnes/day	t	Temperature	°C		Tonnes/day		ton	
Package type	Cartons and crates	Dimensions (mm)	L:	-m	W:	-m	H:	-m
Fresh air makeup		N / A	Power		N / A	Lighting		N / A
Hygiene Risk		High				Personnel		None
Doors		Wall Finish						
Sliding	swing	Wall 1	Wall 2		Wall 3		Wall 4	
yes	Yes	Chromadek	Chromadek		Chromadek		Chromadek	
Window		no			Ceiling Finish	Chromadek		

Refer to Addendum 1 for Room Data Sheets for Refrigerated rooms.

Electrical

General

The refrigeration contract is to include all power and control wiring to provide a fully functioning system.

On completion of the installation the refrigeration contractor is to provide a Certificate of Compliance to the Client Representative as drawn up by the relevant authority in South Africa and signed by a registered Electrician.

All new electrical circuit breakers, contactors, overloads and timers are to be of Telemecanique manufacture or approved alternative.

The refrigeration contractor is to allow for the necessary electrical cabling between plant area DB and multiplex pack. Additionally, the refrigeration contractor is responsible for reticulating electrical power to the evaporators, condensers and plantroom extract fans and lights.

The DB providing power to the compressor, controls and blower coils is to incorporate phase failure, under and over voltage and phase rotation protection.

All distribution boards and circuit breakers are to be rated for a minimum of 15 kA. All circuit breakers associated with motors are to be slow curve / D curve breakers. Final kA values are to be confirmed by Client Representative before construction of distribution boards.

Cabling and Motor Control Cubicles (MCC'S)

Included in the tender documents is a collection of mechanical general arrangement drawings. These illustrations depict the placement of control and power components, from which cable lengths will be deduced. Nonetheless, minor discrepancies in the plant's layout won't lead to scope changes or warrant variation orders.

Distribution panels shall be fit-for-purpose factory-built design verified LV switchgear and control gear assemblies with the requirements of these Standards; SANS 1973-1, SANS 61439 and SANS 61641 being met.

A distribution panel which is verified in accordance with SANS 61439 by an original manufacturer and manufactured or assembled by another does not require the original design verifications to be repeated if all the requirements and instructions specified and provided by the original manufacturer are met in full.

Generally, cabling to power users such as compressors, fans, defrost heaters, etc. shall be in multicore PVC insulated and armoured cable with a minimum cable size of 2.5 mm^2. Surfix cabling and armoured cabling is acceptable.

Cable routes shall follow the piping routes but shall be separately supported on galvanised cable tray. Cables shall not be fixed to the refrigeration piping.

Leads from the sensors of controllers are to be minimum 1 mm^2 and shall be run on a separate cable rack to the power cables in PVC conduits.

The contractor's attention is drawn to the fact that all cables are to be selected in accordance with the associated SANS codes only.

A minimum clearance shall be maintained between items of equipment and the side of compartment (withdrawable unit). Adequate space between terminals and cable trunking shall be allowed for identification ferrules to be visible.

No components or equipment shall be mounted in any position where it is not visible and

accessible to a viewer looking into the compartment through the door opening (fixed circuits), or into a withdrawable unit from the top (withdrawable circuits).

Degree of Protection

The indoor ASSEMBLY's metal enclosure shall have a minimum external degree of protection of IP3X in accordance with SANS 60529.

The outdoor ASSEMBLY's metal enclosure shall have a minimum external degree of protection of IP53 in accordance with SANS 60529.

The ASSEMBLY's internal barriers or distances shall have degree of protection of at least IP XXB and shall be provided to prevent accidental contact with live conducting parts of the circuit.

The design of the gland plates shall ensure a degree of protection of IP2X before and after installation of the incoming / outgoing cables.

The front enclosure of withdrawable units shall form part of the ASSEMBLY of that sub-section and providing a minimum IP3X degree of protection.

The motor control distribution panels should be outfitted with a main switch, soft starters, Y/Δ starters, motor protection, fuses, contactors, indicator lights, and necessary marking plates or Variable Speed Drives (VSDs) as indicated. The components within the panels will be interconnected, with wiring extending to a terminal strip for the attachment of external cables.

The arrangement of all panels should be orderly and maintainable throughout the control panel's lifespan.

Wiring from electric motors, solenoids, and other electrical devices to the main switchboard must utilize NYY-type cables for subfloor channels and NYM-type for other applications. Sensor wiring should be of the LIYCY screened variety.

Power cabling may never be installed in the same conduit or wire way with dedicated control wiring as interference will result. Raceways must be sized so that conductors can be easily pulled and enough space is allotted between each conductor to prevent overheating. As per NEC, fill should be limited to 40% for over 2 conductors, 31% for only two conductors, and 53% for one conductor for standard raceway applications.

Cables must be sized so that the maximum combined voltage drop for both the feeder and branch circuit shouldn't exceed 5%, and the maximum on the feeder or branch circuit shouldn't exceed 3%. Cables should not be excessively oversized as they may not be able to fix on designated termination blocks, and the heavier weight may create additional support concerns.

All MCC's are to comply with the SANS 1973-1:2017 as well as with the latest revision of IEC 61439 (Factory built assemblies of switchgear and control gear for voltages up to and including 1000VAC and 1200VDC).

The equipment used for the manufacture of all the MCC's shall be:

Switchgear:	ABB / Merlin and Gerin
Control Relays:	ABB or Omron
Pilot Lamps:	Telemecanique ZB2-BW071 type (Illuminated P/Buttons)
Control Switches:	ABB or Krause and Naimer
Terminals:	Phoenix Contact UK5 or larger
Earth Terminals:	Earth Terminals USLKG 4 type
Fuses:	G.E.C. Red Spot
Timers:	Electromatic.

PLC: Siemens S7 / Carel / Danfoss

Signal lamps shall be suitable for operation at the control voltages.

Each lamp shall be provided with a series resistor capable of operating continuously in still air without exceeding a temperature rise of 10 ºC. The resistor shall be mounted inside the lamp holder in such a way that it does not compromise ventilation requirements.

Push Buttons

The contacts of the buttons shall be adequately rated for the duty specified.

The front of the push button shall be coloured as follows:

No	Push Buttons	Colour
1.	circuit-breaker close	GREEN
2.	circuit-breaker trip (open)	RED
3	drive start	GREEN
4	drive stop	RED
5	valve close	BLACK
6	valve open	WHITE
7	valve stop	RED
8	fault reset	BLUE
9.	lamp test	YELLOW

Requirements for Engineering drawings

General

Reproducible drawings shall be provided in an English language. All drawing shall be in at least A3 size.

General arrangement drawings

General arrangement drawings shall be completely dimensioned, showing:

- Arrangement of equipment;
- Top, front, and side views and cross-sections of the distribution panel;
- Position of each functional unit and their compartments;
- Reference each functional unit type and size (e.g. 37kW DoL, 250A feeder etc);
- Clearances for opening doors;
- Locations of main busbars and distribution busbars;
- Details on the required openings for the power cables;
- Incoming and outgoing cable termination positions and details;

- Cable slot positions;
- The height of all cable glands above floor level;
- Mass of transportable sections of equipment;
- Details and position of the holding down bolts;
- Magnitude and disposition of all loads imposed on foundations.

Running hour recorders and operations counters shall be of the electromechanical or electronic type with at least five hour digits. The operations counter shall have a seven digit display and shall count each operation.

Both the running hour recorders and the operation counters shall be activated by switching on a power supply to the recorder.

Where the electromechanically type is used, it shall have either a legible rotating wheel or flap display. No resetting facility shall be provided.

The running hour recorder shall have at least five hour digits. The operations counter shall have a seven digit display and shall count each operation. This unit shall be activated by the same switching on of the power supply as the recorder.

Control of the plant will be managed by a Programmable Logic Controller (PLC) within the plant room and at remote Motor Control Centers (MCCs). The Electrical & Instrumentation (E&I) design must account for continuous operation throughout the year, every day of the week. The E&I design will incorporate redundancy as specified in the mechanical design.

The contractor must supply all necessary field wiring for the refrigeration plant and the PLC control system. Installation of all cables must comply with the most recent version of SANS 10142, and all Steel Wire Armoured (SWA) cables must be 600V grade and conform to SANS 1507.

Power circuits are to be connected using PVC general-purpose wire in the designated phase colors, sized according to SANS 10142, with a minimum wire size of 2.5mm for power circuits. Each control wire should end with an insulated lug and be numbered as per the schematic wiring diagram, using numbered sleeves that fit snugly to prevent the number from slipping off.

Connection of supply cables to the Refrigeration Engine Room MCC and Auxiliary Ventilation MCC, and their termination into the respective isolators, will be handled by others. The fault level for these supplies is tentatively set at 40 KA, subject to confirmation. The contractor is responsible for preparing and overseeing the connection of electrical supply cables to these MCCs. The contractor will also supply and install all other MCC feeder cables.

Each motor control center panel must have a terminal for a smoke alarm signal connection. Upon receiving a smoke alarm signal, the cooler fans must be turned off. An automatic reset function to restart the fans after 3 minutes is also required.

Cable ladders

Cable ladders and trunking must be connected with boxes, cabinets, etc. The inlet and outlet should be connected by holding feet and fastened with bolts. The end of trunking should be capped.

If there is a slope on the surface of the building, the wire ways should follow its slope. After all the wire ways have been laid, they should be adjusted and checked before the installation of wiring.

The connection of the straight section of the trunking shall be made with a connection plate. The connection plate must be fastened with a washer, a spring washer and a nut.

Trunking may be secured directly to a surface or suspended by means of brackets. As trunking material is thin, there is no room for countersunk holes. Roundhead screws are suggested, unless

of course the fixing surface requires bolts. There are occasions when the trunking has to be suspended by means of brackets.

Cabling must be mounted on galvanized cable ladders, avoiding attachment to any piping services. Cables in the engine room should be arranged overhead on cable racks, positioned high with branches descending to each equipment cluster.

Cable ladders need to be sized to carry all cables in a single layer, with extra space for 10% future capacity. Power and signal cables should be organized separately on the cable trays.

To prevent drooping, cable ladders must be properly supported. Contractors should use specialized cable ladder accessories like reducers, tees, and bends. Any exposed metal from cutting supports, trays, or ladders must be painted over.

Cables running alongside insulated panels within the process area must be housed in stainless steel dairy tubing, held 25mm away from the panel surface with specialized pipe supports.

PVC conduits are not suitable in areas prone to mechanical damage, radiant heat, or where temperatures drop below -20°C. Conduits should be supported every meter with 'Hospital' type saddles, and when affixed to insulated panels, blind rivets should secure the saddles.

When conduits pass through walls of cold or freezer rooms, the space between the conduit and its sleeve must be sealed with silicone to preserve the vapor barrier. The conduit section within the wall should also be filled with sealant to ensure an effective vapor barrier.

Mechanical Control Centre (MCC)

The power distribution cubicles in the Plantroom MCC must be arranged, designed, and built to fit the space specified in the drawings. The MCC should be a standalone structure, and the busbar system must be type tested, suitable for the designated fault level of 35kA to 40kA under the specified operating conditions.

Install four lightning arrestors, connecting one from each phase to earth and another from neutral to earth. Each MCC cubicle should be isolated with steel side walls and divider plates, with all terminals located within a termination cubicle.

Every section of the MCC will have a Miniature Circuit Breaker (MCB) equipped with an interlocked handle on the MCC door, preventing the door from opening while the MCB is active. There should also be a mechanical override feature to bypass the interlock if necessary, using an appropriate tool.

The MCC is to be compartmentalize with internal metal separators into the following sections:

- *Incomer*
- *Multiplex*
- *Condenser #1*
- *Power Distribution*
- *PLC Capacity - and Common Controls*

As a minimum the control circuit is to be operated in the following manner which will be identical for all compressors:

A safety circuit is to be provided and will monitor the following:

- All compressor pressure and temperature safety switches via microprocessor panel relay.

- Phase failure relay on the main incomer
- Compressor motor overload
- Compressor lock out stop

When all monitored safety devices are in their correct positions, a relay will activate, and if the compressor's on/off switch is set to 'on,' the compressor will be prepared to start. Each compressor will have a microprocessor-controlled anti-recycle timer that prevents it from starting if it has been less than 15 minutes since the last activation. In automatic mode, if the 'ready to start' relay is active and the anti-recycle timer is not, the compressor will initiate once the PLC identifies a need for more compressor capacity. In manual mode, the compressor will start as soon as the 'ready to start' relay is active.

For ***Capacity - and Common Controls*** the contractor must include for the development of the software to perform the following functions:

- Capacity control of compressors
- Lead lag compressor sequence selection.

An Audible and visual warning of trip conditions with test and mute facilities must be included.

All parameters mentioned should be available through a password-protected operator's screen, which is to be installed on the control panel's front and not through any handheld or portable devices. The system must allow for the monitoring of process variables and the operational status of all control elements. Should an alarm be triggered, an appropriate message must appear on the operator's screen.

The system will include an audible alarm with a button for acknowledgment and testing, as well as a visual flashing beacon. These will be positioned outside the engine room door, with the exact location to be decided on-site, but it is presumed to be no more than 100 meters from the Engine room MCC for estimation purposes.

The electrical setup will include control panels within the facility to manage fans, solenoid valves, defrost cycles, and other controllers. This panel are typically situated next to the entrance door, accessible to facilitate maintenance.

The refrigeration contract includes for the detailed design, supply, delivery, installation and commissioning of the following MCC's that should in general have components assembled as per the image below:

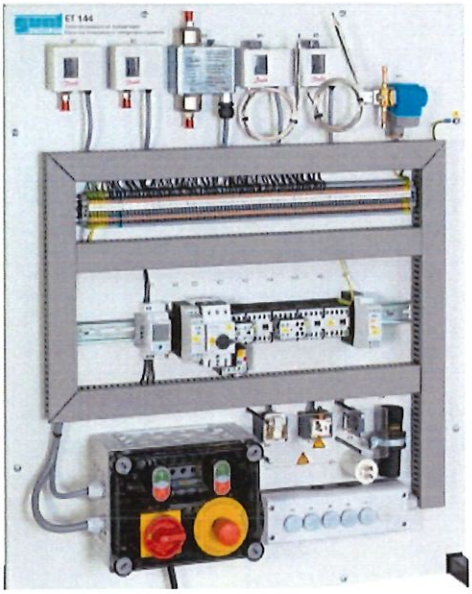

Figure1: Typical MCC Control panel layout

The field mounted MCC's can be either a free standing or a wall mounting type construction (supplied with support structure for mounting adjacent to the valve station). The busbar system employed is to have been type tested and to be suitable for the specified fault level and operating conditions.

The MCC shall include the following indicator lamps as a minimum.

- Fans On/trip
- Defrost On/off
- Room down to temperature
- Fan overload
- Cooling On
- Condensate drain heaters on
- Drip tray heaters on

General

Piping requirements for materials, design, fabrication, assembly, erection, test and inspection of refrigeration, heat transfer components and secondary coolant piping carried out under this contract must generally be installed according to the international standards for piping as prescribed by ASME B31.

Piping Support

Piping should be installed at least **2.3 meters** above the floor. Position pipes carefully in relation to other piping and structural elements, particularly when the lines are to be insulated. The gap between insulated pipes should be at least **three times the insulation thickness** for screwed OR welded fittings, and **four times** for flange fittings. The clearance between the pipe and nearby surfaces should be **no less than the thickness of the insulation**. Hangers placed near the vertical risers leading to and from compressors help to alleviate the weight of the piping on the compressor. Pipe hangers should be spaced no more than **2.5 to 3.0 meters** apart and within **0.6 meters** of a change in direction of the piping. Hangers should be designed to support the exterior of insulated lines. Sheet metal sleeves on the lower half of the insulation are typically adequate. When piping goes through a wall, a sleeve should be used; if the pipe going through the wall is insulated, it must be properly sealed. Piping to and from compressors and other components must accommodate expansion and contraction. Adequate flange or union joints should be placed in the piping so that components can be easily put together during initial setup and taken apart for maintenance.

Coolers Support Frames and Secondary Seel Supports

The coolers will be supplied with a support frame adequately designed to avoid sagging of the evaporators particularly on the longer units.

Main steel supports will be provided by others above the coolers but the refrigeration works will include for the provision of secondary steel supports, galvanised threaded rods of minimum 20mmØ and fixing nuts etc.

Coolers to be installed in the blast freezer will be supported from the structural steel included under this contract and should preferably be hanging in order to allow work to continue above the ceilings while work is carried out inside the freezers.

Pipe Installation

Supplier to coat with anti rust paint / coating on all support and structures to avoid rusting.

Drain piping to be insulated and heated for freezer room and installed with a U trap out side the cold space and should be terminated near the closest foul drain point provided by others.

The method for applying insulation to pipes penetrating through cold room walls and ceilings are indicated in Figure 4 below.

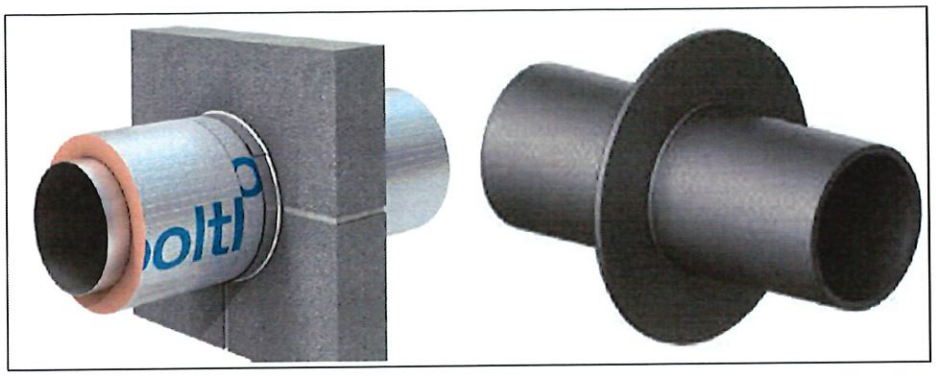

Figure 4: Pipe penetration insulation

Care must be taken to avoid rigidly anchoring both ends of a long straight pipe. Such an approach will damage piping or the structure to which it is attached or both.

Provide bends, loops in long lines to take care of expansion or contraction due to temperature changes.
All suction branches should be taken from top of the header. All hot gas connections or branches should be taken from top.

All liquid line branches should be preferably from bottom of the header.
For long liquid and vapor lines, provide a drain valve in the piping. Also provide safety relief valve in the liquid line to prevent trapped liquid and bursting of pipe when plant is not in operation due to atmospheric temperature variations.

Piping Insulation

For the medium temperature suction piping, proprietary expanded rubber insulation 20 mm thick, such as Armaflex or prior approved alternative may be used. For Low Temperature applications 25 mm thick Armaflex must be used. Should alternatives be considered, it is critical that associated specifications be cleared with the engineer prior to installation on site. Insulation shall be applied to the piping before installation takes place; "zip lock" type will not be allowed. Splitting of the insulation for application after piping installation is not acceptable. Butt joints are to be properly glued together and covered by self-adhesive P.V.C tape, or equal, taking great care not to compress the insulation material. Also, support brackets for insulated pipes shall be designed not to compress the insulation material and shall not be fixed directly to the pipe.

All insulated piping located outdoors shall be enclosed with a sheet metal cover in order to protect the insulation from UV damage.

Piping instrumentation

Thermometers:

Fit thermometers in pipe lines - use positions as indicated in the schematic piping layout. Thermometers shall be placed so that they can be read easily with normal room illumination. Scale - degrees Celsius.

Select instruments so that at normal working temperatures, the indication shall be in the mid-

scale.

In addition to the pipe line thermometers indicated on the schematic drawings, thermometer wells are required. Construct these thermometer wells as shown on the schematic piping layout drawings. Fill wells within the pipework with oil. Position wells that thermometers are easy to read. Fit test hole thermometer points in the supply air stream from each air handling unit.

Pressure Gauges:

Minimum 80mm diameter dial type with 10mm pipe connections
Install pressure gauges in positions as indicated in the schematic piping layout drawing. Each pressure gauge assembly shall comprise of a syphon tube and gauge cock. Select pressure gauges with a range of 0 to 200% of its operating pressure.

In addition to pressure gauges as shown on the schematic piping layout drawing, pressure gauge points shall be installed. These points comprising of a 10mm cock are connected to the pipe line directly.

Provide syphon tubes and gauges. It is required that the gauge cock is plugged with a bronze plug on the open end.

Filter Gauges:

Select filter gauges with a range of 0 to 200% of its normal operating pressure. Connect gauges to static pressure tips of approved design so that the gauge will correctly indicate the resistance to the air flow of the filters.

Pressure Testing

The relevant regulatory inspections are to be adhered to and certificates must be issued by the contractor as required by the OHS Act, PER, and SANS 347.

Pressure testing shall be carried out on the complete piping system using dry, commercially pure nitrogen. The minimum acceptable pressure for testing shall be 1,925kPa absolute for the high pressure side and 1,595 kPa absolute for the low pressure side. In a two stage system the booster discharge circuit shall be considered as a low pressure side. Pressure in the system is to increased slowly until final test pressure is reached. Small amount of Ammonia shall be added and all welds and joints shall be tested with sulphur flame or equivalent. Following the successful pressure test with no leaks found, must a vacuum of at least 4kPA be drawn and held for at least 12 hours. A maximum loss in vacuum of 1 kPA is allowed over this period.

Painting, Coding and Safety Equipment

With the exception of new plant supplied which is painted ex factory, all pipework, insulated piping, vessels, brackets, etc. will be thoroughly painted in accordance with approved practice.

All equipment, materials and fasteners installed under this contract shall be protected against rust, oxidation and corrosion by applying an approved protective coating. Such protective coatings shall be compatible with the materials applied to, and shall, at all times, conform to the application instructions or recommendations of the manufacturer. The appropriate and

recommended primers shall be applied after de-scaling, cleaning, washing, drying, or wiping, as may be required, and before finishing coats are applied. Only the highest quality approved finishing, priming, etching and cleaning materials shall be used.

Colour identification of services and equipment shall apply. Prior to the painting of any plant or equipment the contractor shall obtain, from the Client Representative, an approved colour identification scheme.

The plant room will be provided with a minimum 60 minute fire separation from the rest of the building. All openings to the rest of the building will be properly fire sealed. (Provided by others)

TECHNICAL SPECIFICATIONS

Work Included

The refrigeration contract is to include, but is not limited to the following:

Compressor packages

The refrigeration system for the cold room shall consist of a Multiplex System. The multiplex compressor rack will consist of three compressors, a air cooled condenser, liquid receiver vessel and associated components to ensure a complete system to control the room temperature at a set temperature.

All the above compressors are to be mounted on anti-vibration mountings with suction and discharge shut-off valves, ports for pressure measurement, suction and discharge vibration eliminators, motor thermistors and crankcase heaters.

Multiplex packages consist of three of the following compressors:

Compressor	4NES-14Y-40P
Capacity steps	100%
Cooling capacity	33,3 kW
Cooling capacity *	33,3 kW
Evaporator capacity	33,3 kW
Power input	13,19 kW
Current (400V)	22,2 A
Voltage range	380-420V
Condenser capacity	46,5 kW
COP/EER	2,52
COP/EER *	2,52
Mass flow	1041 kg/h
Operating mode	Standard
Discharge gas temp. w/o cooling	85,0 °C

Each compressor to be supplied with unloader heads.
Each refrigeration system is to be clearly labelled by engraved Trafolite labels specifying the refrigerant and oil type.

Liquid Receivers

The liquid receivers are to meet the standard requirements set out under section III.

All liquid receivers are to be manufactured to either European or South African code of practice for pressure vessels and supplied with the necessary test certificates. The selection of the pressure relief valves is to be in accordance with the SANS 0147.

Where applicable all insulated suction lines exposed to the ambient / sun are to have protective aluminium or galvanised sheet metal cladding.

Condensers

All condensers shall be air-cooled, horizontal discharge. The contractor is responsible for the rigging of all the equipment into their associated positions.

Condenser fins must be polyurethane treated against corrosion.

The condenser for the system serving the new coldroom is to be installed on a galvanised steel frame to allow for draining of liquid refrigerant into the receiver vessel and the frame required to raise the condenser forms part of this supply. The refrigeration contractor must provide a layout drawing of the equipment in order to indicate the minimum footprint for multiplex, electrical control board and condenser slab that will be required.

Blower Coils

The main offer is to include for blower coils of HC Heat - Exchangers manufacture with following design details:

DUTY

Capacity	94.22 kW
Sensible	82.9 kW
Latent	11.32 kW
SHR	0.88
Coil Condition	DRY/WET

PDX - 4A - 26 x 6000 x 7R x 3.18F x 41.73C - CU/AI

Tubing	12.6x0.35 mm	Coil Height	990.6 mm	SA	351.56 m²
Fin	0.25 mm	Coil Height	39 "	Vol	122.67 ℓ

BAROMETER

Altitude	200 m
Pressure	98.98 kPa

AIR

On-Coil	1.5/-0.059 °C
Off-Coil	-2.44/-2.73 °C
RH On	75 %
RH Off	93.75 %
Mass Flow	20.85 kg/s
Volume Flow	16.64 m³/s
Face Velocity	2.8 m/s
Pressure Drop	33.08 Pa
Enthalpy On	9.57 Kj/kg
Enthalpy Off	5.05 Kj/kg
Inlet Dew Point	-2.25 °C
Inlet HR	0 gw/kga
Dehumidification Rate	19.69 kg/hr

IRDX-4A-26x6000x7Rx8mmx805-BD
Cu Tube, Al Fin, EPC Gi Casing
Includes 5 x 800mm 1.1kW fans
Includes Block and Drip Tray elements
Includes SS304 Drip Tray
Approx Unit Dimensions: 6400mm L x 1250mm H x 1400mm D
Approx Unit Dry Mass: 1080kg

The evaporators are to be constructed from copper tubes with aluminium fins. The fin spacing is not to be closer than 4.2 mm. Each blower coil is to be fitted with an electronic expansion valve and a removable filter for cleaning.

The evaporator fans are to be provided with epoxy coated wire guards and are to be permanently wired back to the connection box. The use of "plug in" type fans will not be accepted.

The blower coils are to be fitted with electric defrost heater elements. The heater elements are to be easily removed without removing the entire drip tray. A defrost limit thermostat is to prevent the temperature rising above a set-point maximum of 30°C during defrost.

Generally, blower coils are of the ceiling mounting type having single and sometimes, dual discharge. Single discharge blower coils shall preferably be installed 400mm to 600 mm away from a side wall such that air flow is not directed towards the doorway.

Coil fixing should be by a threaded rod or bolt from non-conducting material such as nylon or Teflon to a load-spreading beam of timber or steel above the cold room ceiling. The hole through which the support rod or bolt passes shall be properly sealed using foam polyurethane and a suitable mastic (or silicone) as a final sealant. Penetrations for refrigerant and drain piping and cables shall be similarly treated.

Defrost Drain Piping

Allowance is to be made for the connection of all blower coil drains under this contract. Blower coil interconnecting drain piping shall be properly secured with appropriate pipe clamps to the coldroom panel and installed to a minimum of 1:100 fall.

Condensate and defrost drain piping in general consists of 50 mm diameter PVC steel piping.

The refrigeration contractor is to allow for individual drain connections to each blower coil which is to discharge individually and directly into a main drain via its own accessible P-trap. Drainage connections are to be a minimum of 40 mm diameter PVC.

Liquid Line Filter Driers & Ball Valves

A suitably sized "sweat on" liquid line filter dryer to be installed before every expansion valve for every evaporator.

All evaporators are to be fitted with a suction and liquid line shut-off valve to allow for easy replacement of any evaporator in future.

Refrigerated Room Temperature Indication

Allowance is to be made for fitting a dial thermometer with 100 mm indication to each cold room and freezer room. The bulb is to be installed within an oil filled pot fixed to the insulated wall of the cold room at high level.

Workmanship

All items shall be installed plumb, square, level and in proper elevation, plane location and in alignment with other work.

All work shall be designed and manufactured to comply with field conditions and fitted with proper joints and sections.

ACCEPTANCE TESTS

FAT Acceptance Tests

The contractor shall demonstrate adequate control of production parameters during the manufacturing process, including control of chemical mix proportions, surrounding temperature and curing time. Panels shall be inspected and wrapped after finishing and cleaning, and kept in the manufacturing environment for an adequate period of time to cure. The following items shall be inspected on every panel before acceptance.

- The edges of panels shall be inspected for insulation continuity and freedom from holes and gaps.
- The edges of all panels shall be inspected for good adhesion.
- Edges that will form part of a vapour barrier's joint shall be inspected to ensure that they are free from dents or irregularities.
- Dimensional accuracy of the panel shall be confirmed.
- The correct fit and alignment of the panel, gaskets and any locking devices shall be confirmed.
- Panel tests shall be witnessed by the client's representative if required.

Storage of inspected panels at the manufacturer's works or on site will be necessary before installation.

Precautions shall be taken to avoid:

- Mechanical damage
- Warping due to stacking
- Water or moisture penetration
- Discoloration
- Moisture on Galvanized sheeting covering the panels
- Exposure to sunlight or ultraviolet light.

SAT Acceptance Tests

The Contractor must perform all inspection and tests of the system as a whole and of components individually as required, under the supervision of the Owner / Consultant, in accordance with the provisions of the applicable standards and as per load requirements. The following tests are proposed but shall not be limited to these tests only.

The cold room system has been designed keeping in mind that following tests will be performed by tenderer during the testing stage.

- Door operation
- Underfloor heating systems operation
- Heated window operation
- Dock leveller installation with proof of sectional door interface.
- Freezer store vapour proof test when brought down to temperature.

TEMPORARY PROTECTION DURING TRANSPORTATION

The protective measures must be appropriate for the equipment and the environmental conditions it will encounter during transport and storage, such as high humidity, extreme cold, and rapid temperature fluctuations. If the manufacturer advises against storing the equipment in its shipping containers, this must be noted on the advice slip, and the containers should be marked with a conspicuous yellow stripe at least 75 mm (3 inches) wide.

Critical bare metal areas, such as machined parts, should be coated with a suitable protective lubricant to guard against mechanical damage. The external surfaces of mechanical devices and electric motors are to be primed and painted as per the supplier's standard practice.

Bearings that are typically lubricated with oil should be filled with a protective oil compatible with the lubricant. Bearings that are usually grease-lubricated should be packed with the appropriate grease.

The strategy used to protect bearings from transit vibrations and shocks must be approved by the Client/Consultant.

The above-mentioned guidelines are general; the supplier must adhere to the specific instructions and safety recommendations provided by the manufacturers of the chosen protective materials. These guidelines do not relieve the supplier of their responsibilities.

Before storage, panels should be crated, boxed, or adequately protected to prevent damage. The site's provisions for panel access, handling, storage, and security should be compatible with the packaging system. During transit and on-site storage, panels must be shielded from moisture, heat, and sunlight, for instance, with a tarpaulin or black polythene sheet and straps. Extra coverings are required for outdoor storage to safeguard against all weather conditions.

The sealed packaging, such as shrink wrap, should not be removed until the panel is ready for installation.

Delivery

The Contractor is expected to work collaboratively with the Engineer to ensure all tasks are completed promptly, especially during the planning phase to facilitate straightforward construction on-site. The Contractor will receive adequate support to finish and transfer the plant by the agreed deadline.

The Contractor must create an activity schedule within 14 days after the contract's conclusion. This schedule should be coordinated with the Engineer and the main contractor to align with the overall construction activities.

Immediately after the contract is finalized, the Contractor should propose any subcontractors they intend to hire, subject to the Engineer's consent, which shall not be unjustly denied. The schedule must include a timeline for all subcontracted tasks.

Before beginning any work, the Contractor must have all working drawings and wiring diagrams approved by the Engineer. The Engineer will be available for necessary discussions during the drafting phase, where the Contractor must specify all required construction-related tasks.

The Contractor has three weeks from the contract's completion to provide drawings for any civil

and structural details not already supplied by the Engineer.

To facilitate coordination with other contractors on-site, the Contractor must commit to a specific timeframe for on-site construction leading up to the handover, which remains valid even if start dates are postponed due to other contractors' delays.

Programme:

The Contractor must adhere to the Building Contractor's construction schedule. Essential dates for the programme are detailed elsewhere in this document.

REGULATORY REQUIREMENTS

1. All Performance Qualification documents for all equipment/system to ensure regulatory compliance.
2. All manuals / test certificates of various products from manufacturers.
3. All material certificates.
4. As built drawings of Cold rooms and electrical wiring where applicable.
5. Performances test certificates to ensure that installation is as per the design.
6. Any other assistance that may be required for obtaining regulatory approval.
7. Test certificates of all equipment, ancillary materials and instruments from competent test labs.

VALIDATION DOCUMENTATION

Manufacturer's competent representative to be present during commissioning and during validation tests to demonstrate the (trouble free) working of the individual components and controls and sensors of the cold storage/freezers, along with all committed parameters.

It shall be the responsibility of the contractor to obtain validation from the Client / Consultant, including all necessary co-ordination, documentation and related activities.

SPECIAL REQUIREMENTS

Tenderer should take specific note of following to avoid any communication gap.

1. Tenderer shall submit following documents with the offer :

- List of similar nature projects executed and commissioned. (Also indicate project value).
- Organogram for this project.
- CV for key personnel, who will be assigned for this project.
- List of items for which test lab certificates will be submitted.
- Details of service centre nearest to the site.
- Execution Plan for detailing, procurement, supply, installation, testing, commissioning, performance testing and validation as per proposed schedule.
- Catalogue and tech data of equipment / system offered.
- Priced spare parts list required for next 5 years
- List of consumable with their cost & frequency(duration they need to be replaced/changed)

2. Tenderer shall visit the site, meet the client and familiarize themselves with the existing facility and understand the requirement of client before quoting. Tenderer has to arrange all resources for timely and smooth completion of project.
3. Any activity/equipment not covered in the tender but necessary for successful execution of the job shall be included in the offer and highlighted.
4. All software / hardware used shall be duly licensed for this job.
5. All relevant documents/literatures/drawings etc. shall be submitted with the offer.
6. Tenderer shall carry out all coordination activities with client/consultant/other sub-tenderers like electrical contractor, piping contractor, civil contractor and main contractor.
7. Tenderer shall submit FAT Protocols for approval by Client / Consultants.
8. Before the despatch of equipment FAT shall be carried out at tenderer's works as per approved protocols jointly by Client / Consultants and tenderer.
9. SAT shall be done at site during Performance Qualification or upon arrival of equipment to site to ensure no damage occurred during transport.
10. Tenderer will make their own arrangement at site for covered storage of panels and equipment. Test certificate of all equipment, ancillary materials & instruments from competent test labs shall be supplied by tenderer.
11. During the guarantee period (after handing over) tenderer shall provide adequate skilled manpower at site to ensure maintenance of inside design conditions. After sales service shall be provided with in 24 hours.
12. Regarding any contradiction in specification/standard / any other data given in the tender, client/consultant's decision shall be final.
13. If the system provided by tenderer fails to meet guaranteed performance parameters, tenderer will make necessary modifications at their own cost and risk to achieve the

guaranteed parameters within shortest possible period and as per Client and Engineer.

14. Tenderer shall accept that rate of any missing item can be derived from other similar item in the Schedule of Quantities by proportionally adjusting the rate. Final decision regarding the same shall lie with Client / Consultant.

15. Tenderer shall check feasibility of installation of all equipment or part of system in the given space in coordination with client/consultant. Tenderer shall check these before ordering their equipment. Any changes at the site shall be born by contractor. Tenderer should ensure site requirement before actual fabrication of any component.

16. Provision of cranes, hoist, scaffolding and other necessary arrangement for installation of system shall be included in the offer.

17. For items which are not quantified by tenderer / sub tenderer (mentioned as Lot) no extra claim will be entertained due to changes by Client / Consultant during drawing / Design approval and / or site installation should be accommodate by tenderer.

18. Tenderer shall take approval of all samples before procurement / installation.

19. Price of all goods shall be inclusive of all the accessories as asked along with the equipment. No separate price will be given for the same & prices shall be given only in specified BOQ format only.

20. Tenderer will furnish all technical details like GA drawings, Control wiring diagram, Electrical SLD, technical data, and samples for each component / system for approval from client / consultant before installation.

21. Fire Sprinkler shall be installed in cold room by others. Close co-ordination between piping and cold room tenderer required. Complete sealing in cold room panel shall be done by cold room tenderer.

DOORNKLOOF

INSULATION STRUCTURE INSTALLATION SPECIFICATIONS

STANDARDISED TECHNICAL SPECIFICATION

General requirements

This part of the specification sets out installation requirements pertaining to the systems described within this tender document.

The Contractor shall be responsible to select such equipment that will provide the performance as specified and to position it into the building spaces provided. Where specific equipment is prescribed in this document no deviation shall be allowed.

Where no specific kind or quality of material is mentioned in the specification, technical details shall be supplied to the Engineer for approval. All equipment shall be new and shall be kept in "as new" condition on site until take-over. Equipment selected shall be of high quality material, design and manufacture and shall be suitable for the type of application and shall provide a reliable and trouble free service without objectionable noises or vibration under continuous operating conditions.

Quality of the work

The Engineer and employer shall have the right to visit the site at any reasonable time and inspect the progress of the work and materials used, and shall have the right to reject:
Any work which in his opinion is not to specification or standard, and which is badly or incorrectly carried out.
Any materials which are considered not to specification or are of an inferior quality.
Any material which is inadequately protected
Materials rejected due to the reasons listed above shall be replaced by the Contractor at no cost to the contract.

Clearing away of rubbish and materials

All rubbish accumulated during the works (including testing and commissioning) and all superfluous materials not required for completion of the contract shall be removed from site by the Contractor on an on-going basis, and as and when directed by the Engineer or Employer.

Fire precautions

All reasonable precautions shall be taken to avoid the outbreak of fire, particularly in work involving the use of naked flames. The Contractor is to allow for full time supervision, and nominate a responsible person to ensure each artisan who is welding, or carrying out any operation that could cause a fire hazard, be equipped with a fire extinguisher. All workmen shall be made aware of the dangers involved in the careless disposal of matches, cigarettes and the like as well as the accumulation of rubbish on site. Hot work permits shall be enforced.

Noise and nuisance control

Operations shall be conducted in such a manner that nuisance shall not be caused to the general public, adjoining residents and users of adjacent buildings. If such nuisance is being caused the

Contractor shall immediately make such arrangements that will prevent a recurrence of the same and indemnify the Employer against any claims arising therefrom.

Restrictions on workmen

Ensure that workmen confine their activities to the area in which the Contract Works are being carried out. On no account shall workmen enter and use any existing building on site or any completed building without permission. No workmen shall be allowed to use any of the new fittings such as sinks, basins, WC's, cooking equipment, electrical circuits or appliances etc.
Smoking will not be allowed on site.

Any transgressions of the above may lead to permanent dismissal from site.
All workmen shall be identifiable by suitable ID cards and uniform work clothing.

Working at high levels

Unless stated otherwise, scaffolding and all equipment and machines necessary to work at high levels in order to complete this contract shall be supplied by the Contractor. All scaffolding, equipment and machinery shall meet the requirements of the AHJ's Occupational Health and Safety Act.

Craneage

All craneage required for the satisfactory completion of the work is to be allowed for by the Contractor.

Employer's requirements

The Employer's requirements on the use of the site and site security arrangements shall be complied with at all times during the execution of the contract works.

INSULATED PANEL SPECIFICATION

The below figures are for design purposes only. The rating and certification of all the panels are to be submitted to the engineer with the tender submission. The panels are to be laminated to form a composite laminated panel with thicknesses and lengths as indicated on the layout and sectional drawings. All panels manufactured and supplied are to meet the minimum requirements listed in the tables below.

Polystyrene panel specification

All polystyrene panels used for the construction of the insulated structure are to conform to the following minimum requirements, unless specifically specified otherwise:

Inner and Outer Sheet Material	White chromadek®
Chromadek® Thickness	0.5 mm
Insulation Core	Virgin Fire Retardant Polystyrene
Insulation Density	20 kg/m^3 (EPS 20)
Joint Type	Tongue and Groove
Min Thermal Conductivity (K value)	0.035 W/m.K
Surface Profile	Flat / Smooth
Panel Width (Joint to Joint)	1175 mm (if not please specify)
Panel Length	As per Drawings
Panel Thickness	As per Drawings

Polyurethane panel specifications

All polyurethane panels used for the construction of the insulated structure are to conform to the following minimum requirements, unless specifically specified otherwise:

Inner and Outer Sheet Material	White chromadek®
Chromadek® Thickness	0.6 mm
Insulation Core	Polyurethane
Insulation Density	32 kg/m^3 (PUR 32)
Joint Type	Tongue and Groove
Min Thermal Conductivity (K value)	0.028 W/m.K
Surface Profile	Flat / Smooth
Panel Width (Joint to Joint)	1175 mm (if not please specify)
Panel Length	As per Drawings
Panel Thickness	As per Drawings

Fire rated panels (FM approved)

All fire rated panels used for the construction of fire rated walls are to comply with the following minimum requirements, unless specifically specified otherwise:

Panel Manufacturer	Kingspan, Insulated Panel Trading, Emirates Industrial Panel
Insulation Core	Polyicocanurate
Joint Type	Tongue and Groove
Min Thermal Conductivity (K value)	0.022 W/m.K
Surface Profile	Flat / Smooth
Panel Width (Joint to Joint)	1175 mm (if not please specify)
Panel Length	As per Drawings
Panel Thickness	As per Drawings

INSULATION PANEL INSTALLATION

Orientation and support wall panels

The wall panels are to be installed in either the vertical or horizontal orientation and supported at intermediate heights/lengths from rails or columns provided for by the Structural Engineer. The intermediate support is to be manufactured as per the standard insulation detail drawing attached as part of this specification.

Floor channels

All wall panels are to be installed in bent Chromadek channels. The channels are to be effectively vapour sealed to the concrete floor with refrigerant sealant before fixing to the concrete. The sealant is to be applied on either side of the channel where it will be fixed to ensure a complete vapour barrier. Sufficient sealant will be applied to the internal sides of the channel prior to inserting the wall panels to ensure that the vapour barrier between the channel and the panel is maintained.

All panel edges that are to be inserted into the bottom channel are to be cut flat and smooth so as to ensure the vapour barrier is maintained.

Angles and fixings

100 x 100 x 0.6 mm white bent Chromadek angles are to be installed internally to all vertical and ceiling panel joints as per the standard details issued with this specification.

150 x 150 x 0.6 mm (panel thickness ≤ 125 mm) and 200 x 200 x 0.6 mm (panel thickness between 150 and 200 mm thick) white bent Chromadek angles are to be installed externally to all vertical and horizontal corner joints as per the standard details issued with this specification.

A bead of refrigerant sealant is to be applied to the internal (contact) face of the angles before installing the angle. This will ensure the vapour barrier is maintained between the panel and the Chromadek angle.

Fixing of flashing is to be by means of blind aluminium rivets at no more than 200 mm centres complete with refrigerant sealant at the base to ensure integrity of the vapour barrier. All joints and seams are to be neatly sealed with white silicone sealant. All Chromadek angles and fixings are to have their edges folded to create a clean finish with no exposed steel.

Vapour sealing

All panel joints are to be vapour sealed. All panel joints are to have a bead of refrigerant sealant applied between panels on assembly to ensure a vapour barrier is maintained between the panel joints. Following erection, all panel joints, both internally and externally where accessible, are to be sealed with silicone sealant.

Where silicone sealant has been specified, a grey silicone is to be applied when sealing aluminium angles, covings and fixings and a white silicone when sealing white Chromadek angles, covings and fixings.

All penetrations through insulated panels are to be foamed using polyurethane foam and sealed with silicone.

All freezer penetrations and freezer ceiling panel joints are to be externally vapour sealed with three coats of Polaroof and polyurethane bandage. It is essential that this is performed prior to the refrigeration system in the room being switched on as condensation on any piping will prevent the Polaroof from curing and setting.

All penetrations and panel joints in the freezer rooms are to be externally vapour sealed with three coats of Polaroof and polyurethane bandage. It is the insulation contractor's responsibility to ensure and demonstrate that the freezer room is completely gas tight prior to handover for operational commissioning.

The bandage is to be applied as follows:

Apply one coat of white Polaroof.

While the Polaroof is still wet, apply a suitable bandage.

Immediately apply a coat of white Polaroof over the bandage.

After the second coat has dried, apply a third coat of Polaroof.

Detailed drawings showing the penetration details for both cold rooms and freezers can be found on the drawings issued with this tender document.

Ceiling supports

All ceiling panels will span between trusses and fixed to the bottom chord of such trusses as indicated on the drawings. Where required, the ceiling panels will be suspended from the roof trusses (or other suitable supporting structures) by means of wire cable or chains of sufficient strength. All fixing to the roof trusses and structure is the responsibility of the insulation contractor.

The on-site conditions are to be confirmed prior to manufacture of the ceiling panels, wall panels and fixing systems to ensure adequate coordination with the primary support structures provided by others and the secondary support structures which form part of the scope of works of the insulation contract.

INSULATED DOORS AND WINDOWS

All doors are to be sized and manufactured according to the requirements as per the door schedules issued as part of this tender document. All doors are to be lockable externally but be openable from the inside even when the door is locked.

The finished colour of all doors is to be white on both sides with white trims. Door furniture is to be of the Fermod manufacture or approved alternative. All sides (including top and bottom) of doors are to be fitted with suitable rubber seals.

Door frames

The insulation contractor is to create and cap the door opening for all doors (including doors supplied by others) with a 2mm thick galvanised bent plate. All door frames are to include a sufficiently sized and sealed thermal break installed so as to prevent sweating on the door frame. All doors installed in the freezer are to have two 15 W/m rated heater tapes installed in the door frame and threshold (one running, one standby) so as to prevent ice build-up and to ensure the door is free to operate. All heated swing doors are to be supplied complete with a sufficiently sized isolator into which the electrical contractor can terminate their electrical supply as well as a control panel with the following minimum requirements and functionality:

- A green light indicating that the heater tape is functioning properly
- A red light indicating that the heater tape has failed
- An alarm is to be activated if the heater tape fails so as to ensure the escape doors are always functional in case of an emergency. The alarm is to provide a voltage free contact output to external BMS system to indicate failure
- A selector switch to switch between heater tapes should one fail

Motorised sliding doors

For all motorized doors the insulation contractor is to allow for the supply and installation of a sufficiently sized isolator into which the electrical contractor can terminate their electrical supply, a junction box in close proximity to the motor, and a control panel which will allow the user to open / close and stop the door as required. It is to be noted that the door controls should be programmed so as to ensure that the door will close only while the activation button is being pushed.

Strip curtains

Where strip curtains are installed they are to be installed in such a way as to allow the replacement of individual strips is possible without dismounting the entire curtain.

Freezer door thresholds– NOT APPLICABLE

All freezer doors are to have a heated floor threshold installed as per the detailed drawing issued as part of this specification.

Pressure equalizing valves– NOT APPLICABLE

A sufficient number of pressure equalising valves are to be supplied and installed by the insulation contractor in all freezer rooms and pods. The pressure equalising valves are to be of Fermod manufacture or approved equivalent. Details are to be submitted to the engineer for approval prior to ordering or installation. The pressure equalising valves are to have a sufficiently rated heater installed so as to prevent the freezing up of the valve. It is suggested that the pressure relief valves be installed in close proximity to the doors so that power for the heater can be taken off the door control panels.

Windows– NOT APPLICABLE

All windows are to be Thermopane double or triple glazed windows suitable for a temperature difference over the window of up to 28K while remaining clear and showing no signs of sweating. All windows are to have a heater tape installed on the inside of areas where the temperature difference across the pane is greater than 6K. Together with this a thermal break is to be ensured along the perimeter of the pane to avoid condensation.

DETAILED TECHNICAL SPECIFICATION

DESCRIPTION OF PROJECT

The areas in the new facility, which require new insulated panelling & doors are confirmed as follows:

Area	± Floor Area (m^2)	Temp °C	Internal Height (m)
CHILLER # 1	114 m^2	-0.5 TO AMB	8.2

All insulated doors indicated on the tender drawings forms part of this supply.

EXTENT OF WORK TO BE DONE

A contract will be awarded for the installation and commissioning of a complete insulated structure which will be constructed as consisting of insulated wall and ceiling panels.

All doors leading into and out of refrigerated spaces as indicated on the associated drawings forms part of this contract. The supply and installation of all door control panels, local switches and door safeties form part of this contract.

Lighting and power distribution in the warehouse will be carried out by others.

Smoke ventilators on the ceiling forms part of this contract and will open on an external signal provided by the fire detection system.

The layout and drawings are considered to be sufficient for tendering purposes but the onus is on the Contractor to make all checks necessary before he installs equipment and unless there are radical changes in layout or equipment, no extras will be allowed for small variations that may exist between the proposed layout and the final installation.

Over and above items specified in detail the Contractor is to supply a complete installation including such items as fixings, sealant, flashings and trims.

All pipe, ducting and cable penetrations through insulated panelling must be vapour sealed after installation of such services and forms part of this contract.

All scaffolding, craneage, forklifts, lifting and rigging gear required to complete the installation must be provided by the Insulation Contractor. It must be noted that provision must be made for generators to provide power suitable for construction purposes.

DELIVERY & PROGRAMME

The Contractor will be required to co-operate with the Engineer so that all work may proceed with the minimum of delay. This in particular will apply to any planning that is required beforehand in order to make the site erection as simple as possible. Reasonable assistance will be rendered to the Contractor to ensure that the plant will be completed and handed over by the due date.

Within a period of 14 days of finalisation of the contract, the Contractor will be required to set up a programme of activities. This programme of activities must be discussed with the Engineer and main contractor before it is finalised so that it can be made to fit in with the building activity.

As soon as possible after finalisation of the contract the Contractor must nominate any sub-contractor he may wish to employ and these sub-contractors must have the approval of the Engineer, which will not be unreasonably withheld. Included in the programme must be the date by which all works for the sub-contracted work will be placed.

All working drawings and wiring diagrams must be submitted to the engineer for approval before work is commenced. During the preparation of such drawings, the Engineer will make himself available for any discussions that may be necessary. During such discussions the Contractor is to indicate all items of builders work that he will require.

Within three weeks after the finalisation of the Contract the Contractor will be required to produce a drawing for any civil and structural details required other than those already provided for by the Engineer.

To enable the Engineer to co-ordinate with other Contractors on site, the Contractor must guarantee an erection time on site up to hand over. This time is to be specified by the Contractor and is to apply even if the starting date on site is delayed because of delays of other Contractors.

The Contractor shall comply with the Building Contractor's building programme. The key programme dates are as follows:
Construction start date: 18/09/23 - TBC
Warehouse BO date: 24/11/25 - TBC

Insulation
Start date: 15/10/25 - TBC
Finish date: 16/11/25 - TBC

Penalty for late completion: R5000/day

A detailed construction programme is provided elsewhere in the document.

MAINTENANCE DURING 12 MONTH GUARANTEE PERIOD

The Contractor will be required to pay a service and maintenance visit once every four months during the 12 month guarantee period, i.e. 3 visits in all, to ensure that the plant is operating satisfactorily, and at these visits he is to instruct the owner's operating staff in the operation of the plant if they so require. A detailed record of the plant operation and any work carried out is to recorded in the log book and are to be submitted to the engineer immediately after each visit.

DRAWINGS

The complete breakdown of the full list of issued drawings is attached to the tender package as the "Insulation Installation – Drawing Register".

Tenderers are expected to review all the tender drawings in conjunction with the drawing register. The Engineer shall be notified of any discrepancy/omissions between the register and the list of issued drawings.

GENERAL STANDARDS AND WORKMANSHIP

All mechanical work and equipment supplied shall conform to the standards and requirements laid down in the Standardised Specification. Should any variations from these standards occur in the Detailed Specification, then the Detailed Specification shall apply. All electrical work shall conform to the local regulations.

COMPLETION

The installation will not be considered complete and ready for handing over if painting and general aesthetics has been done to a satisfactory acceptable finish relative to the requirements of this specification. Three off operating and maintenance manuals complete with three sets of final as built drawings are to be supplied by the Contractor before handing over. All drawings shall be marked "As Built".

The twelve month guarantee period will only start on the day the plant is accepted as complete.

DETAILED EQUIPMENT SPECIFICATION

Rapid rolling door details – NOT APPLICABLE

Canvass details

The supply of canvass curtain to create a supply air plenum below the cooler forms part of the insulation contractor's supply and must be fixed to the bottom of the cooler drip tray and close off between the cooler and the side walls of the cold room as is indicated on the drawings.

Motor details

Voltage: 230 V AC single phase 50Hz

Sliding door details

Sliding doors must be motorised.

The sliding doors supplied, must comply to the following minimum requirements:

Frame	Profile	Frame and counter-mark in white lacquered extruded aluminum Treated for high resistance Double thermal bridge break Assembled with hidden screws
	Step	Reinforced aluminum profile, with housing for frost resistance High heat resistance (temperatures up to -40°C)
Sheet	Profile	Anodized extruded aluminum (stainless steel) Treated for high resistance to corrosion With thermal bridge break
	Insulation	Rigid polyisocyanurate (PIR) foam Reaction to Fire classification Bs1d0
	Thickness	150 mm (freezing up to -20°C)
	Panel skin	Thickness 0.6 mm Galvanized and white lacquered steel 1006
	Gasket	flexible, double layer, and resistant to negative temperatures
Hardware	Guide rail	Composite hinges, regular, with lifting ramps and stainless steel shaft Composite closure, incorporated in sheet with a pressure point
	Opening	External lever-type stainless steel handle Lever-type interior handle in green lacquered aluminium with reflective badges
	Screws	Stainless steel A2

All doors must be lockable with internal release and all doors must be supplied with checkered aluminum protection to the lower zone. All sliding doors must be supplied with electronic opening by means of an external and internal button, as well as have a remote control function.

Swing door details

Swing doors must be supplied with heated cills and door frames where they are to be installed leading into or out of the cold or freezer rooms.

For other doors leading in and out of chilled areas, cill heating and door frame heating is not required.

The swing doors supplied must comply to the following minimum requirements:

Frame	Profile	Frame and counter-mark in white lacquered extruded aluminum Treated for high resistance Double thermal bridge break Assembled with hidden screws
	Step	Reinforced aluminum profile, with housing for frost resistance High heat resistance (temperatures up to -40°C)
Sheet	Profile	Anodized extruded aluminum (stainless steel) Treated for high resistance to corrosion With thermal bridge break
	Insulation	Rigid polyisocyanurate (PIR) foam Reaction to Fire classification Bs1d0
	Thickness	80mm for cold areas 150 mm (freezing up to -20°C)
	Panel skin	Thickness 0.6 mm Galvanized and white lacquered steel 1006
	Gasket	flexible, double layer, and resistant to negative temperatures
Hardware	Opening	Lacquered aluminum hinges, regular, with lifting ramps and stainless steel shaft External lever-type handle in lacquered aluminum with two pressure points Internal lever-type handle in lacquered aluminum with reflective badges
	Screws	Stainless steel A2

All doors must be lockable with internal release and all doors must be supplied with checkered aluminium protection to the lower zone.

Goal posts & Bollard for door protection

The supply and installation of goal posts and or bollards as detailed on the tender drawings forms part of this contact.

ACCEPTANCE TESTS

FAT Acceptance Tests

The contractor shall demonstrate adequate control of production parameters during the manufacturing process, including control of chemical mix proportions, surrounding temperature and curing time. Panels shall be inspected and wrapped after finishing and cleaning, and kept in the manufacturing environment for an adequate period of time to cure. The following items shall be inspected on every panel before acceptance.

- The edges of panels shall be inspected for insulation continuity and freedom from holes and gaps.
- The edges of all panels shall be inspected for good adhesion.
- Edges that will form part of a vapour barrier's joint shall be inspected to ensure that they are free from dents or irregularities.
- Dimensional accuracy of the panel shall be confirmed.
- The correct fit and alignment of the panel, gaskets and any locking devices shall be confirmed.
- Panel tests shall be witnessed by the client's representative if required.

Storage of inspected panels at the manufacturer's works or on site will be necessary before installation.

Precautions shall be taken to avoid:

- Mechanical damage
- Warping due to stacking
- Water or moisture penetration
- Discoloration
- Moisture on Galvanized sheeting covering the panels
- Exposure to sunlight or ultraviolet light.

SAT Acceptance Tests

The Contractor must perform all inspection and tests of the system as a whole and of components individually as required, under the supervision of the Owner / Consultant, in accordance with the provisions of the applicable standards and as per load requirements. The following tests are proposed but shall not be limited to these tests only.

The cold room system has been designed keeping in mind that following tests will be performed by tenderer during the testing stage.

- Door operation
- Underfloor heating systems operation
- Heated window operation
- Dock leveller installation with proof of sectional door interface.
- Freezer store vapour proof test when brought down to temperature.

TEMPORARY PROTECTION DURING TRANSPORTATION

The protective measures must be appropriate for the equipment and the environmental conditions it will encounter during transport and storage, such as high humidity, extreme cold, and rapid temperature fluctuations. If the manufacturer advises against storing the equipment in its shipping containers, this must be noted on the advice slip, and the containers should be marked with a conspicuous yellow stripe at least 75 mm (3 inches) wide.

Critical bare metal areas, such as machined parts, should be coated with a suitable protective lubricant to guard against mechanical damage. The external surfaces of mechanical devices and electric motors are to be primed and painted as per the supplier's standard practice.

Bearings that are typically lubricated with oil should be filled with a protective oil compatible with the lubricant. Bearings that are usually grease-lubricated should be packed with the appropriate grease.

The strategy used to protect bearings from transit vibrations and shocks must be approved by the Client/Consultant.

The above-mentioned guidelines are general; the supplier must adhere to the specific instructions and safety recommendations provided by the manufacturers of the chosen protective materials. These guidelines do not relieve the supplier of their responsibilities.

Before storage, panels should be crated, boxed, or adequately protected to prevent damage. The site's provisions for panel access, handling, storage, and security should be compatible with the packaging system. During transit and on-site storage, panels must be shielded from moisture, heat, and sunlight, for instance, with a tarpaulin or black polythene sheet and straps. Extra coverings are required for outdoor storage to safeguard against all weather conditions.

The sealed packaging, such as shrink wrap, should not be removed until the panel is ready for installation.

Delivery

The Contractor is expected to work collaboratively with the Engineer to ensure all tasks are completed promptly, especially during the planning phase to facilitate straightforward construction on-site. The Contractor will receive adequate support to finish and transfer the plant by the agreed deadline.

The Contractor must create an activity schedule within 14 days after the contract's conclusion. This schedule should be coordinated with the Engineer and the main contractor to align with the overall construction activities.

Immediately after the contract is finalized, the Contractor should propose any subcontractors they intend to hire, subject to the Engineer's consent, which shall not be unjustly denied. The schedule must include a timeline for all subcontracted tasks.

Before beginning any work, the Contractor must have all working drawings and wiring

diagrams approved by the Engineer. The Engineer will be available for necessary discussions during the drafting phase, where the Contractor must specify all required construction-related tasks.

The Contractor has three weeks from the contract's completion to provide drawings for any civil and structural details not already supplied by the Engineer.

To facilitate coordination with other contractors on-site, the Contractor must commit to a specific timeframe for on-site construction leading up to the handover, which remains valid even if start dates are postponed due to other contractors' delays.

Programme:

The Contractor must adhere to the Building Contractor's construction schedule. Essential dates for the programme are detailed elsewhere in this document.

REGULATORY REQUIREMENTS

1. All Performance Qualification documents for all equipment/system to ensure regulatory compliance.
2. All manuals / test certificates of various products from manufacturers.
3. All material certificates.
4. As built drawings of Cold rooms and electrical wiring where applicable.
5. Performances test certificates to ensure that installation is as per the design.
6. Any other assistance that may be required for obtaining regulatory approval.
7. Test certificates of all equipment, ancillary materials and instruments from competent test labs.

VALIDATION DOCUMENTATION

Manufacturer's competent representative to be present during commissioning and during validation tests to demonstrate the (trouble free) working of the individual components and controls and sensors of the cold storage/freezers, along with all committed parameters.

It shall be the responsibility of the contractor to obtain validation from the Client / Consultant, including all necessary co-ordination, documentation and related activities.

ATTACHMENTS

Room Data Schedules

DISPATCH AREA		Storage Temp	-0.5 °C		Store Capacity		640 Bins	
Maximum loading into store per day (5 days/week)					**Max discharge per day**			
Tonnes/day	NA	Temperature	0 °C		Tonnes/day		22	
Package type	Bins	Dimensions (mm)	L:	13.5m	W:	8m	H:	8.0m
Fresh air makeup		N / A	Power		N / A	Lighting		N / A
Hygiene Risk		Low				Personnel		None
Doors		Wall Finish						
Sliding	swing	Wall 1	Wall 2		Wall 3		Wall 4	
yes	No	Chromadek	Chromadek		Chromadek		Chromadek	
Window		no			Ceiling Finish		Chromadek	

Please read notes on next page.	
NAME OF BIDDDER	
BID NUMBER	**BID 9 – 2025: LAINGSBURG: DOORNKLOOF: CONSTRUCTION OF A COLD STORE**

Are you registered in terms of sections 23(1) of 23(3) of the Value-Added Tax Act 1999 (Act no 89 of 1991)?[1]	**Yes** ☐	**No** ☐
If yes to above, provide your VAT number		
Bill of quantities (if yes, it will be attached separately)	**Yes** ☐	**No** ☒

Item no	Quantity	Description	Bid price (RSA currency) (see 3a)
1		**BUILDING WORKS**	
2		**REFRIDGERATION**	
3		**ELECTRICAL**	
4		**COLD PANEL INSULATION**	
5		**AFTER SALE SERVICE**	
		SUB TOTAL	
		VAT	
		GRAND TOTAL	

Signature of bidder	
Date	

[1] https://www.gov.za/sites/default/files/gcis_document/201505/act-89-1991s.pdf

Item No		Quantity	Rate	Amount
	SECTION NO. 1			
	BILL NO. 1			
	PRELIMINARIES			
	PREAMBLES			
	For preambles refer to "Model Preambles for Trades"			
1	Preliminaries Lump Sum Amount based on Contractor's cost breakdown. The Tenderer to quantify and price the items below as per the pricing instructions		SUM	
	Carried Forward to Summary of Section No. 1		R	

Section No. 1: Building Work
Bill No. 1
Preliminaries
Prepared by: MFP Quantity Surveyors

Item No		Quantity	Rate	Amount
	SECTION NO. 1 **BILL NO. 2** **EARTHWORKS** **PREAMBLES** For preambles refer to "Model Preambles for Trades" **SUPPLEMENTARY PREAMBLES** **Nature of ground** The nature of the ground is unknown and the contractor is to make his own assessment and due allowance for same **Carting away of excavated material** Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site, and spoiled at a site located by the contractor with and including spoiling costs at the dump site, unless otherwise stated **Working Space** Working space for any work requiring formwork, brick linings, etc, has been determined by the following conditions and shall be measured where: The depth of the excavation does not exceed 1000mm and the distance from the finished face of the structure to the excavated face is less than 250mm for formwork or 600mm for brick linings and The depth of the excavation exceeds 1000mm and the distance from the finished face of the structure to the excavated face is less than 600mm			
	Carried Forward		R	

				R	
	Brought Forward				
	Testing of material and filling				
	Descriptions of earth filling, compaction, etc. shall be deemed to include for all necessary testing required in accordance with the SANS 1200 series				
	Formwork				
	Formwork to sides of footings, bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations				
	SITE CLEARANCE, ETC.				
	Site clearance				
1	Digging up and removing rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth, bush, etc. from site	m2	212		
	EXCAVATION, FILLING, ETC OTHER THAN BULK				
	EXCAVATIONS ETC				
	Excavation in earth not exceeding 2m deep				
2	Reduced levels under floors	m3	27		
3	Trenches	m3	9		
	Carried Forward			R	

				R
	Brought Forward			
	Extra over all excavations for carting away:			
4	Surplus material from bulk excavations and/or stock piles on site to a dumping site located by the contractor (This rate of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site, and spoiled at a site located by the contractor not exceeding 10km in one direction from the site. Rate should not allow for the spoiling costs paid at the dump site and this will be measured as an separate item in each work package)	m3	26	
	Risk of collapse of excavations:			
5	Sides of trench and hole excavations not exceeding 1,5m deep	m2	57	
	FILLING, ETC.			
	Approved course river sand filling supplied by the contractor compacted to 100% Mod AASHTO density in layers of 100mm:			
6	Under floors, steps, pavings, etc.	m3	22	
	WEED KILLERS, INSECTICIDES, ETC			
	Soil insecticide in accordance with SANS 5859			
7	Under floors etc, including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming	m2	90	
8	To bottoms and sides of trenches etc	m2	76	
	Carried Forward to Summary of Section No. 1			R

Section No. 1: Building Work
Bill No. 2
Earthworks
Prepared by: MFP Quantity Surveyors

Item No		Quantity	Rate	Amount
	SECTION NO. 1 **BILL NO. 3** **CONCRETE, FORMWORK AND REINFORCEMENT (PROVISIONAL)** **PREAMBLES** For preambles refer to "Model Preambles for Trades" **SUPPLEMENTARY PREAMBLES** **Cost of tests** The costs of making, storing and testing of concrete test cubes as required under clause 7 "Tests" of SABS 1200 G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the architect. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the architect. **Formwork** Description of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself Formworks to soffits of solid etc. shall be deemed to be slabs not exceeding 250mm thick unless otherwise described			
	Carried Forward		R	

				R	
	Brought Forward				
	Formwork to sides of bases, pile caps, ground beams, etc. will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks"				
	UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES				
	15MPa/19mm concrete:				
1	Surface blinding under footings and bases	m3	1		
	REINFORCED CONCRETE				
	30MPa/19mm concrete				
2	Surface beds on waterproofing	m3	33		
3	Ground Beams	m3	8		
	CONCRETE SUNDRIES				
	Finishing top surfaces of concrete smooth with a power float				
4	Surface beds, slabs, etc.	m2	162		
5	Sloping ramps	m2	13		
	Sika 212 or equivalent non-shrink cement grout:				
6	Bedding approximately 20mm thick	m2	0.4		
	ROUGH FORMWORK (DEGREE OF ACCURACY II)				
	Rough formwork to sides:				
7	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	75		
	Carried Forward			R	

	Brought Forward			R	
	REINFORCEMENT				
	High tensile steel reinforcement to structural concrete work:				
8	All Diameter Bars	t	0.45		
	Fabric reinforcement:				
9	Type 395 fabric reinforcement in concrete surface beds, etc.	m2	175		
10	Type 611 fabric reinforcement in concrete surface beds, etc.	m2	136		
	MOVEMENT JOINTS ETC.				
	Saw cut joints:				
11	6 x 10mm Saw cut joints in top of concrete	m	39		
	TEST BLOCKS				
12	Making and testing 150 x 150 x 150mm concrete strength test cube	No	5		
	Carried Forward to Summary of Section No. 1			R	

Item No		Quantity	Rate	Amount
	SECTION NO. 1			
	BILL NO. 4			
	MASONRY (PROVISIONAL)			
	PREAMBLES			
	For preambles refer to "Model Preambles for Trades"			
	SUPPLEMENTARY PREAMBLES			
	BRICKWORK			
	Sizes in descriptions			
	Where sizes in descriptions are given in brick units, "one brick" shall represent the length and "half brick" the width of a brick			
	BLOCKWORK			
	Concrete masonry units			
	Blocks are to be either solid or hollow modular dense concrete masonry units having a compressive strength of 7MPa			
	Wall ties for blockwork			
	Wall ties shall be polypropylene "Permaties" complying with BS 76377. Ties for hollow walls shall be of sufficient length to allow not less than 75mm of each end to be built into the blockwork. Ties are to be spaced at intervals of not more than 1m in the horizontal direction and not more than 400mm staggered in the vertical direction except at openings, vertical joints or ends of walls where they are to be placed vertically above each other			
	Blockwork			
	Blockwork shall comply with SABS 0145 "Concrete Masonry Construction"			
	Carried Forward		R	

	Brought Forward			R	
	Surfaces to be plastered shall have joints raked out to a depth of at least 10mm to provide a key. Cavities of hollow walls shall be kept free of mortar droppings or other undesirable matter. Every second perpend of the bottom course of the external skin of hollow walls shall be left open as a weep hole				
	Standard complementary blocks				
	Descriptions of blockwork shall be deemed to include standard complementary blocks such as corner, three-quarter, half and quarter blocks required in the construction of corners, reveals, jambs, ends, etc. to solid and hollow walls and for bonding as necessary				
	BRICKWORK				
	SUPERSTRUCTURE				
1	One brick walls	m2	9		
	BRICKWORK SUNDRIES				
	2,5mm Galvanised brick reinforcement				
2	150mm Wide reinforcement built in horizontally	m	16		
	Carried Forward to Summary of Section No. 1			R	

Section No. 1: Building Work
Bill No. 4
Masonry
Prepared by: MFP Quantity Surveyors

Item No			Quantity	Rate	Amount
	SECTION NO. 1				
	BILL NO. 5				
	WATERPROOFING (PROVISIONAL)				
	PREAMBLES				
	For preambles refer to "Model Preambles for Trades"				
	SUPPLEMENTARY PREAMBLES				
	Preparation of Substrates & Surfaces				
	Substrates and surfaces must be smooth, clean, free of contaminants and dry				
	Substrates and surfaces must be prepared in accordance with manufacturer's instructions				
	The contractor is to allow for the cost of substrate preparation in the rates for Waterproofing items				
	Waterproofing				
	Waterproofing of roofs, basements, etc. shall be laid under a ten year guarantee. Waterproofing to roofs shall be laid to even falls to outlets etc with necessary ridges, hips and valleys. Descriptions of sheet or membrane waterproofing shall be deemed to include additional labour to turn-ups and turn-downs				
	The method of application to be discussed with and approved by the Project Manager before implementation				
	DAMPPROOFING OF WALLS AND FLOORS				
	One layer 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape				
1	Under surface beds and internal paving	m2	265		
	WATERPROOFING ON WALLS				
	Carried Forward			R	

				R
	Brought Forward			
	a.b.e malthoid or equivalent asphaltic waterproofing with fibre felt carrier in accordance with manufacturers instructions			
2	On walls	m2	1	
	MOVEMENT JOINTS ETC.			
	Saw cut joint sealant:			
3	Polyethylene sealant in saw-cut joints	m	39	
	Carried Forward to Summary of Section No. 1			R

Item No		Quantity	Rate	Amount
	SECTION NO. 1 **BILL NO. 6** **ROOF COVERINGS (PROVISIONAL)** **PREAMBLES** For preambles refer to "Model Preambles for Trades" **SUPPLEMENTARY PREAMBLES** The supplementary preambles reflected elsewhere in these Bills of Quantities apply equally to this trade All work dealing with fibre/asbestos cement is to be executed in strict accordance with the safety instruction as per the Occpational Health and Safety Act including OHASA Construction Regulations 2003:Government Notice No. R1010 Cleaning Asbestos All cutting or drilling of fibre cement products to be done in an isolated area Existing sheets and rainwater goods, eaves and verges must be comprehensively protected against damage. No walking directly on the roof sheets will be allowed and rates for all work are to include for protective timber board gangways or similar approved **Metal roof sheeting** Contractor to provide a 20 year guarantee for both the material and the paintwork of the sheeting Please note that the sheeting supplier / installer through the contractor should timeously (before installation) inform the Principal Agent of any aspect of the installation or the environment in which the sheeting is used or the application that could have a negative affect the warrantees (e.g. bending the sheets, the fixings, etc.)			
	Carried Forward		R	

				R	
	Brought Forward				
	Straight cutting				
	Descriptions of all roof coverings are deemed to include for all straight cutting				
	PROFILED METAL SHEETING AND ACCESSORIES				
	Safintra 0,47mm thick AZ150 "Tufdek" IBR profile, African Charcoal Clean Colorbond, interlocking concealed fixed roof sheeting @ 5 degree fall (see drawings), fixed to steel purlins by means of clips secured to purlins in combination with suitable approved water head self tapping fasteners, clips etc. All in accordance with manufacturers recommendations.				
1	Roof covering with pitches not exceeding 15 degrees (Measured on flat)	m2	146		
2	Side cladding	m2	86		
	Roof- and Side Sheeting Accessories				
3	Corner trims 462mm girth	m	6		
4	Curved bullnose corner trims 462mm girth	m	3		
5	Gable trims/barge flashings 462mm girth	m	20		
6	Opening Jamb trim flashings 462mm girth	m	4		
7	Drip Cill flashings 185mm girth	m	47		
8	Ridge cappings 550mm girth bent and notched to suit roof profile including serrated closers and poly-closers	m	15		
9	Extra over roof covering for bullnose to a radius of approximately 450mm	m	29		
10	Extra over for roof opening size 1100 x 1500mm high	No	1		
	Carried Forward			R	

	Brought Forward			R	
	ROOF INSULATION				
	4mm "Alucushion""® / Bubblefoil""® FR (Fire Retardant)" or equal and approved white polyethylene coated single sided aluminium foil insulation Code 2906 as supplied by Alucushion""® Thermal Insulation (Pty) Ltd. Laid taut over purlins and fixed concurrent with roof covering; overlapped longitudinally by 100mm; on and including white PVC coated straining wire spaced at 383mm centres; all in strict accordance with the manufacturers specifications				
11	Insulation laid taut over purlins (at approximately 1200mm centres) fixed concurrent with the roof covering with galvanised steel straining wires at 300mm centres, and tied down top and bottom after tensioning with galvanized hoop iron ties	m2	146		
	Carried Forward to Summary of Section No. 1			R	

Section No. 1: Building Work
Bill No. 6
Roof Coverings
Prepared by: MFP Quantity Surveyors

Item No		Quantity	Rate	Amount
	SECTION NO. 1 **BILL NO. 7** **STRUCTURAL STEELWORK (PROVISIONAL)** **PREAMBLES** For preambles refer to "Model Preambles for Trades" **SUPPLEMENTARY PREAMBLES** **General** Steel mass will be calculated according to the tables issued by the SA Institute of Steel Construction All structural steel drawings to be read in conjunction with the drawings of the architect. Any discrepancies to be reported to the engineer immediately Structural steelwork to be carried out in accordance with SANS 1200H. All detailing and connections to comply with the requirements of SANS 10162. Any discrepancies in specification must be reported to the engineer **Approval by the engineer** A full set of shop drawings must be submitted to the Engineer for approval before manufacturing commences Any details of connections not provided by the Engineer must be submitted to him for approval before manufacturing commences Any deviations from details provided by the Engineer must be approved by him in writing before manufacturing commences			
	Carried Forward		R	

Brought Forward R

Materials

All structural steel to be manufactured of grade S355JR steel, except cold-formed open steel sections, which shall have a minimum yield stress of 240 MPa

All structural steel to be hot-dipped galvanised

All bolts, threaded bar and holding down bolts to be hot-dipped galvanised Grade 8.8 to SANS 135 unless otherwise specified.

All materials to comply with relevant SANS codes.

Welds

Welds to be with E60xx electrodes with minimum ultimate strength of 410MPa to the American Welding Standards.

All welds to be 6mm fillet welds right round unless specified otherwise.

Welds shall be done in a manner that will eliminate warping of members.

Cutting and drilling

No cutting of holes for bolts with gas flame will be permitted.

All visible edges of members cut with gas must be neatly ground down to eliminate all traces of gas cutting.

Erection of structures

All structural members to be at least temporarily braced or propped during erection to ensure stability of the structure.

All structural members to be aligned into final position before any bolts are tightened. No structural elements to be heated, bent or distorted in any manner to accomplish assembly or alignment.

Carried Forward R

	Brought Forward			R	
	Cleaning and painting				
	All steelwork to be cleaned with mechanical wire brush to remove all mill shale, surface corrosion, grease, dust, etc. No pitted members will be accepted.				
	Structural steel to be degreased and prepared in accordance with the requirements set by the manufacturer of undercoats.				
	Descriptions				
	Descriptions of bolts shall be deemed to include nuts and washers				
	Descriptions of L-shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in concrete				
	Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete				
	PAINTED STEEL				
	Welded columns/beams in single lengths with flat section base, top, bearer and connection plates bolted to concrete:				
1	254x146x31 UB	t	2.61		
2	152x152x30 UC	t	1.28		
3	152x152x23kg UC Struct	t	0.37		
4	IPE 140x73	t	0.28		
	Welded tubing in single lengths with flat bearer and connection plates, welded/bolted to steel and/or concrete				
5	76.2x6.0 CHS	t	0.32		
6	101.6x6.1 CHS	t	0.06		
	Carried Forward			R	

				R	
	Brought Forward				
	Purlins and girts bolted and welded to steel				
7	125x65x20x2,5 CFLC Steel	t	0.7590		
8	225x100x20x2,5 CFLC Steel	t	0.6203		
	Welded and bolted angle section				
9	60x60x4 Angle section equal (Trimmer)	t	0.22		
10	60x60x4 Angle section equal (Bracing)	t	0.46		
	STEEL CAT LADDER				
	Galvanised Steel Cat Ladder				
11	Welded cat ladder 710mm wide and 9200mm high overall, of 152 x 76mm channel stringers and 20mm diameter rung 500mm long at approximately 250mm centres, including 50 x 8mm flat connections bolted to steel or concrete. All as per engineers drawing no. 25537/50 rev.A.	No	1		
	BOLTS, FASTENERS, ETC				
	Bolts and fasteners				
12	M16 Grade 8.8 bolt	No	48		
	"Hilti" or equal approved				
13	M20 500mm long grade chemset bolts including nuts and washers.	No	16		
	GALVANISED PLATES, ETC				
	16mm Flat Plates				
14	180 x 280mm base plate	t	0.05		
15	125 x 125mm end plate	t	0.02		
	Carried Forward			R	

	Brought Forward			R	
	GALVANISED STEEL FLOORS, STAIRS, ETC.				
	Welded and bolted suspended floor and stairs to concrete/brickwork:				
16	6/8mm Vastrap plate floor panels	t	0.13		
	Carried Forward to Summary of Section No. 1			R	

Section No. 1: Building Work
Bill No. 7
Structural Steelwork
Prepared by: MFP Quantity Surveyors

Item No		Quantity	Rate	Amount
	SECTION NO. 1			
	BILL NO. 8			
	METALWORK (PROVISIONAL)			
	PREAMBLES			
	For preambles refer to "Model Preambles for Trades"			
	SUPPLEMENTARY PREAMBLES			
	Descriptions			
	Descriptions of bolts shall be deemed to include nuts and washers			
	Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete			
	Metalwork described as"holed for bolt(s)" shall be deemed to exclude the bolts unless otherwise described			
	BALUSTRADING			
	Hot-dip galvanised steel welded balustrades			
1	Horizontal balustrade to cat ladder 1100mm high, of 50 x 10mm flat section continuous top rail and bottom rail, 20 x 20 x 2mm square hollow section intermediate balusters at 150mm centres between top and bottom rails and 50 x 50 x 3mm square hollow section posts at approximately 1000mm centres each with 100 x 100 x 6mm flat section base plate bolted to steel m	6		
	Carried Forward		R	

	Brought Forward			R	
	PROTECTION BARRIES				
	Protection Bollard				
2	150mm diameter x 1 000mm high fixed bollard with base plate for mounting, hot dip galvanised, zinc coating suitable for corrosive environments and powder coated yellow with red reflective tape fixed to floors, including, fixings, etc.				
		No	4		
	Carried Forward to Summary of Section No. 1			R	

Section No. 1: Building Work
Bill No. 8
Metalwork
Prepared by: MFP Quantity Surveyors

Item No		Quantity	Rate	Amount
	SECTION NO. 1 **BILL NO. 9** **PLASTERING (PROVISIONAL)** **PREAMBLES** For preambles refer to "Model Preambles for Trades" **SUPPLEMENTARY PREAMBLES** **Preparation of surfaces** Surfaces shall be dry and clean, free of dust, sand, grit and flaking particles, laitance and loose matter, contaminants such as oil, grease, etc. Surfaces shall have a moisture content not exceeding 4%. All free standing water to be removed prior to application of primers or compounds. Absorbent surfaces to be thoroughly pre-soaked in fresh water. Oil, grease, animal fats, etc. to be removed with suitable 'Ivory Chemicals' product to be applied in strict accordance with the manufacturer's instructions. Once clean, surfaces to be profiled mechanically (scabbling, blasting, scarifying, chipping or grinding) or by means of acid etching, one part 'Ivory Concrete Etchant' thinned with two parts water applied at the rate of 2m²/1 litre in strict accordance with the manufacturer's instructions. Generally substrate surfaces to have good wood float, steel trowel or power floated finish conforming in evenness and level to required tolerance with minimum compressive strength of 20MPa or above 25 N/mm² compressive strength. Screeded surfaces to be minimum 30mm thick. Expansion joints in Granolithic screed finish to be approved polusulphide sealant, laid at 5m² apart in strict accordance with manufacturer's specifications.			
	Carried Forward		R	

				R
	Brought Forward			
	SCREEDS			
	Screed wood floated, on concrete			
1	25mm Thick on floors and landings	m2	175	
	EXTERNAL PLASTER			
	Cement plaster on brickwork:			
2	On walls	m2	10	
3	On narrow widths not exceeding 300mm wide	m2	1	
	Carried Forward to Summary of Section No. 1			R

Section No. 1: Building Work
Bill No. 9
Plastering
Prepared by: MFP Quantity Surveyors

Item No			Quantity	Rate	Amount
	SECTION NO. 1				
	BILL NO. 10				
	PLUMBING AND DRAINAGE (PROVISIONAL)				
	PREAMBLES				
	For preambles refer to "Model Preambles for Trades"				
	Note:				
	Unless otherwise stated, this bill was measured in accordance with the "Standard System of Measuring Building Work for Small or Simple Buildings, First Edition, 1991" as issued by the "Association of South African Quantity Surveyors"				
	Tenderers are referred to the specifications and drawings accompanying these bills of quantities for the plumbing and drainage installation and to visit the site to determine the full scope of work as the descriptions hereunder are a brief scope of the work involved. No claim whatsoever will be entertained arising from the fact that the Contractor failed to comply with this advice.				
	RAINWATER DISPOSAL				
	Rainwater Gutters and Downpipes:				
	Aluminium commercial and industrial gutters and downpipes with aluminium brackets fixed as per architects drawings and manufacturers specifications.				
1	125 x 125 x 0.9mm Seamless aluminium gutters with aluminium alloy brackets	m	29		
2	Extra over aluminium gutters for 78 x 78mm outlets	No	2		
3	Extra over aluminium gutters for stopped ends	No	4		
	Carried Forward			R	

				R
	Brought Forward			
4	78 x 78mm seamless aluminium fluted rainwater down pipes	m	15	
5	Extra over rainwater pipe for shoe	No	2	
	Carried Forward to Summary of Section No. 1			R

Section No. 1: Building Work
Bill No. 10
Plumbing and Drainage
Prepared by: MFP Quantity Surveyors

Item No		Quantity	Rate	Amount
	SECTION NO. 1			
	BILL NO. 11			
	PAINTWORK (PROVISIONAL)			
	PREAMBLES			
	For preambles refer to "Model Preambles for Trades"			
	SUPPLEMENTARY PREAMBLES			
	Colours			
	Unless otherwise described all paintwork shall be deemed to have a colour value in excess of 7 on the Munsell system in accordance with SANS 1091			
	PAINTWORK ETC TO NEW WORK			
	SABS Approved Paint applied in accordance with manufacturer's instructions:			
	ON FLOATED PLASTER			
	Prepare and repair as specified, brush to remove all loose contaminants, rinse and apply suitable bonding liquid one coat approved alkali resistant primer to bare substrate areas and two coats approved pure acrylic paint on existing water-based painted surfaces:			
1	On exterior plastered walls m2	11		
	Carried Forward		R	

	Brought Forward			R	
	ON METAL SURFACES				
	One coat "Carboline Carboguard 880" (epoxy polyamide) 80 microns dry film primer and one coat "Carboline Carboguard 137HS (anti-corrosive aliphatic acrylic polyurethane) 40 microns dry film paint, on steel, or alternative coating system meeting or exceeding the StonCor specification				
	This coating system assumes a medium durability to ISO 12944				
2	Columns, rafter and girders	m2	315		
	Carried Forward to Summary of Section No. 1			R	

Section No. 1: Building Work
Bill No. 11
Paintwork
Prepared by: MFP Quantity Surveyors

Item No		Quantity	Rate	Amount
	SECTION NO. 1			
	BILL NO. 12			
	EXTERNAL WORKS			
	PREAMBLES			
	For preambles refer to "Model Preambles for Trades"			
	SUPPLEMENTARY PREAMBLES			
	Nature of ground			
	The nature of the ground is unknown and the contractor is to make his own assessment and due allowance for same			
	Carting away of excavated material			
	Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site, and spoiled at a site located by the contractor with and including spoiling costs at the dump site, unless otherwise stated			
	Filling and layer work materials			
	References such as "G1", "G2", etc and "C1", "C2", etc in descriptions of filling and layer work materials refer to corresponding references in the document "Guidelines for Road Construction Materials. TRH 14 : 1985" compiled by the Committee of State Road Authorities and the properties set out therein for each kind shall be applicable to the respective materials described hereinafter			
	Testing of material and filling			
	Descriptions of earth filling, compaction, etc shall be deemed to include for all necessary testing required in accordance with the SANS 1200 series			
	Carried Forward		R	

				R	
	Brought Forward				
	Precast concrete block road surfacing				
	Paving shall be laid in accordance with SANS 1200 MJ, SANS 1058 and the Concrete Masonry Association's specifications				
	PAVING				
	G-Block Paving bricks in accordance with SANS 1058 delivered to site, laid to falls on and including 25mm thick sand layer with joints filled in with sand, compacted with a vibration compactor				
1	200 x 100 x 60mm Class 40/2.6 G-block interlocking precast concrete paving blocks to stretcher, herringbone or basket weave pattern including forming soldier course perimeter margin on a 25mm Sharp Sand bed compacted to 20mm	m2	90		
	Precast concrete kerbs finished smooth on exposed surfaces, bedded on a 50mm thick x 175mm wide layer of unreinforced concrete with 150 x 150 x 300mm unreinforced concrete haunching at back of each joint and jointed in 3.1 cement mortar, including excavation, backfilling, etc				
2	75 x 150mm High kerbs (E1/SANS 927)	m	69		
	INVISIBLE WALL FENCING				
	"Cochrane" type as indicated or similar approved galvanized and then Matt Black finish coated, with including post founded in and including 400 x 400 x 600mm concrete bases excavations, backfilling and making good				
3	"ClearVu" invisible fence 2100mm high above ground level over level terrain	m	14		
4	2100mm high Galvanised and then marine fusion bond coated post.	No	6		
5	Extra for 2100mm long additional "Cochrane Taper Locking Post" at corners or intersections.	No	2		
	Carried Forward			R	

	Brought Forward			R	
	Singe swing gates				
6	"ClearVul" gate 1200 x 2100mm	No	1		
	Carried Forward to Summary of Section No. 1			R	

Section No. 1: Building Work
Bill No. 12
External Works
Prepared by: MFP Quantity Surveyors

Item No			Quantity	Rate	Amount
	SECTION NO. 1				
	BILL NO. 13				
	PROVISIONAL SUMS ETC				
	PREAMBLES				
	For preambles refer to "Model Preambles for Trades"				
	CONTINGENCY AMOUNTS				
1	Provide the amount of R25 000.00 for a contingency allowance	Item	1.00	25 000.00	25 000.00
	Carried Forward to Summary of Section No. 1			R	

SECTION SUMMARY - Section No. 1: Building Work

Carried to Pricing Summary R

Section No. 1: Building Work
Prepared by: MFP Quantity Surveyors

FINAL SUMMARY

Section No		Page No		Amount
1	Section No. 1: Building Work	32		
	SUB-TOTAL		R	

Carried to Form of Tender R

Prepared by: MFP Quantity Surveyors

REFRIDGERATION BILL OF QUANTITIES

Schedule of Prices

The Bill of Quantities provided below is deemed to include all equipment required to provide a completed refrigeration installation. Any discrepancies or differences in measurement are to be reported to the engineer prior to submission of the tender return, failing which the total costs provided will be deemed to be inclusive and no further changes will be accepted to the submitted costings. The onus is on the Refrigeration contractor to ensure that the Pricing Schedule and costs submitted are complete and without omission.

All items are for complete supply, deliver to site and installation to form a complete working installation.

Item	Description	Unit	QTY	Rate (R /Unit)	Total (R)
1	**MATERIALS– excluding labour including mark up**				
1.1	**Refrigeration Systems (System costs including pressure vessels, components etc)**	lot			
1.2	**Multiplex System A**	lot			
1,3	**Condenser**	lot	1		
1.4	**Blower Coils**	lot	1		
1.5	**Structural Supports (as required)**				
2	**PIPING AND INSULATION**	lot	lot		
3	**REFRIGERANT GAS AND OIL**	lot			
4	**MISCELLANEOUS MATERIAL AND SERVICE CONSUMABLES**	lot			
5	**ELECTRICAL BOARD**		1		
6	**ELECTRICAL WIRING**		Lot		
6.1	**Lights**		Lot		
7	**LABOUR (including all overheads required in terms of this project)**				
7.1	**Refrigeration Mechanic (Rands/hr)**	Lot			
7.2	**Refrigeration Apprentice (Rands/hr)**	Lot			
7.3	**Assistant (Rands/hr)**	Lot			
7.4	**Labourers (Rands/hr)**	Lot			
7.5	**Wireman + Assistant (Rands/hr)**	Lot			
7.6	**Electrician (Rands/hr)**	Lot			
7.7	**Computer Technician (Rands/hr)**	Lot			

Total for this page carried forward to next page	

Item	Description	Unit	QTY	Rate (R /Unit)	Total (R)
8	MISCELANEOUS (Specify)				
8.1	Vehicle Hire				
8.2	Plant Hire				
8,3	Commissioning				
8.4	Maintenance Manual and Log Book, including the electronic copy				
8.5	Allowance (if applicable)				
8.6	Accommodation (if applicable)				
8.7	Service Materials				
8.8	Crane Hire				
8.9	Container hire, incl. transport to/from site for storage of tools etc (if applicable)				
9	TRAVEL COSTS (if applicable)				
9.1	Road freight				
	Other				
	Total for this page carried forward to next page				
	Total carried forward to main contractors BOQ				

Rates of Variation

Unit Rates

The tenderer shall fill in all the unit rates as appearing hereunder. The rates for linear piping shall allow as well for the hangers, brackets, saddles, V-belts, etc. as specified in the document. The rates for the different pairs of flanges shall allow as well for the gaskets.

The rates entered hereunder, shall be for complete installed units and shall include full compensation for all general preliminaries, cost of complying with the requirements of the general conditions of contract, temporary works, transport, supervision, overheads, profit, labour, materials, equipment, tools, accommodation, things and requisites of any kind whatsoever is necessary for the due and proper construction, completion and handing over of the installation. Rates exclude builder's discount.

SPECIFICATION **Piping Prices in Rand per Meter**		
N.B. Of Pipe in mm	copper Piping	Chilled Water Piping
15		
20		
25		
32		
40		
50		
65		
80		
100		
125		
150		
200		
250		

SPECIFICATION		
90° Bend N.B. in mm	copper Piping	Chilled Water Piping
15		
20		
25		
32		
40		
50		
65		
80		
100		
125		
150		
200		
250		
300		

SCHEDULE OF PRICES AND RATES FOR VARIATIONS

The Bill of Quantities provided below is deemed to include all insulated structures, doors, trims and fittings required to provide a completed insulation installation. Any discrepancies or differences in measurement are to be reported to the engineer prior to submission of the tender return, failing which the total costs provided will be deemed to be inclusive and no further changes will be accepted to the submitted costings. The onus is on the insulation contractor to ensure that the Pricing Schedule and costs submitted are complete and without omission.

All items are for complete supply, deliver to site and installation to form a complete working installation.

Item	Description	Unit	QTY	Rate (R/Unit)	Total (R)
1	**Insulated Panels**				
1,1	Insulated Wall Panels (150 mm IPS)	m^2	355		
1,2	Insulated Ceiling Panels (200 mm IPS)	m^2	122		
2	**Insulated Doors**				
2,1	Sliding Doors 2 200 mm X 3 350mm (150 mm)	No.	1		
3	**Penetrations**				
3,1	Cold room electrical cable penetrations (<20mm dia)	No.	4		
3,2	Cold room refrigerant pipe penetrations (<150mm dia)	No.	2		
4	**Other**				
4.1	Checker Plate		Lot		
4.2	Wall to floor coving for all internal wall panels		Lot		
4.3	Bollards		2		
4.4	Canvass Curtain				
5	**Miscellaneous**				
5,1	Cranes and lifting equipment		Lot		
5,2	Transport of materials to site		Lot		
5,3	Labour		Lot		
5,4	P&G's		Lot		
5,5	Accommodation		Lot		
	Total for this page carried forward to next page				
	Total for this page carried forward to main contractors BOQ				

RATES FOR VARIATIONS

Unit Rates

The tenderer shall fill in all the unit rates as appearing hereunder.

The rates entered hereunder, shall be for complete installed units and shall include full compensation for all general preliminaries, cost of complying with the requirements of the general conditions of contract, temporary works, transport, supervision, overheads, profit, labour, materials, equipment, tools, accommodation, things and requisites of any kind whatsoever is necessary for the due and proper construction, completion and handing over of the installation. Rates exclude builder's discount.

Daywork Rates
Normal Time

The hourly rates shall include all insurances, holidays and payments in respect of traveling time, incentive bonus and overtime, except authorised overtime.

Artisan	R
Helper	R
Apprentice	R

Authorised Overtime

Authorised overtime shall be instructed in writing by the Engineer and shall be calculated as described under normal time above.

Artisan	R
Helper	R
Apprentice	R

Materials

The percentage markup required by the Sub Contractor on the nett cost of materials or equipment, or equipment supplied in addition to that specified.

The mark up of % shall

include profit, overheads, financing, insurance and guarantee costs
include costs for engineering and management
exclude builders discount
exclude V.A.T.

Dated this …… day of 2025.

Signature ……

In the capacity of: ……

Duly authorised to sign on behalf of

……..

NOTES (applicable where indicated)

A. PRICE (where applicable)

1. FIRM PRICES

a. Only firm prices will be accepted.
b. No non-firm prices will be considered.
c. All delivery cost must be included in the bid price for delivery at prescribed destination.
d. In cases where different delivery points influence the pricing, a separate pricing schedule must be submitted for each delivery point.

2. NON-FIRM PRICES

a. In cases of period contracts, non-firm prices will be adjusted (loaded) with the assessed contract price adjustments implicit in non-firm prices when calculated the comparative prices.
b. Price adjustments will be allowed at periods and times specified in the bidding documents.
c. In cases where different delivery points influence the pricing, a separate pricing schedule must be submitted for each delivery point.
d. The quantities are given as a guideline for a bid and for the purposes of unit rates and in no way be used as a measured bid.

3. PROFESIONAL SERVICES

a. All applicable taxes include value-added tax, pay as you earn, income tax, unemployment insurance contributions and skills development levies.

B. CONSTRUCTION (applicable to construction only)

1. The total price for the service must include all labour and material required for the proper execution of the work as described in the Scope of Works and as per Engineers drawings (where applicable).
2. The tender will be evaluated on the criteria for a market related price.
3. The contractor must attach a **detailed and comprehensive** proof of competency of a construction manager in terms of Construction Regulations 2014, Clause 8 including experience regarding construction health & safety regulations.
4. The contractor **must** attach the proof of CIBD grading as specified in the scope of works.
5. The contractor **must** be in possession of a valid COIDA letter of good standing and it must be attached.
6. Where applicable, the contractor **must** attach valid proof or registration with the Department of Labour for the installation of the main electrical supply.

C. OTHER NOTES (applicable to all bids)

1. The tender will be evaluated on the criteria for a market related price.
2. The full cost of the service and/or works must be indicated and may not be discounted or cross subsidised against another service, project, transaction or sale of goods. Such contributions against the total project cost must be specified, itemised, costed and clearly indicated in the bid.
3. The prices must be **valid for a period of 90 days** from date of closure of the bid to allow for evaluation and appointment.
4. **Casidra** SOC Ltd retains the right to amend financial/accounting calculations and to accept the amended amount as the new bid amount.

D. COMPANY PROFILE (applicable when requested)

1. The contractor must attach a **detailed and comprehensive** company profile including **core competencies of personnel.** The company profile must summarize information about the organisation.
2. The company profile must include the following:
   a. Company core business activities (describe products and services and markets in which it operates).
   b. Company background (state number of years in business, location, history of company etc.)
   c. Company resources (number of employees, core competencies of personnel, structure of company)

E. WARRANTY (applicable when requested)

1. Where requested, the bidder must attach proof of warranty offered on the letterhead of the bidder.

F. BROCHURE (applicable when requested)

1. Bidder must provide detailed brochure and technical specifications of products where requested.
2. Bidder must be able to provide proof of service location within applicable radius as specified in CBD 3 (Scope of works).

G. AFTER SALES SERVICES AGREEMENT (applicable when requested)

1. Where applicable, the bidder must sign and submit the after sales agreement.

H. APPOINTMENT (applicable to construction and professional services)

1. The successful contractor will be given notification in writing by means of an appointment letter
2. The successful contract must sign the **CBD 8**, together with this document, which will form the contract.

CHANGES MADE BY BIDDER	
If the bidder wishes to make any changes to any of the bid conditions or specifications, or wishes to qualify this bid in any way, it must be clearly set out below. Any changes made and not listed, will disqualify a bid. **Any changes made by the bidder outside the scope of works, resulting in not meeting pre-qualifying conditions or compulsory subcontracting, may influence the functionality of the end product and may result in the bid being disqualified.**	
Item	**Suggested change**

PROOF OF RELEVANT EXPERIENCE AND REFERENCES
The following must be completed in detail by bidder. 1. Supply at least **three (3)** different references from **three (3)** different companies with contact numbers.

2. **References to either complete the scoresheet which must be submitted with the bid document or provide the bidder with a reference of which a copy must be attached to the bid document.**
3. Description of work must be relevant to nature of this contract. **Do not list work if it does not fall within the scope of works.**
4. Elaborate on project under Description by being specific at to the works executed in the contract to support relevant experience.

REFERENCES PROVIDED BY TENDERER

Reference company name					
Contact information					
Description of work					
Value of work					
Completed					
Performance of the contractor according below criteria:					
	Poor/bad	**Done**	**Average**	**Good quality**	**Excellent**
Quality of work					
Project time frame					
Completed within budget					
Overall management of works					
Signed by (Name)					
Signature of company reference					
Date					

REFERENCES PROVIDED BY TENDERER

Reference company name					
Contact information					
Description of work					
Value of work					
Completed					
Performance of the contractor according below criteria:					
	Poor/bad	**Done**	**Average**	**Good quality**	**Excellent**
Quality of work					
Project time frame					
Completed within budget					
Overall management of works					
Signed by (Name)					
Signature of company reference					
Date					

REFERENCES PROVIDED BY TENDERER

Reference company name					
Contact information					
Description of work					
Value of work					
Completed					
Performance of the contractor according below criteria:					
	Poor/bad	**Done**	**Average**	**Good quality**	**Excellent**
Quality of work					
Project time frame					
Completed within budget					
Overall management of works					
Signed by (Name)					
Signature of company reference					
Date					

PLANT AND EQUIPMENT TO BE USED			
The following is a list of main items of equipment, plant and tools the bidder has at his disposal or will hire or purchase if the bidder is successful.			
Quantity	**Description**	**Immediately**	**Will hire/purchase**
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐
		☐	☐

SCHEDULE: CONSTRUCTION MANAGER COMPETENCY

The contractor must attach to this page DETAILED & COMPREHENSIVE proof of competency of a construction manager in terms of Construction Regulations 2014 Clause 8.

Please attach a complete CV for evaluation purposes relevant to this occupation of Construction work. Please also supply this particular person's experience regarding construction health & safety regulations.

SCHEDULE: DETAILED COMPANY PROFILE

The contractor must attach to this page a DETAILED & COMPREHENSIVE company profile including core competencies of personnel. The company profile must summarize information about your organisation.
In order for a company profile to be compliant for this bid, the following detail MUST be included in the company profile.

- Company core business activities – Describe your products and services and markets in which you operate

- Company background – State number of years in business, location, history of company, etc

- Company resources – Number of employees, core competencies of personnel, structure of company - organogram

For office use only	Version no: 1	Date: NOVEMBER 2023
To be initialled by bidder		*Initial here*

COIDA LETTER OF GOOD STANDING

The contractor must attach to this page a copy of the current letter of good standing

SCHEDULE: PROOF OF REGISTRATION OF ELECTRICAL SUB-CONTRACTOR

The contractor must attach to this page proof of registration with the Department of Labour for the installation of the main electrical supply.

SCHEDULE: PROOF OF SAQCC OF REFRIDGERATION SUB-CONTRACTOR

The contractor must attach to this page proof of refrigeration subcontractor valid SAQCC certificate from the South African Qualification & Certification Committee.

12 MONTH WARRANTY ON WORKMANSHIP & MATERIAL

The bidder must attach to this page a copy of their warranty offered

For office use only	Version no: 1	Date: NOVEMBER 2023
To be initialled by bidder		*Initial here*

SCHEDULE: CIDB GRADING

The contractor must attach to this page their proof of CIDB grading of **4GB** or higher

For office use only	Version no: 1	Date: NOVEMBER 2023
To be initialled by bidder		*Initial here*

MECHANICAL GUARANTEE –

Provide written proof for 18 month guarantee from date of commissioning or 12 month from date of supply

SUPPLY CHAIN MANAGEMENT

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022 AND CODES OF GOOD PRACTICE

Only for use of bids from R2 000 to maximum of R50 million

Casidra, as a Schedule 3D development and implementation agent for the Western Cape Provincial Government underwrites, and complies with the Provincial and National developmental initiatives and administers funds on behalf of donors. Within this context, and because of the specific requirements of the donors for the application of the funds, the awarding of bids is dependent on the special evaluation criteria as set out in the policies of **Casidra**. The evaluation criteria of this Preferential Procurement Policy are based on the "**Preferential Procurement Policy Framework (Act 5 of 2000)**" and related Regulations.

Awarding of the bid is dependent on preferential points system, and every presentation is measured against the specific evaluation criteria as shown. **The completion and signature of the document is thus a pre-requisite to qualify as a service provider.**

This preference form must form part of all bids invited. It contains general information and serves as aclaim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution.

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST MAKE SURE OF THE CONTENTS OF THE BROAD BASED BLACK ECONOMIC EMPOWERMENT ACT AND THE CODES OF GOOD PRACTICE WHICH CAN BE FOUND ON:
http://www.thedtic.gov.za/financial-and-non-financial-support/b-bbee/broad-based-black-economic-empowerment/
https://www.gov.za/documents/broad-based-black-economic-empowerment-act
https://www.bbbeecommission.co.za/

DEFINITIONS

1.1 **"affidavit"** is a type of verified statement or showing, or in other words, it contains a verification, meaning itis under oath or penalty of perjury, and this serves as evidence to its veracity and is required for court proceedings;
1.2 **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
1.3 "**B-BBEE status level of contributor"** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice of Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
1.4 **"EME"** is an Exempted Micro Enterprise with an annual total revenue of R10 million or less;
1.5 **"Large Enterprise"** is any enterprise with an annual total revenue above R50 million;
1.6 **QSE** is a Qualifying Small Enterprise with an annual total revenue between R10 million and R50 million;
1.7 **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000);
1.8 "**the Regulations**" means the Preferential Procurement Regulations, 2011 and 2022;
1.9 **"consortium or joint venture"** means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract;
1.10 **"person"** includes a juristic person;
1.11 **"sub-contract"** means the primary contractor's assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract;
1.12 **"trust"** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and
1.13 **"trustee"** means any person, including the founder of a trust, to whom property is bequeathed inorder for such property to be administered for the benefit of another person;
1.14 **"original sworn affidavit"** means the initial document which was not photocopied or electronically reproduced;
1.15 **"original certified B-BBEE certificate"** means the certification of a copy of the B-BBEE certificate confirming the validity of the original document. The stamp of the notary must be **ORIGINAL**.

GENERAL CONDITIONS

1.1 The value of this bid is estimated to **not exceed R50 million** (all applicable taxes included) and therefore the 80/20 points system shall be applicable.

1.2 Preference points for this bid shall be awarded for:

(a) Price; and

(b) B-BBEE Status Level of Contribution.

1.3 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	**80**
B-BBEE STATUS LEVEL OF CONTRIBUTION	**20**
Total points for Price and B-BBEE	**100**

1.4 Failure on the part of a bidder to fill in, sign this form and submit in the circumstances prescribed in the Codes of Good Practice either a B-BBEE Verification Certificate form issued by a Verification Agency accredited by the South African Accreditation System (SANAS) or by a Registered Auditor approved by theIndependent Regulatory Board of Auditors (IRBA) or an affidavit confirming annual total revenue and level of black ownership together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.5 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

1.6 The bidder is responsible to provide **Casidra** SOC Ltd with (refer to 2.2 under POINTS AWARDED FOR PRICE:

1.6.1. An **original sworn affidavit**

1.6.2. An **originally certified B-BBEE certificate.**

ADJUDICATION USING A POINT SYSTEM

1.1 Subject to Regulation 7 of the **Casidra** SOC Ltd Financial Regulations and PPR 2022, the bidder obtaining the highest number of total points will beawarded the contract.

1.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts.

1.3 Points scored must be rounded off to the nearest 2 decimal places.

1.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.

1.5 However, where functionality criterion forms part of the bid and is part of the evaluation process, and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest scorefor functionality.

POINTS AWARDED FOR PRICE

THE 80/20 PREFERENCE POINT SYSTEM

1. A maximum of 80 points is allocated for price on the following basis:

$$Ps = 80\left(1 - \frac{Pt - P\,min}{P\,min}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Rand value of offer tender consideration

Pmin = Rand value of lowest acceptable tender

2. A maximum of 20 points will be awarded for B-BBEE status level of contribution:

2.1. In terms of Regulations 5(2) of the Regulations preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level on Contributor	Number of points	Points awarded (for office use only)	BEE recognition level
1	20	EME & QSE 100% Black owned	135%
2	18	EME & QSE 51% + Black	125%
3	14		110%
4	12	EME 51% < Black owned	100%
5	8		80%
6	6		60%
7	4		50%

8	2		10%
Non-compliant contributor	0		0%

2.2. B-BBEE requirements:

An ***EME*** must submit a valid, fully completed, **original, certified, dated and signed sworn affidavit** (no photostat copies of certification allowed) confirming annual turnover and level of black ownership or an affidavit issued by Companies Intellectual Property Commission (accounting officer for a Closed Corporation).

If a **startup EME,** a **clear**, **originally certified copy**, of B-BBEE certificate issued by the CIPC for EME's only is accepted.

A ***QSE that is less than 51% (50% or less) black owned*** must be verified in terms of the QSE scorecard issued via Government Gazette and submit a **clear, valid, originally certified copy** of a B-BBEE Verification Certificate issued by SANAS.

A ***QSE that is at least 51% black owned (51% or higher)*** must submit an **original, certified, dated and signed sworn affidavit** confirming turnover and level of black ownership as well as declare its empowering status or an affidavit issued by Companies Intellectual Property Commission.

A ***large enterprise*** must submit a **clear, valid, originally certified copy** of a B-BBEE Verification Certificate issued by a verification agency accredited by SANAS.

A **trust, consortium or joint venture**, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.

A **trust, consortium or joint venture** (including unincorporated consortia and joint ventures) must submit a consolidated B-BBEE status level verification certificate for every separate tender.

Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

3. Bids of non-compliant contributors (where no certificate was submitted) will be considered but no points will be awarded for B-BBEE status.

DECLARATION

Bidders who claim points in respect of B-BBEE status level of contribution **MUST** complete the following:

1. B-BBEE status level of contributor claimed in terms of paragraph 1 and 2 above:

B-BBEE status level of contributor:

2. SUB-CONTRACTING

2.1. Will any portion of the contract be sub-contracted: ***(Tick applicable box)***	Yes ☐	No ☐
2.2. If YES, INDICATE:		
a. What percentage of contract will be subcontracted?		
b. The name of the subcontractor		
c. B-BBEE status level of the sub-contractor		
d. Is sub-contractor EME or QSE	Yes ☐	No ☐
e. Attach the **originally certified** B-BBEE certificate/**original** sworn affidavit as proof.		

MARKET RELATED PRICING

If a bidder, whose tender is compliant and received the highest overall points, do not offer a market related price, the offer may be negotiated with that bidder to be market related.

Are you willing to negotiate your offer?	Yes ☐	No ☐

SUPPLY CHAIN PERFORMANCE MEASUREMENT

In order for **Casidra** to measure its supply chain efficiency and effectiveness, please assist us by answering the following questions:

- **What were the source that made you became aware of this bid being available.**

Personal Email invite to bid:	☐
Via a friend or business partner:	☐
National Government E-Tender website:	☐
Local Newspapers:	☐
Casidra own website:	☐
CIDB website	☐
Other (specify) ……	☐

- **Was the time allowed to date of closure sufficient for you to compile an offer?**

No – too short ☐	Yes – Sufficient ☐	No - Too long ☐

I, _____

as the authorised representative of the company / CC / business hereby declare that, to the best of my knowledge the abovementioned information is true and correct and that I am duly authorized as a signatory of this bid. On behalf of my business, I accept the terms and conditions as set out in this document. I will supply documentary proof of any information supplied herein on request and to the satisfaction of **Casidra**.

In terms of the POPI Act I further give consent that my contact and company details as will be captured on the **Casidra** database may be shared with the role players/funders involved in the project and be used by **Casidra** for the purpose of further procurement.

Signature	
Date	

DECLARATION OF INTERESTS, BIDDERS' PAST SCM PRACTICIES AND INDEPENDENT BID DETERMINATION

1. To give effect to the requirements of the Western Cape Provincial Treasury Instructions, 2019: Supply Chain Management (Goods and Services), Practice Note 4 of 2006 Declaration of Bidders Past SCM Practices-(SDB8), Instruction note Enhancing Compliance Monitoring and Improving Transparency and Accountability in Supply Chain Management SBD 4 Declaration of Interest, Practice Note 2010 Prohibition of Restrictive practices SBD9, Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998 as amended together with its associated regulations, the Prevention and Combating of Corrupt Activities Act No 12 of 2004 and regulations pertaining to the tender defaulters register, Paragraph 16A9 of the National Treasury Regulations and/or any other applicable legislation.

2. All prospective bidders intending to do business with this institution must be registered on the central supplier database.

3. Definitions:

   "Bid" includes a price quotation, advertised competitive bid, limited bid or proposal

   "Bid rigging (or collusive bidding)" occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors

   ''business interest'' means —
   (a) a right or entitlement to share in profits, revenue or assets of an entity;
   (b) a real or personal right in property;
   (c) a right to remuneration or any other private gain or benefit, and includes any interest contemplated in paragraphs (a), (b) or (c) acquired through an intermediary and any potential interest in terms of any of those paragraphs;

   "Consortium or Joint Venture" means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract;

   "employee" means a person employed by the Provincial Government, a provincial public entity or a business enterprise, whether permanently or temporarily, including –
   a) an employee as contemplated in section 8 of the Public Service Act, 1994 (Proclamation 103 of 1994);
   b) a person appointed in terms of section 12A of the Public Service Act;
   c) a person transferred or seconded to the Provincial Government or a provincial public entity in terms of section 15 of the Public Service Act; and
   d) an educator as defined in the Employment of Educators Act, 1998 (Act 76 of 1998), and includes a member of the board or other controlling body of a provincial public entity;

   ''entity'' means any —
   a) association of persons, whether or not incorporated or registered in terms of any law, including a company, corporation, trust, partnership, close corporation, joint venture or consortium; or
   b) sole proprietorship;

   ''entity conducting business with the Institution'' means an entity that contracts or applies or tenders for the sale, lease or supply of goods or services to the Province;

   "Family member" means a person's —
   a) spouse; or
   b) child, parent, brother or sister, whether such a relationship results from birth, marriage or adoption.

If you know of any corrupt, fraudulent or collusive actions in the Institution, please report it by *submitting the REPORT FRAUD on the* ***Casidra*** *SOC Ltd website https://casidra.co.za/report-fraud/.*
This registration form must be completed annually. Should the information herein declared change in the course of the year or before the next renewal or in relation to any bid, quotation or contract, it is the entity's responsibility to advise the Institution in writing of the change in such details.

''intermediary'' means a person through whom an interest is acquired, and includes—
a) a person to whom is granted or from whom is received a general power of attorney; and
b) a representative or agent;

"Institution" in this regard means — **Casidra** SOC Ltd

"Provincial Government Western Cape (PGWC)" means the Institution of the Western Cape, and a provincial public entity;

''spouse'' means a person's:
a) partner in marriage;
b) partner in a customary union according to indigenous law; or
c) partner in a relationship in which the parties live together in a manner resembling a marital partnership or customary union;

4. Regulation 13(c) of the Public Service Act, 2016, effective 1 February 2017, prohibits any employee from conducting business with an organ of state, or holding a directorship in a public or private company doing business with an organ of state unless the employee is a director (in an official capacity) of a company listed in schedules 2 and 3 of the Public Finance Management Act.

5. The bid of any bidder may be disregarded if that bidder or any of its directors have abused the institution's supply chain management system; committed fraud or any other improper conduct in relation to such system; or failed to perform on any previous contract.

6. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging). Collusive bidding is a per se prohibition meaning that it cannot be justified under any grounds.

7. Communication between partners in a joint venture or consortium will not be construed as collusive bidding.

8. In addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

SECTION A: DETAILS OF THE ENTITY		
A1.	Name of the Entity	
A2.	Entity registration Number (where applicable)	
A3.	Entity Type	
A4.	Tax Reference Number	
A5. Full details of directors, shareholder, member, partner, trustee, sole proprietor or any persons with a right or entitlement to share in profits, revenue or assets of an entity, of the entity should be disclosed in the Table A below.		

If you know of any corrupt, fraudulent or collusive actions in the Institution, please report it by *submitting the REPORT FRAUD on the* ***Casidra*** *SOC Ltd website https://casidra.co.za/report-fraud/.*
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TABLE A

FULL NAME	DESIGNATION (Where a director is a shareholder, both should be confirmed.)	IDENTITY NUMBER	PERSONAL TAX REFERENCE NO.	PERCENTAGE INTEREST IN THE ENTITY

If you know of any corrupt, fraudulent or collusive actions in the Institution, please report it by *submitting the REPORT FRAUD on the* ***Casidra*** *SOC Ltd website https://casidra.co.za/report-fraud/.*
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SECTION B: DECLARATION OF THE BIDDER'S INTEREST

The supply chain management system of an institution must, irrespective of the procurement process followed, prohibit any award to an employee of the state, who either individually or as a director of a public or private company or a member of a close corporation, seeks to conduct business with the WCG, unless such employee is in an official capacity a director of a company listed in Schedule 2 or 3 of the PFMA as prescribed by the Public Service Regulation 13(c). Furthermore, an employee employed by an organ of state conducting remunerative work outside of the employee's employment should first obtain the necessary approval by the delegated authority (RWOEE), failure to submit proof of such authority, where applicable, may result in disciplinary action.

		YES	NO
B1.	Are any persons listed in Table A employees of the Institution? (If yes, complete Table B and attach "RWOP")	☐	☐
B2.	Are any employees of the entity also employees of the Institution? (If yes complete Table B and attach "RWOP")	☐	☐
B3.	Are any family members of the persons listed in Table A employees of the Institution? (If yes complete Table B)	☐	☐

TABLE B

Details of persons connected with the bidder who are employees of the Institution as defined should be disclosed in Table B below.

FULL NAME OF INSTITUTION EMPLOYEE	IDENTITY NUMBER	PROVINCIAL DEPARTMENT/ ENTITY OF EMPLOYMENT	DESIGNATION / RELATIONSHIP TO BIDDER**	INSTITUTION EMPLOYEE NO./PERSAL NO. (Indicate if not known)

If you know of any corrupt, fraudulent or collusive actions in the Institution, please report it by *submitting the REPORT FRAUD on the* ***Casidra*** *SOC Ltd website https://casidra.co.za/report-fraud/.*

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SECTION C: PERFORMANCE MANAGEMENT AND BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES
To enable the prospective bidder to provide evidence of past and current performance with the Institution.

		YES	NO
C1.	Did the entity conduct business with the Institution in the last twelve months? (If yes complete Table C)	☐	☐

C2. **Table C**

Complete the below table to the maximum of the last 5 contracts.

NAME OF CONTRACTOR	PROVINCIAL DEPARTMENT **OR** PROVINCIAL ENTITY	TYPE OF SERVICES OR COMMODITY	CONTRACT / ORDER NUMBER	PERIOD OF CONTRACT	VALUE OF CONTRACT

C3.	Is the entity or its principals listed on the National Database as companies or persons prohibited from doing business with the public sector?	NO	YES
C4.	Is the entity or its principals listed on the National Treasury Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No. 12 of 2004)? (To access this Register, enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445.)	NO	YES
C5.	If yes to C3 or C4, were you informed in writing about the listing on the database of restricted suppliers or Register for Tender Defaulters by National Treasury?	NO	YES
C6.	Was the entity or persons listed in Table A convicted for fraud or corruption during the past five years in a court of law (including a court outside the Republic of South Africa)?	NO	YES

If you know of any corrupt, fraudulent or collusive actions in the Institution, please report it by *submitting the REPORT FRAUD on the* ***Casidra*** *SOC Ltd website https://casidra.co.za/report-fraud/.*
This registration form must be completed annually. Should the information herein declared change in the course of the year or before the next renewal or in relation to any bid, quotation or contract, it is the entity's responsibility to advise the Institution in writing of the change in such details.

SECTION D: DULY AUTHORISED REPRESENTATIVE TO DEPOSE TO AFFIDAVIT
The form should be signed by a duly authorized representative of the entity before a commissioner of oaths.

I, …….. hereby swear/affirm;

i. that the information disclosed above is true and accurate;
ii. that I understand the content of the document;
iii. that I have arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor In addition, that there will be no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to the Institution.;
iv. that there have been no consultations, communications, agreements or arrangements made with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification o the bid submitted where so required by the institution; and that my entity was not involved in the drafting of the specifications or terms of reference for this bid; and
v. that I or the representative of the company are aware of and undertake not to disclose the terms of any bid, formal or informal, directly or indirectly, to any competitor, prior to the awarding of the contract.

_____
DULY AUTHORISED REPRESENTATIVE'S SIGNATURE

I certify that before administering the oath/affirmation I asked the deponent the following questions and wrote down his/her answers in his/her presence:

1.1. Do you know and understand the contents of the declaration?
ANSWER: ……

1.2. Do you have any objection to taking the prescribed oath?
ANSWER: ……

1.3. Do you consider the prescribed oath to be binding on your conscience?
ANSWER: ……

1.4. Do you want to make an affirmation?
ANSWER: ……

I certify that the deponent has acknowledged that he/she knows and understands the contents of this declaration, which was sworn to/affirmed before me and the deponent's signature/thumbprint/mark was place thereon in my presence.

……
SIGNATURE and FULL NAMES

Commissioner of Oaths

Designation (rank) ex officio: Republic of South Africa

Date: ……Place ……

Business Address: ……

If you know of any corrupt, fraudulent or collusive actions in the Institution, please report it by *submitting the REPORT FRAUD on the* ***Casidra*** *SOC Ltd website https://casidra.co.za/report-fraud/.*
This registration form must be completed annually. Should the information herein declared change in the course of the year or before the next renewal or in relation to any bid, quotation or contract, it is the entity's responsibility to advise the Institution in writing of the change in such details.

LAINGSBURG: DOORNKLOOF: CONSTRUCTION OF A COLD STORE

AUGUST 2025

BASELINE RISK ASSESMENT REPORT

A baseline risk assessment focuses on the identification of risk that applies to the whole project. The purpose of conducting a baseline risk assessment is to establish a risk profile.

This is an initial risk assessment that focuses on a broad overview in order to determine the risk profile to be used in subsequent risk assessments. It is performed to obtain a benchmark of the types and size of potential hazards, which could have a significant impact on the whole project and all stakeholders.

The stakeholders need to identify the major and significant risks, then prioritise these risks and evaluate the effectiveness of current systems for risk control.

The risks for the above project which have been identified have been highlighted under the following categories: -

1. **Scope of work (what is being built?)**
This project consists of the following elements:

- The construction of cold store

2. **Location of site and elements specific to the location (municipal by-laws, weather factors, geographical factors)**

   Laingsburg normally receives about 673mm of rain per year and because it receives most of its rainfall during winter. The annual rainfall values for Laingsburg are 201mm. It receives the lowest rainfall (12mm) in February and the highest (193mm) in June. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Laingsburg range from 15.6°C in July to 35°C in February. The region is the coldest during July when the mercury drops to 6.6°C on average during the night.

3. **Geo- technical risks (conditions of the soil, raise any concerns that may hinder the project progress)**
   The site consists of sandy soil conditions, during high rainfalls, the soil can be waterlogged.

4. **Environmental risks (This is the actual or potential threat of adverse effects on living organisms and environment by effluents, emissions, wastes, resource depletion, etc involved in the construction phase)**
   Due to the site being in an environmental area there is always the risk for soil, groundwater and surface water pollution and contamination when using mechanical plant, fuel and pesticides. It will also not be allowed to dispose of any kind of waste by burying it on site.

5. **Risk assessments based on scope of work (Is this a high rise building in a built-up area? Is it working in a flood plain and/or river with eroded soil conditions?)**
   Due to the nature of the works, there is risk of maintaining structural stability during excavations. Dangers presented are the collapse of excavations, falling or dislodging material and falling into excavations.

   The erection of steel framework presents its own dangers on both the erection of heavy steel sections and installation of roof plastics, especially at height. Care must be taken during the erection process with mechanical equipment working in close proximity to site labour force.

   Working at height poses risks of falling, material/tools dropping down damaging infrastructure and/or personnel. People are struck by material falling from loads being lifted and material that rolls or is kicked off work platforms; others are struck or buried by falling materials. Structures under construction may also collapse, eg steel frames that have not been adequately braced, or formwork that is prematurely loaded.

6. **Equipment Risks.**
   The equipment risks associated with this project is as follows:-

   It is envisaged that this will be both a mechanised and labour job. There will be mechanised earth moving equipment in close proximity to people, infrastructure, and surrounding environment.

7. **Material Risks.**
   The following could pose risks associated with the project:-

   - Flammable materials such as diesel/petrol in a highly flammable environment.
   - Inhalation of poison or being in contact with skin
   - Care must be taken not to dispose of any material by burning

8. **Ergonomic Risks (Ergonomic hazards refer to workplace conditions that pose the risk of injury to the musculoskeletal system of the worker).**

Cold conditions. Dangers associated with pnumonia. During winter season.

Manual handling
Lifting heavy and awkward loads causes back and other injuries. Some injuries can result from a single lift, but more commonly, long-term injury develops as a result of repeated minor injury due to repetitive lifting.

Noise and vibration
High levels of noise can cause hearing loss and repeated use of vibrating tools can cause hand-arm vibration syndrome (damage to nerves and blood vessels – most commonly in the hands and fingers).]

Chemicals
Exposure to materials such as cement and solvents can cause skin problems such as dermatitis.

9. **Controls specific to client requirements (two day induction, pink overalls, entrance to existing premises, etc).**
   N/A

RISK OVERVIEW CHART FOR PROJECT:

RISK CATEGORY	RISK FACTOR	ASSOCIATED RISK	RISK PROBABILITY FACTOR (1-5) 1 being low 5 being very high
LOCATION	Cool temperatures	Pnemonia	2
GEOGRAPHICAL	Very loose sandy soil	Windstorms and risk of collapse of ground when excavating or open excavations	3
ENVIRONMENTAL	Dust pollution	Dust will affect both neighboring & current farmers crops	3
	Soil contamination	Risk of pollution to ground by contaminants	3
	High winds	Risk of damage to	4

		construction materials and risk of being blown off structure	
SCOPE OF WORK	Structural stability Working at Heights Site enclosure	Risk that people be killed or seriously injured by collapses and falling materials while working in excavations Risk of falling material and/or personnel Risks to public if not managed and implemented	3 5 4
EQUIPMENT	Mechanised plant working with labour	Risk of injury to labour force due to close proximity	5
MATERIAL	Flammable material	Dangerous to work with and to store	3
ERGONOMIC	Manual handling Noise/Vibration Chemicals Heat	Lifting of heavy equipment High noise levels Exposure to chemicals Heat exhaustion	4 4 4 4
CLIENT REQUIREMENTS	Working times	No work is to be done after 17h00 at night	3

Please find below risk assessment template which can be used by the contractor to manage the above identified risks.

Risk assessment							
Title:							
Company name:				Date assessment was carried out:			
Assessment carried out by:				Date of next review:			
Risk assessment Activity or area	**What are the hazards?**	**Who might be harmed and how?**	**What are you already doing?**	**What further action do you need to take?**	**Who needs to carry out the action?**	**When is the action needed by?**	**Done**

For office use only	**Version no: 2**	**Date: 20 October 2014**	
To be signed upon appointment of winning bidder to form the agreement between the parties			
Signature for **Casidra**		Signature for Contractor	

LAINGSBURG: DOORNKLOOF: CONSTRUCTION OF A COLD STORE

AUGUST 2025

OCCUPATIONAL HEALTH & SAFETY SPECIFICATION

In terms of the Construction Regulations 2014 Regulation 5, a baseline risk assessment for the intended works is required to be done by the Client for each specific construction site.

This risk assessment will inform the site-specific Occupational Health and Safety specifications that must be supplied to the designer, who will supply any design specifications to be added and then supplied to the prospective Contractor (Bidder) as part of the tender documents. This specification must be translated into actions and preventative risk management measures by the Contractor that will form part the Occupational Health and Safety Plan of the Contractor.

This specification forms an integral part of the contract, and the Contractor is required to use it at pre-tender phase to make sufficient provision for related costs for risk management and after award of tender for the purpose of drawing up its project-specific construction phase health and safety plan.

It is the responsibility of the Contractor in the bidding process to:

- ensure that he include adequate provision for the cost for health and safety measures in his bid and
- Provide proof and include in his cost the necessary competencies and resources to perform the work safely.

The risks for the above project which have been identified, evaluated and resulted in the following specifications that are highlighted under the following categories: -

This specification does not replace the requirement of the Contractor to comply to all relevant legislation and the regulations of the Occupational Health and Safety Act, but just highlight the specific identified and relevant risk factors that need special mention and attention by the Contractor in his bid.

1. General administrative requirements

DESIGNATION	NAME	CONTACT	ADDRESS	RESPONSIBLE

For office use only	Version no: 2	Date: 20 October 2014	
To be signed upon appointment of winning bidder to form the agreement between the parties			
Signature for **Casidra**		Signature for Contractor	

		NO's		PERSON
Project Client	Casidra SOC	021 863 5000	22 Louws Avenue Southern Paarl 7624	N/A
Municipality	Laingsburg Municipality	023 551 1019 (tel)	2 Van Riebeeck Street, Laingsburg, 6900	N/A
Department of Labour	Department of Labour Cape Town	021 466 7160 (tel)	120 Plein St, Western Cape, 8001	N/A

2. Scope of work (what is being built?)

This project consists of the following elements:

- The construction of cold store

3. Location of site and elements specific to the location (municipal by-laws, weather factors, geographical factors)

What is the risk?	Cold and rain
Hazard Identification?	High temperatures together with high wind factor.
Who will be injured & mechanism of injury?	All personnel working on site. Possible injury will vary from pneumonia and or broken ankles from muddy soil.

Preventative action recommended	
Description	**Category: Reduction/transfer/control/avoidance**
• Monitor weather for worsening soil conditions on daily basis. When conditions underfoot do not assist with mechanical and/or personnel, call site off until conditions improve • Ensure for shade and sufficient water onsite for high temperatures. • Ensure temperature is monitored and call site off with WGT of 40 and higher	Risk reduction/ control

What is the risk?	Wind
Hazard Identification?	High winds are experienced in the area and danger of falling off temporary and/or permanent structures
Who will be injured & mechanism of injury?	All personnel working at height. Possible injury will vary from dislocation, broken bones to death by falling.

Preventative action recommended	
Description	**Category: Reduction/transfer/control/avoidance**
• All temporary structures to be designed and erected to withstand high winds. All fall protection must be in place before workers can access platforms • Subcontract temporary platform erection to a specialist and they then bear all responsibility of erected temporary platforms • All people working at heights must have a harness. • Install wind meter on site with siren warning for wind speeds above 40km/h. Work at heights will stop until wind subsides	• Risk reduction/mitigation • Risk transfer • Risk control • Risk avoidance

4. Geo- technical risks (conditions of the soil, raise any concerns that may hinder the project progress)

What is the risk?	Soil conditions
Hazard Identification?	Sandy soil conditions and soggy when wet
Who will be injured & mechanism of injury?	Infrastructure damage, damage to earthmoving equipment and personnel injury will vary from dislocation, broken bones to death

Preventative action recommended	
Description	**Category: Reduction/transfer/control/avoidance**
This is specialized work that requires competent human resources that are adequately skilled in working with locating unknown services and dealing with them when located. Heavy and dangerous machinery in loose sandy soil conditions when also require skill set.	Risk control

5. Environmental risks (This is the actual or potential threat of adverse effects on living organisms and environment by effluents, emissions, wastes, resource depletion, etc involved in the construction phase)

What is the risk?	Soil contamination
Hazard Identification?	Risk of pollution to ground and river by its contaminants
Who will be injured & mechanism of injury?	Environment and this invariably falls over to communities, which then in affect the members of the public
Preventative action recommended	

For office use only	**Version no: 2**	**Date: 20 October 2014**	
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Signature for **Casidra**		Signature for Contractor	

Description	Category: Reduction/transfer/control/avoidance
Maintenance and service areas should be demarcated during site establishment and all maintenance and service activities contained so as to avoid any contamination of soil and / or water. All vehicles, equipment, fuel and petroleum services and tanks should be maintained in a good condition that prevents leakage and possible contamination of soil or water supplies. Refueling areas should be bunded and lined to prevent spilled fuels and oils from contaminating the ground or water. It is suggested that as a minimum, sandbags should be placed surrounding the bulk fuel supply tank. The floor of the area is to be lined with plastic and a layer of sand of approximately 50mm is placed on top of the plastic. Automatic shut-off nozzles are recommended on all dispensing units. The park and service area should be treated with a suitable hydrocarbon absorption or remediation product. Absorbent spill mop-up products should to be on hand. All servicing should be done with a drip tray present to prevent accidental spillage of oils and fuels. A suitable leak proof container for the storage of oiled equipment (filters, drip tray contents and oil changes, etc.) should be established. All spills to be immediately contained, reported to the Project Manager, and dealt with.	Risk control/ reduction

What is the risk?	Snakes
Hazard Identification?	Being bitten by snakes
Who will be injured & mechanism of injury?	Personnel working on site

Preventative action recommended	
Description	**Category: Reduction/transfer/control/avoidance**
As the work entails working in dense brush and biomass areas, the risk of disturbing a snake is very high. Make sure that all personnel are made aware of the increased risk of the presence of snakes. Wear proper protective clothing to protect against snake bites. An increased awareness and alertness is the best protection, the snake will not be looking for you, so watch for it. If a snake is seen or reported on site, note the area of the snake and work in this area stops until the	Risk reduction/control/ avoidance

hazard is removed. DO NOT approach, attack or otherwise provoke the snake as 95% of those bitten have done this. REMEMBER - IF PROVOKED IT WILL STRIKE. If bitten, the following procedures should apply: 1.Immediately apply a broad firm bandage around the limb and on the bitten area. It should be as tight as one would bind a sprained ankle. As much of the limb should be bandaged as possible. Bind from below upwards. Crepe bandages are ideal, but any flexible material can be used, eg tear up clothing or old towels into strips. Panty hose is satisfactory. 2.Keep the limb and the victim as still as possible. Splint the limb. 3.Bring transport to the victim if possible. 4.Leave the bandage and splint on until medical care is reached. Don't cut or excise the bitten area. Don't apply an arterial tourniquet. Don't wash the bitten area. The snake involved may be identified by the detection of venom on the skin.	

What is the risk?	Bees	
Hazard Identification?	Being stung by bees	
Who will be injured & mechanism of injury?	Personnel working on site	
Preventative action recommended		
Description		**Category: Reduction/transfer/control/avoidance**
Upon finding a bee hive/nest, do not try to get rid of the nest or hive yourself. Each type of insect or situation will likely need different removal methods. It is best to call pest control professionals for this service. Upon being stung, most people experience local effects like pain, swelling, itching, and redness around the sting site. In rare cases, a **severe allergic reaction** can occur. This situation is serious and can cause "**anaphylaxis**" or anaphylactic shock. Symptoms of anaphylaxis can appear immediately (within minutes) or up to 30 minutes later. Symptoms to watch for include: • hives, itching and swelling in areas other than		Risk avoidance/control/reduction/transfer

the sting site,
- swollen eyes and eyelids,
- wheezing,
- tightness in the chest and difficulty breathing,
- hoarse voice or swelling of the tongue,
- dizziness or sharp drop in blood pressure,
- shock,
- unconsciousness or cardiac arrest.

Although most deaths result from severe allergic reactions, some are caused by direct toxicity of the insect venom. Of those who die from a severe allergic reaction to a sting, half die within 30 minutes, and three-quarters within 45 minutes. If you see any signs of reaction, or even if you are not sure, call or have a co-worker call emergency medical services right away. Also, get medical help if the sting is near the eyes, nose or throat. People who have been stung multiple times (such as when fleeing from a swarm or nest) can sometimes suffer serious health effects. While rare, death may occur.

Employers should be notified if a worker, especially one who works outdoors, has allergies to insect stings. Co-workers should be trained in emergency first aid, be aware of the signs of a severe reaction, and know how to use the bee sting kit (self-injectable epinephrine). Always carry a cellular phone in case you need emergency medical help.

The best way to prevent stings is to avoid the insects. Leave the area, if possible. If there is a travelling swarm, they will likely leave within a few days.

Note that insect repellent ("bug spray") does not affect these stinging insects. Avoidance and awareness are the keys to not being stung.

Before working at a site:

- Take a look around. Check to see if there are any visible signs of activity or a hive or nest. If you see a number of insects flying around, check to see if they are entering/exiting from the same hole or place. If so, it is likely a nest or a source of food.
- Wear long sleeve shirts, and long pants. If you cannot avoid working near bees or wasps, wear a bee-keepers style hat with netting to cover your head, neck and shoulders. Tape your pant legs to your boots/socks, and your sleeves to your gloves. You may also wish to wear an extra layer of clothing since wasp stings are long enough to reach through one layer of clothing.
- Power tools such as lawnmowers, weed eaters and chainsaws will aggravate the insects. When using these tools, be aware that the tools may provoke the insects or in some cases, cause the

insects to swarm. If you find you are working near stinging insects, here are some tips. • Most bees and wasps will not sting unless they are startled or attacked. Do not swat at them or make fast movements. The best option is to let the insects fly away on their own. If you must, walk away slowly, or gently "blow" them away. The only exception is if you have disturbed a nest and hear "wild" buzzing. Protect your face with your hands and run from the area immediately. • Wear light-colored clothes such as khakis, beige, or blue. Avoid brightly coloured, patterned, or black clothing. • Tie back long hair to avoid bees or wasps from getting entangled in your hair. • Be careful when shaking out clothing or towels as the insects could be inside the folds. • If you find a bee or wasp in your car, take a thick cloth and cover the insect before it gets frightened. Carefully, let the insect back outside through an open window. DO NOT • Do not wear perfumes, colognes, scented soaps, or powders as they contain fragrances that are attractive. • Do not go barefoot or wear sandals, especially in areas where there is clover or other flowering plants that attract bees.	

6. Risk assessments based on scope of work (Is this a high rise building in a built-up area? Is it working in a flood plain and/or river with eroded soil conditions?)

What is the risk?	Structural stability	
Hazard Identification?	Unstable working platforms could cause risk of collapse on trenches. Risk of excavations collapsing and burying or injuring people working in them; material falling from the sides into any excavation; and people or plant falling into excavations	
Who will be injured & mechanism of injury?	Risk that people be killed or seriously injured by collapses and falling materials while working in excavations	
Preventative action recommended		
Description		**Category:**

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	Reduction/transfer/control/avoidance
COLLAPSE OF EXCAVATIONS **Temporary support** – Before digging any trench pit, tunnel, or other excavations, decide what temporary support will be required and plan the precautions to be taken. Make sure the equipment and precautions needed (trench sheets, props, baulks etc) are available on site **before** work starts. **Battering the excavation sides** – Battering the excavation sides to a safe angle of repose may also make the excavation safer. In granular soils, the angle of slope should be less than the natural angle of repose of the material being excavated. In wet ground a considerably flatter slope will be required **FALLING OR DISLODGING MATERIAL** **Loose materials** – may fall from spoil heaps into the excavation. Edge protection should include toeboards or other means, such as projecting trench sheets or box sides to protect against falling materials. Head protection should be worn. **Undermining other structures** – Check that excavations do not undermine scaffold footings, buried services or the foundations of nearby buildings or walls. Decide if extra support for the structure is needed before you start. Surveys of the foundations and the advice of a structural engineer may be required. **Effect of plant and vehicles** – Do not park plant and vehicles close to the sides of excavations. The extra loadings can make the sides of excavations more likely to collapse. **FALLING INTO EXCAVATIONS** **Prevent people from falling** – Edges of excavations should be protected with substantial barriers where people are liable to fall into them. To achieve this, use: • Guard rails and toe boards inserted into the ground immediately next to the supported excavation side; or • fabricated guard rail assemblies that	Risk reduction/avoidance

connect to the sides of the trench box • the support system itself, eg using trench box extensions or trench sheets longer than the trench depth. **INSPECTION** A competent person who fully understands the dangers and necessary precautions should inspect the excavation at the start of each shift. Excavations should also be inspected after any event that may have affected their strength or stability, or after a fall of rock or earth. A record of the inspections will be required and any faults that are found should be corrected immediately.	

Who will be injured & mechanism of injury?	Public will be injured and/or killed	
Preventative action recommended		
Description		**Category: Reduction/transfer/control/avoidance**
Construction work should be fenced off and suitably signed. This will protect people (especially children) from site dangers and the site from vandalism and theft. Site access should be monitored and controlled and all access routes should be clearly demarcated. A constant regard must be taken to safety and dangerous areas and should be adequately cordoned off to prevent accidental injury. Temporary fencing/hoarding with appropriate warning signs must be in place. Make sure there is a system to ensure necessary precautions are kept in place during working hours and that night-time and weekend protection is put in place as required before the site closes		

What is the risk?	Working at heights
Hazard Identification?	Risks of falling material, tools & personnel
Who will be injured & mechanism of injury?	People/Infrastructure being struck by falling material & tools causing injury or even death. The same for personnel falling from heights.
Preventative action recommended	

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Description	Category: Reduction/transfer/control/avoidance
Avoid working at heights where you can. Use work equipment to prevent falls where work at height cannot be avoided. Where the risk of a fall cannot be eliminated, use work equipment to minimize the distance and consequences of a fall should one occur. Always consider measures that protect all those at risk, ie ■ collective protection measures (scaffolds, nets, soft landing systems) before measures that only protect the individual, ie personal protection measures (a harness). Ensure work is carried out only when weather conditions do not jeopardise the health and safety of the workers. Suitable precautions must be taken to prevent falls. General access scaffolds provide a means of working at height while preventing falls and should be provided whenever practicable. Scaffolds should be designed, erected, altered and dismantled only by competent people and the work should always be carried out under the direction of a competent supervisor. Ensure the scaffold is based on a firm, level foundation. The ground or foundation should be capable of supporting the weight of the scaffold and any loads likely to be placed on it. Ensure it is braced and tied into a permanent structure or otherwise stabilised.	Risk reduction/avoidance/control

7. Equipment Risks

What is the risk?	Heavy Mechanized equipment
Hazard Identification?	Close proximity to labour force on ground working together in combined operations gives risk of collision
Who will be injured & mechanism of injury?	Infrastructure damage, damage to plant equipment/constructed items and personnel injury will vary from dislocation, broken bones to death

Preventative action recommended	
Description	**Category: Reduction/transfer/control/avoidance**
This is specialized work that requires competent human resources that are adequately skilled in working with heavy and dangerous equipment. Guidelines and practical advice to all work operations to ensure effective and proper management of working with mechanical plant must be in place. Toolbox talks MUST make all personnel aware of the dangers.	Risk Control

Equipment must be checked for proper working controls such as reverse warning sirens, etc. Make sure equipment is in good working order each and every day and before every single operation. All workers should wear bright protective clothing and signs that are highly visible.	

8. Material Risks.

What is the risk?	Storage of materials
Hazard Identification?	Tripping/ Flammable materials igniting
Who will be injured & mechanism of injury?	Material/Infrastructure & personell
Preventative action recommended	
Description	**Category: Reduction/transfer/control/avoidance**
Designate storage areas for plant, materials, waste, flammable substances (eg foam plastics, flammable liquids and gases such as propane) and hazardous substances (eg pesticides and timber treatment chemicals). Flammable materials will usually need to be stored away from other materials and protected from accidental ignition. Do not store materials where they obstruct access routes or where they could interfere with emergency escape, eg do not store flammable materials under staircases or near to doors or fire exits. If materials are stored at height (eg on top of a container or on a scaffold gantry), make sure necessary guard rails are in place if people could fall when stacking or collecting materials or equipment. Keep all storage areas tidy, whether in the main compound or on the site itself. Try to plan deliveries to keep the amount of materials on site to a minimum. Waste materials also need storing safely before their removal from the site and make sure that you allow sufficient space for waste skips and bins.	Risk Control

What is the risk?	Flammable material
Hazard Identification?	Dangerous to work with and store for prevention of fires
Who will be injured & mechanism of injury?	Infrastructure damage and injury or death to all persons
Preventative action recommended	
Description	**Category: Reduction/transfe**

	r/control/avoidance
Fuels and flammable materials should be stored in suitably equipped storage areas demarcated within the Contractor's camp. These areas must comply with general fire safety requirements. No fuel may be stored within drainage lines or areas. Impervious lining materials should be used in these storage areas to prevent contamination of the ground in the event of spillages or leaks, and automatic shut-off nozzles should be used on all dispensing units. Quantities of fuels and flammable/hazardous materials stored on site should be appropriate to the requirement for these substances on site. Fuels and oils should be safely located out of harm's way from the elements. No fuel / oil containers may be left unattended within drainage areas. All open containers containing used oil, etc., should be kept under roof or have adequate water tight lids. All spills to be immediately contained, reported to the Project Manager and dealt with. Adequate fire fighting equipment should be available on site, in good working order, and according to the fire hazard present during construction activities of at least one type ABC all-purpose 12.5kg extinguisher and a water cart with a minimum capacity of 1000 litres for the duration of the contract. Any welding, gas cutting or cutting of metal should only be permitted inside the demarcated working areas for this purpose and these areas should be approved by the Project Manager.	Risk control

What is the risk?	Fire
Hazard Identification?	Flammable materials are always evident on construction site and danger of fire is always constant
Who will be injured & mechanism of injury?	Material/Infrastructure & personnel

Preventative action recommended	
Description	**Category: Reduction/transfer/control/avoidance**
Fire can be a particular hazard in refurbishment/new work when there is a lot of dry timber and at the later stages of building jobs where flammable materials such as adhesives, insulating materials and soft	Risk reduction/transfer/ control/avoidance

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furnishings are present. Many fires can be avoided by careful planning and control of work activities. Good housekeeping and site tidiness are important not only to prevent fire, but also to ensure that emergency routes do not become obstructed. Making site rules can help.	

9. Ergonomic Risks (Ergonomic hazards refer to workplace conditions that pose the risk of injury to the musculoskeletal system of the worker).

What is the risk?	Health
Hazard Identification?	On-site injuries due to physical construction work taking place
Who will be injured & mechanism of injury?	Personnel suffering ill-health
Preventative action recommended	
Description	**Category: Reduction/transfer/control/avoidance**
Construction workers are likely to suffer ill health as a result of their work in the industry after exposure to both harsh working conditions and hazardous substances. Assess both immediate risks, eg being overcome by fumes in a confined space, and longer-term health risks. Materials like cement can cause dermatitis. Sensitizing agents like isocyanates can make people using them have sudden reactions, even though they may have used the substance many times before. If harm from the substance is possible, the first step to take is to try and avoid it completely by not using it at all. try and control exposure. Some of the ways this could be done include: Keep containers closed except when transferring; using cutting and grinding tools and blasting equipment fitted with exhaust ventilation or water suppression to control dust; ensuring good ventilation in the working area by opening doors, windows and skylights. The need to provide personal protective equipment (PPE) is also a must and will contribute in minimizing exposure risks. Respirators can protect against dusts, vapours and gases. Ear plugs for noise, etc. Where protective clothing is provided (such as overalls and gloves), it must be of the right type to protect the wearer against the particular hazard they are going to encounter. All manufacturers offer advice on the most suitable gloves for specific types of hazard. When using gloves to help prevent dermatitis, users must avoid getting contaminants inside the	Risk reduction/transfer/ control/avoidance

gloves when putting them on and taking them off. It is also essential to provide washing facilities, with a supply of hot and cold (or warm) running water, soap and a means of drying the hands, to help prevent dermatitis. First aid can save lives, reduce pain and help an injured person make a quicker recovery. Provide adequate and appropriate equipment, facilities and personnel to enable first aid to be given to your employees if they are injured or become ill at work. The minimum provision for all sites is: • a first aid box with enough equipment to cope with the number of workers on site; • an appointed person to take charge of first-aid arrangements; • information telling workers the name of the appointed person or first aider and where to find them.	

10. Controls specific to client requirements (two day induction, pink overalls, entrance to existing premises, etc).
No work after 17h00 and only on weekdays

11. Personal Protective Equipment (PPE) and Clothing

The principal contractor and other contractors shall ensure that all workers are issued with protective clothing free of charge and make use of the equipment and protection provided such as to wear hard hats, protective footwear, overalls, etc. The Principal Contractor and all Contractors shall make provision and keep adequate quantities of SABS approved PPE on site at all times. The Principal Contractor shall clearly outline procedures to follow when PPE or Clothing is:

- Lost or stolen;
- Worn out or damaged

The above procedure applies to Contractors and their Sub-contractors, as they are all employers in their own right, as per section 37 (2) of the Act.

(The general PPE requirements are attached under Annexure A to this document as well as an additional list of PPE for biomass removal is also attached as Addendum B to this specification).

12. Occupational Health and Safety signage

The Contractor shall provide and maintain adequate on-site OHS signage. Including but not limited to: ‘no unauthorised entry’, ‘report to site office’, ‘beware of overhead work’, ‘hard hats, overalls, safety boots, respirators, etc’. Signage shall be posted up at all

entrances to site as well as on site in strategic locations e.g. access routes, stairways, entrances to structures and buildings, scaffolding, and other potential risk areas/operations

13. Fences and access

Construction sites in built-up areas or adjacent to public roads must be suitable and sufficiently fenced off and provided with controlled access points to prevent the entry of unauthorised persons.

14. Admittance to site

A notice must be posted up at every entrance to a building site prohibiting the entry of unauthorised persons to such workplace and no person shall enter such a site without the permission of the employer or user as the case may be. In no circumstances may the wording “Enter at Own Risk” be used

15. Speed Restrictions, construction vehicles and Protection

The Principal Contractor shall ensure that all persons in its employment, all Contractors, and all those that are visiting the site are aware and comply with the site speed restriction(s) and route identification for construction vehicles only. Separate vehicle and pedestrian access routes shall be provided, maintained, controlled, and enforced.

16. Hazardous Chemical Substances (HCS)

The Principal Contractor and other relevant Contractors shall provide the necessary training
and information regarding the use, transport, and storage of HCS. The Principal Contractor shall ensure that the use, transport, and storage of HCS is carried out as prescribed by the HCS Regulations. The Contractor shall ensure that all hazardous chemicals on site have a Material Safety Data Sheet (MSDS) on site and the users are made aware of the hazards and
precautions that need to be taken when using the chemicals. The First Aiders must be made
aware of the MSDS and how to treat HCS incidents appropriately.

The below acts are relevant regarding the transporting, storage and application of these agricultural chemicals:-

- Fertilizers, farm feeds, agricultural remedies and stock remedies act, 1947 (Act no. 36 of 1947)
- Hazardous Substances Amendment Act, No. 53 of 1992
- The South African National Pesticide registration authority registrar: Act no. 36 of 1947

17. Public and Site Visitor Health and Safety

The Principal Contractor shall ensure that every person working on or visiting the site, as well
as the public in general, shall be made aware of the dangers likely to arise from site activities,
including the precautions to be taken to avoid or minimise those dangers. Appropriate health
and safety notices and signs shall be posted up, but shall not be the only measure taken.

The Principal Contractor has a duty in terms of the OHS Act 85/1993 to do all that is reasonably practicable to prevent members of the public and site visitors from being affected
by the construction activities.

Site visitors must be briefed on the hazards and risks they may be exposed to and what measures are in place or should be taken to control these hazards and risks. A record of these 'inductions' must be kept on site in accordance with the Construction Regulations.

18. Occupational Hygiene

Exposure of workers to occupational health hazards and risks is very common in any work environment, especially in construction. Occupational exposure is a major problem and all contractors must ensure that proper health and hygiene measures are put in place to prevent
exposure to these hazards. Prevent inhalation, ingestion, absorption, and noise induction.

Contractor must identify site-specific health risks for construction. e.g. cement dust, wet cement, wood-dust, noise, etc.

19. Welfare Facilities

The Principal Contractor must supply the following clean, hygienic and maintained facilities:

- Shower facilities, after consultation with employees or employee representative (1 shower for every 15 persons).
- Sufficient toilets (1 toilet per 30 workers) and hand washing facilities. Separate toilets needed for both males and females. Toilet paper must be provided.
- Changing facilities for each sex
- Sheltered eating areas
- Waste bins must be strategically placed and emptied regularly.

Workers who are far removed from their homes, reasonable and suitable living accommodation for the workers must be provided and adequate transportation between sites and homes where suitable living accommodation is not available.

20. Alcohol and other Drugs

No alcohol and other drugs will be allowed on site. No person may be under the influence of alcohol or any other drugs while on the construction site. Any person on prescription drugs must inform his/her superior, who shall in turn report this to the Principal Contractor forthwith.
Any person suffering from any illness/condition that may have a negative effect on his/her safety performance must report this to his/her superior, who shall in turn report this to the Principal Contractor forthwith. Any person suspected of being under the influence of alcohol
or other drugs must be sent home immediately, to report back the next day for a preliminary inquiry. A full disciplinary procedure must be followed by the Contractor concerned and a copy of the disciplinary action must be forwarded to the Principal Contractor for his records.

21. Other compliance requirements

Notwithstanding the Occupational Health & Safety Act, the contractor must also confirm to the following acts:

- Basic conditions of employment act 75 of 1997
- National Road Traffic Act 93 of 1996
- National Environmental Management: Biodiversity Act, no 10 of 2004
- National Veld and Forest Fire Act, no 101 of 1998.
- Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Amendment act

22. Management control measures and review

23. Risk assessment of the site must be reviewed at least every 30 days. Based on the effectiveness of the existing measures, the safety plan must be adjusted to meet the new or existing identified deficiencies.

24. Electrical Safety

All persons who carry out or arrange for work of any description for Casidra in connection with **electrical apparatus** shall make themselves acquainted with the Occupational Health and Safety Act (Act 85 1993) with particular reference to the Electrical Machinery Regulations, Regulations 1 to 23 inclusive.

The works performed under this contract shall comply in every respect with the latest relevant rules and regulations including following:

- Occupational Safety and Health Act (OSH Act)
- The South African Bureau of Standards Code of Practice SANS 10142
- Normal requirements laid down by Eskom.
- The latest requirements of the IEC and the British Standard Institute, where no SANS codes of practice exist.

- All rules and regulations issued by local and other authorities having jurisdiction over the contract.

The contractor must, in addition to compliance with the Electrical Installation Regulations, 2009, and the Electrical Machinery Regulations,1988, promulgated by Government Notice No. R. 1593 of 12 August 1988, ensure that —

(a) before construction commences and during the progress thereof, adequate steps are taken to ascertain the presence of and guard against danger to workers from any electrical cable or apparatus which is under, over or on the site;

(b) all parts of electrical installations and machinery are of adequate strength to withstand the working conditions on construction sites;

(c) the control of all temporary electrical installations on the construction site is designated to a competent person who has been appointed in writing for that purpose;

(d) all temporary electrical installations used by the contractor are inspected at least once a week by a competent person and that inspection findings are recorded in a register kept on the construction site; and

(e) all electrical machinery is inspected by the authorized machine operator or user on a daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site

NOTE:
The Electrical Installation Regulations clause 6 (2) require electrical contractors to register annually.

"(2) Any person who does electrical installation work as an electrical contractor shall register annually in the form of Annexure 3 with the chief inspector or a person appointed by the chief inspector "

In terms of the OHS Act Electrical Installation Regulations, a Certificate of Compliance (CoC) must be issued by a registered person, defined as "a person registered as an electrical tester for single phase, an installation electrician, or a master installation electrician". Registered persons may be the owners or employees of electrical contractors. They must be currently registered with the Department of Labour (DoL), and registrations must be renewed annually, bi-annually or every three years depending on the application. No company may do electrical contracting work unless they have a permanently employed registered person as part of the company.

Department of Labour stating the certification as either 'single phase tester", "installation electrician" or "master installation electrician" with a unique licence number

Safety equipment

The following equipment required for working on electrical installations and distribution systems, must be maintained in good order and repair and must be made available:-

Safety belt, overalls, hard hat, safety shoes or boots, rubber gloves, "Men Working" notice boards, locks for locking off switches, buss bar shutters in truck-type switchgear, isolators or earthing links, rubber sheet and length of rope with short circuiting earthing-chains, earthing sticks and testing/phasing sticks rated for the voltage of the equipment to be tested.

Under no circumstances shall work be carried out on electrical apparatus unless the proper safety equipment is used

With regard to overhead linesmen, no work shall be carried out unless use is made of a non-metallic ladder and the appropriate safety belt, rubber gloves, overalls, hardhat and safety shoes or boots are worn. The buddy system must also be implemented.

Earthing

Always safety test before applying earths

Risk assessment of the site must be reviewed at least every 30 days. Based on the effectiveness of the existing measures, the safety plan must be adjusted to meet the new or existing.

At completion of the electrical installation work in the tender, a test as required must be performed to ensure safe operation of the equipment and a signed original CoC be supplied to the client.

ADDENDUM A – GENERAL MINIMUM PPE REQUIREMENTS

Subject	Requirement
*PPE needs analysis	Need for PPE identified and prescribed in writing. PPE remain property of Employer, not to be removed from premises GSR 2(4)
*Head Protection	All persons on site wearing Safety Helmets including Sub-contractors and Visitors (where prescribed)
*Foot Protection	All employees on site wearing Safety Footwear including Gumboots for concrete / wet work and non-slip shoes for roof work. Visitors to wear same upon request or where prescribed
*Eye and Face Protection	Eye and Face (also Hand and Body) Protection (Goggles, Face Shields, Welding Helmets etc.) used when operating the following: * Jack/ Kango Hammers * Angle / Bench Grinders * Electric Drills (Overhead work into concrete / cement / bricks * Explosive Powered tools * Concrete Vibrators / Pokers * Hammers & Chisels * Cutting / Welding Torches * Cutting Tools and Equipment * Guillotines and Benders * Shears * Sanders and Sanding Machines * CO2 and Arc Welding Equipment * Skill / Bench Saws * Spray Painting Equipment etc.
*Hearing Protection	Hearing Protectors (Muffs, Plugs etc.) used when operating the following: * Jack / Kango Hammers * Explosive Powered Tools * Wood/Aluminium Working Machines e.g. saws, planers, routers
*Hand Protection	Protective Gloves worn by employees handling / using: * Cement / Bricks / Steel / Chemicals * Welding Equipment * Hammers & Chisels * Jack / Kango Hammers etc.
*Respiratory Protection	Suitable/efficient prescribed Respirators worn correctly by employees handling / using: * Dry cement * Dusty areas * Hazardous chemicals * Angle Grinders * Spray Painting etc.

*Fall Prevention Equipment	Suitable Safety Belts / Fall Arrest Equipment correctly used by persons working on / in unguarded, elevated positions e.g.: * Scaffolding * Riggers * Lift shafts * Edge work * Ring beam edges etc. Other methods of fall prevention applied e.g. catch nets
*Protective Clothing	All jobs requiring protective clothing (Overalls, Rain Wear, Welding Aprons etc.) Identified and clothing worn.
*PPE Issue & Control	Identified Equipment issued free of charge. All PPE maintained in good condition. (Regular checks). Workers instructed in the proper use & maintenance of PPE. Commitment obtained from wearer accepting conditions and to wear the PPE. Record of PPE issued kept on H&S File. PPE remain property of Employer, not to be removed from premises GSR 2(4)

SITE LOCATION MAP